



I-495 EXPRESS LANES NORTHERN EXTENSION (495 NEXT)



TRANSPORTATION MANAGEMENT PLAN

April 4, 2022



----- Forwarded message -----

From: **Lal, Tarsem (FHWA)** <Tarsem.lal@dot.gov>

Date: Tue, Apr 5, 2022 at 3:08 PM

Subject: RE: 495NEXT - TMP

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Hi Fatemeh,

We have reviewed the revised draft of the Transportation Management Plan (TMP) for the 495 NEXT project, and noted that all our previous comments have been adequately addressed. The TMP is in compliance with the requirements of 23 CFR 630 Subpart J, and consider this email as FHWA's approval of the final draft. It is our understanding that VDOT will continue to monitor the mitigation strategies as noted in the TMP during construction, and will make necessary changes as needed. Please provide us the final approved copy of the TMP for our records.

Thank you.

Tarsem

Tarsem Lal, P.E., PMP

Major Projects Oversight Manager

sdPOM for DC/MD/VA

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Executive Summary

Purpose of the Document

This Transportation Management Plan (TMP) explains the strategies that will be used to minimize and mitigate the construction impacts of the I-495 Northern Extension (495 NEXT) project. These strategies are designed to enhance safety and minimize congestion for motorists and workers within the work zones and in the surrounding roadway network during construction.

The TMP responds to both Federal Highway Administration (FHWA) and Virginia Department of Transportation (VDOT) requirements that a project TMP improves public safety, minimize construction related congestion, and provide reliable information to residents, businesses, local governments, and travelers. As major construction on one of Virginia's highest volume roadways, the project requires a comprehensive project TMP with a wide range of strategies. The TMP document explains the methodology used to develop the TMP strategies and how the TMP strategies will be implemented.

495 NEXT Overview

Existing I-495 has four general purpose lanes in each direction and an additional northbound shoulder lane to travel within the project limits. The Express

Lanes on I-495 terminate in the vicinity of the Dulles Toll Road interchange in Tysons, VA. 495 NEXT is a multimodal project which will extend the I-495 Express Lanes (i.e. two dynamic toll lanes in each direction) by 2.5 miles from south of Old Dominion Drive to the George Washington Memorial Parkway in the vicinity of the American Legion Bridge (ALB) in Fairfax County, VA. Figure ES.1 shows the project location with respect to the surrounding area and project limits.

At the northern termini of the Express Lanes in the existing condition, there is considerable congestion during the peak periods. In the northbound direction, on weekdays queues form between 2:00 to 6:00 PM beginning from the Maryland side of the ALB to Tysons. Southbound is also frequently over capacity during weekday peak periods. Weekend traffic is also very heavy with occasional congestion.

The I-495 Express Lanes are operated by Transurban North America. Transurban is a road operator company that manages and develops urban toll road networks, their North American division operates express lanes on I-495, I-395 and I-95 in northern Virginia. They have selected a design-build team led by Lane Construction Corporation (Lane Construction) to design and build the extension.

Figure ES.1 Project Location



The goals of the project are to (1) reduce congestion on I-495 and nearby roadways, (2) provide additional travel choices on I-495 (the Capital Beltway), (3) improve travel reliability, and (4) enhance safety in the project corridor.

In addition to extending the limits of the Express Lanes, the project will:

- Replace existing bridges
- Enhance multimodal options by adding bike and pedestrian trails
- Replace existing noise walls and construct new walls where needed
- Provide stormwater management facilities

Maryland is planning managed lane improvements on the Maryland section of I-495 and I-270 and to build a new replacement for the American Legion Bridge. Although the Virginia 495 Northern Extension is a stand-alone project, the project team has coordinated with and will continue to coordinate with the Maryland project team. The Maryland effort is referred to as the Maryland New American Legion Bridge I-270 to I-70 Traffic Relief Plan.

In addition to the Maryland project to the north of the 495 NEXT project, the National Park Service (NPS) will be performing a full rebuild of the George Washington Memorial Parkway (GWMP) from just east of the I-495 interchange to Spout Run Parkway. At various times over the next four years, 495 NEXT, the Maryland Traffic Relief project and the GWMP project will each have concurrent road closures, work zones and construction.

Strategy Summary

As a result of efforts on previous large interstate projects in Northern Virginia, VDOT has learned that the transportation management strategies generally fall in five distinct categories. As such, this TMP focuses on the strategies listed below:

Strategy	Responsible Entity
Maintenance of Traffic and Temporary Traffic Control Plans	Transurban and Lane Construction Design Build Team (DBT) with VDOT oversight
Traffic Operations and Incident Management	DBT is responsible for traffic operations within the work zone and VDOT is responsible for incident management.
Local Network Operations	VDOT with support from Transurban and Lane Construction DBT
Transit & Transportation Demand Management	DRPT and VDOT with support from Fairfax County
Communications and Outreach	VDOT, Transurban and Lane Construction DBT

Maintenance of Traffic and Temporary Traffic Control Plans (TTCP): This strategy combines temporary traffic control strategies and work zone management strategies. Both are largely focused on construction, safety and the work zones along I-495.

Traffic control along I-495 and the interchanges is the most visible and direct of the strategies. The sequence of construction, how the work zones are designed based on this sequence of construction, and how traffic control devices are used will affect safety and traffic flow directly. This strategy will be planned and designed by Transurban and Lane Construction and approved and monitored by VDOT.

Traffic Operations and Incident Management: This category provides strategies for reducing incident response time and clearance during construction. This category has six strategies:

- 1) Monitoring of Operations
- 2) Safety Service Patrol
- 3) Virginia State Police Support
- 4) Fairfax County Police Support
- 5) Supplemental PCMS and Safety Equipment
- 6) Spot Improvements to Local Roadways

In most cases, the Design Builder will be responsible for operations in the construction zones, and VDOT along with their partners, will supplement their efforts and provide operational support away from the construction area.

Local Network Operational (LNO) Enhancements: The surrounding road network may experience increased volumes when I-495 is congested during construction. These strategies are developed to mitigate the potential impact of increased traffic on local roadways.

LNO strategies seek to enhance arterials and protect residential streets. Improved signal timing and signing are two examples of strategies to enhance the arterials as needed. Traffic calming measures and increased police presence are two measures to protect residential streets. These strategies will be implemented as needed. Responsibilities and additional details are explained in Chapter 4: Local Network Operations.

Transit and Transportation Demand Management: Strategies in this category are focused on travel mode options to reduce single occupant vehicles through the construction area. These strategies will support the increased use of vanpools, carpools, ride-matching programs, telework and bus transit. A pilot bus service between Virginia and Maryland will be implemented in the corridor. Existing employer outreach programs will be leveraged to encourage employers to provide employees with incentives to vanpool, carpool, use transit or telework. Responsibilities and additional details are explained in Chapter 5: Transit and Transportation Demand Management.

Communications and Outreach: All the TMP strategies will be supported by a comprehensive communications effort targeted to the entire range of I-495 users. This includes both daily commuters and through traffic that may originate outside the DC metro area. The goal of the communications program will be to update commuters with information about travel options and alert them to changes in traffic patterns. The Communications elements supporting the TMP are part of the overall 495 NEXT communications and outreach program.

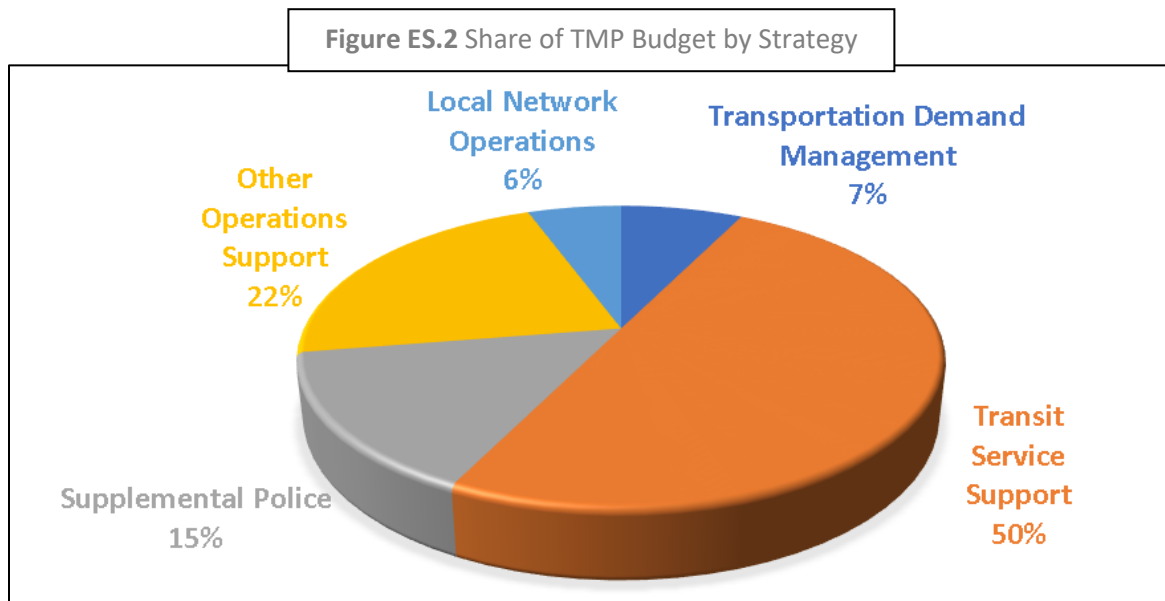
TMP Strategy Development and Implementation

The development of the TMP for 495 NEXT kicked off in May 2021 with a meeting of a large group of stakeholders referred to as the 495 NEXT Working Group. The assembling of the work group and the following activities were performed under the overall lead of the Virginia Department of Transportation.

Implementation of the strategies will be performed by VDOT, Lane Construction, and other stakeholders under the direction of VDOT. To engage stakeholders and promote communication, VDOT has established the TMP Working Group and three technical committees. The three Technical Committees consist of:

- **Operations and Incident Management Technical Committee:** The purpose of this group will be to coordinate lane closure, law enforcement, incident management, and other construction activities. Northern Region Operations (NRO) of VDOT and Design Builder will lead this effort. Expected members will be representatives from VDOT NRO, Transurban, Lane Construction (Design Builder), VDOT NOVA Construction Section, VDOT NOVA Maintenance Section, Fairfax County DOT, GWMP construction, Virginia State Police, Fairfax County Police, US Park Police and VDOT 495 NEXT Program Management Support Services team.
- **Transit and Transportation Demand Management Technical Committee:** The purpose of this group will be to coordinate the travel demand management and transit activities. This group will be co-led by VDOT and the Department of Rail and Public Transportation (DRPT). It will include representatives from DRPT, Fairfax County Department of Transportation, Metropolitan Washington Council of Governments (MWCOC), Potomac and Rappahannock Transportation Commission (PRTC), VDOT Public Affairs, Transurban Public Affairs and VDOT 495 NEXT Project Management.
- **Communications and Outreach Technical Committee:** The purpose of this group will be to coordinate the public outreach. This group will be led by VDOT Mega Projects Public Affairs Office and will include representatives from Transurban, Lane Construction, National Park Service (NPS) and Fairfax County. The Communication Team will meet on a regular basis.

The TMP will be supported by VDOT with an investment of \$4 million. These funds are allocated as shown in Figure ES.2.



Goals of the Transportation Management Plan

The 495 NEXT Transportation Management Plan consists of a five-pronged approach that encompasses a wide range of strategies. The goals of the Transportation Management Plan strategies are to mitigate congestion, improve safety and provide timely information to residents, businesses, local governments and travelers about activities of the construction project that could potentially affect them.

1 Introduction and Project Overview

1.1 Purpose of the Document

This Transportation Management Plan (TMP) explains the strategies that will be used to minimize and mitigate the construction impacts of the I-495 Northern Extension (495 NEXT) project. These strategies are designed to enhance safety and minimize congestion for motorists and workers within the work zones and in the surrounding roadway network during construction.

The TMP responds to both Federal Highway Administration (FHWA) and Virginia Department of Transportation (VDOT) requirements that a project TMP improve public safety, minimize construction related congestion, and provide reliable information to residents, businesses, local governments and travelers. As major construction on one of Virginia’s highest volume roadways, the project requires a comprehensive project TMP with a wide range of strategies. This document explains the methodology used to develop the TMP strategies and how the TMP strategies will be implemented.

TMP strategies are not static. Throughout the course of the construction, the nature of the work zones and the surrounding congestion will fluctuate. As such, this document will be amended as construction progresses. The intent is that the first version will provide the expected strategies and changes will subsequently be made from this initial plan.

