Technical Report

CAPITAL REGION RAIL VISION TECHNICAL REPORT

From Baltimore to Richmond, Creating a More Unified, Competitive, Modern Rail Network

MARCH 2021

GREATER WASHINGTON PARTNERSHIP
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INTRODUCTION

The Capital Region's economic and global competitiveness hinges on the ability for residents of all incomes to have easy and reliable access to superb public transportation —a key factor in attracting and retaining talent pre- and post-pandemic, as well as in employers' location decisions. The regional rail network is a key component of the public transportation system but represents an untapped resource. In December 2020, the Greater Washington Partnership launched the **Capital Region Rail Vision** ("Vision") alongside key regional leaders, establishing a shared path to transform the regional rail network into a globally competitive asset that enables a more inclusive and equitable region where all can be proud to live, work, grow a family, and build a business.

The Vision would better meet the untapped demand for better mobility and access to key destinations, create a more coordinated and integrated rail network that seamlessly spans borders, increase ridership, improve physical and economic connectivity, stimulate broader regional growth, and increase operators' resiliency to changing transportation patterns. This Vision would transform the Capital Region's commuter rail network, focused today on limited peak-hour service that stops at jurisdictional lines, into a true regional rail system, a network with high-frequency all-day service that spans the region. To that end, the Vision establishes three goals and calls for four key elements:

GOALS

Enhance Regional Economic Competitiveness and Collaboration

Ensure Inclusive Growth

Expand Access to Moderate and Affordable Housing

KEY ELEMENTS

1 Bidirectional run-through service

One-seat rides in both directions between Maryland, the District, Virginia, and West Virginia

- Bidirectional, run-through service on all MARC & VRE lines serving the region's core

2 Expanded service

Enhanced service from Martinsburg West Virginia, Perryville and Baltimore Maryland through the District to Broad Run and Spotsylvania, Virginia

- All day service on all MARC & VRE lines
- 15-minute peak period weekday service
- 1-hour midday service
- 1-hour or less weekend service for all core stations

3 Seamless rider experience

Harmonized brand identity and fare policy to create an easy-to-use regional network

- Integrated mobility for fares and ticketing
- Harmonized rail brand for MARC & VRE run-through services

4 Superior operational coordination

One operationally integrated network for Maryland, the District, and Virginia

- Seamless Capital Region rail operation

Delivering the Vision requires that we collectively raise our expectations and our capacity for collaboration as a region. We know that by working together, the Capital Region has the talent, commitment, and ability to execute this Vision over the next 25 years. Recognizing that the COVID-19 pandemic has severely diminished transit ridership, especially demand for commuter and intercity rail, this Vision can provide a pathway to rebuild a stronger region in the years to come. Regional rail that is more frequent and can serve more, and different, markets will capture more of the returning and essential workers and get them to their destinations faster and more reliably.

Full implementation of the Vision is expected to occur over four priority planning phases—Phase 1: Launch, Phase 2: Expand, Phase 3: Realize, and Phase 4: Transform—spanning a 25-year timeline. The Vision's plan deploys incremental stepping stones that build off each previous step to deliver improved line-by-line and system-wide service offerings over the next quarter century. Key to the Vision's success is the region's ability to overcome critical barriers to progress in order to realize the Vision's full benefits.

This Technical Report establishes a more detailed roadmap of the key components that underpin the Vision's outcomes and benefits, describes key barriers to realization and strategies to address them, articulates the stepping stones toward major service enhancements, and charts a 5-year Action Plan to deliver near term wins that will enable long term success.

The Greater Washington Partnership is invested in the success of the Vision alongside our partners, and we will work throughout the region to support plans and policies that meaningfully advance this effort. In doing so, the Capital Region will benefit from a more competitive and integrated regional rail system that achieves the Vision's goals.

This Technical Report is accompanied by:

- **The Capital Region Rail Vision**, a regional strategy to remove key physical and operating barriers to provide residents a more coordinated, integrated, and competitive regional rail service network.
- **A Rail Vision Economic Impact Brief** that finds the Vision's capital investments could lead to over $40 billion ($2020) in gross economic output for the region, supporting upwards of 200,000 jobs in worker-years over 25 years, and, once complete, could support over 5,000 ongoing jobs and lead to an increase of over $1.3 billion in annual gross economic output.
- **An Equity Analysis Experience** that presents existing locations of jobs, housing, and residential populations, disaggregated by housing affordability, race, income, and access to transportation options.
- **A Rider Experience and Redeveloped Station Experience** that brings to life the Rail Vision's potential at a personal level with illuminating imagery and real-life story maps.

01

RAIL VISION PLANNING FRAMEWORK

The Rail Vision was developed using a set of detailed planning components that underpin its outcomes and projected benefits. These components inform how the Vision's high-level goals could be achieved realistically and incrementally over time, and what the Vision's changes would mean for regional rail operators and riders. This section presents the Vision's five key components that underpin the development of Vision, including expected outcomes and benefits.

- KEY COMPONENT #1 - **Planning Phases**
- KEY COMPONENT #2 - **Service Schedule**
- KEY COMPONENT #3 - **Capital Investment**
- KEY COMPONENT #4 - **Operating Expenditures**
- KEY COMPONENT #5 - **Ridership and Farebox Recovery**

KEY COMPONENT #1: PLANNING PHASES

Each Vision planning phase assumes a certain level of service and shows the infrastructure investments required to incrementally build out service over time.

A key principle of the Capital Rail Vision is continuous progress. The region cannot achieve a fully integrated, transformative regional rail system all at once. To facilitate this incremental approach, the Vision plans four phases for the next 25 years:

PHASE 1: **Launch**

PHASE 2: **Expand**

PHASE 3: **Realize**

PHASE 4: **Transform**

PHASE 1: LAUNCH

The region finds itself in the planning phase today. In this phase, the region's focus is predominantly on the design and planning of critical infrastructure projects. The Launch Phase is expected to continue until the major Northern Virginia projects included in the Transforming Rail in Virginia (TRV)[1] program are completed in the latter half of the 2020s.

STATUS OF KEY INFRASTRUCTURE BY END OF PHASE[2]	
Crystal City, Alexandria Station Improvements	COMPLETE
AF2RO Fourth Track Project[3]	COMPLETE
Long Bridge	IN CONSTRUCTION
L'Enfant Station and DC Fourth Track	IN CONSTRUCTION
Penn Line Signal and Interlocking	IN CONSTRUCTION
B&P Tunnel	IN CONSTRUCTION
Washington Union Station Expansion	IN DESIGN
Added Storage & Service Facilities	IN DESIGN
First Street Tunnel	IN PLANNING
Brunswick & Camden Line Third Tracks	IN PLANNING

Service Opportunities

There are three principal opportunities for service growth during this phase. First, Virginia's ongoing TRV program envisions some increases in daily VRE and Amtrak frequencies during this period. A total of 25 daily VRE and 17 daily Amtrak roundtrip trains (versus 16 and 11 currently) would serve Virginia and the District by 2030.

Existing infrastructure could also permit the introduction of more weekend service. Today, only the MARC Penn Line provides weekend service. While weekend service would require coordination with CSX and NS, it may be less impactful to freight rail operations than increased weekday operations. Weekend service should be concentrated in two markets: (1) areas where large numbers of service workers reside, who would benefit from weekend service that matches their work schedule, and (2) the Brunswick Line, where weekend service would serve recreational demand along the C&O Canal, the Appalachian Trail, Western Maryland, and West Virginia.

A challenging, but potentially transformative, opportunity would be the piloting of daily run-through service, as will be discussed further in the *Stepping Stones* section.

Where We Can Start

The most critical first step for MARC and VRE, in coordination with others like the District Department of Transportation (DDOT), the Virginia Department of Rail and Public Transportation (DRPT), and the Virginia Passenger Rail Authority (VPRA) is to develop a Memorandum of Understanding (MOU) to establish a convening for the agencies to substantively advance coordinated planning on issues such as run-through regional rail service for MARC and VRE, capital investments and broader joint procurement strategies. Two additional planning considerations will set the direction of the Vision and will need to be evaluated in this phase. First, the First Street Tunnel owned by Amtrak remains a potential bottleneck for long-term service improvements. Second, a construction-period service plan for the 2025-2045 period must be developed, when major elements of the regional network are expected to be affected by improvement projects, including the B&P Tunnel project, Washington Union Station (WUS) Expansion Project, and Long Bridge. See the *Five-Year Action Plan* for more information.

PHASE 2: EXPAND

In this phase, the major Northern Virginia projects will be completed, opening up a four-track corridor south of WUS.

STATUS OF KEY INFRASTRUCTURE BY END OF PHASE	
Crystal City, Alexandria Station Improvements	COMPLETE
AF2RO Fourth Track Project[4]	COMPLETE
Long Bridge	COMPLETE
L'Enfant Station and DC Fourth Track	COMPLETE
Penn Line Signal and Interlocking	COMPLETE
B&P Tunnel	COMPLETE
Washington Union Station Expansion	IN CONSTRUCTION
Added Storage & Service Facilities	IN CONSTRUCTION
First Street Tunnel	IN DESIGN
Brunswick & Camden Line Third Tracks	IN PLANNING

Service Opportunities

With the completion of a four-track corridor from Union Station to Alexandria, service south of Union Station could expand substantially. As further detailed in the *Stepping Stones* section, MARC run-through service to Northern Virginia could move beyond a pilot in this phase with MARC equipment running south.

Simultaneously, traditional VRE service could expand to provide more all-day, seven-days a week service.

Securing increased service will require coordination with VPRA/DRPT and other rail partners. When combined with continued increases in Amtrak service under the TRV program, passengers would be able to access more competitive service that begins to fill in the gaps in midday, night, and weekend periods, providing near hourly connections between the District and Richmond. Depending on strategies to manage rail congestion at WUS, some increased MARC run-through service may terminate at L'Enfant, already VRE's top destination.

Where We Can Start

The east side, or lower level, of the WUS terminal, which primarily serves trains that run through the station to the Northeast and Southeast corridors, is constrained today due to the existing track layout. The Subbasement Structural Replacement Project will be under construction in this phase and would address some of the east side track constraints at WUS. However, this project may constrain increased service through the station in the short-term. Additionally, without strategic coordination between the region's rail agencies, run-through service of MARC and VRE trains could be severely delayed until 2040 or later when the WUS modernization and expansion project is complete. To overcome track constraints at WUS, VRE, MARC, DDOT, and Amtrak should work with the Federal Railroad Administration to develop an operating plan that allows these movements across tracks to occur while construction commences on the station projects. As part of this plan, MARC and VRE should evaluate whether run-through could reduce equipment storage pressures at WUS and elsewhere in the MARC and VRE systems, and better manage construction period operations by moving trains through the station terminal, versus having to back track into yards or storage facilities.

A key element of this plan will be the completion of the VRE Midday Storage Yard near WUS. Moving out of the existing yards into the storage facility will aid in more effective run-through service and better construction outcomes at WUS.

MARC and VRE should work toward a shared understanding of their fleet plans to facilitate a more flexible, regionwide approach. See the section on *Shared Planning, Project Development and Procurement Strategies* for more.

Virginia needs to take further steps to guarantee additional service levels above the TRV program during this phase of the Vision. While the capital investments included in the TRV planning are substantial, once Long Bridge is complete, Virginia should make sure that it is filled to capacity with new service for residents as close to Day One as possible. Maryland should work to realize the 8 daily MARC run-through trips identified in the planning for the Long Bridge project as close to 2030, too.

PHASE 3: REALIZE

In this phase, major regional megaprojects and long-term service programs would come online, including planned but not currently programmed elements of the TRV initiative. This phase represents the limit of the region's current plans. As shown in the sections that follow, it also represents the costliest period of capital expenditures in the Vision timeline as the revamping of major infrastructure would bring substantial, and largely unfunded, costs.

STATUS OF KEY INFRASTRUCTURE BY END OF PHASE	
Crystal City, Alexandria Station Improvements	COMPLETE
AF2RO Fourth Track Project[5]	COMPLETE
Long Bridge	COMPLETE
L'Enfant Station and DC Fourth Track	COMPLETE
Penn Line Signal and Interlocking	COMPLETE
B&P Tunnel	COMPLETE
Washington Union Station Expansion	COMPLETE
Added Storage & Service Facilities	COMPLETE
First Street Tunnel	IN CONSTRUCTION
Brunswick & Camden Line Third Tracks	IN DESIGN

Service Opportunities

In this phase, the service plans envisioned by state rail plans, WUS Expansion, DC2RVA, Long Bridge, and B&P could be realized. That includes near all-day bidirectional service on all lines, and increased weekend service. Achieving these service levels will require further coordination among operators. While these improvements would bring the region close to a true, world-class regional rail network, filling in the gaps detailed in the final **Transform** section will be critical.

Where We Can Start

This phase of the Vision can only be realized if the linchpin megaprojects that are currently physical barriers to progress are delivered. WUS expansion is one megaproject that requires multiple steps before it becomes a reality. Regional leaders, beyond just operators and owners, need to advocate for the advancement of this and other projects, as well as the development of funding streams to support them. These projects must be advanced in ways that maximize their transportation value and ability to increase service levels. As discussed in the *Funding and Financing* section, existing and new regional and federal funding sources will be critical to making these projects a reality.

The Brunswick Line and Camden Line third tracks, which are essential for greater service on those lines, will have not been substantively advanced at this point. Design and construction will need to be in motion by the end of this phase for the needed transformations to occur. Planning should commence on those projects now to ready them for further funding and development.

PHASE 4: TRANSFORM

This phase covers activities and projects that are not yet included in ongoing regional planning but are critical to the Vision's full implementation. As shown below, the focus of this phase is less infrastructure-heavy than the previous planning phases, and more focused on service expansion and regional integration to meet the infrastructure investment levels. Yet, key projects will come online during the Transform phase to enable seamless integration of the region's rail network, including:

- **Brunswick, Camden Run-Through Solutions**. Additional capacity at WUS, including the utilization of level boarding (high-level platforms) and sufficient track infrastructure, will permit full Brunswick and Camden run-through to Northern Virginia, and vice versa.
- **First Street Tunnel Improvements**. Ventilation, signal capacity, and other improvements to this critical link are needed to meet long-term service needs.
- **Short-Turn Storage Yard in Virginia.** A storage yard in Alexandria is needed to facilitate a higher-level of turn-back service and run-through services in the region's core.

Service Opportunities

The service opportunities associated with this plan are described in the *Schedule* section below. In all, the Vision's planned schedule would permit a fundamental transformation of regional rail into an all-day, bidirectional, cross-region service that best achieves the Rail Vision's goals to: (1) expand regional economic competitiveness and coordination; (2) ensure inclusive growth; and (3) expand access to moderate and affordable housing.

Where We Can Start

Realization of this phase of the Vision depends on a commitment to ramping up service levels far beyond current levels. Doing so requires planning to incrementally build operating funds to support those levels, in addition to increases to capital investments. The introduction of potentially less-profitable services, like off-peak or weekend service, is likely to require relaxation of Virginia's farebox recovery policies, as discussed further in the *Funding and Financing* section. A truly coordinated and competitive Capital Region rail system depends on balanced and sustained all-day ridership. Such ridership depends on balanced, transit-oriented land use across the region. The *Land Use and TOD* section describes how local jurisdictions and rail operators can make this a reality.

