

# 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). The transportation conformity process is required in areas that have been designated by the US EPA as not having met one or more of the NAAQS. These areas are called "nonattainment areas" if they currently do not meet air quality standards, or "maintenance areas" if they have previously violated air quality standards but currently meet them and have an approved CAA section 175(a) maintenance plan. 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 *Fiscal Year (FY) 2016 TIP for New Jersey* and the addition of regionally significant and nonexempt projects being amended to the *FY 2015 TIP for Pennsylvania* and *Connections 2040* Long-Range Plan in the Pennsylvania portion of the region.

The DVRPC region includes a complex combination of nonattainment and maintenance areas for three of the NAAQS (ozone, fine particulate matter or PM<sub>2.5</sub>, and carbon monoxide [CO]). The region's ozone nonattainment area encompasses the entire nine county DVRPC region, while the PM<sub>2.5</sub> and CO maintenance areas encompass various portions of the region. The region is required to demonstrate transportation conformity for each of these standards in each of the appropriate geographic areas covered by the nonattainment and maintenance areas.

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

This Executive Summary highlights DVRPC's conformity demonstration for:

- **VOCs and NO<sub>x</sub> meeting the 2008 Eight-Hour Ozone NAAQS requirements in:**
  - The DVRPC portion of the Philadelphia–Wilmington–Atlantic City Ozone Nonattainment Area.
- **Direct PM<sub>2.5</sub> and Precursor nitrogen oxides (NO<sub>x</sub>) meeting the 1997 Annual and 2006 24-Hour PM<sub>2.5</sub> NAAQS requirements in:**
  - The DVRPC portion of the Philadelphia–Wilmington, Pennsylvania–New Jersey–Delaware (PA–NJ–DE) Annual PM<sub>2.5</sub> Maintenance Area
  - The DVRPC portion of the Philadelphia–Wilmington, PA–NJ–DE 24-Hour PM<sub>2.5</sub> Maintenance Area
  - The DVRPC portion of the New York–Northern New Jersey–Long Island, New York–New Jersey–Connecticut (NY–NJ–CT) Annual PM<sub>2.5</sub> Maintenance Area, and
  - The DVRPC portion of the New York–Northern New Jersey–Long Island, NY–NJ–CT 24-Hour PM<sub>2.5</sub> Maintenance Area.

- **Direct PM<sub>2.5</sub> and precursor nitrogen oxides (NO<sub>x</sub>) meeting the 2012 Annual PM<sub>2.5</sub> NAAQS requirements in:**
  - The Delaware County, PA Annual PM<sub>2.5</sub> Nonattainment Area
- **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](http://www.dvrpc.org).

## 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

The Final Rule stipulates that the emissions analysis of transportation plans and programs must model all regionally significant, nonexempt projects. Each project in the Plan and TIPs 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 October 2016, MPOs and state DOTs are required by the U.S. EPA to use the Motor Vehicle Emissions Simulator 2014 (MOVES 2014) emissions model to demonstrate transportation conformity. DVRPC is using MOVES 2014 for this analysis in order to meet that requirement. MOVES 2014 replaces MOVES 2010 as the official emissions analysis model for conformity determinations. The MOVES family of models estimates on-road mobile emissions based on an operational mode that accounts for different driving patterns and emission profiles from various vehicle types. MOVES 2014 includes a number of

improvements from MOVES 2010, including the Tier III fuel standards, updates to vehicle emissions and fuel standards, and new data on fleets, and vehicle activity emissions.

### Conformity Test

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 and New Jersey to demonstrate conformity to the 2008 Eight-Hour Ozone Standard.

The region also has approved SIP budgets for the 1997 Annual and 2006 24-Hour PM<sub>2.5</sub> standards in both Pennsylvania and New Jersey. In Pennsylvania, the Interagency Consultation Group (ICG) has determined that since the Pennsylvania PM<sub>2.5</sub> SIP budgets were developed with individual county emissions inventories, the MVEB portion of the SIP budgets for the 1997 and 2007 PM<sub>2.5</sub> Standards attributed to Delaware County, could serve as a SIP budget for the 2012 Annual PM<sub>2.5</sub> standard conformity demonstration.

The region is a limited maintenance area for CO and no emissions analysis is required.

### Analysis Years

For this conformity demonstration, the mobile source emissions analysis years are identified in Table 1.

