

I-495 Southside Transit/TDM Study

Summary Report

April 2023

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Special Thanks to our Project Stakeholder Group



Study Overview and Purpose

Introduction

The purpose of the I-495 Southside Transit/Transportation Demand Management (TDM) Study was to identify a range of current and future multimodal solutions that could be implemented to reduce congestion, improve trip reliability and regional connections, and enhance existing and planned multimodal mobility and connectivity in the study area with a potentially expanded Express Lanes system. The study was conducted by the Virginia Department of Rail and Public Transportation (DRPT) to inform the National Environmental Policy Act (NEPA) evaluation process underway for the I-495 Southside Express Lanes Study by the Virginia Department of Transportation (VDOT). The transit/TDM study was multifaceted and inventoried existing rail transit service, bus transit service, park and ride facilities, and TDM programs in the study area. The study also identified new transportation alternatives that could increase mobility; prioritized near-, mid-, and long-term transit and TDM service improvements; identified ways to maximize use of multimodal facilities; and identified opportunities to utilize technology to support new travel options.

Corridor Needs

-  Provide and Promote Convenient and Flexible Travel Choices for All
-  Reduce Congestion and Improve Trip Reliability
-  Improve Safety
-  Accommodate Future Regional Growth
-  Provide Consistency with Local and Regional Plans

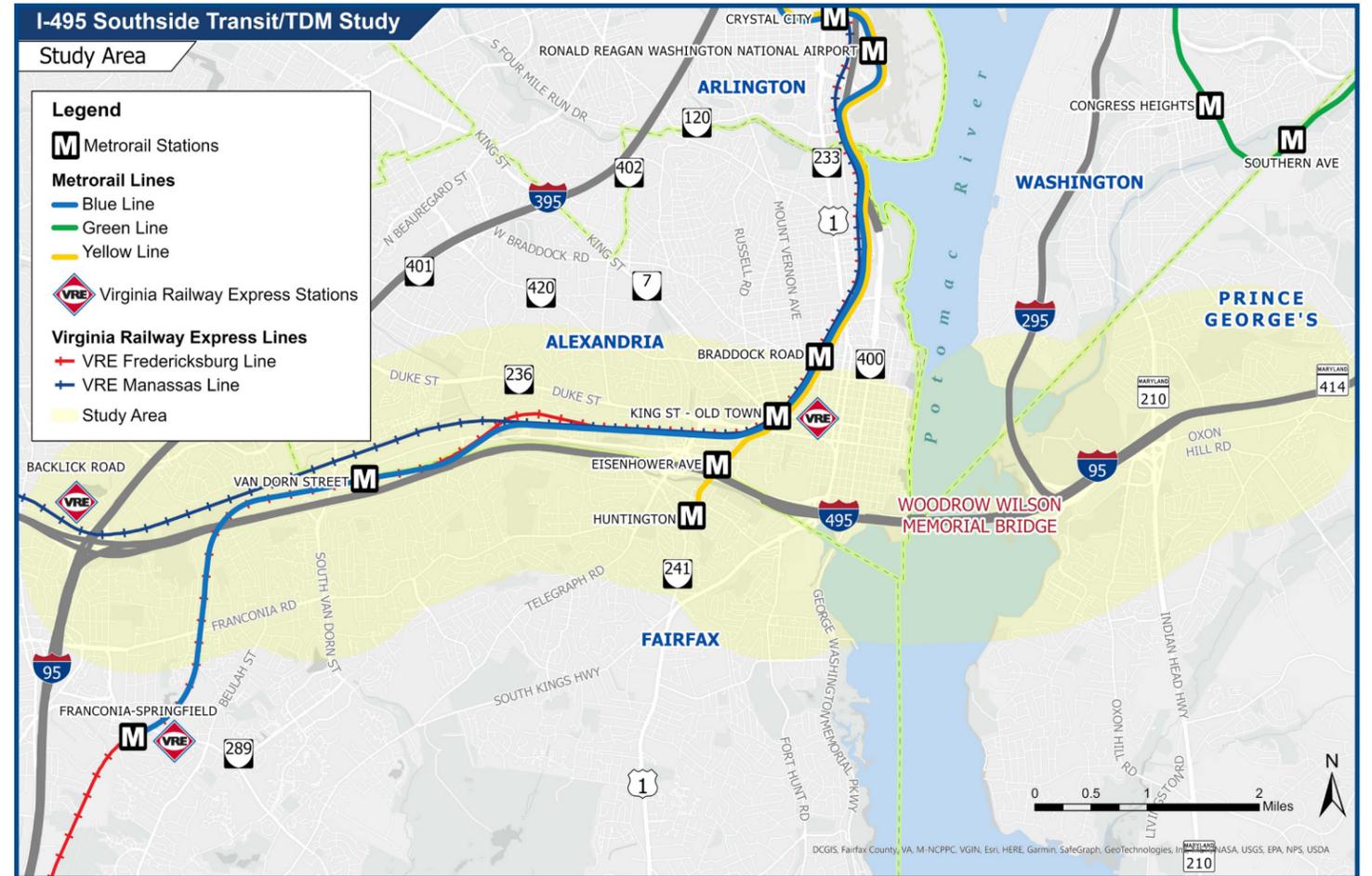
Study Area

The study area focused on I-495 between the Springfield interchange (I-95/I-395/I-495) in Fairfax County, Virginia and the MD 210 interchange in Prince George's County, Maryland. The study area also included the Metrorail and Virginia Railway Express (VRE) lines between Springfield and Alexandria that parallel I-495.

Background

VDOT I-495 Southside Express Lanes Study

VDOT is conducting an environmental study to potentially extend the Express Lanes system on the southern section of I-95/I-495 (Capital Beltway). The study area was identified in the Commonwealth Transportation Board's adopted I-95 Corridor Improvement Plan as an area for additional study. The study is also included in VDOT's current Six-Year Improvement Plan and the National Capital Region's Visualize 2045 Constrained Long Range Transportation Plan. The DRPT I-495 Southside Transit/TDM Study will inform the NEPA process for the VDOT study.



Woodrow Wilson Memorial Bridge

The current Woodrow Wilson Memorial Bridge, which opened in 2006, extends from the City of Alexandria, Virginia along the west bank of the Potomac River to National Harbor along the east bank in Maryland. It is the only Potomac River crossing between the I-395 14th Street bridges to the north and the US 301 Harry W. Nice Memorial Bridge, approximately 35 miles to the south. Today, the bascule bridge consists of four spans with a total of 12 lanes of width, a barriered pedestrian facility along the north edge of the north span, and accommodation for potential future rail transit.

