



# **Guidance for Creating Annual On-Road Mobile Source Emission Inventories for PM<sub>2.5</sub> Nonattainment Areas for Use in SIPs and Conformity**

EPA420-B-05-008  
August 2005

# **Guidance for Creating Annual On-Road Mobile Source Emission Inventories for PM<sub>2.5</sub> Nonattainment Areas for Use in SIPs and Conformity**

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

## Background Information

The purpose of this document is to provide areas that are nonattainment or maintenance for the annual PM<sub>2.5</sub> national ambient air quality standard (“standard”) with guidance on developing annual PM<sub>2.5</sub> on-road motor vehicle emissions estimates to meet state air quality implementation plan (SIP) and transportation conformity requirements.

For previous and existing air quality standards (e.g., 1-hour ozone, 8-hour ozone, PM10 and carbon monoxide (CO)), areas typically have been required to examine a typical summer or winter day because areas were violating a standard established for a time period of 24 hours or less. As a result, these areas have developed on-road motor vehicle SIP inventories, motor vehicle emissions budgets (“budgets”), and regional emissions analyses<sup>1</sup> for transportation conformity determinations using modeling inputs and parameters that were specific to a typical day within a particular season. However, all areas currently designated nonattainment for PM<sub>2.5</sub> are violating the annual standard for this pollutant. In order to be consistent with this standard, these areas must develop annual emission inventories for the purpose of developing SIP budgets and demonstrating transportation conformity. This guidance provides information on how areas should fulfill these requirements.

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<sup>1</sup>The process for generating on-road motor vehicle emissions estimates for conformity purposes is commonly referred to as a “regional emissions analysis” in conformity documents. However this term could be confused with the process of creating an inventory for a SIP. To avoid that confusion, we will refer to a “regional emissions analysis” for transportation conformity as a “regional conformity analysis” in this document.

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1. Q. What effect does this guidance have on ozone, CO, and PM10 SIPs and regional conformity analyses?

A. This guidance applies to SIPs and regional conformity analyses for PM<sub>2.5</sub> nonattainment and maintenance areas that need to develop annual PM<sub>2.5</sub> inventories, such as areas that are violating the annual PM<sub>2.5</sub> standard. Ozone, CO, and PM10 SIPs and regional conformity analyses should continue to be based on inventories for a typical summer day or winter day, as applicable, using appropriate MOBILE6.2 input conditions and vehicle miles traveled (VMT). Areas that need to develop inventories for the 24-hour PM<sub>2.5</sub> standard should follow existing guidance for creating daily emission inventories.

2. Q. What are on-road motor vehicle emission inventories, budgets and regional conformity analyses?

A. An on-road motor vehicle emission inventory represents the total amount of emissions of a particular pollutant or precursor that is emitted by cars, trucks, buses, and motorcycles in a given area for a given point in time. The emissions reductions from on-road motor vehicle control measures are also accounted for in the SIP inventory. When developing an attainment demonstration, reasonable further progress (RFP) plan, or maintenance plan, areas are required to develop emission inventories for all source categories (e.g., point, area, on-road motor vehicle and off-road sources) for specific years. For some of these years, the on-road motor vehicle emission inventory may also serve as the SIP budget that is used to demonstrate transportation conformity. A budget provides a limit or ceiling on the amount of emissions transportation sources can produce in a given area that is consistent with attainment, RFP or maintenance.

The transportation conformity rule (40 CFR parts 51 and 93), requires areas to demonstrate that projected emissions from the planned transportation system do not exceed the budgets established in the applicable SIP. Prior to an adequate or approved SIP budget, 40 CFR 93.109(i)(2) and 93.119(e) provide interim emissions tests that also require a regional conformity analysis. For PM<sub>2.5</sub> areas that need to do conformity for the annual PM<sub>2.5</sub> standard, regional conformity analyses should also represent total annual emissions for given years as required by 40 CFR 93.118 and 93.119.

In simplest terms, emissions estimates are created by multiplying emissions factors for a given pollutant or precursor by the total number of vehicle miles traveled (VMT) in a given area for a given year. This document provides guidance on how annual emissions estimates should be developed for inventories, budgets, and regional conformity analyses for SIPs and conformity purposes.

