National Capital Region
Transportation Planning Board

TRANSPORTATION PLANNING BOARD

Wednesday, November 16, 2022
12:00 P.M. - 2:00 P.M.
Walter A. Scheiber Board Room

Meeting in-person/hybrid for members

SPECIAL WORK SESSION

- **10:30 - 11:45 A.M.** Safety Roundtable with State Departments of Transportation

AGENDA

12:00 P.M. **1. PARTICIPATION PROCEDURES, MEMBER ROLL CALL, AND PUBLIC COMMENT OPPORTUNITY**
Pamela Sebesky, TPB Chair

Interested members of the public will be given the opportunity to make brief comments on transportation issues under consideration by the TPB. Any member of the public who wishes to address the board on the day of the meeting may do so by registering to attend and speak in person or by emailing a short statement to be relayed to the board at the meeting by noon on Tuesday, November 15, 2022. In-person comments will be limited to no more than three minutes. Written comments should be no more than 375 words. Please email TPBcomment@mwcog.org with the subject line "Item 1 Virtual Comment Opportunity" or call 202-962-3315 to register attendance or to provide the emailed statement.

12:15 P.M. **2. APPROVAL OF THE OCTOBER 19, 2022 MEETING MINUTES**
Pamela Sebesky, TPB Chair

12:20 P.M. **3. TECHNICAL COMMITTEE REPORT**
Matthew Arcieri, TPB Technical Committee Chair

12:25 P.M. **4. COMMUNITY ADVISORY COMMITTEE REPORT**
Ashley Hutson, CAC Chair

12:35 P.M. **5. STEERING COMMITTEE ACTIONS AND REPORT OF THE DIRECTOR**
Kanti Srikanth, TPB Staff Director

This agenda item includes Steering Committee actions, letters sent/received, and announcements and updates.

12:45 P.M. **6. CHAIRMAN'S REMARKS**
Pamela Sebesky, TPB Chair

INFORMATIONAL ITEMS

12:50 P.M. **7. SAFETY TOPICS**

Andrew Meese, TPB Program Director, Systems Performance Planning
Eric Randall, TPB Transportation Engineer
Janie Nham, TPB Transportation Planner

RECAP OF SAFETY WORK SESSION

A brief summary of the morning's work session will be provided.

PBPP: DRAFT TARGETS FOR TRANSIT SAFETY

The board will be briefed on draft regional targets for transit safety performance measures, including fatalities, injuries, safety events, and system reliability, as required under the federal performance based planning and programming (PBPP) rulemaking for public transportation providers and MPOs. The board will be asked to approve the regional targets at its December meeting.

PBPP: DRAFT TARGETS FOR HIGHWAY SAFETY

The board will be briefed on the proposed 2019-2023 targets for highway safety performance measures as part of federal PBPP requirements. The board will be asked to approve the regional targets at its December meeting.

1:10 P.M. **8. 2024 LONG-RANGE PLAN UPDATE**

Stacy Cook, TPB Transportation Planner

Ms. Cook will review considerations related to the 2024 plan update. This will include two key resources that will support the next Technical Inputs Solicitation: the draft synthesized policy framework, and the summary of scenario findings.

1:35 P.M. **9. WMATA BETTER BUS LISTENING SESSION**

Allison Davis, VP of Planning, Metro
Peter Cafiero, Managing Director of Intermodal Planning, Metro

The board will be briefed on the Better Bus Program and its initiatives, including the Network Redesign launched in October. Metro staff will provide a brief overview of Better Bus initiatives and current status, followed by a period of open discussion and active listening on members' ideas and priorities for a Better Bus system.

2:00 P.M. **10. ADJOURN**

The next meeting is scheduled to be all virtual on December 21, 2022.

MEETING VIDEO

Watch and listen to live video of TPB meetings and listen to the recorded video from past meetings at:
www.mwcog.org/TPBmtg

National Capital Region
Transportation Planning Board

MEMORANDUM

TO: Transportation Planning Board
FROM: Lyn Erickson, Plan Development and Coordination Program Director
SUBJECT: Public Comment for the November 2022 TPB Meeting
DATE: November 16, 2022

The Transportation Planning Board accepts public comment on a rolling basis. Comments can be submitted via email (tpbcomment@mwcog.org), online (mwcog.org/tpbcomment), and phone. Comments are collected until noon on the Tuesday before the TPB meeting. These comments are compiled and shared with the board at the meeting the following day.

Between the October 2022 TPB meeting and noon on Tuesday, November 15, 2022, the TPB received seven comments submitted via email with attached letters.

The comments are summarized below. All full comments are attached to this memo.

PUBLIC COMMENT

Tad Aburn – Letters via Email – November 14, 2022
Aburn, a former Maryland Department of the Environment representative on MWAQC, submitted a letter and attachments providing comment on the proposed District of Columbia bus maintenance facility project on Claybrick Road near Cheverly, Maryland. A copy of the remarks and attachments are attached.

Rick Rybeck – Email – November 14, 2022
Rybeck submitted an email providing comment on the 2024 long-range transportation plan update's financial plan assumptions. A copy of the remarks is attached.

Charlie Grymes – Email – November 14, 2022
Grymes submitted an email encouraging prioritization of pedestrian safety improvements. A copy of the remarks is attached.

Bethany Usher – Email – November 14, 2022
Usher submitted an email encouraging prioritization of various bicycle and pedestrian improvements. A copy of the remarks is attached.

Gem Bingol – Email – November 14, 2022
Bingol, from the Piedmont Environmental Council, submitted an email addressed to the Loudoun County representatives encouraging prioritization of pedestrian improvements. A copy of the remarks is attached.

Noble Smith – Email and Letter – November 14, 2022
Smith, a Faculty Assistant at UMD, submitted an email and letter providing comment on the proposed District of Columbia bus maintenance facility project on Claybrick Road near Cheverly, Maryland. A copy of the remarks and attachments are attached.

Sonya Breehey – Email – November 14, 2022
Breehey, from the Coalition for Smarter Growth, submitted an email addressed to the Fairfax County members encouraging prioritization of pedestrian improvements. A copy of the remarks is attached.

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39724 East Sun Drive, Unit 213
Fenwick Island, DE 19944
tadaburn@gmail.com
(443) 829-3652

November 14, 2022

Pamela Sebesky
Chair, MWCOG Transportation Planning Board
777 North Capitol St. N.E.
Suite 300
Washington, DC 20002

RE: More Detailed Letter of Concern for 11/16/22 TPB Meeting

Madame Chairman, Board members, thank you for providing the opportunity to provide public comment for the November 16, 2022 TPB meeting. This letter is the letter containing more detailed information mentioned in my short written public comments for the 11/16/22 TPB meeting.

My comments are on a critical issue now surfacing in the Washington, DC metropolitan area … racial inequity and transportation and environmental racism.

My name is Tad Aburn. Last month I was the Chair of the MWAQC Technical Advisory Committee. I was an MWAQC member for over 10 years. For almost 20 years I was the director of the air pollution program in Maryland. I am now retired and commenting today as a concerned, well-informed citizen.

The TPB has a long history of being a national leader on difficult issues like transportation racism. Your approach for addressing this issue in designing the metro is internationally recognized. I am asking you to continue to demonstrate your leadership as the issue of racial equity moves closer to the top of the transportation planning priority list.

As you meet today, the District of Columbia is planning to build a very large, very dirty bus maintenance and training facility next to and directly upwind of a small community of color located in the Cheverly and Seat Pleasant area of Prince George's County, Maryland. The facility will eventually help the region transition to electric buses and will provide significant environmental benefits to the residents of the region … the primarily

white residents of the region. Bus and vehicle electrification is a critical element of the region's transportation plan. The problem is that it is being done at the expense of a small, somewhat defenseless community of color. This is a classic case of government supported racial injustice … specifically environmental racism.

The proposed facility to be built on Claybrick Road, will result in significant air pollution during construction and operation that will be breathed by the residents living in the area. A few of the specific air pollutants that will be released as a result of the new facility include cancer causing pollutants like diesel particulate and benzene and airborne dust which is likely to contain deadly heavy metals and asbestos. To make things worse, because of ill-informed zoning and land-use decisions, this community of color is already overburdened by over 30 similar dirty facilities again located next to and directly upwind of where the residents breathe the air.

Simply stated, not one person on TPB would want to live next to or near the new DC Claybrick Road facility or the other dirty businesses located in the area. I ask you … why is it OK for the residents in a community of color to breathe that unhealthy air?

I recognize that this is a very difficult and sensitive issue. I am bringing it to the TPB because the Board and the region, in general, have historically demonstrated real national leadership on how to address this kind of difficult issue. As the past Chair of MWAQC TAC, I know that your MWAQC leadership has been asked to clarify MWAQC's policy on environmental racism and the emerging issue of regional projects that continue a legacy of dumping dirty businesses on communities of color. This is what is now happening because of the District's proposed Claybrick Road facility. According to the COG staff there are multiple other emerging situations similar to the Claybrick Road project, including one high profile project in the Ivy City community of color in the District of Columbia.

I am attaching three earlier letters on this topic. Attachment 1 is my letter to the COG Board of Directors. Attachment 2 is a November 9, 2022 letter from the University of Maryland's Community Engagement, Environmental Justice and Health (CEEJH) Center run by Dr. Sacoby Wilson. Attachment 3 is a November 9, 2022 CEEJH letter to MWAQC.

In closing, racial equity and environmental racism will be one of the most important issues that MWCOG will need to address over the next 10 years. I urge you to show real leadership, stop the Claybrick Road project and begin to work regionally to change the way that zoning and land use decisions are made. Unfortunately, it is now well

recognized that these outdated policies not only enable, but actually promote environmental racism.

Please do not hesitate to contact me. I look forward to the leadership I expect you to show on this very difficult issue.

George S. Aburn Jr.

Tad Aburn
Concerned Citizen
tadaburn@gmail.com
(443) 829-3652

Cc: TPB Members
Ted Dernoga, Prince George's County Council and MWAQC member
Kelly Crawford, Air Director, DC DOEE

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ATTACHMENT 1

November 7, 2022
Christain Dorsey
Chair, MWCOG Board of Directors
777 North Capitol St. N.E.
Suite 300
Washington, DC 20002

Chairman Dorsey:

Thank you for providing the opportunity to submit comments for consideration at the November 9, 2022 MWCOG Board meeting.

I am writing today to comment on a critical issue now surfacing in the Washington, DC metropolitan area … racial inequity.

My name is Tad Aburn. Last month I was the Chair of the MWAQC Technical Advisory Committee. For almost 20 years I was the director of the air pollution program in Maryland. I am now retired and commenting today as a concerned, well-informed citizen.

As you meet today, the District of Columbia is planning to build a very large, very dirty bus maintenance and training facility next to and directly upwind of a small community of color located in the Cheverly and Seat Pleasant area of Prince George's County, Maryland. The facility will eventually help the region transition to electric buses and will provide significant environmental benefits to the residents of the region … the primarily white residents of the region. The problem is that it is being done at the expense of a small, somewhat defenseless community of color. This is a classic case of government supported racial injustice … specifically environmental racism.

The proposed facility to be built on Claybrick Road, will result in significant air pollution during construction and operation that will be breathed by the residents living in the area. A few of the specific air pollutants that will be released as a result of the new facility include cancer causing pollutants like diesel particulate and benzene and airborne dust which is likely to contain deadly heavy metals and asbestos. To make

things worse, because of ill-informed zoning and land-use decisions, this community of color is already overburdened by over 30 similar dirty facilities again located next to and directly upwind of where the residents breathe the air.

Simply stated, not one person on the MWCOG Board would want to live next to or near the new DC Claybrick Road facility or the other dirty businesses located in the area. I ask you … why is it OK for the residents in a community of color to breathe that unhealthy air?

I recognize that this is a very difficult and sensitive issue. I am bringing it to the MWCOG Board because the Board and the region, in general, have historically demonstrated real national leadership on how to address this kind of difficult issue. As the past Chair of MWAQC TAC, I know that your MWAQC leadership has been asked to clarify MWAQC's policy on environmental racism and the emerging issue of regional projects that continue a legacy of dumping dirty businesses on communities of color. This is what is now happening because of the District's proposed Claybrick Road facility. According to the COG staff there are multiple other emerging situations similar to the Claybrick Road project, including one high profile project in the Ivy City community of color in the District of Columbia.

In closing, racial equity and environmental racism will be one of the most important issues that MWCOG will need to address over the next 10 years. I urge you to show real leadership, stop the Claybrick Road project and begin to work regionally to change the way that zoning and land use decisions are made. Unfortunately, it is now well recognized that these outdated policies not only enable, but actually promote environmental racism.

Please do not hesitate to contact me. I look forward to the leadership I expect you to show on this very difficult issue.

George S. Aburn Jr.

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Cc: Kate Stewart, MWCOG BOD Vice Chair
Charles Allen, MWCOG BOD, Second Vice Chair
Ted Dernoga, Prince George's County Council and MWAQC member

Koran Saines, Chair MWCOG CEEPC
Tara Failey, Chair, MWCOG AQPAC
Roger Thunell, Chair MWAQC TAC
Kelly Crawford, Air Director, DC DOEE

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Maryland Institute for Applied and Environmental Health

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Professor
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301.405.3136 TEL, 301.405.8397 FAX

Attachment 2

November 9, 2022

Christain Dorsey
Chair, MWCOG Board of Directors
777 North Capitol St. N.E.
Suite 300
Washington, DC 20002

Thank you for providing the opportunity to submit comments for consideration at the November 9, 2022 Board meeting. I am writing today to comment on the proposed maintenance yard for the DC Circulator to be located at 1201 Claybrick Road in Cheverly, Maryland. My name is Dr. Sacoby M. Wilson, Full Professor at the Maryland Institute for Applied Environmental Health, at the University of Maryland, School of Public Health. I am also the Director of the Center for Community Engagement, Environmental Justice, and Health. For the last 20 years, I have worked as an environmental health scientist in the areas of exposure science, environmental justice, environmental health disparities, community-based participatory research, water quality analysis, air pollution studies, built environment, industrial animal production, climate change, community resiliency, and sustainability. I work primarily in partnership with community-based organizations to study and address environmental justice and health issues and translate research to action.

As you meet today, the District of Columbia is planning to build a dirty bus maintenance and training facility next to and directly upwind of Cheverly and Seat Pleasant in Prince George's County, Maryland. These are communities of color who have long faced pollution burdens associated with environmental pathogen, which this proposed project will only contribute negatively to.

EPA EJSCREEN Report

Environmental justice screening and mapping (EJSM) tools are a prime example of a screening mechanism of cumulative impacts. An example of this is EPA EJSCREEN. **Figure 1** presents an EJSCREEN analysis of the 1-mile buffer ring directly surrounding the coordinates of the proposed project, which do not differ from the above mentioned analysis (EPA, 2021). Observed are elevated percentiles of diesel particulate matter, air toxics cancer risk, and respiratory hazard, relative to the rest of Maryland and the United States. Therefore, residents already face environmental and health burdens, presenting a baseline risk assessment for the community.

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EPA United States Environmental Protection Agency

EJScreen Report (Version 2.1)
1 mile Ring Centered at 38.907127,-76.907086
MARYLAND, EPA Region 3
Approximate Population: 14,204
Input Area (sq. miles): 3.14

Selected Variables	Percentile in State	Percentile in USA
Environmental Justice Indexes		
EJ Index for Particulate Matter 2.5	76	78
EJ Index for Ozone	48	84
EJ Index for Diesel Particulate Matter*	89	92
EJ Index for Air Toxics Cancer Risk*	76	88
EJ Index for Air Toxics Respiratory HI*	77	89
EJ Index for Traffic Proximity	75	87
EJ Index for Lead Paint	85	90
EJ Index for Superfund Proximity	87	91
EJ Index for RMP Facility Proximity	94	94
EJ Index for Hazardous Waste Proximity	77	93
EJ Index for Underground Storage Tanks	83	84
EJ Index for Wastewater Discharge	10	5

EJ Index for the Selected Area Compared to All People's Blockgroups in the State/US

Figure 1: EJSCREEN analysis of the 1-mile buffer ring surrounding the coordinates of the proposed project.

The Maryland Environmental Justice Screen Tool (MD EJSCREEN) is a state-specific EJSM tool that utilizes local data, is customized to local community concerns, and is useful for state, county-level, and municipal policymaking (Driver et al., 2019). It combined pollution burden and population characteristics to create an EJ Index. The overall MD EJSCREEN Index for Cheverly is 0.66, indicating that the town is an area of high environmental justice concern, when compared to the rest of Prince George's County (EJ Index = 0.58) and state of Maryland (EJ Index = 0.53). When assessing the individual domains, Cheverly had an extremely high exposure score (0.87) and environmental effect score (0.91), compared to county (0.59 and 0.49) and state (0.49 and 0.55) averages, respectively. Noticeably, the scores for sensitive populations and SES were low (0.42 and 0.44, respectively), compared to the County (0.51 and 0.73) and state (0.53 and 0.55) averages. The full breakdown of EJ Indices are revealed in **Figure 2**.

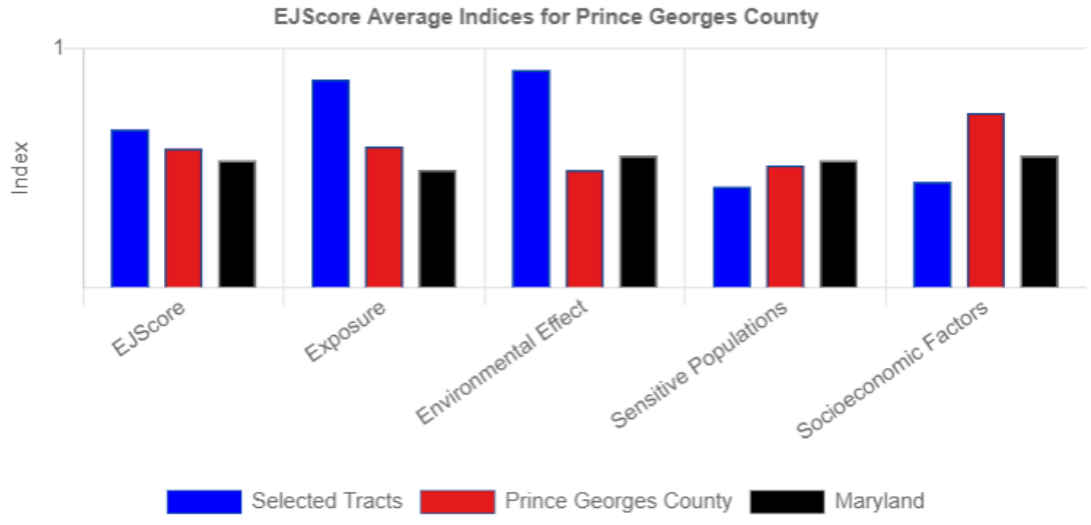

Figure 2: MD EJSCREEN Indices by domain for Cheverly, Maryland compared to Prince George's County, Maryland and the State of Maryland

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Air Quality Monitoring Results for Cheverly, Maryland

CEEJH has performed a comprehensive EJSCREEN analysis for the greater Cheverly, Maryland region as part of the hyperlocal Purple Air Monitoring Project that began in 2019, which is impacted by the proposed project on Claybrick Rd. This is an ongoing partnership, whose integral partners include: CEEJH, the Maryland Department of the Environment (MDE), and the Town of Cheverly (MDE, 2021). This analysis has been presented at various venues, from local community events to major regional conferences such as the University of Maryland's Annual Symposium on Environmental Justice and Health Disparities. Purple Air monitors (N = 23) were placed throughout Cheverly, including within 0.25 km of the proposed site, to assess concerns over air pollution related to local industrial activities and traffic. Moreover, we compared community-level data with PM2.5 measurements collected at MDE reference sites to assess whether Cheverly levels were consistently higher. PM2.5 levels of our hyperlocal network were generally higher than these national and regional trends. The overall averages (both raw and corrected values) for the Purple Air monitors that met our quality assurance protocols are shown in **Figure 3**.

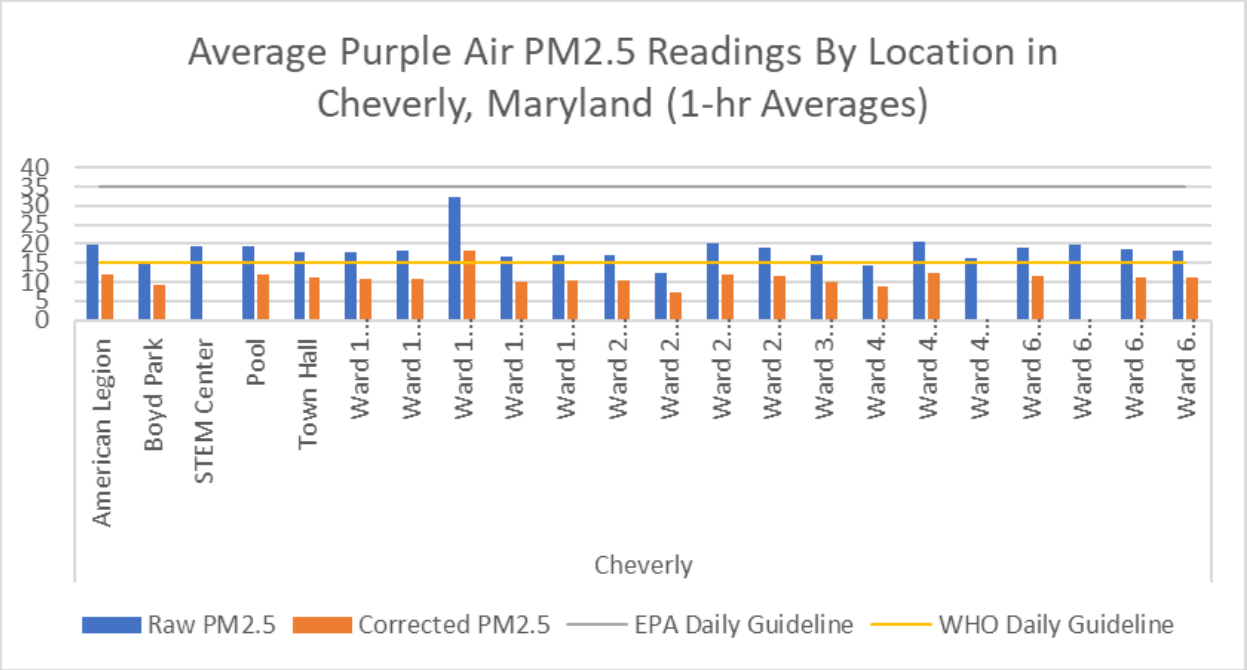

Figure 3: Comparison of Average Purple Air Readings to EPA (35 ug/m3) and WHO (15 ug/m3) Daily Guidelines

Additionally, the diurnal analysis found that the rush hours had statistically significantly higher PM2.5 levels than off-peak hours (**Figure 4**).

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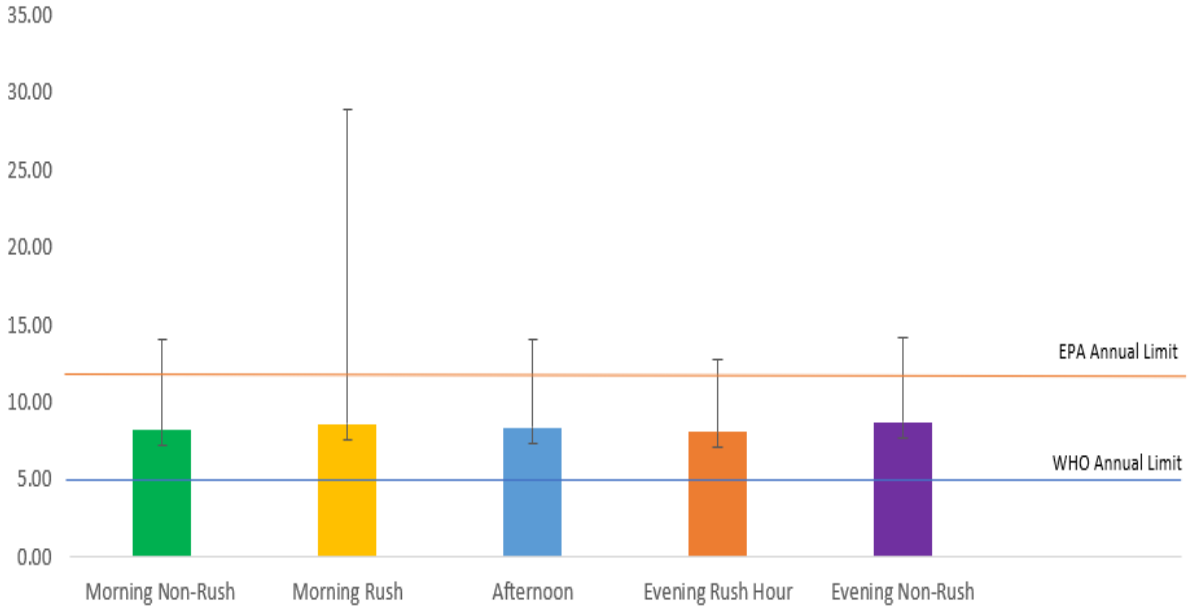

Figure 4. *Diurnal investigation of PM2.5 levels, divided into 5 time bins: morning non-rush (1:00-5:00am), morning rush (6:00-11:00 am), afternoon off-peak (12:00-2:00pm), evening rush (3:00-8:00pm), and evening off-peak (9:00pm-12:00am).*

Overall, the Cheverly study evidenced concerns that an increase in industrial activity will increase pollutant emissions to the atmosphere, and revealed spatial variations in PM2.5 levels in Cheverly that provide baseline information on residential exposure to PM2.5 associated with facilities and other local sources.

I would like to conclude with a definition of an emerging term in the environmental justice space: "environmental racism." Studies have linked environmental racism to disproportionate impacts of transportation projects, also known as "transportation racism" (Bullard et al., 2004). Plainly, the proposed project on Claybrick Rd will exacerbate the pollution burden nearby residents face and contribute towards environmental racism. I request you to refer to the definition coined by Dr. Benjamin Chavis, then director of the United Church of Christ's Commission for Racial Justice (CRJ), in response to the 1982 protests in Warren County, North Carolina (Mank, 2007). Environmental racism refers to "the intentional selection of communities of color for wastes disposal sites and polluting industrial facilities, essentially condemning them to contamination" (CSBSJU, n.d).

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ATTACHMENT 3

As Director of the Center for Community Engagement, Environmental Justice, and Health (CEEJH) located within the Maryland Institute for Applied Environmental Health at the University of Maryland School of Public Health, I, Dr. Sacoby Wilson, I am reaching out regarding the proposed maintenance yard for the DC Circulator to be located at 1201 Claybrook Road in Cheverly, Maryland.

Federal guidance from the EPA and DOT outlines the requirements of meaningful involvement and fair treatment throughout the regulatory decision making process. Meaningful involvement means that: (1) potentially affected community residents have an appropriate opportunity to participate in decisions about a proposed activity that will affect their environment and/or health; (2) the public contribution can influence the regulatory agency's decision; (3) the concerns of all participants involved will be considered in the decision making process; and (4) the decision makers seek out and facilitate the involvement of those potentially affected. Fair treatment requires no group of people, including a racial, ethnic or a socioeconomic group, to bear a disproportionate share of the negative environmental consequences from industrial, municipal and commercial operations or the execution of federal, state, local and tribal programs and policies (EPA, 2015) (Department of Transportation, 2017).

EPA EJSCREEN Report

Environmental justice screening and mapping (EJSM) tools are a prime example of a screening mechanism of cumulative impacts. An example of this is EPA EJSCREEN. **Figure 1** presents an EJSCREEN analysis of the 1-mile buffer ring directly surrounding the coordinates of the proposed project, which do not differ from the above mentioned analysis (EPA, 2021). Observed are elevated percentiles of diesel particulate matter, air toxics cancer risk, and respiratory hazard, relative to the rest of Maryland and the United States. Therefore, residents already face environmental and health burdens, presenting a baseline risk assessment for the community.

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EPA United States Environmental Protection Agency

EJScreen Report (Version 2.1)
1 mile Ring Centered at 38.907127,-76.907086
MARYLAND, EPA Region 3
Approximate Population: 14,204
Input Area (sq. miles): 3.14

Selected Variables	Percentile in State	Percentile in USA
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EJ Index for the Selected Area Compared to All People's Blockgroups in the State/US

Figure 1: EJSCREEN analysis of the 1-mile buffer ring surrounding the coordinates of the proposed project.

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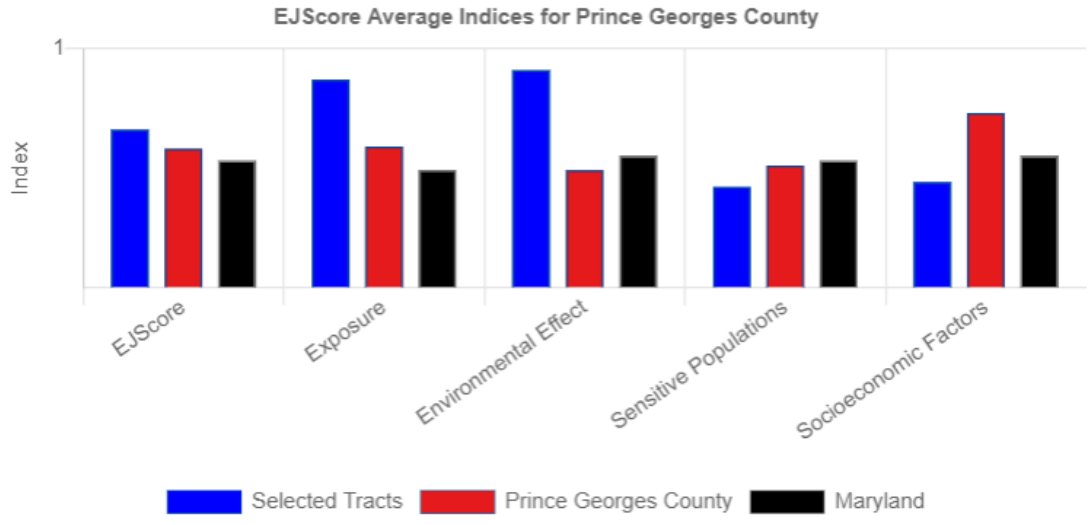

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Figure 2: MD EJSCREEN Indices by domain for Cheverly, Maryland compared to Prince George's County, Maryland and the State of Maryland

CEEJH has performed a comprehensive EJSCREEN analysis for the greater Cheverly, Maryland region as part of the hyperlocal Purple Air Monitoring Project that began in 2019, which is impacted by the proposed project on Claybrick Rd. This is an ongoing partnership, whose integral partners include: CEEJH, the Maryland Department of the Environment (MDE), and the Town of Cheverly (MDE, 2021). This analysis has been presented at various venues, from local community events to major regional conferences such as the University of Maryland's Annual Symposium on Environmental Justice and Health Disparities. Purple Air monitors (N = 23) were placed throughout Cheverly, including within 0.25 km of the proposed site, to assess concerns over air pollution related to local industrial activities and traffic. Moreover, we compared community-level data with PM2.5 measurements collected at MDE reference sites to assess whether Cheverly levels were consistently higher. PM2.5 levels of our hyperlocal network were generally higher than these national and regional trends. The overall averages (both raw and corrected values) for the Purple Air monitors that met our quality assurance protocols are shown in **Figure 3**.

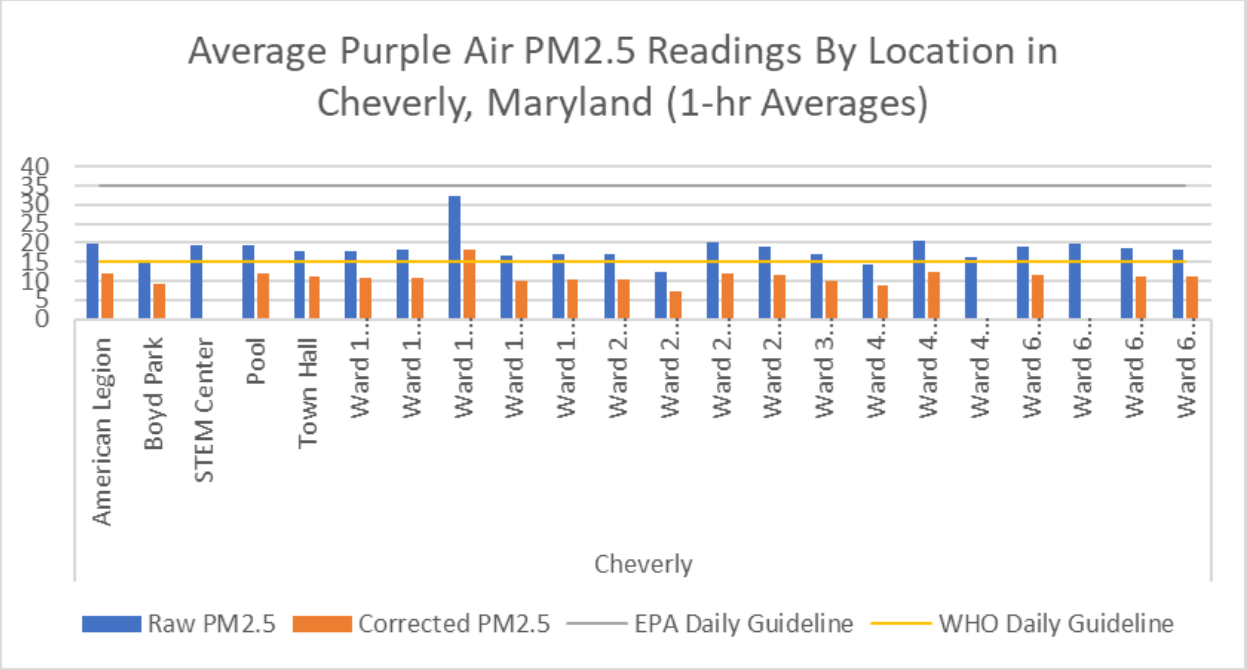

Figure 3: Comparison of Average Purple Air Readings to EPA (35 ug/m3) and WHO (15 ug/m3) Daily Guidelines

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I would like to conclude with a definition of an emerging term in the environmental justice space: "environmental racism." Studies have linked environmental racism to disproportionate impacts of transportation projects, also known as "transportation racism" (Bullard et al., 2004). Plainly, the proposed project on Claybrick Rd will exacerbate the pollution burden nearby residents face and contribute towards environmental racism. I request you to refer to the definition coined by Dr. Benjamin Chavis, then director of the United Church of Christ's Commission for Racial Justice (CRJ), in response to the 1982 protests in Warren County, North Carolina (Mank, 2007). Environmental racism refers to "the intentional selection of communities of color for wastes disposal sites and polluting industrial facilities, essentially condemning them to contamination" (CSBSJU, n.d).

TPB Public Comment

From: r.rybeck justeconomicsllc.com <r.rybeck@justeconomicsllc.com>
Sent: Monday, November 14, 2022 5:02 PM
To: TPBcomment
Subject: Public Comment, TPB Meeting November 16, 2022 re CLRP Update

Importance: High

Dear Sir or Madam,

Pursuant to the notice about the TPB meeting on November 16th, I am submitting a public comment. This comment is within the limit of 375 words. The comment is attached as a Word file and it is also pasted below. I will NOT be present at the meeting, so I would appreciate it if the comments attached could be provided to the TPB members and staff.

Thank you for your assistance.

Regards,

Rick Rybeck, Director
r.rybeck@justeconomicsllc.com

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2024 Long Range Plan Update: Resolving the Infrastructure Conundrum

The Transportation Planning Board (TPB) is embarking on the 2024 Long Range Plan Update. The plan update includes:

- Updated Financial Plan
- Review & re-submission of programs, policies & projects

To date, the TPB and its members have overlooked a policy to improve its financial plan and to more fully integrate transportation infrastructure investments with objectives for efficient land use and affordable housing.

We create infrastructure to facilitate development. But, when infrastructure is well-designed and implemented, it inflates the price of well-served land. This drives development (particularly affordable development) to cheaper but more remote sites. We then extend infrastructure to these remote developments only to have the cycle repeat. Thus, the infrastructure we create to facilitate development chases it away. We run after remote development with more infrastructure, but never catch up. The resulting sprawl is bad for the environment and for taxpayers who must fund duplication of expensive infrastructure systems.

The ability of private landowners to appropriate publicly-created land value is the fuel for land speculation – a parasitic activity that creates nothing of value, but which inflates land prices, particularly at prime sites served by transportation facilities and services.

Fortunately, some communities are resolving the infrastructure conundrum. They accomplish this by returning publicly-created land values to the agencies that created them. This is accomplished by reducing the property tax rate applied to privately-created building values while simultaneously increasing the tax rate applied to publicly-created land values. The lower rate applied to buildings makes them cheaper to construct, improve and maintain. (This is good for residents and for businesses.) Surprisingly, the higher rate applied to land values helps keep land prices down by reducing the profit from land speculation. Landowners pay in proportion to the infrastructure benefits they receive.

Without new spending or any loss of revenue, this tax shift can make both land and buildings more affordable. As a bonus, development is encouraged at high-value sites – typically infill sites served by infrastructure amenities. Increasing infill development reduces development at the urban fringe, curtailing sprawl. This is a win for the environment and taxpayers.

I would be happy to help TPB and TPB staff understand where this approach has been used and provide tips for successful implementation.

Sincerely,

Rick Rybeck, Director
Just Economics, LLC

TPB Public Comment

From: Charlie Grymes <cgrymes@gmail.com>
Sent: Tuesday, November 15, 2022 10:50 AM
To: TPBcomment; Victor Angry; Chair Ann Wheeler
Subject: TPB Special Work Session: Safety Roundtable with State Departments of Transportation

I encourage you to prioritize safety improvements on the roads and especially the intersections in Prince William County.

The fast exit/entrance ramps at I-66 and I-95 interchanges are literally killers, as we saw recently at Dumfries. The inability to walk underneath I-66 at Sudley Road isolates the Manassas campus of Northern Virginia Community College, unless people walk in traffic lanes.

Prince William County could mimic Prince George's County and initiate a Vision Zero program that is consistent with our pattern of development.

At the TPB meeting on Wednesday, I encourage you to ask for VDOT to put more emphasis on designing and redesigning roads, shared use paths, bike lanes and sidewalks for better safety.

- Charlie Grymes
Gainesville Magisterial District

TPB Public Comment

From: Bethany M Usher <bethany.usher@gmail.com>
Sent: Tuesday, November 15, 2022 11:11 AM
To: braddock@fairfaxcounty.gov; huntermill@fairfaxcounty.gov; TPBcomment
Cc: fabbboard@googlegroups.com
Subject: VDOT safety meeting

Dear Supervisors,

As a resident of Fairfax County, an employee of George Mason University, and a parent, I am very concerned about the safety of pedestrians and people riding bikes in Fairfax County, and how the infrastructure promotes the ease of driving over the safety of more vulnerable users. We've had too many people on foot or bike killed by drivers in this area in the past few years, and most of those deaths could have been prevented with infrastructure that prioritized the safety of people. I've been so concerned about this that I recently joined the Fairfax Alliance for Better Bicycling as a board member.

Some things that we should work with VDOT on-

- The maintenance of the existing bike paths and bikes lanes (paving, cleaning).
- Signaling that is available to pedestrians and bikers, and that gives advance/longer cycles specifically for users.
- Supporting safe routes to school- and making sure that every student who lives within ½ or 1 miles of a school can safely walk or ride by themselves to schools. This will reduce significant traffic, make communities stronger, and build infrastructure than can be linked in communities.
- Eliminating double right turn lanes and reducing the right-turns on red.
- Signaling for pedestrians at crosswalks that aren't at intersections (or where intersections are far apart).
- Sharpening corners and/or adding speed humps or other barriers at intersections between side roads and major road so that cars are required to slow and look before sailing through.
- Moving bike lanes inside of car parking (so the profile is sidewalk, bikelane, parking, driving lane), which uses the parked cars to create protected bike lanes, keep cars from dooring cyclists, and keeps cyclists away from fast moving cars. I HAVE NO IDEA WHY WE DON'T DO THIS!
- Building additional PROTECTED bike lanes (the unprotected ones on US 1 are unrideable) and off-road paths that connect communities to shopping, schools, and workplaces.

I'm a frequent driver, too, so I understand that some of these changes could cause frustration, but we have to value our communities first. Please continue to advocate for safer communities and transportation options.

Bethany M Usher
Ciara and Braylee Weets
Springfield, VA
Sent from my iThing-please excuse typos and odd autocorrections!

TPB Public Comment

From: Gem Bingol <gbingol@pecva.org>
Sent: Tuesday, November 15, 2022 11:16 AM
To: Matt Letourneau; Umstattd, Kristen; corinna.sigsbury@loudoun.gov
Cc: TPBcomment
Subject: Safety Improvement workshop & VDOT improvements for Loudoun

Dear Supervisors Letourneau and Umstattd,

I appreciate your reports on regional meetings, and hope that you'll be attending today's special TPB meeting on safety. As Metro service starts today in Loudoun (YAY!), safety concerns increase for pedestrians and cyclists who are trying to get to the Metro stations, and of course elsewhere around the county, too.

With more reasons for residents to choose active transportation modes these days, the regional increase in pedestrian fatalities is of great concern. We need to make our streets safer for those who do make that choice. Traffic calming is one way to address this challenging problem in Loudoun since we have built an auto-centric community, as well as ensuring that pedestrians have safe harbor when crossing wide streets, that street lights are properly timed for pedestrians, and sidewalks and multi-modal paths are ubiquitous.

I hope that you will encourage and work with VDOT to focus on this aspect of Loudoun's transportation challenges. The more that people can and do get out of their cars and use transit, the more important it is that our streets are safe for those of us who are not in vehicles.

Thank you,
Gem

Gem Bingol
Senior Land Use Field Representative-Loudoun
The Piedmont Environmental Council
gbingol@pecva.org
540-347-2334 ext. 7041
703-431-6941 (cell)

TPB Public Comment

From: Noble Smith <nsmith59@umd.edu>
Sent: Tuesday, November 15, 2022 11:36 AM
To: TPBcomment
Cc: George Aburn; Vivek Ravichandran; Sacoby Wilson
Subject: Item 1 Virtual Comment Opportunity - Written Comments on environmental and transportation justice
Attachments: WMCOG TPB Comments 11_15.docx

Good Morning,

I have attached comments prepared by CEEJH concerning environmental racism and the proposed claybrick rd facility in cheverly md.

Best,
Noble Smith

--
Noble E. Smith (he/him)
Faculty Assistant
Center for Community Engagement, Environmental Justice, and Health (CEEJH)
Maryland Institute for Applied Environmental Health
University of Maryland, College Park

Good Morning Chair,

My name is Noble Smith, Faculty Assistant at the Center for Community Engagement, Environmental Justice, and Health (CEEJH) located within the Maryland Institute for Applied Environmental Health at the University of Maryland School of Public Health, Under the guidance of CEEJH Director and Professor, Dr. Sacoby Wilson, I am reaching out regarding the proposed maintenance yard for the DC Circulator to be located at 1201 Claybrook Road in Cheverly, Maryland.