**Table 1:** Mobile Source Analysis Years

| Year              | Ozone | PM <sub>2.5</sub> | Note   |
|-------------------|-------|-------------------|--|
| 2017<br>(PA Only) | √     | √                 | PM <sub>2.5</sub> SIP budget year in PA                        |
| 2020              | √     | √                 | 2012 PM <sub>2.5</sub> Std. attainment date and near-term year |
| 2025              | √     | √                 | PA and NJ PM <sub>2.5</sub> SIP budget year                    |
| 2035              | √     | √                 | Year within 10 years of previous analysis                      |
| 2040              | √     | √                 | DVRPC Plan Horizon Year  |

Source: Delaware Valley Regional Planning Commission, 2015.

For this conformity demonstration, the mobile source ozone emissions analysis years for VOCs and NO<sub>x</sub> in the Philadelphia–Wilmington–Atlantic City Ozone Nonattainment Area are 2017 (Pennsylvania counties only), 2020, 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<sub>x</sub>, 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<sub>2.5</sub>, Philadelphia–Wilmington, PA–NJ–DE PM<sub>2.5</sub> Maintenance Areas, and the Delaware County PM<sub>2.5</sub> Nonattainment Area, the analysis years are 2020 (the attainment date for the 2012 PM<sub>2.5</sub> standard for Delaware County and near-term year), 2025 (a SIP budget year in New Jersey and Pennsylvania), 2035 (an interim year selected to keep all analysis years no more than 10 years apart), and 2040 (the horizon year of the DVRPC Plan). In the

Pennsylvania counties, 2017 is also an analysis year because that is an additional SIP budget year in Pennsylvania.

To demonstrate conformity in New Jersey, projected PM<sub>2.5</sub> 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<sub>2.5</sub> Maintenance Area and Mercer County in the New York–Northern New Jersey–Long Island, NY–NJ–CT PM<sub>2.5</sub> Maintenance Area. To demonstrate conformity in Pennsylvania, projected PM<sub>2.5</sub> emissions in analysis years must not exceed the 2017 (for analysis years before 2025) and 2025 (for analysis years 2025 and later) budgeted emissions in the Pennsylvania portion of the Philadelphia–Wilmington, PA–NJ–DE PM<sub>2.5</sub> Maintenance Area and Delaware County in the Delaware County PM<sub>2.5</sub> 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

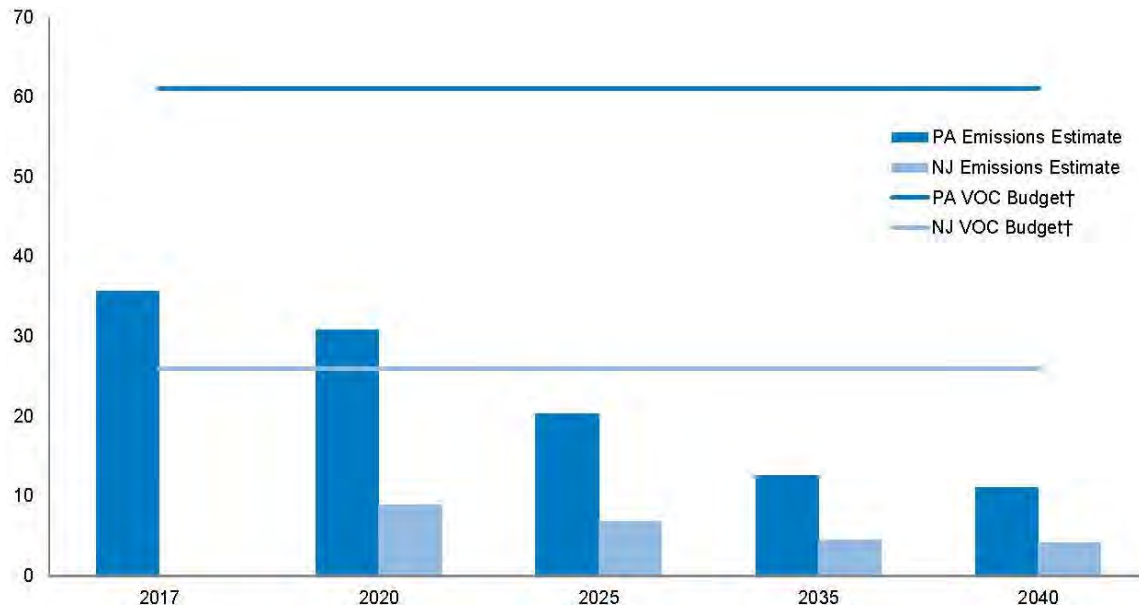
The DVRPC Plan and the TIPs are found to be in conformity with the current Pennsylvania and New Jersey SIPs under the CAA. The forecasted emissions levels of VOCs, NO<sub>x</sub>, and PM<sub>2.5</sub> do not exceed the respective budgets established by the state departments of environmental protection (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:**

- 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].

