



Transportation Conformity Reaffirmation for the Philadelphia-Wilmington PM_{2.5} Nonattainment Area

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The Delaware Valley Regional Planning Commission is dedicated to uniting the region's elected officials, planning professionals, and the public with a common vision of making a great region even greater. Shaping the way we live, work, and play, DVRPC builds consensus on improving transportation, promoting smart growth, protecting the environment, and enhancing the economy. 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.

DVRPC is funded by a variety of funding sources including federal grants from the U.S. Department of Transportation's Federal Highway Administration (FHWA) and Federal Transit Administration (FTA), the Pennsylvania and New Jersey departments of transportation, as well as by DVRPC's state and local member governments. The authors, however, are solely responsible for the findings and conclusions herein, which may not represent the official views or policies of the funding agencies.

DVRPC fully complies with Title VI of the Civil Rights Act of 1964 and related statutes and regulations in all programs and activities. DVRPC's website (www.dvrpc.org) may be translated into multiple languages. Publications and other public documents can be made available in alternative languages and formats, if requested. For more information, please call (215) 238-2871.

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Introduction

In January 2005, the United States Environmental Protection Agency (US EPA) finalized the designations of counties not meeting the fine particulate matter (PM_{2.5}) National Ambient Air Quality Standard (NAAQS). The designated counties, or groups of counties, are referred to as PM_{2.5} nonattainment areas. US EPA designated Burlington, Camden, and Gloucester Counties in New Jersey; Bucks, Chester, Delaware, Montgomery, and Philadelphia counties in Pennsylvania; and New Castle County in Delaware as the Philadelphia-Wilmington, PA-NJ-DE PM_{2.5} Nonattainment Area. This nonattainment area includes two metropolitan planning organizations (MPOs): Delaware Valley Regional Planning Commission (DVRPC), and the Wilmington Area Planning Council (WILMAPCO).

In December 2006, the US EPA revised the 24-hour daily PM_{2.5} standard from 65 µg/m³ to 35 µg/m³. The Philadelphia-Wilmington Annual PM_{2.5} Nonattainment Area satisfied previous 24-hour standards, but the region violates the revised 24-hour standard. In December 2009, the US EPA designated the 24-hour daily PM_{2.5} standard nonattainment areas. In the DVRPC region, the designated 24-hour PM_{2.5} nonattainment areas are geographically identical to the Annual PM_{2.5} standard nonattainment areas. DVRPC demonstrated transportation conformity for both PM_{2.5} standards in June 2010. Figure 1 is a map of the PM_{2.5} nonattainment areas impacting the DVRPC region.

The US EPA guidance for determining transportation conformity (referred to as the *Final Rule*) mandates that until emissions budgets are established for nonattainment areas in State Implementation Plans (SIPs), interim tests must be performed to demonstrate transportation conformity. The *Final Rule* also mandates that during the interim emissions testing period, all MPOs in the nonattainment area must redemonstrate conformity any time an MPO makes changes to its transportation improvement program (TIP) or long-range plan (Plan). The guidance does allow MPOs that have previously demonstrated conformity for their TIPs or Plans to reaffirm the previous conformity analysis (40 CFR93.122(g)) in lieu of performing a full conformity analysis.

WILMAPCO is currently updating their FY 2011 TIP and 2040 Regional Transportation Plan. This change in the TIP and Plan requires that WILMAPCO demonstrate transportation conformity for their TIP and Plan, but also requires that DVRPC reaffirm its previous conformity determination (June 2010) of the DVRPC Pennsylvania TIP and Plan to satisfy the aforementioned provisions of the *Final Rule*.