Cheverly, Maryland is a community overburdened by environmental pathogens and the proposed facility will only add to well-documented air quality concerns. It is vital for overburdened communities to benefit from the transition to cleaner fuels, rather than carry an increased energy burden. By doing so, the Washington metropolitan area can effectively scale Justice40 benefits, outlined by the Biden-Harris Administration, to the local level and achieve environmental justice.

EPA EJSCREEN Report

Figure 1 presents an EJSCREEN analysis of the 1-mile buffer ring directly surrounding the coordinates of the proposed project. Observed are elevated percentiles of diesel particulate matter, air toxics cancer risk, and respiratory hazard, relative to the rest of Maryland and the United States. Residents already face environmental and health burdens, presenting a baseline risk assessment for the community.

EPA United States Environmental Protection Agency

EJScreen Report (Version 2.1)

1 mile Ring Centered at 38.907127,-76.907086
MARYLAND, EPA Region 3
Approximate Population: 14,204
Input Area (sq. miles): 3.14

Selected Variables	Percentile in State	Percentile in USA
Environmental Justice Indexes		
EJ Index for Particulate Matter 2.5	76	78
EJ Index for Ozone	48	84
EJ Index for Diesel Particulate Matter*	89	92
EJ Index for Air Toxics Cancer Risk*	76	88
EJ Index for Air Toxics Respiratory HI*	77	89
EJ Index for Traffic Proximity	75	87
EJ Index for Lead Paint	85	90
EJ Index for Superfund Proximity	87	91
EJ Index for RMP Facility Proximity	94	94
EJ Index for Hazardous Waste Proximity	77	93
EJ Index for Underground Storage Tanks	83	84
EJ Index for Wastewater Discharge	10	5

EJ Index for the Selected Area Compared to All People's Blockgroups in the State/US

I request the board to refer to the definition of environmental racism coined by Dr. Benjamin Chavis, former director of the United Church of Christ's Commission for Racial Justice (CRJ), Environmental racism refers to “the intentional selection of communities of color for wastes disposal sites and polluting industrial facilities, essentially condemning them to contamination” (Mank, 2007). Environmental racism is linked to disproportionate impacts of transportation projects, also known as “transportation racism” (Bullard et al., 2004). Plainly, the proposed project on Claybrick Rd will exacerbate the pollution burden nearby residents face and contribute towards environmental racism.

References

Bullard, R. D., Johnson, G. S., & Torres, A. O. (Eds.). (2004). Highway robbery: Transportation racism & new routes to equity. South End Press.

Mank, B. (2007). Title VI and the Warren County protests. Golden Gate U. Envtl. LJ, 1, 73.

TPB Public Comment

From: Sonya Breehey <sonya@smartergrowth.net>
Sent: Tuesday, November 15, 2022 12:04 PM
To: James Walkinshaw; Alcorn, Walter L; Jeff McKay
Cc: TPBcomment
Subject: Safety Needs for Our Arterials

Supervisor Walkinshaw, Supervisor Alcorn, and Chairman McKay,

It's come to my attention that the Transportation Planning Board will be having a safety workshop tomorrow, Wed., Nov. 16 at 10:30 am. I hope you'll be able to attend and join the discussion on how our DOTs can do more to make our streets safer for all users, but especially for people walking and biking. Fairfax County has been great strides towards safer streets with its development of the ActiveFairfax Transportation Plan, creation of a Safe Streets for All program, and increasing funding allocated towards bike/ped improvements. But as you all know, pedestrian fatalities and serious injuries continue at an alarming rate. We need more aggressive action to save lives.

Of particular concern are our arterials where we see the highest crash rates. As I've advocated for safer walking and biking along transit corridors like Rt. 7 in Bailey's Crossroads and Route 1 in Alexandria, or near metro stations in Reston, Tysons, Huntington, and West Falls Church, I continue to see resistance from VDOT towards more innovative road designs and safety enhancements that are proven to make them safer. While I know they've been doing better, the pace of that positive change is much too slow to truly counter the epidemic in traffic fatalities we're experiencing.

- Slower design speeds are needed for our arterials. Where design changes may take too long, we should better utilize temporary solutions to reduce speeding and provide more visual cues to look out for pedestrians or cyclists.
- Visual cues can include high-visibility crosswalks and other paint on the road service and the use of plastic bollards. VDOT should explore these for higher-volume roads.
- Shift away from level of service for drivers towards safe streets for ALL users, even if that adds a few minutes of delay during peak rush hour
- More signalized crossing options are needed on higher-volume roads
- Speed feedback signs work and should be permanently deployed in high pedestrian areas.

If you haven't already seen this SGA video Why Safety and Speed are Incompatible, I encourage you to check it out.

Thanks for all that you do! Please let me know if you have any questions.

Best,
Sonya

--
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Coalition for Smarter Growth
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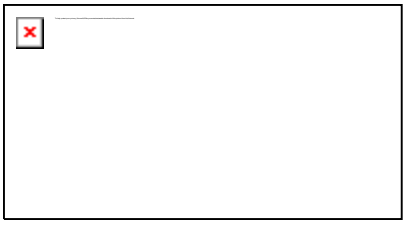
(202) 431-2924 *(cell)*



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TRANSPORTATION PLANNING BOARD
MEETING ATTENDEES
October 19, 2022

HYBRID MEETING

MEMBERS AND ALTERNATES PRESENT

Pamela Sebesky, Chair – Manassas
Charles Allen – DC Council
Christina Henderson – DC Council
Heather Edelman – DC Council
Lezlie Rupert – DDOT
Mark Rawlings - DDOT
Dan Emerine – DC Office of Planning
Mati Bazurto – Bowie
Jason Groth – Charles County
Mark Mishler – Frederick County
Kelly Russell – City of Frederick
Dennis Enslinger - Gaithersburg
Brian Lee – City of Laurel
Evan Glass – Montgomery County
Marc Elrich – Montgomery Executive
Victor Weissberg – Prince George's County Executive
Bridget Donnell Newton – Rockville
Kacy Kostiuk – Takoma Park
Marc Korman – Maryland House
R. Earl Lewis, Jr. – MDOT
Jeffrey Hirsch - MDOT
Canek Aguirre – Alexandria
Takis Karantonis – Arlington County
Dan Malouff – Arlington County
David Meyer – City of Fairfax
Walter Alcorn – Fairfax County - Legislative
David Snyder – Falls Church
Adam Shellenberger – Fauquier County
Kristen Umstattd – Loudoun County
Jeannette Rishell – Manassas Park
Victor Angry – Prince William County
Ann B. Wheeler – Prince William County
Maria Sinner – VDOT
William Cutter - VDOT
John Lynch – VDOT
David Reid – Virginia House
Sandra Jackson - FHWA
Allison Davis – WMATA
Mark Phillips – WMATA
Tammy Stidham - NPS

MWCOG STAFF AND OTHERS PRESENT

Kanti Srikanth
Chuck Bean
Lyn Erickson
Mark Moran
Tim Canan
Andrew Meese
Nick Ramfos
Paul DesJardin
Stacy Cook
Leo Pineda
Sergio Ritacco
John Swanson
Eric Randall
Jane Posey
Dusan Vuksan
Deborah Etheridge
Rebecca Schwartzman – DC Office of Planning
David Lorenzo-Botella – Montgomery County Legislative
Bill Pugh, Coalition for Smarter Growth
Stewart Schwartz, Coalition for Smarter Growth

1. PARTICIPATION PROCEDURES, MEMBER ROLL CALL, AND PUBLIC COMMENT OPPORTUNITY

Chair Sebesky called the hybrid meeting to order. She welcomed those members who were attending in person as well as those participating virtually. She described the procedures for conducting hybrid meetings.

Ms. Erickson conducted a roll call confirming those participants in the room and those attending remotely. Attendance for the meeting can be found on the first page of the minutes. She confirmed there was a quorum.

Chair Sebesky said this was the first time since the pandemic that public comment was being received in person.

Mr. Pugh from the Coalition for Smarter Growth said the accelerated long-range plan update should analyze alternative long-range plan packages in support of transit-oriented land use and housing. He said the update proposal from staff, which would be presented in Item 10, would essentially be an administrative update that would not be worthwhile. He said that more time should be provided if it is needed to accommodate a more comprehensive approach that will model the impacts of alternative scenarios.

Ms. Erickson said the TPB received two written comments, including a letter from Mr. Pugh that was consistent with his written statement. The TPB also received an email from Arlene Montemarano, which forwarded a letter that was signed by various state and local elected officials, directed to the U.S. Army Corps of Engineers and the Maryland Department of the Environment, to deny permits related to an application submitted by MDOT for the I-495/270 Phase 1 South toll lanes project.

2. APPROVAL OF THE OCTOBER 21, 2022 MEETING MINUTES

Mr. Karantonis made a motion to approve the minutes. The motion was seconded and was approved with two abstentions from Ms. Wheeler and Mr. Enslinger.

3. TECHNICAL COMMITTEE REPORT

Referring to the posted meeting summary, Mr. Groth, past chair of the Technical Committee, gave the report. Mr. Groth said he chaired the Technical Committee meeting on October 7.

Mr. Groth said the committee received briefings on informational items, including an update on the MOVES3 model and motor vehicle emission budgets, a briefing on a currently ongoing consultant evaluation of the TPB's public participation activities, and a briefing on the national electric vehicle infrastructure plans.

4. COMMUNITY ADVISORY COMMITTEE REPORT

Referring to the posted report, Ms. Hutson said the Community Advisory Committee met on October 13. She said this was a hybrid meeting and it provided the first opportunity since the pandemic for CAC members to meet face-to-face. She said the meeting featured a focus group with Lori Zeller and Charlie Echard from Foursquare Consulting who are conducting an evaluation of the TPB's public participation activities. The focus group was followed by an open discussion, led by John Swanson of TPB staff, that dug deeper into some key ideas. She said some key themes emerging from the discussion were identified in the committee report.

5. STEERING COMMITTEE ACTIONS AND REPORT OF THE DIRECTOR

Referring to the posted material, Mr. Srikanth said the Steering Committee met on October 7 and approved two TIP amendments. One amendment authorized funding for several projects in D.C. The other amendment updated the funding for the Neabsco Mills Road widening project in Virginia.

Mr. Srikanth said the letters packet included the submission of comments from the TPB to the federal docket on the U.S. Department of Transportation's proposal to add greenhouse gas reduction target setting as part of the MPO's performance-based planning and programming program. The packet also included letters of support for grant applications from D.C. and from Prince William County for the new federal Reconnecting Communities program. The packet also included a letter of support from the TPB for Loudoun County's application for a state grant for a transit ridership incentive program.

Mr. Srikanth said the announcements included a notice about the new fall Street Smart pedestrian and bicyclist safety program. He said the packet also included information about a planned work session, which will be held prior to the November board meeting, that will feature the safety officers from the three state DOTs. He also said the packet included information about the COG annual membership awards luncheon on December 14.

Mr. Srikanth shared some updates. He said that COG and the TPB have received a couple of federal grants. One is for approximately $125,000, with $25,000 provided by WMATA, to transition the Commuter Connections reach a ride tool to a one-call, one-click information and referral assistance tool. The second grant is for $325,000, with about $62,000 provided by the three state DOTs, to develop a pilot test of an open source, cross-platform mobile application where we could consider using vanpools that are already operating on the region, to also serve as on-demand transit.

Finally, he said that COG staff recently completed their greenhouse gas inventory work. He noted that the region has achieved its goal of reducing greenhouse gases by 20 percent below 2005 levels by 2020. He said the reductions were found to be 24 percent below 2005 levels. He noted that the goal for 2030 is a 50 percent reduction below 2005 levels.

Mr. Lewis spoke positively about the grant project for piloting existing vanpools for on-demand transit. He suggested it would be good if electric vehicles are used. He said he hoped there would be some federal funding to support recharging for minibuses or other types of vehicles for on-demand transit applications.

Mr. Srikanth noted that last year's TPB chair, Charles Allen had encouraged regional leaders to not simply work on rebuilding transit ridership, but also focus on improving the system to make it more responsive for transit-dependent population in particular. He said another item on the agenda, a transit equity study, was another example of work the TPB is doing along these lines.

Mr. Snyder expressed appreciation for the region's efforts on greenhouse gases and safety. He asked if Mr. Srikanth had any initial comments in response to the public speaker, Mr. Pugh, who expressed dissatisfaction with the proposed plan for developing the long-range plan update.

Mr. Srikanth said that Item 10 on the agenda would address this issue. He said he expected that the update of the long-range plan would be an item on the agendas in each of the coming months as well. He said that the staff proposal is consistent with the TPB resolution which called for the new update to "consider" the findings of previous scenario analyses and that the current staff proposal does provide for that. He also said that the staff proposal reflects another important element of the resolution which is to have the plan updated by the end of 2024. He said that updating the plan by end of 2024 has also become important for reasons associated with the time period covered by the plan. Speaking to the scenario analysis, he said that the TPB staff has conducted numerous scenario analyses over the last decade or more which have examined various strategies of advancing TPB's goals. He noted that a review of all of these recent scenario studies show a vast variety of strategies that have been examined and analyzed. He said that these studies have generated hundreds of pages of findings which Mr. Srikanth acknowledged is not easily accessible to members. He said that staff is currently working to summarize all of these findings into an easy-to-use summary document that members can use to inform their updates to the projects. Finally, responding to the suggestion that this update provides the TPB with the opportunity to do something different by conducting a scenario study, Mr. Srikanth noted that the board has always had that opportunity to respond to past scenario analyses with each update of the plan. He said that every time a scenario analysis has been done, dating back to the late 1970s, the intent was for the members of the TPB to use the findings to inform the projects they bring to the long-range plan.

Mr. Erenrich asked Mr. Srikanth to explain why the timing of 2024 is of the essence in conducting this two-year update.

Mr. Srikanth noted that the long-range plan was approved two months ago so it would seem that the federal rules would not require an update until 2026. The TPB, however, has called for the development of an update by 2024. Mr. Srikanth said that this acceleration is in fact fortuitous because the federal regulations require the plan at any given time to cover a minimum of 20 years. He noted that the current plan goes only to 2045, so starting 2025, the plan would no longer be in compliance with the 20-year federal requirement. Therefore, an update prior to 2026, with the plan's outyear of 2050, will be essential. He noted that this new outyear will coincide with the regional greenhouse gas goal year as well.

Mr. Srikanth further noted that before the TPB can adopt a plan update and receive a federal approval of its federal air quality conformity finding, new motor vehicle emissions budgets must be established. He said this is the responsibility of the Metropolitan Washington Air Quality Committee (MWAQC) and the state air quality agencies. He said that TPB staff is working with the air agencies to conduct that work in calendar year 2023 and to receive EPA approval in 2024, so that the updated long-range plan in 2024 will be able to use the new emissions budgets in the conformity analysis. He said that staff has just learned that this next conformity determination will need to be made for emissions budgets for two ozone standards – the 2008 and the 2015. He said that while staff had anticipated and prepared for working on the 2015 standards, staff will now need to revise the budgets that were set for the 2008 standards and also develop a new set of

emission budgets for the 2015 standard. He said this is twice the amount of work and staff will likely spend all of 2023 engaged in this work to be prepared for the 2024 plan update. He emphasized that it is important to stay focused on getting everything approved by December 2024.

6. CHAIR'S REMARKS

Chair Sebesky said she wanted to congratulate the region for achieving its greenhouse gas reduction goal for 2020. She said this finding affirms that the strategies in the transportation sector, which the board adopted, have the potential to further reduce greenhouse gases and help the region achieve its 2030 goals. She asked Kanti to include in the November TPB agenda a briefing on the COG greenhouse gas inventory report.

Chair Sebesky announced that contrary to previously announced plans, the November TPB meeting would be held as a hybrid meeting and the December meeting would be virtual. She asked staff to make this change, assuming there were no objections.

7. PBPP: FINAL 2022 – 2025 REGIONAL TARGETS FOR HIGHWAY SYSTEMS PERFORMANCE AND HIGHWAY ASSETS

Chair Sebesky called on Mr. Randall to review each set of the highway systems performance and highway assets targets and requested a board motion to adopt Resolution R3-2023 approving the performance targets.

Mr. Randall referred to the presentation materials and reported to the board that no comments were received on the draft highway pavement and bridge condition and travel time reliability targets shared with TPB member at their September 2022 meeting.

Mr. Randall announced that staff have prepared a web map that will portray bridge conditions. He provided the map link and said that pavement conditions will be added in the coming weeks.

Mr. Randall recommended that the board adopt Resolution R3-2023 to approve targets for the highway assets and for the highway travel time reliability for the Metropolitan Planning Region for the period 2022 to 2025.

Chair Sebesky called for a motion to adopt Resolution R3-2023.

Ms. Umstattd moved approval of Resolution R3-2023. The motion was seconded by Mr. Angry.

Mr. Erenrich asked Mr. Randall if local bridges are included in the total 1,400 bridges mentioned in the presentation.

Mr. Randall said that local bridges are not and that federal rules only apply to the National Highway System and bridges that are part of the National Highway System, including the interstates and major arteries proposed by each state DOT and adopted by Federal Highway Administration into the National Highway System.

Mr. Lee asked if the assets report covers bridges that cross the Washington statistical region and the Baltimore statistical region.

Mr. Randall said that data is taken from the national bridge inventory, which all state DOTs report to the Federal Highway Administration. He said that the TPB only looks at the bridges that are within the National Capital Region; however, Maryland DOT would report the information as part of the national bridge

inventory. He said that TPB staff can investigate whether the Baltimore Regional Transportation Board has a similar bridge inventory visualization.

Mr. Lewis said that he knows that the Infrastructure and Investment Jobs Act (IIJA) has programs that provide funding for local bridges separate from the federal system.

Mr. Karantonis asked what fair condition means in bridge ratings and when in the period of reporting are bridges that may deteriorate soon accounted for.

Mr. Randall said that additional information is available online through the Federal Highway Administration.

Mr. Randall said that bridge data is inventoried every two years, and bridges that are approaching structural deficiency are monitored more often. He stated that bridge data is collected every two years using a 10-point rating scale, and that "fair" is anywhere between four and seven on the rating scale, so the bridges are adequate, but they are not in "A" condition or brand new.

Mr. Karantonis said that advance notice on bridge condition is important as the Arlington County jurisdiction had one example where advance notice was not sufficient.

Ms. Henderson asked whether TPB staff can provide information on whether there is funding for replacements.

Mr. Randall stated that it is possible to crosswalk bridges identified as "poor" against the projects in the long-range plan and the Transportation Improvement Program. He said that bridge projects have not been itemized, but identifying those projects is something that the TPB could do in more detail.

Ms. Henderson suggested that as the TPB builds out visual tools, that information might be included.

Chair Sebesky said that if a bridge is in poor condition, she thinks that TPB members would like to know that there is a plan for repair or replacement.

Mr. Srikanth said that Ms. Henderson's suggestion is a good idea, and TPB staff will look into cross walking bridge conditions with planned projects.

The motion to adopt Resolution R3-2023 passed unanimously.

INFORMATION ITEMS

8. BRIEFING ON THE 2022 STATE OF THE COMMUTE SURVEY

Mr. Ramfos referred to the agenda materials and presented an overview of survey results on commute changes, transportation mode choice, telework practices, and commuter satisfaction.

Ms. Kostiuk said that there seem to be good outcomes of telework increasing which has the potential to reduce congestion and move people away from driving but also negative trends with increased driving alone and reduction in transit use.

Ms. Kostiuk asked whether there was a survey question about demographics and whether respondents had children. She asked whether that was looked at in terms of use of transit and other questions.

Ms. Kostiuk commented that the daily commute is changing. She said that for people with children the

commute might be working from home but driving a kid to daycare and returning home and asked if the TPB could delve into this change.

Mr. Ramfos said that the State of the Commute survey is focused on workers, so questions were not asked about other household members. He said that that the larger, regional household survey does ask questions besides commute trip.

Ms. Kostiuk said that she has completed the other survey in the past and found it difficult to represent the format of trips that she was taking with her own children. She commented that she thinks a segment of trips that people are probably taking on a daily basis is probably missing in data collection.

Ms. Kostiuk asked whether it would be possible to cross-reference information about why people are using alternative modes of transit from the survey with goals and strategies for greenhouse gas emissions reduction to see if there is a connection between one of the strategies such as parking pricing. She said that an example is if one of the reasons people are saying that they are using alternative modes is reduction in cost, there might be crossover or insights.

Mr. Ramfos said that the survey does ask questions about the benefits of using alternative modes and questions about why people use alternative modes. He said that the top reasons are given are time and money.

Mr. Ramfos said that there is interest in sustainability and green commuting, but those responses do not rise to the top for questions about alternative mode use. He noted that the TPB could look closer at the topic.

Mr. Srikanth said that the TPB has been collecting data on travel mode choices and has also has crafted a number of scenarios related to travel mode choices. The data consistently indicate that what people look for is making transit less time consuming and more affordable. He said for example, the scenario of building BRT systems throughout the region in the TPB's Aspirational Initiative study was a reflection of this finding. He said this analysis did show the strategy would be effective in reducing time and cost, and also provided emissions reductions.

Mr. Srikanth said that he thinks that the survey results could be tracked against scenarios so that jurisdiction decision-makers can look at priority projects and decide whether to support a particular change or not. He said that TPB scenarios are intended to help local decision-making.

Ms. Kostiuk stated that she thinks it would be interesting to ask in future surveys about personal benefits not just for alternative modes but for driving and driving alone to find out why people are choosing to drive instead of using transit or other modes.

Ms. Henderson asked if there were any survey questions around what type of vehicle the person is driving. She said that she is interested in seeing if there has been an uptick in electric vehicle purchases in the region.

Mr. Ramfos said that the survey did not ask about vehicle type but did ask how many vehicles the household has.

Ms. Henderson said that for the future if there is an uptick in electric vehicles how will that be weighed in terms of emissions goals. She said that a flashing red light in the results is commute satisfaction and that transit users were the least satisfied and bike/walk users were the most satisfied. She said that even though someone may be spending 45 minutes in a car by themselves, they are still more satisfied than someone getting on a bus or a train, and that is a problem that needs to be addressed.

Mr. Srikanth said that the TPB collects vehicle registration data every three years that tracks the sale of electric vehicles. He said that he would be able to share information from COG's greenhouse gas inventory work that shows how electric or plug-in electric and hybrid vehicle purchases have increased by two-to-three-fold. He said that the increase in electric vehicle purchases helps explain the increase in federal investment in EV infrastructure.

Mr. Walkinshaw asked whether there was a survey question on which days of the week the respondent is teleworking.

Mr. Ramfos said that the TPB does have that information and that in past surveys, the most popular days were Fridays and Mondays.

Mr. Walkinshaw said that the days of the week are a core issue because it causes a coordination challenge if everyone in the region is going to the office on Wednesdays and none on Mondays or Fridays. He provided the example of Virginia Railway Express service and high demand on Wednesdays but then no one riding the train on Mondays and Fridays, which creates a system inefficiency.

Mr. Walkinshaw said there may be a role for the TPB in convincing federal agencies and private businesses to spread out the telework days across the week.

Mr. Lewis said that electric vehicle purchases are growing in Maryland and EVs are one percent of registered vehicles. He said that it is difficult for transit to compete with a custom ride. He stated that there are new systems and infrastructure such as BRT and the Purple Line and that will get some riders back, yet the transportation system is a mix, and some are never going to give up their cars.

Ms. Sebesky said that as a resident of an outer jurisdiction that by the time public transportation is reached, people see that it is not beneficial, and they continue in their single-occupancy vehicles.

Mr. Karantonis said that the survey results do measure an extraordinary situation over the past two years. He asked if there is data on whether employers made destination parking free or easily available and how incidental is that to the high drive-alone rate.

Mr. Ramfos said that the information is available, and commuters were asked about parking. He said that the core area experienced an uptick in free parking.

Mr. Srikanth said that the move away from transit to driving in this survey is a reflection of disruptions to travel and work arrangements from the pandemic. He said that the pandemic-related disruptions and changes in travel behavior also highlighted the importance of bus service to those who were unable and preferred not to drive and sent a signal to examine bus routes and bus service regarding service and fare equity. He said that a reexamination of bus systems is underway to find time and cost savings and to improve convenience.

Mr. Srikanth said that while teleworking has benefits for greenhouse gases and reducing congestion, it also has an unintended negative consequences on transit systems. This is one example of where one strategy is good for some TPB goals but not for others.

Mr. Srikanth stated that Mr. Walkinshaw's example of telecommuting demand is excellently made because when demand for transportation system and service has sharp peaks, how does one decide on investments for building system capacity. He said that this update could be an opportunity to examine what kinds of investments and approaches we'll be taking for making changes to our transportation system moving forward.

Mr. Snyder asked whether the greenhouse gas reductions discussed earlier were for the year 2020 which was during the pandemic. He said that he thinks another area of interest is non-commuting trips, which underscores, with so many people continuing to use the highways, the significance of converting to the electric vehicle fleet and everything we can to support that.

Mr. Srikanth said that the greenhouse gas inventory was for 2020, so COVID disruptions would be reflected in those greenhouse gas changes.

Mr, Lewis said that Maryland met its greenhouse gas goal by 2020 as part of the region, and it was corrected for the pandemic, but the goal was still met. He said that the goal is a more aggressive one than the TPB's goal.

Ms. Sebesky encouraged TPB members and the public to view the State of the Commute Survey report on the TPB website.

9. BUS TRANSIT EQUITY: 2022 UPDATE

Mr. Randall referred to the presentation and agenda materials to provide an overview of the updated analysis of local bus transit service in the region. He said that the TPB has been increasing equity work over the past two years, and this report updates work completed earlier in 2022.

Mr. Randall shared key findings and demonstrated a web map tool that layers Equity Emphasis Areas with bus routes.

Mr. Randall said that the information has been shared with the TPB Technical Committee and the regional public transportation subcommittee.

Mr. Erenrich said that Montgomery County has its own sophisticated tool based on pulling data together for Ride-On and the Ride-On Reimagined Study.

Mr. Randall stated that coverage versus frequency is a key paradigm for transit service in terms of whether as system should provide more coverage or high frequency of service.

Mr. Emerine said that the report is showing how many people have access to transit at all or especially frequent transit and the map is showing what would be expected, that there is greater transit access and greater frequency in the denser areas and corridors. He asked if there are additional thoughts on that that could be gleaned from the report.

Mr. Emerine said that WMATA has been sharing service guidelines with the region to help better plan and much of those guidelines are based on density. He commented that if there are household-dense or job-dense areas that lack frequent transit service that could be a service gap that needs to be addressed.

Mr. Emerine stated that it could be that if there is a lack of service in some areas, it could be that there are not sufficient households or jobs to run efficient service, and he asked how that can provide guidance to colleagues who are working in the land use arena.

Mr. Randall said the TPB is limited in resources in terms of being able to address some of those questions; however, he stated that the memo on the October 19 TPB meeting page lists a number of geographic areas or neighborhoods that the TPB has pinpointed as specific areas to consider across the region. He said that the mapping tool is provided for people interested in equity or for those planning transit service.

10. 2024 LONG-RANGE PLAN UPDATE

Chair Sebesky introduced the item, observing that the TPB just wrapped up the four-year update of the long-range transportation plan, but the board has decided not to wait another four years but instead to do another update in two years, meaning in 2024.

Mr. Srikanth said the update would be substantively different than other updates over the past three decades in three important ways. First, he said the update will ask each TPB member agency to reexamine all of the projects that they have currently planned and included in the TPB's long-range plan and to determine if this is indeed the set of projects that the agency would now like to invest in to meet mobility and accessibility needs for the next 25 years. Second, he said, the update will ask each member agency to more directly correlate the projects and programs they propose for the TPB's plan with the TPB's planning priorities. Third, he said, the update will ask member agencies to use the results of past TPB scenario analyses in their project selection. He said that the submitting agencies would be given at least five months to develop their inputs, which is much more time than previously given. As part of that process, TPB staff will conduct work sessions at the state level with all relevant agencies. Finally, he noted that the success of this effort will depend on how engaged the board members will be with their jurisdictions and their agencies. He emphasized that project selection does not occur at the TPB.

Ms. Cook gave an overview of the current plans for the 2024 update to Visualize 2045. She described major changes that will be included in the new update, including: 1) updating non-transportation elements; 2) financial plan revisions; 3) new motor vehicle emissions budgets (MVEBs); and 4) projects re-examination/re-submission. She also described products to support the 2024 update, including a synthesized policy framework and a summary of scenario findings. She ended with the preliminary schedule, culminating in approval in December 2024.

Because of the lack of time, Chair Sebesky asked TPB members to send their comments to staff or to leave comments in the chat.

Ms. Newton said that she and other long-time members were thrilled to see the planned changes in the long-range planning process.

11. ADJOURN

There being no other business, the meeting was adjourned at 2:03 P.M.

Meeting Highlights
TPB Technical Committee – November 4, 2022

The Technical Committee met on Friday, November 4, 2022. Meeting materials can be found here: https://www.mwcog.org/events/2022/11/4/tpb-technical-committee/

The following items were reviewed for inclusion on the TPB's November agenda.

TPB AGENDA ITEM 7 – TPB WORK SESSION ON TRANSPORTATION SAFETY
A work session to discuss transportation safety performance will be held prior to the November TPB meeting. The session will include presentations by the three state DOTs on highway safety trends and safety programs, initiatives, and challenges.

TPB AGENDA ITEM 7 – PBPP: DRAFT TARGETS FOR TRANSIT SAFETY
The committee was briefed on the draft regional targets for transit safety performance measures, including fatalities, injuries, safety events, and system reliability, as required under the federal performance-based planning and programming (PBPP) rulemaking for public transportation providers and MPOs. The board will be briefed on the draft targets at its November meeting and asked to approve the regional targets at its December meeting

TPB AGENDA ITEM 7 – PBPP: DRAFT TARGETS FOR HIGHWAY SAFETY
The committee was briefed on the draft regional targets for highway safety performance measures, including fatalities and serious injuries, as required under the federal performance-based planning and programming (PBPP) rulemaking for state DOTs and MPOs. The board will be briefed on the draft targets at its November meeting and asked to approve the regional targets at its December meeting.

TPB AGENDA ITEM 8 – 2024 LONG-RANGE PLAN UPDATE
Ms. Cook reviewed considerations related to the 2024 plan update. This included key resources that will support the next Technical Inputs Solicitation. Ms. Cook reviewed the draft synthesized policy framework and the summary of scenario findings.

TPB AGENDA ITEM 9 – WMATA BETTER BUS LISTENING SESSION
The committee was briefed on the Better Bus Program and its initiatives, including the Network Redesign launched this month. Metro staff provided a brief overview of Better Bus initiatives and current status, followed by a period of open discussion and active listening on members' ideas and priorities for a Better Bus system.

The following items were presented for information and discussion:

PIT OVERVIEW DEMONSTRATION
This agenda item was provided in particular for technical staff who do NOT use Project InfoTrak (the PIT). Mr. Austin provided an overview of the amount of information and level of detail that is recorded in InfoTrak. All project data must be re-entered into the PIT once the 2024 solicitation begins early 2023. This task will require significant coordination, and we are seeking to provide awareness of the level of effort required for "starting fresh" by creating a totally new database in Project InfoTrak.

OTHER BUSINESS

- Community Advisory Committee 2023 Recruitment
- Street Smart Campaign
- AMPO Annual Conference
- TPB Meetings - November in person; December all virtual
- Staff Update

COMMUNITY ADVISORY COMMITTEE
MONTHLY REPORT

November 16, 2022
Ashley Hutson, CAC Chair

The TPB Community Advisory Committee (CAC) met on Thursday, November 10. The committee discussed the next update of the region's long range transportation plan, current recruitment for the next term of committee members, and the 2022 state of the commute survey. The meeting was online-only.

UPDATE ON PREPARATIONS FOR THE DEVELOPMENT OF THE 2024 LONG-RANGE REGIONAL TRANSPORTATION PLAN

Stacy Cook provided a briefing on preparations for the next long-range plan update, which is scheduled for approval in 2024.

Member comments and questions included the following:

- *Discussion about visionary vs. realistic planning*. Some CAC members spoke of a desire to see bolder and more visionary planning. One member said that the region's goals – including climate goals and Vision Zero goals – can only be met with a more ambitious set of projects. As an example, another member noted that the region regrettably seems to have given up on streetcars. In contrast, some participants spoke of the importance of making planning decisions based on realistic constraints. One member said that solutions that work in Europe will not necessarily work in our car-oriented culture. Stacy Cook from TPB staff some effective solutions to the region's transportation problems may not be appropriate for inclusion in the TPB's long-range plan.

- *Confusion about zero-based budgeting.* Members asked for more information about the actual implications of the zero-based budgeting approach that will be used for the 2024 plan update. Specifically, they said it would be useful to better understand what would cause a project to be taken out of the plan.

DISCUSSION ABOUT RECRUITMENT FOR 2023-2024 CAC

John Swanson of the TPB staff reminded the committee that the application period for the 2023-2024 CAC will be open until December 5. He led an open discussion in which members were asked what qualities the TPB should be looking for in new CAC members.

Members comments and suggestions included the following:

What personal qualities and characteristics make CAC members effective?

- Idealistic - Wanting to help make their communities better places.
- Interested – Having a strong interest in transportation, as well as in adjacent topics like land use, housing, economic development, and the environment.
- Patient – Willing to listen to lots of presentations; willing to be frustrated by the slow pace of planning.

- Open to outside-the-box ideas – Willing to go out on a limb and talk about pie-in-the-sky ideas.
- Curious – Interested in learning; interested in ideas that are different from their own.
- Open-minded – We need to be able to listen to each other and learn.
- Committed – Among other things, new members should make a commitment to attend meetings.
- Active – Already involved in their communities; people who are involved with other organizations and can be conduits for sharing information
- Knowledgeable – It's helpful if you understand decision-making processes in your local jurisdictions.
- Balanced – Bringing locally oriented perspectives to the CAC discussions, but also being able to consider the bigger picture. Understanding that appropriate solutions may be different for different communities and for different parts of the region.

What experiences and perspectives should the TPB be looking for in committee membership?

- A mix of experiences on the committee is very important
- Mixed feelings about whether transportation professionals should be involved:
    - Some noted that the CAC shouldn't just be dominated by transportation professionals.
    - …but others said it can be helpful to have people on the committee with some technical background.
- Extra effort should be taken to get members whose perspectives may be left out
    - Get more input from outer jurisdictions, including folks who use commuter rail.
    - Try to be inclusive of the interests of low-income individuals.
    - Include representatives from counties and jurisdictions that have been less active in regional planning.

Suggestions for how to recruit members

- Get people involved who have been previously involved in local government, such as retired planners or staff of former elect of elected officials.
- Recruit past participants from the TPB's Community Leadership Institute.
- Use social media to spread the word about the application process.

BRIEFING ON THE 2022 STATE OF THE COMMUTE SURVEY

Nick Ramfos of TPB staff briefed the CAC. He said that every three years since 2001, Commuter Connections has conducted a random sample survey of employed persons in the region to monitor trends in commuting behavior such as mode shares, telecommuting, and distance traveled, as well as attitudes about commuter assistance services. Among many other things, he said, the 2022 survey documented the recent surge in telework.

CAC member comments and suggestions included the following:

- *The findings of this survey are extremely anomalous because of the pandemic.* The findings should not be assumed to be to reflect larger trends regarding transit use or telework or other findings. Ramfos agreed with this comment and noted that the survey report was very careful to note the unusual circumstances of the recent years period.
- *Will the data from the study be made available to the general public?* Ramfos answered that the findings would be made available to jurisdiction staff but not to the general public.

- ***Suggestions regarding the availability of specific data points.*** Participants asked about specific data, including breakdowns by gender and age. One member asked if there was any documentation regarding slug lines. Nick Ramfos answered that the full survey report contained a wealth of data that his presentation only touched upon.

OTHER BUSINESS

- Lyn Erickson of TPB staff briefed the committee on the upcoming TPB meeting.
- John Swanson made the following announcements:
    - A new TPB public participation planner will begin in November and will attend the CAC meeting in December.
    - Recruitment for the new committee membership for calendar years 2023 and 2024 is currently underway. The application period will close on December 5. The TPB will be asked to approve new appointments in January. The new committee's term will begin in February 2023 and end in January 2025.

ATTENDEES

Members
Ashley Hutson, Chair
Nancy Abeles
Ra Amin
Michael Artson
Prince Coulibaly
Solomon Haile
Rob Jackson
Katherine Kortum
Audrey Nwaze
Daniel Papiernik
Jeff Parnes
Lorena Rios
Elisa Walton

Staff
Kanti Srikanth
Lyn Erickson
Nick Ramfos
Stacy Cook
Rachel Beyerle
John Swanson

Others
Bill Orleans
Bill Pugh

National Capital Region
Transportation Planning Board

MEMORANDUM

TO: Transportation Planning Board
FROM: Kanti Srikanth, TPB Staff Director
SUBJECT: Steering Committee Actions and Report of the Director
DATE: November 10, 2022

The attached materials include:

- Steering Committee Actions
- Letters Sent/Received
- Announcements and Updates

National Capital Region
Transportation Planning Board

MEMORANDUM

TO: Transportation Planning Board
SUBJECT: Steering Committee Actions
FROM: Kanti Srikanth, TPB Staff Director
DATE: November 10, 2022

At its meeting on November 4, 2022, the TPB Steering Committee adopted two resolutions approving amendments to the FY 2023-2026 Transportation Improvement Program (TIP) as requested by the District Department of Transportation (DDOT) and the Virginia Department of Transportation (VDOT), as described in the bullets below:

- TPB SR9-2023, requested by DDOT to include TIP Action 23-05.1. This amendment reprogrammed funds within five ongoing programs or project groupings and added funding for three new ongoing programs or project groupings for a net total addition of approximately $10.55 million. All eight ongoing programs or project grouping are exempt from the air quality conformity requirement.

- TPB SR10-2023, requested by VDOT to included TIP Action 23-05.3. This amendment reprogrammed funding without changing the total project cost for the Route 1 Widening (Fraley Blvd.) project and increased the total project cost of the Richmond Highway Corridor Improvements Phase 2 project from $183.3 million to $204.9 million. It also increased the total of the GARVEE Debt Service for the #SMART18 – Potomac Town Center Garage from $3.9 million to $8.7 million, and added approximately $274,000 for #ITTF22 High-Speed Communications for Signals on VA Route 234. The projects on US Route 1 were included in the air quality conformity analysis of the 2022 Update to Visualize 2045 and the FY 2023-2026 TIP, and the administrative funding programmed for debt service and communications are exempt from the air quality conformity requirement.

The TPB Bylaws provide that 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 director's report each month and the TPB's review, without objection, shall constitute the final approval of any actions or resolutions approved by the Steering Committee.

Attachments:

- Adopted resolution SR9-2023, approving amendments to the FY 2023-2026 TIP under TIP Action 23-05.1 which reprograms funding for five existing ongoing programs and adds funding for three new ongoing programs or project groupings, as requested by DDOT.
- Adopted resolution SR10-2023, approving amendments to the FY 2023-2026 TIP under TIP Action 23-05.3 which reprograms funding for the US Route 1 Widening (Fraley Blvd). project, increases funding and cost for the Richmond Highway Corridor Improvements Phase 2 project, and increases the GARVEE debt service for the Potomac Town Center Garage and adds funds for High-Speed Communications for Signals on VA Route 234, as requested by VDOT.

TPB Steering Committee Attendance – November 4, 2022
(only voting members and alternates listed)

TPB Vice Chair/MD rep.:	Reuben Collins
DC Rep.:	Christina Henderson
	Heather Edelman
DDOT:	Sam Brooks
MDOT:	Stephen Miller
VDOT:	Regina Moore
Tech. Committee Chair:	Matt Arcieri

TPB SR9-2023
November 4, 2022

NATIONAL CAPITAL REGION TRANSPORTATION PLANNING BOARD
777 North Capitol Street, N.E.
Washington, D.C. 20002

RESOLUTION ON AN AMENDMENT TO THE FY 2023-2026 TRANSPORTATION IMPROVEMENT PROGRAM (TIP) THAT IS EXEMPT FROM THE AIR QUALITY CONFORMITY REQUIREMENT TO INCLUDE TIP ACTION 23-05.1 WHICH REPROGRAMS FUNDS WITHIN FIVE ONGOING PROGRAMS AND ADDS THREE NEW PROGRAMS, AS REQUESTED BY THE DISTRICT DEPARTMENT OF TRANSPORTATION (DDOT)

WHEREAS, the National Capital Region Transportation Planning Board (TPB), as the federally designated metropolitan planning organization (MPO) for the Washington region, has the responsibility under the provisions of the Fixing America's Surface Transportation (FAST) Act, reauthorized November 15, 2021 when the Infrastructure Investment and Jobs Act (IIJA) was signed into law, for developing and carrying out a continuing, cooperative and comprehensive transportation planning process for the metropolitan area; and

WHEREAS, the TIP is required by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) as a basis and condition for all federal funding assistance to state, local and regional agencies for transportation improvements within the Washington planning area; and

WHEREAS, on June 15, 2022 the TPB adopted the FY 2023-2026 TIP; and

WHEREAS, DDOT has requested an amendment to the FY 2023-2026 TIP to include TIP Action 23-05.1 which adds a net total of approximately $10.55 million to the 5 existing and 3 new ongoing programs or project groupings listed at the end of this resolution, and as described in the attached materials; and

WHEREAS, the attached materials include: Attachment A) a Project Overview report showing how the projects and programs will appear in the TIP following approval, Attachment B) an Amendment Summary report showing the changes in four-year program total, reason for the amendment, and a Change Summary providing line-item changes to every programmed amount by fund source, fiscal year, and project phase, and Attachment C) a letter from DDOT dated October 26, 2022 requesting the amendments; and

WHEREAS, these projects and programs have been updated in the TPB's Project InfoTrak database under TIP Action 23-05.1, creating the fifth amended version of the FY 2023-2026 TIP, which supersedes all previous versions of the TIP and can be found online at www.mwcog.org/ProjectInfoTrak; and

WHEREAS, these project groupings and programs are exempt from the air quality conformity requirement, as defined in Environmental Protection Agency's (EPA) Transportation Conformity Regulations as of April 2012; and

WHEREAS, this resolution and the amendments to the FY 2023-2026 TIP shall not be considered final until the Transportation Planning Board has had the opportunity to review and accept these materials at its next full meeting.

NOW, THEREFORE, BE IT RESOLVED THAT the Steering Committee of the National Capital Region Transportation Planning Board amends the FY 2023-2026 TIP to include TIP Action 23-05.1 which adds a net total of approximately $10.55 million, as described below and in the attached materials.