KEY COMPONENT #2: SERVICE SCHEDULE

A fundamental piece of the Capital Region Rail Vision that transforms traditional commuter rail into regional rail is the service schedule. Commuter rail has lost proportionally more riders than any other transit service during the pandemic. The reason is clear: the current 9-to-5 service pattern primarily meets the needs of a traditional office worker, most of whom can work from home. Even as some commuters begin to return to the office once herd immunity is reached, the question of how to broaden the base of commuter rail riders remains relevant, especially given potential long-term shifts towards remote work.[6] The Vision's schedule approach plans for all-day service patterns meant to meet the needs of a larger and more diverse ridership that is more representative of the Capital Region's residents and families.

As part of the schedule planning, two service areas were developed, including:

1. **The Core:** This territory represents the market poised to receive higher levels of service from the Vision due to density of land use and higher baseline demand.

   - **Penn Line**: Baltimore Penn Station-WUS
   - **Camden Line**: Baltimore Camden Station–WUS
   - **Brunswick Line**: Frederick—WUS
   - **Manassas/Fredericksburg Line:** Alexandria-WUS

2. **Outside the Core:** This territory represents the existing service area not included in the core service area: Martinsburg to Point of Rocks; Perryville to Baltimore; Spotsylvania to Alexandria; and Broad Run to Alexandria. In the future, this service territory may include Newark, DE and Western Maryland.

TABLE 1: VISION'S 2045 SERVICE SCHEDULE					
SERVICE AREA	SERVICE SPAN	PEAK FREQUENCY, PEAK DIRECTION	PEAK FREQUENCY, OFF-PEAK DIRECTION	ALL-DAY FREQUENCY	RUN-THROUGH FREQUENCY (PEAK)
The Core	5 AM—Midnight	15 mins	15 mins	30-60 mins	15-60 mins
Brunswick (Frederick—WUS)	5 AM - 11:40 PM	15 mins	15 mins	30 mins	60 mins
Camden (entirely within Core)	5 AM - Midnight	15 mins	15 mins	60 mins	60 mins
Penn (Baltimore—WUS)	5 AM - Midnight	15 mins	15 mins	30 mins	30 mins
Fredericksburg (Alexandria—WUS)	6 AM - Midnight	15 mins	15 mins	15 mins	15 mins
Manassas (Alexandria—WUS)	6 AM - Midnight	15 mins	15 mins	15 mins	15 mins
Outside the Core	5 AM—10 PM	30 mins	60 mins	60 mins	30-60 mins
Brunswick (Martinsburg—Point of Rocks)	6 AM—10 PM	30 mins	30 mins	60 mins	Core only
Penn (Perryville—Baltimore)	4:30 AM - 10:30 PM	20-30 mins	20-30 mins	60 mins	60 mins
Fredericksburg (Spotsylvania—Alexandria)	5 AM - 10:30 PM	30 mins	60 mins	60 mins	30 mins
Manassas (Broad Run—Alexandria)	5 AM - 10:30 PM	30 mins	60 mins	60 mins	30 mins

A service pattern like the Vision's allows regional rail to be a viable transportation option for more people. With only current peak-oriented service patterns, the region's commuter rail cannot reasonably compete with car transportation for a majority of trips, particularly for suburban and exurban commuters or off-peak travelers, which lowers ridership demand overall and economic demand near rail stations. The Vision service pattern, in contrast, would provide a competitive level of service for diverse users who cannot or would not use today's rail network.

The Vision's service schedule fundamentally transforms commuter rail into regional rail.

KEY COMPONENT #3: CAPITAL INVESTMENT

While the Vision's capital investment level may seem large at first pass, the plan represents a highly capital efficient use of public dollars, most of which is already included in existing transportation plans for the region.

To realize the Vision, the Capital Region will need to implement a series of capital projects. Some of these projects have been the subject of intense planning and are already funded. Others are much further from completion. The Vision's accompanying ***Economic Impact Brief*** documents the economic benefits of making these capital investments, including estimates that the Vision will lead to over $40 billion ($2020) in gross economic output for the region that can support upwards of 200,000 jobs in worker-years.

The following tables present the Vision's planned fleet and physical infrastructure investments. In all, the capital investments needed total nearly $23 billion, with additional state of good repair investments expected over time. As shown in the Realize and Transform phases, fully implementing an integrated regional rail system includes a very heavy infrastructure investment period, followed by a period of more modest capital investment where, as shown in *Key Component #4: Operating Expenses*, operating costs are expected to increase with improved service levels.

A key piece of the required capital infrastructure is the need for additional rail locomotives and cars (fleet). The table below outlines assumptions regarding the need for a larger fleet. While the region's existing service plans require substantial increases in fleet size, the Vision largely makes use of the already planned-for rolling stock and uses it more efficiently throughout the entire day and across the region, as indicated by the substantially greater change in service miles and hours than overall vehicles. This Vision will benefit from a regional fleet that can meet the mix of high and low platforms in the region efficiently and flexibly.

TABLE 2: RAIL VISION'S NEEDED CAPITAL INVESTMENTS (IN MILLIONS, $2020)

	LAUNCH (CURRENT CAPITAL INVESTMENT PLANS, 2020-2035)	EXPAND (PLANNED THROUGH 2035)	REALIZE (PLANNED THROUGH 2045)	TRANSFORM (ADDT'L TO CURRENT PLANS, THROUGH 2045)	TOTAL
Rail infrastructure	$356	$8,359	$4,267	$781	$13,762
Station improvements	$376	$338	$6,064	$100	$6,878
Fleet investments[7]	$34	$126	$127	$0	$287
Additional Facilities	$330	$195	$184	$320	$1,029
State of Good Repair	$1,009*	N/A	N/A	N/A	$1,009
Total	**$2,104**	**$9,017**	**$10,642**	**$1,201**	**$22,964**

Data source: WSP Analysis based on MARC Growth and Investment Plan Update 2013 to 2050 and the VRE Transit Development Plan FY 2020—2025.
Totals may not sum due to rounding.
**Monetary figures past 2035 will depend on basic infrastructure investments needed to keep regional assets at a State of Good Repair, but is not currently identified.*

TABLE 3: FUTURE FLEET NEEDS

FLEET STATISTICS	TOTAL PROPOSED IN VISION	TOTAL EXISTING	CHANGE	% CHANGE
Maximum Vehicles in Service	**496**	**258**	238	92%
Train Miles	**5,849,723**	**966,897**	4,882,826	505%
Train Hours	**161,472**	**27,987**	133,485	477%

While the Vision's capital investment level may seem large at first pass, the plan represents a highly capital efficient use of public dollars, most of which is included in existing transportation plans for the region. First, it takes advantage of existing infrastructure—these rail routes are established, reducing right of way (ROW) investment needs and environmental consequences. Second, the service levels that these capital investments permit allow for more effective use of rail cars and the rail infrastructure itself. That ensures that the region can generate higher rates of return from its investments, not to mention benefits like time savings for travelers, lower transportation emissions, and improved access to key destinations. It is not just regional rail riders who will benefit from these investments. The Vision's improvements will enhance Amtrak's intercity rail service throughout the region and provide its riders great benefit from these forward-looking investments.

KEY COMPONENT #4: OPERATING EXPENSES

Operating the level of service envisioned by the plan will require additional operating expenditures. These costs will generate additional riders, as discussed in the *Ridership and Farebox Recovery* section below. Today, VRE and MARC have two substantially different cost structures. The table below compares estimates to operate Vision level service with the costs for current MARC and VRE service levels, and those included the region's existing long-range rail plans. More details are provided in **Appendix B.**

As shown in the following table, at full Vision operations, annual operating costs would incrementally increase over the next 25-years as new service is added. By 2045, the incremental annual operating cost above current service plans would reach $653 million, totaling $897 million annually in total operating expenditures.

While these operating cost estimates reflect a reasonable approximation based on current operating practices, a more integrated and connected regional rail network could bring additional operating efficiencies. As discussed throughout this Technical Report, shared procurements and integrated operational plans could help deliver additional service more cost-effectively.

TABLE 4: CURRENT AND VISION-LEVEL ANNUAL OPERATING EXPENDITURES

OPERATING EXPENSE CATEGORY	ANNUAL COST AT FULL OPERATIONS (IN MILLIONS, $2020)
Current MARC + VRE Operating Expenditures	$245
Incremental Annual Cost (vs. Existing Operating Expenditures)	$653
Total Operating Expenditures at Full Vision Operation	**$897**

Data source: VHB Analysis
Totals may not sum due to rounding

KEY COMPONENT #5: RIDERSHIP AND FAREBOX RECOVERY

Ridership

The Vision planning included a high-level estimate of ridership and farebox recovery, described in detail in **Appendix C**. Based on the Technical Report's approach, approximately 100,000 to 146,000 daily riders would make use of the Capital Region Vision's rail network, an increase of 125% over existing conditions.

Farebox Recovery

Informed by the above ridership estimate, the Vision estimates farebox recovery for the future regional rail network. Due to the introduction of off- and bidirectional-peak service, regional farebox recovery would decline from 41% to 31%, while overall revenues would increase from $97 million to $269 million.

To allow for the operating flexibility to serve weekends and off-peak riders, many of whom are likely to be more diverse racially and by income than existing riders, both Maryland and Virginia will need to lower expectations (and in some cases, laws)[8] regarding farebox recovery.

While the Vision would require a substantial increase in operating expenditures, the dollars invested would result in meaningful improvements in the usefulness of the service for more residents and employers across the region. At this stage, it is challenging to model the potentially transformative impact that Vision service could have on ridership and how people move about the region. One would have been hard-pressed to accurately estimate WMATA ridership in 1966, and the region stands at a similar moment with the future of this system. Furthermore, these investments should be seen as an investment in the Vision's key regional goals to enhance economic development, promote inclusive growth, and increase access to moderate and affordable housing.

02

STRATEGIES TO OVERCOME BARRIERS

The region's major wins show us that we can achieve transformative outcomes when we align and work together to deliver results.

Key to achieving the Vision is the region's ability to overcome critical barriers that, if left unaddressed, will limit the region's return on its capital and operating investments. Fortunately, the region has shown the unity needed to deliver transformative outcomes that we can build from. From the historic deal between Maryland, the District, and Virginia in 2018 to dedicate $500 million per year to recapitalize WMATA's transit system to the 2019 historic Capital Beltway Accord between Maryland and Virginia, the region's major wins show us that we can achieve transformative outcomes when we align and work together to deliver results. We will need regional execution on the following six strategies to allow us to realize the Vision's full benefits:

→ STRATEGY #1: **Enhanced Regional Coordination**

→ STRATEGY #2: **Shared Planning, Project Development & Procurement Strategies**

→ STRATEGY #3: **Integrated Fare and Mobility Policies**

→ STRATEGY #4: **Harmonized Run-Through Brand**

→ STRATEGY #5: **Funding and Financing**

→ STRATEGY #6: **Land Use and Transit-Oriented Development**

STRATEGY #1: ENHANCED REGIONAL COORDINATION

To date, there is no ongoing regional coordinating table between the essential actors of the regional rail network—MDOT, DDOT, VPRA/DRPT, MARC, VRE, Amtrak, and the host railroads.

Underpinning the Vision's success is a shared commitment from the region's elected officials and rail operators to better coordinate planning and operations. Today, oversight structures and cost-sharing arrangements vary significantly between MARC and VRE. This discrepancy is largely a function of the difference between Maryland's centralized administrative and funding structure and Virginia's tendency to govern through commissions and authorities—state, regional and local.

To date, there is no ongoing regional coordinating table between the essential actors of the regional rail network—MDOT, DDOT, VPRA/DRPT, MARC, VRE, Amtrak, and the host railroads. Staff from these agencies communicate regularly through other venues (e.g., metropolitan planning organization (MPO) meetings, Northeast Corridor Commission meetings, etc.) and at times coordinate on key studies or projects (e.g., MWCOG's Market Assessment & Technical Feasibility for VRE-MARC Run through Service, WUS environmental impact statement (EIS), etc.), but this level of coordination is inadequate to successfully transform the region's rail network. A sustained, predictable coordinating table is needed to plan for a more coherent, competitive, and integrated rail network that is called for in this Vision.

EXISTING CONDITIONS

MARC and VRE share governance similarities and differences that, through incremental steps, should become more aligned over the Vision's 25-year horizon. These include:

TABLE 5: COMPARISON OF MARC AND VRE OPERATIONS

Similarities	Differences
Commitment from elected leaders to predictably fund annual operations • MARC FY2018 Operating/Capital Budget - $161M/$93M • VRE FY2018 Operating/Capital Budget - $79M/$23M	**Decision-making/Ownership** • MARC—Maryland Department of Transportation, with limited oversight from General Assembly • VRE—Local jurisdiction elected officials via VRE Operations Board, NVTC and PRTC
Ambitious long-range plans to expand service within each service area • MARC Cornerstone Plan with 2045 horizon • VRE System Plan with 2040 horizon	**Capital and Operating Funding/ Financing*** • MARC—Funding and debt is primarily supported by Maryland's Transportation Trust Fund • VRE—Funding is supported through state and local aid, including regional transportation revenues through NVTA, and debt is issued through NVTC and PRTC

**Share similarities in federal aid, farebox receipts*

TARGET OUTCOMES

The lack of predictable and sustained system level coordination between the main players of the regional rail network, left unaddressed, will impair the region's successful implementation of this Vision and the achievement of its many benefits. The cornerstone of improving regional rail coordination is the establishment of a coordinating venue for the region's essential rail actors to execute the Vision's Five-Year Action Plan—a venue that allows predictable coordination and strategic execution of cross-cutting planning efforts. This should be the venue that studies and helps identify the optimal approach to greatly enhance coordinated planning, funding, financing, operating and management of the region's rail network.

FIVE-YEAR ACTION PLAN

1. **Establish a Capital Region Rail Coordinating Convening (CRRCC)**. Through an MOU, establish a regular convening body between MDOT/MARC, VRE, DDOT, and VPRA/DRPT to coordinate plans and investments. See Appendix A for the potential elements of a successful MOU.

2. **Use the (CRRCC) to advance the key policy and operational decisions identified in this Vision**. Coordinating with the region's rail leaders, develop shared strategies and expectations to overcome key barriers included in this section (e.g., procurement strategy, integrated fare technology and ticketing).

3. **Use the (CRRCC) to coordinate on and oversee run-through service once it launches**. Once run-through service launches through a pilot and more permanent service, the CRRCC can expand to effectively coordinate operations and marketing for the new service.

STRATEGY #2: SHARED PLANNING, PROJECT DEVELOPMENT & PROCUREMENT STRATEGIES

The effectiveness of our region's rail system is dependent on how each state and rail agency delivers and utilizes its contracts, fleets, operators, and infrastructure.

A variety of Capital Region rail decision-makers manage their operations differently, and the assets are agency specific rather than cross-jurisdictional. As a result, services are only incidentally coordinated between the different operators. While the process is consistent with their current charters and mission, it leads to state-centric passenger rail service plans, investments, and development rather than coordinating to develop a more harmonized regional rail network planned for in this Vision.

