

Executive Summary

Overview

Transportation conformity is the process by which Metropolitan Planning Organizations (MPOs) or departments of transportation (DOTs) demonstrate that transportation projects included in a region's Long-Range Plan (Plan) or Transportation Improvement Programs (TIPs) do not cause new air quality violations, worsen existing violations, or delay timely attainment of the National Ambient Air Quality Standards (NAAQS). Transportation conformity is a requirement of the Clean Air Act (CAA) in areas that do not meet the NAAQS or have previously been in violation of the NAAQS. Areas currently not meeting the NAAQS are known as nonattainment areas. Once a previously nonattaining area meets the NAAQS and submits plans to demonstrate how the area will continue to meet federal air quality standards, the United States Environmental Protection Agency (US EPA) can re-designate that area as either an attainment area or a maintenance area. The transportation conformity requirements are still applicable for up to 20 years after a nonattainment area is redesignated to ensure that the region continues to meet the NAAQS.

A transportation conformity demonstration is required at least once every four years or when an MPO: (1) adopts a new Plan or TIP; or (2) amends, adds, or deletes a regionally significant, nonexempt project in a Plan or TIP. This conformity demonstration is required due to the new *FY 2015 TIP for Pennsylvania* and the addition of regionally significant and nonexempt projects being amended in the *Connections 2040* Long-Range Plan in the Pennsylvania portion of the region.

Since there are no changes to regionally significant, nonexempt projects in the New Jersey counties in the Delaware Valley Regional Planning Commission (DVRPC) region, DVRPC will reaffirm the previous conformity analysis of the FY 2014 TIP for New Jersey and the New Jersey portion of *the Connections 2040* Long-Range Plan in lieu of performing a full conformity analysis.¹ This analysis was adopted by the DVRPC Board on July 25, 2013 and approved by the United States Department of Transportation (US DOT) in October, 2013.

The reaffirmed emissions analysis results and MVEBs for the New Jersey portion of the region are included in this report for informational purposes. For further discussion on the procedure used to demonstrate conformity for the FY 2014 TIP and New Jersey projects in the Plan, please see the DVRPC publication 13063: *Transportation Conformity Demonstration: FY 2013 Pennsylvania TIP, FY 2014 New Jersey TIP, and Connections 2040 Long-Range Plan*.

¹ As permitted by 40 CFR93.122(g)

The DVRPC region is in nonattainment for two of the NAAQS (ozone and fine particulate matter [PM_{2.5}]).² Portions of the region are maintenance areas for a third NAAQS (carbon monoxide [CO]).

This transportation conformity demonstration shows that the region's TIPs and *Connections 2040* Long-Range Plan are following, or "conforming to," the respective State Implementation Plans (SIPs) to meet the NAAQS.

This Executive Summary highlights DVRPC's conformity demonstration for:

❧ **Volatile Organic Compounds (VOCs) and Nitrogen Oxides (NO_x) meeting the 2008 Eight-Hour Ozone NAAQS requirements in:**

- ❖ The DVRPC portion of the Philadelphia–Wilmington–Atlantic City Ozone Nonattainment Area.

❧ **Direct Fine Particulate Matter (PM_{2.5}) and Precursor NO_x meeting the 1997 Annual and 2006 24-Hour PM_{2.5} NAAQS requirements in:**

- ❖ The DVRPC portion of the Philadelphia–Wilmington, Pennsylvania–New Jersey–Delaware (PA–NJ–DE) Annual PM_{2.5} Nonattainment Area;
- ❖ The DVRPC portion of the Philadelphia–Wilmington, PA–NJ–DE 24-Hour PM_{2.5} Nonattainment Area;
- ❖ The DVRPC portion of the New York–Northern New Jersey–Long Island, New York–New Jersey–Connecticut (NY–NJ–CT) Annual PM_{2.5} Nonattainment Area; and
- ❖ the DVRPC portion of the New York–Northern New Jersey–Long Island, NY–NJ–CT 24-Hour PM_{2.5} Nonattainment Area.

