

visualize 2045

A LONG-RANGE TRANSPORTATION PLAN FOR THE NATIONAL CAPITAL REGION



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CONTRIBUTING AUTHORS AND PLAN DEVELOPMENT

Andrew Austin
 Tim Canan
 Lyn Erickson
 Michael Farrell
 Matthew Gaskin
 Charlene Howard
 Wendy Klancher
 Arianna Koudounas
 Andrew Meese
 Jane Posey
 Nicholas Ramfos
 Eric Randall
 Sergio Ritacco
 Jon Schermann
 John Swanson
 Dusan Vuksan
 Feng Xie
 Lori Zeller
 Abigail Zenner
 Foursquare ITP

DESIGN

Remline Corp.

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CHAPTER 1

INTRODUCTION

About the TPB

The National Capital Region Transportation Planning Board (TPB) is the designated Metropolitan Planning Organization (MPO) for the Washington region. Since its inception in 1965, the TPB has served as a regional forum for establishing policy principles and priorities that guide transportation decision-making. The TPB works with state and local jurisdictions and transportation agencies to bring world-class transportation options to the region. As an MPO, the TPB is responsible for conducting the federally mandated transportation planning process for the metropolitan area, which includes developing and updating the regional long-range transportation plan and the Transportation Improvement Program (TIP).¹ The TPB is staffed by the Department of Transportation Planning at the Metropolitan Washington Council of Governments (COG).

The TPB's planning area, the National Capital Region, is home to approximately 5.6 million people. It includes the District of Columbia and 23 surrounding counties and cities in suburban Maryland and Northern Virginia (Figure 1.1). The planning area spans approximately 3,500 square miles. The TPB's membership is made up of representatives from the District of Columbia, Maryland, and Virginia departments of transportation, the Washington Metropolitan Area Transit Authority (WMATA), local governments, and state legislatures. There are 44 members, 38 of which are voting members, plus six non-voting members from the Metropolitan Washington Airports Authority and federal agencies.

WHAT IS A LONG-RANGE TRANSPORTATION PLAN? WHAT IS THE TIP?

A long-range transportation plan contains the region's collective long-term plans to operate, maintain, and expand the transportation system within a minimum planning horizon of 20 years. The plan is reexamined and updated at least once every four years.

The Transportation Improvement Program (TIP) is a document describing the planned schedule in the next six years for distributing federal, state and local funds for state and local transportation projects. The TIP represents an agency's intent to construct or implement specific projects and identifies the anticipated flow of federal funds and matching state or local contributions.

A detailed description of the region's development patterns and transportation system can be found in [Chapter 2](#) (Regional Context).

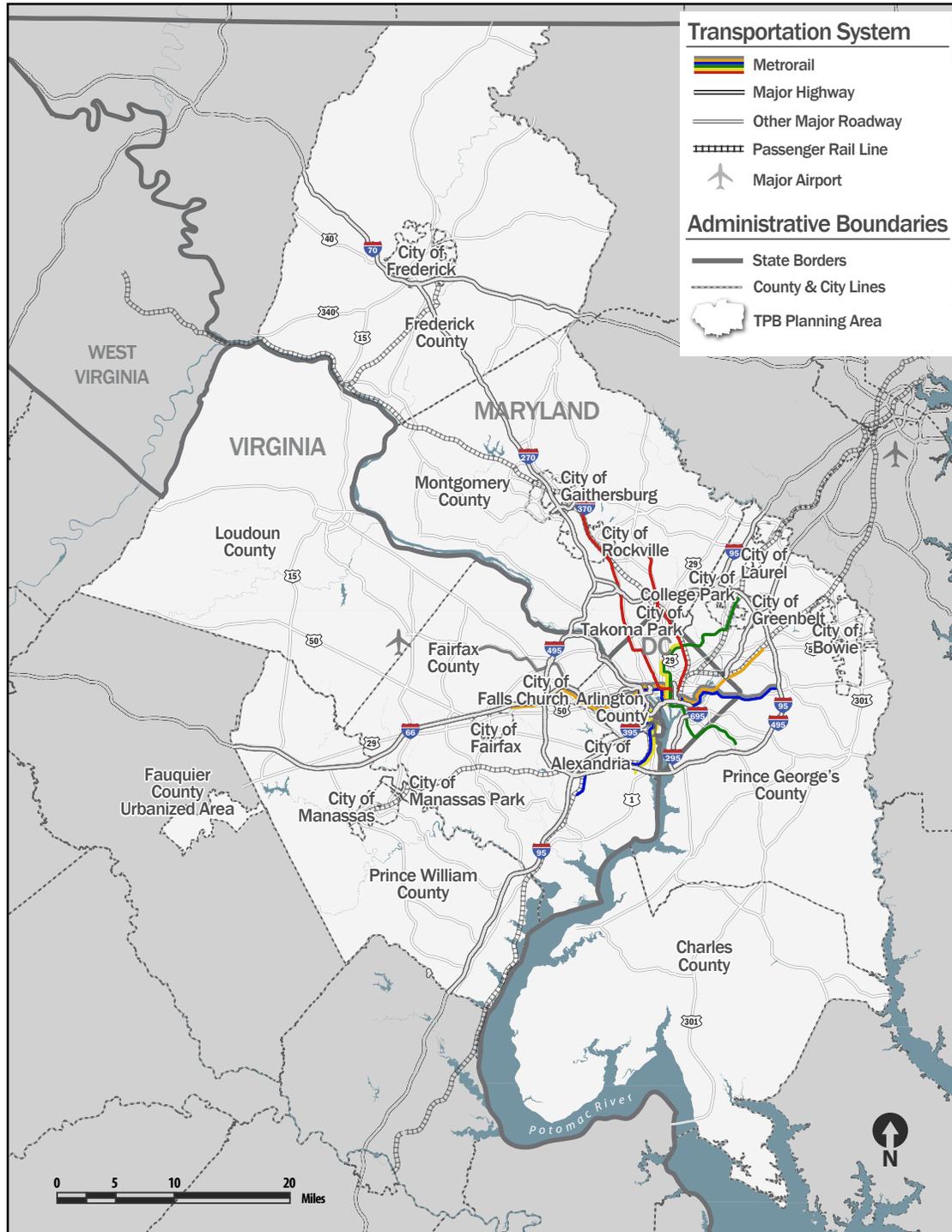
¹ To learn more about the federally mandated transportation planning process, visit mwcog.org/transportation/about-tpb/roles-and-responsibilities/

Overview of Visualize 2045

Visualize 2045 is the federally mandated, long-range transportation plan for the National Capital Region. It represents a new kind of long-range planning effort that the TPB has not engaged in before. For the first time, in addition to projects that

the region's transportation agencies expect to be able to afford between now and 2045, the plan includes aspirational initiatives that go beyond financial constraints. The plan also highlights how the region is incorporating new federal Performance-Based Planning and Programming (PBPP) requirements into the regional transportation planning process.²

Figure 1.1 TPB Planning Area and Regional Overview Map



By bringing these elements together, Visualize 2045 aims to help decision makers and the public “visualize” the region’s future by illustrating:

What the region aspires to do if more resources were available,

What the region can do with current levels of funding, and,

What the region must do to meet federal requirements.

The TPB adopts a major update to the long-range transportation plan once every four years. In the past, the updates to the plan, formerly known as the Financially Constrained Long-Range Transportation Plan (CLRP), only included those projects for which funding was reasonably expected to be available. Demonstrating that the projects in the plan are “financially constrained” by expected funding is a federal requirement for all MPO long-range transportation plans. Visualize 2045 includes a section containing the projects which are financially constrained but it also contains elements which go beyond the financial constraints in a few significant ways. The plan introduces seven aspirational initiatives, endorsed by the TPB, that could further push our region toward achieving its transportation goals. In addition, by incorporating the performance-based planning requirements, it outlines how the region ties the transportation investments to improving measured performance of the transportation system.

Visualize 2045 takes a multi-modal approach, relying not on any one travel mode to accommodate anticipated growth or to address the region’s diverse transportation challenges. Though the focus of the financially constrained element is on regionally significant road and transit projects, Visualize 2045 also highlights bicycle and pedestrian projects, freight planning, and other transportation programs aimed at reducing congestion and improving air quality. In addition, the plan presents and analyzes key land-use issues facing the region, considering the intricate link between land-use, economic vitality, and transportation.

A regional policy framework, described in detail in [Chapter 3](#), guided the development of the plan. The framework spells out regional goals, priorities, and needs that informed the development of the unfunded elements, and that agencies in the region were asked to consider when submitting projects for inclusion in the plan. The policy documents that make up this framework include the TPB Vision (1998), COG’s Region Forward Initiative (2010), and the TPB’s Regional Transportation Priorities Plan (2014). Most recently, the policy framework has been further defined by the seven aspirational initiatives that advance these policy principles (adopted by the TPB in 2017 and 2018).