- Add a net total of approximately $4,000 in DC and Surface Transportation Block Grant (STBG) funding to the **Safety Improvements Citywid**e program (**T3212**);
- Add a net total of approximately $1.3 million in DC and National Highway Performance Program (NHPP) funding for the **Freight Planning Program** (**T5922**);
- Remove a net total of approximately $8.8 million in Highway Safety Improvement Program (HSIP), NHPP, STBG, and DC from the **Traffic Operations Improvements Citywide** (**T3216**);
- Remove a net total of approximately $34 million in National Highway Freight Program (NHFP), State Planning & Research (SPR) program, STBG, and DC funding from the **Planning and Management Systems program** (**T3213**);
- Rename the "5303/5304 FTA Program" to **"Planning Activities Passthrough** (**MWCOG**)**"** (**T6102**) and add a net total of approximately $16.17 million in STBG and DC funding;
- Add approximately $12.6 million in STBG and DC funds for a new program: **EID/OCR Portfolio** (**T11610**);
- Add approximately $17.33 million in HSIP, NHPP, STBG, and DC funding for the new **Traffic Operations Improvements Projects grouping** (**T11611**);
- Add $6 million in SPR and DC funding for the **Research Program and Projects** (**T11612**).

Adopted by the TPB Steering Committee at its meeting on Friday, November 4, 2022.
Final approval following review by the full board on Wednesday, November 16, 2022.

National Capital Region
Transportation Planning Board

ATTACHMENT A: Project/Program Overview Reports
TIP Action 23-05.1 Formal Amendment to the
FY 2023-2026 Transportation Improvement Program
as Requested by the District Department of Transportation
Approved by the TPB Steering Committee on November 4, 2022

TIP ID	T11610	*Lead Agency*	District Department of Transportation	*Project Type*	
Project Name	EID/OCR Portfolio	*County*	Washington	*Total Cost*	$12,610,040
Project Limits		*Municipality*	District of Columbia	*Completion Date*	2045
		Agency Project ID			

Description This project supports DDOT's Equity and Inclusion initiatives. It includes programming support for the division as well as compliance with federal regulations and civil rights requirements. a. ADA Asset Inventory and Compliance Evaluation b. ADA Compliance Improvements c. ADA Support Consultant d. Civil Rights / EEO compliance Monitoring Program e. Civil Rights Equity and Inclusion Programming Support f. Civil Rights Strategic Equity Action Plan g. Civil Rights Title VI / Language Access h. Civil Rights Title VII (Internal & External EEO/AAP) i. DBE Supportive Services/OJT Supportive Services j. Small Business Compliance

Phase	Source	FY2023	FY2024	FY2025	FY2026	4 Year Total	Total
PE	DC/STATE	$408,077	$418,927	$413,502	$413,502	$1,654,008	$1,654,008
PE	STBG	$1,654,008	$1,654,008	$1,654,008	$1,654,008	$6,616,032	$6,616,032
	Total PE	$2,062,085	$2,072,935	$2,067,510	$2,067,510	$8,270,040	$8,270,040
CON	DC/STATE	$217,000	$217,000	$217,000	$217,000	$868,000	$868,000
CON	STBG	$868,000	$868,000	$868,000	$868,000	$3,472,000	$3,472,000
	Total CON	$1,085,000	$1,085,000	$1,085,000	$1,085,000	$4,340,000	$4,340,000
	Total Programmed	$3,147,085	$3,157,935	$3,152,510	$3,152,510	$12,610,040	$12,610,040

*Map Has Not Been Marked

Version History

TIP Document			*MPO Approval*	*FHWA Approval*	*FTA Approval*
23-05.1	Amendment	2023-2026	11/16/2022	*Pending*	*Pending*

Current Change Reason

SCHEDULE / FUNDING / SCOPE - New project

National Capital Region
Transportation Planning Board

ATTACHMENT A: Project/Program Overview Reports
TIP Action 23-05.1 Formal Amendment to the
FY 2023-2026 Transportation Improvement Program
as Requested by the District Department of Transportation
Approved by the TPB Steering Committee on November 4, 2022

TIP ID	T11611	*Lead Agency*	District Department of Transportation	*Project Type*	Transportation Operations
Project Name	Traffic Operations Improvements Projects	*County*		*Total Cost*	$17,325,513
Project Limits		*Municipality*		*Completion Date*	2045
		Agency Project ID			

Description This project advances physical infrastructure projects related to traffic operations. a. 295 DMS Replacement b. Fiber Communication Networks on Major Arterial Corridors c. Moveable Pavement Marking Retroreflectivity Measurement and Data Collection e. Moveable Barrier System

Phase	Source	Prior	FY2023	FY2024	FY2025	FY2026	Future	4 Year Total	Total
CON	HSIP	-	$315,000	$315,000	$315,000	$315,000	-	$1,260,000	$1,260,000
CON	NHPP	-	$1,031,428	$1,060,675	$1,113,450	$1,168,858	-	$4,374,411	$4,374,411
CON	DC/STATE	-	$2,248,189	$436,337	$313,363	$327,215	-	$3,325,104	$3,325,104
CON	STBG	-	$7,821,328	$544,670	-	-	-	$8,365,998	$8,365,998
	Total CON	-	$11,415,945	$2,356,682	$1,741,813	$1,811,073	-	$17,325,513	$17,325,513
	Total Programmed	-	$11,415,945	$2,356,682	$1,741,813	$1,811,073	-	$17,325,513	$17,325,513

*Various Locations

Version History

TIP Document	*MPO Approval*	*FHWA Approval*	*FTA Approval*
23-05.1 Amendment 2023-2026	11/16/2022	*Pending*	*Pending*

Current Change Reason

SCHEDULE / FUNDING / SCOPE - New project

National Capital Region
Transportation Planning Board

ATTACHMENT A: Project/Program Overview Reports
TIP Action 23-05.1 Formal Amendment to the
FY 2023-2026 Transportation Improvement Program
as Requested by the District Department of Transportation
Approved by the TPB Steering Committee on November 4, 2022

TIP ID	T11612	*Lead Agency*	District Department of Transportation	*Project Type*	Study/Planning/Research
Project Name	Research Program and Projects	*County*	Washington	*Total Cost*	$6,000,000
Project Limits		*Municipality*	District of Columbia	*Completion Date*	2045
		Agency Project ID			

Description This project supports the State Planning & Research Program for the District Department of Transportation. It includes management of the research program and the individual projects selected each year. a. Research Development and Technology Transfer b. Research Development and Technology Transfer Projects: 1. Building Up Agency-Wide Automated Image Processing Capability to Inform Safety and Mobility 2. Identifying and Intervening with High-Risk Drivers 3. Tax Revenue and Telecommuting" 4. Low-Income Transit Fare Pilot Program Evaluation 5. Sidewalk Condition Assessment Leveraging Machine Learning/ AI and Mobile LiDAR 6. Evaluation of Different Curb Extension Treatments for Pedestrian Comfort and Safety at Intersections 7. Measuring the effectiveness of DC Commuter Benefits Law and its impact on sustainable mode choices in Washington, DC

Phase	Source	Prior	FY2023	FY2024	FY2025	FY2026	Future	4 Year Total	Total
CON	SPR	-	$1,200,000	$1,200,000	$1,200,000	$1,200,000	-	$4,800,000	$4,800,000
CON	DC/STATE	-	$300,000	$300,000	$300,000	$300,000	-	$1,200,000	$1,200,000
	Total CON	-	$1,500,000	$1,500,000	$1,500,000	$1,500,000	-	$6,000,000	$6,000,000
	Total Programmed	-	$1,500,000	$1,500,000	$1,500,000	$1,500,000	-	$6,000,000	$6,000,000

*Map Has Not Been Marked

Version History

TIP Document	*MPO Approval*	*FHWA Approval*	*FTA Approval*
23-05.1 Amendment 2023-2026	11/16/2022	*Pending*	*Pending*

Current Change Reason

SCHEDULE / FUNDING / SCOPE - New project

National Capital Region
Transportation Planning Board

ATTACHMENT A: Project/Program Overview Reports
TIP Action 23-05.1 Formal Amendment to the
FY 2023-2026 Transportation Improvement Program
as Requested by the District Department of Transportation
Approved by the TPB Steering Committee on November 4, 2022

TIP ID	T3212	*Lead Agency*	District Department of Transportation	*Project Type*	Bike/Ped
Project Name	Safety Improvements Citywide	*County*	Washington	*Total Cost*	$70,566,593
Project Limits		*Municipality*	District of Columbia	*Completion Date*	2045
		Agency Project ID	CB0, CI0		

Description Safety improvements provide a safe traveling environment for vehicular traffic, pedestrians and bicycle circulation within the District on Federal-aid and local roads. Work includes elimination or relocation of roadside visual obstructions; elimination or relocation of roadside obstacles; skid resistance resurfacing; modifications to traffic channeling; median replacement; traffic signals, signs, and lighting upgrades; installation of pavement markings to eliminate or reduce accidents; and installation of safety fences at overhead structures. Safety improvements are systematically identified through analyses of accident records, inspections, surveys, and citizen requests. The District maintains an inventory of locations with the highest number of reported accidents. b. Pavement Skid Testing c. Road Safety Audit Program d. TARAS Crash Analysis Support e. Traffic Data Collection and Analysis Services f. Traffic Engineering Design g. Multi-modal Traffic & Safety Construction h. Constructability and Work Zone Safety Review i. Traffic Safety Design j. Traffic Safety Engineering Support Services k. Traffic Sign Inventory Upgrade

Phase	Source	FY2023	FY2024	FY2025	FY2026	4 Year Total	Total
PE	HSIP	$6,761,325	$6,761,325	$6,761,325	$6,761,325	$27,045,300	$27,045,300
PE	DC/STATE	$1,437,300	$1,441,925	$1,446,925	$1,446,925	$5,773,075	$5,773,075
PE	STBG	$2,077,498	$2,096,000	$2,116,000	$2,116,000	$8,405,498	$8,405,498
	Total PE	$10,276,123	$10,299,250	$10,324,250	$10,324,250	$41,223,873	$41,223,873
CON	DC/STATE	$1,467,136	$1,467,136	$1,467,136	$1,467,136	$5,868,544	$5,868,544
CON	STBG	$5,868,544	$5,868,544	$5,868,544	$5,868,544	$23,474,176	$23,474,176
	Total CON	$7,335,680	$7,335,680	$7,335,680	$7,335,680	$29,342,720	$29,342,720
	Total Programmed	$17,611,803	$17,634,930	$17,659,930	$17,659,930	$70,566,593	$70,566,593

Version History

TIP Document		*MPO Approval*	*FHWA Approval*	*FTA Approval*
23-00	Adoption 2023-2026	06/15/2022	08/25/2022	08/25/2022
23-02	Amendment 2023-2026	09/16/2022	N/A	N/A
23-05.1	Amendment 2023-2026	11/16/2022	*Pending*	*Pending*

Current Change Reason

SCHEDULE / FUNDING / SCOPE - Cost change(s), Programming Update

Funding Change(s):
Total project cost increased from $70,562,520 to $70,566,593

National Capital Region
Transportation Planning Board

ATTACHMENT A: Project/Program Overview Reports
TIP Action 23-05.1 Formal Amendment to the
FY 2023-2026 Transportation Improvement Program
as Requested by the District Department of Transportation
Approved by the TPB Steering Committee on November 4, 2022

TIP ID	T3213	*Lead Agency*	District Department of Transportation	*Project Type*	Transportation Operations
Project Name	Planning and Management Systems	*County*	Washington	*Total Cost*	$44,830,396
Project Limits		*Municipality*	District of Columbia	*Completion Date*	2045
		Agency Project ID	CAL16C, PM304C, CM070A, PM301C, PM070A, AF028A		

Description a. AASHTOWARE License Fee e. Audit and Compliance h. Construction Estimate h. DBE On-Line Certification Application Program k. Infrastructure Information Technology Support Services o. moveDC s. Small Business Compliance t. SPR u. STIC Innovation Grant v. Summer Transportation Institute y. Transportation Asset Management Plan ab. Cyclomedia Paving Data Analysis

Phase	Source	FY2023	FY2024	FY2025	FY2026	4 Year Total	Total
PE	NHPP	$298,766	$545,451	$545,451	$545,541	$1,935,209	$1,935,209
PE	SPR	$2,267,084	$2,324,408	$2,389,827	$2,382,423	$9,363,742	$9,363,742
PE	STIC	$125,000	$125,000	$125,000	$125,000	$500,000	$500,000
PE	DC/STATE	$1,782,058	$1,366,117	$1,382,471	$1,914,618	$6,445,264	$6,475,264
PE	STBG	$2,594,602	$2,594,602	$2,594,602	$4,730,603	$12,514,409	$12,634,409
	Total PE	$7,067,510	$6,955,578	$7,037,351	$9,698,185	$30,758,624	$30,908,624
CON	DC/STATE	$63,589	$63,589	$63,589	$63,589	$254,356	$254,356
CON	STBG	$254,354	$254,354	$254,354	$254,354	$1,017,416	$1,017,416
	Total CON	$317,943	$317,943	$317,943	$317,943	$1,271,772	$1,271,772
PLANNING	DC/STATE	$10,000	$10,000	$10,000	$10,000	$40,000	$40,000
PLANNING	STBG	$40,000	$40,000	$40,000	$40,000	$160,000	$160,000
	Total PLANNING	$50,000	$50,000	$50,000	$50,000	$200,000	$200,000
OTHER	DC/STATE	$731,000	$622,500	$622,500	$514,000	$2,490,000	$2,490,000
OTHER	STBG	$2,924,000	$2,490,000	$2,490,000	$2,056,000	$9,960,000	$9,960,000
	Total Other	$3,655,000	$3,112,500	$3,112,500	$2,570,000	$12,450,000	$12,450,000
	Total Programmed	$11,090,453	$10,436,021	$10,517,794	$12,636,128	$44,680,396	$44,830,396

*Map Has Not Been Marked

Version History

TIP Document		*MPO Approval*	*FHWA Approval*	*FTA Approval*
23-00	Adoption 2023-2026	06/15/2022	08/25/2022	08/25/2022
23-02	Amendment 2023-2026	09/16/2022	N/A	N/A
23-05.1	Amendment 2023-2026	11/16/2022	*Pending*	*Pending*

Current Change Reason

SCHEDULE / FUNDING / SCOPE - Programming Update

Funding Change(s):
Total project cost decreased from $78,874,717 to $44,830,396

National Capital Region
Transportation Planning Board

ATTACHMENT A: Project/Program Overview Reports
TIP Action 23-05.1 Formal Amendment to the
FY 2023-2026 Transportation Improvement Program
as Requested by the District Department of Transportation
Approved by the TPB Steering Committee on November 4, 2022

TIP ID	T3216	*Lead Agency*	District Department of Transportation	*Project Type*	Road - ITS/Technology
Project Name	Traffic Operations Improvements Citywide	*County*	Washington	*Total Cost*	$45,711,256
Project Limits		*Municipality*	District of Columbia	*Completion Date*	2024
		Agency Project ID	OSS07A, CI060A, CI034A, CI035A, PM097A, CI050A,		

Description This project modifies and improves vehicular and pedestrian traffic control systems, such as traffic signals, channelization, signs, pavement markings, and other traffic control measures on and off the Federal-aid highway system. Includes installation of a variety of traffic engineering devices and construction of nominal geometric alterations. The project will preserve and promote the efficient use of existing city streets through changes in the organization of vehicular and pedestrian traffic flows. Projects include: a. Advanced Transportation Management System b. ITS General Support c. ITS Maintenance g. Thermoplastic Pavements Markings h. TMC Hardware and Data Services i. Traffic Management Center Operations

Phase	Source	FY2023	FY2024	FY2025	FY2026	4 Year Total	Total
PE	DC/STATE	$86,040	$86,041	$86,041	$86,041	$344,163	$344,163
PE	STBG	$344,160	$344,161	$344,162	$344,162	$1,376,645	$1,376,645
	Total PE	$430,200	$430,202	$430,203	$430,203	$1,720,808	$1,720,808
CON	HSIP	$1,944,000	$1,944,000	$2,846,986	$2,846,986	$9,581,972	$9,581,972
CON	NHPP	-	-	-	-	-	$550,400
CON	DC/STATE	$1,634,073	$1,666,849	$1,788,881	$1,810,581	$6,900,384	$7,037,984
CON	STBG	$5,672,293	$5,803,396	$5,890,196	$5,976,996	$23,342,881	$23,342,881
	Total CON	$9,250,366	$9,414,245	$10,526,063	$10,634,563	$39,825,237	$40,513,237
OTHER	HSIP	$195,300	$195,300	$195,300	$195,300	$781,200	$781,200
OTHER	DC/STATE	$87,343	$269,189	$68,898	$270,014	$695,444	$695,444
OTHER	STBG	$154,070	$881,454	$80,290	$884,753	$2,000,567	$2,000,567
	Total Other	$436,713	$1,345,943	$344,488	$1,350,067	$3,477,211	$3,477,211
Total Programmed		$10,117,279	$11,190,390	$11,300,754	$12,414,833	$45,023,256	$45,711,256

*Map Has Not Been Marked

Version History

TIP Document		*MPO Approval*	*FHWA Approval*	*FTA Approval*
23-00	Adoption 2023-2026	06/15/2022	08/25/2022	08/25/2022
23-02	Amendment 2023-2026	09/16/2022	N/A	N/A
23-03.1	Amendment 2023-2026	10/19/2022	*Pending*	10/31/2022
23-05.1	Amendment 2023-2026	11/16/2022	*Pending*	*Pending*

Current Change Reason

SCHEDULE / FUNDING / SCOPE - Programming Update, Scope Change(s)

Funding Change(s):
Total project cost decreased from $54,525,764 to $45,711,256

National Capital Region
Transportation Planning Board

ATTACHMENT A: Project/Program Overview Reports
TIP Action 23-05.1 Formal Amendment to the
FY 2023-2026 Transportation Improvement Program
as Requested by the District Department of Transportation
Approved by the TPB Steering Committee on November 4, 2022

TIP ID	T5922	*Lead Agency*	District Department of Transportation	*Project Type*	Freight Movement
Project Name	Freight Planning Program	*County*	Washington	*Total Cost*	$3,718,155
Project Limits		*Municipality*	District of Columbia	*Completion Date*	2045
		Agency Project ID	AF081A		

Description Development and updates of a District freight plan to enhance the safety and efficiency of goods movement for freight planning improvement and freight project implementation. a. Commercial Loading Zone Enforcement Support b. Delivery Demand Management Program c. Positive Truck Route Signage d. State Freight Plan Update e. Innovative Freight Delivery Practices, Research & Analysis f. Oversize/Overweight Routing Tool Maintenance and Enhancement

Phase	Source	FY2023	FY2024	FY2025	FY2026	4 Year Total	Total
PE	LOCAL	-	-	-	-	-	$96,000
PE	NHFP	$130,200	$130,200	$303,800	$303,800	$868,000	$1,382,200
PE	DC/STATE	$32,550	$32,550	$75,950	$75,950	$217,000	$249,550
	Total PE	$162,750	$162,750	$379,750	$379,750	$1,085,000	$1,727,750
CON	NHFP	$202,482	$202,482	$202,482	$438,558	$1,046,004	$1,046,004
CON	DC/STATE	$50,261	$50,261	$50,261	$109,640	$260,423	$260,423
	Total CON	$252,743	$252,743	$252,743	$548,198	$1,306,427	$1,306,427
STUDY	NHFP	-	-	-	-	-	$307,182
STUDY	DC/STATE	-	-	-	-	-	$76,796
	Total STUDY	-	-	-	-	-	$383,978
PLANNING	NHFP	-	-	$240,000	-	$240,000	$240,000
PLANNING	DC/STATE	-	-	$60,000	-	$60,000	$60,000
	Total PLANNING	-	-	$300,000	-	$300,000	$300,000
	Total Programmed	$415,493	$415,493	$932,493	$927,948	$2,691,427	$3,718,155

*Map Has Not Been Marked

Version History

TIP Document		*MPO Approval*	*FHWA Approval*	*FTA Approval*
23-00	Adoption 2023-2026	06/15/2022	08/25/2022	08/25/2022
23-02	Amendment 2023-2026	09/16/2022	N/A	N/A
23-05.1	Amendment 2023-2026	11/16/2022	*Pending*	*Pending*

Current Change Reason

SCHEDULE / FUNDING / SCOPE - Cost change(s), Programming Update

Funding Change(s):
Total project cost increased from $2,411,728 to $3,718,155

National Capital Region
Transportation Planning Board

ATTACHMENT A: Project/Program Overview Reports
TIP Action 23-05.1 Formal Amendment to the
FY 2023-2026 Transportation Improvement Program
as Requested by the District Department of Transportation
Approved by the TPB Steering Committee on November 4, 2022

TIP ID	T6102	*Lead Agency*	District Department of Transportation	*Project Type*	Transit - Administration
Project Name	Planning Activities Passthrough (MWCOG)	*County*	Washington	*Total Cost*	$20,001,422
Project Limits		*Municipality*	District of Columbia	*Completion Date*	2045
		Agency Project ID			

Description DDOT receives an annual FHWA and FTA grant appropriation to support metropolitan planning activities and Statewide/DC based Planning Activities. a. 5303/5304 FTA Program b MATOC c. Metropolitan Planning

Phase	Source	FY2023	FY2024	FY2025	FY2026	4 Year Total	Total
PE	S. 5303	$960,537	$529,000	$529,000	$529,000	$2,547,537	$2,547,537
PE	S. 5304	$128,300	$130,700	$130,700	$130,700	$520,400	$520,400
PE	DC/STATE	$272,210	$164,925	$164,925	$164,925	$766,985	$766,985
	Total PE	$1,361,047	$824,625	$824,625	$824,625	$3,834,922	$3,834,922
OTHER	DC/STATE	$808,325	$808,325	$808,325	$808,325	$3,233,300	$3,233,300
OTHER	STBG	$3,233,300	$3,233,300	$3,233,300	$3,233,300	$12,933,200	$12,933,200
	Total Other	$4,041,625	$4,041,625	$4,041,625	$4,041,625	$16,166,500	$16,166,500
Total Programmed		$5,402,672	$4,866,250	$4,866,250	$4,866,250	$20,001,422	$20,001,422

*Not Location Specific

Version History

TIP Document		*MPO Approval*	*FHWA Approval*	*FTA Approval*
23-00	Adoption 2023-2026	06/15/2022	08/25/2022	08/25/2022
23-03.1	Amendment 2023-2026	10/19/2022	*Pending*	10/31/2022
23-05.1	Amendment 2023-2026	11/16/2022	*Pending*	*Pending*

Current Change Reason

SCHEDULE / FUNDING / SCOPE - Programming Update, Scope Change(s)

Funding Change(s):
Total project cost increased from $3,834,922 to $20,001,422

ATTACHMENT B - AMENDMENT SUMMARY
TIP Action 23-05.1 Formal Amendment to the
FY 2023-2026 Transportation Improvement Program
Requested by the District Department of Transportation
Approved by the TPB Steering Committee on November 4, 2022

TIP ID	PROJECT TITLE	COST BEFORE	COST AFTER	COST CHANGE	% CHANGE	CHANGE REASON	CHANGE SUMMARY
T3212	Safety Improvements Citywide	$70,562,520	$70,566,593	$4,073	0	Cost change(s), Programming Update	PROJECT CHANGES (FROM PREVIOUS VERSION): DC/STATE - Decrease funds in FFY 23 in PE from $1,443,065 to $1,437,300 - Decrease funds in FFY 24 in PE from $1,443,065 to $1,441,925 + Increase funds in FFY 25 in PE from $1,443,065 to $1,446,925 + Increase funds in FFY 26 in PE from $1,443,065 to $1,446,925 STBG - Decrease funds in FFY 23 in PE from $2,100,560 to $2,077,498 - Decrease funds in FFY 24 in PE from $2,100,560 to $2,096,000 + Increase funds in FFY 25 in PE from $2,100,560 to $2,116,000 + Increase funds in FFY 26 in PE from $2,100,560 to $2,116,000 *Total project cost increased from $70,562,520 to $70,566,593*
T5922	Freight Planning Program	$2,411,728	$3,718,155	$1,306,427	54	Cost change(s), Programming Update	PROJECT CHANGES (FROM PREVIOUS VERSION): Changed Project Type: - from "Study/Planning/Research" to "Freight Movement" DC/STATE + Increase funds in FFY 23 in CON from $0 to $50,261 + Increase funds in FFY 24 in CON from $0 to $50,261 + Increase funds in FFY 25 in CON from $0 to $50,261 + Increase funds in FFY 26 in CON from $0 to $109,640 NHFP + Increase funds in FFY 23 in CON from $0 to $202,482 + Increase funds in FFY 24 in CON from $0 to $202,482 + Increase funds in FFY 25 in CON from $0 to $202,482 + Increase funds in FFY 26 in CON from $0 to $438,558 *Total project cost increased from $2,411,728 to $3,718,155*

T3216	Traffic Operations Improvements Citywide	$54,525,764	$45,711,256	($8,814,508)	-16	Programming Update, Scope Change(s)	PROJECT CHANGES (FROM PREVIOUS VERSION): DC/STATE + Increase funds in FFY 23 in PE from $26,040 to $86,040 - Decrease funds in FFY 23 in CON from $1,926,929 to $1,634,073 - Decrease funds in FFY 23 in OTHER from $244,668 to $87,343 + Increase funds in FFY 24 in PE from $26,041 to $86,041 - Decrease funds in FFY 24 in CON from $1,967,017 to $1,666,849 - Decrease funds in FFY 24 in OTHER from $426,514 to $269,189 + Increase funds in FFY 25 in PE from $26,041 to $86,041 - Decrease funds in FFY 25 in CON from $2,102,243 to $1,788,881 - Decrease funds in FFY 25 in OTHER from $226,223 to $68,898 + Increase funds in FFY 26 in PE from $26,041 to $86,041 - Decrease funds in FFY 26 in CON from $2,137,795 to $1,810,581 - Decrease funds in FFY 26 in OTHER from $427,339 to $270,014 HSIP - Decrease funds in FFY 23 in CON from $2,259,000 to $1,944,000 - Decrease funds in FFY 24 in CON from $2,259,000 to $1,944,000 - Decrease funds in FFY 25 in CON from $3,161,986 to $2,846,986 - Decrease funds in FFY 26 in CON from $3,161,986 to $2,846,986 NHPP ► Delete funds in FFY 23 in CON for $1,031,427 ► Delete funds in FFY 24 in CON for $1,060,674 ► Delete funds in FFY 25 in CON for $1,113,450 ► Delete funds in FFY 26 in CON for $1,168,857 STBG + Increase funds in FFY 23 in PE from $104,160 to $344,160 - Decrease funds in FFY 23 in OTHER from $783,370 to $154,070 + Increase funds in FFY 24 in PE from $104,161 to $344,161 - Decrease funds in FFY 24 in OTHER from $1,510,754 to $881,454 + Increase funds in FFY 25 in PE from $104,162 to $344,162 - Decrease funds in FFY 25 in OTHER from $709,590 to $80,290 + Increase funds in FFY 26 in PE from $104,162 to $344,162 - Decrease funds in FFY 26 in OTHER from $1,514,053 to $884,753 Total project cost decreased from $54,525,764 to $45,711,256

T3213	Planning and Management Systems	$78,874,717	$44,830,396	($34,044,321)	-43	Programming Update	PROJECT CHANGES (FROM PREVIOUS VERSION): DC/STATE - Decrease funds in FFY 23 in PE from $2,949,435 to $1,782,058 - Decrease funds in FFY 23 in CON from $114,208 to $63,589 - Decrease funds in FFY 23 in OTHER from $948,000 to $731,000 - Decrease funds in FFY 24 in PE from $2,838,119 to $1,366,117 - Decrease funds in FFY 24 in CON from $114,209 to $63,589 - Decrease funds in FFY 24 in OTHER from $839,500 to $622,500 - Decrease funds in FFY 25 in PE from $2,859,473 to $1,382,471 - Decrease funds in FFY 25 in CON from $114,208 to $63,589 - Decrease funds in FFY 25 in OTHER from $839,500 to $622,500 - Decrease funds in FFY 26 in PE from $3,296,620 to $1,914,618 - Decrease funds in FFY 26 in CON from $114,208 to $63,589 - Decrease funds in FFY 26 in OTHER from $731,000 to $514,000 NHFP ► Delete funds in FFY 23 in CON for $202,482 ► Delete funds in FFY 24 in CON for $202,483 ► Delete funds in FFY 25 in CON for $202,483 ► Delete funds in FFY 26 in CON for $202,483 SPR - Decrease funds in FFY 23 in PE from $3,467,084 to $2,267,084 - Decrease funds in FFY 24 in PE from $3,524,408 to $2,324,408 - Decrease funds in FFY 25 in PE from $3,589,827 to $2,389,827 - Decrease funds in FFY 26 in PE from $3,582,423 to $2,382,423 STBG - Decrease funds in FFY 23 in PE from $7,264,108 to $2,594,602 - Decrease funds in FFY 23 in OTHER from $3,792,000 to $2,924,000 - Decrease funds in FFY 24 in PE from $7,282,610 to $2,594,602 - Decrease funds in FFY 24 in OTHER from $3,358,000 to $2,490,000 - Decrease funds in FFY 25 in PE from $7,302,610 to $2,594,602 - Decrease funds in FFY 25 in OTHER from $3,358,000 to $2,490,000 - Decrease funds in FFY 26 in PE from $9,058,611 to $4,730,603 - Decrease funds in FFY 26 in OTHER from $2,924,000 to $2,056,000 Total project cost decreased from $78,874,717 to $44,830,396
T6102	Planning Activities Passthrough (MWCOG)	$3,834,922	$20,001,422	$16,166,500	422	Programming Update, Scope Change(s)	PROJECT CHANGES (FROM PREVIOUS VERSION): Title changed from "5303/5304 FTA Program" to "Planning Activities Passthrough (MWCOG)" DC/STATE + Increase funds in FFY 23 in OTHER from $0 to $808,325 + Increase funds in FFY 24 in OTHER from $0 to $808,325 + Increase funds in FFY 25 in OTHER from $0 to $808,325 + Increase funds in FFY 26 in OTHER from $0 to $808,325 STBG ► Add funds in FFY 23 in OTHER for $3,233,300 ► Add funds in FFY 24 in OTHER for $3,233,300 ► Add funds in FFY 25 in OTHER for $3,233,300 ► Add funds in FFY 26 in OTHER for $3,233,300 *Total project cost increased from $3,834,922 to $20,001,422*

T11612	Research Program and Projects	$0	$6,000,000	$6,000,000	0	New project	PROJECT CHANGES (FROM PREVIOUS VERSION): DC/STATE ► Add funds in FFY 23 in CON for $300,000 ► Add funds in FFY 24 in CON for $300,000 ► Add funds in FFY 25 in CON for $300,000 ► Add funds in FFY 26 in CON for $300,000 SPR ► Add funds in FFY 23 in CON for $1,200,000 ► Add funds in FFY 24 in CON for $1,200,000 ► Add funds in FFY 25 in CON for $1,200,000 ► Add funds in FFY 26 in CON for $1,200,000 *Total project cost $6,000,000*
T11611	Traffic Operations Improvements Projects	$0	$17,325,513	$17,325,513	0	New project	PROJECT CHANGES (FROM PREVIOUS VERSION): DC/STATE ► Add funds in FFY 23 in CON for $2,248,189 ► Add funds in FFY 24 in CON for $436,337 ► Add funds in FFY 25 in CON for $313,363 ► Add funds in FFY 26 in CON for $327,215 HSIP ► Add funds in FFY 23 in CON for $315,000 ► Add funds in FFY 24 in CON for $315,000 ► Add funds in FFY 25 in CON for $315,000 ► Add funds in FFY 26 in CON for $315,000 NHPP ► Add funds in FFY 23 in CON for $1,031,428 ► Add funds in FFY 24 in CON for $1,060,675 ► Add funds in FFY 25 in CON for $1,113,450 ► Add funds in FFY 26 in CON for $1,168,858 STBG ► Add funds in FFY 23 in CON for $7,821,328 ► Add funds in FFY 24 in CON for $544,670 *Total project cost $17,325,513*
T11610	EID/OCR Portfolio	$0	$12,610,040	$12,610,040	0	New project	PROJECT CHANGES (FROM PREVIOUS VERSION): DC/STATE ► Add funds in FFY 23 in PE for $408,077 CON for $217,000 ► Add funds in FFY 24 in PE for $418,927 CON for $217,000 ► Add funds in FFY 25 in PE for $413,502 CON for $217,000 ► Add funds in FFY 26 in PE for $413,502 CON for $217,000 STBG ► Add funds in FFY 23 in PE for $1,654,008 CON for $868,000 ► Add funds in FFY 24 in PE for $1,654,008 CON for $868,000 ► Add funds in FFY 25 in PE for $1,654,008 CON for $868,000 ► Add funds in FFY 26 in PE for $1,654,008 CON for $868,000 *Total project cost $12,610,040*
	TOTALS:	**$210,209,651**	**$220,763,375**	**$10,553,724**			

TPB SR10-2023
November 4, 2022

NATIONAL CAPITAL REGION TRANSPORTATION PLANNING BOARD
777 North Capitol Street, N.E.
Washington, D.C. 20002

RESOLUTION ON AN AMENDMENT TO THE FY 2023-2026 TRANSPORTATION IMPROVEMENT PROGRAM (TIP) THAT IS EXEMPT FROM THE AIR QUALITY CONFORMITY REQUIREMENT TO INCLUDE TIP ACTION 23-05.3 WHICH UPDATES PROJECT FUNDING AND TOTAL PROJECT COST INFORMATION FOR TWO PROJECTS ON US ROUTE 1 AND ADDS ADMINISTRATIVE PROGRAM FUNDING FOR THE POTOMAC TOWN CENTER GARAGE AND COMMUNICATIONS ON VA ROUTE 234, AS REQUESTED BY THE VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT)

WHEREAS, the National Capital Region Transportation Planning Board (TPB), as the federally designated metropolitan planning organization (MPO) for the Washington region, has the responsibility under the provisions of the Fixing America's Surface Transportation (FAST) Act, reauthorized November 15, 2021 when the Infrastructure Investment and Jobs Act (IIJA) was signed into law, for developing and carrying out a continuing, cooperative and comprehensive transportation planning process for the metropolitan area; and

WHEREAS, the TIP is required by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) as a basis and condition for all federal funding assistance to state, local and regional agencies for transportation improvements within the Washington planning area; and

WHEREAS, on June 15, 2022 the TPB adopted the FY 2023-2026 TIP; and

WHEREAS, VDOT has requested an amendment to the FY 2023-2026 TIP to include TIP Action 23-05.3 which updates programming information without changing the total project cost for the **Route 1 Widening (Fraley Blvd.) (T6692)**, increases the total project cost of the **Richmond Highway Corridor Improvements, PH 2 (T11602)** by approximately $21.63 million in Regional Surface Transportation Program (RSTP) and state funding; increases the total of the **#SMART18 – POTOMAC TOWN CENTER GARAGE – GARVE DEBT SERVICE (T8968)** from $3.92 million to $8.74 million by adding approximately $4.82 million in Surface Transportation Block Grant (STBG) and state funding; and $274,480 in state funds for a new administrative program **#ITTF22 HIGH SPEED COMMUNICATIONS FOR SIGNALS RTE 234** (T11609), as described in the attached materials; and

WHEREAS, the attached materials include: Attachment A) Project and Program Overview reports showing how the projects will appear in the TIP following approval, Attachment B) an Amendment Summary report showing the changes in total project cost, the reason for the amendment, and a Change Summary providing line-item changes to every programmed amount by fund source, fiscal year, and project phase, and Attachment C) a letter from VDOT dated October 21, 2022 requesting the amendments; and

WHEREAS, these projects and programs have been updated in the TPB's Project InfoTrak database under TIP Action 23-05.3, creating the fifth amended version of the FY 2023-2026 TIP, which supersedes all previous versions of the TIP and can be found online at www.mwcog.org/ProjectInfoTrak; and

WHEREAS, the debt service and high-speed communications for signals programs are exempt from the air quality conformity requirement, and both US Route 1 projects are included in the

air quality conformity analysis of the 2022 Update to Visualize 2045 and the FY 2023-2026 TIP (CON ID 631); and

WHEREAS, this resolution and amendment to the FY 2023-2026 TIP shall not be considered final until the Transportation Planning Board has had the opportunity to review and accept these materials at its next full meeting.

NOW, THEREFORE, BE IT RESOLVED THAT the Steering Committee of the National Capital Region Transportation Planning Board amends the FY 2023-2026 TIP to include TIP Action 23-05.3 which updates programming information without changing the total project cost for the **Route 1 Widening (Fraley Blvd.) (T6692)**, increases the total project cost of the **Richmond Highway Corridor Improvements, PH 2 (T11602)** by approximately $21.63 million in RSTP and state funding; increases the total of the **#SMART18 – POTOMAC TOWN CENTER GARAGE – GARVE DEBT SERVICE (T8968)** from $3.92 million to $8.74 million by adding approximately $4.82 million in STBG and state funding; and adding $274,480 in state funds for a new administrative program, **#ITTF22 HIGH SPEED COMMUNICATIONS FOR SIGNALS RTE 234 (T11609)**, as described in the attached materials.

Adopted by the TPB Steering Committee at its meeting on Friday, November 4, 2022.
Final approval pending review by the full board on Wednesday, November 16, 2022.

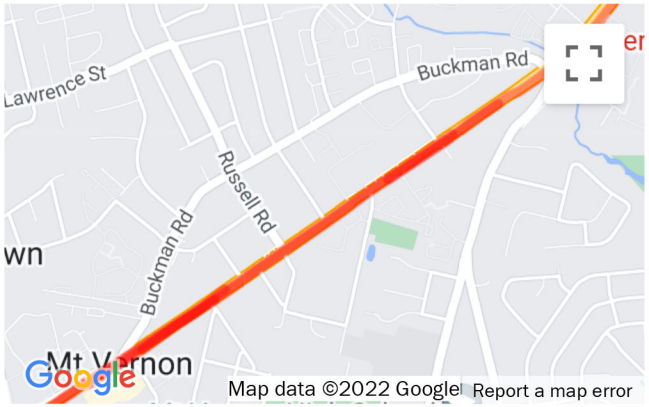
National Capital Region
Transportation Planning Board

ATTACHMENT A - Project/Program Overview Report
TIP Action 23-05.3 Formal Amendment to the
FY 2023-2026 Transportation Improvement Program
Requested by the Virginia Department of Transportation
Approved by the TPB Steering Committee on November 4, 2022

TIP ID	T11602	*Lead Agency*	Virginia Department of Transportation	*Project Type*	Road - Add Capacity/Widening
Project Name	RICHMOND HIGHWAY CORRIDOR IMPROVEMENTS, PH 2	*County*		*Total Cost*	$204,930,787
Project Limits	Frye Road to Sherwood Hall Road	*Municipality*		*Completion Date*	2028
		Agency Project ID	120800		

Description Widen from 4 to 6 lanes and add bike and ped facilities from 0.13 miles north of Frye Road to Sherwood Hall Lane.

Phase	Source	Prior	FY2023	FY2024	FY2025	FY2026	Future	4 Year Total	Total
PE	RSTP	$1,680,000	$760,000	-	-	-	-	$760,000	$2,440,000
PE	DC/STATE	$420,000	$190,000	-	-	-	-	$190,000	$610,000
	Total PE	$2,100,000	$950,000	-	-	-	-	$950,000	$3,050,000
ROW	TBD	-	-	-	-	-	$87,033,507	-	$87,033,507
	Total ROW	-	-	-	-	-	$87,033,507	-	$87,033,507
CON	TBD	-	-	-	-	-	$114,847,280	-	$114,847,280
	Total CON	-	-	-	-	-	$114,847,280	-	$114,847,280
	Total Programmed	$2,100,000	$950,000	-	-	-	$201,880,787	$950,000	$204,930,787



Version History

TIP Document		*MPO Approval*	*FHWA Approval*	*FTA Approval*
23-00	Adoption 2023-2026	06/15/2022	08/25/2022	08/25/2022
23-05.3	Amendment 2023-2026	11/16/2022	*Pending*	N/A

Current Change Reason

SCHEDULE / FUNDING / SCOPE - Programming Update

Funding Change(s):
Total project cost increased from $183,300,000 to $204,930,787

National Capital Region
Transportation Planning Board

ATTACHMENT A - Project/Program Overview Report
TIP Action 23-05.3 Formal Amendment to the
FY 2023-2026 Transportation Improvement Program
Requested by the Virginia Department of Transportation
Approved by the TPB Steering Committee on November 4, 2022

TIP ID	T11609	*Lead Agency*	Virginia Department of Transportation	*Project Type*	Road - Signal/Signs
Project Name	#ITTF22 HIGH SPEED COMMUNICATIONS FOR SIGNALS RTE 234	*County*		*Total Cost*	$274,480
Project Limits	Battlefield Parkway/Bulloch Drive to Godwin Drive	*Municipality*	City of Manassas	*Completion Date*	
		Agency Project ID			

Description The purpose of this project is for High Speed Communications for Traffic Signals along Rte. 234 Business.

