

Executive Summary

Overview

Transportation conformity is the process by which Metropolitan Planning Organizations (MPOs) or Departments of Transportation demonstrate that transportation projects included in a region's long-range plan or Transportation Improvement Programs (TIP) 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 re-designated 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 TIP or long-range plan, or 2) amends, adds, or deletes a regionally significant, non-exempt project to a TIP or long-range plan. This conformity demonstration is required due to a new Fiscal Year (FY) 2013 Pennsylvania TIP and the amendment of a regionally significant, non-exempt project to the *Connections* Long Range-Plan. This transportation conformity demonstration shows that the region's TIPs and *Connections* Long-Range Plan (Plan) are following or "conforming to" the respective State Implementation Plans (SIPs) to meet the NAAQS. In nonattainment areas that do not have federally approved SIPs, the current conformity guidance, known as the Final Rule, issued by the US EPA establishes guidelines for conducting transportation conformity demonstrations.

The Delaware Valley Regional Planning Commission (DVRPC) region is in nonattainment for two of the NAAQS (ozone and fine particulate matter [PM_{2.5}]).¹ Portions of the region are maintenance areas for a third NAAQS (carbon monoxide [CO]).

Since ozone is not directly emitted but is formed by the combination of volatile organic compounds (VOCs) and nitrogen oxides (NOx) in the presence of sunlight, conformity is

¹ The US EPA published a "Clean Data Determination" in the Federal Register for the DVRPC Region for the 1997 Eight-hour Ozone Standard on March 26, 2012 (77 FR 17343) and the 2006 Annual PM_{2.5} Standard on May 16, 2012 (77 FR 2872). The region will remain designated as nonattainment areas until the states submit, and the US EPA approves, plans to re-designate the region as either an attainment or maintenance areas for each of these pollutants.

demonstrated by analysis of the component pollutants. PM_{2.5} is directly emitted, and precursor pollutants—in this case NO_x—are also analyzed to demonstrate transportation conformity.

This Executive Summary highlights DVRPC's conformity demonstration for:

☞ **VOCs and NO_x meeting the 1997 and 2008 Eight-Hour Ozone NAAQS requirements in:**

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

☞ **Direct PM_{2.5} and Precursor NO_x meeting the 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.

☞ **CO meeting the 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 TIPs and Plan 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.

Analysis Approach

TIP Projects

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

- ☞ **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 Rule (40 CFR 93) that primarily enhances safety or aesthetics, maintains mass transit, continues current levels of ridesharing, or builds bicycle and pedestrian facilities.
- ☞ *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).

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 alpha-numeric-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 multi-state MPO such as DVRPC, conformity applies separately to individual state portions of its planning area under the respective SIP.

In the absence of an implemented SIP, areas must perform what is known as the “interim” emissions test. The Final Rule dictates that only certain interim test types and methodologies are allowed in a given nonattainment area; that they must be applied uniformly throughout the area; and that the United States Department of Transportation (US DOT) determination on transportation conformity must be made on the entire nonattainment area. The Final Rule further requires that all affected MPOs in the nonattainment area must work together to demonstrate conformity jointly until respective SIPs are implemented.

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 US EPA published the adequacy finding of New Jersey's PM_{2.5} SIP budgets on June 14, 2010 (75 FR 33614). 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 New Jersey counties will use the Annual PM_{2.5} Standard Budget Test to demonstrate conformity for both PM_{2.5} standards.

Pennsylvania does not have SIP budgets for PM_{2.5}, and DVRPC is required to use an interim conformity test to demonstrate conformity for the PM_{2.5} Annual and 24-Hour standards in Pennsylvania. This demonstration must be coordinated with the Wilmington Area Planning Council's (WILMAPCO) PM_{2.5} conformity demonstration for New Castle County, Delaware, because New Castle County is a part of the Philadelphia–Wilmington, PA–NJ–DE 24-Hour PM_{2.5} Nonattainment Area.

WILMAPCO has adopted a conformity demonstration for the Annual and 24-Hour PM_{2.5} standards in March 2011, which relied on an analysis adopted on January 13, 2011. WILMAPCO reaffirmed that demonstration by Council resolution in May 2012 as permitted by federal regulations (40 CFR 93.122(g)).

