Capital Region Blueprint for Regional Mobility

Taking bold action to advance the Capital Region of Baltimore, Washington, and Richmond's transportation system.

GREATER WASHINGTON PARTNERSHIP
FROM BALTIMORE TO RICHMOND.
FOSTERING UNITY. ADVANCING GROWTH.

Contents

Vision For Our Future

By working together we will leverage our unique strengths, our diversity and the power of commerce to help make the Capital Region of Baltimore, Washington, and Richmond:

- ...the best place to work, raise a family, and build a business
- ...a dynamic and inventive business environment with a purpose-driven community
- ...a home for those seeking opportunity to fulfill their aspirations and thrive
- ...an economic powerhouse that attracts the creatives, entrepreneurs, technologists, and people who dream big
- ...a place with the transportation, housing, education, and healthcare systems designed and shaped for the 21st century
- ...a global magnet for talent and innovation

... establishing Baltimore, Washington and Richmond as the model for a thriving super-region.

Many of us take for granted the daily efforts of the thousands of dedicated professionals who work tirelessly to help us move around the region. On behalf of the Greater Washington Partnership and the more than 175,000 employees our Board Members employ, we thank you for your service. We want to work with all of you to help provide you with the tools you need to do your job, and ensure you are part of a transportation system that is the envy of the world.

From Vision to Action—
The Capital Region's Mobility Agenda

The Capital Region of Baltimore, Washington, and Richmond is an economic powerhouse—the third largest regional economy in the United States[1], and the seventh largest in the world.[2]

With more than 10 million people; hundreds of major companies; world-class universities and research institutions; four significant airports; two marine ports; proximity to the ocean, mountains, and the bay; access to the arts and top-notch museums; and the seat of the United States government, our region has unparalleled strengths, diversity, and potential.

Our transportation system, however, is too often failing to meet our needs; and, as the population continues to grow, the system is on path to become a liability that undermines our competitiveness and impedes our quality of life. The Capital Region's transportation system was built over decades and it, indeed, boasts an extensive network of multi-modal assets compared to many peers. The challenges the system faces are a result of the lack of coordination across jurisdictions, underinvestment relative to growing consumer needs, and inconsistent execution due to the lack of a clear and consistent agenda for the region. We are already feeling the pinch—through lost wages and productive working hours, higher prices of goods as the cost of moving freight rises, and challenges attracting and retaining talent.

Even if we execute on currently planned investments, we will only slow the deterioration of our transportation system's performance. With currently planned investments, by 2040 the region's consumers are projected to see congestion grow by more than 150 percent from 2015 levels.[3] In other words, by 2040 the region's consumers will go from sitting in congestion 30 percent of each trip to nearly 50 percent.[4]

This is unacceptable. We must act with urgency and boldly look to both straightforward and innovation solutions. We must collaboratively approach this collective challenge. That is what is required for the Capital Region to take its appropriate place as one of the most important regions for decades ahead, a region that is a global leader with a high quality of life, a region where everyone can thrive and reach their potential.

It is with that challenge that the Greater Washington Partnership embarked to develop a *Blueprint for Regional Mobility*. Yet, the development of such an effort requires the input and collaboration of many. With support, collaboration, and input from the public and hundreds of stakeholders across the Capital Region, the national and regional leaders who comprise the Partnership's Regional Mobility Steering Committee, the Equitable Access Task Force, and the Employer Mobility Solution Task Force, the Greater Washington Partnership releases the *Blueprint for Regional Mobility*, a performance-based **transportation agenda bridging jurisdictional boundaries,** combining a range of solutions to drive improvement around four priorities: **(1) connecting the super-region; (2) improving consumer experience; (3) ensuring equitable access; and (4) integrating innovation.**

The Capital Region's *Blueprint for Regional Mobility* lays out an agenda for working together to make tangible progress on these priorities, with **specific actions** our region's public leaders and private employers can take to address the unique challenges facing our region. Only through collective action can we ensure that **when one wins, we all win.**

Together, we can reshape our region's transportation system. Implementation of the Blueprint's solutions will measurably improve the performance and reliability of our transportation system for all of our region's residents—transforming the system into an asset that ensures we remain globally competitive. The prosperity and future success of our region are too important for us to wait any longer.

Co-Chairs, Greater Washington Partnership
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Chairman, President & CEO
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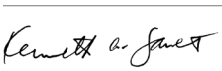

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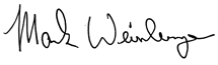

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Creating the Blueprint

The Greater Washington Partnership is a first-of-its-kind civic alliance of CEOs, drawing from the leading employers and entrepreneurs in the Capital Region. The Partnership, stakeholders, and transportation experts understand that changing our trajectory as a region and solving our transportation challenges will be achieved only through leadership within the Capital Region.

The development of the Blueprint was guided by the national and regional leaders comprising the Partnership's Regional Mobility Steering Committee. The Committee advised and directed the development of the Blueprint's solutions and actions, meeting monthly starting in July 2017. The Partnership was greatly aided by an Equitable Access Task Force created to support the development of Blueprint actions. The Task Force is composed of national and regional leaders helping the country overcome inequities from transportation plans and investments. The Task Force identified how the region's transportation policies could be reconfigured to shape an equal-opportunity, inclusive region through deliberate policies and investments. Senior leaders from the Partnership's Board companies developed the Employer Commuter Mobility Programs and corresponding actions that each company in the Capital Region is urged to adopt to put the private sector's skin in the game and deliver impactful outcomes.

Executive Summary

Imagine if living in the Capital Region of Baltimore, Washington, and Richmond meant you had easy-to-use, reliable choices to get to a job, to a medical appointment, or to our world-renowned museums.

Imagine if moving throughout the corridor from Baltimore to Richmond was so convenient, affordable, and fast that the Capital Region was respected around the globe for its leading, interconnected transportation system.

What if you could reliably take the train between Baltimore, Washington, and Richmond for a morning meeting and get back in time for lunch? What if you could use your smartphone to easily and quickly plan and pay for any trip in the Capital Region, whether by bus, rail, ride-share, bike, scooter—or a combination of several travel options? What if the bus was the fastest and most reliable option connecting your neighborhood to your job? What if a seamless toll network on our highways gave you the option to pay to speed up your drive to make it to your daughter's recital, while also ensuring carpools, vans, and buses are always the fastest movers on the road?

This future is within our grasp. It is up to all of us. To achieve it, though, we need a different approach. One that consistently executes on our region's most pressing transportation priorities. One where our jurisdictions and our transportation providers act together, breaking from their structural and jurisdictional silos to benefit all the residents of the Capital Region. That is the vision of the *Blueprint for Regional Mobility*, a set of solutions that measurably improve our transportation system, that put our region on the path to being a mobility leader, that reduce too-common daily headaches, that connect our incredible people and assets, that overcome long-standing inequities exacerbated by our past transportation decisions, and that smoothly integrate new technologies to ensure we are realizing their potential benefits.