*Map Has Not Been Marked

Phase	Source	Prior	FY2023	FY2024	FY2025	FY2026	Future	4 Year Total	Total
CON	DC/STATE	-	$274,480	-	-	-	-	$274,480	$274,480
	Total CON	-	$274,480	-	-	-	-	$274,480	$274,480
	Total Programmed	-	$274,480	-	-	-	-	$274,480	$274,480

Version History

TIP Document	*MPO Approval*	*FHWA Approval*	*FTA Approval*
23-05.3 Amendment 2023-2026	11/16/2022	*Pending*	N/A

Current Change Reason

SCHEDULE / FUNDING / SCOPE - New project

National Capital Region
Transportation Planning Board

ATTACHMENT A - Project/Program Overview Report
TIP Action 23-05.3 Formal Amendment to the
FY 2023-2026 Transportation Improvement Program
Requested by the Virginia Department of Transportation
Approved by the TPB Steering Committee on November 4, 2022

TIP ID	T6692	*Lead Agency*	Virginia Department of Transportation	*Project Type*	Road - Add Capacity/Widening
Project Name	Route 1 Widening (Fraley Blvd)	*County*	Prince William	*Total Cost*	$177,035,188
Project Limits	Brady's Hill Road to Dumfries Road	*Municipality*	Town of Dumfries	*Completion Date*	2028
		Agency Project ID	119481		

Description Project will widen Rte 1 northbound so both northbound and southbound traffic will be on the northbound alignment. - PE linked under UPC 90339. FROM: 0.1 Mi S. of Brady's Hill Road TO: .2 Mi. N. of Dumfries Road (Route 234) (2.1490 MI)

Phase	Source	Prior	FY2023	FY2024	FY2025	FY2026	Future	4 Year Total	Total
PE	NVTA	$3,388,455	$569,545	-	-	-	-	$569,545	$3,958,000
Total PE		$3,388,455	$569,545	-	-	-	-	$569,545	$3,958,000
ROW	TBD	-	-	-	-	-	$12,426,173	-	$12,426,173
ROW	NVTA	-	-	$44,290,455	-	-	-	$44,290,455	$44,290,455
Total ROW		-	-	$44,290,455	-	-	$12,426,173	$44,290,455	$56,716,628
CON	TBD	-	-	-	-	-	$116,360,560	-	$116,360,560
Total CON		-	-	-	-	-	$116,360,560	-	$116,360,560
Total Programmed		$3,388,455	$569,545	$44,290,455	-	-	$128,786,733	$44,860,000	$177,035,188

Version History

TIP Document		*MPO Approval*	*FHWA Approval*	*FTA Approval*
23-00	Adoption 2023-2026	06/15/2022	08/25/2022	08/25/2022
23-01.3	Amendment 2023-2026	09/21/2022	*Pending*	*Pending*
23-05.3	Amendment 2023-2026	11/16/2022	*Pending*	N/A

Current Change Reason

SCHEDULE / FUNDING / SCOPE - Programming Update

Funding Change(s):
Total project cost stays the same $177,035,188

National Capital Region
Transportation Planning Board

ATTACHMENT A - Project/Program Overview Report
TIP Action 23-05.3 Formal Amendment to the
FY 2023-2026 Transportation Improvement Program
Requested by the Virginia Department of Transportation
Approved by the TPB Steering Committee on November 4, 2022

TIP ID	T8968	*Lead Agency*	Virginia Department of Transportation	*Project Type*	Debt Service
Project Name	#SMART18 - POTOMAC TOWN CENTER GARAGE - GARVEE DEBT SERVICE	*County*	Prince William	*Total Cost*	$8,735,720
Project Limits		*Municipality*		*Completion Date*	2037
		Agency Project ID	111985		

Description Debt Service Required for CN UPC 111485

Phase	Source	Prior	FY2023	FY2024	FY2025	FY2026	Future	4 Year Total	Total
PE	STBG	-	-	$445,334	-	-	-	$445,334	$445,334
PE	STBG	-	-	$8,290,386	-	-	-	$8,290,386	$8,290,386
PE	STBG	-	-	$8,290,386	-	-	-	$8,290,386	$8,290,386
PE	STBG	-	-	$-8,290,386	-	-	-	$-8,290,386	$-8,290,386
Total PE		-	-	$8,735,720	-	-	-	$8,735,720	$8,735,720
Total Programmed		-	-	$8,735,720	-	-	-	$8,735,720	$8,735,720

*Map Has Not Been Marked

Version History

TIP Document		*MPO Approval*	*FHWA Approval*	*FTA Approval*
23-00	Adoption 2023-2026	06/15/2022	08/25/2022	08/25/2022
23-05.3	Amendment 2023-2026	11/16/2022	*Pending*	N/A

Current Change Reason

SCHEDULE / FUNDING / SCOPE - Programming Update

Funding Change(s):
Total project cost increased from $3,916,025 to $8,735,720
* ACCP is not part of the Total

ATTACHMENT B: AMENDMENT SUMMARY REPORT
FY 2023-2026 Transportation Improvement Program
TIP Action 23-05.3: Formal Amendment
Requested by the Virginia Department of Transportation
Approved by the TPB Steering Committee on 11/4/22

TIP ID	PROJECT TITLE	COST BEFORE	COST AFTER	COST CHANGE	% CHANGE	CHANGE REASON	CHANGE SUMMARY
T8968	#SMART18 - POTOMAC TOWN CENTER GARAGE - GARVEE DEBT SERVICE	$3,916,025	$8,735,720	$4,819,695	123	Programming Update	PROJECT CHANGES (FROM PREVIOUS VERSION): STBG ► Delete funds in FFY 22 in PE for $3,916,025 ► Add funds in FFY 24 in PE for $8,735,720 ► Delete funds in FFY 23 in PE for $431,274 + Increase funds in FFY 24 in PE from $416,011 to $8,290,386 *Total project cost increased from $3,916,025 to $8,735,720*
T6692	Route 1 Widening (Fraley Blvd)	$177,035,188	$177,035,188	$0	0	Programming Update	PROJECT CHANGES (FROM PREVIOUS VERSION): TBD + Increase funds in FFY 30 in ROW from $0 to $12,426,173 + Increase funds in FFY 30 in CON from $0 to $116,360,560 - Decrease funds in FFY 30 in OTHER from $10,536,435 to $0 HPP ► Delete funds in FFY 24 in CON for $7,070,958 ► Delete funds in FFY 25 in CON for $8,266,405 ► Delete funds in FFY 26 in CON for $24,912,935 NVTA ► Delete funds in FFY 25 in CON for $78,000,000 *Total project cost stays the same $177,035,188*
T11602	RICHMOND HIGHWAY CORRIDOR IMPROVEMENTS, PH 2	$183,300,000	$204,930,787	$21,630,787	12	Programming Update	PROJECT CHANGES (FROM PREVIOUS VERSION): LOCAL ► Delete funds in FFY 22 in PE for $2,100,000 TBD ► Delete funds in FFY 27 in ► Add funds in FFY 30 in ROW for $87,033,507 CON for $114,847,280 DC/STATE ► Add funds in FFY 22 in PE for $420,000 ► Add funds in FFY 23 in PE for $190,000 RSTP ► Add funds in FFY 22 in PE for $1,680,000 ► Add funds in FFY 23 in PE for $760,000 *Total project cost increased from $183,300,000 to $204,930,787*
T11609	#ITTF22 HIGH SPEED COMMUNICATIONS FOR SIGNALS RTE 234	$0	$274,480	$274,480	0	New project	PROJECT CHANGES (FROM PREVIOUS VERSION): DC/STATE ► Add funds in FFY 23 in CON for $274,480 *Total project cost $274,480*
	TOTALS:	**$364,251,213**	**$390,976,175**	**$26,724,962**			

National Capital Region
Transportation Planning Board

MEMORANDUM

TO: Transportation Planning Board
FROM: Kanti Srikanth, TPB Staff Director
SUBJECT: Letters Sent/Received
DATE: November 10, 2022

The attached letters were sent/received since the last TPB meeting.

September 26, 2022

VIA EMAIL

Pamela Sebesky
Chair
National Capital Region Transportation Planning Board
777 North Capitol Street, NE, Suite 300
Washington, DC 20002

Dear Chair Sebesky:

Thank you for your letter requesting funding support for the Transportation Planning Board's (TPB) FY 2023 Street Smart Pedestrian and Bicycle Safety Campaign.

I am pleased to inform you that Metro can renew its support of the program with $150,000 in funding for the 2023 campaign and this letter reflects that commitment. At some point in every Metro trip, each of our customers is a pedestrian. With this in mind, Metro views the Street Smart campaign as integral to its pedestrian and bicyclist safety program. We look forward to participating fully in this effort with the TPB and our regional partners.

As you directed, we are notifying Mr. Kanti Srikanth, Director of Transportation Planning, of our commitment by sending him a copy of this letter.

Again, Metro is pleased to be a partner in your Street Smart program, and we wish you continued success.

Sincerely,

Dennis Anosike
Executive Vice President and
Chief Financial Officer

cc: Kanti Srikanth, Director of Transportation Planning, MWCOG

Washington Metropolitan Area Transit Authority

300 Seventh Street SW,
Washington, DC 20024
202/962-1234

wmata.com

A District of Columbia, Maryland and Virginia Transit Partnership

National Capital Region
Transportation Planning Board

MEMORANDUM

TO: Transportation Planning Board
FROM: Kanti Srikanth, TPB Staff Director
SUBJECT: Announcements and Updates
DATE: November 10, 2022

The attached documents provide updates on activities that are not included as separate items on the TPB agenda.

National Capital Region
Transportation Planning Board

MEMORANDUM

TO: Transportation Planning Board

FROM: John Swanson, TPB Transportation Planner

SUBJECT: Application period is open for the 2023-2024 Community Advisory Committee (CAC)

DATE: November 10, 2022

The TPB is now accepting applications for the 2023-2024 Community Advisory Committee (CAC). More information and a link to the application can be found at www.mwcog.org/cac. The application deadline is December 5, 2022.

We encourage members of the TPB to spread the word! This is a great opportunity for residents who are interested in regional transportation issues to provide input to decision-makers and promote public involvement in the regional planning process.

The CAC is a group of 24 people who represent diverse viewpoints on regional transportation issues, including long-term planning concerns, and short-term policies and programs. The CAC's mission is:

- to promote public involvement in transportation planning for the region,
- to advance equitable representation in regional transportation planning, and
- to provide independent, region-oriented citizen advice to the TPB on transportation plans and issues.

The 24 members of the CAC are appointed. Fifteen members are appointed evenly between the District of Columbia, Suburban Maryland, and Northern Virginia. An additional nine members are appointed to represent TPB member jurisdictions' different perspectives on transportation, and to ensure a diverse committee. According to CAC operating procedures, committee membership should represent environmental, business, and civic interests in transportation, including appropriate representation from low-income individuals, individuals with disabilities, and traditionally disadvantaged racial and ethnic population groups and from the geographical area served by the TPB.

The CAC meets once a month on Thursdays, six days prior to the monthly TPB meeting (the TPB always meets on the third Wednesday of the month). The CAC meetings have typically been held in the evening from 6:00 P.M. to 8:00 P.M. Next year, however, monthly meetings may occasionally be held at lunchtime instead of in the evenings.

During the pandemic, all meetings were held online. In the coming two-year term, meetings will be either completely virtual or hybrid (combination on in-person and online). In-person meetings are typically held at the Metropolitan Washington Council of Governments located at 777 North Capitol Street NE, Washington, DC 20002.

The CAC advises the TPB and offers comments to the board reflecting the committee's diverse viewpoints. Over the years, the CAC has focused on key regional transportation issues, such as the transportation funding shortfall, environmental concerns, and emergency preparedness issues. The committee has also identified key opportunities to enhance the TPB's ongoing public participation activities.

For more information on the CAC's activities, including committee reports and agendas, please visit mwcog.org/cac. You can also contact John Swanson at (202)962-3295 or jswanson@mwcog.org.

National Capital Region
Transportation Planning Board

MEMORANDUM

TO: Transportation Planning Board

FROM: Kanti Srikanth, TPB Staff Director

SUBJECT: 2022 Association of Metropolitan Planning Organizations (AMPO) Annual Conference

DATE: November 10, 2022

TPB is one of the original members of the Association of Metropolitan Planning Organizations (AMPO). TPB staff serve in several leadership capacities at AMPO, including the AMPO Policy and Technical Committees, Working Group leadership teams, and on AMPO's ActivitySim Consortium.

There is an annual conference which brings together metropolitan planning organization (MPO) staff from around the country to discuss metropolitan transportation planning, data, resiliency, equity, public participation, MPO management and more. The 2022 AMPO conference took place October 25-28, 2022, in Minneapolis, Minnesota, and saw the highest attendance the conference has ever had with more than 400 attendees! The following provides TPB staff highlights:

- Feng Xie presented on the TPB's ongoing efforts to develop a next-generation, activity-based regional travel model for transportation forecasting, to be known as the Gen3 Model, which will make use of the open-source ActivitySim software. ActivitySim's development is being managed by a consortium of 11 agencies (including MWCOG), under the auspices of the AMPO Research Foundation.
- Ken Joh delivered a presentation about a review of transportation surveys measuring impacts to travel behavior from COVID-19 that inform regional transportation planning.
- Tim Canan moderated a session on data science and planning.
- Nicole McCall moderated a session on methods of data collection.
- Stacy Cook moderated a session focused on working with vulnerable populations.
- Lyn Erickson moderated a session on public participation.

AMPO gives six awards annually and they are announced at the annual conference. These include awards for overall achievement for MPOs, excellence in MPO coordination and partnership, outstanding elected official leadership, excellence in MPO staff achievement, and the prestigious "Ronald F. Kirby Lifetime Achievement Award," named in honor of TPB's long-time staff director, Ron Kirby.

Lyn Erickson

From: Chuck Bean <no-reply@mwcog.org>
Sent: Monday, September 26, 2022 2:46 PM
To: Lyn Erickson
Subject: Register: COG 2022 Annual Meeting

Metropolitan Washington Council of Governments

2022 COG ANNUAL MEETING AND AWARDS PROGRAM

Join us for COG's biggest event of the year that brings together area elected officials, government executives, and business and nonprofit leaders to celebrate regional partnership, make connections, and recognize outstanding leadership. During the meeting, COG will present its three highest honors—the Scull, Kirby, and Freudberg Awards.

At the start of 2022, we unveiled *Region United: Metropolitan Washington Planning Framework for 2030* to communicate more effectively about our shared priorities and encourage new collaborative actions. Since then, we have initiated promising new housing and climate efforts. The Transportation Planning Board at COG approved a major update to the *Visualize 2045* long-range plan. And, we have continued to closely analyze economic and travel

trends as we plan for the post-pandemic future. Let's take the chance to applaud this important work and look ahead to new opportunities in 2023.

REGISTER TODAY

Wednesday, December 14
Registration & Networking: 11:00 A.M.
Meeting & Luncheon: 12:00 P.M. - 2:00 P.M.

Marriott Marquis Washington, D.C.
901 Massachusetts Avenue NW
Washington, D.C. 20002

MWCOG.ORG

ITEM 7 – Information
November 16, 2022

SAFETY TOPICS

7A. RECAP OF SAFETY WORK SESSION

A brief summary of the morning's work session will be provided.

7B. PBPP: DRAFT TARGETS FOR TRANSIT SAFETY

The board will be briefed on draft regional targets for transit safety performance measures, including fatalities, injuries, safety events, and system reliability, as required under the federal performance based planning and programming (PBPP) rulemaking for public transportation providers and MPOs. The board will be asked to approve the regional targets at its December meeting.

7C. PBPP: DRAFT TARGETS FOR HIGHWAY SAFETY

The board will be briefed on the proposed 2019-2023 targets for highway safety performance measures as part of federal PBPP requirements. The board will be asked to approve the regional targets at its December meeting.

National Capital Region
Transportation Planning Board

MEMORANDUM

TO: Transportation Planning Board
FROM: Andrew Meese, TPB Program Director, Systems Performance Planning
SUBJECT: Planned November 16 TPB Work Session on Transportation Safety
DATE: November 10, 2022

This memorandum provides a preview of the planned Transportation Planning Board (TPB) Work Session on the topic of Transportation Safety, scheduled for Wednesday, November 16, 2022, 10:30 A.M. to 11:45 A.M. (in-person/virtual hybrid format), immediately prior to that day's regularly scheduled TPB meeting.

BACKGROUND

In 2019, in conjunction with approving that year's federally-required Performance-Based Planning and Programming (PBPP) highway safety targets, the TPB requested that member departments of transportation (DOTs) report periodically on their efforts to improve safety. Following this request, safety subject matter experts from the District of Columbia, Maryland, and Virginia departments of transportation briefed the TPB during the remainder of 2019, fostering important discussions. Since then, safety has remained a frequent TPB agenda item, including sharing the findings of TPB-requested regional safety studies; the TPB's July 2020 adoption of R3-2021 – Resolution to Establish a Regional Roadway Safety Policy; establishment of the TPB's Regional Roadway Safety Program; and, most recently, the September 2022 presentation by Federal Highway Administration representative David Petrucci on the U.S. Department of Transportation's Safe System Approach to roadway safety.

This year, TPB staff has been planning to bring state DOT representatives back to provide updates to the board. With the TPB's recent agenda time constraints, it is now planned to accomplish these briefings in the form of a Work Session immediately prior to the November 16 TPB meeting. Staff will then provide a short summary of the Work Session at the main TPB meeting, as part of a larger transportation safety agenda item that will also include draft PBPP transit and highway safety targets.

PLANS FOR THE WORK SESSION

An agenda for the work session is attached to this memorandum. Following opening remarks from TPB Chair Pamela Sebesky, DDOT, MDOT, and VDOT safety representatives will be invited to each present for about 10-15 minutes, with a brief time for clarifying questions and answers, concluding with an open question-and-answer period for (and among) all presenters. Scheduled speakers include DDOT Vision Zero/safety analysts Charlie Willson and Christine Mayeur; Douglas Mowbray, Traffic Records Program Manager for the Maryland Highway Safety Office, with Kimberly Auman and Joe Kufera of the University of Maryland School of Medicine; and Stephen Read, VDOT Highway Safety Planning Manager.

Suggested topics include:

- Current trends and significant roadway safety challenges (including pandemic-related challenges)
- Key strategies/initiatives their agency is pursuing
- Ways they are working with other TPB member jurisdictions, and recommendations for further collaborations
- Whether and how their agency is incorporating the U.S. Department of Transportation's Safe System Approach into their efforts
- Their agency's consideration of the new Vulnerable Road User Safety Assessment requirement in the Highway Safety Improvement Program under the Bipartisan Infrastructure Law (BIL), including required consultation with MPOs, as well as their consideration of new or expanded grant programs under the BIL
- Relationships between their agency's safety target setting process and policies/strategies/ activities in place to improve roadway safety.

WORK SESSION LOGISTICS

TPB members and Work Session presenters will be able to participate either in person (in the COG Board Room) or virtually. TPB members' virtual access for the November 16 Work Session will be via the same meeting login information as for the main TPB meeting, and will be broadcast on the TPB's YouTube channel (as will be the main meeting). Login information will be provided to board members and alternates with the November 10 mailout of the November 16 TPB meeting materials.

Attachment

National Capital Region
Transportation Planning Board

TRANSPORTATION PLANNING BOARD

Wednesday, November 16, 2022
10:30 A.M. – 11:45 A.M.
Walter A. Scheiber Board Room

Meeting in-person/hybrid for members

WORK SESSION AGENDA

TPB SPECIAL WORK SESSION: SAFETY ROUNDTABLE WITH STATE DEPARTMENTS OF TRANSPORTATION

10:30 A.M. **1. WELCOME AND INTRODUCTION TO THE WORK SESSION**
Pamela Sebesky, TPB Chair

As part of a focus on safety, in 2019 the board requested that member departments of transportation (DOTs) report periodically on their efforts to improve safety. Today's work session will provide an opportunity for board members to hear about and discuss the three state DOTs' latest safety information and activities. Suggested topics include current trends and challenges, key strategies and initiatives, collaboration with TPB member jurisdictions, the USDOT Safe System Approach (presented to the TPB in September), and relationships to federally-required safety target setting.

10:35 A.M. **2. DISTRICT OF COLUMBIA**
Charlie Willson, Vision Zero Analyst, DDOT
Christine Mayeur, Transportation Specialist, DDOT

10:55 A.M. **3. MARYLAND**
Douglas Mowbray, Traffic Records Program Manager, Maryland Highway Safety Office, MDOT
Kimberly Auman, Epidemiologist/Database Engineer, University of Maryland School of Medicine
Joe Kufera, Biostatistician, University of Maryland School of Medicine
Myra Wieman, Deputy Director, Maryland Highway Safety Office

11:15 A.M. **4. VIRGINIA**
Stephen Read, Highway Safety Planning Manager, VDOT

11:35 A.M. **5. QUESTIONS AND ANSWERS FOR ALL PANELISTS**

11:45 A.M. **6. ADJOURN**

MEETING VIDEO

Watch and listen to live video of TPB meetings and
listen to the recorded video from past meetings at:
www.mwcog.org/TPBmtg

Reasonable accommodations are provided upon request, including alternative formats of meeting materials.
Visit www.mwcog.org/accommodations or call (202) 962-3300 or (202) 962-3213 (TDD).

ITEM 7 – Information
November 16, 2022

SAFETY TOPICS

7A. RECAP OF SAFETY WORK SESSION

A brief summary of the morning's work session will be provided.

7B. PBPP: DRAFT TARGETS FOR TRANSIT SAFETY

The board will be briefed on draft regional targets for transit safety performance measures, including fatalities, injuries, safety events, and system reliability, as required under the federal performance based planning and programming (PBPP) rulemaking for public transportation providers and MPOs. The board will be asked to approve the regional targets at its December meeting.

7C. PBPP: DRAFT TARGETS FOR HIGHWAY SAFETY

The board will be briefed on the proposed 2019-2023 targets for highway safety performance measures as part of federal PBPP requirements. The board will be asked to approve the regional targets at its December meeting.

National Capital Region
Transportation Planning Board

MEMORANDUM

TO: Transportation Planning Board

FROM: Eric Randall, TPB Transportation Engineer

SUBJECT: Performance-Based Planning and Programming (PBPP) Regional Transit Safety Targets – DRAFT for 2022

DATE: November 10, 2022

This memorandum provides an update on implementation of the federal performance-based planning and programming (PBPP) target-setting requirements under federal surface transportation regulations for the area of transit safety. Applicable providers of public transportation are required to set targets for four transit safety performance measures, following which metropolitan planning organizations (MPOs) are required to establish overall transit safety targets for their planning area.

TRANSIT SAFETY RULEMAKING

The Public Transportation Agency Safety Plan (PTASP) final rule was issued on June 19, 2018. The issuance of this final rule 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 have to set targets.

The PTASP rule applies to providers of public transportation that are recipients and sub-recipients of Federal Transit Administration (FTA) Section 5307 funding and that fall under the safety jurisdiction of the FTA. Applicable providers of public transportation are required to develop and certify Public Transportation Agency Safety Plans. In addition, they are required to set annual targets for the four transit safety measures, following which the MPO must set transit safety targets for the metropolitan planning area within 180 days.

Transit Safety Performance Measures	
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 (Collisions, derailments, fires, or life safety evacuations)	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

MPO targets are not evaluated by the FTA, and there are no consequences for MPOs if they fail to meet their targets. The FTA, however, will review how MPOs incorporate and discuss safety performance measures and targets in their long-range transportation plans and transportation improvement plans (TIPs) during quadrennial MPO certification reviews (the next such MPO certification process for TPB is anticipated to occur in 2023).

TRANSIT SAFETY FOR THE NATIONAL CAPITAL REGION

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, local bus, and paratransit (demand response).

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

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

Regional sub-recipients of FTA Section 5307 funding

- 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. 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.

CALCULATION OF REGIONAL SAFETY TARGETS

Targets for the region are based on those adopted or reported by each provider of public transportation. Measures are calculated for each mode:

- Number of Fatalities/Serious Injuries/Incidents – total number for all providers of that mode.
- Rate of Fatalities/Serious Injuries/Incidents – 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).
- 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.

2022 REGIONAL TRANSIT SAFETY TARGETS

The 2022 regional transit safety targets are based on the targets adopted or in the process of being adopted by each applicable provider of public transportation. The draft 2022 transit safety targets will be briefed to the TPB at its November briefing. Comments will be taken through the end of November, after which the targets will be finalized for adoption at the TPB's December meeting.

Following adoption, the Visualize 2045 long-range metropolitan transportation plan System Performance Report (Appendix D) will be updated with the 2022 targets as well as available information on recent performance in relation to targets (i.e., 2021 performance vs. 2021 targets).

SAFETY TOPICS

Work Session Recap, Draft Transit Safety and Highway Safety Targets

Andrew Meese
TPB Program Director, Systems Performance Planning

Eric Randall
TPB Transportation Engineer

Janie Nham
TPB Transportation Planner

Transportation Planning Board
November 16, 2022

Agenda Item 7

National Capital Region
Transportation Planning Board

TPB Safety Work Session

- Scheduled the morning of November 16, immediately prior to the TPB meeting
- State DOT representatives invited to provide updates on their safety activities and challenges
- Scheduled speakers
  - Charlie Willson and Christine Mayeur, DDOT Vision Zero analysts
  - Douglas Mowbray of the Maryland Highway Safety Office, with University of Maryland specialists
  - Stephen Read, VDOT Highway Safety Planning Mgr.

PBPP: Draft 2022 Transit Safety Targets

Transit Safety: Presentation Items

- Transit Agency Safety Plans Rule
- Transit Safety Performance Measures
- Applicability
- Adopted 2021 Regional Transit Safety Targets
- 2021 Transit Safety Performance
- 2022 Draft Regional Transit Safety Targets
- Schedule

Federal Requirement: Transit Agency Safety Plans

- Federal Performance Based Planning and Programming (PBPP) regulations requires applicable providers of public transportation to develop and certify an agency safety plan
- Applicable transit providers are required to annually set targets for four (4) Transit Safety performance measures
- MPOs have 180 days following to adopt Transit Safety targets for the metropolitan planning area (i.e., regional targets)

Transit Safety Performance Measures

	Performance Measures
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

*Collisions, derailments, fires, or life safety evacuations

Applicable Regional Agencies

- Transit safety requirements apply to providers of public transportation that are recipients and sub-recipients of federal Section 5307 funding under FTA regulation
  - WMATA: Metrorail, Metrobus, MetroAccess
  - DDOT: DC Circulator, DC Streetcar
  - MDOT-MTA: MTA Commuter Bus
  - PRTC: Bus and paratransit
  - and local systems in Suburban Maryland:
    - VanGo (Charles Co.)
    - TransIT (Frederick Co.)
    - Ride On (Montgomery Co.)
    - The Bus (Prince George's Co.)

Northern Virginia local bus systems do not use federal funds, so the safety targets requirements are not applicable

2021 Regional Transit Safety Targets

Final targets for the region adopted by the TPB on November 17, 2021

	Fatalities		Serious Injuries		Safety Events		Reliability
	Number	Rate	Number	Rate	Number	Rate	MDBF
Heavy Rail (HR)	0	0	244	0.31	84	0.11	254,000
Streetcar Rail (SR)	0	0	0	0.00	4	0.27	672
Urban Bus (MB)	0	0	411	0.69	463	0.78	13,654
Commuter Bus (CB)	0	0	6	0.07	20	0.23	13,265
Demand Response (DR)	0	0	40	0.19	18	0.08	0
Vanpools (VP)	0	0	6	0.05	118	1.05	9,500

Rate - Per 100,000 Vehicle Revenue Miles MDBF = Mean Distance Between Failures

2021 Regional Transit Safety Performance

As reported to the FTA National Transit Database, Safety & Security time-series.
Data may be incomplete

2021	Fatalities*		Serious Injuries		Safety Events	
	Number	Rate	Number	Rate	Number	Rate
Heavy Rail (HR)	2	0.002	13	0.016	97	0.12
Streetcar Rail (SR)	0	0	0	0	5	4.68
Urban Bus (MB)	6	0.011	247	0.43	217	0.43
Commuter Bus (CB)	0	0	0	0	1	0.015
Demand Response (DR)	0	0	15	0.16	30	0.16
Vanpools (VP)	0	0	0	0	0	0

Rate - Per 100,000 Vehicle Revenue Miles
* Excludes suicides

2022 Regional Transit Safety Targets - DRAFT

Some agencies are still formalizing their targets

	Fatalities		Serious Injuries		Safety Events		Reliability
	Number	Rate	Number	Rate	Number	Rate	MDBF
Heavy Rail (HR)	0	0	255	0.29	23	0.04	14,000
Streetcar Rail (SR)	0	0	0	0.00	4	0.27	1,000
Urban Bus (MB)	0	0	268	0.49	404	0.74	10,918
Commuter Bus (CB)	0	0	4	0.06	2	0.03	18,596
Demand Response (DR)	0	0	46	0.24	39	0.20	22,903
Vanpools (VP)	0	0	4	0.04	0	0.00	53,000

Rate - Per 100,000 Vehicle Revenue Miles MDBF = Mean Distance Between Failures

Timeline

- October – Collect 2022 targets, previous year's performance vs. target information from applicable Transit Agencies
- October – TPB Regional Public Transportation Subcommittee briefed on draft 2022 targets
- November – Technical Committee briefed on requirements and draft 2022 regional transit safety targets
- November – TPB briefed on requirements and draft 2022 regional transit safety targets
- December – TPB will be asked to adopt resolution with final regional transit safety targets

PBPP: Draft 2019-2023 Highway Safety Targets

Highway Safety: Presentation Items

- Part I: Review of Federal Requirements
- Part II: 2017-2021 Highway Safety Targets and Trends
- Part III: Staff Recommended 2019-2023 Regional Safety Targets
- Part IV: Next Steps

Federal Requirement: Highway Safety

- Federal Highway Administration (FHWA) issued the Safety Performance Management Measures (Safety PM) Final Rule in March 2016, which requires State DOTs and MPOs to:
  - Adopt annual safety performance targets in five (5) safety performance measures
  - Measure and report progress towards those targets each year
  - State DOTs are required to report their safety targets annually through their HSIP report by August 31, and MPOs are required to report their safety targets within 180 days thereafter
- Requirement supports implementation of the Highway Safety Improvement Program (HSIP), which requires States to improve highway safety on public roads using a data-drive, strategic approach

Highway Safety Performance Measures

Performance Measure	Description
Number of Fatalities *(5 year rolling average)*	Total number of fatalities during a calendar year
Rate of Fatalities per 100 million VMT *(5 year rolling average)*	Ratio of total fatalities to VMT
Number of Serious Injuries *(5 year rolling average)*	Total number of serious injuries during a calendar year
Rate of Serious Injuries per 100 million VMT *(5 year rolling average)*	Ratio of total serious injuries to VMT
Number of Non-Motorized Fatalities and Serious Injuries *(5 year rolling average)*	Total number of fatalities and serious injuries during a calendar year

Target Setting Methodology

- TPB targets for each performance measure is a composite of sub-targets developed for each State
  - Apply Maryland's approach to identify a "sub-target" for the Maryland portion of the NCR
  - Apply a modified version of Virginia's suggested approach for its MPOs to identify a sub-target for the Virginia portion of the NCR
  - Incorporate the District of Columbia's target as a sub-target for the DC portion of the NCR
  - Combine the three sub-targets into a regional target for the NCR
  - If a calculated target is higher than the previous target, set the target equal to the previous target

2017-2021 NCR Annual Highway Safety Data

	2017	2018	2019	2020	2021	Change from 2020 to 2021
# of Fatalities	313	303	300	321	360[1]	↑ **12.1 %**
Fatality Rate (per 100 MVMT)	0.695	0.673	0.659	0.876	0.886[1]	↑ **1.1 %**
# of Serious Injuries	2,613	2,464	2,371	1,839	2,221	↑ **20.8 %**
Serious Injury Rate (per 100 MVMT)	5.755	5.473	5.211	5.026	5.277	↑ **5.0 %**
# Nonmotorist Fatalities & Serious Injuries	586	552	595	440	518	↑ **17.8 %**

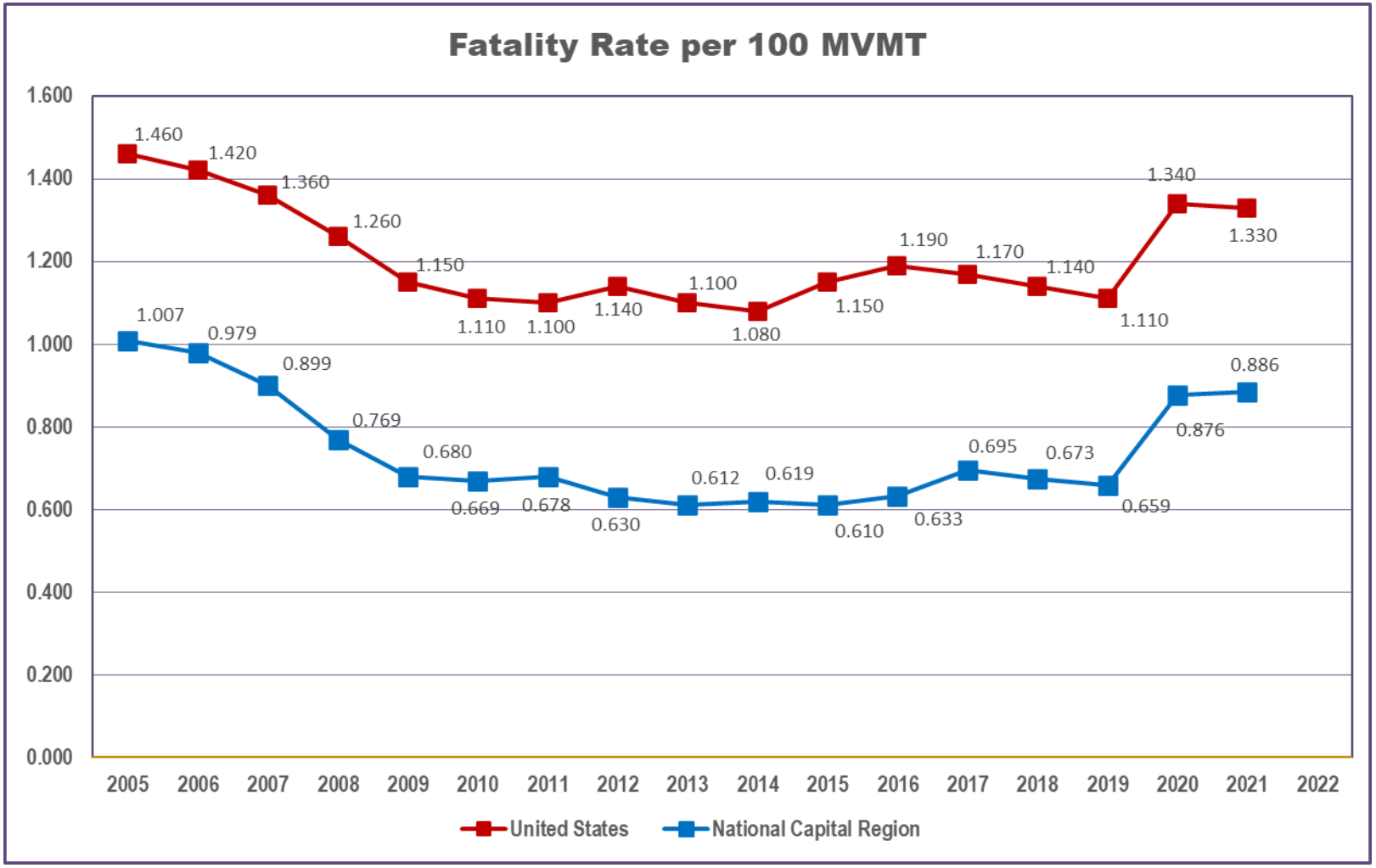
Note [1]: Figures listed are from state fatality data; 2021 FARS data not yet published

2017-2021 NCR Actual vs. Targets

Performance Measure (5-year rolling average)	2017-2021 Target	2017-2021 Actual	Status
# of Fatalities	253.0	319.4[1]	Not met
Fatality Rate (per 100 MVMT)	0.588	0.750[1]	Not met
# of Serious Injuries	2,435.8	2,301.6	Met
Serious Injury Rate (per 100 MVMT)	5.539	5.393	Met
# Nonmotorist Fatalities & Serious Injuries	508.6	545.1	Not met

Note [1]: Figures listed are a combination of FARS and state fatality data; 2021 FARS data not yet published

Fatality Rates: USA and National Capital Region



Staff Observations

- Challenges introduced by the pandemic are still present
  - Highway fatalities remain elevated
  - Regional performance echoes national trend
- Future trajectory of serious injuries is to be determined
  - Highway safety performance can have year-to-year variations
  - Highway safety practitioners consider multi-year trends vs. annual figures (e.g., FHWA evaluates performance as five-year averages)
- NCR highway safety performance measures remain below (better than) national average
  - Underscores importance of safety efforts

NCR Highway Safety Targets (*pre-cap*) - DRAFT

	2018-2022 Target	2019-2023 Target	Difference	Percent Difference
# of Fatalities	271.0	**282.7**	11.7	4.3%
Fatality Rate (per 100 MVMT)	0.632	**0.644**	0.012	1.9%
# of Serious Injuries	1,889.7	**1,757.4**	-132.3	-7.0%
Serious Injury Rate (per 100 MVMT)	3.867	**3.733**	-0.134	-3.5%
# Nonmotorist Fatalities & Serious Injuries	492.4	**486.9**	-5.5	-1.1%

NCR Highway Safety Targets (*with cap*) - DRAFT

	2018-2022 Target	2019-2023 Target	Difference	Percent Difference
# of Fatalities	253.0	253.0	0.0	0.0%
Fatality Rate (per 100 MVMT)	0.588	0.588	0.000	0.0%
# of Serious Injuries	1,889.7	1,757.4	-132.3	-7.0%
Serious Injury Rate (per 100 MVMT)	3.867	3.733	-0.134	-3.5%
# Nonmotorist Fatalities & Serious Injuries	492.4	486.9	-5.5	-1.1%

Summary: NCR Highway Safety Targets

Performance Measure (5-year rolling average)	Adopted 2017-2021 Targets	Adopted 2018-2022 Targets	DRAFT 2019-2023 Targets	Difference	Percent Difference
# of Fatalities	253.0	253.0	253.0	0.0	0.0%
Fatality Rate (per 100 MVMT)	0.588	0.588	0.588	0.0	0.0%
# of Serious Injuries	2,435.8	1,889.7	1,757.4	-132.3	-7.0%
Serious Injury Rate (per 100 MVMT)	5.539	3.867	3.733	-0.134	-3.5%
# Nonmotorist Fatalities & Serious Injuries	508.6	492.4	486.9	-5.5	-1.1%

Timeline

- November 16: TPB Safety Work Session
- November 16: Present staff-proposed regional safety targets to the TPB
- Finalize staff-proposed targets based on board feedback
- December 21: Request board approval of targets

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ITEM 7 – Information
November 16, 2022

SAFETY TOPICS

7A. RECAP OF SAFETY WORK SESSION

A brief summary of the morning's work session will be provided.

7B. PBPP: DRAFT TARGETS FOR TRANSIT SAFETY

The board will be briefed on draft regional targets for transit safety performance measures, including fatalities, injuries, safety events, and system reliability, as required under the federal performance based planning and programming (PBPP) rulemaking for public transportation providers and MPOs. The board will be asked to approve the regional targets at its December meeting.

7C. PBPP: DRAFT TARGETS FOR HIGHWAY SAFETY

The board will be briefed on the proposed 2019-2023 targets for highway safety performance measures as part of federal PBPP requirements. The board will be asked to approve the regional targets at its December meeting.

National Capital Region
Transportation Planning Board

MEMORANDUM

TO: Transportation Planning Board
FROM: Janie Nham, TPB Transportation Planner
SUBJECT: Performance-Based Planning and Programming (PBPP) Regional Highway Safety Targets
DATE: November 10, 2022

This memorandum describes the National Capital Region's progress in implementing federal highway safety performance evaluation and target-setting requirements established by the Federal Highway Administration (FHWA). State departments of transportation (DOTs) and metropolitan planning organizations (MPOs) are federally required to set highway safety performance targets and measure their progress towards those targets annually for their respective planning areas.

At its November 16 and December 21, 2022 meetings, the TPB will be asked to consider and approve 2019-2023 targets for highway safety in accordance with federal PBPP requirements.

BACKGROUND

The Safety Performance Management Measures (Safety PM) Final Rule, issued by the FHWA on March 15, 2016, established target-setting requirements for State DOTs and MPOs. Safety PM complements a collection of rules that establish and refine the program structure and requirements of the Highway Safety Improvement Program (HSIP), a Federal-aid program that requires States to improve highway safety on public roads using a data-driven, strategic approach focused on performance. Specifically, the Safety PM rule supports implementation of HSIP by requiring DOTs and MPOs to adopt safety performance targets annually for specific safety performance measures. It also establishes a process for measuring and reporting progress towards those targets.

By requiring safety targets and ongoing evaluation of safety performance, the compendium of regulations aims to promote transparency and accountability, enables the tracking and understanding of progress on roadway safety, and facilitates informed transportation planning and investment decisions.

RULE PROVISIONS

The Safety PM rule requires DOTs and MPOs to set safety performance targets in five performance categories and to measure progress towards those targets on a yearly basis. The targets are reported as five-year rolling averages. DOTs must establish and report targets each year by August 31 through their annual HSIP report, after which MPOs must set and report targets for the metropolitan planning area within 180 days. While the targets are set by State and regional agencies, they apply to all public roads within their respective areas regardless of ownership or functional classification.

Table 1: Highway Safety Performance Measures

Performance Measure	Description	Data Source
Number of Fatalities (*5-year rolling average*)	Total number of fatalities during a calendar year	FARS[1]
Rate of Fatalities per 100 million Vehicle Miles Traveled (VMT) (*5-year rolling average*)	Ratio of total fatalities to VMT	FARS and HPMS[2] (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 reported serious injury data

[1]FARS: Fatality Analysis Reporting System

[2]HPMS: Highway Performance Monitoring System

To avoid consequences outlined in the rule, States 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 has been met if the performance measure outcome is better than the "baseline," which is defined as the 5-year rolling average for that performance measure for the year prior to the establishment of the target. State DOTs that have not met or made significant progress toward meeting their safety performance targets lose some flexibility in how they can spend their HSIP funds and are required to submit an annual implementation plan that describes actions the DOT will take to meet their targets.

MPO targets are not evaluated by the FHWA, and there are no consequences for MPOs if they fail to meet their targets. The FHWA, however, will review how MPOs incorporate and discuss safety performance measures and targets in their long-range transportation plans and transportation improvement plans (TIPs) during quadrennial MPO certification reviews (the next such MPO certification process for TPB is anticipated to occur in 2023).

CALCULATION OF HIGHWAY SAFETY TARGETS FOR THE NATIONAL CAPITAL REGION

The TPB's approach for calculating regional highway safety targets for the National Capital Region (NCR) leverages the approaches used by its Maryland, District of Columbia, and Virginia DOT partners. To account for and incorporate the different target setting approaches used by each State to develop targets for the entire NCR, TPB staff apply the following methodology to develop the proposed draft targets:

- identify a "sub-target" for the Maryland portion of the NCR by applying MDOT's target setting approach to the safety data for the Maryland portion of the NCR;
- identify a "sub-target" for the Virginia portion of the NCR by applying a modified version of VDOT's suggested MPO target setting methodology to the safety data for the Virginia portion of the NCR;

- identify a "sub-target" for the District of Columbia portion of the NCR by directly incorporating DDOT's targets;
- combine the three sub-targets mathematically into a set of initial regional targets;
- compare each performance measure's sub target with the corresponding target set last year; and
- select the lower (more aggressive) of the two targets as this year's target.

The NCR targets for the number of fatalities, number of serious injuries, and number of non-motorist fatalities and serious injuries are calculated using this approach.

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

2017-2021 HIGHWAY SAFETY TARGETS AND TRENDS

The TPB adopted highway safety targets for 2017-2021 on December 16, 2020. Table 2 shows the National Capital Region's annual performance in each of the five federally-required performance categories during this period. Performance data for 2021 were provided by State agencies as FARS has not yet published information for 2021.