Seven Aspirational Initiatives (What the Region Aspires to do)

In 2017 and 2018, the TPB worked through a process to identify unfunded and unenacted projects, programs, and policies. It then grouped them into a set of initiatives, now known as the seven aspirational initiatives, which make up the aspirational element of Visualize 2045. Together, the initiatives were designed to address some of the biggest transportation challenges that the region is expected to face in the coming decades, even if all currently funded projects and programs are built and implemented. These challenges include addressing the ever-increasing congestion on our region’s roadways and providing enough transit capacity to serve additional anticipated passengers. Though each initiative incorporates policies that the TPB has committed to and championed for years, Visualize 2045 incorporates these aspirational initiatives as part of the region’s long-range transportation plan for the first time. A complete description of the aspirational initiatives can be found in [Chapter 4](#) (Aspirational Initiatives).

The aspirational initiatives are:

1. Bring jobs and housing closer together
2. Expand bus rapid transit and transitways
3. Move more people on Metrorail
4. Increase telecommuting and other options for commuting
5. Expand the express highway network
6. Improve walk and bike access to transit
7. Complete the National Capital Trail

In many ways, elements of each initiative are already being implemented throughout the region today. For example, bus rapid transit systems are being planned and operated in multiple jurisdictions, and express toll lanes are currently operating on three interstate highways in the region. The endorsed initiatives, while building on what the region has tried, tested and already implemented, call for expanding the scope of these strategies to achieve additional benefits that could be achieved through further or faster implementation. Introducing these initiatives as an element of the long-range transportation plan not only elevates their status as aspirational goals but also demonstrates the region’s commitment toward making them a reality. This commitment can be leveraged when local leaders are called upon to make decisions on projects, programs and policies that impact the transportation system.

Financially Constrained Element (What the Region Can do)

Federal regulations require that the TPB develop an element of the long-range transportation plan that is financially constrained. It must be demonstrated that each project included in this section can be completed using revenue sources that are already committed, available, or reasonably expected to be available in the future.

The financially constrained element includes all regionally significant and/or federally funded projects that are currently programmed to be built in the region between now and 2045 and illustrates how those projects will affect future travel patterns and conditions. In doing so, this element paints a picture of what the region's current planning and funding will achieve for the region by the end of the plan period.

The major highway and transit projects in the constrained element can be found in [Chapter 5](#) (Financially Constrained Element), along with an analysis of the performance of the future transportation system compared to today.

WHAT IS A REGIONALLY SIGNIFICANT PROJECT?

“Regionally Significant” projects are defined as capital improvements that add or remove highway or transit capacity and therefore might affect future air quality.



Federal Requirements (What the Region Must do)

Visualize 2045 also documents the transportation planning requirements for the region's metropolitan transportation plan that the TPB is obligated to fulfill under federal law. These federal requirements govern and inform the content of the plan and how Visualize 2045 was developed. A summary of the requirements can be found in [Chapter 3](#) (Regional Policy) and [Appendix K](#) contains a full checklist of requirements that Visualize 2045 fulfills.

Performance-Based Planning and Programming (PBPP) is a new federal requirement included in Visualize 2045. The most recent federal transportation law requires states and MPOs to “transition to a performance-driven, outcome-based program that provides for a greater level of transparency and accountability, improved project decision-making, and more efficient investment of Federal transportation funds.” To accomplish this, the PBPP process ties the funding of projects and programs to improving measured performance and achieving targets set for future performance.

A complete description of the Performance-Based Planning and Programming (PBPP) requirements in the National Capital Region can be found in [Chapter 6](#) (Performance Planning).

Regional Planning Activities

Numerous regional planning activities carried out by the TPB through more than a dozen committees and subcommittees influenced Visualize 2045's development. Some of these planning activities have added specific new programs and projects in the plan. Even when those planning activities did not yield specific projects to be included in Visualize 2045, they still indirectly inform the plan development process by identifying critical transportation issues or needs facing the region.

TPB planning activities are summarized in [Chapter 7](#) (Additional Elements).

Planning Process

Visualize 2045 was the product of an extensive planning process which included individual planning activities and public outreach. Through the planning process, stakeholders, TPB members, and the public raised key issues and concerns that were ultimately incorporated into aspects of this plan.

A complete description of the plan development process and public participation activities can be found in [Chapter 8](#) (Plan Development and Public Participation).



CHAPTER 2

REGIONAL CONTEXT

The National Capital Region comprises approximately 3,500 square miles and spans the spectrum of settlement patterns: urban, suburban, exurban, and rural. The region is one of the most affluent in the country, with an annual median household income of nearly \$94,000 and a gross regional product of over \$509 billion per year.¹ This economic strength is due in large part to a consistently strong job market, driven by the federal government and the robust service sector that supports it.

The difference in laws, government structures, and financial resources of Maryland, Virginia, and the District of Columbia creates a complex policy environment. The region's large size and range of development patterns lead to diverse transportation needs. For these reasons, regional transportation planning and decision making must balance a wide array of needs and priorities.

Existing Development and Forecast Growth

Recent Trends

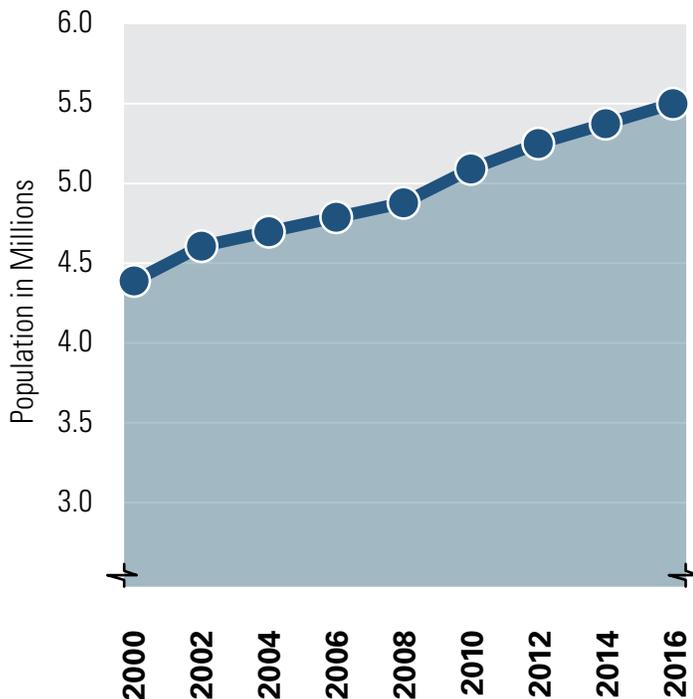
Over the past few decades the National Capital Region's healthy economy has fueled consistently strong population and job growth, and that trend is expected to continue well into the future. Since 1970, the region's population has nearly doubled and the total number of jobs in the region has grown at an even faster rate.²

From 2000 to 2017, the region gained over one million more residents at a steady rate – from 4.4 to 5.6 million people over the 17-year span (Figure 2.1). Total regional employment has grown by almost 400,000 jobs from 2000 to 2016, although the recession of the late 2000s slowed the growth and resulted in reductions in regional employment for a few years (Figure 2.2). The economy has since recovered and the region is adding more jobs every year.

¹ U.S. Census Bureau, 2015 American Community Survey 5-Year Estimates and Bureau of Economic Analysis.

² U.S. Census Bureau, as cited in 2014 Constrained Long-Range Plan.

Figure 2.1 Population in millions of National Capital Region, 2000-2017 (Source: Census Bureau, Population Division, Annual Estimates of the Resident Population)



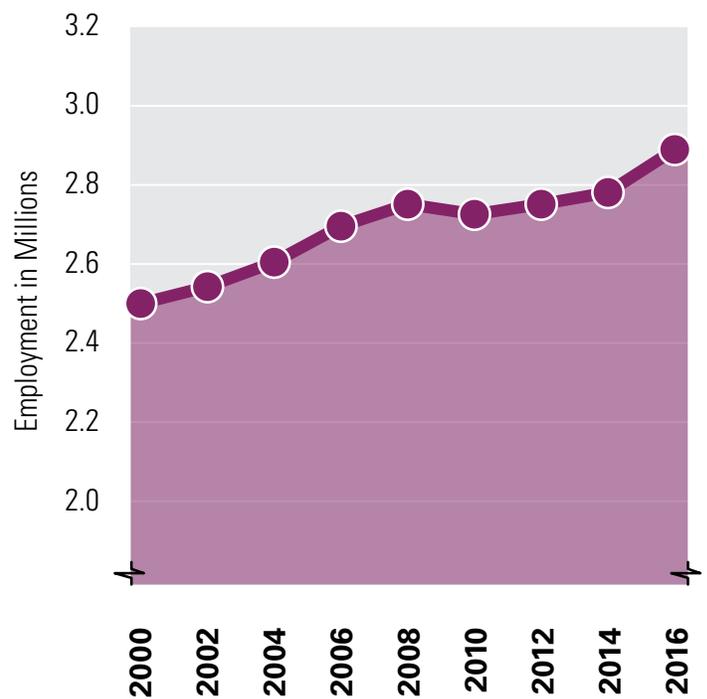
Forecast Growth

Today there are 5.7 million people living in the National Capital Region. By 2045 that number is expected to grow to more than 6.9 million, an increase of 23% (Figure 2.3), according to MWCOG's Cooperative Forecasts Round 9.1. Charles County's population will grow at the fastest rate (44%). Fairfax County and the District of Columbia will gain the most residents, each planning to grow by over a quarter-million people.