3. Q. What pollutants and precursors are covered by this guidance?

A. This guidance is applicable to the estimation of annual SIP and conformity inventories of direct PM<sub>2.5</sub> from motor vehicle tailpipe emissions, emissions from motor vehicle brake and tire wear, and re-entrained road dust and construction dust from highway or transit projects. This guidance would also apply, as applicable, to the estimation of annual inventories of applicable PM<sub>2.5</sub> precursors, i.e., volatile organic compounds (VOCs), nitrogen oxides (NO<sub>x</sub>), sulfur oxides (SO<sub>x</sub>), and ammonia. EPA's future PM<sub>2.5</sub> implementation rule will address when SIP inventories and budgets are established for PM<sub>2.5</sub> precursors. Requirements for inclusion of precursors in transportation conformity analyses are addressed in a May 6, 2005, final rule (70 FR 24280) and are specified at 40 CFR 93.102(b)(iv)-(v) and 93.119 (f)(9)-(10).

Consistent with the May 6, 2005, final rule, if on-road motor vehicle emissions of one or more PM<sub>2.5</sub> precursors are determined through the SIP development process to be significant contributors to an area's PM<sub>2.5</sub> nonattainment problem, an emissions budget for each significant precursor must be established in the SIP. Alternatively, a PM<sub>2.5</sub> SIP would not establish a motor vehicle emissions budget for precursors that are determined to be insignificant through the SIP development process, and regional emissions analyses for insignificant precursors would not be required for subsequent conformity determinations. See the May 6, 2005, final rule for more information on the requirements for addressing PM<sub>2.5</sub> precursors in transportation conformity.

PM<sub>2.5</sub> areas must also address re-entrained road dust in their conformity analyses, if a SIP establishes an adequate or approved PM<sub>2.5</sub> budget that includes re-entrained road dust. Prior to adequate or approved budgets, areas must include road dust in conformity analyses only if EPA or the State air agency finds road dust to be significant. Requirements for inclusion of road dust in transportation conformity analyses can be found at 40 CFR 93.102(b)(3) and 93.119(f)(8).

Construction-related fugitive dust is not required to be included in any PM<sub>2.5</sub> conformity determinations before a SIP is submitted. As described in the conformity rule (40 CFR 93.122(f)), construction dust is not required to be considered in the conformity process unless the PM<sub>2.5</sub> SIP identifies it as a significant contributor to the nonattainment area's PM<sub>2.5</sub> problem. Areas that are contemplating making this type of determination need to include specific information in their SIPs in order to facilitate future conformity determinations. The inventories should clearly identify how much of the regional construction dust is attributable to highway and transit construction, as opposed to other construction activities. If the SIP is to identify construction dust emissions as a significant contributor, the highway and transit construction dust emissions need to be included and identified as such in the direct PM<sub>2.5</sub> on-road motor vehicle emissions budget. In addition, the regional conformity analysis would account for the level of construction activity, the

fugitive PM<sub>2.5</sub> control measures in the SIP (if there are any), and the dust producing capacity of the proposed construction activities (November 5, 2003, 68 FR 62711).

4. Q. Does this guidance create new requirements?

A. No, this guidance is based on the existing Clean Air Act (CAA) and associated regulations and does not create any new requirements. It merely explains how to fulfill current SIP and conformity requirements for developing PM<sub>2.5</sub> emission inventories and budgets.

The statutory provisions and EPA regulations described in this document contain legally binding requirements. This document is not a substitute for those provisions or regulations, nor is it a regulation itself. Thus, it does not impose legally binding requirements on EPA, states, or the regulated community, and may not apply to a particular situation based upon the circumstances. EPA retains the discretion to adopt approaches on a case-by-case basis that may differ from this guidance, but still comply with the statute and SIP and conformity regulations. Any decisions regarding a particular SIP and conformity determination will be made based on the statute and regulations. This guidance may be revised periodically without public notice.

5. Q. What emissions models should be used to develop SIP inventories and regional conformity analyses for direct PM<sub>2.5</sub> and PM<sub>2.5</sub> precursors?