Table 2: National Capital Region Highway Safety Trends, 2017-2021

	2017	2018	2019	2020	2021	Change from 2020 to 2021
Number of Fatalities	313	303	300	321	360	↑ **12.1 %**
Fatality Rate (per 100 million VMT)	0.695	0.673	0.659	0.876	0.886	↑ **1.1 %**
Number of Serious Injuries	2,613	2,464	2,371	1,839	2,221	↑ **20.8 %**
Serious Injury Rate (per 100 million VMT)	5.755	5.473	5.211	5.026	5.277	↑ **5.0 %**
Number of Nonmotorist Fatalities & Serious Injuries	586	552	595	440	518	↑ **17.8 %**

Between 2020 and 2021, both fatalities and serious injuries from roadway crashes increased, including those of nonmotorists. Notably, the rise in the number of serious injuries and in the serious injury rate counters a general downward trend that has been occurring since at least 2006, the earliest year for which the TPB has serious injury data. In addition, while the rise in the number of roadway fatalities in 2021 continues an upward trend for the region, the fatality increase translates into a relatively small change in the fatality rate (a 1.1 percent increase since 2020) due to an 11 percent increase in regional VMT in 2021.

As a result of the region's roadway safety performance between 2017 and 2021, the region met two out of its five highway safety targets (see, Table 3). Note that performance is reported as five-year averages, and although the region experienced an increase in the number of serious injuries and in the serious injury rate in 2021, the increases were not significant enough to offset progress made between 2017 and 2020 in these categories.

Table 3: 2017-2021 Actuals vs. Targets

Performance Measure (as 5-year rolling averages)	2017-2021 Target	2017-2021 Actual	Status
Number of Fatalities	253.0	319.4[1]	Not met
Fatality Rate (per 100 million VMT)	0.588	0.750[1]	Not met
Number of Serious Injuries	2,435.8	2,301.6	Met
Serious Injury Rate (per 100 million VMT)	5.539	5.393	Met
Number of Nonmotorist Fatalities & Serious Injuries	508.6	545.1	Not met

[1]Reflects fatality data from State DOTs and FARS.

PROPOSED 2019-2023 HIGHWAY SAFETY TARGETS FOR THE NATIONAL CAPITAL REGION

Based on the region's roadway safety performance in 2021, Staff proposes the following highway safety targets for 2019-2023 (see, Table 4). The draft 2022 targets will be briefed to the TPB at their November meeting. Comments will be taken through the end of November, after which the targets will be finalized for adoption at the TPB's December meeting.

Table 4: 2019-2023 Proposed Highway Safety Targets

Performance Measure (5-year rolling average)	Adopted 2017-2021 Targets	Adopted 2018-2022 Targets	DRAFT 2019-2023 Targets	Difference	Percent Difference
Number of Fatalities	253.0	253.0	**253.0**	0.0	0.0%
Fatality Rate (per 100 million VMT)	0.588	0.588	**0.588**	0.0	0.0%
Number of Serious Injuries	2,435.8	1,889.7	**1,757.4**	-132.3	-7.0%
Serious Injury Rate (per 100 million VMT)	5.539	3.867	**3.733**	-0.134	-3.5%
Number of Nonmotorist Fatalities & Serious Injuries	508.6	492.4	**486.9**	-5.5	-1.1%

Following adoption, the Visualize 2045 long-range metropolitan transportation plan System Performance Report (Appendix D) will be updated with the 2019-2023 targets as well as available information on recent performance in relation to targets.

SAFETY TOPICS

Work Session Recap, Draft Transit Safety and Highway Safety Targets

Andrew Meese
TPB Program Director, Systems Performance Planning

Eric Randall
TPB Transportation Engineer

Janie Nham
TPB Transportation Planner

Transportation Planning Board
November 16, 2022

Agenda Item 7

National Capital Region
Transportation Planning Board

TPB Safety Work Session

- Scheduled the morning of November 16, immediately prior to the TPB meeting
- State DOT representatives invited to provide updates on their safety activities and challenges
- Scheduled speakers
  - Charlie Willson and Christine Mayeur, DDOT Vision Zero analysts
  - Douglas Mowbray of the Maryland Highway Safety Office, with University of Maryland specialists
  - Stephen Read, VDOT Highway Safety Planning Mgr.

PBPP: Draft 2022 Transit Safety Targets

Transit Safety: Presentation Items

- Transit Agency Safety Plans Rule
- Transit Safety Performance Measures
- Applicability
- Adopted 2021 Regional Transit Safety Targets
- 2021 Transit Safety Performance
- 2022 Draft Regional Transit Safety Targets
- Schedule

Federal Requirement: Transit Agency Safety Plans

- Federal Performance Based Planning and Programming (PBPP) regulations requires applicable providers of public transportation to develop and certify an agency safety plan
- Applicable transit providers are required to annually set targets for four (4) Transit Safety performance measures
- MPOs have 180 days following to adopt Transit Safety targets for the metropolitan planning area (i.e., regional targets)

Transit Safety Performance Measures

	Performance Measures
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

*Collisions, derailments, fires, or life safety evacuations

Applicable Regional Agencies

- Transit safety requirements apply to providers of public transportation that are recipients and sub-recipients of federal Section 5307 funding under FTA regulation
  - WMATA: Metrorail, Metrobus, MetroAccess
  - DDOT: DC Circulator, DC Streetcar
  - MDOT-MTA: MTA Commuter Bus
  - PRTC: Bus and paratransit
  - and local systems in Suburban Maryland:
    - VanGo (Charles Co.)
    - TransIT (Frederick Co.)
    - Ride On (Montgomery Co.)
    - The Bus (Prince George's Co.)

Northern Virginia local bus systems do not use federal funds, so the safety targets requirements are not applicable

2021 Regional Transit Safety Targets

Final targets for the region adopted by the TPB on November 17, 2021

	Fatalities		Serious Injuries		Safety Events		Reliability
	Number	Rate	Number	Rate	Number	Rate	MDBF
Heavy Rail (HR)	0	0	244	0.31	84	0.11	254,000
Streetcar Rail (SR)	0	0	0	0.00	4	0.27	672
Urban Bus (MB)	0	0	411	0.69	463	0.78	13,654
Commuter Bus (CB)	0	0	6	0.07	20	0.23	13,265
Demand Response (DR)	0	0	40	0.19	18	0.08	0
Vanpools (VP)	0	0	6	0.05	118	1.05	9,500

Rate - Per 100,000 Vehicle Revenue Miles MDBF = Mean Distance Between Failures

2021 Regional Transit Safety Performance

As reported to the FTA National Transit Database, Safety & Security time-series.
Data may be incomplete

2021	Fatalities*		Serious Injuries		Safety Events	
	Number	Rate	Number	Rate	Number	Rate
Heavy Rail (HR)	2	0.002	13	0.016	97	0.12
Streetcar Rail (SR)	0	0	0	0	5	4.68
Urban Bus (MB)	6	0.011	247	0.43	217	0.43
Commuter Bus (CB)	0	0	0	0	1	0.015
Demand Response (DR)	0	0	15	0.16	30	0.16
Vanpools (VP)	0	0	0	0	0	0

Rate - Per 100,000 Vehicle Revenue Miles
* Excludes suicides

2022 Regional Transit Safety Targets - DRAFT

Some agencies are still formalizing their targets

	Fatalities		Serious Injuries		Safety Events		Reliability
	Number	Rate	Number	Rate	Number	Rate	MDBF
Heavy Rail (HR)	0	0	255	0.29	23	0.04	14,000
Streetcar Rail (SR)	0	0	0	0.00	4	0.27	1,000
Urban Bus (MB)	0	0	268	0.49	404	0.74	10,918
Commuter Bus (CB)	0	0	4	0.06	2	0.03	18,596
Demand Response (DR)	0	0	46	0.24	39	0.20	22,903
Vanpools (VP)	0	0	4	0.04	0	0.00	53,000

Rate - Per 100,000 Vehicle Revenue Miles MDBF = Mean Distance Between Failures

Timeline

- October – Collect 2022 targets, previous year's performance vs. target information from applicable Transit Agencies
- October – TPB Regional Public Transportation Subcommittee briefed on draft 2022 targets
- November – Technical Committee briefed on requirements and draft 2022 regional transit safety targets
- November – TPB briefed on requirements and draft 2022 regional transit safety targets
- December – TPB will be asked to adopt resolution with final regional transit safety targets

PBPP: Draft 2019-2023 Highway Safety Targets

Highway Safety: Presentation Items

- Part I: Review of Federal Requirements
- Part II: 2017-2021 Highway Safety Targets and Trends
- Part III: Staff Recommended 2019-2023 Regional Safety Targets
- Part IV: Next Steps

Federal Requirement: Highway Safety

- Federal Highway Administration (FHWA) issued the Safety Performance Management Measures (Safety PM) Final Rule in March 2016, which requires State DOTs and MPOs to:
  - Adopt annual safety performance targets in five (5) safety performance measures
  - Measure and report progress towards those targets each year
  - State DOTs are required to report their safety targets annually through their HSIP report by August 31, and MPOs are required to report their safety targets within 180 days thereafter
- Requirement supports implementation of the Highway Safety Improvement Program (HSIP), which requires States to improve highway safety on public roads using a data-drive, strategic approach

Highway Safety Performance Measures

Performance Measure	Description
Number of Fatalities *(5 year rolling average)*	Total number of fatalities during a calendar year
Rate of Fatalities per 100 million VMT *(5 year rolling average)*	Ratio of total fatalities to VMT
Number of Serious Injuries *(5 year rolling average)*	Total number of serious injuries during a calendar year
Rate of Serious Injuries per 100 million VMT *(5 year rolling average)*	Ratio of total serious injuries to VMT
Number of Non-Motorized Fatalities and Serious Injuries *(5 year rolling average)*	Total number of fatalities and serious injuries during a calendar year

Target Setting Methodology

- TPB targets for each performance measure is a composite of sub-targets developed for each State
  - Apply Maryland's approach to identify a "sub-target" for the Maryland portion of the NCR
  - Apply a modified version of Virginia's suggested approach for its MPOs to identify a sub-target for the Virginia portion of the NCR
  - Incorporate the District of Columbia's target as a sub-target for the DC portion of the NCR
  - Combine the three sub-targets into a regional target for the NCR
  - If a calculated target is higher than the previous target, set the target equal to the previous target

2017-2021 NCR Annual Highway Safety Data

	2017	2018	2019	2020	2021	Change from 2020 to 2021
# of Fatalities	313	303	300	321	360[1]	↑ **12.1 %**
Fatality Rate (per 100 MVMT)	0.695	0.673	0.659	0.876	0.886[1]	↑ **1.1 %**
# of Serious Injuries	2,613	2,464	2,371	1,839	2,221	↑ **20.8 %**
Serious Injury Rate (per 100 MVMT)	5.755	5.473	5.211	5.026	5.277	↑ **5.0 %**
# Nonmotorist Fatalities & Serious Injuries	586	552	595	440	518	↑ **17.8 %**

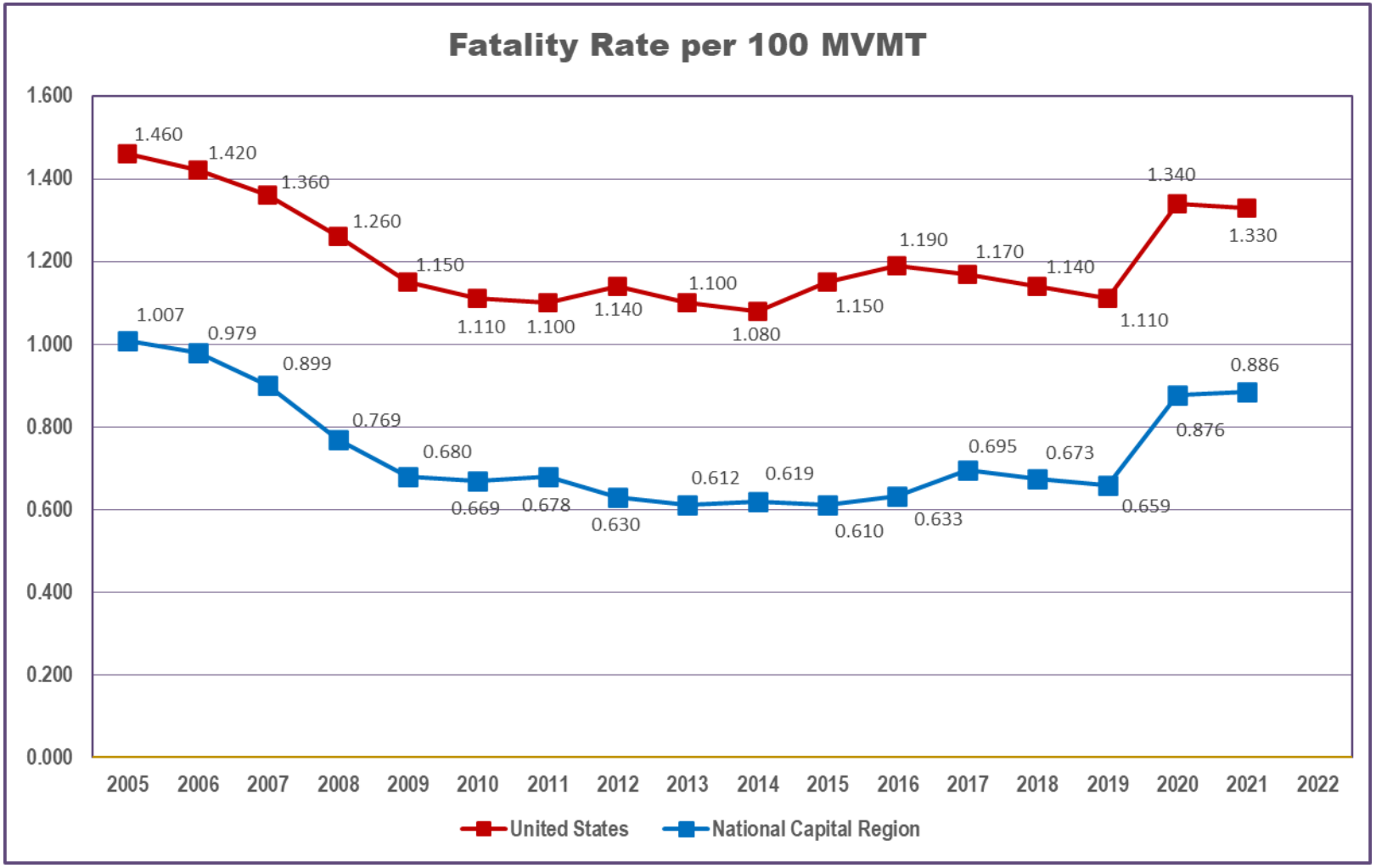
Note [1]: Figures listed are from state fatality data; 2021 FARS data not yet published

2017-2021 NCR Actual vs. Targets

Performance Measure (5-year rolling average)	2017-2021 Target	2017-2021 Actual	Status
# of Fatalities	253.0	319.4[1]	Not met
Fatality Rate (per 100 MVMT)	0.588	0.750[1]	Not met
# of Serious Injuries	2,435.8	2,301.6	Met
Serious Injury Rate (per 100 MVMT)	5.539	5.393	Met
# Nonmotorist Fatalities & Serious Injuries	508.6	545.1	Not met

Note [1]: Figures listed are a combination of FARS and state fatality data; 2021 FARS data not yet published

Fatality Rates: USA and National Capital Region



Staff Observations

- Challenges introduced by the pandemic are still present
  - Highway fatalities remain elevated
  - Regional performance echoes national trend
- Future trajectory of serious injuries is to be determined
  - Highway safety performance can have year-to-year variations
  - Highway safety practitioners consider multi-year trends vs. annual figures (e.g., FHWA evaluates performance as five-year averages)
- NCR highway safety performance measures remain below (better than) national average
  - Underscores importance of safety efforts

NCR Highway Safety Targets (*pre-cap*) - DRAFT

	2018-2022 Target	2019-2023 Target	Difference	Percent Difference
# of Fatalities	271.0	**282.7**	11.7	4.3%
Fatality Rate (per 100 MVMT)	0.632	**0.644**	0.012	1.9%
# of Serious Injuries	1,889.7	**1,757.4**	-132.3	-7.0%
Serious Injury Rate (per 100 MVMT)	3.867	**3.733**	-0.134	-3.5%
# Nonmotorist Fatalities & Serious Injuries	492.4	**486.9**	-5.5	-1.1%

NCR Highway Safety Targets (*with cap*) - DRAFT

	2018-2022 Target	2019-2023 Target	Difference	Percent Difference
# of Fatalities	253.0	253.0	0.0	0.0%
Fatality Rate (per 100 MVMT)	0.588	0.588	0.000	0.0%
# of Serious Injuries	1,889.7	1,757.4	-132.3	-7.0%
Serious Injury Rate (per 100 MVMT)	3.867	3.733	-0.134	-3.5%
# Nonmotorist Fatalities & Serious Injuries	492.4	486.9	-5.5	-1.1%

Summary: NCR Highway Safety Targets

Performance Measure (5-year rolling average)	Adopted 2017-2021 Targets	Adopted 2018-2022 Targets	DRAFT 2019-2023 Targets	Difference	Percent Difference
# of Fatalities	253.0	253.0	253.0	0.0	0.0%
Fatality Rate (per 100 MVMT)	0.588	0.588	0.588	0.0	0.0%
# of Serious Injuries	2,435.8	1,889.7	1,757.4	-132.3	-7.0%
Serious Injury Rate (per 100 MVMT)	5.539	3.867	3.733	-0.134	-3.5%
# Nonmotorist Fatalities & Serious Injuries	508.6	492.4	486.9	-5.5	-1.1%

Timeline

- November 16: TPB Safety Work Session
- November 16: Present staff-proposed regional safety targets to the TPB
- Finalize staff-proposed targets based on board feedback
- December 21: Request board approval of targets

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ITEM 8 – Information
November 16, 2022

2024 Long-Range Plan Update

Background: Ms. Cook will review considerations related to the 2024 plan update. This will include two key resources that will support the next Technical Inputs Solicitation: the draft synthesized policy framework, and the summary of scenario findings.

Attachment A – Memo
Attachment B – Draft Synthesized Policy Framework
Attachment C – Draft Scenario Summary

National Capital Region
Transportation Planning Board

MEMORANDUM

TO: Transportation Planning Board

FROM: Stacy Cook, TPB Transportation Planner, Long-Range Transportation Plan Program Manager

SUBJECT: 2024 LRTP Update

DATE: November 10, 2022

SUMMARY

This memo describes the two documents presented at the TPB's November 2022 meeting and summarizes how these documents will be used for the 2024 update to the region's long-range transportation plan and FY 2025- FY 2028 TIP.

BACKGROUND

To ensure federal funds for transportation continue to flow through the region, a critical requirement is the approval of the Air Quality Conformity Determination of the Visualize 2045 update and the FY 2023-FY 2026 Transportation Improvement Program (TIP). The federal government requires the TPB to conduct an in-depth analysis to ensure projected emissions generated by users of the region's future transportation system will not exceed (or "conforms to") the air quality emissions budgets set forth in the region's air quality plans. This is known as air quality conformity. Based on the results of the analysis, a determination is made to confirm conformity. The federally approved conformity determination from 2018 had to be updated in 2022. **On August 25, 2022, the TPB's federal partners approved the conformity determination for the Visualize 2045 update and the FY 2023-FY 2026 TIP (see attached letter). This is the portion of the plan that receives official "approval;" the remaining federal requirements are reviewed during the quadrennial certification review.** The TPB is recognized for fulfilling its important role in ensuring that the National Capital Region's Metropolitan Planning Organization complies with its responsibilities to meet federal requirements.

Like plans that came before, the update to Visualize 2045 and the process used by the TPB to develop the plans must meet an array of federal requirements, including but not limited to compliance with performance-based planning rules, consideration of the ten federal planning factors, conducting a congestion management process, engaging in public participation, responding to concerns of non-discrimination and equity, and others. The federal agencies review the planning process as part of their Federal Certification Review, every four years. This review will begin this fall.

THE LRTP 2024 UPDATE: MAJOR ACTIVITIES AND CONSIDERATIONS

The 2024 LRTP update includes four major activities that the TPB will undertake, these are described below.

The TPB will:

1. Update non-transportation inputs
2. Develop a new financial plan
3. Use new Motor Vehicle Emissions Budgets (MVEBs)
4. Work with sponsoring agencies to re-examine/re-submit all projects, programs, policies

The materials that are included in the November 2022 meeting packet will be reviewed by staff during the TPB's November 16th meeting. They pertain to #4 of the list above.

- Staff will briefly review the intent to use a zero-based budgeting approach for the next plan update (re-examine/re-submit projects, programs, policies)
- Staff will review the draft TPB synthesized policy framework (included within this packet)
- Staff will review the draft TPB Summary of Scenario Studies Findings (included within this packet)

The TPB Synthesized Policy Framework and the TPB Summary of Scenario Studies Findings will be considered part of the TPB's Technical Inputs Solicitation for the 2024 update plan. These documents are expected to be used for the 2024 plan update by the sponsor agencies as they re-examine/re-submit projects, programs, and policies ("zero-based budgeting approach"). Specifically, the intent is to enable the submissions to better reflect TPB planning priorities, be more aligned with the TPB's enhanced policy framework, and be more reflective of TPB scenario findings.

Draft 11/9/2022

A Summary of the TPB and COG Scenario Study Findings

Informing Planning for the Metropolitan Washington Region

National Capital Region
Transportation Planning Board

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TRANSPORTATION PLANNING BOARD (TPB) SCENARIO PLANNING STUDIES – SUMMARY OF FINDINGS

DRAFT

This document is a companion document to the high-level summary of TPB Scenarios. This document reviews the eleven scenario studies that COG and the TPB have conducted over the last 15+ years and presents a summary of findings.

November 9, 2022

National Capital Region
Transportation Planning Board

TPB SCENARIO PLANNING STUDIES – SUMMARY OF FINDINGS:
Prepared by TPB staff based on reports from past scenario studies.

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, 24 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).

CREDITS

Contributing Editors: Kanti Srikanth, Leo Pineda, Erin Morrow, Dusan Vuksan, Rachel Beyerle, Stacy Cook, Sergio Ritacco, and Mark Moran

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SUMMARY OF TPB SCENARIO FINDINGS

This document describes the reasoning for developing a summary of scenario findings; provides context based on the Transportation Planning Board's (TPB) role in the region; summarizes what the TPB has learned about strategies to advance many of the TPB's goals and priorities around transportation; and describes how this information should be used to update the TPB's 2024 long-range transportation plan (LRTP).

1. Scenario Summary Purpose

The TPB has conducted 11 scenario summaries over the last 15 years. This document summarizes the findings of these recent scenario studies. It serves as a reference document for TPB member agencies as they reexamine the projects, programs, and policies in the current long-range transportation plan and as they consider their input to the 2024 LRTP update. This summary is intended to assist transportation related decision-making of the TPB member agencies in choosing projects, programs, and policies to add to the LRTP that implement the strategies that have shown the greatest potential to advance the TPB's goals.

TPB member agencies are advised to consider the projects included in the current LRTP (Visualize 2045 update) and evaluate how well the projects reflect the scenario findings and advance the TPB's policy framework. Additionally, member agencies should note the inputs to the constrained elements of the LRTP will be required to demonstrate that funding needed to implement, operate, and maintain them is reasonably expected to be available. Projects, programs, and policies should have gone through the required (local, sub-regional, state, or federal) process. Consequently, not all the member agencies' projects, programs, and policies that advance the TPB's planning priorities can be represented in the constrained element of the next LRTP. However, these could be considered for inclusion in the unconstrained part of the LRTP.

2. Regional Context: the TPB as the Region's MPO

The TPB, as part of its responsibilities as a metropolitan planning organization (MPO), develops the regional LRTP. The LRTP includes regionally significant and federally funded transportation projects and programs planned to be implemented by the TPB members' transportation agencies. A broad set of regional principles and goals developed by the TPB constitutes the policy framework to inform the LRTP and shape the region's transportation system. The various elements of this policy framework are derived from the following documents: The Vision, Region Forward, Regional Transportation Priorities Plan, the Aspirational Initiatives, and climate goals.

TPB PLANNING PRINCIPLES, GOALS AND STRATEGIES

The policy element of the TPB's LRTP are based on the following principles: Equity, Prosperity, Accessibility, Livability and Sustainability. The goals for the LRTP, rooted in these principles, are Maintenance (state of good repair), Safety, Reliability, Affordability and Convenience, Efficient System Operations, Environmental Protection and having a Resilient Region with Livable and Prosperous Communities.

The TPB, through its various regional planning activities, has identified a diverse set of strategies to advance the regional goals for its members to consider as part of their transportation planning and programming actions. The strategies the that the TPB has studied in its scenario studies to achieve its planning goals are grouped under the following themes: Land-Use; Transportation, including Roadway, Transit, and Bike/Pedestrian and operations technologies; Travel Demand Management (such as telework);

Legislation/Policy (e.g., cordon fees, Vehicle Miles Traveled Fees); and Vehicle Technologies and Fuels (e.g., electrification, clean fuels).

Additional description of the principles, goals and strategies are articulated in the (draft as of November, 2022) TPB's synthesized policy framework.

WHERE ARE WE TODAY?

This section provides information on the existing conditions of the region and a baseline for performance of the transportation system today[1] to put the scenario findings in context of "where we are now."

Baseline

1) The region is:
   - **Vast:** about 3,500 square miles, 23 counties and cities in parts of Virginia and Maryland plus the District of Columbia
   - **dense**: 5.7 million people and 3.4 million jobs
   - **with a robust transportation network** (more than - 17,000 lane miles of roadways, one urban and two commuter rail systems with 302 miles of rail tracks and 152 stations, 532 HOV/toll lanes, 15 local and commuter buses, at least 10 paratransit services).
2) A **large amount of travel occurs daily:** 18 million person trips of which 14 million are non-work related (20 percent are work related). A majority, 59 percent, of these trips are in carpools, vanpools, or by people walking, biking, or taking transit. All these trips log about 119 million VMT each day.
3) A reasonably **good degree of synergy exists between the region's land-use and transportation:**
   - about two-thirds of the jobs are within mixed-use regional Activity Centers and 41 percent are near High-Capacity Transit (HCT) stations
   - more than 50 percent of the jobs and population are within one-half mile of approximately 800 miles of off-road walk/bicycle trails, and
   - more than a quarter of commuters have HOV/Express lanes along their commute route.

This has resulted in about 7.2 million auto users sharing their rides, 1.2 million riders on rails and buses, about 2.2 million people walking and bicycling, on an average weekday.

4) **The current LRTP** reflects a mix of multimodal transportation strategies and projects and targeted land-use practices to better manage forecast growth in the region. It shows meaningful progress towards improving mobility and accessibility over the next 20 years.
   - More people than at present will live in mixed use regional Activity Centers (35 percent) and near HCT stations (27 percent). This trend is also true for jobs (67 percent in Activity Centers, and 49 percent near HCT stations).
   - Of all non-work trips on a typical day in 2045, carpooling is forecast to have the greatest share of these trips (40 percent); transit mode share is lower (7 percent) and walk and bike trips show an uptick (making up 12 percent).
   - The increase in the share of people on transit (28 percent) and walking/bicycling (39 percent) will be much higher than increase in those driving alone (10 percent) The number of jobs accessible by transit will increase (33 percent) with per capita VMT decreasing 3 percent.
   - Ozone related emissions and greenhouse gases are all estimated to decrease and comply with established emissions limits for ozone, even as the demand for travel increases.

[1] Please note, many study results presented in this document are compared to other baselines, such as the performance of future plans, as noted within the summary.

5) **Congestion will persist** on the region's roadways and on the rail system during the peak hour. It will grow despite the planned improvement projects, primarily due to the growth in demand (23 percent more people and 29 percent more jobs).
    - Roadway lane miles that are congested during the peak periods will increase (45 percent) with the daily vehicle hour of delay increasing (48 percent).

Opportunities and Constraints of Prevailing Conditions

1) The considerable extent and the age of the transportation infrastructure requires the region to currently spend about 80 percent of transportation revenues on operations and maintenance, thus limiting the funds available for expanding existing infrastructure or services (highway and transit).
2) About 80 percent of the land-use, population and jobs forecast for the future (2045) is presently on the ground. Additionally, the distribution of jobs is sub-optimal between the eastern (31 percent) and western (61 percent) parts of the region. This is also the case for the ratio of jobs to housing (1.50 in east and 1.64 in west), which results in more and longer travel for those in the eastern parts of the region. Also, the jobs to housing ratios in the region between the central core, inner and outer suburbs are sub-optimal (core 2.3, inner 1.4 and outer 1.1), which creates more and longer travel for those in the outer suburbs.
3) The anticipated growth in the region (about 1 million jobs and more than 1 million people), with the limited change in the pattern of distribution of jobs across the region, is the single largest factor impacting the increase in travel demand and the patterns of travel. This will place a high uneven demand on the transportation system, as will the forementioned development pattern, the existing and unchanging uneven distribution of jobs between the east and west, and the fact that there is limited growth remaining to be influenced (less than 20 percent).

Due to the above factors stated above, large scale reimagination of land-use and demographic shifts are extremely challenging to implement.

3. What the TPB has Learned Through the Scenario Studies

The TPB staff has conducted 11 scenario studies (listed in Table 1) exploring various land-use, transportation, and policy strategies that would help advance its transportation goals. The scenarios have examined various strategies in the context of the growth (in population, employment, and households) that the region anticipates (about 1 million more people and jobs). These studies have identified the potential improvements in the transportation system that various strategies would provide. While the findings from each specific strategy are summarized in the section below, overarching results indicate the following:

- The anticipated growth in the region is the most significant factor affecting the transportation system's forecast performance–increasing the number of trips that the system must accommodate.
- A combination of strategies involving land-use, travel pricing, highway, and transit projects, together with TDM (such as teleworking), retains the best potential to provide meaningful improvements in mobility and accessibility.
- In general, policies show a much greater potential to reduce Vehicle Miles Traveled (VMT) and greenhouse gas (GHG) emissions than individual project or groups of projects.
- No single modal strategy or project (transit, highway teleworking, pricing) will be able to yield substantial changes to mobility, accessibility and GHG reduction. While combinations of projects, such as expansive transit extensions, introduction of a regionwide BRT system, and express lane

networks with express bus service could have a more substantive impact on accessibility and mobility, they also are forecasted to have a limited impact on GHG emissions.

- To make progress on GHG reduction goals, transportation strategies that aid in changing the mode share and total amount of travel can help; however, the strategies that reduce energy consumption and transition vehicles to cleaner fuel, such as electric vehicles, are essential to progress.

SCENARIO FINDINGS

It is important to note that the scenario analyses were intended to provide an "order of magnitude" understanding as to the potential impact of a strategy (or a combination) on the transportation system's performance. The ability to implement the scenarios was not considered in any of the studies. Some of the scenarios are neither feasible nor practical to implement. Since the scenario studies examined a broad variety of approaches to improve the performance of the region's transportation system, the findings are summarized, below, under a series of "What If" questions. For more details on these studies and findings please review the Appendix to this summary.

Table 1 TPB Scenario Studies

No.	Scenario Study Focus	Scenario Study Title
1	Impact of Growth, Highway projects and Transit projects	Long-Range Transportation Plan 2022 Update: No Build Tests
2	Transportation strategies to reduce on-road GHG emissions (50% by 2030 and 80% by 2050)	Climate Change Mitigation Study
3	Contributions from transportation towards region's multi-sector 2030 GHG reduction goals	2030 Climate Energy Action Plan
4	Potential transportation system performance improvements from all projects in each TPB member's Comprehensive Plan	All Build Analysis (LRP Task Force Phase 1)
5	Targeted congestion reduction through a package of pricing, policy and maximum highways and transit projects	Congestion Reduction Test (by 25 Percent Relative to 2040) (Preparation for LRP Task Force Phase 2)
6	Potential of ten packages of integrated land use, transportation infrastructure and pricing strategies	Aspirational Initiatives (LRP Task Force Phase 2)
7	Contributions from on-road sector towards region's multi-sector 2050 GHG reduction goals (80% by 2050)	Multisector Working Group
8	Redistribute forecast jobs and housing to Activity Centers and near transit together with a network of variably priced lanes	CLRP Aspirations
9	Strategies to reduce on-road GHG emissions (80% by 2050)	What Would It Take
10	Extensive network of dynamically tolled lanes with bus rapid transit services	Regional Value Priced Network
11	Combination of land-use and transportation projects	Regional Mobility & Accessibility

Please note the following caveats:
Implications for development of the constrained element of the plan:

- Benefits from multiple strategies for mobility goals and GHG reduction goals are not always additive and at times are counteractive. In other words, a project, program, or policy might make progress on one goal while hindering a progress on another.

- Many of these complementary strategies will not be represented in the "constrained element" of the LRTP used for the Air Quality Conformity analysis, but the TPB will continue to focus on regional coordination to support the implementation of these other strategies.

Limitations of this document:

- The scenario studies referenced in this document and its Appendix were conducted at different times, for different purposes, and used different sets of assumptions, methodologies, and analysis tools. The findings reported in this document aim to take that into account; however, the reader should be cautioned against comparing the relative effectiveness of a particular strategy among other strategies across studies.

What happens if the region only maintains and operates the existing system, and makes no capacity enhancements to the highway and transit system?

TPB staff analysis shows that if the region continues to grow and no enhancements are made to the transportation system, congestion will increase significantly. VMT and GHG emissions change little in the two 2045 scenarios in Table 2 (i.e., differences relative to today are similar), largely because VMT and GHG emissions are mainly driven by population and employment forecasts (which are identical in both 2045 scenarios), rather than the projects.

Table 2 Future Compared to Today: 2022 Plan Forecast vs. No Capacity Enhancements

Differences: Future Compared to Today			
Scenario	Daily VHD	Daily VMT	GHG Emissions
2045 Growth + Highway & Transit projects 2022 LRTP	+48%	+15%	-11%
Growth + No Highway and Transit Projects in 2022 LRTP	+80%	+14%	-13%

What happens if the region implements only the transit projects in its current LRTP to accommodate the anticipated growth?

TPB staff analysis shows that if the region continues to grow and only the transit projects in the current LRTP are implemented (but no highway projects), congestion will still increase substantially, but less than if there were no improvements. The transit-only scenario shows that daily VMT still will increase, but less compared to "no action:". The same scenario also shows GHG emissions will be reduced, but the change is slight compared to the "no action" scenario.

Table 3 Future Compared to Today: 2022 Plan Forecast vs. Only Transit Enhancements

Differences: Future Compared to Today			
Scenario	Daily VHD	Daily VMT	GHG Emissions
2045 Growth + Transit projects 2022 LRTP	+76%	+13%	-14%
Growth + No Highway and Transit Projects in 2022 LRTP	+80%	+14%	-13%

What happens if the region implements only the highway projects in its current LRTP to accommodate the anticipated growth?

TPB analysis shows that if the region continues to grow and only the highway projects planned in the current LRTP are implemented, congestion will still increase in the future compared to today. However, the increase will be considerably less than if there are no improvements or if the LRTP implemented only transit projects. Daily VMT will also increase compared to today more so than the other scenarios, and GHG emissions reductions will be lower, compared to the scenarios with no improvements or with only transit projects.

Table 4 Future Compared to Today: 2022 Plan Forecast vs. Only Highway Enhancements

Differences: Future Compared to Today			
Scenario	Daily VHD	Daily VMT	GHG Emissions
2045 Growth + Highway projects 2022 LRTP	+51%	+16%	-11%
Growth + No Highway and Transit Projects in 2022 LRTP	+80%	+14%	-13%

What happens if the region pursues "maximum enhancement" strategies to accommodate future demand and improve system performance, including extreme improvements (likely impractical) to highway and transit capacity and high travel pricing?

Three scenarios were examined, as a thought experiment, to determine the upper bounds of impact that the three broad category of strategies could provide. The two project options were not considered implementable, and the significant equity and economic impacts of the remaining VMT tax scenario was recognized as an issue. The analysis showed that while the extreme pricing and extreme highway capacity addition strategies could fully offset growth in delay and provide GHG reductions, these strategies are not practical given the socio, economic, environmental impacts. The study highlights how significant of an influence the current land-use and travel conditions in the region, together with the anticipated targeted growth, would have on the performance of the transportation system in the future.

Table 5 Future Compared to Today: Plan Forecast vs. Maximum Enhancements

Future Compared to Today			
Scenario	Daily VHD	Daily VMT	GHG Emissions
LRTP Future forecast	+82%	+21%	-21%
All bus and rail system headways of 1 minute, and all rail and BRT run times cut by 50%	+52%	+17%	-24%
Add one lane in each direction on all roadways (except local roads)	-20%	+30%	-16%
$1 per mile VMT tax on all travel	-46%	-24%	-51

What happens if the region pursues more practical capacity-adding and travel demand reduction strategies, those that TPB member agencies have examined, to accommodate future demand and improve system performance?

The TPB's Long-Range Plan Task Force (LRPTF) scenario study examined strategies that TPB member agencies put forth as "doable," although there was no regional consensus on some of the strategies. These strategies included a more practical set of highway and transit capacity projects, although some of these could be viewed as "aggressive" (unprecedented expansion of the rail system, regionwide BRT system, regionwide express toll lane network, etc.). Many of these strategies offer marginal improvements in forecast performance. Metrorail extension and a network of Express/Toll lanes (packages F and A) offer slightly better, yet modest, improvement. Substantial policy changes and investments to advance transportation demand management strategies (package J) offers the most reduction in vehicle hours of delay, daily VMT and GHG emissions. Reducing transit fares could possibly have positive equity outcomes but shows marginal improvements across these same measures.

Table 6 Comparisons to CLRP Forecast 2040 Conditions: Alternative Strategy Scenarios

Non-Roadway Capacity Strategies				
Scenario		Daily VHD	Daily VMT	GHG Emissions
Comparisons to Today:				
	Constrained Long-Range Plan Forecast	+82%	+21%	-21%
Comparisons to CLRP Forecast 2040 Conditions:				
	BRT systems throughout region (Including additional streetcars in D.C., transitway from Waldorf top Branch Ave.)	-2%	-<1%	-1%
	Expanded Commuter Rail (VRE and MARC Growth Plans + Station Access improvements)	-2%	-<1%	0%
	Metrorail capacity additions (Including new line between VA and D.C, 2nd station at Rosslyn)	-9%	-1%	-2%
	Extensions to Metro & Light Rails (including Metro to Gainesville, Potomac Mills, Purple line to Tysons and Alexandria)	-3%	-1%	-1%
	Transit Fares (Free transit for low income; reduced Metro fares in off-peak direction)	-2%	-1%	-1%
Roadway Capacity Strategies				
	Network of Express Toll lanes - HOV free, & BRT	-11%	<1%	0%
	New river crossing to north with tolls, express bus	-3%	+1%	+1%
Travel Demand Reduction and Operational Strategies				
	TSMO - Technology, Roadway design changes, Regional Incident Management, etc.	-8%	+2%	-1%
	Amplified TDM–expanded telework, increased commuter parking costs in Activity Centers, expanded transit subsidies, employer parking cash out, etc.	-24%	-6%	-7%

What happens if policies could reduce overall travel OR better distribute travel throughout the day?

Various policies and practices, including those at workplaces and businesses, could influence the number of trips a household makes in a day or the time of day during which these trips are made (given that the region's highway and transit system are congested during the peak hour). This study shows that a set of actions that significantly reduced the number of trips made by a household during a day would be able to offer significant decreases in congestion, VMT, and GHG emissions. The feasibility of such actions and its socio-economic impacts make this an unlikely practical strategy. Actions, however, that would result in a more uniform distribution of daily trips also offset the increase in delay, although they are forecasted to also increase daily VMT.

Table 7 Future Compared to Today: Plan Forecast vs. Alternative Scenarios

Differences: Future Compared to Today			
Scenario	Daily VHD	Daily VMT	GHG Emissions
2040 Growth + Highway and Transit projects	+82%	+21%	-21%
Growth + D.C. Cordon fee + Parking Fees everywhere ($25/more commuters; $5/more per hour non-work)	+31%	+14%	-26%
Growth But Household travel reduced by 50%	-46%	-11%	-42%
Growth + Uniform distribution of peak period demand	29%	25%	-19%
Growth + Uniform distribution of demand all day	-7%	24%	-20%

What happens if the region makes significant investments in land-use focusing around HCT/AC?

The TPB has examined land-use in nearly all its scenario studies. The TPB studies have found that the optimization of land-use by collocating housing and jobs and focusing more development around Metrorail reduces road congestion, improves access to bicycle/pedestrian facilities, and makes Metrorail a more viable option for more people. For example, one study found that land-use strategies could reduce vehicle hours of delay by 18 percent, daily VMT by 3 percent, and GHG emissions by four percent.

The studies have also found that balancing the region's East/West divide by reallocating jobs and housing more evenly across the region and overall and increasing the number of households in the region can reduce the long commute times, including for the workers currently living outside of the region.

Table 8 Comparisons to CLRP Forecast 2040 Conditions: Alternative Strategy Scenarios

Scenario		Daily VHD	Daily VMT	GHG Emissions
Comparisons to Today:				
	Constrained Long-Range Plan Forecast	+82%	+21%	-21%
Comparisons to CLRP Forecast 2040 Conditions:				
	Additional Housing and Redistribution of job and housing growth around HCT stations, Activity Centers regionwide	-18%	-3%	-4%

What happens if the region prices travel to accommodate future demand and improve system performance?

A tax on every mile of travel (at levels much higher than other peer studies) combined with a cordon fee has the potential to fully offset all growth in daily delay and VMT while reducing GHG below current levels. A lower level of implementation and different form of pricing (pricing parking) would result in increased delay and VMT in the future albeit noticeably less than without these fees.

Table 9 Future Compared to Today: Plan Forecast vs. Maximum Enhancements

Differences: Future Compared to Today			
Scenario	Daily VHD	Daily VMT	GHG Emissions
2040 Growth + Highway and Transit projects	+82%	+21%	-21%
Growth + D.C. Cordon fee + VMT Tax @ $1/mi (Avg. for 1 car household $13,500/year) (Note the results are largely driven by the VMT Tax).	-46%	-24%	-51%
Growth + D.C. Cordon fee + Parking Fees everywhere ($25/more commuters; $5/more per hour non-work)	+31%	+14%	-26%

What combination of (transportation, land-use, and vehicle technologies/fuels) strategies result in the most GHG reductions?

The TPB's Climate Change Mitigation Study shows that the most aggressive vehicle technology OR travel mode shift and behavior strategies, even with a clean electric power grid (100 percent carbon-free by 2035), would not be sufficient for the region to attain its 2030 GHG reduction goal (50 percent below 2005 levels). The most aggressive clean vehicle strategy together with a clean electric grid could help the region attain its 2050 GHG reduction goal (80 percent below 2005 levels).

A combination of the most aggressive strategies to transition to clean fuel and change travel mode and behavior. together with a clean grid, would still not achieve the 2030 GHG reduction goal, and would help attain the 2050 GHG reduction goal.