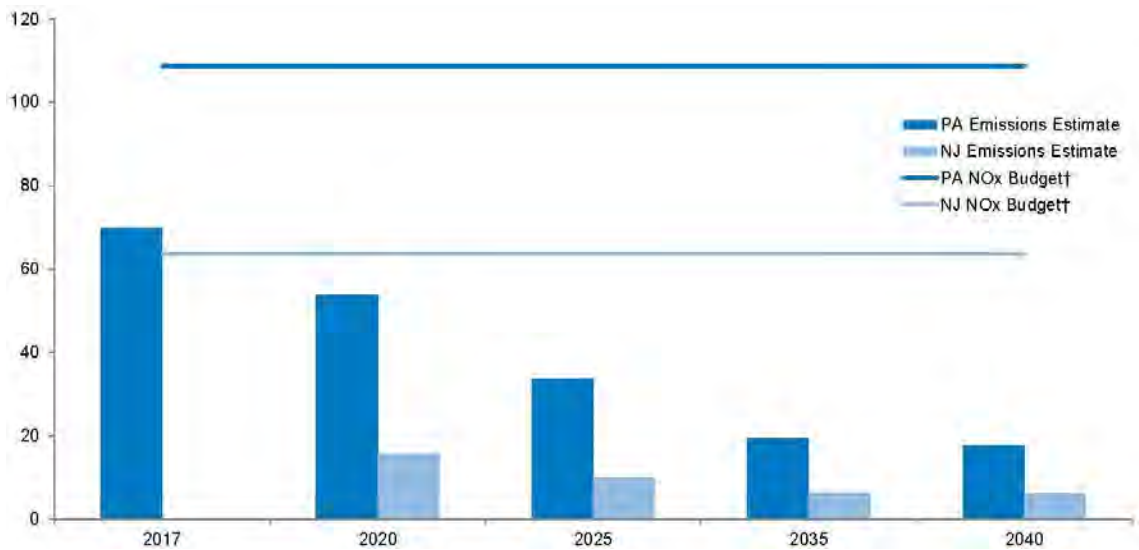
Figures 1 through 6 detail the emissions analysis results for transportation projects included in the Plan and TIPs for Pennsylvania and New Jersey. The data for these figures is detailed in Tables 12 through 18, found on pages 30 and 34. These estimates of emissions results confirm that the transportation projects in the Plan and TIPs conform to the respective SIP and Final Rule conformity requirements.

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



Source: Delaware Valley Regional Planning Commission, 2015.

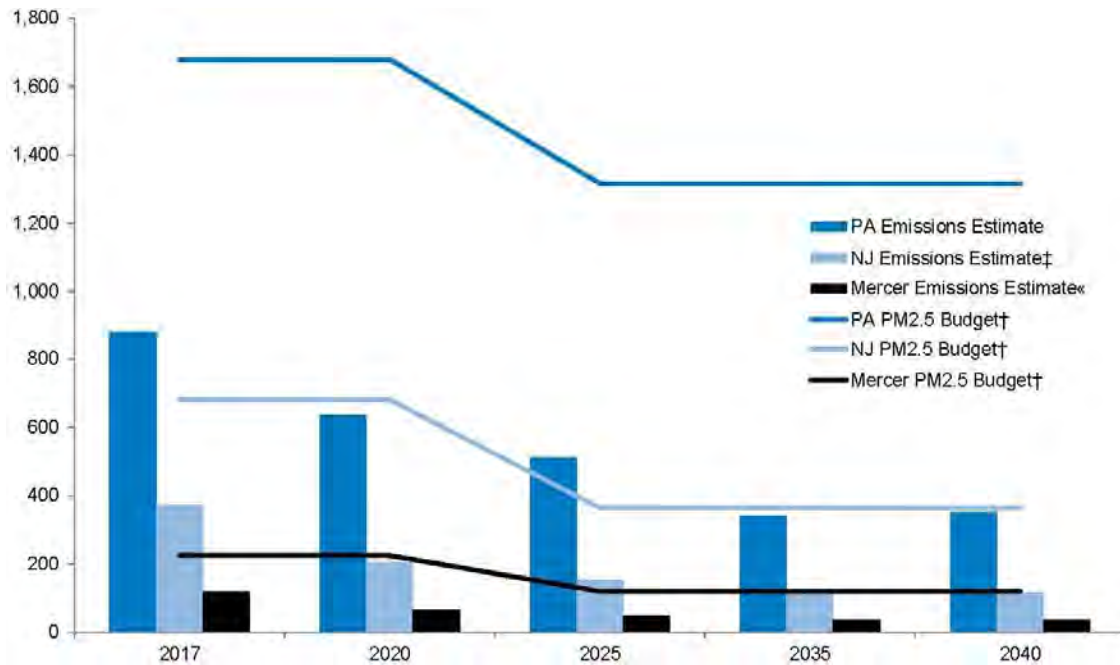
Figure 2: Nitrogen Oxides Emissions Analysis Results (Tons/July Day)



