

DRAFT Transportation Conformity Demonstration:

Addendum for FY 2015 Pennsylvania TIP



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We serve a diverse region of nine counties: Bucks, Chester, Delaware, Montgomery, and Philadelphia in Pennsylvania; and Burlington, Camden, Gloucester, and Mercer in New Jersey. DVRPC is the federally designated Metropolitan Planning Organization for the Greater Philadelphia Region — leading the way to a better future.



The symbol in our logo is adapted from the official DVRPC seal and is designed as a stylized image of the Delaware Valley. The outer ring symbolizes the region as a whole while the diagonal bar signifies the Delaware River. The two adjoining crescents represent the Commonwealth of Pennsylvania and the State of New Jersey.

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Introduction

In September 2015, the Delaware Valley Regional Planning Commission (DVRPC) Board approved the Transportation Conformity Findings for the *Connections 2040* Long-Range Plan and FY 2015 Pennsylvania Transportation Improvement Program (TIP). The U.S Department of Transportation approved this finding in December 2015.

That conformity finding included emissions analysis of all of the regionally significant and non-exempt projects that were identified in the *Connections 2040* Long-Range Plan and FY 2015 TIP for Pennsylvania. Projects were categorized into approved analysis years based on when the projects were expected to be open to traffic.

In December 2015, The Pennsylvania Department of Transportation (PennDOT) requested that the construction schedule for two regionally significant and non-exempt projects be advanced. This change in schedule results in the projects being open to traffic in time to be included in an earlier conformity analysis year than was previously analyzed. The descriptions of those two projects can be found in the 2015 TIP for Pennsylvania under MPMS number 57851 “Plank Road Improvements” and MPMS number 17782 “Adams Avenue Connector.”

The Final Conformity Rule requires that a conformity demonstration be conducted when significant projects are amended in the Plan or TIP that change the project’s scope or timing with relation to analysis years. This addendum to the adopted and approved conformity demonstration for the *Connections 2040* Long-Range Plan and FY 2015 TIP for Pennsylvania will serve as the required conformity demonstration to accommodate the change in analysis years of the two projects of concern. This addendum will quantify changes to the emissions analysis results due to the revisions to the 2020 Transportation Demand Model Network to include these projects and serve as a complete conformity demonstration in conjunction with the previously approved document.

This procedure was reviewed and deemed acceptable by the Pennsylvania Transportation Conformity Interagency Group (TCICG) and will be made available for a 30-day public comment period in January 2016.

Relevant Non-Attainment and Maintenance Areas

This Addendum confirms DVRPC’s conformity demonstration for:

- **VOCs and NO_x meeting the 2008 Eight-Hour Ozone NAAQS requirements in:**
 - The Pennsylvania counties in the DVRPC portion of the Philadelphia–Wilmington–Atlantic City Ozone Non-Attainment Area.
- **Direct PM_{2.5} and Precursor Nitrogen Oxides (NO_x) meeting the 1997 Annual and 2006 24-Hour PM_{2.5} NAAQS requirements in:**
 - The Pennsylvania counties in the DVRPC portion of the Philadelphia–Wilmington, Pennsylvania–New Jersey–Delaware (PA–NJ–DE) Annual PM_{2.5} Maintenance Area
 - The Pennsylvania counties in the DVRPC portion of the Philadelphia–Wilmington, PA–NJ–DE 24-Hour PM_{2.5} Maintenance Area
- **Direct PM_{2.5} and Precursor Nitrogen Oxides (NO_x) meeting the 2012 Annual PM_{2.5} NAAQS requirements in:**
 - The Delaware County, PA Annual PM_{2.5} Non-Attainment Area
- **CO meeting the 1971 CO NAAQS requirements in:**
 - The Philadelphia–Camden CO Maintenance Area

This summary serves as an inclusive document that demonstrates the transportation conformity of the amendments to the FY 2015 TIP for Pennsylvania with all applicable SIPs and NAAQS requirements for the above pollutants within the noted areas. The full adopted conformity determination document that was approved by the US EPA and US DOT is available at www.dvrpc.org.

Analysis Approach

Regional Emissions Analysis

The Final Rule stipulates that the emissions analysis of transportation plans and programs must model all regionally significant, non-exempt projects. Each project in the Plan and TIP 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.

This addendum is required because two regionally significant and non-exempt projects are being advanced to construction in an earlier analysis year than was planned when the last conformity determination was adopted by the DVRPC Board. PennDOT has requested that construction for two regionally significant and non-exempt projects (MPMS 17782, Adams Avenue Connector and MPMS 57851 Plank Rd. Intersection Improvements) be advanced in FY 2016 rather than in FY 2019. With this advanced schedule, these projects will now be open to traffic before 2020. These projects were modelled and analyzed for air quality, beginning in the 2025 analysis year, and are now be added to the 2020 air quality analysis model network.