It is worth noting the most aggressive strategies to change travel mode and behavior includes a combination land-use, pricing, and transit projects. The scenario findings for most aggressive strategies (Vehicle Technologies 2 (VT2), Mode Shift and Travel Behavior Strategies 3 (MS.3) and Combination Strategy 4 (Combo.4) are presented in Table 10. Table 11 shows the estimated change in VMT from cars and light-duty trucks from MS.3 strategies only, as the vehicle technology strategies are not indicated to change VMT. TPB staff analysis shows that even with implementation of the most aggressive strategies to change travel mode and behavior, future VMT will grow. However, these aggressive strategies can mitigate its growth.

Table 10 CCMS Summary of GHG Reductions Estimated for All Transportation Scenarios Under all Electric Grid Cases (% Reductions from 2005 Level)

		2030			2050		
Scenario	**Key Components**	Ref. Grid	Mod. Grid	Clean Grid	Ref. Grid	Mod. Grid	Clean Grid
Baseline	Projects, programs, and plans in the Visualize 2045 plan; base assumptions for vehicle technology; population growth through 2050	-14%	-15%	-15%	-14%	-14%	-15%
VT.2	100% of new LD vehicle sales are EVs in 2030; 50% of new M/HD truck sales are EVs in 2030, with 100% by 2040; 100% of buses on the road are EVs by 2030; biofuels/renewable diesel make up 20% of diesel fuel use in 2030 and 30% in 2050	-28%	-29%	-34%	-76%	-83%	-93%
MS.3	Additional housing, regionwide redistribution of jobs and housing to Activity Centers and near HCT stations, DC cordon pricing of $10 to enter downtown, and VMT-fees of $0.05 per mile in 2030 and $0.10 per mile in 2050, free transit; all workplace parking priced by 2050 (not just in activity centers), 15% reduction in transit travel time by 2030 and 30% by 2050; 40% telework, increased bike/ped/mobility	-26%	-26%	-26%	-27%	-28%	-28%
COMBO.4	Combined strategies from VT2 and MS3, together with advanced use of technology for traffic operational efficiency and connected and automated vehicles	-38%	-39%	-43%	-82%	-87%	-95%

Note: 1) Cells shaded in green highlight figures that met the CCMS goal level of emissions reductions. Those shaded in yellow meet the level of on-road transportation GHG reductions assumed in the 2030 CEAP. 2) Ref. Grid is a Reference Case, current policies and renewable portfolio standards in D.C., MD, VA. Mod. Grid is a Modified Reference Case, which is slightly more aggressive than the Reference Case; and a Clean Grid Case assumes a 100% carbon-free grid by 2035.

Table 11 Estimated Change in VMT from Cars and Light-Duty Trucks from MS.3 Strategies

	2005	2018	2030 Baseline Forecast	2030 Under MS.3 Scenario	2050 Baseline Forecast	2050 Under MS.3 Scenario
Passenger car and truck VMT (billions)	35.04	38.11	42.23	33.73	47.01	35.37
% Reduction from baseline forecast				-20%		-25%

4. What the TPB Members Can Do with this Information

The TPB's intent has always been for the results of the scenario studies to inform the transportation projects, programs, and policies that its member agencies decide to implement in the region, in a manner that advances the regional transportation goals and priorities. The scenarios studies have identified various strategies through which this may be accomplished. The 2022 update of Visualize 2045 includes an entire chapter (Chapter 6, Strategies for a Brighter Future) dedicated to discussing these priority strategies. The TPB believes that the priority strategies should be increasingly represented in each iteration of its LRTP.

The TPB has agreed, in Resolution R-19 2021, to update its current LRTP, with a special emphasis on using the findings of scenario analyses to inform updates to the projects, programs, and policies in the constrained element of the LRTP. For its 2024 update of Visualize 2045, the TPB is anticipating a substantive update to the projects in the constrained element of its plan that is more reflective of the results of these scenarios studies and advances the region's transportation goals and priorities as expeditiously as possible.

The TPB member agencies should consider these priority strategies along with local planning and programming goals, where within the authority of the member agencies, in developing their inputs to the LRTP update. In the TPB's own approved plan, Chapter 9, "What Happens Next?", speaks to the importance of focusing on implementation. Each jurisdiction and agency can act by identifying the region's priority strategies that work best at the local level and where possible, take steps to accelerate delivery.

By working together, our region can continue to make headway on its goals as it establishes policies and makes investments in programs and projects for future generations.

National Capital Region
Transportation Planning Board

Cover images: (Robert Pence/Flickr)

Draft 11/9/2022

Appendix A: Detailed Findings

Scenario Study Findings

Informing Planning for the Metropolitan Washington Region

National Capital Region
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APPENDIX A: TRANSPORTATION PLANNING BOARD (TPB) SCENARIO PLANNING STUDIES – SUMMARY OF FINDINGS

DRAFT

This document is a companion document to the high-level summary of TPB Scenarios. This document reviews the eleven scenario studies that COG and the TPB have conducted over the last 15+ years and presents a summary of findings.

November 9, 2022

TPB SCENARIO PLANNING STUDIES – SUMMARY OF FINDINGS: Appendix A
Prepared by TPB staff based on reports from past scenario studies.

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, 24 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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1. INTRODUCTION

Scenario planning is an important and often used tool to help planning agencies examine possible futures, test strategies, and inform decision-making regarding investments in projects, programs, and policies to achieve goals. 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. This document reviews the analyses that COG and the TPB have conducted and presents a summary of findings. The region's planning agencies can use these findings to inform future projects, programs, and policies to support integrated planning to help achieve the numerous and broad goals of the TPB's policy framework.

1.1. What is Scenario 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.[1] Scenarios can be depicted as narratives or as charts and maps illustrating trajectories of change over time.

1.2. Types of Scenario Planning

There are three types of scenario planning: predictive, normative, and exploratory. Table 1 lists the type of scenario planning used in each of the recent COG and TPB studies.

- Predictive is the most common of these being predictive scenario planning. Travel demand modeling techniques are used to shape integrated land-use and transportation scenarios, especially in 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).

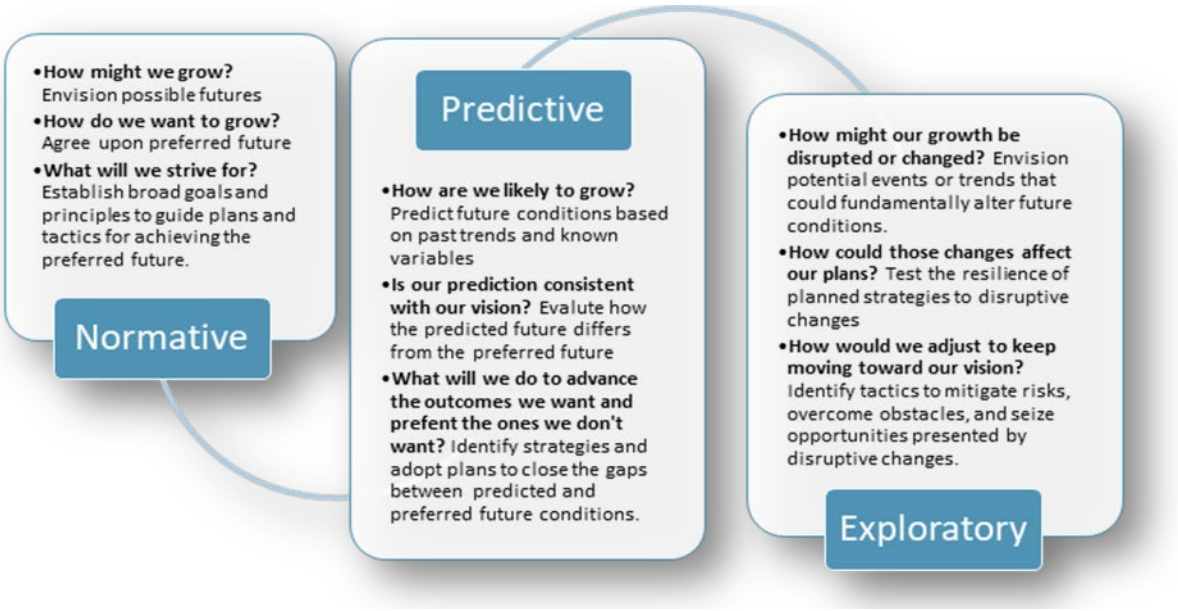
Scenario Planning for uncertain future conditions typically takes one of two forms:

- Normative – A value driven process to build consensus toward a vision for a desired end state.
- Exploratory – 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] Definition developed by the TPB staff Oversight Committee for the Organization Awareness and Understanding of Scenario Planning report.

Predictive scenario planning puts the focus on reacting to predicted future conditions, while normative and exploratory scenario planning emphasizes preparing for desired future conditions.

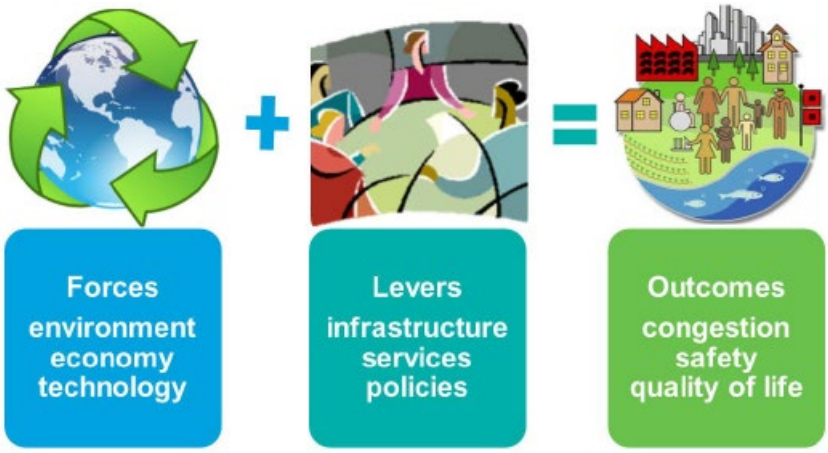
Figure 1 Three Types of Scenario Planning Processes



Source: TPB report: Organization Awareness and Understanding of Scenario Planning, 2021, Page 2

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).

Figure 2 Inputs and Outputs of Scenario Planning Studies



Source: TPB report: Organization Awareness and Understanding of Scenario Planning, 2021, Page 2

1.3. The TPB Policy Framework

For the TPB's Long-Range Transportation Plan Technical Inputs Solicitation, the projects, programs, and policies submitted by sponsoring agencies should uphold the TPB planning principles, advance one or more regional goals, and implement the TPB priority strategies to support desired performance outcomes as reflected in the summarized policy framework.

How we define principles, goals, strategies, and performance outcomes:

- **Principles:** Principles are values that the TPB holds. An equitable transportation system is one that incorporates and upholds these principles or values.
- **Goals:** What we as the TPB aim to accomplish.
- **Strategies:** How we intend to accomplish our goals through multimodal transportation projects, programs, polices, and technologies.
- **Performance Measures:** How we determine the impact of the planned strategies and if we have succeeded in advancing or reaching our goals.

1.3.1. The TPB Principles

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 the distribution of affordable and readily available multimodal travel options throughout the region that encourage safe and efficient mobility.

Accessibility: All people who use the transportation system in the region, including residents, visitors, and businesses, should be granted reasonable physical and affordable access to travel by road, transit, biking, walking, micromobility, water, and 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 and structurally sustainable, promoting regional interconnectedness and longevity based on growth patterns, projected demand and capacity, and technology. Sustainability also results from a significant decrease in greenhouse gas emissions, efficient use of energy, and meeting or exceeding standards for air, water, and land quality and 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 greater access to 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.

1.3.2. The TPB Goals

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. To provide a safe transportation system:

- Maintain the system in a state of good repair.
- Communicate across numerous media platforms.
- Conduct ongoing transportation operator training and education.
- Provide ongoing traveler education and corresponding law enforcement.
- Incorporate safety in system design and operations, including emergency services.

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 new systems. To maintain the existing system in a state of good repair:

- Conduct regular checkups and programmed maintenance to ensure roads provide a smooth, safe ride, bridges are trustworthy, buses, train cars, stations, and rails function reliably.
- Ensure bicycle paths and sidewalks are passable and free of debris and obstacles.
- Proactively maintain transportation technology such as lights, signals, and signs, necessary for safe and efficient function of the entire system.

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

- Maintain and operate the system using effective technology.
- Reduce congestion on roadways and crowding on transit.
- Provide frequent service that is responsive to predictable changes in demand throughout the day.
- Make transit, biking, walking, micromobility and expanding alternatives such as water travel competitive travel choices.

Efficient System Operations: Implement transportation systems management and operations:

- Apply technology for improved efficiency.
- Conduct integrated management practices.
- Plan for cross-agency incident response.
-

Affordable and Convenient: Provide affordable, realistic multimodal options:

- Offer convenient travel times, reasonable costs, and flexibility for commuters, including late-shift workers.
- Make it possible for travelers to choose from more than one type of mode for each leg of a trip.

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. Protecting the environment includes meeting federal air quality standards

and meeting the TPB's climate goals: reduce greenhouse gas (GHG) emissions 50 percent below 2005 levels by 2030 and 80 percent below 2005 levels by 2050. To minimize environmental impacts:

- Offer an interconnected multimodal system, with integrated services and technologies.
- Encourage and implement travel demand management strategies.
- Keep up with transportation vehicle and energy technologies that reduce emissions of pollutants including GHG.

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 accidents and incidents, and equipment or infrastructure failures. This goal includes becoming a Climate Ready Region and making significant progress by 2030. It also includes the need to incorporate equity principles and expand education on climate change into its members' actions to reach climate mitigation and resiliency goals. To build resiliency:

- Prepare contingency plans for operations and maintenance.
- Coordinate across sectors (transportation, land-use, environment) to implement strategies that address multiple community planning challenges.
- Provide options for travel and goods movement, design and use of technologies.

Livable and Prosperous Communities: Support regional economic competitiveness and opportunity and a high quality of life for all people.

- Implement a range of strategies that help to achieve each of the TPB principles and goals.
- Support a high-quality transportation system to attract businesses to the region.
- Shorten trips and minimize delay so that residents and visitors enjoy more time with family and friends.

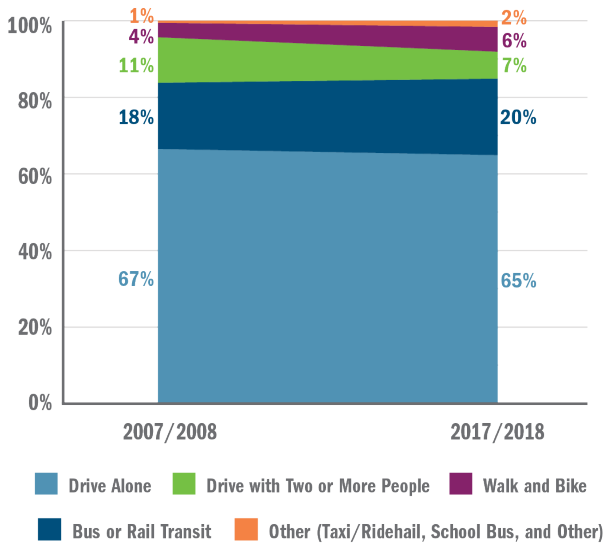
1.4. Why does the TPB do Scenario Planning?

The TPB policy framework includes a set of broad transportation planning goals that provide policy guidance to shape the region's transportation projects, programs, and policies. Achieving the goals for the future transportation system and how it serves our communities is not without significant challenges. The TPB's latest long-range transportation plan, the Visualize 2045 update (Approved June 15, 2022), discusses those challenges and the TPB's response to address them including coordination, planning activities, and priority strategy identification. The plan highlights projects, programs, and policies that the TPB member agencies implement to address these challenges.

The TPB has identified challenges to meeting its goals by conducting regular performance analysis of the transportation system. Challenges create barriers to achieving our shared regional goals and show us where we must focus and prioritize our efforts. The TPB has also conducted numerous studies, including the many scenario studies summarized in this document to test strategies (projects, programs, and policies) to address these challenges. Applying the most effective strategies, the TPB's members then take steps to plan, analyze, program, and implement based on local context and authority. The LRPTF, for example, specifically responded to the challenges enumerated in the TPB's Regional Priorities Plan and led to the endorsement of the TPB's seven Aspirational Initiatives.

Some of the region's primary transportation challenges include, but are not limited to, concerns such as roadway congestion, including travel time and bottlenecks, transit crowding, insufficient bus service, and unsafe walking and biking. Other challenges include meeting 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 is another significant challenge that matters to all. Improving the equity outcomes of the transportation system is yet another challenge. The TPB recognizes that protecting the environment, including wildlife habitat and water, is essential while developing our region and the transportation that serves it. Mitigating climate change and planning for resiliency is critical to ensure quality of life for all.

Figure 3 Change in Mode Share of Commute Trips, 2007/2008 – 2017/2018 (Source: 2007/2008 and 2017/2018 TPB RTS)



To inform challenges, the TPB uses surveys to report on "where we are today" and conducts forecasts to understand the potential future performance of the transportation system. Through the TPB's Regional Travel Survey (RTS), the TPB monitors the regional totals for trips by type and mode. Figure 3 shows the recent trends based on observed data, comparing the change in mode share of commute trips, for survey years 2007/2008 – 2017/2018. Approximately 17 million trips are taken per day on all modes of transportation for all purposes, including travel to work, school, medical appointments, and other destinations. Of those trips, 41 percent are people driving alone, 38 percent are in a vehicle with two or more people, 11 percent are by walking or biking, 6 percent are by bus or rail transit, and the remaining 5 percent use taxi/ride hail, school bus, and other services.[2]

Over the past 10 years, shares of single occupancy vehicle trips and carpool trips for all purposes have remained steady. For commute trips, shares of single occupancy vehicle and carpool trips decreased while other modes such as bus transit, walk, bicycle, and taxi/ride hail increased. Following this trend, the share of single occupancy vehicle trips will likely continue to decline slightly as additional transit services come online, as bicycle and pedestrian infrastructure continues to grow, and land-use policies push for the concentration of jobs and households in regional Activity Centers (Figure 3). The decline in driving is happening but is slight, as one might expect, given freight and other commercial travel, and non-commute trips, not all trips by vehicle can be substituted for transit, biking and walking.

[2] National Capital Region Transportation Planning Board, 2017/18 Regional Travel Survey; mwcog.org/transportation/data-and-tools/household-travel-survey/

The performance analysis of the Visualize 2045 update (Figure 3) forecasts that the region will make progress on many of its goals, due in part to the inclusion of projects that align with the Aspirational Initiatives that the TPB calls on its members to advance. The land-use inputs used in the TPB's LRTP performance analysis, COG's Round 9.2 Cooperative Forecast data, suggest that the region is looking to bring jobs and housing closer together through targeted density increases in certain parts of the region.

People will have more and improved travel options in 2045 and that is reflected in the performance forecasts. The region will increase availability and use of High-Capacity Transit (HCT) and other "reliability-enhanced" modes (such as rail, bus rapid transit, walk and bike, and High Occupancy Toll and High Occupancy Vehicle lanes), decrease driving per person, and improve average access to jobs.

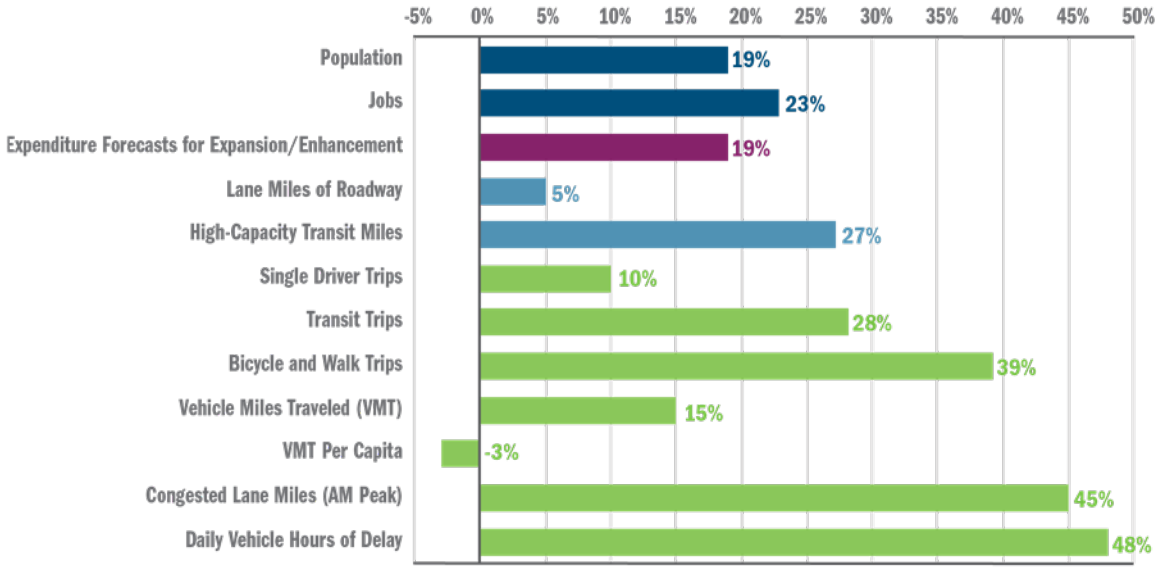
However, growth will likely continue to place heavy demands on the transportation network. The region expects 19 percent growth in population and 23 percent increase in jobs by 2045 compared to 2023.[3] While this growth is expected throughout the region, it will likely be focused in Activity Centers and HCT station areas, where 67 percent of jobs and 24 percent of residents are predicted to be located. While the increase in use of biking, walking, and transit are promising, these options still make up less than half of all commute trips. The Visualize 2045 performance analysis forecasts that the VMT per capita in the region will decrease by 3 percent for all types of drivers while still experiencing a 15 percent increase in VMT. It forecasts a 48 percent increase in daily vehicle hours of delay. These are substantial challenges as the roadway system needs to accommodate more vehicles with comparatively less expansion (5 percent increase in roadway miles).

The region's financial obligations to maintain and operate the existing system limit the availability of funds for system expansions and enhancements, providing for an additional five percent in roadway miles and 27 percent increase in HCT miles compared to 2023 (Figure 4 and 5).[4] Roadway and transit demand increases will likely place more stress on an already stressed transportation network, increasing delay and congestion and reducing auto-based job access for parts of the region.

[3] Population and Job figures presented in this section use a 2023 base year and are different from figures presented in other sections of this plan, notably Chapter 2. These figures are calculated from the Gen2/Ver. 2.4 Travel Demand Model as informed by COG's Round 9.2 Cooperative Land-Use Forecasts.

[4] High-Capacity Transit miles includes additional transit service mileage from Metrorail, light rail and streetcar, bus rapid transit, and commuter rail. While not included in this figure, commuter rail infrastructure improvements within existing transit service, like planned third and fourth tracks, are documented within this plan's project listings and TIP.

Figure 4 Visualize 2045 Update (2022): Performance Overview (Travel Demand Model outputs present data for years 2023 and 2045, therefore percentage increases vary from other reporting in this plan that is based on COG Round 9.2 Cooperative Forecast with 2020 as the base year.)



With about 81 percent of funding needed to maintain and operate the region's extensive transportation system, this leaves a small percentage of funding for enhancements.

Figure 5 Visualize 2045 Update (2022): Roadway and Transit Facilities added to the Transportation System (Source: TPB Travel Demand Model)

	System	Existing (2023)	Added by Visualize 2045 update	Total 2045
Roadway (Lane Miles)	Freeways/Expressways	3,802	682	4,484
	Arterials	13,479	211	13,690
	Total	**17,281**	**893**	**18,174**
Tolled Lanes (Lane Miles)*	**Total**	**532**	**221**	**753**
High-Capacity Transit (Miles)	Metrorail	129	0	129
	Light Rail/Streetcar	18	5	23
	Bus Rapid Transit	19	87	106
	Commuter/Regional Rail	173	**	173
	Total	**339**	**92**	**431**

* Tolled lanes are a subset of freeways/expressways

** An approximate additional 16 miles of rail are included in the plan, not presented in the table as they are not reflected in the model outputs.

Our region's communities and transportation system are both built out to a large degree. The metropolitan Washington's transportation system is already extensive, requiring about 81 percent of transportation funding to be dedicated to the upkeep and operation of the system. Every other dollar

spent must be highly effective in making the system better for its users. Likewise, a substantial amount of built environment/development already exists in the region, about 80 percent of the total land-use forecast for 2045 is already built. It is "on the ground" now. With limits on available funding and space, tradeoffs must made as to what transportation enhancements our region makes, where they are made, and how the region uses the existing space between our buildings.

But, to plan effectively, expectations and investments must accept the realities exposed by analysis: adding any individual project or project mix to the huge existing system cannot alone make enough progress on the TPB's goals. This means, how the system is operated will be critical for making progress in future years. This will in part be driven by policies, such as pricing. But also, the vehicle and communications technologies and fuels used by the transportation system that can help contribute to progress on some of TPB's goals, including GHG reduction goals.

1.5. Scenario Planning by the TPB and COG

The TPB and COG have conducted numerous scenario planning studies that have examined many assumptions, scenarios, future factors and have tested strategies for their ability to achieve desired outcomes, as summarized in Table 1. This report provides a summary of TPB/COG's scenario planning efforts to date and provides a summary of findings that can be used to continue advance planning in the region.

As the TPB begins planning for future updates to its LRTP, 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 report breaks down the different scenario planning considerations that were used to analyze the possible futures, such as, several facets of transportation (roadway, transit, bicycle, pedestrian, 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 policies combined for analysis purposes. Table 1 shows the scenario studies and various topics considered in each.

Table 1 TPB Scenario Studies since 2006

Study	Year	Scenario Planning Type	Land Use	Transportation Roadway	Transportation Transit	Transportation Bike/Pedestrian	Energy/Built Environment	Legislation/Policy
Regional Mobility and Accessibility Study: What If? (RMAS)	2006	Normative	X					X

Regional Value Pricing Study (RVP)	2008	Predictive		X				X
What Would it Take? Scenario (WWIT)	2010	Predictive	X	X	X	X	X	X
CLRP Aspirations Scenario Study	2010	Normative	X	X	X	X	X	X
Multi-Sector Approach to Reducing Greenhouse Gas Emissions in the Metropolitan Washington Region Final Technical Report (Multi-Sector Working Group)	2016	Predictive	X	X	X	X	X	X
Long-Range Plan Task Force (LRPTF) Phase 1: From No-Build to All-Build	2017	Exploratory	X	X	X	X	X	X
Congestion Reduction Test (by 25 Percent Relative to 2030)	2017	Exploratory		X	X			X
LRPTF Phase 2 Study: 10 Initiatives	2017	Predictive	X	X	X	X	X	X
2030 Climate Energy and Action Plan- Risk and Vulnerability Analysis (CEAP CRVA)	2021	Predictive	X	X	X	X	X	X
Climate Change Mitigation Study of 2021 (CCMS)	2021	Exploratory	X	X	X	X	X	X
LRTP, 2022 Update: No Build Tests	2022	Exploratory	X	X	X			

1.6. Brief Summary of Scenario Studies

The TPB has conducted approximately one scenario study every 16 months for the last 15 years. These studies each built on the previously conducted studies, ensuring that each iteration provides new and useful insights. For example, the TPB staff would use the outputs of prior studies as inputs to the newer studies. The following section describes the numerous scenario studies conducted by the COG and TPB over the last 15 years. For detailed descriptions of each scenario, please see Appendix A.

TPB and COG Scenario Studies: Timeline

In 2006, the Regional Mobility and Accessibility Study (RMAS) was conducted in response to increasing congestion, the TPB sought creative new options for improving the performance of the region's transportation system that might emerge from the examination of additional transportation improvements together with potential future changes in land use

This was followed in 2008 by a Regional Value Pricing Study (RVP) to examine how value pricing could benefit the region.

In 2008, the TPB began developing the Constrained Long-Range Plan (CLRP) Aspirations Scenario Study to integrate the best components of the RMAS and RVP studies into a comprehensive scenario that could offer a promising path forward for the region.

Also in 2008, the TPB began a scenario study to see how the region could achieve the newly adopted regional GHG reduction goals within the transportation sector, known as the "What Would it Take?" Scenario Study (WWIT).

In 2015, the TPB partnered with the Metropolitan Washington Air Quality Committee (MWAQC) and COG's Climate, Energy, and Environment Policy Committee (CEEPC) to form the Multi-Sector Working Group (MSWG), which was tasked with identifying potentially viable and implementable local, regional, and state strategies for reducing GHG emissions across key sectors - Energy, the Built Environment, Land Use, and Transportation.

In 2016, the TPB convened its Long-Range Plan Task Force (LRPTF) to identify projects, programs, and policies to improve the performance outcomes of the region's transportation system. This study was conducted in two phases. In preparation for the modeling activities for phase 2, the TPB staff conducted a congestion reduction test (by 25 Percent Relative to 2030). Staff completed a scenario analysis to explore how a 25 percent congestion reduction, relative to today (2015), might be attained with the implementation of "extreme" project and policy scenarios in 2040.

In 2020, CEEPC updated its Climate and Energy Action Plan and conducted analysis to examine climate change mitigation and resilience strategies.

In 2021, the TPB conducted a new study to answer the question "what would it take to address the multisectoral GHG reduction goals" endorsed by the TPB, as stated in the COG's 2030 Climate and Energy Action Plan.

In 2022, associated with the Long-Range Transportation Plan 2022 Update, staff conducted No-Build tests to compare against the planned build for the updated plan. The main purpose of this internal staff exercise was to try to estimate the impacts of different components of the TPB's Long-Range Transportation Plan (LRTP), i.e., highway projects, transit projects, and land-use, on the transportation system performance. This included testing a set of 2045 no-build and build scenarios and comparing the results with the 2023 model outputs, based on the 2022 Update to Visualize 2045 Long-Range Transportation Plan. A similar analysis was conducted in 2015 associated with the plan developed at that time.

2. USING THE SCENARIO FINDINGS TO INFORM REGIONAL PLANNING: ROLES AND RESPONSIBILITIES

The TPB has conducted numerous studies over the last decade to identify the most effective strategies to achieve the goals represented in the TPB policy framework, including but not limited to the scenario studies described in this document. All of the TPB's studies and the resulting endorsed strategies include as a foundation prioritizing a state of good repair.

The TPB member agencies develop projects, programs, and policies to meet local and regional transportation goals based on the results of the TPB and COG's scenario findings and other local, regional, and state analyses, public input, and other factors, such as funding availability and feasibility of implementation. Many of the projects, programs, and policies documented in the TPB's recent regional LRTPs reflect the scenario findings, and performance evaluation and forecast demonstrate the impact of these targeted investments.

2.1. How TPB Members Agencies Can use the Scenario Findings

As the TPB has directed in Resolution R-19 2021, the scenario findings herein should inform the TPB member agencies' local and transit planning activities. As the findings communicate the types of strategies that are most effective at making progress on regional goals, the priority strategies should be increasingly represented in the TPB's plan over time. The TPB member agencies should consider both the potential impacts of external factors/strategies as well as the priority strategies within the authority of the member agencies when making decision about the policies, programs, and projects they could invest in, as appropriate, based on local context.

As the next technical inputs solicitation (also known as a call for projects) begins for the 2024 LRTP update, sponsor agencies are advised 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 can also inform future projects, programs, and policies implemented by the TPB's member agencies.

Recognizing two key facts:

1. 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 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 LRTP 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 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.

2. Per federal requirements, some projects, programs, and policies must be in the constrained element used for the Air Quality Conformity analysis and the financial analysis. Some projects, programs, and policies cannot be represented in the constrained element.
    - For numerous reasons some projects, programs, and policies cannot be represented in the constrained element, these include factors such as the required analytical approach, data and tools used to conduct the conformity analysis, federal constraints on assumptions.
    - The TPB strategies are not limited to projects, programs, policies, that can- and must-be included in the constrained element for its LRTP or Transportation Improvement Program, such as Bus Rapid Transit (BRT) projects and other major projects that impact the capacity of the transportation system as reflected in the regional air quality analysis network. The TPB's priority strategies extends to projects that do not use federal funds and to many that are not reflected in the regional air quality analysis network. Examples could include certain land-use plans/policies and goals, many small projects for walking and biking, some transit station improvements, and electrical vehicle charging stations.

3. SUMMARY OF SCENARIO FINDINGS

The next section presents a high-level summary of all findings that are based on lessons learned from all of the scenario analysis referenced in this document (see Table 1 for a listing) including findings from all of the topics analyzed: transportation options, legislation and policies, vehicle technologies and fuels. Following the high level summary, the findings for each of the topics are reviewed individually.

To assist the reader's review of the findings, the following key terms and caveats are presented:

Key terms:

- Baseline: a scenario that is used for comparison against alternative scenarios, sometimes is a baseline is a base-year, other times, it is a future year planned build.
- Base-year: year considered "existing conditions" that is used for comparison against the future analysis year.
- All build: typically refers to a scenario where all projects in the LRTP are assumed to be built and a wish list of non-financially constrained projects.
- No build: typically refers to a scenario where base-year transportation projects are assumed to be included in the analysis, but future-year transportation projects in the LRTP are not built or realized.
- Planned build; typically refers to a scenario where all projects in the LRTP are assumed to be built.
- Strategies: 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 policies combined for analysis purposes.

Please note the following caveats:
Implications for development of the constrained element of the plan:

- Benefits from multiple strategies for mobility goals and GHG reduction goals are not always additive and at times are counteractive. In other words, a project, program, or policy might make progress on one goal while hindering a progress on another.
- Many of these complementary strategies will not be represented in the "constrained element" of the long-range transportation plan used for the air quality conformity analysis, but the TPB will continue to focus on regional coordination to support the implementation of these other strategies.

Limitations of this document:

- The scenario studies referenced in this document were conducted in different periods of time for different purposes, and used different sets of assumptions, methodologies and analysis tools. The findings reported in this document aim to take that into account; however, the reader should be cautioned against comparing the relative effectiveness of a particular strategy among other strategies across studies.
- Numeric results presented come mainly from the more recent studies (CCMS, LRPTF, and MSWG).
- The regional and on-road GHG goals were established as a percentage reduction off of 2005 levels, whereas most of the scenario studies use a future year baseline of the long-range transportation plan for comparison. Studies such as WWIT and LRPTF measured only carbon dioxide (CO_2), while other studies (MSWG and CCMS) also included emissions from other greenhouse gases (methane and nitrous oxide) and reported total GHG emissions as in carbon dioxide equivalent (CO_2e). This document will refer to GHG emissions for all of the studies.

3.1. Summary of Scenario Findings:

While the numerous scenario studies looked at some individual factors and strategies, most of the studies also looked at how strategies would work when implemented together or when considered in context of other factors, such as various land-use scenarios. Findings are reported for both types of scenarios.

High-level findings from all scenarios include:

- The metropolitan Washington's transportation system is already extensive, requiring about 80 percent of transportation funding to be dedicated to the upkeep and operations of the system. Likewise, a substantial amount of built environment/development already exists in the region, and, about 80 percent of the total land-use forecast for 2045 is already built. The region faces challenges with congestion today. In a growing region planning to add one million people and jobs by 2045, scenario studies show that it is very challenging to reduce the future levels of congestion relative to what is observed today. The LRPTF Phase 1 study showed that the future VMT growth, and therefore congestion, was mainly driven by increases in people and jobs. The Visualize 2045 analysis similarly shows that the congestion reduction benefits of new projects are eroded by this additional demand. The LRPTF Phase 2 study showed that different strategies, most notably increases in telework and land-use density, can be effective in reducing the future levels of congestion, but that the overall congestion would still be higher in the future than today. The scenarios showed

that **it is challenging to make substantial progress on the TPB's goals by adding any individual project or project mix to the existing system.** In the LRPTF studies, the TPB learned that adding projects or project mixes did not have a substantial impact on metrics such as VMT reduction or emissions reductions, and that land-use and policy-oriented initiatives had greater impact on system performance using these measures.

- This means:
    - How the system is operated will be critical for making progress in future years:
        - Strategies such as applying ITS technologies, roadway pricing, and more will be necessary to make significant progress on the TPB's mobility and accessibility goals.
        - Strategies such as vehicle electrification are essential to make progress on GHG reduction goals. Fuel efficiency, fuel technology (e.g., electrification), and policies were found to have the greatest potential to reduce GHG emissions. For example, federal strategies could include new GHG emissions standards for light-duty vehicles or heavy-duty vehicles, perhaps even more aggressive than the current standards promulgated in 2022.
    - Continuing to focus growth in Activity Centers and in High-Capacity Transit stations areas, while considering equity in planning for growth, will be essential to having land used in a way that enables multi-modal transportation options and facilitates shorter trips:
        - With the number of jobs forecasted to increase in the future, especially in the Activity Centers and near HCT stations, and with construction of new transit lines (BRT routes, Silver Line Phase 2, Purple Line, etc.), accessibility to jobs by transit is projected to increase substantially in the future (various LRTP analyses).
        - The new jobs, primarily located in the Activity Centers, are helping offset future losses in auto accessibility occurring due to the increased congestion. As a result, despite increases in congestion, access to jobs by auto in the future is projected to remain about the same as today (various LRTP analyses).
    - While any one project might not make substantial progress on regional goals, by implementing the most effective strategies together, progress can be made. To make the most progress members should expedite the implementation of the concepts represented by the TPB's endorsed Aspirational Initiatives (to the degree possible and within sponsor agency authority).

- Reducing GHG from on-road transportation in a growing region is difficult. Although vehicle fuel efficiency improvements and vehicle electrification strategies tend to be most impactful, there is not a single strategy or category of strategies that, if implemented, would achieve the TPB's on-road GHG reduction goals. The effectiveness of any individual strategy is affected by the scale and timeframe of its implementation. Construction and implementation of new highway and transit projects has a lower potential to significantly impact VMT and GHG emissions. The LRPTF Phase 2 study analyzed ambitious packages of initiatives that grouped together managed lanes projects and extensive transit service extensions, all of which had a fairly low level of impact on VMT (mainly within 1 percent). It is important to note that although individual projects / groups of projects may not have a significant impact on GHG emission reductions, many of them would benefit the residents of equity emphasis areas by

providing additional access to jobs and other activities (health care providers, grocery stores, etc.).

- To make the most progress possible on the TPB's on-road GHG reduction goals:
    - the implementing agencies in the region, in partnership as necessary with other public and private organizations, should implement the priority GHG reduction strategies endorsed by the TPB. Not all of the most effective strategies are within the authority of the member agencies, are ready for implementation or are feasible according to TPB members surveyed.
    - Actions will be required at all levels of government – federal, state, and local.

TPB Priority Strategies

Most of the TPB priority strategies were examined in scenario studies, and then endorsed by the TPB, these include regional roadway safety, the Aspirational Initiatives, and GHG reduction are summarized below:

- 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 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.
- Develop and implement an electric vehicle charging network.

Impacts on equity should always be considered to ensure that the EEA residents are not adversely impacted by our actions.

3.2. Findings by Topic

The following sections review the findings from past scenarios. The findings section highlights the many factors considered in the scenario studies. The topic-specific findings sections include tables highlighting how factors were considered and what COG and the TPB were looking to better understand. As the LRPTF and the CCMS were informed by and developed based on the findings of

prior studies, the findings of these studies are most commonly cited to provide examples of analytical results.

Scenario Findings Organization:

- Transportation Options
  - Roadway
  - Transit
  - Bicycle/Pedestrian (bike/ped)
- Legislation and Policy
  - Pricing Policies
  - Transportation Demand Management
  - Land-Use
- Vehicle technology (electrification and alternative fuels)

3.2.1. FINDINGS: TRANSPORTATION OPTIONS

To understand what strategies might work best to make progress on the TPB goals, the TPB has conducted numerous studies to examine how adding new transportation projects to the system would impact these goals. The scenarios focused on different aspects of transportation from capacity building and infrastructure improvements to technological advances. In some scenarios the impact of certain types of transportation enhancements were considered by themselves – such as adding more roadway capacity but not transit, or adding more transit capacity and service, but not roadway projects. Sometimes a full range of transportation projects were considered as a set. In most scenarios they were considered along with land-use or other policy changes, such as roadway pricing. Legislation and policy strategies are combined with many of the scenarios and are discussed in the "Legislation and Policy" section in this document.

The findings for scenario analysis related to transportation options are organized into four categories: roadways, transit, and bicycle/pedestrian and TDM. Following these summaries, an additional section "other studies" describes internal analysis that the TPB has performed regarding transportation improvement scenarios. The following sections describe scenarios related to each of the categories and review their findings, which generally fall into two categories: travel trends, and GHG emissions impact.

3.2.1.1. Findings from Roadways Strategies

Reducing congestion, delay, and travel time are important priorities for the TPB and the people and businesses in the metropolitan Washington region. The TPB and COG conducted numerous scenarios that considered roadway projects, programs, and policies including capacity increases, hot spot fixes, operational improvements and express lanes. These have resulted in the following summary findings:

- The LRPTF Phase 2 study showed that the policy initiatives outperformed the initiatives that focused on projects (e.g., Northern Bridge Crossing) and "Mega" projects that included land-use shifts (e.g., Regional Express Lanes Network). The most significant congestion reduction outcome, for example, came from reducing demand for on-road travel through travel demand management (which included significant increases in telework). This initiative resulted in a

24 percent decrease in vehicle hours of delay, more than double the reductions of Regional Express Lane Networks and three times the reduction resulting from Operational Improvements and Hot Spot Relief. The findings reflect a comparison to a long-range plan that was in effect at the time of the study (forecasts for outyear 2040).

- Regional Express Lanes Network* significantly improved reliable access to intercity hubs and to some degree also helped to meet goals associated with reducing bottlenecks, improving bus service and reducing road congestion.
- Operational Improvements and Hotspot Relief can have a positive impact on reducing congestion and reducing bottlenecks.
- Adding a Northern Bridge Crossing/Corridor had little impact in addressing regional congestion and delay.
- **These findings reinforce the overarching findings that it is challenging to make substantial progress on the TPB's goals by adding any individual project or project mix to the existing system.** In the Phase 1 and LRPTF Phase 2 studies, the TPB learned that adding projects or project mixes did not have a substantial impact on metrics such as VMT reduction or emissions reductions, and that land-use and policy-oriented initiatives had greater impact on regional system performance for these measures.

How did the TPB arrive at these findings?

The LRPTF Phase 1 study showed that the "All-Build" scenario, which included all funded and unfunded projects in the region, resulted in an increase in road capacity, access to jobs, and significant improvements (reductions) in the number of congested lane miles in 2040. In the first phase of the LRPTF study, the scenario analysis looked at the change in vehicle miles traveled (VMT), transit trips, accessibility, and other metrics between 2015 and 2040 based on the 2015 CLRP Amendment and scenario specific assumptions. The "No Build"–which adds no new transportation projects from 2015-2040 - results in an increase of VMT by 19 percent. The "Planned-Build" scenario, or the CLRP itself, added 372 new projects, and resulted in a 22 percent increase in VMT. The "All-Build" added an additional 550 new projects, and resulted in a 23 percent increase in VMT relative to 2015.

