

Transportation Conformity Demonstration:

Connections 2050 Long-Range Plan,
Draft FY2024 New Jersey, and FY2023
Pennsylvania TIPs Executive Summary



September 2023

PUBLIC COMMENT PERIOD:

July 24 - August 25, 2023

submit your comments by:

button via webpage: www.dvrpc.org/airquality/conformity

or email: airconformity@dvrpc.org

or by mail:

Public Comments

c/o DVRPC Office of Communications and Engagement

190 N Independence Mall West, 8th Floor

Philadelphia, PA 19106-1520





The Delaware Valley Regional Planning Commission

is the federally designated Metropolitan Planning Organization for the Greater Philadelphia region, established by an Interstate Compact between the Commonwealth of Pennsylvania and the State of New Jersey. Members include Bucks, Chester, Delaware, Montgomery, and Philadelphia counties, plus the City of Chester, in Pennsylvania; and Burlington, Camden, Gloucester, and Mercer counties, plus the cities of Camden and Trenton, in New Jersey.

DVRPC serves strictly as an advisory agency. Any planning or design concepts as prepared by DVRPC are conceptual and may require engineering design and feasibility analysis. Actual authority for carrying out any planning proposals rest solely with the governing bodies of the states, local governments or authorities that have the primary responsibility to own, manage or maintain any transportation facility.



DVRPC's vision for the Greater Philadelphia Region is a prosperous, innovative, equitable, resilient, and sustainable region that increases mobility choices by investing in a safe and modern transportation system; that protects and preserves our natural resources while creating healthy communities; and that fosters greater opportunities for all.

DVRPC's mission is to achieve this vision by convening the widest array of partners to inform and facilitate data-driven decision-making. We are engaged across the region, and strive to be leaders and innovators, exploring new ideas and creating best practices.

TITLE VI COMPLIANCE | DVRPC fully complies with Title VI of the Civil Rights Act of 1964, the Civil Rights Restoration Act of 1987, Executive Order 12898 on Environmental Justice, and related nondiscrimination mandates in all programs and activities. DVRPC's website, www.dvrpc.org, may be translated into multiple languages. Publications and other public documents can usually be made available in alternative languages and formats, if requested. DVRPC's public meetings are always held in ADA-accessible facilities, and held in transit-accessible locations whenever possible. Translation, interpretation, or other auxiliary services can be provided to individuals who submit a request at least seven days prior to a public meeting. Translation and interpretation services for DVRPC's projects, products, and planning processes are available, generally free of charge, by calling (215) 592-1800. All requests will be accommodated to the greatest extent possible. Any person who believes they have been aggrieved by an unlawful discriminatory practice by DVRPC under Title VI has a right to file a formal complaint. Any such complaint must be in writing and filed with DVRPC's Title VI Compliance Manager and/or the appropriate state or federal agency within 180 days of the alleged discriminatory occurrence. For more information on DVRPC's Title VI program or to obtain a Title VI Complaint Form, please visit: www.dvrpc.org/GetInvolved/TitleVI, call (215) 592-1800, or email public_affairs@dvrpc.org.

DVRPC is funded through 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.

Executive Summary

Where is Transportation Conformity required?

Nonattainment

Areas: a region that currently does not meet the NAAQS.

Maintenance Areas: a region that **previously** violated air quality standards but currently meets them and has an approved Clean Air Act (CAA) section 175(a) maintenance plan.

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).

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 amendments of major regional projects in the Plan and Pennsylvania TIP and a new Fiscal Year (FY) 2024 TIP for New Jersey.

The Delaware Valley Regional Planning Commission (DVRPC) region includes a complex combination of nonattainment and maintenance areas for ozone and fine particulate matter (PM_{2.5}). The region's ozone nonattainment area encompasses the entire nine-county DVRPC region, while the PM_{2.5} 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 2050* Long-Range Plan, Draft FY2024–2027 New Jersey TIP and FY2023–2026 Pennsylvania TIP are following, or “conforming to,” 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_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_{2.5} and precursor NO_x meeting the 2006 24-Hour, and 2012 Annual PM_{2.5} NAAQS requirements in:

- the DVRPC portion of the Philadelphia–Wilmington, PA–NJ–DE Annual and 24-Hour PM_{2.5} Maintenance Area,
- the DVRPC portion of the New York–Northern New Jersey–Long Island, NY–NJ–CT Annual and 24-Hour PM_{2.5} Maintenance Area, and
- the Delaware County, PA Annual PM_{2.5} Maintenance Area.

