

VISUALIZE 2050

National Capital Region Transportation Plan



Visualize 2050 Planning and Programming Process



National Capital Region
Transportation Planning Board

December 2025

ABOUT THE TPB

The National Capital Region Transportation Planning Board (TPB) is the federally designated metropolitan planning organization (MPO) for the metropolitan Washington region. It is responsible for developing and carrying out a continuing, cooperative, and comprehensive transportation planning process in the metropolitan area. Members of the TPB include representatives of the transportation agencies of the states of Maryland and Virginia and the District of Columbia, 22 local governments, the Washington Metropolitan Area Transit Authority, the Maryland and Virginia General Assemblies, and nonvoting members from the Metropolitan Washington Airports Authority and federal agencies. The TPB is staffed by the Department of Transportation Planning at the Metropolitan Washington Council of Governments (COG).

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INTRODUCTION

The National Capital Region Transportation Planning Board (TPB) is the federally designated Metropolitan Planning Organization (MPO) for the Washington region. Since its inception in 1965, the TPB has served as a regional forum for establishing policy principles and priorities that guide transportation decision-making. The TPB works with state and local jurisdictions and transportation agencies to bring world class transportation options to the region.

As part of its responsibility to ensure federal compliance, the TPB produces the federally required metropolitan transportation plan (MTP), referred to in the region as the National Capital Region Transportation Plan (NCRTP) or “Visualize”. To receive federal funding, the region’s transportation projects must be consistent with the NCRT and the Transportation Improvement Program (TIP)—the second document over which the TPB has responsibility.

What Is a Metropolitan Transportation Plan?

Federal laws require that the region’s Metropolitan Transportation Plan, the National Capital Region Transportation Plan (referred to as “Visualize”), contain the region’s collective plans to fund, operate, maintain, and expand the transportation system within a minimum planning horizon of 20 years. The plan is updated at least once every four years. The plan must demonstrate that the forecasted emissions produced by the future transportation system comply with air quality requirements.

Two main requirements are that the plan must identify the projects and programs for which funding is reasonably expected to be available over the 20-year plan horizon and demonstrate that these projects and programs together comply with regional air quality improvement goals. In addition, Visualize 2050 must meet an array of other federal requirements, including but not limited to: complying with performance-based planning rules, considering the ten federal planning factors, conducting a Congestion Management Process, engaging in public participation, and responding to any concerns of non-discrimination and equity.

What Is a Transportation Improvement Program?

The federally required Transportation Improvement Program (TIP) provides the schedule for the next four years for distributing federal, state, and local funds for state and local transportation projects and programs. The TIP represents an agency’s intent to construct or implement projects and identifies the anticipated flow of federal funds and matching state or local contributions. TIP projects comprise the first four financial years of the Visualize plan and include expansion, maintenance and operations projects, project groupings, and programs.

The financial relationship between the MTP and TIP is demonstrated in this simple diagram:



Together, these two documents, the NC RTP and TIP reflect the outcome of the TPB's performance-based transportation planning and programming process (PBPP).

What Is Performance-Based Planning and Programming?

PBPP is a federal requirement to transition to a performance-driven, outcome-based program that provides for a greater level of transparency and accountability, improved project decision-making, and more efficient investment of federal transportation funds. The PBPP process ties the funding of projects and programs to improving measured performance and achieving targets set for future performance.

The key elements of that process used to create the Visualize 2050 transportation plan and the FY 2026-2029 TIP are described in detail later in this document within the following topics:

TABLE 1: VISUALIZE 2050 PLANNING AND PROGRAMMING PROCESS TOPICS

Part	Title	Part	Title
1	Policy Evolution	15	Transportation Safety Planning
2	Public Engagement and Communications	16	Modeling of Travel Demand and Mobile Emissions
3	Air Quality Conformity Analysis	17	Travel and Tourism
4	Emissions Reduction Activities	18	Roadway Planning
5	Natural Hazards Resiliency	19	Bus Transit Planning
6	Congestion Management Process	20	Railway Planning
7	Emergency Preparedness and Transportation Security Coordination	21	Bicycle, Pedestrian, and Micromobility Planning
8	Emerging Technologies	22	Transportation Demand Management
9	Environmental Consultation and Mitigation	23	Surface Connection to Air Planning
10	Freight Planning	24	Pipelines and Waterways
11	Housing Coordination	25	Future Scenarios Planning
12	Land Use and Transportation Coordination	26	Financial Planning
13	Public Health	27	Amendment and Administrative Modification Procedures
14	Regional ITS Architecture		

TPB'S ROLE AND KEY STAFF

The TPB, as the region's MPO, performs a range of activities that promote an integrated approach to transportation development, but it does not exercise direct control over most funding, and it does not implement projects. The requirements of federal law compel the key transportation players in the region to work through the TPB process. The TPB exercises its role as a coordinating agency in several ways, it:

- Ensures compliance with federal laws and requirements.
- Provides a regional transportation policy framework and a forum for coordination.
- Provides technical resources for decision-making.

As the MPO for the National Capital Region, the TPB brings together key decision-makers to coordinate planning and funding for the region's transportation system. This role involves upholding a federally mandated planning process that promotes an integrated approach to transportation development.

TABLE 2: AGENCIES REPRESENTED ON THE TRANSPORTATION PLANNING BOARD

Agency	State	Role	# Representatives
City of Alexandria	VA	Board Member	One
Arlington County	VA	Board Member	One
City of Bowie	MD	Board Member	One
Charles County	MD	Board Member	One
City of College Park	MD	Board Member	One
District of Columbia Council	DC	Board Member	Three
District of Columbia Department of Transportation	DC	Board Member	One
District of Columbia Office of Planning	DC	Board Member	One
City of Fairfax	VA	Board Member	One
Fairfax County	VA	Board Member	Two

City of Falls Church	VA	Board Member	One
Federal Highway Administration	DC	Ex-Officio Member	One
City of Frederick	MD	Board Member	One
Frederick County	MD	Board Member	One
Federal Transit Administration	DC/MD/VA	Ex-Officio Member	One
City of Gaithersburg	MD	Board Member	One
City of Greenbelt	MD	Board Member	One
City of Laurel	MD	Board Member	One
Loudoun County	MD	Board Member	Two
City of Manassas	VA	Board Member	One
City of Manassas Park	VA	Board Member	One
Maryland Department of Transportation	MD	Board Member	One
Maryland House	MD	Board Member	One
Maryland Senate	MD	Board Member	One
Montgomery County	MD	Board Member	Two
Metropolitan Washington Airports Authority	DC/MD/VA	Ex-Officio Member	Vacant
National Capital Planning Commission	MD	Ex-Officio Member	One
National Park Service	DC/MD/VA	Ex-Officio Member	One

Prince George's County	MD	Board Member	Two
Prince William County	VA	Board Member	Two
City of Rockville	MD	Board Member	One
City of Takoma Park	MD	Board Member	One
Virginia Department of Transportation	VA	Board Member	One
Virginia House	VA	Board Member	One
Virginia Senate	VA	Board Member	One
Washington Metropolitan Area Transit Authority	DC/MD/VA	Board Member	One

The board is responsible for reviewing information critical to the transportation planning process and making decisions to advance the work activities, projects and programs, and conversations necessary for the TPB's partners to plan, operate, and maintain the region's transportation system. All use of federal transportation funding for planning and implementation of transportation investments must be approved by the TPB before work can begin. The board makes decisions critical to the region's adherence to federal requirements for transportation planning and programming of funds.

In addition to the board, the work of the TPB is supported by a Steering Committee, Technical Committee, as well as several technical subcommittees and advisory committees.

The TPB Steering Committee has the full authority to approve non-regionally significant items for the TPB and reviews and approves the agenda for the upcoming TPB meeting. Andrew Austin and Lyn Erickson are the staff coordinators for the TPB Steering Committee.

TABLE 3: TPB STEERING COMMITTEE AGENCIES

TPB Steering Committee Agencies	State
Charles County	MD
District Department of Transportation	DC
District of Columbia	DC

Virginia Department of Rail and Public Transportation	VA
City of Gaithersburg	MD
Fairfax County	VA
Maryland Department of Transportation	MD
Virginia Department of Transportation	VA
Washington Metropolitan Area Transit Authority	DC/MD/VA

The TPB Technical Committee oversees and supports all methods subcommittees, coordinating subcommittees, advisory committees of the TPB in addition to other joint external committees. Lyn Erickson serves as the staff coordinator to the TPB Technical Committee

TABLE 4: AGENCIES REPRESENTED ON THE TECHNICAL COMMITTEE

Agency	State	Role	# Representatives
City of Alexandria	VA	Board Member	One
Arlington County	VA	Board Member	One
City of Bowie	MD	Board Member	Vacant
Charles County	MD	Board Member	One
City of College Park	MD	Board Member	Vacant
District of Columbia Department of Transportation	DC	Board Member	One
District of Columbia Office of Planning	DC	Board Member	One
City of Fairfax	VA	Board Member	One

Fairfax County	VA	Board Member	One
City of Falls Church	VA	Board Member	Vacant
Federal Highway Administration	DC	Ex-Officio Member	One
City of Frederick	MD	Board Member	One
Frederick County	MD	Board Member	One
Federal Transit Administration	DC/MD/VA	Ex-Officio Member	One
City of Gaithersburg	MD	Board Member	One
City of Greenbelt	MD	Board Member	Vacant
City of Laurel	MD	Board Member	Vacant
Loudoun County	VA	Board Member	One
City of Manassas	VA	Board Member	One
City of Manassas Park	VA	Board Member	One
Maryland Department of Transportation	MD	Board Member	Two
Maryland National Capital Park and Planning Commission	MD	Board Member	Vacant
Metropolitan Washington Airports Authority	DC/MD/VA	Ex-Officio Member	Vacant
Metropolitan Washington Air Quality Committee	DC/MD/VA	Ex-Officio Member	Vacant
Montgomery County	MD	Board Member	One
National Capital Planning Commission	MD	Ex-Officio Member	One

National Park Service	DC/MD/VA	Ex-Officio Member	One
Northern Virginia Transportation Authority	VA	Board Member	One
Northern Virginia Transportation Commission	VA	Board Member	One
Prince George's County	MD	Board Member	One
Potomac and Rappahannock Transportation Commission	VA	Board Member	One
Prince William County	VA	Board Member	One
City of Rockville	MD	Board Member	One
City of Takoma Park	MD	Board Member	Vacant
Virginia Department of Rail and Public Transportation	VA	Board Member	One
Virginia Department of Transportation	VA	Board Member	One
Virginia Passenger Rail Authority	VA	Board Member	One
Virginia Railway Express	VA	Board Member	One
Washington Metropolitan Area Transit Authority	DC/MD/VA	Board Member	One

The TPB subcommittee and advisory committees each play a unique role and gather regional stakeholders or community representatives around key topics.

TABLE 5: TPB SUBCOMMITTEES AND ADVISORY COMMITTEES

TPB Subcommittee	Role	Staff Coordinator
<u>Aviation Technical Subcommittee</u>	Coordinates airport system planning and provides technical reviews for projects and reports stemming from the Continuous Airport System Planning program.	Timothy Canan Ken Joh Olga Pérez Peláez Zhuo Yang
<u>Bicycle and Pedestrian Subcommittee</u>	Provide advice and assistance to the Technical Committee and update and evaluate the Regional Bicycle and Pedestrian Plan.	Michael Farrell
<u>Commuter Connections Subcommittee</u>	Provide overall technical review of the regional TDM Program elements.	James Davenport Daniel Sheehan
<u>Freight Subcommittee</u>	Integrates current freight issues into the National Capital Region's transportation planning process and raises awareness of freight issues among local elected officials and the public.	Andrew Meese Janie Nham
<u>Regional Public Transportation Subcommittee</u>	Provides a permanent process for the coordination of public transportation planning throughout the region, and for incorporating regional public transportation plans into the long-range plan and TIP.	Pierre Gaunaud Eric Randall
<u>Systems Performance, Operations and Technology Subcommittee</u>	Advises the TPB on matters of performance outcomes of the transportation system, operations and management, Intelligent Transportation Systems (ITS) technologies, and emerging technologies.	Andrew Burke
<u>TPB Access for All Advisory Committee</u>	Advises to TPB on transportation issues, programs, policies, and services important to the traditionally underserved communities.	Laura Bachle
<u>TPB Community Advisory Committee</u>	Promotes public involvement in transportation planning for the region, advances equitable representation in regional planning, and provides independent region-oriented community advice to the TPB.	Laura Bachle
<u>Transportation Safety Subcommittee</u>	Serves as a forum for local transportation practitioners to exchange best practices, learn	Janie Nham

	about emerging trends and developments in roadway safety, and coordinate on regional roadway safety matters.	
<u>Travel Forecasting Subcommittee</u>	Provides oversight of activities related to development of the regional travel demand forecasting model.	Mark Moran
<u>TPB Regional Transportation Resilience Subcommittee</u>	Aims to enhance the resilience of transportation systems and infrastructure, mitigate potential current and future risks, and build community resilience with a focus on equity to better adapt to impacts from natural hazards.	Katherine Rainone

When necessary, the TPB has also established task forces and the work of the Long-Range Plan Task Force in 2017 still influences the work of the TPB and its partner agencies through development of Visualize 2050.

The TPB is staffed by the Metropolitan Washington Council of Governments (COG). COG's Department of Transportation Planning staffs approximately 60 professionals including transportation engineers, urban planners, and public safety experts. TPB staff are involved with every topic within this document from leading studies and discussions to conducting analysis or researching and summarizing information.

ROLE OF KEY PLANNING AGENCIES

Federal, state, and local governments, transit agencies, and affiliated agencies have roles in the region's transportation decision-making process by bringing their priorities, planning focus areas, and responsibilities to the TPB's planning table. Through the TPB's coordination and convening role, these agencies collaborate around the areas of funding, land use, road construction and maintenance, and public transportation service provision.

Working in collaboration, the key planning agencies represented on the board identify both short-term and long-term transportation system issues, conduct planning studies and analyses of the issues, and identify and prioritize projects. Depending on their role, an agency such as a state department of transportation, city, or county may also conduct project-level planning, design, engineering, and construction of road, transit, or active transportation projects.

PUBLIC ENGAGEMENT

The public and interest groups are continuously active in supporting or opposing a range of transportation issues, modes, or specific projects. Ongoing activism, advisory group participation, and information sharing completes the circle of cross-agency collaboration, education, and communication for regional transportation decision-making.

Every TPB meeting offers the opportunity for the public to comment on items being discussed or for action. The public may provide comments in various ways:

- Using an online form (available at www.mwcog.org/tpbcomment)
- Sending an email to TPBcomment@mwcog.org

- Leaving a voicemail at (202) 962-3315 (messages can be up to 3 minutes long)
- In-person comment (In-person meetings only with advance notice per above.)
- Writing to the TPB Chair at:

National Capital Region Transportation Planning Board
777 North Capitol Street NE, Suite 300
Washington, DC 20002-4239

Unique engagement for Visualize 2050 is described in Part 2 (Public Engagement and Communication) of this report.

NATIONAL CAPITAL REGION STUDY AREA DEFINITION

In accordance with federal regulations 23 CFR 450 (Planning Assistance and Standards), “ . . . an MPO shall be designated for each urbanized area with a population of more than 50,000 individuals (as determined by the Bureau of the Census).”¹ The National Capital Region, which includes the District of Columbia as well as several cities and counties in Maryland and Virginia, contains an urbanized area well in excess of 50,000 residents. As a result, the TPB is the designated MPO for the National Capital Region, and defines its planning area through its Bylaws, as amended, and in accordance with applicable laws and regulations.

The TPB prepares a metropolitan transportation plan, the National Capital Region Transportation Plan, for its Planning Area at least every four years, which encompasses the 22 jurisdiction members of the TPB. This area, shown in Figure 1, includes the nation’s capital, the District of Columbia, as well as 12 jurisdictions in Maryland and nine jurisdictions in Virginia. The TPB Planning Area comprises approximately 3,500 square miles and includes area in three physiographic provinces: the Atlantic Coastal Plain, the Piedmont, and the Blue Ridge. All localities in the Planning Area contain a portion of the urbanized area.

Previously, as a result of the 2010 census, the Washington, DC-MD-VA Urbanized Area (2010) included portions of the 22 current member jurisdictions of the TPB as well as the urbanized portion of Fauquier County, Virginia, which included the Town of Warrenton. As a result of this urbanized area designation, that portion of Fauquier County was included as part of the TPB Planning Area, and Fauquier County was a member of the TPB, resulting in a total of 23 jurisdiction members. The metropolitan transportation plans prepared after this designation, including the most recently adopted Visualize 2045, included the urbanized portion of Fauquier County.

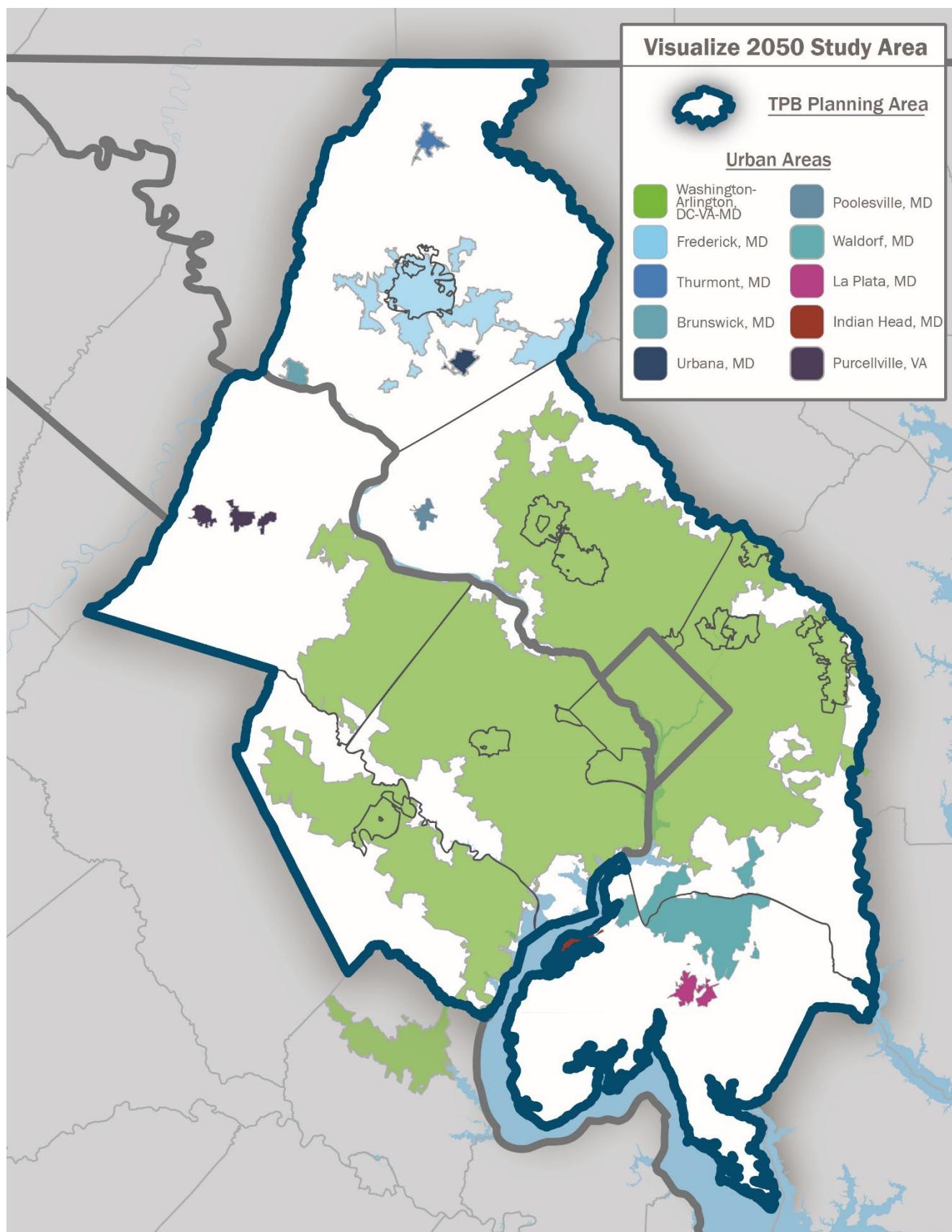
For the 2020 decennial census, the Bureau of the Census modified the criteria used to define urban areas. This methodological change, along with the results of the 2020 census, resulted in the urban portion of Fauquier County being designated as its own urban area, the Warrenton-New Baltimore Urban Area (2020), distinct from the Washington-Arlington, DC-VA-MD (2020) Urban Area. Further, because this newly designated urban area had a 2020 census population of 24,437, it was no longer required to be included in a designated MPO since it did not meet the population threshold of 50,000 persons. Following this redesignation and as a result of consultations with the Commonwealth of Virginia, including the Virginia Department of Transportation, Fauquier County requested that the TPB amend its Bylaws to remove Fauquier County as a member of the TPB and to remove the urban area portion of Fauquier County from the

¹ Code of Federal Regulations (September 22, 2025). 23 CFR 450.310(a). [https://www.ecfr.gov/current/title-23/part-450/subpart-C#p-450.310\(a\)](https://www.ecfr.gov/current/title-23/part-450/subpart-C#p-450.310(a))

TPB Planning Area. On February 21, 2024, the TPB adopted Resolution R6-2024, formally adjusting its Planning Area Boundary and removing Fauquier County as a TPB member.

Although a portion of the Washington-Arlington, DC-VA-MD (2020) Urban Area extends into northern Stafford County, Virginia, this area is not included in the TPB Planning Area. Through a formal agreement between the TPB and the Fredericksburg Area Metropolitan Planning Organization (FAMPO), which includes Stafford County, responsibility for metropolitan transportation planning for this portion of the Washington-Arlington, DC-VA-MD (2020) Urban Area is carried out by FAMPO.

FIGURE 1: VISUALIZE 2050 STUDY AREA



FEDERAL REQUIREMENTS

Like previous versions of the National Capital Region Transportation Plan, federal requirements govern and inform the content and process for development of Visualize 2050. This plan meets all federal requirements as demonstrated in this document and indicated by the compliance checklist provided in this section.

The checklist in Table 6 indicates each federal requirement for Metropolitan Transportation Plans and how it is being met by the Visualize 2050 plan. Regulatory citations in the table refer to the Code of Federal Regulations (CFR), Title 23 (“Highways”), Subpart C (“Metropolitan Transportation Planning and Programming”): 23 CFR Part 450 Subpart C.

TABLE 6: VISUALIZE 2050 FEDERAL COMPLIANCE CHECKLIST

#	Regulatory citation	Key content of requirement	Comments, including where in Visualize 2050 plan
1	450.300(a)	<p>The MPO must carry out a continuing, cooperative, and comprehensive (3C) performance-based multimodal transportation planning process, including the development of a MTP and TIP, that encourages and promotes the safe and efficient development, management, and operation of surface transportation systems to serve the mobility needs of people and freight (including accessible pedestrian walkways, bicycle transportation facilities, and intermodal facilities that support intercity transportation, including intercity buses and intercity bus facilities and commuter vanpool providers) fosters economic growth and development, and takes into consideration resiliency needs, while minimizing transportation-related fuel consumption and air pollution.</p>	<p>This Visualize 2050 Planning and Programming report documents the many parts of the TPB's 3C performance-based multimodal transportation planning process.</p>
2	450.300(b)	<p>Encourages continued development and improvement of metropolitan transportation planning processes guided by the planning factors set forth in 23 U.S.C.134(h) and 49 U.S.C.5303(h).</p>	<p>The TPB is continuously evaluating the transportation planning process and adjusting as new methods and information become available to improve its work. The planning factors guide the TPB's work and TPB's member agencies specifically reflect on the planning factors when proposing investments for TPB approval.</p>
3	450.306(a)	<p>To accomplish the objectives in § 450.300 and §450.306(b), metropolitan planning organizations designated under § 450.310, in cooperation with the State and public transportation operators, shall develop</p>	<p>The TPB's performance-driven, outcome-based approach to planning is coordinated with its member agencies including the States and public transportation operators. This Visualize 2050</p>

		long-range transportation plans and TIPs through a performance-driven, outcome-based approach to planning for metropolitan areas of the State.	Planning and Programming report documents the many parts of the TPB's 3C performance-based multimodal transportation planning process including the selection of investments for the TIP.
4	450.306(b)	Planning Factors: The MPO planning process shall be continuous, cooperative, and comprehensive, and provide for consideration and implementation of projects, strategies, and services that will address the following factors: (1) Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency; (2) Increase the safety of the transportation system for motorized and non-motorized users; (3) Increase the security of the transportation system for motorized and non-motorized users; (4) Increase accessibility and mobility of people and freight; (5) Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns; (6) Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight; (7) Promote efficient system management and operation; (8) Emphasize the preservation of the existing transportation system; (9) Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation; and (10) Enhance travel and tourism.	The TPB required sponsor agencies to identify how their proposed investments for Visualize 2050 and the FY 2026-2029 TIP supported these planning factors. These factors align with TPB goals, and the results of how future investments will support TPB goals and thus address these factors was included in the plan.
5	450.306(c)	Consideration of the planning factors shall be reflected, as appropriate, in the metropolitan transportation planning process. The degree of consideration and analysis of the factors should be based on the scale and	Consideration of the many parts in the transportation planning process have been documented in this report and the outcome of the

		complexity of many issues, including transportation system development, land use, employment, economic development, human and natural environment (including Section 4(f) properties as defined in 23 CFR 774.17), and housing and community development.	planning process is the Visualize 2050 plan and FY 2026-2029 TIP.
6	450.306(d)(1)	Performance-based approach: The MPO planning process must provide for the establishment and use of a performance-based approach to transportation decision making to support the national goals (highway) and the general purposes (public transportation).	The TPB adopted goals in alignment with national goals for highways and public transportation that reflect key areas of interest. Visualize 2050 Chapter 1 acknowledges this goals alignment, and Chapters 5, 6, and 7 show how the region will apply strategies and measure performance to achieve these goals.
7	450.306(d)(2)	Establishment of performance targets by metropolitan planning organizations: The MPO must establish performance targets, in coordination with the State and public transportation providers, for the federal performance measures to use in tracking progress toward attainment of critical outcomes for the MPO region.	Visualize 2050 Chapter 7 provides the performance targets adopted for federal performance measures from which the TPB will assess its progress towards or attainment of its goals.
8	450.306(d)(4)	Performance-based approach: An MPO must integrate in the MPO planning process, directly or by reference, the goals, objectives, performance measures, and targets described in other State transportation plans and transportation processes, as well as any plans developed under 49 U.S.C. chapter 53 by providers of public transportation, required as part of a performance-based program including: (i) The State asset management plan for the NHS and the Transit Asset Management Plan; (ii) Applicable portions of the HSIP, including the SHSP; (iii) The Public Transportation Agency Safety Plan; (iv) Other safety and security planning and review processes, plans, and programs, as appropriate; (v) The CMAQ performance	Visualize 2050 Chapter 7 provides the goals, objectives, performance measures, and targets adopted by the TPB and incorporated from other State transportation plans and processes as well as by providers of public transportation.

		plan, as applicable; (vi) Appropriate (metropolitan) portions of the State Freight Plan; (vii) The congestion management process, if applicable; and (viii) Other State transportation plans and transportation processes required as part of a performance-based program.	
9	450.306(f)	An MPO must carry out the metropolitan transportation planning process in coordination with the statewide transportation planning process.	The TPB and its member states coordinate monthly on their ongoing planning efforts. Visualize 2050 Chapter 1 indicates the TPB's transportation goals align with the states and the process document demonstrates the goals coordination and comparison to make this assessment.
10	450.306(g)	The MPO planning process shall (to the maximum extent practicable) be consistent with the development of applicable regional intelligent transportation systems (ITS) architectures, as defined in 23 CFR part 940.	Chapter 4 of Visualize 2050 and part 14 of this report discuss regional ITS architectures.
11	450.306(h)	Preparation of the coordinated public transit-human services transportation plan, as required by 49 U.S.C. 5310, should be coordinated and consistent with the MPO planning process.	Part 19 of this report discusses the preparation of the TPB's coordinated public transit-human services transportation plan. Investments that support implementation of this plan are reflected in the Visualize 2050 Future Transportation Investments in Projects and Programs list.
12	450.324(a)	The transportation plan has no less than a 20-year planning horizon.	Visualize 2050 has a 24-year planning horizon: 2026-2050.
13	450.324(b)	The transportation plan includes both long-range and short-range strategies/actions that provide for the development of an integrated multimodal transportation system (including accessible pedestrian walkways and bicycle transportation facilities) to facilitate the safe and efficient movement of people and goods in addressing current and future transportation demand.	Visualize 2050 includes investment strategies for the short-range FY 2026-2029 Transportation Improvement Program timeframe as well as the long-range period of FY 2030-2050. The Visualize 2050 Future Transportation Investments in Projects and Programs list provides the details of these short- and long-range investment strategies.

			In addition to these short- and long-range investment strategies, TPB's priority strategies/actions may be found in Visualize 2050 Chapters 5 and 6.
14	450.324(c)	The MPO shall review and update the transportation plan at least every four years in air quality nonattainment and maintenance areas and at least every five years in attainment areas to confirm the transportation plan's validity and consistency with current and forecasted transportation and land use conditions and trends and to extend the forecast period to at least a 20-year planning horizon. In addition, the MPO may revise the transportation plan at any time using the procedures in this section without a requirement to extend the horizon year. The MPO shall approve the transportation plan (and any revisions) and submit it for information purposes to the Governor. Copies of any updated or revised transportation plans must be provided to the FHWA and the FTA.	The TPB elected to pursue a schedule less than four years for the development of the Visualize 2050 plan, following the adoption of Visualize 2045 in June 2022. Visualize 2050 is scheduled for TPB approval by or before December 2025.
15	450.324(d)	In metropolitan areas that are in nonattainment for ozone or carbon monoxide, the MPO shall coordinate the development of the metropolitan transportation plan with the process for developing transportation control measures (TCMs) in a State Implementation Plan (SIP).	The air quality process document, Part 3 of this report, describes the process the TPB used for coordinating the Visualize 2050 plan development with the process for developing TCMs in a SIP.
16	450.324(e)	The MPO, the State(s), and the public transportation operator(s) shall validate data used in preparing other existing modal plans for providing input to the transportation plan. In updating the transportation plan, the MPO shall base the update on the latest available estimates and assumptions for population, land use, travel, employment, congestion, and economic activity. The MPO shall approve transportation plan contents and	Visualize 2050 uses the latest available estimates, and assumptions for population, households, and employment from the Washington Metropolitan Council of Governments (COG) which also represent land use and economic activity. The COG Board of Directors endorsed the Cooperative Forecast Round 10.0 at their June 2023 meeting and this information is discussed in Visualize 2050 Chapter

		<p>supporting analyses produced by a transportation plan update.</p>	<p>6. The projected transportation demand on the region's transportation system is used in the regional travel demand model providing comparison data between the base year (2025) and horizon year (2050). The model uses current/projected transportation infrastructure and the Round 10.0 population/employment/household data to produce the latest estimates for travel and congestion.</p>
17	450.324(f)(1)	<p>The metropolitan transportation plan shall, at a minimum, include the current and projected transportation demand of persons and goods in the metropolitan planning area over the period of the transportation plan.</p>	<p>Visualize 2050 uses the latest available estimates, and assumptions for population, households, and employment from the Metropolitan Washington Council of Governments (COG) in the travel demand model and air quality conformity analysis. The COG Board of Directors adopted the jurisdictional totals for the Round 10 Cooperative Forecasts at their June 14, 2023, meeting, and this information is discussed in Visualize 2050 Chapter 6. The projected transportation demand on the region's transportation system is used in the regional travel demand model providing comparison data between the base year (2025) and horizon year (2050).</p> <p>The TPB's Travel Demand Forecasting Model (Gen2/Ver. 2.4.6) produces estimates of motor vehicle trips and transit person trips for the metropolitan Washington region. Vehicle trips occur on the highway network and include both those used by passenger vehicles (e.g., cars) and commercial vehicles (e.g., trucks). Goods movement or freight movement can occur on different modes of travel (e.g., truck, train, boat, and aircraft). The COG/TPB Travel Model is state of</p>

			<p>the practice for modeling goods movement, namely, truck travel is modeled for trip generation, trip distribution, and traffic assignment, but goods movement is not modeled for non-road modes. For more information, see “User’s Guide for the COG/TPB Gen2/Version 2.4.6 Travel Demand Forecasting Model.” Washington, D.C.: Metropolitan Washington Council of Governments, National Capital Region Transportation Planning Board, July 11, 2023.</p> <p>https://www.mwcog.org/transportation/data-and-tools/modeling/model-documentation/</p>
18	450.324(f)(2)	The metropolitan transportation plan shall, at a minimum, include existing and proposed transportation facilities (including major roadways, public transportation facilities, intercity bus facilities, multimodal and intermodal facilities, nonmotorized transportation facilities (e.g., pedestrian walkways and bicycle facilities), and intermodal connectors) that should function as an integrated metropolitan transportation system, giving emphasis to those facilities that serve important national and regional transportation functions over the period of the transportation plan.	Existing transportation facilities are described in Visualize 2050 Chapter 2, and the proposed facilities are shown and discussed in Chapter 6, with additional financial details provided in the Visualize 2050 Future Transportation Investments in Projects and Programs in Chapter 5.
19	450.324(f)(3)	The metropolitan transportation plan shall, at a minimum, include a description of the performance measures and performance targets used in assessing the performance of the transportation system in accordance with §450.306(d) .	Visualize 2050 Chapter 3 includes a description of the performance measures and targets used to assess system performance. Chapter 3 also describes current system performance. Chapter 6 describes anticipated 2050 system performance and Chapter 7 shares the most recently adopted targets.

20	450.324(f)(4)	<p>The metropolitan transportation plan shall, at a minimum, include a system performance report and subsequent updates evaluating the condition and performance of the transportation system with respect to the performance targets described in § 450.306(d), including—(i) Progress achieved by the metropolitan planning organization in meeting the performance targets in comparison with system performance recorded in previous reports, including baseline data; and (ii) For metropolitan planning organizations that voluntarily elect to develop multiple scenarios, an analysis of how the preferred scenario has improved the conditions and performance of the transportation system and how changes in local policies and investments have impacted the costs necessary to achieve the identified performance targets.</p>	<p>Visualize 2050 Chapter 3 reflects the current system performance and reports the progress achieved by the TPB in meeting the performance targets in comparison with system performance recorded previously in Visualize 2045 including baseline data.</p>
21	450.324(f)(5)	<p>The metropolitan transportation plan shall, at a minimum, include operational and management strategies to improve the performance of existing transportation facilities to relieve vehicular congestion and maximize the safety and mobility of people and goods.</p>	<p>The Visualize 2050 Future Transportation Investments in Projects and Programs list provides investment strategies including operational and management strategies to improve vehicular congestion and maximize safety and mobility.</p>
22	450.324(f)(6)	<p>The metropolitan transportation plan shall, at a minimum, include consideration of the results of the congestion management process in TMAs that meet the requirements of this subpart, including the identification of SOV projects that result from a congestion management process in TMAs that are nonattainment for ozone or carbon monoxide.</p>	<p>As part of the project inputs process, agencies submitting roadway capacity expansion projects for construction during the FY 2026-2029 Transportation Improvement Program timeframe, were required to respond to question regarding the consideration of other strategies. The Visualize 2050 Future Transportation Investments in Projects and Programs includes all roadway capacity expansion projects. Chapter 6 discusses projects relating to congestion management and discusses the congestion forecasts. The CMP process related</p>

			to Visualize 2050 is described in part 6 of this report.
23	450.324(f)(7)	<p>The metropolitan transportation plan shall, at a minimum, include assessment of capital investment and other strategies to preserve the existing and projected future metropolitan transportation infrastructure, provide for multimodal capacity increases based on regional priorities and needs, and reduce the vulnerability of the existing transportation infrastructure to natural disasters.</p> <p>The metropolitan transportation plan may consider projects and strategies that address areas or corridors where current or projected congestion threatens the efficient functioning of key elements of the metropolitan area's transportation system.</p>	Visualize 2050 Chapter 7 assesses capital investment and other strategies used to accomplish regional goals and meet regional needs. TPB's resilient region goal and related strategies particularly aims to reduce the vulnerability of infrastructure to natural disasters.
24	450.324(f)(8)	<p>The metropolitan transportation plan shall, at a minimum, include transportation and transit enhancement activities, including consideration of the role that intercity buses may play in reducing congestion, pollution, and energy consumption in a cost-effective manner and strategies and investments that preserve and enhance intercity bus systems, including systems that are privately owned and operated, and including transportation alternatives, as defined in 23 U.S.C. 101(a), and associated transit improvements, as described in 49 U.S.C. 5302(a), as appropriate.</p>	Visualize 2050 includes transportation and transit enhancement activities listed within the Visualize 2050 Future Transportation Investments in Projects and Programs; the role of intercity buses is included in Chapters 2, 3, and 6.
25	450.324(f)(9)	<p>The metropolitan transportation plan shall, at a minimum, include design concept and design scope descriptions of all existing and proposed transportation facilities in sufficient detail, regardless of funding source, in nonattainment and maintenance areas for conformity determinations under the EPA's transportation conformity</p>	Visualize 2050 Financial Plan in Chapter 5 and the Visualize 2050 Future Transportation Investments in Projects and Programs list includes all the proposed transportation facilities with cost estimates. More information about each investment may be found online via the TPB's Project Tracker

		regulations (40 CFR part 93, subpart A). In all areas (regardless of air quality designation), all proposed improvements shall be described in sufficient detail to develop cost estimates.	Database which is available on the visualize2050.org website.
26	450.324(f)(10)	The metropolitan transportation plan shall, at a minimum, include a discussion of types of potential environmental mitigation activities and potential areas to carry out these activities, including activities that may have the greatest potential to restore and maintain the environmental functions affected by the metropolitan transportation plan. The discussion may focus on policies, programs, or strategies, rather than at the project level. The MPO shall develop the discussion in consultation with applicable Federal, State, and Tribal land management, wildlife, and regulatory agencies. The MPO may establish reasonable timeframes for performing this consultation;	Visualize 2050 Chapter 4 has a discussion of environmental mitigation activities.
27	450.324(f)(11)(i)	A financial plan that demonstrates how the adopted transportation plan can be implemented: For purposes of transportation system operations and maintenance, the financial plan shall contain system-level estimates of costs and revenue sources that are reasonably expected to be available to adequately operate and maintain the Federal-aid highways (as defined by 23 U.S.C. 101(a)(5)) and public transportation (as defined by title 49 U.S.C. Chapter 53).	Visualize 2050 Chapter 5 presents the financial plan for Visualize 2050 with detailed expenditures shared in the Visualize 2050 Future Transportation Investments in Projects and Programs. The financial plan includes system-level estimates of reasonably anticipated to be available revenue sources and expenditures for operations and maintenance.
28	450.324(f)(11)(ii)	A financial plan that demonstrates how the adopted transportation plan can be implemented: For the purpose of developing the metropolitan transportation plan, the MPO(s), public transportation operator(s), and State shall cooperatively develop estimates of funds that will be available to support metropolitan transportation plan implementation, as required under § 450.314(a) . All	Visualize 2050 Chapter 5 presents the financial plan for Visualize 2050. The details of reasonably anticipated sources for each investment listed in the Visualize 2050 Future Transportation Investments in Projects and Programs may be found via the Project Tracker Database available on the visualize2050.org website. The TPB's process

		necessary financial resources from public and private sources that are reasonably expected to be made available to carry out the transportation plan shall be identified.	for cooperatively developing the revenue estimates is provided within part 26 of this report.
29	450.324(f)(11)(iii)	A financial plan that demonstrates how the adopted transportation plan can be implemented: The financial plan shall include recommendations on any additional financing strategies to fund projects and programs included in the metropolitan transportation plan. In the case of new funding sources, strategies for ensuring their availability shall be identified. The financial plan may include an assessment of the appropriateness of innovative finance techniques (for example, tolling, pricing, bonding, public private partnerships, or other strategies) as revenue sources for projects in the plan.	Visualize 2050 Chapter 7 presents key regional issues that are beyond what may be accomplished in the financial plan described in Chapter 5; Chapter 5 goes on to describe any additional financing strategies to fund projects and programs included for the future.
30	450.324(f)(11)(iv)	A financial plan that demonstrates how the adopted transportation plan can be implemented: In developing the financial plan, the MPO shall take into account all projects and strategies proposed for funding under title 23 U.S.C., title 49 U.S.C. Chapter 53 or with other Federal funds; State assistance; local sources; and private participation. Revenue and cost estimates that support the metropolitan transportation plan must use an inflation rate(s) to reflect “year of expenditure dollars,” based on reasonable financial principles and information, developed cooperatively by the MPO, State(s), and public transportation operator(s).	Visualize 2050 Chapter 5 presents the financial plan for Visualize 2050. The details of reasonably anticipated sources for each investment listed in the Visualize 2050 Future Transportation Investments in Projects and Programs list may be found via the Project Tracker Database available on the visualize2050.org website. Investments included in the financial plan utilize varying combinations of these funding sources. Sponsor agencies develop the cost estimates with consideration of the anticipated completion year and the impact of inflation. The process for developing the inflation rate(s) and developing the revenues and cost estimates is explained in part 26 of this report.

31	450.324(f)(11)(v)	<p>A financial plan that demonstrates how the adopted transportation plan can be implemented: For the outer years of the metropolitan transportation plan (<i>i.e.</i>, beyond the first 10 years), the financial plan may reflect aggregate cost ranges/cost bands, as long as the future funding source(s) is reasonably expected to be available to support the projected cost ranges/cost bands.</p>	<p>Visualize 2050 reflects two financial periods: the FY 2026-2029 programmed and the FY 2030-2050 reasonably anticipated periods. The first period aligns with TPB's next Transportation Improvement Program (TIP). Visualize 2050 Chapter 5 and part 26 of this report provide more information about the financial timeframes.</p>
32	450.324(f)(11)(vi)	<p>A financial plan that demonstrates how the adopted transportation plan can be implemented: For nonattainment and maintenance areas, the financial plan shall address the specific financial strategies required to ensure the implementation of TCMs in the applicable SIP.</p>	<p>The region no longer includes TCM projects in SIPs, but the TPB does have Transportation Emission Reduction Measure (TERM) projects in Visualize 2050. Part 26 of this report provides more information on the process for developing the Visualize 2050 financial plan.</p>
33	450.324(f)(11)(vii)	<p>A financial plan that demonstrates how the adopted transportation plan can be implemented: For illustrative purposes, the financial plan may include additional projects that would be included in the adopted transportation plan if additional resources beyond those identified in the financial plan were to become available.</p>	<p>Visualize 2050 includes projects that have programmed or reasonably anticipated to be programmed projects as noted within the financial plan in Chapter 5 and the Visualize 2050 Future Transportation Investments in Projects and Programs list.</p>
34	450.324(f)(11)(viii)	<p>A financial plan that demonstrates how the adopted transportation plan can be implemented: In cases that the FHWA and the FTA find a metropolitan transportation plan to be fiscally constrained and a revenue source is subsequently removed or substantially reduced (<i>i.e.</i>, by legislative or administrative actions), the FHWA and the FTA will not withdraw the original determination of fiscal constraint; however, in such cases, the FHWA and the FTA will not act on an updated or amended metropolitan transportation plan that does not reflect the changed revenue situation.</p>	<p>No documentation required at this time.</p>

35	450.324(f)(12)	Pedestrian walkway and bicycle transportation facilities in accordance with 23 U.S.C. 217(g) .	The Visualize 2050 Visualize 2050 Future Transportation Investments in Projects and Programs list and Chapter 6 detail the investment strategies that include pedestrian walkway and/or bicycle transportation facilities.
36	450.324(g)(1)	The MPO shall consult, as appropriate, with State and local agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation concerning the development of the transportation plan. The consultation shall involve, as appropriate: Comparison of transportation plans with State conservation plans or maps, if available.	Part 9 of this report explains the TPB's process for environmental consultation during the development of the plan. Visualize 2050 includes an interactive map showing the results of the environmental consultation and the comparison of transportation plans and environmental-related data. It is available on visualize2050.org .
37	450.324(g)(2)	The MPO shall consult, as appropriate, with State and local agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation concerning the development of the transportation plan. The consultation shall involve, as appropriate: Comparison of transportation plans to inventories of natural or historic resources, if available.	Part 9 of this report explains the TPB's process for environmental consultation during the development of the plan. Visualize 2050 includes an interactive map showing the results of the environmental consultation and the comparison of transportation plans and environmental-related data. It is available on visualize2050.org .
38	450.324(h)	The metropolitan transportation plan should integrate the priorities, goals, countermeasures, strategies, or projects for the metropolitan planning area contained in the HSIP, including the SHSP required under 23 U.S.C. 148 , the Public Transportation Agency Safety Plan required under 49 U.S.C. 5329(d) , or an Interim Agency Safety Plan in accordance with 49 CFR part 659 , as in effect until completion of the Public Transportation Agency Safety Plan, and may incorporate or reference applicable emergency relief and disaster preparedness plans and strategies and policies that support homeland security, as	The Visualize 2050 Future Transportation Investments in Projects and Programs list provides the projects and programs included in financial plan. The full details of each project as provided by the sponsor agency may be found in the Project Tracker Database via the visualize2050.org website. Visualize 2050 Chapter 1 notes the TPB's goal for safety, and Chapter 5 details how TPB agencies are planning to apply endorsed strategies to improve safety.

		appropriate, to safeguard the personal security of all motorized and non-motorized users.	Part 7 of this report describes the process for emergency preparedness and transportation security coordination and part 15 the safety planning process.
39	450.324(i)	An MPO may, while fitting the needs and complexity of its community, voluntarily elect to develop multiple scenarios for consideration as part of the development of the metropolitan transportation plan.	The TPB has conducted numerous scenarios in the past which were summarized for member consideration in submitting proposed investment strategies for Visualize 2050. Part 25 of this report provides more information.
40	450.324(i)(1)	An MPO that chooses to develop multiple scenarios under this <u>paragraph (i)</u> is encouraged to consider: (i) <i>Potential regional investment strategies for the planning horizon</i> ; (ii) <i>Assumed distribution of population and employment</i> ; (iii) <i>A scenario that, to the maximum extent practicable, maintains baseline conditions for the performance areas identified in § 450.306(d) and measures established under 23 CFR part 490</i> ; (iv) <i>A scenario that improves the baseline conditions for as many of the performance measures identified in § 450.306(d) as possible</i> ; (v) <i>Revenue constrained scenarios based on the total revenues expected to be available over the forecast period of the plan</i> ; and (vi) <i>Estimated costs and potential revenues available to support each scenario</i> .	Acknowledged.
41	450.324(i)(2)	In addition to the performance areas identified in <u>23 U.S.C. 150(c)</u> , <u>49 U.S.C. 5326(c)</u> , and <u>5329(d)</u> , and the measures established under <u>23 CFR part 490</u> , MPOs may evaluate scenarios developed under this paragraph using locally developed measures.	The TPB has identified many performance measures beyond the federally-required performance measures and uses them to convey the anticipated results of each National Capital Region Transportation Plan, including Visualize 2050. As many scenarios have been evaluated over the years, for Visualize 2050, TPB staff provided member agencies with a Summary of Scenario Findings to help with selecting strategies to propose

			for Visualize 2050 that best align with TPB's goals. More information about performance measures is available in Chapters 3 and 7 of the plan and part 1 of this report. Part 25 explains the TPB's scenario planning process and the information compiled and shared for Visualize 2050.
42	450.324(j)	The MPO shall provide individuals, affected public agencies, representatives of public transportation employees, public ports, freight shippers, providers of freight transportation services, private providers of transportation (including intercity bus operators, employer-based commuting programs, such as carpool program, vanpool program, transit benefit program, parking cashout program, shuttle program, or telework program), representatives of users of public transportation, representatives of users of pedestrian walkways and bicycle transportation facilities, representatives of the disabled, and other interested parties with a reasonable opportunity to comment on the transportation plan using the participation plan developed under § 450.316(a) .	The Department of Transportation Planning maintains a committee structure in accordance with 49 U.S. Code §5303 that includes all of the individuals and groups in this part, including the Regional Public Transportation Subcommittee, the Commuter Connections Subcommittee (including Bike-to-work, Car-Free Day, Employer Outreach, Ridematch), and technical committees covering aviation, bicycle and pedestrian, freight (which includes ports), and safety. Additionally, the structure maintains two standing public-facing committees. The Access for All Advisory Committee represents organizations that serve people with low income, people with disabilities, people with Limited English Proficiency, ethnic communities, and older adults. It also includes many private providers of transportation and users of public transportation. Similarly, the TPB's Community Advisory Committee is made up of representatives from all over the region and from a variety of interest groups, including advocates for bicycle and pedestrian walkways. All these groups and committees were routinely involved in plan development.
43	450.324(k)	The MPO shall publish or otherwise make readily available the metropolitan transportation plan for public	The plan is made electronically available via the visualize 2050.org website. A Visualize 2050 email

		review, including (to the maximum extent practicable) in electronically accessible formats and means, such as the World Wide Web.	list also provided periodic updates by email for stakeholders and members of the public. The TPB News website, TPB News email newsletter, and the use of social media helped keep the public informed of key steps in the process and provided website links for more details in electronically accessible formats. For more information about public engagement during the development of Visualize 2050, see part 2 of this report.
44	450.324(l)	A State or MPO is not required to select any project from the illustrative list of additional projects included in the financial plan under paragraph (f)(11) of this section.	N/A
45	450.324(m)	In nonattainment and maintenance areas for transportation-related pollutants, the MPO, as well as the FHWA and the FTA, must make a conformity determination on any updated or amended transportation plan in accordance with the Clean Air Act and the EPA transportation conformity regulations (40 CFR part 93, subpart A).	Following the last public comment period in 2025, the staff will recommend the TPB approve the air quality conformity determination of Visualize 2050 and the FY 2026-2029 TIP. The plan and TIP conform to the requirements (Sections 174 and 176(c) and (d) of the Clean Air Act as amended (42 U.S.C. 7504, 7506(c) and (d)), and meet air quality conformity regulations: (1) as originally published by the Environmental Protection Agency (EPA) in the November 24, 1993, Federal Register, and (2) as subsequently amended, most recently in April 2012, and (3) as detailed in periodic FHWA / FTA and EPA guidance. Following the TPB's approval, the FHWA and FTA will have the opportunity to review the air quality conformity report, Visualize 2050 plan, and FY 2026-2029 TIP to make their conformity determination.



Visualize 2050
Planning and
Programming Process

Policy Evolution

Part 1 of 27



National Capital Region
Transportation Planning Board

December 2025

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OVERVIEW OF TPB POLICY EVOLUTION

The TPB's Synthesized Policy Framework for Visualize 2050 is a culmination of more than 25 years evolving from a visioning process in 1998. The policy framework informs transportation planning for the National Capital Region including a vision, principles, goals, strategies and performance measures. Figure 1.1 shows the contents and hierarchy of the TPB's policy framework.

FIGURE 1.1: TPB POLICY FRAMEWORK CONTENT



These policy elements are defined as follows:

- **Vision:** The TPB's desired future state of transportation
- **Principles:** Values the TPB holds
- **Goals:** What we as the TPB aim to accomplish
- **Priority Strategies:** How we intend to accomplish our goals through multimodal transportation projects, programs, policies, and technologies
- **Performance Measures:** How we determine the impact of the planned strategies and if we have succeeded in advancing or reaching our goals

These fundamental elements guide the projects, programs, and policies that are submitted for the Visualize 2050 National Capital Region Transportation Plan and the Transportation Improvement Program (TIP). The projects, programs, and policies submitted by sponsoring agencies should uphold the planning principles, advance one or more regional goals, and implement the TPB priority strategies to support desired performance outcomes. TPB and its members take strides to achieve the regional and local goals to make a real difference for the people and businesses that rely on the region's transportation system.

TPB'S ROLE AND KEY STAFF

The TPB is the metropolitan planning organization (MPO) for the National Capital Region and is responsible for conducting a continuing, cooperative, comprehensive (3-C) metropolitan transportation planning process. The TPB was designated as the region's MPO by the governors of Maryland and Virginia and the mayor of the District of Columbia. The TPB also serves as the transportation policy committee of the Metropolitan Washington Council of Governments (COG). This relationship serves to ensure that transportation planning is integrated with comprehensive metropolitan planning and development and is responsive to the needs of the local governments in the area.

Policy coordination of regional highway, transit, bicycle, pedestrian, and intermodal planning is the responsibility of the TPB. This coordinated planning is supported by the three state departments of transportation (DOTs), Federal Transit Administration (FTA), Federal Highway Administration (FHWA), and the member governments of COG. The relationship among land use and environmental and transportation planning for the area is established through the continuing, coordinated land-use, environmental, and transportation planning work programs of COG and TPB. Policy coordination of land use and transportation planning is the responsibility of COG, which formed the Region Forward Coalition in 2010 to foster collaboration in these areas, and the Transportation Planning Board.

The roles and responsibilities involving the TPB, the three state DOTs, the local government transportation agencies, Washington Metropolitan Area Transit Authority (WMATA), and the local government public transportation operators for cooperatively carrying out regional transportation planning and programming have been established over several years. As required under planning regulations, the TPB, the state DOTs, and the public transportation operators have documented their transportation planning roles and responsibilities in an agreement that was executed by all parties in April 2018.

TABLE 1.1: KEY STAFF

TPB Staff	Title	Role
Kanti Srikanth	Executive Director	Staff Director for the Transportation Planning Board (TPB)
Lyn Erickson	Chief Program Director	Contributor
Tim Canan	Program Director	Contributor
Mark Moran	Program Director	Contributor
Andrew Meese	Program Director	Contributor
Cristina Finch	Principal Transportation Planner	Contributor

Role of TPB Subcommittees

The TPB Technical Committee oversees and supports all subcommittees of the TPB in addition to other joint external committees. The TPB Steering Committee is composed of 10 TPB members including the current and immediate past TPB chairperson. Steering Committee members facilitate work program planning and management of the transportation planning process. The TPB Access for All (AFA) Advisory Committee and TPB Community Advisory Committee (CAC) support and advise the planning board. The AFA identifies issues of concern to traditionally underserved populations to determine whether and how these issues might be addressed within the TPB process. The CAC is a

group of people from throughout the region who represent diverse viewpoints on long-term transportation policy.

ROLE OF KEY PLANNING AGENCIES

Within the National Capital Region, no single government or agency dominates transportation decision-making. Federal, state, and local government entities, as well as transit agencies and other bodies, all have important functions and roles in transportation planning. Collectively, they represent a group of partners, each contributing a unique purpose and ability to influence the region's transportation system.

While the United States Department of Transportation (USDOT) does not directly own or operate roadways and transit systems, the federal government exerts a powerful influence over transportation funding and planning. Federal laws and regulations ensure that national standards are applied in planning and constructing transportation projects. These regulations are primarily administered by two federal agencies, FHWA and FTA, both of which are housed at the USDOT. In large part, federal requirements drive the work of the TPB.

State DOTs, which typically employ thousands of people, are led by the governor's appointee. The DOTs are the main recipients of federal Highway Trust Fund dollars and state transportation funds, which are distributed among all modes of transportation.

WMATA, known as Metro, was created in 1967 by an agreement among the District of Columbia, Maryland, and Virginia to plan, finance, construct, and operate a comprehensive mass transit system for the metropolitan area. The board of directors that governs Metro includes elected and appointed officials from throughout the service area.

Local governments in the region operate according to different rules in various places. Virginia's counties and cities have distinct functions and political systems than those in Maryland. All local governments are essential players in regional transportation. Nine jurisdictions fund their own local bus services in addition to the Metrobus system that serves the central core and inner suburbs of the region.

In addition to the agencies and jurisdictions mentioned earlier, several other organizations are involved in regional transportation decision making. These include Metropolitan Washington Airports Authority, National Park Service, National Capital Planning Commission, Northern Virginia Transportation Authority, Northern Virginia Transportation Commission, Potomac and Rappahannock Transportation Commission, and the Maryland-National Capital Park and Planning Commission.

Interest groups are active in advocating for their causes promoting their agendas at many diverse levels of transportation decision-making. Some groups are formed to support or oppose individual projects. Other groups are formed to support transportation modes, including bicycling, transit, and roads. Still other groups are concerned with transportation issues that relate to broader goals.

PUBLIC ENGAGEMENT

The TPB conducts a variety of public engagement activities which assist the TPB and member agencies in understanding the public's perspectives on transportation and related issues. The TPB conducted a statistically significant public engagement survey in 2020 called Voices of the Region. The purpose of the survey was to capture a regional snapshot of public opinion on transportation issues, including travel changes due to the COVID-19 pandemic and transportation improvements that residents would like to see in the future. The survey also measured public opinion on various factors affecting transportation. In 2023, 2024, and 2025, the TPB offered three public comment

opportunities during which community members provided requested feedback and also shared their concerns about transportation and related issues in the National Capital Region. More information about these public engagement opportunities may be found in Part 2: Public Engagement & Communications.

TPB POLICY FRAMEWORK DEVELOPMENT

The policy framework for Visualize 2050 was built over time beginning in the late 1990s with several key milestones:

- The TPB Vision (1998)
- Region Forward (2010)
- Regional Transportation Priorities Plan (2014)
- TPB Aspirational Initiatives (2018)

The following sections explain these major policy milestones that culminated in the TPB's Synthesized Policy Framework in 2023, the guiding policy document for Visualize 2050.

The Vision (1998)

Adopted in 1998, The Vision¹ is a document that provides a comprehensive set of policy goals, objectives, and strategies that guide transportation planning and investment decisions in the metropolitan Washington region. The TPB Vision was developed by TPB members and technical staff from throughout the region through a collaborative effort that involved consideration and inclusion of the transportation, land-use, environmental, and economic sectors.

Region Forward (2010)

COG developed Region Forward² in 2010 to help guide local and regional decision-making and make the region more Prosperous, Accessible, Livable, and Sustainable. It identifies shared goal areas, one of which is transportation, and numerous objectives and targets for assessing progress toward achieving each of the Region Forward goals:

- We seek a broad range of public and private transportation choices for our region which maximizes accessibility and affordability to everyone and minimizes reliance upon single occupancy use of the automobile.
- We seek a transportation system that maximizes community connectivity and walkability and minimizes ecological harm to the region and world beyond.
- We seek transit-oriented and mixed-use communities emerging in regional Activity Centers that will capture new employment and household growth.
- We seek a significant decrease in greenhouse gas emissions, with substantial reductions from the built environment and transportation sector.
- We seek a diversified, stable, and competitive economy, with a wide range of employment opportunities and a focus on sustainable economic development.
- We seek to minimize economic disparities and enhance the prosperity of each jurisdiction and the region as a whole through balanced growth and access to high-quality jobs for everyone.

¹ National Capital Region Transportation Planning Board (October 15, 1998). *The Vision*.

<https://www.mwcog.org/documents/tpbvision/>

² Metropolitan Washington Council of Governments (January 28, 2010). *Region Forward Vision*.

<https://www.mwcog.org/documents/2010/01/28/region-forward-vision/>

The Greater Washington 2050 Coalition developed Region Forward. The Greater Washington 2050 Coalition was established by the COG to create a comprehensive, regional approach to solving regional challenges like population growth, aging infrastructure, traffic congestion, energy costs, environmental restoration and protection, the need for more affordable housing and sustainable development, and education, economic and health disparities. The Coalition was comprised of a diverse group of public officials and business and civic leaders. They built on recent regional plans, studied efforts in other parts of the country, and asked for input from experts and area residents.

Coalition members found broad agreement on common goals that create a comprehensive vision for the region. The goal categories include land use, transportation, environmental, climate and energy, economic, housing, education, health, and public safety. Further, members created a voluntary Compact Agreement representing a new approach to regional challenges, laying out the goals, and calling for more engagement of state and federal partners to improve regional cooperation. COG regularly conducts progress reports to see if the region is moving closer to achieving its shared goals.

Regional Transportation Priorities Plan (2014)

The TPB adopted the Regional Transportation Priorities Plan³ (RTPP) in January 2014 with a focus on a handful of transportation priorities and feasible strategies with the greatest potential to advance regional goals rooted in the TPB Vision. The goals in the RTPP are frequently referenced in TPB planning activities, including the work of the Long-Range Plan Task Force which shaped the TPB's Aspirational Initiatives included in Visualize 2045 and carried forward to guide Visualize 2050 as priority strategies.

The RTPP goals are also used for the submission forms for projects in the financial plan. Pursuing the investment priorities outlined in the financial plan will lead to greater economic vitality and a higher quality of life for people that live in the metropolitan Washington region. Priorities identified in the RTPP:

Meet Our Existing Obligations: Funding for maintenance and state-of-good-repair needs should continue to be prioritized over system expansion.

Strengthen Public Confidence and Ensure Fairness: Efforts to increase accountability and address the needs of historically transportation disadvantaged populations should be considered in all stages of project planning, design, and implementation.

Move More People and Goods More Efficiently: Improvements to the transportation system should seek to do more with less—to make more efficient use of existing infrastructure and promote greater use of more efficient travel modes for both people and goods.

The idea to develop a priorities plan originated from the then TPB Citizens Advisory Committee (renamed the TPB Community Advisory Committee). In 2010, the CAC recommended that the TPB develop a financially unconstrained regional vision for transportation operations and investment. The TPB convened regional stakeholders to participate in the “Conversation on Setting Regional Transportation Priorities,” an event that led to the development of a scope and process for developing the Priorities Plan. Since then, the TPB and its staff engaged in extensive technical work and public outreach—including listening sessions with key stakeholder groups and engaged citizens, a citizen forum in June 2012, and a public opinion survey in spring 2013—to refine the challenges and strategies in the Plan and to identify the key priorities for moving the region closer to achieving its goals.

³ National Capital Region Transportation Planning Board (January 14, 2014). *Regional Transportation Priorities Plan*. <https://www.mwcog.org/rtpp/>

The following two years involved identifying the key continuing transportation challenges the Washington region faced in achieving six of the major policy goals articulated in the TPB Vision. Those goals are:

- Provide a comprehensive range of transportation options for everyone
- Promote a strong regional economy, including a healthy regional core and dynamic regional Activity Centers
- Ensure adequate maintenance, preservation, and safety of the existing system
- Maximize operational effectiveness and safety of the transportation system
- Enhance environmental quality, and protect natural and cultural resources
- Support inter-regional and international travel and commerce

Identifying the region's most significant transportation challenges relied on using the adopted National Capital Region Transportation Plan as a baseline. The adopted plan, which included only those projects and programs that were realistically expected to be built or implemented by 2040—and which considered forecasts of future population and job growth, and where that growth is expected to occur—provides the best assessment of what our transportation future will look like under current planning and funding trajectories.

The public reviewed and commented on the challenges developed through the TPB's technical work in the early listening sessions, the citizens forum in June 2012, the public opinion survey in spring 2013, and in comment periods on the draft National Capital Region Transportation Plan.

TPB Aspirational Initiatives (2018)

In 2018, the TPB identified numerous challenges in its plan and studies. Some of the region's primary transportation challenges included, but were not limited to, roadway congestion, including travel time and bottlenecks, transit crowding, insufficient bus service, and unsafe walking and biking. Other challenges included the need for more development where multimodal transportation options can be made available, such as in Activity Centers and near high-capacity transit stations. Ensuring safety for all users on the transportation system was another significant challenge that matters to all.

In that same year, the TPB responded to these challenges with the endorsement of seven initiatives that have potential to improve the performance of the region's transportation system compared to previously adopted long-range transportation plans. The projects, policies, and programs that make up these initiatives were identified based on their ability to make more progress toward achieving the goals laid out in previously adopted TPB and COG governing policy documents. The following were the adopted TPB Aspirational Initiatives:

- Bring jobs and housing closer together
- Expand bus rapid transit and transitways
- Increase telecommuting and other options for commuting
- Improve walk and bike access to transit
- Complete the National Capital Trail Network
- Move more people on Metrorail
- Expand the express highway network

TPB Synthesized Policy Framework (2023)

The TPB Synthesized Policy Framework⁴ was shared with the TPB in 2022 and included in the Visualize 2050 Technical Inputs Solicitation and approved by the TPB in January 2023, superseding the previous work described in this section. This document synthesizes TPB policy priorities into a short document that reflects the ideas of The Vision, Region Forward, the goals and challenges documented in The Vision, the Regional Priorities Plan, and the Aspirational Initiatives.

This document is being used for the Visualize 2050 plan update by sponsor agencies as they re-examine/re-submit projects, programs, and policies in the “zero-based budgeting approach” being utilized. Specifically, the intent is to enable the submissions for Visualize 2050 and the Transportation Improvement Program’s to better reflect TPB planning priorities, be more aligned with the TPB’s enhanced policy framework, and be more reflective of TPB scenario findings.

As described in the Overview of TPB Policy Evolution section, the Policy Framework is structured to define principles, goals, strategies, and performance outcomes. The Policy Framework has been incorporated into Visualize 2050 Chapter 1 (Vision, Principles, and Goals), Chapter 5 (Priority Strategies), Chapter 6 (Priority Strategies), and Chapter 7 (TPB Goals and Performance Measures and Targets) reflecting how the TPB will work to improve transportation and related challenges and aim for a better future.

CHALLENGES IDENTIFICATION

The region’s transportation system is imperfect which is why there is ongoing work to make improvements. Following the adoption of the region’s 2040 metropolitan transportation plan in 2016, the TPB members were unsatisfied with the long-term performance of the region’s transportation system, particularly in relation to regional traffic congestion. As a result, the TPB undertook a concerted effort to explore ways to substantially improve the region’s future transportation system performance by enhancing the current mix of projects, programs, and policies in the 2040 plan and setting a foundation for a new way of developing the next and subsequent transportation plans.

Discussed in greater detail in the System Performance Planning section, the TPB assesses performance around key transportation and related topics. Some measures are federally required and utilized mainly to assess current system performance and others are region-specific primarily applied towards future system performance.

Data helps TPB members and staff determine whether the level/severity of the region’s issues or challenges meet adopted targets or generally are acceptable or not. The TPB and member planners are able to dive more deeply into the data around unmet targets to determine what may be contributing to challenges that exceed performance targets. In addition, the TPB has dedicated staff and planning efforts around many commonly cited issues surrounding safety, congestion, freight, transit, climate change mitigation and greenhouse gas emissions, air quality and others for which planning activities are detailed in their respective parts of this document. As noted earlier in the Public Engagement section, the TPB is made aware of ongoing challenges people experience as they travel or that are related to transportation through various engagement activities.

Aside from public engagement conducted through the TPB, transit agencies, local governments, and state transportation agencies all conduct engagement activities to understand from the public what transportation and related issues or concern they are experiencing. The feedback each member agency receives is reviewed. The timing and extent to which each agency is able to address challenges is determined by the respective agency through the TPB’s regional priorities

⁴ National Capital Region Transportation Planning Board (February 6, 2024). *The TPB’s Synthesized Policy Framework*. <https://www.mwcog.org/documents/2024/02/06/tpb-synthesized-policy-framework/>

and performance measures. These priorities provide guidance towards more significant issues. Through the project and service investments listed in Visualize 2050, TPB member agencies aim to address many issues to improve transportation in the future.

Member agencies notify TPB staff of key issues that are being studied and may be incorporated into future iterations of the Visualize plan along with possible solutions and financial resources. In the meantime, Visualize 2050 outlines key challenges that have the potential to greatly impact the region if more work is not dedicated to addressing them; thus, their inclusion in the plan reflects regional consensus on continuing to seek ways to address these challenges.

VISION, PRINCIPLES, AND GOALS DEVELOPMENT

The TPB's actions on establishing a vision and setting regional goals and priorities informs regional planning and serves to influence the decision-making process of its member agencies as to the most effective projects, programs, and policies in which to invest. In February 2023, a zero-based budgeting approach for the technical inputs solicitation of Visualize 2050 and the FY 2026-2029 TIP was established to accept projects from member jurisdictions that better reflect TPB planning priorities. This process also included the approval of the TPB's Synthesized Policy Framework which seeks to better inform regional planning by aligning the TPB's vision with its stated goals. These actions have led to concerted efforts to develop processes aligning TPB's Vision with its stated goals and identifying strategies that can be tracked with indicators of performance.

Vision Statement

Originally approved as part of The Vision in October 1998 after three years of extensive stakeholder engagement, the vision statement included in The Vision continues to reflect the TPB's desired future state of transportation. The vision statement has been minimally refreshed for Visualize 2050 as it continues to guide regional transportation planning efforts.

The metropolitan Washington region remains a vibrant world capital, with a transportation system that provides efficient movement of people and goods. This system promotes the region's economy and environmental quality and operates in an attractive and safe setting—it is a system that serves everyone. The system is fiscally sustainable, promotes areas of concentrated growth, manages both demand and capacity, employs the best technology, and joins rail, roadway, bus, air, water, pedestrian and bicycle facilities into a fully interconnected network.

Principles

Guiding the TPB's decision making are a set of five Principles that reaffirm many of the TPB's long-standing efforts its Vision aims to accomplish while highlighting important present-day transportation challenges. These guiding principles stem from three resolutions on safety, equity, and climate change approved by the TPB in 2020. The TPB's equity resolution affirms that equity, as a foundational principle will be woven throughout TPB's analyses, operations, procurement, programs, and priorities.⁵ The safety resolution established that safety for all modes of transportation is a regional priority which will be monitored and analyzed through performance-based planning and programming with an emphasis on aspirational safety goals associated with

⁵ National Capital Region Transportation Planning Board. (July 22, 2020). *Resolution R1-2021: Resolution to Establish Equity as a Fundamental Value and Integral Part of all Transportation Planning Board's Work Activities.* <https://www.mwcog.org/file.aspx?&A=3vnqhmtpVzzi07Hk70XtnA7yHSFcGCPDW9AbqskDEk%3d>

Vision Zero and Towards Zero Deaths.⁶ The TPB endorsed new interim greenhouse gas (GHG) reduction goals and new climate resiliency goals.⁷ The TPB Principles as included in the TPB's Synthesized Policy Framework:

Equity

The TPB has adopted equity as a key principle to promote fairness and justice. The TPB sees equity considerations as an integral part of all its principles, goals, and strategies. Equity in transportation includes affordable and readily available multimodal travel options throughout the region that enable safe, efficient, and equitable access to jobs, housing, services, and other destinations.

Accessibility

All people who use the transportation system in the region, including residents, visitors, and people with disabilities, should be granted reasonable physical and affordable access to travel by road, transit, biking, walking, micromobility, ferry, and to housing choices. The TPB seeks a broad range of public and private transportation options that maximize physical access and affordability for everyone and minimize reliance on a single mode.

Sustainability

Transportation infrastructure and programs in the region should be financially, structurally, and environmentally sustainable. Sustainability occurs through reducing GHG and promoting regional connectivity and longevity based on growth patterns, projected demand, capacity, and technology. This includes efficient use of energy, meeting or

exceeding standards for air, water, land quality, and environmental protection. Also, retaining and preserving appropriate green space, public space, and historic and cultural resources are integral to a sustainable transportation network.

Prosperity

The National Capital Region's prosperity depends on growing a diversified, stable, and competitive economy that offers a wide range of employment opportunities. The regional transportation network should be an asset to attract high quality employers. It should minimize economic disparities and enhance the prosperity of each jurisdiction and the region through balanced growth and access to high quality jobs and education for all levels.

Livability

Vibrant, healthy, and safe neighborhoods are the heart of the region's livability. Livability revolves around a range of travel and housing choices that are affordable and accessible to all community resources, including services that promote health and wellness. The region's transportation network should continue partnerships within and between jurisdictions to manage emergencies, protect public health and safety, and support economic well-being.

Since the release of the TPB's Synthesized Policy Framework to guide the development of Visualize 2050, new federal executive orders and verbal guidance received from the TPB's federal partners required adjustments to these principles in 2025 particularly to avoid use of the words equity and

⁶ National Capital Region Transportation Planning Board (July 22, 2020). *Resolution R3-2021: Resolution to Establish a Regional Roadway Safety Policy, and Associated Roadway Safety and Equity Policy Statements, to Reduce Fatalities and Serious Injuries on the National Capital Region's Roadways*. https://www.mwcog.org/assets/1/28/Resolution_R3-2021_TPB_Safety_Resolution_Final.pdf

⁷ National Capital Region Transportation Planning Board (October 21, 2020). *Resolution R8-2020: Resolution on the Metropolitan Washington Council of Governments' Regional Multi-Sector Interim Goals for Reducing Greenhouse Gases*. <https://www.mwcog.org/documents/2021/03/24/r8-2021--resolution-on-the-regional-multi-sector-interim-goals-for-reducing-greenhouse-gases-air-quality-conformity-tpb/>

climate change.⁸ TPB staff adjusted the principles to comply. The five principles, referred to as values in Visualize 2050, serve as continued guidance for ongoing planning work.

Goals

The Goals in the TPB's Synthesized Policy Framework look to codify what the TPB aims to accomplish as it puts the TPB's Vision and Principles into operation within the context of National Capital Region transportation planning processes. It is expected to be used for plan updates by sponsor agencies as they reexamine/re-submit projects, programs, and policies. Specifically, the intent is to enable submissions to uphold The Vision and planning principles, advance one or more regional goals, and then be implemented through TPB priority strategies with desired performance outcomes. The Goals coalesces elements from TPB's historic policy framework documents: Region Forward, Regional Transportation Planning and Priorities, Aspirational Initiatives, and Climate Change Mitigation Strategies. It is meant to advance regional goals rooted in the TPB Vision that is then focused on a limited number of specific strategies with the greatest potential to improve transportation.

Safety

The safety of all users, including travelers and maintenance and operations personnel alike, should be ensured on all parts of the transportation system at all times.

Maintenance

All aspects of the transportation system's infrastructure should be maintained in a state of good repair to provide reliable, safe, and comfortable mobility to all its users. Maintaining the existing system is a top priority that takes precedence over creating new systems.

Reliability

Any and all options of travel available should be reliable to get the user to their destination on time every time.

Affordable and Convenient

Provide affordable, realistic multimodal options.

Efficient System Operations

Implement transportation systems management and operations.

Environmental Protection

Provide, facilitate, and incentivize methods that build, operate, and maintain the transportation system in a manner that provides for healthy air, water, and other environmental factors, and mitigates the climate change crisis.

Resilient Region

The region's transportation system should remain able to move people in the face of one or more major obstacles to normal function. These obstacles could include extreme weather events, major crashes and incidents, and equipment or infrastructure failures.

Livable and Prosperous Communities

Support regional economic competitiveness, opportunity, and a high quality of life for all people.

The TPB's regional transportation planning process is not wholly independent but required to meet various metropolitan planning Federal Planning Factors as noted in the Code of Federal Regulations (23 CFR 450.306(b)). And while the Goals in TPB's Synthesized Policy Framework summarizes documents created by regional leaders to establish a path forward through various transportation challenges, it helps to inform how the TPB considers and responds to these federal factors. A crosswalk of TPB's Goals with Federal Planning Factors follows:

⁸ The White House. January 21, 2025. EO 14173: "Ending Illegal Discrimination and Restoring Merit-Based Opportunity." <https://www.whitehouse.gov/presidential-actions/2025/01/ending-illegal-discrimination-and-restoring-merit-based-opportunity/>

US Department of Transportation. April 24, 2025. "Follow the Law Letter to Applicants." <https://www.transportation.gov/sites/dot.gov/files/2025-04/Follow%20the%20Law%20Letter%20to%20Applicants%204.24.25.pdf>

TABLE 1.2: FEDERAL PLANNING FACTORS ALIGNMENT WITH TPB GOALS

Federal Planning Factors (23 CFR 450.306(b))	TPB Goals
Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency	Livable and Prosperous Communities
Increase the safety of the transportation system for motorized and nonmotorized users	Safety
Increase the security of the transportation system for motorized and nonmotorized users	Safety
Increase the accessibility and mobility of people and for freight	Affordable and Convenient Reliability
Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and state and local planned growth, housing, and economic development patterns	Environmental Protection
Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight	Affordable and Convenient Reliability
Promote efficient system management and operation	Efficient System Operations
Emphasize the preservation of the existing transportation system	Maintenance
Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation	Resilient Region
Enhance travel and tourism	Livable and Prosperous Communities

PRIORITY STRATEGIES DEVELOPMENT

The TPB's priority strategies are identified in the TPB's Synthesized Policy Framework. They were developed over many years with input from multiple efforts, notably the 2017 Long-Range Plan Task Force, the 2020 Regional Roadway Safety Study, and the 2021 Climate Change Mitigation Study.⁹

Priority strategies in the TPB's Synthesized Policy Framework were developed to codify how the TPB intends to accomplish its goals through multimodal transportation projects, programs, policies, and technologies. Most of the priority strategies were examined in scenario studies and then endorsed by the TPB over the last decade. These include regional roadway safety, the Aspirational Initiatives, and GHG reduction and have identified the most effective strategies (projects, programs, and policies) to achieve its goals as reflected in its metropolitan transportation plans.

⁹ National Capital Region Transportation Planning Board (December 20, 2017). *Transportation Planning Board Long-Range Plan Task Force Reports*. <https://www.mwcog.org/documents/2017/12/20/long-range-plan-task-force-reports-projects-regional-transportation-priorities-plan-scenario-planning-tpb/>; National Capital Region Transportation Planning Board (July 22, 2020). *Transportation Planning Board Safety Study Resources & Safety Policy*. <https://www.mwcog.org/documents/2020/07/22/tpb-safety-study-resources-safety-policy-federal-performance-measures-highways-roads-traffic-safety/>; National Capital Region Transportation Planning Board (January 7, 2022). *Transportation Climate Change Mitigation Study of 2021*. <https://www.mwcog.org/tpb-climate-change-mitigation-study-of-2021/>

The TPB established a Long-Range Plan Task Force in 2017 to explore regional strategies that could improve system performance and support development of the next transportation plan update. The 18-member Task Force was comprised of local officials and State-level department of transportation officials representing the District of Columbia, Maryland, and Virginia; a representative of the Washington Metropolitan Area Transit Authority (WMATA); and representatives of the citizen advisory committee and the traditionally underserved population groups.

As a first step, the Task Force compiled over 80 different projects, programs and policy ideas that had not been included in the current plan. From this larger set of strategies, the Task Force refined and selected ten improvement initiatives for further analysis. Each of these ten initiatives represented a comprehensive bundle of project, program and policy ideas intended to realize the full potential of improvement. The goal of analyzing these ten initiatives was to discover whether any of them could make significant progress towards achieving the region's transportation performance goals. Based on the results of the analysis, the Task Force agreed upon five of the ten initiatives to recommend as part of an aspirational component of the 2045 plan. In December 2017, the TPB endorsed these five initiatives and called on its member jurisdictions and agencies to fully explore specific implementation actions, both individually and collectively, that could be taken to make them part of the region's next transportation plan. The TPB subsequently added two additional initiatives in January 2018 based on findings and recommendations from a concurrent analysis of non-motorized projects of regional significance conducted by TPB's Bicycle and Pedestrian Subcommittee. All seven of these aspirational initiatives were integrated into the next transportation, called Visualize 2045, which was formally adopted by the TPB in October 2018.

This effort involved a shift from simply compiling the priorities of the District of Columbia, Maryland, Virginia, and WMATA in the plan toward a more consensus and analysis-based approach to identify regional priority strategies with a focus on improving regional transportation performance.

Priority Strategies

Informing Visualize 2050, below are the TPB's priority strategies:

- *Apply best practices to maintain the transportation system such as bridge and pavement management and transit asset management.*
- *Apply the endorsed safety strategies to design and operate safer infrastructure and encourage safer behavior.*
- *Increase frequency and capacity of transit by expanding Bus Rapid Transit and Transitways.*
- *Reduce travel times on all public transportation bus services.*
- *Move more people on Metrorail and commuter rail.*
- *Bring jobs and housing closer together by focusing growth and adding housing units in Activity Centers and near High-Capacity Transit stations.*
- *Provide more telecommuting and other options for commuting such as vanpool or carpool and alternative work schedules.*
- *Expand the express highway network, with rapid transit, and allow carpool/vanpool ride free.*
- *Improve walk and bike access to transit, especially within TPB identified High-Capacity Transit station areas, through the application of Complete Streets and Green Streets policies.*
- *Complete the National Capital Trail Network.*
- *Implement Transportation Systems Management and Operations (TSMO) measures at all eligible locations.*

- *Apply effective technologies that advance the TPB's goals.*
- *Convert vehicles to clean fuels: 50 percent of new light-duty vehicles, 30 percent of medium and heavy-duty trucks sold; 50 percent of all buses on the road.*

Applying the Priority Strategies

When implemented by TPB member agencies, some strategies must be documented in the National Capital Region transportation plan and TIP. These include any project, program or policy that impacts roadway or transit capacity—and could therefore affect air quality. Any project or program slated to receive federal funding must also be included.

However, the TPB's priority strategies cannot all be reflected in the financial plan. Examples include teleworking and land-use policies. Many such strategies are reflected in other planning activities and the outcomes documented at the state, regional, transit agency, and local jurisdictions. The TPB will continue supporting priority strategies through feasible means.

TPB's Priority Strategies development also helps to inform COG's Department of Transportation Planning's planning, programming, and policy activities, including those connected to the National Capital Region Transportation Plan or whose requirements—federal or otherwise—fall outside the direct purview of the plan.

For example, the TPB's Congestion Management Process is a systematic process in Transportation Management Areas (TMAs) that provides for safe and effective integrated management and operation of the multimodal transportation system. The process is based on a cooperatively developed metropolitan-wide strategy of new and existing transportation facilities. Its Technical Report provides updated congestion information and congestion management strategies on the region's transportation systems aimed at providing greater insight and interpretation to the TPB's Priority Strategies. Further, the 2022 Technical Report most directly influenced member agency project inputs submitted in 2023 and 2024 for inclusion in Visualize 2050.¹⁰

SYSTEM PERFORMANCE PLANNING

The TPB's achievement of its goals is assessed through performance measures which provide data that is either a) qualified based on its relationship, exceeding or achieving a set target, or b) where no target exists, is open to interpretation. The TPB tracks current system performance through federal performance measures and associated targets as required by the federal government. Targets tend to be short-range such as annual, every two or every four years.

Additionally, the TPB gauges the anticipated future system performance by reporting on regional performance measures within every National Capital Region Transportation Plan. The regional travel demand model is used for this future performance analysis to calculate anticipated outcomes of the Visualize plan. More information about the federal and regional performance measures are shared in this section while the following sections discuss their relationship with Visualize 2050.

Performance-based planning for Visualize 2050 is based on member agency reflections on the future performance reported in Visualize 2045 using regional performance measures as well as the current system performance based on federal performance measures that were most recent prior to member agency technical inputs submissions in 2023/2024.

¹⁰ National Capital Region Transportation Planning Board (November 19, 2024). Congestion Management Process (CMP) Technical Report. <https://www.mwcog.org/documents/2024/11/19/congestion-management-process-cmp-technical-report-congestion-management-process/>

Federal Performance Measures

Under the Moving Ahead for Progress in the 21st Century Act (MAP-21) and reinforced in the Fixing America's Surface Transportation (FAST) Act, federal surface transportation regulations require the implementation of a performance management process through which states and MPOs will “transition to a performance-driven, outcome-based program that provides for a greater level of transparency and accountability, improved project decision-making, and more efficient investment of federal transportation funds.”

The Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) have issued a set of rulemakings for the implementation of performance-based planning and program (PBPP), sometimes also referred to as transportation performance management (TPM) with regard to the setting of targets and tracking of progress. Each rulemaking laid out the goals of performance for a particular area of transportation, established the measures for evaluating performance, specified the data to be used to calculate the measures, and established requirements for the setting of targets.

Under the PBPP process, state DOTs, MPOs, and providers of public transportation must link federal investments to the achievement of performance targets in each of the performance areas.

The final *Statewide and Metropolitan Planning Rule*, published May 27, 2016, provides direction and guidance for the implementation of PBPP, including specified measures and data sources, forecasting performance, target-setting, documentation in the statewide long-range transportation plans, metropolitan transportation plans, and Transportation Improvement Programs (TIPs), and reporting requirements. The PBPP process requires coordination and written agreement on specific responsibilities for each applicable agency in accordance with the planning rule.

MAP-21, signed into law in 2012, placed increased emphasis on performance management within the federal-aid highway program, including development of national performance measures to be used by state DOTs and MPOs in setting targets. The law specifically called for the use of performance-based decision-making within metropolitan transportation planning processes. PBPP involves integrating performance management concepts into established federally required transportation planning and programming processes.

The Federal Performance Measures and Visualize 2050 section discusses the performance of an area of the PBPP performance measures. A brief description of the methodology for forecasting future performance and setting the new targets found in Visualize 2050 and the FY 2026-2029 TIP is described. In general, the methodology for setting targets was to assess the trends in recent performance for each performance measure and then forecast performance based on the trend as well as the predicted impact of the projects in the Visualize plan and TIP, using relevant indicators from the travel demand model. This reflected the anticipated effect of the projects toward achieving the TPB's performance targets. Performance compared to targets informs the projects, programs, and policies to be implemented by the TPB member agencies, linking investments to the performance targets.

Regional Performance Measures

Regional Performance Measures helps the region consider how well the anticipated transportation system will accommodate current and forecast travel demand and address topics of interest to regional decision-makers including mobility, accessibility, and environmental challenges. It also examines how future expected changes to the transportation system advance regional goals and strategies in the TPB's Policy Framework. The results of the analysis can help decision-makers and the public better understand what changes to current plans and funding might be needed to achieve different future outcomes.

The measures use data outputs from the TPB's travel demand model, which forecasts where, when, and how people will travel around the region in coming decades. To make its predictions, the model relies on the latest regional population and job growth forecasts from the Metropolitan Washington Council of Governments, information on existing travel patterns from the TPB's Household Travel Survey, and the future transportation system laid out in Visualize 2050. The analysis examines more than twenty performance measures to understand how typical travel and commuting characteristics will change over time, and it examines how the existing highway and transit networks serve the region and the impact of planned projects. The future performance analysis uses the following inputs and model:

- **Land Use:** Round 10.0 COG/TPB Cooperative Forecast of Land Activity
- **Travel Demand Model:** COG/TPB Gen2/Version 2.4.6 Travel Demand Forecasting Model
- **Vehicle Fleet Data:** 2023 Vehicle Registration Data

Results of this analysis use a 2025 base year "Today" scenario and a 2050 forecast year and are for the TPB Planning Area. These findings are based on regional model estimates that come with a degree of uncertainty.

Regional Performance Measures can be generally categorized as examining current and future travel demand, mode choice, congestion, accessibility, and mobility. Travel demand and mode choice explores the number of trips being taken and how the forecast expects those trips to be taken by mode. Congestion examines various measures of delay and roadway congestion. Accessibility examines the ability of travelers to reach destinations across the region, particularly jobs, while mobility examines the ease in which travelers can reach destinations. Finally, for over a decade, the TPB has been tracking emissions, land use and transportation options as part of its regional performance measures. Below are the principal measures used but may be updated with new or modified measures as the analysis develops:

Travel Demand and Mode Choice

- Daily Mode Share – Single Occupancy Vehicle (SOV), High-Occupancy Vehicle (HOV), Transit, and Walk/Bike – Region
- Daily Mode Share - Single Occupancy Vehicle, High-Occupancy Vehicle, Transit, and Walk/Bike - Sub-Regional
- Vehicle Miles Travelled Daily and Per Capita
- Travel on Reliable Modes (High-Occupancy Vehicle and Transit)
- Work Mode Share - Single Occupancy Vehicle, High-Occupancy Vehicle, Transit, and Walk/Bike – Regional
- Work Mode Share - Single Occupancy Vehicle, High-Occupancy Vehicle, Transit, and Walk/Bike - Sub-Regional

Congestion

- Percent of Lane Miles Congested
- Vehicle Hours of Delay

Access

- Mode Analysis by Geography for All Trips and Work Trip Access
- Average and Change in Jobs Accessible by Transit

- Average and Change in Jobs Accessible by Auto

Vehicle Emissions and Air Quality Conformity

- Mobile Source Emissions and Mobile Emissions Budgets Ozone Season: Volatile Organic Compounds (VOC)
- Mobile Source Emissions and Mobile Emissions Budgets Ozone Season: Nitrogen Oxides (NO_x)

Land Use and Transportation Options

- Regional Activity Centers Proximity to High-Capacity Transit Stations
- Population Proximity of High-Capacity Transit Stations – Regional and Sub-Regional
- Employment Proximity to High-Capacity Transit Stations – Regional and Sub-Regional
- Population Growth within Regional Activity Centers
- Employment Growth within Regional Activity Centers
- Number of Regional Activity Centers and High-Capacity Transit Stations by Geography

FEDERAL PERFORMANCE MEASURES AND VISUALIZE 2050

The federal government mandates certain performance measures be tracked to assess the transportation system's performance periodically and set short-range targets for the future. The sections below describe the federal performance measures, how the TPB works with member agencies to track them, and how they help the TPB understand the current state of performance.