Amtrak and state partners already provide a useful intercity service that connects the Capital Region's cities between Baltimore and Richmond and to points beyond. There are also examples of regional coordination between rail agencies, typically on a project specific basis. For example, Virginia and Amtrak are planning to substantially expand service and shorten WUS "dwell times" (the amount of time a train consumes while stopped at a station) through acquisition of technologically advanced rail equipment that will provide enhanced service levels in Virginia approaching those found on the Northeast Corridor between Washington, New York, and Boston.

It is the gap in through service and coordinated, high-frequency regional rail service for the local market stations, and the lack of more harmonized rail services that the Vision addresses. With an increased number of trips, ridership, and investments, a harmonized joint procurement and project delivery strategy could produce greater regional gains in rail travel.

EXISTING CONDITIONS

In 2019, MARC and VRE carried over 13.5 million riders.[9] Amtrak service in Virginia is expected to grow substantially, made possible through a $3.7 billion agreement between the Commonwealth of Virginia and CSX Transportation to invest in new infrastructure through the TRV program. Both MARC and VRE operate over a mix of infrastructure and use multiple discrete rail car designs tailored to meet each operator's specific physical and operational requirements to provide service. These differences include varying platform height standards, station accessibility standards, restrictive horizontal and vertical clearances, electrification, varying signal and train control systems, and car fleet storage yards configured to service and maintain specific equipment types. Operationally, having a divided system creates equipment utilization and station platform occupancy inefficiencies. For passengers, it limits the number of destinations one can reach without having to change trains or modes. The section below outlines potential procurement steps for both agencies to harmonize the multiple rail decisions needed to advance the Vision.

Operationally, having a divided system creates equipment utilization and station platform occupancy inefficiencies. For passengers, it limits the number of destinations one can reach without having to change trains or modes.

HARMONIZING THE REGION'S RAIL NETWORK

Integrated regional rail service requires the cooperation of many state and local entities, sufficient funding, and procurement strategies to achieve a true regional rail system. To create a cross-regional run-through system, agencies must adopt strategies that help reduce costs, which includes joint procurement efforts when appropriate.

A shared procurement strategy should consider such opportunities as rolling stock, rail infrastructure (rail, stations, and power), and administrative functions (professional and supervisory staff or back office functions). It is anticipated that using these shared procurement structures to harmonize the region's rail system will provide efficiencies and enhanced purchasing power in making the large upfront investments envisioned in the program.

Having a unified Capital Region coordinating venue in place, as described in the *Enhanced Regional Coordination* section, could also allow for a more innovative procurement approach. A joint purchasing program would enhance the public procurement value by allowing for combined RFI and RFP contract creation and product delivery, reduced administrative costs, and greater negotiating power which can lead to lower vendor prices. In addition, adopting transparent standards for these contracts helps ensure that the procurement process is competitive and cost-effective.

TARGET OUTCOMES

Through the regional convening body identified in the *Enhanced Regional Governance* section, MARC and VRE can work together to develop a shared procurement and project delivery strategy, with the following key considerations.

Coordinated Investments.

A coordinated procurement strategy can help mitigate differences in rail equipment and infrastructure standards, statutory and organizational charter limitations on cross-jurisdiction investments, varying funding levels, and administrative differences currently in practice by MARC and VRE.

Procurement Roadmap.

The rail agencies should map their procurement opportunities and state processes to identify joint end-to-end procurement lifecycles that best fill gaps in the regional rail system, its rolling stock, and desired future state. With a joint procurement roadmap in place, a coordinated procurement effort could better identify capital needs that benefit the rail agencies and open opportunities to lower supplier prices (i.e., combining purchasing activities leads to economies of scale), administrative cost savings, and pooling of skills and expertise. Ultimately this will improve agency rail efficiency and customer service while generating greater economic benefits for the region and the riders.

Regional Rail Plan.

Currently, both MARC and VRE have developed rail plans for their respective territories and have discussed the benefits that run-through service can provide to the region. But that is the extent of the subject in the separate plans. With the development and adoption of a region-wide rail plan, MARC and VRE would be better able to align short-and long-term projects, and capital and operating budgets to achieve run-through service.

The plan would also help to develop assumptions around potential tax incentives for ridership, and fare box revenue projections, and operating efficiencies. This plan can be considered a baseline for aligning investments needed to achieve greater regional rail collaboration, and should address the following key items:

- **Railyard Expansion**—A comprehensive -regional rail system will require additional railyard capacity. New or expanded storage yards at the end points of the run-through operation (Manassas, Fredericksburg, Brunswick, Frederick, and Baltimore) would be required to support the expanded service originating and terminating at these locations. There may also be opportunity for efficiencies in railyard planning through a coordinated approach. For example, during day times, MARC and VRE trains require positioning moves (non-revenue or deadheads) at WUS to bring trains to and from nearby storage yards in Ivy City, adding non-revenue train movements to the very busy four-track line between WUS and the storage yards. Run-through operations will reduce or even eliminate these positioning moves, freeing up capacity for additional revenue generating movements and providing greater utility for riders. However, investments in grade separations approaching WUS may be necessary to mitigate new conflicting crossing patterns associated with some of the run-through routes.
- **Station Platforms**—Providing a uniform experience at each station in a regional rail network, especially with a uniform platform design is a desirable

An efficient regional rail service will require interoperable rolling stock (vehicles) able to efficiently serve all routes north and south of WUS. The interoperable requirements will involve compatible designs for both the passenger coaches and motive power.

feature. However, the regional rail network currently has stations built to two very different standards.

The Americans with Disabilities Act of 1990 (ADA) established a standard of level boarding for the full length of the train where a passenger can board or alight from the train without need of assistive devices or staff assistance to compensate for vertical height differences or limitations to specific portions of the train. The Northeast Corridor—serving MARC's Penn Line—between the District and Boston, MA is close to full compliance in meeting the ADA standard using full length 48 inch above the top of the rail (TOR) platforms at all stations. However, because of the presence of substantial freight volume, with freight operations requiring greater clearances than passenger equipment needs, all other corridors for both MARC and VRE in the Capital Region territory operate under a waiver as prescribed by law and use a low 8 inch above TOR platform design at the stations.

One approach to addressing trains encountering two different platform heights along its route is to use equipment able to serve both situations. This type of car design is already in use on other commuter rail systems, including MARC, and allows the train crew to select the type of platform and operate the doors—either high or low—from a single control stand on the train. The rolling stock strategy is described further below. Stations can also be designed to provide uniform train status and wayfinding information on a region-wide basis, offering would-be travelers consistent, straight-forward information for entire trip. See the *Harmonized Run-Through Brand* section for more information.

→ **Interoperable Rolling Stock**—An efficient regional rail service will require interoperable rolling stock (vehicles) able to efficiently serve all routes north and south of WUS. The interoperable requirements will involve utilizing compatible designs for both the passenger coaches and motive power.

There are two primary options in developing a standardized rolling stock, with advantages and disadvantages to each approach. The first is to develop a universal fleet capable of operating across the entire region's rail territory served by MARC and VRE today. Locomotives would need to be dual-mode to be able to take advantage of the electrified NEC while operating under diesel power over CSX and Norfolk Southern lines (due to the potential clearance restrictions from the overhead electric catenary, these two railroads are unlikely to support the electrification of their lines). While more expensive than diesel-only locomotives, dual-mode designs offer several benefits, including:

- Reducing the dwell time (i.e., rider's trip time) by 20+ minutes or more per run-through train at WUS by removing the need to change locomotives transitioning from one mode to the other (e.g., electric to diesel or vice versa);

- taking full advantage of the environmentally beneficial electric operation and the superior performance of the train while in electric mode;
- providing strong performance in diesel mode using Tier IV compliant high-speed diesel engines vs. traditional medium-speed diesel engines; and
- improving workforce and rider health experience by reducing emissions in confined space locations such as the lower level of WUS.

An example of dual-mode locomotives in operation today is New Jersey Transit's ALP-45 locomotive. These locomotives are designed to operate at speeds of up to 100 mph and require only two minutes to transition from one mode to the other while making a station stop. Modified designs to increase the maximum speed to 125 mph are in development and would be able to utilize the full capability of the NEC.

Under this option, multi-level passenger cars with doors capable of accessing both high- and low-level platforms, as is the case with the existing MARC Bombardier Multi-level cars, could be deployed throughout the region. MARC's multi-level fleet is able to operate at speeds up to 125 mph for full compatibility on the NEC.

The second option is to maintain two fleets: an NEC-Capable fleet and a Freight-Territory fleet. The NEC-Capable fleet would include dual-mode locomotives and car designs that meet NEC station clearances and be capable of operating on all routes in the Capital Region. The Freight-Territory fleet would be powered by diesel-only locomotives capable of maximum speeds between 80 and 100 mph, and not be used on the NEC. For this option, passenger cars could be standardized as in the case of the universal fleet option or could be split with multi-level cars for use on the NEC as one group and a second group of low platform cars operating on the MARC Brunswick and Camden Lines, and all VRE Lines. Sufficient spare equipment for each fleet type would be maintained to provide reliable service. Maintaining separate fleets and services would enable continued use of VRE's Gallery Car fleet and locomotives. It would also permit potential expansion of the fleet to meet the future run-through frequency goals for the Freight-territory routes.

Positive Train Control (PTC).

Regional coordination around PTC technology is required for successful run-through train service. The Federal Passenger Rail Investment and Improvement Act (PRIIA) of 2008 mandated all passenger rail lines be equipped with a form of PTC that aims to prevent train-to-train collisions, over-speed accidents, and improve Roadway Worker safety. Two types of PTC technology are deployed in the Capital Region's territory: (1) the satellite-based Interoperable Electronic Train Management System (I-ETMS) as installed along all CSX and NS-owned main lines; and (2) the transponder-based Advanced Civil Speed and Enforcement System (ACSES) installed along the entire Amtrak-owned Northeast Corridor, and the SEPTA, NJ TRANSIT, LIRR, MNR, CTDOT and MBTA systems. For the Vision's success, the region's rolling stock equipment designed for run-through operations would benefit from containing both systems on board to maximize the benefits each offers.

FIVE-YEAR ACTION PLAN

1. **Coordinate investments.** Using the Capital Region Rail Coordinating Convening, the region's decision-makers should coordinate investment strategies to further integration and efficiencies on both sides of WUS.

2. **Align on procurement approaches.** Even when done separately, procurements that permit piggybacking and build toward future integration will help develop a more effective regional rail network.

3. **Develop a Regional Rail Plan.** To formalize this coordination, MARC and VRE should coordinate on a regional rail plan that outlines the strategies for resolution of railyard expansion needs, station platforms, rolling stock, PTC, and service planning issues needed to make run-through and the Rail Vision possible.

STRATEGY #3: INTEGRATED MOBILITY FOR FARES AND TICKETING

A cohesive, seamless mobility experience remains to be achieved across the region, let alone planned. Joint platforms for trip planning and ticketing across operators, integration with private mobility providers, and back-end data sharing protocols that would empower a regional network are yet to make significant progress.

The Capital Region is one of the nation's largest and most economically interdependent metropolitan regions. Nearly 50% of commuters cross county lines and 20% cross state borders on a daily basis to reach jobs.[10] Commuters often juggle an array of trip planning, ticketing, payment, and rewards systems to make end-to-end journeys.

While advances in technology have enabled major innovations in integrated mobility building blocks, such as digital payments, APIs, and smart devices, these have so far failed to translate into tangible improvements in transit agency fare and ticketing integration in the Capital Region. In July 2018, the Partnership released an issue brief, *Unlocking the Promise of Integrated Mobility in the Capital Region*, that identified a clear vision for the region to establish a seamless, one-stop shop mobility platform for planning and paying for any trip across the Capital Region. The Rail Vision builds upon this work, supporting fare and ticket platforms that offer a seamless user experience for

MARC and VRE riders, as well as riders of other transit services (e.g., Amtrak, BaltimoreLink, and Metrorail that integrate with the regional rail network.)

A seamless fare and ticketing system will increase convenience and speed of trips, opening new ridership markets, reducing the unit cost of fare collection, and providing assurance during transfers.

EXISTING CONDITIONS

Currently, MARC and VRE have:

- **Separate fare and pass policies**
  (both are zone-based with multiple pass options)
- **Separate cross-honor systems**
  (and separate arrangements with Amtrak)
- **Separate mobile payment systems**
  (and separate from Amtrak and WMATA)

Currently, most riders seeking a connection between MARC and VRE would need to purchase separate tickets through separate ticketing platforms (with the exception of riders using an Amtrak step-up ticket), with no alignment of schedule, fare policy or pricing and with limitations on reliability of connection during service transfers.

VRE has an existing mobile ticketing application, called VRE Mobile, which utilizes a platform developed by Moovel North America. The mobile platform does not offer interoperability with other mobility services or transit systems. With Moovel's decision to leave the North American fare payment market in 2021, VRE procured a new ticketing provider, Svanaco, Inc., to replace Moovel. A key consideration in VRE's selection process was regional expansion of the mobile ticketing solution.[11]

MTA's mobile ticketing platform, CharmPass (also developed and maintained by Moovel), is the most interoperable platform in the Capital Region, with free inter-modal transfers within a set period and interoperability across MARC, Baltimore's bus, light rail, and metro subway as well as commuter bus networks.[12] MTA is currently working to procure a next-generation, multimodal account based fare collection system that is expected to unify its existing payment methods (e.g., cash, CharmCard, etc.) with a new, more integrated mobile application that will replace Moovel's.

The table below provides the current state of integrated ticketing for MARC and VRE as well as other regional transit operators with which VRE and MARC should look to integrate fares and ticketing platforms.

TABLE 6: CURRENT STATE OF INTEGRATED FARES AND TICKETING IN THE CAPITAL REGION

INTEGRATION CONCEPT	MOBILE PAYMENT AVAILABLE	SMARTCARD AVAILABLE	CASH PAYMENT AVAILABLE WHEN BOARDING	FARE CAPPING	JOINT TICKETING WITH PRIVATE MOBILITY PROVIDERS	INTER-OPERABILITY WITH OTHER PUBLIC AGENCIES OR SYSTEM
Description	Tickets/ passes can be purchased through a mobile device	Smartcards that store fare or pass value are available	Many systems retain cash options to ensure access for unbanked users	Total fares paid over a monthly or weekly period capped at the price of a pass	Service providers offer direct purchase of fares/passes for other providers	Payment method works across two or more ransportation systems/modes
MARC	Yes[13]	Yes [14]	Yes, with a $5 surcharge[15]	No	No	Yes, through Transit Link Card Network (TLC)[16]
VRE	Yes	No	No	No	No	Yes, through TLC and Amtrak cross-honor agreements, but only on some trains[17]
MTA (Baltimore)	Yes[18]	Yes	Yes	No	No	Yes, through TLC and Charm Card mobile app
Metrorail (Washington)	Yes[19]	Yes	No	No	No	Yes, through TLC and SmarTrip networks
Metrobus (Washington)	Yes	Yes	Yes	No	No	Yes, through SmarTrip network
Amtrak (Northeast Corridor)	Yes	No	Yes[20]	No	No	Yes, through TLC

TARGET OUTCOMES

The Vision plans for MARC and VRE riders to only need to purchase one ticket (rather than two tickets under the status quo) to travel to destinations throughout the Capital Region. A consistent regional rail fare policy should govern regional rail trips operated by either MARC or VRE between the same two locations. This should cover policy aspects including trip pricing, multi-trips, and reduced fare tickets. Fare policy should be transparent to the rider. Given the way regional trips span multiple transit operators other than regional rail, riders of the region's service should ultimately be able to access interoperable tickets with WMATA, Amtrak and MTA fare payment systems.

