

SmartWay SIP and Transportation Conformity Guidance:

Accounting for NO_x Reductions from Trailer Aerodynamic Kits and Low Rolling Resistance Tires

Guidance for State and Local
Air and Transportation Agencies



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Transportation and Regional Programs Division
Office of Transportation and Air Quality
U.S. Environmental Protection Agency

TABLE OF CONTENTS

| | |
|---|----|
| CHAPTER 1 Introduction | 5 |
| 1.1 What is the purpose of this guidance? | 5 |
| 1.2 Which SmartWay technologies are addressed by this guidance?..... | 6 |
| 1.3 What trucks can be part of a SmartWay project? | 7 |
| 1.4 How can NOx emission reductions from SmartWay projects be used to meet SIP and conformity needs?..... | 8 |
| 1.5 How does this guidance relate to the Voluntary Mobile Source Emission Reduction Program SIP guidance? | 9 |
| 1.6 How does this guidance relate to existing Clean Air Act requirements? | 9 |
| 1.7 Who should I contact for additional information? | 10 |
| | |
| CHAPTER 2 Quantifying Retrofit Emission Reductions | 13 |
| 2.1 How do I quantify emission reductions from SmartWay projects?..... | 13 |
| 2.2 What is NMIM and why does EPA recommend its use to quantify emission reductions from SmartWay projects? | 13 |
| 2.3 What are the uses and limitations of NMIM?..... | 15 |
| 2.4 Can I use NMIM to quantify emission reductions from SmartWay projects even if I am not using it to generate the local inventory?..... | 16 |
| 2.5 Can I use NMIM to estimate emission reductions from SmartWay projects for uses other than SIPs or conformity determinations?..... | 16 |
| 2.6 Where would I get estimates of specific SmartWay project information needed to quantify emissions reductions from a SmartWay project?..... | 17 |
| 2.7 How do I use NMIM to quantify emission reductions from SmartWay projects? | 17 |
| | |
| CHAPTER 3 Using Emission Reductions in SIPs | 25 |
| 3.1 What are the basic requirements for using emission reductions in SIPs?..... | 25 |
| 3.2 How can the estimated NOx emission reductions be used for SIP purposes?..... | 29 |
| 3.3 What would a state submit to EPA to meet the requirements for incorporating a SmartWay project in a SIP?..... | 29 |
| 3.4 What monitoring and record keeping should occur to document NOx emission reductions from SmartWay projects? | 30 |
| 3.5 What validation and reconciliation should occur for emission reductions in SIPs approved under the VMEP guidance? | 31 |
| 3.6 What penalties can EPA impose for not complying with Clean Air Act requirements?..... | 31 |

CHAPTER 4 Using Emission Reductions in Transportation Conformity Determinations33

4.1 What is transportation conformity?33

4.2 How can NOx emission reductions from SmartWay projects be included in transportation conformity determinations?.....34

CHAPTER 1

INTRODUCTION

(Note: As used in this document, the terms “we,” “us,” and “our” refer to the Environmental Protection Agency (EPA). The terms “you” and “your” refer to a state or local air pollution control agency or state or local transportation agency or other federal agency, as appropriate.)

1.1 What is the purpose of this guidance?

Economic prosperity in the United States is inextricably tied to the commercial movement of goods by truck. Trucks carry three-fourths of the value of freight shipped in the United States and two-thirds of the weight, according to the U.S. Department of Transportation’s Bureau of Transportation Statistics.¹ While essential to business and consumers, transporting goods by truck also consumes energy and produces pollution. Recognizing the importance of trucking to both the economy and to the environment, EPA has developed the SmartWay Transport program to reduce greenhouse gas emissions and air pollution from the ground freight transport industry, including long-haul diesel trucks.

The purpose of this guidance is to describe how to quantify and use reductions in nitrogen oxides (NO_x) that result when trucks are outfitted with two specific SmartWay fuel efficient technologies: low rolling resistance tires and trailer aerodynamic kits. This guidance describes how to apply these NO_x reductions in state implementation plans (SIPs) and in transportation conformity determinations. Therefore, this guidance could be of interest primarily to ozone and particulate matter (PM_{2.5} and PM₁₀) nonattainment and maintenance areas that are considering additional ways to reduce NO_x for reasonable further progress (RFP) SIPs, attainment demonstrations, or maintenance plans, or in transportation conformity determinations. EPA’s intent in producing this guidance is to facilitate the adoption of SmartWay projects as a cost-effective way to achieve needed NO_x emission reductions while ensuring that these projects meet SIP and conformity requirements.

The SIP and conformity policy elements of this guidance in Chapters 1, 3, and 4 are applicable to all states that have nonattainment or maintenance areas. However, the methodology that is described in Chapter 2 specifically applies to states that use EPA’s MOBILE and NONROAD models. State and local agencies developing SIPs and conformity analyses for California should consult EPA Region 9 for information on the

¹ http://www.bts.gov/press_releases/2005/bts003_05/html/bts003_05.html

current version of EMFAC approved for use in California and for information on how to quantify NOx reductions from the SmartWay technologies addressed by this guidance.

This guidance is focused on quantifying NOx reductions for SIP and conformity purposes and therefore has an intended audience of air quality and transportation planners. Other audiences may wish to use this guidance for quantifying NOx reductions for non-SIP or conformity purposes by reading Chapter 1 for background and referring to Chapter 2's Questions 2.4 through 2.7 of the guidance for quantifying emission reductions.

1.2 Which SmartWay technologies are addressed by this guidance?

This guidance pertains to a truck or truck fleet that is outfitted with both of the following two technologies:

- A. Trailer aerodynamic kits,² which would include the following:
 - air deflecting fairings on the bottom of each trailer side (“side skirts”), and
 - an air deflecting fairing on the front of the trailer (“gap reducer”); and
- B. Low rolling resistance tires,³ e.g., single-wide tires with aluminum or low-weight steel wheels on:
 - all trailer axles, and
 - all tractor drive axles. It is optional to also install low rolling resistance tires on the tractor steer axle.

These technologies would typically be applied to long-haul trucks that are used to move freight long distances, rather than trucks used for freight movement within a single nonattainment or maintenance area.

For the purposes of this guidance only, a project that includes these two technologies together will be referred to as a “**SmartWay project.**” A SmartWay project is defined as the purchase and installation of both the trailer aerodynamic kits and low rolling resistance tires on a truck or fleet of trucks, as described above. According to EPA’s SmartWay Technology Package Savings Calculator, the cost of adding the aerodynamic kits and low rolling resistance tires to a truck would be recuperated in fuel savings in about two years.⁴

² Please refer to EPA’s SmartWay website for more information, including a fact sheet on aerodynamics: http://www.epa.gov/otaq/smartway/smartway_fleets_strategies.htm#aero.

³ EPA will include on its SmartWay website a list of low rolling resistance tires that could be used to meet the terms of this guidance.

⁴ The SmartWay Technology Package Savings Calculator can be found at: <http://www.epa.gov/otaq/smartway/calculator/loancalc.htm>

This combination of aerodynamic kits and low rolling resistance tires is the only package of SmartWay fuel efficient technologies that has been evaluated for NO_x reductions thus far.⁵ SmartWay projects could be undertaken by a truck or truck fleet owner, or by state or local governments who are seeking to reduce NO_x for SIP or transportation conformity purposes.