The Federal Highway Administration (FHWA) Record of Decision (ROD) for the Woodrow Wilson Bridge indicated each bridge should include four general use lanes, one high-occupancy vehicle (HOV)/express bus/rail transit lane, and one merging/diverging lane. Additionally, the bridge was constructed to accommodate HOV/express bus/rail transit lanes on the mainline, if determined to be needed in the future. Furthermore, the two approach interchanges, lanes, and medians were designed to not preclude the future conversion to Washington Metropolitan Area Transit Authority (WMATA) rail transit use when deemed appropriate by WMATA.

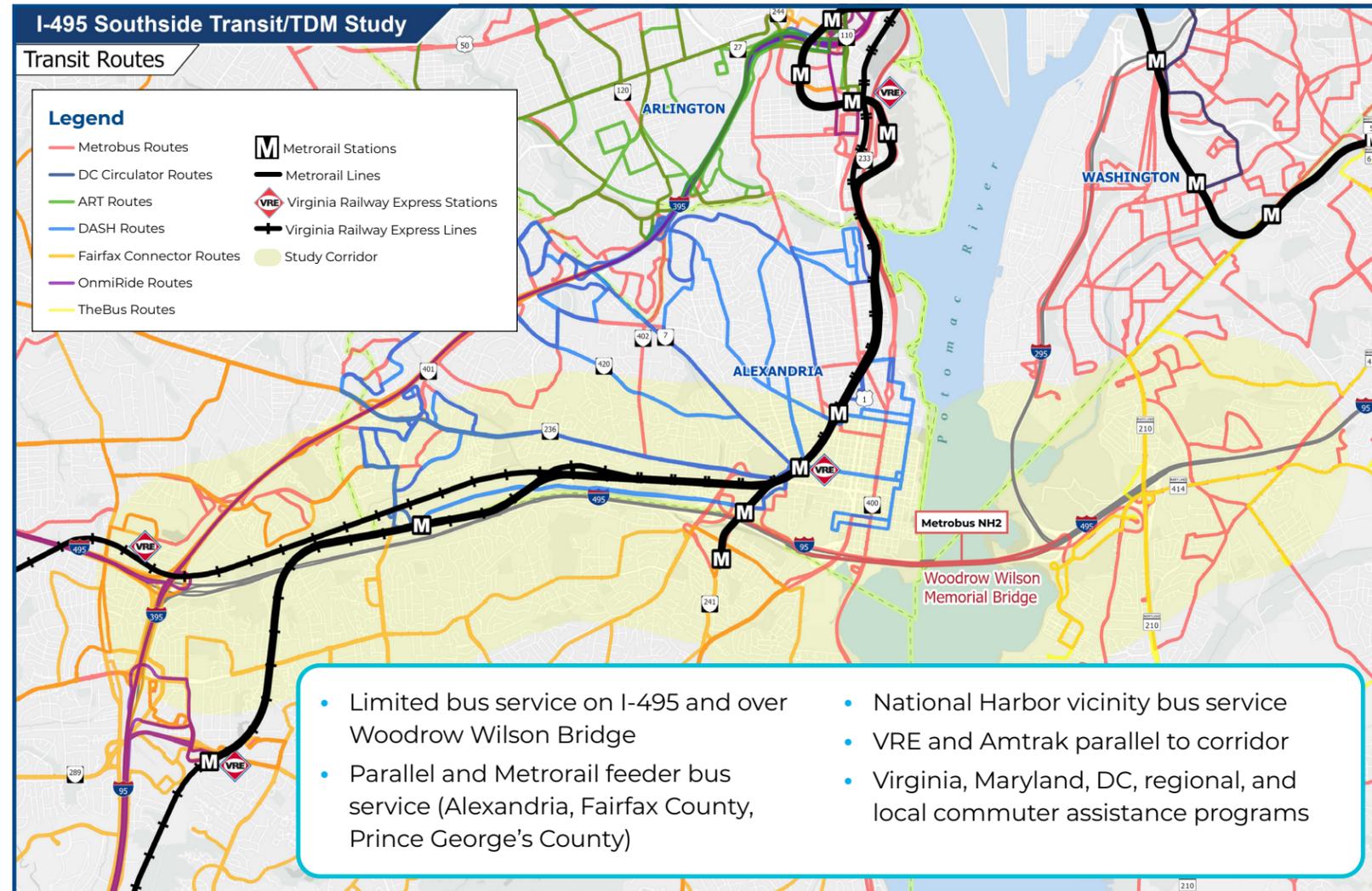
Existing Services

Rail

Existing rail service is oriented for travel towards Washington, DC, from the surrounding counties in Virginia and Maryland. The Metrorail Blue Line and VRE commuter rail/Amtrak service run parallel to a portion of I-495 in Virginia. The Metrorail Yellow Line joins with Blue Line and VRE to parallel the US Route 1 corridor in Alexandria and Arlington. The Metrorail Green Line serves Prince George's County northeast of the study area.

Local and Commuter Bus Service

Within the study area, there are several local bus services operating among jurisdictions in each state. However, there is limited service between Virginia and Maryland across the Bridge—Metrobus NH2 which connects Alexandria and National Harbor is the only service. The current congested conditions on the bridge offer little to no time savings for potential transit service.



Park-and-Ride Lots

There are several park and ride facilities located along the I-95 and I-495 corridors in Virginia that provide parking for Metrorail, commuter rail, and existing bus routes. There are limited park and ride opportunities in areas along I-495 in Maryland. The only Maryland park and ride facility in the study area is in Oxon Hill, but additional facilities exist further outside the study area.