A. For states other than California<sup>2</sup>, MOBILE6.2 is currently EPA's approved emission factor model for estimating direct PM<sub>2.5</sub> emissions from on-road vehicle exhaust and brake and tire wear, and for PM<sub>2.5</sub> precursor emissions from vehicle exhaust and evaporative emissions. For all states, including California, the methods for estimating re-entrained road dust emissions from cars, trucks, buses, and motorcycles on paved and unpaved roads are incorporated in Chapter 13 of AP-42. These are EPA's approved methods for estimating road dust emissions. However, alternative methods may be used if such methods are approved by EPA and announced in the Federal Register. The use of MOBILE6.2 and AP-42, including discussion of alternatives to AP-42, in SIPs and

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<sup>2</sup>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 of how to create annual inventories using EMFAC. However, the general concepts in this document for accounting for variation during the year should be followed when creating annual inventories with EMFAC for the PM<sub>2.5</sub> annual standard.

transportation conformity analyses is described in detail in a separate guidance document.<sup>3</sup>

Chapter 13 of AP-42 includes information on the variability of re-entrained road dust emissions based on environmental conditions, including factors that vary based on time of year. The AP-42 method can be used as described in Chapter 13 to develop annual re-entrained road dust inventories. EPA plans on issuing separate guidance on how to apply adjustments to estimated road dust emissions to reflect the true impact of re-entrained road dust on regional air quality in SIPs and regional conformity analyses. The remainder of this document addresses the use of MOBILE6.2 to calculate annual inventories for direct PM<sub>2.5</sub> emissions from vehicle exhaust and brake and tire wear, and for applicable PM<sub>2.5</sub> precursor emissions from vehicle exhaust and evaporative emissions.

EPA has made available the National Mobile Inventory Model (NMIM), which incorporates MOBILE6.2 as well as a database of local activity information and a post-processing system that can produce annual emission inventories. NMIM is an additional tool that can be used for inventory development, although its use is not required. Question 13 of this document discusses the option to use NMIM in SIP development and regional conformity analyses.

6. Q. What issues should state and local air quality agencies and transportation agencies consider when creating annual emissions inventories with MOBILE6.2 for SIPs and regional conformity analyses?
  - A. State and local agencies need to consider whether MOBILE6.2 inputs or VMT vary during the year enough to affect PM<sub>2.5</sub> annual emissions estimates. MOBILE6.2 is designed to allow users to estimate motor vehicle emissions based on specific input conditions that include month of evaluation (i.e., January or July), environmental factors (e.g., temperature, humidity), fleet characteristics (e.g., age distribution of fleet, distribution of VMT by vehicle class), activity measures (e.g., speed distributions, distribution of VMT by roadway type), and fuel characteristics (e.g., gasoline RVP, sulfur content). Some of these input conditions will vary based on time of year. For some pollutants, these seasonal variations for certain input conditions will result in different emissions estimates (these variations are discussed in more detail in Question 8). In addition to the input conditions that affect MOBILE6.2 emission factors, VMT may also vary by time of year. These differences in emission factors and VMT by time of year need to be considered in the development of annual inventories.

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<sup>3</sup>“Policy Guidance on the Use of MOBILE6.2 and the December 2003 AP-42 Method for Re-Entrained Road Dust for SIP Development and Transportation Conformity”, memorandum from Margo Oge and Steve Page to EPA Regional Air Division Directors, February 24, 2004, which can be found at: [www.epa.gov/otaq/models/mobile6/mobil6.2\\_letter.pdf](http://www.epa.gov/otaq/models/mobile6/mobil6.2_letter.pdf) .

The key question in the development of annual  $PM_{2.5}$  emissions estimates for SIPs and conformity is how much temporal disaggregation of input data is needed to produce annual emissions inventories that properly reflect local conditions. If, as a result of local conditions, MOBILE6.2 emissions factors vary significantly over the course of the year, state air quality agencies and transportation agencies may need to do multiple MOBILE6.2 runs with different input conditions to properly develop SIP inventories and regional conformity analyses. State and local air quality and transportation agencies should work together with EPA and the U.S. Department of Transportation, via the interagency consultation process, to determine the appropriate inputs and number of MOBILE6.2 runs needed to produce accurate annual inventories in a given nonattainment or maintenance area. During the interagency consultation process, air quality and transportation agencies should take into account the needs and capabilities of the air quality modeling tools that will be used to develop the SIP, the availability of seasonal or monthly VMT and MOBILE6.2 input data, and the seasonal or monthly variability of that data. Depending on the variability of input conditions and the effect that variability has on emissions, state and local air quality and transportation agencies in consultation with EPA and DOT may determine for some areas that a single set of MOBILE6.2 runs is appropriate, or alternatively, that multiple sets of runs using seasonal or monthly conditions are necessary.

7. Q. What options do areas have to develop annual  $PM_{2.5}$  and  $PM_{2.5}$  precursor SIP inventories and regional conformity analyses with MOBILE6.2?

