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 Program (TIP) 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 U.S. Environmental Protection Agency (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 Clean Air Act (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 a new Fiscal Year (FY) 2020 TIP for New Jersey and the addition of regionally significant and nonexempt projects to the FY2019 TIP for Pennsylvania.

The Delaware Valley Regional Planning Commission (DVRPC) region includes a complex combination of nonattainment and maintenance areas for two of the NAAQS (ozone and fine particulate matter [PM2.5]). The region’s ozone nonattainment area encompasses the entire nine-county DVRPC region, while the PM2.5 maintenance and nonattainment 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 2045 Long-Range Plan, FY2019-2022 Pennsylvania TIP, and Draft FY2020-2023 New Jersey TIP are following, or “conforming to,” the State Implementation Plans (SIP) to meet the NAAQS.

This Executive Summary highlights DVRPC’s conformity demonstration for:

Volatile Organic Compounds (VOCs) and Nitrogen Oxides (NO\textsubscript{x}) meeting the 1997, 2008, and 2015 Eight-Hour Ozone NAAQS requirements in:

- the DVRPC portion of the Philadelphia–Wilmington–Atlantic City PA–NJ–MD–DE Ozone Nonattainment Area; and

Direct PM\textsubscript{2.5} and precursor NO\textsubscript{x} meeting the 1997 Annual, 2006 24-Hour, and 2012 Annual PM\textsubscript{2.5} NAAQS requirements in:

- the DVRPC portion of the Philadelphia–Wilmington, PA–NJ–DE Annual PM\textsubscript{2.5} Maintenance Area;  
- the DVRPC portion of the Philadelphia–Wilmington, PA–NJ–DE 24-Hour PM\textsubscript{2.5} Maintenance Area;  
- the DVRPC portion of the New York–Northern New Jersey–Long Island, NY–NJ–CT Annual PM\textsubscript{2.5} Maintenance Area;
• the DVRPC portion of the New York–Northern New Jersey–Long Island, NY–NJ–CT 24-Hour PM$_{2.5}$ Maintenance Area; and
• the Delaware County, PA Annual PM$_{2.5}$ Nonattainment Area.

This summary serves as an inclusive document that demonstrates the transportation conformity of the DVRPC Plan and Pennsylvania and New Jersey 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/airquality/conformity.

Analysis Approach
Regional Emissions Analysis of Plan and TIP Projects
The federal Final Conformity Guidance (Final Rule, 40 Code of Federal Regulations [CFR] 93) stipulates that the emissions analysis of transportation plans and programs must model all regionally significant, nonexempt projects.

New Jersey and Pennsylvania have implemented SIPs that contain motor vehicle emissions budgets (MVEBs). Conformity to the SIPs is demonstrated when the modelled emissions of the projects in the Plan and TIPs are shown to be lower than the MVEBs. The federal 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.

DVRPC uses the Motor Vehicle Emissions Simulator 2014b (MOVES 2014b) emissions model to demonstrate transportation conformity. MOVES 2014b is the latest US EPA emissions model and incorporates improvements in calculating nonroad equipment emissions from the MOVES 2014a model. MOVES 2014b does not significantly change the criteria pollutant emissions results of MOVES 2014a and therefore is not considered a new model for SIP and transportation conformity purposes.

Conformity Test
New Jersey and Pennsylvania have approved SIP MVEBs for the 1997 Eight-Hour Ozone Standard. The Final Rule requires that regions with existing MVEBs for a standard of the same pollutant (i.e., 1997 Eight-Hour Ozone and 2015 Eight-Hour Ozone) - must utilize the approved budget test to demonstrate conformity for the new standard. Therefore, DVRPC will utilize the 1997 Eight-Hour Ozone MVEBs in New Jersey and Pennsylvania to demonstrate conformity to the 1997, 2008, and 2015 Eight-Hour Ozone Standards.

The region also has approved SIP budgets for the 1997 and 2012 Annual, and 2006 24-Hour PM$_{2.5}$ standards in both states.

