Technical Inputs to the Air Quality Conformity Analysis of the 2022 Update to Visualize 2045

Jane Posey TPB Transportation Engineer

Regional Public Transportation Subcommittee

April 27, 2021 Item #8



transportation plan **Capital Region**



Comment Period Materials

- Visualize 2045 Update Comment Period Materials Packet includes:
 - Memorandum with overview
 - Background
 - Summary of existing highway, transit and HOV major projects
 - Maps
 - Federal and Regional Goals/Initiatives Matrices
 - Major Project Profiles (for new Major Projects and ones already in the plan with significant changes)
 - Project Description Sheets new/changed projects
 - Air Quality Conformity Table and Scope of Work

https://www.mwcog.org/TPBcomment/



Air Quality Conformity Schedule

Plan and TIP Update Schedule

2020	12/16/20	The TPB will be asked to approve the Technical Input Solicitation document to initiate the Call for Projects.
	2/12/21	Project inputs for the LRTP and Air Quality Conformity (AQC) analysis due to TPB staff.
	3/5/21, 4/2/21	The TPB Technical Committee will review the conformity project inputs table in March and the draft inputs to the Plan and the draft AQC scope of work in April.
	4/2/21- 5/3/21	Public comment period on inputs to the Plan/AQC analysis, and AQC scope of work. MWAQC TAC will review this information during the April meeting.
2021	4/21/2021	TPB will receive a briefing on the draft inputs to the Plan/AQC analysis and the draft AQC scope of work.
	5/19/21	The TPB will receive a summary of the public comments on the draft inputs to the Plan and AQC analysis. The TPB and the agencies sponsoring the projects will have the opportunity to discuss and advise staff on responses.
	6/16/21	The TPB will review responses to comments and updates to inputs to the Plan and scope of work for the AQC analysis. The TPB will be asked to approve the inputs and scope, authorizing staff to begin analysis.
	3/11/22	Transportation Improvement Program (TIP) inputs due for the FY 2023-2026 TIP
	4/1/22	The TPB Technical Committee will review the draft results of AQC analysis for the updated Plan and FY 2023-2026 TIP.
	4/1/22 - 5/1/22	Public comment period on the results of AQC analysis Determination for the updated Plan and FY 2023-2026 TIP.
2022	4/2022	MWAQC and MWAQC TAC will review the draft results of the AQC analysis during their meetings.
	4/20/22	The TPB will review the draft Plan, draft TIP, and AQC analysis and Determination.
	5/18/22	The TPB will review the draft results of the AQC analysis for the Plan and FY 2023-2026 TIP. The TPB will also receive a summary of the comments received on the analysis. The TPB and the agencies sponsoring the projects will have the opportunity to discuss and advise staff on responses to comments.
	6/15/22	The TPB will review the responses to the comments and the results of the AQC analysis. The TPB will be asked to approve the results of the AQC analysis and adopt the updated Plan and the FY 2023-2026 TIP.



Air Quality Conformity Scope of Work

Conformity Test recen Maint EPA in Vehicle Fleet Data Geography Network Inputs Land Activity HOV/HOT VA: I Bel out Road	Ozone Season VOC and NOx								
Emissions Model	MOVES2014b								
Conformity Test	Budget Test: Using mobile emissions budgets most recently approved by EPA: 2008 Ozone NAAQS Maintenance Plan mobile budgets found adequate by EPA in August 2018.								
Vehicle Fleet Data	July 2020 (DC) ² and December 2020 (MD & VA) vehicle registration data								
Geography	8-hour ozone non-attainment area								
Network Inputs	Regionally significant projects								
Land Activity	Cooperative Forecasts Round 9.2								
ноу/нот	<u>VA:</u> I-95, I-395, and I-495 are all HOT3+; I-66 inside the Beltway will convert from HOT2+ to HOT3+ when I-66 outside the Beltway opens as HOT3+; the Dulles Toll Road will convert from HOV2+ to HOV3+ in 2023; all other HOV facilities will be HOV2+ through 2045 <u>MD</u> : HOV facility on US 50 will remain HOV2+ through 2045; HOV facility on I-270 will convert from HOV2+ to HOT3+ when an additional HOT lane is added; planned additional Capital Beltway express toll lanes will be HOT3+ when added								
Roadway Restrictions	Roadway restrictions, such as truck prohibitions, are reflected in the travel model network using information supplied by the Departments of Transportation								
Transit Constraint	NO Metrorail "capacity constraint" (removed with March 2018 passage of annual funding for WMATA agreement)								
Analysis Years	2021 or 2024 ³ , 2025, 2030, 2040, and 2045								
Modeled Area	6,800 square mile area with 3,722 Transportation Analysis Zones (TAZs)								
Travel Demand Model	Gen2/Version 2.4 or latest								