A. Depending on variability in local input conditions and on the impact of that variability on the overall inventory, states may choose from a range of options for the degree of temporal disaggregation used when creating annual inventories for SIPs and regional conformity analyses. To determine how much temporal disaggregation is appropriate in a given area, states may choose to calculate simplified annual emission inventories using the different approaches (i.e., run MOBILE6.2 using representative annual and seasonal inputs) and compare the results. Through this exercise, states may find that the differences between these methodologies are insignificant and further emissions analyses can be performed using a less detailed process. The interagency consultation process should be used to determine which approach is most appropriate for a given  $PM_{2.5}$  nonattainment or maintenance area. This process should include consultation among state and local transportation and air quality agencies, as well as EPA and the U.S. Department of Transportation. Whichever approach is chosen, that approach should be used consistently throughout the analysis for a given pollutant or precursor. For example, if the 2002 base year annual inventory used in the attainment SIP is based on an analysis using input assumptions broken down for four seasons, the attainment year inventory used in that SIP should also be based on input assumptions for four seasons.

The following are some examples of methodologies that could be used. Other approaches may also be appropriate as determined through the interagency consultation process.

Developing Annual Inventories and Regional Conformity Analyses Using Annual Average MOBILE6.2 Inputs and a Single Set of MOBILE6.2 Runs

*Single-Run Approach:* This methodology would involve a single set of modeling runs with MOBILE6.2 for each year or scenario using only annual average inputs for all MOBILE6.2 input parameters and for VMT. EPA believes that in some areas this methodology may be appropriate because some input conditions may not vary significantly by time of year in a particular area. For example, distribution of VMT by vehicle class may be fairly constant in most areas. In addition, some input conditions may vary without affecting the emissions estimates for some pollutants generated by MOBILE6.2. For example, direct PM<sub>2.5</sub> emissions in MOBILE6.2 are insensitive to differences in ambient temperature and humidity (these cases are described in more detail in Question 10).

States should determine which input conditions do not vary significantly during the year. For these conditions, annual average input values may suffice. If local conditions are such that there is no significant variation in emissions derived from MOBILE6.2 based on time of year, state and local air quality and transportation agencies, in consultation with EPA and DOT, may choose to base annual SIP inventories and regional conformity analyses on MOBILE6.2 runs based on a single set of inputs and using total annual VMT. For this approach, the evaluation month in MOBILE6.2 should be July of the calendar year being evaluated.

Developing Annual Inventories and Regional Analyses Using Seasonal or Monthly Average MOBILE6.2 Inputs and Two or More Sets of MOBILE6.2 Runs

In some cases, variations in input conditions at different times of the year may result in significant differences in MOBILE6.2 emission factors. In some areas, there may also be significant differences in VMT at different times of the year. In these areas, developing inventories based on seasonal average input conditions may be necessary. Depending on the temporal variability of input data for a given area, from two to twelve sets of modeling runs with MOBILE6.2 may be used for each year or scenario. Some possible approaches are included below, but this does not include a comprehensive list of options. State and local air quality and transportation agencies, in consultation with EPA and DOT, should choose the approach that best suits local conditions.

*Two-Season Approach:* This approach uses winter and summer input conditions to develop inventories based on two sets of MOBILE6.2 runs. This approach assumes that each set of input conditions can be used to model six months of the year. The “winter” inventory would be based on average input conditions for the coldest months of the year

and the “summer” inventory would be based on average input conditions for the hottest months of the year. Annual VMT would be apportioned as appropriate to the winter or summer runs. If VMT does not vary significantly by season, half of the annual VMT could be apportioned to each of the two sets of MOBILE6.2 runs to create winter and summer inventories. If VMT is significantly different between the “winter” and “summer” seasons, then the VMT should be apportioned based on those differences.

Under this approach, the total annual inventory for an area would be the sum of the “winter” and “summer” inventories. For this approach, January should be used as the input for evaluation month in MOBILE6.2 for the “winter” inventory and July should be used for the “summer” inventory. Because the evaluation month input in MOBILE6.2 can also affect fuel parameters, MOBILE6.2 users should take care to ensure that model inputs for fuel parameters are set to properly represent the season modeled.