The number of jobs in the region will grow from 3.3 million today³ to 4.3 million by 2045, an increase of 29% (Figure 2.4). Fairfax County and the District of Columbia, the jurisdictions with the most forecast job growth, are expected to each gain over 200,000 more jobs during that time period.

Over the past few years the TPB has continually discussed ways to address the "east-west divide" which causes residents on the eastern side of the region to travel longer distances to reach jobs on the western side of the region. In endorsing an aspirational initiative to "bring jobs and housing closer together," the TPB is calling upon regional leaders to promote policies encouraging more housing in general, and more housing near transit and in Activity Centers (see [Chapter 4 – Aspirational Initiatives](#) for more information).

Figure 2.2 Employment in National Capital Region, 2000-2016 (Source: Bureau of Labor Statistics - Quarterly Census of Employment and Wages)



Housing availability and affordability is a growing problem in the region. With employment expected to grow at a faster rate than the population, if housing growth cannot keep up with the rate of employment growth, more and more people will have to commute into the region from outside. This type of commuting pattern puts a heavy load on the region's roads and transit systems as trips become longer and often more congested.

Planners and decision makers face the challenge of planning to accommodate this growth to maintain the economic vitality of the region and a high quality of life. Without good planning, the transportation system could become significantly overcrowded and the number of options available to people for their daily travel could decline instead of grow.

³ This employment figure is significantly higher than the one cited in Figure 2.2 for regional employment in 2016 due to the differing methods by which COG's Cooperative Forecasts of Population, Households, and Employment (today and future numbers) and the BLS (historic numbers) counts jobs. For instance, the cooperative forecast considers that if one person holds more than one jobs in the region, each of those jobs are counted separately, whereas the BLS only counts one job per person. Additionally, the cooperative forecast counts all jobs held by regional residents and non-residents alike, whereas the BLS only counts jobs held by regional residents.