Footnotes:

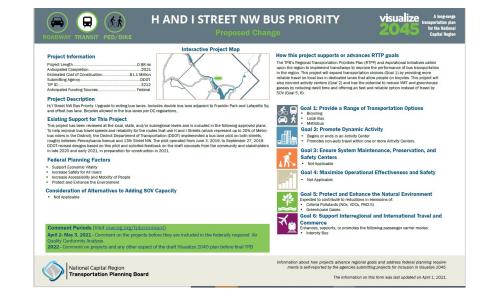
² Due to the backlogs in processing new District of Columbia vehicle registrations resulting from COVID-related restrictions, the District of Columbia Department of **Energy and Environment** (DOEE) staff estimate that the July 2020 dataset is more representative of the number of registered vehicles in December 2020 than the December 2020 dataset. ³ Staff will analyze the region's attainment date for the 2015 Ozone Standard. It is currently 2021 but may be changed to 2024 if the region's nonattainment designation is changed from "marginal" to "moderate".



DDOT: New Major Project

In the District of Columbia DDOT is proposing to:

> Implement busonly lanes on H and I Street, NW

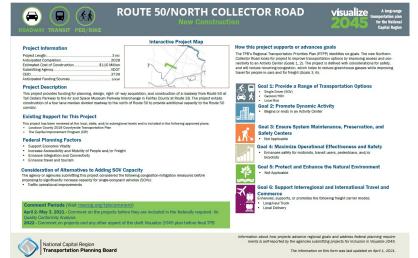




VDOT: New Major Project

In Loudoun County, Virginia, the County and VDOT are proposing to:

> Construct a new 4lane road for completion in 2029, the US-50 North Collector Road





MDOT: Significant Change to Major Project already in Visualize 2045

The Traffic Relief Plan (TRP) includes the following changes from the project as reflected in the 2018 plan:

- The entire Maryland Beltway has been changed from two Express Toll Lanes (ETLs) in each direction to two High Occupancy Toll (HOT) 3+ lanes in each direction, which means that carpools/vanpools of three or more occupants will ride free.
- The segment from Virginia (near the American Legion Bridge) to MD 355 has a completion date of 2025, which is the same as in the past.
- Completion date for the Capital Beltway segment from MD 355 to the Wilson Bridge was changed from 2025 to 2030.
- I-270 assumptions were changed from adding two ETLs in each direction and keeping the existing High Occupancy Vehicle (HOV) lanes to adding two HOT lanes in each direction, one of which will take away the existing HOV lane in each direction.
- The I-270 segment from the Beltway to I-370 maintains its completion date of 2025. Completion date for the I-270 segment from I-370 to I-70 was changed from 2025 to 2030.



MDOT: Significant Change to Major Project already in Visualize 2045

I-270 TOLL LANES

	5. K
TRANSIT	PED/BI

Project Information

Project Length	34 m
Anticipated Completion	
Estimated Cost of Construction	
Submitting Agency.	MDOT SHA
TIP ID.	
Anticipated Funding Sources	State/Private

Project Description

The I-270 component of MDOT's "Traffic Relief Plan" project will add two dynamically priced managed lanes in each direction along I-270 between the Capital Beltway (I-495) and I-70/US 40.

Existing Support for This Project

- This project has been reviewed at the local, state, and/or subregional levels and is included in the following approved plans:
- MDOT/SHA Traffic Relief Plan
- Montgomery County 2017 Transportation Priority Letter

Federal Planning Factors

- Support Economic Vitality
- Increase Safety for All Users
- Support Homeland and Personal Security
- · Increase Accessibility and Mobility of People and/or Freight
- Protect and Enhance the Environment
- Enhance Integration and Connectivity
- Promote Efficient System Management and Operation

Consideration of Alternatives to Adding SOV Capacity

The agency or agencies submitting this project considered the following congestion-mitigation measures before proposing to significantly increase capacity for single-occupant vehicles (SOVs);

- Transportation demand management measures (including growth management and congestion pricing)
- Traffic operational improvements
 Public transportation improvements
- Intelligent Transportation Systems (ITS) technologies
 Other congestion management strategies

Comment Periods (Visit mwcog.org/tpbcomment)

April 2- May 3, 2021 - Comment on the projects before they are included in the federally required Air Ouality Conformity Analysis

2022 - Comment on projects and any other aspect of the draft Visualize 2045 plan before final TPB adoption.