Highway Safety Performance

This chapter summarizes the federal requirements related to the establishment of regional highway safety performance targets and describes the methodology used to develop the National Capital Region's highway safety targets. The targets described in this report meet federal performance-based planning and programming (PBPP) requirements and are consistent with the target setting approaches of Maryland, Virginia, and the District of Columbia.

The FHWA published the *National Performance Management Measures: Highway Safety Improvement Program; Final Rule* on March 15, 2016, with an effective date of April 24, 2016, followed by one year for implementation. Under the Highway Safety rule, state DOTs establish and report annual targets for five highway safety performance measures by August 31 of each year. MPOs then set targets specific to the metropolitan planning area within 180 days.

The goal of the implementation of the highway safety rule is to improve both the quantity and quality of safety data pertaining to serious injuries and fatalities. State DOTs and MPOs are expected to use the information generated by these regulations to make investment decisions that result in the greatest possible reductions in fatalities and serious injuries. Implementation of the rule is expected to promote greater transparency by disseminating the data publicly. In addition, aggregation of targets and progress at the national level will become possible through improved data consistency among the states and MPOs.

The TPB adopted the first set of highway safety targets for the National Capital Region in January of 2018. Since then, the TPB has devoted considerable effort to:

- 1) better understand the factors driving the unacceptably high numbers of fatal and serious injury crashes in the region,
- 2) identify countermeasures and strategies that are proven to be effective in reducing fatal and serious injury crashes, and
- 3) encourage TPB member jurisdictions and agencies to implement countermeasures and strategies to significantly reduce fatalities and serious injuries on the region's roadways.

Progress has been made in each of these areas over the past four years. In the spring of 2020, the TPB reviewed the findings of a regional crash data analysis and considered the recommendations resulting from a consultant-led regional safety study that began in 2019. This work led to the adoption of a major safety resolution during the TPB's July 2020 meeting. A key element of this resolution was the establishment of the Regional Roadway Safety Program (RRSP) to assist member jurisdictions and the region to develop and/or implement projects, programs, or policies to equitably improve safety outcomes for all roadway users; two sets of RRSP projects have been approved since.

The TPB anticipates that the RRSP, combined with the continued safety improvement efforts of member agencies and jurisdictions, will result in improved performance that will be reflected in the federally required regional safety measures in future years.

HIGHWAY SAFETY PERFORMANCE MEASURES

Annual safety measures are defined as five-year rolling averages. The five required safety performance measures, along with the prescribed data sources, are outlined in Table 1.3.

TABLE 1.3: SUMMARY OF HIGHWAY SAFETY PERFORMANCE MEASURES

Performance Measure	Description	Data Source
Number of Fatalities (5 year rolling average)	Total number of fatalities during a calendar year	FARS1
Rate of Fatalities per 100 million VMT (5 year rolling average)	Ratio of total fatalities to VMT	FARS and HPMS2 (or MPO estimate)
Number of Serious Injuries (5 year rolling average)	Total number of serious injuries during a calendar year	State reported serious injury data
Rate of Serious Injuries per 100 million VMT (5 year rolling average)	Ratio of total serious injuries to VMT	State reported serious injury data and HPMS
Number of Non-Motorized Fatalities and Serious Injuries (5 year rolling average)	Total number of fatalities and serious injuries during a calendar year	FARS and State serious injury data

MPO Coordination with State DOTs

MPOs are required to establish their performance targets in coordination with their state partners and these targets should be data-driven and realistic. The requirement for these safety targets to be evidence based and predictive of anticipated outcomes does not supersede or diminish any aspirational targets to which local, regional, or state jurisdictions are committed. Coordination is essential between these two entities in setting highway safety targets. Both should work together to share data, review strategies, and understand outcomes.

TPB staff have developed the regional highway safety targets in close coordination with the Maryland Highway Safety Office of the Maryland Motor Vehicle Administration and the State Highway Administration's Innovative Performance Planning Division; the Transportation Operations Administration of the District of Columbia Department of Transportation (DDOT); and the Highway Safety Analysis Program at the Virginia Department of Transportation (VDOT). Each state's unique target setting approach was incorporated into the methodology used to develop the regional targets.

Target Reporting

State DOTs must report their targets to the FHWA within the state's HSIP (Highway Safety Improvement Program) annual report due each year on August 31.

MPOs do not report their targets to the FHWA, but rather to their respective state DOTs in a manner that is documented and mutually agreed upon. MPOs also report progress toward achieving their targets within the System Performance Report portion of their metropolitan transportation plan. In addition, MPO TIPs must include a discussion of how the implementation of the TIP will further the achievement of the targets.

FHWA Determination of Significant Progress

States do not have to meet each of their safety targets to avoid the consequences outlined in the rule but must either meet the target or make significant progress toward meeting the target for four of the five performance measures. The FHWA determines that the significant progress threshold is met if the performance measure outcome is better than the “baseline”, defined as the five-year rolling average for that performance measure for the year prior to the establishment of the target. MPO progress is not evaluated by the FHWA.

Consequences for Failing to Meet Targets or Making Significant Progress

State DOTs that have not met or made significant progress toward meeting their safety performance targets lose some flexibility in how they spend their HSIP funds and are required to submit an annual implementation plan that describes actions the DOT will take to meet their targets.

There are no consequences outlined in the rule for MPOs not meeting their targets. However, the FHWA will review how MPOs are incorporating and discussing safety performance measures and targets in their metropolitan transportation plans and TIPs during MPO certification reviews.

REGIONAL HIGHWAY SAFETY TARGET SETTING APPROACH

To account for and incorporate the different target setting approaches used by the District of Columbia, Maryland, Virginia into targets for the entire National Capital Region (NCR), staff has applied the following target setting methodology to develop the TPB approved targets:

- Identify a “sub-target” for the Maryland portion of the NCR by applying MDOT’s target setting approach to the NCR safety data
- Identify a “sub-target” for the Virginia portion of the NCR by applying VDOT’s target setting approach to the NCR safety data
- Identify a “sub-target” for the District of Columbia portion of the NCR by directly incorporating DDOT’s targets;
- Compare each performance measure’s sub target with the corresponding target adopted last year; and
- Select the lower (more aggressive) of the two targets as the current year’s target.

Overview of Member States' Target Setting Methodologies

District of Columbia

The District of Columbia analyzed their safety data using a combination of annual and five-year average data and polynomial trend lines to determine their targets. TPB staff directly incorporated the District of Columbia targets, as published in their HSIP Annual Report, into the NCR target setting methodology.

Maryland

In previous years Maryland set quantifiable and data driven highway safety targets that supported their Toward Zero Deaths (TZD) approach by developing interim targets to reduce overall fatalities and serious injuries by at least 50 percent by 2030.

In 2021 Maryland adopted a new methodology to set highway safety targets. Unlike the TZD approach, annual targets for 2021 were set using a two-pronged approach. Targets that are experiencing a decreasing trend over time are set using five-year rolling averages and an exponential trend without a fixed endpoint to calculate future targets. For those targets experiencing increasing trends, however, projections are based on a two percent decrease from the 2016-2020 five-year average, continuing with a two percent decrease for each successive five-year average.

Maryland officials provided TPB staff with trend lines and interim targets for each of the five performance measures based on the safety data for the Suburban Maryland portion of the NCR.

Virginia

The method used by Virginia to set annual targets is based on a model that forecasts future fatalities and serious injuries based on a broad range of factors. VDOT then estimated the collective impact of their planned and programmed countermeasures and reduced the model forecast by the projected impacts of their engineering and behavioral efforts. This process is only viable at a statewide level and cannot be used effectively to determine targets for smaller regions within the state. To assist their MPOs, VDOT advised MPOs to apply linear regression techniques to make projections for each of the numeric performance measures to calculate the 2021-2025 regional targets. For the rate performance measures, VDOT advised MPOs to divide the annual forecasts for fatalities and serious injuries by projected VMT (vehicle miles traveled) to make 2024 and 2025 projections which were then used to calculate the 2021-2025 regional targets.

CALCULATION OF THE NATIONAL CAPITAL REGION HIGHWAY SAFETY TARGETS

Numerical Targets

The NCR targets for the number of fatalities, number of serious injuries, and number of non-motorist fatalities and serious injuries were calculated by summing the sub-targets for the District of Columbia, Suburban Maryland, and Northern Virginia portions of the region. This is a straightforward mathematical addition.

As a final step, the calculated numerical targets were compared to the corresponding targets adopted by the TPB last year and the lower (more aggressive) target for each performance measure was selected.

Rate Targets

Determination of rate targets (fatality rate and serious injury rate) are somewhat more complicated and involve mathematically combining the effects of the District of Columbia, Suburban Maryland, Northern Virginia (NOVA) targets according to their respective proportions of total regional VMT.

The following steps illustrate the process for the fatality rate (a similar process was used for the serious injury rate):

- Number of fatalities, number of serious injuries, and number of non-motorist fatalities plus serious injuries
- Fatality rate per 100 million VMT and serious injury rate per 100 million VMT

1. Determine the percent fatality rate reduction represented by each sub target.

Fatalities per 100 MVMT	2019-2023 Average	2021-2025 Average (sub target)	Percent Change
Suburban MD	1.049	0.881	-16.03%
NOVA	0.562	0.563	0.09%
DC	1.093	0.660	-39.62%

2. Determine the proportion of total regional VMT attributable to Suburban Maryland, Northern Virginia, and DC.

Sub Region	100 MVMT (2020)	Proportion
Suburban MD	208.40	47.85%
NOVA	192.30	44.15%
DC	34.81	7.99%
Sum	366.51	100.00%

3. Determine the percent change for the regional rate by multiplying the percent change (from step 1) by the VMT proportion (from step 2).

Sub Region	A: Percent change in fatality rate (from step 1)	B: Proportion (from step 2)	A x B
Suburban MD	-16.03%	47.85%	-7.672%
NOVA	0.08%	44.15%	0.039%
DC	-39.62%	7.99%	-3.167%
Sum			-10.800%

4. Apply the percent change for the regional rate calculated in step 3 to the 2019-2023 average fatality rate. This is the regional fatality rate target for 2021-2025.

Fatalities per 100 MVMT	2019-2023 Average	Regional Percent Change (from step 3)	2019-2025 Average (regional target)
NCR	0.842	-10.800	0.751

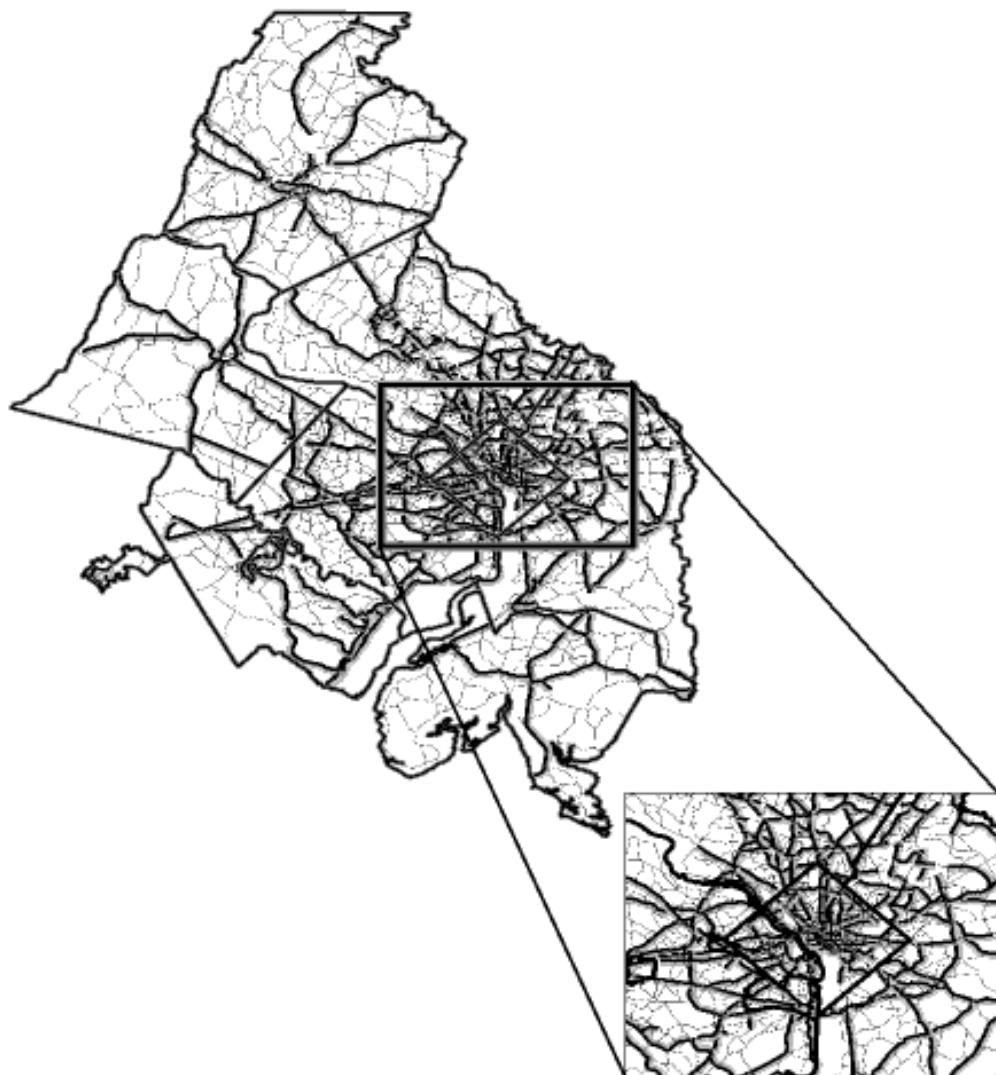
As a final step, the calculated rate targets were compared to the corresponding targets adopted by the TPB last year and the lower (more aggressive) target for each performance measure was selected. Since the previous fatality rate target of 0.588 set is lower than the 0.751 figure calculated by mathematically combining the three sub-regional targets, the staff-recommended target is 0.588 (and not 0.751).

Pavement and Bridge Condition Performance

The *National Performance Management Measures; Assessing Pavement Condition for the National Highway Performance Program and Bridge Condition for the National Highway Performance Program* final rule addresses requirements established by MAP-21 and the FAST Act. This section describes the TPB's methodology for determining the performance targets and coordination with the departments of transportation of the District of Columbia, Maryland, and Virginia. Targets for the quadrennial period 2022 through 2025 were approved by the TPB on October 19, 2022, in Resolution R3-2023.

Several of the MAP-21 performance measures directly involved the NHS. The NHS includes the Interstate Highway System as well as other roads important to the nation's economy, defense, and mobility. The NHS was developed by the United States Department of Transportation (DOT) in cooperation with the states, local officials, and MPOs. With the adoption of MAP-21 on October 1, 2012, the NHS became the "enhanced-NHS" by adding roads that were previously classified as principal arterials but not yet part of the system. These Interstate and Non-Interstate roadways on the NHS are the primary roadways for the assessment of the PBPP measures, shown in Figure 1.2.

FIGURE 1.2: NATIONAL HIGHWAY SYSTEM NETWORK IN THE TPB PLANNING REGION



When performance measures are referring to the Interstate or Non-Interstate roadways on the NHS, it is the MAP-21 “enhanced-NHS.”

State DOTs can make modifications to the NHS by either removing or adding additional roadways. This can be done in writing to the FHWA Division Office. Supporting documents must be included such as maps and documentation of coordination with the effected jurisdictions. The FHWA Division Office will review, summarize, and move changes for recommendation to FHWA Headquarters. FHWA Headquarters will approve any modifications to the NHS.

PAVEMENT AND BRIDGE CONDITION PERFORMANCE MEASURES

The Pavement and Bridge Condition Performance Measures final rule, published in the Federal Register on January 18, 2017, established measures for state DOTs to assess the condition of pavements on the non-Interstate NHS; pavements on the Interstate System; and bridges carrying the NHS, including on- and off-ramps connected to the NHS. Targets must be set for six particular areas; 1) Percent of pavements on the Interstate System in good condition, 2) Percent of pavements on the Interstate in poor condition, 3) Percent of pavements on the NHS (excluding Interstate) in good condition, 4) Percent of pavements on the NHS (excluding Interstate) in poor condition, 5) Percentage of NHS bridge deck classified in good condition, 6) Percentage of NHS bridge deck classified in poor condition.

Data for these performance measures are available through databases overseen by the FHWA: the Highway Performance Monitoring System (HPMS) and the National Bridge Inventory (NBI). State DOTs have the responsibility to report data to the HPMS and the NBI annually.

Interstate Pavement

- Percentage of pavements on the Interstate System in Good condition
- Percentage of pavements on the Interstate System in Poor condition

NHS (Non-Interstate) Pavement

- Percentage of pavements on the NHS (excl. Interstate) in Good condition
- Percentage of pavements on the NHS (excl. Interstate) in Poor condition

Bridges

- Percentage of NHS Bridges Classified as in Good Condition
- Percentage of NHS Bridges Classified as in Poor Condition

Pavement Condition

The HPMS database includes the data needed for calculating good and poor metrics. The data includes roughness, cracking, rutting for asphalt pavement, and faulting for concrete pavement. The measures are aggregated by lane miles. In addition, HPMS pavement data collection requirements have been revised to require more comprehensive collection of data for the NHS network.

State DOTs must establish targets, regardless of ownership, for the full extent of the Interstate and non-Interstate NHS. The initial statewide two and four-year targets for the non-Interstate NHS and four-year targets for the Interstate were required to be adopted by May 20, 2018, with subsequent reporting to FHWA by October 1, 2018, for the baseline quadrennial period of 2018 through 2021. MPOs can either support the relevant state DOTs four-year target or establish their own within 180 days after the state DOT's target are established.

The current applicable round of target setting for this PBPP area covers the quadrennial calendar year period 2021 through 2025, for which targets were required to be set and reported by October 1, 2022.

Bridge Condition

For the bridge condition performance measures, the measures are calculated based on deck area and a classification of the bridge structure condition. The classification is based on NBI condition ratings for the Deck, Superstructure, Substructure, and Culvert. Condition is determined by the lowest rating of deck, superstructure, substructure, or culvert. If the lowest rating is greater than or equal to 7, the bridge is classified as good; if is less than or equal to 4, the classification is poor. (Bridges rated below 7 but above 4 are classified as fair; there is no related performance measure.) Deck area is computed using NBI criteria of Structure Length, Deck Width or Approach Roadway Width (for some culverts).

State DOTs must establish targets for all bridges carrying the NHS, which includes on- and off-ramps connected to the NHS within a state, and bridges carrying the NHS that cross a State border, regardless of ownership. As with the pavement performance measures, MPOs can either support the relevant state DOT(s) four-year target or establish their own within 180 days after the state DOT's targets are established.

Pavement and Bridge Penalties

If FHWA determines that a state DOT's Interstate pavement condition falls below the minimum level for the most recent year, the state DOT must obligate a portion of National Highway Performance Program (NHPP) and transfer a portion of Surface Transportation Program (STP) funds to address Interstate pavement condition. If for three consecutive years more than 10.0 percent of a state DOT's NHS bridges' total deck area is classified as Structurally Deficient, the state DOT must obligate and set aside National Highway Performance Program (NHPP) funds for eligible projects on bridges on the NHS.

PAVEMENT AND BRIDGE CONDITION TARGET SETTING APPROACH

The following approaches were used by the region's state DOTs in developing the quadrennial 2022-2025 pavement and bridge condition targets.

District of Columbia

Targets in the District of Columbia were established by use of historical data, future programmed projects, and future budgets appropriated to maintain pavement in a state of good repair. It should be noted that the District of Columbia has a number of bridges and roadways that are not maintained by DDOT but rather by other agencies including the National Park Service (NPS) and the Architect of the Capitol. Though DDOT has no ability to impact the condition of bridges owned by other entities, such as the NPS-owned Arlington Memorial Bridge or parkways, the condition of these bridges is factored into the overall bridge condition in the District of Columbia.

Maryland

Within the TPB planning area for the state of Maryland, targets were established by use of historical data, future programmed projects, and future budgets appropriated to maintain pavement in a state of good repair.

Virginia

For Virginia, through coordination between TPB staff and VDOT staff it was determined that, contrary to the case in Maryland, a forecast for Northern Virginia alone was not feasible. Statewide targets were established by use of historical data, future programmed projects, and future budgets appropriated to maintain pavement in a state of good repair.

REGIONAL PAVEMENT AND BRIDGE TARGETS

MPOs have two options for setting targets for the pavement and bridge performance measures. The first option is to support the statewide targets established by the state DOTs. The second option is for the MPO to establish their own quantifiable four-year targets for these measures. The TPB chose the latter option and has set its own targets for these performance measures for the metropolitan planning area. The coordination for the establishment of these targets was closely linked to the information provided by the states as well as information obtained from the HPMS and the NBI.

Pavement

As a first step in forecasting performance in four years for pavement conditions for the TPB planning area, data was obtained and analyzed for the HPMS database using the field manual inventory, which contains metrics for rutting, faulting, cracking, and international roughness index (IRI). Next, TPB staff were able to calculate the number of lane miles within the planning area for the District of Columbia, Maryland, and Virginia. Table 1.4 gives the lane mileage for each state or part of the state, as well as the regional total number of lane miles in the TPB region. Finally, the statewide targets for the District of Columbia and Virginia were applied to their respective lane miles within the TPB region. For the state of Maryland, forecasted targets for the portion of the state in the TPB planning area were provided and applied to the lane miles.

TABLE 1.4: SUMMARY OF THE 2022 LANE MILES FOR INTERSTATE AND NON-INTERSTATE ROADWAYS IN THE TPB REGION

Bridges	Interstate Lane Miles	Non-Interstate Lane Miles
DC	53.5	472.5
MD*	863.8	2259.0
VA*	756.0	1917.8
National Capital Region	1673.3	4649.3

* Lane miles within the TPB's metropolitan planning area

Bridges

In forecasting the 2022-2025 four-year performance for bridge conditions within the TPB region, a similar methodology to that of pavement was used. TPB staff collected data from the NBI, analyzing the condition of the surface area as the applicable metric. Next, the deck areas of bridges within the District of Columbia and the portions of Maryland and Virginia that are within the TPB planning area were calculated. Table 1.5 provides a breakdown of the surface area of bridges within the TPB planning area in 2022. Finally, the statewide targets were applied to the respective deck areas for each state in the planning area and four-year targets for the region were calculated.

TABLE 1.5: SUMMARY OF THE 2022 TOTAL DECK AREA OF BRIDGES IN THE TPB REGION

Bridges	Deck Areas (square feet)
DC	4,905,373
MD*	10,085,421
VA*	14,107,218
National Capital Region	29,098,012

Highway System Performance

This section summarizes the federal requirements for the TPB in the establishment of performance targets associated with Highway System Performance. This includes performance concerning Travel Time Reliability (TTR) on both the Interstate and Non-Interstate roadways as well as the Truck Travel Time Reliability (TTTR) Index on Interstate roadways. The targets described in this report meet the MAP-21/FAST PBPP requirements and are consistent with the target setting approaches of Maryland, Virginia, and the District of Columbia. The four-year targets for the period 2022 through 2025 were approved by the TPB on October 19, 2023, in Resolution R3-2023.

HIGHWAY SYSTEM PERFORMANCE MEASURES

The FHWA published the *System Performance: Highway and Freight, Congestion Mitigation and Air Quality (CMAQ)* final rule on January 18, 2017, with an effective date of May 20, 2017, followed by one year for implementation. Accordingly, state DOTs had until May 20, 2018, to initially set targets. The rule requires state DOTs to set targets for four performance measures concerning Highway and Freight: 1) Interstate Travel Time Reliability (TTR), 2) National Highway System (NHS) TTR, and 3) Freight Reliability (Truck Travel Time Reliability (TTTR))¹¹, shown in Table 1.6. In addition, the FHWA requires state DOTs to set three performance measures under the CMAQ Program: 1) Peak Hour Excessive Delay (PHED), 2) Mode Share (Non-SOV), and 3) Emission Reductions, which are covered in the next chapter.

This section of the report covers the Highway and Freight Performance Measures, specifically, TTR and TTTR, and provides an overview of the measures, data collection, and the methodology and forecasting methods used for target setting. Performance Measures

TABLE 1.6: SUMMARY OF TRAVEL TIME RELIABILITY PERFORMANCE MEASURES

National Highway System	(1) Interstate Travel Time Reliability (TTR) - Percent of person-miles traveled on the Interstate System that are reliable (2) NHS (Non-Interstate) Travel Time Reliability (TTR) - Percent of person-miles traveled on the non-Interstate National Highway System (NHS) that are reliable
Freight Movement	(3) Freight Reliability (TTTR) - Measurement of travel time reliability on the Interstate System using a Truck Travel Time Reliability (TTTR) Index.

Travel Time Reliability and Truck Travel Time Reliability

The TTR measure assesses the reliability of roadways on the Interstate and Non-Interstate (NHS) systems. TTR is defined by the FHWA as the percent of person-miles on the Interstate/NHS that are reliable. Concerning freight, reliability is the ratio of the Interstate System Mileage providing for reliable TTTR. Data are derived from the travel time data set found in the National Performance Management Research Data Set (NPMRDS). Performance data for the measures for the region are obtained from the NPMRDS. This data was collected by INRIX using a widget created for the Regional Integrated Transportation Information System (RITIS). RITIS is an automated data sharing, dissemination, and archiving system that includes many performance measures, dashboards, and

¹¹ An additional performance measure for Greenhouse Gas Emissions was repealed on May 31, 2018.

visual analytics tools that help agencies gain situational awareness, measure performance, and communicate. To create a measure, the data from this is calculated by the University of Maryland Center for Advanced Transportation Technology Laboratory (CATT Lab). The RITIS widget is designed to provide historical data and baseline metrics. The metrics used are Level of Travel Time Reliability (LOTTR) and the TTTR Index.

For each quadrennial performance period state DOTs are required to establish two and four-year targets for the Interstate and for the non-Interstate NHS. The statewide targets are included in the state DOT's baseline performance period reports submitted to the FHWA by October 1 of the first year of the quadrennial period. As with other performance measures, MPOs then have 180 days following to establish their own targets or endorse the statewide targets.

REGIONAL HIGHWAY SYSTEM PERFORMANCE TARGET SETTING APPROACH

As all state DOTs and MPOs are required to do for this group of performance measures, TPB staff obtains data from the NPMRDS and utilizes RITIS with the MAP-21 widget. This enables staff to review the observed TTR and TTTR for the TPB Planning Area for previous years. With this collection of data, staff considered three general methodologies to determine performance forecasting: the extrapolation of measured performance, the use of travel demand model data, or the average of the two.

- Extrapolation of Measured Performance
 - For this approach, measured data for the previous years is extrapolated, via polynomial regression, through the year quadrennial period.
- Travel Demand Model
 - For the regional transportation plan conformity updates, the TPB uses a travel demand model which produces congestion/related outputs for modelled years: 2020, 2025, 2030, etc. Forecasts for TTR and TTTR are made by applying such outputs as the Percentage of Congested AM Peak Hour VMT estimates to forecast changes in congestion, applying the percentage changes to previous measured performance.
- Averaging
 - Taking the average of both the extrapolation of measured performance and the utilization of the Travel Demand Model as a means of forecasting the targets.

The averaging approach was selected by TPB staff to forecast future performance for 2022-2025 and to develop the targets adopted by the board.

Congestion Mitigation and Air Quality Program Performance

This section summarizes the federal requirements for the TPB in the establishment of performance measure targets associated with the Congestion Mitigation and Air Quality (CMAQ) Program. These include unified urbanized targets for the performance measures of Peak Hour Excessive Delay (PHED) and Mode Share in the area of traffic congestion and targets for Emissions Reduction for applicable pollutants and precursors for the nonattainment/maintenance area within the TPB planning area boundary.

The targets for the quadrennial 2022-2025 period of performance were approved by the TPB on June 15, 2022, in Resolution R19-2022. The targets met federal requirements and were consistent with the target setting approaches of Maryland, Virginia, and the District of Columbia.

CMAQ PROGRAM PERFORMANCE MEASURES

The FHWA published the *System Performance: Highway and Freight, Congestion Mitigation and Air Quality (CMAQ)* final rule on January 18, 2017, with an effective date of May 20, 2017. The state DOTs then had one year until May 20, 2018, to set their initial targets. The rule requires states to

set targets for three performance measures concerning CMAQ: 1) PHED, 2) Mode Share (Non-SOV), and 3) Emissions Reduction. Table 1.7 summarizes these three performance measures.

This section covers the two CMAQ Programs: Traffic Congestion performance measures and the CMAQ Program: Emissions Reduction performance measure. It provides an overview of the measures, data collection, and the methodology utilized for target setting. Additionally, information concerning the CMAQ Program in general is presented, as well as details concerning CMAQ project selection and programming for the District of Columbia and the states of Maryland and Virginia.

TABLE 1.7: SUMMARY OF CMAQ PROGRAM PERFORMANCE MEASURES PERFORMANCE MEASURES

CMAQ Program: Traffic Congestion	Peak Hour Excessive Delay – Annual hours of peak hour excessive delay per capita
Mode Share – Percent of Non-SOV Travel on the NHS	
CMAQ Program: Emissions Reduction	Emissions – CMAQ-funded projects on-road mobile source total emissions reduction for each applicable criteria pollutant and precursor

CMAQ PROGRAM TARGET SETTING AND COORDINATION

Peak Hour Excessive Delay (PHED)

Applicable state DOTs and MPOs are required to collectively establish a single PHED target for each applicable urbanized area, both two-year and four-year. After the state DOTs establish their targets, MPOs have 180 days to adopt targets. DOTs and MPOs are required to coordinate and exchange information with the development of these targets. The current applicable urban area for the TPB's metropolitan planning area is the Washington DC-MD-VA urbanized area. In future, if either the Frederick, MD, or Waldorf, MD, urban areas were to exceed 200,000 population, the TPB would need to set targets for those urban areas as well.

Mode Share (Non-SOV)

Applicable State DOTs and MPOs must collectively establish a single, unified two-year and four-year mode share target for each applicable urbanized area for each quadrennial performance period. A baseline report is required at the beginning of each performance period, which must include the two and four-year targets and a description of the data collection method used. As with the PHED measure, the Mode Share target for the applicable urbanized area must be unified, and both DOTs and MPOs should have coordinated and exchanged information with the development of these targets. As with the PHED measure, the current applicable urban area for the TPB's metropolitan planning area is the Washington DC-MD-VA urbanized area.

Emissions Reduction

State DOTs, with coordination from the MPO, must establish statewide two- and four-year targets for total emissions reduction of on-road mobile source emissions for each performance period for all nonattainment and maintenance areas within the state boundary, for each applicable criteria pollutants and precursors. MPOs, in coordination with state DOTs, must similarly establish two and four-year emissions reduction targets for all nonattainment and maintenance areas within the metropolitan planning area. Targets are to be set within 180 days after state DOTs have set their targets. In both cases, the targets shall reflect the anticipated cumulative emissions reductions to

be reported by state DOTs in the CMAQ Public Access System (PAS) for CMAQ projects included in the Statewide Transportation Improvement Program (STIP).

The applicable nonattainment area is the Washington, DC, ozone nonattainment area. Emissions reduction targets must be set for this area, which also includes Calvert County, MD. However, the county is not part of the TPB planning area and Maryland DOT has the responsibility for developing targets for that county's forecast emissions reductions.

It is important to note that in contrast to all other performance measures and targets, the emissions reductions targets are measured by federal fiscal year (October 1 – September 30) to align with the data in CPAS. In addition, emissions reductions performance is measured additively, with two-year targets summing all emissions reductions achieved across two-year and four-year targets summing all emissions reductions achieved across the full four years of the performance period.

MPO COORDINATION WITH STATE DOTS

MPOs are required to establish their performance targets in coordination with their state partners and these targets should be data-driven and realistic. The requirement for these targets to be evidence based and predictive of anticipated outcomes does not supersede or diminish any aspirational targets to which local, regional, or state jurisdictions are committed. Coordination is essential between the MPO and state DOTs in setting the CMAQ Program targets. Both are to work together to share data, review strategies, and understand outcomes.

TPB staff worked in close coordination with DDOT, MDOT and VDOT in the development of the quadrennial performance targets. The TPB and these state DOTs also signed Letters of Agreement (LOAs) which detail the guidelines and expectations in terms of coordination on data sharing and the development of these targets. This is in accordance with 23 CFR 450.208 which sets forth the requirements for coordination between applicable states and MPOs.

PEAK HOUR EXCESSIVE DELAY AND MODE SHARE TARGET SETTING APPROACH

In developing a method that could be utilized for the target setting of these two performance measures, TPB staff followed the same approach as used for the travel time reliability (TTR) measure as described in the previous section, averaging factors from the TPB Travel Demand Model and an extrapolation of past performance.

Peak Hour Excessive Delay (PHED)

PHED is based on the calculation of all segments of the NHS. PHED is defined as the extra amount of time spent in congested conditions defined by speed thresholds that are lower than a normal delay threshold. For this measure, the speed threshold is 20 miles per hour or 60 percent of the posted speed limit, or whichever is greater. The FHWA requires that the data collected must occur during the weekdays (Monday through Friday), with a required morning peak timeframe of 6:00 A.M. – 10:00 A.M., and a choice between two evening peak timeframes: 3:00 P.M. – 7:00 P.M. or 4:00 P.M. – 8:00 P.M. TPB staff selected the earlier PM peak (3:00 P.M. – 7:00 P.M.) for all calculations; the same P.M. peak is also being used by the coordinating state DOTs. Data was collected for the region from the NPMRDS, using the INRIX data available in the RITIS widget.

Mode Share (Non-SOV)

Mode Share is a calculation of the percent of Non-SOV Travel within the urbanized area. Non-SOV Travel, defined by the FHWA, applies to travel occurring on modes other than driving alone in a motorized vehicle and includes travel avoided by telecommuting. It is a measure of the percentage

of all surface transportation occurring in an urbanized area with a population of at least 1 million. For the TPB region, this includes the Washington DC-MD-VA urbanized area.

The FHWA has provided three data collection models as a means of estimating the required performance targets. Model A allows use of the U. S. Census Bureau's American Community Survey (ACS) data found in the table titled "Journey to Work." Model B allows for data collected from localized surveys. Model C involves estimating the percent of non-SOV based on volume measurements of actual use for each mode of transportation, including telework. For purposes of this region's measure, Model A is utilized.

In selecting this model, explicit guidelines are detailed on how to utilize the ACS data. Data is to be obtained from the "Journey to Work" dataset, labeled *DP03*. These data sets contain the five-year estimates of the economic characteristics of those surveyed. Within, this dataset is a breakdown on how people commute to work, either by driving alone (SOV) or car-pooling, public transportation, walking, other means, or working at home (Non-SOV).

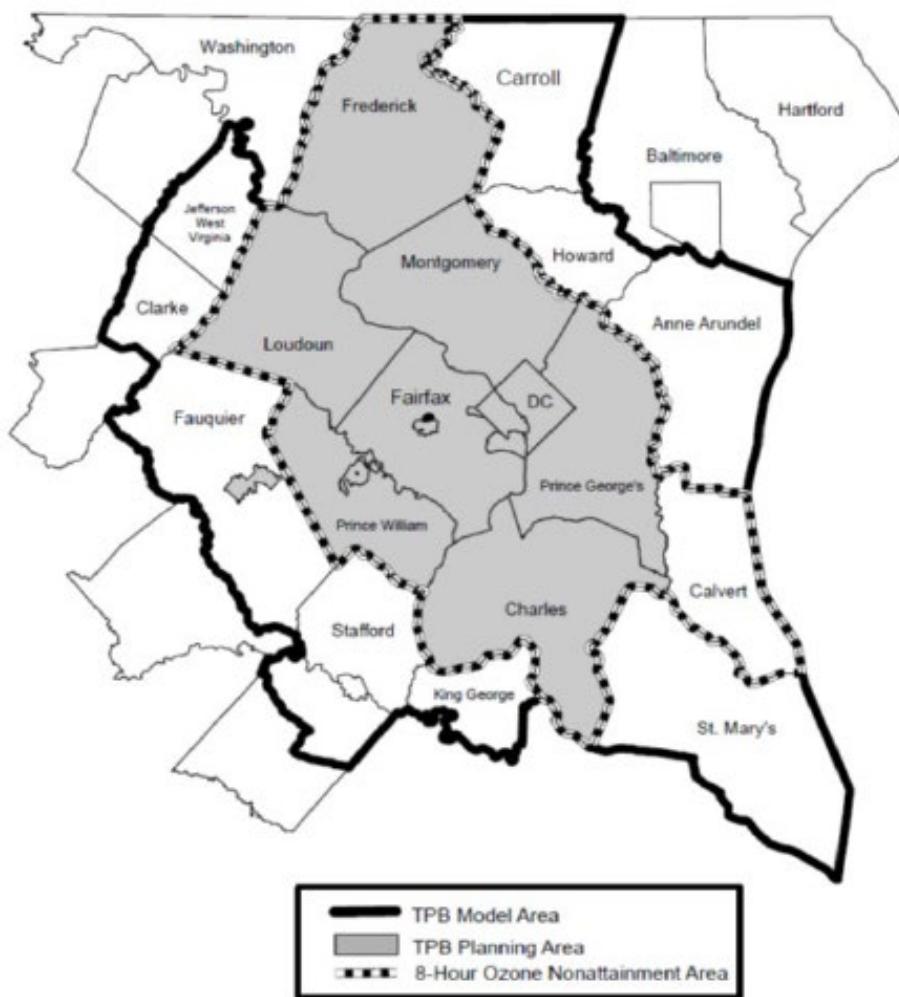
The target data was created from the "Journey to Work" *DP03* dataset. The TPB is responsible for setting both two-year and four-year unified targets with DDOT, MDOT, and VDOT. In determining the unified targets for both two and four years, there is no formula or calculation specified. The FHWA only requires estimations for target projections. TPB staff developed forecasts and targets using the averaging method previously described, combining recent performance trends with the short-term predictions of the TPB's travel demand model.

Emissions Reduction

Emissions reduction is defined as the total on-road mobile source emissions reduction for each applicable criteria pollutant and precursor for a nonattainment area. For the nonattainment area in the TPB region, the applicable criteria pollutants are Volatile Organic Compounds (VOCs) and Nitrogen Oxides (NOx). This performance measure applies to projects that receive or are programmed for CMAQ funding. Data was collected from the CMAQ PAS, as specified in the federal rulemaking. State DOTs report emissions reductions information in the PAS for CMAQ funded projects in their Statewide Transportation Improvement Program (STIP).

As previously noted, the regional nonattainment area includes Calvert County; however, this county is not part of the TPB planning area. MDOT and Calvert County conduct a separate performance measure analysis for emissions reduction for that portion of the nonattainment area. The TPB Ozone Nonattainment Area is shown in Figure 1.3.

FIGURE 1.3: TPB OZONE NONATTAINMENT AREA



Federal Requirements for CMAQ Project Funding

The CMAQ program supports two important goals of the USUSDOT: improving air quality and relieving congestion. While these goals are not new elements of the program, they were strengthened in SAFETEA-LU and further bolstered in provisions added to the MAP-21. Growing highway congestion continues to rise at a faster rate than transportation investments. Reducing congestion is a key objective of federal surface transportation policy, and one that has gathered increasing importance in the past several years. The costs of congestion can be an obstacle to economic activity. In addition, congestion can hamper quality of life through diminished air quality, lost personal time, and other negative factors. Accordingly, the CMAQ Program includes federal funds programmatically allocated to each state for funding applicable projects.

The state DOTs each receive CMAQ funding and allocate it annually to fund applicable projects. Each state follows its own selection process for identifying and funding CMAQ projects; for Maryland and Virginia many such projects are funded elsewhere in the state than the TPB planning area. Projects are selected on various criteria, only one of which is estimated emissions reduction benefits. Projects are not required to have quantifiable emissions reduction benefits; a qualitative assessment is sufficient. All projects awarded annually must be entered into the CMAQ Public Access System (PAS). Data for the CMAQ Emissions Reduction performance measure for the region is taken from the quantified benefits included in the projects listed in the PAS that have been

funded in the region. Further information on each state's CMAQ project process and methodology for forecasting future performance and setting targets follows.

CMAQ Project Programming

Three state jurisdictions share the Washington DC-MD-VA Ozone Nonattainment area. All three of these states have different internal processes concerning the selection and programming of CMAQ projects. These separate processes are detailed as follows:

District of Columbia

DDOT does not have any additional steps in determining CMAQ programming beyond the federal requirements and internal project planning processes. In the past, a majority of the CMAQ programs that have been funded have involved bike lanes and transportation demand management (TDM).

Maryland

The Maryland Consolidated Transportation Program (CTP) is a six-year capital budget for transportation projects, where CMAQ programming is determined during the one-year development process. CMAQ projects are selected for programming based on criteria provided by the CTP. Projects should meet all federal and legal requirements; support departmental program priorities; meet all federal match requirements to maximize federal revenue; support State plans and objectives; support existing project commitments and uphold intergovernmental agreements; and support alternative modes of transportation (transit, bike, pedestrian). Projects selected for programming must be included in the STIP and must also be consistent with local plans and be included in the regional MPO long-range plan.

In the past, a majority of the CMAQ funding in Maryland has been used for transit projects (bus replacements, MARC, and light rail). CMAQ funding has also been used for park and ride projects, traffic flow improvement projects, such as signal synchronization and the Coordinated Highways Action Response Team (CHART) program.

Virginia

Within the region, the Northern Virginia Transportation Authority (NVTA) coordinates Northern Virginia's annual programming of federal CMAQ projects as well as Regional Surface Transportation (RST) funds. CMAQ funds contribute to the attainment and maintenance of the National Ambient Air Quality Standards (NAAQS).

The recommendation of programming is done through the NVTA's Regional Jurisdiction and Agency Coordinating Committee (RJACC). Final approval is given by the Commonwealth Transportation Board (CTB). VDOT provides local matches for approved CMAQ projects, but only if the project utilizes the funds within an established timeline. Recipients have 24 months to obligate the funds and then 48 months to expend the funds. CMAQ projects are eligible for potential funding after an application submission, a Transportation Emissions Estimation Models (TEEM) worksheet submittal for air quality benefit calculation, and a resolution of support from the respective governing bodies. VDOT encouraged the use of the FHWA CMAQ calculator tool kit for all applicable project types.

REGIONAL EMISSIONS REDUCTIONS TARGETS

In developing the quadrennial emissions reduction performance targets, TPB staff used a method that incorporated the states' respective methodologies for state targets to create regional emissions reductions targets for the applicable portion of the Washington DC-MD-VA nonattainment area. In terms of developing a methodology that could be utilized for target setting, TPB staff has considered four techniques: (1) taking the average past years' data and setting

targets reflective of those averages, (2) setting a trend line based on past years' data and setting targets based on those projections, (3) using the percentage of CMAQ funding in the TIP and the cost-effectiveness (kg/ton), created by a ratio, of quantified CMAQ projects in the CMAQ Public Access System to forecast future emissions and thereby creating targets, and (4) listing the expected CMAQ projects for the next four years and summing the forecast emissions reduction benefits forecast by each state for CMAQ projects planned in the region. The combined emissions reduction could then be used to develop the two-year and four-year targets for the two applicable pollutants. This fourth method was suggested from FHWA presentations and webinars; however, it is not a requirement. The TPB staff have used the fourth method for target setting, using information provided by the three state DOTs.

Based on the available quantified data and the information provided by the District of Columbia, Maryland, and Virginia departments of transportation, the TPB sums the forecast emissions reduction benefits forecast by each state for CMAQ projects planned in the region. The combined emissions reductions are then used to forecast future performance and set the two-year and four-year targets for the two applicable pollutants: Volatile Organic Compounds (VOCs) and Nitrogen Oxides (NOx).

Transit Asset Management Performance

This section presents the transit asset management (TAM) targets adopted by the National Capital Region Transportation Planning Board for 2025. The final Transit Asset Management rule was published in the Federal Register on July 26, 2016, and became effective October 1, 2016.¹² Transit asset management (TAM) is “a strategic and systematic process of operating, maintaining, and improving public transportation capital assets effectively through the life cycle of such assets.”

Under the final TAM rule, transit providers must collect and report data for four performance measures, covering rolling stock, equipment, infrastructure, and facility condition. For these measures, transit providers must annually set targets for the fiscal year, develop a four-year TAM plan for managing capital assets, and use a decision support tool and analytical process to develop a prioritized list of investments.

Each provider of public transportation was required to adopt annual targets for the performance of their transit assets, initially by January 1, 2017. Subsequently, MPOs have 180 days to adopt updated transit asset targets for their metropolitan planning area, but FTA policy is that there is no requirement for MPOs to set annual targets or revise existing targets. While MPOs do not submit performance targets to the FTA, regional targets must be included in each metropolitan transportation plan and TIP. Accordingly, the TPB has been updating and adopting new TAM targets during the development of each metropolitan transportation plan (usually every four years) and every TIP (usually every two years). The latest TAM targets were adopted by the TPB on February 19, 2025, with Resolution R8-2025. These targets will be included in Visualize 2050 and the FY 2026-2029 TIP, anticipated to be adopted in late 2025.

TRANSIT ASSET PERFORMANCE MEASURES

As shown in Table 1.8, there are four transit asset performance measures, two of which are age-based and two of which are condition-based:

- Rolling stock (Age)
- Equipment: (non-revenue) service vehicles (Age)
- Infrastructure: rail fixed-guideway track, signals, and systems (Condition)

¹² Federal Register (July 26, 2016). 49 CFR Parts 625 and 630 Transit Asset Management; National Transit Database. <https://www.gpo.gov/fdsys/pkg/FR-2016-07-26/pdf/2016-16883.pdf>

- Stations/Facilities (Condition)

Within each of the performance measures, assets are further divided into asset classes. For example, distinct asset classes for buses can be articulated buses, standard buses, or minibuses. Each asset class is measured separately for performance and for target-setting.

For the age-based performance measures, providers set their own standard — the useful life benchmark (ULB) — for each asset class. The ULB is the anticipated useful lifetime of the asset. Accordingly, each provider in the region can set a different standard for its buses as well as different targets for the anticipated percentage of buses that will exceed those standards, to reflect different degrees of usage and operating conditions, variations in maintenance efforts, etc. This affects the feasibility of comparison among agencies and the integration of data to measure regional performance and set regional targets.

Providers of public transportation measure their performance in accordance with the definitions and requirements of federal rulemaking, including the TAM final rule and the final rule on National Transit Database (NTD) Asset Inventory Reporting. The FTA also published a Guideway Performance Assessment Guidebook and a Facility Performance Assessment Guidebook to provide guidance to providers of public transportation on how to collect data and measure performance for these assets.

TABLE 1.8: TRANSIT ASSET MANAGEMENT PERFORMANCE MEASURES

Performance Measure	Asset Classes
Rolling Stock (Age)	Percentage of revenue vehicles within a particular asset class that have met or exceeded useful life benchmark (ULB)
Equipment – (non-revenue) service vehicles (Age)	Percentage of vehicles that have met or exceeded their ULB
Infrastructure-rail fixed-guideway track, signals, and systems (Condition)	The percentage of track segments, signal, and systems with performance restrictions
Stations/ Facilities (Condition)	The percentage of facilities rated below 3 on the Transit Economic Requirements Model (TERM) scale (i.e., in marginal or poor condition)

The final TAM rule applies to all recipients and subrecipients of federal transit funds (e.g., Section 5307 funds) that own, operate, or manage capital assets used in the provision of public transportation and requires accounting for all assets used in the provision of public transportation service, regardless of funding source, and whether used by the recipient or subrecipient directly, or leased by a third party.

The federal TAM rulemaking defines two tiers of providers of public transportation. Tier 1 providers are those that operate rail service or more than 100 vehicles in regular service. Tier 2 providers are those operating less than 100 vehicles in regular service. Tier 1 providers must set transit

asset targets for their agency, as well as fulfill other additional reporting and asset management requirements. Tier 2 providers can set their own targets or participate in a group plan with other Tier 2 providers whereby targets are set for the entire group. Note that a parent organization can operate several services, such as bus service and paratransit service, that combined exceed 100 vehicles.

REGIONAL TRANSIT ASSET TARGET SETTING APPROACH

The region has eight Tier 1 providers of public transportation as defined in the federal rulemaking:

1. WMATA: Metrorail, Metrobus, MetroAccess
2. District of Columbia: Streetcar
3. Fairfax County: Connector, Community and Neighborhood Services
4. Montgomery County: Ride On
5. Prince George's County: TheBus, Call-A-Bus
6. Potomac and Rappahannock Transportation Commission (PRTC): OmniRide
7. Virginia Railway Express (VRE)
8. Maryland Transit Administration (MTA; MARC and Commuter Bus only)

The region has twelve Tier 2 providers as defined in the federal rulemaking, including several small paratransit providers and non-profit providers:

Northern Virginia

1. Alexandria: DASH, DOT
2. Arlington: ART
3. Fairfax City: CUE
4. Loudoun County Transit
5. Virginia Regional Transit (VRT)
6. The Arc of Greater Prince William
7. Every Citizen Has Opportunities, Inc. (ECHO)
8. Independence Center of Northern VA
9. Weinstein Jewish Community Center
10. Prince William Area Agency on Aging

Suburban Maryland

11. Charles County: VanGo
12. Frederick County: Transit

All the Tier 2 providers in the region have chosen to participate in a group plan with their respective state agency: the Maryland Transit Administration (MTA) or the Virginia Department of Rail and Public Transportation (DRPT), with the exception of the CUE system. Accordingly, there are eleven reporting entities in the TPB's metropolitan planning area.

Providers of public transportation operating within the region but with publicly owned assets based outside of the TPB's metropolitan planning area, such as MTA Commuter Bus and MARC commuter rail, do not need to be included.

Transit asset management targets for the metropolitan planning region have been developed by collecting the targets and asset data from each provider of public transportation in the region.

Targets for the region are calculated by adding the individual agency targets, which considers the differences in targets and standards among the individual providers of public transportation. The metric for the performance measures and for the targets is a threshold for the maximum allowed or the observed percentage of assets at or exceeding acceptable standards.

Transit Safety

FTA published the Public Transportation Agency Safety Plan (PTASP) final rule on July 19, 2018, with an effective date of July 19, 2019, followed by one year for implementation. The PTASP final rule applies to providers of public transportation that are recipients and sub-recipients of FTA Section 5307 funding and that fall under the safety jurisdiction of the FTA. Applicable providers of public transportation are required to develop Public Transportation Agency Safety Plans, which include the process and procedures for implementing Safety Management Systems (SMS); they were required to certify their safety plan by July 20, 2020. In addition, they were required to set initial targets for the four transit safety measures by July 20, 2020 (thereafter annually), following which MPOs must set transit safety targets for the metropolitan planning area within 180 days.

The most recent transit safety targets were adopted by the TPB on December 18, 2024, with Resolution R4-2025.

TRANSIT SAFETY PERFORMANCE MEASURES

The issuance of the transit safety final rulemaking served as a capstone for a collection of rules making up the Public Transportation Safety Program, including the National Public Transportation Safety Plan Rule which defined the four transit safety performance measures for which providers of public transportation and MPOs must set targets. These measures include the number and rate of fatalities, injuries, safety events (derailments, collisions, fires, and evacuations), and system reliability (mean distance between major and other mechanical system failures). The measures shown in Table 1.9 are calculated for each mode:

- Number of Fatalities/Serious Injuries/Safety Events: total number for all providers of that mode.
- Rate of Fatalities/Serious Injuries/Safety Events: total number for all providers of the mode divided by the total number of Vehicle Revenue Miles (VRM) for that mode (reported in rate per 100,000 VRM). VRM are the miles that vehicles are scheduled to be or actually traveled while in revenue service (i.e., doors open to customers, from first stop to last stop).
- Mean Distance Between Failure (MDBF): the total number of VRM for that mode divided by the total number of failures for all providers of the mode.

TABLE 1.9: TRANSIT SAFETY PERFORMANCE MEASURES

Performance Measure	
Fatalities	Total number of reportable fatalities and the rate per total vehicle revenue miles by mode
Injuries	Total number of reportable injuries and the rate per total vehicle revenue miles by mode
Safety Events	Total number of reportable events and the rate per total vehicle revenue miles by mode
System Reliability	Mean distance between major mechanical failures by mode

When regional targets are established, the TPB must collect data and report the performance outcomes in the metropolitan transportation plan. The results of this monitoring effort are intended to inform future funding decisions on projects and programs that affect transit safety.

REGIONAL TRANSIT SAFETY TARGET SETTING APPROACH

Transit safety targets for the region are based on those adopted by each applicable provider of public transportation. The following providers of public transportation in the region are required to set transit safety targets in accordance with the PBPP requirements. These targets are required for each mode operated by the provider, including heavy rail, streetcar, commuter bus, bus, and paratransit (demand response).

Regional recipients of FTA Section 5307 funding and the modes they operate include:

- WMATA: Metrorail, Metrobus, MetroAccess
- DDOT: DC Streetcar
- MDOT-MTA: MTA Commuter Bus
- PRTC OmniRide: commuter bus, local bus, and paratransit

Regional sub-recipients of FTA Section 5307 funding include:

- VanGo (Charles Co.)
- Transit (Frederick Co.)
- Ride On (Montgomery Co.)
- The Bus (Prince George's Co.)

Note that while local bus systems in suburban Maryland are sub-recipients of FTA funds through the State of Maryland's Locally Operated Transit Systems (LOTS) funding programs, the local bus systems operated by jurisdictions in Northern Virginia do not receive federal funds and the PTASP rule is not applicable to them. In addition, commuter rail systems including MARC and VRE have their safety regulated by the Federal Railroad Administration (FRA) and the PTASP rule does not apply to them.



**Visualize 2050
Planning and
Programming Process**

Public Engagement and Communications

Part 2 of 27



National Capital Region
Transportation Planning Board

December 2025

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OVERVIEW OF PUBLIC ENGAGEMENT AND COMMUNICATIONS

The Transportation Planning Board (TPB) has long understood the importance of engaging the public in the process of transportation planning. When those who are affected by transportation planning decisions are involved in the process, the quality of regional planning is improved and makes it more likely that the values of the TPB will be implemented in a way that makes people's lives better.

Federal law and regulations require all MPOs in the U.S. to conduct public participation activities as part of the development of their metropolitan transportation plan (MTP). The TPB goes beyond what is federally required, and the TPB's policy framework has long called for a collaborative planning process that considers and reflects the interests of TPB constituents and seeks to make policy and technical processes that are inclusive of and accessible to all.

The TPB has numerous practices and tools in place for regular public engagement including an online newsletter (TPB News), social media, websites, and public comment periods. Two community-based committees regularly advise the TPB. The Community Advisory Committee (CAC) promotes public involvement in transportation planning for the region and provides independent, region-oriented resident advice to the TPB on transportation plans and issues. The Access for All Advisory Committee (AFA) advises the TPB on issues and services that are important to low-income communities, communities of color, people with limited English skills, people with disabilities, and older adults.

Alongside these regular TPB practices and tools, the development of Visualize 2050 presents special opportunities for meaningful and focused public engagement. As the TPB's signature plan, Visualize 2050 weaves together a variety of opportunities for planners to ask the public about the directions the region might take.

THE TPB'S PARTICIPATION PLAN

The TPB updated its Participation Plan in 2020. The plan articulates the TPB's policy for public participation, describes how members of the public can get involved, and demonstrates how staff work to meet and exceed federal requirements. The plan guides TPB staff interactions with the public so that public-facing work can reach as many people as possible, allow the TPB to collect meaningful input, build support to inform TPB plans and programs, and aid decision-making.

The Participation Plan builds on previous efforts designed to encourage participation in the TPB and provide reasonable opportunities for residents and other interested agencies to be involved in metropolitan transportation planning.

TPB staff developed the Participation Plan in consultation with interested parties, including members of the community, representatives of people with disabilities, users of public transportation and bicycle and pedestrian facilities, and affected public agencies.

Participation Policy

The TPB Participation Policy, as approved in June 2022, consists of four parts:

- The Policy Statement articulates the TPB's commitment to making its process and products accessible to everyone who lives in metropolitan Washington.
- The Policy Goals state what the TPB is trying to achieve through its public-facing work.
- The Principles of Engagement declare the TPB's values around interacting with the public.

- The Constituencies for Engagement describe three target audiences to help staff focus information and participation activities.

Policy Statement

It is the TPB's policy to provide public access and involvement under a collaborative planning process in which the interests of all TPB constituencies are reflected and considered. It is the TPB's intent to make both its policy and technical process inclusive and accessible to all constituencies.

The TPB believes that public input into its process is valuable and makes its products better. Regional transportation planning cannot, and should not, be based solely upon technical analysis. The information derived from public involvement is essential to good decision-making.

Policy Goals

The Policy Goals describe what the TPB is trying to achieve through its participation activities. When planning public-facing work, staff should use these goals to set desirable outcomes, and then refer to the goals when evaluating their work:

- Engage different audiences effectively using a variety of tools.
- Provide clear and open access to information and participation opportunities.
- Gather input from diverse perspectives.
- Consider input received and respond meaningfully.
- Promote a regional perspective.

Principles for Engagement

The Principles for Engagement state the TPB's values around informing and engaging the public. These principles recognize that most people who are impacted by transportation decisions are not technical experts and that being inclusive means meeting people where they are. These principles guide engagement and point towards the Policy Goals without specifying those goals or the means to achieve them.

- Equity perspective – Until new federal guidance was provided in 2025, staff strived to incorporate an equity perspective into their work activities so that work acknowledged and sought to accommodate different contexts, experiences, and abilities.
- Plain language - Staff strive to use plain language and prepare their materials in a variety of ways.
- Early and continuing participation - Staff strive to maximize public input by involving the public early in planning processes. Staff also strive to involve the public throughout processes to create repeat interactions with the public.
- Timely response - Staff strive to acknowledge receipt of public input in a timely manner and provide information about how public input will be used.
- Clarity of purpose - Staff strive for clarity of purpose when planning public-facing work.

Constituencies for Engagement

The TPB acknowledges that not every person is aware of the TPB or has an understanding of how decisions are made at the regional, state, and local levels. To make sure that TPB participation efforts are most effective, it is important to tailor communications and outreach to different constituencies.

The constituencies below are grouped according to varying levels of engagement in regional transportation planning processes and awareness of regional transportation issues.

- Active participants are knowledgeable about transportation policy issues in general, as well as in the TPB's role in regional transportation planning process.
- Community leaders have some knowledge of transportation policy issues but are less familiar with the TPB's role in the regional transportation planning process.
- The general public has an inherent interest in transportation challenges but often possesses little direct knowledge of transportation policy making.

TPB values obtaining various perspectives which come from its work within these different constituencies.

Visualize 2050 Public Engagement Plan and Communications Plan

The Visualize 2050 planning process kicked off in early 2023 when the TPB approved the plan's schedule that included the creation of a unique Visualize 2050 Public Engagement Plan (PEP) and Communications plan. The first public outreach phase occurred from February to November in 2023, when public opinion on 2045 projects proposed for resubmittal to the 2050 plan was collected. The second period was during March 2024 and focused on regionally significant for air quality project inputs, land use inputs, and the air quality analysis scope of work. Lastly, the third period took place in October and November 2025 and focused on the draft of Visualize 2050 National Capital Region Transportation Plan, the Draft FY 26-29 Transportation Improvement Program (TIP), and the Draft Air Quality Conformity Analysis Report. However, the public was able to submit comments about Visualize 2050 at any time through email or through the TPB's website.

THE TPB'S ROLE AND KEY STAFF

As an MPO, the TPB is federally required to carry out public participation activities during the development of its metropolitan transportation plan, such as Visualize 2050. However, the TPB strives to go beyond the minimum requirements for engaging the public. Visualize 2050 took on a different approach to update the projects inputs than the previous plan update. This approach was referred to as zero-based budgeting. Therefore, when the TPB requested that projects submitted into Visualize 2050 be given additional consideration into the plan, staff made efforts to engage the public in new and different ways.

To ensure that the National Capital Region (NCR) residents were thoroughly involved in Visualize 2050's development, TPB staff conducted three comment periods between 2023 and 2025. Key staff planned and organized the engagement methods and materials while also including TPB members in the process. Key staff worked to plan and design the public comment materials, including the Survey Monkey form used in 2023, the MetroQuest form used in 2024, and the Visualize2050.org website used in 2025. Staff were also responsible for continuously compiling and summarizing public comments received during and outside of the three comment periods.

TABLE 2.1: KEY STAFF

TPB Staff	Title	Role
Kanti Srikanth	Director for the Transportation Planning Board (TPB)	Program Lead
Laura Bachle (also, previous TPB staff, Marcela Moreno)	Transportation Planner	Program Lead
Jamie Bufkin	Transportation Planner	Contributor
Rachel Beyerle	Transportation Communications Manager	Contributor
Cristina Finch	Transportation Planning Manager	Contributor
Sergio Ritacco	Senior Transportation Planner	Contributor

Two key advisory committees supporting the TPB are the aforementioned Community Advisory Committee (CAC) and Access for All Advisory Committee (AFA). Before its launch, the 2023 public engagement activity was presented to the CAC to gain their input on the MetroQuest tool's comment information, legibility, and user-friendliness. Both committees were routinely briefed at key points in the planning process, including during the conformity determination and TIP development, to solicit their ideas on public involvement and ask for their help in outreach. The plan website, visualize2050.org, lists the meetings and activities for both committees.

ROLE OF KEY PLANNING AGENCIES

Federal, state, and local governments, transit agencies, and affiliated agencies have roles in Visualize 2050's public engagement and communication activities.

In the development of public engagement activities, key planning agencies provide continuous feedback at committee meetings. When specific project information is needed for the public engagement activity, TPB staff coordinate with member agency staff to ensure that their projects are being communicated in an acceptable manner. During the formal comment periods of Visualize 2050, such as the review of the technical inputs for the Air Quality Conformity analysis and the draft update to the plan and TIP, agencies were asked to review projects previously submitted to Visualize 2045 and reassess their inclusion. Through this process, some projects were removed or altered before being included in public engagement activities.

Additionally, TPB staff participated in the Virginia Department of Transportation's Six-Year Improvement Program meeting on May 1, 2023. Jurisdictional partners, TPB members, and advocacy groups promoted the public comment period through their own communications channels, including public meetings, websites, newsletters, and social media.

Agencies were also given the opportunity to provide responses to the public comments. The District of Columbia Department of Transportation, the Maryland Department of Transportation, and the Virginia Department of Transportation provided responses in letter formats that can be found in Appendix A.

PUBLIC ENGAGEMENT

During Visualize 2050's development, the TPB solicited public comment during the official comment and interagency review periods for this plan. The three comment periods have included the opportunity to review the technical inputs for the Air Quality Conformity analysis and the results of the analysis, along with the draft update to Visualize 2050 and draft FY 2026-2029 TIP. The comment summaries and listings can be found in Appendix A.

To support plan development, the TPB provided the public with an opportunity to weigh in on project inputs, as well as plan and TIP documentation. The TPB conducted three public comment periods between 2023 and 2025. Each phase sought feedback at different critical steps in the development of Visualize 2050. The sections below detail the process of each comment period.

TABLE 2.2: PUBLIC ENGAGEMENT PERIODS

Public Engagement Period	Start Date	End Date
2023: Survey Monkey Feedback Form	02/15/2023	11/30/2023
2024: MetroQuest Comment Form	03/01/2024	3/30/2024
2025: Visualize 2050 Website Comment Form	10/23/25	11/21/25

2023 PUBLIC COMMENT PERIOD

On February 15, 2023, the Transportation Planning Board approved the Visualize 2050 Technical Inputs Solicitation (TIS) and inputs to the Transportation Improvement Program (TIP). TPB staff launched a supplemental public comment period with an initial schedule of February 15 until May 31, 2023. In April 2023, TPB staff recommended, and the Board approved, adding six months to the Visualize 2050 schedule, which extended the comment period to conclude November 30, 2023. The initial public comment period was designed to provide an additional public input opportunity as agencies re-examined and submitted their projects for Visualize 2050. Public comments were accepted via the Visualize 2050 Initial Project List Feedback Form to collect project-specific comments on the Visualize 2045 project list. In addition, staff collected comments about Visualize 2050 via email, voicemail, and letter.

The Visualize 2050 Initial Project List Feedback Form was developed by TPB staff to allow commenters to provide feedback on specific projects included in Visualize 2045 and to suggest projects for inclusion in Visualize 2050. The comment period was advertised on the Visualize 2050 website and in TPB and COG e-newsletters, and through COG and TPB social media channels. The comments received from February 15 – August 31, 2023, were summarized and shared by TPB staff in a memorandum presented to the TPB Technical Committee meeting on October 6, 2023.

This interim report was designed for TPB member agencies to consider public feedback as they re-examined and submitted projects for Visualize 2050.

In addition, TPB staff coordinated a series of presentations from state agencies and WMATA to the TPB's advisory committees—the Community Advisory Committee and Access for All Advisory Committee. These presentations included an overview of the agency's funding and project prioritization process.

- June 15, 2023 – District of Columbia Funding & Project Prioritization Process CAC Presentation
- June 26, 2023 – District of Columbia Funding & Project Prioritization Process AFA Presentation
- July 13, 2023 – WMATA Funding & Project Prioritization Process CAC Presentation
- September 14, 2023 – Maryland and Virginia Funding & Prioritization Process CAC Presentations
- September 18, 2023 – Maryland, Virginia, and WMATA Funding & Prioritization Process AFA Presentations

The comments received through the end of the comment period, November 30, 2023, were summarized and presented to the TPB Board on December 20, 2023.¹

Visualize 2050 Initial Project List Feedback Form

The Visualize 2050 Initial Project List Feedback Form was available through Survey Monkey, an online survey tool. Screenshots of the survey are shown below. The introductory page provided an overview of the survey's purpose, explained how the comments would be used, and described what funded and committed (green list) projects and developmental (orange list) projects are. To become acquainted with the projects, a link to a memorandum was provided that includes the list of projects and some of their details.

Participants were asked to identify the state in which the project was located. From that point, a drop-down box provided a list of projects in the state. If a project that they were interested in was not listed, survey participants were able to describe the project in an open-response text box. Next, participants were asked how they heard about the project. To communicate whether they supported the project's inclusion in Visualize 2050, participants were asked to respond to the following statement: I support the project's inclusion in the long-range transportation plan (Visualize 2050). They then were prompted to select "Strongly agree", "Agree", "Neutral", "Disagree", or "Strongly disagree". An open-response text box provided space to further explain why they did or did not support the project and to share additional comments such as changes they would like to see prior to the project's inclusion in the plan. They were then asked if they wanted to comment on another project.

¹ National Capital Region Transportation Planning Board (December 20, 2023). *Agenda Item 10A: Visualize 2050 Public Comment Analysis Summary*. <https://www.mwcog.org/events/2023/12/20/transportation-planning-board/>

FIGURE 2.1: 2023 COMMENT PERIOD SURVEY MONKEY FEEDBACK FORM

Visualize 2050 Initial Project List Feedback Form

Provide feedback on the Visualize 2045 project list to help identify what should go in the new plan!

The National Capital Region Transportation Planning Board (TPB) is updating its long-range transportation plan, which will be called Visualize 2050. For the plan's Constrained Element, TPB is asking all member agencies to re-examine and re-submit projects from the current plan (Visualize 2045) project list based on TPB's policy priorities and the findings of the TPB's scenario studies.

The public is invited to focus comments on the [list of projects](#) to communicate if they:

- Support a project's inclusion in the plan
- Do not support a project's inclusion in the plan
- Propose changes to a project, or
- Believe that a project that is not listed should be included.

Comments will be forwarded to the sponsoring agencies as they decide what projects to submit to TPB.

The plan update's current focus is on developing the plan's Constrained Element which contains all the projects that must be included in the regional air quality conformity analysis. To initiate this process, TPB and agency staff have examined the current Visualize 2045 Constrained Element project list and following direction from TPB's [resolution R19-2021](#), have organized the projects into two groups. The two groups to be used to update the projects for Visualize 2050 include: (1) projects that are either under construction OR have received local, state, federal or private funding (funded/committed projects) and (2) projects that are planned and not under construction or with funding committed (developmental projects).

All listed projects are in the currently approved Visualize 2045 plan and are to be re-examined by the TPB member agencies as they decide what projects to submit for Visualize 2050. The TPB intends to retain the projects from the funded/committed project list in the Visualize 2050 plan.

Which projects qualify for each list?

Funded/Committed (green list) projects are active, under construction, or have dedicated funding in the near future, and they are intended to be retained in the Visualize 2050 project list. The TPB recognizes the limited opportunities to make changes to projects that are under construction. The TPB, however, urges its member agencies to re-examine these projects and consider changes, where appropriate, that would better advance the TPB's policy priorities and goals.

Developmental (orange list) projects that are not yet under construction, and do not have short term dedicated funding. The TPB expects its member agencies to re-examine these projects and resubmit them with changes as needed to better advance the TPB's policy priorities and goals for inclusion in Visualize 2050. Comments on these projects can help provide feedback on projects that are in a developmental stage where the TPB goals and priorities can be used to influence the scope of such projects.

To learn more about frequently asked questions related to the plan update, please visit the [Visualize 2050 webpage](#).

Next

Visualize 2050 Initial Project List Feedback Form introductory page.

Visualize 2050 Initial Project List Feedback Form

Comment #1: Where is the project that you want to comment on located?

* Which state is the project that you would like to comment on?

Prev

Next

Participants are first asked what state the project they would like to comment on is located.

Visualize 2050 Initial Project List Feedback Form

Comment #1: Maryland Project Comment

* Please select which project in Maryland that you would like to comment on.

Other (If you don't see the project you'd like to comment on, please describe it to the best of your ability here)

How did you hear about this project?

Other (please specify)

I support this project's inclusion in the long-range transportation plan (Visualize 2050).

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

Explain why you support/do not support the project's inclusion in the long range transportation plan (Visualize 2050). You can also share other comments about the project's inclusion in the plan, including if there are any changes that you would like to see made to the project before it is included in the plan.

* Would you like to submit comments about another project?

- Yes
- No

Prev

Next

Example of project comment page.

Visualize 2050 Initial Project List Feedback Form

What other projects are missing? (Optional)

If there are any projects that are not listed on the [published project list](#), you may describe them here.

What state is this project located in?

Do you have any suggested projects that should be considered for the long-range transportation plan (Visualize 2050)?

Prev

Next

Opportunity for participants to comment on any missing projects.

Visualize 2050 Initial Project List Feedback Form

Contact Information (Optional)

If you would like to include your contact information with your comments, please write your name and e-mail address below.

Please share your contact information.

Name

Email Address

Prev

Done

Optional closing questions of the feedback form that collected names and email addresses.

Processing of 2023 Public Comment Period Results

Between February 15 and November 30, 2023, TPB staff received 997 project comments from the feedback form. The Commonwealth of Virginia received 514 comments, the State of Maryland received 406 comments, and the District of Columbia received 77 comments. Apart from the feedback form, six comments were received through email, while no mailed letter or voicemail comments were received. A total of 136 project suggestions were received, with 43 for Virginia, 40 for the State of Maryland, and 10 for the District of Columbia.

When the comments were presented to the TPB Board, TPB staff included project-specific comment summaries for “green list” projects exempt from re-examination that received ten or

more comments, and “orange list” projects undergoing re-examination that received five or more comments. The purpose of presenting project summaries for those with the selected number of comments served to communicate the results more efficiently, as there were 256 projects open for comments. To analyze the written comment data, all comments were read through and re-occurring themes naturally arose. These common overarching themes included:

- Strong negative sentiment towards roadway widening and expansion projects, with concerns that these projects induce more automobile travel, contribute to climate impact, undermine public transportation, and misallocate money and resources.
- Strong positive sentiment towards passenger rail expansion and improvements, bus improvements, bus rapid transit (BRT) projects, and bicycle and pedestrian infrastructure improvements. This support comes from enthusiasm for reducing car dependence in the region, advancing towards climate goals, and improving access and connectivity for alternative modes.
- Positive sentiment for projects that improve regional connectivity. Several projects received positive feedback because of their perceived ability to better connect the region through different transportation modes.
- For many projects that received “agree” for inclusion, rather than “strongly agree,” in Visualize 2050, there was support for roadway improvements that include traffic calming features and desire for more bicycle, pedestrian, and transit infrastructure improvements.

All project responses from the feedback form and written comments received through email were provided for the TPB Board’s and the public’s viewing in the [final memorandum](#) (Item 10A), which was presented in December 2023.

2024 PUBLIC COMMENT PERIOD

Following the 2023 public input period, transportation agencies reviewed and resubmitted their highway and transit capacity-related projects for consideration in Visualize 2050. TPB provided another comment opportunity throughout March, prior to the Board’s vote on the proposed regionally significant for air quality project list in May 2024. TPB staff presented the 2024 comments to the Board at its April 2024 meeting.²

This second phase of the Visualize 2050 comment period occurred between March 1 and March 30, 2024, in an open and not statistically significant format. The purpose of this comment period was solely to focus attention on projects that, due to their capacity-impacting nature, are regionally significant for air quality conformity and the TPB’s air quality conformity analysis process. This comment period and interagency review process is a tradition of the TPB and is not a federal requirement. Specifically, this phase of public engagement was focused on the air quality conformity (AQC) inputs to Visualize 2050, which is a subset of all the numerous transportation projects in the region and includes only projects of regional significance that may impact the AQC analysis. This follows requirements in the 1990 Clean Air Act Amendments. The project list is fiscally constrained in that projects can be implemented using revenue sources that are already committed, available, or reasonably expected to be available in the future regardless of their potential funding source.

² National Capital Region Transportation Planning Board (April 17, 2025). *Agenda Item 9B: Visualize 2050 March Comment Period Summary and Updates*. <https://www.mwcog.org/events/2024/4/17/transportation-planning-board/>

Process of March Comment Opportunity Development

The primary method of providing comments was through an interactive comment form enabled by the company Social Pinpoint, which owns MetroQuest. The screenshots of the MetroQuest form are shown below.

First, participants were welcomed to an introductory screen that provided an overview of the comment period and an explanation of what types of projects were and were not included in the form. The second screen informed participants about the TPB's air quality analysis scope of work. Here, participants had the opportunity to provide comments on the scope.

The focal points of the MetroQuest form were the proposed project inputs on screens three and four. The map on screen three presented the transit, capacity reduction, new/extended roadways, and high-occupancy vehicle (HOV)/high-occupancy toll (HOT)/express lane projects. The map on screen four presented roadway widening/grade separation, relocation/reconstruction, interchange/intersection/ramp improvement, and new/widened bridge projects.

To give attention to projects that are not already nearing the end of completion, only those projects with estimated completion dates of 2026 or later were included. The MetroQuest maps were navigable using a zoom-in function and each project was represented by a balloon point, with each project category having its own color. After selecting a project point, participants were asked if they supported the inclusion of the project in Visualize 2050. To learn more about the projects, participants were directed to Visualize2050.org where a project summary table was linked with detailed project information packets generated from the TPB's Project InfoTrak database. In Appendix A, the responses in favor or opposition to each project are attached, as well as all comments for each project. Repeated comments for the same projects were removed during the process of compiling comments.

The fifth screen closed the form with optional demographic questions including home locality (city/county), age group, race and ethnicity, and household income bracket. Home localities available for selection included all twenty-two jurisdictions and counties in the region. Optional age ranges included under 18, 18 to 24, 25 to 34, 35 to 44, 45 to 54, 55 to 64, and 65 or older. Optional races and ethnicities included White (non-Hispanic), Black (non-Hispanic), Asian (non-Hispanic), Hispanic (Latino/a/x, Spanish origin), two or more races, and other. Optional household income ranges included less than \$25,000, \$25,000 to \$49,999, \$50,000 to \$74,999, \$75,000 to \$99,999, \$100,000 to \$149,999, \$150,000 to \$199,999, and \$200,000 or more. Lastly, participants could input their email to receive updates on Visualize 2050's development.

In addition to the MetroQuest form, project comments were also accepted through the TPB website comment form, phone call, email, letter, and in-person comments at the March TPB meeting.

FIGURE 2.2: SCREENSHOTS OF THE METROQUEST COMMENT FORM

1 Visualize 2050 Public Comment Opportunity

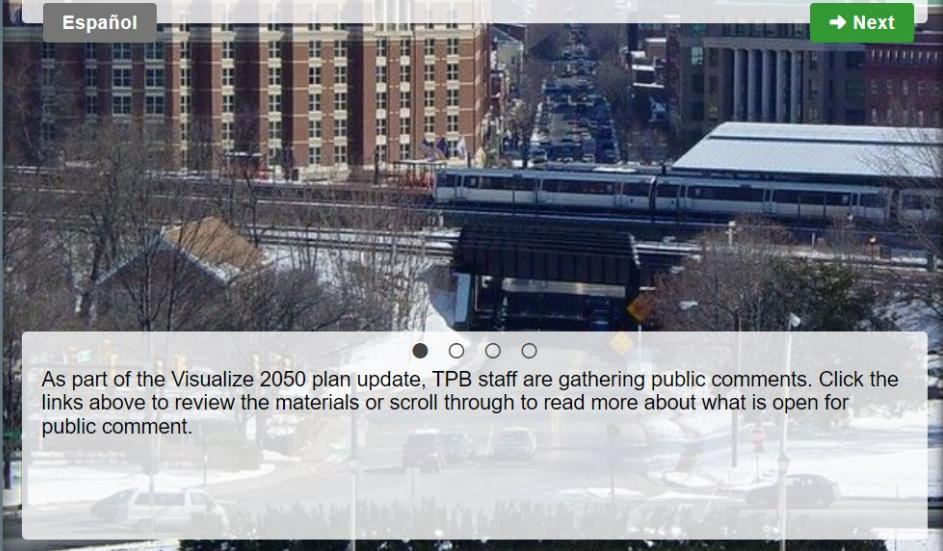
Make your voice heard! March 1 - 30, 2024

We need your feedback on Visualize 2050!

The Transportation Planning Board (TPB) wants to hear from you! On May 15, 2024, the TPB will vote on [regionally significant highway/transit project inputs and the scope of work for air quality analysis](#) (including the COG approved and land use forecasts) for the next National Capital Region Transportation Plan, Visualize 2050.

Español

→ Next



As part of the Visualize 2050 plan update, TPB staff are gathering public comments. Click the links above to review the materials or scroll through to read more about what is open for public comment.

Screen 1: An introduction screen provided an overview of the March Visualize 2050 comment period.

2 Transportation & Our Region's Air Quality

This image explains how TPB measures air quality impacts from proposed highway/transit projects.

To learn more details about the air quality analysis scope of work, please [review this memo](#).

How we estimate air quality impacts from projects:

Existing & Future				
Demographic Data: Population, Jobs, Households	Roadways: Interstates, Toll lanes, Major & minor arterials, Operating restrictions, Tolls	Transit Systems: Metro, Commuter rail, Local & commuter buses & BRT, Light rail, Streetcar, Fares	Vehicle Fleet Information: Number, Type, Age	Travel Statistics: VMT, Speeds

Are the total ozone emissions from Visualize 2050 below EPA-approved levels?

Travel Demand Forecasting Model Motor Vehicle Emissions Model

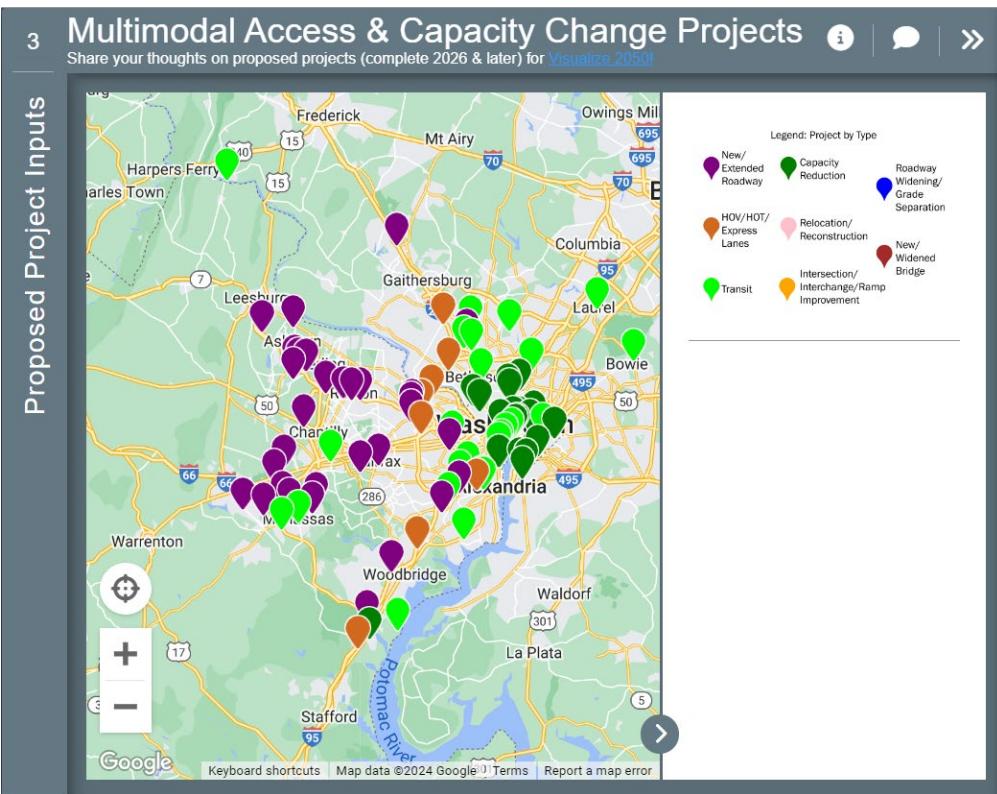
Pass/fail ✓ ✗

Do you have any comments on the air quality analysis scope of work?

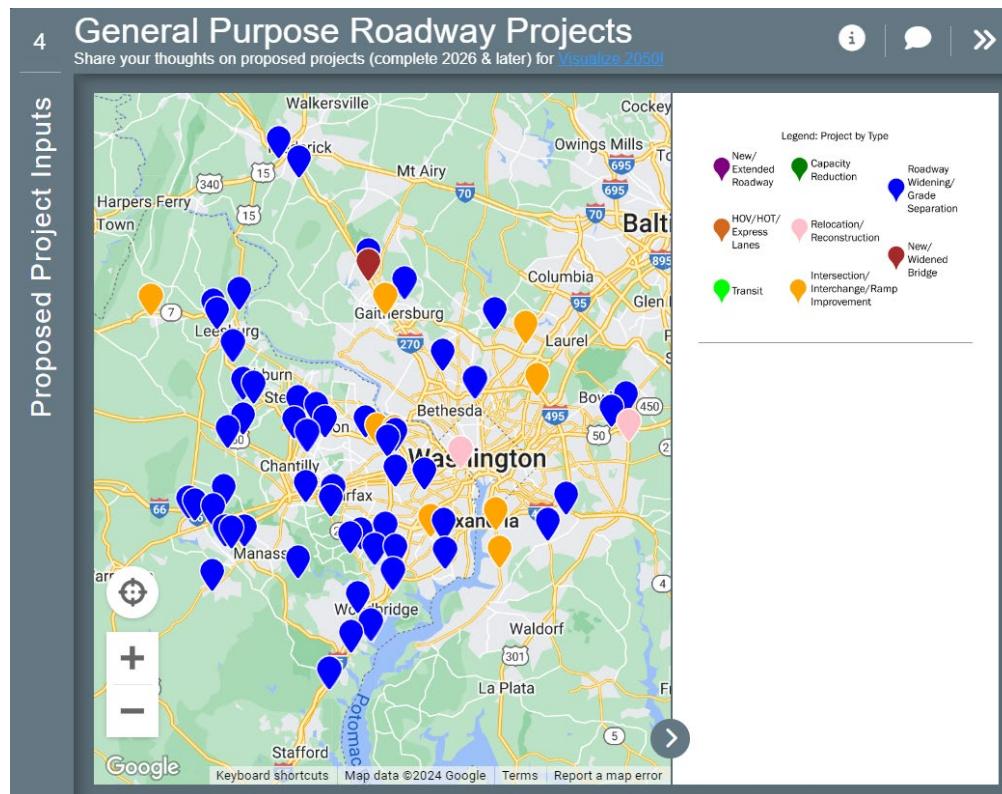
Yes (Click on comment balloon to the right) No



Screen 2: A funnel graphic that summarizes the TPB's air quality scope of work was provided and asked participants if they had any comments on the scope.



Screen 3: An interactive map screen showed locations of multimodal access and capacity change projects that are significant for air quality conformity. Participants were asked if they supported the project's inclusion in Visualize 2050.



Screen 4: An interactive map screen showed locations of general-purpose roadway projects that are significant for air quality conformity. Participants were asked if they supported the project's inclusion in Visualize 2050.

5 **Wrap Up**
Tell us a bit about yourself. Please click finish when you are done.

Wrap Up

Final Questions (Optional)

> What is your home locality?
Select...

> What is your age?
Select...

> What is your race/ethnicity?
Select...

> What is your household income?
Select...

> For updates on Visualize 2050, enter your email.
Type... 0/100

Thank You!

Thank you for sharing your feedback! The public comment period ends on March 30, 2024. Please share this comment opportunity with your communities and stay tuned for a summary of comments received at the April 17, 2024, TPB meeting.

Project Partners

Learn more at Visualize2050.org

Click the comment bubble in the top right corner of this page to give any additional feedback. Please share this with others and help us get everyone involved!

Answer the questions you want to, then click Finish:

Finish

Screen 5: The final screen asked for participants' demographic information and provided information on Visualize 2050 updates.

Promotion of the March 2024 Comment Period

The comment period was advertised through the following methods:

- Washington Post and Washington Hispanic newspaper ads were published on March 1. AFRO News ad was published on March 2. The Washington Hispanic ad was posted in Spanish.
- Project website: visualize2050.org – The comment form was available on the homepage of the Visualize 2050 website. In addition to the homepage, the form was mentioned on the following pages of the website: About Visualize 2050, Comment, Ambassador Kit, Plan Goals, and Plan Development.
- Facebook – Visualize 2050 updates were posted each week from the TPB's Facebook account. Both English and Spanish posts were shared with a call to action encouraging comments and linking to the Visualize 2050 website. TPB staff boosted Facebook posts through paid advertisements the weeks of March 10, March 17, and March 24.
- Specifically, the MetroQuest comment form was available in English and Spanish and paid Facebook advertising promoted both versions of the survey. To ensure that residents in Equity Emphasis Areas (EEAs) had exposure to the comment opportunity, targeted Facebook advertising was done to reach residents who live in EEA zip codes.
- X/Twitter – Posts were shared each week from the TPB Twitter account. COG, TPB members, and partner organizations also shared by reposting or quote posting. Both English and Spanish messages were posted using the Visualize 2050 logo or a specialized graphic with the visualize2050.org URL and #Visualize2050.
- LinkedIn – Posts were shared from the COG LinkedIn account using the Visualize 2050 logo.

The following TPB members and partner organizations posted or shared the comment period materials:

- Arlington County
- Arlington County Department of Environmental Services
- Bike Arlington
- DASH Bus (Alexandria)
- Fairfax County
- Fairfax County Transportation
- Fredericksburg Area MPO
- City of Greenbelt
- Greater Washington Board of Trade
- Northern Virginia Transportation Authority
- Virginia DOT - Northern Virginia
- Virginia Railway Express

A statistical sampling method was not applied for the MetroQuest comment form, and participation was open to any interested party. Therefore, the MetroQuest results cannot be considered statistically representative of the views of the region.

Results of the March 2024 Comment Period

In total, 893 individual comments were received, most of which came from the MetroQuest form. Table 2.3 below shows from what sources the comments were received. Some individuals took the time to provide comments through multiple methods.

TABLE 2.3: SOURCES OF PUBLIC COMMENTS RECEIVED

MetroQuest Comment Form	TPB Website Comment Form	Phone	Email	Letter	March TPB In-Person Comments	Total	
Number of respondents	823	0	0	48	16	6	893

Because the comments were received from four different sources, each with their own input variations, the comments from each source were reported separately. The results of the comments from MetroQuest were summarized into two general categories: comments on the air quality conformity (AQC) analysis process and comments on projects significant for air quality conformity. Key themes from the email and letter comments were summarized. The in-person comments were also captured in full as part of the meeting minutes.

Many people provided input in favor or against particular projects. An analysis of the project responses indicated that many participants were in favor or against a type of project regardless of where it was being proposed, for example, roadway projects that add capacity for automobiles.