❧ **Carbon Monoxide (CO) meeting the 1971 CO NAAQS requirements in:**

- ❖ The Philadelphia–Camden CO Maintenance Area;
- ❖ The City of Burlington in Burlington County, New Jersey CO Maintenance Area; and
- ❖ The City of Trenton in Mercer County, New Jersey CO Maintenance Area.

This summary serves as an inclusive document that demonstrates the transportation conformity of the DVRPC Plan and TIPs with all applicable SIPs and NAAQS requirements for the above pollutants within the noted areas. The full conformity determination document is available at www.dvrpc.org.

² The US EPA has published "Clean Data Determinations" in the *Federal Register* for the Pennsylvania counties of the DVRPC Region for the 1997 and 2006 PM_{2.5} Standards and has approved Maintenance Plans for the New Jersey counties in the DVRPC Region. The region will remain designated as a nonattainment areas until all of the states in the nonattainment area submit, and the US EPA approves, plans to redesignate the region as either attainment or maintenance areas for each of these standards.

Analysis Approach

Plan and TIP Projects

There are three categories of projects in the Plan and TIPs:

- ☞ *REGIONALLY SIGNIFICANT PROJECT*: a nonexempt highway or transit project on a facility that, regardless of its length, serves regional needs and is normally included in the regional travel simulation model;
- ☞ *EXEMPT PROJECT*: a project listed in Table 2 or 3 of the Final Conformity Guidance (Final Rule; 40 CFR 93) that primarily enhances safety or aesthetics, maintains mass transit, continues current levels of ridesharing, or builds bicycle and pedestrian facilities; and
- ☞ *NOT REGIONALLY SIGNIFICANT PROJECT/NONEXEMPT*: a highway or transit project on a facility that does not serve regional needs, or is not normally included in the regional travel simulation model and does not fit into an exempt project category in Table 2 or 3 of the Final Rule (40 CFR 93). These projects are determined to have minimal or no impact on regional air quality.

Regional Emissions Analysis

Conformity Test

The Final Rule stipulates that the emissions analysis of transportation plans and programs must model all regionally significant, nonexempt projects. Each project has an associated alphanumeric air quality code for the conformity determination and exempt eligibility identification purposes.

For an area with an implemented SIP, the motor vehicle emissions budget (MVEB) prescribed in the SIP sets a regional emissions amount that functions as a threshold against which conformity is tested. This process is commonly known as the “budget” test. The Final Rule stipulates that each SIP is sovereign and that, for a multistate MPO such as DVRPC, conformity applies separately to individual state portions of its planning area under respective SIPs.

Beginning in March 2013, MPOs and state DOTs are required to use the Motor Vehicle Emissions Simulator (MOVES) emissions model to demonstrate transportation conformity by the US EPA. The MOVES model replaces the MOBILE 6.2 emissions model. This change of model reflects a significant shift from vehicle emission rates based on aggregate driving cycles to an operational mode that accounts for different driving patterns and emission profiles from various vehicle types. The expanded capabilities of the MOVES model result in substantially different results in emissions analysis from the MOBILE 6.2 model, particularly for NO_x and Direct PM_{2.5}.

The DVRPC region has implemented SIP budgets for the 1997 Eight-Hour Ozone Standard in Pennsylvania and New Jersey. The Final Rule requires that for regions with existing MVEBs for a standard of the same pollutant (i.e., 1997 Eight-Hour Ozone and 2008 Eight-Hour Ozone), the approved budget test is required to demonstrate conformity for the new standard. Therefore,

DVRPC will utilize the 1997 Eight-Hour Ozone MVEBs in Pennsylvania to demonstrate conformity to the 2008 Eight-Hour Ozone Standard.

The US EPA approved a Pennsylvania SIP revision on April 3, 2013 (78 FR 19991), which established MOVES-based PM_{2.5} and NO_x MVEBs for use in determining conformity under the 1997 Annual and 2006 24-Hour PM_{2.5} NAAQS.