This summary serves as an inclusive document that demonstrates the transportation conformity of the DVRPC Plan, Draft New Jersey TIP, and Pennsylvania TIP 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 Rule (Final Rule) requires that all regionally significant and nonexempt projects that are funded in the Plan and TIP must be included in the regional Travel Demand Model (TDM). Emissions from those modeled projects are then quantified using the latest U.S. Environmental Protection Agency (US EPA)-approved emissions modelling system, in this case the Motor Vehicle Emissions Simulator version 3.1 (MOVES 3.1). DVRPC has used the MOVES 3.1 model for this transportation conformity demonstration.

Conformity Test

Modeled emissions results from the projects in the Plan and TIPs are then compared to Motor Vehicle Emissions Budgets (MVEBs) contained in the SIPs to meet the NAAQS. When modeled emissions are less than the SIP budgets, the transportation conformity requirements have been met. This process is referred to as the “budget test.”

New Jersey and Pennsylvania have approved SIP MVEBs for the 1997 Eight-Hour Ozone Standard, 1997 and 2012 Annual PM_{2.5} standards, and 2006 24-Hour PM_{2.5} standards. These budgets are used to demonstrate conformity for all of the current NAAQS requirements.

Analysis Years

When performing the budget test, DVRPC identifies a series of analysis years. Analysis years are benchmarks for the projects that are included in the TDM and emissions analysis. All projects that are expected to be open to traffic by the beginning of that analysis year are included in that year’s emissions analysis. The Final Rule includes guidance on the selection of analysis years. Analysis years must include SIP budget years, the final year of the Plan, and interim analysis years that are no more than 10 years apart.

MVEBs are established in each state’s SIP for specific years. The MVEBs set the emissions limits moving forward until the next SIP budget year. For example, the 2017 PM_{2.5} SIP budgets in Pennsylvania establish emissions limits for all projects that are open to traffic after 2017 but before the new SIP budget year of 2025. The 2025 PM_{2.5} SIP budgets establish emissions limits for all projects that are open to traffic after 2025 and until such time as a new SIP budget is approved by the US EPA.

To demonstrate conformity for the ozone NAAQS, 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 week 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.

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 Rule (Final Rule) requires that all regionally significant and nonexempt projects that are funded in the Plan and TIP must be included in the regional Travel Demand Model (TDM). Emissions from those modeled projects are then quantified using the latest U.S. Environmental Protection Agency (US EPA)-approved emissions modeling system, in this case the Motor Vehicle Emissions Simulator version 3.1 (MOVES 3.1). DVRPC has used the MOVES 3.1 model for this transportation conformity demonstration.

Conformity Test

Modeled emissions results from the projects in the Plan and TIPs are then compared to Motor Vehicle Emissions Budgets (MVEBs) contained in the SIPs to meet the NAAQS. When modeled emissions are less than the SIP budgets, the transportation conformity requirements have been met. This process is referred to as the “budget test.”

New Jersey and Pennsylvania have approved SIP MVEBs for the 1997 Eight-Hour Ozone Standard, 1997 and 2012 Annual PM_{2.5} standards, and 2006 24-Hour PM_{2.5} standards. These budgets are used to demonstrate conformity for all of the current NAAQS requirements.

Analysis Years

When performing the budget test, DVRPC identifies a series of analysis years. Analysis years are benchmarks for the projects that are included in the TDM and emissions analysis. All projects that are expected to be open to traffic by the beginning of that analysis year are included in that year’s emissions analysis. The Final Rule includes guidance on the selection of analysis years. Analysis years must include SIP budget years, the final year of the Plan, and interim analysis years that are no more than 10 years apart extending out to the horizon year of the Plan.