EPA notes that a SmartWay project may be part of a larger Agency effort to provide incentives for private and public agencies or truck owners to apply “SmartWay Upgrade Kits” to a truck or fleet of trucks. A SmartWay Upgrade Kit can include idle reduction devices, retrofits for particulate matter, low rolling resistance tires, and trailer aerodynamic kits. EPA has issued previous SIP and conformity guidance for quantifying and using the benefits of idle reduction devices and retrofit projects.⁶ This document provides the remaining guidance needed for agencies to quantify and use the NO_x reductions from SmartWay Upgrade Kits in SIPs and conformity. Additional general information about the SmartWay Transport program can be found at: <http://www.epa.gov/smartway/swresources.htm>

This guidance document is based on the most current scientific information available on NO_x emission reductions from fuel efficient technologies on long-haul trucks. EPA’s Office of Transportation and Air Quality (OTAQ) intends to make available in the future a formal list of EPA-approved technologies that achieve fuel efficiency and produce NO_x emission reductions, including the technologies addressed by today’s guidance. It is possible that additional fuel efficient technologies which may evolve in the future could provide additional NO_x reductions. Please contact OTAQ if you have further technical information regarding fuel efficient technologies that may demonstrate additional NO_x reductions. EPA will review such information on a case-by-case basis. See Question 1.7 of this guidance document for OTAQ contact information.

1.3 What trucks can be part of a SmartWay project?

New emission standards will affect all 2007 and future model year on-road heavy-duty highway vehicles and engines. In general, this guidance applies to trucks manufactured before those standards take effect and that will not have to comply with EPA’s regulations for heavy duty trucks (i.e., pre-2007 model years). EPA does not believe that the SmartWay technologies described in Section 1.2 will result in significant

⁵ For more information regarding the testing program used to establish that the SmartWay aerodynamic fairings and low rolling resistance tires reduce NO_x, please see Bachman, L. Joseph, Anthony Erb, and Cheryl L. Bynum, “Effect of Single Wide Tires and Trailer Aerodynamics on Fuel Economy and NO_x Emissions of Class 8 Line-Haul Tractor-Trailers,” SAE Paper Number 05CV-45, 2005, found at the website: <http://www.epa.gov/smartway/documents/sae-05cv045-110105.pdf>

⁶ These two guidance documents, “Guidance for Quantifying Long Duration Truck Idling Emission Reductions in State Implementation Plans and Transportation Conformity” (EPA420-B-04-001, January 2004), and “Diesel Retrofits: Quantifying and Using Their Benefits in SIPs and Conformity - Guidance for State and Local Air and Transportation Agencies” (EPA420-B-06-005, June 2006), can both be found at EPA’s website: <http://www.epa.gov/otaq/stateresources/transconf/policy.htm#sips> .

additional NOx reductions for 2007 and later vehicles because of the NOx control strategies that will apply to them. However, you might be able to apply this guidance to some trucks with model years for 2007-2009, because the 2007 standard will be phased in and therefore not every truck manufactured in 2007, 2008, or 2009 will be required to meet the 2007 standard initially. Please check with EPA before including any trucks with model years for 2007-2009 in a project.

1.4 How can NOx emission reductions from SmartWay projects be used to meet SIP and conformity needs?

This document describes two options for using NOx emission reductions from these projects to meet both near term and longer term SIP and conformity needs.

1.4.1 SIPs

One option is to use NOx reductions from SmartWay projects to help demonstrate RFP, attainment, or maintenance in upcoming SIP submissions. To be included in a SIP, NOx reductions from SmartWay projects must meet the same SIP requirements as any other control measures. This guidance document provides the necessary information to include NOx reductions from SmartWay projects in a SIP⁷, including a calculation method that ensures that emission reductions calculated for the SmartWay project are consistent with the rest of the SIP.

State and local agencies can consider including NOx reductions from SmartWay projects especially in SIPs being developed to meet current ozone and PM_{2.5} air quality standards. General SIP requirements are described in Chapter 3 of this document.⁸

1.4.2 Transportation conformity

Alternatively, state and local agencies could use NOx reductions from SmartWay projects to meet transportation conformity requirements now or in the future, with little additional effort beyond what is required to properly implement the project and quantify the emission reductions. These reductions could be incorporated into a transportation

⁷ In this guidance, the term “SIP” could mean an initial SIP developed to show RFP, attainment, or maintenance, or a revision to such a SIP.

⁸ Note that if a SmartWay project is included in a SIP, it would not be considered a transportation control measure (TCM) for the purposes of demonstrating timely implementation for transportation conformity, because the definition of TCM in the transportation conformity regulation at 40 CFR 93.101 specifically excludes it: “Notwithstanding the first sentence of this definition, vehicle technology-based, fuel based, and maintenance-based measures which control the emissions from vehicles under fixed traffic conditions are not TCMs for the purposes of this subpart.” Therefore, the regulations at 40 CFR 93.113 do not apply to SmartWay projects, and SmartWay projects are not covered by Clean Air Act 176(c)(8) which allows TCMs to be added or replaced in an approved SIP.

conformity determination without making any change in the SIP. Chapter 4 of this document explains transportation conformity requirements.

1.5 How does this guidance relate to the Voluntary Mobile Source Emission Reduction Program SIP guidance?

In October 1997, EPA issued its “Guidance on Incorporating Voluntary Mobile Source Emission Reduction Programs in State Implementation Plans (SIPs)” (the VMEP guidance).⁹ The purpose of the 1997 VMEP guidance is to support innovative methods in achieving emission reductions for SIPs. The VMEP guidance applies to SIP emission reduction measures that rely on voluntary actions of individuals and other parties, including non-governmental parties. EPA anticipates that many SmartWay projects will fall into the voluntary category, e.g., projects undertaken by fleet owners or operators. However, a state-funded SmartWay project included in a SIP may not fall under the VMEP guidance if it has well-defined requirements to ensure its full implementation as a SIP program. For example, a state program to adopt a SmartWay project for state owned trucks would not be subject to the VMEP guidance. Please consult your EPA Region early in the development of a SmartWay project to determine the appropriate use of the VMEP guidance.

Under the VMEP guidance, the amount of emission reductions allowed for voluntary mobile measures in a SIP is presumptively capped at three percent of the total projected future year emission reductions required to attain the applicable air quality standards. EPA acknowledges that some areas may be able to demonstrate that voluntary measures may achieve credible reductions higher than the three percent cap. In that case, EPA will re-evaluate that cap on a case-by-case basis and allow the cap to be exceeded if the cap hinders the implementation of effective voluntary control measures, subject to notice and comment during SIP approval. Today’s guidance relies on EPA’s 1997 VMEP guidance for voluntary SmartWay projects. Interested parties should refer to that guidance at the time a specific SmartWay project is under development.

1.6 How does this guidance relate to existing Clean Air Act requirements?

This document provides guidance to state and local air pollution control agencies, transportation agencies, metropolitan planning organizations (MPOs), and the general public on quantifying and using SmartWay projects to reduce NOx emissions in SIPs and transportation conformity determinations. SIP requirements can be found in Clean Air Act sections 110(a)(2) and 172(c). Transportation conformity requirements can be found in Clean Air Act section 176(c) and 40 CFR Parts 51 and 93. This guidance document

⁹This guidance is found at: http://www.epa.gov/otaq/stateresources/policy/pag_guidance.htm. EPA notes that the VMEP guidance pertains to SIP measures, rather than transportation or general conformity determinations. Control measures for conformity determinations must meet the relevant criteria in the transportation conformity regulation (40 CFR Parts 51 and 93).

does not substitute for those provisions, nor is it a regulation itself. It does not by itself impose binding, enforceable requirements on any party. Further, it does not assure that EPA will approve all instances of its application, and thus the guidance may not apply to a particular situation based upon the circumstances. The EPA and state decision makers retain the discretion to adopt approaches on a case-by-case basis that differ from this guidance where appropriate and consistent with the statute and applicable regulations. Any decisions by EPA regarding a particular SIP demonstration will only be made based on the statute and applicable regulations, and following notice and opportunity for public review and comment.