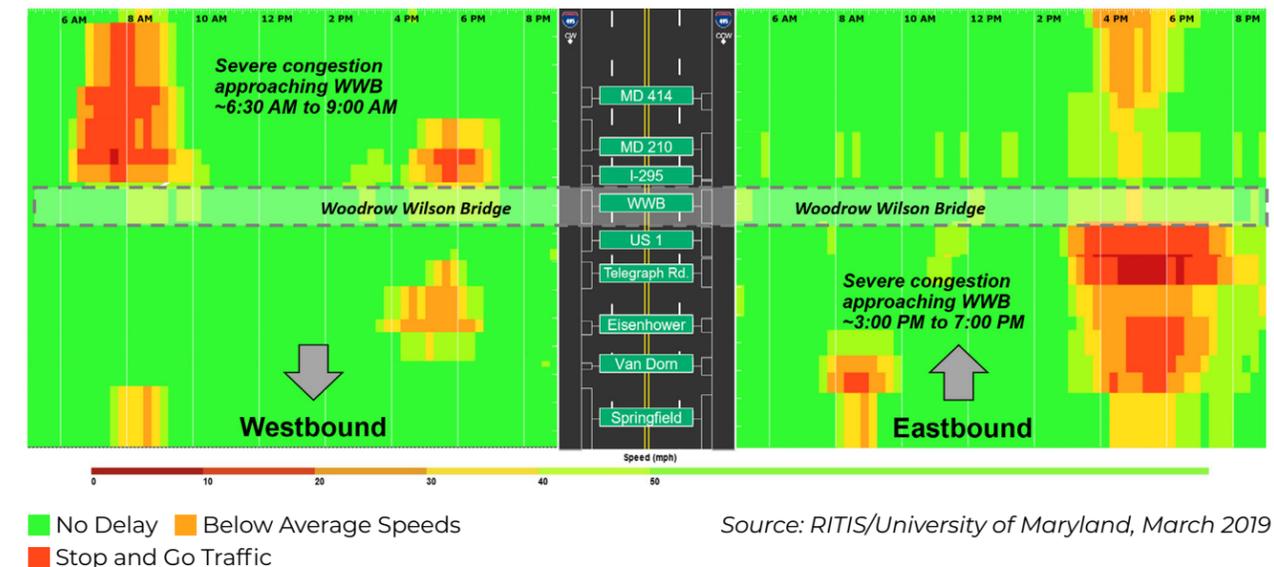
Commuter Assistance Program

There are a variety of programs provided by Commuter Connections, the Metropolitan Washington Council of Governments' (MWCOC) regional network of TDM organizations, that promote alternative travel options and incentives to commuters in the region. Each of the study area jurisdictions also has programs that coordinates with Commuter Connections to provide information about available travel options. However, there is no coordinated effort or programming that specifically targets travel in the I-495 Southside corridor.

Operations and Maintenance Facilities

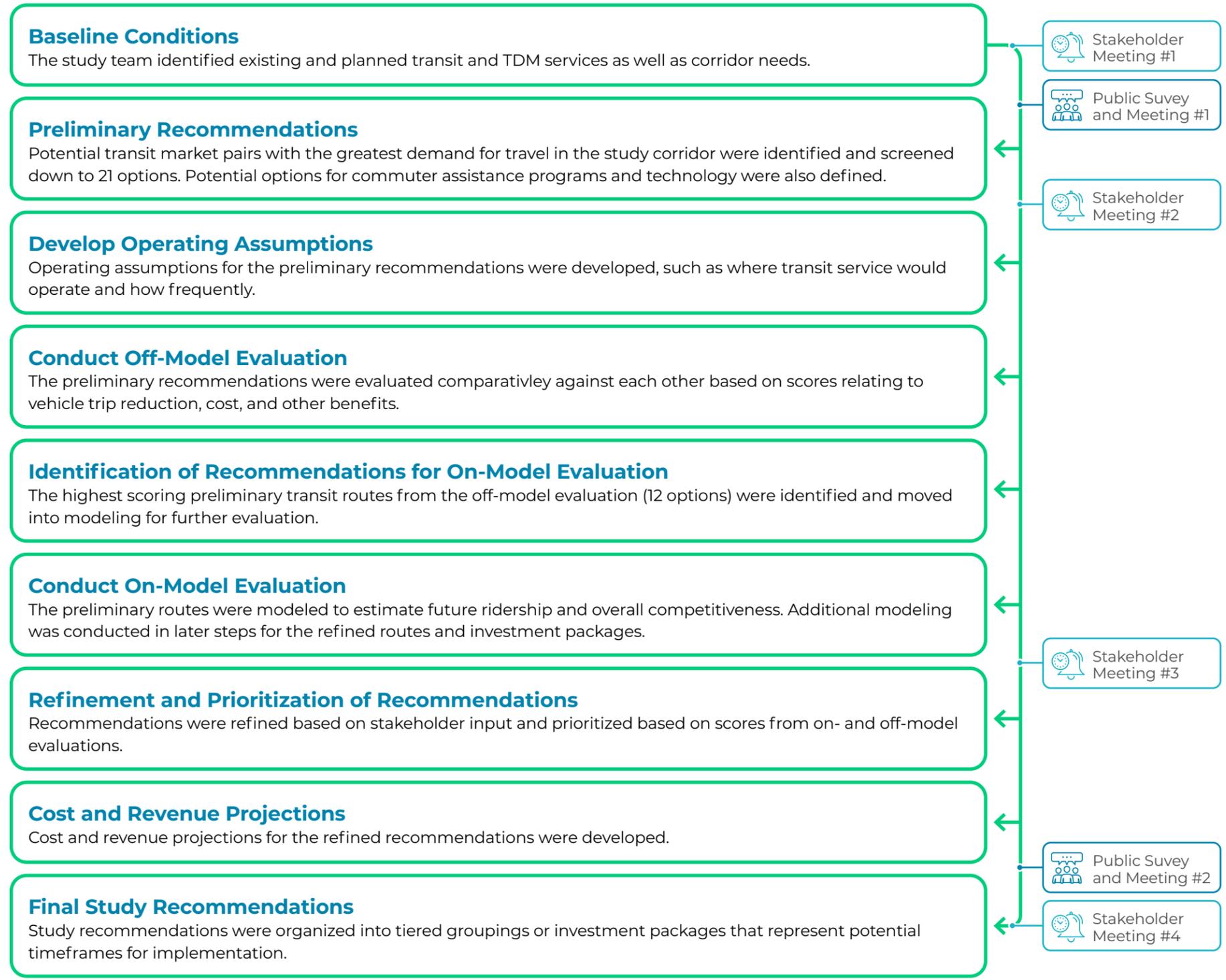
Operators for new potential transit routes have not been identified at this point. Several of the existing providers of transit service in the study area have nearby operations and maintenance facilities such as Metrobus and DASH. Fairfax Connector, OmniRide, TheBus, and Maryland Transit Administration (MTA) have facilities further outside of the study area. Once operators have been identified for new and enhanced transit service, a capacity and needs analysis should be conducted to determine any constraints on their operations.

Typical average travel speeds through the entire study area are as low as 30 mph during the AM and PM peak periods



Recommendations Development

To develop potential recommendations, the process below was followed. It began by identifying options to address corridor needs that meet the purpose of the study. Throughout the process, the study team met with a group of stakeholders and gathered feedback through two rounds of public outreach. Public feedback was gathered through the VDOT I-495 Southside Express Lanes Study. The DRPT transit/TDM study was conducted in close coordination with the VDOT study.



Public and Stakeholder Input Related to Multimodal Travel

Themes

- Strong interest and support for more transportation options
- Importance of fast, reliable travel time
- Importance of connections to multimodal facilities
- Interest in dedicated bus infrastructure and expanded rail service
- Interest in improved bicycle and pedestrian connections
- Coordination with VDOT Study is crucial to project success
- Emphasis on suitable route frequency to make transit services convenient and attractive
- Interest in enhancements to existing services in addition to new services

Sources of Input

- Stakeholder coordination meetings throughout the study
- Pop-up events in Springfield, Alexandria, and Oxon Hill in July and December 2022
- Virtual public meetings in July and December 2022
- Study survey #1 in July 2022
- Study survey #2 in December 2022
- Public comment on VDOT's I-495 Southside Express Lanes Study
- Public comment on Draft Study Report

Potential study recommendations were identified in three categories:



Transit



TDM Commuter Assistance Programs



Technology

Transit Recommendation Refinement

Transit recommendations consist of new or enhanced transit services that could benefit from the reliability of an expanded Express Lanes network in the I-495 Southside corridor. They focus on the origins and destinations with the highest travel demand, and are in addition to other planned improvements such as more frequent commuter rail service, the future Richmond Highway Bus Rapid Transit (BRT) system, and other local bus improvements in the area.