The Blueprint is a call to action for the region.

The *Blueprint for Regional Mobility* is the Capital Region's first employer-led, comprehensive, region-wide transportation agenda that identifies specific actions to improve mobility spanning the region's jurisdictions and integrate all transportation modes. More than 75 entities—public and private—play a significant decision-making or operation role in delivering mobility options and services in our region. The Partnership's release of the Blueprint is a call to action for the region to improve coordination to overcome progress-impeding organizational silos. Each metro area in the Capital Region—Baltimore, Washington, and Richmond—have unique mobility needs that must be addressed. The solutions contained herein tackle the region's most pressing transportation challenges and will require the region—the public and private sector, multiple jurisdictions and mobility providers, and the entire community—to work together. Some of the solutions can be implemented quickly, while others will require years of persistence. Some of the solutions can be implemented with little funding, while others will require significant public or private investments. Undoubtedly, in the years ahead, we will work together to make changes and re-prioritize our needs. But this gives us a roadmap to start—one based on data and analysis combined with the input of both transportation experts and hundreds of stakeholders across our region.

Unless we can move together in a new direction, we will remain tethered to the flaws of the current approach. If we can move together, however, we can deliver a transportation system consistent with the needs and aspirations of the millions of Capital Region residents today and tomorrow.

Our Current Trajectory

Over time, the Capital Region of Baltimore, Washington, and Richmond has built a multi-modal transportation system that has facilitated the growth of the third largest U.S. regional economy.[5] But our actions have fallen short of our current needs—and the situation is only projected to get worse.

- **Multi-jurisdictional coordination of transportation plans and investments is not keeping pace with the demands of the region's 10.2 million residents,** of whom nearly 50 percent cross county borders and 20 percent cross state lines to access their job site on a daily basis.[6]

- **Over the next 20 years, the region is projected to add 2.4 million residents, which will increase pressure on an already burdened system.**[7] If our current transportation options remain insufficient, this growth will mean more drivers on our roads and more transit and commuter rail riders on already filled vehicles, creating a massive strain on the transportation system.

- **Under current projections and planned investments, roadway congestion will worsen across the Capital Region through 2040, with congestion expected to show a region-wide increase of more than 150 percent and a per capita increase of 125 percent from 2015.**[8] In daily life, this means that, on average, each person will spend nearly 50 percent of their travel time in a vehicle sitting in congestion by 2040; and, unless prioritized, bus trips will slow and become less competitive as a travel option.[9]

- **Our region's constrained transportation system limits our potential for economic growth as well as our competitiveness for attracting and retaining a diverse and talented workforce.** The Capital Region has experienced GDP growth at half the rate of peer regions in the past five years—negatively impacted by transportation's deteriorating performance.[10] The severity of our region's congestion makes it challenging to retain talented workers, with more than half of millennials in the Washington metro area willing to consider moving out of the region due to "horrendous traffic" that makes their daily lives and future prospects unsatisfactory.[11]

- **Limited mobility options reduce equitable access to economic and social mobility for all consumers, further holding back our region's economic potential.** When all residents can easily access various businesses and activity centers, reach a broad range of jobs, and gain new skills at our world-class education institutions, the transportation system better drives sustained economic productivity and growth. That is not the case today, with black residents in the Capital Region are almost 3x as likely as white residents to live in areas with poor transit accessibility to jobs and low vehicle ownership rates.[12] Households in poverty are almost 2.5x more likely to live in areas with poor transit access to jobs and low vehicle ownership rates.[13] Improving access to jobs and essential destinations for all residents (regardless of vehicle ownership) will further drive our economic growth and solidify the Capital Region as a world-class place to live and work for all.

What Our Region's Future Could Look Like

The transportation agenda presented in this *Blueprint for Regional Mobility* outlines the specific actions leaders in the Capital Region should take to create a well-performing system.

This system provides faster, more reliable, and robust transportation options connecting our central business districts; reduces transportation costs; increases the region's productivity and quality of life; increases social and economic mobility for all consumers; and maximizes new technology to more rapidly and efficiently achieve our desired goals.

The *Blueprint for Regional Mobility* was informed through engagement, analysis of existing plans and transportation initiatives in the Capital Region, as well as analysis of best practices and innovative transportation solutions proven effective in other regions around the world. The Capital Region can leverage the experiences of its national and international peers to improve the performance of our transportation system. Based on the results achieved in leading regions—and expert analysis completed in the Capital Region—this is what our region's future could look like:

- Expanding and connecting the Capital Region's toll network using performance-driven tolling could increase the speed and reliability of roadway travel, and save drivers from the Washington metro area alone more than 50 million hours per year from reduced congestion levels.[14]

- Replacing the 145-year-old B&P Tunnel could create long-term jobs in West Baltimore and triple capacity in the Northeast Corridor for MARC, reducing travel times and increasing MARC ridership to 70,000 riders per day.[15]

- Offboard payments, in which public transportation consumers complete their ticket purchase before boarding a bus could reduce time spent at each stop and increase bus speeds by 10 percent[16]—reducing average transit trips in the Capital Region by more than 5 minutes.[17]

- Decongestion pricing zones for our central business districts could reduce congestion by 25 percent, increase personal and transit vehicle speeds by 25 percent, and reduce carbon pollutants by more than 10 percent—as was witnessed in Stockholm.[18]

- Employers' adoption of robust employer mobility programs could improve the speed and reliability of travel by eliminating nearly 1.5 million daily vehicle trips.[19]

- Ensuring more equal economic opportunity in Fairfax County alone could generate over $26 billion in annual GDP for the Washington metro area. Fairfax is just one of our region's 50 local jurisdictions—the increase in GDP in the region if all jurisdictions ensured more economic opportunity would be significant. [20]

- Investments in multi-use trails could increase bicycle and pedestrian travel (which are shown to reduce health costs)—generating a return on investment as high as 8:1 in other regions.[21]

- Implementing system-wide smart traffic signal technology could reduce trip times by 25 percent and reduce pollution by lowering vehicle idling time by more than 40 percent.[22]

- In the future, we could have a shared, autonomous transport system in our urban areas that (1) reduces the number of vehicles on the roads by more than 50 percent, and (2) increases public space for other transport options by reducing the need for on-street parking.[23]

Costs

For each of the actions below, the Blueprint includes a discussion of their associated costs and other potential barriers to implementation.