Source: Delaware Valley Regional Planning Commission, 2015.

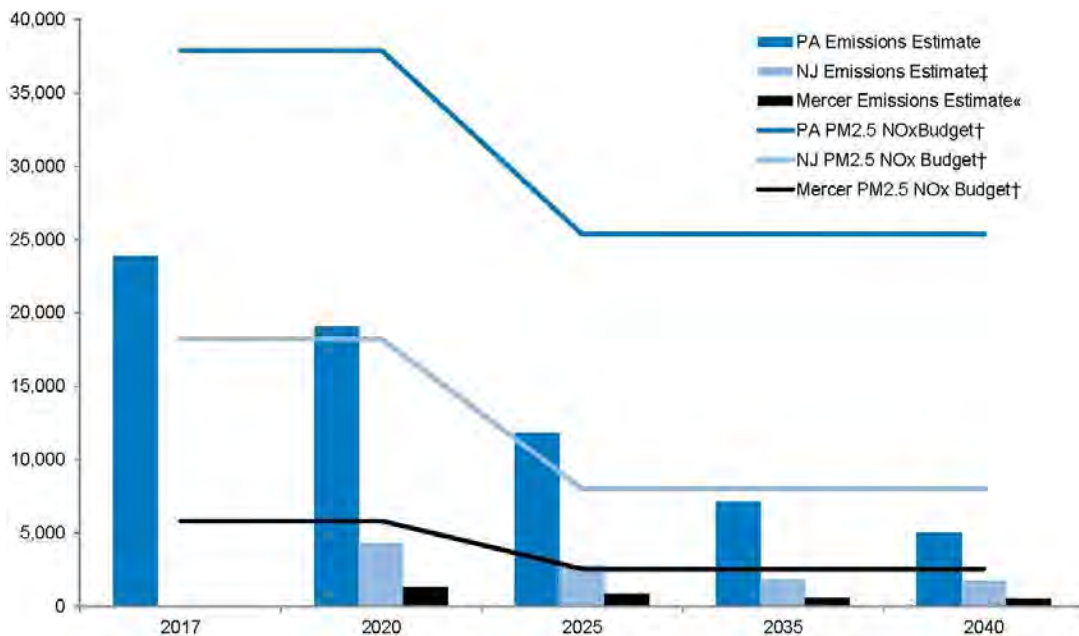
**Note :** † The most recent Eight-Hour Ozone SIP MVEBs (2008 in Pennsylvania or 2009 in New Jersey) will apply to all future analysis years.

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



Source: Delaware Valley Regional Planning Commission, 2015.

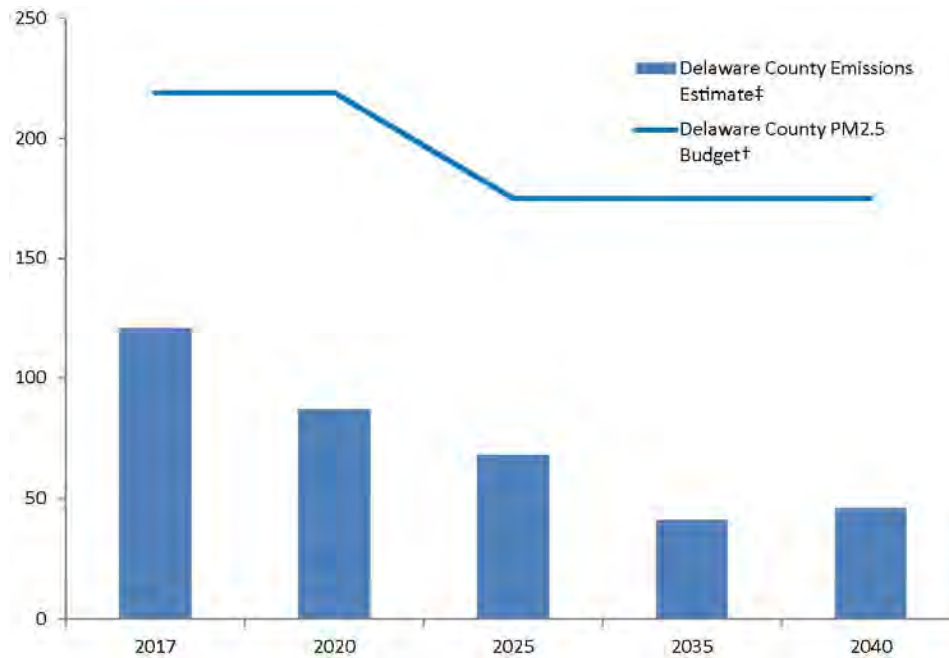
Figure 4: Annual and 24-Hour NO<sub>x</sub> Precursor Emissions Analysis Results (Tons/Year)