Current conformity guidance states that nonattainment areas with Annual PM_{2.5} SIP budgets must use those budgets to demonstrate conformity for the 24-Hour PM_{2.5} Standard. In practice, this means that the budget test for the Annual PM_{2.5} Standard is a surrogate that demonstrates conformity to the 24-Hour PM_{2.5} Standard. Therefore, DVRPC's Pennsylvania counties will use the Annual PM_{2.5} Standard Budget Test to demonstrate conformity for both PM_{2.5} standards.

DVRPC is reaffirming the previously approved emissions analysis for the region's New Jersey counties as a part of this conformity demonstration.

Analysis Years

For this conformity demonstration, the mobile source ozone emissions analysis years for VOCs and NO_x in the Philadelphia–Wilmington–Atlantic City Ozone Nonattainment Area are 2015 (the attainment date for the 2008 Eight-Hour Ozone Standard), 2025 (an interim year selected to keep all analysis years no more than 10 years apart), 2035 (a second interim year selected to keep all analysis years no more than 10 years apart), and 2040 (the horizon year of the DVRPC Plan). VOCs and NO_x, which are heat-sensitive ozone precursors, are estimated for a July day. To demonstrate conformity, projected ozone emissions in all analysis years must not exceed the established MVEBs in prior years.

In the New York–Northern New Jersey–Long Island, NY–NJ–CT PM_{2.5}, and Philadelphia–Wilmington, PA–NJ–DE PM_{2.5} Nonattainment Areas, the analysis years are 2015 (a near-term year within the four-year TIP), 2025 (a SIP budget year in New Jersey and interim year selected to keep all analysis years no more than 10 years apart), 2035 (a second interim year selected to keep all analysis years no more than 10 years apart), and 2040 (the horizon year of the DVRPC Plan).

To demonstrate conformity, projected PM_{2.5} emissions in analysis years must not exceed the 2009 (for analysis years before 2025) and 2025 (for analysis years 2025 and later) budgeted emissions in the New Jersey portion of the Philadelphia–Wilmington, PA–NJ–DE PM_{2.5} Nonattainment Area and Mercer County in the New York–Northern New Jersey–Long Island, NY–NJ–CT PM_{2.5} Nonattainment Area; and the 2009 budgeted emissions in the Pennsylvania portion of the Philadelphia–Wilmington, PA–NJ–DE PM_{2.5} Nonattainment Area.

Both New Jersey and Pennsylvania have approved limited maintenance plans for CO, and regional emissions analysis for CO is no longer required to demonstrate conformity.

Findings

The DVRPC Plan and the TIPs are found to be in conformity with the current Pennsylvania and New Jersey SIPs under the CAA. The forecasted emissions levels of VOCs, NO_x, and PM_{2.5} do not exceed the respective budgets established by the state departments of environmental protection (state DEPs) in accordance with the Final Rule under the current NAAQS governing applicable pollutants.

The transportation conformity analysis meets all applicable conformity criteria, including, but not limited to, the following:

Pennsylvania

- ☞ That the Plan and the TIPs are fiscally constrained [40 CFR 93.108];
- ☞ That this determination is based on the latest planning assumptions [40 CFR 93.110];
- ☞ That this determination is based on the latest emissions estimation model available [40 CFR 93.111];
- ☞ That DVRPC has made the determination according to the applicable consultation procedures [40 CFR 93.112];
- ☞ That the Plan and the TIPs do not interfere with the timely implementation of transportation control measures (TCMs) [40 CFR 93.113]; and
- ☞ That the Plan and the TIPs are consistent with the MVEBs in the applicable implementation plans [40 CFR 93.118]; and