*Four-Season Approach:* This approach bases the total annual inventory on four sets of seasonal input conditions and four sets of MOBILE6.2 runs: winter, spring, summer, and fall. This approach assumes that four sets of inputs are used, one for each of the four seasons. VMT would be apportioned appropriately for each of these seasonal periods. If VMT does not vary significantly by season, one quarter of the annual VMT would be apportioned to each of the seasonal inventories. If VMT is significantly different between the seasons, then the VMT should be apportioned based on those differences.

The total annual inventory for an area would be the sum of the four seasonal inventories. MOBILE6.2 only has two input options for evaluation month (January and July). January should be used as the input for evaluation month in MOBILE6.2 for the winter inventory and July should be used for the summer inventory. For the spring inventory, July should be used as the input for evaluation month in MOBILE6.2, while January of the following year should be used as the input for the fall inventory. Because the evaluation month input in MOBILE6.2 can also affect fuel parameters, MOBILE6.2 users should take care to ensure that model inputs for fuel parameters are set to properly represent the season modeled.

*Monthly Approach:* Another available approach for developing annual inventories and regional conformity analyses would involve twelve sets of MOBILE6.2 modeling runs using monthly average input conditions and VMT. As a result, this methodology is more resource intensive than the previous approaches. States should note that this is the approach that is used to create the 2002 National Emission Inventory (NEI) that some areas may use as their 2002 base year inventory for SIP purposes. For detailed guidance on how to set the evaluation month in MOBILE6.2 to prepare monthly inventories for

calculation of annual inventories, see Section 2.2 of EPA's "Technical Guidance on the Use of MOBILE6.2 for Emission Inventory Preparation"<sup>4</sup>.

States that wish to use this approach may also want to consider using the NMIM model to reduce the amount of data processing needed. See Question 13 below for more information on the use of NMIM in developing annual inventories and regional emissions analyses.

8. Q. How do emission factors for direct PM<sub>2.5</sub> and for PM<sub>2.5</sub> precursors vary with changes in external commands?

A. MOBILE6.2 uses different algorithms to estimate emissions from different pollutants. Inputs that contribute to seasonal variability in emissions for some pollutants may not result in variability for others. As a result, state and local agencies may be able to use simpler approaches for some pollutants than for others.

#### Direct PM<sub>2.5</sub>, SO<sub>x</sub>, and Ammonia

MOBILE6.2 uses simple algorithms to estimate direct PM<sub>2.5</sub> emissions and SO<sub>x</sub>, and ammonia precursor emissions. In general, emissions of these pollutants and precursors do not vary, or vary only by small amounts, for most of the input conditions in MOBILE6.2, including key commands such as temperature, humidity, vehicle speed, and roadway type.

However, emission factors for direct PM<sub>2.5</sub> emissions and SO<sub>x</sub> and ammonia precursor emissions are affected by the following MOBILE6.2 input options:

- Registration (age) distribution
- Diesel sales fractions
- Annual mileage accumulation rates
- Distribution of VMT by vehicle class
- Input options that affect gasoline and diesel fuel sulfur content

Of these input options, registration distribution, diesel sales fractions, and annual mileage accumulation rates should not change based on time of year. If the remaining parameters do not vary significantly by time of year, a single set of MOBILE6.2 runs, using July as the evaluation month, may be sufficient to develop annual inventories for SIPs and regional conformity analyses for direct PM<sub>2.5</sub>, SO<sub>x</sub>, and ammonia.

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<sup>4</sup>"Technical Guidance on the Use of MOBILE6.2 for Emission Inventory Preparation", Office of Transportation and Air Quality, US EPA, August 2004, EPA420-R-04-013, which can be found at [www.epa.gov/otaq/m6.htm](http://www.epa.gov/otaq/m6.htm).

## NOx and VOC

MOBILE6.2 emissions estimates of NOx and VOC precursor emissions are affected by temperature and humidity, fleet characteristics (e.g., age distribution of fleet, distribution of VMT by vehicle class), activity measures (e.g., speed distributions, distribution of VMT by roadway type), and fuel characteristics (e.g., gasoline RVP, sulfur content). When evaluating which approach to use for generating annual inventories for NOx and VOC, states should first consider which of the input conditions actually vary significantly based on time of year. States can then test whether those variations are likely to result in significant differences in emissions throughout different times of the year, as appropriate.