National Capital Region **Transportation Planning Board** Interactive Project Map

How this project supports or advances RTTP goals

The TPB's Regional Transportation Priorities Plan (RTPP) and Aspirational Initiatives called upon the region to use tolling and pricing mechanisms to manage road congestion and raise revenue. New toll lanes on the 34-mile length of I-270 will dramatically expand transportation choices (Goal 1) in the region by adding dynamic pricing on managed lanes to ensure free-flowing travel for drivers and for express bus services. Carpool/vanpools of three or more occupants will ride free. Along with the I-495 Toll Lanes, this project significantly expands the region's network of priced managed lanes. The project will connect numerous Activity Centers (Goal 2), the region's focal points for economic growth and, improve interstate commerce (Goal 6).



Goal 1: Provide a Range of Transportation Options Single Driver (SOV) Carpool/HOV Local Bus

- Express/Commuter Bus . Metrobus
- Improves accessibility for historically transportation-disadvantaged individuals

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A long-range portation plan for the National **Capital Region**

Goal 2: Promote Dynamic Activity

· Begins or ends in an Activity Center Connects two or more Activity Centers

Goal 3: Ensure System Maintenance, Preservation, and **Safety Centers**

Contributes to enhanced system maintenance, preservation, or safety

Goal 4: Maximize Operational Effectiveness and Safety

· Enhances safety for motorists, transit users, pedestrians, and/or bicyclists



Goal 5: Protect and Enhance the Natural Environment

Expected to contribute to reductions in emissions of: Criteria Pollutants (NOx, VOCs, PM2.5)
 Greenhouse Gases



Goal 6: Support Interregional and International Travel and Commerce

Enhances, supports, or promotes the following freight carrier modes: Long-haul Truck
 Local Delivery

- Enhances, supports, or promotes the following passenger carrier modes:
- Intercity Bus

Information about how projects advance regional goals and address federal planning requirements is self-reported by the agencies submitting projects for inclusion in Visualize 2045.

The information on this form was last updated on April 1, 2021.

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MDOT: Significant Change to Major Project already in Visualize 2045



1-95/I-495 TOLL LANES



portation plan or the National **Capital Region**

Project Information

Project Length	
Anticipated Completion	
Estimated Cost of Construction	
Submitting Agency	MDOT SHA
TIP ID.	
Anticipated Funding Sources	State/Private

Project Description

The I-495 component of MDOT's "Traffic Relief Plan" project will add two dynamically priced managed toll lanes in each direction along the Capital Beltway between the Virginia end of the American Legion Bridge to the Maryland end of the Woodrow Wilson Bridge

Existing Support for This Project

This project has been reviewed at the local, state, and/or subregional levels and is included in the following approved plans:

- MDOT/SHA Traffic Relief Plan
- Montgomery County 2017 Transportation Priority Letter
- · 2009 Prince George's County Master Plan of Transportation (MPO)

Federal Planning Factors

- Support Economic Vitality
- · Increase Safety for All Users
- Support Homeland and Personal Security
- Increase Accessibility and Mobility of People and/or Freight
- Protect and Enhance the Environment
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- Traffic operational improvements Public transportation improvements
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National Capital Region **Transportation Planning Board**

Interactive Project Map

How this project supports or advances RTTP goals

The TPB's Regional Transportation Priorities Plan (RTPP) and Aspirational Initiatives called upon the region to use tolling and pricing mechanisms to manage road congestion and raise revenue. New toll lanes on the 48-mile length of Maryland's Capital Beltway will dramatically expand transportation choices (Goal 1) in the region by adding dynamic pricing on managed lanes to ensure free-flowing travel for drivers and for express bus services. Carpool/ vanpools of three or more occupants will ride free. Along with the I-270 Toll Lanes, this project significantly expands the region's network of priced managed lanes. The project will connect numerous Activity Centers (Goal 2), the region's focal points for economic growth, and improve interstate commerce (Goal 6).



Goal 1: Provide a Range of Transportation Options

- Single Driver (SOV)
 Carpool/HOV
 Local Bus Express/Commuter Bus
 Metrobus
- · Improves accessibility for historically transportation-disadvantaged individuals



- · Begins or ends in an Activity Center
- · Connects two or more Activity Centers



Goal 3: Ensure System Maintenance, Preservation, and Safety Centers

· Contributes to enhanced system maintenance, preservation, or safety



Goal 4: Maximize Operational Effectiveness and Safety · Enhances safety for motorists, transit users, pedestrians, and/or bicyclists



Goal 5: Protect and Enhance the Natural Environment

Expected to contribute to reductions in emissions of: Criteria Pollutants (NOx, VOCs, PM2.5)
 Greenhouse Gases

Goal 6: Support Interregional and International Travel and



Enhances, supports, or promotes the following freight carrier modes: Long-haul Truck . Local Delivery

Enhances, supports, or promotes the following passenger carrier modes: Intercity Bus

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The information on this form was last updated on April 1, 2021.