Fare and ticketing integration could provide equity benefits to riders and communities across the region –especially hourly or contract workers least likely to receive subsidized transit benefits from their employers. For instance, incentive pricing or fare capping, which caps total daily/weekly/monthly costs for those unable to afford the up-front cost of a weekly or monthly transit pass that offers a lower per-trip rate, require fare policy collaboration across MARC, VRE and other transit operators.

VRE and MARC should ensure equitable access to service for unbanked riders and riders without a smart phone. The benefits of fare and ticketing integration cannot only accrue to those with a smartphone or access to a bank account. New mobile payment systems should be designed around the needs of residents with limited means by maintaining cash payment options without additional fees. Public officials should take steps to close the digital gap by empowering all residents—regional rail riders included—with access to public and private mobility options—including regional rail—through digital means such as digital kiosks and publicly-available Wi-Fi.

From a rider perspective, improving fare and ticketing integration would provide users with improved capacity to plan and purchase end-to-end, cross-system trips with the convenience of a mobile payment option.

FIVE-YEAR ACTION PLAN

To achieve the Rail Vision, MARC, VRE, and their regional partners will need to share similar integrated fare and ticketing goals from separate, but linked platform procurement strategies. To achieve the benefits of an integrated mobility fare and ticking system, the action plan includes the following steps:

1. **Initiate regular convenings of regional transport agency leaders to share strategy and progress.** Building lines of communication across agencies will allow mobility providers to share their needs, progress, learning, and strategy, allowing cohesive goal-setting. This should be done through the Capital Region Rail Coordinating Convening or other appropriate and inclusive convening entity (e.g., NVTC, MWCOG/BMC).

2. **Build towards a baseline agreement to encourage open design of mobile ticketing and payment systems.** The more that trip planning and payment systems can be designed for openness and flexibility, the easier it will be to introduce the kind of interoperability innovations that lead to both a more seamless user experience and a more powerful hub of regional data.

3. **Develop a set of common goals and a plan to achieve joint procurement / common language RFPs for mobile ticketing and fare collection services.** Developing a shared library of procurement language and standards on topics such as interoperability, data standards, fare structures, and payment processes would allow the region's regional rail and transit agencies to formulate a shared strategy, which can then be executed through agency-specific procurement and update processes.

4. **Initiate a coordinated pursuit of regional funding opportunities.** New federal funding opportunities may become available to help agencies mitigate the cost of efforts such as mobile app development, private mobility provider integration, or pilot programs for innovative payment and mobility systems. Regional coordination to identify and pursue funding opportunities together—as well as incubating a pipeline of regional priority projects as funding candidates—will make the region more competitive for federal funding.

5. **Develop a road map toward a regional data coordination agreement that will allow for seamless inter-agency service coordination.** Free-flowing data sharing between agencies is essential for efficiently distributing fare revenues across agencies and providing for fare capping and discounts to lower income or elderly populations. The region should develop a data coordination agreement that provides a clear operational roadmap to the region's integrated mobility system.

STRATEGY #4: HARMONIZED RUN-THROUGH BRAND

Implementing new, recognizable cross-jurisdiction and cross-operation service will require an intervention to harmonize branding to ensure its success and provide a comfortable passenger experience.

The Rail Vision will transform the nature of rail, strengthening the existing brands of MARC and VRE. However, the introduction of run-through and coordinated service poses new challenges—and opportunities—for how regional rail service is branded. With a new mix of service terminating at WUS and passing through, riders will need to understand which train will get them where they want to go. They will want a unified experience for future cross-station transfers at WUS that will allow MARC Brunswick and Camden Line passengers to connect to/from MARC Penn Line run-through trains and VRE Fredericksburg and Manassas Lines more easily, and vice versa. Thinking smart to harmonize run-through branding can build a seamless, integrated customer experience.

EXISTING CONDITIONS

As separate service lines, MARC and VRE have distinct identities regarding their brand and product offering. Their identity distinguishes their service from other operators, particularly for MARC who operates on the Northeast Corridor among a high frequency of Amtrak trains. Ensuring that their brands are recognizable among other operating passenger trains is a fundamental role for the MARC and VRE visual identity.

While MARC is funded and operated through the MTA, its visual identity is not directly related to other MTA service offerings, such as the Light Rail or MTA Bus System. The MARC logo and equipment branding establishes an identity onto itself. Similarly, the MARC ticketing kiosks are separately branded from the MTA light rail and bus kiosks, providing MARC its own visual identity among those Maryland related offerings.

While distinct among the MTA offerings, the MARC system as a commuter brand is synonymous with the Maryland transit market. As an identity, when one refers to the MARC system it is inherently understood that system is connecting the Maryland suburbs with the District's downtown at WUS and Baltimore at Penn Station and Camden Station.

Similarly, VRE has established a brand and identity that is inherent to the Virginia commuter market. While a smaller system than MARC and with less distinct state-wide branding competition, VRE's branding is immediately identified to the geography that it serves: connecting the Virginia suburbs to the District's downtown via L'Enfant station or WUS.

TARGET OUTCOMES

Ensuring that their brands are recognizable among other operating passenger trains is a fundamental role for the MARC and VRE visual identity.

MARC and VRE have an established recognized brand based on the geographic market that they serve. Implementing new, recognizable cross-jurisdiction and cross-operation service will require an intervention to harmonize branding to ensure its success and provide comfortable in passenger experience that should include:

- **Harmonizing geographic paradigm of MARC and VRE brands.** New rail that crosses the region will disrupt that notion of MARC and VRE serving specific markets. As such, this new service may confuse riders as to their origin and destination and be a barrier to providing a seamless journey with a comfortable passenger experience. This geographic paradigm will need to be altered to create a successful cross-regional brand identity, whether it be through a specific service line offering or joint operation of run-through service.
- **Overcoming institutional and political barriers.** MARC and VRE are both public entities generally funded by public funds. As the jurisdictions provide public funding to operate their respective rail services, there is an inherent value in the individual brands reflecting those political entities. As run-through service begins operations, the geographic lines will blur but the political affiliations with MARC and VRE will unlikely change initially. Hence, any new run-through brand will need to be based on inherent values of the funding operators.

Creating a branding approach which immediately identifies with cross-regional service will be critical for passenger awareness. Run-through service will create a new paradigm in which daily commuters, typically creatures of habit, will have to adjust in understanding the new system and schedules. Furthermore, occasional riders will need to understand travel opportunities as the current operators expand their system beyond current borders.

The Vision plans for a recognizable brand to be deployed for cross-regional run-through rail service and cross-station transfers that is reflective of the broader regional market that it will serve and provide a brand which is supported by the political entities that fund and operate that system. This brand should reflect the qualities embodied within the Capital Region and should be clear as to the markets it connects to. It should also reflect a joint service which means that the train route will cross through the Capital Region. The harmonized brand, including name and potential logo, can be easily integrated into existing equipment, ticketing systems and advertisement.

In implementing a new cross-regional service, a specific, branded product type will need to be created to differentiate that service from the current MARC and VRE services. The following are some examples of where this type of branding has occurred within an existing system or among different operators successfully.

TABLE 7: EXAMPLES OF NEW REGIONAL RAIL BRANDING

SERVICE	DESCRIPTION	BRAND
MBTA Heart to Hub Boston, MA	A single operator commuter specialty route serving a specialized Worcester—Boston route. This does not include specialty logo.	
Caltrain Baby Bullet San Francisco, CA	This is an express, specialty route offered by Caltrain that connects San Francisco and San Jose. This does not include specialty logo.	
Trinity Express Dallas, TX	This is an intercity service jointly funded by DART and Fort Worth's Trinity Metro. The cross regional service connects Dallas and Fort Worth.	

FIVE-YEAR ACTION PLAN

As state-to-state run-through services come online, providing a harmonized brand experience of that product line will be critical for the passenger experience, wayfinding, and overall success. MARC and VRE should work to create a harmonized brand experience that provides a recognizable product offering for the first phase of run-through regional rail service that is easily recognizable as a distinct service offering, yet integrated with existing MARC and VRE services. To develop a special service line or a new product line for run-through service, the following steps need to occur:

1. **Define inherent branding values for MARC, VRE, and the Capital Region**. To begin to develop a harmonized brand for run-through service, it will be critical to understand shared values for the service. This includes defining what is meaningful to MARC, VRE and the Capital Region as a whole. This will be a foundation for creating a new product identification for run-through service.

2. **Develop a harmonized brand identity**. The next step will be to develop brand identify options for vetting and discussion with stakeholder groups. As part of this process, it will be determined if a logo is the right initial tool and what the parameters are for messaging on existing rolling stock that will be utilized on interchangeable routes. The outcome will be a harmonized brand strategy that will be ready for roll out.

3. **Develop rollout campaign and implementation strategy in coordination with the operators**. Once a strategy is settled, the next step will be a comprehensive, public roll out. Multiple media outlets can be used, and a coordinated campaign initiated. The rollout should include changes to schedules, ticketing platforms and other passenger related services so that passengers are immediately informed of the new run-through service line.

STRATEGY #5: FUNDING & FINANCING

A variety of funding options and financing mechanisms have the potential to fund the cost of rail improvements, and successful implementation of the Vision will require a strategic approach to leverage all of these opportunities.

Accomplishing the Rail Vision will require the commitment of resources to fund capital improvements and ongoing operating and maintenance (O&M) costs of enhanced commuter rail services in the region. Funding will largely determine the extent to which the Vision is realized, so enactment and execution of an effective funding and financing strategy is critical to successful implementation of plans.

Funding from existing sources, plus cultivation of potential new funding sources—such as value capture and ground lease revenue from transit-oriented development near commuter rail stations—could help to fund improvements and ongoing operations.

EXISTING CONDITIONS

A mix of federal, state, regional, local, and farebox revenues presently fund MARC and VRE.

- **Federal Funding.** With only a few exceptions, federal funding is focused on capital investments in railcars, facilities and maintenance of way, including projects that provide expanded rail capacity; facilitate coordinated use of railroads by commuter rail, intercity passenger, and freight rail services; and improve the state of good repair of rail infrastructure (including preventive maintenance expenditures). Federal funds are provided through formula funding from the Federal Transit Administration (FTA) and discretionary grant programs from FTA and the Federal Railroad Administration (FRA).

- **State Funding.** State funding has subsidized both capital and O&M costs of commuter rail in both Maryland and Virginia. As a division of state government, MARC is mostly supported by Transportation Trust Fund revenues that flow to the MTA. The Virginia DRPT makes both transit and rail capital grants available to VRE and provides transit operating assistance through a formula grant program. DRPT has also subsidized VRE's track lease payments to its host railroads, CSX, Norfolk Southern, and Amtrak. In 2020, the Commonwealth also dedicated state transportation funds for the VPRA, which is empowered to make capital investments in each of VRE's commuter rail corridors.

- **Regional Funding.** VRE has been a beneficiary of regional funding, including regional transportation funds from the Northern Virginia Transportation Authority for capital projects, and from the Northern Virginia Transportation Commission for capital and operating costs. These funds are drawn from an array of regional revenue streams, including sales, transient occupancy, and grantor's taxes and toll revenues. MARC does not benefit from any regional funding sources.

- **Local Funding.** Local funding is a key component of VRE's funding mix, while MARC is not supported by local funding. Cities and counties served by VRE provide an annual operating and capital subsidy based on passengers boarding/alighting in each jurisdiction. Funding sources for this subsidy vary by locality, with many funding the contribution from their general fund revenues. Prince William County uses proceeds from a local fuel tax to fund its contribution.

- **Farebox.** Farebox revenues provide 33% of O&M funding for MARC and 51% for VRE, based on fiscal year (FY) 2018 National Transit Database data reported by MARC and VRE to FTA.

The following table summarizes FY 2018 funding sources for MARC and VRE based on data reported to FTA by each agency for the National Transit Database. These data provide a snapshot in time of the relative mix of funding each agency relies upon, which is subject to change annually based on available state and federal funding and annual ridership/fare revenue.

Capital investment funding for Amtrak service is provided through passenger fares, ancillary revenues accruing to Amtrak and through limited federal

TABLE 8: FY 2018 FUNDING SOURCES
(MILLIONS OF DOLLARS)

CAPITAL FUNDING	MARC	VRE
Federal*	62.5	9.6
State*	30.7	13.6
Local/Regional	0	12.8
Total Capital Funding	**$93.2**	**$23.2**

O&M FUNDING	MARC	VRE
Federal*	5.0	15.4
State*	103.5	17.9
Local	0	5.7
Farebox Revenue	52.5	42.2
Auxiliary/Other Revenue	0	1.0
Total O&M Funding	**$161.0**	**$82.2**

** MARC state and federal funding is an approximation based on the share of state and federal funding for FY 2018 capital and O&M expenditures for all MDOT MTA services.*

Source: FY 2018 National Transit Database Forms F10 and F30 reported by MARC and VRE to FTA

capital grants. Maryland and Virginia also provide capital contributions based upon formulas developed through NEC Commission policies for the Northeast Corridor infrastructure or based upon the Passenger Rail Investment and Improvement Act (PRIIA) Section 209 capital funding requirements for services south of Washington, DC. Amtrak Regional and Acela services do not receive operating support for service between Washington, D.C. and Boston, Mass. Virginia and North Carolina provide operating support for regional services south of Washington, D.C. in accordance with Section 209 terms and conditions.

TARGET OUTCOMES

A variety of funding options and financing mechanisms have the potential to fund the cost of rail improvements, and successful implementation of the Vision will require a strategic approach to leverage all of these opportunities. The distinction between funding and financing is important: ***Funding*** includes grants, dedicated revenue streams, appropriations, and other funds that do not have to be paid back, while ***Financing*** refers to borrowing such as loans, bonds and equity investments that must be repaid and most require a dedicated revenue or funding stream for repayment. Both funding and financing will play a key role in supporting the Vision program, as described below.

TABLE 9: POTENTIAL FEDERAL FUNDING OPTIONS FOR RAIL VISION

AGENCY	PROGRAM	PURPOSE	FY 2020 FUNDING
USDOT—Office of the Secretary	Better Utilizing Investments to Leverage Development (BUILD)	Discretionary grant program for road, rail, transit and port projects that promise to achieve national objectives. Grants are available in amounts of up to $25 million	**$1 billion**
	Infrastructure for Rebuilding America (INFRA)	Discretionary grant program supports mutlimodal projects that connect communities, enhance safety, and support economic growth. In 2016, provided $165 million in funding for Virginia's Atlantic Gateway program, including portions of the TRV program.	**$900 million**
FTA	Capital Investment Grant Program	Discretionary grant program provides funding for transit capital projects that construct new fixed-guideway transit corridors or increase capacity on existing congested corridors. The program provides a federal match up to 80% (with larger projects typically receiving a smaller federal funding share). This program funds the Purple Line in Maryland and Phase 1 of the Silver Line in Virginia.	**$2.4 billion**
FRA	Consolidated Rail Infrastructure and Safety Improvements Program (CRISI)	Discretionary grant program provides funding for rail improvements that address safety, reliability, and efficiency. MDOT MTA recently received CRISI grants for the Martin's Yard Northeast Corridor Switch Modernization Project and Positive Train Control upgrades to MARC locomotives.	**$325 million**
	State/Local Partnership for State of Good Repair Program	Discretionary grant program funds rail capital projects to replace or rehabilitate existing assets. In 2020, MDOT MTA received a grant from this program for the MARC Northeast Corridor Train Storage Preservation Project, while DRPT received a grant for the Newington Road Bridge Replacement Project.	**$291 million**

State and local funding sources include value capture and existing funding streams:

→ **Value capture** provides an opportunity to provide more funding for commuter rail. This could be generated through approaches described in the *Land Use and TOD Planning* section.