Where specific recommendations are provided, you should consider whether or not such recommendations are appropriate for your particular project or situation. This guidance may be revised periodically without public notice. EPA welcomes public comments on this document at any time and will consider those comments in any future revisions of this guidance document.

Readers of this document are cautioned not to regard statements recommending the use of certain procedures as either precluding other procedures or information or providing guarantees that using these procedures will result in actions that are fully approvable. As noted above, EPA cannot assure that actions based upon this guidance will be fully approvable in all instances, and all final SIP actions may only be taken following notice and opportunity for public comment.

1.7 Who should I contact for additional information?

If this guidance document does not answer a specific question, please contact the appropriate EPA Regional Office with responsibility for air quality planning and/or transportation conformity in the area where the SmartWay project is located. A contact list of the EPA Regions is available at the following web address: <http://www.epa.gov/epahome/locate2.htm>. In addition, contact information for EPA regional transportation conformity staff can be found at the following website: <http://www.epa.gov/otaq/stateresources/transconf/contacts.htm>.

For additional information about the SmartWay Transport program, please contact Cheryl Bynum of EPA's Office of Transportation and Air Quality at (734) 214-4844, bynum.cheryl@epa.gov.

For technical questions regarding the use of the National Mobile Inventory Model (NMIM) for calculating emission reductions from SmartWay projects, please contact EPA's Office of Transportation and Air Quality at mobile@epa.gov.

For general questions concerning the use of NO_x reductions from SmartWay projects in SIPs or in transportation conformity, please contact Laura Berry of EPA's Office of Transportation and Air Quality at (734) 214-4858, berry.laura@epa.gov; or

Gary Dolce also at EPA's Office of Transportation and Air Quality at (734) 214-4414,
dolce.gary@epa.gov.

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CHAPTER 2

QUANTIFYING EMISSION REDUCTIONS FROM SMARTWAY PROJECTS

2.1 **How do I¹⁰ quantify emission reductions from SmartWay projects?**

For states other than California, EPA recommends the use of the National Mobile Inventory Model (NMIM) to estimate emission reductions from SmartWay projects for SIPs and for transportation conformity analyses. NMIM is the recommended method because it estimates the impact of a SmartWay project for the particular model years that it applies to under local conditions. Due to the nature of the aerodynamic kits and low rolling resistance tires, emission reductions from SmartWay projects will vary based on the average speed of the vehicles. The method described here accounts for the variable impacts of the SmartWay equipment described in Section 1.2 based on average speeds of vehicles on different roadway types.

The NO_x reductions by speed provided in the table in Section 2.7.1.6 of this Chapter should be applied to class 8 tractor-trailer (combination) trucks with the SmartWay aerodynamic fairings and low rolling resistance tires described in Section 1.2 of the model years specified in Section 1.3 in any state, including California. However, NMIM may not be appropriate to derive emission factors for fleets of trucks in California. State and local agencies developing SIPs and conformity analyses for California should consult with EPA Region 9 for information on the current version of EMFAC approved for use in California and for information on how to apply the emission reductions given in Section 2.7.1.6 to EMFAC emission factors.

2.2 **What is NMIM and why does EPA recommend its use to quantify emission reductions from SmartWay projects?**

NMIM is a graphical user interface that contains the MOBILE6.2 and NONROAD2005 models and a database of county-level input information, the National County Database (NCD) (note cautions about the use of the NCD in Question 2.3). NMIM2005 is capable of producing monthly inventories by source classification code (SCC) and county for every state, but should not be used for California, which has its own modeling tools. NMIM was created to simplify the process of developing county-by-county emissions inventories for multi-county areas, states, or the entire nation. When using NMIM, users can simply select the year, months, and county or counties they wish to evaluate. Since NMIM includes county-level information, it will automatically create MOBILE6.2 input files, run MOBILE6.2, and multiply the emission

¹⁰ The intended audience for this chapter is state and local air quality and transportation planners who are already familiar with how SIP inventories and transportation conformity determinations are developed. For readers less familiar with this subject matter, please note that Section 1.7 contains contact information if you have additional questions.

factors by vehicle miles traveled (VMT) to produce highway vehicle emissions inventories for each county for each month.¹¹ NMIM will also automatically create NONROAD2005 input files, run NONROAD2005, and produce nonroad equipment emissions inventories for each county for each month. NMIM also provides a post-processing module that will aggregate the months into an annual inventory and produce tab-delineated output that can be read into database or spreadsheet software applications.

Because NMIM provides a graphical user interface for MOBILE6.2 and NONROAD2005, new and past users of these models may find that NMIM is an easier way to use MOBILE6.2 and NONROAD2005. Input options and output results from NMIM will be familiar to air quality and transportation agency professionals who have used MOBILE6.2 and/or NONROAD2005 in the past to create emissions inventories for use in SIPs or transportation conformity determinations.

NMIM2005 includes the capability to model retrofit projects, a capability that does not exist in MOBILE6.2. The post-processors in NMIM include retrofit modules that allow you to specify the details of a retrofit project. These retrofit modules take emission factors generated by MOBILE6.2 and apply adjustments to those emission factors or inventories to reflect the specifics of the retrofit project as described in a user-generated input file. The resulting emission factors are used to generate emissions estimates for the project.

While SmartWay projects are not retrofit projects, the retrofit modules in NMIM can be adapted to easily calculate emission reductions from SmartWay projects. For example, if the input file indicates that the SmartWay equipment described in Section 1.2 was installed in 2005 on 1998 model year class 8 trucks and you want to estimate the emissions of these trucks in 2010, NMIM will apply the appropriate adjustments to only the emissions of model year 1998 class 8 trucks in 2010 when generating an emission estimate. Because NMIM can be run using the same local inputs as used in the SIP, NMIM can calculate emission reductions from a SmartWay project based on the same conditions used to generate the rest of the inventory used in the SIP or conformity analysis.

EPA recommends NMIM for assessing the emission reductions from SmartWay projects for SIP and conformity purposes. However, EPA acknowledges that alternative methods to NMIM are available and others may be developed. Alternative approaches will be reviewed by EPA on a case-by-case basis. Please provide EPA with all relevant technical support documentation, including the assumptions and other relevant information used to calculate emission reductions so EPA has the information necessary to make a decision. Also, any alternative approach must use the latest information as required by applicable SIP and conformity requirements.

¹¹ “EPA’s National Mobile Inventory Model (NMIM), a Consolidated Emissions Modeling System for MOBILE6 and NONROAD,” H. Michaels, et al. U.S. EPA, <http://www.epa.gov/otaq/models/nmim/420r05024.pdf>.

2.3 What are the uses and limitations of NMIM?

EPA's current approved model for estimating emissions from highway vehicles for SIP and conformity purposes in states other than California is MOBILE6.2. NMIM incorporates MOBILE6.2 along with pre- and post-processors, similar to those that many states have developed on their own, that simplify the process of inventory preparation. NMIM is not considered a new emissions model and does not start a new transportation conformity grace period pursuant to 40 CFR 93.111. Because NMIM incorporates MOBILE6.2 and NONROAD2005, it may be used to generate emissions inventories for SIPs and conformity analyses or it may just be used to estimate emission reductions from retrofit or SmartWay projects, as discussed in Section 2.4. For general SIP and conformity inventory preparation, the pre- and post-processors in NMIM may have advantages or disadvantages in various areas or applications compared to pre-existing methods. Therefore, before using NMIM for general SIP and conformity inventory preparation, state and local air quality and transportation agencies should work together with EPA and DOT to determine whether NMIM is appropriate given local conditions and modeling methods, and to determine what modifications are needed to the NMIM database to accurately model local conditions.