Some actions, such as rail and highway improvements, could come with significant costs. In many cases, the solutions offered here could be accomplished at little to no cost by being incorporated into existing policies and investment programs. Where feasible, the Partnership has included a discussion of return on investment that could be expected from pursuing the solution—grounded in studies completed by transportation agencies in this region and in the experiences of other cities and regions.

In pursuing performance-driven solutions, the actual costs of implementation must be thoroughly considered against the results the solution is expected to achieve. The Blueprint should be a springboard for discussion and action—in which further detailed analysis of both costs and benefits in the Capital Region will be part of an ongoing process, facilitating a consistent and unwavering focus on outcomes.

Implementing the Blueprint

The Partnership is committed to working collaboratively with public and private stakeholders to implement the actions charted in the Blueprint.

In turn, this will alter the region's transportation performance to better connect the super-region, improve the consumer experience, ensure equitable access, and integrate innovation.

Many of the actions require our public officials to make bold moves, but they cannot take those moves without the full support of the community. That is why we must hold one another accountable—measuring the results of action while being able to acknowledge when progress has stalled or when a prior recommendation requires a different path. Together, we can achieve meaningful change—but only if, together, we are also persistent.

We call upon and invite transportation decision makers and stakeholders in the Capital Region to join us in implementing the actions charted in the Blueprint—to transform our region's transportation system and, with it, ensure the Capital Region is one of the world's best places to live, work, and build a business.

Priorities for the Region

The Partnership identified four mobility priorities on which our region must make progress in order to achieve our vision for the Capital Region.

That vision is to leverage our unique strengths, our diversity, and the power of commerce to establish Baltimore, Washington, and Richmond as the model for a thriving super-region—a dynamic, globally competitive place to live, work, raise a family, and build a business.

Priority 1: Connect the Super-Region

Currently, the Capital Region suffers from congested roads and railways, inconsistent travel times, and limited transportation solutions to turn to when delays arise. Travel times can vary by nearly an hour—and a morning drive from Baltimore to Washington can take up to 240 percent longer than the same trip without congested traffic.[24] For train travelers, train schedules across the region are imbalanced and experience frequent delays.

OUR ASPIRATION: Through faster, more reliable, and robust transportation options, we will create a more closely connected super-region—starting by connecting the major downtown activity centers of Baltimore, Washington, and Richmond—that maximizes the economic benefits of expanded access to talent, jobs, housing, and intellectual and social amenities.

Priority 2: Improve the Consumer Experience

Attracting and retaining the workforce that the region's employers need now and in the future will depend in part on improving residents' quality of life and the productivity and opportunity afforded to them from the region's transportation system. Recurring delays and unreliable commutes degrade the consumer experience for those traveling in the Capital Region. While some congestion during rush hour may be unavoidable, the Capital Region lags behind its peers. In the Washington metro area alone, the average commute exceeds the national average by 31 percent.[25] The technology is available to create integrated trip planning and payment options for all mobility options—public and private—in the region. Yet our transportation agencies are not moving to enable the marketplace for the platform to exist.

OUR ASPIRATION: Through an enhanced, modernized, and coordinated network of transportation options cutting across our region's jurisdictional boundaries, travel to and from daily destinations will be seamless and reliable—resulting in greater productivity and higher quality of life.

Priority 3: Ensure Equitable Access

Today, many consumers are without essential access to transportation options, limiting their upward economic and social mobility and holding back our region's full potential. After housing, transportation is the second largest expense for households. For low- and moderate-income households in particular this cost burden can limit the ability of people to escape poverty. An outcome of inequitable growth, childhood poverty is estimated to cost the U.S. economy $500 billion per year.[26] The outcomes of inequitable growth also lower our region's economic performance. Rising inequality and racial gaps in Fairfax County cost the Washington metro area $26.2 billion in lost GDP in 2012.[27]

Economic opportunities throughout the Capital Region are drastically reduced for individuals without a car. Within 45 minutes, transit provides access to just 11 percent of the total number of jobs available by vehicle.[28] Black residents in the Capital Region are almost 3x as likely as white residents to live in areas with poor transit access to jobs and low vehicle ownership rates.[29] Households in poverty are almost 2.5x more likely to live in areas with poor transit access to jobs and low vehicle ownership rates.[30]

OUR ASPIRATION: Through affordable and diverse transportation options, every resident of the Capital Region—regardless of his or her community—will have access to the employment, education, and healthcare opportunities that enable economic mobility and opportunity.

Priority 4: Integrate Innovation

Individual jurisdictions in the Capital Region are leading the way on integrating mobility innovations, but coordination at the regional level is limited. Effectively incorporating innovative technology and mobility options on a regional level has the ability to help improve the mobility consumers experience, maximize the region's existing transportation resources, attract entrepreneurs, and establish the region as a global mobility innovation leader.

OUR ASPIRATION: By encouraging and enabling the consistent, seamless, and rapid adoption of mobility innovations across the region and jurisdictional boundaries, we will enable and accelerate a highly connected super-region, an improved consumer experience, and more equitable access for all.

Priority 1

Connect the Super-Region

Priority 2

Improve the Consumer Experience

Priority 3

Ensure Equitable Access

Priority 4

Integrate Innovation

Summary of Solutions and Actions

This Blueprint is organized into seven solutions that together address the key transportation challenges facing the Capital Region. Each solution includes specific actions the region's leaders and stakeholders must take to advance the solution—along with clear next-move recommendations that outline a roadmap for each of the specific actions.

Solution One: Modernize Intercity and Commuter Rail

Currently, more than 225 daily passenger and commuter trains connect Capital Region consumers to jobs, appointments, and tourist destinations.

Yet, the passenger and commuter rail system is constrained, limiting the ability for the region's trains to come near top speeds and making trips unreliable—both which discourage use and limit the competitiveness of trains with vehicles. Decades of underinvestment are largely to blame.

Many stretches are just two tracks—the equivalent of a two-lane road trying to move billions of dollars in goods each year and attempting to rapidly, frequently, and reliably connect the central business districts of Baltimore, Washington, and Richmond. The train network also suffers from a lack of coordination across jurisdictions and service providers, a shortcoming that impedes progress on key investments that would reduce congestion on the tracks and induce greater ridership—lessening demand on the roadway network—through competitive and more reliable service.

The Capital Region's commuter rail corridors represent a sleeping giant for economic development. Investments to expand tracks and structures between Baltimore, Washington, and Richmond could allow trains to travel at speeds exceeding 125 miles per hour for the majority of the trip. These investments could dramatically increase intercity and commuter-rail capacity and ridership in the corridor, reduce traffic congestion, and increase economic growth in urban and suburban communities. Many of the station areas have the potential to replicate the commercial and economic development success of WMATA's Silver Line corridor. To turn station areas into economic development success stories, the region should expand service and improve coordination between local governments and commuter rail operators.