→ **Existing funding sources**, including state and local contributions and farebox revenues, can help to match federal funding requirements. Continued increases in state and local direct funding and dedicated tax revenues could also help to realize the Vision.

State and federal financing programs, as described in the table below may help to leverage state and local funding for capital projects. This provides a mechanism to pay for projects over time, making it more manageable to fund project improvements.

TABLE 10: POTENTIAL STATE AND FEDERAL FINANCING OPTIONS FOR RAIL VISION

PROGRAM	DESCRIPTION	REGIONAL PROJECTS FINANCED
Virginia Transportation Infrastructure Bank (VTIB)	Provides loans and other financial assistance to finance transportation projects. Encourages investment of both public and private funds in the development of transportation projects and to provide an alternative source of financing for present and future transportation needs in the Commonwealth.	Potomac Yard Metrorail Station
USDOT Transportation Infrastructure Finance and Innovation Act (TIFIA) program	Provides federal credit assistance through the USDOT Build America Bureau (BAB) through direct loans, loan guarantees, and standby lines of credit to finance surface transportation projects of national and regional significance. Provides improved access to capital markets, flexible repayment terms, and potentially more favorable interest rates than found in private capital markets. Enables the applicant to receive more favorable interest rates for the project's share of non-federal borrowing due to lowered investment risk.	Purple Line Silver Line
USDOT Railroad Rehabilitation and Improvement Financing (RRIF)	Provides direct loans and loan guarantees to finance railroad infrastructure. Aims to extend federal loans to rail projects of national significance by offering improved access to credit markets, flexible repayment terms, and favorable interest rates.	VRE rolling stock Amtrak railcars
Private Activity Bonds (PABs)	Incentivizes private investment by allowing private entities to benefit from the lower costs of tax-exempt bonds when investing in transportation infrastructure. Public entities act as conduit issuers of PABs, issuing tax-exempt debt for transportation projects with substantial private sector participation.	Purple Line

FIVE YEAR ACTION PLAN

To achieve the Rail Vision, MARC, VRE, and regional partners will require a deliberate strategy to identify and secure new funding to support the program. The action plan includes the following steps:

1. **Develop a long-term Maryland rail funding program.** The existing funding framework in Maryland will not provide sufficient resources to advance the full implementation of the Vision, in addition to other statewide transportation priorities. Maryland leadership should develop a dedicated funding program to deliver the infrastructure and operations needed for the Vision.

2. **Plan for Transforming Rail in Virginia 2.0.** Virginia's ambitious TRV program creates a roadmap for billions of dollars in investments in right-of-way acquisition and infrastructure improvements. As that program proceeds, Virginia faces two important questions. First, how to fund the service levels that match the infrastructure investments. Second, how to build the next round of projects that will fully implement both this Vision and Virginia's larger goals.

3. **Relax VRE farebox recovery rules for new services.** Virginia state law currently requires VRE to maintain a 50% farebox recovery rate. In order to encourage the introduction of more off-peak, bidirectional peak, and weekend service, Virginia elected officials should amend this requirement. One approach is to retain the 50% farebox recovery rate for peak-hour, peak-direction service, while adopting a more lenient standard for new services.

4. **Adopt project funding strategies.** Consider project funding options from the outset of any project planning activities. Capital projects should be designed with available funding in mind, and projects should be defined to maximize competitiveness for grant funding. A funding strategy should be an integral piece of each project element comprising the program.

5. **Pursue federal funds regionally.** Coordinate regional efforts to pursue discretionary grants from eligible federal, programs. Federal programs are most supportive of grant applications that enjoy broad regional support and coordinate among multiple state and local government agencies and transportation services.

6. **Ensure the District has a role.** A strengthened, interconnected regional rail system benefits the entire region, including the District of Columbia. While unlikely to become a service operator, the District will remain a key destination and stands to greatly benefit from the Vision's implementation.

7. **Monitor and influence state and federal transportation legislation.** Regional transportation agencies should keep tabs on pending state and federal legislation, with a particular focus on how proposals could benefit projects throughout the super-region. Agencies should aim to keep members of Congress and state legislators apprised of how proposed legislation could affect regional projects, and how proposals could be enhanced to the region's benefit.

8. **Consider financing options to leverage funding.** Leaders should evaluate financing opportunities, including conventional and innovative financing approaches. Realization of the Rail Vision will require substantial investment and will not likely be able to be fully funded on a cash basis. State and federal financing options, including VTIB, TIFIA, and RRIF loans, provide a flexible and cost-effective approach to funding improvements over time, leveraging committed state, local, and regional revenue streams.

STRATEGY #6: LAND USE AND TRANSIT-ORIENTED DEVELOPMENT

The communities around each rail station stand to greatly benefit from this Vision and should create equally bold visions for their station area to take advantage of the better service.

The Rail Vision sets out a bold 25-year strategy to create a world-class regional rail network. The communities around each rail station stand to greatly benefit from this Vision and should create equally bold visions for their station area to take advantage of the better service. By supporting Transit-Oriented Development (TOD) and planning for a dense mix of land uses around rail stations, the region can build a more economically vibrant, equitable, and healthy Capital Region.

In the report, Building the Transit-Oriented Region: An Implementation Strategy for Anne Arundel and Prince George's Counties the Partnership outlines four strategies that the State of Maryland and Anne Arundel and Prince George's Counties should take to prioritize and encourage inclusive TOD around their stations including, setting a TOD vision, prioritizing equity, targeting resources to station areas, and streamlining processes for TOD development. These strategies can and should be tailored to other jurisdictions to encourage more TOD across the Capital Region.

By targeting development in rail station areas, communities can grow their tax base, preserve existing neighborhoods, welcome new residents and businesses, safeguard nature and open space for future generations, and maximize the benefits of the Rail Vision.

EXISTING CONDITIONS

The Capital Region is a national leader in TOD. From the precedent-setting On Wedges and Corridors plan in Montgomery County, Maryland in 1964, to the Bull's Eye concept adopted for the Rosslyn-Ballston corridor in Arlington County, Virginia in 1975, the region has led the adoption and implementation of TOD principles for decades. However, the Capital Region has historically focused TOD planning around Metrorail and subway stations. Commuter rail stations around the region have not received the same level of TOD attention or development. Each station along the regional rail network is unique, but can be categorized according to similar characteristics as shown in the following Table.

TABLE 11: EXISTING TOD CONDITIONS OF CAPITAL REGION COMMUTER RAIL STATIONS

URBAN CENTER High Density Mixed Use	URBAN NEIGHBORHOOD Medium to High Density	HISTORIC RAIL TOWN Low to Medium Density Mixed Use	SUBURBAN Low Density Mostly Residential Limited Parking	PARK & RIDE Low Density Significant Parking	REGIONAL AMENITY Special use such as airport or racetrack	LIMITED DEVELOPMENT Low Density Rural or Industrial
Alexandria* Camden* L'Enfant* Penn Station* Union Station*	Crystal City* Frederick* Gaithersburg Manassas* New Carrollton* Rockville* Silver Spring* West Baltimore	Aberdeen* Clifton Fredericksburg* Harpers Ferry* Kensington Laurel Martinsburg* Odenton Riverdale Seabrook	Backlick Road Edgewood Garrett Park Perryville St. Denis Washington Grove	Broad Run Brooke Brunswick Burke Centre* College Park* Dorsey Franconia–Springfield* Germantown Greenbelt* Halethorpe Leeland Road Lorton Manassas Park Metropolitan Grove Monocacy Muirkirk Point of Rocks Rippon Rolling Road Savage Spotsylvania Woodbridge*	Bowie State BWI Airport* Laurel Race Track Martin State Airport Quantico*	Barnesville** Boyds** Dickerson** Duffields Jessup

** Transit Hubs connect to multiple fixed transit modes (Amtrak, WMATA, MTA Lightrail, etc.) or multiple commuter lines and should be prioritized for TOD planning and investments for their potential to maximize the network effect of the regional transit system.*

*** Barnesville, Boyds, and Dickerson stations are in the Montgomery County Agricultural Reserve with little to no TOD potential.*

Every station cannot, and should not, become an urban center station. However, every community can take steps now to plan for a more transit-oriented future in line with current conditions and projected growth. Understanding each station's typology in relation to the entire network can help the region create a tailored strategy to improve access to the station, allow for a denser community with more residents, jobs, and amenities, and help the Capital Region become more dynamic, inclusive, and resilient.

- **Urban Center Stations** are the most transit-oriented. Planning should focus on preserving and expanding affordability (housing and commercial) and improving the pedestrian environment around the station.
- **Urban Neighborhood Stations** are typically transit-oriented. Planning should focus on preserving and expanding affordability (housing and commercial) and improving connections to the existing transit system.
- **Historic Rail Town Stations** are typically somewhat transit-oriented, pedestrian-friendly, but lower density. Planning should focus on allowing and encouraging greater density and diversity of uses around the station.
- **Suburban Stations** are typically neither transit-oriented nor pedestrian friendly. Planning should focus on improving transit, bike, and pedestrian connections to the station and allowing and encouraging a denser mix of development immediately around the station.
- **Park and Ride Stations** are similar to Suburban Stations, but have significant parking around the station. Park and Ride stations present the greatest opportunity to increase TOD in the region by repurposing some of parking areas for commercial and/or residential development. Sequencing development of nearby park and ride stations can help reduce strains on overall parking demand.
- **Regional Amenity Stations** serve a regional amenity, such as airports, and often have limited room for development or require preserving parking in the near term, but may present significant opportunities for future TOD development.
- **Limited Development Stations** are typically in rural or low-density industrial areas, or have limited uses due to natural or physical barriers. Limited development stations are not ideal candidates for TOD development in the near term, but may present significant opportunities for future TOD development as the rest of the regional rail network builds out more transit-oriented communities.

TARGET OUTCOMES

The Rail Vision will be most successful if land use and economic development strategies are aligned with the investment in our regional rail system. That success depends on incremental growth and more activity and development near existing rail stations than what is present today.

In Building the Transit-Oriented Region, the Partnership recommends that setting a TOD vision for each station is an important step in the process that should not be overlooked. All communities with existing regional rail stations should assess their existing conditions and aim to answer questions such as, what makes their community unique, what existing strengths can the community build upon, and what should their community look like in 2045. The Rail Vision will improve regional mobility and reduce congestion, but to create stronger communities and support inclusive growth, local leaders must put plans in place to maximize the benefits of the rail network. Key strategies that should be considered for communities along the regional rail network include:

Planning for Equity

Without careful planning now, communities risk becoming less diverse and inclusive as the Rail Vision unlocks demand for property near rail stations. While updating land use plans to encourage development near rail stations, communities must also create plans to preserve and expand a diverse and inclusive community. First steps include compiling equity-related baseline indicators, developing an inventory of subsidized and naturally occurring affordable housing near the station, establishing targets and goals for the production and preservation of affordable housing and business space, identifying existing programs and incentives that can support affordability, and meeting with stakeholders to identify gaps in existing programs and incentives. While TOD has the potential to create healthier, sustainable, and more fiscally sound communities, if equity-related targets are not included, equity will not be prioritized.

Right-Sizing Passenger Parking Demand

Getting parking right, especially in suburban parts of the region, is a key element of a successful TOD community around regional rail. Too little parking will discourage residents outside of the walk-radius from using the rail system or from frequenting nearby businesses. Too much parking will limit development opportunities, increase local congestion, and discourage nearby residents from walking, biking, or taking transit to the station area. Germantown, Odenton, Manassas Park, and Boyds are examples of stations that need more parking today because they are near, or already exceed, parking capacity. Shared parking agreements, demand-based parking policies to charge more for parking at overcapacity stations or to redirect drivers to under-capacity stations, and payment in lieu of parking (PILOP), which allows developers to pay a fee rather than provide required on-site parking and can be used for shared parking infrastructure, are some of the tools communities can use to right-size parking needs for suburban or park and ride regional rail stations while still attracting riders from a large catchment area.

Capturing Value

The economic value created by transit-oriented development should be leveraged to further support the

elements of this Vision, including investments in rail and transit infrastructure, affordable housing, and affordable business space. Joint development projects can help build out transportation facilities as development comes on line. Special tax districts or tax increment financing can help capture some of the expected increase in property values resulting from rail investments which can be directed toward station improvements, enhanced accessibility, or affordability programs.

FIVE-YEAR ACTION PLAN

Federal and state governments can create policies to encourage and help fund TOD, but ultimately, counties, towns, and metropolitan planning organizations (MPOs), including the Metropolitan Washington Council of Governments, Baltimore Metropolitan Council, George Washington Regional Commission, and PlanRVA, will have to shepherd and champion the plans for more supportive land uses and TOD around rail stations. The region's action plan includes the following steps:

1. **Update land use plans to support redevelopment, denser development, and mixed-used development within ½ mile of regional rail stations.** To complement changing land use patterns, emerging TOD station areas should: identify activity centers and plan for enhanced multimodal connections through better transit and micro mobility services; explore opportunities to convert surface parking lots into garages; create walkable street grids through complete street implementation; and deploy value capture financing to support infrastructure investments in and around the station.

2. **Establish shared TOD metrics and report on development, inclusivity, and equity outcomes near each rail station.** Each station has a different context and existing baseline in terms of development and equity. Setting TOD goals and tracking metrics can help identify best practices. MPOs and member jurisdictions have a key role to play in identifying key indicators, setting regional goals, and coordinating among local jurisdictions.

3. **Target incentives to encourage inclusive development near regional rail stations.** Local communities and states should deploy funds and financing to provide incentives such as fee waivers, tax credits, loans, and grants to preserve affordability for existing residents and businesses to ensure that a diverse range of households and business owners can locate and remain near the station.

03

IMPLEMENTING THE RAIL VISION

This implementation strategy will allow the region to move methodically from this current moment to a transformed future.

The Capital Region Rail Vision is an ambitious regional plan that cannot be achieved all at once. The previous sections outlined the different policy and planning approaches for how the region can move from its current commuter rail operations to a transformed regional rail network. This section outlines how some of the key service and operating stepping stones of the Vision will be implemented incrementally over the next 25 years, the Vision's 5-year Action Plan, and a charge for the Partnership's efforts to support the Vision's implementation. This implementation strategy will allow the region to move methodically from this current moment to a transformed future.