Figure 2.3 Forecast Population Growth Today-2045

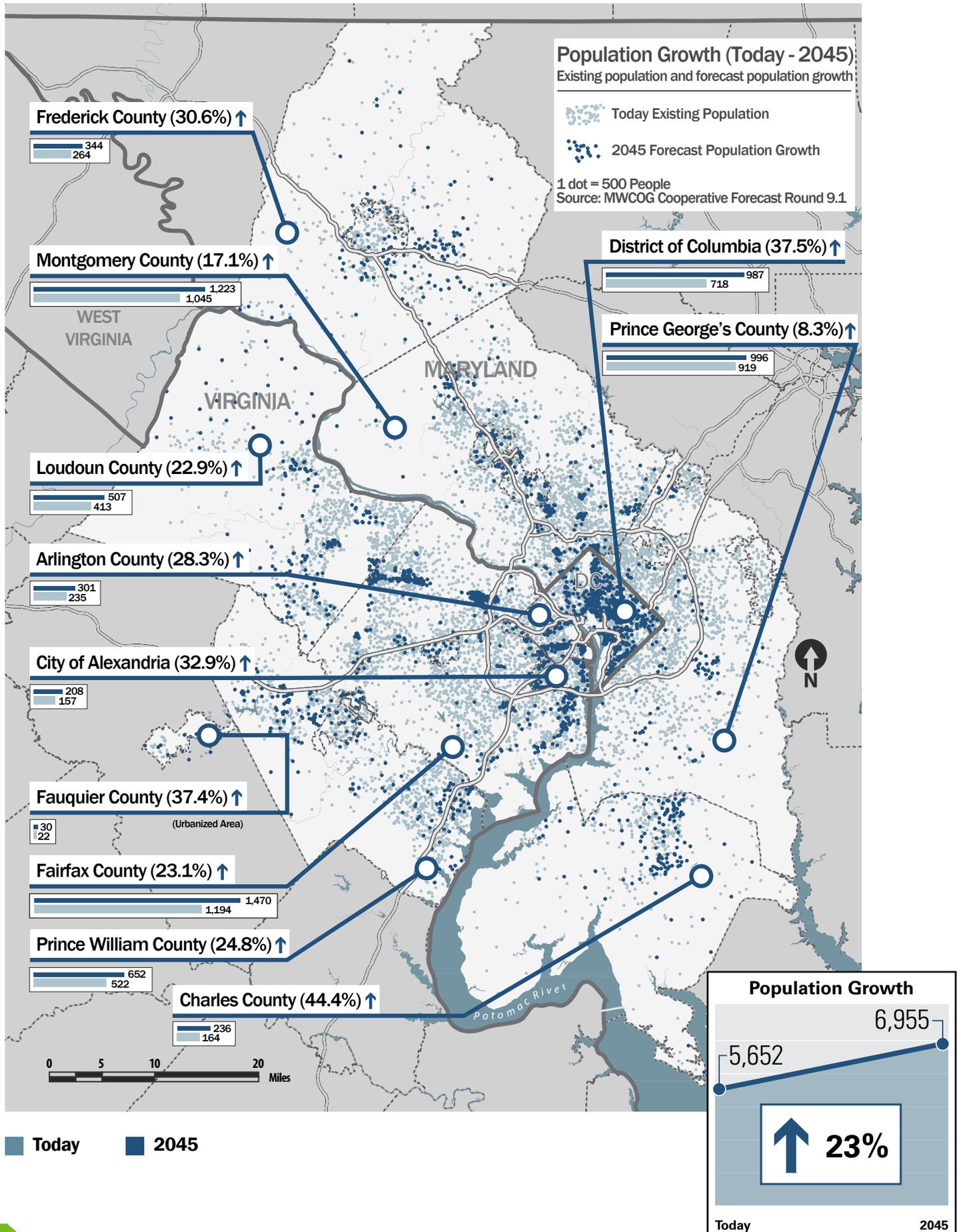


Figure 2.4 Forecast Employment Growth Today-2045

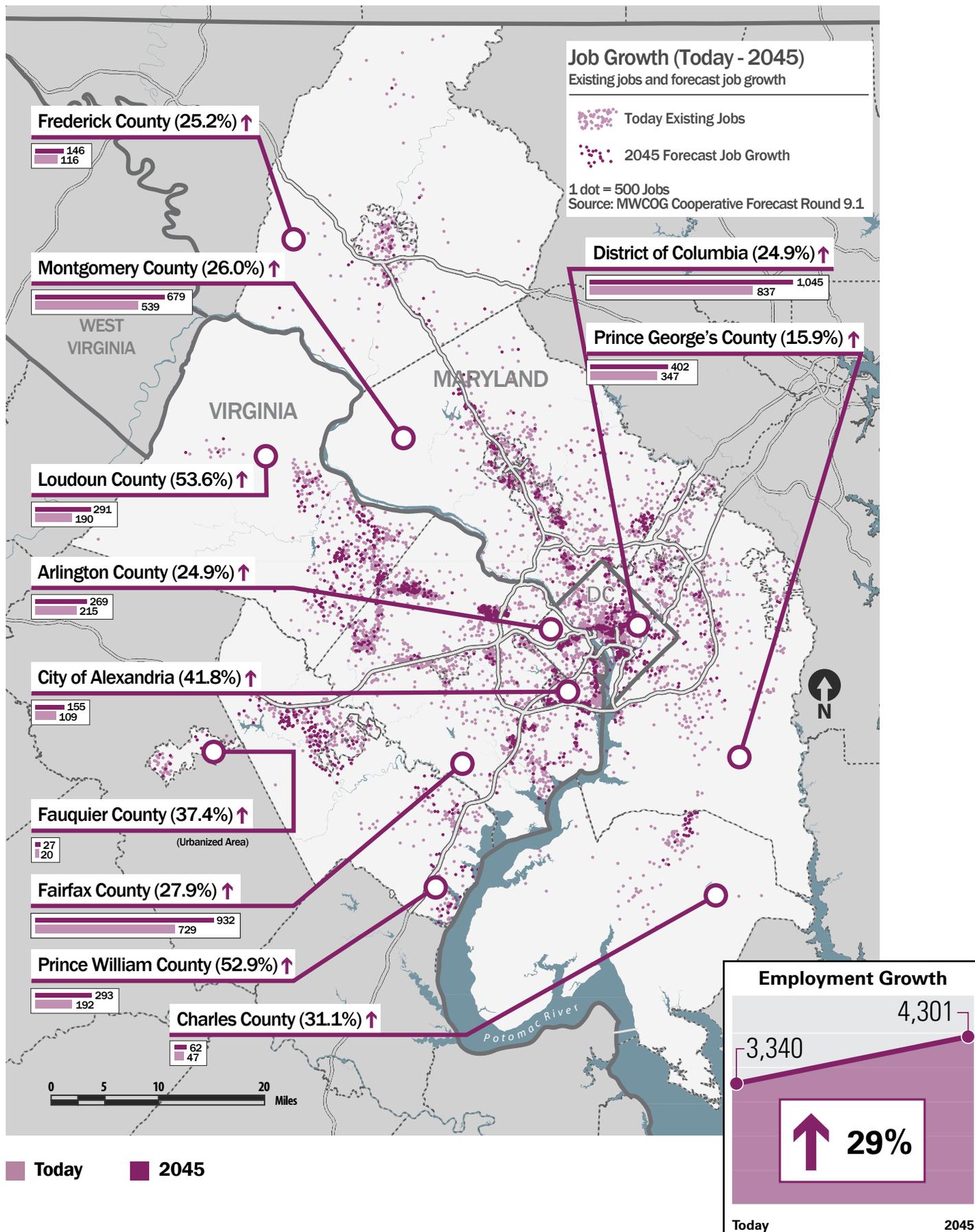
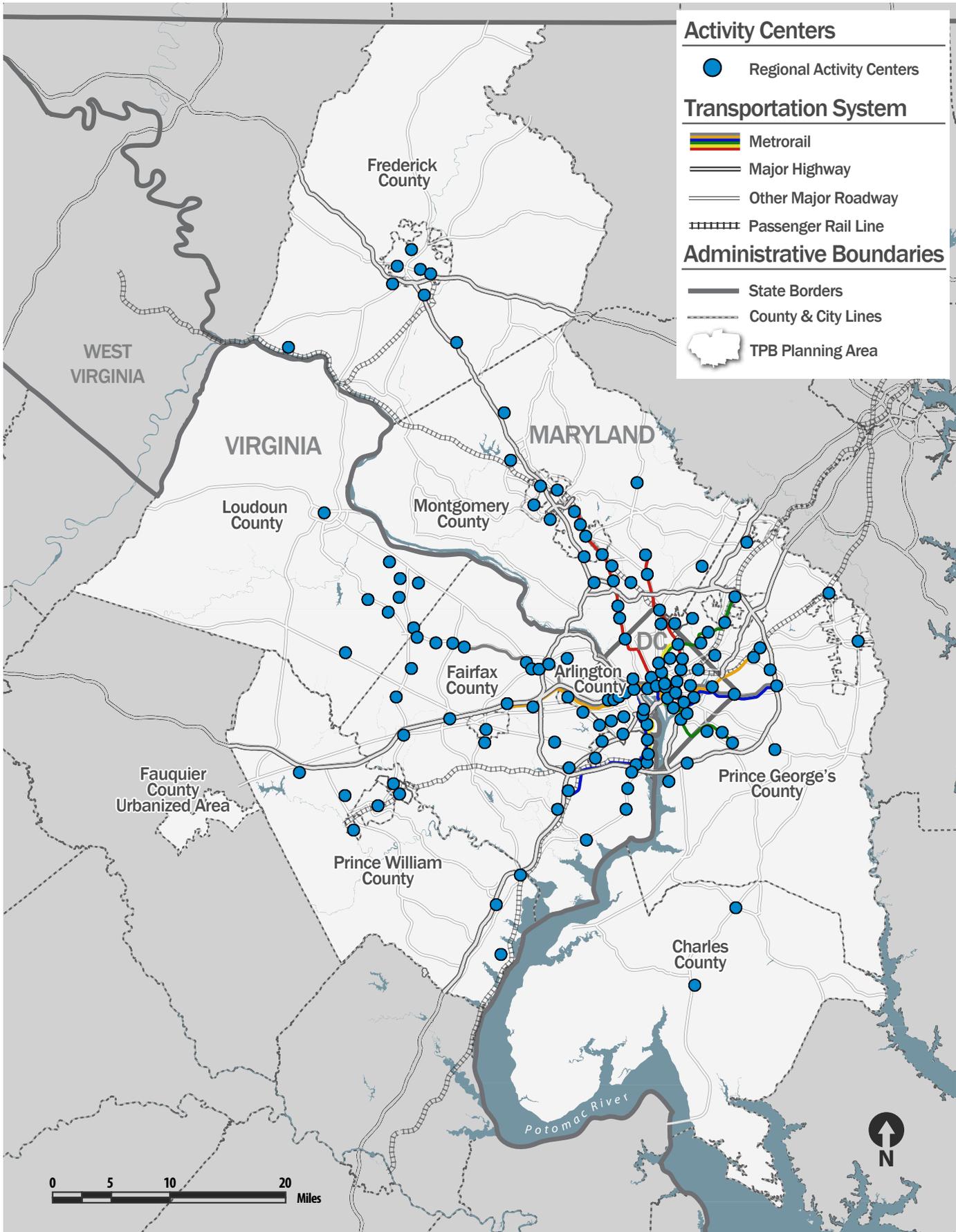


Figure 2.5 Regional Activity Centers



Regional Activity Centers

In 2013, the Metropolitan Washington Council of Governments designated 141 “Activity Centers,” which include existing urban centers, priority development areas, transit hubs, suburban town centers, and traditional towns throughout the region (Figure 2.5). Activity Centers are primarily mixed-use housing and job centers, usually near transit, where local and regional planners anticipate most of the region’s future growth will occur. The Activity Center designation helps support land-use planning and guide investments in infrastructure and development. The designation also allows planners to analyze past and future growth patterns in these areas.

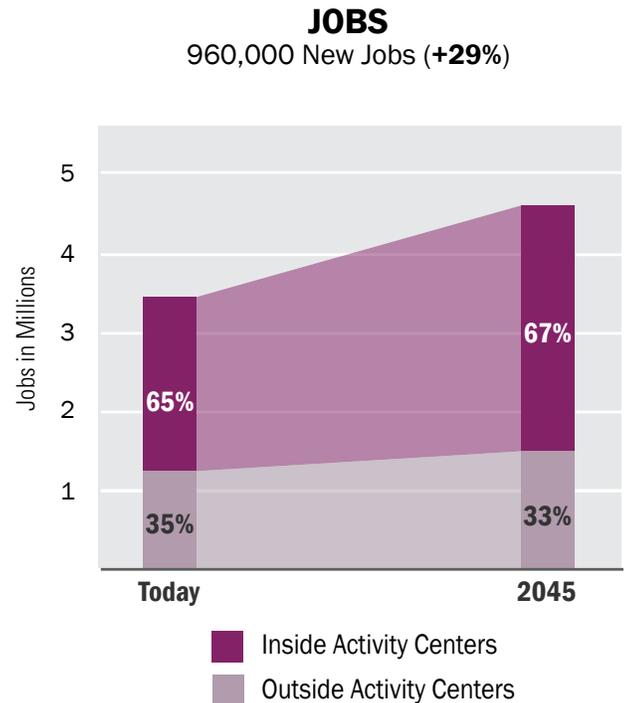
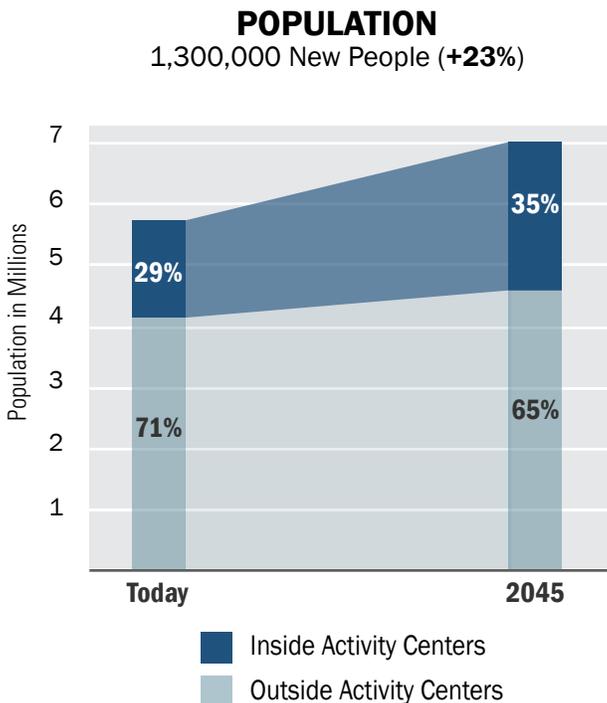
Concentrating residential and commercial development in dense, mixed-use Activity Centers is a strategy that the TPB has encouraged jurisdictions throughout the region to pursue to reduce the reliance on people driving alone for their daily needs. Connecting Activity Centers with high-capacity transit options and making it easier for people to move around within these areas can also help reduce reliance on driving alone. Encouraging this development in, and connections within and between Activity Centers, has been a top priority of the TPB since the 1990s and is reflected in the policy framework highlighted in [Chapter 3](#).

This encouragement has paid off. Figure 2.6 shows existing development and predicted growth inside and outside of Activity Centers. Currently, 29% of the region’s population lives within Activity Centers, and 65% of jobs are located within them.

Population and jobs will continue to grow in Activity Centers between now and 2045

In the future, growth will be even more concentrated in Activity Centers. By 2045, 35% of the region’s population will live in Activity Centers, and 67% of the region’s jobs will be located in Activity Centers.⁴ By pushing the pace on implementing policies that encourage development in Activity Centers, promoting housing affordability in Activity Centers, and by continuing to invest in good public transit, the region can reap even greater benefits from this type of land-use planning.

Figure 2.6 Growth Inside and Outside of Activity Centers



⁴ Performance analysis of financially constrained element of Visualize 2045.