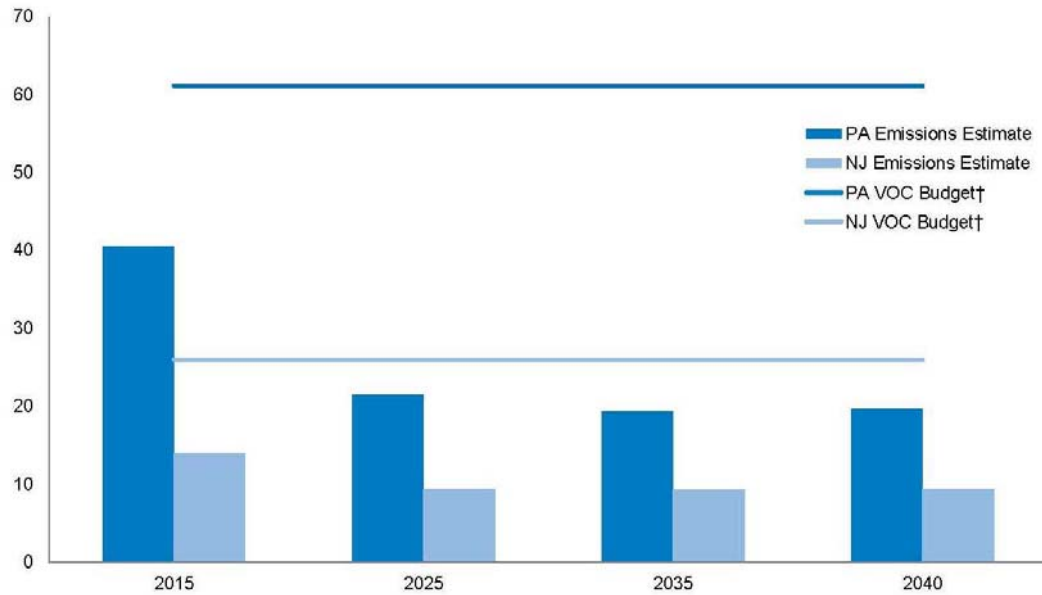
New Jersey

- ☞ DVRPC is reaffirming the conformity analysis for the FY 2014 TIP for New Jersey and New Jersey projects in the *Connections 2040 Long-Range Plan* that was adopted on July 25, 2013, and approved by the US DOT in October 2013 [40 CFR 93.12].

Figures 1 through 4 detail the emissions analysis results for transportation projects included in the Plan and TIPs for Pennsylvania and New Jersey. The data for these figures is detailed in Tables 6 through 8, found on pages 34 and 35. These estimates of emissions results confirm that the transportation projects in the Plan and TIPs conform to the respective SIP and Final Rule conformity requirements.³

³ Emissions analysis for the New Jersey counties are from the conformity analysis adopted by the DVRPC Board on July 25, 2013.

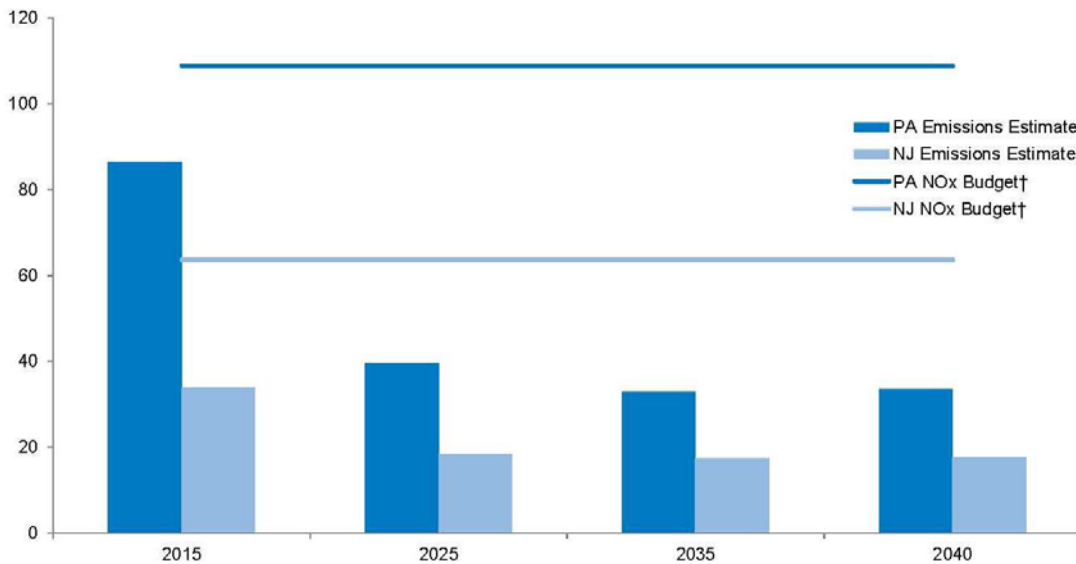
Figure 1. Volatile Organic Compounds Emissions Analysis Results (Tons/July Day)