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Conformity Project Input Table

2022 Update to VISUALIZE 2045 AIR QUALITY CONFORMITY NETWORK INPUTS

DRAFT 4/01/2021

(transit)

ConID	Scenario	Improvement	Facility	From	То	Complete								
				DDOT										
613	DCSTHST2	Construct	Benning Road Streetcar Extension	Oklahoma Avenue NE	45th Street/Benning Road Metro	2023 202								
793	WATEREXT	Implement	DC Circulator Expansion	Navy Yard Route Realignment	36th St.	2018 Complete								
794	UHOWEXT	Implement	DC Circulator Expansion	Rosslyn to Dupont Circle Route	Extension to U St./Howard University	-2018- 202								
		Implement	DC Circulator Realignment	Potomac Ave.	Skyland	2018 Complete								
822	HIBUS	Implement	H St. NW Peak Period Bus-Only Lanes Pilot Project	19th St NW	14th St NW	2019 Complete								
823	HIBUS	Implement	I St. NW Peak Period Bus Only Lanes Pilot Project	13th St. NW	Pennsylvania Ave. NW	2019 Complete								
		Construct	K St. NW Transitway	9th St. NW	21st St. NW	<mark>202</mark> 1 202								
610	DCSTGTWN	Construct Implement	Union Station/Georgetown Streetcar	K Street/34th Street NW	3rd Street/H Street NE	-2030 204								
989		Implement	16th St. Bus Priority Improvements	H St. NW	Arkansas Ave NW	2020 202								
		Implement	H St. and I St Bus lanes Phase 2	13th St. NW	Pennsylvania Ave NW	2021								
7823		Study	7th St. NW Bus Improvements	Massachusetts Avenue	Pennsylvania Ave.	Not Code								
7835		Study	H St. NW Bus Improvements	14th St. NW	North Capitol St.	Not Code								
7834		Study	Minnesota Avenue SE Bus Improvements	Pennsylvania Avenue SE	East Capitol Street	Not Code								
10614		Study	MLK Ave SE Bus Improvements	Good Hope Road	Redwood Street	Not Code								
				OT/MTA										
617	MARCFRQ	Implement	Brunswick Line Service Improvements			2029								

NOTE: Shaded areas represent changes from the 2020 Amendment to Visualize 2045



Detailed Transit Assumptions

- In October TPB staff asked* for updates to the detailed transit coding assumptions for projects in the Long-Range Transportation Plan. These will be used in networks for the air quality conformity analysis.
- Staff received updates for Metrorail service, DASH bus, and I-66 Corridor Buses.
- Forecast year transit service will be built upon a December 2019 base.

* "Detailed Transit Assumptions in the 2020 Amendment to Visualize 2045", Technical Memorandum from Jane Posey to the TPB Technical Committee, September 25, 2020. Presented at the October 5 Technical Committee meeting.