The Regional Transportation System

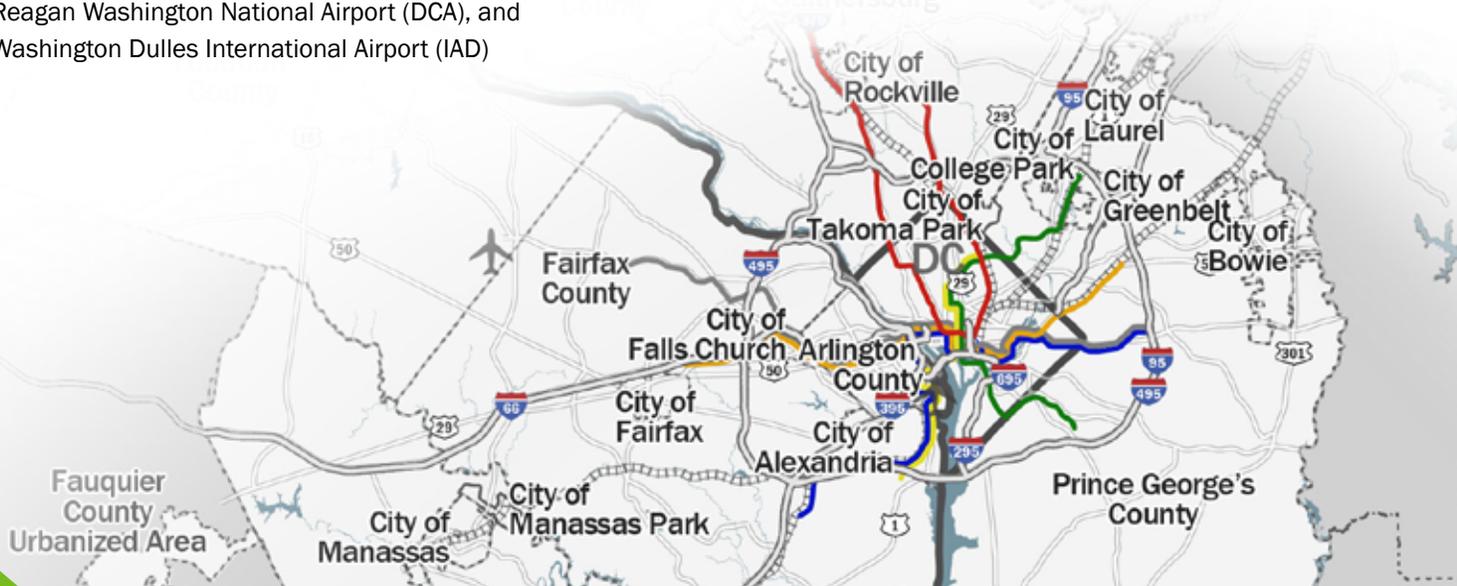
The transportation system in the National Capital Region is linked to the patterns of past growth and development. Robust rail and bus transit, and an expansive system of highways and priced toll lanes make up the high-capacity backbone of the transportation system. In addition, extensive infrastructure for bicyclists and pedestrians, as well as provisions for bike-sharing, ride-hailing, and car-sharing services, allow for a wide range of options throughout the region.

The region's transportation network is massive, which makes planning for the future that much more complicated. Within its boundaries, the region is served by:

- More than 17,000 lane miles of highways and major roads, around 400 miles of which are tolled lanes
- 118 miles of Metrorail and 91 Metrorail stations
- 167 miles of MARC and VRE commuter rail and 39 commuter rail stations
- Six miles of bus rapid transit, light rail and streetcars, with more soon to come
- Over 500 miles of off-street paved trails and paths for walking and biking
- Over 200 miles of bike lanes
- Over 15 local and commuter bus systems and over 10 paratransit service providers
- Nine intercity train stations and 14 intercity bus stations connecting this region to others
- Three major airports with extensive domestic and international connections: Baltimore/ Washington International Thurgood Marshall Airport (BWI), Ronald Reagan Washington National Airport (DCA), and Washington Dulles International Airport (IAD)

Planning, building, operating, and maintaining this infrastructure is handled by a long list of public agencies that have oversight over different aspect of the process, as well as private companies providing transportation services. These include:

- The Maryland Department of Transportation (MDOT), the Virginia Department of Transportation (VDOT), the Virginia Department of Rail and Public Transportation (DRPT), and the District Department of Transportation (DDOT), which control major transportation planning and funding decisions in their respective jurisdictions
- Other regional transportation planning and funding agencies, including the Northern Virginia Transportation Authority (NVTA) and the Northern Virginia Transportation Commission (NVTC)
- The city and county governments that make local decisions on transportation and land-use
- The Washington Metropolitan Area Transit Authority (WMATA), with a service area of 1,500 square miles, providing Metrorail, Metrobus, and paratransit services
- Dozens of local bus, commuter bus, and paratransit operators that serve specific cities and counties in the region
- Amtrak, the national rail system, and the MARC and VRE commuter rail systems
- Numerous private taxi companies and a growing number of smartphone-based application ride-hailing services, such as Uber and Lyft, that operate throughout the region
- Capital Bikeshare and other private companies that provide bicycles and scooters for short-term rental
- Multiple car-share companies, such as car2go and Zipcar, that allow short-term vehicle rental



Travel Patterns in Metropolitan Washington

Trips and Mode Share

Approximately 17 million trips are taken per day on all modes of transportation for all purposes, including travel to work, to school, to medical appointments, and to other destinations. Of those trips, 41% are people driving alone, 40% are in a vehicle with two or more people, 12% are by walking or biking, and 7% are by bus or rail transit.⁵

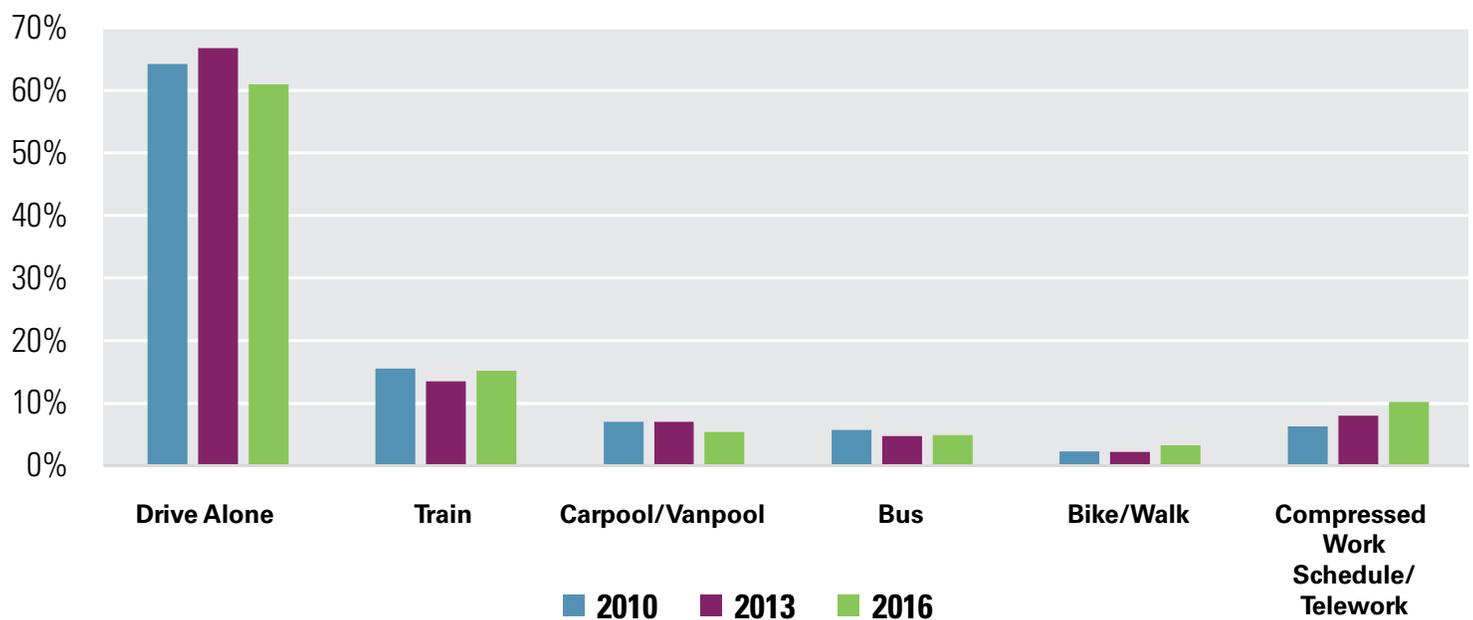
Every two years TPB conducts a survey on commute travel, and the most recent results demonstrate that travel to and from work accounts for 3.5 million trips each day. As of 2016, the majority of work trips, or 61%, are taken in a single occupancy vehicle, 5% are in a vehicle with two or more people, 15% by rail transit, 5% by bus, and 3% by walking or biking (Figure 2.7).⁶

Over the past 10 years, the share of single occupancy vehicle trips has slightly declined in favor of other modes, including carpooling, transit, walking, and biking. Following this trend, it is expected that the share of single occupancy vehicle trips will continue to decline as additional transit services come on line, as bicycle and pedestrian infrastructure continues to grow, and as land-use policies push for the concentration of jobs and households in regional Activity Centers.