The Capital Region should prioritize investments in critical rail assets to transform its service and improve the speed, frequency, reliability, and economic development potential from rail travel in the region.

ACTIONS

ACTION 1.1

Streamline planning and secure funding for projects that remove bottlenecks limiting the rail system's speed, frequency, reliability, and growth

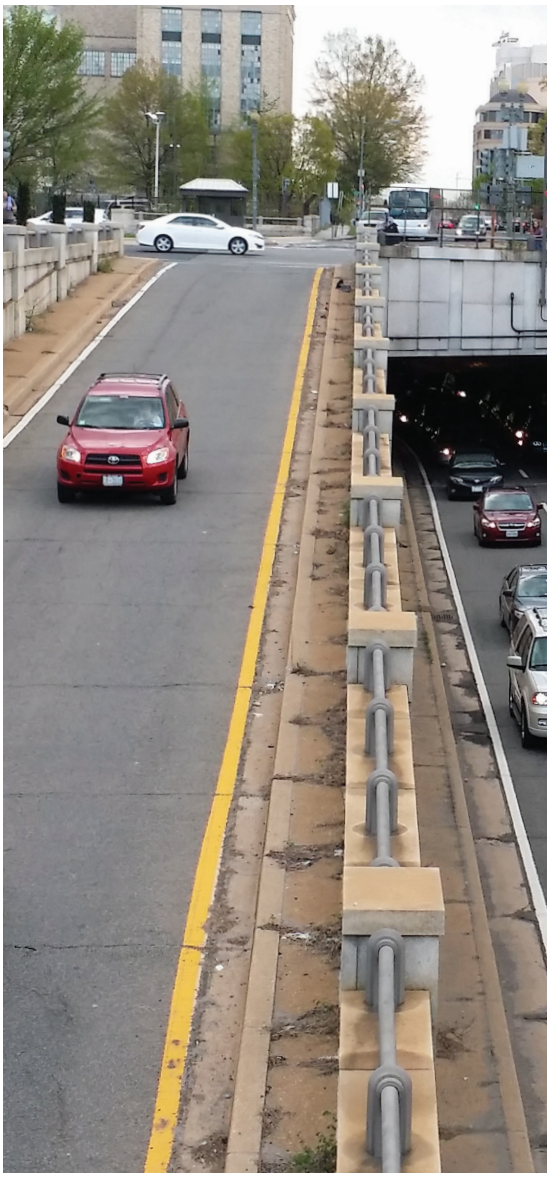
ACTION 1.2

Create a redevelopment compact to expand and modernize Union Station; redevelop Baltimore Penn Station and Staples Mill Station

ACTION 1.3

Create a seamless commuter rail network by expanding and integrating MARC and VRE services

Solution Two: Improve Roadway and Trail Performance

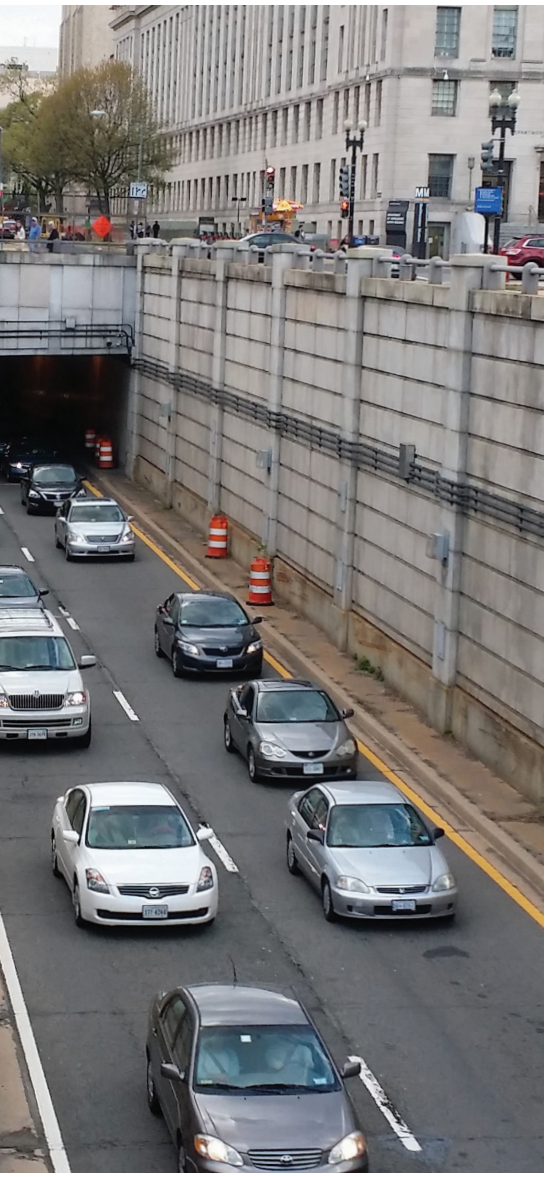


While congestion is a sign of robust economic activity, excessive congestion inhibits our economic performance by limiting the ability of consumers to access jobs, arrive on time for work and meetings, and efficiently access necessary services like education and healthcare.

Many parts of the region suffer from excessive congestion today, and projections show congestion will worsen by 2040, growing by more than 150 percent throughout the Capital Region.

What if a seamless performance-driven toll network on our highways gave you the option to pay to speed up your drive to make it to your daughter's recital, while also ensuring carpools, vans, and buses are always the fastest movers on the road? **Performance-driven tolling** is a tool that, when deployed correctly, can reduce congestion, increase speeds, and improve reliability by allocating a fee to single occupant vehicles. This creates incentives for consumers to divert trips to non-peak periods, increase vehicle occupants to travel free of charge, or opt for public transportation and carpooling.

The Capital Region is at the national forefront of using performance-driven tolling to combat roadway congestion and improve mobility and access. In total, Maryland and Virginia have 35 toll facilities operating, under construction, or in planning stages (13 in Maryland and 22 in Virginia). However, not all of the Capital Region's toll facilities deliver performance-driven outcomes, and **the region currently lacks the strong intra-regional coordination necessary to maximize the potential benefits of this innovative mobility solution.** For example, Maryland plans to create toll facilities on I-495, I-270, and the Baltimore-Washington Parkway, and connect these toll lanes with Virginia's I-495 express lanes, but there is no requirement for the two toll networks to seamlessly integrate.