1.2 495 NEXT Overview

Existing I-495 has four general purpose travel lanes in each direction and an additional northbound shoulder lane to travel within the project limits. The project will add two dynamic toll lanes in each direction and remove the northbound shoulder lane. The Express Lanes on I-495 terminate in the vicinity of the Dulles Toll Road interchange in Tysons, VA. 495 NEXT is a multimodal project which will extend the I-495 Express Lanes by 2.5 miles from south of Old Dominion Drive to the George Washington Parkway in the vicinity of the American Legion Bridge (ALB) in Fairfax County, VA.

Figure 1.1 shows the project location with respect to the surrounding area and project limits. The existing and future typical sections are shown in Figure 1.2.



The Express Lanes are managed lanes that serve vehicles with three or more occupants (i.e. HOV 3+) at no cost; however, all other users on the facility are tolled. To keep the lanes uncongested, dynamic tolling is used. The operator – Transurban North America – adjusts the tolls to regulate the traffic volume on the Express Lanes.

The goals of the project are to (1) reduce congestion on I-495 and nearby roadways, (2) provide additional travel choices on I-495 (the Capital Beltway), (3) improve travel reliability, and (4) enhance safety in the project corridor.

This extension will provide the I-495 inner loop travelers access to the George Washington Memorial Parkway (GWMP) from the Express Lanes and the extension will allow GWMP northbound travelers direct access to the outer loop Express Lanes. When the Maryland Department of Transportation builds Express Lanes on I-495 from the American Legion Bridge to I-270, it will provide direct and continuous connection to these new Express Lanes. The Express Lanes will be continuous from Gaithersburg in Maryland to south of Stafford County in Virginia via I-495 and I-95.

In addition to extending the limits of the Express Lanes, the project will:

- Replace existing bridges
- Enhance multimodal options by adding bike and pedestrian trails
- Replace existing noise walls and construct new walls where needed
- Provide stormwater management facilities

The project will also make modifications to three interchanges along I-495: Dulles Toll Road/Dulles International Airport Access Highway, the interchange with Georgetown Pike (Route 193) and the interchange with the George Washington Memorial Parkway. The project will replace existing bridges at Live Oak Drive, Georgetown Pike, Old Dominion Drive and I-495 North over the Dulles Toll Road. In addition, the project will widen the I-495 bridge over Scott’s Run.

The project will build new bike and pedestrian paths along I-495 and on the new overpasses. Existing noise walls will be replaced and extended, and new noise walls will be built, where needed, based on the NEPA evaluation. In addition, stormwater management facilities will be provided to address water runoff from the project.

This document will fulfill the requirements of IIM TE-351.5 [Transportation Management Plan Requirements](#)¹ and the Work Zone Safety and Mobility Rule (Rule) as explained in [Implementing the Rule on Work Zone Safety and Mobility](#)² published by the Federal Highway Administration.

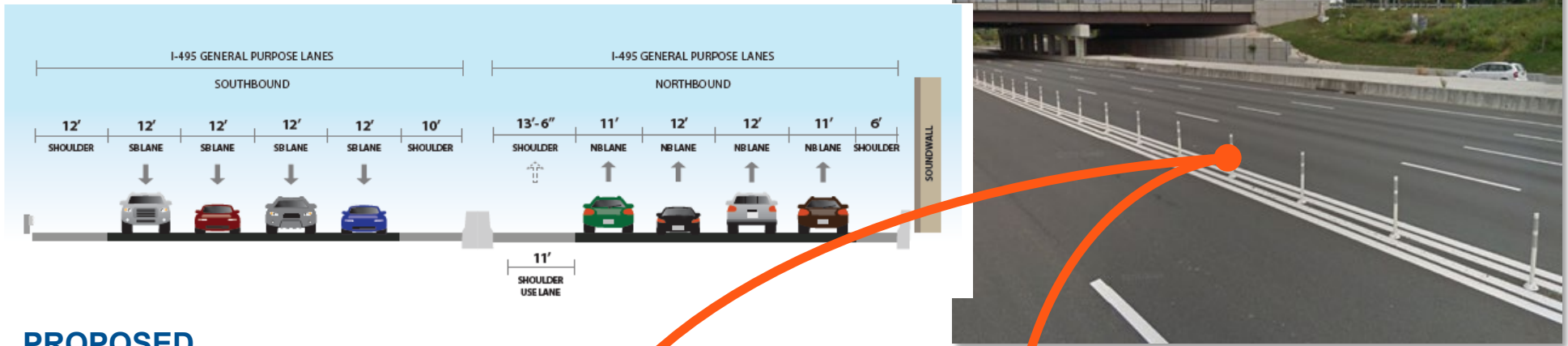
Maryland State Highway Administration (MdSHA) is also planning improvements adjacent to 495 NEXT. A description of their efforts and the ongoing coordination is in section 1.7.

¹ Virginia Department of Transportation, Traffic Engineering Division. IIM TE-351.5 [Transportation Management Plan Requirements](#), January 3, 2017.

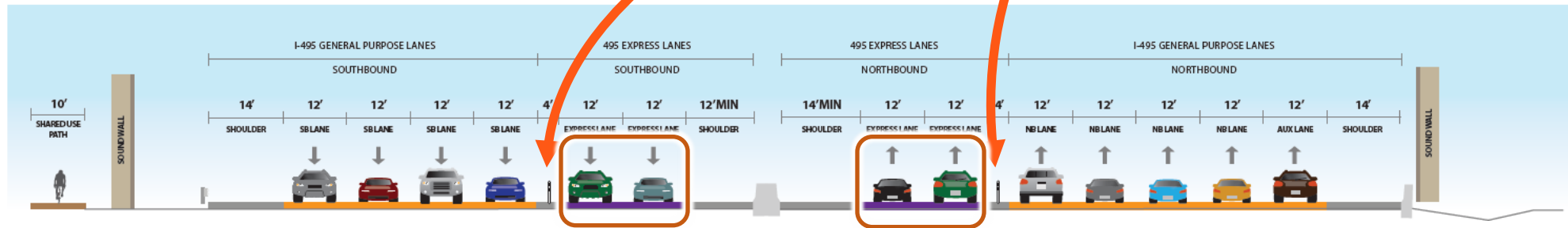
² Tracy Scriba - FHWA, Param Sankar and Krista Jeannotte - Cambridge Systematics. [Implementing the Rule on Work Zone Safety and Mobility](#), U.S. Department of Transportation, Federal Highway Administration; September 2005.

Figure 1.2 Typical Section- I-495 between Dulles Toll Road and Georgetown Pike

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1.3 VDOT and Transurban Roles and Responsibilities

495 NEXT is a Public Private Partnership (P3) project between VDOT and Transurban. Transurban will operate and maintain the Express Lane portions of the facility until 2087, and VDOT will operate and maintain the general-purpose lanes. Transurban selected a team led by The Lane Construction Corporation (Lane Construction) as their Design Builder.

Although VDOT maintains sole responsibility for the TMP, critical strategies will be led by Transurban and Lane Construction. Lane Construction will be responsible for the execution of strategies associated with the maintenance of traffic activities within the construction areas including:

- Work Zones and their barriers, signs, channelizing devices and safety devices
- Lane closure requests, traffic control during lane shifts and closures
- Design, set up and execution of detours
- Construction specific public outreach. This will include construction updates, alerts and “pardon our dust” public meetings

1.4 Federal and State Approvals

The Virginia Department of Transportation (VDOT) completed an Environmental Assessment (EA), Interchange Justification Report and Section 4(f) in accordance with the National Environmental Protection Act (NEPA) and related Federal and State Law. As part of this process, VDOT requested a Finding of No Significant Impact (FONSI) from the Federal Highway Administration (FHWA) and National Park Service (NPS). NPS issued the FONSI on June 7, 2021 and FHWA issued the FONSI on June 29, 2021.

Additionally, VDOT received approval from FHWA on the project’s Interchange Justification Report, and a traffic study that includes analysis of traffic impacts and benefits associated with the 495 NEXT project on June 14, 2021.

1.5 Transportation Management Plan Overview

A Transportation Management Plan is required to develop strategies in three broad categories³:

Temporary Traffic Control Strategies:

- Control strategies
- Traffic control devices
- Project coordination, contracting and innovative construction strategies

Public Communication Strategies:

- Public awareness strategies
- Motorist information strategies

Transportation Operations Strategies:

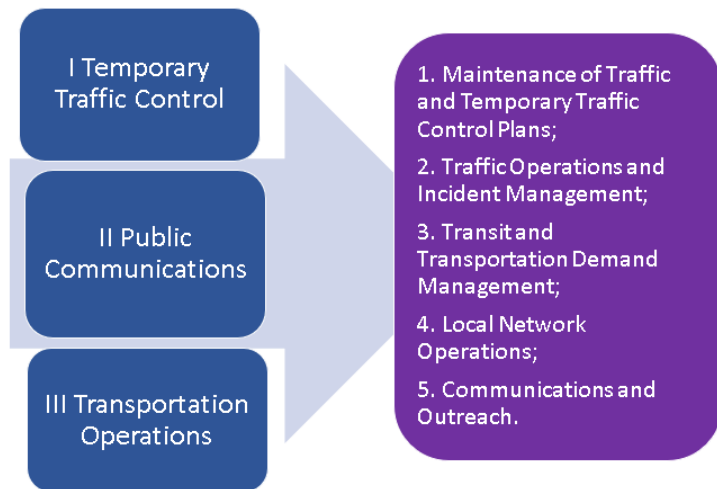
- Transit and transportation demand management strategies
- Corridor/network management strategies

³ Virginia Department of Transportation, Traffic Engineering Division. IIM TE-351.5 Transportation Management Plan Requirements, January 3, 2017. Page 3.

- Work zone management strategies
- Traffic/incident management strategies

As a result of efforts on previous area large interstate projects, the strategies generally fall in five distinct categories. As such, this TMP focuses on five categories pulled from the three broad categories:

- 1) Maintenance of Traffic and Temporary Traffic Control Plans
- 2) Traffic Operations and Incident Management
- 3) Local Network Operations
- 4) Transit and Transportation Demand Management and
- 5) Communications and Outreach



Maintenance of Traffic and Temporary Traffic Control Plans (TTCP): This strategy combines temporary traffic control strategies and work zone management strategies. Both are largely focused on construction, safety and the work zones along I-495.

Traffic control along I-495 and the interchanges is the most visible and direct of the strategies. The sequence of construction, how the work zones are designed based on this sequence of construction, and how traffic control devices are used will affect safety and traffic flow directly. This strategy will be planned and designed by Transurban and Lane Construction and approved and monitored by VDOT.

Once the work zones are in place and construction begins, this strategy consists of monitoring compliance of the work zones with the plans and the requirements of the Virginia Work Area Protection Manual (VWAPM) and updates to the TTCPs.

Traffic Operations and Incident Management: This category provides strategies for reducing incident response time and clearance during construction. This category has six strategies:

- 1) Monitoring of Operations
- 2) Safety Service Patrol
- 3) Virginia State Police Support
- 4) Fairfax County Police Support
- 5) Supplemental PCMS and Safety Equipment
- 6) Spot Improvements to Local Roadways

Strategies in this category are generally implemented by the Design Builder and supplemented by VDOT. In most cases, the Design Builder will be responsible for operations in the construction zones, and VDOT along with their partners, will supplement their efforts and provide operational support away from the construction area.

Local Network Operational (LNO) Enhancements: The surrounding road network may experience increased volumes when I-495 is congested during construction. These strategies are developed to mitigate the potential impact of increased traffic on local roadways.

LNO strategies seek to enhance arterials and protect residential streets. Improved signal timing and signing are two examples of strategies to enhance the arterials as needed. Traffic calming measures and increased police presence are two measures to protect residential streets. These strategies will be implemented by VDOT with support from Transurban and the Design Builder, as needed.

Transit and Transportation Demand Management: Strategies in this category are focused on travel mode options to reduce single occupant vehicles in the construction area. These strategies will support the increased use of telework, vanpools, carpools, ride-matching programs, and bus transit. Pilot bus service is planned to be implemented in the corridor. Existing employer outreach programs will be leveraged to encourage employers to provide employees with incentives to vanpool, carpool, use transit or telework.

Communications and Outreach: All the TMP strategies will be supported by a comprehensive communications effort targeted to the entire range of I-495 users. This includes both daily commuters and through traffic that may originate outside the DC metro area. The goal of the communications program will be to inform commuters with information about travel options and alert them to changes in traffic patterns. The Communications elements supporting the TMP are part of the overall 495 NEXT communications and outreach program.

1.6 Stakeholder Engagement

The 495 NEXT project affects a long list of government, quasi-government and civic organizations. The project is entirely within Fairfax County, as such, direct coordination with several Fairfax County departments will be conducted. In addition, several organizations will be leading TMP strategies as shown in Working Group Organizations graphic.