Source: Delaware Valley Regional Planning Commission, 2014.

Note : The most recent Eight-Hour Ozone SIP MVEBs (2008 in Pennsylvania or 2009 in New Jersey) will apply to all future analysis years.

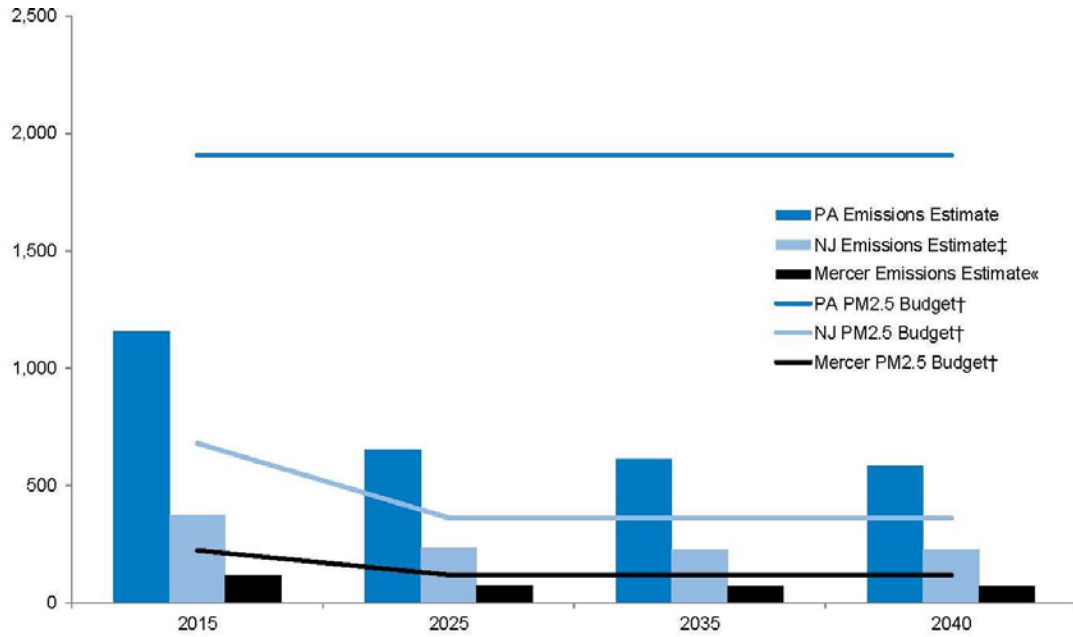
Figure 2. Nitrogen Oxides Emissions Analysis Results (Tons/July Day)



Source: Delaware Valley Regional Planning Commission, 2014.

Note : The most recent Eight-Hour Ozone SIP MVEBs (2008 in Pennsylvania or 2009 in New Jersey) will apply to all future analysis years.