The use of NMIM is not required for general inventory preparation for SIPs or regional conformity analyses. Some areas may choose not to use NMIM simply because it does not provide a significant resource advantage compared to pre- and post-processing methods already being used. In addition, the use of NMIM may not be appropriate to generate emissions inventories in all areas. For example, some areas may already be using more sophisticated methods for pre- and post-processing input and emissions data than NMIM can accommodate. In that case, state and local agencies should not use NMIM for inventory development, but should continue to use the more appropriate modeling already being conducted in the area. Those agencies should still use NMIM for estimating emission reductions from retrofit or SmartWay projects.

States have provided information for the National County Database (NCD) as part of the National Emissions Inventory (NEI) development process. However, given the NEI cycle, this may not be the most recent or best available information at the time a state initiates modeling. For SIPs and regional conformity analyses, state and local agencies should review the information in the NCD to evaluate whether it includes the latest and best information currently available including latest planning assumptions where applicable. Where more current information is available, you must modify the database to incorporate that information in your analysis to meet regulatory requirements for the use of latest planning assumptions in SIPs and conformity determinations. (In addition to updating the NCD for your project, EPA also encourages states to separately submit updates to the NCD to EPA so that the most accurate database is available for both national and local inventory development.) The NCD works at the county level and will need to be modified to account for areas containing partial counties, if necessary. The NCD also does not contain VMT estimates for future years, so any use of NMIM for a future evaluation year will have to include a projection of future VMT. The interagency consultation process should be used to evaluate whether the use of NMIM is

appropriate in a given area, and to evaluate what changes are needed in the NMIM database for the area.

If you are using NMIM to develop inventories for SIPs or conformity, and have made certain that the appropriate local conditions have been entered in the NMIM database, entering the appropriate SmartWay project inputs as described below will ensure that SmartWay project reductions are incorporated in the inventory. In order to calculate the emission reductions from SmartWay projects, you will have to run NMIM twice - a base case without the SmartWay project and a control case with the SmartWay project and with all other NMIM inputs unchanged. You would then calculate the difference between these two inventories to determine the emission reductions from the SmartWay project.

2.4 Can I use NMIM to quantify emission reductions from SmartWay projects even if I am not using it to generate the local inventory?

Yes, even if NMIM is not being used for inventory development, EPA recommends that you use it for the calculation of emission reductions for SmartWay projects. Because NMIM uses MOBILE6.2 to develop estimates of reductions from SmartWay projects, emission reductions calculated using NMIM should be consistent with the rest of the local inventory. When using NMIM solely to calculate emission reductions from SmartWay projects, you should first make sure that all NMIM inputs in the base case (i.e., the case without the SmartWay project in place) are as consistent as possible with the MOBILE6.2 inputs being used to generate the inventory used in the SIP or conformity analysis. You should use those same inputs, along with those needed to describe the SmartWay project, for the control case. Given that some differences in inputs and effects of pre- and post-processors may result in differences between emissions calculated using NMIM compared to other inventory methods, NMIM SmartWay project reductions should be calculated as a percentage reduction to the affected fleet, which can then be converted to mass reduction by multiplying by the total emissions for the affected fleet derived from the local inventory.

2.5 Can I use NMIM to estimate emission reductions from SmartWay projects for uses other than SIPs or conformity determinations?

Yes. NMIM could also be used to evaluate SmartWay projects for other purposes, such as the development of proposals for SmartWay projects. For these purposes, NMIM users could rely more on default data in NMIM or other more simplified methods for using NMIM than would otherwise be necessary for SIP or conformity purposes. Other, more simplified approaches that do not rely on NMIM may also be appropriate for non-SIP or conformity uses. You should be aware that these simplified methods may result in emission reduction estimates that are not completely consistent with emission reductions calculated for SIP or conformity purposes using more rigorous methods. Consultation between organizations developing project proposals and

state and local air quality and transportation agencies about appropriate methods and interpretation of results is important to ensure that SmartWay projects are properly evaluated.

2.6 Where would I get estimates of specific SmartWay project information needed to quantify emissions reductions from a SmartWay project?

As described in the following sections, in order to quantify emission reductions from a SmartWay project, you will need specific information about the trucks in the project and their activity in the nonattainment area. Details of the implementation of the SmartWay project, such as the first and last years of implementation, the percentage of the fleet receiving the SmartWay equipment described in Section 1.2 each year, and the model years of the trucks getting this equipment should be readily available in the project documentation.

Estimates of VMT needed for quantifying the NO_x reductions from SmartWay projects could come from a variety of sources, including global positioning systems (GPS) on the trucks themselves, trucker logs, maintenance records, or fuel records. In the absence of this kind of information, the interagency consultation process¹² should be used to determine the best available information to account for activity in the calculation of emission reductions from a SmartWay project. In the absence of better information, agencies could agree to use local average estimates of vehicle VMT for the class and model year of vehicles included in the SmartWay project.

Estimates of average vehicle speeds needed to determine the appropriate emissions reduction can be based on average speeds by roadway type for class 8 trucks in the nonattainment area as used to develop the SIP inventory. If specific speed information for the SmartWay project trucks operating in the nonattainment area is available (i.e., through the use of GPS or other similar technology), this information could be used in place of average speeds for determining the appropriate emission reduction by roadway type. The interagency consultation process should be used to determine the best available information to account for activity in the calculation of emission reductions from a SmartWay project.

2.7 How do I use NMIM to quantify emission reductions from SmartWay projects?

The NMIM User Guide (available at <http://www.epa.gov/otaq/nmim.htm>) provides details of how to use the retrofit modules within NMIM. Note that throughout the NMIM User guide, the term “retrofit” is used to describe the input files and

¹² The transportation conformity regulations at 40 CFR 93.105 establish general procedures for interagency consultation on the development of SIPs, transportation plans and TIPs, and transportation conformity determinations. Many states have adopted conformity SIPs which further tailor these procedures. Consult your EPA Regional Office if you are unsure whether your state has a conformity SIP.

parameters used by the retrofit modules. Since this quantification method for SmartWay projects relies on the use of the retrofit module in NMIM, the terminology used in this guidance document will be consistent with the terminology used in the NMIM User Guide. SmartWay projects should be modeled as “fleet specific” projects, and the rest of this section indicates what information is necessary.

As discussed in detail in the NMIM User Guide, the specifics of a highway retrofit project are described in an input file called the “Onroad Retrofit Parameters File.” In addition, you will need a second input file called the “Onroad Fleet Information Parameters File” to describe in detail the specific fleets affected by the SmartWay project.

2.7.1 The Onroad Retrofit Parameters File

The Onroad Retrofit Parameters File is used to describe the details of the SmartWay project. These include inputs that specify:

- the pollutant affected by the SmartWay project,
- the vehicle types affected,
- the calendar years during which the SmartWay equipment described in Section 1.2 is installed,
- the model years of the vehicles that will be part of the SmartWay project,
- the percentage of the fleet that will be part of the SmartWay project per year, and
- the percentage effectiveness of the SmartWay equipment described in Section 1.2.

Details on the use of these inputs are described in the NMIM User Guide. Specific guidance on these inputs, where applicable, is given below.