MVEBs are established in each state’s SIP for specific years. The MVEBs set the emissions limits moving forward until the next SIP budget year. For example, the 2017 PM_{2.5} SIP budgets in Pennsylvania establish emissions limits for all projects that are open to traffic after 2017 but before the new SIP budget year of 2025. The 2025 PM_{2.5} SIP budgets establish emissions limits for all projects that are open to traffic after 2025 and until such time as a new SIP budget is approved by the US EPA.

To demonstrate conformity for the ozone NAAQS, 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 week 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 DVRPC region, the analysis years are 2025, 2035, 2045, and 2050. Delaware County has an additional SIP budget analysis year for annual PM_{2.5} and the PM_{2.5} precursor chemical NO_x, which is 2030.

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

Table 1: Mobile Source Analysis Years

Year	Ozone	PM _{2.5}	Note
2025	√	√	Interim Year and PM _{2.5} SIP budget year
2030		√	PM _{2.5} SIP budget year (Delaware County only)
2035	√	√	Year within 10 years of previous analysis
2045	√	√	Year within 10 years of previous analysis
2050	√	√	DVRPC Plan horizon year

Source: DVRPC, 2023

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 respective budgets established by the states' Departments of Environmental Protection (DEP) in accordance with the Final Rule under the current NAAQS governing applicable pollutants.

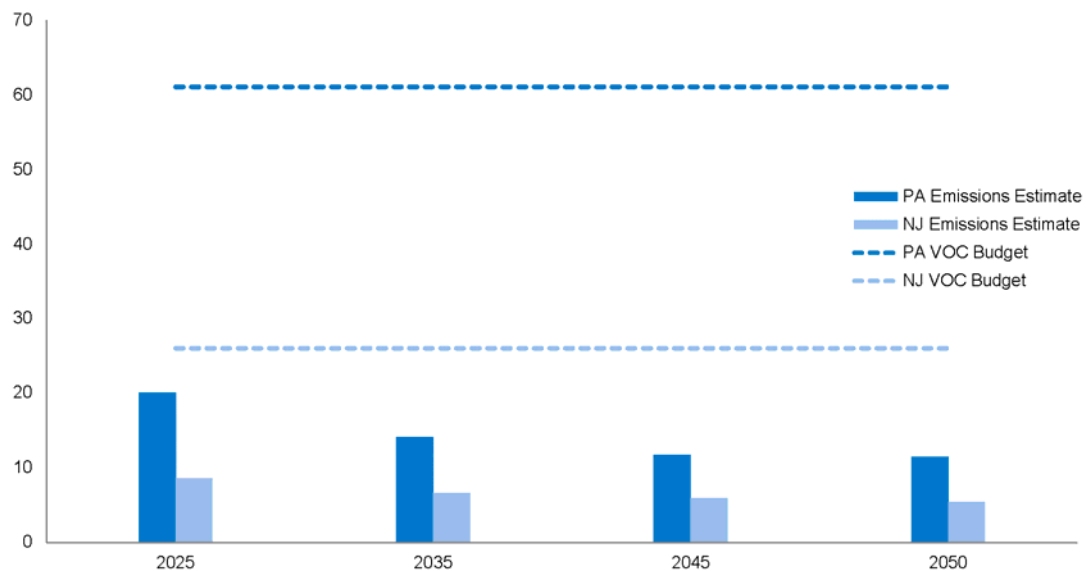
The transportation conformity analysis meets all applicable conformity criteria, including, but not limited to, the following:

- that the Plan and the 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)¹ [40 CFR 93.113]; and
- that the Plan and the TIP 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 25 of the full conformity document. 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.

¹TCMs are strategies that reduce transportation-related air pollution, greenhouse gas emissions, and fuel use by reducing vehicle miles traveled and improving roadway operations.