A Transportation Management Plan working group has been established consisting of the TMP stakeholders. The first virtual meeting of the Working Group was held on June 9, 2021, Members of the Working Group represent the following organizations:

- Virginia Department of Transportation
- Virginia Department of Rail and Public Transportation
- Federal Highway Administration



- Maryland Transit Administration
- Arlington County
- Fairfax County Department of Transportation
- Fairfax County Park Authority
- Fairfax County Connector
- Potomac and Rappahannock Transportation Commission (PRTC)
- Town of Vienna
- Washington Metropolitan Area Transit Authority (WMATA)
- Metropolitan Washington Council of Governments
- National Park Service
- Virginia State Police
- Fairfax County Police
- Transurban
- Tysons Transportation Partnership
- PRTC Vanpool Alliance
- Metropolitan Washington Airport Authority
- Dulles Area Transportation Association

1.7 Maryland New American Legion Bridge I-270 to I-70 Traffic Relief Plan

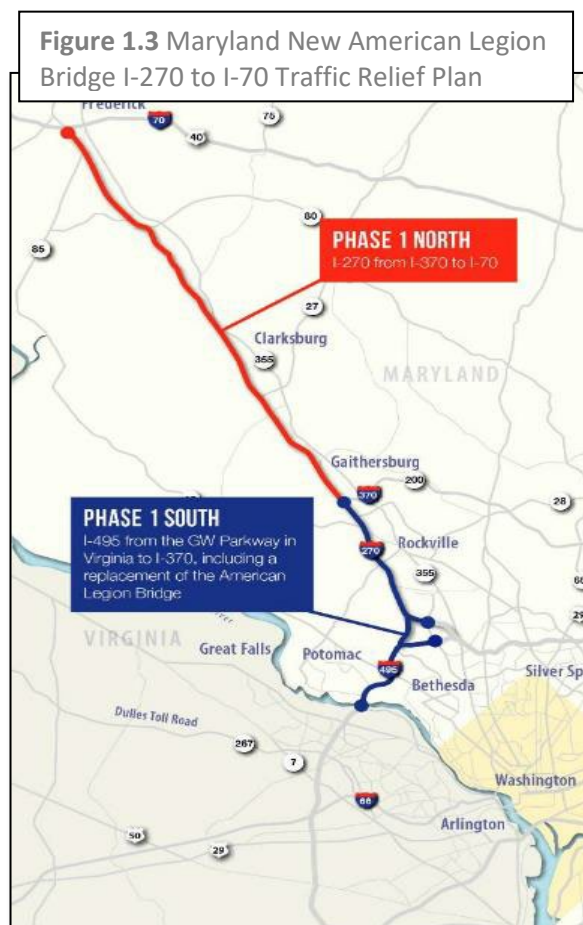
Maryland is planning managed lane improvements to the American Legion Bridge, I-495 and I-270. Although the Virginia 495 Northern Extension is a stand-alone project, close coordination with Maryland will be conducted.

The Maryland Traffic Relief plan consists of two elements. Phase I South is I-495 from George Washington Memorial Parkway to I-270, and then I-270 to I-370. Phase I South will add managed lanes on I-495 and includes a replacement of the American Legion Bridge. A Supplemental Draft Environmental Impact Statement (SDEIS) is completed.

Phase I North is from I-270 at I-370 to I-70 and is currently progressing a Supplemental Final Environmental Impact Statement. Figure 1.3 shows the location of the Maryland New American Legion Bridge I-270 to I-70 Traffic Relief Plan project.

1.8 Existing Traffic Conditions

The *I-495 Express Lanes Northern Extension Traffic and Transportation Technical Report*, dated February 2020, provides a detailed assessment of traffic patterns. The analysis and conditions explained in the



Source: MDOT Maryland State Highway Administration, Public Information Meeting, September 29, 2021

Technical Report provide a baseline and an understanding of causes of congestion. This understanding will be valuable in developing mitigation measures for the 495 NEXT construction.

I-495 in the project area experiences long periods of congestion leading to spillover and queuing throughout the surrounding roadway network. This congestion is prevalent in both directions during both the AM and PM peak commuter periods.

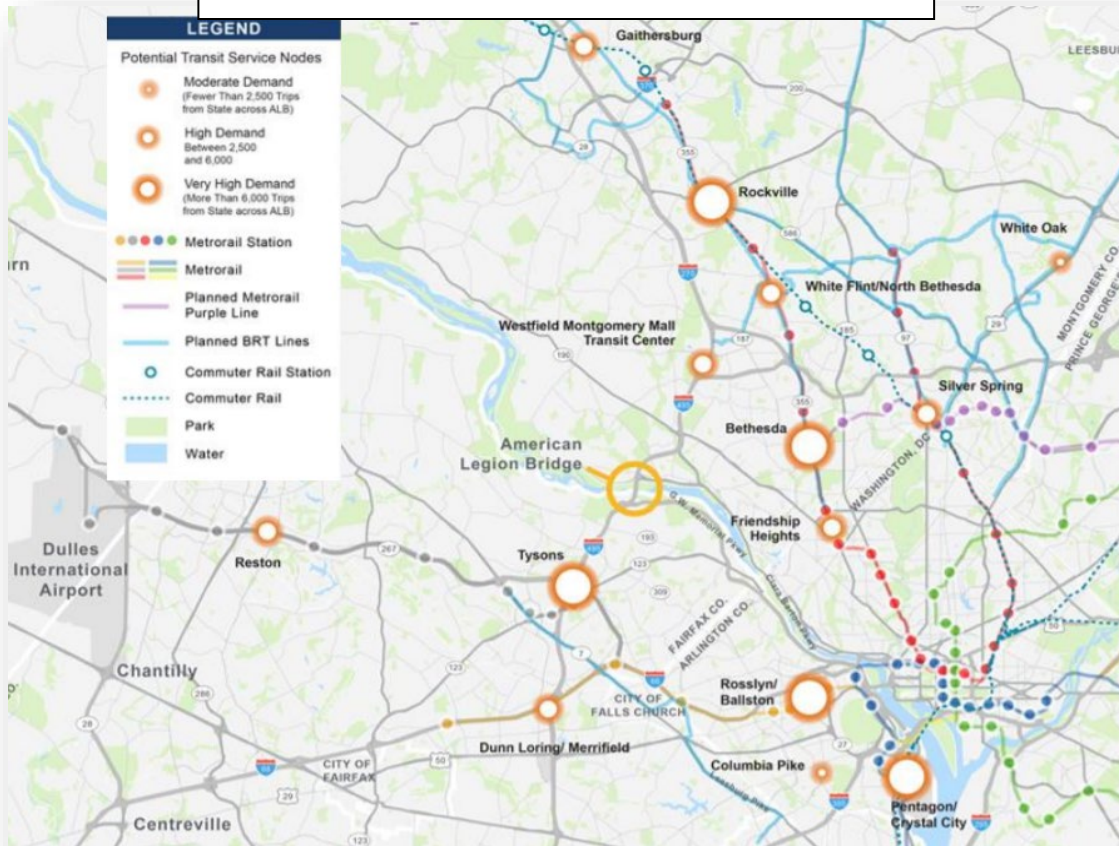
An analysis of travel patterns along I-495 using StreetLight Data, performed for the Environmental Assessment, shows that trips have a wide-ranging set of origins and destinations well outside the study area. Many trips within the study area originate in Tysons and in locations further to the south or west, such as Dulles International Airport (IAD) and Prince William County, and are destined for Maryland, especially areas along the I-270 corridor. A significant amount of travel across the American Legion Bridge is originating from or destined for jurisdictions beyond Fairfax County and Montgomery County (the two jurisdictions directly connected by the bridge). The bridge carries a significant amount of regional and inter-state travel.⁴ Figure 1.4 shows major origins and destinations on either side of the American Legion Bridge (ALB).

I-495 just south of the American Legion Bridge is one of the highest volume roadway segments in Virginia. The roadway has averaged volumes above 200,000⁵ AADT. The Technical Report analysis determined the network representative hour (peak hour) during the AM peak period occurred between 7:45 a.m. and 8:45 a.m.

⁴ Virginia Department of Transportation, *I-495 Express Lanes Northern Extension Traffic and Transportation Technical Report*, February 2020.

⁵ Virginia Department of Transportation, *Daily Traffic Volume Estimates, Jurisdiction Report 29 (Fairfax County)*, 2019.

Figure 1.4 Maryland and Virginia Origins and Destinations



Source: I-495 American Bridge Transit/TDM Study Report, Figure 4-9: Activity Centers by Travel Demand Between States

Summary of Existing Operational Deficiencies

From 2002 to 2017, the AADT for I-495 at the American Legion Bridge (ALB) grew by 18 percent, with the transportation infrastructure expanding alongside this traffic growth to include the existing I-495 Express Lanes as well as a hard shoulder open to northbound traffic in the study area during periods of high demand.

Per the Technical Report, travel demand is generally higher than the existing capacity for much of the area. Projected population and employment growth, particularly in the Tysons area, is forecasted to significantly increase in future years and additionally strain highway capacity. This is reflected in high densities and low speeds found in many segments in the peak directions. The congestion scan of weekdays from September 2021 shows slow traffic in both directions, and more acute in the northbound direction. The scan shows congestion in the northbound direction for over five hours in the evening peak period. The northbound congestion extends into Maryland, the traffic often bottlenecks from Exit 41 Clara Barton Parkway.

The American Legion Bridge and the I-495 approaches have traditionally been congested during commuter peak hours. Northbound bottlenecks form in Maryland and result in congestion that extends

back as far as the Tysons area in the PM. Southbound traffic has not been as congested on the Virginia side of the ALB as traffic bottlenecks occur at several points and on the Maryland side of the ALB.

Figure 1.5 illustrates congestion from September 2019 and September 2021. The northbound PM congestion has not only reappeared, but is as severe or worse than same month from 2019.

1.9 Transportation Management Plan Development

The development of the TMP for 495 NEXT kicked off in May 2021 with a meeting of a large group of stakeholders referred to as the 495 NEXT Working Group. The assembling of the work group and the following activities were performed under the overall lead of the Virginia Department of Transportation. Lessons learned and practices used in the development and implementation of the TMPs for the I-495 Express Lanes, the I-95/395 Express Lanes, I-395 Express Lanes and the I-66 Express Lanes (Transform I-66) were applied in the development of this TMP.

For management purposes, the TMP is organized in three distinct, but interwoven elements:

VDOT led and funded TMP Strategies. Strategies that require close coordination with state and local governments or strategies that are outside the Design Builder’s responsibilities are executed and/or coordinated by VDOT. These strategies consist of transportation demand management, local roadway network operations and supplemental operations support.

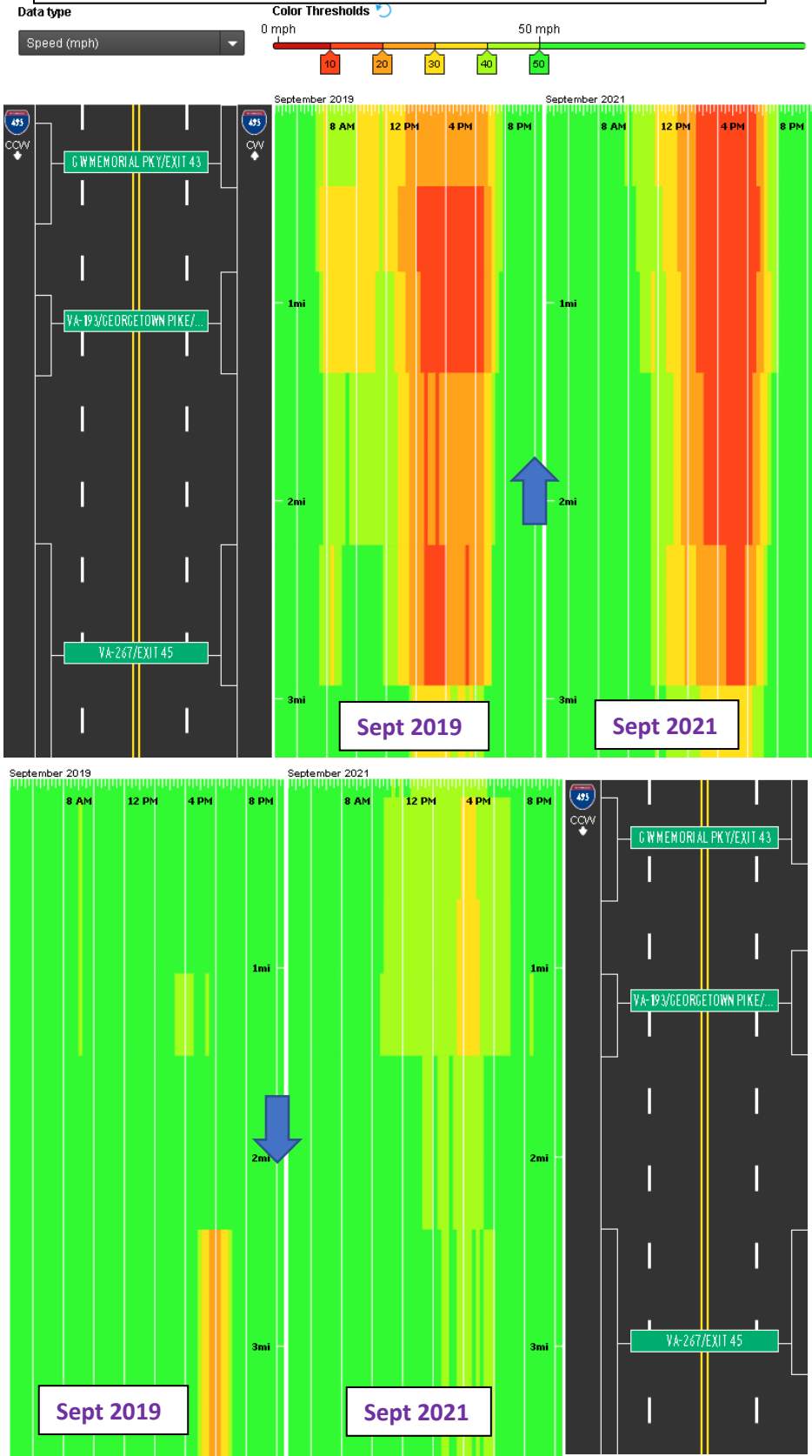
Work Zone and Construction Strategies. Planning and design of the work zones, innovative sequence of construction and maintenance of traffic and operational strategies are led and performed by the Design-Build team.