Conformity Test

The DVRPC region has implemented SIP budgets for the 1997 Eight-Hour Ozone Standard in Pennsylvania. 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 region also has approved SIP budgets for the 1997 Annual and 2006 24-Hour PM_{2.5} standards in Pennsylvania. In Pennsylvania, the TCICG has determined that since the Pennsylvania PM_{2.5} SIP budgets were developed with individual county emissions inventories, the MVEB portion of the SIP budgets for the 1997 and 2007 PM_{2.5} Standards attributed to Delaware County, could serve as a SIP budget for the 2012 Annual PM_{2.5} standard conformity demonstration.

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

Analysis Years

DVRPC's approved conformity demonstration contains mobile emissions estimates for the following years. Only the year 2020 analysis is being amended.

Table 1: Mobile Source Analysis Years

Year	Ozone	PM _{2.5}	Note
2017	√	√	PA PM _{2.5} SIP budget year
2020	√	√	2012 PM _{2.5} Std. attainment date and near-term year
2025	√	√	PA PM _{2.5} 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 addendum, the mobile source ozone emissions analysis years for VOCs and NO_x in the Philadelphia–Wilmington–Atlantic City Ozone Non-Attainment Area are 2020. 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.

To demonstrate conformity in Pennsylvania for the 2020 analysis year, projected PM_{2.5} emissions in analysis years must not exceed the 2017 budgeted emissions in the Pennsylvania portion of the Philadelphia–Wilmington, PA–NJ–DE PM_{2.5} Maintenance Area and Delaware County in the Delaware County PM_{2.5} Non-Attainment Area). Pennsylvania has an approved limited maintenance plan for CO, and regional emissions analysis for CO is no longer required to demonstrate conformity.

The TCICG determined that since these projects were being added to one additional emissions analysis network, and the remaining networks will remain unchanged, it was permissible to conduct an emissions analysis on this one year and add those results to the approved conformity finding as an addendum.

Planning Assumptions

The planning assumptions used for the conformity demonstration of this addendum are the same planning assumptions used in the approved Transportation Conformity Demonstration for the FY 2015 PA TIP for Pennsylvania adopted by the DVRPC Board on September 30, 2015. The start of analysis date for this addendum is December 8, 2015.

Interagency Consultation Group Meetings

On December 3, 2015, DVRPC proposed to the TCICG via email, that DVRPC amend the existing conformity document to include emissions analysis to reflect amendments of regionally significant and non-exempt projects in the FY 2015 TIP for Pennsylvania. In that email, DVRPC proposed a procedure for this amendment where DVRPC would amend the emissions analysis for the 2020 analysis year to include the two amended projects and publish those results as an appendix to the approved conformity document that was approved by the US DOT in December 2015. The email documented that the planning assumptions remained the same. All of the remaining analysis year networks (2017, 2025, 2035, and 2040) remained the same. There are no changes to projects in the New Jersey TIP. It was determined that DVRPC would hold a 30-day public comment period for this analysis. A public meeting is not required.

On Monday, December 7, 2015, the TCICG approved this proposal.

Findings

The DVRPC Plan and the TIPs are found to be in conformity with the current Pennsylvania SIPs under the CAA. The forecasted emissions levels of VOCs, NO_x, and PM_{2.5} do not exceed the budgets established by the Pennsylvania Department of Environmental Protection 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 TIP 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 TIP do not interfere with the timely implementation of transportation control measures (TCMs) [40 CFR 93.113]; and
- That the Plan and the TIP are consistent with the MVEBs in the applicable implementation plans [40 CFR 93.118].

Tables 2 through 5 detail the emissions analysis results for transportation projects included in the Plan and TIP for Pennsylvania, including the amendments to the 2020 transportation demand model network. 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.

Table 2: Volatile Organic Compounds Emissions Analysis Results (Tons/July Day)

		SIP 2008 MVEB [†]	2017	2020	Revised 2020	2025	2035	2040
PA	Emissions from MOVES 2014	-	35.18	29.93	29.92	20.32	12.52	11.06
	Adjustments from Off-Network Calculation [‡]	-	0.0	0.0	0.0	0.0	0.0	0.0
	Estimated Total Emissions	61.09	35.18	29.93	29.92	20.32	12.52	11.06

Source: Delaware Valley Regional Planning Commission, 2015.

Table 3: Nitrogen Oxides Emissions Analysis Results (Tons/July Day)

		SIP 2008 MVEB [†]	2017	2020	Revised 2020	2025	2035	2040
PA	Emissions from MOVES 2014	-	64.97	47.01	46.98	33.74	19.29	17.77
	Adjustments from Off-Network Calculation [†]	-	0.0	0.0	0.0	-0.1	-0.1	-0.1
	Estimated Total Emissions	108.78	64.97	47.01	46.98	33.73	19.28	17.76

Source: Delaware Valley Regional Planning Commission, 2015.

