Appendix X
Transportation Conformity Background

1.0 Introduction

The Clean Air Act[1] requires that Federal actions conform to a State's State Implementation Plan (SIP). Specifically the Clean Air Act requires the action/activity will not:

- Cause or contribute to any new violation of any National Ambient Air Quality Standard (NAAQS) in any area;
- Increase the frequency or severity of any existing violation of any NAAQS in any area; or,
- Delay timely attainment of any NAAQS or any required interim emission reductions or any other milestones in any area.

To implement this requirement, the Clean Air Act directed[2] the United States Environmental Protection Agency (USEPA) to issue rules that governed how conformity determinations would be conducted for two categories of actions/activities: 1) those dealing with transportation plans, programs and projects (Transportation Conformity), and 2) all other actions, e.g., projects requiring Federal permits. This latter category is referred to as General Conformity.

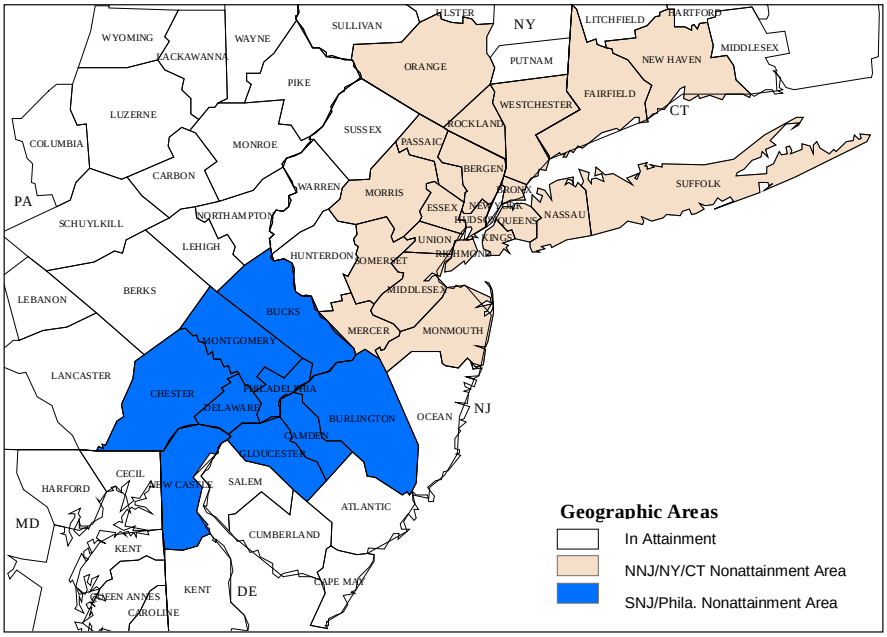
The Federal Transportation Conformity Rule (40 C.F.R. § 93.100-129) provides the process by which the air quality impact of transportation plans, transportation improvement programs, and projects are analyzed. The agency preparing transportation plans (projections of twenty or more years), transportation improvement programs (projections of at least four years), or approving a transportation project must analyze the emissions expected from such a proposal in accordance with the Transportation Conformity Rule.[3]

For the purposes of transportation conformity, the emission budget is essentially a cap on the total emissions allocated to onroad vehicles. The projected regional emissions calculated based on a transportation plan, transportation improvement program, or project, may not exceed the motor vehicle emissions budget or cap contained in the appropriate SIP. Emissions in years for which no motor vehicle emissions budgets are specifically established must be less than or equal to the motor vehicle emissions budget established for the most recent prior year.

Emission budgets in New Jersey are established by nonattainment area and Metropolitan Planning Organization (MPO) boundary. New Jersey is part of two $PM_{2.5}$ nonattainment areas as shown in Figure 1: ten counties in northern New Jersey associated with New York City and three counties in southern New Jersey associated with Philadelphia.

[1] 42 U.S.C. § 7506.
[2] 42 U.S.C. § 7506.
[3] For New Jersey, such plans are prepared by three Metropolitan Planning Organizations (North Jersey Transportation Planning Authority, South Jersey Transportation Planning Organization, and Delaware Valley Regional Planning Commission).