2.7.1.1 Pollutants affected by the retrofit project

While NMIM allows you to enter the entire range of pollutants for which MOBILE6.2 and NONROAD2005 provide emissions estimates, the only pollutant affected by SmartWay projects in SIPs and conformity analyses is NO_x. Therefore, users should enter only NO_x for this input at this time.¹³

2.7.1.2 Vehicle types affected

The SmartWay equipment described in Section 1.2 can only be installed on class 8 diesel trucks and their trailers and therefore, this is the only category of vehicles for which reductions can be taken in a SIP or conformity analysis. Users should enter HDDV8a and HDDV8b to calculate reductions for these vehicles.

¹³ Only NO_x should be input here because NO_x is the only pollutant for which SmartWay projects have been evaluated for SIP and conformity purposes.

2.7.1.3 Initial and final calendar years of retrofit implementation

These inputs are used to describe the first and last year of implementation of the SmartWay project. For example, if the SmartWay equipment described in Section 1.2 was installed on trucks in a fleet over a multi-year period, enter the first and last year the equipment is installed.

2.7.1.4 Initial and final model years retrofitted

These inputs are used to describe the first and last model years of the trucks in the SmartWay project. Because the effects of the SmartWay equipment described in Section 1.2 on the emissions of trucks with significant after-treatment controls installed is not yet known, for SIPs and conformity determinations, reductions would typically not be applied to trucks with model years later than 2006.

2.7.1.5 Percentage of the fleet retrofit per year

This input is used together with the inputs described in section 2.7.2.3 to describe the implementation of the SmartWay project. If the SmartWay project is implemented over a multi-year period, use this input to specify the percentage of the fleet that will get the SmartWay equipment described in Section 1.2 each year. For example, if the initial and final calendar years of implementation are 2007 and 2009 and the percentage of the fleet getting the SmartWay equipment described in Section 1.2 each year is 20%, NMIM will calculate emissions for a fleet in which 20% of the fleet gets the SmartWay equipment described in Section 1.2 in 2007, 20% in 2008, and 20% in 2009.

2.7.1.6 Percentage effectiveness of the retrofit

This input is used to specify the percentage emission reduction associated with the SmartWay project. However, unlike retrofit projects, the emission reductions associated with SmartWay projects vary by vehicle speed. Based on vehicle testing, EPA has determined the following relationship between average vehicle speed and NO_x reductions from SmartWay projects. This table should be used to determine the appropriate emission reduction associated with a particular average speed. NO_x reductions for intermediate average speeds can be rounded to the nearest value in the table or interpolated.

NOx Reductions Associated with Average Speeds:

| Speed (mph) | %NOx reduction |
|-------------|----------------|
| 5 | 2.0 |
| 10 | 2.3 |
| 15 | 2.6 |
| 20 | 3.0 |
| 25 | 3.5 |
| 30 | 4.0 |
| 35 | 4.6 |
| 40 | 5.2 |
| 45 | 6.0 |
| 50 | 6.8 |
| 55 | 7.8 |
| 60 | 9.0 |
| 65 | 10.3 |

NMIM produces output for vehicles on each of twelve roadway types. For SIPs and conformity determinations, the NOx reductions used should be based on the average speeds used in the SIP or conformity analysis for class 8 trucks on each of the twelve roadway types specified by NMIM. For example, if the average speed used in the SIP for class 8 trucks on rural interstates is 65 mph, the NOx reduction for trucks that are part of a SmartWay project on rural interstates is 10.3%. Because NMIM only allows a single percentage effectiveness to be applied in any one run, it may take multiple NMIM runs to get the appropriate reductions on all roadway types. There are two possible approaches to doing the NMIM runs:

1. Do separate NMIM runs for each roadway type. For the first run, enter the appropriate percentage reduction in the retrofit parameter file based on the average speed of class 8 trucks on rural interstates. In the NMIM output, use only the total emissions for class 8 trucks on rural interstates. Repeat for rural principal arterials, using the appropriate percentage reduction based on the average speed of class 8 trucks on rural principal arterials and taking the output only for that roadway type. Continue for each of the other roadway types.

Under this approach, it would take as many as twelve NMIM runs to develop a new inventory with the SmartWay project in place. It could take fewer if some of the roadway types have the same average speed.

2. Do two NMIM runs – one base case run with no SmartWay project in place and a second run with the retrofit parameter file that describes the SmartWay project and with the percentage effectiveness set to 100%. Take the output from the two runs for class 8 trucks by roadway type and calculate the difference for each roadway type (i.e., subtract the class 8 rural interstate

emissions with 100% effectiveness from the base case class 8 rural interstate emissions). The result is the total emissions for trucks in the SmartWay project on rural interstates. Multiply that result by the appropriate percentage reduction from the table above based on the average speed of class 8 trucks on rural interstates in the nonattainment area. Repeat for each of the other roadway types.

Under this approach, only two NMIM runs are required, but additional time and effort are required to post-process the results.

Properly done, either approach is acceptable for SIPs and conformity analyses. Regardless of the approach used, speeds used in the analysis should be consistent with average speeds for class 8 trucks for each roadway type used in the SIP. Within a nonattainment area, each roadway type might actually have multiple average speeds based on time of day or location (i.e., some urban interstate links may have different average speeds than others). For purposes of this analysis, a single average speed for each roadway type is acceptable as long as it is calculated on a VMT-weighted basis from the speeds used in the SIP.

Note that under either approach, it is not necessary to know the actual average speeds of the specific trucks that are in the SmartWay project. The general method outlined here is based on the assumption that trucks in a SmartWay project have similar activity to all other class 8 trucks in the nonattainment area, i.e., they travel at the same average speed on a particular roadway type and their VMT is distributed across the different roadway types proportionally to the total distribution of class 8 VMT. If you believe that the trucks in the SmartWay project have different average speeds or VMT distribution than other class 8 trucks in the nonattainment area and you want to account for that in a SIP or conformity analysis, you would need to document the methods and information used to develop alternative speeds and VMT distributions. The interagency consultation process should be used to determine the best approach for your local area.

2.7.2 The Fleet Information Parameters File

The file for on-road fleet information is used to provide details of specific fleets of vehicles that are part of a SmartWay project. This file should be used, along with the retrofit parameter file described above, when quantifying the emission reductions from SmartWay projects. This file includes inputs for:

- vehicle class,
- model year,
- number of vehicles, and
- annual VMT per vehicle.

Details on the use of these inputs are described in the NMIM User Guide. Specific guidance on these inputs where applicable is given below. For any SmartWay project, you should be able to enter detailed information for all of these inputs. Note that

these files only describe characteristics of a fleet of vehicles; they do not describe any details of a SmartWay project. When quantifying the reductions for a SmartWay project, the fleet information parameter files are used to describe the specific fleet, while the retrofit parameter files are used to describe the SmartWay project applied to that fleet. When used without retrofit parameter files, the fleet information files can be used to simply quantify the emissions for any specific fleet of vehicles or engines.

2.7.2.1 *Vehicle class parameters*

Users should enter HDDV8a and HDDV8b because SmartWay projects only apply to class 8 diesel trucks.

2.7.2.2 *Model year*

The fleet information file will have one input line for each model year in the SmartWay project. Typically, the 2006 model year will be the last model year that can be part of a SmartWay project.

2.7.2.3 *Number of vehicles*

The number of vehicles entered for the specific fleet should be based on the calendar year for which emission estimates are being calculated. When estimating emissions for a specific fleet of trucks that are part of a SmartWay project in the current year, this is the current size of the fleet of trucks with the SmartWay equipment described in Section 1.2. However, in future years the fleet of affected vehicles may become smaller as some vehicles in the fleet are scrapped while other newer vehicles that are not part of the SmartWay project may be added to the fleet. MOBILE6.2 includes the effects of normal attrition when projecting future emissions for the entire fleet (e.g., the model assumes that the number of 1998 model year vehicles decreases in each future year). However, these effects are not applied to the number of vehicles entered in the fleet information file for a specific fleet (e.g., if your input file indicates that you have twenty 1998 model year vehicles in your SmartWay project fleet in 2005, NMIM will assume twenty 1998 model year vehicles in any future year that you model).