If done correctly, expanding and connecting the Capital Region's toll network using performance-based tolling could produce significant congestion benefits, with estimates suggesting peak period delay could be reduced by 11 percent.[31] Analysis conducted in 2017 by the National Capital Region Transportation Planning Board's (TPB) Long-Range Plan Task Force found that a toll network would directly address several of the Washington metro area's most significant roadway bottlenecks, including a new American Legion Bridge.[32] Charging drivers a toll to enter congested central business districts is another cost-effective way to reduce congestion and raise revenues that can improve the performance of the entire transportation system. London, Stockholm, and Singapore have implemented decongestion pricing schemes—resulting in 20-30 percent congestion reduction.[33]

The Capital Region benefits from hundreds of miles of multi-use trails. Investments in a few critical trail connections for bicyclists and infrastructure for pedestrians can achieve further reductions in congestion, increase economic development, and improve community health outcomes. The Baltimore and Washington metro areas have clear strategies to close gaps between existing trails and the Richmond metro area should develop such a strategy. If executed well, the region has the potential to generate economic benefits as high as an 8:1 return on investment as seen in other U.S. regions and reduce rates of chronic diseases—reducing direct health treatment costs in the community.[34]

The Capital Region should maximize the performance of the roadway network by expanding and coordinating a performance-driven toll network and making necessary investments to relieve chokepoints, while also expanding and connecting the region's multi-use trail networks to increase access to recreation and safe travel options for bicyclists and pedestrians.

ACTIONS

ACTION 2.1

Expand and coordinate the region's highway performance-driven toll lane network

ACTION 2.2

Investigate a system to charge drivers entering the Washington metro area's most congested central business districts

ACTION 2.3

Complete the Baltimore Greenway Trails Network and Capital Trails Network, and establish a Richmond trail network strategy

Solution Three: Create High-Performing Public Transit

Public transportation is particularly important for older adults, young employees, lower-income residents, students, the disabled, and those who do not own cars.

The Capital Region offers varying levels of transit service to consumers, with high levels of service provided in urban areas and low to no service provided in some neighboring suburban jurisdictions. These variances in the availability and quality of transit service—especially in the Baltimore and Richmond metro areas—**place many jobs and activity centers out of reach except by car.**

For many transit users in the Capital Region, traveling by vehicle is not an option. While only about five percent of workers in the Capital Region lack regular access to a vehicle, about a quarter of transit commuters lack cars.[35] For the Baltimore and Richmond metro areas, that figure is more than one-third.[36] Limited transit service in these areas denies access to upward economic mobility for many people and limits the region's ability to grow.

The region's bus networks—the primary transit vehicle in much of the region—often lack adequate political support to close these service gaps, and properly coordinate and prioritize efficient bus movement. The entire Capital Region has only 12.5 miles of dedicated bus lanes—a proven technique to increase the speed, reliability, and ridership of buses.[37] Of the thousands of intersections in the region, there are just over 300 intersections enabled with transit signal priority (TSP).[38] Richmond's new Pulse bus rapid transit (BRT) is the only bus service in the region that allows off-board fare payment to speed up boarding.

By working together, the various public transportation agencies across the region can offer a safer, higher-quality, and more expansive service, plus attractive fares, which can better compete with other transportation options and increase ridership. In Hamburg, Germany, a metro area serving roughly the same population as the Washington Area Metropolitan Transit Authority (WMATA), the public transportation association coordinates 29 public transportation operators, and has successfully grown ridership across the metro area by 72 percent from 1990 to 2015 to more than 750 million trips annually.[39] That's nearly twice as many trips as WMATA provided in 2015.[40] In addition to increased ridership, more frequent and reliable public transportation in the Capital Region will improve access to essential destinations, opening up a wider range of employment and educational opportunities for residents.

The Capital Region should prioritize public transportation in its planning and funding decisions and increase coordination among transit agencies and state and local governments to create a seamless, integrated network of high-performing public transportation options to serve the region's mobility needs.

ACTIONS

ACTION 3.1

Increase the speed and reliability of Baltimore's transit system while establishing a bold vision for an expanded system

ACTION 3.2

Optimize Washington's bus network and enhance coordination of the metro area's public transportation options

ACTION 3.3

Expand rapid transit options to better connect consumers with essential destinations throughout the Richmond metro area


LORD BALTIMORE HOTEL
RIGHT LANE
BUSES BIKES ONLY ALL TIMES
ONLY
BUS

Solution Four: Grow Employer Mobility Programs

Many employers provide employer mobility programs for their employees such as offering pre-tax transit passes and alternative work schedules or promoting carpools and vanpools, which can provide cost savings by lowering employers' parking costs while also increasing the attractiveness of employment for current and potential workers.

If coordinated, employer mobility programs can reduce congestion and improve the transportation system, with estimates that **nearly 1.5 million daily vehicle trips could be eliminated if leading employer mobility programs were adopted throughout the region,**[41] with MWCOG estimating that the **Washington metro area alone could reduce congestion by 24 percent.**[42] To put this impact into perspective, the I-95 express lanes carry 30,000 vehicle trips a day.[43]

However, **the disjointed implementation of employer mobility programs at work sites and programs offered by transportation agencies in the Capital Region make it challenging to achieve the large reductions in congestion that similar programs have achieved elsewhere. The programs offered by the various jurisdictions creates a maze that employers and employees in the region must navigate to determine what they might be eligible to receive based on their home and work locations.** A variety of employer mobility programs exist across the Capital Region—some of which are supported with limited funding by Maryland, the District, and Virginia; metropolitan planning organizations (MPOs); local jurisdictions; and transportation management associations (i.e., associations that provide mobility programs in a particular area, such as a commercial district, medical center, or industrial park); as well as employers. This patchwork of public programs and policies are not always coordinated, providing a disincentive for large employers with sites in multiple jurisdictions to leverage these resources.

Both the public and private sectors have key roles to play in creating regional, consumer-oriented employee mobility programs that successfully reduce the region's congestion. Private companies can lead by implementing game-changing programs and the public sector could enhance the effectiveness of their scarce resources to encourage greater use by the private sector.

ACTIONS

ACTION 4.1

Challenge the region's employers to implement game-changing commuter programs to enhance talent attraction and collectively reduce congestion during peak travel periods

ACTION 4.2

Enhance the effectiveness of public commuter programs to increase their use by private employers—to complement an expanded employer commitment

Solution Five: Expand Access to Opportunity

When all residents can easily travel to various businesses and activity centers, reach a broad range of jobs, and access an education by transit or other affordable trip options, there is increased economic growth.