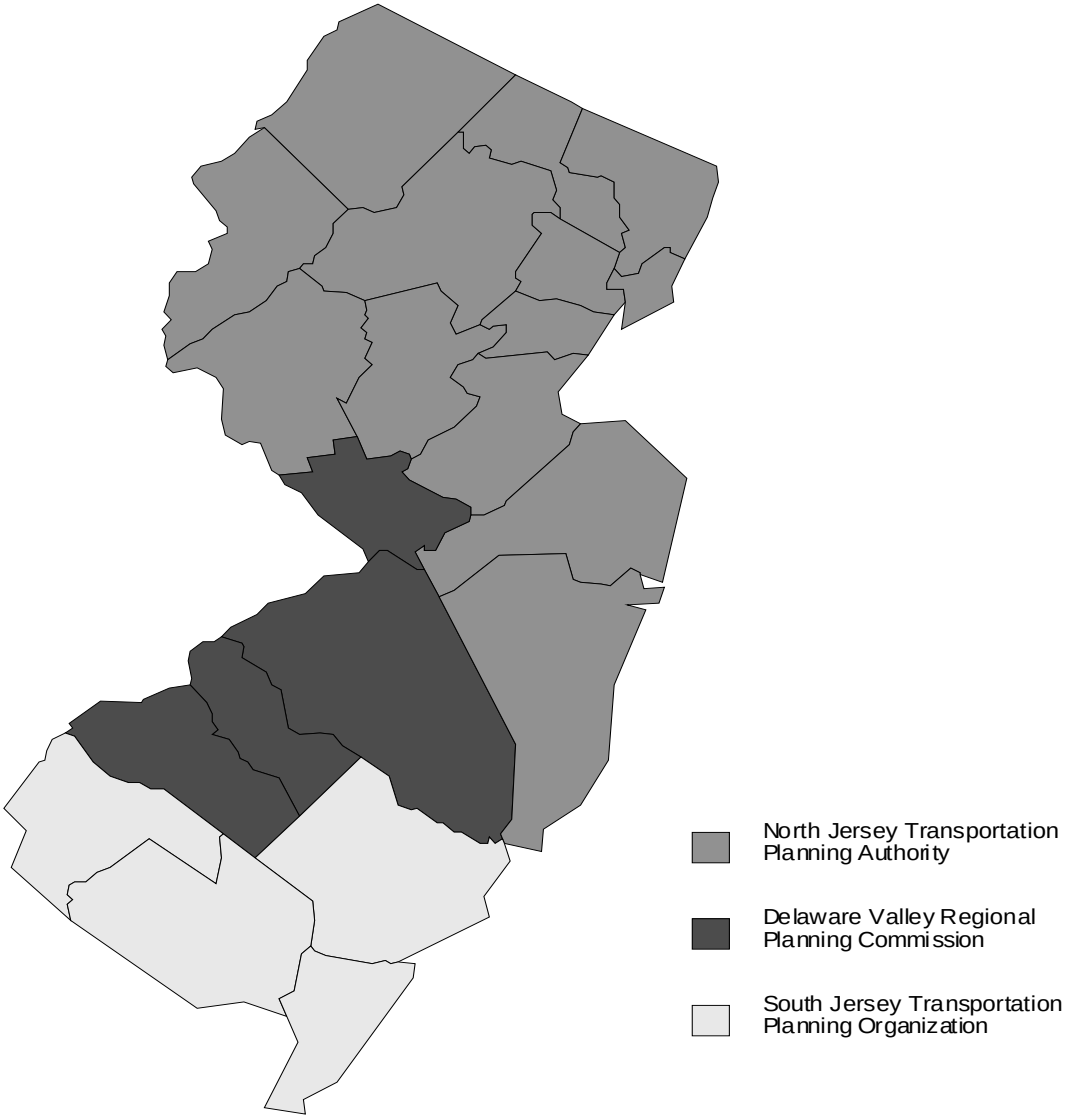
Figure 1
USEPA Designations of Nonattainment Areas for the $PM_{2.5}$
National Ambient Air Quality Standard