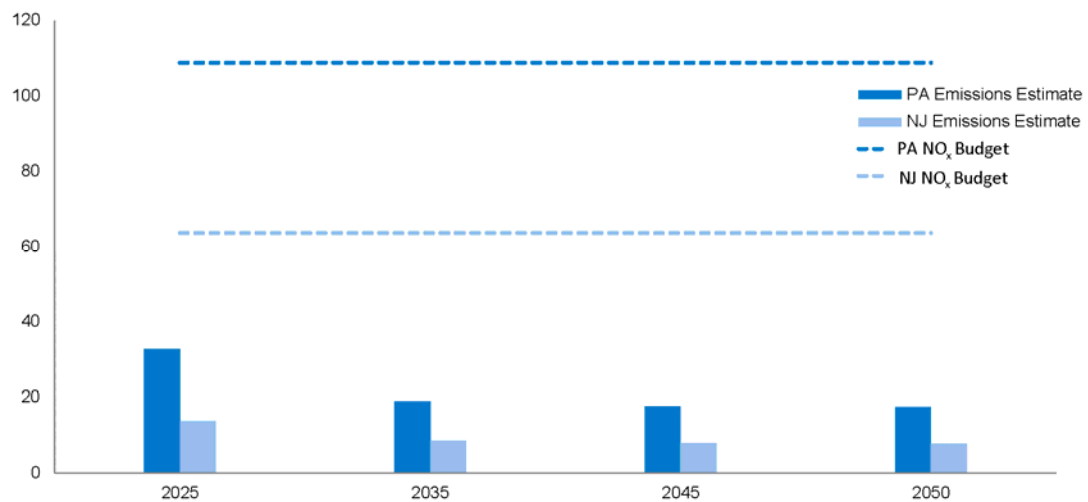
Figure 1: VOCs Emissions Analysis Results (Tons/Day)



Source: DVRPC, 2023

The most recent Eight-Hour Ozone SIP MVEBs will apply to all future analysis years.

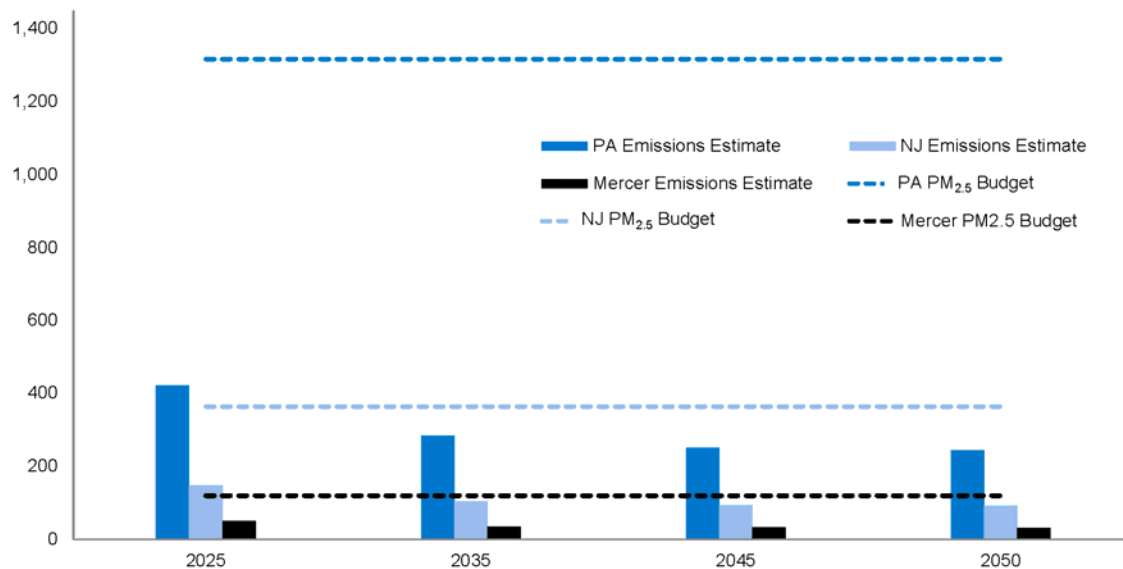
Figure 2: NO_x Emissions Analysis Results (Tons/Day)



Source: DVRPC, 2023

The most recent Eight-Hour Ozone SIP MVEBs will apply to all future analysis years.