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 2013 (a near-term year within five years of TIP adoption), 2015 (the attainment date for the 2008, Eight-Hour Ozone Standard), 2020 (an interim year selected to keep all analysis years no more than ten years apart), 2030 (a second interim year selected to keep all analysis years no more than ten years apart), and 2035 (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.

DVRPC is including 2015 as an analysis year to demonstrate conformity to the updated 2008 Eight-Hour Ozone Standard. On May 21, 2012 the EPA published the final nonattainment area designations for the 2008 Eight-Hour Ozone Standard in the Federal Register (77 FR 30088). These designations will take effect on July 21, 2012. The DVRPC region was designated as a marginal nonattainment area for this standard. By demonstrating conformity to this standard in this determination, it is DVRPC's intention to meet the federal requirement (40 CFR 93.102) to demonstrate conformity to the new ozone standard within one year of the region being designated as nonattainment.

In the New York–Northern New Jersey–Long Island, NY–NJ–CT PM_{2.5} Nonattainment Area, the analysis years are 2013, 2020, 2030, and 2035. In the Philadelphia–Wilmington, PA–NJ–DE PM_{2.5} Nonattainment Area, an additional analysis year of 2040 is required because 2040 is the horizon year of the WILMAPCO Long-Range Plan. The Final Rule requires that, for nonattainment areas using the interim test for emission analysis, years be identical in all of the MPO regions using the interim test. In practice, this means that both MPOs, in the Philadelphia–Wilmington PM_{2.5} Nonattainment Areas, must include the horizon years of each of the MPOs' long-range plans.

To demonstrate conformity, projected PM_{2.5} emissions in all analysis years must not exceed (1) the 2002 baseline emissions results for the Annual PM_{2.5} Standard and 2008 baseline emissions results for the 24-Hour PM_{2.5} Standard in the Pennsylvania portion of the Philadelphia–Wilmington, PA–NJ–DE PM_{2.5} Nonattainment Area; (2) the 2009 budgeted emissions in the New

Jersey portion of the Philadelphia–Wilmington, PA–NJ–DE PM_{2.5} Nonattainment Area; and (3) the 2009 budgeted emissions for Mercer County in the New York–Northern New Jersey–Long Island, NY–NJ–CT 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 TIPs and the Plan 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 and baselines 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 TIPs are demonstrating conformity to a new NAAQS within one year of the region being designated as a nonattainment area [40 CFR 93.102];
- ✎ 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].

Tables E-1 through E-4 detail the emissions analysis results for transportation projects included in the Plan and TIPs for Pennsylvania and New Jersey. These estimates of emissions results confirm that the transportation projects in the TIPs and Plan conform to the respective SIP and Final Rule conformity requirements.

Table E-1. Volatile Organic Compounds Emissions Analysis Results (Tons/July Day)[†]

		SIP 2008 MVEB [†]	SIP 2009 MVEB [†]	2013	2015	2020	2030	2035
PA	Emissions from MOBILE 6.2	-	-	37.41	31.39	22.93	20.60	20.50
	Adjustments from Off-network Calculation [‡]	-	-	0.0	0.0	0.01	0.0	0.0
	Estimated Total Emissions	61.09	-	37.41	31.39	22.92	20.60	20.50
NJ	Emissions from MOBILE 6.2	-	-	18.00	15.70	12.61	11.84	11.82
	Adjustments from Off-network Calculation [‡]	-	-	0.0	0.0	0.0	0.0	0.0
	Estimated Total Emissions	-	25.98	18.00	15.70	12.61	11.84	11.82

Source: Delaware Valley Regional Planning Commission, 2012.

Note: [†] The most recent Eight-Hour Ozone SIP MVEBs (2008 in PA or 2009 in NJ) will apply to all future analysis years. All emissions are rounded off to the nearest hundredth.

[‡] Emissions adjustments calculated using off-network methodology could become zero when rounded off.