Metroquest Form results – Air Quality Conformity (AQC) Analysis Process

This section details the responses received for the second screen of the MetroQuest comment form, which informed participants about the TPB's AQC process. On this slide was a funnel graphic

which summarized the various existing and future data inputs for the AQC model. Participants were asked if they had any comments about the AQC process. Of the 823 individual participants, 110 answered “Yes” and left a comment, and 274 answered “No”; 416 people did not respond to this question.

To assist with analyzing the comments, Microsoft’s Copilot AI tool supplemented staff’s reading of the comments. From the 110 received comments, four general themes were identified:

- Suggestions to consider: Tire dust, vehicle miles traveled (VMT), CO2 emissions, greenhouse gas emissions, vehicle weight, traffic jams, traffic light sequencing, the positive effects transit and active transportation can have on air quality, and the effects of induced automobile demand on air quality.
- Request for: Additional insight on the method of the TPB’s AQC process.
- Skepticism about: The positive impact that HOV/HOT lanes will have on the region’s air quality.
- Requests to: Conduct various alternative scenario analyses that consider other project lists, along with alternative supportive land uses.

Metroquest Form Results – Project Comments

Comments relating to projects were received from screens three and four of the MetroQuest form. On these screens, participants were asked if they supported a project’s inclusion into Visualize 2050. The following table (Figure 2) summarizes the feedback from the open comment opportunity. This is not statistically representative of the region. This shows general sentiments are most closely related to the project type rather than the application of the project type at a particular location. Based on the feedback, the participants of the March comment period overwhelmingly support capacity reduction and transit project types. There was a lack of support for HOV/HOT/Express Lane, New/Extended Roadways, and Roadway Widening/Grade Separation projects.

In addition to feedback on the projects’ inclusion into Visualize 2050, 1,937 project-specific, open-response comments were received. Because of the large number of comments, coupled with the complexity of each project’s unique features, the open-response comments were not summarized. However, these comments were organized by state and project type and were available to the TPB board, member agency staff, and public to review. A summary of comments is in Appendix A.

TABLE 2.4: GENERAL SENTIMENTS OF PROJECT TYPES

Project Type by MetroQuest Project Category	Number of Projects “Favor”	Number of Projects “Not in Favor”	Total Projects in Category	% of Projects Favored
Capacity Reduction	19	0	19	100%
HOV/HOT/Express Lanes	0	9	9	0%
Intersection/Interchange/Ramp Improvements	2	6	8	25%
New/Widened Bridge	0	1	1	0%

New/Extended Roadway	0	31	31	0%
Reconstruction	1	1	2	50%
Roadway Widening/Grade Separation	2	57	59	3%
Transit	25	0	25	100%
Total	49	105	154	32%

Metroquest Form Results – General Comments

Throughout the MetroQuest comment form, participants had the ability to provide open-response comments on screens two to five by clicking the comment bubble on the top right of the screen. When participants chose to leave a comment with this method, it was considered a general comment. In total, 148 general comments were received. With the help of Microsoft’s Copilot AI tool, several themes were identified:

- Support for: increased transit, cyclist, and pedestrian facilities. Concerns that few such projects were in the plan.
- Air Quality and health: The plan does not adequately consider local public health impacts such as emissions from roadway operations or localized hot-spot emissions.
- Climate change: The plan does not adequately reflect the greenhouse gas reductions called for in TPB’s policies.
- Induced demand: Road expansion often leads to more vehicles and traffic, not less. Investments should favor multimodal transit options over road widening.
- Pedestrian safety: More pedestrian infrastructure is needed, especially in high-incident areas near schools and residential zones. The use of right-turn-on-red signs should be minimized.
- Road widening projects: These were generally viewed negatively, referencing a possible increase in congestion and emissions.
- Express toll lane projects: Many people expressed opposition to these projects citing concerns that they do not reduce congestion and potentially create new bottlenecks where they end; concerns about environmental harm and equity due to policies around use.
- Transit investments: Questions are raised about the lack of transit investments in the face of numerous road widening projects.
- Several people offered additional or preferred solutions such as:
- Implement tolls on all highway lanes without expanding them.
- Increase the use of speed and red-light cameras, including point-to-point average speed cameras.
- Eliminate all road-widening projects from the plan; divert to transit.

EMAIL COMMENTS

A total of 48 emails were received by the end of the March comment period. TPB staff read through all emails to identify key themes. Forty-four of the emails were in form letter variations that urged the TPB to approve Virginia’s proposed project inputs for Visualize 2050. One email

opposed highway expansions and requested more transit, bicycle, and pedestrian projects due to concern about greenhouse gas emissions. One email expressed appreciation for the removal of the Mid-County Highway Extended project in Maryland. One email expressed support for studies and projects on Northern Virginia interstates. One email expressed opposition to all toll lanes, including those on I-270, I-495, and the Southside Express Lanes.

LETTER COMMENTS

A total of 16 comments were received in the form of letters. Two came from Virginia House delegates in support of Virginia's projects, ten were from coalitions and groups, including: the League of Women Voters (MD chapter); Maryland Advocates for Sustainable Transportation; Citizens Against Beltway Expansion; Don't Widen 270; the Coalition for Smarter Growth; the Northern Virginia Transportation Coalition; South Tuckerman-Inverness Citizens Association; Seneca Creek Watershed Partners; the Greater Washington Partnership, and the Sierra Club (MD chapter). Key themes were identified by TPB staff reading through the letters. General themes from the letter comments included the following:

- Overall support of increased road capacity projects in MD and VA.
- The Air Quality Conformity Analysis doesn't comply with the Board's resolutions regarding Greenhouse Gas reductions.
- There are too many capacity-increasing road projects and not enough transit/non-motorized projects.
- Concerns regarding equity in the planning process, and possible health effects of projects.
- Environmental impacts of road projects.
- Support of multimodalism.

IN-PERSON COMMENTS

A total of six people shared comments in person at the TPB's March meeting. The automated transcripts were shared with the TPB and the public and can be found in Appendix A.

Response to Comments

In response to comments, TPB staff developed a Frequently Asked Questions (FAQ) handout, found in Appendix A. This handout served to provide answers to questions and comments that appeared multiple times in the collected March comments. Additionally, agencies were given the opportunity to provide responses to comments. The Virginia Department of Transportation, Fairfax County, Loudoun County, and Prince William County provided responses in letter formats that can be found in Appendix A.

2025 PUBLIC COMMENT PERIOD

The third and final public comment period occurred between October 23 and November 21, 2025. The purpose of this comment period was to gather feedback on the draft Visualize 2050 National Capital Region Transportation Plan, the fiscal year 2026-2029 Transportation Improvement Program (TIP), and the Air Quality Conformity (AQC) Analysis Report. This comment period provided the opportunity to provide input on the three documents before their approval at the December 17, 2025 TPB meeting.

In addition to all the traditional means of commenting available for every TPB meeting, including: the tpbcomment@mwcog.org email, phone voicemail, in-person speaker requests, and letters, community members were also able to comment through an online form that was specific to Visualize 2050, and was accessible through a link shared on both the Metropolitan Washington Council of Governments (COG) website and the Visualize2050.org website. The Visualize 2050

comment form was available at <https://www.mwcog.org/visualize2050form/> and included the opportunity to comment on the plan, the TIP, and the Air Quality Conformity Report. The individual comments may be found in the [final memorandum](#) (Item 8: Memo 1) on the December 17, 2025 TPB meeting page.³ A summary of the comments received are provided in Appendix A.

Promotion of the 2025 Comment Period

The comment period has been promoted through the following methods:

- Washington Post newspaper ads were published on October 23 and November 6, 2025. A Washington Hispanic newspaper ad was published in Spanish on October 17, and an AFRO News ad was published on October 24.
- The project website, visualize2050.org, was updated on October 22 to include the following documents: Draft Visualize 2050 National Capital Region Transportation Plan Executive Summary, draft Visualize 2050 plan full document, draft FY 2026-2029 Transportation Improvement Program (TIP), and Air Quality Conformity Analysis Report of Visualize 2050 and the TIP. A map and supplemental resource gallery are provided on the Plan Resources page.
- Links to a Visualize 2050 comment form and instructions on how the public can comment by form, email, phone, or letter were added to the website. A link to the comment form was available on each webpage through a sitewide banner.
- The following public outreach resources were added to the visualize2050.org Get Involved page: Ambassador Toolkit, flyer, Visualize 2050 video, and social media graphics. The social media graphics or video were used in TPB social account posts with hashtag #Visualize2050.
 - Social media: Visualize 2050 updates have been posted daily from one or more of the TPB accounts: Bluesky, Facebook, Instagram, and X/Twitter. TPB staff boosted two Facebook posts—one on the comment period with a link to the Visualize 2050 website and the second with a focus on the Visualize 2050 map resources to coincide with GIS week. The boosted posts were targeted to Facebook users within a 30-mile radius of the District of Columbia. The general comment period boosted ad resulted in 305 landing page views, 373 engagements, and 364 link clicks. The map-focused boosted ad resulted in 534 landing page views, 7,188 engagements, and 658 link clicks.
- The Transportation Planning Board, State Technical Working Group, all TPB subcommittees, and the TPB Access for All and Community Advisory Committees received email notice of the comment period and were asked to share news about Visualize 2050. COG committees receiving email notifications include the COG Board of Directors, Housing Directors Advisory Committee, and Planning Directors Technical Advisory Committee.
- News about the comment period was shared in mid-October through the COG Connections, TPB News, and Commuter Connections newsletters, with a total delivery reach of over 26,000 subscribers.

Visualize 2050 Website Traffic Analysis Overview

TPB staff received a Google Analytics overview of visualize2050.org from the website host at the end of the fall 2025 comment period. The following highlights were noted for the October 1 -

³ National Capital Region Transportation Planning Board (December 17, 2025). *Agenda Item 8: Memo 1 V2050 Public Comments Summary*. <https://www.mwcog.org/events/2025/12/17/transportation-planning-board/>

November 24, 2025, period which includes the October 23 - November 21 comment period time frame.

- The Visualize 2050 website received 15,951 views during the fall campaign.
- The Plan Resources page saw more than double the page's lifetime views in the campaign window compared to everything before it (1,414 views vs. 583 views).
- The Plan page nearly doubled its total view count over the campaign (1,129 views vs. 684 views).
- Engagement metrics suggest that visitors who reached the core plan documents were reading or scanning them meaningfully based on the average session duration and engagement rates (57 percent engagement rate for Plan Resources page; 79 percent engagement rate for The Plan page).
- The greatest number of users were from Virginia (2,734 users/3,529 sessions), the District of Columbia (549 users/1,936 sessions), and Maryland (1,043 users/1,537 sessions).
- Traffic was heavily desktop-oriented (approx. 87 percent of sessions).
- Sixty-two percent (62 percent) of sessions were direct, which often includes links in emails and documents, bookmarked or manually typed URLs, and some app-to-browser referrals (link sharing).
- The top sources of website engagement reflect the Visualize2050.org URL being shared across many channels, email blasts, partner websites providing the URL (e.g., COG, OmniRide), media coverage, and social media posts and shares.

TPB Member and Partner Agency Engagement

The following TPB members, partners, and media outlets posted, liked, or shared comment period materials on social media based on TPB posts or released news stories during the October 23-November 21 time frame.

- City of Alexandria
- City of Frederick
- Fairfax County Times
- Frederick News-Post
- City of Gaithersburg
- Fairfax County Board of Supervisors members
- Fairfax County Office of Environmental and Energy Coordination
- Manassas City Council members
- Metropolitan Washington Council of Governments (COG)
- Montgomery County Department of Transportation
- Northern Virginia Transportation Commission
- Northern Virginia Transportation Authority
- Potomac and Rappahannock Transportation Commission
- TPB Community Advisory Committee members
- Virginia Railway Express

- Virginia Department of Transportation – NoVA District Office
- WJLA – ABC 7

Results of the 2025 Comment Period

A total of 232 comments were received during the final comment period. The five comment platform options and the number of comments received by each platform are summarized below in Table 2.5. Emailing was the most popular platform for commenting, followed by the online form.

TABLE 2.5: PLATFORMS FOR COMMENTS AND NUMBER OF COMMENTS RECEIVED

Platforms for Commenting	Number of Comments Received by Platform
Speaking at the November 2025 TPB Meeting	1
Sending an email to tpbcomment@mwcog.org	193
Writing to the TPB Chair	0
Using the online form at mwcog.org/visualize2050 and Visualize2050.org	38
Calling the TPB Public Comment Line at (202) 962-3774 and leaving a 3-minute voice mail	0

Comment Themes/Topics and Project Specific Comments

The comments were then compiled and analyzed by TPB staff and a consultant. The comments naturally fell into one of three categories: Visualize 2050 and the FY 2026-2029 TIP, Air Quality Conformity determination, and specific projects.

VISUALIZE 2050 AND THE FY 2026-2029 TIP COMMENTS

To analyze the content of the comments, TPB staff worked with the consultant to categorize the comments into different themes and topics. Following the analysis, it was found that most of the comments on Visualize 2050 and the FY 2026-2029 TIP aligned with the following categories:

- Requests for more ambitious plan
- Rail/bus/bicycle/pedestrian expansion
- Roadways widenings
- Public health and safety
- Climate change
- Technical comments

Rail/Bus/Bicycle/Pedestrian Expansion

Commenters urged the TPB to reallocate funding for highway expansion and toll lane projects in favor of reliable, multi-modal, and multi-jurisdictional transit that provides opportunities for

economic growth. This includes expanding the Tourism section in the plan beyond DC to include Virginia and Maryland (e.g., VRE, MARC). Ideas for public transportation improvements supported by commenters included expanding schedules, investing in track improvements and travel times, offering express services, and coordinating local jurisdictions to improve overall experience and quality. This included making a commitment to open data in the “Emerging Technologies” section so that it is easier for people to plan and purchase trips. Commenters requested that the TPB be more ambitious with VPRA and MTA/MARC track expansions. Commenters also supported the development of a highspeed rail system and the proposed bike and pedestrian projects detailed in the plan.

Requests for More Ambitious Plan

Commenters generally supported the current draft of Visualize 2050 and the FY 2026-2029 TIP but urged the TPB to set more ambitious transportation goals. Commenters noted that a 2 to 3-percent reduction in car trips, 3 percent reduction in “drive alone” trips, and \$30 billion allocated to roadway expansion projects go against the plan’s vision statement.

With the current draft of the plan, commenters stated that it is unclear if any chronic transportation bottlenecks will ever be resolved and urged the TPB to be creative and plan for a world where citizens are not required to own and maintain a car for reliable transportation. It was often mentioned that roadway expansions do not solve traffic issues, and that the plan should account for the impacts associated with induced demand (i.e., widening highways leads to more driving and traffic over time). Comments communicated that residents are not benefiting from the proposed changes.

The comments also emphasized that the plan needs better ideas and specific details on the potential expansion of, and investments in, railways, metro, regional bus services, safe bikeways, and pedestrian walkways. This includes making public transit competitive in terms of cost and time, linking congestion relief to economic development (e.g., improved multi-modal options and targeted congestion relief improves quality of life and allows employers to attract and retain talent), expanding high-capacity transit service to outer jurisdictions, and investing in equitable access to high-capacity transit. Commenters encouraged the TPB to work in coordination with adjacent regions.

Roadway Widening

Commenters applauded the TPB for voting to exclude the I-495 Southside Express Lanes project from the plan. Over 160 commenters (including those submitted as part of a letter writing campaign) encouraged the TPB to remove any roadway and highway widening or extension projects from this plan (most notably the Moore-Hogan toll lanes). Comments often mentioned that roadway widening and toll lane expansions only increase the number of vehicles on the road, which in turn increases air pollution, makes communities car-dependent, and only benefits those that can afford to pay the tolls.

Commenters also rejected public-private partnerships for toll roads. Commenters stated that using a for-profit partner is a short-sited, bad deal for governments and taxpayers that will lead to jeopardized road safety. Commenters urged the TPB to reallocate the funding from highway expansion projects, as there were concerns that doing so will lead to more congestion and bottlenecks. Instead, commenters emphasized the need for more investment into multi-modal transportation solutions. Only three commenters supported prioritizing vehicle traffic efficiency over other modes.

Public Health and Safety

Commenters encouraged the TPB to ensure that “safety outcomes carry equal weight to congestion reduction in project selection and funding, as a transportation system that is not safe

for all users cannot be considered successful." Commenters requested that counties enforce laws on cellphone usage while driving and walking, discuss the quality of public transit in regard to homeless persons living in metro stations, and strive for complete streets everywhere. One commenter stated that the plan falls short on incorporating public health throughout all the sections of the plan.

Climate Change

Commenters stressed that Visualize 2050 must strive for more progress on climate change. Coalition for Smarter Growth stated that "*if the current US DOT guidelines suggest TPB can't do [greenhouse gas] reduction work for transportation and provide accountability, then the work should be moved to [the Council of Governments (COG)].*" Multiple commenters stated that the plan would make it impossible for the region to meet the COG greenhouse gas reduction targets and does nothing to address the impending climate emergency.

Commenters stated that the proposed highway expansions will only increase the vehicles on the road, leading to more vehicular pollution, which is already the leading source of carbon pollution in the region. While emissions and vehicle travel miles will slightly decrease under this plan, commenters requested that the TPB be more aggressive. Commenters encourage the TPB to embrace their 2030 climate-friendly targets of reducing vehicle carbon emissions by 20 percent and trucks by 50 percent. Commenters also noted that more paved surfaces will only lead to more flooding problems.

Technical Comments

Some commenters provided specific comments on the plan process, framework, and content. This included comments on using maps to show how targets are met in the plan and references to specific tables and figures.

AIR QUALITY CONFORMITY DETERMINATION

Only two comments focused on the Air Quality Conformity determination document. The Metropolitan Washington Air Quality Committee (MWAQC) urged TPB and its members to give particular focus to projects that would reduce air pollution emissions from the transportation sector so that future emissions from that sector remain below the MVEBs without safety margins to fully protect the health of residents. MWAQC also urged the TPB's continued investment in vehicle miles traveled (VMT) and emission reduction strategies such as public transit, ridesharing, pedestrian and bike infrastructure, other travel demand management strategies, and Transportation Emission Reduction Measures (TERMS) to reduce future growth in vehicle emissions.

In addition to MWAQC, the Southern Environmental Law Center stated that the AQC analysis shows that the additional lane miles included in the TIP and Long-Range Plan fails to put the region on track to meet the COG commitments to reduce greenhouse gas emissions by 50 percent from 2005 levels by 2030 and 80 percent by 2050.

SPECIFIC PROJECTS

Commenters provided a variety of project-specific feedback, including requests to ease traffic congestion at known bottlenecks through public transportation investments, opposition to highway expansion projects, and support for safe bike routes, pedestrian walkways, and bridges. Some examples of the areas and projects included, but are not limited to:

- Prince William County (I-95, Exit 160; Route 1; Prince William Parkway; I-66; Rt. 28)
- Pedestrian improvements along New Braddock Road and Braddock Road
- Expansions for MD 355, Georgia Avenue, US 50, Dulles Airport Access Road

- Crystal City DCA Bridge
- New BRT Expansions
- MARC Services, Purple Line
- Orange Line Extension to Fair Oaks
- New Rail Bridge over the Occoquan River
- Bus service in Chevy Chase DC, Barnaby Woods, and Hawthorne

Response to Comments

To address comments regarding the content of Visualize 2050 and FY 2026-2029 TIP, TPB staff worked directly with technical staff throughout the TPB member jurisdictions and agencies to correct or clarify information. Additionally, TPB staff provided a general observational response for each of the six comment categories identified for Visualize 2050 and TIP comments, as well as to the AQC determination comments.

All comments were compiled and given to TPB members and their technical agencies that are responsible for project implementation.

VISUALIZE 2050 COMMENT PERIODS AND ALIGNMENT WITH THE TPB PARTICIPATION PLAN

The TPB has set certain goals for its public comment and engagement activities. The following tables summarize how these goals were met during the 2023, 2024, and 2025 public comment periods.

TABLE 2.6: PUBLIC COMMENT & THE POLICY GOALS

Policy Goals	
Engage different audiences effectively using a variety of tools	All three comment periods sought feedback via email, online form, voicemail, letters, and in-person comments. The 2023 comment period made use of Survey Monkey, an online tool that allowed participants to comment on specific projects. The 2024 comment period made use of MetroQuest, an interactive, map-based tool. The MetroQuest form was also available in Spanish. The 2025 comment period made use of the visualize2050.org website, the TPB's four social media channels, a new Visualize 2050 video, and boosted Facebook posts to reach audiences within a 30-mile radius of Washington, DC.
Provide clear and open access to information and participation opportunities	The TPB public comment periods are always open to the public. Regional newspapers including the Washington Post, the Washington Hispanic, and AFRO News, posted announcements of the comment periods. The TPB also got the word out via email to subscribers of TPB and COG email lists, TPB News and COG e-newsletters, social media, websites (mwcog.org, visualize2045.org, and visualize2050.org), and through TPB and committee meetings.

Gather input from diverse perspectives	Comments received during the public comment periods reflected a variety of perspectives from people who live in the National Capital Region. Some people's comments were motivated by project types and others by specific topics such as reducing the climate change impacts of the region's transportation system.
Give consideration to input received and respond meaningfully	All comment periods were scheduled so that there was sufficient time for TPB staff to summarize comments and when possible, provide a response from member agencies and jurisdictions.
Promote a regional perspective	Comments for all comment periods were received from across the National Capital Region, reflecting that the activity promotes a regional perspective.

TABLE 2.7: PUBLIC COMMENT & THE PRINCIPLES FOR ENGAGEMENT

Principles for Engagement	
Equity perspective	During the 2024 comment period, social media promotions of the comment form were targeted to EEA zip codes.
Plain language	To make all three comment periods accessible to everyone, outreach methods for all comment periods used graphics and language that clearly communicated the purpose of the opportunity and how to give feedback.
Early and continuing participation	The comment periods were scheduled at specific timeframes to ensure feedback was able to be incorporated during the development of Visualize 2050. Alongside the targeted comment periods, the TPB continues to share information through meetings, media, and websites.
Timely response	When comments are submitted by email, an automated email thanks the individual for their comment. Following the closing of the targeted comment periods, the TPB promptly summarized the feedback and compiled the summaries in memorandums, to which all detailed comments and letters were attached. For voice messages received via phone during the March 2024 comment period, staff returned the phone call within a couple days.
Clarity of purpose	For each comment period, the TPB communicated the general purpose of the comment period through the comment period promotions, committee meetings, and TPB meetings.

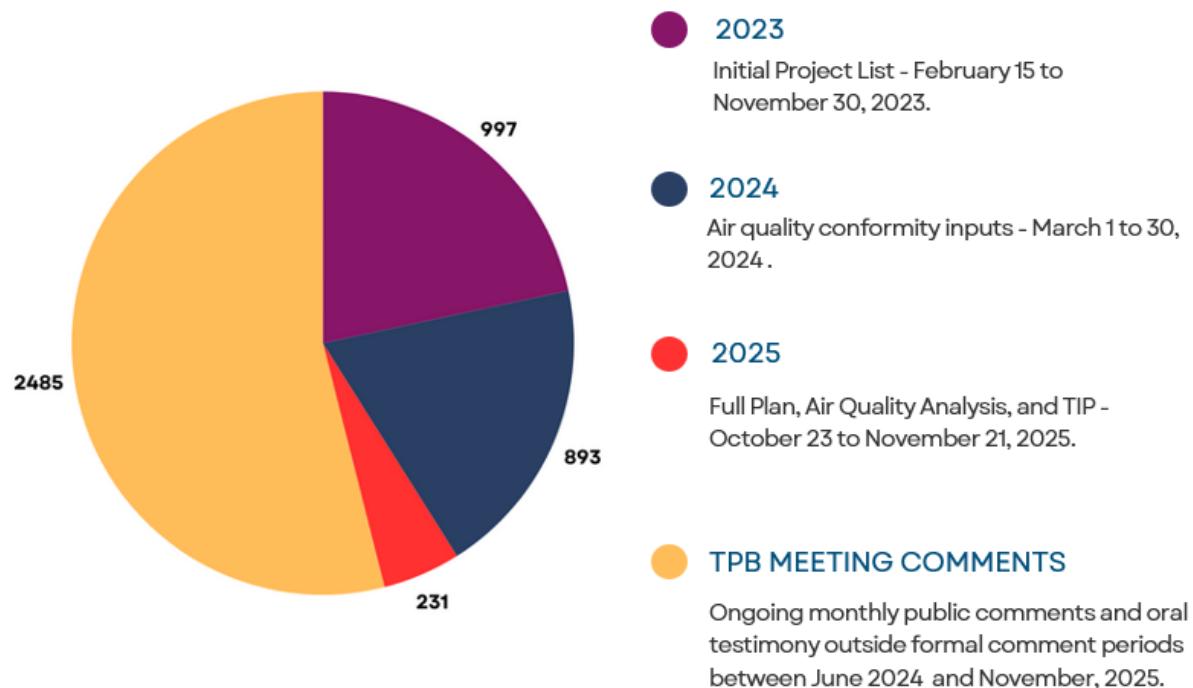
TABLE 2.8: PUBLIC COMMENT & CONSTITUENCIES FOR ENGAGEMENT

Constituencies for Engagement	
The general public	The general public was the primary audience for participation in all three comment periods.

Active participants	Findings and analysis for all three comment periods were shared with people who are active in the TPB process, including presentations at the TPB Technical Committee, TPB Access for All Advisory Committee, and the TPB Community Advisory Committee. Additionally, all findings were included in materials with the board for the TPB meetings.
Community leaders	In addition to the ways that the findings were shared with active participants, a primary way that the public comment opportunities were meant to reach community leaders was via TPB News, COG e-newsletters, and social media. Additionally, some community leaders partook in the comment opportunities.

Finally, the results of implementing the TPB's Participation Plan during Visualize 2050 via the three comment periods as well as the monthly TPB meetings can be seen in the results shown in Figure 2.3.

FIGURE 2.3: SUMMARY OF NUMBER OF COMMENTS RECEIVED



ONGOING COMMUNICATION

The [Visualize 2050](#) website provides a one-stop shop for all plan documentation and features inviting visualizations, infographics, and data resources to explain the plan. The TPB News features quick summaries of regional planning activities. Live streams of TPB meetings can be found on the web and recordings are available to all. When the TPB conducts meetings in person, anyone from the public is welcome to attend and publicly address the board at the start of every meeting.

APPENDIX A: VISUALIZE 2050 COMMENTS SUMMARY

VISUALIZE 2050

National Capital Region Transportation Plan



Visualize 2050 Public Comments Summary



National Capital Region
Transportation Planning Board

December 2025

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OVERVIEW

The TPB conducted three public comment periods during the development of the Visualize 2050 National Capital Region Transportation Plan and the FY 2026-2029 Transportation Improvement Program (TIP). The comments were shared with the TPB at their meeting following the comment period. That information has been compiled, and this document provides the summaries of the Visualize 2050 three public comment periods as presented to the TPB at these meetings:

- 2025 Public Comment Period Summary on December 17, 2025
- 2024 Public Comment Period Summary shared on April 17, 2024
- 2023 Public Comment Period Summary on December 20, 2023

2025 PUBLIC COMMENT PERIOD SUMMARY

The third and final public comment period took between October 23, 2025 and November 21, 2025. The public had the opportunity to comment on the Visualize 2050 National Capital Region Transportation Plan, the FY 2026-2029 TIP, and the Air Quality Conformity Analysis Report.

SUMMARY OF NUMBER OF COMMENTS RECEIVED

Platforms for Commenting	Number of Comments Received by Platform
Speaking at the November 2025 TPB Meeting	1
Sending an email to tpbcomment@mwcog.org	193
Writing to the TPB Chair	0
Using the form online: mwcog.org/visualize2050	38
Calling the TPB Public Comment Line at 202-962-3774 and leaving a 3-minute voice mail.	0

Visualize 2050 National Capital Region Transportation Plan and the FY 2026-2029 Transportation Improvement Program (TIP) Comments

Most public comments fell into the following categories:

- Rail/Bus/Bicycle/Pedestrian Expansion
- Requests for a more ambitious plan that sets higher goals
- Opposition to roadway widenings
- Public health and safety
- Climate change
- Technical comments

Rail, Bus, Bike Lane, and Pedestrian Expansion

Commenters urged the TPB to reallocate funding for highway expansion and toll lane projects in favor of reliable, multi-modal, and multi-jurisdictional transit that provides opportunities for economic growth. This includes expanding the Tourism section in the plan beyond DC to include Virginia and Maryland (e.g., VRE, MARC). Ideas for public transportation improvements supported

by commenters included expanding schedules, investing in track improvements and travel times, offering express services, and coordinating local jurisdictions to improve overall experience and quality. This included making a commitment to open data in the “Emerging Technologies” section so that it is easier for people to plan and purchase trips. Commenters request that the TPB be more ambitious with VPRA and MTA/MARC track expansions. Commenters also supported the development of a highspeed rail system and the proposed bike and pedestrian projects detailed in the plan.

Coalition for Smarter Growth and The Climate Mobilization both supported commuter connections programs (e.g., carpooling, telecommuting, transit with bus and rail) and encouraged the TPB to hold member jurisdictions accountable for their roles in promoting and implementing climate goals.

One commenter requested that the report include ferry service, and one commenter requested to expand bus service further on I-95 south.

Example Excerpts:

- The wasteful highway expansions in Visualize 2050 will likewise undermine the regions major transit and rail investments in the plan, including bus rapid transit lines, Long Bridge, MARC and VRE investments, and the Purple Line.
- How many more people would visit Baltimore from DC for dinner or an event if the MARC trip were an express 30-minute ride rather than 60? This is an untapped economic opportunity for Baltimore.
- Similarly, it is good the plan recognizes and incorporates bridge rehabilitation explicitly as a core element.
- But nobody will be inspired if we limit our imagination. We have lots of examples around the world to draw from. Let's take the best of the best and give the people of this region, and of this country, something to be proud of that truly revolutionizes the way people navigate a greater metropolitan area.
- To truly meet our accessibility and climate goals, the plan should prioritize high-frequency bus service, bus-priority infrastructure, and safer walking and biking connections to transit, especially in equity-emphasis areas. And because regional mobility doesn't stop at jurisdictional borders, Visualize 2050 should explicitly support improved VREMARC connectivity and more frequent, all-day passenger rail. These are the investments that deliver real reliability, real regionalism, and real equity for the people who rely on transit every day.

Request for More Ambitious Plan

Commenters generally supported the current draft of Visualize 2050 and the FY 2026-2029 TIP but urged the TPB to set more ambitious transportation goals. Commenters note that a 2-3 percent reduction in car trips, 3 percent reduction in “drive alone” trips, and \$30 billion allocated to roadway expansion projects go against the plan’s vision statement.

With the current draft of the plan, commenters state that it is unclear if any chronic transportation bottlenecks will ever be resolved and urge the TPB to be creative and plan for a world where citizens are not required to own and maintain a car for reliable transportation. Roadway expansions do not solve traffic issues, and the plan needs to account for the impacts associated with induced demand (i.e., widening highways leads to more driving and traffic over time). Residents are not benefiting from the proposed changes.

The plan needs better ideas and specific details on the potential expansion of, and investments in, railways, metro, regional bus services, safe bikeways, and pedestrian walkways. This includes

making public transit competitive in terms of cost and time, linking congestion relief to economic development (e.g., improved multi-modal options and targeted congestion relief improves quality of life and allows employers to attract and retain talent), expanding high-capacity transit service to outer jurisdictions, and investing in equitable access to high-capacity transit. Commenters encourage TPB to work in coordination with adjacent regions.

Example Excerpts:

- We need to inspire the citizens of this area with the vision of a transportation network that's second to none. That will come with a price tag and require a commitment to accelerating the ridiculously long processes that led to a 30 year plus time horizon -- from planning to build-out -- of the purple line.
- The regions continued reliance on traditional automobiles and small trucks contributes significantly to unhealthy air and global warming. To reduce reliance on these vehicles, the region needs to make walking, biking, and use of public transit, including bus, BRT, commuter rail, METRO rail and light rail, more attractive than driving. Only then will people choose transit over driving as their preferred mode of transportation.
- Our view is that the Visualize 2050 plan is insufficient to address the climate emergency our region is facing, and different actions need to be taken to help us navigate the challenges.

Roadway Widenings

Commenters applauded the TPB for voting to exclude the I-495 Southside Express Lanes project from the plan. Over 160 commenters (including those submitted as part of a letter writing campaign) encouraged the TPB to remove any roadway and highway widening or extension projects from this plan (most notably the Moore-Hogan toll lanes). Roadway widening and toll lane expansions only increase the number of vehicles on the road, which in turn increases air pollution, makes communities car-dependent, and only benefits those that can afford to pay the tolls.

Commenters also rejected public-private partnerships for toll roads. Commenters stated that using a for-profit partner is a short-sited, bad deal for governments and taxpayers that will lead to jeopardized road safety. Commenters urged the TPB to reallocate the funding from highway expansion projects, which will only lead to more congestion and bottlenecks, to multi-modal transportation solutions.

Three commenters supported prioritizing vehicle traffic efficiency over "under-utilized bike and bus lanes," one commenter specifically mentioning Frederick, MD.

Example Excerpt:

The toll lanes will not alleviate traffic congestion. Instead they will make travel on these major highways inequitable, only offering routes with less traffic to drivers who can afford to pay high toll prices. And they will create new bottlenecks, just as they have on I-95 and I-495 in Virginia. These toll lanes will not reduce traffic in Maryland. MDOT should instead invest in public transit; that would truly reduce traffic congestion and give Marylanders options other than driving their personal vehicles to their destinations

Public Health and Safety

Commenters encouraged the TPB to ensure that "safety outcomes carry equal weight to congestion reduction in project selection and funding, as a transportation system that is not safe for all users cannot be considered successful." Commenters requested that counties enforce laws on cellphone usage while driving and walking, discuss the quality of public transit in regard to homeless persons living in metro stations, and strive for complete streets everywhere. One

commenter stated that the plan falls short on incorporating public health throughout all the sections of the plan.

Example Excerpt:

- *Prince William County recently adopted its first Comprehensive Traffic Safety Action Plan, rooted in a Vision Zero approach that prioritizes engineering, enforcement, and education. I commend TPB for elevating safety as a performance measure within Visualize 2050 and for supporting the Regional Roadway Safety Program and the Street Smart Campaign.*

Climate Change

Visualize 2050 needs to make more progress on climate change. Coalition for Smarter Growth stated that “*if the current US DOT guidelines suggest TPB can’t do [greenhouse gas] reduction work for transportation and provide accountability, then the work should be moved to [the Council of Governments (COG)].*” Multiple commenters stated that the plan would make it impossible for the region to meet the COG greenhouse gas reduction targets and does nothing to address the impending climate emergency.

Commenters stated that the proposed highway expansions will only increase the vehicles on the road, leading to more vehicular pollution, which is already the leading source of carbon pollution in the region. While emissions and vehicle travel miles will slightly decrease under this plan, commenters requested that the TPB be more aggressive. Commenters encouraged the TPB to embrace their 2030 climate-friendly targets of reducing vehicle carbon emissions by 20 percent and trucks by 50 percent. Commenters also noted that more paved surfaces will only lead to more flooding problems.

Example Excerpts:

- *Due to the prioritization of road expansion over demand management, transit-oriented land use, transit and active transportation investments, Visualize 2050 falls short of the emissions reductions needed for COGs climate targets, even with a shift to EVs. The Visualize 2050 plan makes no mention of climate change, and TPB has not yet followed through on work to advance greenhouse gas reduction strategies in its UPWP.*

Technical Comments

Some commenters provided specific comments on the plan process, framework, and content. This included comments on using maps to show how targets are met in the plan and references to specific tables and figures. One commenter noted TPB’s zero-based budgeting checkmark evaluation done for the conformity inputs yielded many contradictory results.

Example Excerpts:

- *I support CMAQ spending for DDOT, VDOT, and MDOT as listed in Table 21 of the draft FY26-29 STIP.*

Air Quality Determination Comments

There were two comments received regarding the AQC determination process. The Metropolitan Washington Air Quality Committee (MWAQC) submitted the following comment:

The Visualize 2050 plan continues to require the use of safety margins to meet the MVEBs and demonstrate conformity for volatile organic compounds (VOC) in 2025 and 2030. MWAQC urges TPB and its members to give particular focus to projects that would reduce air pollution emissions from the transportation sector so that future emissions from that sector remain below the MVEBs without safety margins to fully protect the health of our residents. The draft Design Value data for ozone for the Washington region for the period 2023 through 2025 is 69 ppb parts per billion (ppb). This shows that the region is in compliance with the 2015 ozone NAAQS, however the region needs to continue reducing its emissions to maintain this compliance in the future. The projected year 2025 emissions inventory for the region in the above maintenance plan update submitted to EPA in 2023 shows on-road sources to be a significant contributor (26 percent) of NOx emission in the region. Therefore, it is essential that the region reduces its emissions further in order to keep complying with the 2015 ozone NAAQS from all sources, including on-road mobile sources. MWAQC notes that the region also is experiencing an increase in total VMT along with an increase in population and job growth. Therefore, we urge TPB's continued investment in VMT and emission reduction strategies such as public transit, ride-sharing, pedestrian and bike infrastructure, other travel demand management strategies, and Transportation Emission Reduction Measures (TERMS) to reduce future growth in vehicle emissions.

In addition to MWAQC, the Southern Environmental Law Center stated that the Air Quality Conformity analysis showed that the additional lane miles included in the TIP and Long-Range Plans fail to put the region on track to meet the COG commitments to reduce greenhouse gas emissions by 50 percent from 2005 levels by 2030 and 80 percent by 2050.

Specific Projects Comments

congestion at known bottlenecks through public transportation investments, opposition to highway expansion projects, and support for safe bike routes, pedestrian walkways, and bridges. Some examples of the areas and projects include, but are not limited to:

- Prince William County (I-95, Exit 160; Route 1; Prince William Parkway; I-66; Rt. 28).
- Pedestrian improvements along New Braddock Road and Braddock Road
- Expansions for MD 355, Georgia Avenue, US 50, Dulles Airport Access Road
- Crystal City DCA Bridge
- New BRT Expansions
- MARC Services, Purple Line
- Orange Line Extension to Fair Oaks
- New Rail Bridge over the Occoquan River
- Bus service in Chevy Chase DC, Barnaby Woods, and Hawthorne

Example Excerpts:

- The Chevy Chase DC, Barnaby Woods, Hawthorne neighborhoods of upper NW DC would benefit greatly from enhanced and more frequent bus service. It's an area with a sizable senior population, some of whom find it difficult to drive. Frequent, convenient, and accessible bus service would benefit all residents of this section of DC. It would allow them to shop, visit doctors, and engage in their recreational activities more easily.

- Keep OmniRide and VRE in good order. These are gaining popularity.
- Give Alexandria its West End Transitway. The city is a veritable anthill of pedestrians and happy folk cruising the river or riding the free bus. It's an economic powerhouse that helps pay for the projects on your list. By all means, give them a Fourth Rail Track.
- On no account should Rt 50 be widened. The plan as it stands meets no TPB priority strategies, which is a major clue that it's wrong for us. Use the STARS study to better understand what is needed. Frankly, I have never encountered any traffic flow issue there and I use it all the time.

Response to Comments

TPB Staff Observation for Rail/Bus/Bike Lane/Pedestrian Expansion Comments

The TPB staff have provided these comments to the members of the TPB and their technical agencies who are responsible for project implementation. Please note that there are multimodal investments that are not outlined in detail as they are non-regionally significant for use in the air quality conformity analysis, and instead are captured in general funding categories in the Visualize 2050 financial plan.

TPB Staff Observation for More Ambitious Plan Comments

Visualize 2050 forecasts positive shifts in mode choice given the growth anticipated for the region over the next 25 years. As cleaner fuel vehicles enter the vehicle fleet over time, the TPB expects this transition to provide the greatest impact on emissions reductions. The TPB continues to work with its regional partners to identify new funding sources, particularly in the area of transit resulting from DMVMoves, to support more multimodal transportation investments in the future. As a forum for regional planning, the TPB will continue to guide its regional partners towards achieving shared values and goals for multimodal transportation to be more accessible throughout the region.

TPB Staff Observation for Roadway Widening Comments

The TPB's planning area covers a large area – about 3,500 square miles and includes a large roadway network with more than 17,000 lane miles of different functional classes (Interstates, major and minor arterials, local roads, etc.) The roadway network serves thousands of communities – residential, commercial, mixed use, which generate large number of vehicular trips – about 18M (including transit trips) for work and non-work purposes and logs about 97M vehicle miles in a typical day. Several operating conditions at the community/local levels related to safety, congestion, connectivity, and access merit attention and extending or widening a segment of a roadway are at times what the local transportation agency determines to be the best solution.

TPB Staff Observation for Public Health and Safety Comments

TPB staff have noted these technical comments and continue to implement the safety initiatives that stem from TPB's Regional Roadway Safety Summit, some of which are also related to public health.

TPB Staff Observation for Climate Change Comments

The TPB is required to adhere to federally required work activities in adopting its long-range transportation plans and TIP. TPB is federally required to determine if the emissions of Volatile Organic Compounds and Nitrogen Oxides from the plan conform to the federally approved levels for this region, which is done as part of the air quality conformity determination. At this time, there are no federal requirements for MPOs, like the TPB, to undertake activities focused on climate change and/or greenhouse gases. Climate change and GHG emissions are not discussed

in Visualize 2050, consistent with USDOT advice to strictly adhere to federally required work activities.

As presented to the TPB on July 16, 2025, on-road GHG emissions for Visualize 2050 are forecast to be 22 percent below 2005 levels in 2030 and 33 percent below 2005 levels in 2050.¹ Although GHG emissions are projected to be lower in the future than today, the predicted GHG emissions do fall short of meeting the voluntary goals adopted by the TPB through R18-2022 in June 2022, which is not surprising. Visualize 2050 was not expected to meet the TPB's on-road transportation sector GHG reduction goals.

The GHG reduction goals that the TPB adopted could be considered aspirational, since the principal study on the subject, the TPB's Climate Change Mitigation Study (CCMS) of 2021, failed to find a pathway for the region to meet the TPB's 2030 GHG reduction goal. The CCMS studied over 30 GHG reduction scenarios for each analysis year (2030 and 2050), examining combinations of voluntary and mandatory actions affecting travel behavior and mode choice as well as improvements in vehicle fuels and technology. A couple of the studied-modeled scenarios did attain the 2050 goal, but that was mainly driven by the scenarios based on very ambitious vehicle electrification assumptions, some of which also included very aggressive mode shift and travel behavior (or VMT reduction) strategies, many of which would require legislation to be enacted.

The Metropolitan Washington Council of Governments (COG) continues its climate change mitigation work on behalf of the region. COG recently submitted its Comprehensive Climate Action Plan (CCAP) for the region that was developed with funding from EPA's Climate Pollution Reduction Grant (CPRG) Program. The CCAP reflects the climate change mitigation work conducted by the TPB, and includes a scenario with aggressive, but feasible, mitigation strategies to put the region on a pathway to net zero greenhouse gas emissions by 2050.

In early 2026, COG expects to complete a mid-course review of the Metropolitan Washington 2030 Climate and Energy Action Plan along with the 2023 Community-wide Greenhouse Gas Emissions Inventory. The 2020 inventory showed that the region met its greenhouse gas emissions reduction target for milestone year 2020.

TPB Staff Observation for Technical Comments

TPB staff have noted these technical comments and have made changes in the plan documents as needed.

TPB Staff Observation for Air Quality Determination Comments

The TPB appreciates MWAQC's concurrence that the Air Quality Conformity analysis of Visualize 2050 Plan and FY 2026-2029 TIP meets all the required emissions tests. The TPB notes that even under the current circumstances, on-road vehicular emissions are well within the levels needed for the region to maintain compliance with the 2008 ozone national Ambient Air Quality Standards (NAAQS). It is also noted that on-road vehicular source emissions have steadily declined over the past couple of decades, and are forecast to continue to decline, both overall, and as a percentage of the whole inventory. The TPB agrees that there should be a greater effort to reduce emissions across all sectors to meet current and future tougher air quality NAAQS. The TPB agrees with MWAQC on the need for greater investment in public transit, ridesharing, pedestrian and bicycle infrastructure, and other programs to reduce emissions.

¹ National Capital Region Transportation Planning Board (July 16, 2025). *Finalization of Project Inputs for Air Quality Conformity Analysis: Visualize 2050 & FY 2026-2029 TIP*. <https://www.mwcog.org/events/2025/7/16/transportation-planning-board/> For example, on slide 19, Slide 19: GHG emissions are forecast to go from 23.4M metric tons per year in 2005 to 18.4M metric tons per year in 2030, which implies a 22% drop.

Specific Projects Comment Responses

The TPB staff provided specific project comments to the technical agencies who are responsible for project implementation.

2024 PUBLIC COMMENT PERIOD SUMMARY

The 2024 comment period took place for 30 days throughout the month of March. A total of 893 comments were received. The channels from which the comments came are summarized in the table below.

2024 COMMENT PERIOD COMMENTS RECEIVED

	<i>MetroQuest Comment Form</i>	<i>TPB Website Comment Form</i>	<i>Phone</i>	<i>Email</i>	<i>Letter</i>	<i>In Person at TPB's March 2024 Meeting</i>	<i>Total</i>
<i>Number of Respondents</i>	823	0	0	48	16	6	893

MetroQuest Form – Air Quality Conformity (AQC) Analysis Process Comments

This section details the responses received to the second slide of the MetroQuest comment form which informed participants about the TPB's AQC process. On this slide, participants were asked whether they had any comments about the AQC process. Of the 823 individual participants, 110 answered "Yes" and left a comment and 274 answered "No"; 416 people did not respond to this question. The submitted comments are attached.

There were several themes in the comments on the AQC process and can be summarized as follows:

- **Suggestions to consider:** Tire dust, vehicle miles traveled (VMT), CO2 emissions, greenhouse gas emissions, vehicle weight, traffic jams, traffic light sequencing, the positive effects transit and active transportation can have on air quality, and the effects of induced automobile demand on air quality.
- **Request for:** Additional insight on the method of the TPB's AQC process.
- **Skepticism about:** The positive impact that HOV/HOT lanes will have on the region's air quality.
- **Requests to:** Conduct various alternative scenario analyses that consider other project lists, along with alternative supportive land uses.

MetroQuest Form – Project Comments

The focal points of the MetroQuest form are the proposed project inputs on screens 3 and 4. The first map showed participants the transit, capacity reduction, new/extended roadways, and HOV/HOT/express lane projects. The second map showed participants the roadway widening/grade separation, relocation/reconstruction, interchange/intersection/ramp improvement, and new/widened bridge projects. Both maps only included projects that are significant for air quality conformity and are expected to be completed in 2026 or later.

Participants could navigate the maps using a zoom-in function. After clicking on a project point,

participants were asked if they support the inclusion of the project in Visualize 2050. To learn more details about the projects, participants were directed to Visualize2050.org where a [project summary table](#) was linked with detailed project information packets. Two tables are attached; one shows how many people were in favor or opposition to a particular project and the second provides the responses for each project.

A statistical sampling method was not employed for the MetroQuest comment form and participation was open to any interested party. Therefore, the MetroQuest results cannot be considered statistically representative of the views of the region.

The following table summarizes the feedback, [resulting from the open comment opportunity and are not statistically representative of the region](#), and shows general sentiments are most closely aligned with project type rather than the application of the project type at a particular location.

METROQUEST PROJECT COMMENTS SUMMARY TABLE

Project Type by MQ project category	Number of Projects "Favor"	Number of Projects "Not in Favor"	Total Projects in Category	% of Projects Favored
Capacity Reduction	19	0	19	100%
HOV/HOT/Express Lanes	0	9	9	0%
Intersection/ Interchange/Ramp Improvements	2	6	8	25%
New/Widened Bridge	0	1	1	0%
New/Extended Roadway	0	31	31	0%
Reconstruction	1	1	2	50%
Roadway Widening/Grade Separation	2	57	59	3%
Transit	25	0	25	100%
Total	49	105	154	32%

MetroQuest Form – General Comments Submitted

One-hundred and forty-eight unique comments were received on the general comment portals via the MetroQuest comment form. These can be summarized as follows:

- **Support for:** increased transit, cyclist and pedestrian facilities. Concerns that few such projects were in the plan.
- **Air Quality and health:** The plan does not adequately consider local public health impacts such as emissions from roadway operations or localized hot-spot emissions.
- **Climate change:** The plan does not adequately reflect the greenhouse gas reductions called for in TPB's policies.
- **Induced demand:** Road expansions often lead to more vehicles and traffic, not less. Investments should favor multimodal transit options over road widening.

- **Pedestrian safety:** More pedestrian infrastructure is needed, especially in high-incident areas near schools and residential zones. The use of right-turn-on-red signs should be minimized.
- **Road widening projects:** These were generally viewed negatively referencing a possible increase in congestion and emissions.
- **Express toll lane projects:** Many people expressed opposition to these projects citing concerns that they don't reduce congestion and potentially create new bottlenecks where they end; concerns about environmental harm and equity due to policies around use.
- **Transit investments:** Questions are raised about the lack of transit investments in the face of numerous road widening projects.
- **Several people offered additional or preferred solutions such as:**
 1. Implement tolls on all highway lanes without expanding them.
 2. Increase the use of speed and red-light cameras, including point-to-point average speed cameras.
 3. Eliminate all road-widening projects from the plan; divert to transit.

Email Comments

A total of forty-eight emails were received by the end of the comment period. Of these, two were unique comments, one was a cover memo transmitting a letter, and the rest were comments in favor of the Virginia transportation projects. Of the 48 comments received in favor of the Virginia projects, most consisted of a form letter or form letter variation that urged the TPB to approve Virginia's transportation project submissions, as well as the American Legion Bridge and I-270, the Capital Beltway, I-95, regional rail upgrades for VRE and MARC, and a regional BRT network.

One form letter variation urged the TPB to remember that their primary mission is to improve transportation performance. Others specifically mentioned support of the bi-directional express lanes.

Of the two other emails, one email called on the TPB to reconsider the list and include projects that reflect regional and local climate goals such as Route 7 rapid transit; and remove projects that do not align with these goals, such as highway expansions. The other extended appreciation for removal of the Mid-County Highway Extended.

Letter Comments

A total of sixteen commenters provided letters. Two from Virginia House Delegates in support of Virginia's projects. Ten were from coalitions and groups, including: the League of Women Voters (MD); MD Advocates for Sustainable Transportation; Citizens Against Beltway Expansion; Don't Widen 270; the Coalition for Smarter Growth; the Northern Virginia Transportation Coalition; South Tuckerman Inverness Citizens Association; Seneca Creek Watershed Partners; the Greater Washington Partnership, and the Sierra Club- MD Chapter.

Commenters expressed support and opposition for toll lane projects on I-95, I-495, and I-270. There were four individual commenters, two of which wrote in opposition to the VA Route 15 project north of Leesburg. General themes from the letter comments included the following:

- Overall support of increased road capacity projects in VA and MD.
- The Air Quality Conformity Analysis doesn't comply with the Board's resolutions regarding Greenhouse Gas reductions.
- There are too many capacity-increasing road projects and not enough transit/non-motorized projects.
- Concerns regarding equity in the planning process, and possible health effects of projects.
- Environmental impacts of road projects.

- Support of multimodalism.

Response to Comments

In response to comments, TPB staff developed [a Frequently Asked Questions \(FAQ\) handout](#).

Additionally, agencies have been given the opportunity to provide a response to comments. The Virginia Department of Transportation, Fairfax County, Loudoun County, and Prince William County provided responses in letter formats.

2023 PUBLIC COMMENT PERIOD SUMMARY

Between February 15 at 12:00 PM and November 30 at midnight, there was a total of 997 project comments for the Visualize 2050 Initial Project List Feedback Form. Virginia received 514 comments, Maryland received 406 comments, and the District of Columbia received 77 comments. A total of 136 project suggestions were received, with 43 for Virginia, 40 for Maryland, and 10 for the District of Columbia. Most survey participants learned about the projects through advocacy organizations.

The overarching themes during the entire comment period are similar to the overarching themes of the mid-year summary:

- There is strong negative sentiment towards roadway widening and expansion projects. There are concerns that roadway widening and expansion induces more automobile travel, contributes to climate impact, undermines public transit, and misallocates money and resources.
- There is strong positive sentiment towards passenger rail expansion and improvements, bus improvements, bicycle and pedestrian infrastructure improvements, and BRT projects. This support comes from enthusiasm for reducing car dependence in the region, advancement towards climate goals, and improving access and connectivity for alternative modes.
- For many projects that received “agree” for inclusion into the 2050 plan, there was support for roadway improvements that include traffic calming features, but desires for more bicycle, pedestrian, or bus infrastructure improvements.

OP LANES MARYLAND PHASE 1

Project	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	No Response	Total
Op Lanes Maryland Phase 1	1	1	1	4	173	2	182

Sentiment Analysis and Identified Themes:

Most individuals commenting expressed strong negative sentiment for the Op Lanes Maryland Phase 1, citing concerns about environmental and historic resource degradation, equity and cost burden, and skepticism about its ability improve congestion over time. Many commenters believe that the project will adversely affect the region’s ability to reach its climate goals. Some comments expressed concerns about the public-private partnership approach and hesitancy to involve a private entity. Other comments criticized the public participation process for the project for a lack of transparency. Individuals who did not support the project suggested investing in mass transit, transit-oriented development, and telework policies as alternatives.

A small minority of commenters expressed neutrality, or approval of the project as proposed in Visualize 2045. These comments supported the project to address bottlenecks at the American Legion Bridge, and to support transit or carpooling.

LONG BRIDGE VA - DC

Project	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	No Response	Total
Long Bridge VA - DC	44	0	0	0	0	1	45

Sentiment Analysis and Identified Themes:

The comments received on the Long Bridge VA – DC expressed overwhelming positive sentiment toward the project. The comments emphasized the regional significance of the project for positive impact on passenger rail and freight transportation. Many commenters also supported the pedestrian and bike component of the project. Some commenters mentioned that they support the project because of its anticipated reduction in greenhouse gas emissions. There was also enthusiasm for improved connectivity between Virginia and the District of Columbia.

I-270 INNOVATIVE CONGESTION MANAGEMENT

Project	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	No Response	Total
I-270 Innovative Congestion Management	3	1	0	1	33	0	38

Sentiment Analysis and Identified Themes:

Most comments received for the I-270 Innovative Congestion Management project expressed negative sentiment to highway expansions and tolls. Many commenters cite concerns with negative impacts to the environment or quality of life. Many respondents expressed skepticism about the project's efficacy to address congestion. Respondents noted that induced demand would result in temporary congestion relief. In addition, feedback was critical of toll lanes as an inequitable solution that provides congestion relief to those who can pay. Many commenters suggested that alternatives such as mass transit, transit-oriented development, telework policies, and other traffic calming measures should be considered to reduce congestion and reach climate goals. Some people supported congestion pricing without highway widening, suggesting a design with reversible lanes.

There were four comments that expressed support for the project to address congestion and safety on I-270. Individuals cite the success of similar projects to support their comments.

MARC IMPROVEMENTS

Project	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	No Response	Total
MARC Improvements	25	2	0	0	0	0	27

Sentiment Analysis and Identified Themes:

All of the comments received expressed positive, or strong positive sentiment towards the MARC Improvements as a regionally significant project. Commenters highlighted the importance of improving MARC to meet climate goals, improve air quality, and reduce congestion. Feedback about desired MARC improvements including all-day, weekend, and bidirectional service on all MARC lines. There was also enthusiasm for the potential for congestion to be reduced as a result of MARC improvements.

DISTRICT-WIDE BICYCLE AND PEDESTRIAN MANAGEMENT PROGRAM

Project	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	No Response	Total
District-wide Bicycle and Pedestrian Management Program	19	2	0	0	2	0	23

Sentiment Analysis and Identified Themes:

The comments received on the District-wide Bicycle and Pedestrian Management Program largely represented a strong positive sentiment. Commenters supported more bike and pedestrian infrastructure to improve safety outcomes, connectivity, and reduce automobile dependence.

Several comments expressed negative sentiment towards the District-wide Bicycle and Pedestrian Management Program with concerns about traffic impacts, and safety implications.

UNION STATION TO GEORGETOWN STREETCAR LINE

Project	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	No Response	Total
Union Station to Georgetown Streetcar Line	19	0	1	1	1	0	22

Sentiment Analysis and Identified Themes:

Most comments received expressed a strong positive sentiment towards the Union Station to Georgetown Streetcar Line, citing its potential to alleviate congestion and support climate goals. Many respondents noted the importance of more coverage, and high frequency service to encourage ridership. Some people expressed neutral or negative sentiment towards the project concerning congestion or alternative modes of public transportation.

DUKE STREET BRT DESIGN & CONSTRUCTION

Project	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	No Response	Total
Duke Street BRT Design & Construction	16	1	0	0	0	0	17

Sentiment Analysis and Identified Themes:

All comments received on the Duke Street BRT Design & Construction project expressed positive, or strong positive sentiment. Respondents expressed support for BRT as a cost-effective, efficient, and environmentally sustainable solution to address congestion, advance climate goals, and promote safety along a major corridor.

DULLES AIRPORT ACCESS ROAD PROJECT

Project	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	No Response	Total
Dulles Airport Access Road Project	0	0	0	1	15	0	16

Sentiment Analysis and Identified Themes:

All of the comments received about the Dulles Airport Access Road Project expressed strong negative sentiment. Most comments express concern that expanding roadway capacity on the Dulles Airport Access Road would undermine the region's investment in the Silver Line. Others noted their concerns that the project will induce more automobile travel and deviate the region from its climate goals.

MD 355 BUS RAPID TRANSIT

Project	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	No Response	Total
MD 355 Bus Rapid Transit	15	0	1	0	0	0	16

Sentiment Analysis and Identified Themes:

Most comments express strong positive sentiment for the MD 355 Bus Rapid Transit Project. All comments emphasize the importance of BRT on MD 355 to address congestion. Some respondents support the project's ability to improve mobility from Bethesda to Rockville – noting that it would reduce transfers and complement travel along the Red Line. Some comments

support BRT as a cost-effective strategy that benefits climate goals, equity, and mobility without a car.

One comment expressed a neutral stance and suggested that RideOn Bus 30's pre-pandemic schedule be restored.

DASH SERVICE EXPANSION

Project	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	No Response	Total
DASH Service Expansion	14	1	0	0	0	0	15

Sentiment Analysis and Identified Themes:

All comments received on the DASH Service Expansion project expressed positive or strong positive sentiments. Many respondents support expanding public transportation through better frequencies and updating fleets. The public comments anticipate that improved service will encourage people to use transit and reduce congestion.

BRUNSWICK LINE

Project	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	No Response	Total
Brunswick Line	13	1	0	0	0	0	14

Sentiment Analysis and Identified Themes:

The majority of comments express a positive or strongly positive sentiment towards the Brunswick Line project. Respondents' desired improvements include improved frequency (including weekends), bidirectional service, and direct service to BWI. Many comments express support for improved rail service as a key strategy to reduce congestion.

MONTROSE PARKWAY

Project	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	No Response	Total
Montrose Parkway	0	0	1	0	13	0	14

Sentiment Analysis and Identified Themes:

Most comments express strong negative sentiment towards the Montrose Parkway project. Many comments state concern that the project will continue to divide the White Flint neighborhood, promote car dependency, and negatively impact the environment. Some respondents suggested alternative investments in protected bike lanes, MD 355 BRT, and the local street network.

One comment had a neutral stance towards the project but noted that the project was previously presented as a new road. They noted that the project map in ProjectInfoTrak displayed a segment crossing railroad tracks, which they stated was extremely dangerous.

VEIRS MILL BUS RAPID TRANSIT

Project	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	No Response	Total
Veirs Mill Bus Rapid Transit	12	0	0	0	0	1	13

Sentiment Analysis and Identified Themes:

All of the comments received about the Veirs Mill Bus Rapid Transit project expressed strong positive sentiment. Most comments emphasize the need for east-west transit routes, and

support BRT as a cost-effective mass transit option. Respondents also believe that expanding BRT will alleviate congestion, citing existing density and high transit ridership along the corridor.

ALEXANDRIA 4TH TRACK

Project	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	No Response	Total
Alexandria 4th Track	13	0	0	0	0	0	13

Sentiment Analysis and Identified Themes:

All of the comments received about the Alexandria 4th Track project expressed strong positive sentiment. Respondents expressed support for improving rail travel via VRE, MARC, and Amtrak in the region.

BUS RAPID TRANSIT: US 29 – PHASE 2

Project	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	No Response	Total
Bus Rapid Transit: US 29 - Phase 2	12	0	0	0	1	0	13

Sentiment Analysis and Identified Themes:

Most comments expressed strong positive sentiment towards the Bus Rapid Transit: US 29 – Phase 2 project. Respondents support BRT to reduce congestion on US 29, improve environmental quality, reach climate goals, and provide an affordable transportation alternative.

One comment expressed strong negative sentiment towards the project, citing disapproval for the dedicated median lane alternative. The respondent expressed support for the managed lane option citing concern about cost and congestion.

US 29 WIDENING PROJECT (ECL CITY OF FAIRFAX (VIC. NUTLEY ST.) TO CAPITAL BELTWAY)

Project	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	No Response	Total
US 29 Widening Project	0	0	0	1	12	0	13

Sentiment Analysis and Identified Themes:

All comments for this project showed negative sentiment. There are concerns that widening US 29 will only increase automobile demand while making the road more unsafe for other roadway users. There is also mention that the recent dense and mixed-use developments along the corridor are not compatible with a widened roadway. A few commenters suggested that US 29 be dieted with more narrow lanes and more bicycle, transit, and pedestrian infrastructure instead.

FAIRFAX COUNTY PARKWAY IMPROVEMENTS

Project	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	No Response	Total
Fairfax County Parkway Improvements	1	1	1	1	8	0	12

Sentiment Analysis and Identified Themes:

There was strong negative sentiment towards this project, with only 2 showing support. There is concern that this project will make Fairfax County Parkway more dangerous than it already is and that the improvements are only for automobile drivers. There was also concern about the cost of the project and skepticism towards VDOT's ability to maintain it in the future. A sporter noted the benefits that the smart lights will bring.

ROLLING ROAD WIDENING PROJECT

Project	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	No Response	Total
Rolling Road widening project	0	1	0	0	11	0	12

Sentiment Analysis and Identified Themes:

All comments received about the Rolling Road widening project expressed negative sentiment. Respondents cited concerns about induced demand and increased carbon emissions for all road widening projects. Some respondents suggested investments in safety and complete streets improvements as an alternative, noting that this area presents challenges for pedestrians, bicyclists, and transit riders.

One comment expressed support for the project but wishes it included a bike lane, safe pedestrian walking paths, and pull outs for bus stops.

VA 7

Project	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	No Response	Total
VA 7	5	0	1	6	0	12	

Sentiment Analysis and Identified Themes:

This project received mixed sentiment, with 7 comments showing negative sentiment and 5 showing support. Those who do not support the project have concerns that widening VA 7 will induce more car demand and is skeptical about VDOT's ability to maintain it. Those who support the project anticipate congestion relief and support the inclusion of BRT.

RESTON PARKWAY IMPROVEMENTS

Project	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	No Response	Total
Reston Parkway Improvements	0	0	0	4	7	0	11

Sentiment Analysis and Identified Themes:

All comments express negative or strong negative sentiment towards the Reston Parkway Improvements project. Respondents criticized the road widening plans with concern that it would result in additional congestion. Many comments suggested that bike, pedestrian, and transit projects as alternatives. Some comments suggest that widening Reston Parkway would undermine the region's investment in the Silver Line.

VA 123 WIDENING (FAIRFAX)

Project	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	No Response	Total
VA 123 Widening (Fairfax)	0	0	0	1	10	0	11

Sentiment Analysis and Identified Themes:

All comments for this project showed negative sentiment. There are concerns that VA 123 is already too wide and that more lanes will not solve the problem. A few commenters noted that the project description is not detailed enough on where the road will be widened.

US 1 BRT

Project	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	No Response	Total
US 1 BRT	9	0	1	0	0	1	11

Sentiment Analysis and Identified Themes:

This project received strong positive sentiment. There is enthusiasm for the potential to replace car trips with bus trips, while also making the corridor safer.

BATTLEFIELD PARK BYPASS PROJECT

Project	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	No Response	Total
Battlefield Park Bypass Project	0	0	0	0	10	0	10

Sentiment Analysis and Identified Themes:

All comments received express strong negative sentiment towards the Battlefield Park Bypass Project. Most comments call for the removal of this project over concern that it will encourage highspeed traffic through the area. Some respondents also criticize the project for undermining the Prince William County Strategic Plan's vision for walkable, bikeable, and transit-friendly communities. One comment suggested the project undertake the Route 29 Alternate Alignment. There was also concern that the project will become a barrier for the community and encourage car-dependent development.

PENNSYLVANIA AVENUE NW PROTECTED BICYCLE LANE

Project	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	No Response	Total
Pennsylvania Avenue NW Protected Bicycle Lane	8	2	0	0	0	0	10

Sentiment Analysis and Identified Themes:

All comments for this project show positive sentiment. There is enthusiasm for bicycle lanes that are designed with safety in mind. Others say that the project will also bring beautification improvements for the corridor. One commenter noted that Massachusetts Avenue may make more sense as a bicycle corridor.

DULLES TOLL ROAD EXPANSION

Project	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	No Response	Total
Dulles Toll Road Expansion	0	0	0	1	8	0	9

Sentiment Analysis and Identified Themes:

All comments express negative or strong negative sentiment about the Dulles Toll Road Expansion. Most respondents suggest that the road expansion project is outdated and will undermine the region's investment in the Silver Line and induce more automobile travel.

MAGARITY TOLL ROAD EXPANSION

Project	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	No Response	Total
Magarity Toll Road Expansion	0	0	0	0	9	0	9

Sentiment Analysis and Identified Themes:

All comments for this project showed strong negative sentiment. There is concern that many homes and a school will be negatively impacted by the project. There is emphasis that the project should instead focus on improving pedestrian and bicycle access to the metro.

MARC RUN-THROUGH SERVICE TO VIRGINIA

Project	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	No Response	Total
MARC Run-through service to Virginia	7	1	0	0	0	0	8

Sentiment Analysis and Identified Themes:

All comments received for the MARC Run-Through Service to Virginia expressed positive or strongly positive sentiment. Many comments mentioned the significance of the project to improving the regional rail network, especially facilitating travel to destinations outside of downtown Washington DC.

US 50 IMPROVEMENTS

Project	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	No Response	Total
US 50 Improvements	1	0	0	0	7	0	8

Sentiment Analysis and Identified Themes:

Most comments expressed strong negative sentiment towards the US 50 Improvements project. Many respondents opposing the project suggest supporting the STARS study recommendations for safety and operational improvements and considering a BRT study for the corridor.

One comment expressed support for the project but did not provide any additional information.

DULLES TOLL ROAD COLLECTOR

Project	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	No Response	Total
Dulles Toll Road Collector	0	0	0	1	6	0	7

Sentiment Analysis and Identified Themes:

All comments received for the Dulles Toll Road Collector project report negative or strong negative sentiment towards the project. Most comments suggest that this project is outdated and undermines the region's investment in the Silver Line. One comment noted that the area should instead be designed as transit-oriented development.

NEW BRADDOCK RD

Project	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	No Response	Total
New Braddock Rd	0	0	1	0	4	0	5

Sentiment Analysis and Identified Themes:

This project received strong negative sentiment, with only 1 neutral comment. There is concern that the project will create a barrier for the Center Ride Community and redirect traffic through a neighborhood and elementary school. There is also skepticism as to whether this project is needed at all. One neutral comment noted that there should be protected bicycle lanes, a road diet, crosswalks, and improved transit access.

NEW GUINEA ROAD, CONSTRUCT

Project	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	No Response	Total
New Guinea Road, Construct	0	0	0	0	5	0	5

Sentiment Analysis and Identified Themes:

This project received strong negative sentiment. There is concern that this widening project will make the roadway less safe, contribute to emissions, worsen traffic, and destroy some natural areas. Some suggested that there should be a road diet with improved bicycle and pedestrian infrastructure instead.

STRINGFELLOW ROADWAY IMPROVEMENTS

Project	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	No Response	Total
Stringfellow Roadway Improvements	0	0	1	0	4	0	5

Sentiment Analysis and Identified Themes:

This project received strong negative sentiment, with only 1 neutral comment. There is concern that the widening project will only induce automobile demand. Others noted that the project does not align with TPB's policy framework and question whether the current traffic levels warrant the roadway projects. There were suggestions that transit access be improved and a road diet be implemented.

VRE SERVICE IMPROVEMENTS (REDUCE HEADWAYS)

Project	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	No Response	Total
VRE Service Improvements (Reduce Headways)	4	0	1	0	0	0	5

Sentiment Analysis and Identified Themes:

This project received strong positive sentiment, with only 1 neutral comment. There is enthusiasm for making VRE more reliable and viable for users. There is also enthusiasm for the project's potential to get cars off the road.

SUMMARY TABLE OF PROJECTS SELECTED FOR ANALYSIS AND NUMBER OF COMMENTS RECEIVED

Project Name	Number of Comments
Op Lanes Maryland Phase 1	182
Long Bridge VA - DC	45
I-270 Innovative Congestion Management	38
MARC Improvements	27
District-wide Bicycle and Pedestrian Management Program	23
Union Station to Georgetown Streetcar Line	22
Duke Street BRT Design & Construction	17
Dulles Airport Access Road Project	16
MD 355 Bus Rapid Transit	16
DASH Service Expansion	15
Brunswick Line	14
Montrose Parkway	14
Veirs Mill Bus Rapid Transit	13
Alexandria 4th Track	13
Bus Rapid Transit: US 29 - Phase 2	13
US 29 Widening Project (ECL City of Fairfax (vic. Nutley St.) to Capital Beltway)	13
Fairfax County Parkway Improvements	12
Rolling Road widening Project	12
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Response to Comments

TPB staff provided the project specific comments to the technical agencies responsible for project implementation

ATTACHMENT A: 2024 PUBLIC COMMENT PERIOD FAQ RESPONSE

Frequently Asked Questions Received during the March 2024 Comment Period

Questions from TPB Board Members

1. We would like to know how well our jurisdiction is doing over time. Is it possible for this round of analysis to assess whether a locality's policies, programs, and projects are impacting VMT, GHGs, and other metrics?
 - Examining the effectiveness of the actions taken to address transportation system needs in relation to the goals is a very important element of decision making. The goals adopted by the TPB are regional in scale, as is its long-range transportation plan, which represents the collective action of the region to achieve its collective goals. The COG/TPB technical tools and methodology used to estimate changes in travel and system performance are regional in nature and are, thus, not best suited to assess smaller geographies (such as individual jurisdictions within the TPB planning area). Additionally, and importantly, there is a significant amount of inter-jurisdictional travel in the region, for both work and non-work purposes, that makes establishing a relationship between one jurisdiction's policies, programs, and projects to changes in travel and its impacts both challenging and somewhat subjective. There are opportunities, tools and approaches to assess impacts of specific policies, projects and programs at a local level through before-and-after studies that local transportation agencies are best suited to undertake.
2. To understand what we as a region have accomplished over time, is it possible to do a comparison over a 10-to-15-year period?
 - Yes. There are several measures that could be used to assess changes/progress over the past several years including travel patterns, travel experience and travel demand. Such data is collected as part of either program evaluation, e.g., Commuter Connections, or a regional program, such as the Congestion Management Process (CMP). It is important to note that travel patterns and demand are affected not just by changes in the transportation system and services, but also often by changes in socio-economic aspects of the region. Data on such changes, including population, employment, land use, and the economy are tracked, yet at different levels and frequencies. The TPB's CMP explains how congestion in the region has changed with regard to freight, highway, transit, managed lanes, and airport access. The most recent CMP report is available [here](#). Staff will examine what additional types of data can be compiled.
3. Regarding the [Project Summary Table](#), what was the process that staff conducted to determine whether a project aligns with the TPB goals? There appears to be some inconsistencies across the projects.
 - The transportation agencies were asked to provide information on a menu of topics for each project including the project's support of various TPB goals. TPB staff held training for staff from implementing agencies (state and local government) on how to respond to the project input questions. TPB staff reviewed the information provided by the agencies for each project in conducting a qualitative assessment of the assertions made with respect to the TPB goals. TPB staff also associated the TPB goals with the federal planning factors that are to guide an MPO's transportation plan. It is likely that this information was missing for some of the

projects OR was incomplete. TPB staff will continue to work with implementing agencies to make any corrections or edits as needed.

4. Do projects only need to comply with one of the ten federal planning factors?

- Yes, projects only need to comply with one factor.

5. Could you please clarify the Maryland Op Lane projects proposed for inclusion?

- Detailed information about the proposal for express lanes in Maryland as part of Visualize 2050 is available in a separate [FAQ handout](#).

6. Regarding the 2021 Resolution and zero-based budgeting directive, how can we as an MPO and as local agencies meet the directive to provide multiple build scenarios for project proposals?

- TPB staff, over the years, have conducted large-scale scenario analyses. For instance, if the region does not build highway projects but instead builds transit projects, or if the region does not invest further into the transit system. Some of these scenarios were for a target year of 2040 and some were for 2045. These scenarios were summarized (see [Summary of Findings](#) and [Detailed Findings](#)) at the beginning of the Visualize 2050 development process to inform the jurisdictions and help guide their decisions on the types of projects to submit for Visualize 2050.

7. The region has set GHG goals, what environmental goals and standards are applicable to this process? Are we just meeting the federal minimum standards or are we going beyond the minimum?

- The TPB's first priority is to make sure ozone-forming pollutants will be below a certain level that is acceptable to the EPA, which is the focus of the air quality conformity analysis to be undertaken over the next ten months. Secondly, while not yet prescribed by the feds, the TPB has set the goal for the region to reduce on-road GHG emissions 50% below 2005 levels by 2030 and 80% below 2005 levels by 2050. As such the TPB's process goes beyond meeting the federal standards. The [Climate Change Mitigation Study](#) identified several strategies that would reduce GHG and also contribute to reducing ozone forming pollutants. Some of these strategies are aimed at reducing travel or changing the mode of travel, and others are aimed at changing the fuel used to travel. The TPB is pursuing strategies across all these pathways. The TPB study found that transitioning vehicle fleets to cleaner fuels would be the most effective strategy in meeting these GHG reduction goals, though achieving this transition is going to take time and will require efforts beyond the TPB's purview.

8. Is there a set goal for VMT reduction per capita?

- No, there is no numeric goal for per capita VMT reduction, rather a more general goal to see VMT reduction per capita throughout the region over time. This itself is challenging in a region that continues to grow, adding more households every year, and each household typically results in about 8-10 trips/day.

9. Why is a portion of the Falls Church/Fairfax County Route 7 BRT project not included in Visualize 2050?

- This Route 7 project is listed in the Transportation Improvement Program for planning and engineering and is documented as an ongoing study. It is not included in the project list for air quality analysis because there is no reasonable anticipated funding available for construction at this time. The project can be added once funding has been secured or found to be reasonably available at which time the plan can be amended for its inclusion.

Questions from the Public

About PROJECTS:

10. What express lanes are proposed in Maryland?

- Please see this [FAQ](#) on the proposed Maryland express lanes. Note, the section of I-270 north of I-370 to I-70 is currently included as a study, not coded.

11. Why are there few or no projects in my locality?

- Each locality/state/transit agency submitted only capacity-related projects that have significance when measuring future air quality. This does not reflect the full spectrum of transportation projects planned within a locality or in the region. If few or no projects are listed within a locality that means no capacity-related projects have been proposed at this time.

About CLIMATE CHANGE:

12. What policies does the TPB have regarding greenhouse gas (GHG) emissions?

- Greenhouse gases are not a criteria pollutant, and therefore are not covered by the National Ambient Air Quality Standards (NAAQS), so they are not required as part of the air quality conformity analysis. Despite the absence of a federal mandate to estimate GHGs for the region's transportation plan, the TPB has estimated GHG emissions caused by on-road transportation since 2010 and has provided this information as part of the plan's performance analysis. See, for example, Chapter 8, p. 225, Figure 8.27 of Visualize 2045. See also the discussions of GHGs on pp. 129-134 (Chapter 6).¹

The TPB endorsed COG's economy-wide GHG reduction goals. In June 2022, the TPB adopted the same goals specifically for the on-road sector, making the TPB the first MPO to voluntarily adopt GHG reduction goals specific to the on-road transportation sector. The goals are 1) 50% below 2005 levels by 2030; and 2) 80% below 2005 levels by 2050. 2) These are very ambitious goals that will be very challenging to meet. TPB has conducted multiple scenario

¹ "2022 Update to Visualize 2045, a Long-Range Transportation Plan for the National Capital Region," June 15, 2022.

studies aimed at finding viable solutions for attaining these GHG reduction goals. GHG reduction goals and strategies that were adopted by the TPB are part of the TPB's [Synthesized Policy Framework](#).

About EQUITY:

13. How is equity considered in these projects?

- Agencies had the option to explain how the project supports or advances equity, but some agencies may have omitted this information. The TPB will conduct an Environmental Justice analysis on the regional impact of all the projects following the plan's approval. Separately, as part of the National Environmental Policy Act (NEPA), implementing agencies that have individual projects financed entirely or in part by federal agencies are required to analyze environmental effects of the project which includes considerations of Environmental Justice populations.

About the MODEL:

14. What pollutants does the TPB model include in the Air Quality Conformity Analysis?

- The TPB's air quality conformity analysis is only for ground-level ozone, which is one of the six criteria pollutants with a national standard established by the EPA. Ground-level ozone is produced when volatile organic compounds (VOCs) and nitrogen oxides (NOx) mix with sunlight. The air quality conformity process refers to a very specific set of tasks that metropolitan planning organizations (MPOs) and states are required to conduct to be able to obtain federal funding for the projects in the region. "Conformity" is a requirement of the federal Clean Air Act (CAA) to ensure that 1) transportation plans and transportation improvement programs are consistent with air quality goals, and 2) progress toward achieving and maintaining federal air quality standards is being made. Using a set of required tools, including EPA's mobile emissions estimation model, MOVES, and the region's travel demand forecasting model, a conformity analysis is undertaken to forecast VOCs and NOx emissions from the vehicles on the region's planned transportation system. The analysis must demonstrate that those emissions are within limits outlined in state air quality implementation plans (SIPs) and approved by the EPA.

15. How are transit, bike, and pedestrian modes considered in the model?

- The COG/TPB Gen2/Ver. 2.4 Travel Model is an advanced, trip-based, "four-step" model, which accounts for traffic congestion and ensures that congested speeds are used consistently throughout the model as appropriate. The travel model, which is consistent with best practices for regional travel models, represents vehicular travel that produces emissions and includes, automobiles, trucks, and transit vehicles. Biking and walking trips are neither explicitly represented nor included in emissions estimation, yet they are included in

calculating the total number of trips generated in the region and as a mode to travel to access transit. More information can be found in TPB's travel model documentation.²

16. How are traffic jams and traffic lights considered in the model?

- The air quality conformity analysis makes use of the regional travel demand forecasting model (the Gen2/Ver. 2.4 Travel Model) and the EPA's mobile emissions model (MOVES). The regional travel model is an advanced, trip-based, "four-step" model, which accounts for traffic congestion, and thus includes the effects of traffic jams. The travel model is consistent with best practices for regional travel models and ensures that congested speeds are used consistently throughout the model. However, static traffic assignment models are macroscopic models that do not have the resolution to represent traffic lights. By contrast, sub-regional analyses conducted by some state and/or local governments may include mesoscopic and/or microscopic traffic assignment models that do represent traffic lights, but this type of traffic assignment model is not commonly found in regional travel models.

17. What type of VMT will be analyzed and with what methodology?

- The regional travel demand forecasting model (the Gen2/Ver. 2.4 Travel Model) is used to estimate VMT for various forecast years and all types of motor vehicles. Additionally, the modeling is performed for a typical weekday and includes both work and non-work related trips. As such, VMT can be summarized by trip purpose (e.g., work vs. non-work). The Gen2/Ver. 2.4 Travel Model is an advanced, trip-based, "four-step" model, which accounts for traffic congestion using a static traffic assignment within a speed-feedback loop, which ensures that the VMT reflects congested speeds, when applicable. The travel model is consistent with best practices for regional travel models.

18. How does the travel model account for induced demand and its effect on land use changes?

- TPB's air quality conformity analysis makes use of the regional travel demand forecasting model (the Gen2/Ver. 2.4 Travel Model) and the EPA's mobile emissions model (MOVES). The regional travel model is an advanced, trip-based model and is consistent with best practices for regional travel models. Use of the MOVES mobile emissions model is mandated by the U.S. Environmental Protection Agency.

The current travel model is state of the practice in terms of capturing induced demand primarily through speed feedback loops and, like most four-step travel models, it can capture induced demand arising from most of the immediate and some near-term/long-term travel behavioral interactions.

19. Are current telework practices reflected in the model, and can you explain how these assumptions will be different for Visualize 2050?

- COG/TPB's current production-use travel demand forecasting model (the Gen2/Ver. 2.4.6 Model) was estimated and calibrated using empirical data (primarily household travel

² Meseret Seifu et al., "User's Guide for the COG/TPB Gen2/Version 2.4.6 Travel Demand Forecasting Model" (Washington, D.C.: Metropolitan Washington Council of Governments, National Capital Region Transportation Planning Board, July 11, 2023), <https://www.mwcog.org/transportation/data-and-tools/modeling/model-documentation/>.

surveys and transit on-board surveys) which occurred prior to the Covid pandemic, and, thus, was not calibrated to reflect pandemic effects on travel behavior. The air quality conformity analysis and performance analysis of Visualize 2050, will be conducted using the current, production-use travel model (and latest EPA mobile emissions model, MOVES4), without incorporating revised, post-pandemic telecommuting and/or travel pattern assumptions, since we currently do not have sufficient empirical data to re-estimate and re-calibrate the regional travel demand model. Nonetheless, COG is in the process of collecting such data for future model development work. It should be noted that the current model, which assumes pre-Covid telecommuting rates, will tend to overestimate VMT and emissions, and will, thus, provide a conservative estimate of mobile emissions (i.e., it will tend to overestimate mobile emissions).

20. Can the model account for policy scenarios such as EV incentives or higher gas taxes?

- The COG/TPB travel demand forecasting model can estimate the effect of gas taxes on travel, but it is not designed to be used to model vehicle purchasing behavior. Nonetheless, the EPA's MOVES emissions model requires inputs about the percentage of the vehicle fleet by fuel type (including EVs), so it is possible to test changes in the vehicle fleet. The TPB has used its regional travel demand model in many of its past scenario studies.

It is important to note that while the TPB acknowledges the importance of assessing greenhouse gas (GHG) emissions, equity, congestion, EV incentives, user fees, and other elements as possible future scenarios, such a scenario analysis is not part of the transportation conformity analysis performed for Visualize 2050.

To elaborate, the air quality conformity process refers to a very specific set of tasks that metropolitan planning organizations (MPOs) and states are required to conduct on its transportation plan and transportation improvement program (TIP) if the MPO is in non-attainment of federal standards for air quality. Both the Plan and the TIP have specific federal requirements to adhere to including that the projects, programs and policies in these should be based on funding that is reasonably expected to be available and should be based on the latest set of officially adopted planning assumptions. In essence, the Plan and TIP cannot be a "what if" analysis as examined in a scenario analysis.

About ROADWAYS:

21. How do express lanes help improve air quality or help achieve climate goals?

- The TPB has many goals which the transportation projects aim to achieve, such as providing affordable and convenient multimodal options, promoting livable and prosperous communities, increasing transportation-related safety, and enhancing environmental protection (which includes air quality). Visit the plan [webpage](#) for more information about priority strategies designed to achieve one or more of the TPB's goals. It is not expected that every proposed transportation project or policy will make progress on every goal.

Regarding the ability of express lanes/high-occupancy toll (HOT) lanes to help air quality, the Federal Highway Administration (FHWA) noted, “Like their HOV counterparts, HOT lanes have the potential to help improve air quality where they are implemented. High-occupancy lanes might help to reduce harmful impacts to the environment associated with congestion, especially by encouraging the use of multi-passenger vehicles or mass transit systems.”³

22. How do express lanes help improve congestion?

- Express lanes have the potential to reduce congestion in several ways depending upon, among other things, their location and operational environment. If express lanes are located parallel to regular lanes that are congested, then by shifting vehicles to the express lanes congestion on the regular lanes could be reduced. Express lanes that generate revenues could be used to provide a new transit service which reduces the number of vehicles and thus congestion. Express lanes designed to allow vehicles with more than a certain number of people to travel for free will promote the formation of carpools and vanpools which reduce the number of vehicles and thus reduce congestion. Overall Express lanes have the potential to provide new more reliable travel options and reduce congestion.

23. Why are there so many roadway widening projects?

- The TPB’s planning area covers a large area – about 3,800 square miles and includes a large roadway network with more than 17,000 lane miles of different functional classes (Interstates, HOT lanes, parkways, major and minor arterials, local roads, etc.) The roadway network serves thousands of communities – residential, commercial, mixed use, which generate large number of vehicular trips – about 12M (including transit trips) for work and non-work purposes and logs about 120M vehicle miles in a typical day. Several operating conditions at the community/local levels related to safety, congestion, and access merit attention and widening a segment of a roadway are at times what the local transportation agency determines to be the best solution.

24. What are the meaningful alternatives, with comparative scenarios, to the roadway expansions/extensions?

- Both COG and TPB have conducted a myriad of scenario studies to estimate the effects of different futures and assumptions on the region. The following studies provide additional details:
 - “What Would It Take? Transportation and Climate Change in the National Capital Region.” Final Report. Washington, D.C.: National Capital Region Transportation Planning Board, Metropolitan Washington Council of Governments, May 18, 2010. <http://www.mwcog.org/uploads/pub-documents/qF5eXVw20110617114503.pdf>.
 - “CLRP Aspirations Scenario, TPB Scenario Study.” Final Report. Washington, D.C.: Metropolitan Washington Council of Governments, September 8, 2010. http://www.mwcog.org/store/item.asp?PUBLICATION_ID=409.

³ “Page 1, HOT Lanes, Cool Facts,” Pamphlet (Washington, D.C.: U.S. Department of Transportation, Federal Highway Administration, April 2012).

- “An Assessment of Regional Initiatives for the National Capital Region: Executive Summary, Technical Report on Phase II of the TPB Long-Range Plan Task Force.” Metropolitan Washington Council of Governments, National Capital Region Transportation Planning Board, December 2017.
<https://www.mwcog.org/documents/2017/12/20/long-range-plan-task-force-reports-projects-regional-transportation-priorities-plan-scenario-planning-tpb/>.
- “An Assessment of Regional Initiatives for the National Capital Region: Technical Report on Phase II of the TPB Long-Range Plan Task Force.” Metropolitan Washington Council of Governments, National Capital Region Transportation Planning Board, December 20, 2017.
<https://www.mwcog.org/documents/2017/12/20/long-range-plan-task-force-reports-projects-regional-transportation-priorities-plan-scenario-planning-tpb/>.
- “TPB Climate Change Mitigation Study of 2021: Scenario Analysis Findings.” Final Report. National Capital Region Transportation Planning Board, Metropolitan Washington Council of Governments, January 7, 2022. <https://www.mwcog.org/tpb-climate-change-mitigation-study-of-2021/>.
- “TPB Climate Change Mitigation Study of 2021: Additional Transportation Scenarios Analysis: TPB Survey Identified Scenarios.” Final Report. National Capital Region Transportation Planning Board, Metropolitan Washington Council of Governments, June 3, 2022. <https://www.mwcog.org/events/2022/5/18/tpb-climate-work-session/>.
- “A Summary of the TPB and COG Scenario Study Findings: Informing Planning for the Metropolitan Washington Region.” Draft Report. National Capital Region Transportation Planning Board, Metropolitan Washington Council of Governments, November 3, 2022. <https://www.mwcog.org/events/2022/11/4/tpb-technical-committee/>.
- “Appendix A: Detailed Findings, Scenario Study Findings, Informing Planning for the Metropolitan Washington Region.” Draft Report. National Capital Region Transportation Planning Board, Metropolitan Washington Council of Governments, November 3, 2022. <https://www.mwcog.org/events/2022/11/4/tpb-technical-committee/>.

25. For the road extensions that connect to other major arteries, is there adequate exploration of the mileage possibly saved or environmental degradation incurred?

- As part of the National Environmental Policy Act (NEPA), implementing agencies that have individual projects financed entirely or in-part by federal agencies are required to analyze the impacts of the project both on travel and the environment which includes considerations of potential impacts to the social and natural environment.

26. How can you claim these projects enhance access, transit, or reduce greenhouse gases?

- The TPB has many different goals, including improving reliability and efficient system operations, providing affordable and convenient multimodal options, and improving air quality (for both criteria pollutants and GHG emissions). Some proposed projects may help attain some goals but may not be helpful with other goals.