Analysis Years
To demonstrate conformity for ozone in the Philadelphia–Wilmington–Atlantic City Ozone Nonattainment Area, projected VOC and NO$_x$ emissions in all analysis years must be below the SIP MVEBs for the given analysis years. VOCs and NO$_x$, which are heat-sensitive ozone precursors, are estimated for a typical summer workday.

To demonstrate conformity for the PM$_{2.5}$ NAAQS, emissions are estimated for direct PM$_{2.5}$ and the PM$_{2.5}$ precursor chemical NO$_x$. The SIP budgets for PM$_{2.5}$ are expressed in terms of annual emissions; therefore, conformity analyses are conducted for annual PM$_{2.5}$ emissions.
In the Pennsylvania portion of the region, the analysis years are 2020, 2025, 2035, and 2045. Modelled emissions in all analysis years must not exceed the 2008 MVEB for ozone. For PM$_{2.5}$, modelled emissions must not exceed the 2017 MVEB for PM$_{2.5}$ in 2020 and the 2025 MVEB for analysis years 2025 and later. In New Jersey, all projects are tested against the 2009 MVEBs for ozone and the 2025 MVEBs for PM$_{2.5}$. Because there are no projects in the FY2020 TIP that will be open to traffic in 2020, a 2020 analysis year is not necessary in New Jersey.

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

Table 1: Mobile Source Analysis Years

<table>
<thead>
<tr>
<th>Year</th>
<th>Ozone</th>
<th>PM$_{2.5}$</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>✓</td>
<td>✓</td>
<td>2012 PM$_{2.5}$ Std. attainment date and near-term year (Pennsylvania only)</td>
</tr>
<tr>
<td>2025</td>
<td>✓</td>
<td>✓</td>
<td>PM$_{2.5}$ SIP budget year</td>
</tr>
<tr>
<td>2035</td>
<td>✓</td>
<td>✓</td>
<td>Year within 10 years of previous analysis</td>
</tr>
<tr>
<td>2045</td>
<td>✓</td>
<td>✓</td>
<td>DVRPC Plan horizon year</td>
</tr>
</tbody>
</table>

*Source: DVRPC, 2019.*

Findings

The DVRPC Plan and the TIPs are found to be in conformity with the current New Jersey and Pennsylvania 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 department of environmental protection (state DEP) 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 SIPs [40 CFR 93.118].

Figures 1 through 6 detail the emissions analysis results for transportation projects included in the Plan and TIPs for New Jersey and Pennsylvania. The data for these figures is detailed beginning on page 23. 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: VOCs Emissions Analysis Results (Tons/Day)

Source: DVRPC, 2019.
†The most recent Eight-Hour Ozone SIP MVEBs (2008) will apply to all future analysis years.

Figure 2: NOx Emissions Analysis Results (Tons/Day)

Source: DVRPC, 2019.
†The most recent Eight-Hour Ozone SIP MVEBs (2008) will apply to all future analysis years.
Figure 3: Annual and 24-Hour Direct PM$_{2.5}$ Emissions Analysis Results (Tons/Year)

Source: DVRPC, 2019.

†Associated MVEBs apply to all future analysis years.

Figure 4: Annual and 24-Hour NO$_x$ Precursor Emissions Analysis Results (Tons/Year)

Source: DVRPC, 2019.

†Associated MVEBs apply to all future analysis years.
Figure 5: Delaware County Annual Direct PM$_{2.5}$ Emissions Analysis Results (Tons/Year)

Source: DVRPC, 2019.

†Associated MVEBs apply to all future analysis years.

Figure 6: Delaware County Annual NO$_x$ Precursor Emissions Analysis Results (Tons/Year)

Source: DVRPC, 2019.

†Associated MVEBs apply to all future analysis years.
These findings demonstrate transportation conformity of the DVRPC Connections 2045 Long-Range Plan, FY2019 Pennsylvania TIP, and Draft FY2020 New Jersey TIP, with the state SIPs and the Final Rule requirements under CAA, including:

- the 1997 Annual and 2006 24-Hour PM$_{2.5}$ NAAQS in the Philadelphia–Wilmington, PA–NJ–DE PM$_{2.5}$ Maintenance 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$_{2.5}$ Maintenance Area; and
- the 2012 Annual PM$_{2.5}$ Delaware County Nonattainment Area.