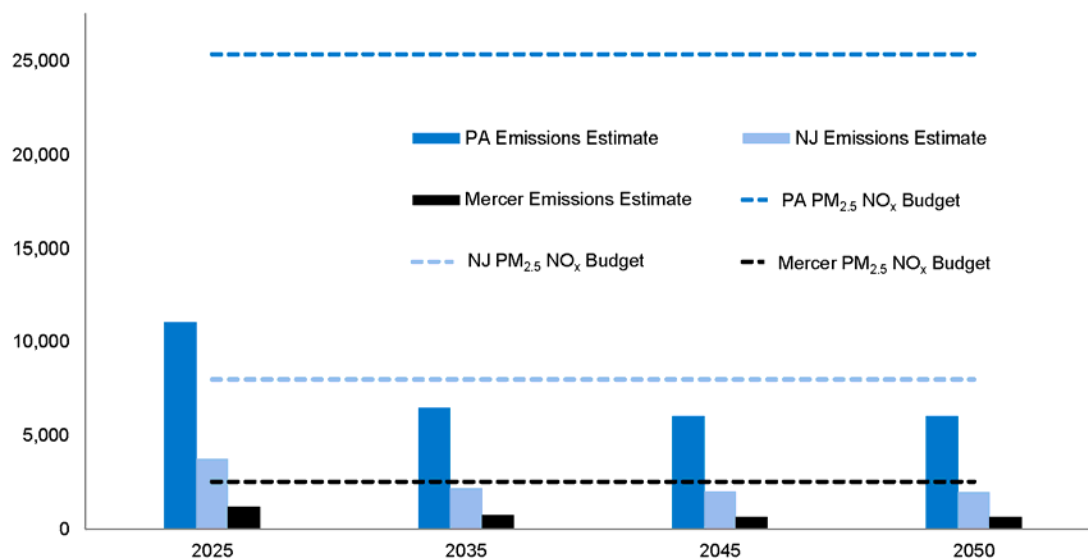
Figure 3: Annual and 24-Hour Direct PM_{2.5} Emissions Analysis Results (Tons/Year)



Source: DVRPC, 2023

The most recent MVEBs apply to all future analysis years.

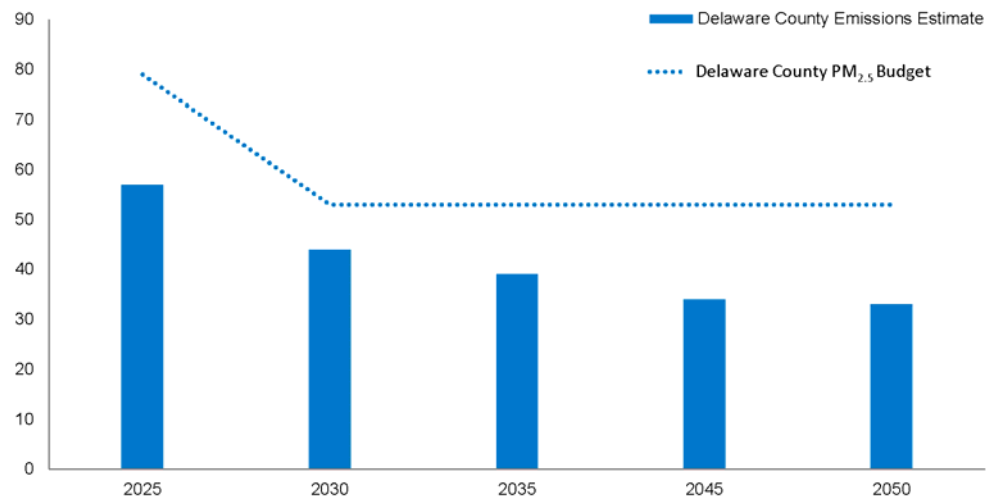
Figure 4: Annual and 24-Hour NO_x Precursor Emissions Analysis Results (Tons/Year)



Source: DVRPC, 2023

The most recent MVEBs apply to all future analysis years.