Unless you have reason to believe that all the trucks that are part of the SmartWay project would still be in the fleet by the calendar year that is being evaluated, reduce the input for number of vehicles appropriately.

Example: Trucking Company A will install SmartWay aerodynamic fairings and low rolling resistance tires as described in Section 1.2 on 100 trucks in the year 2007. Trucking Company A intends to sell half of these trucks to other trucking firms in 2010, and replace them with brand new model year 2010 trucks.

Suppose the emissions estimates are needed for 2009 and 2015. For this SmartWay project, you would enter the following information in the Fleet Information Parameters File input file for Number of Vehicles:

Number of vehicles in 2009: 100
Number of vehicles in 2015: 50

2.7.2.4 Average annual mileage

The VMT entered for the specific fleet should be based on the activity that actually occurs within the nonattainment or maintenance area to which the SIP or conformity analysis applies. For a SmartWay project applied to a fleet of long-haul trucks, you must not include VMT that occurs outside the nonattainment or maintenance area.

The activity level (VMT or hours of use) entered for the specific fleet should be based on the calendar year for which emission estimates are being calculated. When estimating emissions for a specific fleet in a current year, this is the current activity level of the fleet. However, in future years, the activity level of the affected vehicles in the fleet may change as older vehicles are often used less than newer ones. MOBILE6.2 includes the effects of decreased activity with age when projecting future emissions for the entire fleet (e.g., MOBILE6.2 assumes that the activity of 1998 model year vehicles decreases in each future year). However, these effects are not applied to the activity levels entered in the fleet information file for a specific fleet (e.g., if your input file indicates that 1998 model year vehicles are driven 100,000 miles in 2005, NMIM will assume that 1998 model year vehicles are driven 100,000 miles in any future year that you model). Unless you have reason to believe that activity levels of vehicles currently in the specific fleet would not have changed by the calendar year that is being evaluated, you should account for this lowered activity by reducing the input for VMT or hours of use appropriately.

Specific information on the VMT or hours of use of vehicles that are part of a SmartWay project may be available from maintenance records, user logs, or fuel records. In the absence of this kind of information, the interagency consultation process should be used to determine the best available information to account for activity in the calculation of emission reductions from a SmartWay project. In the absence of better information, agencies could agree to use local average estimates of vehicle VMT for the class and model year of vehicles included in the SmartWay project.

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CHAPTER 3

USING EMISSION REDUCTIONS IN SIPS

3.1 What are the basic requirements for using emission reductions in SIPS?

In order to be approved as a control measure that provides NO_x emission reductions in a SIP, a SmartWay project would need to be consistent with SIP RFP, attainment, or maintenance requirements and other requirements of the Clean Air Act, as appropriate. The SmartWay project must provide emission reductions that meet the basic SIP requirements:

- quantifiable,
- surplus,
- federally enforceable,
- permanent, and
- adequately supported.

These requirements are described below. You will notice information under both “SIP Requirement” and “Specific Recommendations” headings. The “SIP Requirement” heading refers to requirements under Clean Air Act section 110 concerning SIPs that are mandatory. The “Specific Recommendations” headings include our recommendations for implementing a SmartWay project. While these recommendations are not binding, they may provide appropriate safeguards and considerations for a successful SmartWay project.

3.1.1. Quantifiable -

SIP Requirement: The NO_x emission reductions from a SmartWay project are quantifiable if they are measured in a reliable manner and can be replicated (e.g., the assumptions, methods, and results used to quantify emission reductions can be understood). NO_x reductions must be calculated for the time period during which the reductions will occur and will be used for SIP purposes.

Specific Recommendations:

- In general, quantifying the NO_x reductions from installing the SmartWay equipment described in Section 1.2 on trucks is fairly straightforward. You will need to document the NO_x reductions by providing all relevant data to EPA for review.
- Chapter 2 of this document provides you with EPA’s recommended method for quantifying NO_x reductions from SmartWay projects. You can use this methodology or you can submit your own methodology. If you submit your own methodology, we will review it and make a decision as to its appropriateness on a

case-by-case basis. If you choose to use an alternative method, we encourage you to engage the applicable EPA Region early.

3.1.2 Surplus -

SIP Requirement: Emission reductions are considered “surplus” if they are not otherwise relied on to meet other applicable air quality attainment or maintenance requirements for that particular NAAQS pollutant (i.e., there can be no double-counting of emission reductions). In the event that the SmartWay project is used to meet such air quality related program requirements, its NO_x reductions are no longer surplus and may not be used as additional emission reductions. Emissions from the trucks that will be part of a SmartWay project must be in the applicable mobile source emissions inventory before the NO_x reductions from that SmartWay project can be used for RFP, attainment or maintenance in a SIP.

3.1.3 Federally Enforceable -

SIP Requirement: A SIP SmartWay project must be enforceable, regardless of whether it is in the SIP as a voluntary measure or a mandatory one. However, the requirements for enforceability differ depending on whether the project is voluntary or mandatory.

Voluntary SmartWay projects. A voluntary SmartWay project is one that relies on voluntary actions of individuals or other parties for achieving emission reductions, rather than a required response to a state or local regulation. If your SmartWay project is a voluntary measure, it would be approved into the SIP under EPA’s VMEP guidance, and the state is responsible for assuring that the reductions quantified in the SIP occur. The state would need to make an enforceable SIP commitment to monitor, assess, and report on the emission reductions resulting from the voluntary measure and to remedy any shortfalls from forecasted emission reductions in a timely manner. Under the current VMEP guidance, the total of all voluntary mobile source measures (including SmartWay projects) may not exceed three percent of the total reductions needed to meet any requirements for RFP, attainment, or maintenance. EPA acknowledges that some areas may be able to demonstrate that voluntary measures may achieve credible reductions higher than the three percent cap provided by the VMEP guidance. In that case, EPA will re-evaluate that cap on a case-by-case basis and allow the cap to be exceeded if the cap hinders the implementation of effective voluntary control measures, subject to notice and comment during SIP approval. If you wish to have a SmartWay project approved as a voluntary measure, consult the 1997 VMEP guidance for further information.

Mandatory SmartWay projects. Where a control measure, such as a SmartWay project, is implemented as part of a rule or regulation for SIP purposes, it would be a mandatory measure. In this case, the SmartWay project would be considered federally enforceable only if it meets all of the following criteria:

- The emission reductions from the SmartWay project are independently verifiable.
- Violations are defined, as appropriate.
- You and EPA have the ability to enforce the measure if violations occur.
- Those liable for violations can be identified.
- Citizens have access to all the emissions-related information obtained from the responsible party.
- Citizens can file lawsuits against the responsible party for violations.
- Violations are practicably enforceable in accordance with EPA guidance on practicable enforceability.
- A complete schedule to implement and enforce the project has been adopted by the implementing agency or agencies.

If your SmartWay project is mandatory, then there is no cap on the amount of NO_x emission reductions that can be claimed as long as such reductions are supported and meet standard SIP enforceability requirements for mandatory measures and the baseline emissions are in the inventory.

3.1.4 Permanent -

SIP Requirement: The NO_x emission reductions produced by the SmartWay project must be permanent throughout the time period that the reductions are used in the applicable SIP.