Potential transit connections were identified by evaluating market pairs with the greatest demand for travel in the study corridor to reach regional activity centers. Pairs that could be served by existing or planned transit or that do not have sufficient projected future demand to support future transit connections were screened out.

Potential Transit Modes

- **Express bus** for services that would operate all-day with fewer stops
- **Commuter bus** for services that would operate during peak commuting times with fewer stops
- **Local bus** for services that would operate all-day with more stops

Assumptions

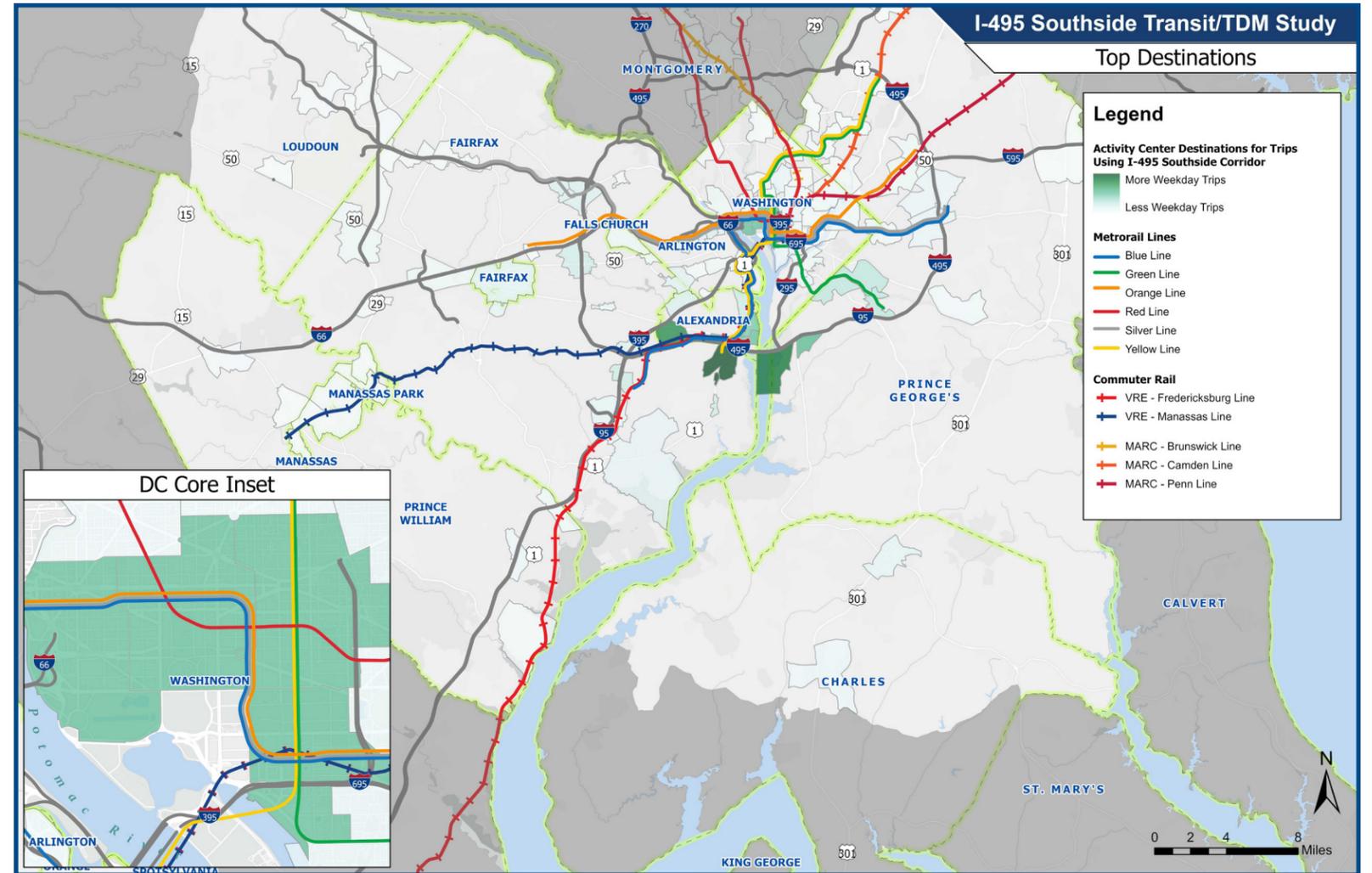
- Funding and potential operators for transit service have not been identified.
- Storage and maintenance facility locations, needs, and associated costs have not been identified.
- Estimates of ridership and person-trips are based on 2045 MWCOG Model runs and represent daily riders (AM and PM peak periods plus off-peak). Forecasts developed using the MWCOG Travel Demand Model are based on future regional cooperative land use forecasts and existing regional travel behaviors.
- Stop locations and routing within a general area were identified to show feasibility and should be refined closer to implementation.

Potential Facility Needs

New transit services will require facility availability and connectivity to operate efficiently and provide the most reliable experience for riders. Potential future facility needs were assessed for:

- **Bicycle and Pedestrian Connectivity:** Park and ride locations that would benefit from improved bicycle and/or pedestrian connectivity were identified considering existing and planned networks and future recommended transit services.
- **Bus Bay Capacity:** Facilities that may experience future capacity constraints for bus layovers were identified considering current bus bay assignments and future recommended transit services.
- **Parking Capacity:** Park and ride locations that may experience future capacity constraints were identified considering historical parking occupancy and future forecasted ridership and facility use.

The identified needs were not considered fatal flaws that would preclude a transit route recommendation from advancing but they will require further planning and stakeholder coordination in the future. New maintenance facilities or expansion of existing facilities may also be needed to advance recommendations and is dependent on operator.