Public Information Strategies. Public information campaigns, advertisements and construction alerts are performed by both VDOT Public Affairs, Transurban as well as by the Design-Build team. Each Public Affairs office works closely with the others to decide who will lead messaging efforts, type of messaging and if any redundancy in messaging. Personnel from these three public affairs operations will often make joint presentations to stakeholders and general public.

VDOT has formed a large group of stakeholders to assist in the implementation of the TMP. This group is referred to as the 495 NEXT Working Group and will be active during the planning and implementation of the TMP. The Working Group is led and facilitated by VDOT. In addition, VDOT will be forming technical committees to coordinate operations in and around the construction. Three committees will be formed:

- Operations and Incident Management Technical Committee
- Transit and Transportation Demand Management Technical Committee
- Communications and Outreach Technical Committee

Figure 1.5 Congestion Scan September 2019 and September 2021



Source: Regional Integrated Transportation Information System

1.10 Specific Roles and Responsibilities for Developing the TMP

TMP PMSS Coordinator - The TMP Coordinator is responsible to provide day-to-day technical and logistical assistance to the TMP Manager, to the working group members and to technical committees supporting each strategy group. A key role of the TMP Coordinator is to work with the project's leadership and associated technical committees and ensure that the project strategies improve mobility and mitigate construction related traffic impacts.

The VDOT and TMP Coordinator will form a Stakeholder Working Group and three technical committees to manage the TMP.

- **Stakeholder Working Group:** The Working Group will provide ideas, information and feedback from a wide range of stakeholders. Specific responsibilities include identifying issues vital to the project, providing strategic recommendations to the project, supporting the budget and schedule objectives of the TMP, representing their respective agencies, and assisting in building/maintaining a consensus among the jurisdictions and agencies in the project area.
- **Operations and Incident Management Technical Committee:** The purpose of this group will be to coordinate lane closure, law enforcement, incident management, and other construction activities. Northern Region Operations (NRO) of VDOT and Design Builder will lead this effort. Expected members will be representatives from VDOT NRO, Transurban, Lane Construction (Design Builder), VDOT NOVA Construction Section, VDOT NOVA Maintenance Section, Fairfax County DOT, GWMP construction, Virginia State Police, Fairfax County Police, US Park Police and VDOT 495 NEXT Program Management Support Services team.
- **Transit and Transportation Demand Management Technical Committee:** The purpose of this group will be to coordinate the transportation demand management and transit activities. This group will be co-led by VDOT and the Department of Rail and Public Transportation (DRPT). It will include representatives from DRPT, Fairfax County Department of Transportation, MWCOG Commuter Connections section, PRTC Vanpool Alliance, VDOT Public Affairs, Transurban Public Affairs, and VDOT 495 NEXT Project Management.
- **Communications and Outreach Technical Committee:** The purpose of this group will be to coordinate the public outreach. This group will be led by VDOT Mega Projects Public Affairs Office and will include representatives from Transurban, Lane Construction, National Park Service and Fairfax County. The Communication Team will meet on a regular basis and participate in the Operations and Incident Management Technical Committee and the Transit and Transportation Demand Management Technical Committee.

VDOT staff lead or co-lead each of the committees with assistance from the DRPT staff, but they also include technical staff from the PMSS and local, county and state departments/agencies. Each committee develops strategies within their respective purviews, as well as budgets for each strategy. The implementation associated with these TMP strategies will include the development and use of performance measures to ensure effectiveness of efforts.

2 Maintenance of Traffic

2.1 Overview

Maintenance of Traffic is the first of the five broad categories of this TMP. This category is required for all projects, regardless of size of the project.

This category combines temporary traffic control strategies and work zone management strategies. Both are largely focused on construction, the work zones and safety on I-495.

Strategies in this category are almost exclusively planned and executed by the Design Builder. The Design Builder will determine the sequence of construction, how and where construction vehicles will access the work areas, where materials and equipment will be staged and how the work zones will be laid out.

These activities will directly affect safety and traffic flow through the project. This strategy will be planned and designed by the Design Builder, reviewed by Transurban, and approved and monitored by VDOT. Once the work zones are in place and construction begins, the strategy of monitoring compliance of the work zones with the plans and requirements of the Virginia Work Area Protection Manual (VAWAPM) and updates to the Temporary Traffic Control Plans (TTCP) will be implemented.

Five Categories of the 495 NEXT TMP:

- **Maintenance of Traffic**
- Traffic Operations and Incident Management
- Local Network Operations
- Transit and Transportation Demand Management
- Communications and Outreach

2.2 Sequence of Construction

The Sequence of Construction will be evaluated by Transurban and VDOT for safety and traffic flow. The Design Builder, Lane Construction, has submitted an overall plan⁶ and is in the process of developing the TTCP plans. Lane Construction has proposed two main phases of construction based on the current preliminary plans. In Phase I, they will reduce the width of travel lanes to 11 feet and shift traffic towards the inside median as much as possible. The northbound shoulder lane will be eliminated and provide space for one of the four through lanes. This will allow for a work zone on the outside of the roadway (to the right of the travel lanes) and construction of the outside lanes will commence.

Phase II will shift traffic onto the completed lanes and place the work zone in the inside, to the left of the traffic. This will allow for remainder of the general purpose and the express lanes and express lane ramps to be constructed. The Typical Section shown in Figure 2.1 shows how the general purpose and express lanes will be constructed using two overarching phases. These construction phases are subject to change.

The Sequence of Construction for the interchange bridges and ramps will be more complex and will likely require more phases and sub-phases. The interchanges with the Dulles Toll Road (DTR) and Dulles International Airport Access Highway (DIAAH), Georgetown Pike (Route 193) and the George

⁶ Lane Construction/Rinker Design Associates, P.C., Project Wide Maintenance of Traffic Plan (Issued for Review), October 7, 2021.

Washington Memorial Parkway (GWMP) will require phases to demolish existing bridges, erect new bridges and shift traffic from bridges.

Figure 2.1 Express Lanes and General Purpose Lanes Two Phase Sequence of Construction Typical Section



Source: Lane Construction, Project Wide Maintenance of Traffic Plan.

The Georgetown Pike bridge is planned as a typical “two phase” construction. In Phase I, traffic is shifted to one side of the bridge on reduced width lanes. Part of the existing bridge is demolished, and partial new bridge (half the bridge) is constructed. In Phase II, traffic is shifted to the newly completed bridge, the remainder of the existing bridge is demolished, and the remainder of the new bridge is constructed.

All phases will be required to maintain the same number of lanes during peak periods (see Figure 2.2 below) as the existing roadway and comply with the requirements of the Virginia Work Area Protection Manual (VAWAPM).

2.3 Temporary Traffic Control Plans (TTCP)

The Temporary Traffic Control Plans provide details as to the layout of the work zones. These plans must comply with the VAWAPM and be signed by a Professional Engineer with Advanced Work Zone Training certification.

The plans will show travel lanes, construction signs, markings, barriers, channelization devices, arrow boards, Truck Mounted Attenuators, temporary signals and Portable Changeable Message Signs (PCMS). They consist of notes, typical sections, plans and details. These plans will be reviewed and approved by VDOT.

2.4 Lane Closure Requirement

During the peak hours, the work zones may not reduce the number of existing lanes. However, during selected hours, lanes may be closed for construction. The hours for 495 NEXT are the standard hours allowed for lane closures in VDOT’s Northern Region. The permissible lane closure hours⁷ are shown in Figure 2.2.

Figure 2.2 Allowable Times for Lane Closures

INTERSTATE 495 (BELTWAY)						
WEEKDAY		Inner Loop				
		Single-Lane Closures or Shoulder	Two-Lane Closures	Multiple-Lane Closures	Complete Road Closure	
Segment 1	A. L. Bridge to Springfield Interchange	10:00AM to 3:00PM	10:00PM to 5:00AM	11:00PM to 5:00AM	12:00AM to 5:00AM	
		9:30PM to 5:00AM				
WEEKDAY		Outer Loop				
		Single-Lane Closures or Shoulder	Two-Lane Closures	Multiple-Lane Closures	Complete Road Closure	
Segment 1	A. L. Bridge to Springfield Interchange	9:30AM to 2:30PM	10:00PM to 5:00AM	11:00PM to 5:00AM	12:00AM to 5:00AM	
		9:30PM to 5:00AM				
All lanes open at 12:00 noon on Friday						
WEEKEND		Inner/Outer Loop				
		Single-Lane Closures or Shoulder	Multiple-Lane Closures		Complete Road Closure	
Friday to Saturday		10:00PM to 8:00AM	11:00PM to 7:00AM		12:00AM to 5:00AM	
Saturday to Sunday		10:00PM to 9:00AM	11:00PM to 8:00AM		12:00AM to 5:00AM	
Sunday to Monday		9:30PM to 5:00AM	11:00PM to 5:00AM		12:00AM to 5:00AM	
EXPRESS LANES						
WEEKDAY		Single-Lane Closures or Shoulder		Complete Road Closure**		
		9:30PM (Sunday to Thursday) to 4:00AM (Monday to Friday)		11:00PM to 4:00AM		
WEEKEND		11:00PM (Friday to Saturday) to 9:00AM (Saturday to Sunday)		11:00PM to 4:00AM		
** Complete Road Closure on Express Lanes limited to 30 minutes or less.						
ROUTE 267 CONNECTOR						
WEEKDAY		Eastbound		Westbound		
		Single-Lane Closures or Shoulder	Complete Road Closure	Single-Lane Closures or Shoulder	Complete Road Closure	
Monday to Friday		11:00AM to 3:00PM	12:00AM to 4:00AM	9:30AM to 3:00PM	12:00AM to 4:00AM	
		9:30PM to 5:00AM		9:00PM to 5:00AM		
All lanes open at 12:00 noon on Friday						
WEEKEND		Eastbound/Westbound				
		Single-Lane Closures or Shoulder	Complete Road Closure			
Friday to Saturday		10:00PM to 8:00AM	12:00AM to 5:00AM			
Saturday to Sunday		11:00PM to 8:00AM	12:00AM to 5:00AM			
Sunday to Monday		9:00PM to 5:00AM	12:00AM to 4:00AM			
Single-Lane Closures* or Shoulder						
ARTERIAL	WEEKDAY			WEEKEND		
	Monday to Thursday	Friday	Friday to Saturday	Saturday to Sunday	Sunday to Monday	
Major Arterials**	9:30AM to 3:00PM	9:30AM to 2:00 PM	10:00PM to 9:00AM	10:00PM to 8:00AM	10:00PM to 5:00AM	
	10:00PM to 5:00AM					
All Other Roadways	9:00AM to 3:30PM	9:00AM to 2:00 PM	10:00PM to 9:00AM	9:00PM to 9:00AM	10:00PM to 5:00AM	
	9:00PM to 5:00AM					
Multiple-Lane Closures						
ARTERIAL	WEEKDAY			WEEKEND		
	Monday to Thursday	Friday	Friday to Saturday	Saturday to Sunday	Sunday to Monday	
Major Arterials**	10:00PM to 5:00AM	Not allowed until 11:00PM	11:00PM to 5:00AM	11:00PM to 6:00AM	11:00PM to 5:00AM	
All Other Roadways	9:00PM to 5:00AM	Not allowed until 10:00PM	10:00PM to 6:00AM	10:00PM to 6:00AM	10:00PM to 5:00AM	

*Single-lane closures only permitted for multiple-lane roadways.