Note :[†] The most recent Eight-Hour Ozone SIP MVEBs (2008 in Pennsylvania) will apply to all future analysis years. MVEB = Motor Vehicle Emissions Budget

Table 4: Annual and 24-Hour Direct Fine Particulate Matter Emissions Analysis Results (Tons/Year)

		2017	2017	2020	Revised 2020	2025	2025	2035	2040
		SIP MVEB [†]	Estimated Emissions*	Estimated Emissions*	Estimated Emissions	SIP MVEB [†]	Estimated Emissions*	Estimated Emissions*	Estimated Emissions*
Direct PM _{2.5}	DVRPC PA*	1,679	937	727	727	1,316	529	342	351
PM _{2.5} Precursor (NO _x)	DVRPC PA*	37,922	23,253	16,734	16,727	25,361	11,261	7,166	5,040

Source: Delaware Valley Regional Planning Commission, 2015.

Note: DVRPC = Delaware Valley Regional Planning Commission; MVEB = Motor Vehicle Emissions Budget; NO_x = Nitrogen Oxides; PM_{2.5} = Fine Particulate Matter; SIP = State Implementation Plan.

[†] Associated 2017 and 2025 MVEBs apply to all future analysis years.

* Off-model adjustments have been made.

Table 5: 2012 Annual Direct Fine Particulate Matter and Nitrogen Oxides Emissions Analysis Results (Tons/Year) for Delaware County

		2017	2017	2020	Revised 2020	2025	2025	2035	2040
		SIP MVEB [†]	Estimated Emissions	Estimated Emissions	Estimated Emissions	SIP MVEB [†]	Estimated Emissions*	Estimated Emissions*	Estimated Emissions*
		W/o Safety Margin*				W/o safety margin			
Direct PM _{2.5}	Delaware County	251	121	94	94	201	68	41	46
		219				175			
PM _{2.5} Precursor (NO _x)	Delaware County	5,544	3,038	2,167	2,167	3,730	1,282	932	576
		5,040				3,391			

Source: Delaware Valley Regional Planning Commission, 2015.

Note: DVRPC = Delaware Valley Regional Planning Commission; MVEB = Motor Vehicle Emissions Budget; NO_x = Nitrogen Oxides; PM_{2.5} = Fine Particulate Matter; SIP = State Implementation Plan.

[†] Associated 2017 and 2025 MVEBs apply to all future analysis years.

The Delaware County emissions results are compared to MVEBs both with and without a safety margin because a safety margin was not explicitly developed for the county level budget. Safety margins were included in the regional SIP MVEBs. These emissions results conform to the county level SIP MVEB both with and without a safety margin that represent the county's portion of the regional safety margin. Safety margins are allowed by federal regulation and are sometimes included in MVEBs by the states to assist an area to meet emissions budgets.

These findings demonstrate transportation conformity of the DVRPC *Connections 2040* Long-Range Plan, and FY 2015 Pennsylvania 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 Non-Attainment Area;
- The 1997 Annual and 2006 24-Hour PM_{2.5} NAAQS in the Philadelphia–Wilmington, PA–NJ–DE PM_{2.5} Maintenance Area;
- The 2012 Annual PM_{2.5} Delaware County Non-Attainment Area; and
- The 1971 Eight-Hour CO NAAQS in the Philadelphia–Camden CO Maintenance Area;

Public Comment

DVRPC opened a mandated 30-day public comment period on January 13, 2016, to receive comments on this addendum to Pennsylvania's Conformity findings. The announcement for the public comment period for the conformity determination of the Plan and the TIP appeared in five major newspapers throughout the region during the week of January 11, 2016. Additionally, the public notice was included in the DVRPC newsletter, posted on social media, and sent to local television, radio, and print media.

This addendum was distributed to various libraries throughout the region and made available online at www.dvrpc.org. The comment period will close on February 16, 2016, at 5:00 PM.

DVRPC accepted public comments on the Draft Conformity document online at www.dvrpc.org, by email at tip-plan-comments@dvrpc.org; by fax at (215) 592-9125; and by mail at the address at the end of this document, Attention: TIP/Plan/Conformity Comments.

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Geographic Area Covered:

The Pennsylvania counties of Bucks, Chester, Delaware, Montgomery, and Philadelphia.

Key Words:

Transportation Conformity, Air Quality, National Ambient Air Quality Standards, Ozone, Volatile Organic Compounds (VOCs), Nitrogen Oxides (NOx), Carbon Monoxide (CO), Fine Particulate Matter (PM_{2.5}), Nonattainment Area, Maintenance Area, Multi-jurisdictional Nonattainment Area, *Connections 2040* Long-Range Plan, Transportation Improvement Program (TIP), State Implementation Plan (SIP).

Abstract:

The Delaware Valley Regional Planning Commission (DVRPC) is revising its transportation conformity demonstration of its *Connections 2040* Long-Range Plan, and Fiscal Year (FY) 2015 Pennsylvania Transportation Improvement Program (TIP). 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, non-exempt project in a Plan or TIP. This document addresses amendments to regionally significant, non-exempt projects in the TIP. This conformity finding of the DVRPC Plan and TIP shows that they meet the National Ambient Air Quality Standards (NAAQS) requirements governing ozone, carbon monoxide, and fine particulate matter. This conformity finding reflects all amendments to the Plan and TIP through January 2016.

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