There are three MPOs in New Jersey that cover the geographic areas shown in Figure 2. These are the North Jersey Transportation Planning Authority (NJTPA), the Delaware Valley Regional Planning Commission (DVRPC), and the South Jersey Transportation Planning Organization (SJTPO). Each MPO is responsible for the transportation plans and transportation improvement programs for its designated area. The MPOs each work in consultation with the Federal Highway Administration, the New Jersey Department of Transportation (NJDOT), the USEPA, and the New Jersey Department of Environmental Protection (NJDEP) to remain at or under established transportation emission budgets for their area. Transportation conformity budgets for $PM_{2.5}$ are developed for each MPO by adding the onroad emissions from individual counties within each MPO planning area located within the New Jersey portions of the $PM_{2.5}$ nonattainment areas. This results in the formation of the following three areas for budget development:

- Nine counties located in the NJTPA MPO planning area and the New Jersey portion of the NNJ-NY-CT $PM_{2.5}$ nonattainment area (Bergen, Essex, Hudson, Middlesex, Monmouth, Morris, Passaic, Somerset, and Union counties),
- Mercer county located in the DVRPC MPO geographic area and the NNJ-NY-CT nonattainment area, and
- Three counties included in the DVRPC MPO geographic area and the New Jersey portion of the SNJ/Phila. $PM_{2.5}$ nonattainment area (Burlington, Camden, and Gloucester counties).

Figure 2
Metropolitan Planning Organizations in New Jersey



The South Jersey Transportation Planning Organization does not have to perform transportation conformity for $PM_{2.5}$ because all counties within their planning area have been, and continue to be, designated attainment of the $PM_{2.5}$ 15 µg/m^3 annual and 35 µg/m^3 daily NAAQSs.

2.0 Transportation Conformity for $PM_{2.5}$ Annual and Daily Standards

2.1 Interim Tests Were Used Prior to the Establishment of Budgets

The Transportation Conformity Rules that established the criteria and procedures relating to Transportation Conformity for $PM_{2.5}$ were promulgated by the USEPA on July 1, 2004.[4] Transportation Conformity for $PM_{2.5}$ became effective on April 5, 2006; the effective date is based on a one-year grace period from the effective date of designations, April 5, 2005. In addition, the USEPA issued a Final Rule on March 24, 2010[5] that established the Transportation Conformity requirements for the 24-hour 2006 $PM_{2.5}$ NAAQS. Areas subject to transportation conformity for both the 15 µg/m^3 annual and 35 µg/m^3 daily PM standards shall continue to use their annual $PM_{2.5}$ budgets to satisfy the transportation conformity requirements for both the annual and daily $PM_{2.5}$ standards.

Before a SIP budget is available, either through an adequacy finding or approval by the USEPA, conformity of the transportation plan, transportation improvement program, or project not from a conforming plan is demonstrated with the interim emissions tests.[6] The interim emissions tests for $PM_{2.5}$ require that emissions from the proposed transportation system are less than or equal to the emissions from either the baseline year or the existing ("no-build") transportation system. The MPOs performing planning in $PM_{2.5}$ nonattainment areas were required to utilize an interim emissions test until emission budgets were approved or found adequate by the USEPA. Once the budgets were in place, MPOs needed to demonstrate that emissions from the proposed transportation system were less than or equal to the budgets. Currently, the NJTPA and the DVRPC are using 2009 attainment $PM_{2.5}$ budgets that have been found adequate by the USEPA for the New Jersey counties in the NY-NJ-CT and SNJ.-Phila. nonattainment areas.[7]

2.2 $PM_{2.5}$ Precursors

The final rule to add PM precursors to the transportation conformity rule balanced the need to protect air quality with the need to conserve the limited resources of state and local transportation and air quality agencies. For transportation conformity, one $PM_{2.5}$ precursor – oxides of nitrogen (NO_x), was considered in the conformity process in $PM_{2.5}$ nonattainment areas,[8] pursuant to the following USEPA requirements:

- Regional emissions analysis must include NO_x as a $PM_{2.5}$ precursor in all $PM_{2.5}$ nonattainment areas, unless the head of the state air agency and the USEPA Regional Administrator make a finding that NO_x is not a significant contributor to the $PM_{2.5}$ air quality problem in a given area. NO_x is the only $PM_{2.5}$ precursor that must be examined in conformity analyses (unless a finding is made) because data indicates that NO_x contributes to the air quality problem in most $PM_{2.5}$ nonattainment areas.
- VOC, SO_2, and NH_3 precursor emissions need only be examined if they are determined