(Beyond DC/Flickr)

Figure 2.7 Commute Trips by Mode, 2010-2016 (Source: 2010, 2013, and 2016 State of the Commute Reports)



⁵ Performance analysis of financially constrained element of Visualize 2045.

⁶ 2016 State of the Commute Report. mwcog.org/documents/2016/06/21/state-of-the-commute-survey-report-carsharing-state-of-the-commute-travel-surveys/

Bus and Rail Transit Use

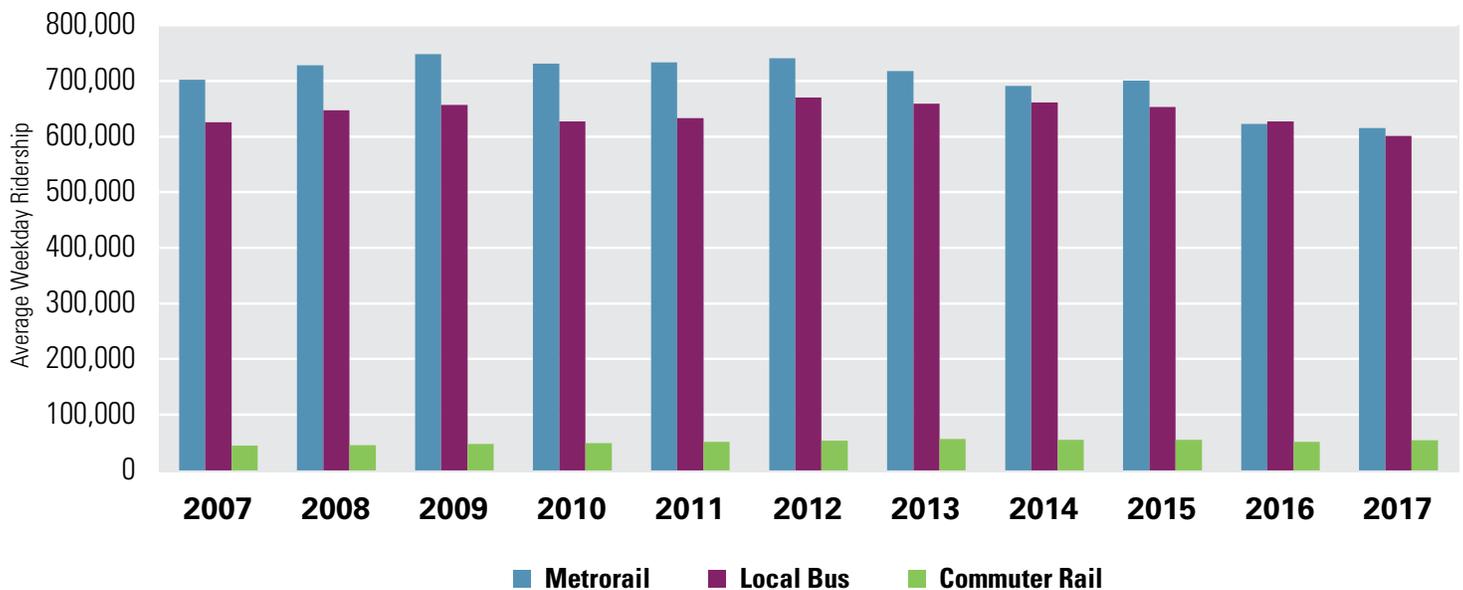
Public transit, whether rail, local bus, bus rapid transit, or streetcar, reaches all 23 jurisdictions in the region and carries a significant number of people to their destinations every day. Though transit modes only account for 7% of all daily trips taken, one-quarter of all trips to and from work are on public transit.⁷ Additionally, the National Capital Region is fourth in the U.S. in the average number of transit trips taken per month.⁸ As of 2017, Metrorail, one of the largest mass transit systems in the country, handles over 600,000 trips per weekday, and the bus systems throughout the region collectively carry another 600,000 trips per weekday (Figure 2.8). Commuter rail services including MARC and VRE carry around 50,000 riders on an average weekday.⁹

Metrorail ridership hit an all-time peak in 2009 and remained somewhat steady until the past few years. Since 2015 overall ridership has declined, following national trends in travel patterns.¹⁰ Bus operators have also reported similar drops in ridership over the past few years. However, regional forecasts see this downward trend as temporary. As land-use patterns continue to concentrate jobs and households near new and existing high-capacity transit systems, transit ridership levels are expected to increase.



(Elvert Barnes/Flickr)

Figure 2.8 Transit Ridership Over Time (Source: Regional Transportation Data Clearinghouse)



⁷ Performance analysis of financially constrained element of Visualize 2045.

⁸ TransitCenter. NTD Transit Ridership Analysis, 2002-2017. www.transitcenter.org/2018/05/01/transitcenters-ntd-transit-ridership-analysis-2002-2017/.

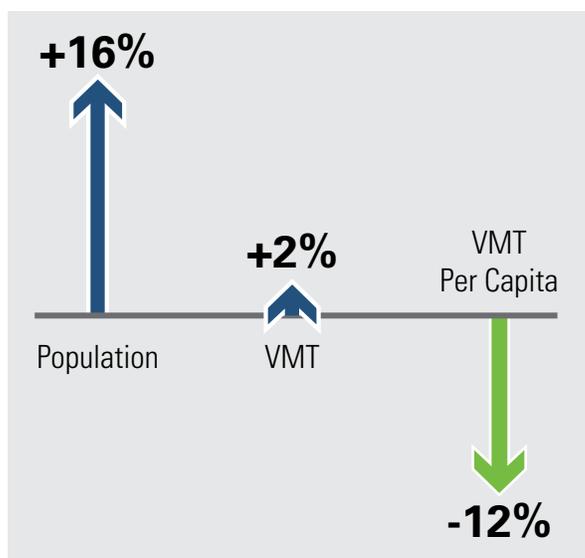
⁹ Regional Transportation Data Clearinghouse - Transit Data Collection. www.rtdc-mwocg.opendata.arcgis.com/

¹⁰ WMATA Finance Committee. "Understanding Rail and Bus Ridership." www.wmata.com/about/board/meetings/board-pdfs/upload/3A-UnderstandingRidership-TO-POST.pdf

Motor Vehicle Travel

Motor vehicle travel comprises the vast majority of trips taken in the region. As of 2016, vehicles traveled approximately 123 million miles per day on average on the region’s roadways, which is an increase of 2% since 2006.¹¹ Though driving measured in vehicle miles traveled (VMT), has increased over the past decade, it has done so at a slower rate than the 16% increase in the region’s population over that same period of time.¹² Therefore, the total number of VMT per person decreased by 12% between 2006 and 2016, as more people are living in the region and an increasing amount of people are finding alternate modes to use for their daily travel.

Figure 2.9 Population and VMT Changes 2006-2016



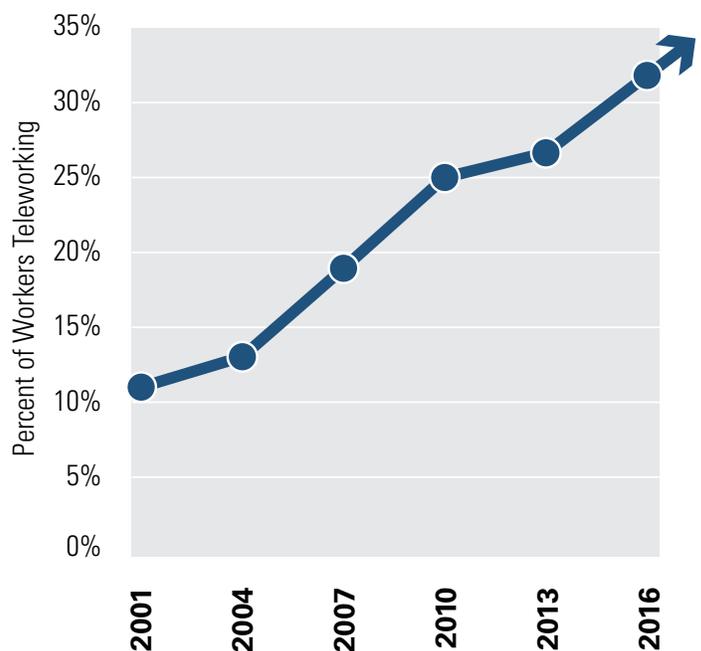
There are approximately 4.1 million vehicles registered in jurisdictions throughout the region, up from 3.6 million vehicles 10 years ago. Most of these vehicles are classified in the light-duty cars and motorcycles category, followed by light-duty trucks (including SUVs), and a relatively small number of heavy-duty vehicles and buses. The share of hybrid and electric vehicles has been steadily increasing over the past decade. There are currently 121,000 hybrid vehicles registered in the region, which is 3.1% of the total fleet, and on top of that there are 4,400 electric plug-in vehicles.¹³

VMT is forecast to continue to increase as population and employment figures increase throughout the region. However, vehicle miles travelled per person will continue to decline. Though the number of vehicles in the region will also likely increase, trends indicate that these vehicles will continue to get cleaner and more efficient as time goes on. The eventual introduction of autonomous vehicles will also begin to make an imprint on the region as new technologies are adopted, although the pace and implications of integration are still largely unknown.