STEPPING STONES TOWARD THE RAIL VISION

The region's political jurisdictions, railroad operators, and regional organizations can work together to advance meaningful planning, policy, and infrastructure decisions that will set the Capital Region on course for better rail service for years to come

Thirteen key **stepping stones**[21] define the Vision-level regional rail system. Together, these stepping stones are the incremental pieces of transitioning two independent, adjacent commuter rail services into true regional rail service that provides high-quality transit service for more users, and delivers the Vision's operational key elements, including:

- **Frequent all day service,** including weekend and off-peak service
- **Bidirectional peak service,** traveling out of and through the District in the morning and into the District in the afternoon and evening
- **Integrated run-through service** for both MARC and VRE

THE THIRTEEN KEY STEPPING STONES ARE:

WEEKEND SERVICE

1. Weekend VRE Service
2. Weekend MARC Brunswick Line Service
3. Weekend MARC Camden Line Service

ENHANCED DAILY SERVICE

4. Consistent Midday VRE Service
5. All-Day VRE Service in Northern Virginia's Core[22]
6. All-Day MARC Brunswick Line Service
7. All-Day MARC Camden Line Service

BIDIRECTIONAL PEAK AND OFF-PEAK SERVICE

8. VRE & MARC Bidirectional Peak Service with WUS Cross-Honor
9. MARC Bidirectional Peak Service on Brunswick Line

RUN-THROUGH SERVICE

10. MARC Penn Line Run-Through on VRE/VPRA Line
11. MARC Brunswick/Camden Line Run-Through on VRE Line/VPRA Line
12. VRE Run-Through Service on MARC's Brunswick/Camden Lines/CSX Lines
13. VRE Run-Through Service on MARC's Penn Line/Amtrak NEC

WEEKEND SERVICE

Today, only MARC's Penn Line provides weekend service. However, commuter rail systems across the country have found success when providing a weekend service that meets a clear demand. In some ways, weekend service is one of the more achievable new service components because it relies on existing infrastructure and no new vehicles are required. However, it requires both the funding to initiate the service and negotiation of relevant provisions in existing MARC and VRE agreements with host railroads and operators.

Identifying current latent demand for weekend service is a key first step. The existing evidence is that weekend service has been a relative success for MARC Penn Line operations. While MARC only operates 17% of its weekday service on Saturdays, it retains 16% of its ridership. Similarly, on Sunday it only operates 10% of its weekday service but retains 9% of its ridership. This shows that weekend service is proportionally meeting a demand with these operations. Options for expansion, modeled on successful approaches seen elsewhere, include:

- **Brunswick Line Outdoor Weekend Service.** The Brunswick Line provides tremendous access to unique outdoor resources in West Virginia and Western Maryland (e.g., Appalachian Trail, C&O Canal) at Harpers Ferry and Brunswick. Weekend service could provide more access to outdoor opportunities along the corridor and create new recreation-anchored development opportunities.
- **Camden Line Inner Harbor/Ravens Shuttle.** Service to football games could help manage gameday peaks in Baltimore, alleviating pressure on roads and other transit systems. MARC did previously operate an Orioles-focused service that even included run-through to the Brunswick Line from 1992 to 1996.[23] As Baltimore looks to continue to attract tourists to the Inner Harbor, the recently renovated Camden Station may be a more attractive location than Penn Line service.
- **VRE Gameday L'Enfant Service**. VRE's L'Enfant Station, especially once new connections to the WMATA station are built, could provide an extremely convenient option for residents headed to sporting events or concerts at Nationals Park, Audi Field, or Capital One Arena.

ENHANCED DAILY SERVICE

All five existing commuter rail lines can use enhanced daily service, as described further below. VRE is actively planning and investing to expand service on both of its lines. MARC's Brunswick and Camden Lines have received less attention than the Penn Line in terms of how to advance capital investments or ridership growth beyond the important activities identified in MARC's Cornerstone Plan.[24] Focus is placed on them here to help raise the profile of potential improvements and respond to the strong interest of communities along the Brunswick and Camden corridors in future investment. Improved service would include all-day bidirectional service, weekend service, and run-through service. Options to advance improvements to these lines include:

- **Third track infrastructure**. Both Brunswick and Camden Lines will require a third track to substantially increase service. Significant planning for these tracks has not begun and should be advanced.
- **New stations**. New transit-oriented rail stations, such as that proposed at White Flint, can help boost ridership and open regional rail service to more jobs and households.
- **Address parking where appropriate**. High ridership stations like Germantown are currently limited in their growth by insufficient parking. Additional parking capacity, when combined with new transit connections and land use, could boost ridership further.

All three options require capital funding, and agreement must be reached on relevant provisions in existing agreements with CSX and operators for new third tracks and stations.

BIDIRECTIONAL PEAK AND OFF-PEAK SERVICE

Service today for both MARC and VRE generally operates into the District in the AM and out of the District in the PM. While the Penn Line provides bidirectional service, as do a small number of VRE and MARC Camden Line trains, offering more bidirectional train service during peak periods and throughout the day will better connect the region and open new ridership markets. An early opportunity that emerges is the ability to provide "cross-station transfers" at WUS. Today, schedule alignment and the ability to transfer between MARC and VRE is relatively limited at this station. In the future, with more bidirectional service, the operators could work to align schedules so that, even in the absence of full run-through service, as described below, a passenger could easily connect from the west side of WUS to the east side of WUS to continue on a commuter rail train heading where they want to go. Integrated fares and ticketing would make this a convenient option for regional passengers.

RUN-THROUGH SERVICE

For decades, the promise of run-through service between Maryland and Virginia has been a key driving force for re-envisioning commuter rail in the region. MWCOG's 2020 study, *Market Assessment and Technical Considerations for VRE-MARC Run-Through Service in the National Capital Region*, has further advanced the region's understanding of the value of run-through service and some of the associated challenges, which have been further developed and advanced in this report. Between now and 2045, the region must move from a scenario where all regional rail service stops at WUS to one where many trains are crossing the entire region each day.

STEP 1: Pilot

House Bill 1236 of 2020 in the Maryland State Legislature calls for MARC to explore running two daily run-through pilot trips as far south as Alexandria, VA. Regional advocates have called for this pilot to be implemented even before construction is complete on Long Bridge.

During this pilot phase, Penn Line equipment would be used to access Virginia. The Penn Line operates on the Northeast Corridor, which is accessed from the east side of the WUS terminal. Currently, to cross into Virginia, Brunswick and Camden Line trains would have to traverse the entire terminal from west to east, which, under current conditions, would cause disruption to overall operations. Only Penn Line diesel trains would be able to run through to points south of WUS.

Because of expected demand, the run-through pilot would likely run southbound in the AM and northbound in the PM, connecting Maryland residents with easier access to more District and Virginia jobs. There are three challenges with the potential pilot service on this ambitious timeline: train slots, WUS capacity, and turnaround facilities in Virginia. However, there are paths to overcoming each.

- **Slots.** Four scheduled train slots would be required to run the proposed MARC pilot. VRE could allocate two slots that are currently used for non-revenue activities. Two additional slots will become available as interim steps in the TRV program are completed and could be leveraged to pilot run-through service. Maryland would need to work with VRE, VPRA/DRPT, and CSX to gain access to these slots for this pilot.
- **WUS Capacity**. The run-through tracks on the lower level of WUS have existing capacity constraints due to demand for Amtrak service, low-level boarding platforms, and VRE service and staging. Further coordination with Amtrak on capacity would be required to identify available capacity opportunities and to mitigate any deterioration of existing service to facilitate this pilot level of service.
- **Turnaround**. If the run-through trains only continue through to Alexandria, they will need to "short-turn" to complete their round-trip back to Maryland. Turnaround could be facilitated at the existing siding along Business Center Drive in Alexandria, which would require additional signals and interlocking and coordination with VPRA/DRPT, VRE, and CSXT.

New ticketing policies on existing Amtrak service could also provide a strategy for supplementing run-through capacity by providing a one-seat and one-ticket express ride from Baltimore through to Fredericksburg or Manassas targeted to commuters.

STEP 2: Peak Period Penn Line Run-through

With the expanded Long Bridge capacity online and the four-track corridor in Northern Virginia to be completed later this decade, more run-through service becomes possible. Current service planning for Long Bridge calls for eight daily MARC trains to run-through to Virginia. Due to continued limitations in the Expand planning phase (pre-WUS expansion, as discussed in the prior section), only Penn Line diesel trains would run-through. Aligning with peak demand, run-through would only occur during peak hours. In this period, more avenues for addressing the critical issues in the way of run-through become available:

- **Slots.** With TRV complete, more regional rail operating slots would become available, facilitating run-through service as a replacement for traditional VRE service or in addition to existing peak frequencies.
- **WUS Capacity**. While capacity at the WUS terminal will still be limited, the completion of the Midday Storage Facility would open track capacity currently spent on storage and staging of trains.
- **Turnaround**. In addition to making use of an existing siding at Business Center Drive, which would likely need to be further enhanced during this phase, the new Crystal City Station may provide an additional turnaround location.

STEP 3: All-Day Penn Line Run-through

To expand to all-day Penn Line service beyond the eight trains envisioned in existing planning, two issues become more central to the ability to provide this level of service: fleet capacity and storage coordination.

- **Fleet.** Running more Penn Line trains beyond WUS and across the Potomac River will require MARC to purchase additional railcars and locomotives to maintain existing frequencies. That said, increased MARC frequencies in Virginia could reduce VRE fleet expansion needs. Collaboration and both cost and benefit sharing between the two agencies could help facilitate right-sizing the regional fleet for more run-through.
- **Train Storage.** Both MARC and VRE have large train storage needs as they look into the future. As a substantial number of Penn Line trains begin to enter Virginia, the ability to coordinate train storage and optimize the needed investment across agencies would both help to facilitate integrated service and potentially reduce both long-term capital costs of increased storage capacity and operating costs due to unnecessary deadheading.

STEP 4: Full Run-Through Integration

The Rail Vision foresees full run-through integration, with both MARC and VRE services running on either side of WUS and MARC's Brunswick and Camden Lines crossing into Virginia. To make this happen, four key issues emerge:

- **VRE Fleet Considerations.** For VRE to serve the Camden or Penn Lines, they will need to procure railcars compatible with both high and low-level platform environments. Such vehicles are increasingly available and are likely to be attractive options by the time that VRE's rail fleet comes up for renewal in 2030.
- **WUS modifications.** The WUS modernization and expansionproject will need to enable efficient Brunswick and Camden Line run-through movements for full integration to become a reality.
- **Brunswick & Camden Line improvements.** *As described above*
- **Enhanced station area activity.** As described in the *Land Use and TOD Planning* section, enhanced economic activity near regional rail station areas—both commercial and residential —is fundamental to the success of the Rail Vision. Current imbalances in demand can be overcome with a more balanced jobs-housing mix throughout the region at the more than 60 existing regional rail stations.

DELIVERING THE THIRTEEN STEPPING STONES TOWARD THE RAIL VISION

In addition to these highlighted opportunities, the table below lays out the full set of stepping stones towards world-class regional rail service.

SERVICE ELEMENT	LAUNCH	EXPAND	REALIZE/ TRANFROM	ADDITIONAL INFRASTRUCTURE REQUIREMENTS	OPERATIONAL REQUIREMENTS
Weekend VRE Service Hourly service on Saturday and Sunday. Service inbound in AM and outbound in PM. Both lines. Full extent of both lines.	**Current Plans**			• None. Weekend capacity exists based on ability to meet similar weekday demand, and agreements exist to permit weekend service with CSX.	• Additional resources to fund weekend operations • Agreement with Keolis—current contracted operator of VRE service—on expanded service • Institutional planning and preparedness • Potential revision of VRE's farebox recovery standards if weekend service is less profitable
	🟡	🟢	🟢		
	Vision				
	🟡	🟢	🟢		
Weekend MARC Brunswick Line Service Hourly service during Saturday and Sunday between WUS and Frederick/ Brunswick/ Martinsburg	🔴	🟡	🟡	• A third track in necessary locations between Point of Rocks and Silver Spring and additional signaling • Operations would be enhanced by WUS Expansion	• Negotiations with CSX would be required to permit the additional service on the Metropolitan Subdivision
	🔴	🟡	🟢		
Weekend MARC Camden Line Service Hourly service on Camden line on Saturday and Sunday	🔴	🟡	🟡	• A third track in necessary locations between Washington and Baltimore and additional signaling • Operations would be enhanced by WUS Expansion	• Negotiations with CSX would be required to permit the additional service on the Camden Line
	🟡	🟡	🟢		
Regular Midday VRE Service Regular, bidirectional hourly service outside of current peak periods in both directions.	🟡	🟡	🟡	• Four-track corridor between Alexandria and First Street Tunnel	• Potential additional crew hours (efficiencies with peak staffing may reduce relative cost increase) • Potential revision of VRE farebox recovery standards
	🟡	🟢	🟢		

🟢 = Transform 🟡 = Limited Progress 🔴 = No progress

SERVICE ELEMENT	LAUNCH	EXPAND	REALIZE/ TRANFROM	ADDITIONAL INFRASTRUCTURE REQUIREMENTS	OPERATIONAL REQUIREMENTS
All-Day VRE Service (Core Stations) 30-minute frequency on shoulder of peaks (assuming 15-minute peak headways), with hourly frequencies in mid-day and late evening. Assume peak-direction service only.	🔴 🔴	🟡 🟡	🟡 🟢	• Four-track corridor between Alexandria and First Street Tunnel • Additional capacity on lower level at WUS would benefit operational flexibility	• Additional crew hours • Potential revision of VRE's farebox recovery standards
All-Day MARC Service on Brunswick Line Hourly service outside of AM and PM peak periods on Brunswick Line	🔴 🔴	🔴 🟡	🟡 🟢	• A third track in necessary locations between Point of Rocks and Silver Spring and additional signaling • Operations would be enhanced by WUS Expansion	• Negotiations with CSX would be required to permit the additional service on the Metropolitan Subdivision
All-Day MARC Service on Camden Line Hourly service outside of AM and PM peak period on Camden Line between WUS and Baltimore Camden	🔴 🔴	🔴 🟡	🟡 🟢	• A third track in necessary locations between Washington and Baltimore and additional signaling • Operations would be enhanced by WUS Expansion	• Negotiations with CSX would be required to permit the additional service on the Camden Line
VRE & MARC Bidirectional Peak with Cross Honor at WUS 30-minute frequency bidirectional peak VRE trains during AM and PM periods. Trains would be timed to provide a "cross-station" transfer from VRE to MARC service. Service would extend entire length of both Manassas and Fredericksburg Lines.	🔴 🔴	🟡 🟡	🟡 🟢	• Allocation of additional Alexandria-First Street Tunnel slots	• Additional crew hours • Potential revision of VRE's farebox recovery standards • Coordination of "against traffic" travel with VRE/Amtrak peak direction travel • Coordination of CSX and NS access