**Major Arterials defined as Primary Roads, high volume Secondary Roads, and all other routes that connect directly to Interstates.

Source: Transurban, Technical Requirements 495 Express Lanes Northern Extension Project

⁷ Transurban, Technical Requirement 495 Express Lanes Northern Extension Project, page 47.



Note: The Dulles Toll Road, Dulles Airport Access Road, and the George Washington Memorial Parkway are not VDOT maintained facilities; therefore, the Lane Closure hours in the NOVA District memorandum do not apply. All lane closures along these roadways shall require separate coordination and approvals from the respective maintaining agencies.

The contractor will be responsible for maintaining project lane closure information or any work within VDOT right-of-way on the Lane Closure Advisory Management System/LCAMS and VaTraffic throughout the duration of the project in accordance with IIM-OD-16-03, dated December 16, 2016.

All lane and/or shoulder closures will be entered into LCAMS at least ten (10) days in advance of the proposed lane and/or shoulder closure(s) and no later than close of business Wednesday the week prior to the closure, stating the location, purpose, specific lane(s) to be closed, time and duration of closure. Any conflicts generated from LCAMS shall be resolved no later than close of business Thursday the week prior to the closure.

Regardless of any prior approvals, all requests for deviation from the allowable lane closure hours must be submitted to VDOT NRO for review a minimum of fourteen (14) days in advance of work.

Exceptions to these hours may be permitted if Transurban/Lane shows that the benefit to the traveling public is greater than the expected impact. Extending the lane closure hours or permitting a short-term full closure will often result in a shorter construction period and less traffic disruption to motorists. This benefit will be weighed against the results of a traffic impact study and a decision will be made by VDOT.

2.5 Coordination with Adjacent Projects

Close coordination with other roadway construction or maintenance projects is required to avoid roadway issues. The principal objective of the Operations and Incident Management Technical Committee will be to deconflict overlapping construction and work zones.

Although VDOT will facilitate and lead the Operations and Incident Management Technical Committee, it is the ultimate responsibility of the contractor to make sure that work is coordinated with adjacent projects.

Two major projects will overlap with the 495 NEXT project. The George Washington Memorial Parkway (GWMP) Rehabilitation project will be a full depth rehabilitation on the GWMP mainline. The project is being performed by the National Park Service and being managed by Eastern Federal Lands Highway Division. The pavement, aggregate base and subbase will be replaced from just south of the northern termini to Spout Run. The project's northern limit does not extend to the junction with the existing ramps. The project will occur during the same time frame as 495 NEXT.

The second project is Maryland New American Legion Bridge I-270 to I-70 Traffic Relief Plan. The Maryland Traffic Relief plan consists of two elements. Phase I South is I-495 from George Washington Memorial Parkway to I-270, and then I-270 to I-370. This element will add express lanes, a multiuse trail across the American Legion Bridge and a new American Legion Bridge.

3 Traffic Operations and Incident Management Strategies

3.1 Overview

The first category of Maintenance of Traffic established the plan for construction, maintaining traffic, work zones, and lane closures. This category consists of the strategies that i) make the plan work, ii) reduce risks during construction and iii) respond to incidents.

Traffic is monitored and incidents are responded to as part of normal procedures. This section will focus on operational activities that are special for a roadway under construction and for the surrounding roadway network.

Five Categories of the 495 NEXT TMP:

- Maintenance of Traffic
- **Traffic Operations and Incident Management**
- Local Network Operations
- Transit and Transportation Demand Management
- Communications and Outreach

Strategies in this category are generally implemented by the Design Builder under the supervision of VDOT. The Design Builder will be responsible for operations in the construction zone, and VDOT along with their partners will supplement their efforts and provide operational support outside the construction area. This category has six sub-strategies:

- 1) Monitoring of Operations
- 2) Safety Service Patrol
- 3) Supplemental Virginia State Police Support
- 4) Fairfax County Police Support
- 5) Supplemental PCMS and Safety Equipment
- 6) Spot Improvements to Local Roadways

The responsibility of maintenance/installation of ITS devices including traffic signals during construction is identified in the Project Technical Requirements.

3.2 Operations Strategies

1) Monitoring of Operations – The purpose of this strategy is to understand traffic trends and the causes of changes in traffic. Understanding how much additional diverted (cut-through) traffic may exist, the extent and causes of congestion, changes in traffic volumes and crash trends will influence the other operations strategies.

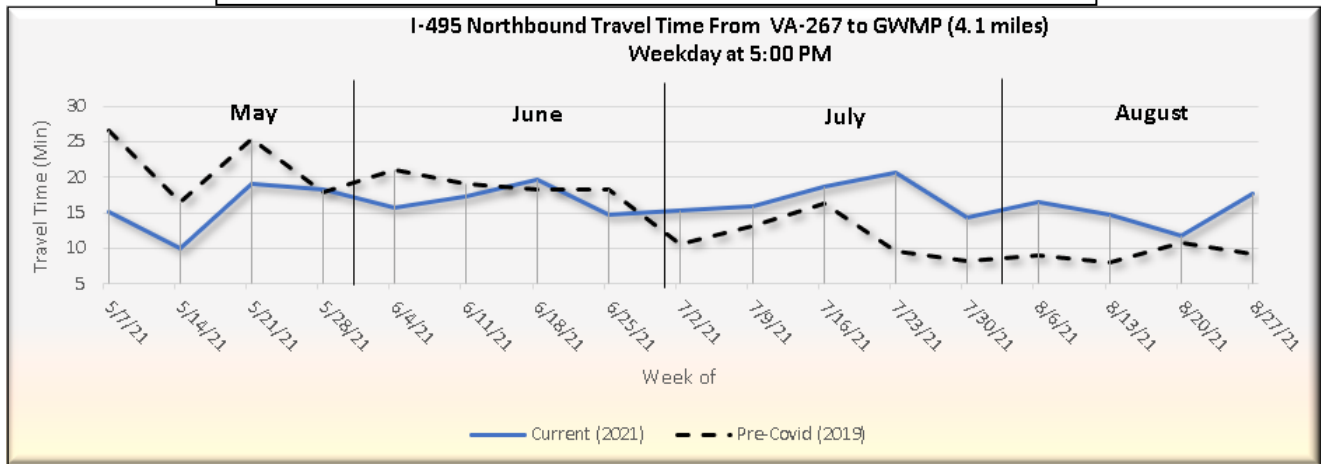
A Monthly Monitoring Report will be prepared utilizing the existing data sources such as the Regional Integrated Transportation System (RITIS) to determine key metrics. This monitoring plan will include:

- Incident summary for the month, and apparent work zone related incidents and trends (if any)
- Weekly travel time trends for both I-495 and local roadways
- Traffic volume trends on I-495
- Bottleneck highlights on I-495 affecting the project limits
- Significant lane closures, shoulder closures, disabled vehicles, and lane closure violations (if any)

Conditions and trends on local roadways will also be monitored using RITIS. RITIS provides congestion trends and travel times for most arterials and major collectors in the area. The monitoring plan will provide travel time trends for Balls Hill Road, Old Dominion Drive and Georgetown Pike.

Figure 3.1 shows an extract from the August 2021 Monthly Monitoring Report demonstrating travel time trends along I-495 in the PM peak hour. This sample is typical of the type of graphic in the Monitoring plan and demonstrates that, as of August 2021, travel times varied, but do not follow an increasing or decreasing trend.

Figure 3.1 Travel Time Trends: Sample from Monthly Monitoring Plan



Source: Regional Integrated Transportation System. Travel time is average for 5:00 to 5:15PM.

2) Safety Service Patrol (SSP) – VDOT Northern Region Operations (NRO) has a comprehensive Safety Service Patrols (SSP) program. The SSP have proven to be highly visible and effective in assisting motorists during other major construction projects in the region. This strategy provides SSP in addition to the normal coverage.

SSP’s core function is incident response. This includes assisting Virginia State Police (VSP), Fire and Rescue and VDOT Incident Management Coordinators (IMC) on the scene. SSP will verify incidents, coordinate with VDOT Transportation Operations Center (TOC), and set up lane closures or traffic diversions following incidents. For the 495 NEXT project, a single 8-hour shift of supplemental SSP will be provided. The estimated cost for a single 8-hour shift for the project duration will be approximately \$530,000. Shown to the right is a picture of SSP providing typical service.



3) Supplemental Virginia State Police (VSP) Support – This strategy is for supplemental Virginia State Police (VSP). Lane Construction will use VSP for lane closures, detours and major traffic shifts. There are also normal VSP patrols on I-495. This strategy is in addition to Lane Construction’s VSP coverage and normal patrols.

Minor incidents during periods of heavy traffic conditions can lead to major congestion. The supplemental VSP will be able to respond to vehicle breakdowns, minor incidents, debris or other distraction to keep traffic moving. This is the most critical during the weekday PM hours, as such the current plan is to use the additional VSP for an 8-hour shift that will cover the PM periods. In addition, supplemental VSP may be used during traffic shifts or major construction.

The estimated cost for an 8-hour shift consisting of each weekday, Saturday, plus additional service as needed, for the project duration is approximately \$506,000.

4) Fairfax County Police Support – This strategy is to use Fairfax County Police to perform traffic control, slow down vehicles exceeding the speed limit and regulate construction vehicles on the adjacent potentially affected local roadways. These additional police patrols and police presence will supplement the existing normal patrols.

Most of this support will be on an “as needed” basis. The overall estimate for this strategy is \$100,000. Assuming a 6-hour shift, the estimate will provide support for over 200 daily shifts.

5) Supplemental PCMS, CCTV and safety equipment – This strategy will provide supplemental PCMS, portable Closed Circuit Television (CCTV) cameras, and speed monitoring equipment as needed during construction. This equipment is beyond that provided by the contractor. The budget for this strategy is \$100,000 and will be managed by VDOT NRO.

6) Spot Improvements to Local Roadways – This strategy provides minor improvements to local roadways. These improvements will help mitigate impacts from construction; however, they may become permanent. Typical projects consist of improved signing and marking, turn bay improvements, improved sight distance at intersections, other minor roadway enhancements and pedestrian safety features. Spot improvements generally need to be small projects that can be quickly implemented. The budget for these projects is \$200,000, as such only minor improvements can be performed.

3.3 Incident Management

The Virginia Department of Transportation has defined an incident as an unplanned event that affects traffic. This definition can encompass fatalities, motor vehicle fluid spills, hazardous (i.e. HAZMAT cargo) and non-hazardous cargo spills, abandoned unknown materials, terrorist/criminal actions, fire, disabled vehicles, that occur within VDOT Right of Way (ROW) or directly impact the functionality of the roadway system. These incidents are unplanned and require advanced preparation/planning to successfully manage. The Department’s goal is to facilitate the safe, quick clearance and restoration of the transportation system to normal conditions.

Incident management requires deploying the necessary resources to respond and clear an incident in a timely manner possible. The resources for incident management include Virginia State Police (VSP), local

law enforcement, local fire/rescue, towing/recovery, SSP, IMCs, and the support of the traffic operations center (TOC).

VDOT IMCs play a key role in planning, executing and continually reviewing incident and emergency operations, while managing major incidents on Virginia’s highways. The goal of the IMC is to execute or coordinate safe and efficient incident mitigation strategies. The IMC coordinates VDOT resources and implements safe procedures to clear a scene while also allowing for continued traffic flow—to “Keep Virginia Moving.” The IMC represents VDOT and VDOT’s interests while collaborating with other public service agencies, first responders, and stakeholders.

Generally, most incidents will be handled by VSP in conjunction with NRO IMCs and SSP patrollers.