27. What are the benefits of allowing trucks in express lanes?

- Trucks are a necessary part of the transportation system, moving cargo and supplies used by everyone (e.g., groceries, appliances, and factory equipment). Most people prefer to limit the amount of truck traffic on local roads even though such traffic cannot be eliminated on local roads. If trucks are allowed in express lanes, that will reduce truck traffic on parallel roads, such as minor and major arterials. Trucks must pay a toll to use the express lanes providing additional revenue for other transportation improvements including transit.

About TRANSIT:

28. Why aren't there more transit projects being done sooner?

- Projects are at varying stages of development with transit projects usually taking longer and being more expensive to implement. Available funding also limits the number and types of projects that can be developed. Also, the projects presented for this comment period are only those that impact system capacity so many other types of transit projects agencies are working on are not reflected here, like bus replacements, bus stop improvements, and other transit enhancements.

About BICYCLES AND PEDESTRIANS:

29. How are pedestrians and bicyclists included in these projects?

- Please review the detailed project description sheets available via the Project Summary Table which explain the non-motorized accommodations planned for each project.

30. Why are trails projects not included?

- Trails are not part of the air quality modelling analysis. Only vehicle or transit capacity impacting projects are included in this comment period because of their potential to impact future attainment of air quality goals and thus must go through a multi-month modeling analysis to make this determination. Trail planning and construction continues to be active in the region, and trails will be reflected in the final plan's project list.

ATTACHMENT B: 2024 PUBLIC COMMENT PERIOD LETTERS RESPONSES TO COMMENTS



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION

Stephen C. Brich, P.E.
Commissioner

1401 East Broad Street
Richmond, Virginia 23219

April 15, 2024

The Honorable Christina Henderson, Chair
National Capital Region Transportation Planning Board
Metropolitan Washington Council of Governments
777 North Capitol Street, N.E., Suite 300
Washington, DC 20002-4201

RE: TPB Virginia Member Agencies Responses to Comments Received from March 2024 Public Comment Period

Dear Chair Henderson:

As requested, provided are responses by the Virginia Department of Transportation (VDOT), Fairfax, Loudoun, and Prince William counties, to public comments received on the air quality conformity (AQC) inputs to Visualize2050, during the TPB formal one-month public comment period that occurred in March 2024.

It is worth emphasizing that the Commonwealth, VDOT and our regional partners took the plan update process seriously; consideration to the zero-base budget and all TPB's goals and priorities (safety, maintenance, reliability, environmental protection, etc.) was paramount for this update. The member jurisdictions reviewed their priorities and goals for alignment with TPB's goals and priorities. This in some cases has resulted in the removal or modification of projects in the plan (including roadway widening projects) as well as looking for opportunities for more multimodal projects, and a balance approach for investment in all modes of transportation.

We believe that the proposed projects in the plan are designed to provide our customers with excellent travel options, maintain a reasonable level of service for all modes, and offer a high degree of travel time reliability. This allows residents and businesses to plan their activities efficiently and make the most of their time.

VDOT RESPONSE

I-95 Bi-Directional Express Lanes

- The current I-95 Express Lanes system is reversible and switches directions according to the peak commute direction. Adding express lanes capacity in the counter-peak direction on the I-95 Express Lanes would enable efficient travel in both directions.
- It would also provide more travelers seamless connectivity to Northern Virginia's more than 90-mile express lanes network.
- This project provides new travel choices for even more express lanes users who want a faster and more reliable trip – including drivers who choose to pay a toll, and carpoolers (HOV-3+) and bus riders who travel toll-free, which is consistent with other Northern Virginia Express Lanes.
- An environmental study is underway.
- This project improves travel time and travel flow for vehicles mainly in general purpose lanes, which helps lessens environmental impacts associated with emissions, and provides a missing reliable travel option in the off-peak direction.

- The project supports the following federal planning factors:
 - Increase accessibility and mobility of people.
 - Increase accessibility and mobility of freight.
 - Promote efficient system management and operation.
 - Support the economic vitality of the metropolitan area especially by enabling global competitiveness productivity and efficiency.
 - Protect and enhance the environment promote energy conservation improve the quality of life and promote consistency between transportation improvements and State and local planned growth and economic development patterns.

I-95 Express Lane Access for Trucks and I-495 Express Lane Access for Trucks

- These projects do not involve road widening, however, does changes classifications of vehicles allowed in both the I-95 and I-495 Express Lanes in Virginia.
- Along I-95, transit payments in project agreements allow toll revenues to fund transit and multimodal improvements.
- The travel options benefit a variety of users, not just with one or two passengers in a vehicle choosing to pay a toll. Managed lanes promote carpooling with HOV 3+ for free as well as transit usage, with buses traveling for free with faster and more reliable service.
- The project allows for a faster and better travel time reliability for freight movement, which helps lessens environmental impacts associated with emissions, and could provide an economic benefit to the region by allowing freight companies to improve efficiencies. Dynamic tolls fluctuate based on traffic volumes and speed will manage demand for the lanes. Additionally, toll prices will be set based on classification of vehicle.
- This project redistributes truck traffic between right-most lanes of I-95 and I-495 general purpose lanes and the express lanes but does not induce new truck demand along the corridor.
- Posted speed limits would not be changed.
- The funding source to be determined once a preferred alternative is approved, and study becomes a project.
- The project supports the following federal planning factors:
 - Support the economic vitality of the metropolitan area especially by enabling global competitiveness productivity and efficiency
 - Protect and enhance the environment promote energy conservation improve the quality of life and promote consistency between transportation improvements and State and local planned growth and economic development patterns
 - Increase accessibility and mobility of freight

I-495 Southside Express Lanes (SEL)

- VDOT recognize that travelers on this section of I-495 are facing increasing congestion and challenges now. We also realize that rail would be a very costly and long-term option that may not be feasible for decades to come. So, we are focused on solutions that could be implemented in the nearer term, cost effectively and largely within the footprint of the existing corridor.
- The I-495 SEL project would provide an Express Lanes connection on the eastern end of the interstate that currently does not have Express Lanes, beginning east of the Springfield Interchange.
- The ongoing National Environmental Policy Act (NEPA) analysis considers a two-lane Express Lane system that could extend across the Woodrow Wilson Bridge to the MD 210 Interchange.
- The project would accommodate bus transit enhancements. Alternatives under NEPA review do not preclude rail on the bridge by either retaining existing, unoccupied space or by incorporating

a requirement to convert necessary space to rail transit in the future when a rail expansion is funded for implementation.

- The project would provide additional travel choices, including carpooling (HOV 3+) and opportunities for more reliable trips on transit. New ramp connections to the Express Lanes would be provided at Van Dorn Street Interchange and at US Route 1 in Virginia, and at I-295 and MD-210 in Maryland.
- Funding source to be determined once a preferred alternative is approved, and study becomes a project.
- This project is identified as one of TPB's aspirational initiatives "Expand the Express Highway Network" and supports the following federal planning factors:
 - Increase accessibility and mobility of people
 - Increase accessibility and mobility of freight
 - Promote efficient system management and operation
 - Support the economic vitality of the metropolitan area especially by enabling global competitiveness productivity and efficiency

I-495 Express Toll Lanes Northern Extension (NEXT)

- I-495 NEXT is in its third year of construction, with the new 2.5 miles of express lanes on track to open in December 2025. Final project completion is scheduled for May 2026.
- NEPA requirements met by project, Environmental Assessment with Finding of No Significant Impact (FONSI)
- This is an independent project that will provide time savings for express lanes users and reduce cut-through traffic on local roads.
- The project is providing new infrastructure by replacing bridges across the Beltway, as well as safety and operational improvements including direct access ramps to express lanes at the Dulles Toll Road and George Washington Memorial Parkway interchanges, and new roadway features like acceleration/deceleration lanes and auxiliary lanes.
- In addition, multi-modal improvements are part of the project – a new bus route between Tysons and Bethesda is planned to begin this summer. This new bus service is paid for by the Commonwealth and our I-495 Express Lanes project partner. Bus riders and vehicles with three or more people will be able to experience faster and more reliable on the new express lanes toll-free. It also includes a number of bike and pedestrian improvements. These include sidewalk and share use path upgrades and additions. Also, a park annex to facilitate parking for bicyclists wishing to use the shared use path at the Georgetown Pike and Balls Hills Road intersection is being built with the project.
- A new commuter bus service between Tysons and Bethesda is launching this summer paid for with Commonwealth and concessionaire funding as part of the I-495 NEXT project.
- This project provides new travel choices for even more express lanes users who want a faster and more reliable trip – including drivers who choose to pay a toll, and carpoolers (HOV-3+) and bus riders who travel toll-free, which is consistent with other Northern Virginia Express Lanes
- Funding source to be determined once a preferred alternative is approved, and study becomes a project.
- This project is identified as one of TPB's aspirational initiatives "Expand the Express Highway Network" and supports the following federal planning factors:
 - Emphasize that preservation of the existing transportation system
 - Increase accessibility and mobility of people
 - Promote efficient system management and operation

I-66 Multimodal Improvements (Inside the Beltway)

- The construction portion of this project has been completed.
- The project includes 22.5 miles of new Express Lanes along side of three general purpose lanes; enhancements to interchanges, additional auxiliary lanes, new park and ride lots, new and expanded bus service and transit routes, and 11 miles of new bike and pedestrian trails.
- Revenues collected from tolls are used to fund transit and other multimodal projects.
 - Through the Northern Virginia Transportation Commission (NVTC), Commuter Choice Program, the revenue collected from tolls along I-66 are reinvested to fund transit and multimodal projects. To date, \$66.2M of toll revenue has been reinvested to fund 41 transit/multimodal projects along the I-66 corridor, one of the proven benefits of the I-66 project.

I-495 Auxiliary Lanes

- The primary goal of the auxiliary lanes is to improve safety and reduce instances of high-speed differences between the regular lanes due to weaving of entering and exiting traffic.
- This project is not conducive to addressing access for pedestrians or bicyclists, as it is related to safety and operations between adjacent interchanges.
- The project not only improves network connectivity, but helps environmental impacts associated with emissions.
- The project supports the following federal planning factors:
 - Increase accessibility and mobility of people.
 - Increase accessibility and mobility of freight.
 - Promote efficient system management and operation.

FAIRFAX COUNTY RESPONSE

The following are some overarching comments on how some of the data is displayed in TPB public comment summary document.

- Showing the project types in separate maps as depicted by way of MetroQuest (page 7) and calculating participant support (beginning on page 148) misses the fact that most of these projects were conceived to work synergistically within the transportation network and surrounding land uses.
 - For example, Fairfax County is widening US1 and constructing a 7-mile Bus Rapid Transit system in that corridor. There are multiple bicycle and pedestrian projects throughout the US1 corridor that will complement the roadway widening and BRT components. Participant support for the BRT component is 95.7%. However, participant support for the widening complementing the BRT is 10.3%.
 - Another example project is the widening of Frying Pan Road. Participant support for this project is 11.5%. As shown in this manner, the project appears to be a stand-alone widening project. However, there is tremendous growth in the area in general, and multiple land-use developments are happening on both sides of this roadway.
 - All Fairfax County roadway projects include bicycle and pedestrian components. That said, the percentages of participant support statistics display a sort of incongruity in how the information is being communicated (displayed) and how it's being received (interpreted or understood).

LOUDOUN COUNTY RESPONSE

EQUITY: Transportation Equity assures communities have accessible and affordable transportation for everyone in the community resulting in fair distribution of transportation resources, benefits, costs, programs, and services based upon differences in income, ability and other factor affecting transportation choice and impact.

All projects in Loudoun County, are guided by the 2019 Comprehensive Plan (Plan) and is driven by the following vision and goals:

1. Enhanced multimodal safety for all system users.
2. A reliable and efficient multimodal transportation network.
3. Transportation choices that connect people to their communities, employment centers, educational institutions, activity centers, and other amenities.
4. Integration with neighboring jurisdictions to improve regional and statewide connectivity and to attract residents and businesses to Loudoun County.
5. Context-sensitive planning and design that addresses the different characteristics and needs of the Urban, Suburban, Transition, Towns, and Rural Policy Areas; Towns; and Joint Land Management Areas (JLMA).
6. A transportation network supportive of the County's overall vision to support economic development, create vibrant, safe communities and public spaces, and protect natural and heritage resources.

TPB ASPIRATIONAL INITIATIVES: Loudoun County aspires to be a place where pedestrians and cyclists of all abilities have a safe, secure, and convenient transportation network of walkways and bikeways that enable efficient movement to and from home, work, school, shopping, libraries, parks, and community centers. This project follows the Countywide Bicycle and Pedestrian Policies that prioritize construction of bicycle and pedestrian accommodations and connections associated with construction and improvements to arterial and collector roadways with emphasis on the completion of connections between existing facilities in an effort to provide regional connections, and to the provision of safe walking and bicycling routes to new and existing public schools.

Route 15 North Widening

The results of the Route 15 North Congestion Report, initiated to reduce traffic congestion between Battlefield Parkway and Whites Ferry Road, were presented to the Board of Supervisors in May 2017. Recommendations from the report included widening US Route 15 from two to four lanes between Battlefield Parkway and Montresor Road. As a result of the report, the board directed the initiation of the Route 15 North Safety and Operations Study to identify potential improvements between Whites Ferry Road and the Maryland state line. The adopted Countywide Transportation Plan (CTP) was amended in 2018 to widen US Route 15 from two to four lanes between Battlefield Parkway and Montresor Road. The project scope includes: a signalized Continuous Green "T" (CGT intersection) at North King Street to allow through traffic to continue north on US Route 15 without stopping, an updated signalized intersection at Whites Ferry Road, and a two-lane hybrid roundabout at Montresor Road at a realigned section of Limestone School Road opposite Montresor Road. The project also includes a shared use path / regional trail along the west side of US Route 15 from Tuscarora High School to Montresor Road, and a shared use path/ regional trail along the entire length of Whites Ferry Road. As called for by the CTP, the design process includes context-sensitive methods for transportation projects in the Rural Policy Area and follows the guidelines for the Journey Through Hallowed Ground National Scenic Byway.

PRINCE WILLIAM COUNTY RESPONSE

The following are responses for five new roadway projects proposed to be added to Visualize2050 Plan.

- Two of the projects, the Route 29 Alternative and Pageland Lane, provide less impactful alternatives to the Manassas Battlefield Bypass project, while achieving the goal of the National Park Service to close the park to through traffic and improving local and regional mobility.
- The Residency Road Bridge project proposes to construct a bridge over railroad tracks to provide a direct vehicle, pedestrian and bicycle connection between the Innovation Activity Center and the Broad Run VRE Station. This project will be critical to supporting the local and regional goal of directing 75 percent of population, employment, and housing growth to activity centers.
- The US 28 Bull Run Bridge Study is a study to identify and evaluate alternatives for improving the existing Bull Run Bridge, which connects Prince William and Fairfax County. The Route 28 corridor is targeted for Bus Rapid Transit and widening of the bridge is anticipated to support these transit plans.
- The final road project is the Graham Park Road Diet. This is a project to remove vehicle lanes in an Equity Emphasis Area and convert to pedestrian and bicycle facilities. This is the County's first road diet project and was developed with technical assistance from the TPB Regional Roadway Safety Program.

Thank you for providing the TPB Virginia member agencies an opportunity to offer responses to public comments. Representatives from VDOT and Virginia localities will be available to follow-up as needed with any additional information.

Sincerely,


for Bill Cuttler, P.E.
Northern Virginia District Engineer

Cc: Ms. Maria Sinner, P.E., VDOT-NoVA
Mr. Amir Shahpar, P.E., VDOT-NoVA
Malcolm Watson, Fairfax County
Rob Donaldson, Loudoun County
Meagan Landis, Prince William County



**Visualize 2050
Planning and
Programming Process**

Air Quality Conformity Analysis

Part 3 of 27



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OVERVIEW OF AIR QUALITY CONFORMITY

Air Quality Conformity is a requirement of the Federal Clean Air Act and its Amendments (CAAA) to ensure that metropolitan transportation plans (MTPs) and transportation improvement programs (TIPs) are consistent with air quality goals and that progress is made toward achieving and maintaining federal national ambient air quality standards (NAAQS). A conformity determination is undertaken to forecast on-road mobile source emissions from an area's transportation system, and the analysis must demonstrate that these emissions are within limits outlined in state air quality implementation plans (SIPs) to help ensure that the NAAQS are attained and maintained. As the region is currently designated as a non-attainment area for ozone, to fulfill these federal requirements, an air quality conformity analysis was undertaken for ozone precursors, nitrogen oxides (NOx) and volatile organic compounds (VOCs).

TPB'S ROLE AND KEY STAFF

The air quality conformity analysis for the metropolitan Washington region is the responsibility of the National Capital Region Transportation Planning Board (TPB). The TPB staff involved, their titles, and their roles are found in Table 3.1. At the beginning of the conformity cycle, the TPB approves the Air Quality Conformity Scope of Work and transportation project inputs, allowing the technical analysis to begin. The TPB staff then completes the technical analysis, including developing highway and transit networks encompassing all regionally significant projects in the plan, travel demand forecasting for six analysis years, and motor vehicle emissions estimates for those six forecast years. At the end of the conformity cycle, the TPB approves the conformity analysis concurrently with the approval of the MTP and TIP. The TPB transmits the air quality conformity report, the Plan document, and the TIP document to the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) who coordinate with the U.S. Environmental Protection Agency (EPA) for federal review and approval. TPB also shares the conformity report with the Calvert-Saint Mary's Metropolitan Planning Organization (C-SMMPO) and the Fredericksburg Area Planning Organization (FAMPO) as per agreements between the TPB and those organizations.

TABLE 3.1: KEY STAFF

TPB Staff	Title	Role
Kanti Srikanth	Executive Director	Director for the Transportation Planning Board (TPB)
Mark Moran	Program Director, Travel Forecasting and Emissions Analysis	Contributor
Andrew Austin	Transportation Planner IV	Contributor
Laura Bachle	Transportation Planner	Contributor
William Bacon	Transportation Engineer III	Contributor

TABLE 3.1 CONTINUED: KEY STAFF

TPB Staff	Title	Role
Rachel Beyerle	Transportation Communications Manager	Contributor
Jamie Bufkin	Transportation Planner II	Contributor
Anant Choudhary	Transportation Engineer IV	Contributor
Robert d'Abadie	Transportation Engineer IV	Contributor
Nazneen Ferdous	Transportation Engineer IV	Contributor
Charlene Howard	Manager, Planning Data Resources	Contributor
Sunil Kumar	Principal Environmental Engineer	Contributor
Ray Ngo	Principal Transportation Engineer	Contributor
Wanda Owens	Senior Transportation Engineer	Contributor
Jinchul (JC) Park	Principal Transportation Engineer	Contributor
Jane Posey	Contractor	Contributor
Eric Randall	Principal Engineer/Program Manager	Contributor
Renee Ritchey	GIS Analyst I	Contributor
Ho Jun (Daniel) Son	Senior Transportation Engineer	Contributor
Dusan Vuksan	Principal Engineer/Program Manager	Contributor
Feng Xie	Principal Engineer/Program Manager	Contributor
Jian (Jim) Yin	Principal Transportation Engineer	Contributor

Role of TPB Subcommittees

The state and local departments of transportation (DOTs) provide project inputs to the MTP. The TPB Technical Committee (TPB Tech) and the Metropolitan Washington Air Quality Committee (MWAQ) Technical Advisory Committee (MWAQC TAC), which is a subcommittee of MWAQC, both reviewed project inputs and the conformity scope of work before the TPB approved those at the beginning of the conformity cycle. MWAQC TAC members provide some inputs to the U.S. EPA's mobile emissions estimation tool, Motor Vehicle Emissions Simulator (MOVES) model, which is required for use in conformity analyses. TPB Tech and MWAQC TAC review the conformity analysis results and confirm that the analysis meets all federal requirements. MWAQC reviews the analysis and provides formal comments, a copy of which is included in the full conformity report.

ROLE OF KEY PLANNING AGENCIES

Several agencies listed in Table 3.2 are involved in the conformity process. After the TPB approves the air quality conformity analysis, the TPB staff transmits the conformity report and the MOVES model input/output/MOVES control files (a.k.a. run specification files or runspec files), the MTP document, and the TIP document to the FHWA and the FTA for their review and approval. The FHWA shares the documents and the MOVES files with the EPA. The EPA reviews the conformity analysis and confirms that the analysis meets federal requirements.

TABLE 3.2: KEY PLANNING AGENCIES

Planning Agency	Role
FHWA	Reviews and approves the conformity analysis, Plan, and TIP
FTA	Reviews and approves the conformity analysis, Plan, and TIP
EPA	Reviews and concurs that the conformity determination meets Clean Air Act (CAA) requirements
State and local DOTs	Provide project inputs
MWAQC/MWAQC TAC	Reviews via consultation and provides some MOVES model inputs

PUBLIC ENGAGEMENT

All three public engagement opportunities during the Visualize 2050 development process were applicable to the air quality conformity process. From February to November of 2023, a public consultation period was held seeking input on projects in the current Visualize 2045 that were being re-examined for inclusion in the Visualize 2050 plan. The public provided 962 comments on existing projects and an additional 133 comments on new ones. Comments were forwarded to the responsible agencies for consideration and response, leading to agencies developing a final list of project inputs for Visualize 2050. Once the regionally-significant-for-air-quality (RSAQ) project list was complete, a second public comment period was held from March 1 to March 30, 2024, to

gather further input. Of the 893 responses received, 110 comments directly addressed issues related to the air quality conformity process.

As per the EPA conformity guidance, a 30-day public review period for the final air quality conformity documentation will be taking place in fall 2025. In addition to the final comment period, the draft analysis and documentation was shared with the following Metropolitan Washington Council of Governments (COG) and TPB committees (committee meetings are open to the public) and in the TPB consultation mailout:

- Metropolitan Washington Air Quality Committee (MWAQC)
- MWAQC Technical Committee
- TPB
- TPB Technical Committee
- TPB Community Advisory Committee
- TPB Access for All Advisory Committee

NATIONAL AMBIENT AIR QUALITY STANDARDS & MOBILE EMISSIONS BUDGETS

The federal CAAA requires the establishment of Air Quality Standards for certain airborne pollutants. The U.S. EPA currently regulates six air pollutants, known as criteria pollutants:

- Carbon monoxide (CO),
- lead (PB),
- ground-level ozone (O₃),
- nitrogen dioxide (NO₂),
- particulate matter (PM), and
- sulfur dioxide (SO₂).

Areas in the United States that exceed these standards are identified and designated as non-attainment areas. Non-attainment areas are required to develop and implement plans to attain the federal standards. These implementation plans include limits on the amount of certain criteria pollutants the transportation sector can emit. These limits are referred to as Motor Vehicle Emissions Budgets (MVEBs).

Air quality conformity is a process designed to ensure that activities funded by federal transportation programs are consistent with the air quality goals outlined in the implementation plans for non-attainment areas. The conformity requirements for transportation are found in Section 176(c) of the Clean Air Act (42 USC § 7506(c)). The EPA regulations to implement the conformity requirements are found at 40 CFR Part 93. The Metropolitan Washington, DC (DC-MD-VA) region has conformity requirements for one pollutant, ground-level ozone (O₃).

2008 Ozone Standard and Maintenance Plan Budgets

In 2012, the EPA designated the Metropolitan Washington, DC (DC-MD-VA) region as being in “marginal” non-attainment for the 2008 Ozone Standard. With only a marginal designation, EPA regulations do not require the development of new MVEBs. Instead, as per EPA regulations, conformity analyses for the region’s MTP and TIP were demonstrated to previously approved MVEBs from the older 1997 Ozone Standard.

In 2015, the region attained the 2008 Ozone Standard, based on the readings from ambient air quality monitors. The MWAQC developed a Redesignation Request and Maintenance Plan, which the state air agencies submitted to the EPA in early 2018. The 2008 Ozone Maintenance Plan included MVEBs for VOC and NOx. In August 2018, the EPA found these mobile emissions budgets adequate for use in the region's air quality conformity analyses.

The MVEBs were subsequently updated in September 2023,¹ and after submission by the state departments of the environment, the EPA granted an adequacy finding on October 4, 2024. The MVEBs were developed using the then-current version of the EPA Motor Vehicle Emissions Simulator, MOVES3.0.4. VOC and NOx emissions budgets were established for three specific periods: the attainment year for the 2008 ozone NAAQS (2014), an intermediate year (2025), and the final year (2030) of the Maintenance Plan. The mobile emission ozone budgets include a 20 percent safety margin for both VOC and NOx, with the final MVEBs shown in Table 3.3 below.

TABLE 3.3: MOBILE EMISSIONS BUDGETS

Year	VOC On-Road Emissions (tpd*)	NOx On-Road Emissions (tpd)
Attainment Year 2014 Emissions & Budget	61.25	136.84
2025 Predicted Emissions without Safety Margin	27.92	46.52
2025 Safety Margin	5.58	9.30
Intermediate Year 2025 Emissions & Budget	33.50	55.82
2030 Predicted Emissions without Safety Margin	21.75	34.26
2030 Safety Margin	4.35	6.85
Final Year 2030 Emissions & Budget	26.10	41.11

*tpd = short tons per day. One short ton equals 2,000 pounds.

2015 Ozone Standard

In 2015, the EPA promulgated new and more stringent NAAQS for ozone. Effective August 3, 2018, the EPA designated the Metropolitan Washington, DC-MD-VA non-attainment area as “marginal” non-attainment for the 2015 Ozone NAAQS. Marginal non-attainment areas have three years from the date of designation to achieve the standard, and accordingly, the region was assigned an attainment date of August 3, 2021. As the attainment date fell in the middle of the region's ozone season (March 1 - October 31), the NAAQS had to be demonstrated by the end of the 2020 ozone season. The region did not achieve the 2015 ozone NAAQS by the original deadline, and the non-

¹ Prepared by the Metropolitan Washington Council of Governments for the District Department of the Environment, the Maryland Department of the Environment, and the Virginia Department of Environmental Quality on behalf of the Metropolitan Washington Air Quality Committee (September 27, 2023). *State Implementation Plan Revision: Motor Vehicle Emission Budget Revisions Based on: Metropolitan Washington Council of Governments (September 27, 2023). MOVES3 Model Washington DC-MD-VA 2008 Ozone NAAQS Maintenance Plan.*

<https://www.mwcog.org/documents/2023/09/27/washington-dc-md-va-2008-ozone-naaqs-maintenance-plan-update-air-quality-air-quality-conformity-ozone/>

attainment area was redesignated as a “moderate” non-attainment area, effective November 7, 2022,² with a new attainment date of August 3, 2024. The region achieved the 2015 ozone NAAQS by the end of the 2021 ozone season and in all subsequent seasons, based on regional ambient air quality monitor data. The region subsequently requested that the EPA approve the area’s request for a “Clean Data Determination” (CDD) based on the air monitor data, which was published on April 4, 2025, and took effect on May 5, 2025.³

According to provisions in the conformity regulations, conformity analyses for the region’s MTP and TIP are demonstrated using the approved (or “found adequate for conformity purposes”) MVEBs from the older 2008 Ozone Standard.⁴ When the TPB approved the Visualize 2050 conformity analysis, MVEBs associated with the 2015 Ozone Standard had not yet been federally approved. The emissions from the Visualize 2050 plan and FY 2026-2029 TIP adhere to the current 2008 Ozone NAAQS MVEBs.

Budget Setting Versus Conformity

An air quality conformity analysis is conducted to formally demonstrate that projected motor vehicle emissions associated with the MTP and TIP are less than or equal to the MVEBs for each analysis year. The conformity regulations require using the “latest planning assumptions,” meaning that each conformity analysis must incorporate the most up-to-date planning inputs and technical methods available at the beginning of the process. Therefore, the inputs used in regional air quality conformity analyses change with time. Mobile emissions budgets in air quality plans are established based on analyses incorporating the “latest planning assumptions” when the air quality plan is developed, with the mobile emissions budgets generally being updated infrequently.

Changes to the inputs used in air quality conformity analyses are not limited to transportation projects. They include other assumptions such as vehicle fleet mix and demographics. Such changes to inputs in conformity analyses relative to inputs used to establish mobile emissions budgets will inevitably yield mobile emissions estimate differences that are not strictly attributable to the transportation plan itself. Additionally, the models used to estimate future travel and emissions change, as does the data the models use, yielding mobile emissions estimate differences not simply attributable to the projects in the transportation plan.

Anticipating such situations, federal air quality conformity regulations allow air quality attainment and maintenance plans to provide a “safety margin” while establishing MVEBs. Accordingly, the DC-MD-VA 2008 Ozone updated Maintenance Plan emissions budgets include a 20 percent buffer to address the uncertainty introduced when inconsistent assumptions are used between budget-setting and the conformity analysis.

Table 3.4 lists the contrasting assumptions used in the mobile emissions budget development and in the current air quality conformity analysis (of the Visualize 2050 plan and FY 2026-2029 TIP). Details related to these inputs are discussed in the next section of this report.

² U.S. Environmental Protection Agency (October 7, 2022). *Determinations of Attainment by the Attainment Date, Extensions of the Attainment Date, and Reclassification of Areas Classified as Marginal for the 2015 Ozone National Ambient Air Quality Standards* (87 FR 60897). <https://www.federalregister.gov/documents/2022/10/07/2022-20460/determinations-of-attainment-by-the-attainment-date-extensions-of-the-attainment-date-andf>

³ U.S. Environmental Protection Agency (April 4, 2025). *Air Plan Approval; District of Columbia, Maryland, Virginia; Determination of Attainment by the Attainment Date and Clean Data Determination for the Washington, DC-MD-VA Nonattainment Area for the 2015 Ozone National Ambient Air Quality Standards* (90 FR 1473). <https://www.federalregister.gov/documents/2025/04/04/2025-05913/air-plan-approval-district-of-columbia-maryland-virginia-determination-of-attainment-by-the>

⁴ U.S. Environmental Protection Agency (April 2021). *Transportation Conformity Regulations as of April 2012; EPA-420-B-12-013*. <https://nepis.epa.gov/Exe/ZyPDF.cgi/P100E7CS.PDF?Dockey=P100E7CS.PDF>

TABLE 3.4: INPUT ASSUMPTIONS

Input	SIP Revision Mobile Emissions Budgets	Visualize 2050 Conformity Emissions
Cooperative Forecasts	Round 9.2	Round 10.0
Vehicle Fleet	2020 VIN*	2023 VIN
Travel Demand Model	Gen2/Ver. 2.4	Gen2/Ver. 2.4.6
Project Inputs	2022 Update to Visualize 2045	Visualize 2050
Mobile Emissions Model	MOVES3.0.4	MOVES4.0.1

* Vehicle registration data is also known as Vehicle Identification Number (VIN) data.

WORK ACTIVITIES & TECHNICAL INPUTS

The TPB approved the Scope of Work and project submissions for Visualize 2050 and the FY 2026-2029 TIP air quality conformity analysis on May 15, 2024. The air quality conformity Scope of Work is included as Appendix A of the full conformity report available online at www.visualize2050.org/plan-resources.

Key technical planning assumptions and methods include:

- New zone-level forecasts for land activity: Round 10.0 of the Cooperative Forecasts.
- New vehicle registration data (also known as VIN data): December 2023 (DC/MD/VA)
- New transportation projects and updates to existing projects
- New EPA MOVES4.0.1 Mobile Emissions Model
- New TPB Gen2/Version 2.4.6 Travel Demand Model

Mobile emissions inventories were developed for ozone-season VOC and NO_x for six forecast years (2025, 2026, 2030, 2040, 2045, and 2050). These inventories address a primary conformity requirement to demonstrate that emissions associated with the plan and TIP do not exceed the EPA-approved mobile emissions budgets. Figure 3.1 depicts the geographic areas for travel demand modeling and emissions reporting.⁵

Vehicle Registration Data

TPB staff have analyzed motor vehicle fleet inventory information on a regular basis since 2005. This information is used to understand the vehicle-type composition and vehicle-age distributions, which are important determinants of mobile emissions. Periodic inventory reviews enable staff to refresh mobile emissions modeling inputs with the latest available information. The current data are from December 2023. TPB staff analyzed the 2023 vehicle registration data, and the analysis was reviewed by the TPB Tech and MWAQC-TAC in October 2024.

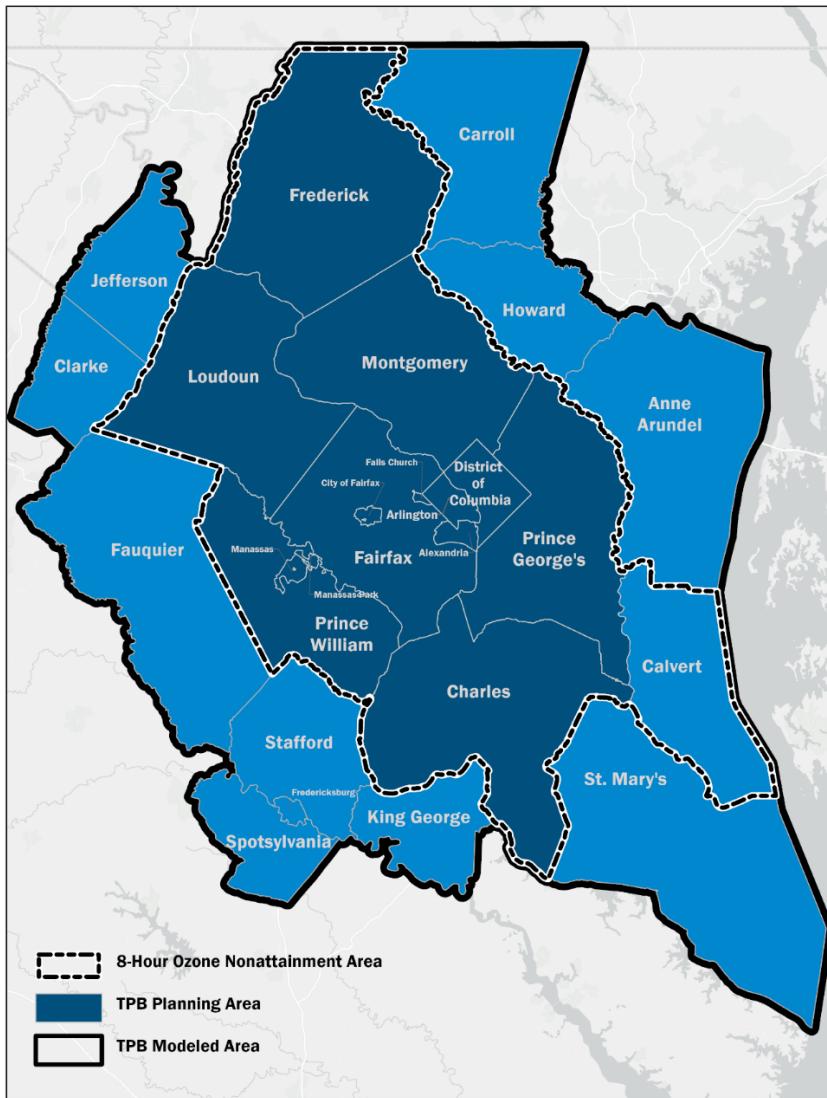
Cooperative Forecasts

The COG Board approved, on June 14, 2023, the draft Round 10.0 Cooperative Forecasts for use in the air quality conformity analysis of the Visualize 2050 plan and FY 2026-2029 TIP. In addition

⁵ The TPB Modeled Area includes one county in West Virginia (Jefferson Co.), but the TPB Member Area does not include West Virginia.

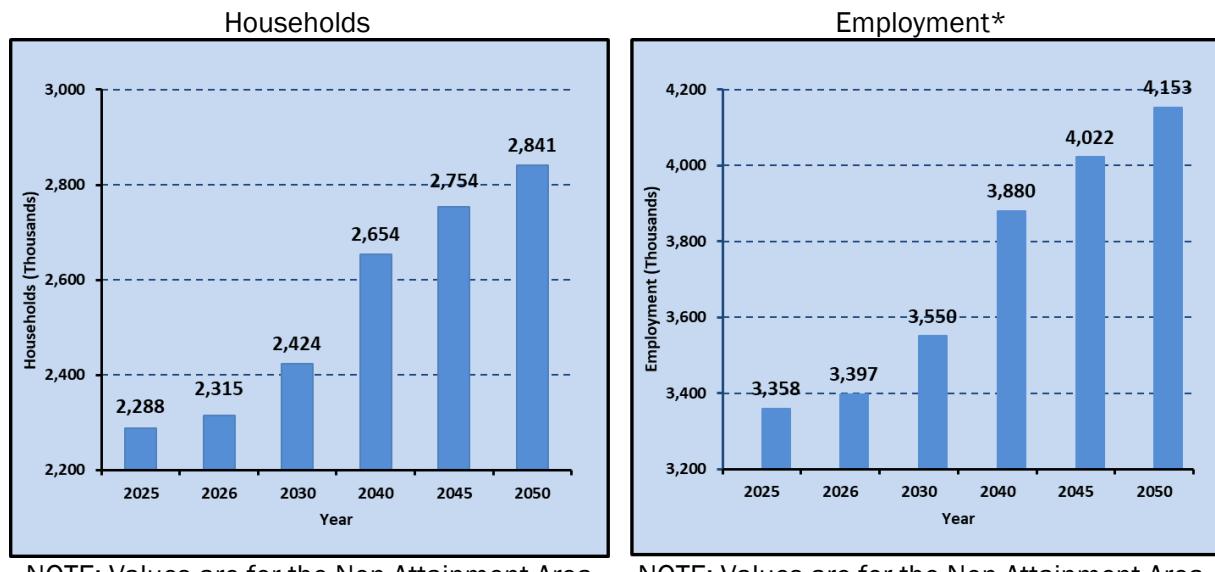
to forecasts from the TPB Planning Area, the Round 10.0 Cooperative Forecasts include the Baltimore Metropolitan Council's (BMC) Round 10 (endorsed July 15, 2022); the George Washington Regional Commission (GWRC)/Fredericksburg Area Metropolitan Planning Organization's (FAMPO) 2050 Socioeconomic Data Projections (revised May 2023); and the Maryland Department of Planning's Historical and Projected Total Population for Calvert and St. Mary's Counties (December 2022). TPB staff revised the employment definition adjustment factors to ensure a consistent definition of employment across all jurisdictions in the modeled area.⁶ The Round 10.0 data, summarized in Figure 3.2, were used for the air quality conformity analysis of the Visualize 2050 plan.

FIGURE 3.1: TPB MODEL AREA, TPB PLANNING AREA, AND 8-HOUR OZONE NON-ATTAINMENT AREA



⁶ McCall, Nicole. Memorandum to Mark Moran, Dusan Vuksan, Jun Xie, Jane Posey, and Timothy Canan (June 22, 2023). "Travel Model Employment Definition Adjustment Factors for Round 10."

FIGURE 3.2: ROUND 10.0 COOPERATIVE FORECASTS, HOUSEHOLDS AND EMPLOYMENT, IN THE NON-ATTAINMENT AREA



NOTE: Values are for the Non-Attainment Area

NOTE: Values are for the Non-Attainment Area

*Includes Employment Definition Adjustment

Figure 3.3 and Table 3.5 show the characteristics of the region's vehicle fleet through time. The exhibits indicate that the fleet is continuing to grow overall. Starting in 2020, the population of light-duty vehicles (automobiles/motorcycles) began to decline while the population of light-duty trucks (sport utility vehicles, or SUVs) grew, becoming the largest portion of the vehicle fleet in 2023. Also, the average vehicle age increased across all categories in 2020 and 2023.

FIGURE 3.3: HISTORICAL GROWTH IN VEHICLE POPULATION BY VEHICLE TYPE

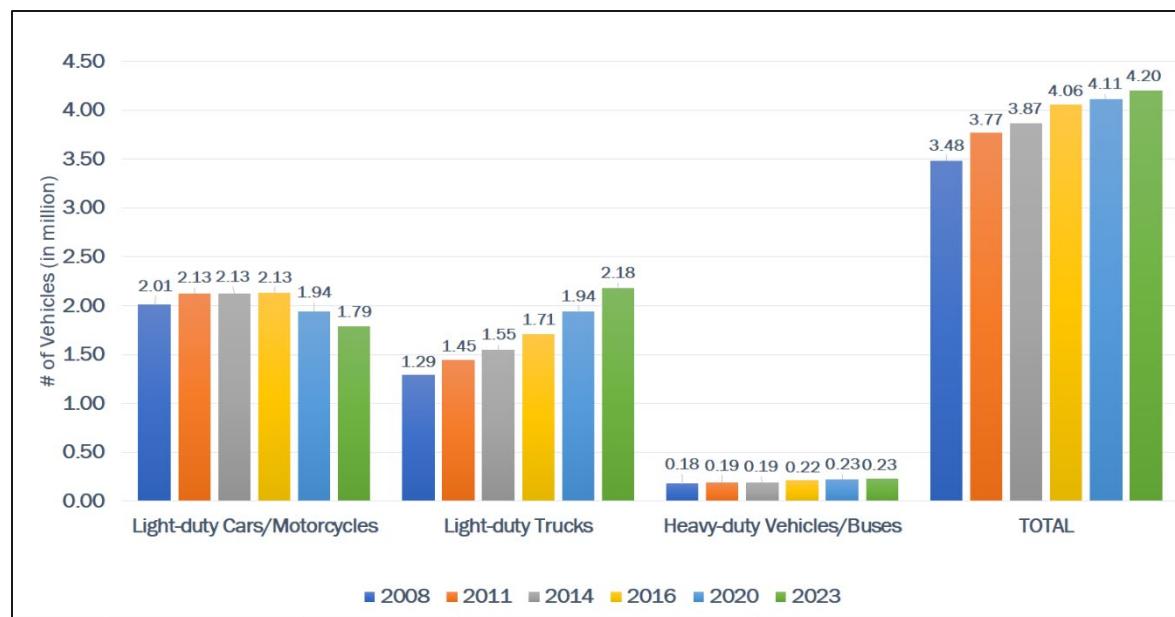


TABLE 3.5: AVERAGE AGE (IN YEARS) OF REGIONAL VEHICLE FLEET BY VIN YEAR

Year	Light-duty Cars/Motorcycles	Light-duty Trucks	Heavy-duty Vehicles/Buses	All Vehicle Types
2008	8.51	7.53	9.21	8.18
2011	9.25	8.55	10.56	9.05
2014	9.62	9.09	11.3	9.49
2016	9.32	8.68	11.29	9.16
2020	10.05	8.74	11.51	9.51
2023	11.04	8.87	12.07	9.97

Transportation Project Inputs

Member agencies submitted regionally significant projects for the air quality conformity analysis by December 2023. In May 2024, the TPB approved all but one project, the I-495 Southside Express Lanes (SEL) project, which was deferred for further consideration and action until October 2025. As a result, the TPB conducted two sets of analysis using the original project inputs approved in May 2024 and a second analysis with the SEL project. The TPB ultimately decided to defer the inclusion of the I-495 SEL project in Visualize 2050. As a result, the conformity analysis without the I-495 SEL project is reported on in the full conformity report in alignment with the TPB's October 2025 vote on the SEL project. Appendix B of the full conformity report contains the transportation projects that are included in the final Visualize 2050 conformity analysis. Project changes from the previous conformity analysis for the 2022 update to Visualize 2045 are identified in the table.

Travel Modeling

Travel demand forecasts were developed for each of the analysis years using the most recent version of the Gen2 Travel Demand Model. Changes between the version of the model used to set the mobile emissions budgets (Gen2/Ver. 2.4) and the version of the model used for this conformity analysis (Gen2/Ver. 2.4.6) were minimal, although changes in land use model inputs (Round 10.0 Cooperative Forecasts) and transportation networks from the "Zero-Based Budgeting" process in Visualize 2050 are estimated to have a more significant impact on results. Figure 3.4 shows the average weekday vehicle and transit trips through time for each conformity analysis year for the non-attainment area. Figure 3.5 shows Vehicle Miles Traveled (VMT) for the non-attainment area for each conformity analysis year.

Mobile Emissions Inventories and Mobile Emissions Budgets

Estimated ozone-season emissions of VOC and NOx (the pollutants that combine to form ground-level ozone) are shown in Figures 3.6 and 3.7. Also shown are the mobile emissions budgets (MVEBs) used to demonstrate conformity for the Visualize 2050 plan and FY 2026–2029 TIP. Emissions of both pollutants remain well below the MVEBs for all analysis years.

FIGURE 3.4: VEHICLE AND TRANSIT TRIPS IN THE NON-ATTAINMENT AREA

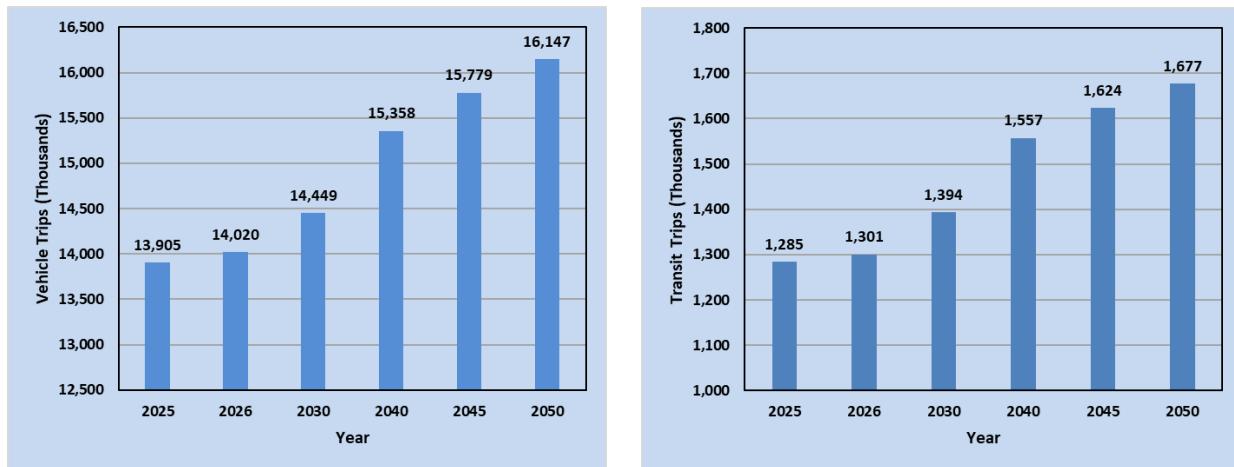


FIGURE 3.5: VEHICLE MILES TRAVELED IN THE NON-ATTAINMENT AREA (THOUSANDS)

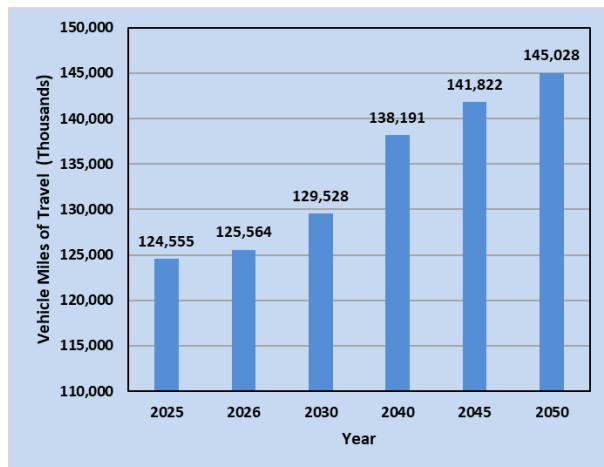


FIGURE 3.6: MOBILE SOURCE EMISSIONS AND MOBILE EMISSIONS BUDGETS, OZONE SEASON VOC

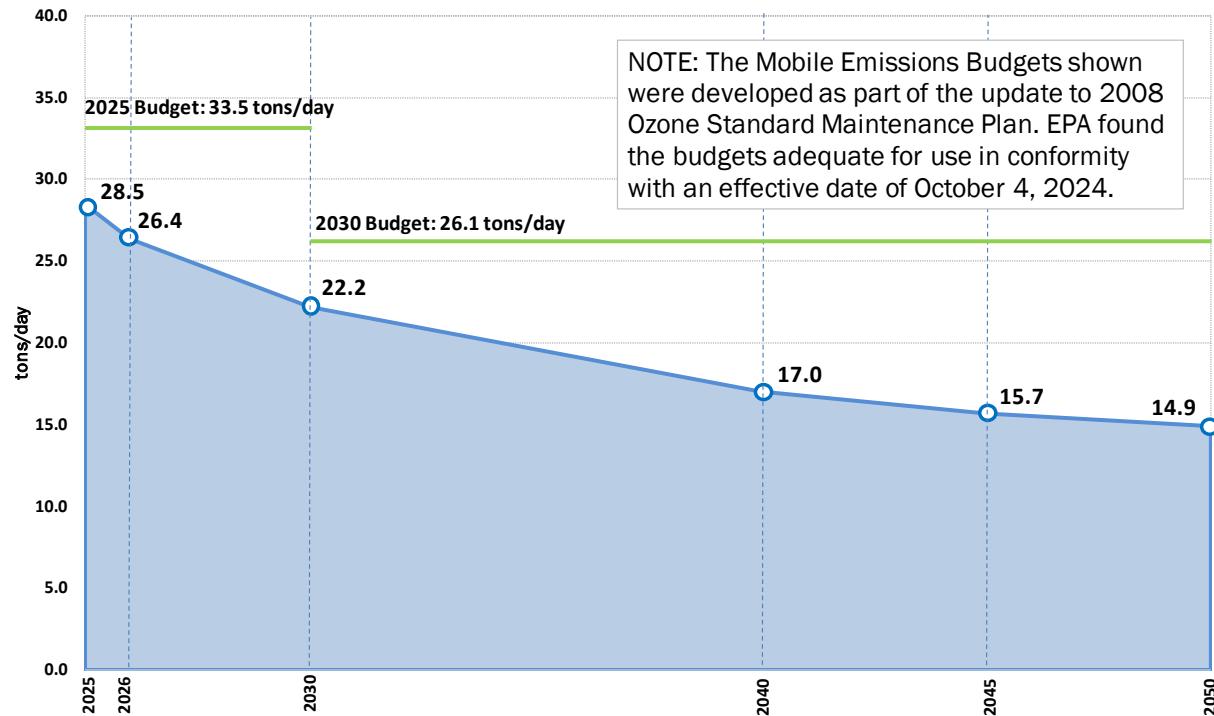
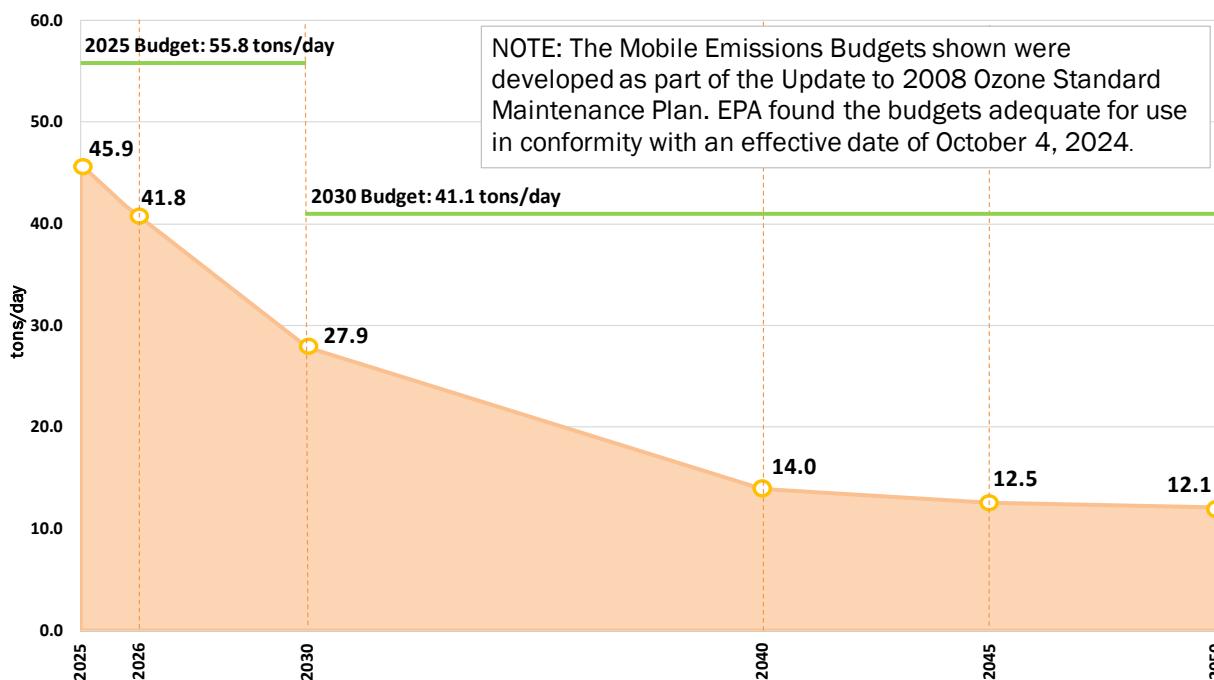


FIGURE 3.7: MOBILE SOURCE EMISSIONS AND MOBILE EMISSIONS BUDGETS, OZONE SEASON NO_x



Transportation Emission Reduction Measures

Transportation Emission Reduction Measures (TERMs) are strategies or actions that the TPB can employ to further reduce emissions from mobile sources. TERMs are generally intended to reduce the number of motor vehicle trips (VT), vehicle miles travelled (VMT), vehicle hours of travel (VHT), or a combination of any of these. These strategies may include ridesharing and telecommuting programs, improved transit and bicycling facilities, clean fuel vehicle programs, or other possible actions. These types of considerations, while not explicitly accounted for in the travel demand model, are intended to continue to reduce the emissions levels in the region.

In the Metropolitan Washington, DC (DC-MD-VA) air quality region, TERMs have not been needed to pass conformity for over ten years. During that time, TERMs' emissions benefits were calculated for reference purposes only. While TERMs are beneficial and continue to be included in the MTP, their associated emission reductions are minimal compared to the overall inventories. Calculating the transportation and emissions benefits of the TERMs is a time and resource-intensive task. Given these factors, a quantitative analysis of TERMs was not undertaken for the Visualize 2050 and FY 2026-2029 TIP air quality conformity analysis. The need for quantification and potential inclusion of the TERMs in emission inventories will be re-evaluated in future conformity determinations/plan updates.

SUMMARY

The air quality conformity work at the TPB provides critical information to confirm the region's future growth and transportation will result in on-road mobile source emissions that will be below levels needed to attain and maintain federal air quality standards. The TPB staff's air quality conformity analysis, as described, provide the basis for a determination, by the TPB, of conformity for the Visualize 2050 National Capital Region Transportation Plan and the FY 2026-2029 TIP. The findings are based on adherence to the region's current motor vehicle emissions budgets in the approved State Implementation Plan (SIP).



Visualize 2050
Planning and
Programming Process

Emissions Reduction Activities in the
On-Road Transportation Sector
Part 4 of 27



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OVERVIEW OF EMISSIONS REDUCTION ACTIVITIES IN THE ON-ROAD TRANSPORTATION SECTOR

The transportation system is vital for allowing people to get to work, school, shopping, and other activities of daily life. However, the transportation system also results in unintended consequences on society, referred to as “externalities,” such as air pollution from vehicle emissions. Emissions from motor vehicles are called “mobile emissions” since these emissions come from motor vehicles which move around. Emissions reduction activities are conducted by metropolitan planning organizations (MPOs) in response to federal regulations. Air pollution is categorized into two groups: criteria pollutants, which are regulated by the U.S. Environmental Protection Agency (EPA), and non-criteria pollutants, which are not regulated by the EPA. Criteria pollutants are discussed in the documentation dealing with the Air Quality Conformity Analysis of Visualize 2050. An example of a non-criteria pollutant is carbon dioxide, which is a greenhouse gas (GHG), that is produced from the use of fossil fuels in motor vehicles as well as activities outside of the transportation sector. Carbon dioxide naturally exists in the atmosphere; however, burning fossil fuels like gas and oil contribute to the atmospheric concentration of carbon dioxide rising beyond natural levels.¹

Climate change mitigation is the reduction in GHG emissions that drive global climate change. According to the EPA:

Burning fossil fuels like gasoline and diesel releases carbon dioxide, a greenhouse gas, into the atmosphere. The buildup of carbon dioxide (CO₂) and other greenhouse gases like methane (CH₄), nitrous oxide (N₂O), and hydrofluorocarbons (HFCs) is causing the Earth's atmosphere to warm, resulting in changes to the climate we are already starting to see today.²

The on-road transportation sector contributes approximately one-third of the region's GHG.³ The federal government does not require MPOs to report greenhouse gas emissions as part of their metropolitan transportation plans (MTPs), but strategies designed to lower GHG emissions generally lower all mobile emissions, so such strategies have multiple benefits for large urban areas.

The TPB policy framework has long included goals regarding protections for the natural environment, and in the absence of a federal requirement, the TPB has been proactively involved with climate change mitigation planning since 2008. For example, the TPB:

- Supported the development of the COG's National Capital Region Climate Change Report (2008)⁴ by developing transportation sector emissions.

¹ National Oceanic and Atmospheric Administration (April 9, 2024). *Climate Change: Atmospheric Carbon Dioxide*. <https://www.climate.gov/news-features/understanding-climate/climate-change-atmospheric-carbon-dioxide>

² U.S. Environmental Protection Agency (May 14, 2024). *Carbon Pollution from Transportation*. <https://www.epa.gov/transportation-air-pollution-and-climate-change/carbon-pollution-transportation>

³ Metropolitan Washington Council of Governments (January 15, 2021). *Community-Wide Greenhouse Gas Inventory Summary Fact Sheet*. <https://www.mwcog.org/documents/2016/04/22/metropolitan-washington-community-wide-greenhouse-gas-emissions-inventory-summary-greenhouse-gas/>

⁴ Climate Change Steering Committee for the Metropolitan Washington Council of Governments Board of Directors (November 12, 2008). *National Capital Region Climate Change Report Final Report*. <https://www.mwcog.org/file.aspx?A=R8%2F07kehmpgZBhW7Z%2F6R7fLiQ4aIY28XTL33ZwEgoJo%3D>

- Completed its own scenario study of on-road GHG emissions in 2010⁵ and participated in a joint study with COG and the Metropolitan Washington Air Quality Committee (MWAQC) from 2015-2016.⁶
- Voluntarily reported estimated on-road greenhouse gas emissions (both absolute and per capita) as part of the performance analysis of the region's transportation plan since 2010.
- Included a question on the project submission form asking whether the project is “expected to contribute to reductions in emissions of greenhouse gases” beginning with the Call for Projects for the 2015 MTP.
- Undertook a significant action to adopt voluntary GHG reduction goals and supportive strategies for the on-road transportation sector in June 2022.
- Provides on-road transportation sector emissions for COG's periodic Metropolitan Washington Community-wide Greenhouse Gas Inventory.⁷
- Provides data, as requested, in coordination with COG staff, to local jurisdictions to support their climate planning efforts.
- Provides information and resources to support state and local jurisdictions in implementing GHG reduction actions.

TPB'S ROLE AND KEY STAFF

Since there is no federal requirement for MPOs to address GHG emissions as part of their MTPs, the TPB's role in climate change mitigation planning is voluntary. The TPB recognizes the contribution of motor vehicle emissions to the region's overall GHG emissions. By reporting on GHG emissions forecasts for the MTP, and by adopting GHG reduction goals and priority strategies that have been incorporated into the TPB Synthesized Policy Framework, the TPB informs planning throughout the region and guides the projects, programs, and policies that are submitted for the MTP (currently Visualize 2050) and Transportation Improvement Program's financial plan and planning activities beyond the financial plan.

TABLE 4.1: KEY STAFF

TPB Staff	Title	Role
Kanti Srikanth	Executive Director	Staff Director for the Transportation Planning Board (TPB)
Mark Moran	Program Director, Travel Forecasting and Emissions Analysis	Program Lead
Jeff King	Director, Climate, Energy, and Air Programs	COG Department of Environmental Programs

⁵ National Capital Region Transportation Planning Board (May 18, 2010). *What Would It Take? Transportation and Climate Change in the National Capital Region Final Report*. <http://www.mwcog.org/uploads/public/documents/qF5eXvw20110617114503.pdf>

⁶ ICF and Metropolitan Washington Council of Governments (January 31, 2016). *Multi-Sector Approach to Reducing Greenhouse Gas Emissions in the Metropolitan Washington Region Final Technical Report*.

<https://www.mwcog.org/file.aspx?D=Ui%2fOvKporwCjlofmfR2gk7ay5EmB0b9a4UhR7cKKQig%3d&A=ITSigZNdO1uWwM HVzfUV1WIPhZ9IDhMGqWIEQSf9CM%3d>

⁷ See, for example: Metropolitan Washington Council of Governments (January 15, 2021). *Community-Wide Greenhouse Gas Inventory Summary Fact Sheet*. <https://www.mwcog.org/documents/2016/04/22/metropolitan-washington-community-wide-greenhouse-gas-emissions-inventory-summary-greenhouse-gas/>

TPB Staff	Title	Role
Dusan Vuksan	Program Manager, Model Application Group	Model Application Group Lead
Erin Morrow	Transportation Engineer	Model Application Group
Maia Davis	Senior Environmental Planner	COG Department of Environmental Programs

Role of TPB Committees and Subcommittees

The TPB Technical Committee generally oversees the TPB's work on emissions reduction planning. Some past scenario studies have been overseen by a task force or a working group, some of which included both the state department of transportation and state air agency representatives. TPB subcommittees have historically not focused on GHG emissions reductions; however, the missions of some of the TPB's subcommittees naturally support the reduction of GHG emissions from on-road transportation because GHG reduction is a minor co-benefit of many transportation planning activities that improve options for modes of travel other than single occupant vehicle (SOV) or improve travel efficiency.

For example, the TPB's Commuter Connections Program contributes to reductions in vehicle miles traveled (VMT) and vehicle trips (VT) by providing services to the region's commuters to encourage them to choose modes other than SOV. Similarly, the work of both the Bicycle and Pedestrian Subcommittee and the Regional Public Transportation Subcommittee (RPTS) supports reductions in VMT and VT by supporting planning for non-auto modes. Additionally, the Systems Performance, Operations and Technology Subcommittee (SPOTS) advises the TPB on matters of performance outcomes of the transportation system and transportation operations and management. Lastly, the Regional Electric Vehicle Deployment Working Group (REVD), which is staffed by COG and has members from TPB and COG member jurisdictions, serves as a forum for members to collaborate and coordinate actions related to deploying EVs and EV infrastructure. REVD oversaw the development of the TPB's Regional Electric Vehicle Infrastructure Implementation (REVII) Strategy.⁸

ROLE OF KEY PLANNING AGENCIES

The TPB and COG have worked extensively with their member agencies and partners on approaches to mitigate climate change and prepare the region for the impact of climate change. State DOT and transit agency planners, local jurisdiction staff, state air agency representatives, and other stakeholders are all able to provide their input to the process through various COG/TPB committees.

Many regional climate change planning activities are led by COG's Climate, Energy, and Environment Policy Committee (CEEPC) and its subcommittees, which are staffed by COG's Department of Environmental Programs (DEP) staff. CEEPC oversees development of periodic economy-wide GHG emission inventories and regional climate and energy action plans, including the Metropolitan Washington 2030 Climate and Energy Plan (CEAP) referenced previously in this document. TPB staff work closely with DEP staff on GHG inventory development and other studies,

⁸ ICF, "Regional Electric Vehicle Infrastructure Implementation Strategy," Final Report (Washington, D.C.: National Capital Region Transportation Planning Board, Metropolitan Washington Council of Governments, August 2024), <https://www.mwcog.org/documents/2024/09/04/regional-electric-vehicle-infrastructure-implementation-revii-strategy-climate-energy-climate-change-electric-vehicles/>.

and periodically brief CEEPC on relevant matters. Similarly, DEP staff periodically brief the TPB and committees on climate change issues relevant to transportation planning.

In addition to the regional climate and/or energy action plans developed by CEEPC, many local and state agencies have developed climate and energy action plans and are undertaking electric vehicle infrastructure planning.

The Bipartisan Infrastructure Law and the Inflation Reduction Act have both provided funding for states to undertake development of climate action plans and electric vehicle infrastructure planning through the NEVI program, the Carbon Reduction Program (CRP), and the Climate Pollution Reduction Grants (CPRG) program. At the regional level, COG is leading the development of a Comprehensive Climate Action Plan (CCAP) through the CPRG for the Metropolitan Statistical Area (MSA). More information on the planning work being done through these federal grant programs can be found on the TPB's climate change mitigation planning page.⁹

PUBLIC ENGAGEMENT

Every month, there is a public comment opportunity at the beginning of the TPB meeting. For in-person/hybrid meetings, comments can be delivered in person, verbally, or in writing (e.g., email message, letter). For virtual-only meetings, comments can be delivered in writing, and summarized versions of the comments are usually read at the beginning of the meeting by TPB staff. Some of the local advocacy groups have been very engaged over the past several years and have submitted several rounds of both in-person comments and comment letters regarding how TPB should mitigate climate change and/or its negative effects. Climate change mitigation also surfaced as a major concern in all the public comment opportunities held for Visualize 2050.

TPB staff have presented to the TPB's Community Advisory Committee (CAC) and developed a climate change mitigation planning module for the TPB's Community Leadership Institute (CLI) that debuted in 2024.

CLIMATE CHANGE MITIGATION GOALS AND STRATEGY IDENTIFICATION FOR VISUALIZE 2050

In June 2022, the TPB undertook significant action with respect to climate change mitigation. The TPB adopted Resolution R18-2022,¹⁰ which established on-road transportation-sector greenhouse reduction goals of 50 percent below 2005 levels by 2030 and 80 percent below 2005 levels by 2050. These TPB goals are identical to COG's economy-wide/non-sector-specific goals.

According to staff research, the TPB, by taking this action, was the first MPO in the country to voluntarily adopt GHG reduction goals for the on-road transportation sector. Part of the approval was adoption of seven priority GHG reduction strategies and identification of seven other GHG reduction strategies that have the potential to reduce on-road GHG emissions and which merited further discussion by the TPB member jurisdictions. The goals and strategies that were adopted by the TPB were examined in the TPB's Climate Change Mitigation Study of 2021 (CCMS).

⁹ Metropolitan Washington Council of Governments (November 29, 2024). *Climate Change Mitigation in the Surface Transportation Sector*. <https://www.mwcog.org/transportation/planning-areas/air-quality-and-environment/climate-change/>

¹⁰ National Capital Region Transportation Planning Board (June 15, 2022). *Resolution on the Adoption of On-Road Transportation Greenhouse Gas Reduction Goals and Strategies (TPB R18-2022, Item #8)*. <https://www.mwcog.org/events/2022/6/15/transportation-planning-board/>

The seven priority GHG reduction strategies, as noted in the resolution, and which have been integrated into the TPB Synthesized Policy Framework,¹¹ are:

- Improve walk/bike access to all TPB identified high-capacity transit stations.
- Increase walk/bike modes of travel – complete the TPB’s National Capital Trail Network by 2030.
- Convert private and public-sector light-, medium-, and heavy-duty vehicles, and public transit buses to clean fuels by 2030.
- Deploy a region-wide robust electric vehicle charging network (or refueling stations for alternate fuels).
- Add additional housing near TPB-identified high-capacity transit stations and in COG’s Regional Activity Centers.
- Reduce travel times on all public transportation bus services.
- Implement transportation system management & operations (TSMO) improvement measures at all eligible locations by 2030.

The seven strategies adopted “to be explored in coordination at the local and state levels” are:

- Take action to shift growth in jobs and housing from locations currently forecast to locations near TPB-identified high-capacity transit stations and in COG’s Regional Activity Centers to improve the jobs-housing balance locally.
- Make all public bus transportation in the region fare-free by 2030.
- Make all public rail transportation in the region fare-free by 2030.
- Price workplace parking for employees – only in Activity Centers by 2030 and everywhere by 2050.
- Convert a higher proportion of daily work trips to telework by 2030 and beyond.
- Charge a new fee per vehicle miles of travel (VMT) by motorized, private, passenger vehicles in addition to the prevailing transportation fees and fuel taxes.
- Charge a “cordon fee” (commuter tax) per motorized vehicle trip for all vehicles entering Activity Centers, by 2030.

The path to the adoption of these goals, targets, and strategies began more than a year and a half earlier. In October 2020,¹² the COG Board adopted an interim greenhouse gas reduction goal of 50 percent below 2005 levels by 2030 to help set a course to the region’s long-term goal of 80 percent below 2005 levels by 2050, which was set in 2008.¹³ The COG goal addressed the need to incorporate equity principles and expand education on climate change to reach the climate change mitigation and resiliency goals. The TPB endorsed the COG goal at its October 2020

¹¹ National Capital Region Transportation Planning Board (November 9, 2022). *The TPB’s Synthesized Policy Framework: Informing Planning for the Metropolitan Washington Region Booklet*.

<https://www.mwcog.org/documents/2024/02/06/tpb-synthesized-policy-framework/>

¹² Metropolitan Washington Council of Governments (October 14, 2020). *Resolution Endorsing Regional Climate Mitigation and Resiliency Goals (COG R45-2020) Resolution*.

<https://www.mwcog.org/documents/2020/10/14/certified-resolution-r45-2020--endorsing-regional-climate-mitigation-and-resiliency-goals/>

¹³ Climate Change Steering Committee for the Metropolitan Washington Council of Governments Board of Directors (November 12, 2008). *National Capital Region Climate Change Report*.

<https://www.mwcog.org/documents/2008/11/12/national-capital-region-climate-change-report-climate-change/>

meeting.¹⁴ CEEPC finalized the CEAP in November 2020,¹⁵ which establishes priority collaborative actions for the region to work together to make progress towards the 2030 goal.

Climate Change Mitigation Study of 2021

In late 2020, the TPB had numerous discussions on the role and responsibility of the transportation sector in achieving the region's greenhouse gas reduction goals. To answer questions that were being asked by the TPB, TPB staff commissioned a study, the Climate Change Mitigation Study of 2021 (CCMS),¹⁶ which was led by the TPB's planning services on-call consultant, to examine in more detail what strategies and actions could be taken solely by the transportation sector to help the region meet the multi-sector regional goals. The CCMS findings were presented to the TPB at a special work session and at its regular meeting in December 2021.¹⁷

According to the CCMS, none of the scenarios were estimated to achieve the 50 percent reduction in on-road greenhouse gas emissions (from the 2005 level) by 2030 goal, which affirmed the findings of previous TPB and COG scenario studies. Several ambitious scenarios (generally those with a combination of strategies) achieved the level of on-road greenhouse gas reductions assumed in the technical analysis that supported COG's 2030 CEAP, which demonstrated that the region could meet the overall economy-wide 2030 goal.

Regarding 2050, with the reference-case electrical grid, the analysis showed that the 2050 goal could be met with only the most aggressive scenarios. Under cleaner electrical grid assumptions, only the most aggressive scenarios were able to achieve the 2050 goal. Mode shift and travel behavior strategies support greenhouse gas reductions but are less impactful when nearly all on-road vehicles are EVs and the electrical grid is carbon neutral.

The results of the CCMS left the TPB without a clear answer regarding the adoption of greenhouse gas reduction goals and strategies, and there were varied opinions on how to move forward. During the first half of 2022, TPB staff and the consultant team provided additional information to support the TPB members' decision making. Additional work sessions on the topic were held before the April and May 2022 TPB meetings where staff presented the TPB with three possible goals for adoption:¹⁸ pragmatic, ambitious, and the aspirational 50 percent and 80 percent below 2005 levels by 2030 and 2050.¹⁹ After extensive discussion, in June 2022, the TPB adopted Resolution R18-2022 with the aspirational-level, on-road transportation greenhouse gas reduction goals and the aforementioned greenhouse gas reduction strategies (seven priority strategies to implement and seven strategies that warranted further discussion and study).

¹⁴ National Capital Region Transportation Planning Board (October 21, 2020). *Resolution on the Metropolitan Washington Council of Governments' Regional Multi-Sector Interim Goals for Reducing Greenhouse Gases Resolution.* <https://www.mwcog.org/events/2020/10/21/transportation-planning-board/>

¹⁵ Metropolitan Washington Council of Governments (November 18, 2020). *Metropolitan Washington 2030 Climate and Energy Action Plan.* <https://www.mwcog.org/documents/2020/11/18/metropolitan-washington-2030-climate-and-energy-action-plan/>

¹⁶ ICF, Fehr & Peers, and Gallop Corporation (January 7, 2022). *TPB Climate Change Mitigation Study of 2021: Scenario Analysis Findings Final Report.* <https://www.mwcog.org/tpb-climate-change-mitigation-study-of-2021/>

¹⁷ National Capital Region Transportation Planning Board (December 15, 2021). *TPB Climate Change Mitigation Study of 2021: Report Findings.* <https://www.mwcog.org/events/2021/12/15/transportation-planning-board/>

¹⁸ Kanti Srikanth to National Capital Region Transportation Planning Board (May 12, 2022). *Transportation Sector-Specific Climate Change Goals and Strategies for TPB's Plan and Planning Process.* <https://www.mwcog.org/events/2022/5/18/tpb-climate-work-session/>

¹⁹ Kanti Srikanth to National Capital Region Transportation Planning Board (June 9, 2022). *Information to Consider before Voting on Greenhouse Gas Reduction Goals and Strategies for On-Road Transportation Memorandum.* <https://www.mwcog.org/events/2022/6/15/transportation-planning-board/>

EMISSIONS REDUCTION ACTIVITIES FOR VISUALIZE 2050

Since June 2022, the TPB has undertaken two major work activities to support implementation of strategies to work towards the TPB's greenhouse gas reduction goals. The first work activity was a study entitled, "Implementation Considerations for On-Road Transportation Greenhouse Gas Emissions Reduction Strategies" (ICGHG), which was commissioned in response to the TPB's direction in Resolution R18-2022 to further study seven greenhouse gas reduction strategies. The ICGHG report was finalized on June 17, 2024,²⁰ and was presented to the TPB Technical Committee on October 4 and to the TPB on October 18.

The second major work activity was a study entitled, the "Regional Electric Vehicle Infrastructure Implementation (REVII) Strategy." The REVII Strategy was developed as a joint effort between the TPB and COG as a follow-up to the findings of the CCMS as well as to support EV infrastructure planning thanks to the unprecedented amounts of funding for EV infrastructure in the Bipartisan Infrastructure Law's \$5 billion National Electric Vehicle Infrastructure (NEVI) Formula Program and \$2.5 billion Charging and Fueling Infrastructure Discretionary Grant Program (CFI Program). The final REVII Strategy report was dated August 2024.²¹ Updates on TPB's climate change mitigation planning and federal funding programs to reduce greenhouse gas emissions from on-road transportation sources through planning and implementation grants can be found on the TPB's climate change mitigation planning page.²²

In 2024, the federal government developed a rule that would have required states and MPOs to establish declining targets for carbon dioxide, one of the primary greenhouse gases, and report on progress toward the achievement of those targets.²³ However, as noted by the U.S. Federal Highway Administration (FHWA) in April 2024:

Pursuant to negotiations in two lawsuits, FHWA agreed to temporarily not seek to enforce the February 1, 2024, deadline for States to submit initial targets and reports through March 29, 2024. On March 27, 2024, the U.S. District Court for the Northern District of Texas vacated and remanded the Final Rule to DOT, in effect nullifying the rule Nationwide. Consistent with the Court's decision, States and MPOs are not required to submit initial targets and reports at this time.²⁴

Even though there is no federal requirement for greenhouse gas emission reduction targets, TPB, through its partnership with COG, continues to pursue regional greenhouse gas emission reduction goals.

²⁰ ICF (June 17, 2024). *Implementation Considerations for On-Road Transportation Greenhouse Gas Reduction Strategies Final Report*. <https://www.mwcog.org/events/2024/10/4/tpb-technical-committee/> and <https://www.mwcog.org/documents/2024/10/18/implementation-considerations-for-on-road-greenhouse-gas-emissions-reduction-strategies/>

²¹ ICE and Metropolitan Washington Council of Governments (August 2024). *Regional Electric Vehicle Infrastructure Implementation Strategy Final Report*. <https://www.mwcog.org/documents/2024/09/04/regional-electric-vehicle-infrastructure-implementation-revii-strategy-climate-energy-climate-change-electric-vehicles/>

²² Metropolitan Washington Council of Governments (November 29, 2024). *Climate Change Mitigation in the Surface Transportation Sector*. <https://www.mwcog.org/transportation/planning-areas/air-quality-and-environment/climate-change/>

²³ U.S. Department of Transportation, Federal Highway Administration (December 7, 2023). *National Performance Management Measures; Assessing Performance of the National Highway System, Greenhouse Gas Emissions Measure*," Rule, 88 Fed. Reg. 85394. <https://www.federalregister.gov/documents/2023/12/07/2023-26019/national-performance-management-measures-assessing-performance-of-the-national-highway-system>

²⁴ U.S. Department of Transportation, Federal Highway Administration, (April 8, 2024). *TPM Rulemakings - Transportation Performance Management*. <https://www.fhwa.dot.gov/tpm/rule.cfm>



**Visualize 2050
Planning and
Programming Process**

Natural Hazards Resiliency

Part 5 of 27



National Capital Region
Transportation Planning Board

December 2025

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OVERVIEW OF TRANSPORTATION RESILIENCE PLANNING

The National Capital Region is experiencing extreme weather events from heat waves to blizzards to severe coastal storms and flooding. The past decade has seen an uptick in the intensity, frequency, and duration of these natural hazards.

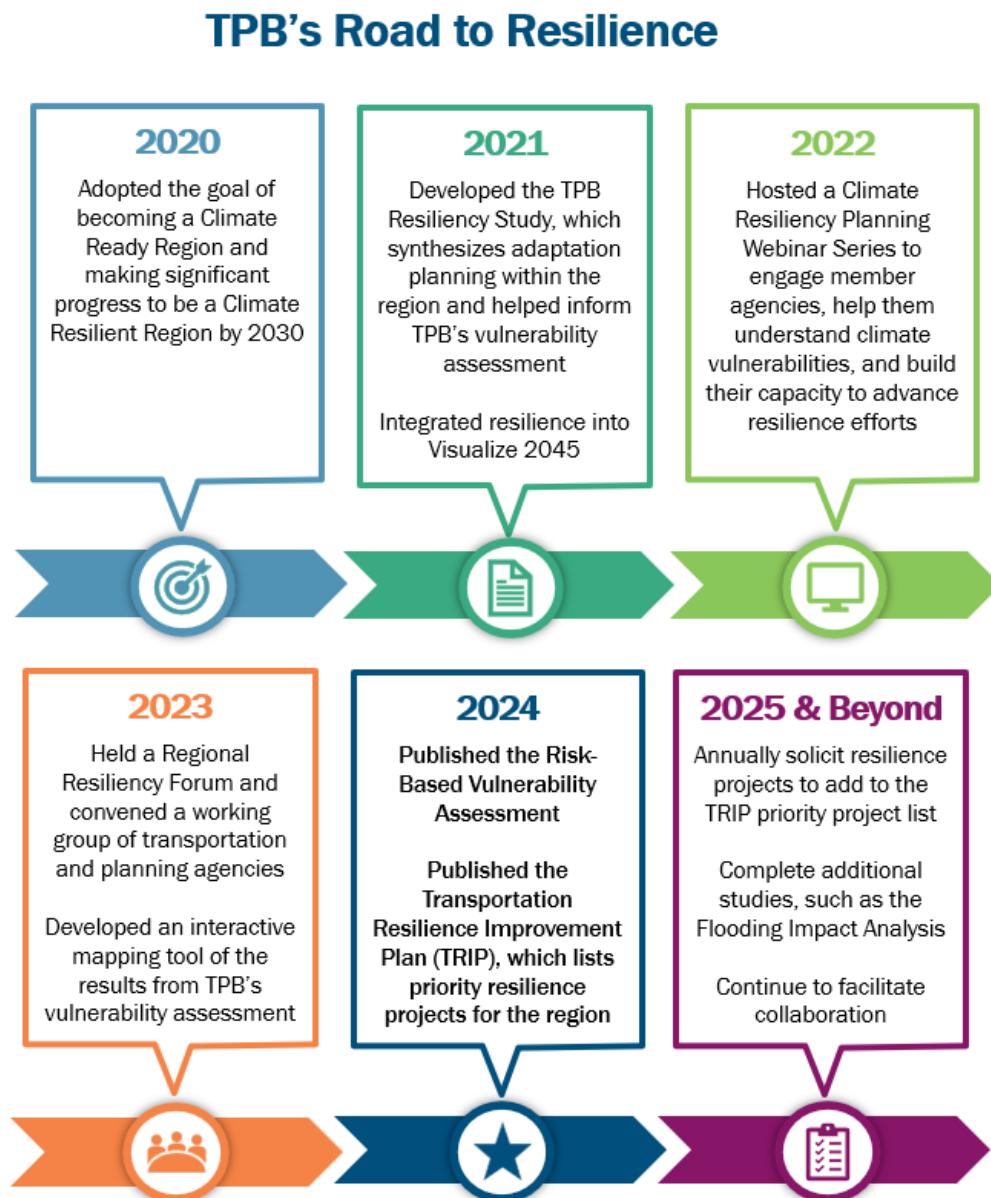
As the region's population and infrastructure investments grow, these natural hazards pose increased risks to people and the economy. Now is the time to get ahead of these risks, and the Transportation Planning Board (TPB) is taking action to support regional resilience efforts through research, engagement, outreach, and more. To improve the preparedness and resilience of the region's transportation system to the impacts of natural hazards, the TPB created a new program at the end of 2022 called the Transportation Resilience Planning Program.

Prior to the creation of the new program, the TPB has embarked on resilience work with the Resiliency Study Phase 1, which benchmarked the region's understanding of its transportation vulnerabilities, outlined actions the TPB could take to increase resilience, and included a series of webinars with tools and resources on transportation resilience for member agencies.¹

Planning for and adapting to the impacts of natural hazards is critical to ensure the region's transportation system is resilient to these hazards. The TPB's regional resilience planning activities consider vulnerability, risks, and proactive anticipation of natural hazards to maintain service operations and ensure the health and safety of travelers. The TPB collaborates with its member agencies on decision-making for the transportation network and shares resources to help regional stakeholders progress towards increasing transportation resilience in the National Capital Region.

¹ National Capital Region Transportation Planning Board (November 2021). *TPB Resiliency Study*. https://www.mwcog.org/assets/1/28/TPB_Resiliency_WhitePaper.pdf

FIGURE 5.1: TPB'S ROAD TO RESILIENCE



TPB'S ROLE AND KEY STAFF

Regional resilience planning requires interagency coordination to identify priorities, resources, and actions that the TPB and COG jurisdictions and member agencies can take to invest in the resilience of the transportation system. TPB's transportation resilience planning program built upon the extensive resilience work that COG and its member agencies have completed to date, from establishing resilience goals to publishing plans that outline frameworks to advance resilience goals and facilitate the implementation of resilience projects. This program is housed within the Department of Transportation Planning, and currently has one full-time staff member shown in Table 5.1 running the day-to-day activities of the program with consultant support.

TABLE 5.1: KEY STAFF

TPB Staff	Title	Role
Kanti Srikanth	Deputy Executive Director	Staff Director for the Transportation Planning Board (TPB)
Katherine Rainone	Transportation Planner	Program Lead

In October 2024, the TPB approved the creation of a new TPB subcommittee called the Regional Transportation Resilience Subcommittee. The mission of this subcommittee is to provide a forum and framework for the coordination of transportation resilience planning throughout the National Capital Region and to continue to incorporate resilience into the National Capital Region Transportation Plan (NCRTP) and Transportation Improvement Program (TIP). Through collaboration, coordination, and strategic planning, the subcommittee aims to enhance the resilience of transportation systems and infrastructure, mitigate potential current and future risks, and build community resilience with a focus on equity to better adapt to impacts from natural hazards, and potentially in the future, other unforeseen challenges.

ROLE OF KEY PLANNING AGENCIES

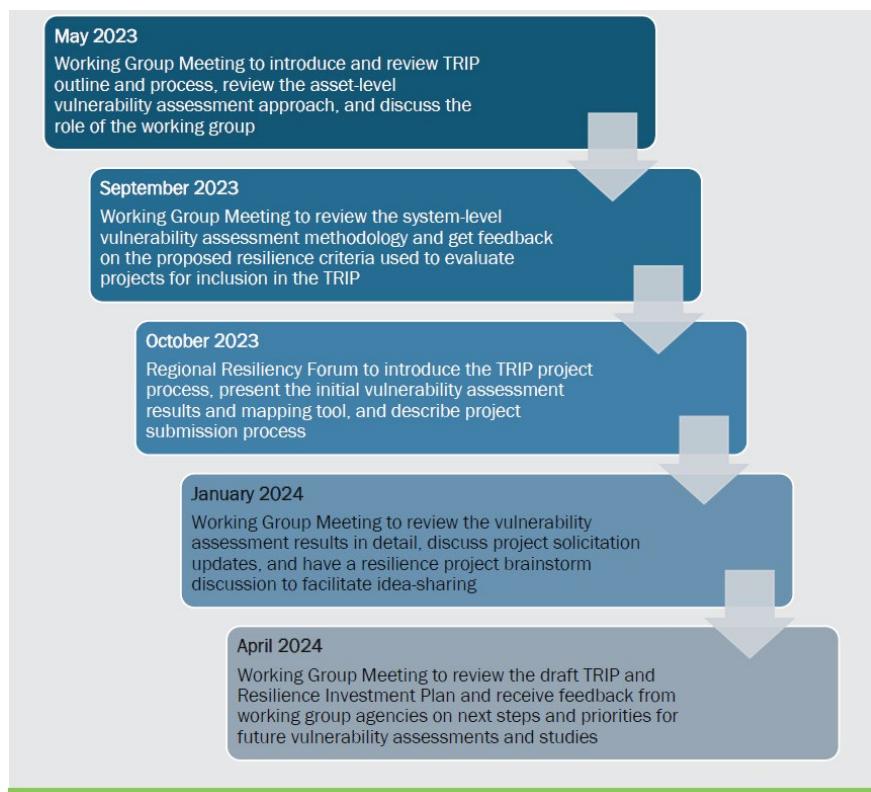
The topic of resiliency is inherently about understanding that issues of natural hazards do not follow jurisdictional or state borders. It is important that a resilient transportation network requires interagency and cross-jurisdictional collaboration. As such, stakeholder engagement was a core component of the Transportation Resilience Improvement Plan (TRIP) development process and will continue to be over the progress of the program. Figure 2 below provides an overview of stakeholder engagement throughout the TRIP development process. A working group was established to engage with agencies in the region and get feedback on process and priorities for the TRIP, including the methodologies behind the vulnerability assessment, the collection of the prioritized project list, and the drafting of the TRIP document itself. The working group consisted of transportation and planning agencies across the District of Columbia, Maryland, and Virginia, including:

1. Charles County, Maryland
2. City of Alexandria, Virginia
3. DC Department of Energy and Environment (DOEE)
4. DC Department of Transportation (DDOT)

5. DC Homeland Security and Emergency Management Agency (HSEMA)
6. Fairfax County, Virginia
7. Maryland Department of Transportation (MDOT)
8. Northern Virginia Regional Commission (NVRC)
9. Prince George's County, Maryland
10. Prince William County, Virginia
11. Virginia Department of Transportation (VDOT)
12. Virginia Railway Express (VRE)
13. Washington Metropolitan Area Transit Authority (WMATA)

The TPB also designed and held a Regional Resilience Forum in October 2023 to engage with a broader set of regional stakeholders and get input on planning priorities and additional considerations.² The TPB provided an overview of the TRIP development process and sought input on the approach to the vulnerability assessment and development of the priority project list. Over 60 people attended from agencies and organizations across the National Capital Region and beyond. The forum and the working group meetings facilitated interagency coordination and resource sharing and ensured consideration of regional perspectives.

FIGURE 5.2: OVERVIEW OF STAKEHOLDER ENGAGEMENT DURING THE DEVELOPMENT OF THE TRIP



² Metropolitan Washington Council of Governments (October 3, 2023). *Regional Transportation Resilience Forum*. <https://www.mwcog.org/events/2023/10/03/regional-transportation-resilience-forum/>

In addition to the stakeholder engagement, members of the public had an opportunity to review and comment on the planning documents through the TPB's Community Advisory Committee (CAC) and through public comment opportunities offered at every Transportation Planning Board meeting. The TRIP was presented at the Transportation Planning Board meetings on January 17, May 15, June 20, 2024, and to the CAC in February and March of 2024.

NATIONAL CAPITAL REGION TRANSPORTATION RESILIENCE IMPROVEMENT PLAN (TRIP)

Leading up to the completion of Visualize 2050, the main product developed through the transportation resilience planning program at TPB is the [TRIP](#).³ The purpose of the TRIP is to serve as a regional resource that describes key transportation asset vulnerabilities in the region identified through a risk-based natural hazards vulnerability assessment and identify priority resilience investments in the context of the region's resilience goals.