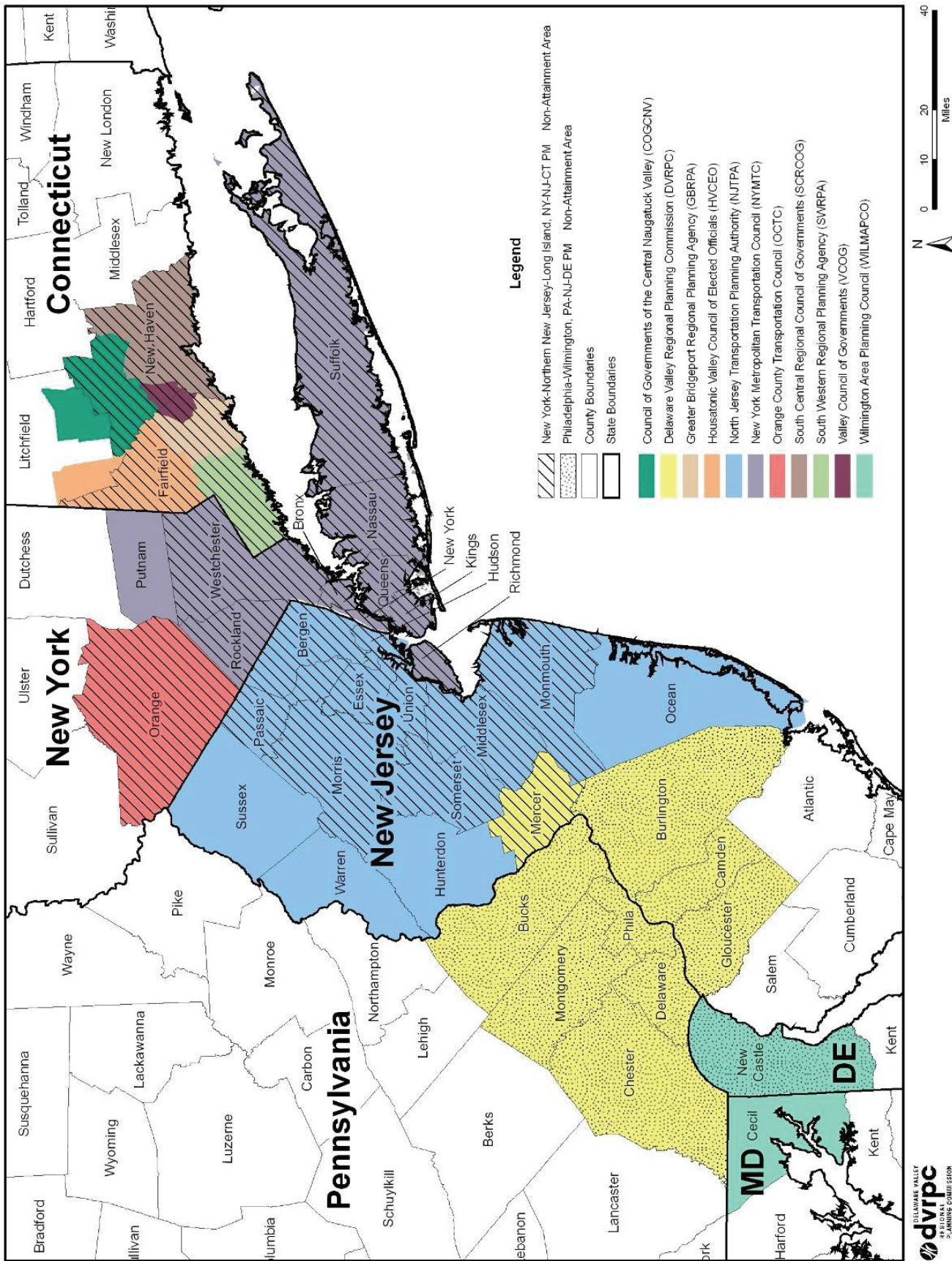


Figure 1. DVRPC Annual and 24-hour PM_{2.5} Nonattainment Areas

Emissions Analysis

Fine Particle Pollution

Fine particle pollution or $PM_{2.5}$ includes both solid particles and liquid droplets found in the air. Many man-made and natural sources emit $PM_{2.5}$ directly or emit other pollutants that react in the atmosphere to form $PM_{2.5}$. It can be emitted directly from combustion engines or chemically formed in the atmosphere when certain gases are present. Direct $PM_{2.5}$ emissions can result from particles in exhaust fumes, from brake and tire wear, from road dust kicked up by vehicles, and from highway and transit construction. Indirect $PM_{2.5}$ emissions can result from one or more of several exhaust components, including volatile organic compounds (VOCs), nitrogen oxides (NOx), sulfur oxides (SOx), and ammonia (NH₃).

Fine particles pose a serious health risk. Because of their small size, fine particles can lodge deeply into the lungs. Individuals particularly sensitive to $PM_{2.5}$ exposure include older adults, people with heart and lung disease, and children. Health studies have also shown a significant association between exposure to $PM_{2.5}$ and premature mortality.

In order to demonstrate transportation conformity for the $PM_{2.5}$ standards, DVRPC must perform emissions analyses for both direct $PM_{2.5}$ and the precursor pollutant NOx.