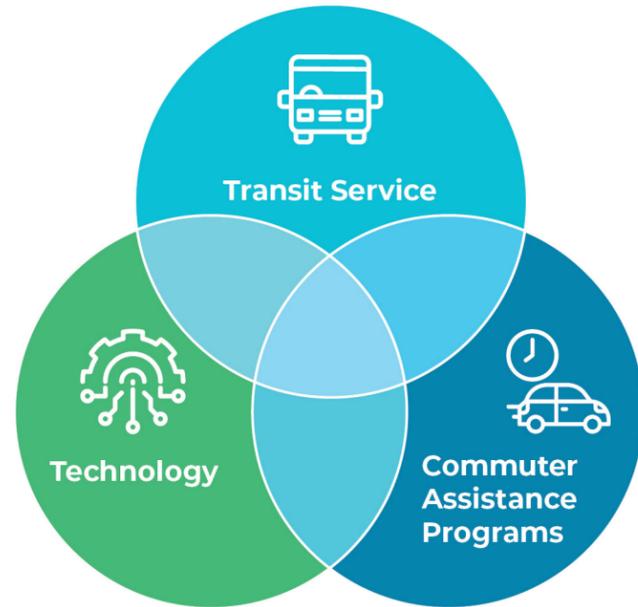
This map shows top activity center destinations for trips using the corridor based on 2022 travel data. Darker shades of green represent a greater number of trips traveling to this location via I-495 Southside. Both existing and forecasted future 2045 travel demand were considered when developing transit recommendations.

Transit service options were evaluated based on:

- Future residential access
- Future job access
- Trip capture potential
- Transit propensity and equity measures
- Operational cost
- Capital cost
- Facility availability at origin and destination
- Express lane use and compatibility with potential access points
- Travel time and time savings
- Daily riders
- Cost per rider
- Riders per bus

Additional Multimodal Strategies

Additional recommendations were identified to encourage people to use alternative modes of transportation. Commuter assistance programs and technology improvements complement the transit service recommendations. These strategies are preliminary in nature and would require close coordination with stakeholders for more detailed planning and analysis before implementation.



Developing Investment Packages

Recommendations were assigned to investment packages that represent potential timeframes for implementation. Given the uncertainty in timing of potential Express Lanes, timeframes were assumed as:

- **Near-Term:** Present through the construction phase of the potential I-495 Southside Express Lanes (prior to 2030)
- **Mid-Term:** In conjunction with the opening of the potential Express Lanes in 2030 to 2045
- **Long-Term:** Following opening of the potential Express Lanes in years beyond 2045

Each package contains a combination of transit, commuter assistance program, and technology recommendations. Packages are presented to be cumulative in their implementation, where the mid-term package is inclusive of all near-term package elements and the long-term investment package is inclusive of all near-term and mid-term package elements. Recommendations in the investment packages could be advanced in earlier or later timeframes than shown depending on funding and implementation readiness.

Quantitative and qualitative evaluation measures, transit market potential, and technology readiness were among the factors used to determine packages.

Commuter Assistance Programs



The following potential commuter assistance programs were included to encourage people to use alternative modes of transportation besides single-occupancy vehicles (SOV), such as transit, carpool, vanpool, and other multimodal options. The following programs would be specific to the I-495 Southside corridor and would supplement other ongoing regional programs.

Commuter assistance program options were evaluated based on:

- Vehicle trip reduction
- Vehicle miles traveled reduction
- Program cost
- Cost per vehicle trip reduced
- Return on investment

Corridor-Specific Mobility Options Marketing Campaign	Regional/area-wide mass marketing and advertising campaigns about travel options in the I-495 Southside corridor
Targeted Residential Outreach	Targeted marketing to residents near the study corridor advertising and promoting new travel options such as transit and vanpool/carpool incentives as they become available
Targeted Employer Outreach	Assistance to employers in and around key activity centers in the study corridor to offer commute information and/or commute support services at low/medium (flextime, preferential parking) or high (financial incentives, company vanpool, parking charges, shuttles to transit stops) levels
Carpool/Vanpool Promotion Programs	Service, typically online, to match potential carpool/vanpool partners for ongoing rideshare
Vanpool Formation and Expansion Program	Outreach and financial incentives to commuters to start/maintain vanpools in the study corridor

Technology



The following potential technology improvements were included to support transit service and carpool/vanpool travel in the I-495 Southside corridor. The following technologies would encourage travelers to use transit and alternative transportation modes, support a modern travel experience, and assist with informed travel decision making.

Technology options were evaluated based on:

- Capital cost
- Annual operating and maintenance cost
- Technology readiness
- Vehicle trip reduction potential

Transit Priority Technology	At high-priority intersections, adjust traffic signals to give more time to approaching buses or provide space for buses to move around backups to improve transit travel time and reliability
Real-Time Travel and Transit Information	Provide travelers with real-time information about bus or train arrival times, congestion, and other travel information in commonly used mobile apps
Real-Time Passenger Load Information	Provide travelers with the expected availability of seats on the bus or train before the trip
Commuter Parking Information System	Provide travelers with expected availability of parking spaces for parking lots serving rail, bus, and vanpool/carpool users
Transit Payment Integration and Incentivization	Provide modern fare payment options for transit and a system to offer incentives to modifying travel choices (for example, special fares, promotions, or rewards)
Zero-Emission Bus Charging Infrastructure	Provide chargers for zero-emission buses at transit stations
Automated, Connected, and Shared Mobility	Provide first/last mile connections to mobility hubs (transit stations, park and ride lots) with shared automated vehicles in the future when the technology matures

Near-Term Investment Package

The following recommendations are part of the near-term investment package and are candidates to be implemented, depending on future funding, during the construction phase of the potential I-495 Southside Express Lanes. It consists of strategies that require lower levels of investment but could yield high benefits and that do not rely on construction of the express lanes for implementation. The two recommended transit services could operate using existing interchanges until the express lanes are constructed. However, travel time competitiveness without dedicated infrastructure will need to be considered. The near-term is the most critical for commuter assistance programs. The technology recommendations would provide and promote traveler information during the construction phase of the potential Express Lanes.



TRANSIT SERVICE RECOMMENDATIONS

Connection	Direction	Peak Frequency (minutes)	Off-Peak Service	Estimated Daily Riders (2030)
A4/8 - Alexandria to Tysons	Both Directions	20	✓	325
A21.0 - Central-West Prince George's County to Tysons (via Eisenhower)	Both Directions	20	✓	1,100

✓ All-day service in both directions during both rush-hour and non-rush hour periods ✓ Some directional service outside of rush hour periods
Route IDs are specific to the study and do not reflect actual route numbers that would be assigned if the recommendation is implemented.

COMMUTER ASSISTANCE PROGRAMS RECOMMENDATIONS

- Corridor-Specific Mobility Options Marketing Campaign
- Targeted Residential Outreach
- Targeted Employer Outreach
- Carpool Promotion Programs
- Vanpool Formation and Expansion Program

TECHNOLOGY RECOMMENDATIONS

- Real-Time Travel and Transit Information
- Commuter Parking Information System

INVESTMENT NEEDS

Total Capital Cost (2022 \$):

\$20.4 million

Capital costs are upfront, one-time costs such as the cost of purchasing buses, running a promotional marketing campaign, or purchasing technology hardware.