The TRIP, developed in coordination with TPB member agencies, is the first comprehensive regional transportation resilience plan for the National Capital Region. It builds on the strong foundation of transportation resilience work in the region and meets the [Federal Highway Administration's Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation \(PROTECT\)](#) program requirements for a Resilience Improvement Plan (RIP).⁴ The PROTECT program provides a unique opportunity to access increased funding for improving surface transportation resilience to natural hazards, and the TRIP will position the National Capital Region to be competitive for these funds.

The TRIP supports regional natural hazards resilience efforts by assessing current and future risks; streamlining the integration of natural hazards resilience into planning, operations, and communications; and increasing the region's ability to maintain essential transportation functions during events due to natural hazards.

The priority objectives of the TRIP are to:

- Provide a systemic understanding of natural hazard risks to the transportation network in the region.
- Identify and prioritize transportation resilience projects, including projects that meet the requirements for FHWA's Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT) program.
- Advance equity and environmental justice by increasing consideration of underserved communities and prioritizing equitable access to affordable and reliable transportation.
- Serve as a resource for the TPB to support efforts to facilitate coordination among infrastructure owners and planning agencies across the region to support a systemic approach to resilience.
- Provide a multi-jurisdictional resource to support regional resilience planning.

³ National Capital Region Transportation Planning Board (2024). *Transportation Resilience Improvement Plan*. <https://www.mwcog.org/documents/2024/06/20/national-capital-region-transportation-resilience-improvement-plan/>

⁴ U.S. Department of Transportation Federal Highway Administration (2023). *Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT) Program*. <https://www.fhwa.dot.gov/environment/protect/>

The PROTECT program provides a unique opportunity to access increased funding for improving surface transportation resilience to natural hazards. State departments of transportation (DOTs) and metropolitan planning organizations (MPOs) that develop Resilience Improvement Plans (RIPs) that meet program requirements reduce the non-federal cost share for projects by seven percent. An additional three percent will be reduced if the RIP is incorporated into the statewide long-range transportation plan or regional metropolitan transportation plan. Additionally, projects that are included in the RIP do not require a Benefit Cost Analysis (BCA) as part of the competitive grant application. The TRIP will serve as the RIP for this region. The TRIP will position the region to be competitive for these funds and help stretch the funding further due to the match reduction.

Vulnerability Assessment

The [TRIP vulnerability assessment](#) builds on the TPB's 2021 Resiliency Study to systematically identify high vulnerability transportation assets throughout the region.⁵ The 2021 Resiliency Study included a summary of local vulnerability analyses in the region. The most common hazards across these analyses included flooding (both sea level rise and coastal and riverine flooding), extreme heat, extreme winter, and extreme wind conditions. That study recommended TPB overlay natural hazards with transportation assets in the region to create a system-level understanding of vulnerability to natural hazards.

The TRIP vulnerability assessment takes a more systemic approach than the 2021 Resiliency Study and responds to the COG 2030 Climate Risk Vulnerability Analysis finding that EEAs in the region are overburdened with climate hazard risks.⁶ The vulnerability assessment includes an equity factor to elevate vulnerable population considerations in the identification of highly vulnerable assets. The results of the vulnerability assessment identify highly vulnerable transportation assets that may need future resilience investments. The vulnerability assessment was conducted in two phases to identify how transportation infrastructure in the region is vulnerable to natural hazards.

- Phase 1 applied a system-level sensitivity analysis to identify priority natural hazard/transportation asset pairs for further analysis in Phase 2.
- Phase 2 applied an asset-level vulnerability assessment (exposure and criticality) to identify specific areas and assets that are particularly vulnerable to natural hazards. This was paired with a literature review to provide information on historical and future trends for each natural hazard.

Phase 1 rated the sensitivity of transportation asset types to natural hazards included in the 2021 Resiliency Study and selected in consultation with the TPB and the working group. Phase 1 of the assessment generated two sensitivity scores for each asset/hazard pair on a low-to-high scale: one score measured infrastructure sensitivity and the other measured service sensitivity.

This dual score is because failures in the physical infrastructure and barriers to usability can impede transportation systems and services. Asset/hazard pairs that received a high sensitivity rating moved forward to Phase 2.

⁵ National Capital Region Transportation Planning Board (April 10, 2024). *National Capital Region Transportation System Climate Vulnerability Assessment*. <https://www.mwcog.org/documents/2024/04/10/national-capital-region-transportation-system-climate-vulnerability-assessment/>

⁶ Metropolitan Washington Council of Governments, Climate, Energy and Environment Policy Committee (November 18, 2020). *Metropolitan Washington 2030 Climate and Energy Action Plan*. https://www.mwcog.org/assets/1/28/Metropolitan_Washington_2030_Climate_and_Energy_Action_Plan_FINAL6.pdf

Phase 2 further evaluated the highly sensitive pairs from Phase 1 through a literature review, a region-wide temperature map, and an asset-level geospatial analysis. The asset-level analysis focused on pairs with adequate geospatial data to complete a geospatial analysis. This analysis evaluated the vulnerability of roads and highways, public transit (bus routes, rail stops, and rail lines), and bridges to extreme heat, temporary flooding (coastal and riverine), and permanent flooding (sea level rise) on a low-to-high scale to identify specific assets or areas within the region that are highly vulnerable. The results are summarized in Figures 5.3 and 5.4 below.

FIGURE 5.3: SYSTEM-LEVEL ANALYSIS RESULTS (INFRASTRUCTURE IMPACTS ON LEFT; SERVICE AND CUSTOMER IMPACTS ON RIGHT)

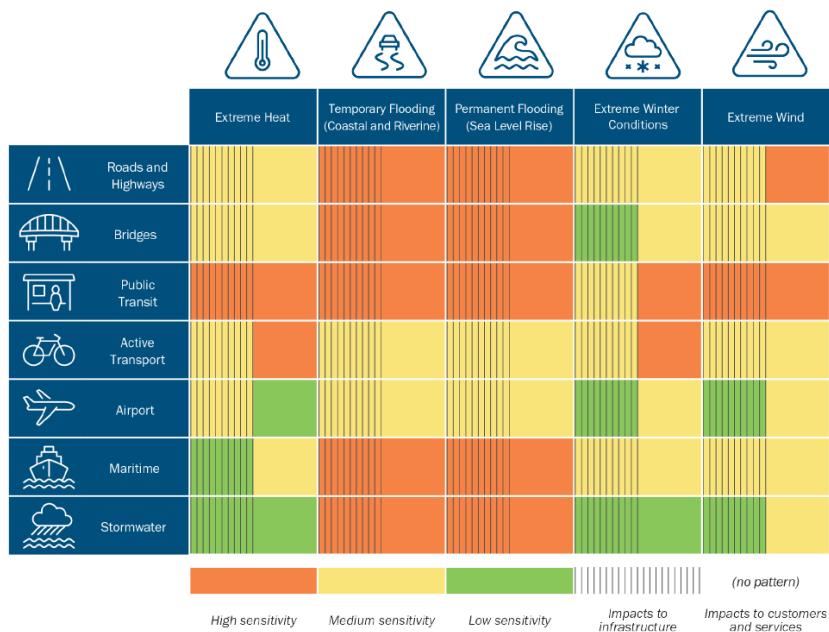


FIGURE 5.4 RESULTS OF VULNERABILITY SCORE ANALYSIS

Asset Type	Extreme Heat				Temporary Flooding (Coastal and Riverine)				Permanent Flooding (Sea Level Rise)			
	High	Medium	Low	Not Exposed	High	Medium	Low	Not Exposed	High	Medium	Low	Not Exposed
Roads/Highways (miles)	Not Assessed				1,097 (4.8%)	1318 (5.8%)	733 (3.2%)	19,754 (86.3%)	50 (0.2%)	17 (0.1%)	14 (0.1%)	22,820 (99.6%)
Bridge	Not Assessed				1 (0.0%)	39 (3.0%)	1,281 (97.0%)	0 (0.0%)	* Bridges were evaluated for flood vulnerability generally based on condition data rather than coastal and riverine vs. sea level rise			
Bus Stops	196 (0.9%)	6,467 (29.1%)	15,560 (70.0%)	0 (0.0%)	173 (0.8%)	336 (1.5%)	377 (1.7%)	21,337 (96.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	22,223 (100.0%)
Rail Stops	0 (0%)	53 (33.1%)	107 (66.9%)	0 (0%)	1 (0.6%)	6 (3.8%)	4 (2.5%)	149 (93.1%)	0 (0%)	0 (0%)	0 (0%)	160 (100.0%)
Rail Line (miles)	18 (1.8%)	352 (34.6%)	646 (63.6%)	0 (0.0%)	115 (11.3%)	154 (15.2%)	128 (12.6%)	619 (60.9%)	19 (1.8%)	42 (4.1%)	2 (0.2%)	954 (93.9%)

Mapping Tool

Results of the geospatial analysis conducted for Phase 2 of the TRIP were integrated into an interactive online mapping tool that was shared with agencies in the region. The mapping tool enabled agencies to use the vulnerability assessment results to assess which transportation assets in their jurisdiction are the most vulnerable to natural hazards and to help them identify projects that could address these vulnerabilities. Agencies are also able to add their own data as a layer in the mapping tool to consider alongside the TRIP vulnerability results to further support their assessment of transportation assets in their jurisdiction.

The [interactive map of transportation vulnerabilities](#) includes natural hazard data, transportation assets, and Equity Emphasis Areas and shows calculated flooding and extreme heat risk scores for transportation infrastructure.⁷ A document titled [Map Companion Text](#) provides more information about how to use the tool.⁸

Prioritized Project List

The Priority Project List outlines the priority transportation resilience projects identified using the results of the vulnerability assessment and input from TPB member agencies.⁹ To create this list, we put out an open call for projects via the working group which included a short form for interested parties to fill out and submit transportation resilience projects. A [project request guidance document](#) was sent with the form to aid planners in filling out the form, and has since been updated to serve as an overall guide for transportation resilience projects.. Several localities and regional agencies put forward an ambitious set of multimodal strategies to advance regional transportation resilience. Eight localities and transportation agencies in the region submitted a total of 34 projects. All projects fall into PROTECT eligible categories as resilience plans (14 projects) or resilience improvements (20 projects), and one resilience project fits an additional PROTECT eligible category by aiming to improve at-risk coastal infrastructure.

Final and Approved TRIP

The full plan, including executive summary, overview of vulnerability assessment, plan components, prioritized project list, and future planned resilience efforts, can be found at this link: [National Capital Region Transportation Resilience Improvement Plan \(TRIP\)](#).

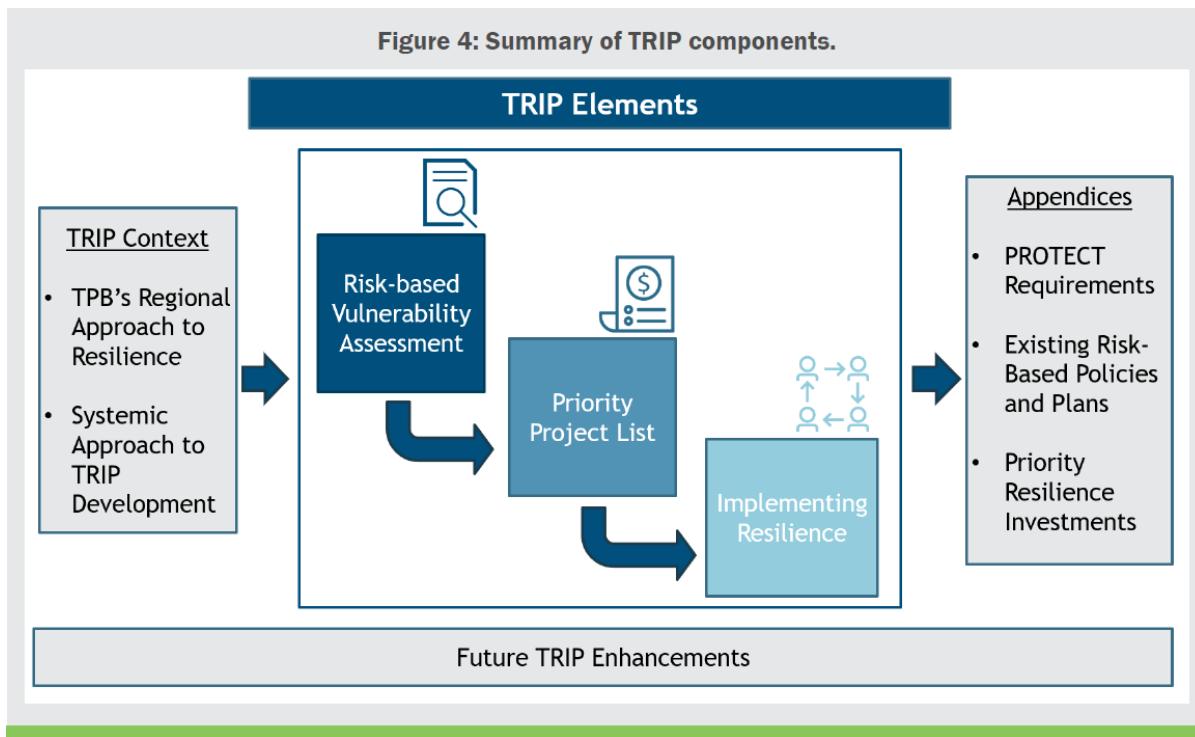
The TRIP summarizes the systemic approach that the TPB used to assess the vulnerability of the region's transportation system, provides a list of prioritized resilience projects, and identifies focus areas for future resilience assessments. Figure 5.5 below summarizes the components of the TRIP.

⁷ National Capital Region Transportation Planning Board (2024). *TPB Transportation Resilience Study Interactive Map*. <https://experience.arcgis.com/experience/327843f119204e059fcc50af4154ae67/page/Main/>

⁸ National Capital Region Transportation Planning Board (2024). *TPB Climate Change Vulnerability Assessment Interactive Mapping Tool Companion Text*. https://www.mwcog.org/assets/1/6/Map_Companion_Text1.pdf

⁹ National Capital Region Transportation Planning Board (2024). *Transportation Resilience Project Guidance*. https://www.mwcog.org/assets/1/6/Transportation_Resilience_Project_Guidance.pdf

FIGURE 5.5: SUMMARY OF TRIP COMPONENTS



Additional Resources

As part of the TRIP, resources were created to provide member agencies and interested parties with information. These resources are in addition to the larger reports, interactive mapping tool, and priority project list.

- [Transportation Resilience Project Guidance Document](#): As noted earlier, the Transportation Resilience Project Guidance document aims to support regional agencies in identifying projects that will enhance the resilience of the region's transportation system and are good candidates for federal and other resilience investment funding. This Guidance document overviews the TPB's processes to support regional resilience coordination, including the development of the TRIP, helps to define a resilience project and provides examples and resources for practitioners, describes the annual project submission process for inclusion in the TRIP Priority Project List, and provides guidance on developing strong project submissions for federal funding programs related to resilience.
- [Transportation Resilience Planning Program two-pager](#): This document summarizes the TPB's regional approach to transportation resilience, including previous work to date on the topic and planned work for future years, as well as examples of natural hazard impacts in the region. It includes links to TPB resilience planning products.
- [Updated website](#): Includes updated information about the transportation resilience planning program and links to all new products, as well as important definitions.



**Visualize 2050
Planning and
Programming Process**

Congestion Management Process

Part 6 of 27



National Capital Region
Transportation Planning Board

December 2025

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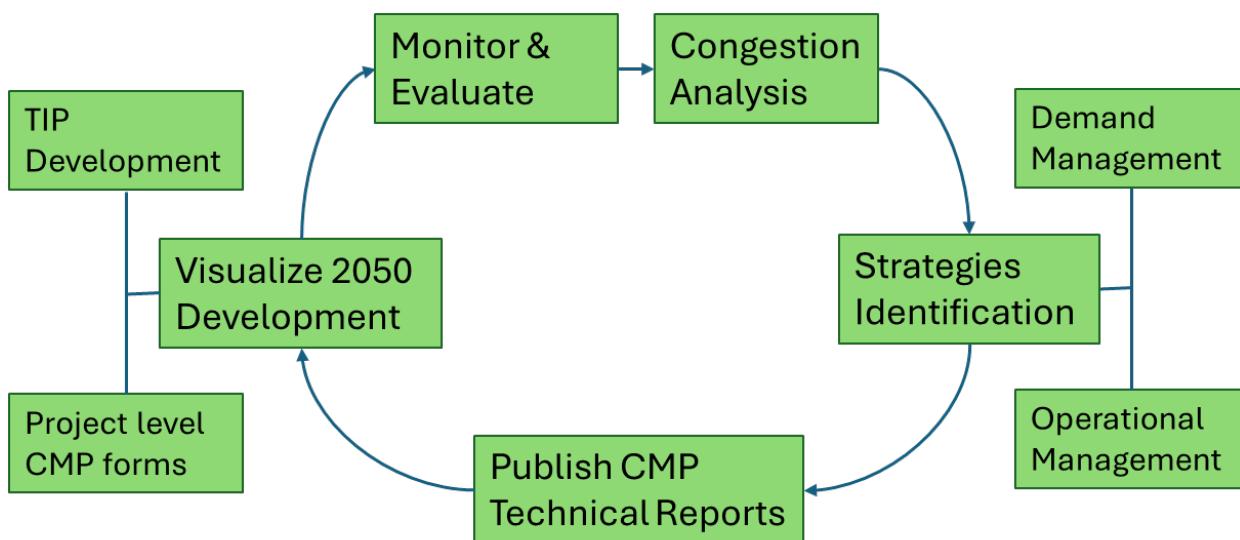
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OVERVIEW OF CONGESTION MANAGEMENT PROCESS

The TPB maintains a robust Congestion Management Process (CMP) to address traffic congestion in the National Capital Region. The CMP aligns with federal transportation planning requirements outlined in Titles 23 and 49 of the U.S. Code and associated regulations. Visualize 2050 directly addresses this mandate by incorporating projects, programs, and policies that target both travel demand reduction and operational management strategies within the region. The CMP serves as a vital framework within Visualize 2050.

A pivotal mandate from USC Title 23 requires that the transportation planning process "...shall address congestion management through a process that provides for effective management and operation... utilizing travel demand reduction and operational management strategies." The CMP is not a siloed entity but a core component of the planning ecosystem, shaping the strategies and, ultimately, the projects, programs, and policies encapsulated in Visualize 2050 through the ongoing process informed by previous National Capital Region Transportation Plan (NCRTP) updates, as depicted in Figure 6.1.

FIGURE 6.1: NATIONAL CAPITAL REGION TRANSPORTATION PLAN DEVELOPMENT AND THE CMP



The CMP relies on a systematic approach to monitor the performance of our transportation system, identify areas of congestion, and evaluate the effectiveness of various strategies to alleviate traffic congestion. It operates through a continuous cycle of data collection, analysis, and action. By monitoring key performance measures, the TPB and its regional partners gain a clear understanding of how our transportation system is functioning. This data becomes the foundation for developing targeted strategies and initiatives to reduce congestion. These strategies fall into two main categories: demand management and operational management.

Demand management strategies aim to reduce the overall number of vehicles on the road, particularly single-occupancy vehicles during peak travel times. This can be achieved through initiatives like promoting carpooling, ridesharing, telecommuting, and encouraging greater use of public transportation and alternative modes like bicycling and walking.

Operational management strategies, on the other hand, focus on optimizing the efficiency of the existing transportation system. This includes proactive measures like incident management, leveraging technological advancements for traffic signal operations, and exploring capacity improvements where necessary.

This introduction sets the stage for the following sections, which will delve deeper into the core elements of the CMP, the roles of key players, and the importance of public engagement in shaping a more efficient and equitable transportation future for our region.

TPB'S ROLE AND KEY STAFF

As the designated metropolitan planning organization (MPO) for the region, TPB plays a central role in coordinating the CMP. It facilitates data collection and analysis, convenes stakeholders, and oversees the development and implementation of regional transportation strategies, including those focused on congestion reduction. Table 6.1 lists the key staff for the congestion management process.

TABLE 6.1: KEY STAFF

TPB Staff	Title	Role
Kanti Srikanth	Executive Director	Staff Director for the Transportation Planning Board (TPB)
Andrew Meese	Systems Performance Planning Director	Program Lead
Jan-Mou Li	Transportation Engineer	Contributor

Role of TPB Subcommittees

The strength of the CMP lies in its collaborative nature. The TPB Technical Committee, along with subcommittees focused on Systems Performance, Operations & Technology, and Commuter Connections, actively engage with staff to inform and refine CMP activities. The TPB Technical Committee is responsible for reviewing and approving the Congestion Management Process Technical Report. Additionally, the TPB's Commuter Connections program plays a vital role in implementing impactful demand management strategies and helping to shift travel behavior towards more sustainable and efficient options. By fostering collaboration across agencies and stakeholders, the CMP ensures a comprehensive and data-driven approach to tackling congestion.

ROLE OF KEY PLANNING AGENCIES

The success of the CMP hinges on a strong foundation of collaboration among key planning agencies within the National Capital Region. In accordance with R18-2021¹, the TPB and Fredericksburg Area MPO (FAMPO) maintain coordinated, cooperative, and continuing planning

¹ National Capital Region Transportation Planning Board (May 21, 2021). *R18-2021 - Resolution to approve the 2021 TPB-Fredericksburg Area MPO Memorandum of Understanding*. <https://www.mwcog.org/documents/2021/05/21/r18-2021--resolution-to-approve-the-2021-tpb-fredericksburg-area-mpo-memorandum-of-understanding-/>

processes, particularly regarding the congestion management process that FAMPO oversees² for the northern portion of Stafford County, which is part of the Washington, DC-MD-VA Urbanized Area (UZA), in compliance with applicable federal laws and regulations. In addition to FAMPO, the following agencies bring diverse expertise and resources to the table driving effective congestion management strategies.

Federal Partners

Certain federal agencies, such as the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA), provide technical assistance and funding that support the development and implementation of the CMP. Their involvement ensures alignment with national transportation goals and leverages federal resources for regional congestion reduction efforts.

State Agencies

State agencies, including the District Department of Transportation (DDOT), the Maryland Department of Transportation (MDOT) and the Virginia Department of Transportation (VDOT), manage and maintain a significant portion of the region's transportation infrastructure, including major highways, bridges, and tunnels. Their participation in the CMP ensures that congestion management strategies are effectively integrated with ongoing infrastructure projects and maintenance activities.

Local Jurisdictions

Local jurisdictions (e.g., Arlington County Department of Transportation) play a critical role in implementing many congestion management strategies, particularly those focused on demand management. This includes initiatives like promoting carpooling, encouraging bicycling and walking infrastructure, and supporting public transit ridership.

Through ongoing communication, data sharing, and collaborative planning, these key agencies work together to ensure the CMP addresses congestion in a comprehensive and coordinated manner. Regular meetings, joint task forces, and technical committees facilitate this collaboration, fostering a shared understanding of regional challenges and the most effective solutions.

By harnessing the collective expertise and resources of these diverse stakeholders, the CMP empowers the National Capital Region to develop and implement a truly comprehensive approach to congestion management.

PUBLIC ENGAGEMENT

The CMP incorporates public input, relying on the regularly scheduled public meetings and workshops hosted by the TPB, its Technical Committee, and various subcommittees, including those focusing on Systems Performance, Operations & Technology, and Commuter Connections. Open and transparent communication is important for the CMP. This can be achieved by:

- Providing clear and concise updates on the CMP process: Regularly sharing information about ongoing activities, input received, and recommendations made.
- The TPB's Community Advisory Committee provides opportunities for public feedback from periodic reviews, providing valuable insights.

² Fredericksburg Area Metropolitan Planning Organization (March 28, 2022). 2022 FAMPO Congestion Management Process. <https://fampo.gwregion.org/congestion-management-process/>

By the TPB's public engagement, prioritization of accessibility, and fostering of trust through transparency, the CMP achieves an inclusive and collaborative approach to congestion management in the National Capital Region.

COMPONENTS OF THE CMP ARE INTEGRATED IN VISUALIZE 2050

There are four major components of the CMP integrated in Visualize 2050, including:

- Monitoring and evaluating transportation system performance
- Defining and analyzing strategies
- Compiling project-specific congestion management information
- Implementing and assessing strategies

See Table 6.2 for an overview of the CMP products and resources associated with each component of the CMP, also described in the following sections.

TABLE 6.2: VISUALIZE 2050 CMP COMPONENTS

Component	TPB Role	CMP Documentation
1. Monitoring and evaluating transportation system performance	The TPB monitors the performance of the region's transportation system and identifies and evaluates the benefits that various congestion management strategies may have.	The TPB travel monitoring activities associated with the CMP are communicated to inform decision makers on the region's congestion through numerous documents, graphics, and text compiled on the TPB website including an ongoing series of reports: National Capital Region Congestion Report. ³
2. Defining and analyzing strategies	Leveraging accurate and reliable data, the TPB and regional partners collaboratively establish priority strategies to alleviate congestion. These strategies encompass both demand management, aiming to influence travel behavior, and operational management, focusing on optimizing the efficiency of the transportation system. Further details on these strategies can be found in the associated CMP documentation.	The TPB's congestion management strategies can be found online at: Major CMP Strategies ⁴ . The TPB's Congestion Management Technical Report provides updated congestion information and congestion management strategies on the region's transportation systems, as well as the process integrating the CMP into the update to Visualize 2050.
3. Compiling project-specific congestion management information	The TPB collects from project sponsors a CMP Documentation Form for projects that require them. The requirement is that SOV capacity-increasing projects are only supposed to be implemented if non-SOV-capacity strategies were also considered. The form documents that such consideration has occurred.	Through the TPB's Technical Inputs Solicitation for projects, sponsors can indicate whether the need for their project stems from recurring or non-recurring congestion. Additionally, they can specify if the project involves capacity expansion and, if so, which exemption criteria apply. Further details are available in the form provided in Appendix F of the 2024 CMP Technical Report. ⁵
4. Implementing strategies	The TPB manages the Commuter Connections program to promote and implement regional demand management. TPB members implement the strategies and submit projects, programs, and	TPB members implement regionally significant projects, programs, and policies that reflect the CMP strategies included in the NCRTP and TIP.

³ National Capital Region Transportation Planning Board (2025). *Congestion Dashboard*. <https://www.mwcog.org/congestion/>

⁴ National Capital Region Transportation Planning Board (2025). *Major CMP Strategies*. <https://www.mwcog.org/transportation/planning-areas/management-operations-and-safety/cmp/strategies/>

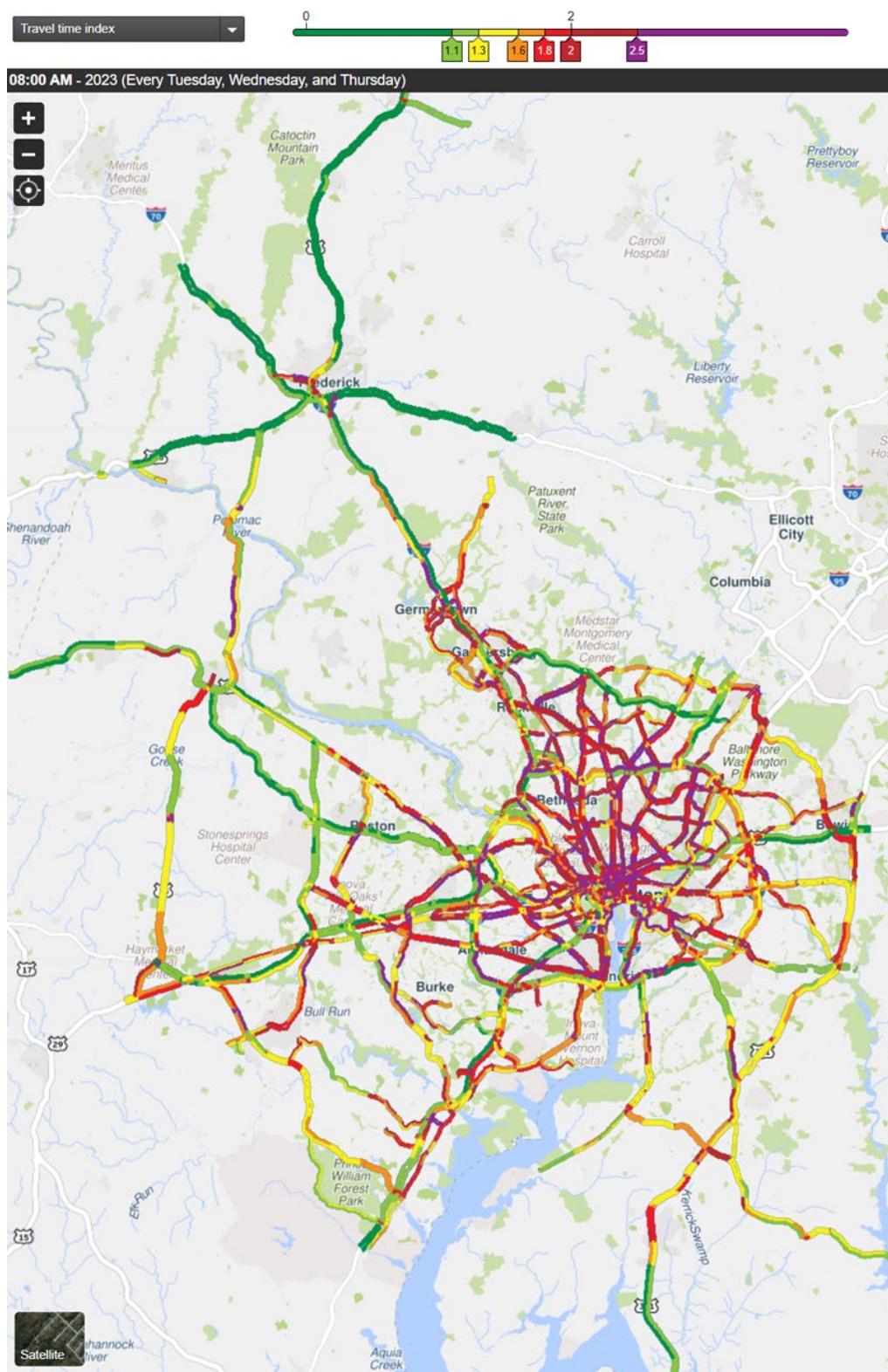
⁵ National Capital Region Transportation Planning Board (2025). *2024 Congestion Management Process Technical Report*. <https://www.mwcog.org/documents/2024/11/19/congestion-management-process-cmp-technical-report-congestion-congestion-management-process/>

	policies to the TPB for inclusion in the NC RTP and TIP.	
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MONITORING AND EVALUATING TRANSPORTATION SYSTEM PERFORMANCE

In monitoring and evaluating transportation system performance, the TPB leverages vehicle probe data (see Figure 6.2 as an example) to support both the CMP and travel demand forecast model calibration, complementing operating agencies' own information, and illustrating locations of existing congestion. Vehicle probe data refers to data obtained from cars equipped with technology allowing information about the vehicle's travel such as location and speeds to be continuously transmitted electronically. Travel demand modeling forecasts, in turn, provide information on future congestion locations. This provides an overall picture of current and future congestion in the region and helps set the stage for agencies to consider and implement CMP strategies, including those integrated into capacity-increasing roadway projects informing Visualize 2050 development.

FIGURE 6.2: EXAMPLE CMP CONGESTION SUMMARY USING TRAVEL TIME INDEX ON SELECTED NHS ARTERIALS DURING 8:00-9:00 AM ON MIDDLE WEEKDAYS IN 2023



For planned or programmed projects, cross-referencing the locations of planned or programmed improvements with the locations of congestion helps guide decision makers to prioritize areas for current and future projects and associated CMP strategies. For Visualize 2050, Table 6.3 shows the type of analysis that staff was able to conduct on the regionally significant inputs approved for conformity analysis in 2024 and their proximity to the region's top roadway bottlenecks (2023).

TABLE 6.3: COMPARISON OF TOP TEN BOTTLENECK LOCATIONS (2023) AND VISUALIZE 2050 PROJECTS

Rank (2023)	Head Location of the Bottleneck	Visualize 2050 Projects/Studies in Vicinity
1	I-95 SB between VA-123/EXIT 160	Multiple Projects
2	I-95 NB @ VA-123/EXIT 160	Multiple Projects
3	I-495 IL @ I-270 SPUR	One Project
4	I-495 OL @ MD-97/GEORGIA AVE/EXIT 31	No Projects
5	I-495 OL @ US-1/EXIT 1	No Projects
6	GW PKY NB @ VA-123/CHAIN BRIDGE RD	One Project
7	US-15 NB @ STUMPTOWN RD/LUCKETTS RD	No Projects
8	B-W Parkway SB @ POWDER MILL RD	No Projects
9	US-301 SB @ MCKENDREE RD/CEDARVILLE RD	No Projects
10	I-270 NB @ MD-109/EXIT 22	No Projects

Sources: 2024 Congestion Management Process Technical Report (bottlenecks) and Visualize 2050 regionally significant for air quality projects approved in 2024 for conformity analysis. IL = Inner Loop; OL = Outer Loop.

The CMP goes beyond simply identifying congestion; it actively encourages the implementation of effective strategies. The NCR places a strong emphasis on non-capital-intensive congestion management strategies, particularly those championed by the Commuter Connections program (demand management) and the Systems Performance, Operations, and Technology program (operational management). Notably, the Metropolitan Area Transportation Operations Coordination (MATOC) Program serves as a key example of an operational management strategy focused on improving traffic incident coordination, aiming to avoid incident-related, nonrecurring congestion. Overall, these non-capital-intensive congestion management strategies are of a nature that they

may not be directly evident in capital project listings in the National Capital Region Transportation Plan.

DEFINING AND ANALYZING STRATEGIES

The CMP component of Visualize 2050 defines and analyzes potential congestion management strategies. These strategies encompass both demand management (e.g., ridesharing, public transit use) and operational management (e.g., traffic signal timing) approaches, ensuring a comprehensive strategy for tackling the challenge.

- Demand Management: This approach focuses on reducing the overall number of vehicles on the road during peak travel times. Examples include promoting carpooling, ridesharing, telecommuting, bicycling, and walking infrastructure improvements – all aimed at encouraging a shift towards more sustainable and efficient modes of transportation.
- Operational Management: This category focuses on optimizing the efficiency of the existing transportation system. Strategies include proactive measures like incident management, leveraging technological advancements for traffic signal timing, and exploring capacity improvements where necessary.

Through its Technical Committee and various subcommittees, including the Systems Performance, Operations, and Technology Subcommittee and the Travel Forecasting Subcommittee, the TPB facilitates a collaborative review process. This process considered both the locations experiencing the most severe congestion and the potential effectiveness of various strategies in those specific areas when developing Visualize 2050 project inputs.

The TPB's Congestion Management Process Technical Report (CMPTP)⁶ serves as a valuable resource for this strategic analysis. This report provides not only technical details about potential strategies but also keeps stakeholders informed with updated congestion information and the latest congestion management strategies being considered for implementation on the region's transportation systems. Furthermore, the CMPTP details the ongoing process of integrating the CMP into the update of Visualize 2050. This ensures that the most up-to-date data and analysis inform the development of the region's long-range transportation plan.

COMPILING PROJECT-SPECIFIC CONGESTION MANAGEMENT INFORMATION

To ensure that individual transportation projects contribute positively to regional congestion reduction efforts, the TPB utilizes a CMP Documentation Form⁷ to assess that the planning of federally funded SOV projects has included considerations of CMP strategy alternatives and integrates such components where feasible. In the Technical Inputs Solicitation for the update to Visualize 2050 and the FY 2026-2029 TIP, for any project providing a significant increase to SOV capacity, it must be documented that the implementing agency considered all appropriate systems and demand management alternatives to the SOV capacity. This ensures that project planning prioritizes strategies that reduce overall traffic demand, alongside potential capacity enhancements.

⁶ National Capital Region Transportation Planning Board (July 7, 2022). *Congestion Management Process Technical Report*. <https://www.mwcog.org/documents/2022/07/08/congestion-management-process-cmp-technical-report-congestion-management-process/>

⁷ Appendix F of 2024 Congestion Management Process Technical Report. The CMP Documentation Form is currently a portion of the online system member agencies use to enter project information into TPB's Technical Inputs Solicitation.

The dedicated Congestion Management Process Documentation Form is available along with the Technical Inputs Solicitation. This form includes a specific set of questions related to SOV congestion management. Any project aiming to significantly increase a highway's single-occupancy vehicle capacity must answer these questions to be considered for inclusion within the Visualize 2050 plan and the FY 2026-2029 TIP. By requiring this documentation, the CMP ensures that high-capacity SOV projects are carefully evaluated and, whenever possible, integrated with strategies that manage overall traffic demand.

IMPLEMENTING AND ASSESSING STRATEGIES

The selection of fiscally constrained projects within Visualize 2050 and the FY 2026-2029 TIP is informed by the CMP analysis and reporting. The CMP's strategies are propelled forward through the deliberations and consensus-building efforts of the TPB committees, notably with the TPB's endorsement of priority strategies as key regional initiatives. The region places a strong emphasis on non-capital congestion strategies, as evidenced by the Commuter Connections program's demand management activities and the operational management strategies studied by the Systems Performance, Operations, and Technology Subcommittee. Regular assessments of these programs by Commuter Connections staff, coupled with the TPB's ongoing travel monitoring and studies, provide valuable feedback that shapes future transportation planning cycles.

The CMP documents the region's consideration and adoption of congestion management strategies as viable alternatives to SOV capacity expansion. Both demand management and operational management strategies are actively supported, including those integral to the Commuter Connections and Metropolitan Area Transportation Operations Coordination (MATOC) programs. The National Capital Region Transportation Plans reflect the TPB's commitment to these strategies over time.

DEMAND MANAGEMENT IN THE VISUALIZE 2050 UPDATE

The Visualize 2050 update is strategically designed to shape traveler behavior, aiming to redistribute or mitigate travel demand. The integration of established demand management strategies not only augments the efficiency and safety of the transportation network but also prepares it for future demands. Within the scope of the region's transportation infrastructure planning, the update incorporates a suite of demand management strategies. These encompass a variety of approaches, including alternative commuting options, managed facilities like HOV lanes and dynamically priced lanes, enhancements to public transit, and upgrades to pedestrian and bicycling infrastructure, alongside growth management strategies that coordinate transportation with land use initiatives.

The cornerstone of the region's demand management approach is the comprehensive Commuter Connections program, which fosters a diverse array of alternatives to SOVs. This includes promoting ride sharing, public transportation, bicycling, telecommuting, and residential proximity to workplaces. The regional long-term planning reflects these Transportation Demand Management (TDM) efforts through employer engagement, promotional activities, and programs such as the regional Guaranteed Ride Home program.

The commitment of Visualize 2050 to TDM is further manifested in its robust support for public transit and a holistic multimodal strategy. The expansion and preservation of transit's share in regional travel is pivotal to the successful management of congestion, aligning with the broader objectives of regional transportation planning.

OPERATIONAL MANAGEMENT IN VISUALIZE 2050

The TPB Vision articulates a commitment to leveraging cutting-edge technology to enhance the efficiency of the system. A pivotal element of the CMP is the identification and implementation of operational management strategies that bolster the effective utilization and safety of both current and prospective transportation frameworks.

These strategies encompass a range of programs and technologies, including incident management initiatives, Intelligent Transportation Systems (ITS) technologies, Advanced Traveler Information Systems, and advancements in traffic engineering. While many of these strategies represent ongoing efforts by member agencies, they are integral to the CMP, even when they serve as complementary components of broader capital projects.

A cornerstone of the region's operational management is the Metropolitan Area Transportation Operations Coordination (MATOC) Program. Established in 2009, MATOC has been instrumental in real-time surveillance of transportation system conditions, issuing timely alerts to member agencies responsible for system operations. This proactive approach plays a vital role in diminishing the repercussions of incidents on regional traffic congestion.

CAPACITY INCREASES IN VISUALIZE 2050 AND THEIR CMP COMPONENTS

Under federal law and regulations, capacity enhancements are recognized as a vital aspect of operational management strategies. These enhancements are particularly pertinent in scenarios such as:

- **Alleviating Bottlenecks:** Implementing modest capacity increases at pivotal congestion points can significantly mitigate traffic issues extending well beyond the immediate area.
- **Safety Enhancements:** Addressing safety concerns, especially at locations with high crash rates, can contribute to reducing congestion related to these safety issues.
- **Operational Traffic Enhancements:** This includes the expansion or extension of turning lanes and the strategic redesign of intersections to improve traffic flow while upholding safety standards.

These strategic considerations are integral to the CMP Documentation Form within the Visualize 2050 framework and are reflected in TIP project submissions.

Congestion management is ongoing and the 2024 CMP Technical Report, along with future Technical Reports, will continue to reflect on the most current version of Visualize and inform future updates of the National Capital Region Transportation Plan while providing information for stakeholder consideration as they evaluate strategies to address congestion concerns throughout the National Capital Region.



**Visualize 2050
Planning and
Programming Process**

Emergency Preparedness Planning

Part 7 of 27



National Capital Region
Transportation Planning Board

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OVERVIEW OF TRANSPORTATION EMERGENCY PREPAREDNESS PLANNING

In the National Capital Region (NCR), traffic incidents can have wide-reaching effects involving multiple jurisdictions across local, state, and federal levels. Over the past 25 years, the region has seen incidents ranging from the everyday minor traffic incident, inclement weather that shut roads in the region down unexpectedly, to the terrorist attacks of September 11, 2001. Responding to these incidents requires coordination on a regional level unique to the NCR when compared to other regions in the country.

The region has over 40 law enforcement (local, state, and federal) and emergency medical services (EMS) agencies, three state departments of transportations (DOTs), and multiple transit agency providers. Coordination among responding agencies takes place daily for incidents around the region. Much of this coordination is the outcome of work facilitated by the Transportation Planning Board (TPB) and the Metropolitan Washington Council of Governments (COG) and its public safety programs. This work aims to foster working relationships, support knowledge exchange, and assist in the coordination and enhancement of transportation emergency preparedness and response efforts and programs across the region.

TPB'S ROLE AND KEY STAFF

The TPB staff, in conjunction with COG's Department of Homeland Security and Public Safety (DHPS) staff, carry out transportation emergency coordination and response planning through the emergency management and Homeland Security Urban Area Security Initiative (UASI)

Processes. Staff conduct Traffic Incident Management (TIM) planning as it relates to transportation emergency preparedness planning and support the regional Transportation Emergency Preparedness Committee (RESF-1).

FIGURE 7.1: KEY STAFF

TPB Staff	Title	Role
Andrew Burke	Transportation Engineer	SPOTS Staff
Eli Russ (DHPS Staff)	Senior Public Safety Planner	RESF-1 Staff

Systems Performance, Operations and Technology Subcommittee

The TPB Systems Performance, Operations and Technology Subcommittee (SPOTS) provides support and coordination for the transportation sector's role in overall regional emergency preparedness planning in conjunction with the COG public safety programs. SPOTS members are kept apprised of work being done by the RESF-1 committee to help in planning for operations in the region. This is a component of a much larger regional set of emergency preparedness activities funded primarily outside the Unified Planning Work Program (UPWP) by U.S. Department of Homeland Security (DHS) and COG local funding. The RESF-1 Committee, within the COG public safety committee structure, advises these efforts and coordinates with emergency management

agencies, police, fire, and other emergency response committees. More information about the RESF-1 Committee is provided in the following section.

SPOTS also participates in Traffic Incident Management (TIM) planning as it relates to transportation emergency preparedness planning for the region by participating in the regional TIM committees sponsored by member agencies. SPOTS also conducts FHWA's Traffic Incident Management Self-Assessment (TIMSA) for the region, bringing together TIM professionals from member agencies to answer the assessment from a regional perspective.

ROLE OF KEY PLANNING AGENCIES

While there are a multitude of agencies that take part in emergency preparedness planning in the region, the state DOTs take the lead when it comes to transportation system emergency preparedness. Each of the DOTs coordinate with their respective state emergency management agencies on incident responses that fall under the emergency management agency's purview. One of the most complicated issues for the region is evacuation planning because most plans involve crossing state borders. The TPB and COG have helped facilitate conversations on this topic through the RESF-1 Committee.

COG Transportation Emergency Preparedness Committee

The RESF-1 Committee's purpose is to build working relationships, exchange knowledge and engage in the coordination and enhancement of transportation emergency preparedness and response efforts and programs across the COG region. The Committee advises the TPB and its subcommittees, Emergency Preparedness Council (EPC), Homeland Security Executive Committee (HSEC) and COG Board of Directors, as requested, on regional matters pertaining to transportation emergency preparedness.

The RESF-1 Committee plans for and addresses transportation agencies' roles regarding emergency transportation planning, emergency response, coordination, and recovery during and after a declared emergency or other major event. This committee has been established to provide an open forum for regional transportation officials to exchange information and discuss the emergency response, coordination, and recovery requirements of transportation as well as provide a voice for transportation in the larger Homeland Security Program for the region. Input from the RESF-1 Committee also contributes to the planning of cross-functional issues such as evacuation, where transportation plays a meaningful role.

FIGURE 7.2: KEY PLANNING AGENCIES

Planning Agency	Role
District Department of Transportation (DDOT)	State DOT
Maryland Department of Transportation/State Highway Administration (MDOT/SHA)	State DOT
Virginia Department of Transportation (VDOT)	State DOT

PUBLIC ENGAGEMENT

The TPB's monthly meetings are an opportunity for the public to express sentiments regarding any topic, including emergency preparedness planning. Comments are provided to the TPB members and relevant TPB staff.

METROPOLITAN AREA TRANSPORTATION OPERATIONS COORDINATION PROGRAM

To improve safety and mobility in the region through information sharing, planning, and coordination, the TPB, the Washington Metropolitan Area Transit Authority (WMATA), and the District of Columbia, Maryland, and Virginia DOTs created the Metropolitan Area Transportation Operations Coordination (MATOC) Program following the September 11, 2001, attacks. MATOC's mission is to provide situational awareness of transportation operations across the National Capital Region (NCR) through the communication of consistent and reliable information that enables operating agencies and the traveling public to make effective and timely decisions. TPB and COG also assist MATOC in bringing together experts from regional agencies to coordinate and share information on topics like snow/inclement weather operations, transit operations, and information technology issues that feed operations centers. MATOC holds regional conferences on relevant topics (TIM), tabletop exercises, and after-action reviews of major traffic disruption incidents.



Visualize 2050
Planning and
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Emerging Technologies

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National Capital Region
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OVERVIEW OF EMERGING TECHNOLOGIES

Advances in technology have changed the face of transportation at a rapid pace. These advances have enabled greater optimization of systems already in place and ensure efficiency in systems being built. These changes are happening in all facets of transportation including planning, engineering, and operations. In the past few years there have been a few new technologies that stand out for how they are changing the way transportation systems are managed and operated. Keeping abreast of these changes has become more important than ever.

One of the biggest changes related to technology is the many new sources and amount of data available. This has led to the rise of “Big Data”, or massive and complex datasets generated by various systems and modes, including cell phones, vehicles, public transportation, and infrastructure. Transportation professionals now have access to more data than ever before, enabling more informed decision-making at every stage, from planning and construction to ongoing operations of transportation facilities.

With the introduction of connected and automated vehicles (CAVs), how agencies accommodate and respond to incidents involving them has become a bigger topic of interest. Unmanned Aerial Vehicles (UAVs), commonly referred to as drones, are increasingly used for situational awareness by capturing a visual confirmation of a scene before responders arrive. UAVs are also increasingly being used in traffic incident response to decrease the time it can take for incident reconstruction and enabling the resumption of normal operations in drastically reduced amounts of time.

Electric vehicles (EVs) have caused a rethinking of traffic incident management as they present unique dangers not seen before by responders and the public. EV battery packs that catch fire not only require different responses than internal combustion vehicles to put out, they also have been known to reignite after they have been towed away, raising the need for specialized storage solutions. Also, because of their contents any battery fire becomes a hazardous material incident that requires specialized response leading to increased clean-up cost and increased health dangers to both responders and any bystanders. Increased EV adoption is also having effects on infrastructures—more chargers are built, more demand is placed on power grids.

Artificial Intelligence (AI) and other predictive software are in their infancy but already having big effects. Traffic operations centers are using AI software that can use video feeds to identify possible incidents and alert operators faster than operators may have found using older methods. Predictive models are being used to help predict and respond to incidents to keep facilities operating at their best.

TPB'S ROLE AND KEY STAFF

Keeping abreast of emerging technology happens across departments of both COG and TPB. Staff members in every position help keep the TPB up to speed in this fast-paced area using the best practices to incorporate emerging technology into the work process and information sharing amongst staff. Externally, TPB staff look for member agencies to share their experiences using new technologies, inviting the agencies to present at relevant TPB subcommittees so that other members can learn from their experiences. TPB points of contact for related emerging technologies work are listed in Table 8.1.

TABLE 8.1: KEY STAFF

TPB Staff	Title	Role
Kanti Srikanth	Executive Director	Staff Director for the Transportation Planning Board (TPB)
Andrew Burke	Transportation Engineer	Systems Performance Operations and Technology Subcommittee Staff
James Li	Transportation Engineer	Vehicle Probe Data Users Group Staff
Zhou Yang	Transportation Data Analyst	Big Data Users Group Staff

Role of TPB Subcommittees

The following TPB subcommittees and groups convene regional stakeholders to coordinate topics related to emerging technologies. In addition, other TPB subcommittees, such as the Safety Subcommittee or Public Transportation Subcommittee, may discuss technology even though it is not a primary focus.

Systems Performance, Operations and Technology Subcommittee

The Systems Performance, Operations and Technology Subcommittee (SPOTS) advises the National Capital Region Transportation Planning Board on matters of performance outcomes of the transportation system; transportation operations and management, including considerations of Intelligent Transportation Systems (ITS) technologies in improving those operations; and emerging transportation technologies. The Subcommittee provides a regional forum for coordination among Transportation Planning Board member agencies and other stakeholders on these topics. Staff also are active with ITS America chapters that meet in the region. TPB staff also attend forums, workshops, and working groups sponsored by member agencies that highlight emerging technologies.

In 2020, SPOTS convened a Connected and Automated Vehicle (CAV) working group to develop a white paper that presented suggested principles for use by members in planning for CAV implementation in the region.

Vehicle Probe Data Users Group

The mission of the National Capital Region's Vehicle Probe Data Users Group (VPDUG) is to enhance regional coordination, consistency, and capabilities in the use of vehicle probe-based traffic data toward performance-based transportation planning and programming. VPDUG brings together users of big data products to share how these probe data products are being used in work across the TPB region.

Travel Forecasting Subcommittee

The mission of the Travel Forecasting Subcommittee (TFS) is to “provide guidance to, review of, and oversight to the COG/TPB information, analysis, and forecasting systems, and to serve as a

forum for coordinating and enhancing such systems throughout the greater Washington region" (adopted April 21, 1995). In FY 2005, the Travel Monitoring Subcommittee merged into the TFS, so the mission of the TFS also includes oversight of travel monitoring activities.

ROLE OF KEY PLANNING AGENCIES

The Metropolitan Washington Council of Governments (COG) has conducted electric vehicle and electric vehicle infrastructure planning work for more than 10 years, publishing its first regional EV-readiness plan in 2012. COG currently facilitates the Regional Electric Vehicle Deployment (REVD) Working Group which is made up of members from COG and TPB jurisdictions and serves as a forum to collaborate and coordinate actions related to deploying EVs and EV infrastructure.

The REVD Working Group oversees the EV Deployment Clearinghouse, which is a resource to support COG member governments on EV deployment within their government operations as well as community wide. Within the EV Deployment Clearinghouse is the Regional Electric Vehicle Infrastructure Implementation (REVII) Strategy, which was published in August 2024 and was a joint effort by TPB and COG to support the implementation of the findings from the TPB's Climate Change Mitigation Study of 2021 (CCMS). REVII develops a blueprint for a robust regional network of EV chargers as a major element of the region's commitment to reducing GHG emissions from motor vehicles. Also in August 2024, a COG-led proposal for grant funding from the federal Charging and Fueling Infrastructure Program (CFI) was selected to receive \$3.9 million to install EV chargers across metropolitan Washington.

Key TPB member agencies involved in incorporating emerging technologies in the region are the three departments of transportation – District DOT, Maryland DOT/SHA, and Virginia DOT. Each agency sponsors various working groups focused on emerging technologies and hosts forums for information sharing on the use of different technologies. All three DOTs are actively involved with their state chapters of ITS America and participate in meetings throughout the year sponsored by these chapters.

Other agencies that play a key role in emerging technology in the region are the Northern Virginia Transportation Authority (NVTA), and the Metropolitan Area Transportation Operations Coordination (MATOC) program.

Established by the state of Virginia, NVTA is a regional organization that develops the long-range transportation plan for Northern Virginia. With its focus on reducing congestion, NVTA uses performance-based criteria to evaluate and fund regionally significant multimodal transportation projects. NVTA developed the Transportation Technology Strategic Plan (TTSP) for Northern Virginia and established the NVTA Transportation Technology Committee. NVTA produces the NVTA Transportation Technology Strategic Plan (TTSP) that consists of strategies and an Action Plan, which were designed to proactively prepare for the use of evolving technologies to address travel demand on infrastructure while keeping congestion reduction at the forefront in northern Virginia.

To improve safety and mobility in the region through information sharing, planning, and coordination, the TPB, the Washington Metropolitan Area Transit Authority, and the District of Columbia, Maryland, and Virginia departments of transportation created the Metropolitan Area Transportation Operations Coordination (MATOC) Program. MATOC's mission is to provide situational awareness of transportation operations in the National Capital Region. MATOC established one of the first regional transportation operations centers. MATOC also brings together experts from regional agencies to coordinate and share information on topics like snow/inclement weather operations, transit operations, and information technology issues that feed the region's operations centers. MATOC is currently working with VDOT on its Regional Multi-Modal Mobility Program (RM3P) which is a collaborative and data-driven program to improve **safety, reliability, and mobility** for travelers in northern Virginia.

TABLE 8.2: KEY PLANNING AGENCIES

Planning Agency	Role
Metropolitan Washington Council of Governments (COG)	Convenes the Regional Electric Vehicle Deployment Working Group
District Department of Transportation (DDOT)	State DOT
Maryland Department of Transportation/State Highway Administration (MDOT/SHA)	State DOT
Virginia Department of Transportation (VDOT)	State DOT
Northern Virginia Transportation Authority (NVTA)	Regional Funding Agency
Metropolitan Area Transportation Operations Coordination (MATOC)	Regional Operations Coordination

PUBLIC ENGAGEMENT

Emerging technologies are topics of importance to both the TPB Community Advisory Committee (CAC) and the TPB Access for All Advisory Committee (AFA). The AFA in particular has been interested and involved in technologies surrounding wayfinding applications that assist the mobility-impaired. The Regional Electric Vehicle Infrastructure Implementation (REVII) deployment program has been presented to both the CAC and the AFA during their meetings, a summary of which is reported to the TPB along with any comments and recommendations the committee may want to communicate. To the extent these programs are presented to the TPB, there is an opportunity for the public to submit comments during the public comment period at each TPB meeting.



**Visualize 2050
Planning and
Programming Process**

Environmental Consultation and Mitigation

Part 9 of 27



National Capital Region
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OVERVIEW OF THE ENVIRONMENTAL CONSULTATION AND MITIGATION PROCESS

Environmental mitigation is the process of addressing damage to the environment caused by transportation or other public works projects. Federal regulations require that the TPB include a discussion of possible mitigation activities that may have the greatest potential to restore and maintain environmental functions (23 CFR § 450.324 f.10.).

To promote relationships between regional transportation and environmental agencies, gather feedback on the National Capital Region Transportation Plan (NC RTP), and provide an opportunity for discussion on environmental mitigation, the TPB established its environmental consultation process between 2007 and 2009. The consultation effort engages state and local agencies responsible for land-use management, natural resources, environmental protections, conservation, and historic preservation. In the process' early development, feedback from the agency representatives revealed that agency staff would face significant challenges in providing substantial comments on the regional transportation plan due to a lack of project-level details and staff time and expertise to analyze individual projects in the plan. These agencies play integral roles in project-level planning and during National Environmental Policy Act (NEPA) reviews for specific projects, which includes assessment of the social, economic, and environmental impacts of a proposed action or project.

On the regional scale, agency staff found the development of a map highlighting environmental and historic features alongside transportation projects to be insightful. The consultation process includes a comparison of the planned transportation improvements with state conservation plans or maps and inventories of natural or historic resources. From this, an interactive map is made to provide a regional resource to inform the relationship between transportation and environmental concerns. With its defined and inventoried environmental resources and data, the interactive map serves as a tool to inform local and state agencies, as well as the public, on how the projects in the NC RTP relate to regional environmental concerns because, currently, only an assessment of the impact of transportation projects on the regional ambient air quality is required in the long-range planning process.

Transportation projects generally impact environmental resources because of construction, increased traffic, stormwater runoff from paved surfaces, and other factors. The areas where mitigation efforts to offset these negative impacts can be focused include neighborhood and community amenities like open spaces; cultural resources (i.e. historic properties or archaeological sites); wetlands and water resources; forested and other natural areas; agricultural areas; endangered and threatened species; and air quality.

TPB'S ROLE AND KEY STAFF

TPB staff lead the environmental consultation efforts for the region and are responsible for compiling environmental datasets, mapping projects and environmental resources, communicating with agencies the results of the environmental consultation activities, and identifying possible mitigation activities. Key TPB staff are listed in Table 9.1.

FIGURE 9.1: KEY STAFF

TPB Staff	Title	Role
Kanti Srikanth	Executive Director	Director for the Transportation Planning Board (TPB)
Sergio Ritacco	Senior Transportation Planner	Program Lead
Jamie Bufkin	Transportation Planner	Contributor
Jessica Storck	GIS Analyst	Map Contributor
Charlene Howard	Planning Data Resources Manager	Map Contributor

Compiling and Mapping Environmental and Historic Resources

The focal point of the TPB's environmental consultation and mitigation process is the development of the interactive map that highlights the region's resources and planned projects. To accomplish this, TPB staff completed extensive data collection that compares the transportation projects with the region's natural and historic resources and regional conservation plans. The data collection involved TPB staff working with agencies to obtain updated data on floodplains, green infrastructure (as defined by Virginia and Maryland conservation plans), historic sites (as defined by national and separate state registers), protected lands (as defined by state wildlife management and conservation plans), and wetlands. Data collection occurred throughout summer 2024 with map production, analysis, and publication occurring in the early fall of 2024. The sources and dates of the data are detailed in Table 9.2.

TABLE 9.2: KEY SOURCES OF ENVIRONMENTAL AND HISTORIC RESOURCES MAPPING

Group	Data Layer	Data Source	Data Vintage	Date Accessed
Protected Lands	Federal Lands	USA Federal Lands	2024	July 2024
	DC Community Gardens	City of Washington, DC	2017	July 2024
	Maryland Agricultural Easement	Maryland Department of Agriculture	2019	July 2024
	Maryland Permanently Preserved Agricultural Lands	Maryland Department of Agriculture	2019	July 2024

	Virginia Agricultural Forestal District Layer	Virginia Department of Forestry	2021	July 2024
	Maryland Forest Conservation Act Easements	Maryland Department of Natural Resources	2019	July 2024
	Maryland Environmental Trust Easements	Maryland Department of Natural Resources	2019	July 2024
	Virginia Environmental Easements	Virginia Department of Conservation and Recreation	2023	July 2024
	City of Alexandria Resource Protection Areas	City of Alexandria	2018	July 2024
	Fairfax County Resource Protection Areas	Fairfax County Land Development Services	2024	July 2024
	Prince William County Resource Protection Areas	Prince William County Department of Public Works	2023	July 2024
	Virginia Conservation Lands	Virginia Department of Conservation and Recreation	2023	July 2024
	Maryland Rural Legacy Properties	Maryland Department of Natural Resources	2019	July 2024
	Maryland Private Conservation Lands	Maryland Department of Natural Resources	2019	July 2024
	Maryland Local Protected Lands	Maryland Department of Natural Resources	2019	July 2024
Green Infrastructure	Maryland County Parks	Maryland Department of Natural Resources	N/A	July 2024
	Maryland DNR Lands	Maryland Department of Natural Resources	2015	July 2024
	Virginia State Parks	Virginia Department of Conservation and Recreation	2019	July 2024
	Frederick County Federal State and Quasi-Public Parks	Frederick County Department of Parks and Recreation	N/A	July 2024

	Frederick County Municipal Parks	Frederick County Department of Parks and Recreation	N/A	July 2024
	Frederick Parks	Frederick County Department of Parks and Recreation	2024	July 2024
	Montgomery County Parks	Maryland National Capital Park and Planning Commission	2024	July 2024
	Prince George's County Parks	Planning Department of Prince George's County	2024	July 2024
	DC Parks	City of Washington DC Department of Parks and Recreation	2024	July 2024
	Loudoun County Open Space and Rec Centers	Loudoun County Parks, Recreation and Community Services	N/A	July 2024
	Fairfax County Non-County Parks	Fairfax County Park Authority	2024	July 2024
	Fairfax County Parks	Fairfax County Park Authority	2024	July 2024
	Arlington County Parks	Arlington County Parks and Creation	2024	July 2024
	City of Alexandria Parks	City of Alexandria Department of Recreation and Parks	2024	July 2024
	Prince William County Parks	Prince William County Department of Parks and Recreation	2022	July 2024
	Virginia Ecological Core	Virginia Department of Conservation and Recreation	2017	July 2024
	Maryland Green Infrastructure Hubs Corridors and Gaps	Maryland Department of Natural Resources	2024	July 2024
Floodplains	Inland Flooding	FEMA National Flood Hazard, within MWCOG Study Area	2024	July 2024
Wetlands	US Fish and Wildlife Service's (USFWS)	U.S. Fish and Wildlife Service	2024	July 2024

	National Wetlands Inventory (NWI)			
	Maryland Wetlands (Special State Concern)	Maryland Department of the Environment	2019	July 2024
	Hydric Soil	U.S. Natural Resources Conservation Service	N/A	July 2024
Historic Places	National Register of Historic Places (DC, MD, VA)	National Park Service	2021	July 2024
	District of Columbia - Historic Landmarks	District of Columbia Office of Planning	2021	July 2024
	Maryland - Historic Properties	Maryland Department of Planning	2020	July 2024
	Northern Virginia - Historic Sites	Northern Virginia Regional Commission	2022	July 2024

Identifying Possible Mitigation Activities

Environmental mitigation is the process of addressing damage to the environment caused by transportation or other public works projects. Commonly, actions taken to avoid or minimize environmental damage during or after construction are also considered mitigation as well. Staff reviewed environmental studies from two major transit projects, one major new roadway construction project, and two major highway widening projects in the NC RTP which showed a wide range of potential activities being considered throughout the region. Many studies discuss both planned strategies to prevent the environmental impact (minimization) and strategies to atone for it (mitigation). Examples of these activities include providing invasive plant management for impacted areas, reducing areas of impervious surface by installing planting strips, constructing noise barrier walls, and designing drainage structures to minimize effects on the ability of a floodplain to moderate floodwaters.

Consulting with Agencies

To ensure ongoing agency engagement, TPB staff used the strategies outlined in the TPB Participation Plan to engage appropriate constituencies. Agency consultation was conducted through the TPB's advisory committees, which bring together technical experts from local and state agencies. Public announcements are shared with an actively maintained roster of agency contacts who receive updates on all public comment periods. Following the compilation of environmental GIS datasets, the TPB applied the agency-provided GIS layers of projects submitted for Visualize 2050 to display geographically on the interactive map. TPB staff then shared this interactive map with member agencies, who, through their public participation activities, provide the linkage with environmental review partners.

The TPB Technical Committee is responsible for reviewing the maps and information gathered on environmental and historic resources and how the planned projects relate. TPB staff presented the Technical Committee with this information for their review and feedback during the development of Visualize 2050.

ROLE OF KEY PLANNING AGENCIES

In the environmental consultation process, the key planning agencies are representatives from state and local agencies responsible for land-use management, natural resources, environmental protections, conservation, and historic preservation. In their own work, agency staff made routine updates to conservation plans, land-use plans, and inventories of natural or historic resources.

During and following discussions of possible environmental considerations and mitigation activities, key planning agencies are responsible for examining, documenting, and implementing any needed mitigation actions at the individual project level. The District of Columbia, Maryland, and Virginia each have their own approach to regulations on the environment and implementation of transportation projects, thus the TPB supports those approaches by providing novel resources that may be useful at understanding the challenges at a regional level and provide a forum where officials can discuss strategies used by other member jurisdictions.

PUBLIC ENGAGEMENT

The TPB uses established procedures in its Participation Plan for environmental consultation in informing active participants and community leaders by sending information through TPB member jurisdictions, agencies, and other partners who can widely disseminate data and key messages. The TPB received an update on environmental consultation in early 2025 during which the public was allowed to provide comment. The information was first shared that same month at the TPB Technical Committee meeting during which the public was able to watch the presentation and learn about these activities. Further, the results of environmental consultation were included in the plan and shared as part of Visualize 2050 public comment periods.



**Visualize 2050
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Freight Planning

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OVERVIEW OF FREIGHT PLANNING

The National Capital Region's multimodal transportation system is vital to the economy of the region and to the quality of life of its residents. It connects people and businesses to important regional activity centers and to major domestic and international markets. Each year hundreds of millions of tons of freight valued in billions of dollars move over the region's roadways and railways and pass through its airports. The region's service-based economy, with its growing employment and population, drives demand for freight in the region.

Evolving logistics practices, changes in where goods are produced and how they are distributed, and increasing urbanization are but a few of the factors that will impact how freight will move across the region in the future. The National Capital Region Transportation Planning Board (TPB) has long recognized the importance of freight which continues in Visualize 2050 as guided by the TPB's Synthesized Policy Framework. The TPB's regional transportation goals of reliability, maintenance, and efficient system operations are directly tied to freight movements. Providing options for travel and goods movement, design and use of technologies is highlighted in the framework to enable a resilient region. The TPB recognizes that in order to achieve livable and prosperous communities, a high-quality transportation system is necessary to support economic competitiveness and attract businesses to the region; and to this end, moving freight into, out of, and within the region is essential.

TPB'S ROLE AND KEY STAFF

The TPB works to ensure that freight is integrated into metropolitan planning so that the transportation system continues to be responsive to freight demands and evolving practices. Since 2007, the TPB has included a regional freight planning task in its Unified Planning Work Program (UPWP) with activities that provide a voice for freight in the transportation planning process, highlight freight's role in economic development, and recognize freight's integrated role in the multimodal economy.

The TPB's freight program consists of various elements including a Freight Subcommittee, a National Capital Region Freight Plan which is updated on regular intervals, and special freight forums and workshops. The TPB also responds to freight-related federal requirements for MPOs. Table 10.1 summarizes the key TPB staff who support the TPB's freight planning activities. Currently, the program has a staff member who focuses on freight planning part-time and is supported by consultant assistance as needed.

TABLE 10.1: KEY STAFF

TPB Staff	Title	Role
Kanti Srikanth	Executive Director	Staff Director for the Transportation Planning Board (TPB)
Andrew Meese	Program Director	Contributor
Janie Nham	Planning Manager	Contributor

Role of TPB Freight Subcommittee

The TPB's Freight Subcommittee serves a key function in the freight program by providing a forum for information sharing and coordination on freight topics. Established in 2008, the subcommittee engages a diverse audience, including private sector freight shippers and industry representatives, and has actively invited private sector representatives to present and share their perspectives. The subcommittee's bi-monthly meetings feature presentations that center on specific freight themes, including truck parking, land use and its freight implications, curbside management, and supply chain disruptions, among others.

The subcommittee also makes recommendations on freight-related action items for consideration by the TPB Technical Committee and the Transportation Planning Board. Actions such as the designation of Critical Urban Freight Corridors or the adoption of the National Capital Region Freight Plan are first reviewed by the subcommittee before advancing to the TPB Technical Committee for review and the TPB for approval.

ROLE OF KEY PLANNING AGENCIES

Because of the broad nature of freight networks, the TPB engages planning agencies at various levels of government. The TPB frequently coordinates with staff from the three state governments in the region, as they own and maintain much of the infrastructure on which freight travels. These state agencies include the District Department of Transportation (DDOT), Maryland Department of Transportation (MDOT), Virginia Department of Transportation (VDOT), and Virginia Office of Intermodal Planning and Investment (OIPI). Collaboration with state agencies is especially critical for TPB actions that satisfy federal reporting requirements, such as truck travel time target setting for performance-based planning and programming and designations for the National Highway Freight Network. Results from these activities are reported to the Federal Highway Administration (FHWA), which ensures that TPB actions comply with federal mandates while assisting regional decision-makers select investment strategies to meet performance targets. FHWA may also provide tools and data to inform TPB freight planning and analysis.

In addition to these stakeholders, the TPB collaborates with jurisdictional staff on freight issues that are relatively more local in nature, such as curbside management. Jurisdictional staff may contribute input or share best practices to TPB plans, workshops, or subcommittee meetings.

PUBLIC ENGAGEMENT

TPB's freight planning program incorporates public input received through regularly occurring TPB, Technical Committee, and Freight Subcommittee meetings. The TPB's Community Advisory Committee (CAC) also receives updates on freight activities and is provided with the opportunity to share feedback during briefings. In addition to these venues, the TPB occasionally holds special forums on freight topics, like the 2024 Curbside Management Forum, in which members of the CAC and TPB Access for All Advisory Committee are sometimes invited to participate. These events are also open to the public.

Unlike other transportation sectors, freight movement is highly dependent on private-sector partners such as railroad companies, parcel delivery services, and trucking companies. The TPB has worked to develop relationships with and involve private-sector stakeholders in program activities to foster greater public-private collaboration.

TPB'S FREIGHT PROGRAM ELEMENTS

The TPB's freight program strives to achieve its goals of highlighting and integrating freight issues into the metropolitan planning process by creating technical resources to inform freight planning efforts and by fostering participation by interested stakeholders. The program also helps the region to meet federal planning and performance reporting requirements, which are sometimes a prerequisite for receiving federal transportation funding. Some of the key products of the TPB freight program are described below.

National Capital Region Freight Plan

In 2010, the TPB developed the National Capital Region Freight Plan¹, which serves as a technical reference on the region's freight network and trends for local jurisdictions and state partners. Staff developed the plan following an analysis of national and locally sourced data, and sought the advice of the Freight Subcommittee, TPB Technical Committee, and TPB. The plan was updated in 2016, to include 17 policies that guide freight planning and decision-making for jurisdictional members and state agencies. An additional update in 2023 incorporated new and emerging freight challenges such as supply chain changes due to the global pandemic.

The TPB's freight plan also informs the development of several TPB products to ensure the consideration of freight in planning. These products include Visualize 2050, and the biennial Congestion Management Process (CMP) Technical Reports. By highlighting regional freight flows, trends, and challenges, member agencies are able to identify investment strategies for improving the operation of the regional freight network and submit those to Visualize 2050 during the technical inputs solicitation process.

Freight Forums

The TPB has highlighted specific freight issues through special forums, with the goal of convening freight stakeholders to recognize emerging regional issues and exchange best practices. In 2017, the TPB hosted a Freight Forum on the theme of "freight as an enabler of livability." The event touched on urban freight challenges specific to the National Capital Region and featured speakers from public agencies and a parcel delivery vendor. In 2020, an additional forum was held focused on issues specific to curbside management. The event gathered stakeholders to discuss curbside management issues around goods delivery, measuring mobility effectiveness at the curb, and accessibility design consideration at the curb. A follow-up to the 2020 curbside management event was held in 2024. The event discussed new and emerging curbside management issues since 2020, including new demands on curb space and new strategies. Each of these events for regional collaboration provide TPB member agencies with opportunities to identify new or better strategies to solve issues in the region. TPB members submitted investment strategies for Visualize 2050 which aim to enhance, support, or promote freight movements.

Freight-Related Federal Requirements

The TPB's freight program additionally helps the region meet certain federal reporting requirements related to freight.

Critical Urban Freight Corridors

The 2015 Fixing America's Surface Transportation (FAST) Act created a freight-specific formula grant funding program—the National Highway Freight Program (NHFP)—in addition to other freight

¹ National Capital Region Transportation Planning Board (July 18, 2023). *National Capital Region Freight Plan*. <https://www.mwcog.org/documents/2023/07/19/national-capital-region-freight-plan-freight/>

discretionary grant funding programs to ensure the condition and performance of highways deemed most critical to freight movement. The programs were established to increase U.S. competitiveness in the global economy, improve the efficiency and reliability of the freight network, and reduce the environmental impacts of freight.

Under the Act, the TPB was called upon to designate public roads within its urbanized areas as Critical Urban Freight Corridors (CUFCs). TPB staff collaborated with officials at MDOT, VDOT, and DDOT to identify CUFCs that met the criteria for designation as set forth under provisions of the FAST Act. The TPB subsequently adopted Resolution R6-2018 on November 15, 2017, which established the Critical Urban Freight Corridors for the National Capital Region. Following an increase in CUFC mileage allowed under the Infrastructure Investment and Jobs Act (IIJA) of 2021, the TPB coordinated with DDOT to update its CUFC network in 2023 and with MDOT in 2024 to adjust its CUFC network. Having a road segment identified as part of the CUFC network enables it to be eligible for federal funding.

Travel Time Reliability and Truck Travel Time Reliability

In 2017, the FHWA published the System Performance: Highway and Freight, Congestion Mitigation and Air Quality (CMAQ) rule. The rule requires state DOTs to set targets for performance measures for Interstate Travel Time Reliability (TTR), National Highway System (NHS) TTR, and Freight Reliability, defined as Truck Travel Time Reliability (TTTR). The TPB adopts four-year targets for Interstates, non-Interstates, and truck travel times.

Targets enable TPB members to evaluate how well the region's highway network is performing and how reliable freight movements are along the regional network. If the region is not meeting its target, members have the opportunity to study the issues and identify how best to address them. Investment strategies are submitted for inclusion in Visualize 2050.



National Capital Region
Transportation Planning Board

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OVERVIEW OF HOUSING PLANNING COORDINATION

The Transportation Planning Board (TPB) has long recognized the value of considering where people live and the transportation options that are available to them as housing and transportation plans are developed. The Infrastructure Investment and Jobs Act (“Bipartisan Infrastructure Law”) formalized the requirement to consider housing coordination in the metropolitan transportation planning process.

The coordination of transportation and regional housing planning takes place primarily between TPB and the Metropolitan Washington Council of Governments (COG) through its Board of Directors and several housing policy-related committees and groups. Staff from COG’s Department of Community Planning and Services (DCPS) support these initiatives and coordinate with TPB on housing and transportation matters.

The long-range projections of population, households, and jobs created by COG, under the oversight of COG’s Planning Directors Technical Advisory Committee (PDTAC), inform local planning for future development patterns and transportation system needs. The work is iterative and mutually reinforcing.

As part of the TPB’s Visualize 2045 planning process, TPB staff identified seven aspirational initiatives to optimize transportation system performance. One of those initiatives was to “bring housing and jobs closer together.” This initiative has continued in the Visualize 2050 planning process as one of TPB’s 14 priority strategies. It is implemented on the transportation side by identifying transportation investments that improve accessibility to jobs and other activities as well as offering more travel choices; and on the housing/employment side by local governments encouraging and approving land use and development activities that are physically near each other and multimodal transportation options.

TPB’S ROLE AND KEY STAFF

TPB staff use the population, housing, and employment information shared by COG DCPS, as well as the designated activity centers, and apply the data and geographies to transportation planning and the development of the Visualize plan. TPB staff, in return, provide analysis of the number of households needed (and locations, within Regional Activity Centers) to optimize transportation performance to COG DCPS staff. Most notably, during 2018 to 2019, DCPS staff, working closely with members of COG’s Housing Directors and Planning Directors Advisory Committees, used this analysis to inform a ten-year land use–driven housing production goal for the region.

TABLE 11.1: KEY STAFF

TPB Staff	Title	Role
Kanti Srikanth	Executive Director	Director for the Transportation Planning Board (TPB)
Timothy Canan	Planning Data and Research Program Director	Program Lead

Mark Moran	Travel Forecasting and Emissions Analysis Program Director	Program Lead
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Role of TPB Committees

The TPB and TPB Technical Committee receive briefings on current and projected population, housing, and employment distributions. The TPB approves the use of the data as part of the travel model inputs for air quality conformity analysis, travel demand forecasting, and system performance analysis of the region's metropolitan transportation plan.

ROLE OF KEY PLANNING AGENCIES

The COG DCPS staff lead the housing coordination for the region. A key element of the success of this effort, called the Regional Housing Initiative, was the engagement of the elected officials on the COG Board of Directors, which formed a subcommittee to focus specifically on the three elements of the ten-year housing production targets: the amount of housing needed, the location of the housing needed, and the affordability of the housing needed. The COG Board's time-limited Housing Strategy Group was a sounding board for staff on the feasibility of different proposals for the targets during the analysis phase of the initiative.

TABLE 11.2: KEY COG STAFF

COG Staff	Title	Role
Clark Mercer	Executive Director, Metropolitan Washington Council of Governments	Program Lead
Kanti Srikanth	Deputy Executive Director, Metropolitan Washington Council of Governments	Program Lead
Hilary Chapman	Housing Program Manager	Contributor
Department Director (Vacant)	Department of Community Planning and Services	Contributor
Greg Goodwin	Senior Regional Planner	Contributor
Steve Kania	Communications Manager	Contributor
Monica Beyrouti Nunez	Government Relations Manager	Contributor

Role of COG Committees

To reach agreement on the 2030 housing production targets, COG DCPS staff coordinated closely between the Housing Directors Advisory Committee, the Planning Directors Technical Advisory

Committee, and the Board of Directors Housing Strategy Group between September 2018¹ and September 2019, when the Board acted to [adopt 10-year housing production targets](#).

COG DCPS staff and local government staff members met monthly during the planning process to review analysis, consider constraints, and meet with partner organizations engaging in similar research. In addition to these regular committee meetings, COG staff held a joint convening for the Planning Directors, Housing Directors, and the Chief Administrative Officers across the region to ensure that information about the progress of developing the regional housing targets was understood across multiple agencies regionwide. A focus on housing during a Board of Directors retreat in July 2019 and several presentations to the full COG Board of Directors throughout the process kept elected officials aware of the development of the targets leading up to their adoption in September 2019.

Even though land use and zoning that impacts residential development patterns are controlled by local governments, state agencies and state housing finance agencies (HFAs) are critical to ensuring that local governments meet the housing needs of all residents, particularly those at lower incomes. While these agencies do not play a primary role in daily regional or local coordination, they have a significant impact on the regulatory environment under which local governments can operate. State agency representatives typically participate in COG Housing Directors and Planning Directors meetings.

The role of key planning agencies is listed in Table 11.3.

TABLE 11.3: KEY PLANNING AGENCIES

Planning Agency	Role
District of Columbia Housing Finance Agency	Agency partner to DC Department of Housing and Community Development.
Maryland Department of Housing and Community Development	State agency responsible for providing funding for affordable housing, including Low Income Housing Tax Credit allocations and policy direction. Inform and advise Housing Directors Advisory Committee members regarding state programs as applicable.
Virginia Department of Housing and Community Development & Virginia Housing	State agency responsible for providing funding for affordable housing, including Low Income Housing Tax Credit allocations and policy direction. Inform and advise Housing Directors Advisory Committee members regarding state programs as applicable.

¹ Metropolitan Washington Council of Governments (September 12, 2024). *Resolution R33-2018 Directing COG to Further Explore Addressing the Region's Housing Needs*. <https://www.mwcog.org/documents/2018/09/12/certified-resolution-r33-2018--housing-needs/>

Additional Non-governmental Planning Partners

During the Regional Housing Initiative planning process, DCPS staff engaged with other local and regional partner organizations engaged in housing development and research to inform their efforts.

The Urban Institute, under contract by the Greater Washington Partnership, was also tasked with developing a regional housing framework during the same period. Their demographic analysis and insights into the future housing needed was critical to reaching consensus on the affordability levels needed to better meet the needs of current and future residents by 2030. Other key partners included the ULI Washington District Council and George Washington University's Center for Washington Area Studies. ULI Washington produced a complementary report on housing affordability during the same period, and research by George Washington University helped inform current and past housing development patterns across the region. The work of these partners, among others, bolstered the COG staff and committee efforts and added credibility to the direction-setting work outside of local government.

PUBLIC ENGAGEMENT

The public has the opportunity through local planning efforts to comment on local land use and development decisions which impact zoning, land use, development patterns/density, and proximity to existing or planned transportation infrastructure. At the TPB, the public can weigh-in on the priority strategies the TPB identifies in the transportation plan during the comment period for the draft Visualize plan. Additionally, as data is shared with the TPB about the COG staff's forecasted distribution of population, households, and employment, the public can always comment at the start of each TPB meeting. The public is also welcome to comment during COG Board meetings. COG engaged in an extensive public engagement process during the regional fair housing planning process, described in the section below.



Visualize 2050
Planning and
Programming Process

Land Use and Transportation Coordination

Part 12 of 27



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OVERVIEW OF LAND USE AND TRANSPORTATION COORDINATION

Land use refers to the activities that people conduct on land such as residential, commercial, agricultural, industrial, and recreational, whereas land development refers to how land is changed to conduct the activities for which it will be used. These activities result in the number of people who reside in the region and their distribution throughout the region's localities as well as the number of employees and their place of work.

Decisions around the National Capital Region's land, how it is used and developed, have been made over centuries by many people. The results of past land use and development decisions impact where people live and work today and serve as a basis for how transportation planning and programming decisions are made for the future.

TPB'S ROLE AND KEY STAFF

The TPB is not directly responsible for land use or development decisions. Instead, the authority to plan and regulate land use and development rests with member local governments. The TPB applies assumptions about current and future land use, primarily information about population, employment, and the amount and location of current and projected households in its planning activities. The primary source of data used by the TPB in making assumptions about current and future growth is the Cooperative Forecasts of Population, Households, and Employment, which are prepared by local governments through a coordinated process at the Metropolitan Washington Council of Governments (COG) and ultimately are approved by the COG Board of Directors. The TPB utilizes Cooperative Forecasting data in its transportation modeling activities, which enables the TPB to estimate the current and future travel conditions and assess the collective effect of current and future planned transportation projects.

TABLE 12.1: KEY STAFF

COG/TPB Staff	Title	Role
Kanti Srikanth	Deputy Executive Director	Staff Director for the TPB
Greg Goodwin	Principal Planner	Contributor
John Kent	Regional Planner	Contributor
Timothy Canan	TPB Planning Data and Research Program Director	Contributor/TPB staff Coordinator

Role of TPB Subcommittees

The process to prepare COG's Cooperative Forecasts is closely coordinated with the metropolitan transportation planning process undertaken by the TPB to ensure that the TPB is using the latest set of adopted forecasts and that these forecasts meet the technical specifications necessary to

be incorporated into TPB's travel demand forecasting activities. This coordination occurs at the staff level between COG's Department of Community Planning and Services (DCPS), which supports the development of the Cooperative Forecasts, and COG's Department of Transportation Planning, which supports the metropolitan transportation planning process. Upon completion of a new series or "round" of forecasts, DCPS staff briefs the TPB Technical Committee, Travel Forecasting Subcommittee, and the Transportation Planning Board.

ROLE OF KEY PLANNING AGENCIES

As noted, COG coordinates the development of the Cooperative Forecasts of population, households, and employment throughout the region for use in its planning activities as well as by the TPB and other state, regional, and local agencies. A final product of every major round of the Cooperative Forecasts is the update of the Regional Activity Centers (RACs) map. The Cooperative Forecasts, including the updated RACs map, are prepared under the oversight of COG's Planning Directors Technical Advisory Committee (PDTAC) and are approved by the COG Board of Directors. Staff within DCPS, in consultation with COG's transportation planning staff, coordinate this activity on behalf of COG.

The Cooperative Forecasting and Data Subcommittee (CFDS) is a technical subcommittee to the PDTAC. The subcommittee is responsible for preparing 25-year population, household and employment forecasts at the jurisdictional level and at the Transportation Analysis Zone (TAZ) level for the COG region.

The CFDS is composed of local government planners with expertise in demographics, land use, and economics who are the technical leads for developing the Cooperative Forecasts at the jurisdictional level and participate with COG when developing the Cooperative Forecasts. Table 12.2 lists the key planning agencies and their role.

TABLE 12.2: KEY PLANNING AGENCIES

Planning Agency	Role
Metropolitan Washington Council of Governments	Administers the Cooperative Forecasting Program and Process for Designating Regional Activity Centers
Cooperative Forecasting and Data Subcommittee (CFDS) Members	Technical Committee to the Cooperative Forecasting Program
City of Alexandria Department of Planning and Zoning	Technical Contributor
Arlington County Department of Community Planning, Housing and Development	Technical Contributor
District of Columbia Office of Planning	Technical Contributor
Charles County Department of Planning and Growth Management	Technical Contributor
Fairfax County Department of Management and Budget	Technical Contributor

Fairfax County Department of Planning and Development	Technical Contributor
City of Fairfax Department of Community Development and Planning	Technical Contributor
City of Falls Church Community Planning and Economic Development Services	Technical Contributor
City of Frederick Planning Department	Technical Contributor
Frederick County Department of Community Development	Technical Contributor
City of Gaithersburg Department of Planning and Code Administration	Technical Contributor
Loudoun County Department of Management and Budget	Technical Contributor
City of Manassas Department of Community Development	Technical Contributor
City of Manassas Park Development Services Division	Technical Contributor
Montgomery County Planning Department	Technical Contributor
Prince George's County Planning Department	Technical Contributor
Prince William County Planning Office	Technical Contributor
City of Rockville Department of Planning and Code Administration	Technical Contributor
Other Regional Partners	Role
Baltimore Metropolitan Council	Technical Contributor
Fredericksburg Area Metropolitan Planning Organization	Technical Contributor
Northern Virginia Regional Commission	Technical Advisor
Maryland Department of Planning	Technical Advisor

THE COOPERATIVE FORECASTING PROCESS

The Cooperative Forecast is a multi-stage, “top-down/bottom-up” process undertaken by PDTAC and the Cooperative Forecasting and Data Subcommittee.

The process first utilizes a regional econometric model that projects employment, population, and households for the metropolitan Washington region based on national economic trends and local demographic factors. Concurrently, local jurisdictions develop independent projections of population, households, and employment based on pipeline development, market conditions, planned transportation improvements, and adopted land use plans and zoning, taking into account the preliminary regional projections. In the final stage, the two sets of projections are reconciled into one consistent set of regional, jurisdictional and small-area (TAZ) forecasts.

During the spring of 2022, COG and TPB staff requested the support of an outside consultant to provide technical assistance to help answer and understand the potential short-term and long-term impacts of the COVID-19 pandemic on growth assumptions related to the Round 10.0 Cooperative Forecast. The consultant, ICF, helped:

- Better understand the impact of the COVID-19 pandemic on utilization, density, and development of commercial office space in the region.
- Develop a “range” of potential regional forecasts to 2050 given ongoing economic uncertainties.
- Assess emerging trends in regional housing location and choice.
- Increase understanding of future regional household size trends.

The Round 10.0 Cooperative Forecasts were developed during 2022 and approved by the PDTAC in April of 2023 and the COG Board in June 2023. The report, [Growth Trends to 2050: Cooperative Forecasting in the Washington Region](#)¹ contains a detailed assessment of the Round 10.0 forecasting process. The data shown in Tables 12.4, 12.5, and 12.6 provide employment, population and households by jurisdiction between 2020-2050. This data serves as input to the TPB’s regional travel demand model used to assess future transportation system performance, as described further in Part 16.