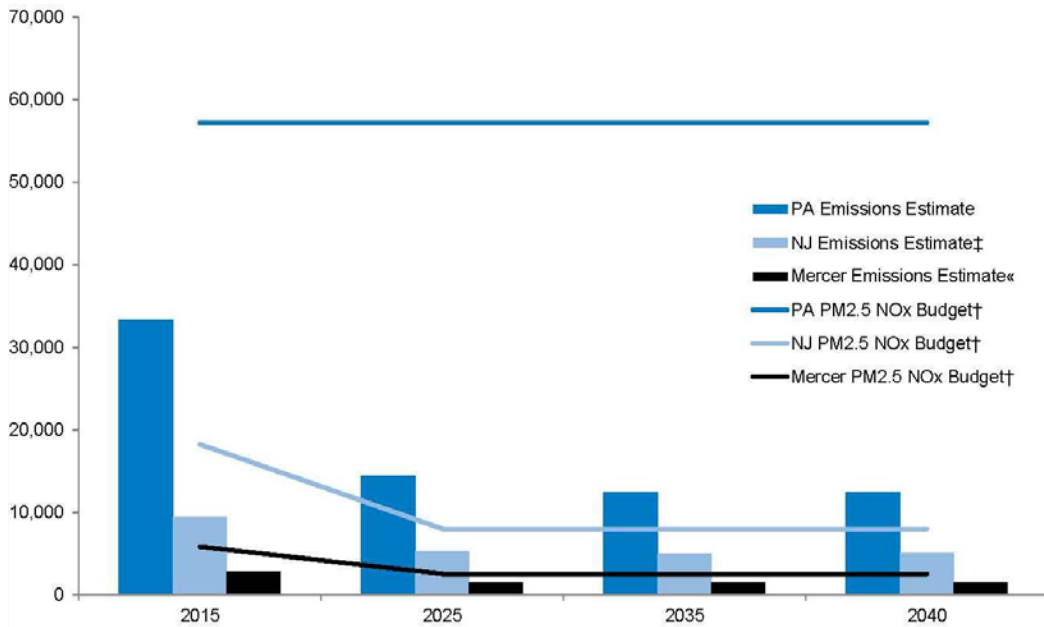
Figure 3. Annual and 24-Hour Direct Fine Particulate Matter Emissions Analysis Results (Tons/Year)



Source: Delaware Valley Regional Planning Commission, 2014.

Note: Associated 2009 and 2025 (in New Jersey only) MVEBs apply to all future analysis years.
 ‡ Results are only for Burlington, Camden, and Gloucester counties, which are the New Jersey portion of the Philadelphia–Wilmington, PA–NJ–DE PM_{2.5} Nonattainment Area.
 « Results are only for Mercer County, which is the DVRPC New Jersey portion of the New York–Northern New Jersey–Long Island, NY–NJ–CT PM_{2.5} Nonattainment Area.

Figure 4. Annual and 24-Hour NO_x Precursor Emissions Analysis Results (Tons/Year)



Source: Delaware Valley Regional Planning Commission, 2014.

Note: Associated 2009 and 2025 (in New Jersey only) MVEBs apply to all future analysis years.

‡ Results are only for Burlington, Camden, and Gloucester counties, which are the New Jersey portion of the Philadelphia–Wilmington, PA–NJ–DE PM_{2.5} Nonattainment Area
« Results are only for Mercer County, which is the DVRPC New Jersey portion of the New York–Northern New Jersey–Long Island, NY–NJ–CT PM_{2.5} Nonattainment Area.

These findings reaffirm transportation conformity of the FY 2014 New Jersey TIP, and demonstrate transportation conformity of the FY 2015 Pennsylvania TIP, and the DVRPC *Connections 2040* Long-Range Plan with the corresponding state SIPs and the Final Rule requirements under CAA, including:

- « The 2008 Eight-Hour Ozone NAAQS in the Philadelphia–Wilmington–Atlantic City Ozone Nonattainment Area;
- « The 1997 Annual and 2006 24-Hour PM_{2.5} NAAQS in the Philadelphia–Wilmington, PA–NJ–DE PM_{2.5} Nonattainment Area;
- « The 1997 Annual and 2006 24-Hour PM_{2.5} NAAQS in the DVRPC portion of the New York–Northern New Jersey–Long Island, NY–NJ–CT PM_{2.5} Nonattainment Area; and
- « The 1971 Eight-Hour CO NAAQS in the Philadelphia–Camden CO Maintenance Area; in the City of Burlington in Burlington County, New Jersey; and in the City of Trenton in Mercer County, New Jersey.