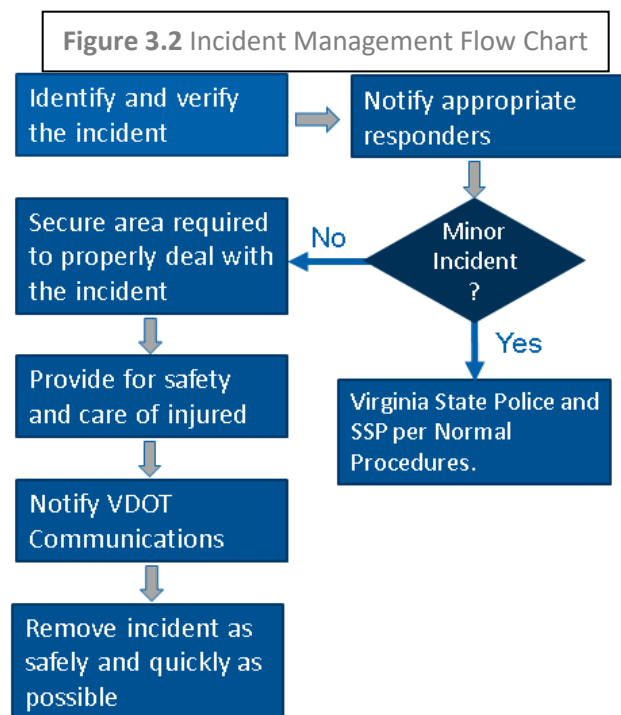
The procedures for incident management will be developed by the MOT Management Team in conjunction with VDOT and EMS providers. These procedures will be used whenever any unplanned condition impacts the normal operation of the transportation system.

For each category of incident, specific responsibilities and lines of authority will be established among all affected organizations at incident sites. The following steps must be accomplished by the appropriate organization in a timely and organized manner:

1. Identify and verify the incident
2. Notify appropriate responders and the TOC
3. Secure area required to properly deal with the incident
4. Provide for safety care of any individuals who may have been injured
5. Notify VDOT Communications so they can notify the public. This will reduce traffic flow into an area and reduce exposure to secondary incidents
6. Remove incident as safely and quickly as possible

The 495 NEXT Design Builder, Lane Construction, will have an Incident Management Plan (IMP) and designated staff. The Lane Construction proposal to Transurban also states that they will have periodic stakeholder meetings to discuss the IMP.

Figure 3.2 shows a flow chart identifying the basic steps for Incident Management. The IMP will have more detail such as specific points of contact and responsibilities.



4 Local Network Operations

4.1 Overview

This Category addresses strategies to mitigate and minimize impacts to the surrounding local roadway network.

The Local Network Operations Category has three main activities:

- 1) Monitor conditions on local roadways
- 2) Protect residential streets
- 3) Enhance arterials

Five Categories of the 495 NEXT TMP:

- Maintenance of Traffic
- Traffic Operations and Incident Management
- **Local Network Operations**
- Transit and Transportation Demand Management
- Communications and Outreach

4.2 Local Network Operations Strategies

1) Monitor conditions on local roadways

The purpose of this activity is to understand the locations and causes of congestion, excess speeds and construction related traffic on local roadways. This activity will inform VDOT, Transurban and the Design Builder so appropriate corrective action can be taken.

The impact to local roadways from construction may be additional traffic and congestion as well as excessive speed from vehicles avoiding the construction zone and increase in construction vehicles. There is external traffic, speeding and construction vehicles on the local roadways without the 495 NEXT project. The objective of the monitoring plan is to determine the increase in external traffic, speeding traffic and construction vehicles on the local roadways because of the project.

The monitoring plan will also provide the data to develop measures to protect residential streets and enhance safety and traffic flow on arterials as needed.

2) Protect Residential Streets

The primary purpose of this strategy is to prevent and slow down external traffic that seeks to use local, residential streets in order to bypass congestion. External traffic that diverts into neighborhoods is undesirable; the principal reason is that it creates a hazard for the residents.

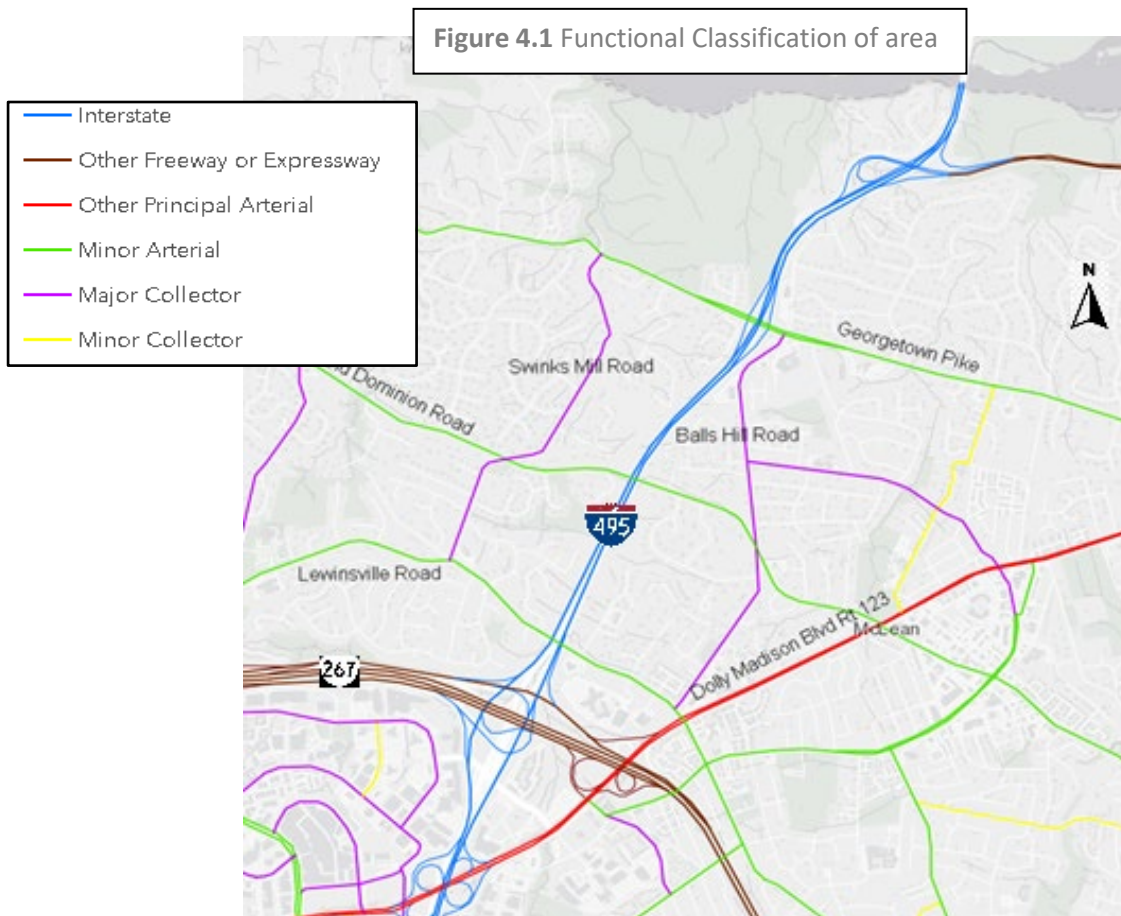
The primary strategy to protect these streets are traffic calming techniques. These techniques will slow traffic and they may also discourage diverted traffic. Fairfax County has a formal process for neighborhoods to apply for and gain traffic calming measures. Although the process is not geared towards temporary problems and solutions, temporary traffic calming devices have been used on similar construction projects to achieve temporary mitigations. The most common and easily applied measures are temporary speed humps, speed radar trailers and increased police presence.

Signs can be used to discourage external traffic. Regulatory signs to restrict through trucks or external traffic can be implemented through the VDOTs "Through Truck Restrictions" and the "Residential Cut-

Thru Traffic Program.”⁸ These programs require support and coordination from the affected neighborhoods and are not intended for temporary use. However, it is possible to use similar temporary construction signs for the same purpose with local support.

Some major collectors and minor arterials in the study area have residential driveways and lower speed limits. Swinks Mill Road, Balls Hill Road and Spring Hill Road have 30 mph speed limit and residences are located directly on the roadway. They are not eligible for speed humps or other physical traffic calming devices; however, speed radar trailers and increased police presence can be used. The map below in Figure 4.1 shows roadway classifications for area roadways.⁹ With the exception of the minor collector roadways (shown in yellow), these roadways are not eligible for physical traffic calming devices.

The McLean and Great Falls area has implemented traffic calming measures. The map in Figure 4.2 shows the location of existing speed humps. In addition, there are four speed humps that have been approved for Churchill Road and two on Kimberwicke Road.



Source: VDOT 2014 Approved Functional Classification Web Map. ArcGIS.com

⁸ Virginia Department of Transportation, <https://www.virginiadot.org/programs/is-VDOTCommunityPrograms.asp>; updated September 2020.

⁹ Virginia Department of Transportation, VDOT 2014 Approved Functional Classification Web Map. ArcGIS.com.

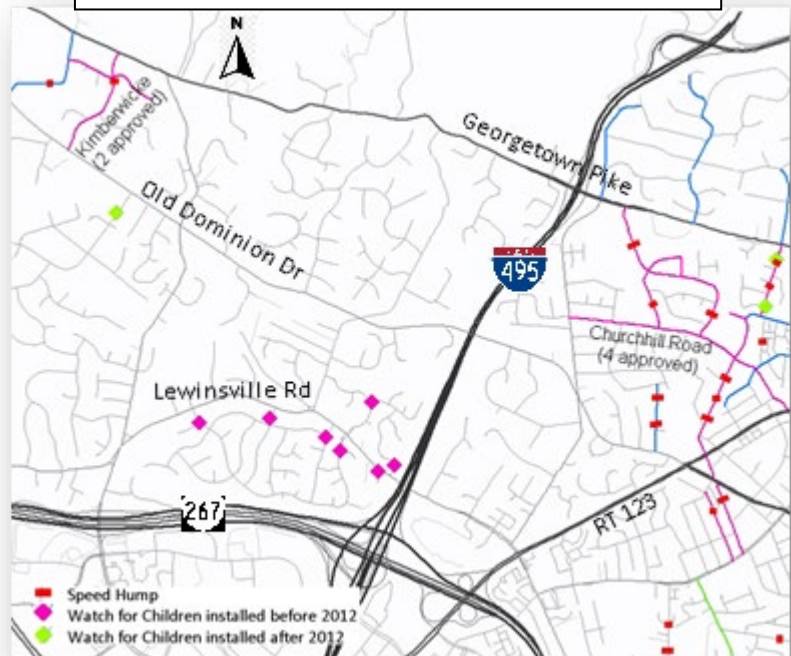
3) Enhance arterials

The purpose of this strategy is to improve safety, respond to changing traffic patterns and improve capacity of the area arterials. Well-functioning arterials will help keep traffic off smaller roadways and out of neighborhoods.

Measures that are included in this strategy may include:

- Adjustments to signal timing:** Future changes in traffic pattern as a result of the project may require signal timing adjustments. Signal timing may be adjusted for detours to accommodate the temporary traffic volume increase. The NRO signal timing review/approval process will be followed for the existing signal modifications that are approved for spot improvements. The request for this adjustment must be submitted to NRO Signal Operations no less than two weeks prior.
- Portable Changeable Message Signs (PCMS) to aid traffic:** PCMS may be used to warn motorists of construction or new traffic patterns. (Note: Use of PCMS are described in Chapter 3: Traffic Operations and Incident Management Strategies).

Figure 4.2 Existing and Approved Traffic Calming



5 Transit and Transportation Demand Management

5.1 Overview

Strategies in this category will encourage the use of travel modes that are alternative to Single Occupancy Vehicles (SOV) for travel through and around the project.

Strategies in this category consist of:

- 1) Pilot bus service between Virginia and Maryland
- 2) Vanpool incentive programs
- 3) Carpool incentive program
- 4) Employer outreach and
- 5) Telework

Five Categories of the 495 NEXT TMP:

- Maintenance of Traffic
- Traffic Operations and Incident Management
- Local Network Operations
- **Transit and Transportation Demand Management**
- Communications and Outreach

Public outreach is a critical component of Transportation Demand Management (TDM), and each of these strategies is promoted through existing TDM programs and the Communications and Outreach TMP strategy. The public outreach efforts for the TDM strategies are discussed in Chapter 6 Communications and Outreach.

5.2 Transit and Transportation Demand Management Strategies

The Transit and Transportation Demand Management strategies were developed by the 495 NEXT Working Group and used the recommendations from the I-495 American Legion Bridge Transit/Transportation Demand Management Study as guidance. The Study was conducted jointly by the Virginia Department of Rail and Public Transportation (DRPT) and Maryland Department of Transportation (MDOT) Maryland Transit Administration (MTA) to identify a range of current and potential multimodal solutions that could be implemented to reduce congestion, improve trip reliability and regional connections, and enhance existing and planned multimodal mobility and connectivity. The Study was completed in March 2021.

1) Pilot bus service between Virginia and Maryland – As of January 2022, there is no bus service between Virginia and Maryland over the ALB. This pilot bus service will not only provide a transit option between Maryland and Virginia over the ALB, but also serve as a precursor to future service. \$2 M has been dedicated from the TMP to assist with operating expenses.