Emissions Tests

The Philadelphia-Wilmington region is in nonattainment for two $PM_{2.5}$ standards---the 1997 Annual Standard and the 2006, 24-hour Standard. The MPOs must demonstrate conformity to both of these standards.

In nonattainment areas without SIP budgets, the EPA requires that one of two interim emission tests be used to demonstrate $PM_{2.5}$ conformity: either the baseline year test, or the build/no-build test. The baseline year test requires that direct $PM_{2.5}$ and NOx emissions projected for each future analysis year be no greater than emissions in 2002 (the baseline year) for the Annual Standard and no greater than emissions in 2008 for the 24-hour Standard. The build/no-build test requires that emissions from the “build” scenario be no greater than emissions from the “no-build” scenario for each future analysis year. The selected interim emission test must be used for all of the counties in the nonattainment area that are using the interim test.

Within the Philadelphia-Wilmington, PA-NJ-DE Nonattainment Areas, the baseline year test has been selected as the interim emissions test. This has been selected through the interagency consultation process, which includes input from state and federal transportation and environmental protection agencies.

The *Final Rule* also requires that, for nonattainment areas using the interim tests 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. Since WILMAPCO is updating their Plan to the year 2040, DVRPC will have to include the year 2040 as an emissions analysis year in this re-affirmation effort.

Since the New Jersey counties in the DVRPC portion of the nonattainment area have federally approved SIP budgets for PM_{2.5}, and consequently are no longer using the interim test to demonstrate conformity for the New Jersey TIP or New Jersey portions of the Plan, those Plans are not required to be included in this reaffirmation effort.

Testing Methodology

For this reaffirmation effort, federal regulations (40 CFR93.122(g)) allow DVRPC to confirm, through board resolution, that DVRPC has demonstrated transportation conformity for its TIP and Plan and that there have not been significant changes to those plans since the last time conformity was demonstrated.

As previously mentioned DVRPC must provide emissions analyses for the Pennsylvania counties in the region for the year 2040, in order to make the analysis years in the two MPO regions the same. Since DVRPC currently does not have board-approved population and employment projections for the region for the year 2040, DVRPC has performed an Interagency Consultation Group approved extrapolation of Vehicle Miles Traveled (VMT) for the region from the year 2035 to the year 2040. Those extrapolated VMT results were then processed and input into the proscribed MOBILE 6.2 air quality emissions model.

Emissions Analysis Results

Tables 1 and 2 demonstrate the emissions analysis results for both direct PM_{2.5} and NOx for the required analysis years. These results indicate that the Pennsylvania counties in the Philadelphia-Wilmington PM_{2.5} Nonattainment Areas (Annual and 24-Hour) are below the proscribed baseline emission levels and therefore meet the *Final Rule* requirements to demonstrate transportation conformity.

Table 1. Annual Direct PM_{2.5} and NO_x Emissions Analysis Results (Tons/Year)[†]

		2002	2013	2020	2030	2035	2040
		Baseline	Estimated Emissions	Estimated Emissions	Estimated Emissions	Estimated Emissions	Estimated Emissions
Direct PM _{2.5}	DVRPC – PA*	998.2	487.8	422.3	413.9	417.9	426.8
PM _{2.5} Precursor (NO _x)	DVRPC – PA*	59,346.0	19,290.1	9,295.3	5,585.0	5,438.4	5,559.4

Source: DVRPC, 2010

Note: [†]2002 Baseline applies to all future analysis years. Emissions are rounded off to the nearest tenth.

*Off-model adjustments have been made to PA county results.

Table 2. 24-hour Direct PM_{2.5} and NO_x 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*	1.90	1.41	1.22	1.19	1.20	1.20
PM _{2.5} Precursor (NO _x)	DVRPC – PA*	90.7	51.3	24.9	15.0	14.5	14.8

Source: DVRPC, 2010

Note: [†]2008 Baseline applies to all future analysis years. Emissions are rounded off to the nearest tenth.

*Off-model adjustments have been made to PA county results.

Public Involvement Process

DVRPC and WILMAPCO are required to hold a minimum 30-day public comment period to receive public input on the draft conformity findings for the nonattainment areas. DVRPC and WILMAPCO have coordinated their public involvement processes. DVRPC opened its comment period on December 14, 2010 and WILMAPCO opened its comment period on November 4, 2010. DVRPC's comment period ended on January 14, 2011 and WILMAPCO's ended on January 6, 2011.