🟢 = Transform 🟡 = Limited Progress 🔴 = No progress

SERVICE ELEMENT	LAUNCH	EXPAND	REALIZE/ TRANFROM	ADDITIONAL INFRASTRUCTURE REQUIREMENTS	OPERATIONAL REQUIREMENTS
MARC Bidirectional Peak Service on Brunswick Line Peak-period Brunswick Line service that heads north from WUS in the morning and south from Martinsburg/ Brunswick/ Frederick in the afternoon.	🔴	🔴	🔴	• A third track in necessary locations between Point of Rocks and Silver Spring and additional signaling • Operations would be enhanced by WUS Expansion	• Negotiations with CSX would be required to permit the additional service on the Metropolitan Subdivision
	🔴	🟡	🟢		
MARC Penn Line Run-Through Service into Northern VA (Core Stations) 30-minute frequency during peak hours. Bidirectional service. MARC Penn equipment is used. Only L'Enfant, Crystal City, and Alexandria served in Virginia.[25]	🟡	🟡	🟡	• Improvements to WUS to expand level of service • Four track corridor in Northern Virginia (needed to facilitate bidirectional service and turnaround) • Some signaling improvements not incorporated into existing projects • A storage/layover facility for Penn Line trains south of Alexandria Station • Dual-mode locomotives for Penn line fleet as Penn Line returns to all-electric operations	• Lengthening of train trip may require additional train crews • MARC crews would need to be trained on CSX RF&P rules and new CSX territory • Funding and governance strategy for crossing territory
	🟡	🟢	🟢		
MARC Brunswick/ Camden Line Run-Through to VA (Core Stations) 30-minute frequency during peak hours. Bidirectional service. MARC Brunswick/ Camden equipment is used. Only L'Enfant, Crystal City, and Alexandria served in Virginia	🔴	🔴	🔴	• Four track corridor in Northern VA • Improvements to WUS would be needed to expand level of service • Improvements to WUS to facilitate Brunswick-Camden access to Lower Level/First Street Tunnel • Some signaling improvements not incorporated into existing projects • A storage/layover facility for Penn Line trains south of Alexandria Station would be required	• Lengthening of train trip may require additional train crews • MARC crews would need to be trained on new CSX territory, but are familiar with CSX rules • Funding and governance strategy for crossing territory
	🔴	🟡	🟢		

🟢 = Transform 🟡 = Limited Progress 🔴 = No progress

SERVICE ELEMENT	LAUNCH	EXPAND	REALIZE/ TRANFROM	ADDITIONAL INFRASTRUCTURE REQUIREMENTS	OPERATIONAL REQUIREMENTS
VRE Run-Through Service on MARC Brunswick/ Camden CSX Lines 30-minute frequency during peak hours. Bidirectional service. VRE equipment is used.	🔴	🔴	🔴	• WUS improvements would be needed for full operations. • Improvements to the Brunswick and Camden Lines • *Note: Operations at WUS rail terminal may limit ability for trains to cross over from Brunswick/ Camden leads to east side of terminal for access to Lower Level/First Street Tunnel, even after WUS Expansion*	• Lengthening of train trip may require additional train crews • VRE Fredericksburg crews would need to be trained on a new CSXT territory, but are familiar with CSX rules • Funding and governance strategy for crossing territory
	🔴	🟡	🟢		
VRE Run-Through Service on MARC Penn Line/Amtrak NEC 30-minute frequency during peak hours. Bidirectional service. VRE equipment is used.	🔴	🟡	🟡	• Completion of WUS would facilitate operations • New VRE fleet for level-boarding service, dual mode locomotives, and Amtrak NEC compatible PTC • Penn Line capacity improvements may be required to accommodate overall increases in regional rail service	• Lengthening of train trip may require additional train crews • VRE crews would need to be trained on Amtrak/NEC operating rules and physical characteristics north of WUS • Funding and governance strategy for crossing territory
	🔴	🟡	🟢		

🟢 = Transform 🟡 = Limited Progress 🔴 = No progress

FIVE-YEAR ACTION PLAN

Creating a regional rail system for the Capital Region will require 25 years of dedicated work. The region should get started now, coinciding with the Launch planning phase of the Vision. Over the next five years, the region's political jurisdictions, railroad operators, and regional organizations can work together to advance meaningful planning, policy, and infrastructure decisions that will set the Capital Region on the course for better rail service for years to come. The chart below lays out some of the most meaningful steps to take, as explored in this report.

These activities are *fundamental* for the region to stay on the path of delivering the Vision's goals. If the region can come together to achieve them, as it has on other key infrastructure priorities in the past, a strong foundation will exist to push the Vision forward over the next quarter century.

STRATEGIES TO OVERCOME BARRIERS

FOCUS	TIMING	YEAR 1 2021	YEAR 2 2022	YEAR 3 2023	YEAR 4 2024	YEAR 5 2025
Strategy #1: Enhanced Regional Coordination	Year-by-Year	Develop MOU for Capital Region Rail Coordinating Convening (CRRCC) MDOT, VRE, DDOT, VPRA/ DRPT, sign CRRCC MOU	Develop a regional rail plan that brings together priorities for MARC, VRE, and Amtrak			Update regional rail plan as part of five-year cycle
	Ongoing Activities	**Annual and quarterly CRRCC review to coordinate plans, investments, joint benefit policies, and procurement strategies**				
Strategy #2: Shared Planning, Procurement, and Project Delivery	Year-by-Year		Develop a regional rail plan that brings together priorities for MARC, VRE, and Amtrak	Develop a shared procurement and delivery roadmap for run-through		Update regional rail plan as part of five-year cycle
	Ongoing Activities	**Coordinate on all major regional investments and procurements to promote further integration and interoperability**				

STRATEGIES TO OVERCOME BARRIERS

FOCUS	TIMING	YEAR 1 2021	YEAR 2 2022	YEAR 3 2023	YEAR 4 2024	YEAR 5 2025
Strategy #3: Integrated Fare and Ticketing Platform	Year-by-Year		Through CRRCC, partner with other transit agencies to develop an agreement on open design of mobile ticketing and payment systems and develop joint procurement goals	Develop a roadmap toward a regional data coordination agreement that will allow for seamless inter-agency service coordination	Explore joint procurement of fare and ticketing platform	
	Ongoing Activities	**Coordinate with other transit operators to establish shared plans and coordinate ongoing efforts to build towards integrated ticketing and fare payment platforms**				
Strategy #4: Harmonized Run-Through Brand	Year-by-Year			Identify values for run-through branding	Develop brand identity and logo for future run-through and cross-station transfer services	Begin to develop rollout campaign and implementation strategy
	Ongoing Activities	**Align on service strategies to inform approaches to run-through, including cross-station transfers at WUS, as means of defining service to be branded**				
Strategy #5: Funding and Financing	Year-by-Year	Identify and confirm key fleet, infrastructure, and operations investments needed to realize the Vision	Through CRRCC, develop a regional funding plan, combining a variety of sources, to implement the necessary investments	Advance rail funding program in Maryland to create focused resources for necessary expansion Revise Virginia farebox recovery standards to promote new service	Continue efforts to achieve Virginia and Maryland funding reforms	Building on regional funding plan, identify resources for next round of TRV program activities
	Ongoing Activities	**Coordinate land use and value capture mechanisms to support regional rail; advocate for Federal programs to better fund and advance regional rail improvements; pursue Federal grant and financing programs to support regional rail investments; encourage local participation in station and corridor projects; and identify opportunities for DDOT to contribute to rail improvements**				

	FOCUS	TIMING	YEAR 1 2021	YEAR 2 2022	YEAR 3 2023	YEAR 4 2024	YEAR 5 2025
STRATEGIES TO OVERCOME BARRIERS	**Strategy #6:** Land Use and TOD Planning	Year-by-Year	GWP & MPOs create process to track development, inclusivity, and equity near regional rail stations	GWP & MPOs set goals for development and inclusivity near regional rail stations	Target incentives to encourage inclusive development near regional rail stations	Support continued development of emerging station areas	GWP & MPOs update goals for development and inclusivity near regional rail stations
		Ongoing Activities	**Ensure TOD-supportive land uses in County and State Plans** **Coordinate land use and value capture mechanisms to support regional rail**				
KEY PLANNING PHASES	**Phase #1,** Launch—Key Infrastructure Investments	Year-by-Year		Launch planning studies to develop key infrastructure projects that have not yet been advanced but are fundamental to implementing the Vision (e.g., First St Tunnel). Work with stakeholders to advance the WUS Expansion Project following completion of the EIS	Advance Long Bridge into construction.	Advance design and planning on key corridor and station projects. Advance B&P Tunnel into construction.	Complete Northern Virginia four track corridor Advance planning studies for infrastructure that will help to achieve level of service articulated in Vision above and beyond existing plans.
		Ongoing Activities	**Advance projects identified in the regional rail plan. Most critical megaprojects include B&P Tunnel, Washington Union Station, and four-track corridor from WUS through Alexandria.**				

OUR CHARGE

The Vision is just the first step. The Greater Washington Partnership is actively working with partners at the federal, state, and local levels to put the 5-year Action Plan into practice.

In collaboration with key regional leaders, the Vision and this Technical Report articulates the path to delivering a coordinated and integrated regional rail network in the Capital Region. The work now turns to making this happen. All Visions and plans are only as good as their implementation. The Greater Washington Partnership is committed to working with our region's partners to realize this Vision through 2045 (see ***Key Stakeholder Implementation Roles*** section in the Rail Vision), starting with the Five-Year Action Plan. **We will work with partners to build the alliances and coordination needed to see this transformation take place in our region.**

The Vision is just the beginning. The Greater Washington Partnership is actively working with partners at the federal, state, and local levels to put the 5-year Action Plan into practice. In addition to coordinating advocacy for the Vision, the Greater Washington Partnership is committed to the following activities:

1. **Launch the Capital Rail Vision Progress Tracker**. This tracker will follow progress on the critical infrastructure, investment, and policy activities identified in the Five-Year Action Plan that the Capital Region needs to take now to realize the Vision. Together with policymakers and decision-makers, the Partnership will make sustained progress year-over-year.

2. **Track Forward Momentum of Regional Rail TOD.** Working with regional planning organizations, local jurisdictions, elected leaders, and diverse developers, the Partnership will launch a tracker of TOD planning efforts and outcomes at the region's rail stations.

3. **Support the Creation of a Capital Region Rail Memorandum of Understanding (MOU).** A joint MOU across agencies in Maryland, Virginia, and the District will help advance rail planning and progress toward the regional rail system presented in this Vision. The Partnership will work with its partners to encourage the state agencies and rail operators to develop and sign this MOU to create a convening and planning venue as soon as possible.

4. **Advancing Rail in Maryland**. The Partnership worked with leaders across the region to help pass HB 1236, Delegate Jared Solomon's 2020 legislation to advance MARC-VRE run-through, Camden-Penn line integration, and future connections with Delaware and Philadelphia. The Partnership is now turning to help secure more resources in Maryland for increased service and new infrastructure.

With these initial activities, the region will be able to make clear progress towards the Rail Vision, and with it deliver a region that is stronger, more economically competitive, inclusive, and integrated in the years to come. The region possesses the skills and talent necessary to deliver the Capital Region Rail Vision, and with a coalition of transportation advocates, labor unions, business, activists, and government leader, we can make this Vision happen.

CAPITAL REGION RAIL VISION ADVISORY COMMITTEE

To deliver the solutions outlined in this Vision, enduring cross-border and cross-sector unity will be needed. The Greater Washington Partnership is fortunate and thankful for the tremendous support from the Partnership Board of Directors, its Transportation Committee, the Rail Vision Advisory Committee, and key transportation sector partners who have guided this Vision effort. Special appreciation is extended to the Rail Vision Advisory Committee.

ADVISORY COMMITTEE MEMBERS

MONICA BACKMON *NORTHERN VIRGINIA TRANSPORTATION AUTHORITY*	**HONORABLE DANNIELLE GLAROS** *PRINCE GEORGE'S COUNTY*	**IAN OLLIS** *GEORGE WASHINGTON REGIONAL COMMISSION*
CHUCK BEAN *METROPOLITAN WASHINGTON COUNCIL OF GOVERNMENTS*	**DON HALLIGAN** *BALTIMORE METROPOLITAN COUNCIL*	**DANNY PLAUGHER** *VIRGINIANS FOR HIGH SPEED RAIL*
HONORABLE ELIZABETH BENNETT-PARKER *CITY OF ALEXANDRIA*	**HERBERT HARRIS, JR.** *BROTHERHOOD OF LOCOMOTIVE ENGINEERS AND TRAINMEN*	**BOB SCHNEIDER** *POTOMAC AND RAPPAHANNOCK TRANSPORTATION COMMISSION*
HONORABLE SHARON BULOVA *VIRGINIA PASSENGER RAIL AUTHORITY*	**AUDREY JOHNSON** *JOHNS HOPKINS UNIVERSITY AND HEALTH SYSTEM*	**STEWART SCHWARTZ** *COALITION FOR SMARTER GROWTH*
MAURA BROPHY *FEDERAL CITY COUNCIL*	**BRIAN KENNER** *AMAZON*	**HONORABLE JARED SOLOMON** *MARYLAND HOUSE OF DELEGATES (D-18)*
JAY CORBALIS *JBG SMITH*	**KATE MATTICE** *NORTHERN VIRGINIA TRANSPORTATION COMMISSION*	**GINA STEWART** *BWI BUSINESS PARTNERSHIP*
ALLISON DAVIS *WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY*	**JACK MCDOUGLE** *GREATER WASHINGTON BOARD OF TRADE*	**BEVERLEY SWAIM-STALEY** *UNION STATION REDEVELOPMENT COMMISSION*
DONALD C. FRY *GREATER BALTIMORE COMMITTEE*	**CLAYTON MEDFORD** *NORTHERN VIRGINIA CHAMBER OF COMMERCE*	

REGIONAL COLLABORATION

TECHNICAL PARTNERS

This Vision builds off the years of commitment and leadership from the region's public sector rail professionals. While the support does not constitute endorsement, this work would not be possible without the support, analysis, and engagement from these partners.

JEFFREY ENSOR *AMTRAK*	**JENNIFER MITCHELL, MICHAEL MCLAUGHLIN, KATHERINE YOUNGBLUTH** *VIRGINIA DEPARTMENT OF RAIL AND PUBLIC TRANSPORTATION*	**RICH DALTON** **CHRISTINE HOEFFNER** *VIRGINIA RAILWAY EXPRESS*
JEFFREY BENNETT *DISTRICT DEPARTMENT OF TRANSPORTATION*	**DEAN DEL PESCHIO, JADE CLAYTON** *MARYLAND TRANSIT ADMINISTRATION / MARYLAND AREA REGIONAL COMMUTER TRAIN*	

GREATER WASHINGTON PARTNERSHIP TRANSPORTATION COMMITTEE

The Partnership's Transportation Initiative and this Vision—guided by the Capital Region Blueprint for Regional Mobility—is nothing without the time, leadership and commitment from its Transportation Committee.

ROBERT M. BLUE *DOMINION ENERGY*	**W. MATTHEW KELLY** *JBG SMITH*	**KENNETH A. SAMET** *MEDSTAR HEALTH*
CARMINE DI SIBIO *EY*	**ROBERT MOSER, JR.** *CLARK CONSTRUCTION GROUP*	**MARK A. WEINBERGER** *INDEPENDENT DIRECTOR*

PROJECT TEAM

The Partnership acknowledges and appreciates the expert knowledge and commitment to this Vision from the project team that includes leaders from **EY, Gensler, VHB** and **WSP**. Additional thanks to the entire Partnership staff for their support to this effort, and others, as we work together with the Capital Region to make it one of the world's best places to live, work and build a business.