¹ Metropolitan Washington Council of Governments (November 3, 2023). *Growth Trends to 2050: Cooperative Forecasting in the Washington Region*. <https://www.mwcog.org/documents/2023/11/03/growth-trends-cooperative-forecasting-in-metropolitan-washington-cooperative-forecast-featured-publications-growth-development/>

TABLE 12.4: SUMMARY OF EMPLOYMENT FORECASTS ROUND 10.0 COOPERATIVE FORECASTS (THOUSANDS)

Jurisdiction	Round 10.0 Base Year								2020 to 2050 Growth			COG/TPB Planning Area
	2020	2025	2030	2035	2040	2045	2050	Number	% Change	Share		
District of Columbia	785.9	846.1	886.3	923.5	954.4	989.0	1,021.6	235.7	30.0%	23.9%		
Arlington County	221.6	223.2	236.7	259.2	266.4	275.3	283.7	62.1	28.0%	6.3%		
City of Alexandria	101.8	101.0	99.3	106.6	112.8	116.8	123.2	21.4	21.1%	2.2%		
Central Jurisdictions	1,109.3	1,170.2	1,222.2	1,289.3	1,333.5	1,381.2	1,428.5	319.2	28.8%	32.3%		
Montgomery County	493.6	522.9	545.6	568.3	591.0	613.8	636.5	142.9	29.0%	14.5%		
<i>City of Rockville⁽¹⁾</i>	76.4	78.7	81.1	83.8	87.8	91.1	94.5	18.0	23.6%	1.8%		
<i>City of Gaithersburg⁽¹⁾</i>	43.0	48.0	52.0	54.5	56.5	58.0	59.0	16.0	37.2%	1.6%		
Prince George's County	343.5	356.7	366.8	381.9	396.7	416.0	435.0	91.5	26.6%	9.3%		
Fairfax County ⁽²⁾	658.8	690.5	750.8	788.8	812.5	832.0	842.0	183.2	27.8%	18.6%		
City of Fairfax	20.5	22.0	22.3	22.6	22.9	23.2	23.5	3.0	14.6%	0.3%		

City of Falls Church	12.4	13.1	15.4	16.5	17.4	18.3	19.4	7.1	57.0%	0.7%
Inner Suburbs	1,528.7	1,605.2	1,700.9	1,778.1	1,840.6	1,903.2	1,956.4	427.7	28.0%	43.3%
Loudoun County	187.7	210.3	227.0	240.8	251.5	258.7	265.8	78.2	41.7%	7.9%
Prince William County	161.8	178.6	194.4	209.7	223.4	235.6	246.4	84.7	52.3%	8.6%
City of Manassas	25.3	26.1	26.9	27.7	28.3	28.8	29.3	3.9	15.5%	0.4%
City of Manassas Park	4.3	4.7	5.0	5.1	5.2	5.3	5.4	1.1	25.5%	0.1%
Charles County	43.9	46.1	49.8	54.0	57.4	60.0	62.2	18.3	41.8%	1.9%
Frederick County	108.3	115.6	123.8	132.5	141.8	151.8	162.5	54.2	50.1%	5.5%
<i>City of Frederick⁽³⁾</i>	57.4	60.1	64.4	67.6	69.5	74.4	79.6	22.2	38.7%	2.3%
Outer Suburbs	531.3	581.4	626.8	669.9	707.7	740.2	771.7	240.5	45.3%	24.4%
Virginia Jurisdictions	1,394.2	1,469.5	1,577.7	1,677.0	1,740.4	1,794.0	1,838.9	444.7	31.9%	45.0%
Maryland Jurisdictions	989.2	1,041.3	1,086.0	1,136.8	1,187.0	1,241.6	1,296.2	307.0	31.0%	31.1%
COG Region	3,169.2	3,356.9	3,549.9	3,737.3	3,881.7	4,024.6	4,156.6	987.4	31.2%	100.0%

(1) Included in the Montgomery County total.

(2) Forecasts for all years include Fairfax County Government employees working at the Fairfax County Judicial Complex.

(3) Included in the Frederick County total.

TABLE 12.5: SUMMARY OF POPULATION FORECASTS ROUND 10.0 COOPERATIVE FORECASTS (THOUSANDS)

Jurisdiction	Round 10.0 Base Year							2020 to 2050 Growth			COG/TPB Planning Area
	2020	2025	2030	2035	2040	2045	2050	Number	% Change	Share	
District of Columbia	689.5	697.6	728.6	757.2	787.1	816.4	844.4	154.9	22.5%	10.7%	
Arlington County	238.6	245.8	260.2	272.9	285.2	298.0	311.2	72.6	30.4%	5.0%	
City of Alexandria	159.5	180.5	202.0	222.2	239.8	252.9	261.9	102.4	64.2%	7.1%	
Central Jurisdictions	1,087.6	1,124.0	1,190.8	1,252.3	1,312.2	1,367.3	1,417.5	329.8	30.3%	22.7%	
Montgomery County	1,061.2	1,083.0	1,118.0	1,153.9	1,189.6	1,222.2	1,250.7	189.4	17.8%	13.1%	
<i>City of Rockville⁽¹⁾</i>	67.8	70.9	74.6	78.7	82.9	87.5	92.7	24.9	36.8%	1.7%	
<i>City of Gaithersburg⁽¹⁾</i>	69.7	72.5	75.7	78.5	81.2	83.7	85.8	16.1	23.2%	1.1%	
Prince George's County	967.2	997.8	1,033.0	1,081.7	1,122.7	1,159.6	1,193.8	226.5	23.4%	15.6%	
Fairfax County	1,171.9	1,202.4	1,247.5	1,283.7	1,319.0	1,353.6	1,384.0	212.1	18.1%	14.6%	
City of Fairfax	24.1	27.8	32.7	34.4	36.1	37.8	39.6	15.4	63.8%	1.1%	

City of Falls Church	14.7	15.5	18.0	19.6	20.7	21.8	23.3	8.6	58.8%	0.6%
Inner Suburbs	3,239.1	3,326.5	3,449.1	3,573.3	3,688.1	3,794.9	3,891.2	652.1	20.1%	45.0%
Loudoun County	421.0	456.2	493.9	515.5	529.6	539.2	548.5	127.6	30.3%	8.8%
Prince William County	483.8	515.2	536.6	553.0	565.0	573.7	579.6	95.7	19.8%	6.6%
City of Manassas	42.8	43.7	46.3	47.6	48.5	49.5	50.4	7.7	17.9%	0.5%
City of Manassas Park	17.2	19.0	20.4	20.9	21.4	21.9	22.4	5.2	30.3%	0.4%
Charles County	168.0	176.3	193.6	203.8	216.5	230.4	242.7	74.6	44.4%	5.1%
Frederick County	271.7	293.2	316.3	341.3	368.3	397.4	428.8	157.1	57.8%	10.8%
<i>City of Frederick⁽²⁾</i>	78.2	83.8	89.5	95.1	100.8	106.4	112.0	33.9	43.3%	2.3%
Outer Suburbs	1,404.5	1,503.7	1,607.3	1,682.2	1,749.5	1,812.2	1,872.4	467.9	33.3%	32.3%
Virginia Jurisdictions	2,573.5	2,706.2	2,857.6	2,969.8	3,065.4	3,148.4	3,220.8	647.3	25.2%	44.6%
Maryland Jurisdictions	2,468.2	2,550.3	2,661.0	2,780.8	2,897.2	3,009.6	3,115.9	647.7	26.2%	44.7%
COG Region	5,731.3	5,954.2	6,247.2	6,507.8	6,749.7	6,974.5	7,181.1	1,449.8	25.3%	100.0%
<i>⁽¹⁾ Included in the Montgomery County total.</i>										
<i>⁽²⁾ Included in the Frederick County total.</i>										

TABLE 12.6: SUMMARY OF HOUSEHOLD FORECASTS ROUND 10.0 COOPERATIVE FORECASTS (THOUSANDS)

Jurisdiction	Round 10.0 Base Year							2020 to 2050 Growth		COG/TPB Planning Area
	2020	2025	2030	2035	2040	2045	2050	Number	% Change	
District of Columbia	312.4	344.2	366.8	386.6	407.6	426.0	441.4	129.0	41.3%	19.1%
Arlington County	109.9	118.2	126.2	133.3	140.0	146.9	153.6	43.7	39.8%	6.5%
City of Alexandria	75.6	85.7	96.4	106.7	115.4	122.0	126.0	50.5	66.8%	7.5%
Central Jurisdictions	497.9	548.1	589.4	626.6	663.1	695.0	721.1	223.2	44.8%	33.0%
Montgomery County	386.6	398.4	416.5	434.1	450.0	463.2	474.3	87.7	22.7%	13.0%
City of Rockville ⁽¹⁾	28.2	29.9	31.7	33.7	35.8	38.1	40.6	12.4	43.8%	1.8%
City of Gaithersburg ⁽¹⁾	25.9	27.2	28.9	30.3	31.7	33.0	34.2	8.3	32.0%	1.2%
Prince George's County	342.2	353.7	367.4	385.9	400.5	413.7	425.9	83.7	24.5%	12.4%
Fairfax County ⁽²⁾	417.5	431.5	451.2	467.1	482.4	497.5	510.8	93.3	22.4%	13.8%
City of Fairfax	9.3	10.6	13.0	13.8	14.6	15.4	16.3	6.9	74.3%	1.0%

City of Falls Church	5.8	7.3	8.7	9.6	10.3	11.1	12.1	6.3	108.5%	0.9%
Inner Suburbs	1,161.5	1,201.6	1,256.9	1,310.5	1,358.0	1,400.9	1,439.4	277.9	23.9%	41.1%
Loudoun County	137.4	148.9	161.7	169.5	174.7	178.2	181.7	44.3	32.2%	6.5%
Prince William County	153.9	165.0	173.4	180.0	185.1	189.0	191.9	38.0	24.7%	5.6%
City of Manassas	14.0	14.3	15.1	15.5	15.8	16.1	16.4	2.4	17.5%	0.4%
City of Manassas Park	5.4	6.2	6.9	7.1	7.4	7.7	8.0	2.6	47.9%	0.4%
Charles County	59.1	64.3	71.2	75.3	80.0	85.2	89.7	30.6	51.8%	4.5%
Frederick County	98.4	106.2	114.5	123.5	133.2	144.3	155.7	57.3	58.3%	8.5%
City of Frederick ⁽³⁾	31.8	34.1	36.3	38.7	40.9	43.3	45.6	13.8	43.3%	2.0%
Outer Suburbs	468.1	504.9	542.7	571.0	596.2	620.4	643.3	175.2	37.4%	25.9%
Virginia Jurisdictions	928.8	987.7	1,052.5	1,102.6	1,145.8	1,184.0	1,216.8	288.0	31.0%	42.6%
Maryland Jurisdictions	886.3	922.6	969.7	1,018.8	1,063.7	1,106.3	1,145.6	259.3	29.3%	38.3%
COG Region	2,127.5	2,254.5	2,389.0	2,508.1	2,617.2	2,716.3	2,803.8	676.3	31.8%	100.0%

REGIONAL ACTIVITY CENTERS

Regional Activity Centers (RACs) are the locations that will accommodate most of the region's future growth and play a central role in achieving the Region Forward goals for prosperity, accessibility, sustainability, and livability. They include existing urban centers, priority growth areas, traditional towns, and transit hubs, and are the spatial framework for strategic policy decisions and capital investments. The Regional Activity Centers map, available during the majority of Visualize 2050's planning process, was developed with local planning officials and the Region Forward Coalition and approved by the COG Board in 2013. Throughout 2024, COG staff worked with staff of member jurisdictions to update the regional activity centers for approval by the COG Board in 2025. While the 2013 version was available for member reference during the project inputs solicitation, the latest version from 2025 is applied to the 2050 outlook in the plan.²

Historical Context to Regional Activity Centers

To address the challenge of a fiscally constrained long-range transportation plan, as described more fully in Part 1, the 1998 TPB Vision was a short and influential policy document that laid out eight broad goals to guide the region's transportation investments into the 21st century. A range of objectives and strategies were included in the Vision to show how its eight primary goals could be reached. Goal 2 of the Vision directed that the region "...develop, implement, and maintain an interconnected transportation system that enhances quality of life and promotes a strong and growing economy throughout the entire region, including a healthy regional core and dynamic regional activity centers with a mix of jobs, housing and services in a walkable environment."³ Taking direction from this goal, COG staff led the identification of the region's activity centers. The COG Board of Directors approved the first map of Regional Activity Centers in 2003 and an update in 2006.

In 2012, COG worked with local planning officials to carry out an extensive redesign of the regional Activity Centers map. The new map was approved by the COG Board of Directors in January 2013 and identified 141 Activity Centers.

COG's Region Forward Coalition in 2010 established a target for the region to capture 75 percent of the square footage of new commercial construction and 50 percent of new households in Regional Activity Centers.

Updating Activity Centers during 2024

Beginning in late 2023, PDTAC members began work to update the Regional Activity Centers map. Building on the criteria developed in the 2012/2013 version, the Planning Directors approved a process to identify Activity Centers based upon a combination of 2 "Core" and 2 "Additional."

"Core" requirements for identifying Activity Centers are:

- **Policy:** In 2023, the center or priority growth area should be designated in a jurisdiction's adopted comprehensive/general plan or other locally adopted land use plan.
- **Density:** By 2050, the Center will have a person per acre density (employment + population) that falls within the top one-half of densities within the jurisdiction.

The "Additional" requirements for Activity Centers include:

² Metropolitan Washington Council of Governments (May 14, 2025). *Regional Activity Centers Maps*. <https://www.mwcog.org/documents/2025/05/14/regional-activity-centers-maps-activity-centers-land-use-region-forward/>

³ National Capital Transportation Planning Board (October 15, 1998). *The TPB Vision*. <https://www.mwcog.org/documents/tpbvision/>

- **Intersection Density:** In **2023**, have at least 55 intersections per square mile.
- **Transit Capacity:** In **2023**, have:
 - Existing high capacity/performance transit (e.g. Metrorail, BRT, commuter rail, OR light rail) OR
 - A planned transit station identified in the constrained element of Visualize 2045, OR
 - A planned transit station with dedicated local funding.
- **Land Use Mix:** In **2023**, have a locally adopted land use plan/ordinance that encourages mixed-use development (e.g. through a mixed-use designation, form-based codes, or overlay zoning).
- **Housing & Transportation Affordability:** Combined housing and transportation costs do not exceed 45% of regional median income as measured by the H + T Index.

Using these criteria, DCPS staff worked with the Planning Directors throughout 2024 to identify and compile the new Activity Centers adopted by the COG Board in 2025.

PUBLIC ENGAGEMENT

The development of the Cooperative Forecasts, updates to the Regional Activity Centers Map, and all regional land use analysis and coordination activities are carried out at the technical level through CFDS and under the oversight of PDTAC. The CFDS and PDTAC conduct their business in monthly meetings, which in accordance with COG policy, are accessible to the public. In addition, it is important to note that the Cooperative Forecasts and the corresponding Regional Activity Centers update are themselves developed in accordance with the adopted land use plans and policies of local governments, and these plans and policies are developed through public processes carried out by individual local governments. The Cooperative Forecasts and Regional Activity Centers updates are also presented to the public at TPB meetings, at which time members of the public have the opportunity to comment, and also through presentations to the TPB's public-facing advisory committees, such as the Community Advisory Committee. Work products related to the Cooperative Forecasts and Regional Activity Centers are accessible from COG's website, and technical data and geospatial data products are accessible from TPB Regional Transportation Data Clearinghouse.



Visualize 2050
Planning and
Programming Process

Public Health

Part 13 of 27



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OVERVIEW OF PUBLIC HEALTH

Considering public health in the transportation planning process is vital to foster healthy communities. Public health relates to transportation in many ways:

- Emotional health impacts from travel including frustrations from congestion or delays as well as personal safety and security concerns related to crime, behaviors from other travelers like speeding, or navigating unfamiliar places
- Environmental health impacts from motor vehicle-related air pollution on respiratory health
- Physical health impacts that could have positive or negative effects. Examples include benefits from active travel, extended sedentary travel or roadway crashes, as well as challenges accessing healthy food options
- Social health impacts from mobility and accessibility challenges

For more information about key public health topics see these related parts within this Visualize 2050 Planning and Programming Document:

- Air Quality
- Bicycle, Pedestrian, and Micromobility
- Congestion
- Safety



Feeling safe while biking promotes more cycling and healthier communities.

Biking family in DC (Mike Maguire/[Flickr](#))



Walkable environments promote healthy communities.

Pedestrian family Royal Street, Alexandria, VA (Rachel Beyerle/COG)

TPB'S ROLE AND KEY STAFF

Working towards a healthy region for all residents and visitors involves planning and coordination across borders on issues from everyday wellness to emergency response. The TPB is active in planning better bicycle and pedestrian mobility options and safer travel across all modes. The TPB also conducts air quality and pollution analysis. Results of this analysis help to provide agencies with data showing impacts of the transportation system and how communities are affected. Many TPB staff contribute to transportation planning efforts related to public health shown in Table 13.1.

TABLE 13.1: KEY STAFF

TPB Staff	Title	Role
Kanti Srikanth	Executive Director	Director for the Transportation Planning Board (TPB)
Michael Farrell	Senior Transportation Planner	Contributor for Bicycle, Pedestrian, Micromobility
James Li	Transportation Engineer	Contributor for Congestion Management
Janie Nham	Planning Manager, Safety and Systems Performance Analysis	Contributor for Safety
Jane Posey	Principal Transportation Engineer	Contributor for Air Quality

The TPB's Transportation Safety Subcommittee and Bicycle and Pedestrian Subcommittee engage staff at member agencies to share best practices and coordinate improvements.

ROLE OF KEY PLANNING AGENCIES

Engagement with land-use and environmental decision-makers is also critical since health is so closely tied to the communities in which people live. The Metropolitan Washington Council of Governments (COG) has a Department of Environmental Planning that monitors regional air quality and publishes alerts when air quality may be harmful to people. Through this department, COG staffs the Metropolitan Washington Air Quality Committee (MWAQC). Additionally, through the COG Department of Community Planning and Services, COG staffs a Planning Director's Committee. These committees involve staff from localities throughout the National Capital Region.

PUBLIC ENGAGEMENT

Within each public-health related topic noted previously, there are occasions for the public to be engaged in the planning process. At a minimum, the public may provide comments at TPB meetings as information is shared with the Board for decision-making. The public may also watch committee meetings online to learn more about the region's planning activities. In addition to these venues, the TPB has provided fora for addressing safety, such as a Regional Curbside Management Forum, and a Safety Summit. There is also regular outreach to the TPB Access for All

Advisory Committee, which is made up of representatives from traditionally marginalized groups, including people with disabilities.

A CLOSER LOOK AT TPB PLANNING ACTIVITIES RELATED TO PUBLIC HEALTH

The four key areas where TPB is working to improve public health outcomes related to public health are discussed more broadly below. The technical details of these activities are discussed in full within each topic's part of the Visualize 2050 planning and programming process documentation.

Air Quality Implications to Public Health

The Clean Air Act requires that transportation and air quality planning be integrated in areas like the National Capital Region, where the region has not previously complied with National Ambient Air Quality Standards for ozone. Nitrogen oxides (NO_x) and volatile organic compounds (VOCs) are two key ingredients that form ozone. Motor vehicles are currently a significant source of NO_x and VOC emissions in the region, but with cleaner fuels and vehicles, mobile source emissions have decreased significantly in the past decades and are expected to continue to decline moving forward. Ozone can impact people's health when inhaled potentially impacting people's lungs, throat, and respiratory health potentially aggravating asthma or contributing to asthma development.

Federal funding and approval for transportation projects is only available if transportation activities meet the region's air quality goals. The TPB must show that anticipated future vehicle-related emissions will remain below regional limits. Read more about TPB's Air Quality Planning Process in Part 3.

Bicycle, Pedestrian, Micromobility Implications to Public Health

Physical activity is one of the most effective ways for people to improve their health, stave off chronic disease, and prevent early death. Unfortunately, in the United States only about one in four adults and one in six high school students fully meet the [recommendations](#) in the CDC's [Physical Activity Guidelines for Americans](#).¹

People are more likely to engage in physical activity consistently when it is integrated into their daily lives, in the form of walking, biking, or climbing stairs. Walkable neighborhoods have been shown to increase physical activity, with strong positive effects on their residents' health.² Cities that have high rates of active transportation have lower rates of obesity and related medical conditions.³ Exercise also improves mental health and acuity, especially for the elderly.⁴

The Center for Disease Control recommends that communities act to connect people to destinations by building sidewalks and bike paths, planting shade trees, mixing land uses to give

¹ Office of Disease Prevention and Health Promotion (September 2019). *Physical Activity Guidelines for Americans 2nd Edition*. https://odphp.health.gov/sites/default/files/2019-09/Physical_Activity_Guidelines_2nd_edition.pdf

² Endocrine Society (February 24, 2022). *Walkable neighborhoods can reduce prevalence of obesity, diabetes*. <https://www.endocrine.org/news-and-advocacy/news-room/2022/walkable-neighborhoods-can-reduce-prevalence-of-obesity-diabetes>

³ U.S. Centers for Disease Control and Prevention (January 17, 2025). *Strategies for Physical Activity Through Community Design*. <https://www.cdc.gov/physical-activity/php/strategies/increasing-physical-activity-through-community-design-prevention-strategies.html>

⁴ Roe et al. (September 23, 2020). *The Urban Built Environment, Walking and Mental Health Outcomes Among Older Adults: A Pilot Study*. <https://pmc.ncbi.nlm.nih.gov/articles/PMC7538636/>

people more destinations within walking distance, and using smaller blocks and narrower streets to reduce pedestrian travel distances.

The member jurisdictions of the TPB have been working for decades to make our communities more walkable and bikeable. Member actions have included:

- Adoption and implementation of Complete Streets policies that mandate the provision of bicycle and pedestrian facilities.
- Concentration of development in walkable, bikeable activity centers connected by mass transit.
- Development of local and regional shared-use path networks which connect people to jobs, shopping, schools, and recreation.
- Adoption of agency bicycle, pedestrian, and trail plans to inform capital improvement decisions.
- Expansion of bike and e-scooter sharing services to enhance local mobility.

The TPB has helped build a consensus around these policies and has supported its members' efforts with the following actions:

- Adoption of The TPB Vision (1998) that endorsed the concentration of development in walkable mixed use activity centers.
- Identification of effective walk sheds around high-capacity transit stations.
- Adoption of a regional model Complete Streets policy (2012), and encouragement of the TPB members to adopt their own policies.
- Adoption and periodic renewal of a Bicycle and Pedestrian Plan for the National Capital Region, which summarizes what is being done for biking, walking, and micromobility.
- Adoption as a TPB priority the planning and construction of a regional National Capital Trail Network, which will form a continuously connected network of low-stress bicycle and pedestrian facilities, suitable for people of all ages and abilities.
- Funding small planning and design projects that serve TPB goals through programs such as Transportation Land Use Connections, Transportation Alternatives, Transit within Reach, and the Regional Roadway Safety program.
- Maintenance of the Bicycle and Pedestrian Subcommittee of the TPB Technical Committee, which advises the TPB's bicycle, pedestrian, and micromobility planning efforts, and served as a forum for information exchange and coordination for such planning by the member agencies.

All these activities support public health by encouraging active transportation. Read more about TPB's Bicycle, Pedestrian, and Micromobility Planning Process in Part 21.

Congestion Management Implications to Public Health

As part of the TPB's ongoing efforts to monitor and mitigate congestion, the quarterly Congestion Reports and biannual Congestion Management Process Technical Reports highlight the dynamic nature of traffic congestion in the National Capital Region. Beyond its economic and infrastructure implications, congestion can have public health consequences, particularly in the areas of mental health and environmental health.

Mental Health Impacts

- Chronic congestion exposes travelers to prolonged stress, anxiety, and frustration, potentially contributing to decreased emotional well-being and mental health.
- Repeated experiences of aggressive driving, congestion, and unpredictability can lead to increased levels of cortisol, blood pressure, and heart rate.

- TPB's Congestion Management Process aims to alleviate these stressors by identifying and implementing effective mitigation strategies, as well as promoting a safer and more reliable transportation environment.

Environmental Health Impacts

- Motor vehicle-related air pollution, exacerbated by congestion, poses significant risks to respiratory health, including asthma, cardiovascular disease, and other pulmonary conditions.
- TPB's biannual Technical Reports explore congestion reduction strategies that also improve air quality, such as optimizing traffic signal timing, promoting alternative modes of transportation, and encouraging sustainable land use practices.

By addressing congestion through the Congestion Management Process, TPB aims to:

- Enhance mental health and well-being through reduced stress and travel time uncertainty.
- Improve environmental health by mitigating air pollution from motor vehicles.
- Foster a safer, healthier, and more sustainable transportation system for our region.

Read more about TPB's Congestion Management Process in Part 6.

Safety Implications to Public Health

Roadway safety is recognized as a public health challenge in the US and abroad. According to the U.S. Centers for Disease Control and Prevention (CDC), motor vehicle crashes are a leading cause of death in the U.S.,⁵ and the World Health Organization (WHO) notes that they are the leading cause of death among children and young adults aged 5 to 29 years globally.⁶ In addition, many more individuals suffer from crash-related injuries, some of which are disabling, and survivors of crashes may suffer from negative psychological and emotional effects.

Because of the public health impacts of roadway safety, various organizations and public agencies strive to reduce the number of roadway safety crashes that result in fatalities and injuries. In 2020, the TPB reaffirmed its commitment to roadway safety through Resolution R3-2021, which acknowledges that the number of fatalities and serious injuries on the region's roadways are unacceptably high and urges members to prioritize roadway safety in their projects, programs, and policies, with consideration for equity. The resolution complements various safety planning activities undertaken by the TPB to reduce roadway safety fatalities and serious injuries, including:

- Regional safety studies**, which span multiple years and evaluate regionwide crash data to gain insight into the location, type, frequency, and contributing factors of regional fatal and serious injury crashes. The 2020 Safety Study also examined the distribution of crashes inside and outside of Equity Emphasis Areas (EEAs).⁷ An update to the 2020 study is being conducted in 2024-2025 which will examine regional crash data for years 2018 through 2023.
- Street Smart Safety Campaign**, a COG program, which has been running for 20 years and is focused on reducing the number of pedestrian and bicyclist injuries and deaths in the region.

⁵ U.S. Centers for Disease Control and Prevention (November 19, 2024). *About Transportation Safety*. <https://www.cdc.gov/transportation-safety/about/index.html>

⁶ World Health Organization (December 13, 2023). *Road traffic injuries*. <https://www.who.int/news-room/fact-sheets/detail/road-traffic-injuries>

⁷ National Capital Region Transportation Planning Board (July 22, 2020). *TPB Safety Study Resources and Safety Policy*. <https://www.mwcog.org/documents/2020/07/22/tpb-safety-study-resources--safety-policy-federal-performance-measures-highways-roads-traffic-safety/>

- **Regional Roadway Safety Program (RRSP)**, which encourages jurisdictions to implement roadway safety improvements by providing technical assistance for local, small-scale planning or preliminary engineering projects focused on roadway safety.
- **Special work sessions focused on safety**, during which safety officials brief the TPB on their recent safety outcomes, strategies, and programs.
- **Special safety-related events**, such as the 2024 Regional Roadway Safety Summit to highlight regional concern around roadway safety and to provide TPB members the opportunity to discuss opportunities for regional coordination.
- **TPB Transportation Safety Subcommittee**, which provides local transportation practitioners to exchange best practices, learn about emerging trends and developments in roadway safety, and coordinate on regional roadway safety matters. The subcommittee has been operating since 2012.

Read more about TPB's Safety Planning Process in Part 15.



**Visualize 2050
Planning and
Programming Process**

Regional ITS Architecture

Part 14 of 27



National Capital Region
Transportation Planning Board

December 2025



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OVERVIEW OF REGIONAL ITS ARCHITECTURE

The National Capital Region Transportation Planning Board (TPB) develops and maintains the Regional ITS Architecture for the National Capital Region, in compliance with federal laws and U.S. DOT regulations. This architecture, in turn, advises technology aspects of projects and programs included in Visualize 2050. This ITS Architecture Process Document explains this relationship.

A regional Intelligent Transportation System (ITS) architecture is defined as "a regional framework for ensuring institutional agreement and technical integration for the implementation of ITS projects or groups of projects".¹ Its primary purpose is to illustrate and document regional integration so that planning and deployment can take place in an organized and coordinated fashion.

The TPB has developed a comprehensive Metropolitan Washington Regional Intelligent Transportation Systems Architecture (MWRITSA)², the Regional ITS Architecture for the National Capital Region, that plays a crucial role in enhancing the efficiency and effectiveness of the region's transportation systems. The MWRITSA is developed in compliance with federal laws and U.S. Department of Transportation regulations, ensuring that it meets national standards and best practices. The MWRITSA is closely related to the Systems Performance, Operations, and Technology (SPOT) Program and the Commuter Connections Program within the TPB, supporting the goals of improving system performance, reliability, and commuter information.

Integration with Planning

According to the Federal Highway Administration³, the regional ITS architecture serves as a tool for:

- Supporting transportation planning, both long-term and project programming
- Enhancing regional planning by bringing together diverse agencies and stakeholders
- Identifying opportunities for interagency cooperation and cost-effective ITS investments

The MWRITSA aims to be integrated with the TPB's planning activities to enhance the efficiency and effectiveness of the region's transportation network. This integration is achieved through several key mechanisms:

- **Strategic Framework:** The MWRITSA provides a strategic framework that guides the development and implementation of transportation technologies across the region. This framework ensures that all ITS projects align with the TPB's long-term transportation goals and objectives.
- **Data-Driven Decision Making:** By reflecting the use of real-time data and advanced analytics in transportation agency operations and decision-making, the MWRITSA reflects the TPB's performance-based planning approach, enabling planners to identify and prioritize projects that will have the greatest impact on improving system performance and reliability.
- **Enhanced Coordination:** The MWRITSA facilitates coordination among various transportation agencies and stakeholders within the TPB. This ensures that all parties are working collaboratively towards common goals, sharing information, and leveraging resources effectively.
- **Support for Management and Operations:** The MWRITSA is closely linked with the TPB's SPOT Subcommittee. This subcommittee provides guidance on the integration of ITS into daily operations, ensuring that the transportation system is managed efficiently and can respond effectively to both routine and unexpected events.

¹ Code of Federal Regulations (September 22, 2025). 23 CFR Part 940. <https://www.ecfr.gov/current/title-23/chapter-I/subchapter-K/part-940/section-940.3>

² MWRITSA (October 10, 2019). MWRITSA 2019 Version 1.0. <https://www1.mwcog.org/itsarch/>

³ Federal Highway Administration (n.d.). *Regional ITS Architecture Guidance Document*. <https://ops.fhwa.dot.gov/publications/regitsarchguide/1intro.htm>

- **State and Agency Architectures:** The MWRITSA is closely linked to ITS architectures developed and maintained by State Departments of Transportation and other member agencies. Details contained in these other architectures are included in the MWRITSA by reference.
- **Future-Proofing:** The MWRITSA is adaptable, allowing it to evolve with technological advancements and changing regional priorities. This ensures that the TPB's planning activities remain relevant and effective in addressing current and future transportation challenges.

By integrating the regional ITS architecture with its planning activities, the TPB can create a more coordinated, efficient, and resilient transportation system that meets the needs of all users.

TPB'S ROLE AND KEY STAFF

The TPB is responsible for developing and maintaining the regional ITS architecture for the National Capital Region. This architecture is updated as needed to reflect changes in regional needs or ITS deployments. The TPB adopts a collaborative process involving multiple stakeholders to develop the MWRITSA. The development process ensures that the architecture:

- Is consistent with the National ITS Architecture.
- Utilizes applicable ITS standards.
- Is developed through a process that includes participation from various stakeholders.

The TPB encourages its members to apply the TPB's priority strategy-to apply effective technologies that advance the TPB's goals. The TPB and the region's transportation operators, who are responsible for planning, operating and maintaining the region's transportation infrastructure and services, pursue efficient and effective solutions to the region's transportation challenges through committee work and initiatives such as the Metropolitan Area Transportation Operations Coordination (MATOC) program. The TPB maintains the MWRITSA that provides a regional ITS framework for the foreseeable future and serves as a valuable resource for developing ITS technology.

TABLE 14.1: KEY STAFF

TPB Staff	Title	Role
Kanti Srikanth	Executive Director	Staff Director for the Transportation Planning Board (TPB)
Andrew Meese	Systems Performance Planning Director	Program Lead
Jan-Mou Li	Transportation Engineer	Contributor

Role of TPB Subcommittees

The TPB's SPOT Subcommittee and the Commuter Connections Subcommittee play a pivotal role in the successful implementation and management of the MWRITSA. These subcommittees provide specialized expertise and guidance, ensuring that the subcommittee member's programs align with regional transportation goals and address the specific needs of the community. The

SPOT Subcommittee focuses on integrating advanced technologies and data-driven strategies to enhance traffic management and system reliability. Meanwhile, the Commuter Connections Subcommittee works on promoting alternative commuting options and improving real-time information dissemination to reduce congestion and improve air quality. By fostering collaboration among various stakeholders, the TPB subcommittees ensure that both programs are effectively coordinated and contribute to a more efficient and sustainable transportation network.

Systems Performance, Operations, and Technology Subcommittee

The Systems Performance, Operations, and Technology (SPOT) Subcommittee explores management and operational strategies that can improve congestion, safety, maintenance, and system efficiency. It is integral to the development and implementation of the MWRITSA. This subcommittee focuses on improving the performance and operations of the transportation system through the application of advanced technologies and data-driven strategies. The SPOT Subcommittee advises on the development of the regional ITS architecture, ensuring that it aligns with the region's strategic goals for transportation management and operations. By leveraging the MWRITSA, the SPOT Subcommittee can enhance traffic management, incident response, and overall system reliability, contributing to a more efficient and resilient transportation network.

Commuter Connections Subcommittee

The Commuter Connections Subcommittee is another key initiative within the TPB that benefits from the MWRITSA. This subcommittee aims to reduce traffic congestion and improve air quality by promoting alternative commuting options such as carpooling, vanpooling, and telecommuting. The regional ITS architecture supports the Commuter Connections Subcommittee by providing the technological infrastructure needed to manage and disseminate real-time information on traffic conditions, transit options, and ridesharing opportunities. An example of the technological infrastructure aligned with the regional ITS architecture is the mechanism/infrastructure of information flow for real-time traffic information dissemination. This mechanism enables the seamless exchange of traffic data between various sources, such as traffic sensors, cameras, and incident management systems, and disseminates this information to the public through various channels, including dynamic message signs, mobile apps, and websites. Applications aligned with the MWRITSA helps commuters make informed decisions, leading to more efficient use of the transportation network and reduced congestion.

ROLE OF KEY STAKEHOLDERS

The development and implementation of the MWRITSA in the National Capital Region is a collaborative effort involving several key stakeholders as shown in Table 14.2. These stakeholders play crucial roles in ensuring that the MWRITSA meets the region's transportation needs and aligns with broader strategic goals.

TABLE 14.2: KEY STAKEHOLDERS

Planning Agency	Role
State and Local Transportation Agencies	Key implementers of the regional ITS architecture
Federal Highway Administration	Funding and technical support for the development of the regional ITS architecture
Private Sector	Drivers to the evolution of the ITS architecture

State and Local Transportation Agencies

State departments of transportation (DOTs) and local transportation agencies are key implementers of the ITS architecture. These agencies contribute to the design and deployment of ITS projects, ensuring that they address specific local needs and conditions. Examples of these ITS projects include:

- Transit signal priority (TSP) systems are commonly developed and maintained by several TPB member agencies, such as DDOT, MTA, and WMATA, in the National Capital Region.
- DDOT has implemented an Advanced Transportation Management System (ATMS), an ITS-related project, and outlined several ITS-related projects as part of its Smart DC initiative.
- MTA is developing a 50-year vision for coordinated local, regional, and intercity transit across Maryland, incorporating ITS elements.
- WMATA has developed comprehensive bus service guidelines that include ITS elements and implemented a System for Mapping and Analyzing Regional Trends in Transit-Oriented Development (SmartTOD), which incorporates ITS elements to analyze and optimize transit-oriented development in the region.
- The City of Alexandria is implementing a multi-phase ITS Integration project that began in 2009 and extends through 2030, with phases 3 and 4 currently underway.

Specific projects may be found in Visualize 2050 and the FY 2026-2029 Transportation Improvement Program. State and local transportation agencies also provide valuable data and feedback through SPOT subcommittee discussions that help refine and improve the ITS architecture over time.

Federal Highway Administration

The Federal Highway Administration (FHWA) provides funding and technical support for the development of the regional ITS architecture. The agency ensures that the architecture aligns with national ITS standards and best practices, facilitating interoperability and integration across different regions and systems.

Private Sector

Private companies contribute innovative technologies and data that drive the evolution of the ITS architecture. These partners bring expertise in areas such as data analytics, communications, and system integration, helping to ensure that the ITS architecture incorporates the latest advancements in transportation technology. TPB's interaction with private sector partners include:

1. Direct interaction: TPB staff engage directly with private sector partners, such as vehicle probe data vendors, to discuss data sharing agreements, pricing, and technical specifications.
2. Indirect interaction: TPB staff also interact with private sector partners indirectly, through the TPB's member agencies. For instance, member agencies may partner with private companies to deliver ITS projects, such as intelligent traffic signal systems or real-time transit information systems. TPB staff provide technical guidance and coordination support to these efforts, ensuring that they align with regional transportation goals and objectives.

PUBLIC ENGAGEMENT

Public engagement is a critical component of the development and implementation of the MWRITSA. The TPB actively involves the public and various stakeholders to ensure that the MWRITSA meets the needs of the community and enhances the overall transportation network. By actively engaging the public and leveraging the expertise of the Systems Performance, Operations, and Technology Subcommittee and Commuter Connections Subcommittees, the MWRITSA is refined and improved on an ongoing basis to better serve the National Capital Region.

Systems Performance, Operations, and Technology Subcommittee

The SPOT Subcommittee (SPOTS) plays a vital role in public engagement by providing expert advice on the development of the MWRITSA. This subcommittee ensures that the architecture incorporates the latest advancements in transportation technology and aligns with regional goals for system performance and resilience. By leveraging the MWRITSA, the SPOTS helps create a more efficient and resilient transportation network, addressing both current and future transportation challenges. The subcommittee also serves as a regional forum for coordination among TPB member agencies and other stakeholders, facilitating the exchange of information and best practices.

Commuter Connections Subcommittee

The Commuter Connections Subcommittee leverages MWRITSA to provide commuters with real-time information and tools for making informed travel decisions. This subcommittee engages with the public to promote alternative commuting options such as carpooling, vanpooling, and telecommuting, which help reduce traffic congestion and improve air quality. By considering the MWRITSA in its programs, the Commuter Connections Subcommittee ensures that commuters have access to accurate and timely information, enabling them to choose the most efficient and sustainable travel options.



Visualize 2050
Planning and
Programming Process

Transportation Safety Planning

Part 15 of 27



National Capital Region
Transportation Planning Board

December 2025

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OVERVIEW OF TRANSPORTATION SAFETY PLANNING

Roadway safety is an essential element of livability in the region. Beyond the tragic loss of life, safety risks undermine the region's efforts to create walkable, bikeable communities that provide transportation choices, enhance accessibility, and reduce emissions.

The National Capital Region Transportation Planning Board (TPB) has long acknowledged roadway safety as an essential element of the region's livability and has planned for transportation safety needs through the transportation planning process. In addition to making safety a core part of its regional vision, the TPB's safety program draws on local expertise through its committees, sets highway safety performance targets and monitors progress, and supports a range of incentives that promote safety across member jurisdictions and communities.

TPB'S ROLE AND KEY STAFF

The TPB safety planning program helps to advance roadway safety in the region by highlighting it as a policy priority and providing resources to support the safety efforts of member jurisdictions. The TPB achieves this by providing policy priorities and guidance, serving as a forum for collaboration and information exchange; providing technical assistance to support implementation of local safety measures; and generating technical resources for decision-making. The TPB includes a regional transportation planning task in its Unified Planning Work Program (UPWP) with activities that support roadway safety in the transportation planning process.

The TPB's transportation safety program consists of various elements including a Transportation Safety Subcommittee, the Regional Roadway Safety Program, regional safety studies and data analysis, and special safety events and work sessions. The TPB also responds to safety-related federal requirements for MPOs. Table 15.1 summarizes the key TPB staff who support the TPB's transportation safety activities. The program is supported by consultant assistance as needed.

TABLE 15.1: KEY STAFF

TPB Staff	Title	Role
Kanti Srikanth	Executive Director	Staff Director for the Transportation Planning Board (TPB)
Tom Harrington	Program Director	Contributor
Janie Nham	Planning Manager	Contributor

Role of TPB Subcommittees

Since 2012, the TPB's Transportation Safety Subcommittee has served as a forum for local transportation practitioners to exchange best practices, learn about emerging trends and developments in roadway safety, and coordinate on regional roadway safety matters. Subcommittee participants typically include transportation staff from member jurisdictions and

agencies, COG/TPB transportation planning staff, and transportation-related consulting firms. The subcommittee meets quarterly, and meetings feature presentations on member safety projects and studies; academic research from transportation, public health, and other related fields; as well as TPB presentations on relevant planning activities or programs.

The Subcommittee also advises on safety-related action items before they advance to the TPB Technical Committee and Transportation Planning Board for review and adoption.

ROLE OF KEY PLANNING AGENCIES

The TPB's member jurisdictions and agencies play a vital role in the safety program because they implement the safety policies adopted by the board. As a result, the TPB regularly engages with local jurisdictions and state departments of transportation, typically through the Transportation Safety Subcommittee, to gather best practices that could be shared across the region. Collaboration with state departments has also been essential to fulfill federal reporting requirements, such as the setting of annual highway safety targets for performance-based planning and programming.

In addition, safety-focused agencies at the federal level such as the National Highway Traffic Safety Administration (NHTSA) provide tools, data, and other technical resources to support safety efforts by TPB staff, state agencies, and jurisdictions. Staff from NHTSA and the Federal Highway Administration (FHWA) have also briefed the Transportation Safety Subcommittee and TPB members on ongoing federal safety initiatives, such as the USDOT's National Roadway Safety Strategy.

TPB member agencies provided technical inputs for Visualize 2050 including projects and programs aimed at improving safety. During the submission process, agencies had the opportunity to indicate which projects supported the TPB's safety goal.

PUBLIC ENGAGEMENT

TPB's safety planning program incorporates public input received through regularly occurring TPB meetings. The TPB's Community Advisory Committee also receives updates on safety activities and is provided with the opportunity to share feedback during briefings. In addition to these venues, the TPB occasionally holds special forums on safety topics, like the Regional Roadway Safety Summit, which are open to the public.

FEDERALLY REQUIRED SAFETY TARGETS

The TPB has adopted annual highway safety performance targets since 2018 in accordance with federal regulation, which requires state DOTs and MPOs to set highway safety targets and to measure progress against those targets annually for their respective planning areas. The TPB's highway safety targets are based on five performance measures: the number of fatalities, the fatality rate, the number of serious injuries, the serious injury rate, and the number of non-motorist fatalities and serious injuries. The targets and performance are calculated as five-year rolling averages. Regional safety targets are set by summing up the targets provided by each provider and calculating event rates using vehicle revenue mile data. TPB staff also evaluate the region's performance against the targets each year, which fosters accountability and transparency in the target-setting process.

A snapshot of the region's highway safety performance during the development of Visualize 2050 is reflected in the plan in chapter 3, which reflects on current system performance. This data helps

provide context for travel safety upon which the plan aims to improve. Likewise, the future targets for safety performance are included in chapter 7 of the plan.

STREET SMART SAFETY EDUCATION CAMPAIGN

Since 2002, COG, in coordination with the TPB, has sponsored the [Street Smart](#) regional pedestrian and bicyclist safety education campaign. The campaign uses creative print, radio, digital, and television advertisements to educate drivers, pedestrians, and bicyclists about safe travel behaviors. The program is funded by the District of Columbia, Maryland, Virginia, and the Washington Metropolitan Area Transit Authority (WMATA) and is advised by an advisory group as well as the TPB Bicycle and Pedestrian Subcommittee.

REGIONAL SAFETY STUDY

The TPB conducts regional safety studies to better understand the nature and frequency of roadway crashes across the region, with the goal of informing decision-making by the board. TPB staff first conducted the study in 2020. Staff developed the plan with consultant assistance following an analysis of locally sourced data and sought the advice of an advisory panel comprised of state DOT representatives, as well as the TPB Safety Subcommittee, TPB Technical Committee, and the TPB. The study identified a lack of seatbelt use, excessive speeding, and impaired driving as among the top contributing factors to traffic fatalities in the region. Visualize 2050 acknowledges the challenges with such traveler behaviors and reflects priority strategies to improving safety. An update of the study expected in Summer 2025 and will inform development of the next National Capital Region Transportation Plan.

SAFETY EVENTS

The TPB has convened stakeholders at roadway safety special events to highlight regional concern around traffic safety. In November 2022, safety officials from the District Department of Transportation (DDOT), Maryland Department of Transportation (MDOT), and Virginia Department of Transportation (VDOT) briefed the TPB on their efforts to improve regional roadway safety at a Safety Roundtable. Subsequently, in October 2024, members of the TPB convened for the Regional Roadway Safety Summit to discuss potential actions the board could undertake to address rising roadway fatalities and serious injuries. Several recommendations were made during the summit, such as committing to the USDOT Allies in Action initiative, enhancing data analysis, and looking at ways to partner regionally through the COG Board and its members, to ensure that dangerous drivers are held accountable for their actions. These actions were affirmed by the board in November 2024 and will be implemented over the course of the next few years. The TPB's priority safety strategies are noted in Visualize 2050.



**Visualize 2050
Planning and
Programming Process**

Modeling of Travel Demand and Mobile Emissions

Part 16 of 27



**National Capital Region
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OVERVIEW OF THE MODELING OF TRAVEL DEMAND AND MOBILE EMISSIONS

The TPB measures and forecasts future performance of the National Capital Region Transportation Plan (NCRTP) as one way of tracking progress on the goals in the TPB Policy Framework. The performance analysis considers how well the anticipated transportation system will accommodate current and forecast travel demand and address mobility, accessibility, and environmental challenges. It also examines how expected changes to the transportation system might advance regional goals in the TPB's policy documents. The results of the analysis can help decision-makers and the public better understand what changes to current plans and funding might be needed to achieve different future outcomes.

The performance analysis examines more than twenty performance measures to portray how typical travel and commuting characteristics will change over time. It also examines how the existing highway and transit networks serve the region and what will be the likely impact of planned projects. This analysis is one of many that the TPB conducts to understand the region, as presented throughout this plan and other products. The TPB uses performance measures from other planning activities to check progress on the goals and priorities presented in the TPB Policy Framework. More information on the TPB performance measures can be found at Visualize2050.org.

TPB'S ROLE AND KEY STAFF

The TPB staff develops, maintains, and improves—with consultant assistance—a series of regional travel demand forecasting models that are used for the regional transportation planning process in the National Capital Region. At any given time, the TPB staff maintains at least two regional travel demand models: one or more adopted, production-use models and one or more developmental models. A production-use model is one that is used in planning studies conducted by the TPB, such as an analysis of the NCRTP or an air quality conformity analysis and is made available to outside parties. A developmental model is one that is currently under development by TPB staff and is generally not made available to outside parties, since it is not yet considered a finished product. Currently, Gen2/Ver2.4.6 Travel Model is the production-use trip-based travel model used in the Visualize 2050 activities. Key technical assumptions in the Visualize 2050 analysis are summarized below:

- New Land Activity Forecasts - Round 10.0 of the Cooperative Forecasts
- December 2023 Vehicle Registration Data/Vehicle Identification Number (VIN) Data
- New Projects and Updates to Existing Project Submissions
- No Metrorail capacity constraint to and through the regional core¹
- Gen2/Version 2.4.6 Travel Model, which is an aggregate, trip-based model
- EPA's MOVES4.0.1 Mobile Emissions Model

Emissions estimates are developed using the EPA's Motor Vehicle Emission Simulator (MOVES) model. The most recent version of this model, MOVES4, was first released in August 2023, and the MOVES4.0.1 “patch” to the MOVES4 model referenced above was released in January 2024.² Inputs to the MOVES model include 1) travel-related inputs and 2) non-travel-related inputs. The

¹ In the past (2001-2018), it was assumed that Metrorail capacity to and through the regional core would be constrained due to funding limitations. This constraint was reflected in the travel model. However, in 2018, WMATA received new dedicated funding from the District of Columbia, suburban Maryland, and Northern Virginia, which meant that the transit authority would likely have the funds to handle its peak volumes to/through the regional core. Thus, in 2018, WMATA requested that this procedure stop being used. The last model to use this procedure was the Ver. 2.3.70 Model.

² U.S. Environmental Protection Agency (2024). MOVES4 Update Log. <https://www.epa.gov/moves/moves4-update-log>

travel-related inputs are produced by the Gen2/Version 2.4.6 Travel Model.³ The non-travel-related inputs are obtained directly from state agencies (i.e., air agencies and departments of motor vehicles) or developed based on observed meteorological data. For more information, please refer to the Visualize 2050 Air Quality Conformity Analysis Report.

Within COG's Department of Transportation Planning (DTP), the Travel Forecasting & Emissions Analysis (TFEA) Team takes the lead in all travel demand modeling and mobile emissions modeling work. Table 16.1 lists the current members of the TFEA Team.

TABLE 16.1: KEY STAFF

TPB Staff	Title	Role
Kanti Srikanth	Executive Director	Staff Director for the Transportation Planning Board (TPB)
Mark Moran	Program Director, Travel Forecasting and Emissions Analysis	Program Lead
Dusan Vuksan	Program Manager, Model Application Group	Model Application Group Lead
Feng Xie	Program Manager, Model Development Group	Model Development Group Lead
Meseret Seifu	Principal Transportation Engineer	Model Development Group
Jian (Jim) Yin	Principal Transportation Engineer	Model Development Group
Ray Ngo	Principal Transportation Engineer	Model Development Group
Glenn Lang	Transportation Engineer II	Model Development Group
Jane Posey	Principal Transportation Engineer	Model Application Group
Jinchul (JC) Park	Principal Transportation Engineer	Model Application Group
Wanda Owens	Senior Transportation Engineer	Model Application Group
Anant Choudhary	Transportation Engineer IV	Model Application Group
Ho Jun (Daniel) Son	Transportation Engineer IV	Model Application Group

³ See, for example, National Capital Region Transportation Planning Board. (July 11, 2023). *User's Guide for the COG/TPB Gen2/Version 2.4.6 Travel Demand Forecasting Model*. <https://www.mwcog.org/transportation/data-and-tools/modeling/model-documentation>

TPB Staff	Title	Role
Erin Morrow	Transportation Engineer IV	Model Application Group
William Bacon	Transportation Engineer III	Model Application Group
Nazneen Ferdous	Transportation Engineer IV	Model Application Group
Rob d'Abadie	Transportation Engineer IV	Model Application Group

Role of TPB Committees

Regional travel demand models are developed under the guidance of the Travel Forecasting Subcommittee (TFS), a subcommittee of TPB's Technical Committee. The TFS was formed in 1991 to provide oversight of activities related to development of the regional travel demand forecasting model. The TFS is one of several subcommittees that report to the TPB Technical Committee, which, in turn, reports to the National Capital Region Transportation Planning Board (TPB).

The mission of the TFS is to “provide guidance to, review of, and oversight to the COG/TPB information, analysis, and forecasting systems, and to serve as a forum for coordinating and enhancing such systems throughout the greater Washington region” (adopted April 21, 1995). As of FY 2005, the Travel Monitoring Subcommittee was merged into the TFS, so the mission of the TFS also includes oversight of travel monitoring activities.

The TFS is composed of representatives from TPB member jurisdictions, state departments of transportation (DOTs), the Washington Metropolitan Area Transit Authority (WMATA), and any other transit or regional agencies that desire to participate. Also invited to participate are consultants engaging in travel demand forecasting. Although consultants are not formal members of the subcommittee, they nonetheless provide valuable review of and comment about COG/TPB work activities. In return, consultants keep posted on the latest developments of the region’s travel forecasting process, thereby supporting work they are doing in corridor and sub-regional studies for their clients. More information on the subcommittee can be obtained on the TFS website.⁴

ROLE OF KEY PLANNING AGENCIES

The TPB’s Regional Travel Demand Forecasting Model is developed and maintained by TPB staff, with some consultant assistance. The TPB Travel Model is used by outside entities, such as state DOTs or consultants, to do project-planning work throughout the metropolitan Washington region. Additionally, some state DOTs do their own travel demand modeling for some urban areas within their state boundaries and/or have their own state-wide travel demand forecasting model.⁵

Additionally, some counties in Maryland and/or Virginia develop their own travel models, which are

⁴ Metropolitan Washington Council of Governments (September 20, 2024). *Travel Forecasting Subcommittee*. <https://www.mwcog.org/committees/travel-forecasting-subcommittee/>

⁵ See, for example Maryland State Highway Administration (October 2013). *Maryland Statewide Transportation Model (MSTM), Ver. 1.0, Model Validation Report and User’s Guide*. http://smartgrowth.umd.edu/assets/documents/presto/2.900_mstm_documentation_oct152013.pdf; OR Maryland State Highway Administration, University of Maryland, Cambridge Systematics, Inc., and University of Memphis (April 30, 2018). *An Activity-Based Maryland Statewide Transportation Model – MSTM Version 2. Final Report*. <https://app.box.com/s/x83x7onceewustomhz0qty6bo2j2ha6v>

often derived from the regional travel model, but with more detailed zone systems in the county of interest.⁶ TPB staff provide support, when possible, to state DOTs and counties developing their respective models. In many cases, such agencies are invited to share their modeling work with the region via a presentation at the TPB's Travel Forecasting Subcommittee.

PUBLIC ENGAGEMENT

Travel demand modeling documentation is described in detail on the relevant web page.⁷ The public can submit a request for any off-the-shelf technical modeling data and/or the production-use travel model.⁸ In FY 2024, the TFEA team serviced about 40 travel-model-related data requests and about 12 mobile emissions-related data requests to departments of transportation, member jurisdictions, consultants, and private citizens.

In addition, the public may provide comments at TPB meetings as information is shared with the Board for decision-making. For example, in the past, the public has provided comments to the TPB regarding the methodology and assumptions related to past air quality conformity analyses and GHG scenario planning technical exercises.

Similarly, TPB staff members have provided briefings that summarized findings of technical studies to both the TPB's Community Advisory Committee and the Community Leadership Institute.

Finally, TPB staff members are closely involved with the academic community in the region and often provide guest lectures on travel forecasting and planning to graduate students in the region (e.g., Virginia Polytechnic Institute and State University and Georgetown University).

PLANNING UNCERTAINTIES

Long-range planning at the TPB seeks to help area decision-makers and residents “visualize” the region’s future. The TPB recognizes that many external future factors may impact mobility and accessibility. How will travel in this region more normally operate in a post-Covid environment? In particular, what will be the impacts of telework? How will climate change and resiliency, changes to the global economy, and the impact of new technology—particularly vehicle automation and electrification—affect the location of people and jobs, how people travel, and funding to invest in and maintain the system? Studying and forecasting the impact of each of these mentioned planning uncertainties is beyond the scope of a normal performance analysis of the LRTP or an air quality conformity analysis of the LRTP, but the TPB staff has conducted some past studies to examine some of these factors.⁹

Various modeling methodology assumptions, largely driven by federal requirements for the air quality conformity analysis, are included in the TPB’s travel demand model to provide a long-range forecast of where, when, and how people will travel around the region. Notably, much of the underlying data is reflective of and validated to pre-Covid travel conditions. While the coronavirus pandemic changed many recent travel characteristics in the region, less is known about its impact

⁶ See, for example, Krishna Patnam and Navid Kalantari (November 20, 2020). COG/TPB Travel Forecasting Subcommittee, *Overview of the Recent Transportation Modeling Activities at M-NCPPC*, Prince George’s County Planning Department. <https://www.mwcog.org/events/2020/11/20/travel-forecasting-subcommittee/>

⁷ Metropolitan Washington Council of Governments (July 21, 2023). *Model Documentation*. <https://www.mwcog.org/transportation/data-and-tools/modeling/model-documentation/>

⁸ Metropolitan Washington Council of Governments (July 21, 2023). *Data Requests*. <https://www.mwcog.org/transportation/data-and-tools/modeling/data-requests>

⁹ See for example, ICF and the National Capital Region Transportation Planning Board (August 2024). *Regional Electric Vehicle Infrastructure Implementation Strategy, Final Report*. <https://www.mwcog.org/documents/2024/09/04/regional-electric-vehicle-infrastructure-implementation-revii-strategy-climate-energy-climate-change-electric-vehicles/>, which forecasted possible locations for future electric vehicle charging infrastructure based on three different deployment scenarios.

10 to 25 years from now and, as a result, post-Covid assumptions have not been incorporated into this analysis. Existing transit service, and its associated frequencies, headways, and hours of operation, reflect December 2023 schedules. Transit fares and highway tolls reflect the June 2024 conditions. Vehicle fleet data, which contains information about the types of vehicles people and business use to travel and conduct business, is current to December 2023.

ADDITIONAL RESOURCES

This section contains links to additional information regarding the production use Gen2/Ver. 2.4.6 Travel Model. The User's Guide and the Transmittal Package memo can be accessed using the links below:

- [User's Guide for the COG/TPB Gen2/Version 2.4.6 Travel Demand Forecasting Model.](#)
Metropolitan Washington Council of Governments, National Capital Region Transportation Planning Board, July 13, 2023.
- [Transmittal Package: TPB Gen2/Ver. 2.4.6 Travel Demand Forecasting Model, Transportation Networks, and Land Use Data Associated with the Air Quality Conformity Analysis of the 2022 Update to Visualize 2045 with Revised Transit Networks.](#)
Memorandum, July 12, 2023.

The highway and transit networks report can be found in the following link:

- [Highway and Transit Networks Used in the Air Quality Conformity Analysis of the 2022 Update to Visualize 2045 and the FY 2023-2026 TIP \(Gen2/Ver. 2.4 Travel Model\).](#)
Metropolitan Washington Council of Governments, National Capital Region Transportation Planning Board, June 15, 2022.

In 2021, the Gen2/Ver. 2.4 Travel Model was validated to year-2018 conditions.¹⁰ The work was documented in the following memo:

- ["Year-2018 Validation of TPB Version 2.4 Travel Model."](#) Memorandum, August 17, 2021.

¹⁰ Due to the small differences in model outputs between the Gen2/Ver. 2.4 Travel Model and Gen2/Ver. 2.4.6 Travel Model, it was decided by TPB staff that there is no need to re-validate the Gen2/Ver. 2.4.6 Model to the year-2018 conditions.



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Travel and Tourism

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OVERVIEW OF TRAVEL AND TOURISM PLANNING

As a global destination, travel and tourism planning is essential for the National Capital Region. In 2023, Washington, DC, welcomed a record number of visitors as tourism rebounded from the coronavirus pandemic, with nearly 26 million people visiting DC, up from 22.1 million visitors in 2022 and exceeding pre-pandemic numbers from 2019 (25.1 million visitors). With a wealth of historical attractions, national monuments, and cultural and sporting venues, the National Capital Region continues to attract large numbers of domestic and international visitors.

Tourists travel to the region by personal vehicles, air, rail, and bus transit, sharing the interregional travel options with the region's residents and employees. The region's multimodal transportation system is accessed by three major interstates (I-95, I-66, and I-70/270), and three large commercial airports: Baltimore/Washington Thurgood Marshall International Airport (BWI) in Maryland, Ronald Reagan Washington National Airport (DCA), and Washington Dulles International Airport (IAD) in Virginia.

The region is also accessed by Amtrak and various intercity bus services which are primarily served by Union Station, the nation's second busiest intercity bus and rail station and the southern anchor of the Northeast Corridor, the busiest passenger rail corridor in the nation. It also has an extensive system of highways and express toll lanes, one of the nation's largest rail and bus transit systems (Metrorail, Metrobus, and other local and commuter rail and bus operators), and an extensive system of sidewalks, bicycle lanes, and multi-use paths. Therefore, it is critical that the region's multimodal transportation system is efficient and accessible to meet the diverse needs of residents and out-of-town visitors.

This part of the Visualize 2050 process document will generally discuss the multimodal transportation planning process for how activities such as the 2017/18 Regional Travel Survey inform all the TPB's travel and tourism planning. This will be followed by the mode-specific process chapters in Parts 18-24 detailing the multimodal transportation planning process for roadway, bus transit, railway, bicycle/pedestrian/micromobility, transportation demand management, surface connections to air, and pipeline and waterways planning.

THE TPB'S ROLE AND KEY STAFF

Travel and tourism planning activities are generally overseen by the TPB's Technical Committee and its various subcommittees including the TPB Travel Forecasting Subcommittee, Regional Public Transportation Subcommittee, and other TPB subcommittees. Travel and tourism planning includes TPB staff that oversee transportation planning data and research, systems performance planning, and travel forecasting and emissions analysis. The key TPB staff that are involved with travel and tourism planning activities are listed in Table 17.1 below.

TABLE 17.1: KEY STAFF

TPB Staff	Title	Role
Kanti Srikanth	Executive Director	Staff Director for the Transportation Planning Board (TPB)
Timothy Canan	Director, Planning Data and Research Program	Program Director

Andrew Meese	Director, Systems Performance Planning Program	Program Director
Mark Moran	Director, Travel Forecasting and Emissions Analysis	Program Director
Eric Randall	Principal Transportation Engineer	Program Manager
Feng Xie	Principal Transportation Engineer	Program Manager
Kenneth Joh	Principal Statistical Survey Analyst	Program Lead
Pierre Gaunaurd	Transportation Planner	Contributor

ROLE OF KEY PLANNING AGENCIES

Agencies involved in travel and tourism planning are represented on the TPB's Technical Committee and its various subcommittees including the TPB Travel Forecasting Subcommittee, Regional Public Transportation Subcommittee, and others. Regional agencies represented on the National Capital Region Transportation Planning Board (TPB) that are involved with travel and tourism planning include the District Department of Transportation (DDOT), Maryland Department of Transportation (MDOT), Virginia Department of Transportation (VDOT), Washington Metropolitan Area Transit Authority (WMATA), and the Virginia Department of Rail and Public Transportation (DRPT). These agencies provide guidance and oversight on key travel and tourism planning activities included in the TPB's Unified Planning Work Program (UPWP) such as the Regional Travel Survey and other transportation survey efforts.

PUBLIC ENGAGEMENT

All activities are coordinated and reviewed by TPB's Technical Committee and its various subcommittees including the TPB Travel Forecasting Subcommittee, Regional Public Transportation Subcommittee, and others. Surveys focusing on travel and tourism, such as the Voices of the Region Public Input Survey and the Regional Travel Survey, may include public engagement and outreach efforts to obtain input directly from residents, workers, public transit users, and regional stakeholders. In addition, key studies are shared with the Transportation Planning Board, the TPB Community Advisory Committee, and the TPB Access for All Advisory Committee. The public has an opportunity to comment on these studies and plans at every TPB meeting.

REGIONAL TRAVEL SURVEY

The TPB's household travel survey, the Regional Travel Survey (RTS), collects detailed demographic and travel behavior information from randomly selected households in the National Capital Region.¹ Participants reported their travel behavior on a randomly assigned travel day including all travel modes. Conducted approximately every ten years since 1968, the RTS collects demographic and travel information from a randomly selected representative sample of households in the region and adjacent areas. It is the primary source of observed data used to estimate, calibrate, and validate the regional travel demand model, which is used for the travel forecasting and air quality conformity analysis of the National Capital Region Transportation Plan including Visualize 2050. The survey data are also used to analyze travel trends and for other key program activities that are relevant to travel and tourism planning.

The RTS was last conducted in 2017/2018, and planning is currently underway for the next survey.

The RTS included public engagement and outreach efforts, such as the postcard in Figure 17.1, to obtain input from low income and non-white community members. The survey oversampled parts of the region with a higher proportion of harder to reach households and included an outreach effort to increase Hispanic/Latino survey participation. In addition to providing information about observed travel behavior, the survey also collected demographic information, typical weekday travel, and activities that impact trip making such as online shopping and home delivery services.

Following the 2017/2018 survey, TPB staff also used data from the survey to answer questions from regional stakeholders, including local governments and transit agencies, about travel in the region. Based on the questions received, staff took a deeper dive in the RTS and conducted an in-depth analysis which provided answers to many of these questions that provided insights such as telework and high-capacity transit, characteristics of peak and off-peak travel, and the interaction of the use of personal vehicles and transit. The information collected from the RTS has a direct impact on travel and tourism planning in the National Capital Region.²

**FIGURE 17.1: POSTCARD
DISTRIBUTED DURING 2017/2018
REGIONAL TRAVEL SURVEY**



REGIONAL INTERCITY BUS AND RAIL TRAVEL STUDY AND REGIONAL AIR PASSENGER SURVEY

The TPB also conducts mode-specific studies that relate directly to tourists traveling to and from the National Capital Region. Two such studies are the Regional Intercity Bus and Rail Travel Study and the Regional Air Passenger Survey. Both were completed in 2024 and highlights from these

¹ National Capital Region Transportation Planning Board (January 21, 2021). *Regional Travel Survey (RTS)*. <https://www.mwcog.org/transportation/data-and-tools/household-travel-survey/>

² National Capital Region Transportation Planning Board (September 28, 2021). *Regional Travel Survey (RTS) In-Depth Analysis*. <https://www.mwcog.org/documents/2022/04/22/regional-travel-survey-in-depth-analysis-featured-publications-regional-travel-survey/>

studies have been included in Visualize 2050. More information about the Regional Intercity Bus and Rail Travel Study may be found in Part 19: Bus Transit Planning and Part 20: Railway Planning. The Regional Air Passenger Survey is described in detail in Part 23: Surface Connections to Air.

In general, the following Parts 18-24 detail the multimodal transportation planning process for roadway, bus transit, railway, bicycle/pedestrian/micromobility, transportation demand management, surface connections to air, and pipeline and waterways planning.



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OVERVIEW OF ROADWAY PLANNING

Roadways are the largest physical components of the National Capital Region's transportation system. They have been shaped over time by natural geography, land development decisions, and funding availability. Roadways move the most people throughout the region via the Interstate System (including toll lanes and high-occupancy vehicle (HOV) and high-occupancy toll (HOT) lanes), collectors, arterials, and local roads. Many other modes of transportation are often placed adjacent to some types of roadways such as sidewalks or bikeways, and planning for these accommodations is discussed in other parts of this document related to pedestrian or bicycle planning.

In the National Capital Region, responsibility for roadway planning is performed at multiple levels of government. State Departments of Transportation (DOTs) own the largest percentage of roads, tunnels, and bridges in the region. Depending on the jurisdiction, counties and cities have various levels of responsibility for roadway planning based on multiple factors like their size, type of roads, and state laws and regulations. There are also regional agencies like Northern Virginia Transportation Authority (NVTA) that fund roadway projects in Northern Virginia that meet criteria laid out by the authority.

In addition, TPB staff keep abreast of any changes to the Strategic Highway Network (STRAHNET) in the region. The STRAHNET is a national 64,200-mile system that consists of public highways that provide access, continuity, and emergency transportation of personnel and equipment. STRAHNET includes the Interstate and Defense Highway System, 14,000 miles of non-Interstate public highways that are part of the National Highway System, and 1,800 miles of connector routes linking to 200 military installations. FHWA encourages MPOs and State DOTs to coordinate with representatives from the Department of Defense (DOD) on transportation planning and the project programming process on infrastructure and connectivity needs for STRAHNET routes and other public roads that connect to DOD facilities. In the National Capital Region, STRAHNET encompasses all Interstate highways and U.S. Route 301.

TPB'S ROLE AND KEY STAFF

While encouraging a range of multimodal solutions and travel demand management, the TPB is committed to improving conditions for people that travel by vehicle. The TPB has a long history of encouraging strategies that members implement around the region to improve the driving experience. From maintaining roads and bridges in good repair for safety and comfort to managing congestion with strategies that improve travel time and reduce delays, as well as keeping up with emerging technologies that enhance system efficiency, the TPB's efforts are focused on creating a more reliable and effective transportation network.

The TPB generally does not have a role in roadway planning or operations other than ensuring inclusion of projects when creating regional plans such as the Transportation Improvement Program (TIP) and Regional Air Quality plans. As part of the Technical Assistance program some data collection and modeling support has been provided to members on an ad hoc basis.

FIGURE 18.1: KEY STAFF

TPB Staff	Title	Role
Kanti Srikanth	Executive Director	Staff Director for the Transportation Planning Board (TPB)
Andrew Burke	Transportation Engineer	SPOTS Staff
James Li	Transportation Engineer	CMP/VPDUG Staff

Role of TPB Subcommittees

The **Systems Performance, Operations and Technology Subcommittee (SPOTS)** advises the National Capital Region Transportation Planning Board on matters of performance outcomes of the transportation system; transportation operations and management, including considerations of Intelligent Transportation Systems (ITS) technologies in improving those operations; and emerging transportation technologies. SPOTS activities also are coordinated with the regional Congestion Management Process (CMP).

In the past, SPOTS has surveyed members to get a snapshot of certain aspects of the region's transportation systems. SPOTS has conducted traffic signal timing surveys to show how the region updates signal timing over time. After a derecho knocked out many traffic signals in the region, surveys were conducted to find out how many and the types of power backup systems the traffic signal systems in the region employed. SPOTS has also undertaken technology surveys to get an understanding of new and emerging technologies used by members in the region.

The **Congestion Management Process (CMP)** is a systematic process that provides for safe and effective integrated management and operation of the multimodal transportation system. As the region continues to experience dynamic population and job growth, congestion remains a primary focus of the TPB. More about the CMP is provided in part 6 of this document.

The region's **Vehicle Probe Data Users Group (VPDUG)** goal is to enhance regional coordination, consistency, and capabilities in the use of vehicle probe-based traffic data toward performance-based transportation planning and programming.

ROLE OF KEY PLANNING AGENCIES

When it comes to roadway planning in the TPB Region, the key agencies are the three DOT members of the TPB – DDOT, MDOT/SHA, and VDOT. While roadway planning may be done at the county and city level, the majority is undertaken by the state DOTs. Other agencies that play a key role in roadway planning in the National Capital Region are the National Park Service (NPS), the Northern Virginia Transportation Authority (NVTA), and the Metropolitan Area Transportation Operations Coordination (MATOC) program.

While not a transportation agency, the NPS owns and operates multiple roads used not only by commuters, but also by the general population to traverse the region. The George Washington Memorial Parkway is a major north/south thoroughfare that connects two sides of the I-495 Beltway and extends south to Mt. Vernon in Fairfax County. In the District of Columbia, the Clara

Barton and Rock Creek Parkways have travel restrictions during the commuting periods of the day to help move traffic in and out of the city.

Established by the state of Virginia, the NVTA is a regional organization that develops its own long-range transportation plan for Northern Virginia. With its focus on reducing congestion, NVTA uses performance-based criteria to evaluate and fund regionally significant multimodal transportation projects in Northern Virginia.

To improve safety and mobility in the region through information sharing, planning, and coordination, the TPB, the Washington Metropolitan Area Transit Authority, and the District of Columbia, Maryland, and Virginia Departments of Transportation created the Metropolitan Area Transportation Operations Coordination (MATOC) Program. MATOC's mission is to provide situational awareness of transportation operations in the National Capital Region. They do this by operating one of the first regional transportation operations centers in the region. MATOC also brings together experts from regional agencies to coordinate and share information on topics like snow/inclement weather operations, transit operations in the region, and information technology issues that feed the region's operations centers.

FIGURE 18.2: KEY PLANNING AGENCIES

Planning Agency	Role
District Department of Transportation (DDOT)	State DOT
Maryland Department of Transportation/State Highway Administration (MDOT/SHA)	State DOT
Virginia Department of Transportation (VDOT)	State DOT
Northern Virginia Transportation Authority (NVTA)	Regional Funding Agency
Metropolitan Area Transportation Operations Coordination (MATOC)	Regional Operations Coordination
National Park Service (NPS)	Federal Agency

PUBLIC ENGAGEMENT

The public has the opportunity to comment at any TPB meeting or during comment periods for Visualize 2050 development. Roadway planning is a frequent topic at the TPB Community Advisory Committee's monthly meetings, a summary of which is reported to the TPB. State and local agencies also conduct public engagement around roadway planning typically for an area or corridor that is being considered for a road project.

MAPPING OF EXISTING ROADWAY NETWORK

Existing roadway network data used to inform TPB's mapping of the existing roadway network was collected to create a "snapshot" of existing roadway facilities in the region in 2023. For this geospatial work data was collected from the following sources:

Layer	Source
Highway	<p>TPB staff compiled existing roadway network data from known federal and regional sources for the TPB Planning Area:</p> <ul style="list-style-type: none">• TPB Commuter Connections Park and Ride Lots• U.S. DOT Federal Highway Administration National Highway System• TPB Managed Lanes



**Visualize 2050
Planning and
Programming Process**

Bus Transit Planning

Part 19 of 27



National Capital Region
Transportation Planning Board

December 2025

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OVERVIEW OF BUS TRANSIT PLANNING

The National Capital Region (NCR)'s residents and visitors have access to 15 providers of commuter, local, and regional bus service as well as many intercity bus options. Although more dense and centralized areas like Washington, DC tend to offer users the most direct access to multiple bus services, all corners of the region offer at least two bus service types. This rich and widespread regional transit network benefits significantly from planning coordination to ensure effective and efficient use of resources and broad accessibility. To foster this collaboration, there are a variety of forums within the NCR convening transit agencies to both discuss narrow topics and address greater needs. The TPB is an active participant in many of these groups but also conducts its own bus transit planning activities and facilitates conversations that propel agencies' priorities forward.

TPB'S ROLE AND KEY STAFF

The TPB, as the MPO for the National Capital Region, closely coordinates with the states, local jurisdictions, transit agencies and other organizations in the planning and programming of public transportation improvements. Transit projects using federal funds or those that are regionally significant are included in the National Capital Region Transportation Plan (NCRTP), the Transportation Improvement Program (TIP), and in modeling and analysis used to meet federal surface transportation and environmental requirements.

Transit service is a key component included in the regional travel demand model used to forecast future travel demand and meet air quality requirements. The TPB's performance-based planning and programming (PBPP) work also involves significant collaboration with transit agencies, including the setting of regional transit asset management (at least every four years) and transit safety targets (annually) in alignment with local and state targets.

Furthermore, the TPB interfaces with its members on issues related to public transportation, including governance, funding, environment, safety, and other areas of interest. One means of doing this is through the TPB's Regional Public Transportation Subcommittee, originally established as the Regional Bus Subcommittee in 2007 and which is described in more detail later in this chapter. As a result, the TPB passed a resolution in September 2014 declaring itself in compliance with the requirement for increased representation of public transportation on MPOs in the federal Surface Transportation Act Moving Ahead for Progress in the 21st Century (MAP-21). Beyond the federal requirements, the TPB works with its members to develop research and analysis products that offer local and regional planners valuable transportation planning resources. TPB staff that regularly work on bus transit planning topics are noted in Table 19.1.

TABLE 19.1: KEY STAFF

TPB Staff	Title	Role
Kanti Srikanth	Executive Director	Staff Director for the Transportation Planning Board (TPB)
Eric Randall	Principal Transportation Engineer	Contributor
Pierre Gaunaurd	Transportation Planner	Contributor

Role of TPB Subcommittees

The TPB's Regional Public Transportation Subcommittee (RPTS) is a sub-group of the TPB Technical Committee that meets monthly with membership drawn from the public transportation providers in the National Capital Region. The RPTS serves as a permanent platform for coordinating public transportation, including bus transit planning, and integrating regional transit plans into the NCRTP. The subcommittee reports to the TPB Technical Committee on issues and interests of the region's public transportation providers.

Every RPTS member has an assigned liaison or variety of representatives that participate in the subcommittee. These representatives serve as bridges between TPB staff working on public transportation assignments and member transit agencies. Regional transit-related data requests, general inquiries, and collaborative work typically involve RPTS liaisons at some stage.

At RPTS meetings, members receive briefings on applicable TPB projects and programs, can give feedback on TPB work, share information about each other's operations and ongoing planning, and learn from regional partners and others about their transit-related projects. Lastly, RPTS also leads TPB's planning work related to intercity rail and bus travel, which includes studies of intercity bus and Amtrak passenger rail services.

ROLE OF KEY PLANNING AGENCIES

Due to its multi-state nature and the large number of bus transit operators in the NCR, there are many entities simultaneously involved in bus transit planning. Table 19.2 illustrates which agencies have the most significant planning programs and notes those agencies' key short- to long-term planning documents. More information about how some of these planning documents and major agency initiatives interface with Visualize 2050 and the TPB's broader planning efforts is provided in the following section.

TABLE 19.2: NATIONAL CAPITAL REGION AGENCIES INVOLVED IN BUS TRANSIT PLANNING

Agency	Role	Key Planning Documents
Metropolitan Washington Council of Governments (COG)	Along with WMATA, leading the region's DMVMoves transit vision initiative which includes local, regional, and commuter bus services.	Visualize 2050
City of Alexandria	Local Transit Operator	Transit Strategic Plan (TSP) (FY25-FY34) (2024); Alexandria Mobility Plan (2021); Zero Emission Bus Implementation Study (2021)
Arlington County	Local Transit Operator	TSP (FY25-FY34) (2023); Zero Emission Bus Study and Implementation Plan (2023)
Charles County	Local Transit Operator	Transit Development Plan (TDP) (2019)
City of Fairfax	Local Transit Operator	City of Fairfax Comprehensive Plan Multimodal Transportation Plan (Transp. Element) (Adopted 2019, Updated 2022); TDP (FY18-FY23) (2016)
Fairfax County	Local Transit Operator	TSP (FY23-FY33) (2023); County Comprehensive Plan (2017) (Transportation Element, amended 2023)
Frederick County	Local Transit Operator	TDP (2022)
Loudoun County	Local Transit and Commuter Bus Operator	TSP (FY25-FY34) (2024); Countywide Transportation Plan (2019)
Maryland Department of Transportation (MDOT) – Maryland Transit Administration (MTA)	Commuter Bus Operator	2050 Maryland Transportation Plan (2024); Statewide Transit Plan (2022); MTA Strategic Plan (2021); Bus Cornerstone Plan (2018)
Montgomery County	Local Transit Operator (incl. the Flash BRT service, bus rapid transit)	Zero Emission Bus Transition Plan (2024); Thrive Montgomery 2050 - Transportation Element (2021); MoCo Transit Strategic Plan (2008)
Prince George's County	Local Transit Operator	Transit Vision Plan (2024 pending); Minor Amendment to MTP (2023); Transit Vision Plan (FY18-FY22) (2018); Countywide Master Transportation Plan (2009)

Potomac and Rappahannock Transportation Commission (PRTC)/OmniRide	Local Transit and Commuter Bus Operator	TSP (FY20-FY29); OmniRide Zero Emission Bus Study (2023)
Washington Metropolitan Area Transit Authority (WMATA)	Local Transit Operator (incl. the “Metroway” premium bus service)	Strategic Transformation Plan (2023); Zero Emission Fleet Transition Plan (2023)
VA Office of Intermodal Planning and Investment (OIP)	Part of the Commonwealth’s Sec. of Transportation office and assists with various transportation planning processes and programming.	VTrans
VA Department of Rail and Public Transportation (DRPT)	Administers statewide transit grant funding and manages related planning.	Virginia Statewide Rail Plan
Local Governments	Involved with bus planning activities within their jurisdiction.	Various

PUBLIC ENGAGEMENT

Public outreach at the TPB is handled in multiple ways, offering various opportunities for providing feedback regarding bus transit planning and other activities. First, the TPB, Technical Committee, and subcommittee meeting materials are published online and available for public review. Anyone interested in providing comments on a particular matter may then call or write to the TPB. Furthermore, members of the public may sign up to comment in-person at a TPB meeting. Whether or not an individual wishes to provide comment, the public may attend open TPB meetings in-person or online via meeting livestreams on YouTube. TPB meeting recordings remain available online after the meeting’s end.

Finally, members of the public may participate in specific TPB committees that are meant to incorporate broader perspectives into the board’s work. These include the Community Advisory Committee (CAC) and Access for All Advisory Committee (AFA). Both include appointed members from an applicant pool, but the latter is for organizational representatives who are focused on representing the interests of traditionally underserved communities in the transportation planning process such as low-income, older adults, people with disabilities, and people with limited English proficiency. The Coordinated Human Services Transportation Plan, referenced below, involves the AFA in the planning process, using the AFA as a sounding board for the plan’s policies. The CAC receives briefings and provides feedback on many public transportation topics including the annual State of Public Transportation report. One CAC member is appointed to participate in the DMVMoves transit initiative (described in more detail later in this chapter). The CAC representative regularly liaises between the initiative and the CAC membership. In addition, TPB staff frequently update the CAC on the initiative’s progress.

Some recent examples of bus planning topics that were shared at TPB which the public had the opportunity to comment on are noted below in Table 19.3.

TABLE 19.3: RECENT OPPORTUNITIES FOR ENGAGEMENT IN BUS PLANNING AT TPB MEETINGS

Bus Transit Planning Topic	Date
Coordinated Human Service Transportation Plan	May 2023
Intercity Bus and Rail Travel Desk Study	June 2023
DMVMoves Update	October 2024
PBPP Regional Transit Safety Targets	December 2024
PBPP Regional Transit Asset Management Targets	February 2025

TPB PUBLIC BUS TRANSIT PLANNING KEY PRODUCTS

During the development of Visualize 2050, three products related to bus transit planning were produced as described below.

High-Capacity Transit Accessibility Study

In 2023-2024, the TPB conducted the High-Capacity Transit Accessibility Study¹ and took a deeper look at the geographies around existing high-capacity transit stations in the NCR to more clearly determine station accessibility to-and-from various points of interest. By helping TPB and jurisdictional staff and the public better understand the areas around High-Capacity Transit Stations (HCT), this project supported the progress of multiple TPB priority strategies including expanding bus rapid transit and transitways, moving more people on Metrorail, and improving pedestrian and bike access to transit connections.

Unlike the previous development of Transit Accessibility Focus Areas (TAFAs), this analysis used a Network Analysis tool (the R5 routing engine with OpenStreetMap and GTFS data) to more accurately navigate local street grids and available infrastructure and explore practical connectivity to HCTs. EEAs were also incorporated into the analysis to gain perspective on the differing impact of connectivity issues on underserved and/or disadvantaged communities in the region. The resulting HCT Study website is a powerful tool with various sub-analyses and data points that can give land use and transportation planners a holistic view of what the current state and needs of HCT zones are.

¹ National Capital Region Transportation Planning Board (2024). COG High-Capacity Transit Accessibility Analysis. <https://hct-accessibility-analysis-mwcog.hub.arcgis.com>

Intercity Bus and Rail Travel Studies

An MPO like the TPB is required by federal regulations to apply its comprehensive, cooperative, and continuing metropolitan planning processes to “intermodal facilities that support intercity transportation, including intercity buses and intercity bus facilities.”¹ Accordingly, the TPB has conducted multiple desk and field studies of the NCR’s intercity travel network, including in 2016,² 2023,³ and 2024.⁴ These projects were presented at different stages in their development to the Board, its Technical Committee, and subcommittees for feedback and information. In 2023, a special work session was held before the regularly scheduled TPB meeting which featured presentations by representatives from the intercity travel industry and applicable regional agencies. The work session offered board members the opportunity to learn about intercity projects and plans impacting the NCR from those directly working on them.

For the 2024 analysis, TPB staff completed a comprehensive review of intercity bus and rail services that also enhanced regional understanding of rider demographics, travel choices, origins and destinations, and more. It involved a passenger survey, desk research, and interviews with subject matter experts. The resulting report and interactive web map are available for public use but are directed to local jurisdictional staff as a resource for their intercity travel facility and service planning efforts. TPB staff will continue to conduct periodic studies of and coordination opportunities with the NCR’s intercity travel network.

State of Public Transportation

The State of Public Transportation report⁵ is an annual product publication of the Regional Public Transportation Subcommittee and is meant to provide the board and the public a concise overview of the NCR’s public transportation network and its participating operators. The report first provides a summary of annual data from across the broader transit network, followed by a summary profile of each local fixed-route and commuter bus/rail service provider in the region. Information on paratransit and microtransit services is also included in these profiles. The report traditionally concludes with chapters providing a comprehensive review of transit providers’ key accomplishments and activities, along with the TPB’s public transportation initiatives for that chapter year. Publication of this annual report is ongoing, although formatting and related content may change over time as needed to keep the report useful and current. Summary presentations of the data in each report are presented to, at minimum, the Regional Public Transportation Committee and the TPB Technical Committee.

² National Capital Region Transportation Planning Board (2017). *Intercity Bus Traffic and Patronage in the Metropolitan Washington Region*. <https://www.mwcog.org/documents/2017/01/18/intercity-bus-traffic-and-patronage-in-the-metropolitan-washington-region-bus/>

³ National Capital Region Transportation Planning Board (2023). *Intercity Bus and Rail Travel Overview*. <https://www.mwcog.org/file.aspx?&A=xGBKbdBlATDq1Lz4%2fngur6buJ%2b8tk7yku5VeEJiLIQ%3d>

⁴ National Capital Region Transportation Planning Board. *Intercity Bus and Rail Travel Study Final Report* (2024). <https://www.mwcog.org/documents/2025/02/24/intercity-bus-and-rail-travel-study-final-report-2024-bus-rail-tpb/>; National Capital Region Transportation Planning Board (2024). *Intercity Bus and Rail Travel Study Hub Site*. <https://tpb-intercity-travel-survey-mwcog.hub.arcgis.com/>

⁵ National Capital Region Transportation Planning Board (November 2023). *2022 State of Public Transportation*. <https://www.mwcog.org/documents/2023/11/15/state-of-public-transportation-report/>

Coordinated Human Services Transportation Plan and the FTA Enhanced Mobility Program

The TPB and COG strive to improve mobility for people with disabilities, older adults, and other transportation-disadvantaged populations. The TPB is the designated recipient of the Federal Transit Administration's (FTA) Enhanced Mobility of Seniors and Individuals with Disabilities program administered by COG. The program is funded by FTA Section 5310 formula funds. Under the guidance of its federally required and TPB-developed Coordinated Human Transportation Services Plan (Coordinated Plan),⁶ the matching grant program funds projects seeking to improve access to transportation for older adults and people with disabilities. The plan was last updated and endorsed by the TPB in May 2023.

Planning

The Coordinated Plan highlights unmet transportation needs for people with disabilities and older adults, identifying strategies to meet those needs. These needs encompass accessibility, availability, affordability, and awareness of mobility options. The Coordinated Plan includes priority projects that can help the region better serve targeted groups. This information and identified priority projects inform the selection process for FTA Enhanced Mobility program grant funding. The Access for All Advisory Committee provides input and participates in the development of the Coordinated Plan.

Programming

The application of FTA's Enhanced Mobility grant program towards regional funding priorities are established based upon unmet needs identified in the Coordinated Plan. Recommended strategies for improved service and coordination identified in the 2023 Coordinated Plan update include: (1) Expand Availability and Coordination of Transportation Options; (2) Increase Awareness of Existing Transportation Services; (3) Improve Accessibility of Transportation Options; and (4) Make Transportation Options More Affordable and Sustainable. Every two years, upon the award of Section 5310 formula funding from FTA, TPB staff solicit grant applications and select projects that seek to implement solutions related to these strategies. Perspective grantees include nonprofits, local governments, and private companies. Projects can be capital or operating in nature, and range from wheelchair-accessible vehicle acquisition and vehicle preventative maintenance to mobility management or program operations. TPB staff oversee pre-award and post-award activities of all projects. Project metrics/impacts are gathered and reported to FTA on a quarterly basis.

The TPB's administration of the Enhanced Mobility program is detailed in a Program Management Plan that is updated and approved by FTA in conjunction with Coordinated Plan updates.

⁶ National Capital Region Transportation Planning Board (May 2023). 2023 Update to the Coordinated Human Service Transportation Plan for the National Capital Region. <https://www.mwcog.org/documents/2018/12/19/update-to-the-coordinated-human-service-transportation-plan-for-the-national-capital-region-access-to-jobs-afa-enhanced-mobility/>

AGENCY BUS PLANS RELATIONSHIP WITH VISUALIZE 2050

Several agencies in the region produce their own plans for bus transit, and these are described below.

Local Transit Agency Strategic/Development Plans

Both Virginia and Maryland require that transit agencies within their jurisdictions prepare short-to-long-term planning documents known as either transit strategic plans (TSP) or transit development plans (TDP). These plans serve multiple functions; but perhaps most importantly, they set a strategic framework for agency operations and administration. TSPs and TDPs summarize an agency's existing operational state, detail proposed service expansion, address capital asset needs, review safety improvements, and more. In Maryland, updated TDPs are required every five years for all transit agencies, regardless of size. In Virginia, larger transit agencies operating a fleet of 20 or more buses and within an urbanized area of 50,000 people or more must develop a TSP. All others prepare TDPs. The operational visions laid out in these plans are woven into the regional transit outlook of TPB's NC RTP. Similarly, the capital investments required to implement those plans result in project proposals that are subsequently included in the region's Transportation Improvement Plan to qualify for funding.

Strategic Transformation Plan, WMATA

In 2023, WMATA completed its Strategic Transformation Plan (STP), which guides the regional transit service's short-range planning and influences its long-term strategy. The STP has four principal goals: providing service excellence to customers, fostering talented and supported teams, designing a more equitable and productive regional service, and running a more sustainable system. These goals are achieved through projects like the Better Bus Network Redesign, improved system maintenance, modernizing the various fare systems, incorporating more clean energy throughout its infrastructure, and more. WMATA's STP goals mirror many of TPB's goals with relation to transit access, safety, workforce investment, and environmental consciousness. The resulting projects make their way into the updated (and future) TIP, as well as the more frequent and sustainable regional transit network envisioned in the NC RTP.