Based on an analysis of various parameters, states may conclude that simpler methods (i.e., the annual or seasonal methods) can be used to develop direct PM<sub>2.5</sub> inventories than are needed for PM<sub>2.5</sub> precursors such as NOx and VOC. The interagency consultation process should be used to determine if the use of different approaches for direct PM<sub>2.5</sub> and for PM<sub>2.5</sub> precursors would ease the resource burden of developing SIPs and conformity analyses while maintaining credible results.

9. Q. What other requirements apply when calculating regional emissions for transportation conformity?

A. Section 93.122 of the transportation conformity rule contains requirements for estimating VMT and inclusion of control measures in regional conformity analyses. Section 93.122(b) of the transportation conformity rule requires that serious, severe and extreme ozone nonattainment areas and serious CO nonattainment areas use network based travel models to perform regional conformity analyses. There is no similar requirement to use network based travel models for PM<sub>2.5</sub> nonattainment areas. However, PM<sub>2.5</sub> areas that are currently using network based travel models must continue to use them when calculating annual emission inventories, per Section 93.122(d). Areas without a network based travel model may use other appropriate methods for estimating VMT consistent with best professional practice and Section 93.122(d) of the conformity regulation. In addition, sections 93.110 and 93.111 require the latest planning assumptions and emission models to be used in all conformity analyses.

10. Q. For areas currently using network based travel models, does travel demand modeling need to be done for each season or month?

A. In some areas, variations in VMT or other vehicle activity inputs over the course of the year may not have a significant effect on MOBILE6.2 emissions estimates for direct PM<sub>2.5</sub> or PM<sub>2.5</sub> precursors. In such cases, a single travel demand modeling run would be sufficient to generate an annual VMT estimate or any other activity inputs derived from

the travel model. Annual VMT estimates would then be divided appropriately according to the level of temporal disaggregation used for the emissions estimation as described in Question 7.

State and local air quality and transportation agencies, in consultation with EPA and DOT, should determine whether significant seasonal variations in the output of network based travel models is expected and whether these variations would have a significant impact on PM<sub>2.5</sub> emissions estimates. The interagency consultation process should be used to determine the most appropriate method for estimating VMT and identifying the appropriate source for existing VMT data.

11. Q. Prior to the development of the PM<sub>2.5</sub> SIP, can simpler methods be used for regional conformity analyses?

A. Yes. EPA expects that the most thorough analysis to determine the appropriate methods to be used for developing annual inventories will occur during the development of the SIP, taking into account the needs and capabilities of air quality modeling tools and the limitations of available data. Prior to the development of the SIP, state and local air quality and transportation agencies may not have all of the information they need to determine how much temporal disaggregation is necessary to adequately account for variation in emissions during the year. State and local agencies may also need additional time to collect data on a seasonal or monthly basis if that data is needed. For these reasons, state and local air quality and transportation agencies may, through the interagency consultation process, decide to use simplified methods for regional conformity analyses done prior to an adequate or approved SIP budget. For example, through the interagency consultation process, state and local agencies may choose to base regional conformity analyses used in interim conformity tests (build-no-greater-than-no-build or no-greater-than-2002 tests) on average annual inputs and a single set of MOBILE6.2 runs even while they are working on developing an RFP, attainment, or maintenance SIP using a more complicated approach.

Whatever approach is selected, the latest planning assumptions, latest emissions model, and appropriate methods for estimating travel and speeds must be used as required by Sections 93.110, 93.111, and 93.122 of the conformity rule. Also, the approach that is selected for the interim emissions tests should be used consistently when completing a conformity test. Whether a submitted or draft 2002 SIP inventory or some other inventory determined through the interagency consultation process is used, the regional conformity analysis for the baseline year test should be based on the same approach that was used to develop the baseline inventory for conformity purposes. For example, if the two-season approach is used to develop the 2002 baseline year for conformity purposes, the same two-season approach should be used for the regional conformity analysis. See the preamble of the July 1, 2004 conformity rule (FR 40015 left column) for more

information on considerations for the 2002 baseline test. Similarly, the same approach should be used to develop the build and no-build scenarios under the build-no-greater-than-no-build test.

12. Q. Once the SIP budget is developed, should the same methods be used for regional conformity analyses?

A. Yes. Regional conformity analyses should be based on the same approach used to develop the direct PM<sub>2.5</sub> and any PM<sub>2.5</sub> precursor budgets established in the applicable SIP. For example, if the NO<sub>x</sub> SIP budget was determined using average seasonal inputs in MOBILE6.2 for winter, spring, summer, and fall, the same approach should be used for regional conformity analyses based on that budget. State and local air quality and transportation agencies should use the interagency consultation process while developing the approach used for the SIP budgets to consider the impact this will have on data collection, modeling, and analysis needs for future regional conformity analyses.