[4] 69 Fed. Reg. 40004-81 (July 1, 2004).
[5] 75 Fed. Reg. 14260- 85 (March 24, 2010)
[6] 40 C.F.R. § 93.119.
[7] 75 Fed. Reg. 33614-5 (June 14, 2010).
[8] 70 Fed. Reg. 24280-92 (May 6, 2005).

to be of concern for a particular area; i.e., if the head of the state air agency or the USEPA Regional Administrator makes a finding that the onroad emissions of any of these precursors is a significant contributor to the area's $PM_{2.5}$ air quality issue, or if through interagency consultation it is determined that inclusion of additional precursors is warranted and desirable.

The following criteria are considered in making significance or insignificance findings for $PM_{2.5}$ precursors:

- The contribution of onroad emissions of the precursor to the total baseline SIP inventory;
- The current state of air quality for the area;
- The results of speciation monitoring for the area;
- The likelihood that future motor vehicle control measures will be implemented for a given precursor; and,
- Projections of future onroad emissions of the precursor.

There has been no new information or findings since the $PM_{2.5}$ attainment demonstration conformity budgets[9] were submitted to indicate that additional precursors have become or will become of concern. As such the New Jersey transportation conformity budgets for $PM_{2.5}$ precursors only include the establishment of an annual NO_x budget for the two $PM_{2.5}$ nonattainment areas addressed by this redesignation and maintenance plan SIP revision.

2.3 Road Dust and Construction Related Fugitive Dust

The Federal Transportation Conformity Rule specifies that re-entrained road dust is to be included as a component of direct $PM_{2.5}$ for transportation conformity regional emissions analysis only if the USEPA Regional Administrator or the director of the State air agency has made a finding that emissions from re-entrained road dust within the area are a significant contributor to the $PM_{2.5}$ nonattainment problem and has so notified the MPO and NJDOT.[10]

Findings of significance have not been made for either re-entrained road dust or construction-related fugitive dust for the New Jersey portions of the NNJ-NY-CT and the SNJ-Phila. nonattainment areas. As described in the $PM_{2.5}$ attainment demonstration[11], a number of source apportionment studies have concluded that the primary components of the $PM_{2.5}$ mass in New Jersey are: secondary sulfate from large coal-fired power plants, automotive emissions and biomass burning. Re-entrained road dust and fugitive dust from road construction projects would be monitored as a component of soil material. Soil material makes up a relatively small percentage of the $PM_{2.5}$ mass measured in New Jersey monitors.[12] Therefore, neither re-entrained road dust emissions nor fugitive dust emissions from highway and transit project construction have been included in the $PM_{2.5}$ transportation conformity budgets.

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[9] NJDEP. Final State Implementation Plan Revision for Attainment and Maintenance of the Fine Particulate Matter National Ambient Air Quality Standard. New Jersey Department of Environmental Protection, March 26, 2009.

[10] 40 C.F.R. § 93.119(f)(8).

[11] NJDEP. Final State Implementation Plan Revision for Attainment and Maintenance of the Fine Particulate Matter National Ambient Air Quality Standard. New Jersey Department of Environmental Protection, March 26, 2009.

[12] Hopke, P. K. and Kim, E. Application of Advanced Factor Analysis Modeling to Apportion $PM_{2.5}$ in New Jersey. Center for Air Resources Engineering and Science, Clarkson University, March 2005.

2.4 Early Budgets for $PM_{2.5}$

In a 2006 SIP revision[13] (referred to hereafter as the "2006 SIP Revision"), New Jersey established "early progress" $PM_{2.5}$ transportation conformity emission budgets including documentation of the justification for the early budgets. Early progress 2009 budgets were established for direct $PM_{2.5}$ and annual NO_x for the New Jersey portion of the NNJ-NY-CT nonattainment area. This nonattainment area includes one county in the DVRPC MPO planning area (Mercer County), with the other nine counties in the NJTPA MPO planning area. These early progress budgets for New Jersey were approved by the USEPA on July 10, 2006.[14] Following the USEPA approval, these budgets have been used for subsequent transportation conformity determinations made by the NJTPA and the DVRPC for this nonattainment area.