VTrans, OIPI

VTrans is the Commonwealth of Virginia's multimodal state transportation plan and is prepared by the Commonwealth Transportation Board and the Office of Intermodal Planning and Investment (OIPI). It serves as the Commonwealth's principal planning document for all transportation modes, including bus transit. The transportation vision outlined in VTrans, and its associated goals, objectives, and strategies, lay out both general and more specific expectations for transit projects across Virginia. Regarding bus transit, applicable provisions are contextualized broadly under transit, but prioritize asset management, network resilience, and economic considerations. VTrans is intended to guide the types of projects initiated and funded by the Commonwealth. Many of these projects would concurrently be submitted for TIP approval at TPB and influence the region's broader transit vision in the NC RTP.

Cornerstone Plan, MTA Commuter Bus

The Bus Cornerstone Plan (2018) is the long-term planning guide for Maryland's various bus operations, including commuter services. It sets the vision and priorities for bus transit services over 25 years. The projects, concepts, and investments detailed in the plan capture what service

and capital investment priorities MTA intends to work on between the short to long-term. Any projects meant for development in the short- to mid-term or in progress within the National Capital Region would likely be included in the TPB's TIP. The broader vision for the commuter bus system's growth or service changes would be reflected in the NC RTP as part of the region's future transit expectations and plans.

Statewide Transit Plan, MTA

In addition to mode-specific long-range plans such as the Bus Cornerstone Plan, MTA also produces a long-range Statewide Transit Plan which sets a fifty-year vision for the state's transit network. It ties together the overarching goals the state has for making public transportation more efficient and accessible across Maryland. Regarding MTA's commuter bus service, this plan highlights in its vision expansion of intercity and commuter connections to more areas both in and out of the state, including service between Waldorf, MD and Anacostia in DC, and Frederick to DC along I-270. It also envisions expanded bus rapid transit across the state, including the US 29 corridor between Montgomery and Howard counties. The plan highlights examples of coordination and collaboration with MTA partners to accomplish its goals. With respect to the TPB, this engagement occurs through discussion of projects at Board and committee meetings, inputs into the TIP, and feedback from state agency representatives into the TPB's vision and guiding principles for the region.

DMVMoves, COG and WMATA

DMVMoves is a joint initiative of the COG and WMATA boards meant to develop a long-term dedicated funding solution for WMATA and local transit services. As part of that process, it has also developed an updated vision for a world class regional transit system that makes the customer experience more seamless and efficient across the respective local transit operators and WMATA's own services. The initiative officially began on May 1, 2024, but is in large part the result of a decades-long effort to address WMATA's financial shortfalls and those of other transit agencies in the region. These funding concerns garnered greater attention during the COVID-19 pandemic and the associated loss of significant fare revenue and ridership.

The initiative's work is led by a Task Force made up of elected officials and government representatives that are tasked with providing the guiding vision and ultimately the recommendations for participating members to vote on and implement individually. The Task Force receives advice and support from two advisory groups, including a Government Partners group (GPAG) consisting of jurisdictional staff and representatives from transit, transportation, administrative and other offices, and a Community Partners group (CPAG) featuring representatives from area businesses, non-profits, associations, and other members of the public. The CPAG includes a representative from TPB's Community Advisory Committee (CAC) who also serves as a liaison between the initiative and the CAC.

Although DMVMoves is co-led by COG, TPB staff (which come from the COG Department of Transportation Planning) help provide project management support. Staff have regularly presented updates to the TPB, its Technical Committee, and various subcommittees about DMVMoves meetings and general work. The established connections TPB staff have with transit and transportation staff at local transit agencies and existing data from previous research and analysis provide DMVMoves with a stronger foundation with which to conduct the necessary outreach and collaboration.

MAPPING OF EXISTING BUS TRANSIT

Data used to inform TPB's mapping for Visualize 2050 of the existing bus transit was collected to create a "snapshot" of bus facilities in the region in 2023. For this geospatial work data was collected from the following sources:

TABLE 19.4: DATA SOURCES FOR MAPPING OF EXISTING BUS TRANSIT

Layer	Source
Regional Bus Stops and Routes	TPB staff compiled General Transit Feed Specification route and bus stop data from providers of fixed-route bus service in the TPB Planning Area: <ul style="list-style-type: none">• Arlington Transit• CUE Bus - City of Fairfax• DASH• Fredericksburg Regional Transit• Fairfax Connector• Loudoun County Transit• Maryland Transit Administration• Montgomery County MD Ride On• OMNIRIDE• Regional Transportation Agency of Central Maryland• TheBus• Transit Services of Frederick County• University of Maryland Shuttle-UM• WMATA



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OVERVIEW OF RAILWAY PLANNING

A broad variety of rail services operate within the National Capital Region (NCR) daily. These include freight companies and commuter, transit, and intercity passenger rail providers. Rail operators in the National Capital Region (NCR) are shown on Table 20.1.

TABLE 20.1: NATIONAL CAPITAL REGION RAIL INFRASTRUCTURE AND PROVIDERS

Rail Infrastructure	Operators	User	Service Type
Railroad	Amtrak	Passengers	Intercity Passenger Service
	MARC, VRE	Passengers	Commuter Rail Services
	CSX, Norfolk Southern	Freight	Goods Movement
Heavy Rail	WMATA – Metro	Passengers	Regional Transit Service
Light Rail (Expected 2027)	Purple Line Transit Partners	Passengers	Suburban Transit Service
Streetcar	DDOT	Passengers	Urban Transit Service

Commuter rail and heavy rail transit services extend from the region's core in Washington DC, while a streetcar service operates entirely within Washington, DC. The future Purple Line light rail service will connect communities in suburban Maryland (Montgomery and Prince George's counties). Amtrak intercity rail service operates in four different directions outward from Washington, DC, including the heavily used Northeast Corridor. Each of these passenger rail services intersects with at least one other at one or more stations, allowing public transportation users to transfer between rail services without requiring an additional mode of transport.

Commuter rail service has historically been limited due to operating on guideway owned by the CSX or Norfolk Southern freight companies or Amtrak. This is beginning to change, particularly in Virginia where the Virginia Passenger Rail Authority (VPRA) has acquired guideway from the freight companies to create a state-owned track network to support increased passenger rail service. This is expected to eventually lead to more trips being offered on the Virginia Railway Express (VRE) commuter system and on Amtrak state-supported services in Virginia.

TPB'S ROLE AND KEY STAFF

The work of various program teams at TPB either loosely involves or more regularly incorporates railway planning data into their everyday assignments. For example, travel demand information from applicable agencies, rider demographics, agency financial data, planning studies, project inputs for the Transportation Improvement Program (TIP), and more, are regularly referenced and analyzed for completion of TPB's own modeling and planning work products. The TPB includes staff whose areas of focus are financial planning, freight, performance-based planning and programming, and public transportation, all which interface with railway service providers to different extents. Table 20.2 lists several TPB staff members that engage in railway planning-related work.

TABLE 20.2: KEY STAFF

TPB Staff	Title	Role
Kanti Srikanth	Executive Director	Staff Director for the Transportation Planning Board (TPB)
Eric Randall	Principal Transportation Engineer	Contributor
Janie Nham	Planning Manager, Safety and Systems Performance	Contributor
Pierre Gaunaud	Transportation Planner	Contributor

Role of TPB Subcommittees

TPB's Regional Public Transportation Subcommittee (RPTS) is a sub-group of the TPB Technical Committee that meets monthly with membership drawn from the public transportation providers in the National Capital Region (NCR). It is also one means through which public transportation interests in the region are represented to the TPB. RPTS includes in its membership the two commuter rail operators in the NCR (VRE and MARC) and Metrorail. In addition, it leads TPB's planning work related to intercity rail and bus travel, which includes studies of intercity bus and Amtrak passenger rail services.

Every RPTS member has an assigned liaison or variety of representatives that participate in the subcommittee. These representatives serve as bridges between TPB staff working on public transportation assignments and member transit agencies. Regional transit-related data requests, general inquiries, and collaborative work typically involve RPTS liaisons at some stage. At RPTS meetings, members receive briefings on applicable TPB projects and programs, can give feedback on TPB work, share information about each other's operations and ongoing planning, and learn from regional partners and others about their transit-related projects.

The TPB's Regional Freight Subcommittee considers the role of railway operators in transportation planning as does the Regional Transportation Resiliency Subcommittee. More information can be found within the process documents: Part 10 (Freight) and Part 5 (Resiliency).

ROLE OF KEY PLANNING AGENCIES

Due to its multi-state nature, as well as the large number of freight and public transportation operators and corresponding regulatory agencies in the NCR, there are many entities in the region simultaneously involved in railway planning. Table 20.3 demonstrates which agencies in the NCR have the most significant railway planning programs and notes those agencies' key short- to- long-term planning documents. More information about how these planning documents interface with Visualize 2050 and TPB's broader planning efforts is provided in the Agency Rail Plans Relationship with the Visualize 2050 section of this document.

TABLE 20.3: NATIONAL CAPITAL REGION AGENCIES INVOLVED IN RAIL PLANNING

Agency	Role	Key Planning Documents
Metropolitan Washington Council of Governments (COG)	Along with WMATA, leading the region's DMVMoves transit vision initiative which includes rail transit for passenger movement.	Visualize 2050
Amtrak	Intercity Passenger Rail System (National)	Amtrak Connects Us
CSX	Freight Operator	N/A
Norfolk Southern	Freight Operator	N/A
Maryland Area Rail Commuter (MARC)	Commuter Rail Operator (Maryland)	Cornerstone Plan (2019) MARC Growth and Transformation Plan (expected 2025)
Virginia Railway Express (VRE)	Commuter Rail Operator (Northern Virginia)	System Plan 2050 (expected 2025)
Washington Metropolitan Area Transit Authority (WMATA)	Operate the Metrorail system. Along with COG, leading the region's DMVMoves transit vision initiative which includes rail transit for passenger movement.	Strategic Transformation Plan
Maryland Transit Administration (MTA)	Managing administration of the Purple Line's construction	Statewide Transit Plan
Department of Rail and Public Transportation (DRPT) - VA	Administers statewide transit grant funding and manages related planning, including for rail. Also administers grants for freight rail investments.	Virginia Statewide Rail Plan
Virginia Passenger Rail Authority (VPRA)	Manages Virginia's administrative and fiduciary duties for its state-supported Amtrak service, as well as provides funding for VRE.	Transforming Rail in Virginia
Local Governments	Involved with rail planning activities within their jurisdiction.	Various
District Department of Transportation	DC Streetcar Operator	moveDC Multimodal Long-Range Transportation Plan

PUBLIC ENGAGEMENT

Public outreach at TPB is handled in multiple ways, giving the public various options for providing feedback regarding railway planning and other activities. TPB, Technical Committee and subcommittee meeting materials are published online and available for public review. Anyone interested in providing comments on a particular matter may then call or write to TPB. Furthermore, members of the public may sign up to comment in-person at a TPB meeting. The public may attend open TPB meetings in-person or online via meeting livestreams on YouTube.

Members of the public may also participate in certain TPB committees that are meant to incorporate broader perspectives into the TPB's work. These include the Community Advisory Committee (CAC) and Access for All Committee (AFA). Both include appointed members from a public applicant pool. A member of the CAC was appointed to participate in the DMVMoves transit initiative (described in more detail later in this chapter). During the DMVMoves initiative, the CAC liaison shared feedback between the groups from the CAC perspective, and TPB staff provided the CAC with updates on the initiative's progress.

Some recent examples of rail planning topics that were shared at TPB which the public had the opportunity to comment on are noted below in Table 20.4.

TABLE 20.4: EXAMPLES OF OPPORTUNITIES FOR ENGAGEMENT IN RAIL PLANNING AT TPB MEETINGS

Rail Planning Topic	Date
Virginia Passenger Rail Authority (VPRA) TIP Amendment	June 2023
Intercity Bus and Rail Travel Desk Study	June 2023
National Capital Region Freight Plan	September 2023
Performance-Based Planning and Programming (PBPP) Regional Transit Safety Targets	December 2023
DMVMoves Update	October 2024

MAPPING OF EXISTING RAILWAY TRANSIT

Data used to inform TPB's mapping of the existing railway transit was collected to create a "snapshot" of railway facilities in the region in 2023. Data was collected from the sources shown below in Table 20.5.

TABLE 20.5: DATA SOURCES FOR MAPPING OF EXISTING RAILWAY TRANSIT

Layer	Source
High-Capacity Transit Stations and Lines	TPB staff compiled data from several modes of public transportation, including Metrorail, commuter rail, light rail, streetcar, and bus rapid transit (BRT) in the TPB Planning Area compiled by TPB staff from various internal sources. Accessible at https://rtdc-mwcog.opendata.arcgis.com/

KEY RAIL PLANNING ACTIVITIES AT TPB

The TPB's main rail planning activities that have supported the development of Visualize 2050 are the following studies, planning tool, and report:

- Intercity Travel Studies
- High-Capacity Transit Accessibility Study
- Transit Access Focus Areas Planning Tool
- State of Public Transportation Report

Intercity Travel Studies

The TPB, as an MPO, is required by federal regulations to apply its comprehensive, cooperative, and continuing metropolitan planning processes to “intermodal facilities that support intercity transportation, including intercity buses and intercity bus facilities.”¹ Accordingly, TPB has conducted multiple desk and field studies of the NCR’s intercity travel network, including in 2016, 2023, and 2024. These projects were presented at different stages in their development to the TPB, its Technical Committee, and subcommittees for feedback and information.

In 2023, a special work session was held before the regularly scheduled TPB meeting which featured presentations by representatives from the intercity travel industry and applicable regional agencies. The work session offered board members the opportunity to hear about intercity projects and plans impacting the NCR from those directly working on them.

For the 2024 analysis, the TPB completed a comprehensive review of intercity bus and rail services that also enhanced regional understanding of rider demographics, travel choices, origins and destinations, and more. It involved a passenger survey, desk research, and interviews with subject matter experts. The resulting report and interactive web map are available for public use but are directed at local jurisdictional staff as a resource for their intercity travel facility and service planning efforts.² TPB will continue to conduct periodic studies of and coordinate opportunities with the NCR’s intercity travel network.

Transit Access Focus Areas Planning Tool

Transit Access Focus Areas (TAFAs) are a TPB planning tool developed in 2020 and rooted in the TPB’s priority strategy: Improve walk and bike access to transit. A TFA is a geographic zone, tied to a central high-capacity transit station or high frequency bus center, and located within a half mile of a designated Activity Center. A TFA’s transit station may exist or be planned for completion by 2030, and its surrounding walkshed may have walkability challenges due to physical barriers. TAFAs exist along Metrorail lines, commuter rail routes, the future Purple Line path, and two bus-only transit centers.

Selection of final TAFAs considered a weighted calculation of a) an analysis of the transit station’s bike and pedestrian access, (b) local demand for walking and biking based on population and

¹ 23 CFR 450.300(a)

² National Capital Region Transportation Planning Board (2024). *TPB Intercity Bus and Rail Travel Study Final Report*. <https://www.mwcog.org/documents/2025/02/24/intercity-bus-and-rail-travel-study-final-report-2024-bus-rail-tpb/>; National Capital Region Transportation Planning Board (2024). *TPB Intercity Travel Survey Hub*. <https://tpb-intercity-travel-survey-mwcog.hub.arcgis.com/>

density, and (c) application of the TPB's EEAs to the area geography. Local input from jurisdictions was also requested and accounted for in the final determination of the 49 TAFAs³.

High-Capacity Transit Accessibility Study

In 2023-2024, TPB took a deeper look at the geographies around existing high-capacity transit stations in the NCR to more clearly determine station accessibility to/from various points of interest. By helping TPB and jurisdictional staff, and the public better understand the areas around High-Capacity Transit Stations (HCT), this project supported the progress of multiple TPB priority strategies including expanding bus rapid transit and transitways, moving more people on Metrorail, and improving pedestrian and bike access to transit.

Unlike the previous development of TAFAs, this analysis used a Network Analysis tool (the R5 routing engine with OpenStreetMap and GTFS data) to more accurately navigate local street grids and available infrastructure and explore practical connectivity to HCTs. EEAs were also incorporated into the analysis to gain perspective on the differing impact of connectivity issues on underserved and/or disadvantaged communities in the NCR. The resulting HCT Study website is a powerful tool with various sub-analyses and data points that can give land use and transportation planners a holistic view of what the current state and needs of HCT zones are.⁴

State of Public Transportation Report

The State of Public Transportation report is an annual product of the Regional Public Transportation Subcommittee and is meant to provide the TPB and the public a concise overview of the NCR's public transportation network and its participating operators. The report first provides a summary of annual data from across the broader transit network, followed by a summary profile of each fixed-route and commuter bus/rail service provider in the region. Information on paratransit and microtransit services is also included in these profiles, but more details about these specialized services is featured later in the report. The report continues with chapters comprehensively reviewing the various accomplishments and other activities transit providers are engaged in, as well as what work TPB did related to public transportation, in that calendar year. Publication of this annual report is a recurring activity, although formatting and related content may change over time as needed to keep the report useful and current. Summary presentations of the data in each report are given to, at the minimum, the Regional Public Transportation Committee and the TPB Technical Committee,

There are many partner agencies that conduct planning activities for the services they provide. These plans serve as valuable resources during the development of the region's transportation plan. Some elements of these plans which are financially and otherwise reasonably anticipated to move forward by 2050 have been incorporated into Visualize 2050.

Amtrak Connects US, AMTRAK

Through its long-range expansion plan *Amtrak Connects US*, the nation's principal passenger rail service aims to guide future railway planning toward greater cross-country and regional connectivity. It advocates for this expansion by noting how socioeconomic and environmental data demonstrate the benefits of passenger rail expansion for communities nationwide. The case is no different in the National Capital Region, which is at one end of the heavily traveled and economically vital Northeast Corridor on Amtrak's network.

³ National Capital Region Transportation Planning Board (July 14, 2020). TPB staff identify 49 places to improve access to transit. <https://www.mwcog.org/newsroom/2020/07/14/tpb-staff-identify-49-places-to-improve-access-to-transit-walkability-bicycling-transit-access-visualize-2045/>

⁴ National Capital Region Transportation Planning Board (2024). COG High-Capacity Transit Accessibility Analysis Hub. <https://hct-accessibility-analysis-mwcog.hub.arcgis.com/>

Cornerstone Plan, MARC

The MARC Cornerstone Plan (2019) is the long-term planning guide for Maryland's commuter rail service. It sets the vision and priorities for the train service through 2045. The projects, concepts, and investments detailed in the plan capture what service and capital investment priorities MARC intends to work on between the short to long-term. The projects meant for development within the National Capital Region are included in Visualize either as projects or programs in the short-term as part of the TIP or reasonably anticipated in later years through 2050. As of early 2025, MARC is working on a new Growth and Transformation Plan that will serve as an update to the Cornerstone Plan.

System Plan 2050, VRE

VRE's long-range service and capital investment plan is the System Plan 2050 (expected 2025). It outlines the extended vision for the northern Virginia commuter rail service and describes its current operations while detailing priorities for future growth and development. System Plan 2050 is an update to VRE's previous long-range plan from 2014. The new document considers the significant changes experienced by VRE because of the COVID-19 pandemic and its different ridership patterns and fiscal picture. VRE's updated plans impact the projects it submits to Visualize, including an expanded service schedule and an updated fleet of railcars and locomotives.

Strategic Transformation Plan, WMATA

In 2023, WMATA completed its Strategic Transformation Plan (STP), which guides the regional transit service's short-range planning and influences its long-term strategy. The STP has four principal goals: providing service excellence to customers, fostering talented and supported teams, designing a more equitable and productive regional service, and running a more sustainable system. These goals are achieved through projects like the Better Bus Network Redesign (anticipated for implementation in 2025), improved system maintenance, modernizing the various fare systems, incorporating more clean energy throughout its infrastructure, and more. WMATA's STP goals mirror many of TPB's goals with relation to transit access, safety, workforce investment, and environmental consciousness. The resulting projects are submitted for inclusion in the TIP, as well as the reasonably anticipated longer-term projects included in Visualize.

Statewide Transit Plan, MTA

In addition to mode-specific long-range plans such as MARC's Cornerstone Plan, MTA also produces a long-range Statewide Transit Plan which sets a fifty-year vision for the state's transit network. It ties together the overarching goals the state has for making public transportation more efficient and accessible across Maryland. Regarding rail, this plan highlights in its vision improvements and expansion of rail service and infrastructure across the state, including extending MARC service to Delaware, initial completion and extension of the Purple Line in suburban Maryland, and coordination with Amtrak and freight service operators. The plan highlights examples of coordination and collaboration with MTA partners to accomplish its goals. With respect to the TPB, this engagement occurs through discussion of projects at Board and committee meetings, long- and short-range inputs into Visualize and the TIP, and feedback from state agency representatives into the MPO's vision and guiding principles for the region.

Transforming Rail in Virginia, VPRA

The Virginia Passenger Rail Authority (VPRA) is responsible for managing the administration of Amtrak's state-supported routes, as well as providing funds to VRE. VPRA's guiding plan is the Transforming Rail in Virginia (TRV) initiative that is focused on improving rail capacity, passenger

rail quality, and mode choice for Virginians. TRV does not have a single long-range planning document but is represented in a collection of smaller plans and projects. These projects, which include the new Long Bridge span on the Potomac River, expansion of rail capacity along the I-95 corridor, and expanded passenger rail service across the commonwealth, will create exciting new trip opportunities for rail customers in the NCR. Besides economic growth, they may also lead to a mode shift for commuters helping the TPB meet its greenhouse gas emissions reduction goals. As applicable to the NCR, these projects are included as inputs in the TIP.

Virginia Statewide Rail Plan, DRPT

The Virginia Statewide Rail Plan (2022) was prepared by the commonwealth's Department of Rail and Public Transportation in coordination with the VPRA. It serves as Virginia's principal long-range plan for all rail activity. Besides describing the current state of passenger and freight rail across the commonwealth, it reviews the results of community outreach, offers policy guidance, and makes project recommendations. Many of the project recommendations included are part of the Transforming Rail in Virginia initiative, as well as freight projects. If a project recommendation is being studied or implemented by DRPT or VPRA, it will be included in the Visualize plan and the TIP, such as with the Long Bridge Study and planned construction, and other track capacity projects in northern Virginia. These projects also align with many of TPB's broader goals for congestion reduction and management.

DMVMoves, COG and WMATA

DMVMoves is a joint initiative of the MWCOG and WMATA boards meant to develop a long-term dedicated funding solution for WMATA and local transit services. As part of that process, it has also developed an updated vision for a world class regional transit system that makes the customer experience more seamless and efficient across the respective local transit operators and WMATA's own services. The initiative officially began on May 1, 2024, but is in large part the result of a decades-long effort to address WMATA's financial shortfalls and those of other transit agencies in the region. These funding concerns garnered greater attention during the COVID-19 pandemic and the associated loss of significant fare revenue and ridership.

The initiative's work is led by a Task Force made up of elected officials and government representatives who are tasked with providing the guiding vision and ultimately, the recommendations for participating members to vote on and implement individually. The Task Force receives advice and support from two Advisory Groups, including a Government Partners Advisory Group (GPAG) consisting of jurisdictional staff and representatives from transit, transportation, administration and other offices, and a Community Partners Advisory Group (CPAG) featuring representatives from area businesses, non-profits, associations, and other members of the public. The CPAG includes a representative from the TPB's Community Advisory Committee (CAC) who also serves as a liaison between the initiative and the CAC.

Although DMVMoves is co-led by COG, TPB staff (which come from the COG Department of Transportation Planning) help provide project management support. Staff have regularly presented updates to the TPB, its Technical Committee, and various subcommittees about DMVMoves meetings and general work. The established connections TPB staff have with transit and transportation staff at local transit agencies and existing data from previous research and analysis provide DMVMoves with a stronger foundation with which to conduct the necessary outreach and collaboration.



**Visualize 2050
Planning and
Programming Process**

Bicycle, Pedestrian and Micromobility Planning

Part 21 of 27



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OVERVIEW OF REGIONAL BICYCLE, PEDESTRIAN AND MICROMOBILITY PLANNING

The National Capital Region Transportation Planning Board (TPB) supports active transportation and creating walkable, bikeable communities. TPB's member jurisdictions maintain bicycle, pedestrian, and micromobility programs, and integrate active transportation into their highway and transit planning.

“Micromobility” refers to any small, low-speed, human- or electric-powered transportation device, including bicycles, scooters, electric-assist bicycles, electric scooters (e-scooters), and other lightweight, wheeled conveyances.¹ Wheelchair users are treated as pedestrians.

Within this context, the TPB incorporates bicycle, pedestrian and micromobility considerations into overall regional transportation planning and coordination through its subcommittees, technical assistance programs, the Street Smart pedestrian and bicycle safety campaign, and the Commuter Connections program.

TPB'S ROLE AND KEY STAFF

The TPB and the Metropolitan Washington Council of Governments (COG) support bicycling and walking and their health, community, pollution reduction, and congestion reduction benefits for the region. The TPB and its member jurisdictions have adopted a set of strategies and actions to make the region's communities more walkable and bikeable.

Strategies for Increasing Active Transportation

To increase walking and bicycling in the region, the TPB has promoted the following strategies:

1. Adoption and implementation of Complete Streets policies that mandate the provision of bicycle and pedestrian facilities as part of every transportation project, with limited exceptions.²
2. Use of zoning rules to concentrate development in walkable, bikeable activity centers³ connected by mass transit.⁴
3. Development of local and regional shared-use path networks which connect people to jobs, shopping, schools, and recreation via high-quality, low-stress facilities.⁵
4. Adoption of agency bicycle, pedestrian, and trail plans to guide capital improvement decisions.

¹ Federal Highway Administration (March 21, 2025). *Micromobility*.
<https://www.fhwa.dot.gov/environment/micromobility/>

² National Capital Region Transportation Planning Board (2025). *Complete Streets Policy*.
<https://www.mwcog.org/transportation/planning-areas/walking-and-biking/complete-streets-policy/>

³ National Capital Region Transportation Planning Board (2025). *Regional Activity Centers Maps*.
<https://www.mwcog.org/documents/2025/05/14/regional-activity-centers-maps-activity-centers-land-use-region-forward/>

⁴ National Capital Region Transportation Planning Board (2025). *TPB Vision Goals*.
<https://www.mwcog.org/transportation/plans/tpb-vision/goals/>

⁵ National Capital Region Transportation Planning Board (2025). *National Capital Trail Network 2023 Update*.
<https://national-capital-trail-network-mwcog.hub.arcgis.com/>

5. Expansion of bike and e-scooter sharing services to enhance local mobility.⁶
6. Planning and construction of a regional [National Capital Trail Network](#), which will form a continuously connected network of low-stress bicycle and pedestrian facilities, suitable for people of all ages and abilities, access the National Capital region.

Actions to Support Active Transportation Planning

The TPB has helped build consensus around these strategies and has supported the member jurisdictions' efforts with the following actions:

1. Adoption of TPB's Vision (1998) that endorsed the concentration of development in walkable mixed-use activity centers.
2. Identification of effective [walksheds](#) in 2019 and barriers to pedestrian movement near high-capacity transit stations.⁷
3. Adoption of a regional model Complete Streets policy (2012), R15-2012, and encouragement of the TPB members to adopt their own policies.⁸
4. Adoption and periodic renewal of a Bicycle and Pedestrian Plan for the National Capital Region, which summarizes what is being done for biking, walking, and micromobility, most recently completed in 2022.⁹
5. Adoption of priority strategies, Improve Walk and Bike Access to Transit and Complete the National Capital Trail Network, to target investments in walking and biking, and reporting on progress towards build-out of the trail network.
6. Providing technical assistance for Active Transportation projects through programs such as Transportation Land Use Connections (TLC), Transportation Alternatives (TA), Transit within Reach (TWR), and the Regional Roadway Safety program (RRSP).
7. Maintaining the Bicycle and Pedestrian Subcommittee of the TPB Technical Committee, which advises the TPB's bicycle, pedestrian, and micromobility planning efforts, and serves as a forum for information exchange and coordination for such planning by the member agencies.
8. Maintaining the Public Transportation, Transportation Safety, Freight, Access for All, and the Community Advisory Committees, which serve as forums for information exchange and coordination on bicycle, pedestrian, and micromobility planning, as needed.
9. Promotion of pedestrian and bicyclist safety through the regional [Street Smart](#) campaign.
10. Compilation of GIS maps of existing and planned bicycle and pedestrian facilities.

⁶ National Capital Region Transportation Planning Board (June 3, 2024). *Dockless Bike and Scooter Share*. <https://www.mwcog.org/events/2024/06/03/dockless-bike-and-scooter-share-workshop-bicycling-bikesharing-complete-streets-walking/>

⁷ National Capital Region Transportation Planning Board (July 1, 2019). *Transit Within Reach: Walksheds*. <https://www.mwcog.org/maps/map-listing/transit-within-reach-walksheds/>

⁸ National Capital Region Transportation Planning Board (May 15, 2012). *TPB: R15-2012: Resolution Approving the Complete Streets Policy for the National Capital Region*. <https://www.mwcog.org/documents/2012/05/16/r15-2012-resolution-approving-the-complete-streets-policy-for-the-national-capital-region-complete-streets/>

⁹ National Capital Region Transportation Planning Board (May 18, 2022). *Bicycle and Pedestrian Plan for the National Capital Region*. <https://www.mwcog.org/documents/2022/05/18/bicycle-and-pedestrian-plan-for-the-national-capital-region-bicycling-bike-to-work-day-bikesharing-walking/>

11. Encouraging bicycling and walking through events such as [Bike to Work Day](#) and [Car-Free Day](#), which are sponsored by the [Commuter Connections](#) program.
12. Posting data and resources on Active Transportation in the Washington region on the TPB Resources and Applications ([TRAP](#)) web page.

TABLE 21.1: KEY STAFF

TPB Staff	Title	Role
Kanti Srikanth	Executive Director	Staff Director for the Transportation Planning Board (TPB)
Michael Farrell	Senior Transportation Planner	Program Lead
Charlene Howard	Manager, Planning Data Resources	Contributor
Janie Nham	Planning Manager, Safety and Systems Performance Analysis	Contributor
Andrew Meese	Systems Performance Planning Director	Contributor
John Swanson	Program Manager	Contributor

Role of the Bicycle and Pedestrian Subcommittee

The Bicycle and Pedestrian Subcommittee of the TPB Technical Committee advises the TPB's bicycle, pedestrian, and micromobility planning efforts, and meeting 6-7 times per year, serves as a forum for information exchange and coordination for such planning by the member agencies. It is responsible for the update of the regional Bicycle and Pedestrian Plan and the National Capital Trail Network, which inform the pedestrian and bicycle technical inputs and other aspects of the Visualize plan.

ROLE OF KEY PLANNING AGENCIES

Numerous federal, state, local, and regional agencies, as well as private developers, nonprofits, and advocacy organizations are involved in pedestrian and bicycle planning. Table 21.2 below provides a summary of the types of agencies involved and their roles in active transportation planning and implementation.

TABLE 21.2: KEY PLANNING AGENCIES

Planning Agency	Role
Federal Agencies (US Department of Transportation, National Park Service/National Capital Region, National Capital Planning Commission, US Department of Defense)	Planning, Construction and Operation of Federal Bicycle/Pedestrian Facilities and Programs Funding and Technical Assistance for State and Local Bicycle/Pedestrian Projects and Programs
DC, Maryland, and Virginia Departments of Transportation	Construction and Operation of State Bicycle/Pedestrian Facilities Funding and Technical Assistance for Local Bicycle/Pedestrian Projects and Programs
Regional Planning Agencies (COG, Maryland-National Capital Park and Planning Commission, Northern Virginia Regional Commission, Northern Virginia Transportation Authority, Tri-County Council for Southern Maryland)	Development of Regional Bicycle/Pedestrian Plans and Programs
WMATA	Station area planning for pedestrian and bicycle access to transit
TPB Member County and City Governments	Development of County and City Plans, Programs and Construction of Facilities
Private Developers	Build sidewalks and trails in new developments.
Nonprofits and Advocacy Groups (WABA/Capital Trails Coalition, Rails to Trails Conservancy, East Coast Greenway Alliance, Adventure Cycling Association, etc.)	Plan and advocate for long distance trails and regional trail networks Encourage walking and bicycling, and promote pedestrian and bicycle safety
Private Micromobility Firms (e.g. Bird, Lime, Lyft, Spin, Veo as of July 2024)	Private firms identify preferred placement of and deploy vehicles, typically bicycles or e-scooters

PUBLIC ENGAGEMENT

The Bicycle and Pedestrian Subcommittee consists of representatives from TPB member agencies. The public may view the Bicycle and Pedestrian Subcommittee¹⁰ meetings on a YouTube livestream and learn about TPB's active transportation programs and resources through the TPB Resources and Applications website¹¹.

¹⁰ National Capital Region Transportation Planning Board (n.d). *Bicycle and Pedestrian Subcommittee*. <https://www.mwcog.org/committees/bicycle-and-pedestrian-subcommittee/>

¹¹ National Capital Region Transportation Planning Board (2025). *Active Transportation*. <https://trap-mwcog.hub.arcgis.com/pages/active-transportation>

The Street Smart Pedestrian and Bicycle Safety Campaign¹² spreads the message of pedestrian safety through paid ads, mass media, and direct outreach events throughout the region.

Commuter Connections does extensive public outreach through its Bike to Work Day¹³ and Car-Free day events. Commuter Connections partners with the Washington Area Bicyclist Association and with the Commuter Connections network of employer-based Transportation Demand Managers to create Bike to Work Day “pit stops” and encourage participation in the event.

The TPB has also held Vibrant Communities (pecha kucha-style) webinar series to highlight work conducted through some of TPB’s funding programs like Transportation Land Use Connections, Transit Within Reach, and Regional Roadway Safety Program.

MAPPING OF EXISTING BICYCLE AND PEDESTRIAN NETWORK

For Visualize 2050, bicycle and pedestrian data was collected to create a “snapshot” of the existing multimodal system in 2023. For this geospatial work data was collected from the following sources:

TABLE 21.3: GEOSPATIAL DATA FOR THE EXISTING BICYCLE AND PEDESTRIAN SYSTEM

Layer	Source
Capital Bikeshare	Capital Bikeshare locations in the TPB Planning area using General Transit Feed Specification data from Capital Bikeshare.
Shared Use Paths	TPB staff compiled data from local and state sources used in the Bicycle and Pedestrian Plan for the National Capital Region. The shared use path layer provides locations for a variety of paths typically located in their own right-of-way, such as a canal, railway, or stream valley, or in the right-of-way of a limited access highway or parkway. The shared use path route dataset is derived from various state-level sources by TPB staff.
Bicycle Routes	The bicycle route layer provides locations for a variety of signed routes throughout the TPB Planning Area. The bicycle route dataset is derived from various state-level sources by TPB staff for use in the Bicycle and Pedestrian Plan for the National Capital Region.
Bicycle Lanes	The bicycle lane layer provides locations for a variety of different lane types throughout the TPB Planning Area. The bicycle lane dataset is derived from the Roadway Block centerlines and compiled from various state-level sources by TPB staff for use in the Bicycle and Pedestrian Plan for the National Capital Region.
National Capital Trail Network	TPB developed the National Capital Trail Network in consultation with the TPB member jurisdictions and with the advice of the Bicycle and Pedestrian Subcommittee of the TPB Technical Committee. It is a 1,549-mile, continuous network of long-distance, off-street trails spanning the entire region. Forty-nine percent of this network already exists while the other 51% is planned. Off-street path-width minimums are 10 feet for new construction and 8 feet for existing paths. Paths must be paved or firm surface. On-street facilities must be protected from moving traffic (i.e., parked cars, curbs, or flex posts). All facilities must be directly connected to the network. Short on-street connections on low-volume, low-speed streets are permitted to maintain network continuity.

¹² Street Smart (2025). Street Smart. <https://www.bestreetsmart.net/>

¹³ Bike to Work Day (2025). Bike to Work Day. <https://www.biketoworkmetrodc.org/>

NATIONAL CAPITAL REGION BICYCLE AND PEDESTRIAN PLAN

The Bicycle and Pedestrian Plan examines the status of bicycling and walking in the National Capital Region, including existing facilities, programs, mode share, and current policies and planning.

The 2022 edition of the plan identifies the capital improvements, studies, actions, and strategies that the region proposes to carry out by 2045 for major bicycle and pedestrian improvements in state, local, and agency plans, and shows how implementation of these improvements, actions, and strategies will advance the region's transportation goals. It serves as a resource for planners and the public.

In contrast to the National Capital Region Transportation Plan, which is fiscally constrained, the National Capital Region Bicycle and Pedestrian Plan includes both funded and unfunded projects. Projects in this plan may not yet have funding identified to support their implementation.

Updates to the Bicycle and Pedestrian Plan are scheduled every four years.

NATIONAL CAPITAL TRAIL NETWORK

In July 2020 TPB adopted Resolution R5-2021, approving the National Capital Trail Network (NCTN) with 1,549-miles of existing and proposed shared-use paths covering the entire region. The network will provide healthy, low-stress, reliable transportation for people of all ages and abilities. People will be able to get on these trails and be confident that they can bike or walk as far as they like, from one end of the region to the other, without encountering dangerous or stressful conditions.

Completing the NCTN is one of the TPB's priority strategies for accomplishing transportation goals. As such, any project that helps complete the network receives priority consideration for funds that the TPB administers, such as TLC and Transportation Alternatives program (TA) funds.



Paint Branch Trail (Michael Jackson, M-NCPPC Prince George's County)

Selection Criteria

The TPB developed the NCTN in consultation with the TPB member jurisdictions and with the advice of the Bicycle and Pedestrian Subcommittee. Not every shared-use path in the region is included in the network. Existing and proposed facilities were required to meet certain selection criteria, meant to ensure a high-quality user experience. Facilities in the network are continuously

connected, separated from traffic wherever possible, paved or firm surface for ADA accessibility, and at least 8 feet wide for existing trails or 10 feet wide for new construction. Planned facilities on the network must come from adopted jurisdictional or agency plans. Facility density on the regional network is roughly proportional to density of people and jobs, with rural areas having a sparser network than urban areas.

Progress Toward Completion

Since July 2020, the NTCN has increased its footprint by adding an additional 83 miles of completed trails, a rate of approximately 27 miles per year. In 2020, the NTCN was 45% built and as of 2023 was almost halfway to completion, at 49%. An interactive map of the National Capital Trail Network can be viewed at National Capital Trail Network - 2023 Update.¹⁴

Even short trail segments can make a big difference in the usability of the system, especially if they connect formerly disconnected trails. As part of the Visualize 2050 Technical Inputs Solicitation process, transportation agencies submitted additional trail segments with reasonably anticipated funding and planned for construction through 2050.

Next Steps

The TPB continues to provide technical assistance funding for projects that will advance the NTCN's completion, as well as other regional priorities, through the TLC, TAP, Transit within Reach, and Regional Roadway Safety Programs.

Periodic (biennial) progress reports and changes to the network are anticipated. New planned projects may be added, if warranted. Currently planned projects may be removed at the request of the member jurisdiction.

TRANSIT ACCESS FOCUS AREAS VIA WALKING AND BIKING

In 2020, the TPB approved a list of 49 Transit Access Focus Areas (TAFAs) to prioritize places with the greatest need for improvements to make it easier for people to walk and bike to transit. The TAFAs were identified in response to Visualize 2045 (approved in 2018) which included an aspirational initiative calling for the region to make it easier for people to bike and walk to transit. The TPB urged regional leaders to take action to implement this and the other aspirational initiatives.

Methodology for 2020 TAFAs Identification

TPB staff started the study to identify the TAFAs with a baseline list of 208 high-capacity transit stations. High-capacity transit stations include Metrorail, commuter rail, bus rapid transit, light rail, and streetcar lines. Staff only considered stations that were already built or planned to be in place by 2030. In addition, the baseline only included those stations within a half mile of COG's activity centers.

Working from this baseline list of station areas, TPB staff began the analysis by asking "Where is it difficult to walk?" To answer this, they identified areas around transit stations called walksheds. A walkshed is a catchment area in which the outer perimeter represents the distance that people are anticipated to be willing to walk to a central destination. Planners generally assume that one half

¹⁴ National Capital Region Transportation Planning Board (2025). *National Capital Trail Network 2023 Update*. <https://national-capital-trail-network-mwcog.hub.arcgis.com/>

mile—a 10-minute walk on average—is the maximum distance we can expect people to walk to a train station.

As the crow flies, the outer limits of a half-mile walk would form a perfect circle with the station at the center. In reality, a half mile of walking is often much longer than the geometric radius. Blocks are sometimes very long, sidewalks may be missing, or a natural or man-made barrier may obstruct a direct path. As routes become more circuitous, the distance covered by a half-mile walk to a transit station—the actual walkshed—is often much tighter than a half-mile radius would suggest. Constrained walksheds can be expanded by bridging barriers, creating new connections, and enhancing existing connections to transit stations.

For the second part of the process, staff asked “Where is there demand for walking and biking?” To answer this, staff identified the station areas that were expected to have large concentrations of jobs and housing in the coming years through 2030.

Finally, the analysis asked, “Where are vulnerable populations located?” To answer this, staff identified the station areas located in Equity Emphasis Areas (EEAs), which are places throughout the region with high concentrations of traditionally disadvantaged racial and ethnic population groups. Out of the 208 station areas selected for analysis, 164 are in EEAs. In the final TAFA list, 43 out of 49 selected areas are in EEAs. After developing a draft list, staff worked with the TPB’s member jurisdictions to get local input. One takeaway from those meetings was that the walksheds did not always show what planners expect the area to look like in the future. Staff were able to take the input from this local outreach into account as they finalized the list.

Staff devised a method for allocating the number of TAFAs to each jurisdiction that would be balanced. The larger jurisdictions, which have most of the transit stations, received the greatest number of TAFAs on the list. Every TPB member jurisdiction with a high-capacity station area in its borders was guaranteed to have at least one TAFA on the list.

As a result, the TPB approved 49 Transit Access Focus Areas in 17 of the TPB’s jurisdictions. The TAFAs lie along a variety of different transit systems, including existing Metrorail and commuter rail lines, as well as forthcoming projects, such as the Purple Line and Silver Line (Phase II). Some TAFAs are located along future bus rapid transit (BRT) lines in Montgomery and Fairfax counties. Two bus-only transit centers were also included.

The identification of TAFAs was designed to draw attention to the non-motorized mobility around stations, not the stations themselves. All the TAFAs are in Activity Centers where pedestrian, bicycle and other micromobility improvements—like scooters and bikeshare—will increase circulation and economic vibrancy, indirectly creating impacts much broader than only improving access to transit.

The TAFA geographies were not intended to be interpreted in a rigid manner. While TAFAs are positioned on the land within a half mile of a station—which is the distance that most people can comfortably walk, in some cases, improvements outside these circles, especially pathways to improve bicycle access, can have a significant impact on safely accessing the station and should be encouraged.

The TPB has used the TAFA designations as a criterion for selecting projects for some of its technical assistance programs, especially the TLC program, as well as suballocated grant funding from the federal TA Set-Aside program. The list was a core concept behind the establishment of the TWR program, which was established in FY 2022 to promote improved bicycle and pedestrian access to transit stations.

In 2024, staff conducted an analysis of past TLC and TWR projects, along with projects funded through the RRSP, to determine how many projects were in TAFAs, and how many of those projects were specifically related to pedestrian/bicycle access. Out of a total of 202 projects conducted

since 2007, 66 projects (33 percent) were in TAFAs, and 50 of those projects (25 percent) were directly related to pedestrian/bicycle access.

TPB staff also looked at how many of the 49 TAFAs were the subject of TLC, RRSP, and TWR studies. This analysis found that 29 TAFAs (59 percent of the TAFAs) have been the subject of projects that were focused on pedestrian/bicycle access improvements while 20 TAFAs have not been the subject of our studies. The TPB also found that 39 high-capacity transit stations that are not designated as TAFAs have been the subject of our local technical assistance (TLC, RRSP, TWR) projects focused on pedestrian/bicycle access improvements.

PROGRAMMING OF FUNDS FOR BICYCLE AND PEDESTRIAN IMPROVEMENTS

Most funding allocations are administered by agencies other than the TPB, each with its own unique selection criteria. It is up to each transportation agency to determine where funding for bicycle and pedestrian improvements is most needed and apply for funding through the most appropriate funding opportunity. The TAFAs mentioned previously are one tool to help agencies as they prioritize transportation needs and apply for funding.

Additional information is provided below on two programs administered by TPB staff for funding allocation approval by TPB.

Transportation Land-Use Connection Program

Since 2007, the Transportation Land Use Connections (TLC) Program has funded small planning projects in all corners of the region that build local capacity and support innovation. These projects have made a difference in countless ways at the local level, and as a whole, they have helped make the region a better place—more livable, more walkable, and more bikeable.

The TLC program has its roots in regional planning. Twenty years ago (not unlike today), regional leaders at the TPB were looking at big-picture questions for our region – What if more development was concentrated and mixed-use? What if we built more transit and sidewalks and bike paths? Regional analysis found that these kinds of changes could make travel conditions better. TPB staff conducted public outreach about these ideas and residents had very practical concerns including that local details can make or break smart growth projects. Public feedback reflected a desire for walkable mixed-use development, transit serving community needs, and biking feeling safe.

Concurrently, some jurisdictions were working to promote more development closer to transit. Others were looking at ways to revitalize existing communities to make them more walkable, equitable, and accessible for travelers using all modes. Still others were seeking to attract jobs, housing, and retail in denser, mixed-use centers. As shared with TPB staff, local planners desired extra help to explore innovative ideas and make good projects even better.

In response to these needs, the TPB created the TLC program in 2006, which has used a simple model to provide support to all the TPB's member jurisdictions. Every year, the TPB selects 8-10 local projects and hires consultants to provide design or planning services. The projects are small and executed quickly; they typically last 6-8 months. Beginning in FY 2007, a total of 177 projects have been completed and nine are underway in 2024-2025.

From day one, local governments and consultants have valued the program's nimble approach. The TPB staff has consistently sought to streamline project delivery by keeping the scopes focused, making sure procurement is simple, getting started quickly, and ending on time. Past participants have emphasized the value of the program's rapid-response approach. The program produces tailored, meaningful results.

The TLC model has been so successful that the TPB has replicated it in recent years with two additional programs – the Regional Roadway Safety Program, which is focused on safety, and the Transit Within Reach Program, which funds preliminary design for pedestrian and bicycle access to transit.

TLC projects have included a wide range of types and topics. Some projects do the fundamental work that TLC has become known for—such as transit access studies, designs for shared-use paths, and local transit operations planning. Sometimes projects directly respond to the challenges of the moment—including planning for a post-pandemic future and promoting green infrastructure to make communities more resilient to the effects of climate change. Other projects have been truly innovative—such as studies of microtransit or freight micro hubs.

While much of the TLC funding remains focused on earlier stages of planning, the program in 2011 began funding preliminary engineering and design projects (up to 30 percent design). This change has positioned the program to more directly support future capital improvements to be financed for implementation through other mechanisms.

Transportation Alternatives Set-Aside Program

The Transportation Alternatives Set-Aside Program (TA Set-Aside) was established by federal law to fund a variety of smaller-scale transportation projects such as pedestrian and bicycle facilities, trails, safe routes to school (SRTS), community improvements, historic preservation, and environmental mitigation. MAP-21, the surface transportation legislation enacted in 2012, established the program as the Transportation Alternatives Program (TAP). The FAST Act of 2015 renamed the program the Transportation Alternatives Set-Aside Program. The Infrastructure Investment and Jobs Act (IIJA)/Bipartisan Infrastructure Law (BIL), enacted in 2021, reaffirmed the federal commitment to the program and increased funding for it.¹⁵

The program provides sub-allocated funding for large metropolitan planning organizations (MPOs) like the TPB (those MPOs classified as Transportation Management Areas) to fund local projects. In addition to these sub-allocated funds, a portion of the TA Set-Aside funding is reserved for statewide project selection, which is conducted by the state departments of transportation.

For the National Capital Region, the program offers an opportunity to support and enhance regional planning activities. At the direction of the TPB, our region's TA Set-Aside program is framed as a complementary component of the TPB's local technical assistance programs, including TLC, RRSP, and TWR.

The TA Set-Aside program offers the region the ability to fund projects that implement regional priority strategies and support regional transportation goals based on the National Capital Region Transportation Plan and the TPB's other policy documents. Program applicants are asked to show how their projects will serve these priorities when they seek funds. The priorities also provide the basis for the selection criteria that the TPB's selection panel uses when it reviews applications and recommends projects for funding.

Since the establishment of this program in 2012, the TPB has combined its solicitations with the state departments of transportation in the District of Columbia, Maryland, and Virginia. As part of this process, TPB staff works with the DOTs to conduct the selection processes.

The TPB selects projects on an annual basis for TLC, RRSP, and Maryland TA Set-Aside. Projects are selected every two years for TWR and Virginia and DC TA Set-Aside.

¹⁵ Federal Highway Administration (October 20, 2025). *Transportation Alternatives*. www.fhwa.dot.gov/environment/transportation_alternatives/

VISUALIZE 2050 ZERO-BASED BUDGETING

To guide the development of Visualize 2050, the TPB instructed staff to develop the plan based on the concept of ‘zero-based budget’ (ZBB) where all projects in the current plan, Visualize 2045, must be resubmitted for consideration in Visualize 2050, provided that projects currently under construction or funded were exempt from the requirement. This included bicycle and pedestrian projects. Agencies submitted projects and programs for Visualize 2050 that they felt aligned with the TPB’s adopted goals and would help the region attain related performance targets.

Agencies first submitted their regionally significant for air quality (RSAQ) project inputs which focus on highway and transit capacity changes to the transportation system, which sometimes can include bicycle and pedestrian components that apply complete street policies. For example, a project that extends a roadway and adds a sidewalk and bicycle lane, or a project that reduces or eliminates a vehicular lane and reallocates that space for bicycle use, would be considered RSAQ projects due to the change in vehicle capacity, while also including a non-motorized component.

In the second phase, agencies submitted the non-regionally significant (NRS) air quality projects to the TPB, which are not included in the Air Quality Conformity Analysis. These inputs include more bicycle and pedestrian improvements planned for implementation through 2050. Some projects have already received funding and are programmed to be active in the FY 2026-2029 Transportation Improvement Program, and others were reasonably anticipated to receive the funding needed in FY 2030-2050. While some bicycle and pedestrian improvements were submitted by agencies as a discrete record, others are not uniquely identified; rather, the intent to dedicate a certain amount of funding towards bicycle and pedestrian improvements is captured through project grouping or ongoing program inputs. All inputs for bicycle and pedestrian improvements are reflected in the Visualize 2050 financial plan, yet only some have provided sufficient details to be highlighted on a map or project list.

TPB staff conducted a thorough review of all project inputs submitted for Visualize 2050 and requested additional clarifications from agencies when it was unclear if bicycle and/or pedestrian improvements were included. The ZBB effort improved the accuracy of documenting the inclusion of bicycle and pedestrian accommodations in the region’s planned investments.



**Visualize 2050
Planning and
Programming Process**

Transportation Demand Management

Part 22 of 27



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OVERVIEW OF TRANSPORTATION DEMAND MANAGEMENT

The TPB observes Transportation Demand Management (TDM) as programs and strategies that encourage efficient use of existing transportation infrastructure by reducing the amount of vehicle miles traveled (VMT) and vehicle trips (VT) on the system. As the name implies, TDM aims to reduce the demand side of congestion (i.e., reducing the number of people commuting alone in single occupant vehicles) rather than expanding the supply side. Reducing the number of people commuting alone can produce benefits such as reduced roadway congestion, reduced commuting and travel costs, reduced energy use and greenhouse gas emissions, improved air quality, and improved public health.

The TPB's primary strategy for implementing TDM strategies is the regional Commuter Connections program, which in 2024 celebrated 50 years of serving the National Capital Region. Commuter Connections is a network of nearly 30 transportation organizations that work together to promote carpooling, vanpooling, taking transit, bicycling, scootering, or walking. Work products and services affiliated with the program are developed by TPB staff in concert with the program funders, which include the District of Columbia, Maryland, and Virginia Departments of Transportation (DOTs). These elements are documented within the Commuter Connections Work Program,¹ which is reviewed and endorsed each year by the TPB.

TPB'S ROLE AND KEY STAFF

The TPB relies on the Commuter Connections regional TDM program to serve as the “cornerstone” demand management solution for regional congestion identified by the Congestion Management Process. Staff periodically report notable advancements of key program elements to the TPB and provide data to inform policy decision-making at the local and regional levels.

The TPB annually reviews program elements contained within the Commuter Connections Work Program. TPB elected officials provide comment and direction for the program based on regional needs and data procured by the program. The work program is approved by the TPB via resolution. Key staff overseeing the region's Commuter Connection transportation demand management work are listed in Table 22.1.

¹ The most recent CCWP is available at: National Capital Region Transportation Planning Board (March 21, 2024). FY 2025 Work Program for the Commuter Connections Programs for the Greater Washington Metropolitan Region. <https://www.commuterconnections.org/wp-content/uploads/FY2025-Commuter-Connections-Work-Program.pdf>

TABLE 22.1: KEY STAFF

TPB Staff	Title	Role
Kanti Srikanth	Executive Director	Director for the Transportation Planning Board (TPB)
Dan Sheehan	Program Director	Program Lead
Vacant (Previous: Dan Sheehan)	TDM Program Manager	Contributor
Douglas Franklin	TDM Marketing Manager	Contributor
Ross Edgar	Principal GIS Analyst	Contributor

Roles of the TPB Technical Committee and Steering Committee

The final Commuter Connections Work Program (CCWP) is reviewed by the TPB Technical Committee and approved by the TPB. Program developments and/or significant changes to the CCWP made by the STDM Work Group, described below, are reviewed with the TPB's Technical Committee and in some cases the TPB's Steering Committee in the event the items or information will be presented to the TPB.

Role of the State TDM Work Group

The STDM Work Group consists of representatives of the state transportation funding agencies in the District of Columbia, Maryland and Virginia. The STDM Work Group helps to define the program content and budget for each fiscal year and helps to develop a detailed annual Work Program in collaboration with TPB staff and the Commuter Connections Subcommittee. The draft work program is reviewed by program stakeholders and the Commuter Connections Subcommittee.

Role of Commuter Connections Subcommittee

The Commuter Connections Subcommittee comprises of Commuter Connections network members from local jurisdictions throughout the National Capital Region, representatives from the state departments of transportation, and WMATA. The Subcommittee convenes every other month to provide overall technical review of the regional program elements outlined in the CCWP. Relevant guest presentations and discussions and best practices are also frequently held. The Subcommittee will also review, provide comments, and endorse reports and other products for release.

Several subcommittees and work groups of the Commuter Connections Subcommittee are convened to guide Commuter Connections program implementation. This includes the Ride-matching Committee, Regional TDM Marketing Group, Employer Outreach Committee, Bike to Work Day Steering Committee, and the TDM Evaluation Group. Membership of these subcommittees comprise of subject matter experts who provide feedback and guidance on items related to their respective TDM program elements.

ROLE OF KEY PLANNING AGENCIES

The District of Columbia, Maryland, and Virginia each play a vital role in the composition of the Commuter Connections regional TDM program. Commuter Connections serves as a blend of various approaches to TDM implantation that suits the needs of each state. Subject matter experts from each state collaborate and compromise within the State TDM Work Group to enact TDM strategies that are most beneficial to the region.

Program funding is exclusively obtained through grants from the three state departments of transportation. Budgets are updated and reviewed annually to ensure proper regional TDM priorities are included in the annual work program. Table 22.2 lists the key planning agencies and their role.

TABLE 22.2: KEY PLANNING AGENCIES

Planning Agency	Role
District Department of Transportation	Program Funder and Advisor
Maryland Department of Transportation	Program Funder and Advisor
Virginia Department of Transportation	Program Funder and Advisor
Maryland Transit Administration	Program Funder and Advisor
Virginia Department of Rail and Public Transportation	Program Advisor

PUBLIC ENGAGEMENT

The predominant method for public engagement on behalf of the Commuter Connections regional TDM program is through mass marketing. Commuter Connections regularly places paid advertisements on mediums such as radio, digital, social media, and print media. Messaging is directly related to the TDM mission of encouraging people to carpool, vanpool, and/or to participate in the regional Guaranteed Ride Home program. Paid marketing for other program elements, such as Bike to Work Day and various commuter incentive programs, occasionally complement the program's mass marketing efforts.

National Capital Region commuters are invited to create Commuter Connections accounts to take advantage of the many free benefits and services provided by the program. These include free ride-matching, free commute "insurance" through Guaranteed Ride Home, cash incentives for non-SOV commuting, and other tools and resources to help optimize commutes. Customer service representatives are available throughout the region to provide helpful, personalized guidance over the phone or through email to Commuter Connections accountholders.

In addition to mass marketing, the Commuter Connections Employer Outreach program engages with employers throughout the region to help introduce them to commuter benefits or expand existing commuter benefits. These efforts include on-site events at employer sites to engage with employees, among other tactics.

HISTORY AND CURRENT STATE OF TDM PLANNING AND PROGRAMMING

This section will provide more details on the history and context of TDM planning and programming in the National Capital Region and describe the current strategies and programs, recent advancements, a general overview of where the program has proven to be effective, and ongoing challenges.

History and Context

Commuter Connections was originally created in 1974 as the Commuter Club, providing one of the first computerized carpool matching systems in the nation. The Commuter Club network consisted of TPB, the General Services Administration (GSA), and the Greater Washington Board of Trade. The TPB provided direct ride-matching services to the public, a free service which is still in operation today. In the 1980s, the City of Alexandria, Fairfax County, Montgomery County, Prince William County, and the Northern Virginia Transportation Commission joined the network. Commuter Club network members used TPB's ride-matching software and shared one regional database.

In the mid-1980s the network changed its name to the RideFinders Network. By 1994, the network had grown in membership to include all Washington DC area local governments, a few federal agencies, several Transportation Management Associations, local governments from the Baltimore area, and southern Maryland.

In the mid-1990s the TPB began adopting transportation emissions reduction measures to reduce the emission of certain pollutants by vehicles on the roadway system. Many of these measures were strategies to reduce travel demand and change travel modes. These regional measures were funded by the three state DOTs. The DOTs approached the TPB to help administer some of these TDM strategies across the region. TPB agreed to expand the service offerings of the RideFinders Network, and in 1996, the RideFinders Network changed its name to Commuter Connections with the three state DOTs funding all activities of Commuter Connections. Starting in 1997, new services began to be implemented, annually or biennially, including internet-based services beyond just carpool/vanpool matching: transit route and schedule information, a regional Guaranteed Ride Home program, bicycling to work information, park-and-ride lot and HOV lane information, telecommute/telework program assistance, InfoExpress commuter information kiosks, and employer services.

Current Strategies and Programs

Commuter Connections operates several free commute-oriented programs. The proprietary ridematching system² pairs individuals that have similar commutes together for potential carpool and vanpool opportunities. The regional Guaranteed Ride Home program provides commuters with a free ride home in the event of a personal emergency, illness, or unscheduled overtime.

Several programs provide incentives, such as cash rewards or transportation credits, to encourage commuters to try new modes of commuting, such as carpool, vanpool, transit, or walk/bike,

² The ridematching system can be found at <https://tdm.commuterconnections.org/mwcog/>

instead of driving alone. These reward programs include incenTrip, ‘Pool Rewards and Flextime Rewards. Commuter Connections also produces resources such as the regional Commute Options Map that includes Park and Ride locations across three states, and a Commute Cost Calculator to determine the true hidden costs of one’s commute.

Regional events such as Bike to Work Day and Car Free Day are organized and facilitated by Commuter Connections to help generate excitement about alternative forms of transportation. These regional events, along with the many programs and services listed in the prior paragraph, are marketed to the public through Commuter Connections’ robust mass marketing efforts.

Through the Employer Outreach service, Commuter Connections works with employers to help them establish commuter benefits and commute assistance programs for their employees at their workplace. For instance, telework resources are available to employers who wish to improve their policies. Commuter Connections employer outreach representatives familiar with each specific jurisdiction provide expert professional assistance to employers for commuting and telework needs.

Commuter Connections has a monitoring and evaluation activity. Feedback is gathered from program participants via surveys; data is analyzed and published into reports such as the [TDM Analysis Report](#).³ Additionally, the public is surveyed as part of the [State of the Commute](#), which helps to provide insights on regional commuting trends. Data procured from these instruments informs decision-making on how to best operate and promote Commuter Connections’ programs and services.⁴

Recent Advancements

Commuter Connections is continuously evolving to meet the needs of commuters and employers. Post-pandemic Return to Office (RTO) employer policies have led to “hybrid-friendly” programmatic adjustments. For example, the Flexible Vanpool program was established to attract riders working hybrid schedules. The program was awarded federal funding through the Enhancing Mobility Innovation (EMI) program to help improve participant usability and target implementation within TPB’s Equity Emphasis Areas (EEAs).⁵ Similarly, general outreach efforts have been adjusted to target EEAs more intentionally, where essential workers may not have the option to telework and are therefore more likely to benefit from Commuter Connections programs and services.

The successful incenTrip commute gamification and incentivization mobile app was awarded nearly \$3 million in federal funding through the Advanced Transportation and Congestion Management Technologies Deployment (ATCMTD) program to enhance and expand the application throughout the greater Washington, DC megaregion.⁶ Technical work began in fall 2020 and concluded in fall 2023. Efforts are now focused on transferring the technology from the Maryland Transportation Institute at the University of Maryland to Commuter Connections. Once transferred, Commuter Connections will rebrand the incenTrip application as “CommuterCash” and operate the program under the Commuter Connections suite of programs and services. CommuterCash was launched to the public in December 2024.

³ The most recent version of the TDM Analysis Report can be found at: Commuter Connections (November 21, 2023). *Transportation Demand Management (TDM) Analysis Report*. <https://www.commuterconnections.org/wp-content/uploads/2021-2023-TDM-Analysis-Evaluation-Report-Final-Draft-112123.pdf>

⁴ The most recent State of the Commute report can be found at: Metropolitan Washington Council of Governments (August 14, 2023). 2022 State of the Commute Survey Report. <https://www.mwcog.org/documents/2023/08/14/state-of-the-commute-survey-report-carsharing-state-of-the-commute-telework-travel-surveys/>

⁵ Details on the federal EMI program can be found at: Federal Transit Administration (2025). *Enhancing Mobility Innovation*. <https://www.transit.dot.gov/research-innovation/enhancing-mobility-innovation>

⁶ Details on the federal ATCMTD program can be found at: Federal Highway Administration (2025). *Turner-Fairbank Highway Research Center Laboratories*. <https://highways.dot.gov/research/technology-innovation-deployment/grant-programs>

Program Effectiveness

TPB staff routinely collect data via surveys and participant activity in Commuter Connections programs to determine overall effectiveness. A 2024 evaluation analyzed data collected from July 2021 – June 2023 and showed that the program helps reduce daily vehicle trips and vehicle miles of travel each day which results in eliminating nitrogen oxides (NO_x) and Volatile Organic Compounds (VOCs) emissions. Other notable societal benefits include reducing the number of hours commuters collectively spend stuck in traffic and saving gallons of fuel. All told, the Commuter Connections program is estimated to produce notable total daily cost savings in the region. The specifics have been included in Chapter 2 of the Visualize 2050 plan.

Ongoing Challenges

TDM faces many ongoing challenges in influencing commuters to choose other ways to get to work. Commuters may not understand the value of carpools or vanpools because they may have trouble quantifying how much time they spend commuting. As commuters seek housing that they can afford, they may not find sufficient affordable housing near high quality transit options. Employer policies may also encourage driving by offering free parking and low gas prices may encourage more people to continue to drive alone.

TDM PROGRAM DEVELOPMENT AND IMPLEMENTATION

The process for developing and implementing TDM strategies through the Commuter Connections program has been consistent for several decades. The below elements highlight how the program utilizes inputs from congruent TPB activities, along with self-generated programmatic data, to refine and optimize TDM implementation throughout the region.

Congestion Management Process and TDM

As noted in Part 6 of the Visualize 2050 Process Documentation, the TPB maintains a robust Congestion Management Process (CMP) to address traffic congestion in the National Capital Region. This process aligns with federal transportation requirements outlined in Titles 23 and 49 of the U.S. Code and associated regulations. The CMP has identified Commuter Connections as the “cornerstone” of the region’s demand management approach to congestion. TDM programs and strategies employed by Commuter Connections are strategically developed to help address and diminish the negative effects of congestion identified through the CMP.

Annual Work Program

All work completed by the Commuter Connections program is determined at the onset of the fiscal year by means of the Annual Commuter Connections Work Program (CCWP). The CCWP is developed over the course of the year preceding implementation by TPB staff, the State TDM Work Group, the Commuter Connections Subcommittee, the TPB Technical Committee, and the TPB (see *TPB’s Role and Key Staff*).

TPB staff and the State TDM (STDM) Work Group collaborate to identify TDM program elements that are projected to have the greatest impact at reducing vehicular congestion and improving air quality throughout the region. Primary program elements include Commuter Program Operations, Guaranteed Ride Home, Mass Marketing, Monitoring and Evaluation, and Employer Outreach. Many work products and services are listed as program deliverables under each primary program element. TPB staff and the STDM Work Group use programmatic data gathered from prior fiscal

years alongside trends observed from external sources to inform deliverables included in each annual work program.

Following initial development of the CCWP by TPB Staff and the State TDM Work Group, the document is provided to the Commuter Connections Subcommittee, the TPB Technical Committee, and the TPB for review and comment. TPB staff then incorporates feedback and presents a final version of the CCWP to the TPB for final approval. Historically, the CCWP is typically approved by the TPB in March, which allows program implementation to begin at the start of the Council of Government's fiscal year (July).

Funding

Funding for the various project elements of the CCWP is allocated to the District, Maryland, and Virginia Departments of Transportation using a formula agreed to by the STDM Work Group (see *Role of Key Planning Agencies*). Allocations are determined prior to each fiscal year.

Program Operations and Refinement

Commuter Connections TDM programs are implemented by a mixture of TPB staff and contractors. Rideshare coordinators at local jurisdictions throughout the region also provide customer support to program participants located within their respective jurisdictions.

While the CCWP serves as the guiding document for all work performed as part of the program, daily operations are detailed in various management documents such as the Commuter Operations Standard Operating Procedures, the Washington Metropolitan Region TDM Resource Guide and Strategic Marketing Plan, and the TDM Program Elements Revised Evaluation Framework. Each document provides helpful context and direction for implementation processes related to TDM program elements.

The program is refined through routine data collection and surveying. Program data is reported in quarterly progress reports to the Commuter Connections Subcommittee. Marketing metrics are tracked and reported in biannual Campaign Summary Reports to the Regional TDM Marketing Group. These reports, among others, are used to continuously tweak program implementation to better optimize results (i.e., shifting more commuters into non-SOV travel modes).



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Surface Connection to Air Planning

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OVERVIEW OF AIRPORT SYSTEM PLANNING

The multimodal transportation system of the National Capital Region is served by three large commercial airports: Baltimore/Washington Thurgood Marshall International Airport (BWI) in Maryland, Ronald Reagan Washington National Airport (DCA), and Washington Dulles International Airport (IAD) in Virginia. These airports offer air travel choices to the region's residents and visitors, serve as components of the region's freight distribution system, and provide significant employment opportunities in the transportation and transportation-serving employment sectors in the National Capital Region. Collectively, BWI, DCA, and IAD had nearly 40 million enplanements (boardings) in 2023, revealing significant demand for airport ground access for both passengers and airport services. These airport ground access needs are key considerations addressed through the TPB's Continuous Airport System Planning (CASP) Program.

Continuous Airport System Planning (CASP) Program

The TPB initiated the CASP program more than 45 years ago when the first grant application was approved by the Federal Aviation Administration (FAA) in 1978. The goal of the CASP program is to provide a process that supports the planning, development, and operation of airport facilities and the transportation facilities that serve the airports in a systematic framework for the Washington-Baltimore region.

The airport system planning process consists of a continuous cycle that begins with a Washington-Baltimore Regional Air Passenger Survey. This survey is followed by forecasts of future air passenger travel and the ground travel of these air passengers to and from the region's three commercial airports. These forecasts and analyses of planned airport ground access facilities in the region are used to develop the Regional Airport System Plan (RASP).

FIGURE 23.1: THE NATIONAL CAPITAL REGION'S THREE MAJOR AIRPORTS



National Hall DCA (Doug Letterman/[Flickr](#)); BWI (Corey Seeman/[Flickr](#)); Dulles (airbus777/[Flickr](#))

Regional Air Passenger Survey and Ground Access Forecasts

Simultaneous, regional surveys of departing air passengers at all three commercial airports (BWI, DCA, and IAD) have been performed in 1973/74, 1981/82, 1987, 1992, 1998, 2000, 2002 and every two years since 2005, except in 2021 due to the COVID-19 pandemic. The most recent survey was conducted in late 2023. These surveys provide data that are essential for airport system planning and master planning processes.

The Regional Air Passenger Survey is designed as an at-gate lobby interview survey where travelers are asked to provide information about the purpose of their air travel, how they traveled to the airport (drove, rode transit, etc.), and other information to support the airport system planning and airport ground access planning processes. The survey is jointly funded by the Maryland Aviation Administration, which owns and operates BWI, and the Metropolitan Washington Airports Authority, which owns and operates both DCA and IAD. The survey results are analyzed in detail and are documented in two reports: (1) General Findings, and (2) Geographic Findings. These reports are

funded by the Federal Aviation Administration (FAA) through grants from its Airport Improvement Program.

Using data from the regional air passenger survey and other sources, TPB staff developed a methodology to forecast future ground access trips to each of the three airports from individual geographic areas called Aviation Analysis Zones (AAZs), which are larger zones aggregated from Transportation Analysis Zones (TAZs) used by TPB and the Baltimore Metropolitan Council/Baltimore Regional Transportation Board in their regional travel demand forecasting process. These forecasts consider ground access travel trends observed from the survey, projections of population, households, and employment prepared for the planning area, and terminal area forecasts of future airport passenger volumes.

For more information on the Regional Airport Passenger Survey and the Ground Access Forecasts, please visit this link: <https://www.mwcog.org/transportation/planning-areas/airports/casp-elements/air-passengers/>

Comprehensive Regional Air System Plan (RASP)

In 2020, transportation planning staff at COG, in coordination with the Federal Aviation Administration (FAA), the Metropolitan Washington Airports Authority (MWAA), and the Maryland Aviation Administration (MAA), completed the multiyear, three-phase Comprehensive Washington-Baltimore Regional Air System Plan (RASP). The 2020 RASP report is the first comprehensive RASP conducted since the Continuous Airport System Planning (CASP) program's inaugural study, "The Future of Washington's Airports" in 1975. Phase 1 illustrates the state of the practice in regional air system planning. Phase 2 identifies existing conditions (supply) and anticipated needs (demand) in the Washington-Baltimore regional airport system. Phase 3 synthesizes air system-wide planning considerations, conducts a needs assessment for each airport, reviews the ground access element update and provides a series of airport ground access-related recommendations based on the most recent long-range transportation plan at that time, Visualize 2045 and Maximize2045 for the COG-TPB and BMC regions, respectively.

Prior to the 2020 Comprehensive RASP, components of the RASP were updated periodically and released as individual "elements" of the RASP. These included the Ground Access Element Update and the Air Cargo Element Update.

For more information on the Regional Airport System Plan, please visit this link:

<https://www.mwcog.org/transportation/planning-areas/airports/casp-elements/regional-air-system-plan/>

TPB'S ROLE AND KEY STAFF

As the MPO for the National Capital Region, the TPB is required to prepare a metropolitan transportation plan (MTP), among other requirements. There are specific planning elements and considerations required to be addressed by MTPs; however, it is noteworthy that airport system planning is not a required activity for the TPB as an MPO and the Regional Airport System Plan (RASP) that is developed by the CASP Program is not a required element of the MTP. Nevertheless, the RASP and key findings from ground access planning studies and analyses undertaken by the CASP Program do inform the MTP and provide important planning context and understanding for airport ground access needs that can be considered by transportation planning agencies throughout the region. Thus, airport system planning activities are incorporated into the overall metropolitan transportation planning process undertaken by the TPB.

TABLE 23.1: KEY STAFF

TPB Staff	Title	Role
Kanti Srikanth	Executive Director	Director for the Transportation Planning Board (TPB)
Kenneth Joh	Principal Survey Statistical Analyst	Program Lead
Olga Perez	Planning Program Specialist	Program Specialist
Suraj Vujjini	Transportation Data Analyst	Analyst/Contributor

The CASP program is developed, implemented, and monitored with the assistance of the Aviation Technical Subcommittee of the TPB's Technical Committee. The subcommittee develops, implements, and monitors CASP program activities and oversees integration of airport system planning with the regional transportation planning process. The region's three major commercial airports are represented on the TPB by the Maryland Aviation Administration (MAA) and the Metropolitan Washington Airports Authority (MWAA).

ROLE OF KEY PLANNING AGENCIES

Agencies involved in the CASP Process are represented on the Aviation Technical Subcommittee. Members and include the Federal Aviation Administration (FAA), the Maryland Aviation Administration (MAA), Virginia Department of Aviation (DOAV), District of Columbia Office of Planning (DCOP), District of Columbia Department of Transportation (DDOT), the Metropolitan Washington Airports Authority (MWAA), and staff from the Baltimore Metropolitan Council/Baltimore Regional Transportation Board (BMC/BRTB). Collectively, as part of the Aviation Technical Subcommittee, these partner agencies provide guidance and oversight over the CASP Program, helping to set future CASP work program priorities and activities for staff to carry out.

Funding for the CASP Program is provided through annual federal formula grants administered by the FAA as part of its Airport Improvement Program. The biennial Washington-Baltimore Regional Air Passenger Survey is jointly funded by the MAA and the MWAA, which own and operate the three large commercial airports.

PUBLIC ENGAGEMENT

All activities are coordinated and reviewed by the Aviation Technical Subcommittee, which, as a Subcommittee of TPB's Technical Committee, conducts its business in bimonthly meetings that are accessible to the public. In addition, aspects of the CASP program are presented to the public at TPB meetings, at which time members of the public have the opportunity to comment, and also through presentations to the TPB's public-facing advisory committees, such as the Community Advisory Committee. TPB staff shared the results of the 2023 Regional Air Passenger Survey with the TPB in September 2024 which are the most recent to reflect in Visualize 2050.



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Pipelines and Waterways

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OVERVIEW OF PIPELINES AND WATERWAYS

The National Capital Region's multimodal transportation system is vital to the economy of the region and to the quality of life of its residents. It connects people and businesses to important regional activity centers and to major domestic and international markets.

The region's multimodal freight transportation consists of various modal elements, including a pipeline network that carries more than 48 million tons of petroleum products per year. As the second most-used freight mode in the region, after truck freight, the pipeline network moves petroleum, natural gas, offshore well, and other commodities¹. By moving fuel through pipelines—fuel that is eventually placed on trucks and sent to gas stations—the pipeline network is essential to motor vehicle travel.

While the region does not have a port, various types of goods also reach consumers in the National Capital Region through nearby ports, such as the Port of Baltimore and the Port of Virginia, which are vital East Coast entry points for marine freight. These freight modes support the region's livability and quality of living.

TPB'S ROLE AND KEY STAFF

The TPB works to ensure that freight is integrated into metropolitan planning so that the transportation system continues to be responsive to freight demands and evolving practices. While the TPB does not have programming specific to pipeline and maritime freight, the modes are acknowledged as part of the TPB's overall freight activities. Since 2007, the TPB has included a regional freight planning task in its Unified Planning Work Program (UPWP) with activities that identify freight in the transportation planning process, highlight freight's role in economic development, and recognize freight's integrated role in the multimodal economy.

The TPB's freight program consists of various elements including a Freight Subcommittee, a National Capital Region Freight Plan, which is updated on regular intervals, and special freight forums and workshops. The TPB also responds to freight-related federal requirements for MPOs. Table 24.1 summarizes the key TPB staff who support the TPB's freight planning activities. Currently, the program has a staff member who focuses on freight planning part-time and is supported by consultant assistance as needed.

TABLE 24.1: KEY STAFF

TPB Staff	Title	Role
Kanti Srikanth	Executive Director	Staff Director for the Transportation Planning Board (TPB)
Multimodal Planning Program Director (vacant)	Program Director	Contributor
Janie Nham	Planning Manager	Contributor

¹ Federal Highway Administration (2020). *Freight Analysis Framework*. https://ops.fhwa.dot.gov/freight/freight_analysis/faf/

Role of TPB Subcommittees

The TPB's Freight Subcommittee serves a key function in the freight program by providing a forum for information sharing and coordination on freight topics. Established in 2008, the subcommittee engages a diverse audience, including private sector freight shippers and industry representatives, and has actively invited private sector representatives to present and share their perspectives. The subcommittee's bi-monthly meetings feature presentations that center on specific freight themes, and past meetings have featured presentations on maritime freight or supply chain and pipeline freight disruptions among others.

The subcommittee also makes recommendations on freight-related action items for consideration by the TPB Technical Committee and the Transportation Planning Board. Actions such as the designation of Critical Urban Freight Corridors or the adoption of the National Capital Region Freight Plan are first reviewed by the subcommittee before advancing to the TPB Technical Committee for review and the TPB for approval.

ROLE OF KEY PLANNING AGENCIES

Because of the broad nature of freight networks, the TPB engages planning agencies at various levels of government. The TPB frequently coordinates with staff from the three state governments in the region, as they own and maintain much of the infrastructure on which freight travels, such as ports. These state agencies include the District Department of Transportation (DDOT), Maryland Department of Transportation (MDOT), Virginia Department of Transportation (VDOT), and Virginia Office of Intermodal Planning and Investment (OIP). While the region does not have a port, the TPB engages relevant state agencies to keep abreast of developments at nearby ports, such as the Port of Baltimore and Port of Virginia, which serve as the entry point for certain types of goods to the region.

In addition to state agencies, the federal government establishes the legal and policy framework for freight operations and additionally provides funding, technical assistance, data, and data analysis tools to support freight planning activities at the state, regional, and local levels. In particular, the Pipeline and Hazardous Materials Safety Administration (PHMSA) establishes national policy on pipelines and hazardous materials transport, sets and enforces standards, conducts research to prevent incidents, and prepares first responders. The Maritime Administration (MARAD) works in areas involving ships and shipbuilding, port operations, vessel operations, national security, the environment, and safety.

PUBLIC ENGAGEMENT

The TPB does not specifically seek public engagement on pipelines and waterways but receives and incorporates public input on freight received through regularly occurring TPB, Technical Committee, and Freight Subcommittee meetings. The TPB's Community Advisory Committee (CAC) also receives updates on freight activities and is provided with the opportunity to share feedback during briefings. In addition to these venues, the TPB occasionally holds special forums on freight topics, such as the 2024 Regional Curbside Management Forum, in which members of the CAC and TPB Access for All Advisory Committee are sometimes invited to participate. These events are also open to the public.

Unlike other transportation sectors, freight movement is highly dependent on private-sector partners such as railroad companies, parcel delivery services, and trucking companies. The TPB has worked to develop relationships with and involve private-sector stakeholders in program activities to foster greater public-private collaboration.



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Future Scenarios Planning

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OVERVIEW OF FUTURE SCENARIOS PLANNING

Scenario planning is a practice by which organizations and communities plan for an uncertain future by exploring multiple possibilities of what might happen. A scenario depicts a potential future generated by external forces that are largely beyond an agency's control, actions within an agency's purview, or a combination of both. Scenarios can be depicted as narratives or as charts and maps illustrating trajectories of change over time.

Scenario planning helps planning agencies examine possible futures, test strategies, and inform decision-making regarding investments in projects, programs, and policies to achieve goals. Over a couple decades, the Metropolitan Washington Council of Governments (COG) and the National Capital Region Transportation Planning Board (TPB) have conducted numerous scenario planning activities and analyses to predict and prepare for the future of the region that still influence decision-making today.

To better understand scenario planning, in 2020/2021, the TPB explored scenario planning processes and tools that could complement its travel demand modeling capabilities, enabling the TPB to generate and evaluate possible futures quickly and efficiently across a broad range of topics. Products of this work are listed below and may be found online¹.

- Organizational Definition of Scenario Planning
- Overview of Scenario Planning – White Paper
- Scenario Planning Practices Among Peer MPOs – White Paper
- Scenario Planning Tools – White Paper
- Organizational Awareness and Understanding of Scenario Planning – Final Report

Types of Scenario Planning

There are three approaches to scenario planning: predictive, normative, and exploratory; scenario planning for uncertain future conditions typically takes one of two forms: normative or exploratory.

1. Predictive scenario planning is the most common of the three approaches. Although there are many different types of scenario planning tools, travel demand forecasting models are a common tool, particularly for agencies that have the staff expertise to run such models. As an example, travel demand modeling techniques can be used to shape integrated land-use and transportation scenarios, especially in cases where the study focuses on environmental sustainability and multimodal accessibility. This form of planning uses alternative strategies that are tested against a forecast of future conditions extrapolated from past trends. Typically generating scenarios of anticipated system performance by combining one forecast of land development conditions (e.g., predicted numbers of jobs and households in a geography) with different packages of potential transportation improvements (e.g., adding more lane miles of roadways, increasing transit service coverage, or making no new capital investments).
2. Normative is a value driven process to build consensus toward a vision for a desired end state.
3. Exploratory is a tactical process to identify strategies for managing risks and leveraging opportunities to achieve long-term goals under a variety of different potential future conditions.

¹ National Capital Region Transportation Planning Board (August 11, 2021). *Scenario Planning Organizational Awareness and Understanding*. <https://www.mwcog.org/documents/2021/08/11/scenario-planning-organizational-awareness-and-understanding/>

Predictive scenario planning puts the focus on reacting to predicted future conditions, while normative and exploratory scenario planning emphasizes preparing for desired future conditions. Scenario analysts develop plausible descriptions of future conditions by combining assumptions about changes in external forces that are largely beyond the control of a single person or agency (e.g., socio-economic, technology, environmental trends) with potential actions or “levers” (e.g., infrastructure investments and public policies) that could be applied to influence outcomes (e.g., travel demand, transportation network characteristics, and land development patterns).

TPB'S ROLE AND KEY STAFF

With each update to the National Capital Region Transportation Plan, the TPB conducts a performance analysis of the planned future transportation system. When the analysis has yielded anticipated conditions that demonstrate insufficient outcomes or achievement of regional goals, the TPB has often conducted scenario planning. The TPB's scenario planning studies test future possible policy and investment strategies to enable decision-makers to reflect on future possible outcomes if they were adopted and implemented. Applying the most effective strategies, the TPB's members then take steps to plan, analyze, program, and implement based on local context and authority.

Three teams within the COG's Department of Transportation Planning (DTP) are typically involved in scenario planning work:

- The Plan Development and Coordination (PDC) Team, led by Lyn Erickson
- The Planning Data and Research (PDR) Team, led by Timothy Canan
- The Travel Forecasting & Emissions Analysis (TFEA) Team, led by Mark Moran

Table 25.1 lists some key staff who work in scenario planning. This table does not include past staff who have worked in this area.

TABLE 25.1: KEY STAFF

TPB Staff	Title	Role
Kanti Srikanth	Executive Director	Staff Director for the Transportation Planning Board (TPB)
Timothy Canan	Planning Data and Research Program Director	Program Lead
Lyn Erickson	Plan Development and Coordination Program Director	Program Lead
Mark Moran	Travel Forecasting and Emissions Analysis Program Director	Program Lead
Dusan Vuksan	Principal Transportation Engineer	Contributor
Sergio Ritacco	Senior Transportation Planner	Contributor

Leonardo Pineda II	Transportation Planner	Contributor
Erin Morrow	Transportation Engineer	Contributor

Strictly speaking, the TPB's air quality conformity analysis is an example of a scenario study (since it contains multiple network scenarios for different analysis years), but that type of study is not typically what is meant when people use the term scenario study, since for that analysis, there is no "what if?" component. The term scenario study is typically used for studies where different possible future scenarios are being explored for possible adoption. Using this more constricted definition, recent scenario studies include:

- The Regional Electric Vehicle Infrastructure Implementation Strategy, which examined three future scenarios for developing public access charging for electric vehicles;²
- The Climate Change Mitigation Study of 2021, which analyzed the greenhouse gas (GHG) emissions potential of 10 scenarios; and
- The planning analyses conducted by the TPB's Long-Range Plan Task Force (LRPTF). One of the main studies from the LRPTF analyzed 10 different future scenarios ("initiatives"), such as an additional northern bridge crossing, capacity improvements in Metrorail's core capacity, and optimizing regional land use balances.³

A 2022 COG/TPB study summarized many recent scenario studies.⁴ More information about past scenario studies can be found later in this document.

The Unified Planning Work Program (UPWP) specifies the oversight committee for each COG/TPB work activity. Since scenario planning work is conducted by three COG/TPB teams (as noted above) and is a very broad term, there is no one committee or subcommittee that has oversight for scenario planning, but here are some committees that can have a role:

- TPB: The TPB will sometimes initiate scenario studies, but it usually delegates the technical work to a working committee, such as COG's Multi-Sector Working Group on Greenhouse Gas Emissions (MSWG),⁵ or the TPB Technical Committee.
- TPB Technical Committee: The TPB Technical Committee rarely initiates scenario studies, but it often provides review of the technical findings/studies before they go to the TPB.
- TPB Travel Forecasting Subcommittee (TFS): This subcommittee has an oversight role for the development of the regional travel demand forecasting methods. Since the TPB regional travel demand forecasting model is often used for scenario studies, the TFS has an indirect role in scenario planning studies, but it typically does not have a role in initiating such studies or choosing the scenarios to be studied.

² ICF and National Capital Region Transportation Planning Board (August 2024). *Regional Electric Vehicle Infrastructure Implementation Strategy Final Report*. <https://www.mwcog.org/documents/2024/09/04/regional-electric-vehicle-infrastructure-implementation-rev1-strategy-climate-energy-climate-change-electric-vehicles/>

³ ICF et al., (December 20, 2017). *An Assessment of Regional Initiatives for the National Capital Region: Technical Report on Phase II of the TPB Long-Range Plan Task Force*. <https://www.mwcog.org/documents/2017/12/20/long-range-plan-task-force-reports-projects-regional-transportation-priorities-plan-scenario-planning-tpb>

⁴ National Capital Region Transportation Planning Board (November 9, 2022). *A Summary of the TPB and COG Scenario Study Findings: Informing Planning for the Metropolitan Washington Region Draft Report*. <https://www.mwcog.org/events/2022/11/16/transportation-planning-board>

⁵ ICF International and Metropolitan Washington Council of Governments (January 31, 2016). *Multi-Sector Approach to Reducing Greenhouse Gas Emissions in the Metropolitan Washington Region Final Technical Report*. <https://www.mwcog.org/file.aspx?D=Uj%2fOvKporwCjlofmfR2gk7ay5EmB0b9a4UhR7cKKQig%3d&A=ITSigZNdO1uWwMHJVzfUV1WIPhZ9IDhMGqWIEQSf9CM%3d>

As scenario planning studies are often quite complex and require involvement of land use planners, transportation planners, and travel demand and emissions modelers, extensive coordination is necessary for studies to be considered successful. Depending on the study, the TPB Technical Committee, special study-specific working groups, and the TPB may be consulted on scenario land use and transportation assumptions, tools and methodology, and interpretations of findings. The oversight groups include staff from the three state DOTs, WMATA, TPB member jurisdictions, and other agencies, as needed.

ROLE OF KEY PLANNING AGENCIES

Although most TPB-led scenario planning activities require some collaboration with COG's Department of Community Planning Services (DCPS) and COG's Department of Environmental Programs (DEP), some scenario planning activities in which TPB staff participate are headed by staff from other COG departments.

For example, in December 2014, the TPB and the Metropolitan Washington Air Quality Committee (MWAQC) affirmed COG's adopted voluntary greenhouse gas reduction goal of 80 percent below 2005 levels by 2050,⁶ and committed staff and resources to support a multi-sector, multi-disciplinary professional working group to be convened by COG to:

- Identify viable, implementable local, regional, and state actions to reduce GHG emissions in four sectors (Energy, the Built Environment, Land Use, and Transportation) in accordance with the voluntarily adopted goals.
- Quantify the benefits, costs and implementation timeframes of these actions.
- Explore specific GHG emission reduction targets in each of the four sectors
- Jointly develop an action plan for the region.