13. Q. What is the National Mobile Inventory Model (NMIM) and how can it be used to determine annual emissions inventories?

A. NMIM is a graphical user interface that contains the MOBILE6.2 and NONROAD<sup>5</sup> models and a database of county-level input information, the National County Database (NCD). NMIM produces monthly inventories by source classification code (SCC) and county. 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 write MOBILE6.2 input files, run MOBILE6.2 and multiply the emission factors by VMT to produce emission inventories for each county for each month.<sup>6</sup> NMIM also provides a post-processing module that will aggregate the months into an annual inventory and produce tab-delimited ASCII output that can be read into database or spreadsheet software applications.

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<sup>5</sup>Because it incorporates MOBILE6.2 and NONROAD, NMIM can be used to generate emissions inventories for both on-road motor vehicles (cars, trucks, buses, and motorcycles) and off-road equipment (agricultural and construction equipment, lawn and garden equipment, and off-road recreational vehicles among others) for SIP purposes. Because transportation conformity applies only to on-road motor vehicles, only the on-road portion of an inventory generated using NMIM would be used to generate SIP budgets and regional conformity analyses.

<sup>6</sup> “EPA’s National Mobile Inventory Model (NMIM), A Consolidated Emissions Modeling System for MOBILE6 and NONROAD”. H. Michaels, et al. U.S. EPA. [www.epa.gov/otaq/models/nmim/420r05003.pdf](http://www.epa.gov/otaq/models/nmim/420r05003.pdf).

NMIM is not considered a new model and does not start a new conformity grace period pursuant to 40 CFR 93.111. Because NMIM incorporates MOBILE6.2, it may be used to generate emissions inventories for SIPs and regional conformity analyses. NMIM may provide an easier way for states to develop annual inventories because it is designed to create annual inventories based on monthly inputs. However, before using NMIM, 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, if any, are needed to the NMIM database to accurately model current local conditions.

The use of NMIM is not required 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. State and local agencies should carefully review the NMIM documentation before deciding whether to use it. NMIM has some limitations in some applications and, as a result, the use of NMIM may not be appropriate 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.

States have provided information for the 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 as required in the latest planning assumptions provisions of the conformity rules (40 CFR 93.110). For SIPs and regional conformity analyses, state and local agencies should review the information in the NCD to verify that it is still accurate and up-to-date. Where more current information is available, the database must be modified to incorporate the most recent data to meet latest planning assumptions requirements for SIPs and conformity. (EPA encourages states to separately submit updates to the NCD 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 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.

State and local agencies should take special care to ensure that VMT data used in NMIM is derived appropriately. Areas required to use VMT data from travel demand models need to make sure that the appropriate VMT estimates are incorporated into the NCD. One limitation of the NCD is that it includes VMT data for only select years but not necessarily for the years that need to be evaluated for SIP or transportation conformity purposes. Therefore, even if the VMT data in the NCD are correct for a specific year, areas wishing to use NMIM may need to calculate and enter the necessary VMT inputs for other years into the NCD. Areas should also evaluate the speed assumptions in the NCD and revise them as needed to reflect current local estimates.

The current version of NMIM is available at [www.epa.gov/otaq/nmim.htm](http://www.epa.gov/otaq/nmim.htm) . EPA is currently working on updates to the NONROAD portion of NMIM and to the NCD and expects to release a revised version of NMIM later in 2005, which will be posted on the website and notice sent out through our list-server.

14. Q. Who can I contact if I have further questions about developing annual PM<sub>2.5</sub> SIP emissions inventories and budgets, and regional conformity analyses?

A. For specific questions about a particular nonattainment or maintenance area, please contact the SIP or transportation conformity staff person responsible for your state at the appropriate EPA regional office. A listing of regional offices, the states they cover, and contact information for EPA regional conformity staff can be found at the following website: [www.epa.gov/otaq/transp/conform/contacts.htm](http://www.epa.gov/otaq/transp/conform/contacts.htm).

General questions about this guidance can be directed to Gary Dolce at EPA's Office of Transportation and Air Quality, [dolce.gary@epa.gov](mailto:dolce.gary@epa.gov) or 734-214-4414.