ABOUT

The Greater Washington Partnership is a first-of-its-kind civic alliance of CEOs in the region, drawing from the leading employers and entrepreneurs committed to making the Capital Region—from Baltimore to Richmond—one of the world's best places to live, work and build a business.

APPENDICES

APPENDIX A: GETTING STARTED: BEST PRACTICE FOR A REGIONAL MOU

Nearly as important as the compatibility of operating equipment and regional rail service is the financial and planning landscape. The first step for the region to advance the Vision is the creation of a more coordinated planning and investment effort between Maryland, the District, Virginia, MARC, and VRE. This starts with a Memorandum of Understanding (MOU) to begin the key coordination activities to advance the Vision across jurisdictions. Key elements and principles for a regional coordination rail MOU is presented below that is based on lessons learned from successful MOUs executed throughout the country.[26]

- **Clarify the entity's mandate.** The MOU should clearly indicate that it seeks to create a convening body with a clear mandate and expectation to continue if there are coordination issues to be resolved across agencies or another body replaces it.
- **Create a meeting cadence.** The MOU should spell out when the convening body, and any associated committees, should meet to continue to advance progress.
- **Bring in the agencies.** Key decision-makers should comprise the convening body members, including VRE, VPRA/DRPT, MARC/MTA, and DDOT.
- **Create an input mechanism for additional rail stakeholders.** Operators and rail owners, including Amtrak, CSX, NS, Bombardier, and Keolis, should have regular opportunities for coordination and input on key issues.
- **Advance labor conversations.** Regular conversations, including a Labor Committee comprised of representatives of the rail labor unions, will be critical to discuss potential labor issues that arise to permit run-through and expansion of service. This is an important mechanism for rail labor leaders to be an integral part of the strategic planning and Vision execution.
- **Develop a schedule for progress.** One of the key initial work products of the convening body should be a schedule to lay out a clear development plan for run-through and enhanced service. This schedule should include not just regular meetings, but also milestones for achieving key stepping stones as identified by the agencies and outlined in this report. The MOU should call for a schedule to be developed.
- **Develop a shared rail plan.** On the issues of most critical overlap, MARC and VRE should work together to develop a shared rail plan, and update existing system plans to reflect this coordination. The MOU could articulate steps toward developing this shared planning framework.
- **Prioritize run-through.** Run-through is just one piece of a transformed rail system for the region. However, it is the piece that has heightened interest and most requires the coordinated work of the convening body. Tackling the hows, whens, and whats of run-through should be reflected in the MOU as a top initial priority.
- **Discuss cost sharing.** The MOU should create a forum for the agencies to discuss operating and capital cost considerations, including opportunities for benefit-sharing and rationalization of cross-system investments.
- **Discuss convenient train scheduling.** As service increases, more coordinated train schedules can promote more effective transfers between services.
- **Coordinate on procurement, fare policy, and branding.** The MOU entity can serve as forum for MARC and VRE to formally coordinate on procurement issues, from planning consultants to major rail car purchases, as well as relevant fare policy issues and creation of a cross-regional rail service brand.
- **Communicate the future of rail.** From overcoming COVID to planning the future of run-through service, the convening creates a space for shared messaging about the future of rail service.
- **Coordinate on major regional projects.** The MOU should create the convening as a space for MARC and VRE, as well as additional rail stakeholders, to regularly check-in on the advancement of projects of shared priority and importance, and to coordinate comments and agency positions.

APPENDIX B: OPERATING EXPENDITURES FOR VISION

As shown in the table below, operating costs would grow when the full Rail Vision described in this report is implemented. The future projected operating costs, between $700 million to $1 billion annually, would be consistent with other high capacity regional rail systems in the United States. The MTA Metro-North Railroad costs $1.3 billion annually to operate, while the Long Island Railroad costs $1.7 billion per year.[27] Funding mechanisms to provide this level of service would need to be developed, but these increases in operating costs represent a public investment in a more connected, and more transit-oriented region.

The operating costs were calculated based on the schedule developed for the Vision. A range of estimate, using VRE and MARC's existing costing bases, was developed. The 2040 MARC and VRE planning scenarios used to estimate the 2040 conditions in the absence of this plan are inferred from MARC and VRE's long-term system. Current costs are based on report year 2018 National Transit Database figures for VRE and MARC and have been grown to 2020 levels. MARC and VRE fixed costs includes general and administrative salaries, wages, and benefits. Costs are on a per unit basis of train hours, train miles, or peak number of units (locomotives and cars). Saturday and Sunday service are assumed to be 25% of weekday service.

CURRENT AND VISION-LEVEL ANNUAL OPERATING EXPENDITURES
(IN MILLIONS, $2020)

OPERATING EXPENSE CATEGORY	ANNUAL OPERATING COST
Current MARC and VRE Operating Expenditures	$245
2040 MARC and VRE Planned Operating Costs (Additional to Existing Operating Cost)	$412
Incremental Vision Operating Cost in 2045 (Additional to Planned Operating Cost)	$240
Total Incremental Annual Cost in 2045 (vs. Existing Operating Cost)	**$653**
Total Operating Expenditures at Full Vision Operation in 2045	**$897**

Totals may not sum due to rounding

The high-level estimates of ridership presented in this report are based on projections published in the *MARC Growth and Investment Plan Update 2013 to 2050* and the *VRE Transit Development Plan FY 2020—2025*. These projections establish a baseline of estimated growth with conventional operations. A second estimating stage, utilizing composite factors derived from a number of previous run-through and long-range studies, was used to estimate the ridership increment due to a run-through service. This analysis applies the methodologies and assumptions utilized in the MARC and VRE plans for future growth and expands upon the key factors linked to the Vision—greater frequencies, shorter travel times and induced demand—to estimate ridership.

Applying this approach, concept-level total ridership estimates were generated. The results offer clear indication that the Vision's service could serve as an attractive option to provide job and other trip accessibility for many residents spanning Maryland, Virginia, and the District compared to existing service patterns. Concurrent with the ridership estimation, estimates of incremental fare revenue from the Vision's operation were developed. These estimates also followed a two-stage process by determining projected revenues from the baseline ridership forecasts and then applying revenue per passenger figures, derived from MARC and VRE reports and National Transit Database information, to estimate incremental fare revenue resulting from Vision service.

Data Sources

The assumptions used in this document were obtained from various data sources and include information regarding average annual passenger fares paid per passenger, annual fare revenues, and historical annual rail ridership to estimate future ridership and fare revenue. The data sources for this analysis include the following:

- National Transit Database Passenger Fare Recovery Ratio Tables: Provides fare recovery ratios as well as fare revenue earned per transit agency annually. This analysis applies historic fare revenue data from this source for 2010 to 2014.
- Annual National Transit Database (NTD) Fare Revenue Tables: Provides fare revenue earned for every U.S. transit agency annually. The analysis uses historic MARC and VRE fare revenue earned data from this source for 2015 to 2018.
- Annual National Transit Database (NTD) Annual Database: Provides historical annual ridership data per transit agency. This analysis uses historic MARC and VRE ridership data from this source for 2012 to 2018.
- Northeast Corridor (NEC) Tier 1 Draft EIS: Provides run-through service ridership projections that were applied to growth trends in both the MARC and VRE Plans.
- MARC Growth and Investment Plan Update 2013 to 2050: Growth projections for future ridership are applied to estimate the overall growth trends in MARC commuter rail ridership.
- VRE Transit Development Plan FY2020 - FY2025: Provides projected average daily ridership growth for Virginia's commuter rail through 2040. Estimates are based on VRE's long-term system-plans growth forecasts.

Annual Ridership and Revenue Estimates and Metrics

Stage I Baseline: Commuter rail ridership and fare revenue growth estimates are based on historical annual rail ridership and fare revenue data published in the NTD, and forecasts prepared by MARC and VRE.

MARC's ridership growth estimates are based on historical ridership data for FY 2007 through FY 2015. The agency identified a 3.5 percent annual projected growth rate across all MARC services. However, annual ridership projections by commuter rail service are as follows:

- Penn Line: 3.5%
- Camden Line: 0.5%
- Brunswick Line: 1.7%

Based on the current Capital Project timeline, average ridership growth projections for all three service lines

were averaged, providing an estimated annual ridership growth rate of 1.9% annually from 2019—2040. The 1.9% growth rate was used to approximate MARC's estimated annual ridership. The fare revenues per trip were estimated by averaging FY 2016—FY 2018 NTD ridership and fare revenue data. This results in a future fare revenue estimate of $5.65 per unlinked passenger trip in 2020 dollars. Average fare estimates were multiplied by annual ridership estimates to estimate MARC's annual fare revenue.

VRE ridership estimates are based on a 1% annual growth rate from FY 2019—FY 2025, as outlined in VRE's Transit Development Plan. Beyond 2025, the estimates are based on the plan's long-term forecast for FY 2030 and FY 2040. Based FY 2030 and FY 2040 ridership forecasts summarized in the plan, annual ridership growth between FY 2025, FY 2030, and FY 2040 was estimated. FY 2016—FY 2018 NTD ridership and fare revenue data was averaged to estimate passenger fare revenues per trip for VRE. The estimated average is $8.94 per unlinked passenger trip in 2020 dollars. Average fare estimates were multiplied by the annual ridership estimates to estimate VRE's annual fare revenue.

Stage II Run-through: NEC baseline ridership information was factored in to reflect the additional ridership accruing due to run-through service. This was done by generating a factor based on estimates from NEC FUTURE on the benefits of regional service. The growth rate factor was then used to multiply the MARC and VRE ridership estimates to represent the total number of riders that run-through service would generate additional to MARC and VRE's existing 2040 service plans.

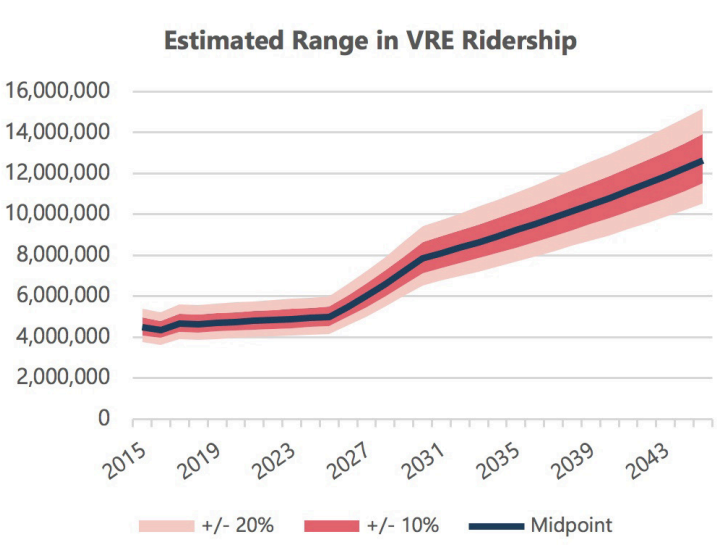
Results

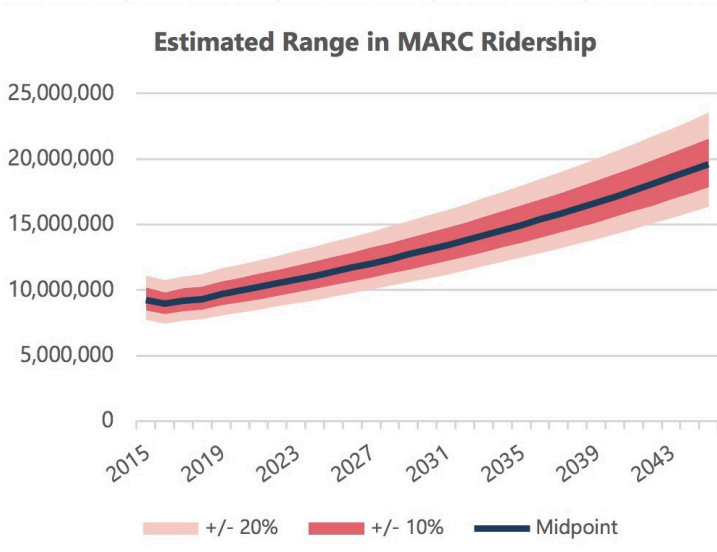
Based on this estimation approach, approximately 27 million to 39 million annual riders would make use of the Capital Region's Vision rail network, an increase of 87-169% over existing conditions. This growth is shown in the figures below.

Farebox Recovery

Using the same approach as above, we estimated farebox recovery for the future regional rail network. Due to the introduction of bidirectional off-peak and peak service, regional farebox recovery would decline from 41% to 31%, while overall revenues would increase from $97 million to $272 million.

MARC AND VRE RIDERSHIP





ENDNOTES

1. http://www.drpt.virginia.gov/rail/transforming-rail-in-virginia/
2. In this and all other phases, these status updates reflect ongoing commitments and project plans, but they too will need to be monitored for completion.
3. "AF2RO" represents the two interlockings between Arlington and Alexandria where a fourth track will be added to complete a four-track Northern Virginia corridor.
4. "AF2RO" represents the two interlockings between Arlington and Alexandria where a fourth track will be added to complete a four-track Northern Virginia corridor.
5. "AF2RO" represents the two interlockings between Arlington and Alexandria where a fourth track will be added to complete a four-track Northern Virginia corridor.
6. Remote work in the Capital Region, https://greaterwashingtonpartnership.com/publications/remote-work-in-the-capital-region/
7. Economic impacts associated with manufacture of rolling stock have been excluded from this analysis due to likely accrual of the majority of economic activity benefits to areas outside of the Capital Region.
8. See Funding and Financing section
9. https://www.transit.dot.gov/ntd/data-product/2019-annual-database-service
10. Capital Region Blueprint for Regional Mobility, https://greaterwashingtonpartnership.com/blueprint/
11. https://www.vre.org/about/board/board-agenda-minutes/2020/July/9a-auth-execute-contract-mobile-ticketing-services-pdf/
12. https://www.mta.maryland.gov/charmpass
13. https://www.mta.maryland.gov/charmpass
14. https://www.mtacharmcard.com/; https://www.wmata.com/fares/farecard-options.cfm
15. https://www.mta.maryland.gov/marc-fares
16. https://www.wmata.com/fares/farecard-options.cfm
17. https://www.vre.org/service/amtrak/
18. https://www.mta.maryland.gov/charmpass
19. https://www.wmata.com/fares/MobilePay/SmarTrip-App.cfm
20. Tickets available from stations as well as on board the train https://www.amtrak.com/onboard-ticket-purchase-and-pick-up
21. Originally specified in Appendix B of the Vision Report
22. For the Vision, the core is defined in Maryland as Washington Union Station to Baltimore/Frederick and in Virginia as Washington Union Station to Alexandria.
23. Joe Mathews, "CSX stops commuter service to park," Baltimore Sun March 28, 1996. https://www.baltimoresun.com/news/bs-xpm-1996-03-28-1996088011-story.html
24. https://s3.amazonaws.com/mta-website-staging/mta-website-staging/files/Transit%20Projects/Cornerstone/MCP_MARC.pdf
25. Eight peak-hour trains are currently planned for in operations plans for Long Bridge and WUS.
26. As Maryland also considers further coordination with SEPTA service, many of these same approaches apply.
27. https://new.mta.info/budget/MTA-operating-budget-basics