The LRPTF Phase 2 study showed a number of improvements possible through the initiatives that incorporated roadway strategies. These are the Regional Express Lanes Network and Operational Improvements and Hotspot Relief. The findings reflect a comparison to a long-range plan that was in effect at the time of the study (forecasts for outyear 2040):

- The Regional Express Lanes Network initiative included expanding the existing (as of 2016) tolled express lane system on the Capital Beltway and I-95 in Virginia to most limited-access highways in the region. The expanded system would also support new express bus service connecting Activity Centers, increasing the region's share of people who use transit:
    - The analysis showed that the Regional Express Lanes Network* would provide more reliable travel options to more of the region's residents, improve reliable access to intercity hubs and would have a positive impact in meeting goals associated with reducing bottlenecks, improving bus service, and reducing road congestion.
    - This initiative would reduce average highway times and vehicle hours of delay measurably without a large increase in VMT.
    - Results of this initiative included improving travel on reliable modes by 42 percent, reducing roadway daily vehicles hours of delay by 11 percent, reducing travel time by 5 percent for HOV, 2 percent for SOV, and 1 percent for transit. Results also included

increasing access to jobs in the region by auto by 5 percent, and by transit by 2 percent.
    - The initiative showed a less than 1 percent increase in both daily VMT and VMT daily per capita.
- Operational Improvements and Hotspot Relief: this initiative included strategies such as the application of technology and enhanced system operations strategies, improved roadway design, and expanded regional incident management where appropriate.
    - This initiative demonstrated a 4 percent reduction in travel time for both SOV and HOV, and a 2 percent reduction for transit. Additional promising results included reducing roadway daily vehicles hours of delay by 8 percent, while increasing access to jobs in the region by auto by 8 percent and by transit by 2 percent.
    - Other results from this scenario demonstrated trends that conflicted with the TPB's goals. These trends resulted from making roadways more attractive by reducing delay, and therefore impacting mode choice- altering how people were forecasted to choose to travel. These results included reducing travel on reliable modes by 5 percent, reducing transit mode share by 4 percent, HOV mode share by 7 percent, and increasing SOV mode share by 3 percent.

In the LRPTF Phase 2 study, the roadway improvement scenarios had little impact, positive or negative, on transportation emissions relative to the 2040 "Planned-Build" CLRP from the 2015 baseline). The Regional Express Lanes Network initiative reported a small impact on all emissions, but also noted that overall effects were unclear based on the simplified tools that were utilized. The Operational Improvements and Hotspot Relief initiative reported a 1 percent decrease in GHG emissions, a 3 percent decrease in VOC, and no change in NOx emissions compared to the 2040 "Planned-Build" from the 2015 baseline.

The LRPTF Phase 2 study found that expanding the express highway network and express bus service (Initiative 1) did not change GHG emissions, but did leave GHG emissions unchanged while increasing daily VMT and daily VMT per capita each by less than one percent and decreasing daily Vehicle Hours of Delay (VHD) by 11 percent compared to the CLRP in 2040 (base-year 2015). In addition to express buses, the express lanes can be available to carpool and vanpool users without charge, increasing options for reliable non-single-occupant vehicle travel. The revenue generated by the tolls charged to SOVs could be invested in high-quality regional bus service.

The findings on operational efficiency strategies are mixed, likely due to the fact that, in the MSWG and LRPTF studies, all of the operational efficiency strategies under consideration are grouped into one strategy, unlike the transit strategies. Travel efficiency fared only a bit better in the MSWG study (TLU-7) than in the LRPTF study (Initiative 2), likely due to the inclusion of eco-driving, which promotes driving patterns to reduce rapid acceleration/deceleration and extended idling, and assumptions about system efficiency improvements though connected vehicles. Overall, though, operational efficiency improvements show only modest GHG reductions.

Findings in the CCMS show that the mode shift and transportation systems management and operations pathways results did not reflect the ability to meet either the 2030 or 2050 emissions reductions by themselves. As documented later in this report, vehicle technologies and fuels must change to make significant progress on the TPB's GHG reduction goals.

In preparation for the LRPTF Phase 2 modeling activities, the TPB examined some additional scenarios internally for purpose of testing the sensitivity of models and as a "thought experiment"

that considered extreme and hypothetical strategies. These "extreme" and in some cases unrealistic scenarios were originally designed to test how the model would respond to these types of policy assumptions. The comparisons presented the differences between the 2040 scenarios and the 2015 baseline. An extreme 2040 Highway Expansion scenario was tested by having all highway links in the regional highway network expanded with an additional lane in both directions. This conceptual plan decreases congestion by approximately 20 percent and increases VMT by 30 percent in 2040 relative to 2015, but with most likely prohibitively high construction costs, since this scenario involves adding a lane to every link in the region. GHG emissions in 2040 decrease by 16 percent relative to 2015 (worse performance than 2040 Planned Build).

The TPB staff examined through a series of "no build tests using the data for the TPB's current approved plan. Staff analyzed what would happen if the region invested only in roadway projects, but no transit projects, with maintenance and operations continuing. The analysis shows that daily vehicle hours of delay would increase 51 percent, compared to 48 percent as forecast for the approved 2022 LRTP. VMT would increase 16 percent, compared to 15 percent for the current approved plan and GHG emissions are forecast to be at the same levels.

Table 2 provides an overview of the COG and TPB scenario studies that included strategies that were specific to roadways and automobiles.

Table 2 Scenarios that Considered Roadways

Report	Scenario(s)	To better understand
RVP	Combinations of variably-priced lanes	Managing congestion and raising revenue to improve transit services
WWIT	Improve roadway operational efficiency (traffic signal optimization, eco-driving, idling reduction, incident management)	Improving fuel efficiency, (use of) alternative fuels, and travel efficiency
MSWG	Roadway and personal vehicle policies (enhancing system operations, road pricing, Travel Demand Management, truck stop electrification)	Providing context for GHG emissions in the region and potential GHG reductions that might be achieved through regional policy actions
LRPTF Phase 1 Study	Scenarios were no build, planned build, and all build	Meeting the goals of the TPB Vision RTPP
Congestion Reduction Test (by 25 Percent Relative to 2040)	A 2040 Highway expansion scenario examined the impacts if all highway links in the regional highway network are expanded with an additional lane in both directions. Two other scenarios looked at improved peak period traffic flow and improved traffic flow throughout the day	Potential for targeted congestion reduction
LRPTF Phase 2 Study	Operational Improvements and Hotspot Relief Additional Northern Bridge Crossing/Corridor Express Lanes Network (HOT lanes) with transit	Meeting the goals of the TPB Vision and RTPP
CCMS	Optimized ITS/TSMO, with benefits from connected/automated vehicles (CAVs) by 2050	Impacts of individual and combined strategies on GHG reduction
LRTP 2022 Update: No Build Tests	Examines performance of building only the highway (but not transit) projects (along with maintenance and operations) in the 2022 LRTP Planned Build Scenarios Analysis	Impact of Growth, + Maximum Enhancement Roadways projects

3.2.1.2. Findings from Transit Strategies

Moving more people by transit – and making transit a more attractive and competitive option to people by increasing its frequency, reliability, and connections to destinations are indispensable TPB priorities. Numerous TPB and COG scenario studies examined strategies to encourage shifting auto trips to transit as single strategy scenarios and as part of combined-strategy scenarios. For example, the LRPTF Phase 2 study examined various transit initiatives, such as investing in core Metrorail improvements, commuter rail enhancements, adding BRT and Transitways throughout the region, Transit Rail extensions and transit fare policy changes, as well as other TDM strategies. As some transit vehicles operate on roadways, some of the other sections in the findings review also indicate results for transit outcomes.

The numerous scenarios that the TPB and COG have conducted that consider transit projects, policies and programs have resulted in the following summary findings:

- With findings reflecting a comparison to a long-range plan that was in effect at the time of the study (forecasts for outyear 2040): the LRPTF Phase 2 study showed that:
    - Regionwide BRT and Transitways (Initiative 4) perform well to address the regional challenges of inadequate bus service, and perform fairly well in improving access to bike/pedestrian facilities, encouraging development around Metrorail, and increasing the colocation of housing and jobs.
    - Metrorail Regional Core Capacity Improvements (Initiative 6) perform well to address the regional challenges of transit crowding, and to some degree minimize road congestion, improve access to bike/pedestrian facilities, reduce bottlenecks, and improve reliable access to intercity hubs.
    - Regional Commuter Rail Enhancements, while important to the region and in particular sub-areas of the region, had minimal impact in addressing the regional challenges identified in the study.
    - Transit Rail Extensions would catalyze more development around Metrorail stations and would improve access to bike/pedestrian facilities, support colocation of housing and jobs, and improve reliable access to intercity hubs.
    - Transit Fare Policy Changes, while they may be important to individuals and to equity considerations in the region, do not have a high or moderate impact in addressing the regional challenges examined in the LRPTF.
    - Overall, transit enhancement and fare strategies had modest impacts on GHG, impacts increased with the more extreme implementation levels. Mode shift and travel behavior strategies provide supporting GHG reductions but are less important when nearly all on-road vehicles are EVs and the electric grid is carbon neutral.

How did the TPB arrive at these findings?

- In the LRPTF Phase 1 study results showed that under the all-build scenario, that there would be an increase in the number of miles of High-Capacity Transit and transit ridership. The Phase 2 study showed a number of improvements possible through the initiatives that incorporated transit strategies, including:
    - Transit Rail Extensions (Initiative 7) would catalyze more development around Metrorail and would positively impact access to bike/pedestrian, housing and job location, reliable

access to intercity hubs. This initiative, which included an expansion of the transit system with 62 new stations, resulted in a VMT decrease of 1 percent, VHD decrease of 3 percent, and GHG decrease of 1 percent relative to the 2040 baseline.

- Each of the studies had multiple strategies that improved transit service, expanded transit service, or lowered the cost of transit service. The Metrorail core capacity improvements reduced daily VHD by 9 percent, daily VMT by 1 percent, daily VMT per capita by 1 percent, and increased transit commute mode share by 2.8 percentage points compared to the CLRP in 2040 (base-year 2015),(i.e., transit mode share increased from 24.6 percent to 27.4 percent).

The MSWG (TLU-11), LRPTF Phase 2 study (Initiative 9) and CCMS studies examined policies that reduce transit fares. The transit fare policies examined in the LRPTF Phase 2 study reduced daily VHD by 2 percent, daily VMT by 1 percent, and both GHG and daily VMT per capita by 1 percent compared to the CLRP in 2040 (base-year 2015). The CCMS (MS.3) examined what impacts free fares might have (studied with some additional strategies). It found that free transit and transit enhancements could generate additional mode shifts.

Each of the TPB/COG studies had multiple strategies for transit, such as improving transit service, expanding transit service, or lowering the cost of transit service. Overall, these strategies tended to do fairly well among the project-focused strategies in their respective studies but could be expensive to implement. For example, compared to the planned-build long-range transportation plan, the Metrorail regional core capacity improvements in the LRPTF Phase 2 study (Initiative 6) reduced GHG emissions by 2 percent, ranking it a distant third behind TDM (7 percent) and land use (4 percent) for GHG reduction, but ahead of other project-focused initiatives (which only reduce emissions by 1 percent or in the case of one initiative increased emissions by 1 percent).

The CCMS examined numerous transit strategies as part of mode shift combined pathway (MS1, 2, and 3), but did not examine the impact of transit strategies alone. Overall, it found that mode shift and travel behavior strategies provide supporting GHG reductions but are less important when nearly all on-road passenger vehicles are EVs and the electric grid is carbon neutral. The carbon content of the fuel used by transit vehicles also affects the GHG emissions and is considered under “vehicle technology” strategies later in this document.

Neither the mode shift and travel behavior pathway nor the transportation systems management and operations pathways results reflected the ability to meet either the 2030 or 2050 emissions reductions by themselves. Findings in the CCMS show that even with a clean electric power grid (100 percent carbon-free by 2035), the region would have to apply the aggressive scenarios to meet 2030 and 2050 targeted emissions reductions. The illustrative single pathway scenarios that made the largest impact are the two vehicle technology scenarios that convert the light, medium, and heavy-duty vehicle fleets to electric vehicles and use biofuels/renewable diesel. The more aggressive scenario of the two was found to meet the 2030 and 2050 emissions reductions. To this end, converting transit vehicles to “greener” technologies is a strategy that could potentially be implemented by the region’s transit agencies.

In preparation for the LRPTF Phase 2 modeling activities, the TPB examined some additional scenarios internally for purpose of testing the sensitivity of models and as a “thought experiment” that considered extreme and hypothetical strategies. These “extreme” and in some cases unrealistic scenarios were originally designed to test how the model would respond to these types of policy assumptions. The comparisons presented the differences between the 2040 scenarios and the

2015 baseline. The 2040 Transit Expansion scenario in particular is an interesting case study, because it shows the upper limits in terms of the maximum level of VMT reduction that transit projects could achieve. In this very aggressive (unrealistic) scenario that assumes that bus and rail frequency is going to be one minute for every single line, and that run times for the Metrorail and other High-Capacity Transit services are cut in half, VMT still increases by 17 percent in 2040 relative to today (2015), whereas the Planned Build shows a 21 percent increase in VMT. In other words, although this specific future characterized with extensive transit service (transit trips double) would likely have favorable equity implications, these unrealistic assumptions that cannot be achieved with any mix of projects in the plan only resulted in a 4 percent difference in VMT relative to the Planned Build's performance against today's conditions (17 percent increase versus 21 percent increase relative to today). The forecast showed GHG emissions in 2040 decrease by 24 percent relative to 2015 (better than 2040 Planned Build); this conceptual plan that was tested is not implementable for a number of reasons.

The TPB staff examined through a series of "No Build tests using the data for the TPB's current approved plan. Staff analyzed what would happen if the region invested only in transit projects, but no highway projects. The analysis shows that daily vehicle hours of delay would increase 76 percent, compared to 48 percent as forecast for the approved 2022 LRTP. Daily Vehicle Miles Traveled Would increase 13 percent instead of 15 percent for the planned build, and GHG emissions would be reduced 14 percent instead of 11 percent.

Table 3 provides an overview of the COG and TPB scenario studies that included strategies that were specific to or included transit.

Table 3 Scenarios that Considered Transit

Report	Scenario(s)	To better understand
RVP	Combinations of variably-priced lanes, including extensive transit service to the VPL networks	Managing congestion and raising revenue to improve transit services
WWIT	Increase transit and bike/ped use (13 measures improving bus service, Metrorail extension, park and ride lots, bike stations, bike sharing, ped paths to rail, regional bike-ped plan) Improve operational efficiency (traffic signal optimization, incident management)	Improving fuel efficiency and (use of) alternative fuels.
Congestion Reduction Test (by 25 Percent Relative to 2040)	All transit services operate with a one-minute headway: in addition, all Metrorail, commuter rail, light rail, BRT and streetcar running times are cut in half, the Metrorail constraint through the regional core is removed	Potential for targeted congestion reduction.
LRPTF Phase 2 Study	Examined transit-focused and policy-focused initiatives: • BRT and Transitways • Commuter Rail • Metrorail Core Capacity • Transit Rail Extensions • Transit Fare Policy Changes	What types of projects, programs, and policies best address the TPB goals.
CCMS	Nine of ten of the scenarios in the CCMS contain transit-related components. These components	Impacts of individual and combined strategies on GHG reduction

	include reducing transit fares, and implementing transit enhancements.	
LRTP 2022 Update: No Build Tests	Examines performance of building only the highway (but not transit) projects (along with maintenance and operations) in the 2022 LRTP Planned Build Scenarios Analysis	Impact of Growth, + Maximum Enhancement Roadways projects

3.2.1.3. Findings from Bicycle and Pedestrian Strategies

The TPB policy framework has long communicated the need for and value of a comprehensive transportation system, that includes options for people to walk, bike, or take other "micromobility"[5] options as all or part of their trip. While bicycle and pedestrian modes could not typically be included in technical analysis, the need for high quality, safe and connected access to transit stations for people walking, biking or taking micromobility to transit was considered as an assumption in many studies.

A benefit of improved connections for people that walk, bike, or use micromobility as their entire trip, is the reduced demand for other modes of transportation. The TPB's Regional Travel Survey trends show that more people are walking and biking. Yet, while these modes are considered either zero or extremely low in emissions and energy use, one cannot reasonably assume that most trips can be replaced by biking, walking, or micromobility travel options. In the scenario studies, the improved access to transit was considered as part of the land-use and transit scenarios, which are discussed under those headings in the findings section of this summary report.

Bicycle and pedestrian considerations were included in several scenario studies as summarized below and in Table 4:

- The WWIT study studied an accelerated completion of the 2010 Bicycle and Pedestrian Plan compared to other local/state/regional strategies.
- The MSWG study did not analyze separate bicycle and pedestrian strategies. Instead, it simply assumed that safe and expanded bicycle and pedestrian infrastructure is essential to the success of the concentrated land use strategies.
- The LRPTF study assumed that transit investments will be supported by improvements in bike/walk infrastructure, facilitating access to those transit services.
- The CCMS scenarios included several scenarios that included assumptions about changes in non-motorized transportation (such as MS.1: Land use changes, including increased bicycle/pedestrian/micromobility) show the mode shift and transportation systems management and operations pathways results did not reflect the ability to meet either the 2030 or 2050 emissions reductions by themselves.

Table 4 summarizes bicycle and pedestrian considerations in the scenarios.

[5] Transportation using lightweight vehicles (some with motors) such as scooters. Some of these are provided by private companies as a shared service.

Table 4 Scenarios that Considered Bicycle/Pedestrian

Report	Scenario(s)	To better understand
WWIT	Short- and long-term regional actions include increasing bicycle and pedestrian use and improving the infrastructure, particularly to access transit	How to meet aggressive regional climate change mitigation goals in the transportation sector
CLRP Aspirations Study	Scenario includes increase bicycle and pedestrian infrastructure to transit stations	Better align land use and transportation planning with the goals of the TPB Vision and of the previous RMAS initiative
MSWG	EBE-3: Encourage development in Activity Centers includes improved bicycle and pedestrian infrastructure	Focused on incremental reduction in energy use
	Sustainable development patterns and urban design, including bicycle/pedestrian enhancements	Exploring reallocation of anticipated future growth into locations and configurations that are less auto-dependent to lower VMT levels
LRPTF Phase 1 Study	Scenarios explore bicycle and pedestrian capacity and access to transit and circulation in Activity Centers	Meeting the goals of the TPB Vision and RMAS initiative
LRPTF Phase 2 Study	Scenarios that examined rail and transit infrastructure included improvements to bicycle and pedestrian access to their station areas	Meeting the goals of the TPB Vision and RMAS initiative
CEAP	MSTB-1: Invest in infrastructure that increases transit, carpooling, and non-motorized travel.	Help move the region towards meeting its' 2030 climate mitigation and resiliency goals
CCMS	The mode shift and travel behavior scenarios studied bicycle/pedestrian/micromobility	How land use changed focused on redistributing growth to Activity Centers and High-Capacity Transit station areas can reduce GHG emissions

3.2.2. FINDINGS: POLICY AND LEGISLATION

Policy and legislation are two tools that the TPB members and other governmental bodies (depending on the authority of each) can use to impact transportation planning, programming, investment, and outcomes.

Many of the strategies discussed in this summary could be implemented more quickly with agencies, from all levels of government, adopting policies and legislation related to them. Intergovernmental cooperation and working together with the private sector will likely be critical to achieving regional goals.

Policy goals were incorporated into a number of the scenarios as one or more of the strategies, usually at defined levels of implementation for analysis purposes. Both the LRPTF and CCMS studies rely heavily on policy action to accomplish their goals. Findings on pricing, TDM and land use are summarized in the following discussions, but policy and legislation findings can be found throughout the other sections, including vehicle technologies. Table 5 provides an overview of the COG and TPB scenario studies that include strategies that were specific to policy/legislation.

3.2.2.1. Findings from Pricing Policy Strategies

Pricing is a tool that can be used to manage transportation demand, including when, where, and how people travel. Managing demand for the transportation system is an important strategy to help make progress on numerous TPB goals. Several scenario studies examined various pricing tools and policies to better understand the impact of these tools on the region's transportation system performance.

Summary Findings

Fuel Pricing
The most impactful pricing factor considered was a TDM strategy in the WWIT study and based on the 2009 Annual Energy Outlook's "High Price Case." That strategy included $7/gallon gasoline, which led to a 6 percent reduction in VMT between 2010 and 2030 compared to the CLRP baseline (2010). It should be noted that the 6 percent VMT reduction is a result from the national level models employed by the U.S. Department of Energy and for the WWIT study, it was assumed that the VMT reduction would correspond with roughly a 6 percent decrease in GHG emissions.

Roadway Pricing
In the RVP study, the toll rates on the variably-priced lane (VPL) network would have to vary significantly by segment, direction, and time-of-day in order to maintain free-flowing conditions. In terms of financial feasibility, a comparison of the forecasted revenues versus costs for each of the scenarios found that only the "DC and Parkways Restrained" scenario generated revenues close to covering the costs.

The RVP also studied the addition of extensive transit service to the VPL networks. This addition resulted in increases in transit use, decreases in HOV use, small decreases in VMT, and decreases in total system revenue. Regarding land use patterns, very few zones experienced significant changes in accessibility to jobs by highways. Accessibility to jobs by transit improved in all the scenarios. Changes in accessibility to households by highways were minimal and gains in accessibility by transit were scene near major interchanges in the VPL network.

The road pricing strategy (TLU-12) in the MSWG study included a cordon price of $5/trip into downtown DC in 2040, and the cordon price plus a VMT tax of 10 cents/per mile everywhere in 2050. The analysis for this strategy showed significant VMT reductions (7.8 percent annually compared to the current policies forecast) in 2050 due to the VMT tax; however, it did not show significant GHG reductions due to the improved fuel efficiency of the fleet.

The LRPTF Phase 2 Study also examined tolling, results of the Initiative 1, Regional Express Lanes Network, can be found in the roadway and transit sections.

In preparation for the LRPTF Phase 2 modeling activities, the TPB examined some additional scenarios internally for purpose of testing the sensitivity of models and as a "thought experiment" that considered extreme and hypothetical strategies. These "extreme" and in some cases unrealistic scenarios were originally designed to test how the model would respond to these types of policy assumptions. The comparisons presented the differences between the 2040 scenarios and the 2015 baseline.-The TPB tested a policy scenario that included a VMT tax of $1 per mile being assessed for the entire modeled area; typical proposals studied elsewhere are between 1 and 2

cents per mile. This scenario decreases congestion by more than 40 percent, VMT by 24 percent, and GHG emissions by 51 percent (significantly better than 2040 Planned Build) in 2040 relative to 2015, but perhaps costing a one-car household between $10,000 and $15,000 a year, which would raise concerns for feasibility and equity implications.

Parking Pricing

Past scenario studies have examined parking pricing policies such as pricing workplace parking in Activity Centers (MSWG, LRPTF, and CCMS). These policies were typically combined with TDM policies like employer-based transit/vanpool benefits or teleworking in the technical analysis, so the impact of parking pricing alone was not quantified. However, the technical report for the MSWG study notes that the cost of parking is a key determinate in travel choice.

Also examined as part of preparation for the LRPTF Phase 2 modeling activities, the TPB examined a scenario that included a 2040 High Parking Test. The TPB staff examined how forecasts would differ if there was a daily commuter parking charge of $25 or more assessed for each TAZ in the region; hourly rate of $5 or more is assessed for non-work trips throughout the region. This scenario is another "less-worse" case, with congestion increasing by 25-30 percent relative to today (instead of 70-80 percent) and VMT increasing by 14 percent (instead of by 21 percent); transit trips also double. GHG emissions decrease in 2040 by 26 percent relative to 2015 (better than Planned Build).

Incentive-based

A strategy that is more incentive-based, such as pay-as-you-drive insurance in the WWIT study showed promise in reducing emissions among the automobile travel reduction strategies, although much less than fuel efficiency strategies.

Tables 5 and 6 provide an overview of scenario studies that were specific to or included policy considerations and pricing in the scenarios.

Table 5 Scenarios that Consider Policy and Legislation

Report	Scenario(s)	To better understand
WWIT	Scenarios looked at large-scale, aggressive federal government action, and both short- and long-term state/regional/local actions	Improving fuel efficiency, use of alternative fuels, and travel efficiency
MSWG	Roadway and personal vehicle policies (low carbon fuel standard, improving fuel economy of light-duty vehicle fleet, enhancing system operations, road pricing, Travel Demand Management, truck stop electrification)	Providing context for GHG emissions in the region and potential GHG reductions that might be achieved through regional policy actions
LRPTF Phase 2	Examine a set of policy-focused initiatives	Examine impacts of potential initiatives against the adopted LRTP for the year 2040
CEAP	Study the impacts of strategies aimed at energy efficiency, mode shift, and travel behavior	Help move the region towards meeting its' 2030 climate mitigation and resiliency goals
CCMS	Scenarios that encourage adoption of policies to help mitigate GHG emissions	Impacts of individual and combined strategies on GHG reduction

Table 6 Scenarios that Considered Pricing Strategies

Report	Scenario(s)	To better understand
WWIT	2009 Annual Energy Outlook's "High Price Case". That strategy included $7/gallon gasoline.	How to meet aggressive regional climate change mitigation goals in the transportation sector
RVP	Examined toll rates on the variably-priced lane (VPL) network including the addition of extensive transit service to the VPL networks.	
MSWG	The road pricing strategy (TLU-12) included a cordon price of $5/trip into downtown DC in 2040 and the cordon price plus a VMT tax of 10 cents/per mile everywhere in 2050 Parking pricing policies such as pricing workplace parking in Activity Centers	Focused on incremental reduction in energy use by influencing transportation demand through policy
Congestion Reduction Test (by 25 Percent Relative to 2040)	A VMT tax scenario examined the potential impacts of assessing a VMT tax of $1 per mile for the entire modeled area; typical proposals studied elsewhere are between 1 and 2 cents per mile.	Potential for targeted congestion reduction.
LRPTF Phase 2 Study	Parking pricing policies such as pricing workplace parking in Activity Centers	Meeting the goals of the TPB Vision and RMAS initiative
CCMS	Parking pricing policies such as pricing workplace parking in Activity Centers	

3.2.3. Travel Demand Management Findings

Transportation Demand Management (TDM) has been identified as a priority strategy to make progress on numerous TPB goals. TDM approaches are intended to help people find and use alternatives to driving alone. For example, Commuter Connections is the TPB's TDM program. Commuter Connections uses marketing, incentives, and employer-based programs to reduce congestion and improve air quality. The Commuter Connections network primarily promotes activities including ridesharing, using transit, bicycling, walking, teleworking, and employer services. Many local jurisdictions in the TPB region also have TDM programs.

A number of scenarios included aspects of TDM. The LRPTF Phase 2 study (Initiative 10) focused specifically on TDM, "Amplified Employer-based Travel Demand Management". It assessed new policies (e.g., employer trip reduction requirements) and programs (e.g., financial incentives) implemented at the local and regional scale to significantly reduce single-occupancy vehicle commute trip making, including:

- Employer-based parking cash-out
- Expanded employer-based transit/vanpool benefits
- Expanded telework and flexible schedule adoption
- Substantial increase in priced commuter parking in major Activity Centers (also a pricing strategy)

How did the TPB arrive at these findings?

In the LRPTF Phase 2 study, the TDM initiative examined the impacts of providing a transit/vanpool subsidy, parking pricing increases, and an increase in telework, regionally reducing the number of commute trips for all modes to achieve a 20 percent telecommute rate (i.e., an increase from the overall pre-COVID telework rate for all jobs from 10 percent to 20 percent). This initiative resulted in a 24 percent reduction in VHD, 6 percent reduction in daily VMT, 6 percent reduction in daily VMT per capita, and 20 percent reduction in single-occupant vehicle work trips compared to the to the long-range plan that was in effect at the time of the study with forecasts for outyear 2040.

Both the MSWG (TLU-9) and LRPTF Phase 2 (Initiative 10) studies showed promising GHG reductions from employer-based TDM including transit subsidies and priced parking in Activity Centers. The LRPTF Phase 2 study showed a 7 percent reduction in GHG emissions. Because of the increase in teleworking, there was a 9 percent reduction in transit work trips relative to the CLRP in 2040 (base-year 2014) baseline.

In preparation for the LRPTF Phase 2 modeling activities, the TPB examined some additional scenarios internally for purpose of testing the sensitivity of models and as a "thought experiment" that considered extreme and hypothetical strategies. These "extreme" and in some cases unrealistic scenarios were originally designed to test how the model would respond to these types of policy assumptions. The comparisons presented the differences between the 2040 scenarios and the 2015 baseline.

- Telework and E-commerce: A scenario that examined a 2040 Technology Substitution examined how forecasts would differ if residential trip rates were half of existing trip rates due to internet-based technologies (teleworking, e-commerce). Forecast results showed ad decrease in AM congested lane miles and VHD by about 50 percent in 2040 relative to 2015, while VMT decreases by 11 percent during the same time period. GHG emissions in 2040 decrease by 42 percent relative to 2015 (two times greater reductions than 2040 Planned Build).

- The scenario that examined Improved Traffic Flow Throughout the Day assumes that excessive traffic that would normally exist in the AM and PM peak periods will be displaced to off-peak periods, thereby improving peak period highway speeds and traffic flow. The findings show decreases in AM congested lane miles by 52 percent and VHD by 7 percent relative to 2015. This test shows the scenario reduces overall congestion. But VMT increases by 24 percent. GHG emissions decrease by 20 percent relative to 2015 (similar to the Planned Build reduction of 21 percent).

- The scenario that examined Improved Peak Period Traffic Flow assumes that highway travel within the morning and evening peak periods will be evenly distributed throughout the day. The scenario examines flexible work hours, incentives to stagger working hours, and the use of technology and navigational aids to improve system flow and to minimize delay. The findings of this test showed that AM congested lane miles would be forecast to decrease by 9 percent, while VHD increases by 29 percent relative to 2015. The number of congested lane miles decreases, but for those links where new congestion occurs, it is worse than today in terms of delay. VMT increases by 25 percent. GHG emissions decrease by 19 percent relative to 2015 (similar to the Planned Build reduction of 21 percent).

Table 7 provides an overview of the COG and TPB scenario studies that included strategies that were specific to or included TDM.

Table 7 Travel Demand Management Scenarios

Report	Scenario(s)	To better understand
WWIT	"Reduce Travel" Scenario: Expanded Telecommuting; Carpool incentive program; Vanpool incentive program; Expand car-sharing program: Funds incentives for 1000 new car-sharing customers; Employer outreach, public and private (Metrochecks and carpooling): Marketing and implementing employer-based TDM programs; this scenario also included land use assumptions from the CLRP Aspirations Scenario to concentrate land use and focus on transit-oriented development to impact mode share.	How to meet aggressive regional climate change mitigation goals in the transportation sector
MSWG	TDM Scenario (TLU-9): Reducing the availability of free parking in activity centers by imposing parking impact fees and parking caps and create parking pricing for on- and off-street parking, and related strategies to encourage park-and-ride usage; incentives to encourage carpooling and ridesharing, non-motorized modes of commuting, and telecommuting	Focused on incremental reduction in energy use
Congestion Reduction Test (by 25 Percent Relative to 2040)	A scenario examined daily commuter parking charge of $25 or more is assessed for each TAZ in the region; hourly rate of $5 or more is assessed for non-work trips throughout the region. Another scenario examined 2040 residential trip rates will be half of existing trip rates due to internet-based technologies (teleworking, e-commerce). Two scenarios looked at managing traffic flow, one considered improved traffic flow in peak period and another throughout the day	Potential for targeted congestion reduction.
LRPTF Phase 2 Study	Amplified Employer-based Travel Demand Management: Employer-based parking cash-out; Expanded employer-based transit/vanpool benefits; Expanded telework and flexible schedule adoption; Substantial increase in priced commuter parking in major Activity Centers (also a pricing strategy)	Meeting the goals of the TPB Vision and RMAS initiative
CEAP	MSTB-3: Enhance options for commuters: expanding the rate of telework and implementing other TDM strategies, such as pricing commuter parking regionwide and ensuring a majority of employees receive monthly transit benefits	Help move the region towards meeting its' 2030 climate mitigation and resiliency goals
CCMS	3 mode shift and travel behavior scenarios studied potential impact of land-use changes focused on redistribution of future growth to activity centers and areas better served by transit across jurisdictions; enhanced bike/pedestrian/micromobility environment; transit fares reduced; all workplace parking in activity centers priced by 2030; transit enhancements and telework	How to reduce GHG emissions

3.2.4. FINDINGS: LAND-USE

The TPB has examined land-use scenarios in nearly all of its scenario studies. The studies that included land-use as a factor are listed in Table 9.

The TPB has long-considered land-use a transportation strategy and has included land-use coordination in its policy framework. Land-use is an important factor in transportation because it influences the feasibility of travel options and travel behavior. It also impacts how goods and services are distributed, the environment, health, community character, and economic vitality of a region.

The TPB has long encouraged jurisdictions throughout the region to concentrate residential and commercial development in dense, mixed-use Activity Centers and in High-Capacity Transit station areas to reduce the reliance on people driving alone for their daily needs. Connecting Activity Centers with High-Capacity Transit options and making it easier for people to move around within these areas can also help reduce reliance on driving alone. Coordinated land-use and transportation planning plays a key role in effectively making the most of existing facilities to achieve mobility and accessibility goals, continuing sustainable development, and maintaining global competitiveness.

The GHG reduction studies and their land-use scenarios included considerations of strategies related to energy and the built environment (EBE). This refers to energy utilization in the built environment to promote energy efficiency and reducing emissions. As the transportation system in integrated into the built environment and uses fuel/energy to function, these strategies are important considering for transportation-focused scenario planning.

The numerous scenarios that the TPB and COG have conducted that consider land-use have resulted in the following summary findings:

- The optimization of land-use by collocating housing and jobs and focusing more development around Metrorail reduces road congestion, improves access to bicycle/pedestrian facilities, and makes Metrorail a more viable option for more people.
- Balancing the region's East/West divide by reallocating jobs/housing more evenly across the region and overall and increasing the number of households in the region can reduce the long commute times, including for the workers currently living outside of the region.
- Creation of walkable, transit-oriented, and mixed-use Activity Centers directly allows for substantial bicycle and pedestrian trip increases and major transit use increases on the existing system, and planned BRT systems, which are necessary in some form to relieve existing and projected transit congestion.
- Land-use scenarios show that significant population growth can be accommodated smartly, without increasing road congestion, air pollution, or VMT.
- All scenarios that included land-use demonstrated a small positive impact on reducing GHG, but land-use shifts alone cannot make substantial reductions to meet the COG and TPB GHG reduction goals for 2030 and 2050.

How did the TPB arrive at these findings?

The following section provides a sampling of individual findings from several the scenarios to provide support for the summary findings noted in the previous section.

The 2010 CLRP Aspirations Scenario Study presented results of the analysis of a land-use sensitivity scenario consisting of only the smart growth assumptions[6] contained in the full CLRP Aspirations Scenario. This sensitivity scenario was run in order to control for land-use changes and better understand their potential effects on travel demand. Key findings for horizon year 2030 showed trends (comparing to the 2008 CLRP) that the land-use changes could support the reduction of VMT (0.5 percent decrease), VMT per capita (4.1 percent decrease) and reduce average auto trip length (2.5 percent decrease)

Both the MSWG (TLU-2) and LRPTF Phase 2 study (Initiative 8)[7] studies showed that shifting future projected growth to locate jobs and households closer together in regional Activity Centers and near High-Capacity Transit reduces automobile travel. The MSWG study specifically assumed bicycle and pedestrian enhancements. The MSWG study showed an 11.6 percent reduction in daily VMT compared to the "current policies" (CLRP) forecast in 2040 (base-year 2015).

The LRPTF Phase 2 study examined regional priority initiatives, comparing them to the long-range plan that was in effect at the time of the study (forecasts for outyear 2040). Many of these initiatives included land-use shifts, while one focused specifically on the optimization of land-use. It included optimizing jobs/housing balance regionwide; increasing jobs and housing around underutilized rail stations and Activity Centers with High-Capacity Transit, building more housing in the region to match employment (about 130,000 more households) and reducing the number of long-distance commuters outside of the region. Analysis showed that shifting land-use in this manner demonstrated positive travel trends for horizon year 2040 compared to the CLRP (base-year 2015), including reducing daily vehicle hours of delay by 18 percent, reducing daily VMT by 3 percent, daily VMT per capita by 6 percent (for all types of drivers) and a 29 percent increase in non-motorized trips compared to 2040.[8]

All studies showed that while land-use and transportation coordination is a key transportation strategy, and that it can help to reduce GHG emissions, land-use must be combined with other more effective GHG reduction strategies to make significant progress toward regional GHG reduction goals.

The LRPTF Phase 2 land-use scenario demonstrated a possible four percent GHG reduction.[9] The land-use strategies that COG and the TPB assume for the MSWG study were more aggressive and resulted in a 7 percent decrease in transportation emissions in 2040.

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[6] A land use sensitivity scenario was also run in order to control for the effects of the land use portion of the full scenario. The sensitivity is the land use component of the Aspirations scenario, but with no change in transportation assumptions beyond the 2008 CLRP. It does not contain any of the new pricing, road capacity, or the BRT system that are in the full scenario. This sensitivity enables a more nuanced analysis and helps determine possible causes for a variety of travel demand effects.

[7] It should be noted that the land use strategies in the MSWG and LRPTF were evaluated using different assumptions and different modeling tools, which accounts for the difference in forecasted VMT and GHG reductions due to shifting future land use patterns. The MSWG analysis used a tool developed by the consultant while the LRPTF analysis used the TPB regional travel demand model and sketch planning tools.

[8] LRPTF Phase 2 Study, Summary presentation by Erin Morrow on 3/17/2021.

[9] LRPTF Phase 2 Study, Summary presentation by Erin Morrow on 3/17/2021.

In the CCMS, there were two types of scenarios, ones exploring single pathways at different levels of implementation and ones combining the pathways at different levels of implementation. The pathways included 1) vehicle technology and fuel improvements, 2) mode shift and travel behavior, and 3) transportation systems management and operations, which included connected and automated vehicle assumptions. The CCMS study found that none of the individual or combined scenarios that included land-use strategies could meet the region's non-sector-specific 2030 GHG reduction goals (50 percent below 2005 levels).[10] In 2050, only the most aggressive combined scenarios could meet the GHG reduction goals for the on-road transportation sector (80 percent below 2005 levels). Land-use strategies included in these scenarios include adding new housing in the region.

While not meeting the TPB's GHG reduction goals, the CCMS findings for the mode shift pathways found that with the combination of land-use changes and other strategies that there would be VMT reductions in 2030 and 2050 compared to the baseline. While a large part of the reduction is due to the 25 percent telework level, the land-use and transit enhancements also see noticeable positive effects by 2050.

Table 8 provides an overview of the COG and TPB scenario studies that included strategies that were specific to or included land-use/built environment changes.

Table 8 Scenarios that Considered Land-Use

Report	Land Use Scenarios	To Better Understand
Regional Mobility and Accessibility Study: What If? (RMAS) (2006)	Concentrating jobs and households in regional Activity Centers and expanding the transit network. Address East/West divide by adjusting housing/jobs locations in scenario	Explore actions the region's leaders might take to better meet the objectives of the TPB Vision, the TPB's first major policy document.
What Would it Take? Scenario (2010)	Align land-use and transportation planning, focusing growth around mixed-use development and adding more housing units in these locations	How to meet aggressive regional climate change mitigation goals in the transportation sector
CLRP Aspirations Scenario Study (2010)	Align land-use and transportation planning focusing growth in Activity Centers and High-Capacity Transit Stations and adding more housing units in these locations	Better align land use and transportation planning with the goals of the TPB Vision and of the previous RMAS initiative

[10] Note that the CCMS calculated on-road GHG emissions from both vehicle tailpipes and the electricity used to run electrical cars. Many other studies and GHG reduction targets calculate only tailpipe emissions. This would make it more challenging for the CCMS to meet the region's non-sector-specific GHG reduction goals.

Multi-Sector Working Group (2017)	Land-use shifts in population and employment to Activity Centers and High-Capacity Transit stations, together with sustainable urban design to reduce GHG emissions. Examines a number of strategies promoting energy efficiency and reducing emissions through improvements in the built environment, infrastructure, and non-road engines	Provides context for GHG emissions in the region and potential GHG reductions that might be achieved through regional policy actions.
LRPTF Phase 2 Study (2017)	Optimize jobs/housing balance regionwide Address East/West divide by adjusting housing/jobs locations in scenario. Increase jobs and housing around underutilized rail stations and Activity Centers with high-capacity transit. Build more housing in the region to match employment (about 130,000 more households) and reduce the number of long distance commuters outside of the region.	Examines impacts of potential initiatives against the currently adopted LRTP for the year 2040
2030 Climate Energy and Action Plan (2020)	Encourage shifts in population and employment to Activity Centers and High-Capacity Transit stations to reduce GHG emissions	Help move the region towards meeting its 2030 climate mitigation and resiliency goals
Climate Change Mitigation Study (2021)	Align land-use and transportation planning focusing growth in Activity Centers and High-Capacity Transit Stations and adding more housing units in these locations. One strategy focused on moving jobs and households withing jurisdictions, anther moved them across jurisdictional boarders.	Assess ways to reduce GHG emissions in the on-road transportation sector

3.2.5. FINDINGS: VEHICLE TECHNOLOGY (ELECTRIFICATION AND ALTERNATIVE FUELS)

The TPB policy framework has for many years endorsed using the most effective technologies. Over time, technologies that are implemented by the public and private sector continue evolve to serve various end goals such as system efficiency, mobility, safety, fuel efficiency, and GHG mitigation. Vehicle technologies and fuel efficiency are important technological advances that are often effective at making progress on the TPB's goals, but, are outside the TPB members' authority.

The TPB and COG scenarios that considered vehicle technologies and fuels resulted in the following summary findings:

- Findings in the CCMS show that even with a clean electric power grid (100 percent carbon-free by 2035), and the region applying the aggressive combinations of strategies, it would not meet the 2030 targeted emissions reductions of 50 percent below 2005 levels. The 2050 targeted emissions reductions of 80 percent below 2005 levels could potentially be met with aggressive combinations of strategies and a significantly cleaner electric power grid.
- The mode shift and travel behavior and the transportation systems management and operations single pathway scenario results did not reflect the ability to meet either the 2030

or 2050 emissions reductions by themselves. Findings in the CCMS show that even with a clean electric power grid (100 percent carbon-free by 2035), the region would have to apply the aggressive scenarios to meet 2030 and 2050 targeted emissions reductions.