Teleworking

A significant number of workers in this region telework some of the time instead of physically travelling to their place of employment every workday. When surveyed in 2016, nearly one-third (31%) of respondents said that they telework at least some of the time, up from 11% in 2001 (Figure 2.10).¹⁴ As more and more workers have the option to work from home, teleworking has changed the landscape of transportation in this region by reducing the total number of people accessing the transportation system on a given day. Even when taking into account the growth in teleworking that has occurred, there is still a huge potential for an even greater increase as more employees make accommodations for teleworking.

Figure 2.10 Share of Commuters Who Telework “At Least Occasionally” (Source: 2013 and 2016 State of the Commute Reports)



¹¹ Combination of three datasets. Maryland: www.roads.maryland.gov/OPPEN/Vehicle_Miles_of_Travel.pdf. Virginia: www.virginiadot.org/info/ct-TrafficCounts.asp (Report 1216). District of Columbia: Travel and Extent Tables from HPMS Submittal.

¹² Census Bureau, Population Division, Annual Estimates of the Resident Population.

¹³ December 2016 Vehicle Registration Data. mwcog.org/newsroom/2018/03/13/vehicle-census-shows-whats-on-our-regions-roads-fleet-mix-electric-vehicles-visualize-2045/

¹⁴ 2013 and 2016 State of the Commute Reports.

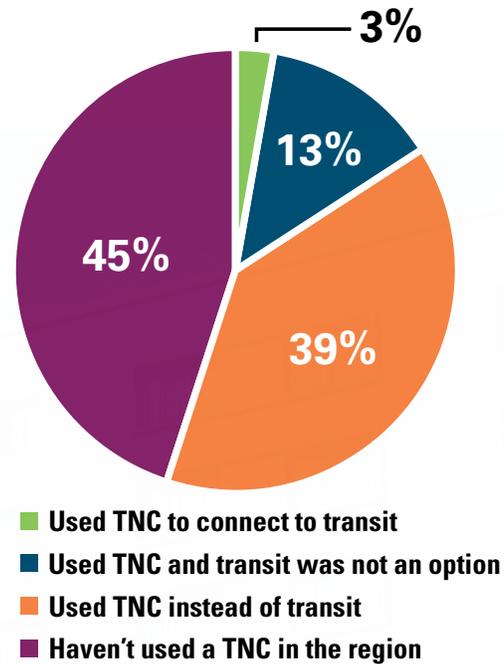
Taxis and Ride-Hailing Services

The advent of smartphone application-based ride-hailing services like Uber and Lyft (also known as transportation network companies, or TNCs), has revolutionized for-hire transportation in the region over the past decade. Whereas a decade ago, most for-hire services were provided by taxicab and limo companies that operated in separate jurisdictions throughout the region, many of those trips are now taken via TNCs. These companies provide an alternative, not only to taxis and limousines, but to driving alone and taking transit as well. One survey administered by WMATA shed some early light on how some passengers' TNC use can relate to their use of transit (Figure 2.11).¹⁵

More data are needed to more thoroughly understand how residents and visitors to our region are using TNCs. It is expected that TNC trips will continue to increase as these companies grow and introduce more products and services to entice more riders.

¹⁵ TRB Webinar: Who's Riding TNCs and What Does It Mean for Public Agencies? Broadening Understanding of the Interplay Between Public Transit, Shared Mobility, and Personal Automobiles. TCRP Research Report 195 Pre-Publication Draft. <http://www.trb.org/Publications/Blurbs/177112.aspx>

Figure 2.11 Transportation Network Company (TNC) Trip Reasons Compared to Transit, for Most Recent TNC Trip (Source: TCRP Research Report 195. Survey administered to WMATA users)



Bikeshare

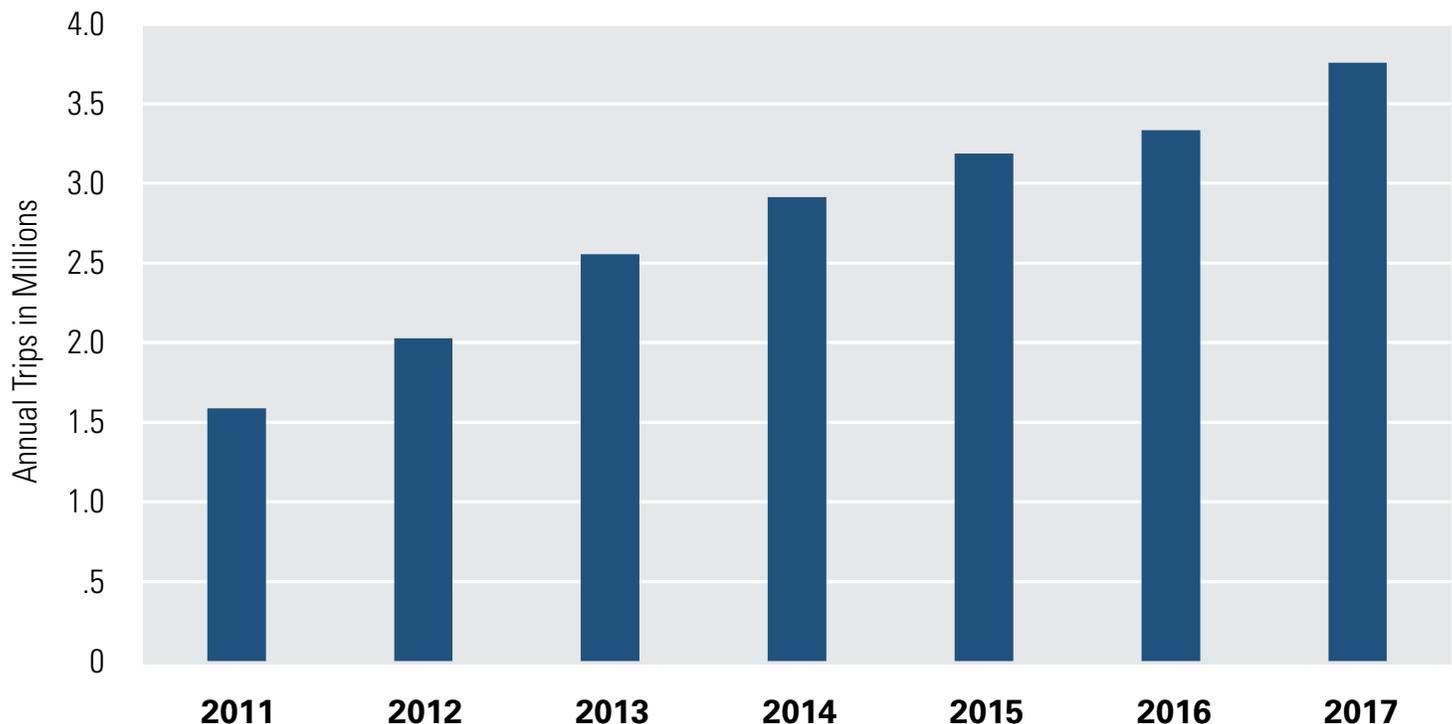
The metropolitan Washington region has been at the forefront of one of the most innovative advancements in bicycling in the 21st century: bikeshare. Since its inception as one of the nation's first systems of its kind in 2010, Capital Bikeshare has grown from 1,100 bikes at 114 stations in the District of Columbia and Arlington County, to over 4,300 bikes at 500 stations in five jurisdictions today. Over this time, the number of annual trips taken on the system has more than doubled from 1.5 million per year to over 3.7 million (Figure 2.12).¹⁶

In 2017 companies began offering dockless bikeshare options. Dockless bikeshare allows users to pick-up and drop off bikes anywhere without needing to park them in specific bike docks. Some companies have also begun offering electric bicycles and electric scooters using the same systems. Riders can lock and unlock the bikes and scooters using applications on their mobile phones. Though these systems are still in their testing phase, the dockless bikes have become quite popular among policy makers and residents.¹⁷ In addition, a recent Virginia

Tech study suggests that the presence of dockless bikeshare may be helping to address issues of transportation equity since riders on dockless systems are more racially diverse compared to Capital Bikeshare users, and are also slightly younger and less affluent.¹⁸

As Capital Bikeshare increases its reach across the region and additional options such as dockless bikeshare continue to become available, bikeshare use is expected to continue to rise in the coming years. Projected population and job growth in and around regional Activity Centers, where many destinations are located within bike-able range, is also expected to support additional bikeshare use in the near future.

Figure 2.12 Total Annual Capital Bikeshare Trips 2011 – 2017 (Source: Capital Bikeshare Data)



¹⁶ Sources for Capital Bikeshare data include capitalbikeshare.com/system-data and <https://s3.amazonaws.com/capitalbikeshare-data/index.html>.