Table E-2. Nitrogen Oxides Emissions Analysis Results (Tons/July Day)[†]

		SIP 2008 MVEB [†]	SIP 2009 MVEB [†]	2013	2015	2020	2030	2035
PA	Emissions from MOBILE 6.2	-	-	54.44	42.84	25.03	15.11	14.23
	Adjustments from Off-network Calculation [‡]	-	-	0.0	0.0	0.01	0.01	0.01
	Estimated Total Emissions	108.78	-	54.44	42.84	25.02	15.10	14.22
NJ	Emissions from MOBILE 6.2	-	-	35.89	14.98	14.98	9.37	9.03
	Adjustments from Off-network Calculation [‡]	-	-	0.0	0.0	0.0	0.0	0.0
	Estimated Total Emissions	-	63.66	35.89	14.98	14.98	9.37	9.03

Source: Delaware Valley Regional Planning Commission, 2012.

Note: [†] The most recent Eight-Hour Ozone SIP MVEBs (2008 in PA or 2009 in NJ) will apply to all future analysis years. All emissions are rounded off to the nearest hundredth.

[‡] Emissions adjustments calculated using off-network methodology could become zero when rounded off.

Table E-3. Annual Direct Fine Particulate Matter and Nitrogen Oxides Emissions Analysis Results (Tons/Year)[†]

		2002	2009	2013	2020	2030	2035	2040
		Baseline	SIP MVEB [»]	Estimated Emissions	Estimated Emissions	Estimated Emissions	Estimated Emissions	Estimated Emissions
Direct PM _{2.5}	DVRPC—PA*	998.2	-	495.3	406.8	399.3	394.7	395.1
	DVRPC—NJ; except Mercer [‡]	-	341	237	188	180	179	-
	Mercer County, NJ [»]	-	105	75	59	58	57	-
PM _{2.5} Precursor (NOx)	DVRPC—PA*	59,346.0	-	19,594.6	9,005.2	5,426.1	5,161.8	5,166.8
	DVRPC—NJ; except Mercer [‡]	-	17,319	9,665	4,049	2,582	2,502	-
	Mercer County, NJ [«]	-	5,323	3,055	1,291	834	808	-

Source: Delaware Valley Regional Planning Commission, 2012.

Note: [†] Associated 2002 Baseline or 2009 MVEBs apply to all future analysis years. Pennsylvania emissions are rounded off to the nearest tenth.
^{*} Off-model adjustments have been made.
[»] New Jersey SIP MVEBs and the emissions results are rounded off to the nearest integer in accordance with the SIP.
[‡] Results are for Burlington, Camden, and Gloucester counties only, which are the New Jersey portion of the Philadelphia-Wilmington, PA-NJ-DE PM_{2.5} Nonattainment Area. **This budget test satisfies both PM_{2.5} standards according to Final Rule guidance (75 FR 14263).**
[«]Results are for Mercer County only, which is the DVRPC New Jersey portion of the New York-Northern New Jersey-Long Island, NY-NJ-CT PM_{2.5} Nonattainment Area. **This budget test satisfies both PM_{2.5} standards according to Final Rule guidance (75 FR 14263).**

Table E-4. 24-Hour Direct Fine Particulate Matter and Nitrogen Oxides Emissions Analysis Results (Tons/Day)[†]

		2008	2013	2020	2030	2035	2040
		Baseline	Estimated Emissions	Estimated Emissions	Estimated Emissions	Estimated Emissions	Estimated Emissions
Direct PM _{2.5}	DVRPC—PA*	1.9	1.4	1.2	1.2	1.1	1.1
PM _{2.5} Precursor (NOx)	DVRPC—PA*	90.7	52.2	24.0	14.5	13.7	13.7

Source: Delaware Valley Regional Planning Commission, 2012.

Notes: [†] 2008 Baseline applies to all future analysis years. Emissions are rounded off to the nearest tenth.
^{*} Off-model adjustments have been made.

These findings demonstrate transportation conformity of the FY 2012 New Jersey TIP, the FY 2013 Pennsylvania TIP, and the DVRPC *Connections* Long-Range Plan with the corresponding state SIPs and the Final Rule requirements under CAA, including:

- ☞ the 1997 and 2008 Eight-Hour Ozone NAAQS in the Philadelphia–Wilmington–Atlantic City Ozone Nonattainment Area;
- ☞ the Annual and 24-Hour $PM_{2.5}$ NAAQS in the Philadelphia–Wilmington, PA–NJ–DE $PM_{2.5}$ Nonattainment Area;
- ☞ the Annual and 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 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.