DVRPC's adopted conformity finding and reaffirmation documents are posted on the DVRPC website at www.dvrpc.org and are available at the DVRPC resource center.

One public meeting was held in the nonattainment area. The public meeting was held on:

Wednesday, November 17, 2010 (hosted by WILMAPCO)

at Embassy Suites Hotel, Newark, DE;

from 4:00 pm to 7:00 pm

Conclusion

DVRPC supports WILMAPCO's effort to demonstrate transportation conformity in the Philadelphia-Wilmington PM_{2.5} Nonattainment Areas by reaffirming its previous conformity finding of June 2010, as permitted by regulation 40 CFR93.122(g). Emissions test results show that the projected emissions from projects included in the DVRPC TIPs and Plan do not exceed the 2002 emission baseline levels for the Annual PM_{2.5} standard nor the 2008 emission baseline levels for the 24-hour PM_{2.5} standard, as established in accordance with the *Final Rule*.

DVRPC accepted public comments on this plan to reaffirm its conformity findings from December 14, 2010 until January 14, 2011. Comments and relevant responses are published in the Appendix of this reaffirmation document. Written comments were accepted:

Via email to:

tip-plan-comments@dvrpc.org,

Via fax to:

215-592-9125

Via mail to:

Tip-Plan Comments c/o DVRPC

190 N. Independence Mall West, 8th Floor

Philadelphia, PA 19106

APPENDIX A



Public Comments

Public Comment

From: Michael Gross

Sent: Monday, December 13, 2010 4:52 PM

To: TIP Plan Comments; MikeGross; DVRPC Long Range Planning;

Subject: Fwd: DVRPC Invites Your Comments on Transportation Conformity Finding

tip-plan-comments@dvrpc.org

I would like to suggest to managers and planners, as a previous trail official in Warrington pa, that PennDOT bridge reconstruction of small local 2 lane roads should be raised a few feet if possible to allow for pedestrian and bicycle trails to cross under along with the water as at the Pennypack and wissahicken trail systems. There is an example in Horsham pa being planned for rt 152 near rt 463 where a few feet additional height would separate car and future trails along the waterway and connect local parks and open space nearby. It would help increase physical activity and reduce the epidemic of diabetes. I hope to get to that meeting tues 7pm or forward an email.

Thanks, Michael Gross

DVRPC Response

From: Greene, Sean

Sent: Thursday, December 16, 2010 2:46 PM

To: Michael Gross

Cc: Schoonmaker, Elizabeth; Snyder, Candy; Meconi, Jane

Subject: FW: DVRPC Invites Your Comments on Transportation Conformity Finding

Mr. Gross,

Thank you for your recent comment sent to the DVRPC tip-plan-comments email account. The current public comment period is open for comments relevant to the Transportation Conformity Reaffirmation document. This document, which simply reaffirms DVRPC's conformity demonstration from July 2010, is required to support the Wilmington Area Planning Council's conformity demonstration for fine particulate matter in the Philadelphia-Wilmington PM2.5 Nonattainment Area.

DVRPC does appreciate your suggestion and I will forward your comments to our Transportation Improvement Program (TIP) manager.

Sincerely,

Sean Greene

Transportation Planner

Delaware Valley Regional Planning Commission

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Geographic Area Covered: The Philadelphia-Wilmington PM_{2.5} Nonattainment Areas covers the counties of Bucks, Chester, Delaware, Montgomery, and Philadelphia in Pennsylvania; and Burlington, Camden, Gloucester, and Mercer in New Jersey as well as New Castle County in Delaware

Key Words: Transportation Conformity, Air Quality, National Ambient Air Quality Standards, Nitrogen Oxides (NO_x), Fine Particulate Matter (PM_{2.5}), Nonattainment Area, Multi-jurisdictional Nonattainment Area, *Connections* Long-Range Plan, Transportation Improvement Program (TIP), State Implementation Plan (SIP), Wilmington Area Planning Council (WILMAPCO).

Abstract: In this document, DVRPC reaffirms its demonstration of transportation conformity of its FY 2011 PA TIP and the *Connections* long range plan. This conformity finding of the DVRPC Transportation Improvement Programs and the long-range plan shows that they meet the National Ambient Air Quality Standards (NAAQS) requirements governing fine particulate matter in the Philadelphia-Wilmington, PA-NJ-DE PM_{2.5} Nonattainment Area. This conformity finding reflects all amendments to the TIPs and the long-range plan adopted through June 2010.

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