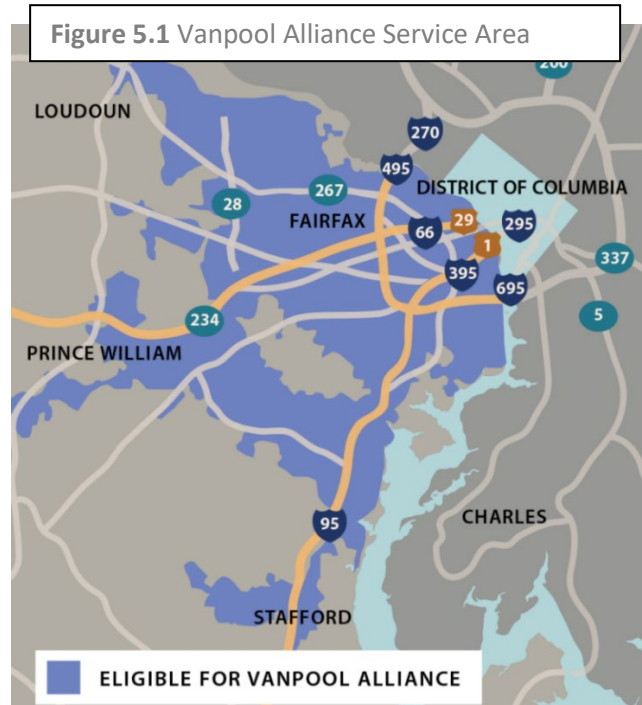
In conjunction with this TMP, the Commonwealth has committed to provide funding for transit in the I-495 corridor. To assist in implementation of routes from Tyson’s to Montgomery County Virginia has committed \$5.2 M for initial purchases of buses and \$2.2 M for operations

2) Vanpool incentives -This strategy provides financial incentives to encourage new vanpool riders to fill capacity in existing vanpools, and the formation of new vanpools with new vanpool riders. The goal of this strategy is to increase the number of vanpools and vanpool riders traveling in the project area.

The Potomac and Rappahannock Transportation Commission (PRTC) will administer the vanpool incentives through its regional Vanpool Alliance program. To encourage new vanpool riders, persons that traveling by single occupant vehicle (SOV) through the project area to work may receive \$100 per month for up to 6 months to ride a vanpool. This payment of the incentive will be made to the vanpool

provider to cover the vanpool fare for the approved new vanpool rider. The new riders will be both on the existing vanpools and on the newly formed vanpools. There are nearly 40 existing seats that could be filled without forming new vanpools. In addition, PRTC estimates another 5-10 new vanpools could be formed during the project¹⁰. If the new vanpools average four new riders, and 10 new vans are formed, 80 new vanpool commuters (including 40 new vanpool riders on existing vanpools) would use the program. The cost for these 80 new riders would be \$48,000.

Vanpool Alliance is a public-private partnership between the George Washington Regional Commission (GWRC), the Northern Virginia Transportation Commission (NVTC), the Potomac and Rappahannock Transportation Commission (PRTC) and the Virginia Department of Rail and Public Transportation (DRPT). PRTC operates and administers the Vanpool Alliance program. The Vanpool Alliance service area is shown in Figure 5.1.



Source: VanpoolAlliance.com

3) Carpool incentive programs - The Commuter Connections 'Pool Rewards provides an incentive for new carpool formation. Commuters who currently drive alone to work are eligible for a cash payment through 'Pool Rewards when they start or join a new carpool. If eligible, each carpool member can earn \$2 per day (\$1 each way) for each day they carpool to work over a consecutive 90-day period. The maximum incentive for the 90-day reporting period is \$130. The TMP will provide an additional \$100 for a total maximum incentive of \$230 for the 90-day period. The additional \$100 from the TMP is only available for new carpools that travel to work in the project area. The purpose of the program is to provide an incentive for commuters to switch from a single occupant vehicle traveler to a carpooler prior, during, and after the project construction period.

To track the use of the program, the number of new carpools formed will be tabulated on a quarterly basis for each fiscal year and reported. Each participant in the 'Pool Rewards program will be required to complete an initial survey upon completion of the incentive/tracking period to qualify for the incentive. A long-term survey will also be conducted to determine carpooling retention rates of program participants.

This strategy will be implemented by the Metropolitan Washington Council of Governments (MWCOG) through the existing regional Commuter Connections 'Pool Rewards program. Marketing and advertising

¹⁰ Joe Stainsby, Chief Development Officer for Potomac and Rappahannock Transportation Commission (PRTC), email dated June 22, 2021 to Fatemeh Allahdoust, VDOT.

of the incentive will be part of the overall project and cost and will be conducted by MWCOG. The TMP budget for this strategy is \$45,000 which will fund up to 450 new carpoolers.

4) Employer outreach - This strategy encourages employers to provide incentives to employees to use transit and vanpool or carpool. The strategy uses existing employer outreach programs in the area to reach out directly to employers and work with them to establish employee incentives that reduce the number of single occupant vehicles (SOVs) traveling to office work sites. Reducing the number of SOVs going to employer office parking lots, will also reduce the number of SOVs traveling in the project construction area.

Employers in Tyson Corner and the surrounding area are the main target of this strategy. Much of the commuter traffic on I-495 is to Tysons Corner. Heavy traffic in the PM hours on northbound I-495 can be attributed in part by employees from Tysons Corner area traveling to their homes in Maryland.

Common employee incentives consist of:

- Last mile / First mile Assistance: This assistance consists of employer provided shuttle service, rideshare discounts, Capital Bikeshare incentives, on-site bike racks and showers or other assistance to encourage and assist employees the use transit get from Metro or a bus stop to their office.
- Preferential Parking: Reserved parking spaces closest to the door as an incentive for carpools and vanpools. Or, if employees must pay for parking, free or reduced fee spaces for carpools and vanpools.
- Metro Parking Benefits: An employer provided monthly benefit to help cover monthly parking costs and Metrorail or commuter rail stations.
- Transit Benefits: Employer provided monthly direct benefit or pre-tax payroll deduction for transit passes for employees.
- Vanpool Benefit: An employer provided direct benefit or pre-tax payroll deductions for monthly vanpool fare.
- Carpool Incentives: Cash or other incentives to form or use a carpool.
- Flexible Work Arrangements: To allow continued telework, flextime, and compressed workweek.
- Work Site Commute Options Information: Employers provide commute options and incentives information to employees through the company's employee information website, information kiosks or brochure racks, employee break areas, and physical and electronic bulleting boards.
- Guaranteed Ride Home Program: Promote the existing Commuter Connections Guaranteed Ride Home Program which provides commuters who regularly (twice a week) carpool, vanpool, bike, walk or take transit to work with up to four FREE and reliable rides home per year when one of life's unexpected emergencies arise.

The employer outreach strategy will be implemented by the existing Fairfax County Commuter Services program and Tysons Partnership. Funding for the employer outreach strategy will be provided by existing funding sources, the implementing agencies will be an integral part of the Transit and Transportation Demand Management Working Group and employer outreach activities will be coordinated with other TMP strategies.

5) Telework technical assistance to employers - As a result of the COVID-19 pandemic, telework became an essential means for employers to continue operations. However, it is anticipated that the level of telework will drop over time resulting in more traffic. This strategy will continue to emphasize telework as an important strategy to reduce the demand for peak hour travel. VDOT, DRPT, Fairfax County and other stakeholders will continue to promote telework to employers and encourage employers to allow employees that travel in the project area telework most days per week. Stakeholders will partner with DRPT's Telework!VA program to provide a consistent message and technical assistance to employers. Telework!VA that provides free technical assistance from experts in telework to employers and employees to review telework policy, provide training on how to manage teleworkers, tips for employees and managers on how to be productive while teleworking, and a website with online resources.

The telework strategy will be implemented by DRPT using existing funding sources. Although the TMP does not include funding for the telework strategy, the implementation of the strategy will be coordinated with the other TDM strategies, especially employer outreach.

In addition to the five strategies above, there are other existing local and regional programs and services such as, Commuter Connections ridematching, CarpoolNOW, IncenTrip, Flextime Rewards Program, and SmartBenefits® "Plu\$50" will also be available and encouraged through outreach efforts. Additionally, as the Regional Multimodal Mobility (RM3P) Program becomes operational and available to the public, it will provide additional resource that will be used to improve mobility in this corridor. This initiative is jointly managed by the Virginia Department of Transportation (VDOT), Northern Virginia Transportation Authority (NVTA) and Virginia Department of Rail and Public Transportation (DRPT). Some of the elements include:

- **Dynamic Incentivization:** A data-driven system offering commuters incentives to modify travel choices and behaviors in response to real time travel conditions.
- **Commuter Parking Information System:** Provides commuters with reliable expected parking space availability for lots serving rail, bus, and vanpool/carpool commuters.

6 Communications and Outreach

6.1 Overview

An effective communications program that alerts motorists of construction activities and traffic impacts that will multiply the benefits of the other TMP strategies and to alert motorists is essential.

The Communications and Outreach strategy has three purposes:

- **Inform** the public, elected officials, government staff and other key stakeholder groups of the project benefits and construction process
- **Alert** the public, elected officials, government staff and other key stakeholder groups about upcoming and ongoing construction-related traffic changes, lane closures, and traffic-related milestones and
- **Promote** the transit solutions supported by the 495 NEXT TMP including non-SOV travel options such as bus, vanpool or carpool and telework

Five Categories of the 495 NEXT TMP:

- Maintenance of Traffic
- Traffic Operations and Incident Management
- Local Network Operations
- Transit and Transportation Demand Management
- **Communications and Outreach**

Key audiences are:

- Traveling public
- Elected officials and staff
- Agency transportation staff
- Large employers
- Law enforcement
- Regional authorities such as Metropolitan Washington Council of Governments (MWCOC)
- Traditional and digital media organizations
- Transit operators
- Northern Virginia Transportation Commission
- Northern Virginia Transportation Authority
- Metropolitan Washington Airports Authority
- Commuter assistance program operators
- American Automobile Association
- Northern Virginia Transportation Alliance

The Communications and Outreach strategy helps to multiply the effectiveness of the strategies in each of the five 495 NEXT TMP categories. The table on the following page demonstrates the key role that the communications and outreach program plays:

TMP Category	Communication and Outreach Support
Maintenance of Traffic	Informs the public and stakeholders about construction activities and traffic-related impacts including lane closures, traffic changes and shifts. Promotes awareness of construction and traveling constraints, with an emphasis on safe driving habits in work zones.
Traffic Operations and Incident Management	Informs the public and stakeholders of construction activities, changes in traffic patterns, road closures and milestones. Provides information and outreach to appropriate VDOT personnel and the public and media regarding traffic incidents and events.
Transit and Transportation Demand Management	Promotes the use of bus, vanpool, carpool, telework and other transportation options and the incentives provided by the TMP and stakeholder agencies.
Local Network Operations	Informs direct-impact communities about construction activities and traffic-related impacts including lane closures, traffic changes and shifts. Raises awareness and promotes safe driving on local streets, while informing groups about detours and alternate routes.

6.2 Communications and Outreach Program Strategies:

Public Outreach and Education

For the purpose of the TMP, public outreach also includes public affairs and employer outreach. It is the responsibility of the VDOT and project team’s communications staff to present project information to the public as well as to other external audiences in order to meet the communication goals of the project. Community meetings, town hall meetings, public events, elected official briefings, and business association outreach are some examples of outreach activities conducted by the communications team.

The 495 NEXT communications team builds and maintains a stakeholder database to manage and target outreach to a wide range of stakeholders, e.g., local residents, drivers, employers, elected officials, and the media. The stakeholder database allows the team to organize contacts by category, allowing tailored messages to be targeted to specific constituencies

In addition to these stakeholders, there are two major projects adjacent to the 495 NEXT Project. The communications team will coordinate outreach with both the Rehabilitation of the George Washington Memorial Parkway project and the Maryland New American Legion Bridge, I-70 to I-270 project.

Media relations and outreach are another critical component of the project’s communications and outreach program. Earned media in broadcast, radio, print and digital media outlets, is a primary method used by the team to reach large audiences, particularly the traveling public, with information in the project corridor. The 495 NEXT communications program will engage in regular outreach and communications to local media outlets in order to effectively communicate 495 NEXT project updates to the public. A special focus on reporters who specialize in traffic reporting and/or transportation issues, will be a top practice in order to maximize earned media potential.

Paid media including radio ads and traffic tag sponsorships, digital ads on media online platforms, as well as geographically-targeted ads on social media platforms, will be used to supplement earned media efforts, as needed. Paid media methods may be used when guaranteed media placement is needed to raise public awareness of critical construction operations and related-traffic impacts. Ad messaging will be succinct and will have a specific call-to-action for the public, i.e., users will be directed to visit the project’s website to learn more about specific impacts and travel solutions.