Total Annual Operating Cost (2022 \$):

\$8.1 million

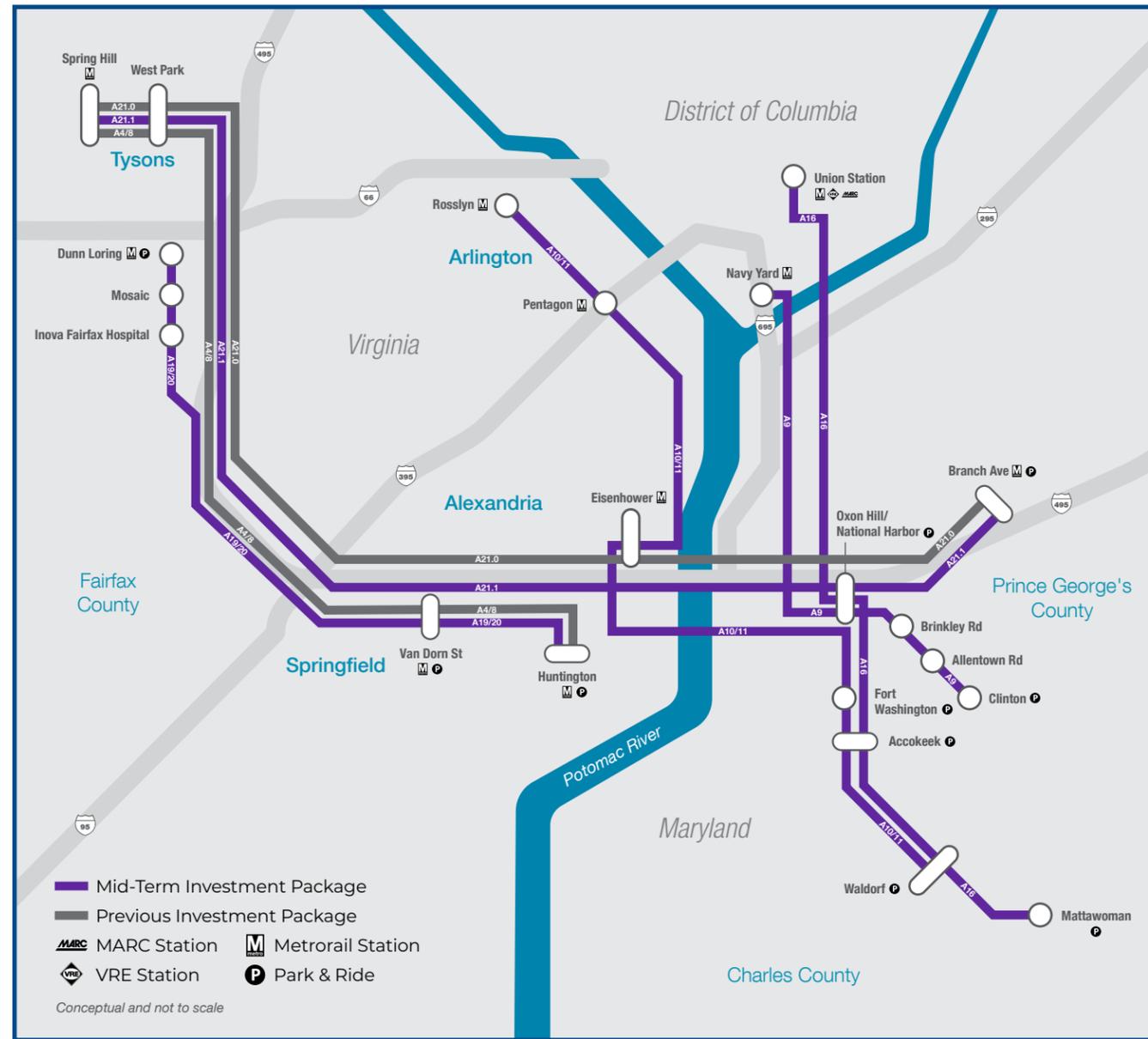
Operating costs are recurring, annual costs such as the cost of running transit service, staffing to support commuter assistance programs, or maintaining technology.

POTENTIAL FACILITY NEEDS:

- Bus bay capacity at Huntington Metrorail Station (South Side) for A4/8 and A19/20 (in mid-term package)
- Future parking capacity at Van Dorn Street Metrorail for A4/8 and A19/20 (in mid-term package)
- New maintenance facilities or expansion of current facilities may be needed to advance recommendations and is dependent on operator

Mid-Term Investment Package

The following recommendations are part of the mid-term investment package and are candidates to be implemented, depending on future funding, in conjunction with the opening of the potential I-495 Southside Express Lanes in 2030 to 2045. It consists of the largest level of investment in transit service and technology out of the three packages. It would provide improved connections to many major regional activity centers. Transit recommendations are accompanied by commuter assistance programs to promote the new services and technology improvements for transit and other travel options.



TRANSIT SERVICE RECOMMENDATIONS

Connection	Direction	Peak Frequency (minutes)	Off-Peak Service	Estimated Daily Riders (2045)
A9 - Southwest Prince George's County to Capitol Riverfront	Peak Direction Only	20	✓	2,400
A10/11 - North Charles and Southwest Prince George's Counties to Rosslyn	Peak Direction Only	20	✓	2,825
A16 - North Charles County to NoMa (DC)	Peak Direction Only	20	✓	1,375
A19/20 - Southeast Fairfax County and Alexandria to Dunn Loring-Merrifield	Both Directions	20	✓	650
A21.1 - Central-West Prince George's County to Tysons (via Oxon Hill)	Both Directions	20	✓	1,850
Metrobus NH1 - Increase Frequency	Both Directions	20	✓	2,950
Metrobus NH2 - Increase Frequency	Both Directions	20	✓	1,050

Near-term transit service recommendations continue to operate in mid-term

- ✓ All-day service in both directions during both rush-hour and non-rush hour periods
 - ✓ Some directional service outside of rush hour periods
- Route IDs are specific to the study and do not reflect actual route numbers that would be assigned if the recommendation is implemented.

COMMUTER ASSISTANCE PROGRAMS RECOMMENDATIONS

- Corridor-Specific Mobility Options Marketing Campaign
- Targeted Residential Outreach
- Targeted Employer Outreach

TECHNOLOGY RECOMMENDATIONS

- Transit Priority Technology
- Real-Time Travel and Transit Information
- Real-Time Passenger Load Information
- Commuter Parking Information System
- Transit Payment Integration and Incentivization
- Zero-Emission Bus Charging Infrastructure

INVESTMENT NEEDS

Total Capital Cost (2022 \$):

\$75.1 million

Capital costs are upfront, one-time costs such as the cost of purchasing buses, running a promotional marketing campaign, or purchasing technology hardware.