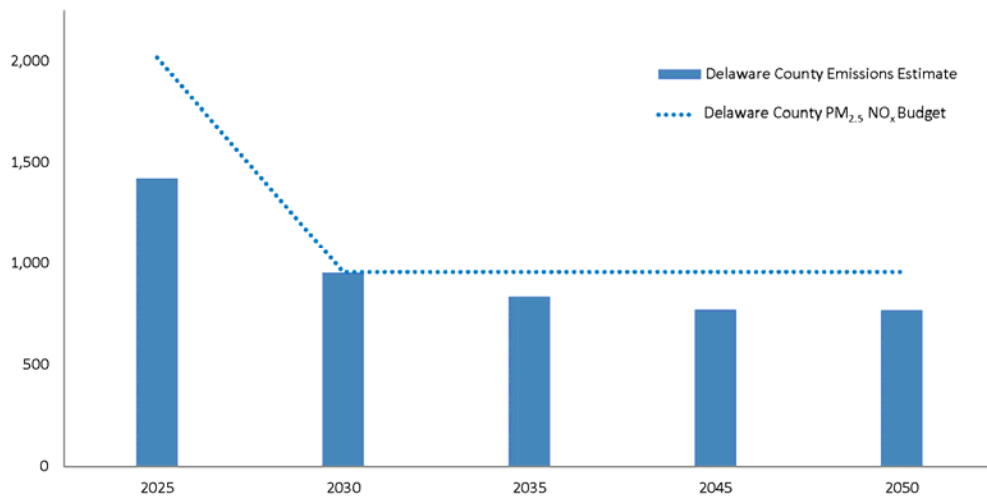
Figure 5: Delaware County Annual Direct PM_{2.5} Emissions Analysis Results (Tons/Year)



Source: DVRPC, 2023

The most recent MVEBs apply to all future analysis years.

Figure 6: Delaware County Annual NO_x Precursor Emissions Analysis Results (Tons/Year)



Source: DVRPC, 2023

The most recent MVEBs apply to all future analysis years.

These findings demonstrate transportation conformity of the DVRPC *Connections 2050* Long-Range Plan, Draft FY2024 New Jersey TIP, and FY2023 Pennsylvania TIP with the state SIPs and the Final Rule requirements under CAA, including:

- the 1997, 2008, and 2015 Eight-Hour Ozone NAAQS in the Philadelphia–Wilmington–Atlantic City, PA–NJ–MD–DE Ozone Nonattainment Area;
- the 2006 24-Hour PM_{2.5} NAAQS in the Philadelphia–Wilmington, PA–NJ–DE PM_{2.5} Maintenance Area;
- the 2006 24-Hour PM_{2.5} NAAQS in the New York–Northern New Jersey–Long Island, NY–NJ–CT Annual and 24-Hour PM_{2.5} Maintenance Area, and
- the 2012 Annual PM_{2.5} Delaware County, PA Maintenance Area.

Transportation Conformity Demonstration

Connections 2050 Long-Range Plan, Draft FY2024 New Jersey TIP, and FY2023 Pennsylvania TIP

Publication Number: 24111

Date Published: September 2023

Geographic Area Covered:

The nine-county DVRPC planning area, which covers the counties of Bucks, Chester, Delaware, Montgomery, and Philadelphia in Pennsylvania; and Burlington, Camden, Gloucester, and Mercer in New Jersey.

Key Words:

Air Quality, *Connections 2050* Long-Range Plan, Multijurisdictional Nonattainment Area, National Ambient Air Quality Standards, Nonattainment Area, NO_x, Ozone, State Implementation Plan (SIP), Transportation Conformity, Transportation Improvement Program (TIP), Volatile Organic Compounds (VOCs).

Abstract:

The Delaware Valley Regional Planning Commission (DVRPC) demonstrates transportation conformity of its Draft *Connections 2050* Long-Range Plan, Draft Fiscal Year (FY) 2024 New Jersey Transportation Improvement Program (TIP), and FY2023 Pennsylvania TIP. A transportation conformity demonstration is required at least once every four years or when a metropolitan planning organization: (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 finding of the DVRPC Plan and TIPs shows that they meet the National Ambient Air Quality Standards requirements governing ozone and fine particulate matter. This conformity finding reflects all amendments to the Plan and TIPs through June 2023.

Staff Contact:

Sean Greene
Manager, Office of Freight and Clean
Transportation
(215) 238-2860
sgreene@dvrpc.org



190 N Independence Mall West
8th Floor
Philadelphia, PA 19106-1520
215.592.1800 | fax: 215.592.9125
www.dvrpc.org



190 N Independence Mall West
8th Floor
Philadelphia, PA 19106-1520
215.592.1800 | fax: 215.592.9125
www.dvrpc.org

Connect With Us!     