However, the region's transportation system does not always provide equitable access, which fosters inequitable growth and inhibits the Capital Region's economic potential. This creates a challenge because regions that are more inclusive experience greater upward mobility and stronger, more sustained growth.[44] For example, a study by PolicyLink and PERE found that Fairfax County's inequality and racial gaps cost the Washington metro area $26.2 billion in lost GDP in 2012.[45]

Clear disparities exist—both by income and by race—in access to opportunity afforded by the transportation system across the Capital Region. The average Capital Region resident can access more than 1,320,000 jobs by vehicle, 109,000 jobs by transit, 203,000 jobs by bicycle, and 25,000 jobs by walking within 45 minutes from their home. Within this timeframe, transit provides access to 8 percent of the total number of jobs available by vehicle region-wide. Black residents in the Capital Region are almost 3x as likely as white residents to live in areas with poor transit access to jobs and low vehicle ownership rates. Households in poverty are almost 2.5x more likely to live in areas with poor transit access to jobs and low vehicle ownership rates.[46]

Since personal vehicle ownership may be cost-prohibitive for low-income households, a transportation system that lacks affordable alternatives to driving can restrict residents' access to opportunity and their ability to fully contribute to the region's economic growth. A successful approach is to **maximize dense, mixed-use, market-rate and affordable development near regional**

transit corridors. This can improve job accessibility, significantly decrease the length of unemployment for workers, increase transit ridership, and increase the region's supply of affordable housing. In addition, the household cost savings associated with lower transportation costs allow lower-income households to redirect that spending towards other necessities, such as healthy food, education, or healthcare.

In addition, local and targeted hiring policies can further promote our region as a place of opportunity. This, in turn, impacts the area's ability to retain and attract talent and investment. Spending by public agencies in the Capital Region is projected to be over $300 billion between 2015 and 2040.[47] Investment in our workforce creates jobs and keeps more money in local neighborhoods and regions because employed residents tend to spend disposable income locally, which improves the economic strength and vitality of the region. It also brings in additional tax revenue; according to one analysis, if all Los Angeles Metro transportation projects employed targeted hire, they would generate $65 million in additional tax revenue for that region.[48]

Leaders in the Capital Region can support more inclusive economic growth by better incorporating equitable access into the region's transportation plans, investments, and procurement policies.

ACTIONS

ACTION 5.1

Increase density and ensure inclusive development in areas near rapid transit corridors

ACTION 5.2

Adopt local and targeted hiring, procurement, and contracting policies

Solution Six: Enable Technology-Driven Future

Data, and its management, is the new fuel of the region's transportation system.

By 2020, the data generated by the average person is expected to grow from 6 to 700 megabytes of data per day to 1.5 gigabytes of data per day.[49] While the amount of data available is growing, delays or restrictions on data sharing could prevent the data from being useful in informing transportation decisions.

Individual jurisdictions in the Capital Region are leading the way on integrating mobility innovations, but coordination across jurisdictional boundaries to scale and integrate these at the regional level is limited. While the Washington metro area's SmarTrip farecard allows consumers to pay for trips with the other transit agencies in the metro area, none of the region's farecards currently function in Richmond or Baltimore—with Amtrak, VRE, bike share, or private ride share operations. This lack of integration across all trip options creates confusion for consumers and undermines the potential benefits of new technologies.

Integrated mobility platforms can greatly improve the consumer experience and attract new riders—in part by speeding up transit trips. Transit consumers paying with a mobile phone take roughly two seconds to board—a bit faster than a smart card and much faster than the approximately six seconds needed to pay with cash.[50] These seemingly small differences add up: on average, 20 percent of the time spent on a bus trip is spent waiting for others to pay and board.[51] Offboard payments, in which public transportation consumers complete their ticket purchase before boarding a transit vehicle, further reduce travel time and can increase speeds by an additional 10 percent.[52] These improvements, along with integrated ticketing systems across transit options, have increased public transportation ridership from 5 to 20 percent in peer regions throughout the world.[53]

A regionally coordinated smart traffic signal system—which adjusts traffic signals in response to real-time roadway conditions and movement of priority vehicles such as

buses or ambulances—could also significantly reduce congestion. At a cost of $50 million, Maryland is creating 14 smart signal corridors on heavily traveled state routes.[54] Early results have achieved a 13 percent reduction in drive times along routes in Harford County.[55] Pittsburgh's implementation of smart traffic signal technology at more than 50 intersections in the city has reduced travel time by 25 percent at these intersections and lowered vehicle idling time by more than 40 percent.[56]

While the Capital Region is still a few years away from widespread adoption of full autonomous vehicles (AVs) on the roadway, Maryland, the District, and Virginia differ in their approach to allowing the testing of full AVs on their roads. Before the likely disruptive storm of AV penetration, the jurisdictions within the Capital Region should work together to establish the foundation to leverage this technology to maximize its potential benefit while minimizing its negative impacts.

New transportation technologies, smartphones, and mobile apps are changing the mobility landscape. The Capital Region should leverage new technologies to encourage more efficient use of its transportation system, improve the consumer experience, and provide a more equitable, accessible, tech-enabled future for all consumers in the Capital Region.

ACTIONS

ACTION 6.1

Build a cross-jurisdiction Capital Region data management system to power all technology actions and improve regional mobility

ACTION 6.2

Enable the creation of Integrated Mobility platforms for all public and private mobility options

ACTION 6.3

Deploy regionally coordinated smart traffic signals to reduce vehicle congestion and speed up bus travel

ACTION 6.4

Establish a coordinated autonomous vehicle (AV) strategy for the Capital Region

Solution Seven: Reform Governance & Funding

The Capital Region consists of three major funding jurisdictions, along with dozens of public and private transportation operators.

We cannot achieve an optimized transportation system without tackling the core issues around how we are governing and funding that system.

The region's institutions and transportation investments must be examined to ensure they are making the best use of each transportation dollar. Businesses justify their spending to shareholders by clearly outlining the data-driven expected benefit, rate-of-return, or strategic imperative for each investment, and measuring if these outcomes are achieved over time. This level of transparent, objective decision-making and accountability should be expected for the multi-billion dollar annual transportation investments in capital and operating budgets from the region's transportation agencies.

Yet, often it is unclear how transportation investments achieve stated goals or outcomes for the transportation system or for the region. Transportation agencies and MPOs often present projects to the public without comparing one investment against others, leaving the decision-making process for transportation investments a mystery to both the general public and many professionals in the transportation community. This is often due to the fact that politics sometimes override smart, data-driven analysis for transportation decision-making. The result can be transportation investment decisions that siphon resources away from more worthy initiatives and ultimately, fail to address the region's needs.