Total Annual Operating Cost (2022 \$):

\$15.3 million

\$23.4 million (including Near-Term Investment Package)

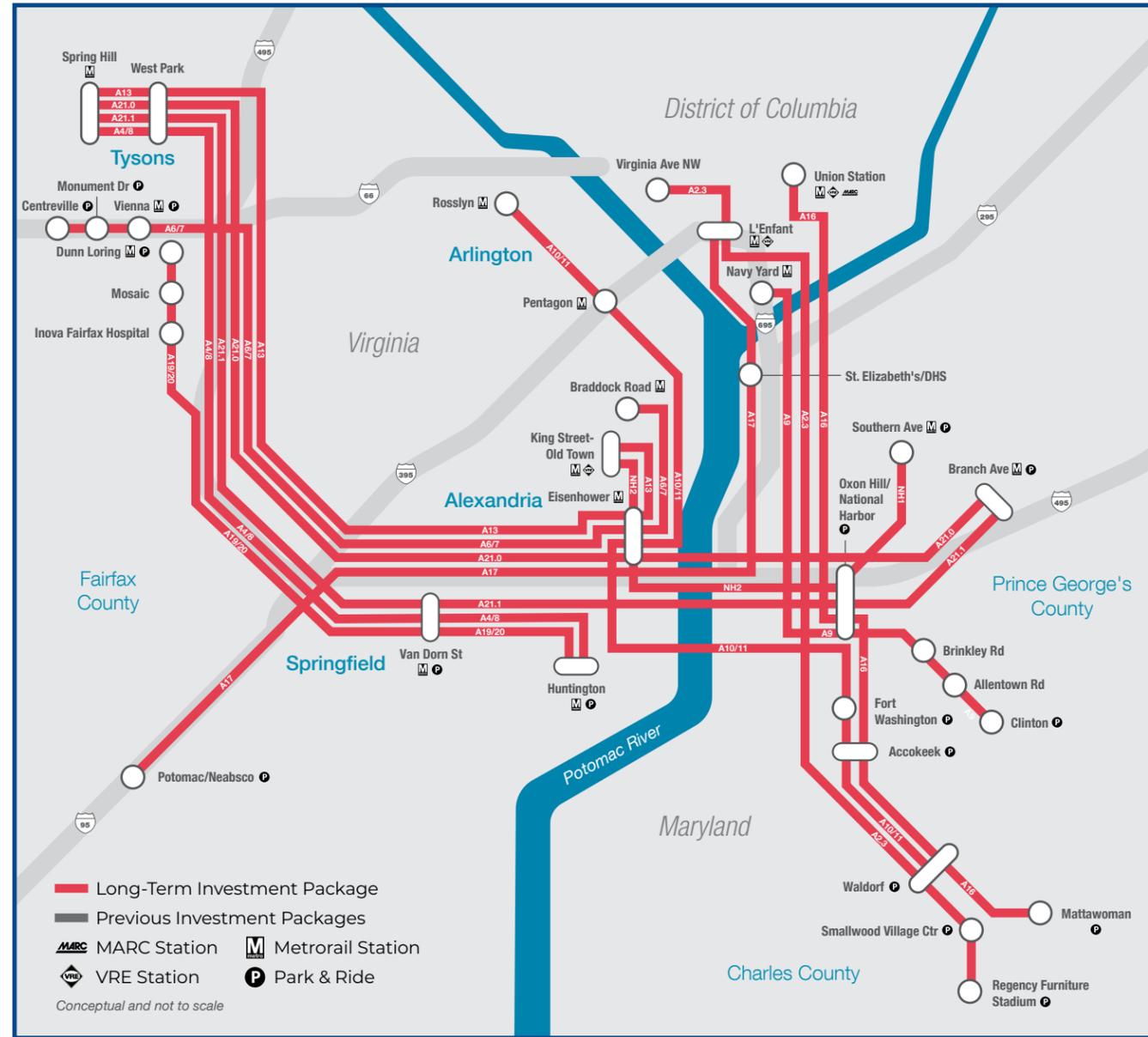
Operating costs are recurring, annual costs such as the cost of running transit service, staffing to support commuter assistance programs, or maintaining technology.

POTENTIAL FACILITY NEEDS:

- On-street bus layover point in Navy Yard for A9
- Bus bay capacity in Rosslyn for A10/11 and at Union Station for A16
- Bicycle/pedestrian access improvements and future parking capacity at Fort Washington Park and Ride and Accokeek Park and Ride for A10/11 and A16
- Bicycle/pedestrian access improvements at U.S. 301 Park and Ride for A10/11 and St. Charles Towne Plaza for A16
- New maintenance facilities or expansion of current facilities may be needed to advance recommendations and is dependent on operator

Long-Term Investment Package

The following recommendations are part of the long-term investment package and are candidates to be implemented, depending on future funding, following opening of the potential I-495 Southside Express Lanes in years beyond 2045. It consists largely of transit and technology improvements that would expand and supplement the areas served by transit in the near-term and mid-term investments. Recommendations for long-term commuter assistance programs are limited due to the need to assess and monitor the strategies that have been working and also adapt methodologies to travel behavior in the future.



TRANSIT SERVICE RECOMMENDATIONS

Connection	Direction	Peak Frequency (minutes)	Off-Peak Service	Estimated Daily Riders (2045)
A2.3 - North Charles County to DC Core	Peak Direction Only	N/A* 40 in Off-Peak	☑	300
A6/7 - Central-West Fairfax County to Carlyle-Eisenhower East and Braddock Road Metro Area	Peak Direction Only	20	☑	675
A13 - Northwest Fairfax County to Carlyle-Eisenhower East	Peak Direction Only	20		300
A17 - East Prince William County to Southwest Waterfront	Peak Direction Only	20		400

* Peak service is currently provided by MTA commuter bus service

Near-term and mid-term transit service recommendations continue to operate in mid-term

- ☑ All-day service in both directions during both rush-hour and non-rush hour periods
 - ☑ Some directional service outside of rush hour periods
- Route IDs are specific to the study and do not reflect actual route numbers that would be assigned if the recommendation is implemented.

COMMUTER ASSISTANCE PROGRAMS RECOMMENDATIONS

- Targeted Employer Outreach

TECHNOLOGY RECOMMENDATIONS

- Real-Time Travel and Transit Information
- Real-Time Passenger Load Information
- Commuter Parking Information System
- Transit Payment Integration and Incentivization
- Zero-Emission Bus Charging Infrastructure
- Automated, Connected, and Shared Mobility

INVESTMENT NEEDS

Total Capital Cost (2022 \$):

\$48.9 million

Capital costs are upfront, one-time costs such as the cost of purchasing buses, running a promotional marketing campaign, or purchasing technology hardware.

Total Annual Operating Cost (2022 \$):

\$6.0 million

\$29.4 million (including Near-Term and Mid-Term Investment Packages)

Operating costs are recurring, annual costs such as the cost of running transit service, staffing to support commuter assistance programs, or maintaining technology.