- For a voluntary SmartWay project, the state would need to commit to monitor, assess, and report on the emission reductions resulting from a truck owner's voluntary application of SmartWay equipment. The emission reductions that result from a voluntary project are available only for the time covered by this commitment. For example, a state includes a voluntary SmartWay project in its SIP based on Trucking Firm A's commitment to install SmartWay equipment described in Section 1.2 on 100 trucks in its fleet. Trucking Firm A is expected to own these trucks for five years. Precluding any other stipulations or commitments, the state can only include the emission reductions from this voluntary SmartWay project for the five years that Trucking Firm A is expected to have the trucks. The state commits to monitor these 100 trucks while they are owned by Trucking Firm A. Once Trucking Firm A sells these trucks to Trucking Firm B, their emission reductions can no longer be included in the SIP, unless additional commitments can be obtained.
- For a mandatory SmartWay project, the time period that the emission reductions are used in the SIP can be no longer than the useful life of the trucks that are part of the SmartWay project, and may be less if the SmartWay equipment described in Section 1.2 is removed or not maintained over time.

Specific Recommendations:

- As stated in Chapter 1, SmartWay projects will typically involve truck fleets operating over long distances and thus only part of their travel occurs in the nonattainment or maintenance area. NO_x emission reductions claimed from such SmartWay projects should be limited to the fleets' activity (and the associated NO_x emission reductions) expected to occur within the nonattainment or maintenance area, as well as those accounted for in the inventory. Refer to Sections 2.6 and 2.7.2.4 for more information.
- If trucks that are part of a SmartWay project operate exclusively within the nonattainment or maintenance area, NO_x reductions from these trucks may be entirely applied to that area. Trucks that typically operate within a captive area may include State/local government owned trucks.
- For voluntary or mandatory SmartWay projects, you should demonstrate that the trucks outfitted with the SmartWay equipment described in Section 1.2 remain in use within the nonattainment or maintenance area for their useful life to the extent emission reductions are claimed.

3.1.5 Adequately Supported -

SIP Requirement: The state must demonstrate that it has adequate funding, personnel, implementation authority, and other resources to implement the SmartWay project on schedule.

Specific Recommendations:

- The state should ensure it has identified appropriate funds from a reliable funding source (e.g., a private trucking company submitting a letter to the state committing to install the SmartWay equipment described in Section 1.2 on a certain number of trucks).
- The state should ensure that the truck fleet operators correctly install and maintain the SmartWay equipment described in Section 1.2 according to the kit and tire manufacturers' recommendations.
 - Example: A private company has installed the SmartWay equipment described in Section 1.2 on 50 long-haul trucks. The state should ensure that such a company has staff that are properly trained to operate, maintain, and detect problems with the SmartWay equipment as appropriate.
- The state should assess and verify the status of the implementation of SmartWay projects and the associated emission reductions, as applicable for the duration of the NO_x reduction claimed.

3.2 How can the estimated NOx emission reductions be used for SIP purposes?

For your RFP, attainment, or maintenance SIP strategy, you can use NOx emission reductions that are expected to be generated from the SmartWay project by applying the following criteria:

- NOx emission reductions would be calculated as required in the SIP process for a given pollutant and standard.
 - For example, NOx reductions from SmartWay projects would be calculated in an 8-hour ozone SIP for tons reduced per day for a typical summer day within the ozone season.
 - In contrast, NOx reductions would be calculated on a tons per year basis for SIP inventories for the annual PM_{2.5} standard; state and local agencies should consult on what typical day is appropriate for SIP inventories for the daily PM_{2.5} standard.

- Any calculations would consider factors that may affect emission reductions and their surplus status over time, including changing patterns of operations or use, vehicle deterioration factors, SmartWay equipment useful life (i.e, useful life of the SmartWay aerodynamic fairings and low rolling resistance tires described in Section 1.2), and government emission standards. Note that if you use NMIM to quantify the NOx reduced from the project, government emission standards are automatically taken into account. Furthermore, NMIM gives you the opportunity to enter information to correctly account for other factors such as changes in the number and activity of the trucks in the affected fleet in the user input files. See Chapter 2 for more information about NMIM.

- Emission reductions would be commensurate with the level of activity from SmartWay project trucks within a given nonattainment or maintenance area as described in Question 3.1.4. For example, if SmartWay project trucks are operated partially within the nonattainment or maintenance area, the associated reductions from the SmartWay project would be limited to the activity that is expected to occur from such trucks within the nonattainment or maintenance area, as well as those accounted for in the inventory.

3.3 What would a state submit to EPA to meet the requirements for incorporating a SmartWay project in a SIP?

You would submit to EPA a written document that:

- Identifies and describes the SmartWay project, i.e., the number and type of trucks that will receive the SmartWay equipment described in Section 1.2, and the schedule on which the project will be implemented;

- Contains estimates of emission reductions attributable to the project, including the methodology and other technical support documentation used for your estimates. EPA recommends NMIM for assessing the emission reductions from SmartWay projects for SIP purposes. Please refer to Chapter 2 for detailed information about using NMIM for SmartWay projects. However, EPA acknowledges that alternative methods to NMIM are available and others may be developed. Alternative approaches will be reviewed by EPA on a case-by-case basis. Please provide EPA with all relevant technical support documentation, including the assumptions and other relevant information used to calculate emission reductions so EPA has the information necessary to make a decision. Also, any alternative approach must use the latest information as required by applicable SIP requirements;
- Contains either:
 - an enforceable commitment for the state to monitor, assess and report the resulting emission reductions if the project is developed under the VMEP guidance; or
 - federally enforceable requirements for the state to implement, track, and monitor the project.
- If the project is developed under the VMEP guidance, includes an enforceable commitment to remedy any SIP emission shortfall in a timely manner in the event that the project does not achieve the estimated emission reductions; and
- Meets all other requirements for SIPs under Clean Air Act sections 110 and 172.

3.4 What monitoring and record keeping should occur to document NO_x emission reductions from SmartWay projects?

3.4.1 What should the state air agency monitor and record?

Clean Air Act section 110(a)(2)(C) requires that submitted SIPs “include a program to provide for the enforcement of the measures” that the state adopts to reduce emissions. A state's decision about whether a measure needs to be enforced will depend on the state's knowledge of the emission reductions achieved by the measure. Therefore, this Clean Air Act requirement for a program that provides for enforcement makes it necessary for states to monitor measures that they include in their SIPs, including SmartWay projects.

EPA recommends that for each truck outfitted with the SmartWay equipment described in Section 1.2 , the state air agency or another responsible party should monitor and record the following information, where applicable, for each time period for which an emission reduction is generated:

- Actual use and operation of the truck;
- Proper installation of the aerodynamic kit and low rolling resistance tires at project initiation; and
- Proper training of truck operators and technicians at project initiation.

Monitoring and recording these data is one way to ensure that the statute is met. A state can propose other methods of monitoring and recording data in its SIP submission, and EPA would consider whether or not it would be sufficient to meet Clean Air Act requirements.

3.4.2 How long should the state air agency maintain records?

Under 28 U.S.C. 2462, the government has five years to bring an enforcement action or suit for the failure to implement a measure in a SIP. Based on this statute of limitations, all information to be monitored and recorded in accordance with this guidance for existing SIP requirements should be maintained by the state air agency or another responsible party for a period of no less than five years, or longer where appropriate.