Paid media campaigns may also be used to publicize and promote the project’s transit and TDM strategies. Tactics for this purpose may include bus wraps, and longer-term media advertising.

Today, media is far more fragmented and specialized than ever. Different audiences receive information in vastly different ways, and the communications strategy needs to be sensitive to responding to these challenges. Older adults may tune to news and public radio while younger adults may glean information from the internet. The public outreach and education program will use a multi-pronged approach that can be tailored and targeted to reach the desired audiences depending on the specific issue that must be communicated.

The public outreach and education strategies will use VDOT and partners social media platforms such as Twitter, Facebook, Instagram and NextDoor to provide information and reach broad and targeted audiences. Earned social media will be used regularly as news releases and travel alerts will be shared and amplified on these social media platforms. Paid social media, which is an affordable and effective way to reach broad audiences, as well as targeted audiences, will also be used. All communications and messaging will promote VDOT’s social media channels as a project information source. Partner agencies and organizations will be encouraged to share the project’s social media posts to further amplify the project’s efforts.

To give the public an opportunity to connect to project staff in person, outreach will include public meetings, public and pop-up events, employer-focused events and other grassroots efforts. In-person outreach efforts will be conducted following the latest public health safety protocols and requirements. Direct mail, signage, posters, and other collateral material will be readily available to use and distribute as needed. Reaching out to employers in the area will be important to enable them to plan with their staff appropriately and to keep them informed on the project.

Public Outreach and Education Strategy channels include:

- Earned Media
- Paid Media
- Social Media
- Grassroots Outreach
- Email Alerts
- Employer Outreach
- Website
- Direct Mail
- Collateral Dissemination

6.3 Public Information Distribution and Website

Up-to-date information is distributed on a regular basis to the public and stakeholder groups through email blasts sent to the project's stakeholder list(s). The communications staff will email weekly construction updates to subscribers. In the event of urgent news or broader project-related announcements or news, additional news releases will be developed and distributed to the stakeholder list, as needed.

VDOT's 495 NEXT project website (www.495northernextension.org) will be used as the primary project website throughout the construction process. The website is an established and familiar tool for the public, and thus, using it as the primary information source is an effective strategy. During the project's construction phase, the website will contain current and easily accessible construction and traffic-related information including lane closures and traffic changes and impacts.

A specific section or page within the 495 NEXT project website will contain information specific to the project's transit and TDM strategies and programs that are being supported as part of the 495 NEXT TMP. This dedicated website section will serve as the gateway to basic information about the 495 NEXT projects, alternative travel options incentives, public meetings, and lane closure updates for the public.

Public Information and Website channels:

- Website
- Email Blasts to stakeholder list

6.4 Transit and TDM Promotion

A proactive information and promotion campaign is essential to the success of the specific transit and TDM travel strategies that are being supported by the 495 NEXT TMP. VDOT and partners will work to develop a communications program that is tailored according to the specific transit and TDM strategies, and targeted audience. This communications program will include tactics such as a dedicated section or pages on the project website, earned and paid media outreach, targeted social media, direct outreach with stakeholder groups, special community and industry events and employer briefings.

The communications program will support and promote the launch of a pilot program for bi-state bus service between Tysons and Montgomery County. Targeted outreach will be accomplished through tactics such as bus wraps, displays or kiosks at local businesses, paid social media, paid radio ads, and grassroots outreach to employers and business groups.

7 Measures of Effectiveness

7.1 Overview

The goal of the Transportation Management Plan (TMP) is improved safety and to mitigate the traffic impacts of construction. Although the monitoring plan will follow incident, congestion and volume trends, month to month changes are not statistically sufficient to make conclusions. Furthermore, crashes, congestion and traffic volumes vary due to seasonal changes, economic conditions, and other factors beyond the control of the TMP.

As such, to measure the effectiveness of the TMP, we will rely on indicators of effectiveness. Increases in vanpool ridership, for example, indicates that the program is being effective. This section will explain quantitative indicators that can be used to measure the effectiveness of each strategy. In addition, qualitative desired outcomes will be used to evaluate the strategies.

These indicators have not been fully confirmed and may be adjusted after coordination with each strategy leader. Furthermore, further adjustments may be made to best show the strategies effectiveness during the construction.

Five Categories of the 495 NEXT TMP:

- Maintenance of Traffic
- Traffic Operations and Incident Management
- Local Network Operations
- Transit and Transportation Demand Management
- Communications and Outreach

7.2 Maintenance of Traffic

Quantitative Indicators:

Special Lane Closures	Number of traffic studies for special lane closures and detours
Work Zone Plans	Number of TTCP approved
Work Zone Quality	Number of inspections conducted/scores

Qualitative Desired Outcomes:

Quality of Maintenance of Traffic Scheme. The work zones laid out in accordance with the Virginia Work Area Protection Manual (VAWAPM). They are easily followed, and do not have features that confuse motorists.

Quality of Implementation. The work zone markings, signs, barriers, channelizing devices, arrow boards and other construction devices are in accordance with the VAWAPM. They are properly used and maintained.

7.3 Traffic Operation and Incident Management

Quantitative Indicators:

Lane Closures & MOT	Number of lane closures requests processed
	Number of entries in 511VA
	Number of inspections
Safety Service Patrols	Total motorist assists
	Incident assists
	Incident response time (average)
VSP Supplemental Patrols	Number of shifts
Local County Police	Number of shifts
Spot Improvements	Number of Spot Improvements Initiated / Completed

Qualitative Desired Outcomes:

Satisfaction of motorists and general public. Few complaints, good media coverage and general satisfaction from elected officials would indicate good satisfaction.

Effective response to incidents. Crashes, utility strikes, flooding and other incidents that are handled quickly and escalated to VDOT NRO appropriately.

7.4 Local Network Operations

Quantitative Indicators

Monitoring	Monthly monitoring program
	TBD
Protecting	Number of requests for traffic calming or traffic restrictions
	Number of traffic calming devices implemented
	Number of traffic restrictions added
Enhancing	Number of signal studies conducted
	Number of signal modifications made
	Number of intersection or roadway improvements considered/made

Qualitative Desired Outcomes:

Monitoring Plan. The monitoring plan is providing useful data for decision makers and other stakeholders.

Community satisfaction with response to local roadway issues. Complaints are handled quickly and elected officials and the affected citizens are satisfied with actionable items.

Construction vehicles. Do not access local roadways and stay on approved routes.

Enhancing. Arterials are being used as preferred routes for traffic diverted away from construction.

7.5 Transit and Transportation Demand Management

Quantitative Indicators:

Employer Outreach	Meetings with employers
	Meetings with employer associations
	Number of employers implementing new employee incentives to reduce SOVs
Vanpool Formation	Number of new vanpool riders
	Number of vanpools started
Carpool Formation	Number of new carpool riders
	Number of carpools started
Transit/TDM Promotion	Web advertising click-throughs
Transit Service	Transit ridership

Qualitative Desired Outcomes:

Vanpool Company Awareness. Vanpool companies are aware of the vanpool incentive provided by the TMP.

Employee Awareness. Employees in the project area are receiving TMP TDM incentives and commute options information from their employer.

Employer Satisfaction. Employers in Tysons Corner and surrounding area are satisfied that they are adequately being assisted and informed.

7.6 Communications and Outreach

Quantitative Indicators

Communications and Outreach	Number of briefings and presentations
	Number of participants at briefings and presentations
	E-news & update bulletins
	E-news & bulletin subscribers
	Number of “earned media” (free publicity via news outlets)
	Unique visitors www.495northernextension.org

Quantitative Indicators

Project Awareness. There is widespread knowledge of the project, and an awareness to check VDOT construction alerts to plan travel.

TMP Program Awareness. Commuters are aware of the TMP strategies (especially TDM strategies).

Project Support. Stakeholders and the public understand the need for the project and support VDOT, Transurban and Lane Construction efforts to minimize and mitigate the impacts.

8 Appendix

Appendix 1 – Working Group Members

Appendix 2 – Summary of Strategies

Appendix 1 – Working Group Members

Contact Name	Agency Name	Title	Email
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Appendix 2 – Summary of Strategies

495 NEXT Strategies Summary					
Agency	Strategy	Implementation Detail	Anticipated Timeline	Level of Effort	Est \$(k)
Transit and Transportation Demand Management					
VDOT Megaprojects Communications	TMP Promotion	Outreach including paid media, staff augmentation, email, web page and other costs. These efforts are in addition to outreach performed by Transurban.	Start of construction	Promotion of Transit/TDM strategies for 36 months.	\$200
PRTC	Vanpool Formation Incentives	Administration of an incentive program to increase vanpool ridership in the project area.	Early 2023	As part of Vanpool Alliance program. Funding of \$100 per new person for 6 months (\$600 per new person).	\$48
MWCOG Commuter Connections	Carpool Formation Incentives	Through existing Commuter Connections 'Pool Rewards program, this strategy provides additional incentive to new carpoolers.	Early 2023	\$100 incentive for new carpool in addition to Commuter Connections Carpool Reward, for HOV3.	\$45
VDOT, Fairfax County DOT, Tysons Partnership	Employer Outreach	Through existing outreach programs, this strategy encourages employers to provide incentives to employees to use carpools, vanpools, transit.	Start of construction	To be implemented as part of TMP partnership with Fairfax County DOT and Tysons Partnership. This strategy will also include partnership with Maryland jurisdictions.	NA
DRPT, Fairfax County Connector	Pilot bus service	Provide support for pilot bus service between Virginia and Maryland.	To be Determined	To support operating costs.	\$ 2,000
DRPT	Telework	Providing technical assistance to employers in the corridor.	Ongoing	To be implemented as part of Telework!VA Program, DRPT will provide technical support and assist in developing formal agreements with employers. The implementation of this strategy will be coordinated with local jurisdictions and organizations as part of the Employer Outreach effort.	NA
Subtotal:				\$2,293,000	

Traffic Operations					
VSP	Supplemental VSP patrols for incident response	Additional patrols during peak periods and major activities to supplement normal patrols and VSP presence at work zones.	Start of construction	Patrols will be for the PM period, traffic shifts and major construction activities. Basis is 30 four hour shifts per month.	\$506
FCP	Supplemental Law enforcement	Fairfax County Police and other local police on local roadways.	As needed, after work zones are implemented	As needed for intersection traffic control, to slow external traffic and regulate construction vehicles on the adjacent local roadways. Basis is 60 hours per month during peak construction.	\$100
VDOT (NRO)	Supplemental Safety Service Patrols & TOC Operator	The SSP will assist Virginia State Police (VSP), Fire and Rescue and VDOT Incident Management Coordinators. SSP will coordinate with VDOT TOC and will set up lane closures or traffic diversions.	Start of construction	Coverage is 16 hours per day for one vehicle 7 days per week for a total of 17,000 hours. The strategy will use the existing VDOT SSP contract.	\$530
VDOT (NRO)	Wrecker service	Wreckers to be identified to provide 24/7 coverage.	Start of construction	Costs are largely borne by motorist, however, there are incidental planning and preparation.	\$5
VDOT (NRO)	Supplemental PCMS and safety equipment.	Provide supplemental PCMS, portable cameras and speed monitoring equipment during construction. This equipment is beyond that provided by contractor.	Start of construction	Estimate is based on rental of equipment.	\$100
VDOT (NRO) / Local Law Enforcement	Temp Traffic Calming	As needed, provide traffic calming measures on adjacent roadways within the project limit.	As needed, after work zones are implemented	Provide measures such as speed trailer(s), supplemental signs and temporary speed humps.	\$25
VDOT/PMSS	Update incident response and detour plans	Update incident response and detour plans to maintain traffic flow on 495 & arterials during incidents and major closures.	Start of construction	PMSS support, as needed.	\$41
VDOT/PMSS	Monitoring Plan / Traffic Engineering Analysis	Review of plans, analysis of traffic flow, monitoring of work zones, monitoring of local roadways, review and analysis of contractor proposals.	Prior to construction	PMSS support, as needed.	\$100

VDOT/PMSS	Lane Closure & MOT Coordination	Provides supplemental Lane Closure & MOT coordination and safety inspections. Prepare weekly closure and facilitate coordination between construction, VDOT operations, and agency stakeholders.	At start of lane closures	PMSS support, as needed.	\$100
VDOT/FCDOT/PMSS	Spot Improvements	Minor improvements. Improved signing and marking, traffic signal modifications and pedestrian safety features.	Start of construction	Estimate is based on up to four projects at approximately \$50K each. Shovel ready spot improvements.	\$200
Subtotal:				\$1,707,000	
Total Budget: \$4,000,000					