POTENTIAL FACILITY NEEDS:

- On-street bus layover point near Virginia Avenue NW and 19th Street NW in DC for A2.3
- Bus bay capacity at Braddock Road Metrorail Station for A6/7
- Bus bay capacity at King Street-Old Town Metrorail Station for A13
- Future parking capacity at or near Centreville United Methodist Church Park and Ride for A6/7
- Bicycle/pedestrian access improvements at Potomac/Neabsco Commuter Parking Garage for A17
- New maintenance facilities or expansion of current facilities may be needed to advance recommendations and is dependent on operator

Summary of Benefits and Costs

Transit service is the main component of the investment packages with commuter assistance programs and technology improvements supporting and promoting transit use. The table to the right shows the transit routes included in each investment package, the level of service at which the routes would operate, the estimated daily riders, and the investment needs. Costs are reported in 2022 dollars.

Transit Connections

The transit recommendations will provide regional connectivity with other existing and planned transit services. Connectivity with other transit modes will increase ridership and has the potential to decrease the amount of driving and parking needed to support the recommended new routes.

	Spring Hill ●●●● Vienna ● Rosslyn ● Pentagon ● Braddock Road ●	King Street-Old Town ● Eisenhower Avenue ●●●● Huntington ●● Van Dorn Street ●●	Navy Yard-Ballpark ●● L'Enfant Plaza ● Union Station ● Branch Avenue ●●
	Alexandria ● L'Enfant Plaza ●	Union Station ●	Notes: <i>Italicized stops are served by planned transit connections, not existing</i> ● Denotes stops on routes included in near-term package ● Denotes stops on routes included in mid-term package ● Denotes stops on routes included in long-term package
Local Bus	All Stops ●●●●		
Bus Rapid Transit	Spring Hill ●●●● Braddock Road ● King Street-Old Town ●	Van Dorn Street ●● Huntington ●●	

Serving Equity Emphasis Areas

Transit should also provide service to those who need it most, such as low-income populations who often rely on transit as their primary mode of transportation. Equity Emphasis Areas are small geographic areas identified by MWCOG that have significant concentrations of low-income populations, minority populations, or both. The map on the following page shows the MWCOG Equity Emphasis Areas and highlights the areas that are within 1/2 mile of the recommended transit routes in each investment package. The mid-term package is inclusive of the Equity Emphasis Areas in the near-term package, and the long-term package is inclusive of the Equity Emphasis Areas in both the mid-term and near-term packages.

CONNECTION	POTENTIAL TRANSIT MODE	DIRECTION	NEAR-TERM PACKAGE			MID-TERM PACKAGE			LONG-TERM PACKAGE		
			FREQUENCY (MINUTES)		ESTIMATED DAILY RIDERS (2030)	FREQUENCY (MINUTES)		ESTIMATED DAILY RIDERS (2045)	FREQUENCY (MINUTES)		ESTIMATED DAILY RIDERS (2045)
			PEAK	OFF-PEAK		PEAK	OFF-PEAK		PEAK	OFF-PEAK	
A2.3 - North Charles County to DC Core	Express Bus	Peak Direction Only							40	300	
A4/8 - Alexandria to Tysons	Express Bus	Both Directions	20	40	325	20	40	750	20	40	725
A6/7 - Central-West Fairfax County to Carlyle-Eisenhower East and Braddock Road Metro Area	Commuter Bus	Peak Direction Only							20	40	675
A9 - Southwest Prince George's County to Capitol Riverfront	Commuter Bus	Peak Direction Only				20	40	2,400	20	40	2,400
A10/11 - North Charles and Southwest Prince George's Counties to Rosslyn	Commuter Bus	Peak Direction Only				20	40	2,825	20	40	2,825
A13 - Northwest Fairfax County to Carlyle-Eisenhower East	Commuter Bus	Peak Direction Only							20		300
A16 - North Charles County to NoMa (DC)	Commuter Bus	Peak Direction Only				20		1,375	20		1,375
A17 - East Prince William County to Southwest Waterfront	Commuter Bus	Peak Direction Only							20		400
A19/20 - Southeast Fairfax County and Alexandria to Dunn Loring-Merrifield	Express Bus	Both Directions				20	40	650	20	40	650
A21.0 - Central-West Prince George's County to Tysons (via Eisenhower)	Express Bus	Both Directions	20	40	1,100	20	40	1,300	20	40	1,200
A21.1 - Central-West Prince George's County to Tysons (via Oxon Hill)	Express Bus	Both Directions				20	40	1,850	20	40	1,825
Metrobus NH1 – Increased Frequency	Local Bus	Both Directions	30*	30*	1,850	20	30	2,950	20	30	2,950
Metrobus NH2 – Increased Frequency	Local Bus	Both Directions	30*	38*	825	20	30	1,050	20	30	1,025
Total Estimated Daily Riders					4,100			15,150			16,650
Total One-Time Capital Cost (Transit Only)						\$54.0 million			\$34.0 million		
Total One-Time Capital Cost (Transit, Commuter Assistance Programs, and Technology)						\$20.4 million			\$75.1 million		
Cumulative** Annual Operating Cost (Transit Only)						\$21.3 million			\$25.9 million		
Cumulative** Annual Operating Cost (Transit, Commuter Assistance Programs, and Technology)						\$7.7 million			\$23.4 million		

**no change from existing service **inclusive of previous packages*

POTENTIAL TRANSIT MODES:

- Express bus** for services that would operate all day with fewer stops
- Commuter bus** for services that would operate during peak commuting times with fewer stops
- Local bus** for services that would operate all day with more stops

Advancing the Study

This study identified a series of potential investment packages to help meet the identified needs of providing new mobility choices to enhance travel along the I-495 Southside corridor. Each investment package includes a combination of recommended transit services, commuter assistance programs, and technology improvements.

Prior to the implementation of the study recommendations, additional planning will be needed to refine specific transit operating assumptions, corresponding facility needs, and coordination between stakeholders. In addition, the levels of investment and timing of the packages should be further refined when more detailed information on funding availability and schedules for potential implementation of the express lanes become available. Recommendations in the investment packages could be advanced in earlier or later timeframes than shown depending on funding and implementation readiness.

Potential next steps include:

- Identify potential funding sources and secure funding
- Determine potential transit operator(s) and associated maintenance facility considerations
- Conduct more detailed analysis of specific transit operating assumptions such as frequencies, stops, and run times
- Identify available bus bay capacity at Metrorail stations and other transit stops and facilities closer to the time of implementation based on the anticipated service levels at those locations
- Coordinate with transit providers and property owners at park and ride locations to confirm the availability of parking for future bus service passengers
- Conduct public outreach to gather input during the refinement of recommended transit services before implementation
- Work with local stakeholders and transit providers to facilitate first-last mile connections and determine local service modifications
- Monitor technology maturity and the development of Virginia's Regional Multi-Modal Mobility Program (RM3P) for opportunities to deploy new technologies
- Coordinate between states, localities, transit operators and regional organizations on implementation of commuter assistance programs and technology improvements