Unfortunately, consumer access to opportunity is not typically used as a key input in determining and evaluating transportation investments and performance. In the Capital Region, access to opportunity varies widely based on an individual's income and race, and that inequity only holds back our region's growth. The Partnership encourages the Capital Region's transportation agencies to incorporate a common definition of equitable access, and proposes the use of the following:

> *We define equitable access as every resident of the Capital Region – regardless of the person's community, race, ability, or background – having consistent, safe, affordable, and dependable physical access to quality employment with living wages and benefits, education, and necessities that enable economic mobility and opportunity.*

In adopting this definition, Maryland, Virginia, and the District, alongside their metropolitan planning organizations, transit agencies, and local governments should move beyond mitigating negative impacts to low-income and majority-minority communities from transportation decisions. **The region can overcome this challenge by intentionally making equitable access a key factor in its performance-based plans and investments to measurably improve access in communities with lower levels of mobility.**

In particular, Baltimore's public transportation system's governance and funding structure must be adjusted to improve accountability from all parties. The metro area's public transportation system is one of just a few in the country that is governed and operated by a state agency rather than a regional authority or local transportation depart-

ment. Funding for public transportation in Baltimore reflects this governance structure: the primary source of funding for the Maryland Transit Administration's (MTA) capital and operating expenses is the state Transportation Trust Fund. The city and counties do not contribute to MTA's services. Under this structure, Baltimore's public transportation system has not kept pace with repair and service needs or developed a strategy to enhance existing service. This governance and funding structure must be reformed to enhance accountability from all vested stakeholders and shared investments to create a globally competitive rapid and reliable transit system in the Baltimore metro area.

While our region can do much more with current resources, additional funding will be needed to fully transform the region's mobility outcomes. Although Maryland, the District, and Virginia have each passed transportation funding bills since 2013 that are projected to increase transportation revenues by more $7 billion by 2019, the Capital Region lacks $176 billion needed to address identified capital, operations, and maintenance improvements through 2040.[57]

Strengthening federal resources in Capital Region transportation projects will further speed up delivery of critical transportation investments and benefit both our local communities and our national economy. Federal support for the Virginia Atlantic Gateway multi-modal I-95 corridor congestion relief program is projected to provide nearly $3.5 billion in economic benefits—leveraging federal, state, and private investments by more than 3:1—and improve the highway and rail corridors that move over 350 million tons of freight each year and more than 400,000 people a day.[58] **To speed up these types of investments, the United States should significantly increase federal funding, starting with increases in revenues generated from transportation user-fees, such as the federal gas tax. In addition, the region can be more effective in partnering to increase our rate of return from existing competitive grant programs to fund critical investments.** The region also needs to begin planning for the future and identify viable alternatives to gasoline taxes. Estimates show that the increase in low- or no-gas vehicles is projected to grow the Capital Region's transportation funding gap by an additional $42 billion by 2040, pushing up the funding gap to more than $200 billion over this period.[59] We can begin piloting innovative funding sources now in Maryland, Virginia, and the District, in partnership with the U.S. government.

ACTIONS

ACTION 7.1

Measure and report the outcomes and equity benefits of each capital transportation investment

ACTION 7.2

Create a new regional governance structure for Baltimore public transportation

ACTION 7.3

Increase federal transportation investments to better maintain the existing system and complete critical capital investments

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Methodology

Deep Engagement

The development of the Blueprint was guided by a combination of in-depth engagement from stakeholders in—and analysis of—the Capital Region. This included guidance from the national and regional leaders who comprise the Partnership's Regional Mobility Steering Committee. The Committee advised and directed the development of the Blueprint's solutions and actions, meeting monthly starting in July 2017. The Partnership was greatly aided by an Equitable Access Task Force created to support the development of Blueprint actions. The Task Force—comprised of national and regional leaders helping the country overcome inequities from transportation plans and investments—identified how deliberate transportation policies and investments could be reconfigured to shape an equal-opportunity, inclusive region. Senior leaders from the Partnership's Board companies developed the Employer Commuter Mobility Programs and corresponding actions that each company in the Capital Region is urged to adopt to put the private sector's skin in the game and deliver impactful outcomes.

No single entity can create the changes in policies, programs, and investments on their own to achieve the vision presented in the Blueprint. It requires regional consensus, coordination, and prioritization across all stakeholders—the public, government, private businesses, academic institutions, and advocates—to remove structural and jurisdictional barriers that hold back our region's progress. For this reason, the Greater Washington Partnership held meetings, roundtables, and one-on-one conversations with the public, stakeholders, and nationally recognized transportation experts in the development of the principles-based transportation agenda presented in the *Blueprint for Regional Mobility*.

Outreach included a public Request for Information (RFI) that enabled public citizens and transportation stakeholders to provide direct input at an early stage on the mobility solutions considered for the Blueprint. The Partnership hosted roundtables with regional leaders and transportation experts to gain direction on the actions included in the Blueprint. These roundtables were held throughout 2018 in the Baltimore, Washington, and Richmond metro areas with private sector participants; elected officials; planning, health, and transportation decision makers; and a broad set of advocates.

The Partnership directly engaged with senior leaders from the Maryland Department of Transportation, Virginia Department of Transportation, and District Department of Transportation—as well as the Baltimore Metropolitan Council, Metropolitan Washington Council of Governments, Fredericksburg Area Metropolitan Organization, and the Richmond Regional Transportation Planning Organization—in developing the Blueprint. Outreach also included direct conversations with elected leaders, including federal, state, and local representatives, and neighborhood officials.

The Blueprint engagement process was critical to the final product. However, the Blueprint's success doesn't hinge on the process, but, rather, on the collective action all stakeholders that engaged in the development can take to put the agenda into practice. We must work together now to realize the vision presented in the Blueprint to transform the region's mobility trajectory.

Analytical Process

The *Blueprint for Regional Mobility* was constructed with a singular focus on delivering measurable outcomes. As a region, we should know what we are receiving in return for our investments, and be clear why we are expending resources and prioritizing certain actions over others. To further our understanding of measurable outcomes for the Capital Region, the Partnership also supported an in-depth analytical process.

Travel Demand Model

The existing conditions of the transportation system and the Blueprint's solutions were analyzed using a Capital Region travel demand model developed by the University of Maryland (UMD) National Center for Smart Growth & Research (NCSG), utilizing the Chesapeake Bay Megaregion Model (CBM), which was developed with support from the Federal Highway Administration (FHWA). The CBM is a five-step aggregate model that includes trip generation, destination choice, mode split, time-of-day split, and assignment of the route and mode taken to complete each trip. The modeling approach used identifies four types of travel—freight, commercial, local, and external travel that crosswalks three network data sources: the Maryland and Virginia Statewide Transportation Models and demographic data. Both Statewide models allowed the CBM network to account for 2040 infrastructure plans, investments, and growth patterns. Demographic data was updated from both the Maryland and Virginia Statewide models and includes such data as employment by type and residents by income level.