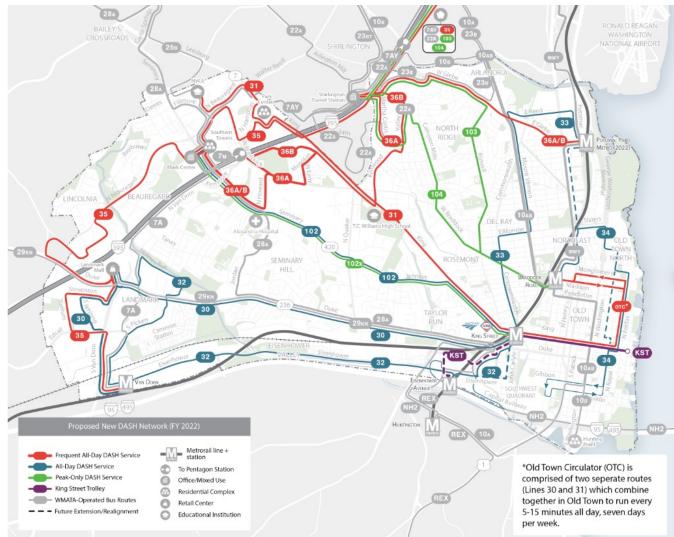


Detailed Transit Assumptions: Metrorail

1. Metrorail Service Plans															
		2016 (RushPlus, Silver Phase 1)		2017 (8-Min Peak)		2019 (8-Min Peaks, Turnback Elimination)		2022 (COVID-19)		2023 (Post-Pandemic, Silver Phase II, Potomac Yard)		2025 (7-min)		2040 (6-min)	
FROM	то	PEAK	OFFPEAK	PEAK	OFFPEAK	PEAK	OFFPEAK	PEAK	OFFPEAK	PEAK	OFFPEAK	PEAK	OFFPEAK	PEAK	OFF-PEAK
Shady Grove	Glenmont	6	12	8	12	4	6	6	6	4	6	3.5	6	3	6
Grosvenor	Silver Spring	6	12	8	12										-
Greenbelt	Branch	6	12	8	12	8	12	12	12	8	12	7	12	6	12
Mt. Vernon Square	Huntington	6		8										6	-
Fort Totten	Huntington		12		12										-
Greenbelt	Huntington					8	12	12	12	8	12	7	12		12
Franconia-Springfield	Largo	12	12	8	12	8	12	12	12	8	12	7	12	12	12
Franconia-Springfield	Greenbelt	12												12	-
Vienna	New Carrollton	6	12	8	12	8	12	12	12	8	12	7	12	6	12
Wiehle	Largo	6	12	8	12	8	12	12	12						-
Ashburn	Largo									8	12	7	12	6	12



Detailed Transit Assumptions: Alexandria DASH



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Detailed Transit Assumptions: I-66 Corridor Buses

DRPT | I-66 Corridor Transit & TDM Plan Update

Assumed Operator	Route (Origin/Destination)			2022 Recommendations					2030 Recommendations					2045 Recommendations				
		New Route? (Y/N)	Commuter Choice Funding? (Year)	Average Headway	Peak Trips	Peak Hours (# of hours)	Vehicles Neecled (Total)	Annual Ridership	Headway	Peak Trips	Peak Hours (4 of hours)	Vehides Needed (Total)	Annual Ridership	Headway	Peak Trips	Peak Hours (# of hours)	Vehicles Needed (Total)	Annual Ridership
OmniRide	Haymarket- Bal Iston/Rosslyn	No (H-100)	FY2020	40	8	4.0	4	60,900	40	8	4.0	4	75,000	40	10	5.3	4	99,000
OmniRide	Gainesville-Pentagon	No (G-200)	FY2017 FY2020	30	12	5.0	4	90,000	15	16	3.5	8	141,000	15	16	3.5	8	171,000
OmniRide	Gainesville-L'Enfant Plaza (Haymarket-Downtown DC in 2030)	No (Gainesville Express)	FY2020	35	14	8,4	4	104,600	15	38	8.7	11	330,000	20	26	8.0	8	259,000
OmniRide	Gainesville-Tysons (Haymarket in 2045)	No (LH-61)	FY2018	40	8	4.0	2	51,200	20	18	5.3	4	163,000	20	24	7.3	6	237,000
OmniRide	Manassas-L'Enfant Plaza (Downtown DC in 2030)	No (Manassas Express)		30	17	8.7	4	125,900	15	42	10.0	8	373,000	15	34	8.0	8	350,000
OmniRide	Manassas-Tysons	No (MT-60)		20	16	4.7	4	112,400	13	46	9.2	8	394,000	13	36	7.1	8	367,000
OmniRide	Manassas-Reston	Yes		20	20	6.0	8	142,300	16	34	8.5	10	290,000	16	30	7.5	10	304,000
Fairfax Connector	Stringfellow-Tysons	Yes		10	48	7.7	6	242,600	6	88	8.6	10	530,000	5	106	8.7	12	741,000
Fairfax Connector	String fellow-Pentagon	No (FC 698)	FY2018	10	54	9.0	12	268,500	5	105	8.7	24	632,000	5	116	9.5	24	810,000
Fairfax Connector	Stringfellow-L'Enfant Plaza	Yes	FY2020	16	34	9.1	5	169,000	8	60	7.7	10	353,000	10	52	8.3	8	364,000
Fairfax Connector	Fairfax Center-Downtown DC	No (FC 699)	FY2017 FY2020	20	25	8.2	4	122,500	8	62	8.0	10	372,000	10	56	9.0	8	383,000
Fairfax Connector	Fairfax Center-East Falls Church	Yes		20	16	4.7	4	78,200	16	18	4.3	5	113,000	20	16	4.7	4	109,000
Fairfax Connector	StringFellow-Navy Yard	Yes												20	26	8.0	4	181,000

Table 6.3: Bus Recommendations Details and Phasing

UPDATED TRANSIT/TDM PLAN RECOMMENDATIONS



6-8

· DRPT

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