3.5 What validation and reconciliation should occur for emission reductions in SIPs approved under the VMEP guidance?

The SIP submission for a voluntary measure should contain a description of the evaluation procedures and time frame(s) in which the evaluation of SIP reductions will take place. Once the voluntary control measure is in place, emission reductions should be evaluated by you as required to validate the actual emission reductions. You should submit the results of your evaluation to EPA in accordance with the schedule contained in the SIP. If the review indicates that the actual emission reductions are not consistent with the estimated emission reductions in the SIP, then the amount of emission reductions in the SIP should be adjusted appropriately or applicable remedial measures should be taken under the VMEP guidance. See EPA's VMEP guidance for further information regarding validation and reconciliation requirements for such measures.¹⁴

3.6 What penalties can EPA impose for not complying with Clean Air Act requirements?

Use of this guidance does not relieve you of any obligation to comply with all otherwise applicable Clean Air Act requirements, including those obligations pertaining to the use of emission reductions in your SIP, such as emission reductions for your

¹⁴ This guidance is found at: http://www.epa.gov/otaq/stateresources/policy/pag_guidance.htm. EPA notes that the VMEP guidance pertains to SIP measures, rather than transportation or general conformity determinations. Control measures for conformity determinations must meet the relevant criteria in the transportation conformity regulation (40 CFR Parts 51 and 93).

attainment demonstration or maintenance plan. Violations of Clean Air Act requirements are subject to administrative, civil, and/or criminal enforcement under Clean Air Act section 113, as well as to citizen suits under Clean Air Act section 304. The full range of penalty and injunctive relief options would be available to the federal or state government (or citizens) bringing the enforcement action.

CHAPTER 4

USING EMISSION REDUCTIONS IN TRANSPORTATION CONFORMITY DETERMINATIONS

4.1 What is transportation conformity?

Transportation conformity is required under Clean Air Act section 176(c) (42 U.S.C. 7506(c)) to ensure that federally supported highway and transit project activities are consistent with (“conform to”) the purpose of the SIP. Conformity to the purpose of the SIP means that transportation activities will not cause new air quality violations, worsen existing violations, or delay timely attainment of the relevant national ambient air quality standards (NAAQS or “standards”). EPA’s transportation conformity rule (40 CFR Parts 51 and 93) establishes the criteria and procedures for determining whether transportation plans, transportation improvement programs (TIPs) and projects conform to the SIP. Transportation conformity applies to areas that are designated nonattainment, and those redesignated to attainment after 1990 (“maintenance areas” with SIPs developed under Clean Air Act section 175A) for transportation-related criteria pollutants. Some areas that are currently subject to transportation conformity could benefit from NO_x reductions that result from SmartWay projects, including 8-hour ozone, PM_{2.5}, and PM₁₀ nonattainment and maintenance areas.¹⁵

In urban areas, transportation planning and conformity determinations are the responsibility of the metropolitan planning organization (MPO). MPOs are responsible for updating and revising the transportation plan and TIP on a periodic basis, as well as making transportation plan and TIP conformity determinations. Such a determination includes a regional emissions analysis that shows that the emissions expected from the area’s planned transportation system do not exceed the motor vehicle emissions target (“budgets”) set by the SIP for meeting RFP, attainment, or maintenance requirements. In cases where an area does not yet have a SIP in place, a different type of emissions test¹⁶ is used for conformity. After an MPO’s conformity determination, the U.S. Department of Transportation (DOT) must also determine conformity of the transportation plan and/or TIP. The interagency consultation process is required to be used when developing transportation plans, TIPs, conformity determinations, and SIPs, and the process includes MPOs, state departments of transportation, public transit agencies, other transportation agencies, state and local air quality agencies, EPA, and DOT (40 CFR 93.105).

¹⁵ Note that in a PM_{2.5} area, transportation conformity applies with respect to NO_x unless both EPA and the state find it is not a significant contributor and the SIP does not include a NO_x motor vehicle emissions budget. In a PM₁₀ nonattainment or maintenance area, transportation conformity applies with respect to NO_x only if either the EPA or the state air agency has made a finding that this precursor is a significant contributor to the PM₁₀ nonattainment problem or if the SIP includes a NO_x budget. See 40 CFR 93.102(b)(2) for details.

¹⁶ In areas without SIP budgets, an interim emissions test(s) must be met. These tests are the “baseline year test” and the “build/no-build test.” See 40 CFR 93.109, 93.118, and 93.119 for specific requirements in various types of nonattainment and maintenance areas.

4.2 How can NOx emission reductions from SmartWay projects be included in transportation conformity determinations?

The transportation conformity rule describes the specific requirements for including emission reductions from projects in a transportation conformity determination. If the emission reductions from the SmartWay project have been accounted for in the SIP's budget, the MPO would also include the reductions from the SmartWay project, to the extent it is being implemented, when estimating regional emissions for a conformity determination. Including the emission reductions in both the SIP's budget and in a conformity determination in this way is not "double-counting," but rather correctly accounting for all the control measures that are in place in both the SIP and transportation conformity processes.¹⁷

To include NOx emission reductions from SmartWay projects in a regional emissions analysis, the appropriate jurisdictions must be committed to the measure. The appropriate level of commitment varies according to the requirements outlined in 40 CFR 93.122(a), which are described as follows:

- If the SmartWay project does not require a regulatory action to be implemented and it is included in the transportation plan and TIP with sufficient funding and other resources for its full implementation, it can be included in a transportation conformity determination.
- If the SmartWay project requires a regulatory action to be implemented, it can be included in a conformity determination if one of the following has occurred:
 - The regulatory action for the SmartWay project is already adopted by the enforcing jurisdiction (e.g., a state has adopted a rule to require such a project);
 - The SmartWay project has been included in an approved SIP; or
 - There is a written commitment to implement the SmartWay project in a submitted SIP with a motor vehicle emissions budget that EPA has found adequate.¹⁸
- If the SmartWay project is not included in the transportation plan and TIP or the SIP, and it does not require a regulatory action to be implemented, then it can be included in the transportation conformity determination's regional emissions analysis if the determination contains a written commitment from the appropriate

¹⁷ See 40 CFR 93.122(a) for the requirements regarding what must be included when estimating regional emissions in a conformity determination.

¹⁸ 40 CFR 93.118 describes the process and criteria that EPA considers when determining whether submitted SIP budgets are appropriate for transportation conformity purposes prior to EPA's SIP approval action.

entities to implement the project. An example of a SmartWay project that would not be included in the transportation plan and TIP would be a state-sponsored loan or grant program to install SmartWay equipment described in Section 1.2 on local truck fleets.

Whatever the case, any NOx emission reductions can only be applied in a transportation conformity determination for the time period or years in which the SmartWay project will be implemented. Written commitments must come from the agency with the authority to implement the SmartWay project (as required by 40 CFR 93.122(a)(4) and 93.101).

For example, an MPO includes a SmartWay project in its emissions estimates done for a transportation conformity determination based on Trucking Firm A's written commitment to install SmartWay equipment described in Section 1.2 on 100 trucks in its fleet in the year 2008. Trucking Company A's written commitment indicates that these 100 trucks will be sold and replaced with brand new trucks during the years 2011 - 2015.

Suppose the MPO determines conformity in the year 2008, and it determines that it needs to analyze emissions for the attainment year of 2010, the last year of the transportation plan of 2030, and 2020 (an intermediate year). Based on the written commitment from Trucking Firm A, the MPO would enter the following information in the Fleet Information Parameters File input file for Number of Vehicles:

Number of vehicles in 2010: 100
Number of vehicles in 2020: 0
Number of vehicles in 2030: 0

Note that in future conformity determinations, the MPO could include the emission reductions from these trucks after they are sold if it can obtain similar written commitments from the new owners of the SmartWay trucks.

The latest emissions model and planning assumptions must also be used when calculating emission reductions, according to 40 CFR 93.110 and 93.111.

You would utilize the interagency consultation process required by 40 CFR 93.105 to discuss the methods and assumptions used to quantify the NOx reductions from the SmartWay project. Chapter 2 of this document describes how to quantify emission reductions.