- The single pathway (largely illustrative) scenarios that made the largest impact are the two vehicle technology scenarios that convert the light, medium, and heavy-duty vehicle fleets to electric vehicles and use biofuels/renewable diesel. The more aggressive scenario of the two was found to meet the 2030 and 2050 emissions reductions. The mode shift and transportation systems management and operations pathways results did not reflect the ability to meet either the 2030 or 2050 emissions reductions by themselves.

How did the TPB arrive at these findings?

The MSWG study examined the potential impacts that could result from improvements in light-duty vehicles, the public sector fleet, lowering carbon fuel standards, and truck stop electrification. A summary of primary findings includes the following:

- In 2012, the MSWG study found that passenger vehicles are estimated to be responsible for 84 percent of VMT and 72 percent of on-road GHG emissions in the region. The TLU-3 strategy, to improve fuel economy of the light-duty vehicle fleet, aimed to increase light-duty ZEVs to 25 percent of the fleet by 2050. To reach this goal it suggested speeding up the replacement rate of older, less fuel-efficient vehicles, incentivizing the purchase of electric vehicles and charging equipment, implementing disincentives for inefficient vehicle purchase, and adopting new low emission vehicle standards.

- The MSWG study showed a significant GHG emissions reduction from the light-duty CAFE standards that were phased in with model years 2012-2025 and the MHDV fuel efficiency standards that were phased in with model years 2014-2018. The analysis showed that emissions within the transportation sector would be 46 percent lower in 2040 compared to a future where these federal fuel efficiency policies had not been enacted.

- The low-carbon fuel standard (TLU-6) was the most impactful transportation-only strategy studied by the MSWG. The low-carbon fuel standard contributed a 5 percent reduction (compared to) in GHG emissions from the transportation sector total in 2040.

- Additional accelerated deployment of zero-emission vehicles examined in the MSWG (TLU-3) was the most impactful transportation-only strategy studied. TLU-3 contributed a 3 percent reduction in GHG emissions from the transportation sector's forecast for 2040. Electric vehicles do not have tailpipe GHG emissions that would be included in on-road vehicle emissions inventories; however, there are GHG emissions from the electric generation needed for charging the vehicles.[11] In the MSWG study and the CEAP 2030 analysis, the GHG emissions produced to generate the electricity needed to charge electric vehicles were accounted for, thus reducing the net GHG reduction benefit of electric vehicles.

[11] US Environmental Protection Agency (EPA). "Greenhouse Gas Emissions from a Typical Passenger Vehicle." EPA Office of Transportation and Air Quality. EPA-420-F-18-008. March 2018. https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100U8YT.pdf

The CCMS explored vehicle technology and fuels strategies to reduce the carbon-intensity of vehicle travel by shifting to electric vehicles (EVs), lower carbon fuels, and increasing the fuel efficiency of vehicles. The analysis looked at the current vehicle stock and GHG emissions and estimated what level of EVs in the fleet would be necessary to achieve the 50 percent and 80 percent GHG reduction goals without any changes in forecast VMT. The study analyzed strategies using three different electric grid assumptions based on existing and potential state and national policies (Reference Case, Modified Reference Case, Clean Grid Case).[12] The reference case used as a baseline electric grid and the clean grid assuming a 100 percent carbon free grid by 2030. A summary of primary findings includes the following:

- The CCMS found that the average emissions rate across all vehicles would need to be reduced by 56 percent compared to the 2018 level to reach the 2030 goal. The baseline forecast found that emission rates are expected to decline by 25 percent over this period meaning that the average vehicle fuel economy of vehicles must more than double between 2018 and 2030. To reach this, approximately 44 percent of vehicles on the road would need to be EVs in 2030 (in the Reference Case grid). This number does not account for emissions from electricity used to charge the EVs, when considering electricity and charging stations approximately 75 percent of the fleet would need to be EVs.
- In 2050, under the Reference Case grid, it was found that achieving the 2050 goal level of an 80 percent GHG emissions reduction is not attainable in either of the vehicle technology scenarios. The average emission rate across all vehicles would need to be reduced by 84 percent compared to the 2018 level. The baseline forecast found that emission rates are expected to decline 32 percent over this period. To reach the 2050 goal, the region would need to have a carbon free electric grid and 79 percent of vehicles on the road would need to be EVs by 2050.
- **As a point of reference, as of 2018, EVs make up less than 1 percent of the vehicle fleet.** The required level of fleet change by 2030 is extremely ambitious and would likely require immediate shifts to all new vehicles sold as EVs, aggressive incentives to accelerate vehicle turnover, and/or carbon or fuel pricing increases.

In preparation for the LRPTF Phase 2 modeling activities, the TPB examined some additional scenarios internally for purpose of testing the sensitivity of models and as a "thought experiment" that considered extreme and hypothetical strategies. These "extreme" and in some cases unrealistic scenarios were originally designed to test how the model would respond to these types of policy assumptions. They are described in the other sections of this document. The comparisons presented the differences between the 2040 scenarios and the 2015 baseline. Only two of these scenarios, which assume unprecedented levels of VMT tax and sustained reductions in trips due to technological advances (e.g., telework comparable to the levels observed during the height of the COVID-19 pandemic closures in spring of 2020), respectively, have the potential to significantly move the region toward reaching its GHG reduction goals.

[12] Reference Case: All "on-the-books" policies, including renewable portfolio standards in the District of Columbia, Maryland, and Virginia. These policies include those defined in Virginia's Clean Economic Act, Maryland's Renewable Portfolio Standard, and DC's Renewable Portfolio Standard. Modified Reference Case: Slightly more aggressive Reference Case, resulting in a near zero carbon grid by 2040 based on enhanced clean energy policies in Maryland that more closely match those from DC and Virginia. Clean Grid Case: Assumes a 100 percent carbon free grid by 2035.

Table 9 provides an overview of the COG and TPB scenario studies that include strategies that were specific to vehicle technology.

Table 9 Scenarios that Considered Vehicle Technology

Report	Scenario(s)	To better understand
WWIT	Scenarios looked at large-scale, aggressive federal government action, and both short- and long-term state/regional/local actions. These included CAFE 55 mpg by 2030; doubling current heavy duty fuel efficiency by 2020; local tax incentives for fuel efficient vehicle purchase, the current (at the time) renewable fuel standard	Improving fuel efficiency, (use of) alternative fuels, and travel efficiency
MSWG	Roadway and personal vehicle policies (low carbon fuel standard, improving fuel economy of light-duty vehicle fleet, truck stop electrification).	Providing context for GHG emissions in the region and potential GHG reductions that might be achieved through regional policy actions
CEAP	Study the impacts of strategies aimed at energy efficiency, mode shift, and travel behavior	Help move the region towards meeting its' 2030 climate mitigation and resiliency goals
CCMS	Ten scenarios that all contain roadway and automobile components in them. Six of these scenarios are focused on a particular pathway: • Vehicle technology (VT) and fuels including converting the bus fleet to EVs • Mode shift and travel behavior (MSTB) • Transportation Systems Management and Operations (TSMO)	Impacts of individual and combined strategies on GHG reduction

4. CONCLUSION

The TPB has conducted approximately one scenario study every 16 months over the last 15 years. The findings from these studies have been incorporated into local planning, policy development, and investment programs. The region still faces many challenges which could be exacerbated by growth in population and employment, and impacted by other factors such as a changing climate, new technologies and changes in the global economy. As the TPB updates its plan (2024 update) sponsor agencies should continue to focus on investing in and implementing the priority strategies (projects, programs, and policies) that have been identified through the scenario studies described herein, as well as the foundational strategies for the scenarios, such as more complete bicycle and pedestrian networks and a state of good repair.

When implemented by TPB member agencies, some strategies **must** be documented in the constrained element of the long-range 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.

But, the TPB's priority strategies cannot all be reflected in the constrained element, examples include most projects for walking and biking, land-use policies, and electrical vehicle charging

stations. Many such strategies are reflected in the unconstrained policy element of the plan and in other manners, such as in the TPB Bicycle and Pedestrian Plan, in regional electrical vehicle coordination activities, electric vehicle infrastructure plans and other planning activities and investments documented at the state, regional, transit agency, and local level. The TPB will continue supporting priority strategies through feasible means.

5.DETAILED SCENARIO DESCRIPTIONS

SCENARIO DESCRIPTIONS

This section summarizes the various scenario studies and related work activities of TPB and COG. Included in the Appendix are oversight or ownership of the work, relevant dates/completion date (for completed work) or most recent analysis (for on-going work), and any planned updates to the work.

Regional Mobility and Accessibility Study

Date Completed: October 2006
Oversight: TPB
Documentation: Final Report: Regional Mobility and Accessibility Scenario Study
Website:
https://www.mwcog.org/transportation/planning-areas/land-use-coordination/scenario-planning/rmas/

Study Purpose

The Regional Mobility and Accessibility Study (RMAS) grew out of the dissatisfaction expressed by members of the TPB in voting to approve a fiscally Constrained Long-Range Transportation Plan (CLRP) that showed congestion on the region's highway and transit networks continuing to worsen over the next 25 years. The desire of the TPB in authorizing this study was to examine additional transportation improvements beyond those that currently could be included in the region's long-range transportation plan, together with potential changes in future land use.

The concept underlying the Regional Mobility and Accessibility Study is that creative new options for improving the performance of the region's transportation system may emerge from the examination of additional transportation improvements together with potential future changes in land use. If stakeholders in the regional transportation planning process reach a consensus on these options, the region could move forward in pursuing additional funding to implement the most promising of these transportation improvements and making the necessary changes in local land use plans.

Major Findings

The scenarios had positive impacts regionwide on the transportation network with improved travel conditions throughout the region. All of the scenarios use different means to achieve the same objectives of bringing people and jobs closer together, and improving the transportation connections between them. The scenarios are not mutually exclusive; in many ways they are similar and complementary.

Regional Value Pricing Study

Date Completed: February 2008
Oversight: TPB

Documentation: Final Report: Evaluating Alternative Scenarios for a Network of Variably Priced Highway Lanes in the Metropolitan Washington Region
Website:
https://www.mwcog.org/documents/2008/02/20/evaluating-alternative-scenarios-for-a-network-of-variably-priced-highway-lanes-in-the-metropolitan-washington-region-hot-lanes-travel-modeling/

Study Purpose

The TPB has had an active interest in variably priced highway lanes since June of 2003 when the TPB, in conjunction with the Federal Highway Administration and the Maryland, Virginia, and District Departments of Transportation, sponsored a successful one-day conference on value pricing for the Washington region. Following the conference, the TPB created a Task Force on Value Pricing to examine how value pricing could benefit the region. The Task Force developed a set of regional goals for a system of variably priced lanes which were adopted by the TPB in April of 2005. The goals were designed to "help guide the regional development of variably-priced lanes that work together as a multi-modal system, while addressing the special policy and operational issues raised by the multi-jurisdictional nature of this region." As the framing of the regional goals proceeded at the TPB, three major variably-priced highway facilities were being developed through project planning studies for inclusion in the region's financially constrained Long Range Transportation Plan (CLRP): the Inter-County Connector in suburban Maryland, the Northern Virginia Capital Beltway HOT lanes project, and the I-95/395 HOT lanes project.

In order to place these three new projects into a regional context and to assess the potential for a more extensive network of variably priced lanes, the TPB developed and analyzed several different scenarios of variably priced lane networks. The study was conducted under a grant from the Federal Highway Administration's Value Pricing Pilot Program, and was overseen by the TPB's Task Force on Value Pricing.

Major Findings

The toll rates on the variably-priced lane (VPL) network would have to vary significantly by segment, direction, and time-of-day in order to maintain free-flowing conditions. In terms of financial feasibility, a comparison of the forecasted revenues versus costs for each of the scenarios found that only the "DC and Parkways Restrained" scenario generated revenues close to covering the costs.

The addition of extensive transit service to the VPL networks resulted in increases in transit use, decreases in HOV use, small decreases in VMT, and decreases in total system revenue.

Regarding land use patterns, very few zones experienced significant changes in accessibility to jobs by highways. Accessibility to jobs by transit improved in all the scenarios. Changes in accessibility to households by highways were minimal and gains in accessibility by transit were scene near major interchanges in the VPL network.

National Capital Region Climate Change Report

Oversight: COG
Date Completed: November 12, 2008

Documentation: National Capital Region Climate Change Report[13]
Website:
https://www.mwcog.org/documents/2008/11/12/national-capital-region-climate-change-report-climate-change/

Study Purpose

On April 11, 2007, as part of its 50th anniversary year, the COG Board adopted Resolution R31-07, creating a climate change initiative. Part of the climate change initiative included a call for developing a GHG inventory, setting regional goals, and identifying best practices for reducing GHG emissions. Beginning with a base year of 2005, the analysis looked at a "business as usual" future through 2050 where no actions beyond current policies and programs are implemented to reduce GHG emissions.

Major Findings

The most notable outcome from this report was the three targets that the Climate Change Steering Committee chose for reducing GHG emissions. Those reduction targets have been the framework for subsequent GHG and climate change work. The targets were adopted by the COG Board with the adoption of the report:

- By 2012, GHG emissions 10 percent below "business as usual"
- By 2020, GHG emissions 20 percent below 2005 levels
- By 2050, GHG emissions 80 percent below 2005 levels

The Climate, Energy, and Environment Policy Committee (CEEPC) was created by the COG Board on April 8, 2009, through Resolution R18-09 and is responsible for managing implementation of the *National Capital Region Climate Change Report.*

"What Would it Take?" (WWIT) Scenario Study

Date Completed: May 18, 2010
Oversight: TPB
Documentation: Final Report: What Would It Take? Transportation and Climate Change in the National Capital Region[14]
Website: https://www.mwcog.org/transportation/planning-areas/land-use-coordination/scenario-planning/wwit/

Study Purpose

[13] National Capital Region Climate Change Report. Washington, D.C.: Prepared by the Climate Change Steering Committee for the Metropolitan Washington Council of Governments Board of Directors. November 12, 2008. https://www.mwcog.org/documents/2008/11/12/national-capital-region-climate-change-report-climate-change/

[14] Final Report: What Would It Take? Transportation and Climate Change in the National Capital Region. Washington, D.C.: Metropolitan Washington Council of Governments. May 18, 2010. https://www.mwcog.org/documents/2010/05/18/what-would-it-take-scenario-land-use-projects/

The "What Would it Take?" Scenario Study was one of two scenario studies that were undertaken under the purview of the Scenario Study Task Force that the TPB established in September 2007. The WWIT Scenario Study was the TPB's first step toward answering some major questions about climate change mitigation, specifically in the transportation sector in the Washington metropolitan region. The study examined what types of projects / programs / policies it would take in the transportation sector to meet the regional aspirational GHG reductions targets established in the National Capital Region Climate Change report and adopted by the COG Board in November 2008. The study developed the baseline GHG emissions in the transportation sector and tested the potential reductions in GHG emissions from various projects/programs/policies would generate in the transportation sector. The intent was to determine the nature and scope of actions that would be necessary to reduce GHG in the transportation sector in the target amounts noted below.

- By 2012, 10 percent below "business as usual" (of the transportation sector)
- By 2020, 20 percent below 2005 levels (of the transportation sector)
- By 2050, 80 percent below 2005 levels (of the transportation sector)

Major Findings

In order to meet the region's goals, strategies will need to be adopted across all levels of government and across the three categories of fuel efficiency, alternative fuels and travel efficiency. Systemwide measures implemented at the national level can provide substantial and dependable GHG reductions; however, near-terms goals will not be met just with systemwide measures – state, regional, and local actions are needed.

CLRP Aspirations Scenario Study

Date Completed: September 8, 2010
Oversight: Scenario Study Task Force of the Transportation Planning Board
Documentation: CLRP Aspirations Scenario
Website: https://www.mwcog.org/documents/2010/09/08/clrp-aspirations-scenario/

Study Purpose

In 2008, the TPB began developing the Constrained Long-Range Plan (CLRP) Aspirations Scenario Study to integrate the best components of the RMAS and RVP studies into a comprehensive scenario that could offer a promising path forward for the region. This "CLRP Aspirations" scenario, was one of two scenarios in the TPB Scenario Study. This scenario examines the effects of a long-range land use and transportation vision for the National Capital Region out to horizon year 2030. The scenario consists of a smart growth land use strategy, a network of variably priced lanes, and an extensive BRT network running on priced lanes.

Major Findings
The study providing insights as to the benefits of align land-use and transportation planning including focusing growth in Activity Centers and High-Capacity Transit Stations and adding more housing units in these locations.

Multi-Sector Working Group (MSWG) / TPB Affirmation of the Region's GHG Reduction Goals

Date Completed: January 18, 2017
Oversight: TPB/MWAQC/CEEPC
Documentation: Final Technical Report: Multi-Sector Approach to Reducing Greenhouse Gas Emissions in the Metropolitan Washington Region[15]
Recommendation of the Multi-Sector Working Group[16]
Website: https://www.mwcog.org/documents/2016/08/01/multi-sector-approach-to-reducing-greenhouse-gas-emissions-in-the-metropolitan-washington-region-final-technical-report/

Study Purpose

In December 2014, the TPB and the Metropolitan Washington Air Quality Committee (MWAQC) affirmed COG's adopted voluntary GHG reduction goal of 80 percent below 2005 levels by 2050,[17] 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; and
- Jointly develop an action plan for the region

Major Findings

The MSWG work was directly related to the GHG reduction targets laid out in the National Capital Region Climate Change Report. The technical analysis showed that policies implemented between 2005 and 2015 made a significant contribution to reducing future GHG emissions in the region. The analysis then looked at 22 strategies – nine in the Energy/Built Environment (EBE) Sector and twelve in the Transportation/Land Use (TLU) Sectors, along with one strategy focused on community engagement, which cross-cuts all of the sectors. The additional regional strategies could further reduce GHG emissions significantly, but still not achieve the 80 percent reduction goal by 2050. The analysis identified potential national-level strategies that could get the region to the 80 percent reduction goal; however, those strategies would likely require significant breakthrough improvements in existing technology.

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[15] Final Technical Report: Multi-Sector Approach to Reducing Greenhouse Gas Emissions in the Metropolitan Washington Region. Washington, D.C.: Metropolitan Washington Council of Governments (submitted by ICF International). January 31, 2016. https://www.mwcog.org/documents/2016/08/01/multi-sector-approach-to-reducing-greenhouse-gas-emissions-in-the-metropolitan-washington-region-final-technical-report/

[16] Recommendation of the Multi-Sector Working. Washington D.C.: Metropolitan Washington Council of Governments. January 18, 2017. https://www.mwcog.org/documents/2017/01/18/multi-sector-working-group-greenhouse-gas-emission-reducing-strategies-air-quality-climate-mitigation-greenhouse-gas-multi-sector-working-group/

[17] TPB R10- 2015: Resolution on the Metropolitan Washington Council of Governments' Regional Multi-Sector Goals for Reducing Greenhouse Gases. Washington, D.C.: National Capital Region Transportation Planning Board. December 17, 2014. https://www.mwcog.org/file.aspx?&A=NQRpyfkLR1A9O4KiCx0%2bhAVEs%2fYo7kI1bNCWYEItoHU%3d

Long-Range Plan Task Force (LRPTF)

Date Completed: December 20, 2017
Oversight: TPB
Documentation: An Assessment of Regional Initiatives for the National Capital Region: Technical Report on Phase II of the Long-Range Plan Task Force[18]
R-8 2018: TPB Resolution endorsing initiatives recommended by the LRPTF[19]
Website: https://www.mwcog.org/committees/lrptf/

Study Purpose

TPB Resolution R16-2017, adopted on March 15, 2017, directed the Long-Range Plan Task Force to identify a limited set (6-10) of projects, policies, or programs that would have the potential to improve the performance of the region's transportation system. All phases of the analysis used 2015 as the base-year and examined scenarios with a future year of 2045. The first phase included the development of a baseline report that focused on an analysis of three future alternative scenarios in 2040. The second phase included the selection and analysis of a set of unconstrained transportation improvements (project, policies, or programs) to determine if they make significantly better progress towards achieving the goals laid out in TPB and COG's governing documents. Each analysis produced results compared to a 2015 baseline. As a part of this study, among other measures, GHG impacts of each initiative were analyzed in relationship to the Planned Build. TPB endorsed five analyzed initiatives with greatest potential to significantly improve the performance of the region's transportation system for future concerted TPB action and directed staff to include these initiatives in the aspirational element of the TPB's LRTP, Visualize 2045 (two "non-motorized" initiatives were subsequently added to the aspirational element for a total of seven aspirational initiatives).

While the ten initiatives could provide for substantial improvements to the region's transportation system, the task force stressed that the success of any or all initiatives would be dependent upon pre-requisite conditions or assumptions. These assumptions include state of good repair, supportive land-use policies and improvements in bicycle and pedestrian infrastructure.

Major Findings

While the work of the Long-Range Plan Task Force was not specifically focused on climate change, two of the initiatives, Initiative 8 (Optimize Regional Land-Use Balance) and Initiative 10 (Amplified Employer-Based Travel Demand Management), stood out as strategies that improve the performance of the transportation network as well as have a notable impact on GHG emissions.

Climate Change Mitigation Study of 2021 (CCMS)

[18] An Assessment of Regional Initiatives for the National Capital Region: Technical Report on Phase II of the Long-Range Plan Task Force. Washington, D.C.: National Capital Region Transportation Planning Board (prepared by ICF International). 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/

[19] TPB R-8 2018; TPB Resolution endorsing initiatives recommended by the LRPTF. Washington, D.C.: National Capital Region Transportation Planning Board (prepared by ICF International). December 20, 2017. https://www.mwcog.org/documents/2017/12/20/r8-2018---resolution-endorsing-initiatives-recommended-by-the-long-range-plan-task-force/

Date Completed: January 7, 2022
Oversight: TPB
Documentation/website: Numerous reports can be found at: https://www.mwcog.org/tpb-climate-change-mitigation-study-of-2021/

This scenario study assessed ways to reduce GHG emissions in the on-road transportation sector, building upon the work of the WWIT and MSWG studies. The study assessed the types of transportation-related actions, and their levels of implementation, that would be needed to reduce GHG emissions to meet regional multisectoral GHG reduction goals for 2030 and 2050. In 2020, the region's officials approved a new goal to reduce non-sector-specific GHG emissions by 50 percent in 2030.[20] Prior to that, in 2008, the region's officials had approved a goal to reduce non-sector-specific GHG emissions by 80 percent in 2050 relative to 2005 levels.[21] Following this study, the TPB adopted these same goals/targets, but specifically for the on-road transportation sector.

Congestion Reduction Test (by 25 Percent Relative to 2030)

Date Completed: March 24, 2017
Oversight: TPB (Internal Staff Testing)
Documentation: Internal Staff Documentation
Study Base-Year and Comparison Year: 2015, 2040

Study Purpose

At the January 18, 2017, TPB meeting, a board member proposed a draft resolution establishing the mission and tasks for Phase II of the Long Range Plan Task Force (Item 11). The resolution "charges the Task Force and staff to utilize the Phase I Report as a resource and benchmark in the development of an alternative plan that analyzes creative and innovative combinations of projects, programs and policies that will (a) result in a reduction of peak hour congestion, notwithstanding projected future regional growth, by at least 25 percent over the 25-year investment horizon, and (b) establishes measurable metrics for other congestion, mobility and access goals."

In preparation for the modeling activities for the Phase II of the Long-Range Plan Task Force, staff completed a scenario analysis to explore how a 25 percent congestion reduction, relative to today (2015), might be attained with the implementation of "extreme" project and policy scenarios in 2040. While the scenarios tested were admittedly impossible to implement, the analysis demonstrated that a 25 percent reduction in congestion could be attained, but only with highly unrealistic measures (massive system expansion or very aggressive demand pricing measures). While the language in subsequent draft Long-Range Plan Task Force resolutions evolved and the charge to reduce congestion by 25 percent relative to today was ultimately removed from the resolution(s), staff's tests provide valuable information regarding the levels of congestion reduction that could be achieved with various types of projects and policies.

[20] "Metropolitan Washington 2030 Climate and Energy Action Plan" (Washington, D.C.: Metropolitan Washington Council of Governments, November 18, 2020), https://www.mwcog.org/documents/2020/11/18/metropolitan-washington-2030-climate-and-energy-action-plan/.

[21] Climate Change Steering Committee for the Metropolitan Washington Council of Governments Board of Directors, "National Capital Region Climate Change Report," Final Report (Washington, D.C.: Metropolitan Washington Council of Governments, November 12, 2008), https://www.mwcog.org/file.aspx?A=R8%.

Major Findings

While some of the 2040 scenarios reach the 25 percent congestion reduction target relative to today (2015) or come close to it, it could be argued that none of them are feasible to implement (e.g., adding a lane to every roadway in the region, having two-car households pay more than $20,000 annually in VMT tax, implement levels of telework that were subsequently observed only during the height of the COVID-19 Pandemic-related closures in Spring of 2020).

Also, although measuring impacts of these scenarios on climate change was not the main focus of these tests, some of the project-focused scenarios show just how challenging it is to achieve further GHG reductions through project implementation. For example, the 2040 Transit Expansion scenario assumes one-minute service frequencies on every transit line in the region and a 50 percent transit time reduction on every high-capacity transit line (including Metrorail). And yet GHG emissions in this 2040 test decreased relative to 2015 by 24 percent, whereas the 2040 Planned Build showed a 21 percent reduction (in other words, three percentage points were gained with a scenario with an impact that no project mix from the constrained element could replicate).

It is important to note that the travel model was calibrated to observed travel conditions, which include far less variability than has been tested in these scenarios. Therefore, these tests were viewed more as a "thought experiment" with a goal of determining what it could take for the currently used tool to produce the desired outcome proposed by the TPB.

OTHER ON-GOING WORK ACTIVITIES THAT CONDUCT ANLAYSIS OF A SINGLE-SCENARIO

Performance Analysis of the TPB's Long Range Plan

Oversight: TPB
Recent Analysis: June 15, 2022, prior: October 17, 2018
Documentation: Visualize 2045 Update: A Long-Range Plan for the National Capital Region[22]
Study Base-Year and Comparison Year: 2023, 2045
Website: https://visualize2045.org/tracking-progress/system-performance/

Study Purpose

A federally-required conformity analysis is conducted every time the long-range plan is updated or amended. Therefore, a conformity analysis has been typically conducted at least every other year. Since 2010, in addition to the mandatory air quality conformity analysis, the TPB has voluntarily estimated GHG emissions for the constrained element of its LRTP. Greenhouse gas emissions are estimated for the analysis years required for the conformity analysis and are calculated each time a conformity analysis is conducted. Historic GHG emissions estimates for 2005 and 2012 are also typically included in the analysis.

[22] Visualize 2045: A Long-Range Plan for the National Capital Region. Washington D.C.: National Capital Region Transportation Planning Board. June 15, 2022. https://www.visualize2045.org

Update to Emissions Estimates: Greenhouse gas emissions estimates will be updated with the next major update to the LRTP in 2024.

Long-Range Transportation Plan 2022 Update: No Build Tests

Date Completed: April 2022
Oversight: TPB (Internal Staff Testing)
Documentation: Internal Staff Documentation
Study Base-Year and Comparison Year: 2023, 2045

Study Purpose

The main purpose of this internal staff exercise was to try to estimate the impacts of different components of the TPB's Long-Range Transportation Plan (LRTP), i.e., highway projects, transit projects, and land-use, on the transportation system performance. This included testing a set of 2045 no-build and build scenarios and comparing the results with the 2023 model outputs, based on the 2022 Update to Visualize 2045 Long-Range Transportation Plan. The analyzed scenarios included:

- 2045 Highway No-Build (new transit projects, but no new highway projects)
- 2045 Transit No-Build (new highway projects, but no new transit projects)
- 2045 No Build (no new transit and highway projects), and
- 2045 Planned Build (from 2022 Update to Visualize 2045.

All 2045 no build and build scenarios were based on the same land-use data, assuming that the household and employment growth will occur as currently planned (Round 9.2 Cooperative Forecasts).

Major Findings

Consistent with findings from prior studies, this analysis showed that land-use is likely to have a far larger impact on VMT and GHG emissions than any combination of highway and transit projects.

GHG emissions in these 2045 scenarios are expected to decrease by 11 percent to 14 percent relative to 2023, with largest reductions forecast for the 2045 Highway No Build scenario. However, it could be argued that these project-mix scenarios are having a relatively modest impact on GHG emissions reductions (within 3 percent of one another), especially given the magnitude of TPB/COG GHG reduction goals (50 percent of 2005 levels by 2030 and 80 percent of 2005 levels by 2050).

Climate, Energy, and Environment Policy Committee (CEEPC) Climate and Energy Action plan

Oversight: CEEPC
Most Recent Analysis: November 18, 2020
Documentation: Regional Climate and Energy Action Plan (2030 Plan)[23] and appendices

[23] Regional Climate and Energy Action Plan (2017-2020 Plan). Washington D.C.: Metropolitan Washington Council of Governments. March 23, 2017. https://www.mwcog.org/documents/2017/03/23/regional-climate-and-energy-action-plan-climate--energy-climate-change-energy/

Website: https://www.mwcog.org/documents/2020/11/18/metropolitan-washington-2030-climate-and-energy-action-plan/

Study Purpose

The Climate, Energy and Environment Policy Committee (CEEPC) was created by the COG Board on April 8, 2009, through Resolution R18-09 as its principal policy adviser on climate change, energy, green building, alternate fuels, solid waste and recycling policy issues, and other environmental issues that the board may assign. CEEPC is responsible for managing implementation of the National Capital Region Climate Change Report adopted by the COG Board of Directors in 2008. This responsibility includes development of a regional climate change strategy to meet the regional GHG reduction goals adopted by the board.

CEEPC updates its Climate and Energy Action Plan, which addresses all sectors, every three years. The plan includes a measurement of progress towards reaching the region's GHG reduction goals. The most recent plan covers years 2017-2020. The 2017-2020 plan reports mobile source GHG emissions for 2005, 2012, 2015, and 2016.

CEEPC is currently developing the 2030 Climate and Energy Action Plan, which is scheduled for approval on November 18, 2020. Related to this plan, CEEPC is also in the process of updating the non-sector-specific climate goals, introducing a proposed interim climate mitigation goal of 50 percent GHG emission reductions below 2005 levels by 2030. In addition to the 2030 GHG reduction goal, the COG Board Resolution (R45-2020), adopted on October 14, 2020, also places focus on resiliency and equity.

On-road GHG inventory calculations are mainly developed by TPB staff, with some post-processing conducted by COG-DEP staff. Regional inventories for all sectors are documented in the final report The 2030 Climate and Energy Action Plan included development of 2018 GHG emissions inventories for the first time, as well as re-estimation of 2005, 2012 and 2015 historic estimates to ensure that a consistent set of modeling tools and assumptions was used for all analysis years.

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Cover images: (Robert Pence/Flickr)

ITEM 8 – Information
November 16, 2022

2024 Long-Range Plan Update

Background: Ms. Cook will review considerations related to the 2024 plan update. This will include two key resources that will support the next Technical Inputs Solicitation: the draft synthesized policy framework, and the summary of scenario findings.

Attachment A – Memo
Attachment B – Draft Synthesized Policy Framework
Attachment C – Draft Scenario Summary

National Capital Region
Transportation Planning Board

MEMORANDUM

TO: Transportation Planning Board

FROM: Stacy Cook, TPB Transportation Planner, Long-Range Transportation Plan Program Manager

SUBJECT: 2024 LRTP Update

DATE: November 10, 2022

SUMMARY

This memo describes the two documents presented at the TPB's November 2022 meeting and summarizes how these documents will be used for the 2024 update to the region's long-range transportation plan and FY 2025- FY 2028 TIP.

BACKGROUND

To ensure federal funds for transportation continue to flow through the region, a critical requirement is the approval of the Air Quality Conformity Determination of the Visualize 2045 update and the FY 2023-FY 2026 Transportation Improvement Program (TIP). The federal government requires the TPB to conduct an in-depth analysis to ensure projected emissions generated by users of the region's future transportation system will not exceed (or "conforms to") the air quality emissions budgets set forth in the region's air quality plans. This is known as air quality conformity. Based on the results of the analysis, a determination is made to confirm conformity. The federally approved conformity determination from 2018 had to be updated in 2022. **On August 25, 2022, the TPB's federal partners approved the conformity determination for the Visualize 2045 update and the FY 2023-FY 2026 TIP (see attached letter). This is the portion of the plan that receives official "approval;" the remaining federal requirements are reviewed during the quadrennial certification review.** The TPB is recognized for fulfilling its important role in ensuring that the National Capital Region's Metropolitan Planning Organization complies with its responsibilities to meet federal requirements.

Like plans that came before, the update to Visualize 2045 and the process used by the TPB to develop the plans must meet an array of federal requirements, including but not limited to compliance with performance-based planning rules, consideration of the ten federal planning factors, conducting a congestion management process, engaging in public participation, responding to concerns of non-discrimination and equity, and others. The federal agencies review the planning process as part of their Federal Certification Review, every four years. This review will begin this fall.

THE LRTP 2024 UPDATE: MAJOR ACTIVITIES AND CONSIDERATIONS

The 2024 LRTP update includes four major activities that the TPB will undertake, these are described below.

The TPB will:

1. Update non-transportation inputs
2. Develop a new financial plan
3. Use new Motor Vehicle Emissions Budgets (MVEBs)
4. Work with sponsoring agencies to re-examine/re-submit all projects, programs, policies

The materials that are included in the November 2022 meeting packet will be reviewed by staff during the TPB's November 16th meeting. They pertain to #4 of the list above.

- Staff will briefly review the intent to use a zero-based budgeting approach for the next plan update (re-examine/re-submit projects, programs, policies)
- Staff will review the draft TPB synthesized policy framework (included within this packet)
- Staff will review the draft TPB Summary of Scenario Studies Findings (included within this packet)

The TPB Synthesized Policy Framework and the TPB Summary of Scenario Studies Findings will be considered part of the TPB's Technical Inputs Solicitation for the 2024 update plan. These documents are expected to be used for the 2024 plan update by the sponsor agencies as they re-examine/re-submit projects, programs, and policies ("zero-based budgeting approach"). Specifically, the intent is to enable the submissions to better reflect TPB planning priorities, be more aligned with the TPB's enhanced policy framework, and be more reflective of TPB scenario findings.

Draft

The TPB's Synthesized
Policy Framework

Informing Planning for the Metropolitan Washington Region

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Informing Planning for the Region

This document provides a synthesis of the National Capital Region Transportation Planning Board (TPB) Policy Framework. Its principles and goals should inform planning throughout the metropolitan Washington region. It should guide the projects, programs, and policies that are submitted for the long-range transportation plan (LRTP) and Transportation Improvement Program's (TIP) constrained element and planning activities beyond the constrained element.

The projects, programs, and policies submitted by sponsoring agencies for the constrained element technical inputs solicitation should uphold the planning principles, advance one or more regional goals, and implement the TPB priority strategies to support desired performance outcomes as reflected in this summarized policy framework. Guidance on submitting inputs can be found in the Technical Inputs Solicitation Technical Guide.

The TPB Policy Framework

How we define principles, goals, strategies, and performance outcomes:

Principles

Principles are *values* that the TPB holds. An equitable transportation system is one that incorporates and upholds these principles or values.

Goals

What we as the TPB *aim to accomplish.*

Strategies

How we intend to accomplish our goals through multimodal transportation projects, programs, polices, and technologies.

Performance Measures

How we *determine the impact* of the planned strategies and if we have succeeded in advancing or reaching our goals.

ArlingtonDES/Flickr*

The TPB Principles

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 the distribution of affordable and readily available multimodal travel options throughout the region that encourage safe and efficient mobility.

Accessibility

All people who use the transportation system in the region, including residents, visitors, and businesses, should be granted reasonable physical and affordable access to travel by road, transit, biking, walking, micromobility, water, and 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

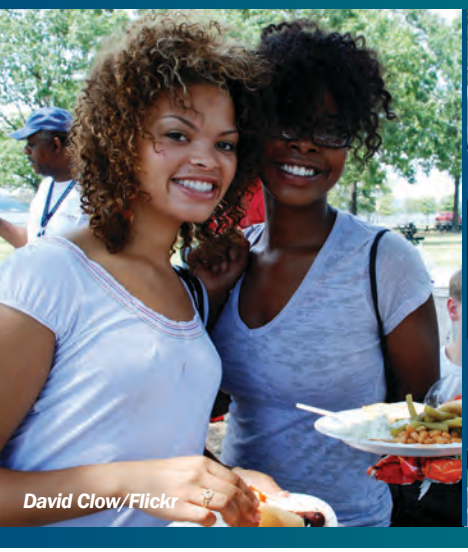
Transportation infrastructure and programs in the region should be financially and structurally sustainable, promoting regional interconnectedness and longevity based on growth patterns, projected demand and capacity, and technology. Sustainability also results from a significant decrease in greenhouse gas emissions, efficient use of energy, and meeting or exceeding standards for air, water, and land quality and 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 greater access to 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.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The TPB Goals

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. To provide a safe transportation system:

- Maintain the system in a state of good repair.
- Communicate across numerous media platforms.
- Conduct ongoing transportation operator training and education.
- Provide ongoing traveler education and corresponding law enforcement.
- Incorporate safety in system design and operations, including emergency services.

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 new systems. To maintain the existing system in a state of good repair:

- Conduct regular checkups and programmed maintenance to ensure roads provide a smooth, safe ride, bridges are trustworthy, buses, train cars, stations, and rails function reliably.
- Ensure bicycle paths and sidewalks are passable and free of debris and obstacles.
- Proactively maintain transportation technology such as lights, signals, and signs, necessary for safe and efficient function of the entire system.

Reliability

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

- Maintain and operate the system using effective technology.
- Reduce congestion on roadways and crowding on transit.
- Provide frequent service that is responsive to predictable changes in demand throughout the day.
- Make transit, biking, walking, micromobility and expanding alternatives such as water travel competitive travel choices.

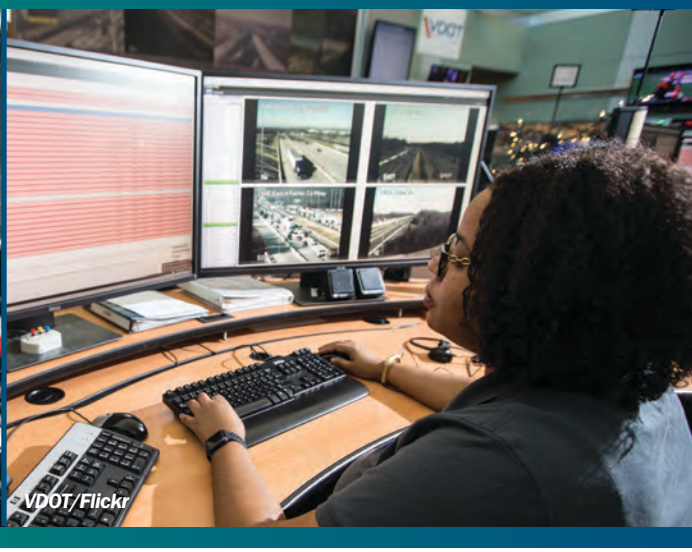
Efficient System Operations

Implement transportation systems management and operations:

- Apply technology for improved efficiency.
- Conduct integrated management practices.
- Plan for cross-agency incident response.


S. Davis/Flickr


Ivan Radic/Flickr


VDOT/Flickr

Affordable and Convenient

Provide affordable, realistic multimodal options:

- Offer convenient travel times, reasonable costs, and flexibility for commuters, including late-shift workers.
- Make it possible for travelers to choose from more than one type of mode for each leg of a trip.

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. Protecting the environment includes meeting federal air quality standards and meeting the TPB's climate goals: reduce GHG emissions 50 percent below 2005 levels by 2030 and 80 percent below 2005 levels by 2050. To minimize environmental impacts:

- Offer an interconnected multimodal system, with integrated services and technologies.
- Encourage and implement travel demand management strategies.
- Keep up with transportation vehicle and energy technologies that reduce emissions of pollutants including greenhouse gases.

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 accidents and incidents, and equipment or infrastructure failures. This goal includes becoming a Climate Ready Region and making significant progress by 2030. It also includes the need to incorporate equity principles and expand education on climate change into its members' actions to reach climate mitigation and resiliency goals. To build resiliency:

- Prepare contingency plans for operations and maintenance.
- Coordinate across sectors (transportation, land-use, environment) to implement strategies that address multiple community planning challenges.
- Provide options for travel and goods movement, design and use of technologies.

Livable and Prosperous Communities

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

- Implement a range of strategies that help to achieve each of the TPB principles and goals.
- Support a high-quality transportation system to attract businesses to the region.
- Shorten trips and minimize delay so that residents and visitors enjoy more time with family and friends.


Kelly Bell/Flickr

How to Achieve TPB Goals: Implement Priority Strategies

The TPB has conducted numerous studies over the last decade to identify the most effective strategies (projects, programs, and policies) to achieve its goals as reflected in its long-range plans. All strategies include as a foundation prioritizing a state of good repair.

When implemented by TPB member agencies, some strategies **must** be documented in the constrained element of the long-range 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.

But, the TPB's priority strategies cannot all be reflected in the constrained element, examples include most projects for walking and biking, land-use policies, and electrical vehicle charging stations. Many such strategies are reflected in other manners, such as in the TPB Bicycle and Pedestrian Plan, in regional electrical vehicle coordination activities, electric vehicle infrastructure plans and other planning activities and investments documented at the state, regional, transit agency, and local level. The TPB will continue supporting priority strategies through feasible means.

The TPB priority strategies associated with regional roadway safety, the Aspirational Initiatives, and greenhouse gas reduction are summarized below:

- 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 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.
- Develop and implement an electric vehicle charging network.

Draft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The Impact: Measuring Performance

As TPB members plan and implement projects, programs, and policies that uphold the TPB principles and make progress on the goals, the TPB's LRTP will include many of these actions. The TPB evaluates each plan to assess how it impacts the regional transportation system performance and air quality. Using measures to evaluate mode share, job access by transit and auto, congestion and delay, GHG emissions, and more, the region can gain insights on how to continually improve performance with each plan.

With improved transportation system performance, people in the region will benefit from an improved quality of life. The region will experience the prosperity that stems from an accessible, equitable, and safe transportation system. The results of implementing priority TPB strategies at the local/agency level can lead to desired regional planning outcomes, such as:

- More affordable housing within proximity to jobs.
- More options for transit, bicycling, and walking.
- Shorter trips, reduced travel times and improved reliability.
- More efficient movement of freight and commercial goods.
- Improved economic competitiveness.
- Vibrant, mixed-use communities with equitable, accessible, safe choices.
- Less time commuting: more time for family and friends.
- Improved environmental health and a better climate.

The TPB principles, goals, and strategies align with and reflect the national goals and federal planning factors and planning priorities. Therefore, actions that support the TPB policy framework also respond to the federal planning requirements.

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