UMD used the updated CBM to generate three scenario comparison models that display a current (2015) baseline assessment of the region's transportation network as well as two forecasted models (2040)—one of which depicts a built-out network that includes all long-range planned projects included in the region's plans and the other of which includes the region's plans and the Blueprint's solution recommendations.

To assess long-distance travel, the model used FHWA's Freight Analysis Framework (FAF) and the National Household Travel Survey (NHTS). FAF data illustrates the freight flows between the Capital Region and other metropolitan areas and states by all modes of transportation. For this analysis, freight flows generated were converted into truck trips. Commercial vehicles (simulating both service-oriented non-freight trips and freight-carrying truck trips) were applied to the Capital Region and analyzed by location of population and employment and by travel time (origin/destination). Similarly, NHTS data provided travel data and traveler attributes to estimate long-distance person travel into the region—representing either travel from outside the region entering the region or travel from within the region leaving the region.

Short-distance travel accounts for the majority of trips in the Capital Region, and UMD used the short-distance travel model of the CBM to analyze these trips. To do this, the model must first separate the entire region into traffic zones—with everyone within the region living and/or working in one of the zones. Trip generation estimates the number of trips either originating in each zone or ending in each zone—using employment type, income, and household size data. Trip distribution estimates the number of trips between each pair of zones by travel time and cost. The population density in a specific zone and the number of employment centers by type and size determine the number of trips between zones. Multiple types of trips are included: home-based work, home-based shop, home-based other, non-home-based work, and other. This division is based on highway travel time and cost compared to transit travel time and cost. Transit travel time includes walk to transit, wait for transit, and time in the vehicle.

The assignment process placed trips on the network and estimates congestion effects based on the number of vehicles on each link (volume-to-capacity ratio, a comparison between the capacity of a highway link to the volume attempting to use the link—resulting in a measure of roadway congestion). Generally, as the volume-to-capacity ratio approaches 1.0, the traffic flow slows. Once the volume-to-capacity ratio exceeds 1.0, speeds will become erratic and travelers will become subject to random slowdowns, increased delays due to incidents, and greater probability of stop-and-go driving. A ratio exceeding 1.0 is also the point where driver perception of significant congestion occurs.

Accessibility Model

The Blueprint used an accessibility model generated by UMD and the Partnership using Citilabs' Sugar Access Transportation Network to measure the average number of jobs, activity centers—mixed-use areas where there is a high concentration of commercial and other land uses—higher education institutions, and hospitals accessible to consumers of the Capital Region by vehicle, transit, bicycle, and walking within 45 minutes. Access to jobs and education is a key driver to enhancing individual and regional economic opportunity.

The modeled area includes 47 cities/counties in the Capital Region, encompassing the Baltimore, Washington, and Richmond metropolitan statistical areas (MSAs). The data layer upon which the model was built contains information regarding demographics, employment, activity centers, higher education institutions (two- and four-year), and hospitals by vehicle, transit, biking, and walking. The data sources for this analysis consist of 2012-2016 American Community Survey (ACS) and 2014 LEHD Origin-Destination Employment Statistics (LODES) data.

The highway and transit networks are integrated into one transportation network. The highway network comprises highways, principal and minor arterials, and local roadways. Each roadway link consists of several modal attributes describing the modes of travel allowed on that link. Travel times between origin and destination zones comprise three different travel times:

- Network Egress Travel Time: Time it takes to traverse the origin zonal connectors and reach the roadway network
- Network Travel Time: Time it takes to traverse the roadway network between origin zone connector and destination zone connector using only mode-specified roadway links
- Network Ingress Travel Time: Time it takes to traverse the destination zonal connector and reach the destination's centroid

The transit network represents a multi-modal system comprising pedestrian, transit, and rail services. Travel times for the transit network are based upon General Transit Feed Specification (GTFS) data that is summarized into sets of transit lines with specified headways and run times. The transit multi-modal network travel times consist of the following five steps:

- Walk to Transit Travel Time: Time it takes to walk from origin zone centroid to the transit stop of the best route as defined in the route enumeration process
- Transit Wait Time: Calculated relative to transit line's headway with a specified maximum wait time
- Transit Run Time: Run time as defined by transit line's attribute between boarding transit stop and alighting transit stop
- Transfer Wait Time: Calculated relative to transit line's headway with a specified maximum transfer time
- Walk to Destination Travel Time: Time it takes to deboard and walk from transit stop to the destination zone centroid

Results from the accessibility model were developed using the Travel Time analysis metric, which analyzes the minimum travel time to a specific type of destination or point of interest. Using a threshold of 45 minutes, the Partnership was able to determine the average number of jobs accessible via vehicle, transit, biking, and walking, and the number of people that can access activity centers, higher education institutions, and hospitals within the 45-minute commuter shed. All models were run using an AM peak travel period defined as 6 AM to 9 AM on weekdays and a weekend travel period of Sunday morning from 7 AM to 10 AM. The difference in time represents the change in accessibility for the average person within the Capital Region boundary.

Employer Mobility Program Modeling

Employers possess a great opportunity to improve travel conditions by deploying innovative Employer Commuter Mobility Programs. The Partnership deployed a model run by Virginia Tech that determined the impact the proposed Employer Commuter Mobility Programs would have on the region's transportation system. The model uses the Land Distributing Activity (LDA) Method, which was commissioned by Arlington County, VA, to estimate the impact of its program's ability to change travel decisions, reduce environmental impacts, and improve gasoline savings from the transportation sector. This model has subsequently been adopted by Virginia's Department of Rail and Public Transportation for its performance metric requirements and recently commissioned by the Federal Highway Administration to be made more widely available. The Metropolitan Washington Council of Governments (MWCOG) 2016 State of the Commute Survey data was used to determine the likelihood of commuters adopting transportation options based on the type of Employer Commuter Mobility Programs received and the level of support given through various programs, including bicycling, trip planning, and employer services. The model then accounts for the overlap in services and programs that would affect commuters' behavior and produces conservative estimates on the number of trips shifted to a non-drive-alone mode.

Inputs gathered by Virginia Tech for the model reflect pre-tax benefits, employee fairs, and bicycling infrastructure. The model provides no means to measure the impact of telework programs or site location changes, which are more situation specific. Not including these factors makes the model's assumptions conservative. For example, the 2016 State of the Commute survey, conducted by MWCOG, found that 18 percent of those employees who currently do not have the option to telecommute would choose that option if it were offered. Likewise, studies from Denver and the State of California show that worksites near transit stations are far more likely—26 percent for Denver and 20 percent in California—to choose transit as their commute option, which is a larger indicator than a home's location in terms of transit use.


JOBOX

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