In this case, in addition to the state DOTs, WMATA, and TPB member jurisdictions, other key regional planners representing the state air agencies and stakeholders provided overview and guidance to COG and TPB staff working on the project.⁷

PUBLIC ENGAGEMENT

All of the scenario planning reports are meant to serve as resources to address regional challenges, assist the region in accomplishing its goals, and determine the future transportation projects to fund and build. As public resources, these reports are available to the member agencies, jurisdictions, and the public to aid and inform decision-making for the Visualize 2050 regional transportation plan along with many other reports, studies, and tools.

During the actual scenario planning process for a specific study, members of the public have made comments during monthly Transportation Planning Board (TPB) meetings (in-person or via letter) on a variety of topics, ranging from scenario assumptions to technical tools. These comment

⁶ National Capital Region Transportation Planning Board (December 17, 2014). *TPB R10- 2015: Resolution on the Metropolitan Washington Council of Governments' Regional Multi-Sector Goals for Reducing Greenhouse Gases.* <https://www.mwcog.org/file.aspx?&A=N0RpyfkLR1A904KiCx0%2bhAVEs%2fYo7kI1bNCWYElt0HU%3d>

⁷ ICF and Metropolitan Washington Council of Governments (January 31, 2016). *Final Technical Report: Multi-Sector Approach to Reducing Greenhouse Gas Emissions in the Metropolitan Washington Region.* <https://www.mwcog.org/documents/2016/08/01/multi-sector-approach-to-reducing-greenhouse-gas-emissions-in-the-metropolitan-washington-region-final-technical-report/>

letters are considered by the TPB members when they are making recommendations and providing input related to the study.

During the project solicitation process for the plan, TPB staff advised project sponsors that project considerations included in Visualize 2050 were designed to evaluate how well the projects reflect the scenario findings and advance the TPB's policy framework. During Visualize 2050's public comment periods in 2023 and 2024, the TPB received several project-specific comments related to topics that have been analyzed in the scenario planning reports. These comments are also made in-person during monthly Transportation Planning Board (TPB) meetings or submitted virtually and summarized during these meetings.

At the TPB meeting held on September 18, 2024, some public comments caught the attention of a Board member and more information was requested on the TPB's ability to conduct another scenario for the air quality conformity analysis. TPB staff wrote a memo response that was shared with the TPB at their October 16, 2024, board meeting, under Item 5 – October Steering Committee and Director's Reports, explaining the difference between a scenario and the two options being analyzed for air quality conformity. This is an example of how public comment concerning scenario planning has been considered during the plan's development.

Another way the public is engaged is through the TPB Community Advisory Committee (CAC). The CAC is the main standing body for providing public input into the deliberations of the TPB, including those related to Scenario Planning. It is made up of over 20 members representing TPB member jurisdictions and represents a diverse array of backgrounds, interests, and perspectives. The CAC has focused on key regional transportation issues and offers comments to the TPB reflecting the diverse viewpoints on the committee. They have worked with the TPB to develop more user-friendly public information, like the TPB Scenario Planning Studies report discussed later in this chapter.

SCENARIO PLANNING STUDIES CONDUCTED BY THE TPB AND COG

The numerous scenario planning studies conducted by TPB and COG have examined many assumptions, scenarios, future factors and have tested strategies for their ability to achieve desired outcomes. The Summary of the TPB and COG Scenario Study Findings⁸ and Appendix⁹ report provides a summary and detailed findings analysis of TPB/COG's scenario planning efforts to date and provides a summary of findings that can be used to continue to advance planning in the region.

As the TPB plans for future updates to its regional transportation plan, these scenario findings can continue to inform regional planning as agencies make decisions about when, where, and how to invest in projects, programs, and policies, and how to coordinate these investments to benefit the region and prepare it to be successful in a range of possible futures.

This section and the Scenario Planning Studies report break down the different scenario planning considerations that were used to analyze the possible futures, such as, several facets of transportation: roadway, transit, bicycle, pedestrian, travel demand management (TDM), land use, legislation/policy and vehicle technology and fuels. Each study examined the potential impacts of various on-road transportation projects, programs, and policies, as well as vehicles technologies. These are referred to in this document as "strategies." Depending on how the study is designed, a strategy could be a single project, program, or policy, or a few similar projects, programs, and

⁸ National Capital Region Transportation Planning Board (2022). *A Summary of the TPB and COG Scenario Study Findings*. <https://visualize2050.org/wp-content/uploads/2023/01/TPB-Summary-of-Scenario-Study-Findings.pdf>

⁹ National Capital Region Transportation Planning Board (2022). *Appendix A: Detailed Findings Scenario Study Findings*. https://visualize2050.org/wp-content/uploads/2023/01/TPB-Detailed-Scenario-Study-Findings_Appendix-A.pdf

policies combined for analysis purposes. Table 25.2 shows the scenario studies and various topics considered in each study.

TABLE 25.2: TPB SCENARIO STUDIES SINCE 2006

Study	Year	Study Focus	Land Use	Roadway	Transit	Bike/ Pedestrian	Energy/ Built Environment	Legislation/ Policy
Regional Mobility and Accessibility Study: What If? (RMAS)	2006	Combination of land-use and transportation projects.	X					X
Regional Value Pricing Study (RVP)	2008	Extensive network of dynamically tolled lanes with BRT services.		X				X
What Would it Take? Scenario (WWIT)	2010	Strategies to reduce on-road GHG emissions (80% by 2050).	X	X	X	X	X	X
CLRP Aspirations Scenario Study	2016	Redistribute forecast jobs and housing to Activity Centers and near transit together with a network of variably priced lanes.	X	X	X	X	X	X
Multi-Sector Approach to Reducing Greenhouse Gas Emissions in the Metropolitan Washington Regional Final Technical Report (Multi-Sector Working Group)	2016	Contributions from on-road sector towards region's multi-sector 2050 GHG reduction goals (80% by 2050).	X	X	X	X	X	X
Long-Range Plan Task Force (LRPTF) Phase 1: From No-Build to All-Build	2017	Potential transportation system performance improvements from all projects in each TPB member's Comprehensive Plan.	X	X	X	X	X	X
Congestion Reduction Test (by 25 Percent Relative to 2030)	2017	Targeted congestion reduction through a package of pricing, policy and maximum highways and transit projects.		X	X			X

LRTPF Phase 2 Study: 10 Initiatives	2017	Potential of ten packages of integrated land use, transportation infrastructure and pricing strategies.	X	X	X	X	X	X
2030 Climate Energy and Action Plan - Risk and Vulnerability Analysis (CEAP CRVA)	2021	Contributions from transportation towards region's multi-sector 2030 GHG reduction goals.	X	X	X	X	X	X
Climate Change Mitigation Study of 2021 (CCMS)	2021	Transportation strategies to reduce on-road GHG emissions (50% by 2030 and 80% by 2050).	X	X	X	X	X	X
LRTP, 2022 Update: No Build Tests	2022	Impact of growth, highway projects and transit projects.	X	X	X			

SCENARIO CONSIDERATIONS FOR VISUALIZE 2050

On June 16, 2021, the TPB adopted Resolution R-19 2021, approving the inclusion of project submissions in the Air Quality Conformity Analysis for Visualize 2045. Included in that resolution was a mandate that the development of the next plan, Visualize 2050, “will include the consideration of multiple build scenarios and an analysis of each scenario’s impact on the region’s adopted goals and targets, including reduction of greenhouse gas emissions”.

In response, following the Visualize 2045 Update adopted by the TPB in 2022, TPB staff prepared the above-mentioned summary report and appendix on the analyses that COG and the TPB have conducted and presented them to guide member agencies in their review and submission of investment strategies, (i.e., project or technical inputs), for Visualize 2050. The TPB’s scenario studies documented in the referenced report explored various land-use, transportation, and policy strategies that would help advance its transportation, air quality, and climate goals, including equity. The analyzed scenarios range from representing incremental changes to the transportation system focused on one part of the region (e.g., what happens if the region builds a bridge) to a much larger in scale what-if scenarios (e.g., what happens if the region adds over 100 miles of rail in every part of the region).

During the Technical Inputs Solicitation (also known as a call for projects) for Visualize 2050, TPB staff advised sponsor agencies to consider the projects they have included in the current regional plan (Visualize 2045 update) and evaluate if these projects should still move forward based on the scenario findings and the priorities stated in the TPB policy framework. The scenarios were also available to inform future projects, programs, and policies to be implemented by the TPB’s member agencies.

The TPB recognizes that projects that have not proceeded through the local planning process, and projects that do not yet have funding reasonably expected by the plan horizon, cannot be included in the plan. A lot of planning takes place before a project is included in the region’s long-range transportation plan:

- Projects can take a long time – sometimes decades – to plan and develop, and the result can be different than the original project concept. Projects evolve based on local and regional priorities, public input, design and funding limitations, and advances in technology.
- Projects in the TPB’s long-range transportation plan are typically developed at the state and local levels. Each state, locality, the District of Columbia, and the Washington Metropolitan Area Transit Authority (WMATA) control their own funding stream.
- Each jurisdiction has its own system for moving projects forward. New major WMATA capital projects such as stations or transit lines are built by the jurisdictions that the projects are in—in coordination with WMATA.
- Within each state, projects may be pursued for a variety of reasons and may have multiple sponsors.

In closing, TPB’s scenario studies have informed member agencies of possible future outcomes given different applied strategies. Agencies reevaluated the projects and programs they would be able to undertake during the resubmission process in 2023/2024. The inputs they provided for Visualize 2050 aim to support TPB’s regional transportation goals.



Visualize 2050
Planning and
Programming Process

Financial Planning

Part 26 of 27



National Capital Region
Transportation Planning Board

December 2025

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OVERVIEW OF FINANCIAL PLANNING AND PROGRAMMING

The financial component of the National Capital Region's transportation planning process involves programming funding in the short-term via the Transportation Improvement Program (TIP) and outlining reasonably anticipated revenues and expenditures longer-term in the Metropolitan Transportation Plan (MTP) financial plan. Per federal regulation 23 USC 450.324, the MTP, in this case, Visualize 2050, shall include a financial plan that demonstrates how the adopted transportation plan can be implemented, by estimating costs and revenue sources that are reasonably expected to be available to adequately operate and maintain the highway and public transportation system. In this manner, the scope and contents of the MTP are financially constrained. Likewise, the TIP, in this case, the FY 2026-2029 TIP, per 23 USC 450.326, must demonstrate how the activities included can financially be implemented and indicate resources from public and private sources that are reasonably expected to be made available to carry out those activities.

These financial planning and programming exercises occur simultaneously during the technical input's solicitation and coordination with member agencies on anticipated short- and long-term revenues. In short, both the TIP and the MTP financial plans must be fiscally constrained, demonstrating how the activities and investments described will be funded for implementation.

About the Visualize 2050 Financial Plan

The Visualize 2050 financial plan includes estimates of the project costs and the revenue amounts reasonably expected to be available to implement the projects as well as operate and maintain the existing transportation system in year-of-expenditure dollars between 2026 and 2050. It was prepared by the TPB member jurisdiction and agency staff, working with the TPB staff. The forecasts and the assumptions were reviewed by a working committee and subsequently reported to and reviewed by the TPB Technical Committee.

The financial plan includes revenue, and expenditure estimates for the regional rail and bus transit system operated by the Washington Metropolitan Area Transit Authority (WMATA) and funded by member jurisdictions. The expenditure and revenue estimates for the WMATA transit system were developed with inputs from both WMATA and its members. Similarly, the financial plan includes expenditure and revenue estimates that were developed and reviewed for the commuter rail services and the local transit services, including planned light rail and streetcar projects.

About the FY 2026-2029 Transportation Improvement Program

Whereas Visualize 2050 includes planned investments from 2026 through 2050, the TIP reflects the activities programmed for funding in the first four years of the plan, fiscal years 2026-2029. Planned funding obligations are provided for these activities that have already secured funding. Obligation amounts are outlined by year and by funding source in the TIP. Once other Visualize 2050 projects or services attain funding, they too will be included in the TIP before work begins.

The federally required TIP provides the schedule for the next four years for obligating federal, state, and local funds for state and local transportation projects. The TIP represents an agency's intent to construct or implement projects and identifies the anticipated flow of federal funds and matching state or local contributions. TIP projects and programs include those that will have active implementation work in the first four years of the plan such as roadway and transit expansion or maintenance projects, and operational programs.

Following the plan and TIP approval, as project development continues, there is often a need to make changes, particularly to the funding amounts and sources programmed in the TIP. The TPB's Amendments and Administrative Modifications process, included in the next part of this document, explains the process for making major and minor changes.

Zero-Based Budgeting

Fundamental to the development of Visualize 2050 and the FY 2026-2029 TIP was a 'zero-based budgeting' (ZBB) exercise. As part of Resolution R19-2021, the TPB directed its staff to apply the concept of ZBB to the next plan update where all projects, including those in the current plan, must be resubmitted for consideration into the update. The only exceptions to this were for projects currently under construction or currently funded with federal, state, regional, local, or private funds.

The ZBB approach was determined to help focus efforts on projects that were in a developmental stage where the TPB goals and priorities could be effectively used to influence the scope of projects, including dropping them from further consideration if they did not meet TPB goals. The intent of the ZBB approach is to develop a list of projects for implementation by the member agencies that would better advance the TPB's regional goals and other policy priorities, and that would better reflect the findings from various scenario studies conducted by the TPB.

The ZBB exercise consisted of the following major milestones:

- Public Comment Period on projects in Visualize 2045 from February - November 2023
- Submission of Regionally Significant projects for Air Quality (RSAQ) by December 31, 2023
- Public Comment Period on RSAQ projects in March 2024
- Submission of Non-Regionally Significant (NRS) projects for Air Quality by August 2, 2024
- Completion of all remaining ZBB activities including member review of project mapping, titles, total costs, and TIP financial inputs by May 9, 2025

The ZBB exercise enabled Visualize 2050 and FY 2026-2029 TIP to provide a realistic picture of the region's future projects and programs with updated cost information.

TPB'S ROLE AND KEY STAFF

The TPB prepares plans and programs that the federal government must approve for federal-aid transportation funds to flow to the region. The TPB must demonstrate that Visualize 2050 and the FY 2026-2029 TIP are financially constrained. This means that the region must show it can reasonably anticipate revenues to cover the projects, programs, and policies listed in these documents.

Beyond federal requirements, as needs and opportunities arise, the TPB conducts studies and coordination activities to explore and inform possible revenue streams and funding strategies. Primary TPB staff involved in financial planning and programming are listed in Table 26.1.

TABLE 26.1: KEY STAFF

TPB Staff	Title	Role
Kanti Srikanth	Executive Director	Staff Director for the Transportation Planning Board (TPB)
Eric Randall	Transportation Engineer	Lead
Lyn Erickson	Chief Program Director	Contributor
Cristina Finch	Principal Transportation Planner	Contributor
Andrew Austin	Transportation Planner	Contributor
Pierre Gaunaurd	Transportation Planner	Contributor
Leonardo Pineda	Transportation Planner	Contributor
Sara Brown	Transportation Planner	Contributor
Marc Moser	Transportation Planner	Contributor

Role of TPB Subcommittees

The TPB Technical Committee reviews the financial analysis in the plan and program as part of its review of the Visualize 2050 plan and the TIP. The TPB Steering Committee maintains the TIP following its initial adoption by the Board by approving NRS amendments. TIP amendments are described in the next part, Amendments and Administrative Modifications, of this document.

ROLE OF KEY PLANNING AGENCIES

The financial plan's revenue and expenditure estimates were developed cooperatively by the departments of transportation (DOTs) of the District of Columbia, Maryland, and Virginia along with the local jurisdictions and transit agencies of the National Capital Region with assistance from TPB staff. Financial planning follows a two-pronged approach. At a strategic or overall planning level, planning agencies develop aggregate, long-term revenue and expenditure estimates through the horizon year of the regional transportation plan, 2050 for Visualize 2050. At a project and program level, agencies develop costs and funding sources for each project or program for those that have received funding and are being or will be implemented in the four-year TIP timeframe or are submitted for inclusion in the MTP for projects with future implementation dates and reasonably anticipated funding. TPB staff then assist planning agencies in reconciling the overall aggregate

estimates with the sum of the individual projects and programs to ensure financial constraint is demonstrated. Key planning agencies involved in financial planning and programming include TPB member agencies. More information about how these agencies contributed to financial planning and programming is provided in the following sections.

PUBLIC ENGAGEMENT

During Visualize 2050's development, the TPB held three public comment periods. Between February 2023 and November 2023, the public had the opportunity to provide input on the ZBB effort as agencies re-examined projects from Visualize 2045 and submitted projects for Visualize 2050. Agencies then considered this input during the project submission process. The second comment period took place throughout March 2024 with the focus on gathering feedback on the expenditures of anticipated revenue, specifically related to projects significant for the air quality conformity analysis.

Lastly, in late 2025, the public commented on the draft plan, which communicated the financial plan, including the anticipated revenues and expenditures in the form of a project and program list. The draft FY 2026-2029 Transportation Improvement Program was also available for public comment on planned obligations in the short-term. A TIP Forum, held during this last comment period in November 2025, allowed community members to learn more about the TIP and the upcoming transportation activities that will be funded during this timeframe.

HOW THE REGION OBTAINS FUNDING FOR TRANSPORTATION

Funding for transportation comes from multiple federal, state, local, toll, private and transit sources, with future revenue forecasts based on a complex set of assumptions regarding expected growth of each source over time. Historically, the major source of public revenues for transportation has been motor vehicle fuel taxes, though this proportion has decreased over time. Other significant sources of revenues for transportation are taxes on vehicle sales and registration, transfers from general tax revenues, tolls, transit fares, and property taxes, all of which are used to fund transportation at the different levels of government.

Distribution of Transportation Funding

Some sources of funds are based on formulas for distribution whereby the federal, state, or other level of government distributes or receives funding based on population, highway lane-miles, or other factors. Some funds are also allocated through competitive or discretionary funding programs through which proposed projects are ranked or graded based on various criteria, and the best-ranked projects receive funding. Multiple federal grants programs operate this way, as does the SMART SCALE system in Virginia. Finally, some funds are collected directly, including state motor fuel taxes, tolls, and transit fares, and are used by the cognizant transportation agency.

Ongoing Project Prioritization Efforts

While the TPB does not take part in project selection and project prioritization, the agencies submitting their projects have processes in place to make those determinations.

The District of Columbia (DDOT) notes in its long-range plan, moveDC, that its selection and prioritization process help to prioritize resource allocation and guiding decision-making, providing a standard framework for how to assess and select projects against organizational goals, and ensuring investments are in line with DDOT's mission and mayoral priorities.

Maryland (MDOT) requests annual prioritization letters from localities in the state. Additionally, during the development of Visualize 2050, MDOT began testing a project prioritization tool that in the future will score capital expansion projects using goals and measures.

The Virginia (VDOT) uses the SMART SCALE tool to select and prioritize projects in alignment with its long-range transportation plan, VTrans, to ensure the best use of its transportation funds. The tool scores projects based on several factors including safety, congestion mitigation, accessibility, environmental quality, economic development, and land use.

WMATA notes that their capital projects are prioritized based on their alignment with their strategic investments of safety, security, and reliability.

The agency efforts listed above are only part of the ways that they prioritize their project submissions for Visualize 2050. Projects are also selected using local comprehensive plans, neighborhood plans, project studies, and through public involvement activities.

DEVELOPING THE VISUALIZE 2050 FINANCIAL PLAN

Overall revenue and expenditure data for the financial plan were developed and synthesized DDOT, MDOT, VDOT, WMATA and other transit agencies, and by the local jurisdictions. DDOT provided all District of Columbia estimates. MDOT coordinated all the local jurisdiction and state inputs in Maryland and VDOT coordinated all the local jurisdiction and transit agency inputs in Virginia. WMATA provided forecasts of capital and operating expenditures for its regional Metrobus, Metrorail, and MetroAccess services, which were coordinated with the jurisdictions and agencies that fund those services.

Subsequently, as agencies select projects and programs for the TIP and Visualize 2050, the funding for and costs of those projects and programs are compared to the overall financial resources available. TPB staff review the projects and programs selected and assist the funding agency staff in reconciling overall projects with the sum of project and program costs to ensure reasonability and financial constraint.

The Visualize 2050 financial analysis covers both expenditures and revenues for a 25-year period from 2026 to 2050. Agencies used the Visualize 2045 National Capital Region Transportation Plan, the FY 2023-2026 TIP, and their latest capital investment programs and six-year improvement proposals as a starting point for expenditures and made appropriate adjustments to extend their forecasts for the 25-year period. Revenues were forecast based on historic funding trends and anticipated changes in federal, state, and local revenues. TPB staff distributed template spreadsheets to each agency and jurisdiction for their use in preparing the estimates of revenues and expenditures. Agencies that wished to utilize their own existing spreadsheets or models could do so and reported the information back to staff using the common spreadsheet format. In cases where agencies were unable to provide revenue and cost information, TPB staff conducted additional analysis to develop reasonable financial forecasts.

Forecasting Revenues

As per federal regulations, transportation revenue and expenditure estimates are shown in year-of-expenditure (YOE) dollars. Year-of-expenditure dollars were derived by applying an inflation factor to estimates in current dollars; future year dollars are therefore worth less than current year dollars in terms of their buying power.

For the near-term years, agencies already have estimated inflation rates and have converted their estimates of revenues and expenditures to YOE dollars, as part of their work to update their respective capital improvements programs. For the longer term, if agencies do not have their own long-term inflation rates, TPB staff recommended that year of expenditure dollars be calculated

using a long-term inflation rate of 2.4 percent, which is the most recent long-term inflation rate predicted in the forecast of the Congressional Budget Office.¹ Accordingly, a dollar in the year 2050 is anticipated to have purchasing power equivalent to \$0.57 in 2026; or conversely, a project that would cost \$10 million in year 2026 is anticipated to cost \$17.7 million in year 2050.

Revenues are broken down into five source categories (federal, state, local, private/other, and fares/tolls) and grouped under the three “state” level jurisdictions (District of Columbia, Suburban Maryland, and Northern Virginia) and a fourth “non-jurisdictional regional” level. The overall category of private/other is comprised of a variety of sources, including local jurisdiction general funds, anticipated private sector contributions, and general bonds issued by WMATA.

Regional “non-jurisdictional” revenues for WMATA include transit fares, federal grants, and other non-jurisdictional sources such as advertising and special event service revenues. Transit fare revenues for WMATA and the local transit systems include revenues from planned services. Revenue projections do not include projections of new sources that are not yet legislatively enabled but do assume a continuation of current sources including any that were recently established.

Planning Expenditures

Expenditures are derived from the investment details provided by sponsor agencies during their submission of technical inputs. For Visualize 2050, TPB staff first reviewed the RSAQ investments to gauge the reasonableness of the funding sources and total cost estimates. Next, staff reviewed the total cost estimates for NRS investments.

Projects were separated into three major categories: operations & maintenance, state of good repair, and system expansion. Expenditures were further categorized among four modes: highway, local transit, commuter rail, and WMATA support.

Each agency and jurisdiction were requested to provide year-by-year forecasts of their transportation revenues and expenditures through 2050. When necessary, the TPB staff converted expenditure dollar estimates between current and future years, for forecasts submitted by agencies that were not converted by the agencies themselves.

Project Development

Due to the nature of being a multi-state MPO, project selection and prioritization are left to the state DOTs and transit agencies at the TPB. Before submitting their projects for inclusion in the Visualize 2050 plan, as previously described, the sponsor agencies each have their own processes they undertake for project identification, selection, prioritization, and ultimately their development.

During the submission process, the TPB asked sponsor agencies to document how their projects align with federal planning factors, which are related to TPB goals and whether the project is an application of one of TPB’s priority strategies to achieve such goals.

As part of the Visualize 2050 update process, soon after TPB’s approval of the technical inputs solicitation and initiation of the first public comment period in February 2023, the TPB hosted three virtual facilitated listening sessions, one with each state and their respective agencies, in March 2023 to support the project input process for Visualize 2050. A recap of the meetings was provided to the TPB at their April 19, 2023 meeting.² The meeting materials can be found below:

¹ Congressional Budget Office (June 2019). 2019 Long Term Budget Outlook (Table A-2, page 54). <https://www.cbo.gov/system/files/2019-06/55331-LTBO-2.pdf>

² National Capital Region Transportation Planning Board Meeting (April 19, 2023). Item 9 – Listening Session Materials Shared. <https://www.mwcog.org/events/2023/4/19/transportation-planning-board/>

- Facilitated Listening Session – District of Columbia
<https://www.mwcog.org/events/2023/3/27/facilitated-listening-session-district-of-columbia/>
- Facilitated Listening Session – Maryland
<https://www.mwcog.org/events/2023/3/30/facilitated-listening-session-maryland/>
- Facilitated Listening Session – Virginia
<https://www.mwcog.org/events/2023/3/29/facilitated-listening-session-virginia/>

Additionally, agencies provided presentations to the TPB Access for All Advisory Committee on their project selection processes. Links to the meeting pages with meeting materials can be found below:

- District of Columbia – <https://www.mwcog.org/events/2023/6/26/access-for-all-advisory-committee/>
- Maryland, Virginia, and WMATA – <https://www.mwcog.org/events/2023/9/18/access-for-all-advisory-committee/>

A Closer Look at each State and WMATA

More details are provided below on the financial planning activities for Visualize 2050 for the District of Columbia, Maryland, Virginia, and WMATA.

District of Columbia

Over the near term, the District of Columbia's revenues forecasts rely on budget projections. For this financial analysis, DDOT used the approved 2023 budget and 2023-2028 Capital Improvement Plan. For the revenue forecast beyond 2028, DDOT assumed future escalations at the rate of general inflation.

DDOT developed projected revenues for highway, local transit, and WMATA needs, both capital and operating. The District's Highway Trust Fund revenue projections are anticipated to be available to match federal funds; these projected revenues to match federal funds represent about 17 percent of highway funds.

District of Columbia revenues available for WMATA and local transit – DC Streetcar and paratransit programs – include funds programmed for WMATA State of Good Repair capital investments. Revenues are projected into the future with a 2.4 percent annual growth rate due to the costs of upgrading aging systems and District policy statements that commit to funding transit capital projects and transit State of Good Repair.

For private and other revenues, there are assumptions of private spending for several projects in the MTP that will result in improved regional transportation infrastructure.

For expenditures, DDOT projects highway spending on significant capital projects from planned spending in the 2023-2028 Capital Improvement Plan with ongoing expenditures projected for significant projects based on past trends.

DDOT's forecasts for WMATA transit expenditures are based on estimates provided by WMATA through the financial plan process and by assumptions made for WMATA operating subsidies and capital needs by the region. This includes dedicated capital funding of \$178 million a year and \$50 million a year in match from the District for the extension of PRIIA through 2050.

Maryland

Highway expenditures in Maryland are made by both MDOT and by the local jurisdictions. Transit in Maryland is funded and operated either directly by MDOT (which includes the Maryland Transit Administration), which provides WMATA's funding, and which operates the commuter rail and

commuter bus service, or by the local jurisdictions themselves. Charles, Frederick, Montgomery and Prince George's Counties each fund and operate their own local transit services, with some state assistance.

The revenue numbers for Suburban Maryland reflect estimates for MDOT funding, including by the State Highway Administration, the Maryland Transportation Authority and the Maryland Transit Administration, and from the four counties in the TPB's planning area: Charles County, Frederick County, Montgomery County, and Prince George's County.

MDOT bases its overall revenue projections on the state's Consolidated Transportation Program (CTP) budget for the next few years, extrapolation of past trends, and assumptions about future increases for out years (2030-2050). For years 2030-2050, the numbers from MDOT imply an annual increase of approximately 5.0 percent in real terms for state funds, while federal fund projections are based on an average growth rate of 3.0 percent for highway and 2.33 percent for transit program funds. Long-term federal contributions continue to decrease from past financial assumptions. MDOT projections for WMATA include dedicated funding of \$167 million a year as well as matching funds \$50 million a year for continuation of funding for PRIIA through 2050.

Maryland jurisdictions also base their overall revenue projections on budget estimates over the next few years, extrapolation of past trends, and assumptions about future increases for more distant years

On the expenditure side, MDOT data and data from the four Suburban Maryland jurisdictions. MDOT and jurisdictions typically match their expenditures to the forecasted revenues available for each year.

Virginia

Most of the funding to construct, operate and maintain highways in Virginia is provided by the state, with significant funding for highway and transit also provided through regional revenues allocated by the Northern Virginia Transportation Authority (NVTA) and by the Northern Virginia Transportation Commission (NVTC), as well as local jurisdiction and private funding. Cities and towns as well as Arlington County have the responsibility to maintain and operate the roadway system with funding allocated to them by the state as well as local funding. Transit in Virginia is provided by WMATA, by the local jurisdictions, the Potomac and Rappahannock Transportation Commission (PRTC), and Virginia Railway Express (VRE), with the Virginia Department of Rail and Public Transportation (DRPT) providing state funding support.

Northern Virginia estimates of revenues and expenditures were developed cooperatively by VDOT, DRPT, NVTA, NVTC, local jurisdictions, and transit agencies. VDOT and DRPT developed estimates of federal and state revenues that would be available both statewide and to the Northern Virginia region. VDOT worked with local jurisdictions to identify their additional highway and transit funding needs, taking into account the state revenues available for highways and transit. VDOT and the jurisdictions also reviewed the WMATA financial projections.

VDOT coordinated the effort and provided revenue and expenditure information for the state, federal, and local jurisdiction data. Four different categories of projects and programs were evaluated: Highways/Bike & Pedestrian, Local Transit, Commuter Rail (VRE), and WMATA Virginia allocations, both operating and capital. For each, the revenues by source (federal, state, local, private/other, and fares/tolls) and expenditures by category (operations, state of good repair, and expansion) were identified. This data was used to complete the financial plan's summary table.

Northern Virginia revenues are derived from multiple federal, state, local, toll, private and transit sources, and future forecasts are based on a complex set of assumptions regarding expected escalations of each source. The six-year estimate of state revenues is based on the FY 2024-2029 Six-Year Financial Plan (SYFP) as well as the Six-Year Improvement Program (SYIP) adopted by the

Commonwealth Transportation Board (CTB) in June 2023. The official forecast of state revenues is prepared by the Department of Taxation. The state revenues include Motor Vehicle Sales and Use Tax, Motor Vehicle Fuels Tax, Licenses Fees, and State Sales and Use Tax. The average total state revenue growth for FY 2024-2029 is forecast at 2.67 percent. In the long term, state revenues are expected to grow by 2.2 percent annually, with a 2.0 percent annual growth in federal revenues.

Regional and local revenues include the dedicated NFTA funds. The NFTA funds are made up of a portion of the sales tax in Northern Virginia, a transit occupancy tax, and a grantors tax. A portion of the NFTA funds will go directly to WMATA under recent legislation, while the major portion of the NFTA funds is allocated by the NFTA through a competitive process; both are treated as local revenues in the financial analysis.

Expenditures include data from VDOT and the Northern Virginia agencies and jurisdictions. The expenditure data for the near term are derived from the latest annual budget and the six-year program data along with estimates in the TIP.

State funding for WMATA includes \$154 million in dedicated capital funding as well as \$50 million annually for matching the Passenger Rail Investment and Improvement Act (PRIIA) state of good repair funds, both annually through 2050. Much of WMATA's operating funding from Virginia as well as some capital funding comes from the local jurisdictions.

VRE costs are based on the approved state improvement program through 2020, with assumed growth of 2.5 percent growth in later years, while fares are expected to grow by three percent annually. Other local transit providers in Northern Virginia have their revenues and costs projected as well.

WMATA

WMATA's financial estimates were prepared based on WMATA's *FY2023 – FY2029 Capital Improvement Program* (CIP) and FY 2023 Budget, as well as a *10-Year Capital Plan*. The capital plan and CIP rely upon the dedicated funding committed by jurisdictions which are part of WMATA's Compact to maintain a continued state of good repair (SGR) as well as some funding to meet capacity expansion and new needs.

WMATA Operations Revenues and Expenditures

Forecasts for future operations and maintenance expenditures are limited by the three percent subsidy cap imposed by the enabling legislation for jurisdictional dedicated funding. Consistent with discussions with and assumptions by TPB and local, state, and regional partners, WMATA ridership and revenue forecasts assumed a "back-to-normal" status matching pre-COVID levels.

Metrobus subsidies are allocated to the local jurisdictions based on policies and a formula adopted by the WMATA Board of Directors. Costs for MetroAccess are assigned based on the rider's jurisdiction of residence.

WMATA Capital Revenues and Expenditures

The WMATA capital revenues forecast projected anticipated funding sources from the federal, state, and local governments including an extension of PRIIA and federal formula funds with matches at current funding levels, along with a contribution of dedicated funding of \$500 million annually from the District, Maryland, and Virginia.

Capital expenditures were based on WMATA's Capital Needs Inventory (CNI) through 2033. For future years the analysis assumed a two percent inflation rate for state of good repair. Additional modest capital funds are targets for system modernization and some capacity expansion and new needs to meet anticipated growth in ridership through 2050.

PROGRAMMING FUNDS IN THE TRANSPORTATION IMPROVEMENT PROGRAM

As mentioned earlier, the TIP for the National Capital Region is a four-year financial planning document that lays out the priority transportation investments that the agencies in the District of Columbia and the surrounding Maryland and Virginia counties plan to implement or begin implementing over the next four years. Essentially, it represents the implementation of the first four years of the MTP. The funding programmed in the TIP is developed from state and regional planning and programming activities that parallel those described in the last section.

The TPB develops the TIP in coordination with its member implementing agencies. While each state's process features their own variations, they all follow a similar model and share several key features, as illustrated in Figure 26.1 below. Each starts with the financial data from the capital and operational revenues and expenditures described previously. From that the agencies develop an annual budget and a six-year improvement program (SYIP).

FIGURE 26.1: PROCESS OF SIX-YEAR PROGRAMMING



The SYIP development process almost always includes public review and finishes with legislative approval. At the conclusion of the budgeting and programming process in each state, the projects are submitted to the TPB for inclusion in the regional TIP either as a part of its first adoption or by formal amendment.

District of Columbia

Every year, the mayor submits the draft Capital Improvements Plan (CIP) to the Council of the District of Columbia for approval. The CIP is a six-year program that includes all capital expenditures for the District, including transportation projects. The DC Council holds public hearings on the draft CIP, which it can amend based upon feedback from those hearings. The mayor and the council must approve the CIP for it to move forward.

Upon approval by the mayor and the council, the budget is adopted and transmitted to the president of the United States for submission to Congress for approval. Congress must approve the District's budget as part of one of the 12 annual federal appropriations bills. Once the budget and appropriations have been approved, the District DOT uses the CIP as a basis for developing a list of projects for inclusion in the TPB's TIP.

Maryland

The Maryland DOT develops the Draft Consolidated Transportation Program (CTP) on an annual cycle. The CTP is based on prioritized inputs provided by the Maryland state legislative delegation and individual counties. These local-identified transportation priorities are officially transmitted to MDOT in the form of annual "Priority Letters." Using the Priority Letters along with needs identified in the previous year, MDOT prepares the Draft CTP and takes it out to each county in a series of public meetings generally referred to as the MDOT secretary's "Annual Tour."

During the secretary's "Annual Tour," MDOT officials get feedback about the draft CTP from county and local officials, and from the public. The Tour occurs every Fall between September and November after the draft CTP is published. After considering the input received from local and

county officials during the Annual Tour, MDOT revises the CTP and submits it first to the Governor and then to the General Assembly for budget approval. Finally, MDOT uses the approved CTP as the basis for developing a list of projects for inclusion in the TPB's TIP.

Virginia

Every two years, the Virginia General Assembly approves the two-year (biennial) Appropriation Act, which contains all statewide funding, including transportation spending. The revenues in the act are based largely upon estimates provided in the governor's Budget Bill. The estimates for transportation revenues are prepared by the Department of Taxation and the Virginia Department of Transportation. The Appropriation Act generally allocates funding for broad transportation categories, not for individual projects, although the General Assembly sometimes earmarks funding for specific projects. After the first year of the biennial budget cycle is completed, the General Assembly has an opportunity to amend the budget.

Annually, the Commonwealth Transportation Board (CTB), which guides the work of the Virginia DOT much like a board of directors, develops the Six-Year Improvement Program (SYIP). This program allocates money for transportation projects that are proposed for study, development, or construction in the next six fiscal years based upon the two-year Appropriation Act approved by the General Assembly and anticipated revenues for the remaining years of the plan. In developing the SYIP, the CTB considers the priorities identified by VDOT from the State Highway Plan, as well as needs identified in VTrans and Northern Virginia's TransAction, and all projects earmarked by the General Assembly.

TransAction is a fiscally and geographically unconstrained plan. As such, inclusion of projects in TransAction does not represent a funding commitment. However, TransAction is the initial eligibility filter for projects that the Northern Virginia Transportation Authority (NVTA) can fund using its regional revenues. Candidate projects are evaluated through a consistent, data-driven project selection process. Approved projects are included in NVTA's Six Year Program, which is updated every two years.

Using the Six-Year Program as a basis for development, Virginia develops a list of Northern Virginia projects for inclusion in the TPB's TIP.

Washington Metropolitan Area Transit Authority (WMATA)

Projects programmed by the transit authority use funding from the federal government, and from state and local jurisdictions. WMATA capital needs inventory serves as the foundation for future capital programs and supports the development of a regional funding strategy for Metro. Capital needs are divided into two categories: 1) Performance needs, which include projects that maintain and replace assets on a regular life cycle basis in order to deliver the same level of service; and 2) Customer/Demand needs, which include projects that help meet growing ridership and improve the rider's experience.

Every year, WMATA's general manager submits an annual budget to the WMATA Board Finance, Administration, and Oversight (FAO) Committee. The proposed program may be revised by the committee and then reviewed and approved by the WMATA Board of Directors. The projects in this capital budget are then submitted for inclusion in the regional TIP.

TABLE 26.2: SOURCES FOR INPUTS TO THE FY 2026-2029 TIP

DDOT	MDOT	VDOT/DRPT	WMATA
FY 2026 Budget and FY 2026-2031 Capital Improvements Plan	FY 2025-2030 Consolidated Transportation Program	FY 2026-2031 Six-Year Improvement Program	FY 2026 Budget and FY 2026-2031 Capital Improvements Plan

Other Regional Agencies

Other agencies, such as the National Park Service, and some counties, cities and towns develop projects using federal funds outside the state or WMATA programming processes. These projects or programs are often included in the TIP via amendments. The adoption of a new TIP provides staff from the TPB and member agencies to review these records and deem whether they are suitable to remain in the new draft TIP. The TIP integrates projects proposed by state and local transportation agencies into a program consistent with the MTP.

TPB'S ROLE IN THE PROJECT SELECTION PROCESS

While much of the prioritization and selection process for projects and programs to be included in the TIP is done at the state level, the TPB plays several roles in the MTP and these two documents. These roles and actions continuously run in parallel to the region's three DOT's SYIP development cycles.

Technical Inputs Solicitation

The MTP and TIP update cycle begins with the TPB's approval of the Technical Inputs Solicitation (TIS). The TIS is made up of two elements: a Policy Guide and an Instructional Guide. The Instructional Guide is a very in-depth technical resource for use by the staff from implementing agencies who would be submitting data about the projects and programs.

In contrast, the Policy Guide is geared towards a much broader audience. It is intended to be a resource for decision-makers and their technical staff at the state and local levels, as well as the public and other stakeholders. The document steers member inputs for the planned roadway, transit, bicycle and pedestrian projects, maintenance and operational programs, and other policies that will become the foundation of each plan and TIP. Through it the TPB also asks that the region's implementing agencies consider a wide body of technical studies, public outreach, and regional policy decisions that the TPB has developed in coordination with many other planning entities. The TIS Policy Document for Visualize 2050 and the FY 2026-2029 TIP included a comprehensive inventory of these resources including the TBP Synthesized Policy Framework and the Summary of Scenario Studies Findings.

Specialized Priority Project Lists

Several subcommittees of the TPB develop lists of projects to champion for inclusion in the MTP and TIP. In the past, the Bicycle and Pedestrian Subcommittee has presented their list of priority projects to the TPB. Similarly, the Freight Subcommittee developed a list of highlighted projects and corridors that would enhance the movement of goods throughout the region. This list was presented to the TPB and was the subject of a discussion session at the TPB's Freight Forum. Other lists are also developed by the Regional Public Transportation Subcommittee and the Regional Transportation Resilience Subcommittee. The implementing agencies are encouraged to review these lists and consider which projects can be included in the next MTP and TIP cycle.

Direct Project Selection

The majority of federal transportation funding in the National Capital Region goes directly to the region's three DOTs. This includes two sources traditionally reserved for distribution by MPOs; the Congestion Mitigation and Air Quality Improvement Program (CMAQ) and the Regional Surface Transportation Program (RSTP). Due to the multi-jurisdictional nature of this region, the distribution and allocation authority for those two sources has been proportionally ceded to the District, Maryland, and Virginia. However, there are two federal funding programs for which the TPB plays a more direct role in terms of project selection: the Federal Highway Administration's (FHWA's)

Transportation Alternatives Set-Aside Program and the Federal Transit Administration's (FTA's) Section 5310 Enhanced Mobility of Seniors and Individuals with Disabilities Program.

TRANSPORTATION ALTERNATIVES SET ASIDE PROGRAM

The Transportation Alternatives (TA) Set Aside Program provides funds for small-scale projects such as pedestrian and bicycle facilities, trails, safe routes to school (SRTS) projects, community improvements, and environmental mitigation. These kinds of projects are considered "alternatives" to traditional highway construction.

Every year, the states in the region each receive an allocation under the federal TA Set Aside Program. While the TPB is not the direct recipient for these funds, it is responsible for selecting projects using sub-allocations of those funds for Suburban Maryland, Northern Virginia, and the District of Columbia. The TPB works with each state DOT to solicit applications for the program, assemble a panel of stakeholders to evaluate applications, and finally select projects based on available funding. Each implementing agency will program these funds in the TIP when those projects are ready for implementation.

SECTION 5310 – ENHANCED MOBILITY OF SENIORS AND INDIVIDUALS WITH DISABILITIES

The TPB is the designated recipient for the Federal Transit Administration's Enhanced Mobility of Seniors and Individuals with Disabilities Program (§ 5310) for the Washington DC-VA-MD urban area. As first established under MAP-21 and continued under the Infrastructure Investment and Jobs Act of 2021, § 5310 aims to "improve mobility for seniors and individuals with disabilities throughout the country by removing barriers to transportation services and expanding transportation mobility options available." The TPB solicits and reviews applications from independent agencies and selects which projects will be awarded funds. The TPB is responsible for programming these funds in the TIP.

Project and Program Inputs Process

Once the TPB approves the Technical Inputs Solicitation documents, implementing agencies begin providing the inputs for the projects and programs they wish to include in the MTP and TIP. This generally happens in three phases:

1. Submission of regionally significant projects to be included in the air quality conformity and performance analyses.
2. Submission of non-regionally significant projects and programs.
3. Submission of programming funds for projects and programs to be included in the TIP.

The input forms cover several topic areas including specification of limits, implementation timeline, overall cost and programming of various sources of funds, mapping, congestion management, and a battery of questions asking agencies to explain how they considered both federal planning factors and the regional policy guides detailed in the initial TIS document. Following each phase, TPB staff review the project and program records that have been submitted. This is where the TPB closes the feedback loop that began with the issuance of the TIS Policy Guide. TPB staff that are proficient in the technical details of the various subject areas are included in this review process to ascertain whether the responses provided by the implementing agencies are in good standing. Given time constraints, staff cannot reevaluate detailed quantitative analyses provided by the agencies, but if certain responses seem confusing or unexpected, staff will reach out to the submitting agencies to seek clarification.

STATE TRANSPORTATION IMPROVEMENT PROGRAMS AND THE TIP

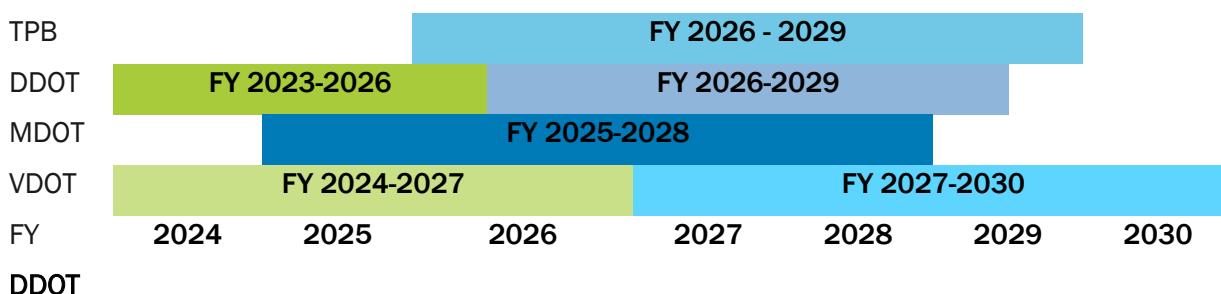
Much as the TPB is responsible for developing a TIP for the Metropolitan Washington region, the states and District must develop a Statewide Transportation Improvement Program, or STIP.

Once the TPB approves a metropolitan transportation plan update, a new TIP, and makes an air quality conformity determination, the documentation is provided to FHWA and FTA under the United States Department of Transportation (USDOT). USDOT transmits the documentation to the U.S. Environmental Protection Agency (EPA). The EPA reviews the air quality conformity analysis and, upon approval, transmits that approval to the FHWA and FTA. Then the two USDOT agencies issue a joint finding that the MTP and TIP meet all federal financial and environmental requirements, thus approving the plan.

The MTP and TIP, as they are produced by the TPB, do not actually get approved by any federal agency. Rather, once the conformity determination of the plan and TIP is made, each agency responsible for developing a STIP takes the tables from their respective sections of Appendix A the TIP and incorporates those into their STIP documents, which are then submitted to FHWA and FTA for approval.

By covering three jurisdictions, each with their own STIP, the National Capital Region faces a unique challenge in metropolitan planning. Much like in the six-year improvement planning processes, DDOT, MDOT, and VDOT all follow their own independent cycles and schedules. MDOT updates its STIP every year, whereas VDOT updates its STIP every three years. DDOT uses the TPB's TIP as the foundation for its STIP, and thus updates theirs every two years. These three cycles may only align once every six years. Even when they do align, a difference in scheduling of just a month or two can mean that MDOT and/or VDOT may be working with funding for a different set of fiscal years until their next state budgets are approved. Figure 26.2 shows the current relationship between the TPB's FY 2026- 2029 TIP and the region's three STIPs.

FIGURE 26.1: RELATIONSHIP BETWEEN FY 2026-2029 TIP AND STIPS



DDOT

In the District of Columbia, DDOT adds the tables for other agencies located within the District: WMATA, the TPB, and the Eastern Federal Lands Highway Division (EFLHD) of the FHWA and these become the programming element of DDOT's STIP. Typically, DDOT has developed its STIP in sync with the TPB's TIP. DDOT is presently still in the development phase of its FY 2026-2029 STIP which is scheduled to receive federal approval midway through FY 2026.

MDOT

Maryland develops its Statewide Transportation Improvement Program (STIP) by combining the MDOT State Highway Administration, MDOT Maryland Transit Administration, and the Maryland Transportation Authority's project funding tables, as well as the tables from Charles, Frederick, Montgomery, and Prince George's counties. That is then combined with the programming content

from six other MPOs across the state to develop its STIP. MDOT's FY 2025-2028 STIP was approved June 30, 2025. Because of the mismatched overlap, some of MDOT's projects may not show funding in the final year of the TIP.

VDOT/VDRPT

The Commonwealth of Virginia has two STIPs: VDOT's STIP includes highway and transit projects and programs that are under the purview of VDOT or any of its 16 independent counties, cities, or towns. The Virginia Department of Rail & Public Transportation (VDRPT) produces a separate TIP including projects and programs from itself, the Potomac & Rappahannock Transportation Commission (PRTC), Virginia Railway Express (VRE), and the Virginia Passenger Rail Authority (VPRA). Virginia's STIPs include the TPB's TIP plus those of 14 other MPOs throughout the Commonwealth.

Both VDOT and VDRPT's STIPs were federally approved in October 2023. Both agencies are currently in the development phase of their FY 2027-2030 STIPs. These are expected to receive federal approval in September of 2026. Until then, funding for some projects in VDOT's STIP will only show funding through FY 2027.

VDOT's FY 2021-2024 STIP was approved in September 2020. Their next STIP covering fiscal years 2024 through 2027 won't be approved until 2023. Until that time, much of VDOT's programming in the TPB's TIP may be limited to the first two years of the FY 2023-2026 TIP.

EXPLORING NEW FUNDING SOURCES

Additional transportation funding sources are constantly being explored given large forecast deficits to meet highway and transit funding needs. As new funding sources are identified or developed, they will inform future iterations of the MTP and TIP.

DMVMoves Explores Additional Funding

Regarding funding for the region's public transportation agencies, particularly Washington Metropolitan Area Transit Authority (WMATA or Metro), in May 2024 the WMATA and Metropolitan Washington Council of Governments (COG) boards came together in a special joint session to authorize the DMVMoves regional transit initiative, a joint effort to review transit funding and regional integration. A task force of elected and appointed officials from across the region was formed to coordinate the initiative. The task force was advised by two advisory groups, one of community group representatives and one of government representatives. The task force considered transit funding needs and scenarios for future costs to operate, maintain, and possibly expand the regional system.

Regional success for transit will require new revenues, and the task force considered potential revenue sources. The task force concluded its work in October 2025, calling for an additional \$460 million a year of capital funding for WMATA to modernize the region's transit system and expressing its support for a DMVMoves Plan for improving integration among the transit services in the region.

The COG and WMATA Boards of Directors endorsed the additional funding request and the DMVMoves Plan on November 17, 2025. If legislatively enacted, the increased funding would provide an additional \$24.3 billion through 2050, an increase of 48 percent above the \$50.8 billion of WMATA's capital expenditures in Visualize 2050. Following local and state action, new funding would be reflected in future Visualize plans.

Consideration of Additional Transportation Revenues Through Congestion Pricing

In the region and across the nation, there is considerable political and popular resistance to increased tolling and to the introduction of additional pricing mechanisms. In 2013, the TPB completed *A Study of the Public Acceptability of Congestion Pricing Through a Deliberative Dialogue with Residents of Metropolitan Washington*.³ The study found that participants agreed that congestion resonates as a critical problem facing the region, with significant personal impacts.

However, participants who said they wanted more transportation alternatives rarely connected the lack of those options to the lack of funding. Some expressed doubts about the reality or extent of funding problems while many lacked confidence in the government's ability to solve transportation problems even if enough funding was available. An additional finding was that participants were generally unaware of the details of how transportation is currently funded, including the fact that the federal gas tax had not been raised in nearly two decades and was not indexed to inflation.

Participants seemed to doubt inherently that congestion pricing would be effective in improving the region's transportation system. Therefore, framing pricing as an effective tool for addressing congestion problems and funding shortfalls did not seem to resonate with the public, despite the opportunity for facility tolling and congestion pricing in cordon or area-specific settings, including the use of variable and dynamic schemes. During the study discussion, participants showed more interest in congestion pricing if the pricing mechanism could effectively create specific and useful transportation alternatives. Participants suggested that congestion pricing could play a role in the future, but proposals would need to clearly indicate how revenues raised through congestion pricing would be used and how transparency and accountability would be ensured in the allocation of these funds.

Private Sector Funding Options

The express lanes projects in Virginia have received national recognition for their innovative use of private-public partnerships. There have been both strongly negative and strongly positive reactions to the role of private firms in building and managing tolled highway networks, even if only new capacity is provided. Even when tolling is done by the public sector, as in the case of the ICC, the Dulles Toll Road, and I-66 inside the Beltway, there is opposition to tolling. There is also opposition to perceived diversion of the funds when highway toll revenues are used to invest in transit capacity expansion, as is the case for the Silver Line. The conversion of free lanes to toll lanes would likely face much greater public opposition and be much more difficult than the leasing of current toll facilities or the implementation of new toll facilities on high-occupancy vehicle (HOV) lanes.

Implications from these current experiences suggest that pricing and public-private partnerships (those that involve tolling) will not be enough to fund significant surface transportation capacity, and that other sources of revenue will be needed. However, managed lanes with tolling may create an opportunity for private sector involvement in providing some financing of any potential project.

In the long-term, new financing mechanisms are important in view of the anticipated shift away from petroleum-based fuels toward new, broad-based user fees that are not dependent on fuel consumption but on the use of the system, e.g., mileage-based or vehicle-miles traveled (VMT)-based fees. For both political and technological reasons, their actual implementation is likely to lie in the medium-term future though significant efforts are underway to develop technological solutions.

³ National Capital Region Transportation Planning Board in partnership with the Brookings Institution (January 2013). *What Do People Think About Congestion Pricing?*. http://www1.mwcog.org/store/item.asp?PUBLICATION_ID=470

Phasing in of new transportation revenue exaction will be dependent on a variety of factors, including the needs for revenues, and the availability and attributes of the various revenue options, including the roles and required actions of various levels of government. However, if new revenues are ever to be developed, progress will need to be made in developing public and political support for such strategies.



**Visualize 2050
Planning and
Programming Process**

**Amendment and
Administration
Modification Procedures**

Part 27 of 27



National Capital Region
Transportation Planning Board

December 2025

AMENDMENT AND ADMINISTRATIVE MODIFICATION PROCEDURES

December 2025

ABOUT THE TPB

The National Capital Region Transportation Planning Board (TPB) is the federally designated metropolitan planning organization (MPO) for metropolitan Washington. It is responsible for developing and carrying out a continuing, cooperative, and comprehensive transportation planning process in the metropolitan area. Members of the TPB include representatives of the transportation agencies of the states of Maryland and Virginia and the District of Columbia, local governments, the Washington Metropolitan Area Transit Authority, the Maryland and Virginia General Assemblies, and nonvoting members from the Metropolitan Washington Airports Authority and federal agencies. The TPB is staffed by the Department of Transportation Planning at the Metropolitan Washington Council of Governments (COG).

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OVERVIEW OF PROCEDURES FOR REVISIONS TO THE METROPOLITAN TRANSPORTATION PLAN AND THE TRANSPORTATION IMPROVEMENT PROGRAM

The National Capital Region Transportation Planning Board (TPB) is responsible for approving the metropolitan transportation plan (MTP) and transportation improvement program (TIP) for the metropolitan Washington region. Once the MTP and the TIP have been determined to meet the financial constraint and air quality conformity requirements and are approved by the TPB, they become the Plan and TIP of record.

Due to the complex nature of proposing, studying, engineering, and constructing transportation projects, details of the various project phases are always in flux. As projects evolve, implementing agencies frequently need to request revisions to the TIP, and sometimes even to the MTP, between their regularly scheduled updates. Revisions could include cost, scope, or schedule changes. This document explains how the TPB ensures that the MTP and TIP remain financially constrained and continue to meet the air quality conformity requirements.

On January 16, 2008, the TPB adopted procedures for processing amendments to its MTP and TIP. All amendments required action by the TPB's Steering Committee and/or the full board and often required public review. In 2012, the passage of the Moving Ahead for Progress in the 21st Century Act (MAP-21) defined a new option for processing smaller scale revisions to the TIP through administrative modifications. These are minor changes to project or project phase costs, funding sources, and project or project phase initiation dates, and they do not require public review or comment. Exactly what counts as a "minor change" has been defined in a series of Memoranda of Understanding (MOUs) between the U.S. Department of Transportation (USDOT) and the region's three DOTs: the District of Columbia Department of Transportation (DDOT), the Maryland Department of Transportation (MDOT), and the Virginia Department of Transportation (VDOT). This has led to the development of the amendment and administrative modification procedures in this document that are regionally compatible but still tailored to each agency's needs. These procedures are in accordance with the USDOT planning regulations 23 CFR 450. These procedures are based on the most recently amended version by TPB Steering Committee Resolution SR 8-2020 on September 6, 2019.

According to 23 CFR 450.326: TIP Revisions and Relationship to the STIP, the regional TIP projects must be included without change in a federally approved state transportation improvement program (STIP) in order for them to receive federal funding. In the metropolitan Washington region, DDOT, MDOT, and VDOT each provide the project descriptions and funding information for the development of the regional TIP and MTP. Each DOT has adopted procedures for revising its STIP. When it becomes necessary for a DOT to revise project information in the STIP, its procedures must be consistent with the TPB procedures for revising its regional TIP.

Revisions to the MTP will, at a minimum, require action by the TPB Steering Committee and may ultimately require the establishment of an expensive and time-consuming off-cycle conformity analysis. As such, any revisions to the MTP will be considered on an individual basis and require significant advanced notice to TPB staff. In practice, most administrative modifications and amendments are made to the TPB's TIP. Accordingly, this document is primarily focused on updating projects and programs in the TIP.

TPB'S ROLE AND KEY STAFF

The TPB serves as the Metropolitan Planning Organization (MPO) for the National Capital Region and prepares the regional MTP and the TIP. The TPB's role is to revise these documents ensuring their consistency with regional goals and other local members' plans. Key staff involved with handling amendments and administrative modifications are noted in Table 27.1.

TABLE 27.1: KEY STAFF

TPB Staff	Title	Role
Kanti Srikanth	Executive Director	Staff Director for the Transportation Planning Board (TPB)
Andrew Austin	Transportation Planner	Lead
Lyn Erickson	Chief Program Director	Contributor
Cristina Finch	Principal Transportation Planner	Contributor
Sara Brown	Transportation Planner	Contributor
Marc Moser	Transportation Planner	Contributor

Once the TPB approves the MTP and the TIP, TPB staff will establish a schedule of alternating periods for processing amendments and administrative modifications each month. At the beginning of each period, staff will issue a call for amendments or administrative modifications via email, posted on the Project InfoTrak homepage/dashboard, and any other communication platforms in use at the time. TPB staff will assist staff from member agencies if there are any questions as to which type of action a proposed change would require.

Administrative modifications are reviewed by TPB staff. If the proposed actions are consistent with the criteria listed in the Defining Amendments, Administrative Modifications and Technical Corrections section, and the guidelines provided in the Establishing Financial Constraint section of this document then staff will process and approve the administrative modification request(s) on behalf of the Director.

For amendments, staff review the proposed revisions and prepare a resolution to approve the amendments to be considered by the TPB Steering Committee or the TPB itself, depending on the size and nature of the changes proposed, according to the guidelines provided in the Procedures section of the document. At the meeting where the amendments are slated for approval, TPB staff will be present to provide any notable comments during the discussion of the items prior to their approval. Following approval by the TPB or the Steering Committee, staff will transmit an officially approved version of the resolution and amendment to the relevant agencies.

Role of TPB Subcommittees

Each month, the TPB Steering Committee approves amendments to the TIP that are exempt from the air quality conformity requirement. The TPB Bylaws endow the Steering Committee with full authority to act on its behalf in the approval of amendments to the MTP and the TIP on non-regionally significant items. The phrase “non-regionally significant items” (and its inverse) is not the same as a project that may be considered “regionally significant” (or not) for the purposes of an air quality conformity analysis. As used in the TPB Bylaws, the term is subjective and multiple factors such as the scope and scale of the project and the additional amount of proposed funding may be considered.

ROLE OF KEY PLANNING AGENCIES

Key planning agencies include states, local jurisdictions, and transit agencies. The agencies’ role is to provide the TPB the details of their investment strategies for inclusion in the MTP or TIP and update their project or program information in the TPB’s Project InfoTrak database when there is an administrative modification or amendment.

For administrative modifications, the agencies will submit a request via email to the Staff Director for the TPB or their designee. For amendments, the agencies must submit a signed letter to the Chair of the TPB.

PUBLIC ENGAGEMENT

The TPB Public Participation Plan¹ guides TPB staff on public engagement. The Participation Plan states the TPB will conduct a Public Forum on the TIP with each new adoption of a TIP. TPB staff use this forum as an opportunity to educate community members on federal, regional, state, and local transportation funding. In accordance with the Participation Plan, the TPB holds a public comment period before approval of a newly updated TIP. If any agency requests an amendment to update its entire section of the TIP, this is akin to a new TIP update for that agency; thus, also requiring a 30-day public comment period.

For revisions that require amending the TIP without updating the conformity analysis, TPB staff will prepare a resolution with accompanying materials to describe the proposed revision(s) to be reviewed and approved by the TPB Steering Committee. The resolution(s) and accompanying materials are posted to the Steering Committee’s next upcoming meeting page one week prior to the meeting date. A subscription-based email is sent the same day that the materials have been posted.

The TPB Steering Committee generally meets on the first Friday of the month, unless pre-empted by a holiday. Steering Committee meetings are streamed live and recorded on YouTube, where the public is permitted to watch and listen. Following approval by the Steering Committee, the TPB will receive a report on the action at their next meeting, at which point any member or alternate may ask the board to review or reconsider any action taken by the Steering Committee. If no objection is raised, the action is considered final. The public has the opportunity to comment at all the TPB’s regular meetings.

Administrative modifications are handled by TPB staff and do not undergo public engagement. The administrative modification and amendment actions will be posted to the Public Project InfoTrak website after they have been approved.

¹ National Capital Region Transportation Planning Board (October 20, 2020). *Public Participation Plan*. <https://www.mwcog.org/documents/2020/10/21/tpb-participation-plan-outreach-public-comment-tpb>

In cases where the MTP is being amended to include new projects that require an update to the air quality conformity analysis, protocol for a standard update of the MTP is followed.

DEFINING AMENDMENTS, ADMINISTRATIVE MODIFICATIONS, AND TECHNICAL CORRECTIONS

Amendments

Amendments are any major changes to projects or programs included in the TIP that exceed the parameters for administrative modifications, as defined in the following section.

Administrative Modifications

Administrative modifications (also called “Modifications” or “Ad-Mods”) are minor changes to a project included in the TIP that do any one or more of the actions listed on the following page.

1. Revise a project or program description without changing the scope or conflicting with the environmental document;
2. Change the source of funds;
3. Change the lead agency for a project or program;
4. Split or combine individually listed projects/programs so long as schedule and scope are unchanged, and as long as the funding amounts stay within the guidelines in number seven (7), below;
5. Change required information for grouped project listings; or,
6. Add or delete component projects from project grouping records, so long as the funding amounts stay within the guidelines in number seven (7), below;
7. Revise the funding amount listed for a program or a project’s phases subject to the applicable definition of the funding limitations adopted by DDOT, MDOT, and VDOT/DRPT for their respective STIPs.
 - a. For projects to be included in the DDOT STIP, the additional funding is limited to 25% of the total project cost.
 - b. For projects to be included in the MDOT STIP, any change to funding amounts is limited based upon a sliding scale that varies by the total cost of the project as follows:
 - If the total project cost is less than \$3 million, a Modification shall be used for an increase or decrease in cost of up to 50% of the total project cost or \$1 million, whichever is less.
 - If the total project cost is greater than \$3 million but less than \$10 million, a Modification shall be used for an increase or decrease in cost up to 30% of the total project cost.
 - If the total project cost is greater than \$10 million, a Modification shall be used for an increase or decrease of cost up to 25% of the total project cost.
 - c. For projects to be included in the VDOT or DRPT’s STIP, the additional funding is limited based upon a sliding scale that varies by the funding source and total cost² listed for the project as follows:
 - For transit projects using Federal Transit Administration (FTA) funds:
 - If the Approved STIP total estimated project cost is \$2 million or less, a Modification shall be used for an increase of up to 100% of the total project cost.
 - If the project cost is greater than \$2 million but is \$10 million or less, a Modification shall be used for an increase of up to 50% of the total project cost.

- If the project cost is greater than \$10 million, a Modification shall be used for an increase of up to 25% of the total project cost
- For highway projects using Federal Highway Administration (FHWA) funds:
 - If the approved STIP total estimated project cost is \$2 million or less a Modification shall be used for an increase of up to 100% of the total project cost.
 - If the project cost is greater than \$2 million but is \$10 million or less, a Modification shall be used for an increase of up to 50% of the total project cost.
 - If the project cost is greater than \$10 million but is \$20 million or less, a Modification shall be used for an increase of up to 25% of the total project cost.
 - If the project cost is greater than \$20 million but is \$35 million or less, a Modification shall be used for an increase of up to 15% of the total project cost.
 - If the project cost is greater than \$35 million, a Modification shall be used for an increase of up to 10% of the total project cost

An administrative modification can be processed in accordance with these procedures provided that:

- It does not affect the air quality conformity determination;
- It does not impact financial constraint; and
- It does not require public review and comment.

Technical Corrections

- Technical corrections are minor changes that do not require federal approval. These corrections include typographical, grammatical, or syntactical errors that address, for example, an error in spelling, grammar, deletion of a redundant word or formatting that was inadvertently published. It does not include changes to funding amounts. Such changes are handled on a case-by-case basis through agreement between the state and federal agencies and coordinated with the MPOs as necessary.

ESTABLISHING FINANCIAL CONSTRAINT

One of the TPB's primary roles is to verify the financial constraint of the region's MTP and TIP. To do this, the TPB must have accurate estimates for all expenditures planned in the MTP and programmed in the TIP. With hundreds of records of projects and programs in the MTP and TIP and their planned expenditures, the Project InfoTrak database application is the primary tool that the TPB uses to meet this requirement.

As seen in the previous section, one of the most significant factors in determining whether a project or program revision can be processed by administrative modification is the change in total cost. Due to the variety of project and program types included in the MTP and TIP, there is no one-size-fits-all approach to determining the total cost of these records. For the purpose of determining total cost, the records in the Project InfoTrak have been sorted into three categories:

- Discrete Projects,
- Project Groupings
- Ongoing Programs

This section explains how those categories and other factors are used to define the total costs of projects and programs so that financial constraint can be verified when revisions are requested.

Defining Record Types and Calculating Total Cost

The three types of TIP records are defined in Table 27.2. For the purpose of amending or modifying the TIP, how the total costs for these record types are calculated is described in the following sections.

TABLE 27.2: RECORD TYPE DEFINITIONS

Discrete Projects	Project Groupings	Ongoing Programs
<p>Any capital activity that has:</p> <ul style="list-style-type: none">• A set scope of work,• At a specific location with determined limits• A finite project cost• Final year of completion• Typically program funds for<ul style="list-style-type: none">◦ planning & engineering,◦ right-of-way acquisition,◦ and construction phases.	<p>Multiple discrete projects (2 – 300+) that are:</p> <ul style="list-style-type: none">• Non-regionally significant (NRS) for air quality analysis• Sub-projects are similar in type, scope, or primary funding source.	<p>Operational or capital activities that are:</p> <ul style="list-style-type: none">• Non-regionally significant (NRS) for air quality analysis• Anticipated to continue indefinitely• Funded annually at or near the same level, typically adjusted to account for inflation.• Sub-projects may be listed individually on the Component Projects tab.

Total Cost for Discrete Projects

Ideally, discrete projects would move from the MTP into the TIP as a whole, all at once. Then any discrete project would be entirely in the MTP or entirely in the TIP.

However, sometimes agencies will advance one segment of a larger discrete MTP project into the TIP to begin programming it for construction. There may also be instances where an agency will begin studying, planning, preliminary engineering (PE) or even acquiring rights-of-way (ROW) for projects that aren't expected to begin construction until much later.

Whether in the MTP or in the TIP, the total project cost for any whole or partial discrete project record should cover the scope of work specifically described in the record's Agency Project Title, Project Type and Description including studies, planning, preliminary engineering, right-of-way acquisition, construction, utilities, and overhead or any other capital expenditures through the expected completion of the project. Break-out records for project segments should include the total projected cost for that segment only, using prior and/or future funding if necessary. Breakout records for any pre-construction phases should capture the projected cost of that entire phase (again using prior and/or future funding if necessary). This will then be considered the "total project cost" for those breakout phases or segments.

The TPB's Project InfoTrak database application automatically calculates the total cost for each TIP record by adding together three amounts:

- The sum of all funding in years prior to the current four years of the TIP (shown at the bottom of TIP tables as “Total Prior Costs” funding, (This should equal all prior actual obligations),
- The sum of all planned obligation funds programmed in the current four years of the TIP, and
- The sum of any reasonably anticipated funding that the implementing agency has scheduled beyond the final year of the TIP to complete a phase or full scope of work (shown at the bottom of TIP tables as “Total Future Cost”)

This calculated “Total Programmed” amount will serve as the “total cost” for that discrete TIP project record. Consistent with practices used in the MTP financial analysis, all funding should be provided in Year-of-Expenditure (YOE) dollars.

Total Cost for Project Groupings

Project Groupings are made up of multiple discrete projects, all with varying completion dates. Because there is no clear start or end year, it is not possible to define a reasonable finite total cost as is done with Discrete Projects. These groupings are essentially timeless, and so **the “total cost” for grouped project records is defined as the four-year program total of the TIP**. All prior funding will be removed, and no future funding should be entered.

To account for all expenditures in the MTP, ongoing programs should have one TIP record to cover the first four years, and one MTP record that reflects the cost of the program beyond the final year of the current TIP through the horizon year of the MTP.

Total Cost for Ongoing Programs

Ongoing programs are anticipated to continue indefinitely with annual expenses. This continuous nature makes calculating a finite “total cost” somewhat arbitrary. **For ongoing program records, the four-year program total will serve as the total program cost**. Funds shall be programmed in the four active years of the TIP only. All prior funding will be removed, and no future funding should be entered.

To account for all expenditures in the MTP, ongoing programs should have one TIP record to cover the first four years, and one MTP record that reflects the cost of the program beyond the final year of the current TIP through the horizon year of the MTP.

Total Cost for the TIP and MTP

Total cost is not calculated the same way for MTP records as it is for TIP records. Since no specific funding sources have been allocated to projects in the MTP, prospective revenues need only be “reasonably expected to be available.” The total cost for MTP records is a simple addition of the expected amounts of federal, state, local, regional, private, or other funding mechanisms listed. Yet, maintaining the total cost for MTP records as they relate to project records that have been advanced into the TIP is critical for maintaining financial constraint of the plan as well as the TIP. This section discusses how MTP records are eventually advanced, in whole or in part into the TIP, and how those related records are tracked.

Tracking TIP and MTP Records with Over-Arching Projects

A project segment or phase may be advanced into the TIP as an independent discrete project record, so long as there is no change to how the project is reflected in the most recently approved air quality conformity analysis and the action complies with all other federal requirements. Once phases or segments of a singular discrete MTP project record begin advancing into the TIP, keeping track of these multi-record projects becomes very important for maintaining financial constraint. The TPB’s Project InfoTrak system uses a type of super-record called an “Over-Arching

Project” or “OAP” record. Project IDs for these records start with “G” to keep track of all records associated with the original MTP project record.

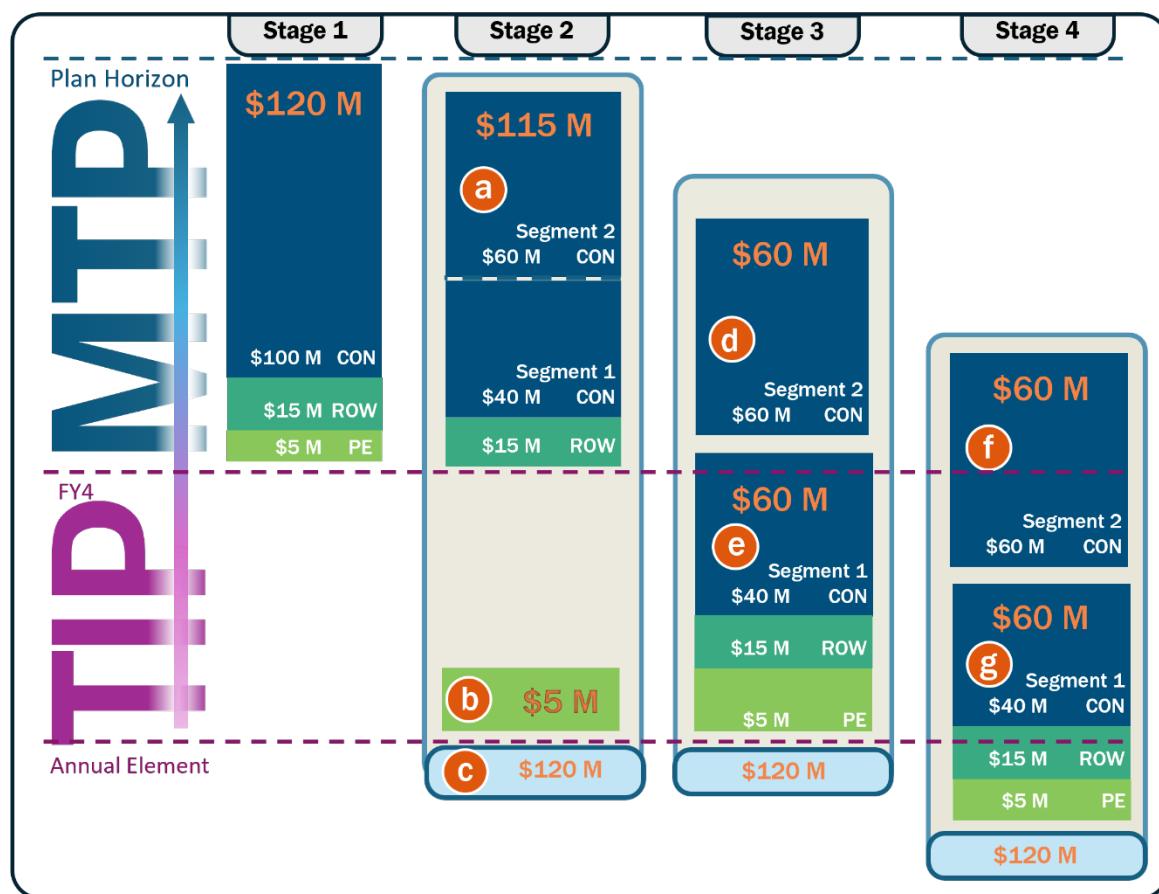
OAP records are useful for Project Grouping and Ongoing Program records as well. MTP records have been established as “companion” records for all Project Grouping and Ongoing Program records to account for the projected expenditures of those records throughout the plan year horizon.

Case Study: How a Discrete Project Advances from the MTP into the TIP

Figure 27.1 provides an illustration of the advancement process and record management requirements as a project first enters the MTP, and then how various segments and/or phases might be advanced for funding in the TIP as it progresses through subsequent MTP and TIP updates and amendments. Each of the four stages are explained in greater detail on the following pages.

The description of Stage 3 will explore the two most common scenarios that occur when amendments are made to the TIP and answers the question: when funding is added to a TIP record, where does it come from?

FIGURE 27.1: PROGRESSION OF AN MTP RECORD INTO A TIP RECORD



STAGE 1

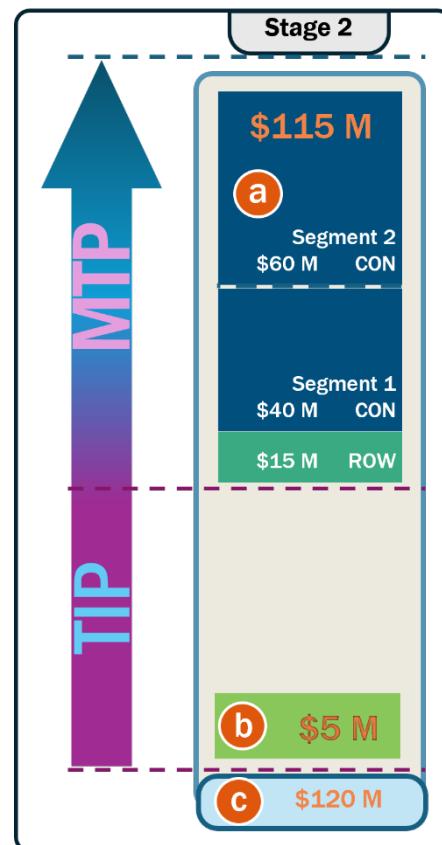
The process begins as a new project enters the MTP. The project is estimated to be complete by 2040, is regionally significant for air quality conformity analysis, and costs approximately \$120 million. A new

CE record is established with this information and with one conformity record with the entire scope complete in 2040. No funding is included in the TIP (FY 2026-2029 for this example).

STAGE 2

Two years later, the TPB is in the process of updating the TIP to cover fiscal years 2028 through 2031. The adoption of a new TIP requires an update to the air quality conformity analysis, so the TPB issues a call for updates to the projects included in the last analysis. Based on initial studies, the agency has decided to split completion of the project into two segments: one complete in 2033 and the second in 2040. When programming funds for the updated TIP, the agency advances the Planning & Engineering (PE) phase into the TIP with \$5 million. This project must now be accounted for with two records: an MTP record (a) and a TIP record (b).

- a) The original MTP record should now contain two conformity records with Segment 1 complete in 2033 and Segment 2 complete in 2040. The project description should be updated to indicate that it now only covers the right-of-way acquisition (ROW) and construction (CON) phases, and the total project cost should be adjusted to \$115 million to reflect the removal of the PE phase.
- b) The new TIP record should be created using the Duplicate Project tool found in the context menu that opens by clicking on the three vertical ellipsis dots (⋮) to the right of the Submit for Review button (see full instructions for duplicating records in the April 2025 Addendum to the Technical Inputs Solicitation document). The agency, project title, and description should be modified to indicate that this is a PE-only phase record. The project type should be changed to “Study/ Planning/Research” and any conformity records that copied over should be removed. Funding for the entire PE phase should be included on this record, even if that requires using “Future Funding”. The expected completion year should identify when the PE phase is expected to be complete – NOT when Segment 1 is slated for completion.
- c) Lastly, the agency should contact TPB staff to request that an OAP record be created to hold both project records.



STAGE 3

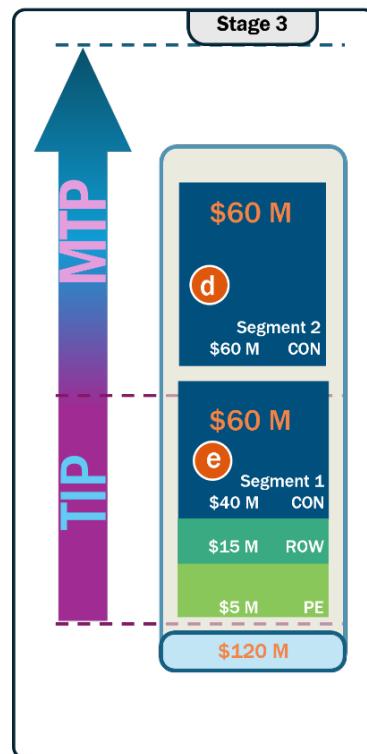
Several months later, the agency requests an amendment to the TIP to include funding for ROW and CON for Segment 1. Providing there are no changes to the conformity analysis in terms of scope or schedule, the amendment is permissible. When this happens, there is often a reckoning of previously made estimates for the costs of these phases or segments. This reckoning generally has one of two outcomes: Scenario A) the initial estimates were accurate within acceptable margins and no adjustments are necessary or Scenario B) the costs for one or more of the segments or phases were underestimated and a funding gap has been identified. In these scenarios, it can be useful to think of

the OAP collection as a closed system, in terms of funding. Sometimes funds flow entirely within the system, and other times additional funding needs to be added to the system.

Scenario A – In this scenario, no revisions to the cost estimates of the ROW or CON phases of Segment 1b are required. The combined cost of Segments 1 and 2 starts out as \$120 million. \$5 million moves into the TIP first, then another \$55 million, until eventually all \$120 million has been programmed in the TIP. Preparation of the amendment should follow steps d and e below.

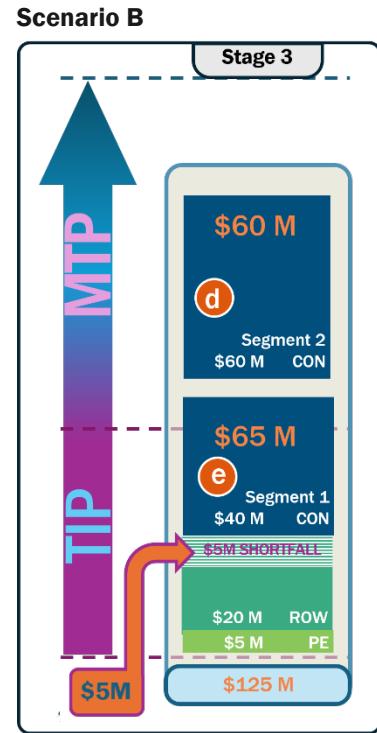
- d) The MTP record should again be adjusted as follows: the title, description, total cost, and map should be updated to reflect only the scope and cost of Segment 2. The conformity record for Segment 1 should be manually transferred from the MTP record to the existing TIP record previously designated as “PE Only” (please ask for TPB staff assistance with this).
- e) The title and description should be edited to remove any reference to “PE Only”. The record should be revised to reflect the full construction of Segment 1. The conformity record for Segment 1 should be included with this record (TPB staff will assist with this task). The expected completion year should be changed to 2033 and the Current Implementation Status field updated accordingly. When programming funds for ROW and CON, it is likely that some funding for CON will extend beyond the four-year span of the TIP. If construction is already being funded for Segment 1 in TIP year four (2031 in this example) or earlier, then the remaining CON funds should be assigned to 2032 or later to be shown as “Future Funding.” Depending on the alignment of the TPB’s TIP and the agency’s STIP, these funds may already be allocated and planned for obligation in those years, thus the TIP and STIP are in agreement.

Scenario A



Scenario B – A \$5 million shortfall has been identified in the ROW Acquisition phase and must be resolved before Segment 1 can begin construction. In this scenario, the \$5 million must come from outside of the OAP collection. The funds may come from a “donor” project that has come in under budget, from a project that has been delayed or cancelled, or possibly from a new funding source that wasn’t included in the financial analysis of the MTP and TIP. In this scenario:

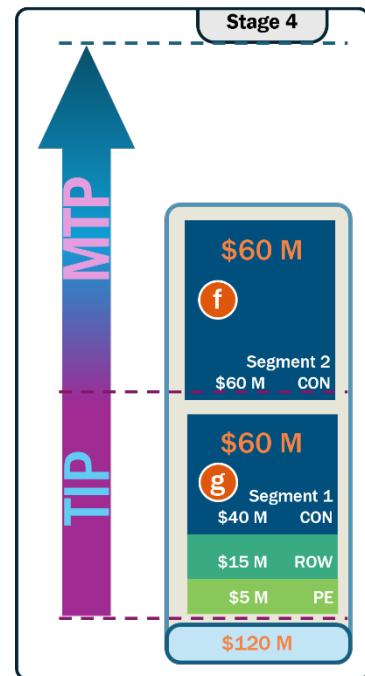
- There is no change to sub-steps d and e described above.
- When submitting the project for an amendment, the agency must declare in writing (via email or letter) what the source of the new external funds are.
 - For funding that is coming from other projects that were included in the conformity and financial analyses, this also means that the donor project records will need to be included in the amendment to show the reduction of funds.
 - Any newly identified funding source will need to provide documentation.



STAGE 4

In another couple of years, the TPB is once again updating the MTP and TIP. The new TIP will cover fiscal years 2030 through 2033. During development of the TIP, the agency advances Segment 2 of the project into the TIP, including funding for construction. Additional PE and ROW funding would likely be included with this new TIP record, but for simplicity's sake, it is shown only as CON funding. The following actions must be taken:

- f) The new TIP record should be created using the Duplicate Record method described in the addendum to the TPB Instructional Guide for Technical Inputs Solicitation document. The conformity record should be copied from the MTP record to the new TIP record. The Change Reason for the MTP record should be set to "Project Changed", and "Converted to TIP record" should be selected from the additional change details sub-menu. The agency can then save and submit the MTP record, and it will effectively be archived. The agency should not set the Change Reason to "Completed" or "Withdrawn." Since the original MTP record is being archived and CON funding is being programmed in the new TIP, the remaining CON funding required to complete construction of Segment 2 should be included on this record, using "Future Funding" years as necessary.
- g) Since the completion year for this segment as shown in the conformity analysis is now within the four-year span of the TIP, funding for completion of construction of Segment 1 must be fully programmed.



PROCEDURES FOR SUBMITTING AMENDMENT OR ADMINISTRATIVE MODIFICATION REQUESTS

TPB staff will publish a schedule that announces in advance when submissions for amendments and administrative modifications will be accepted and the associated due dates for data entry and submission of the requests. These dates are subject to change due to unforeseen circumstances, but staff will update the published schedule as far in advance as possible and make every effort to inform the implementing agencies of any such changes. Amendment and administrative modification submissions will not be accepted after the posted due dates, save for extenuating circumstances.

When it becomes necessary for an agency to revise the information for a project in the TIP, the agency will review the type of changes to the project and apply the above definitions to determine if it can be processed by the TPB as an administrative modification or an amendment. The DOT will then submit the project changes to the TPB and request that it take the appropriate action to approve either an administrative modification or an amendment.

Amendments

At the beginning of each amendment cycle, TPB staff will issue a Call for Amendments. Each agency requesting an MTP or TIP amendment must complete their data entry and submit a signed letter addressed to the Chair of the TPB by the specified deadline. The letter must:

- Identify why the amendment is being requested,
- Specify if any funds are being advanced and deducted from “Future Funding” (which would not change the total project cost), and
- Identify the source of any new funding that would increase the total project cost.

TPB staff will work with agency staff to determine whether that funding was included in the financial analysis of the most recently approved MTP and TIP. The requests will be reviewed by TPB staff and those that meet the definition of an amendment will be presented to the TPB Steering Committee. The Steering Committee will consider and be asked to approve amendments that are non-regionally significant.

Under the TPB Bylaws, the Steering Committee *“shall have the full authority to approve non-regionally significant items, and in such cases, it shall advise the TPB of its action.”* The Steering Committee will consider and place regionally significant amendments on the TPB agenda for consideration and approval after meeting the applicable USDOT planning regulations for Amendments. For agencies requesting an amendment to update its entire section of the TPB’s TIP, a 30-day public comment period is required. In such instances, agencies must provide TPB staff with notice at least 60 days in advance to ensure that the amendment can be given adequate time on the necessary agendas.

All TPB approved requests for MTP and TIP amendments will be forwarded to the requesting agency and recorded in Project InfoTrak. Upon receipt of the approved amendment, the requesting agency will transmit it to FHWA and/or FTA (depending on the funding sources involved) along with the request for federal approval of an amendment to its STIP.

Agencies may transmit their STIP amendment requests using either of two options:

- Directly from within Project InfoTrak

Requests sent via Project InfoTrak will alert the federal agency personnel responsible for review of that jurisdiction’s STIP that there is a pending amendment request and provide

them with a link to log into the system, review the request and approve it if deemed acceptable.

- Via email to the appropriate USDOT agency.

Requests sent via email should include courtesy copies sent to the Director of the Department of Transportation Planning of the Metropolitan Washington Council of Governments and any relevant TPB staff member(s). The DOT is also responsible for ensuring that TPB staff are kept apprised of any federal approvals so that they may be logged in Project InfoTrak.

After approval by FHWA and FTA, the amendment will be incorporated into the DOT's STIP.

Administrative Modifications

In accordance with the posted schedule, TPB staff will announce the opening of each period for accepting administrative modification requests. The TPB has delegated approval of MTP and TIP administrative modifications to the Staff Director of the TPB. Requests for MTP and TIP administrative modifications must be submitted via email to the Staff Director or their designee. In the administrative modification request, the submitting agency must explain the following information:

- Why an administrative modification is needed
- The source of any new funds that increase the project cost, and
- Why the action qualifies as an administrative modification, citing the definitions provided above and the agency's procedures and agreements with FHWA and FTA.

TPB staff will work with agency staff to determine if the funds were included in the most recent financial analysis of the MTP and TIP and if the request meets the definition of administrative modification will be approved and posted in the Project InfoTrak system. Approved MTP and TIP administrative modifications will be forwarded to the requested implementing agency for incorporation into its STIP with no federal action required.

Cumulative Administrative Modification Totals

Since administrative modifications are not reviewed and approved by FHWA or FTA, only initial TIP adoptions or subsequent amendments can provide those agencies with an official change in discrete project, project grouping, or ongoing program total cost. Therefore, when calculating the percentage increase in a total project cost across successive amendment administrative modification requests, the baseline total project cost will always refer to the total project cost most recently approved by adoption of, or amendment to the TIP. Once the threshold between an administrative modification and an amendment is reached, the next action taken must be by amendment, regardless of the size of the administrative modification request. This will prevent a situation where successive administrative modification requests would effectively bypass the intended limit to an increase of a project or program's cost.

DISPUTE RESOLUTION

If a question arises on the interpretation of the definition of an amendment, the TPB, the requesting DOT, FHWA and FTA (the parties) will consult with each other to resolve the question. If after consultation, the parties disagree on the definition of what constitutes an amendment, the final decision will rest with the FTA for transit projects and FHWA for highway projects.