In the State's 8-hour ozone attainment demonstration SIP[15], the NJDEP updated the planning assumptions used in the transportation conformity analyses. The distribution of vehicle miles traveled (VMT) between vehicle types was updated to reflect a greater fraction of the total VMT attributed to the heaviest class of diesel trucks (trucks greater than 60,000 lbs. Gross Vehicle Weight Rating). When the updated VMT/vehicle type mix was used, the predicted emissions of direct $PM_{2.5}$ and annual NO_x increased. The higher predictions resulted in values that were significantly higher than the existing budgets. The amount of the budget exceedance for Mercer County was much greater than the emission reductions that could be achieved by changes to transportation projects by 2009. Therefore, an update to the original early progress budget for Mercer County was proposed on December 17, 2007 as a SIP revision.[16] This SIP revision was approved by the USEPA, effective June 5, 2008.[17] This enabled the DVRPC MPO to meet its subsequent transportation conformity requirements.

The existing budgets for 2009 are considered attainment year budgets for $PM_{2.5}$ and NO_x and they are being used to address transportation conformity for both the $PM_{2.5}$ annual and daily NAAQS.

2.6 Release of the MOVES Model

On March 2, 2010 the USEPA officially released the MOVES2010 Motor Vehicle Emissions Model for emissions inventories in SIPs and transportation conformity[18]. MOVES replaced the MOBILE6 model for estimating emissions from onroad vehicles. The approval of the MOVES model started a two-year transportation conformity grace period which ended on March 2, 2012,

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[13] NJDEP. State Implementation Plan (SIP) Revisions for the Attainment and Maintenance of the 8-Hour Carbon Monoxide National Ambient Air Quality Standard, 1-Hour Ozone National Ambient Air Quality Standard, and Fine Particulate Matter National Ambient Air Quality Standard; and the 2002 Periodic Emission Inventory. New Jersey Department of Environmental Protection, May 2006.

[14] 71 Fed. Reg. 38770-72 (July 10, 2006).

[15] NJDEP. Final State Implementation Plan (SIP) Revisions for the Attainment and Maintenance of the Ozone National Ambient Air Quality Standard - 8-Hour Ozone Attainment Demonstration. New Jersey Department of Environmental Protection, October 29, 2007.

[16] NJDEP. Proposed State Implementation Plan Revision For Attainment of the Fine Particulate Matter National Ambient Air Quality Standard, Update of Early Transportation Conformity Budgets for Mercer County. New Jersey Department of Environmental Protection, December 17, 2007.

[17] 73 Fed. Reg. 24868 (May 6, 2008).

[18] 75 Fed. Reg. 9411-9414 (March 2, 2010)

after which MOVES2010 was originally required to be used for new regional emissions analyses for transportation conformity.

Prior to March 2, 2012, the USEPA issued a final rule to extend the grace period before the MOVES model is required for regional emissions analyses for transportation conformity determinations. The rule provided an additional year to the previously established two-year conformity grace period so the MOVES2010a will not be required for regional conformity analyses until March 2, 2013[19].

The most significant impact of the change in emissions models from MOBILE6 to MOVES involves the prediction of direct $PM_{2.5}$ emissions. Direct $PM_{2.5}$ emissions are significantly greater when MOVES is used instead of MOBILE6. The existing $PM_{2.5}$ annual budgets for 2009 are attainment year budgets for the $PM_{2.5}$ standards and the monitoring data has indicated levels below the $PM_{2.5}$ standards for both nonattainment areas. Therefore, the attainment SIPs (that generated the budgets) continue to meet their purpose when new MOVES-based budgets are generated using the same control strategies and the latest planning data. This redesignation and maintenance plan SIP revision contains MOVES-based 2009 $PM_{2.5}$ budgets in addition to the 2025 budgets for the last year of the maintenance period.

[19] 77 Fed. Reg. 11394-11401 (February 27, 2012)