Source: Delaware Valley Regional Planning Commission, 2015.

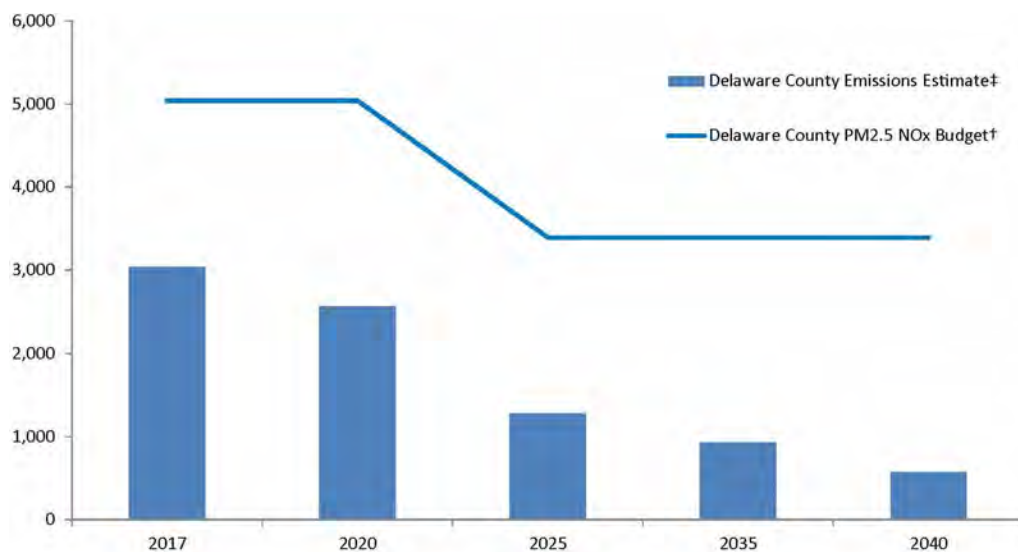
**Note:** † Associated MVEBs apply to all future analysis years.  
 ‡ Results are only for Burlington, Camden, and Gloucester counties, which are the New Jersey portion of the Philadelphia–Wilmington, PA–NJ–DE PM<sub>2.5</sub> Nonattainment Area.  
 « Results are only for Mercer County, which is the DVRPC New Jersey portion of the New York–Northern New Jersey–Long Island, NY–NJ–CT PM<sub>2.5</sub> Nonattainment Area.

Figure 5: Delaware County Annual Direct Fine Particulate Matter Emissions Analysis Results (Tons/Year)



Source: Delaware Valley Regional Planning Commission, 2015.

Figure 6: Delaware County Annual NO<sub>x</sub> Precursor Emissions Analysis Results (Tons/Year)



Source: Delaware Valley Regional Planning Commission, 2015.

**Note:** † Associated MVEBs apply to all future analysis years.  
 ‡ Results are only for Delaware County, which is the nonattainment area for the 2012 PM<sub>2.5</sub> Annual Standard

These findings demonstrate transportation conformity of the DVRPC *Connections 2040* Long-Range Plan, FY2015 Pennsylvania TIP, and FY2016 New Jersey TIP 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<sub>2.5</sub> NAAQS in the Philadelphia–Wilmington, PA–NJ–DE PM<sub>2.5</sub> Maintenance Area,
- The 1997 Annual and 2006 24-Hour PM<sub>2.5</sub> NAAQS in the DVRPC portion of the New York–Northern New Jersey–Long Island, NY–NJ–CT PM<sub>2.5</sub> Maintenance Area,
- The 2012 Annual PM<sub>2.5</sub> Delaware County 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.