¹⁷ "DDOT: DC generally favors dockless bike share so far." <https://wtop.com/dc-transit/2018/02/ddot-dc-favors-dockless-bikeshare/>

¹⁸ Virginia Tech. "D.C. Dockless Bikeshare: A First Look" https://ralphbu.files.wordpress.com/2018/05/dc-dockless-bikeshare_a-first-look_may_10_2018_publication.pdf

Air Travel

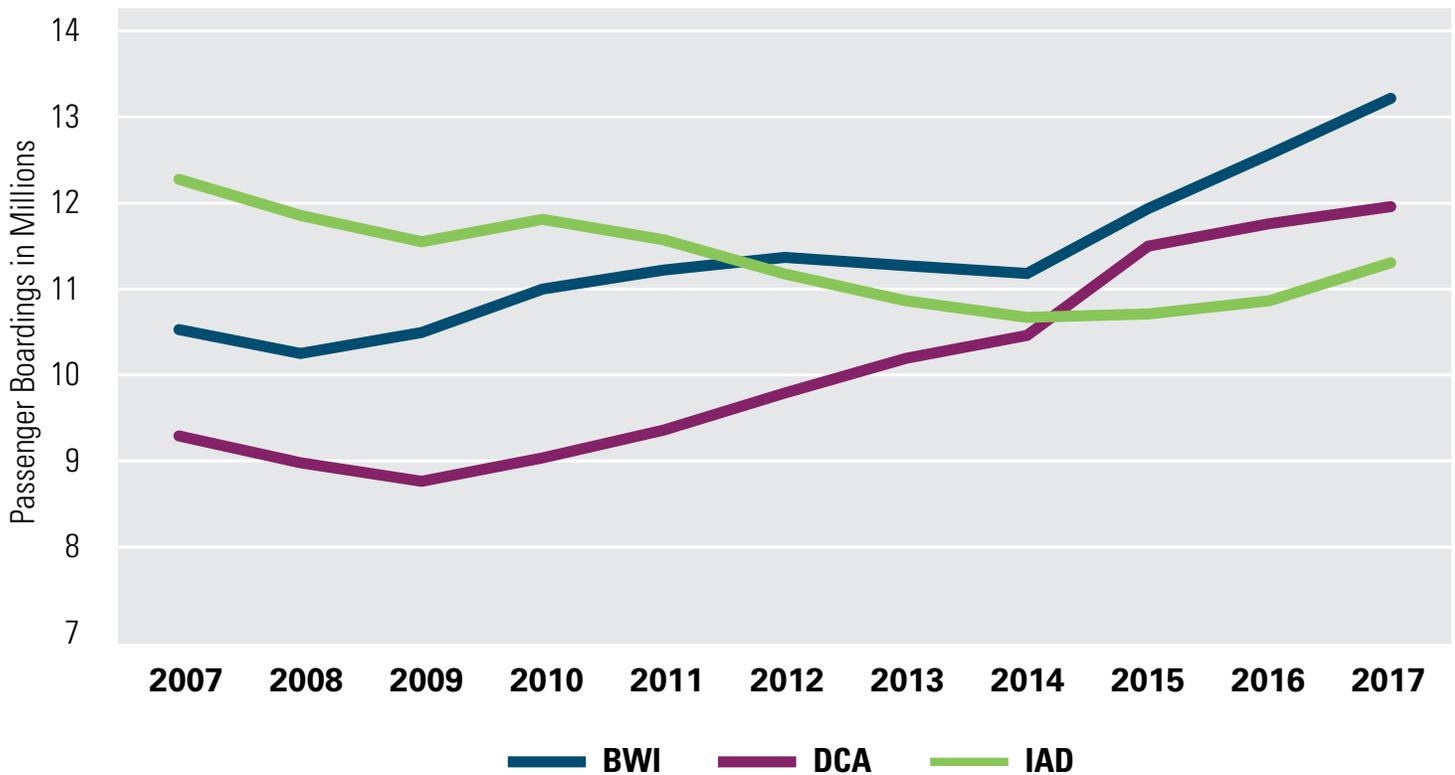
Commercial flights to and from the National Capital Region’s three major airports are currently at an all-time high. In 2017, there were approximately 36.5 million airplane boardings (enplanements) reported, up from 32 million in 2007. In 2012 BWI pulled ahead of Dulles (IAD) in boardings and maintains the highest number of boardings per year of the three airports (see Figure 2.13). Over the past couple years, all three airports’ boardings have been consistently increasing.¹⁹

In terms of how passengers access the airports, Ronald Reagan Washington National Airport (DCA) has the highest rate of access by transit compared to the other two airports due to its direct connection to Metrorail – 13% of airport travelers get to DCA via Metrorail. Still, most air passengers flying through DCA access the airport by private or rental automobile (38%).

A growing number of passengers are using transportation network companies (such as Uber or Lyft) to access the region’s airports. TNC usage is highest at DCA, with 21% of passengers, while 13% of IAD passengers and 8% of BWI passengers use TNCs to access the airport. At DCA, TNCs have become slightly more popular than taxis for the first time (18% of passengers use taxis).²⁰

Though using an automobile to travel to the airport will likely continue to be the most popular mode of access in the future, it is also expected that transit use will increase at Washington Dulles International Airport (IAD) as the second phase of Metrorail’s Silver Line comes online. This major investment will provide a new rail transit connection to IAD and is expected to be used by a significant number of air passengers.

Figure 2.13 Passenger Boardings Over Time at Three Major Airports (Source: 2017 TPB Air Passenger Survey)



¹⁹ TPB Continuous Air System Planning Program.

²⁰ Washington-Baltimore Regional Air Passenger Survey – 2017: General Findings. mwcog.org/CASP

The Future of Regional Travel

The ubiquity of mobile devices, such as smartphones and tablets, has created a new paradigm for transportation that is expected to continue into the foreseeable future. Mobile devices have made entirely new types of transportation possible and have changed how people access transportation information. Mobile devices have also altered how transportation agencies track and monitor how all modes of transportation perform. Moving forward, transportation planners expect technology to become more and more pervasive and new products and services to become available.

Technological advances, however, make some aspects of future travel difficult to predict, as certain innovations offer the potential to completely redefine travel throughout the country and region. One such innovation that appears to be just over the horizon is the introduction of autonomous vehicles onto the region's roadways. Though the degree and pace of adoption is still unknown, these vehicles have the potential to completely

revolutionize the private and for-hire vehicle markets and vehicle ownership, and ultimately shift land-use patterns if they reduce some of the drawbacks of long-range commutes. They are also sure to impact surface transportation options and mobility overall, with unknown and potentially large impacts on the use of public transportation.

To address the challenges foreseen by these trends, the TPB has adopted policy goals to help steer the region in a direction that will continue to make travel and quality of life better for those that live, work, and visit here.





CHAPTER 3

REGIONAL POLICY

Visualize 2045 is based on federal transportation planning requirements and a comprehensive regional policy framework that influences and directs the TPB's work.

When agencies submit their projects for inclusion in the financially constrained element they must consider these regionally agreed upon policies. This policy framework touches many other parts of the plan as well, and serves as a guiding

force behind the aspirational element and other work that the TPB engages in.

Federal requirements define the legal process under which the plan was developed and adopted. Federal law also determines which projects were required to be included in the financially constrained element and all the elements that are required to be included in the plan.

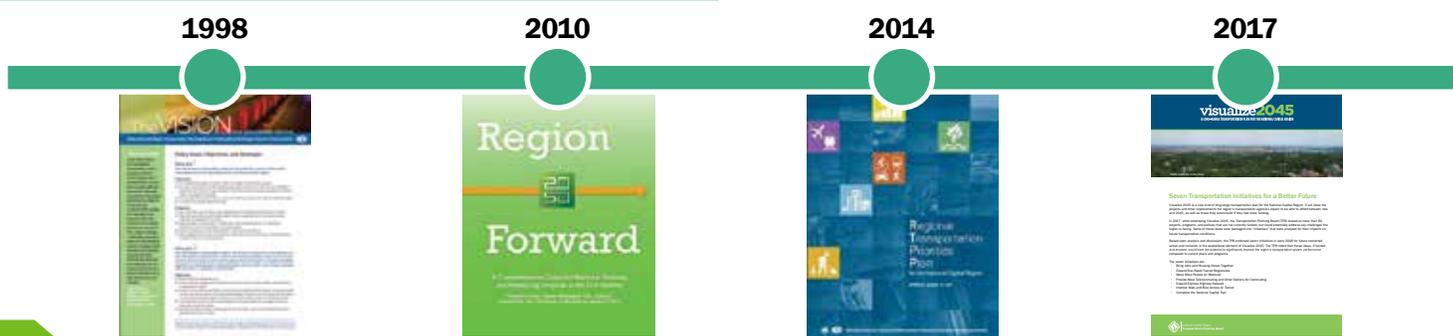
TPB Policy Framework

The TPB policy framework is a culmination of a 20-year evolution that began with a visioning process in 1998. This framework includes comprehensive strategies that promote a strong regional economy and help improve quality of life for all residents.

The policy statements and documents that make up the framework encourage the region's transportation agencies to consider regional goals, priorities, and needs when developing and selecting projects to fund and implement. The policy framework consists of the TPB Vision, the Regional Transportation Priorities Plan, the Region Forward vision adopted by the Metropolitan Washington Council of Governments (COG), and the seven aspirational initiatives recently endorsed by the TPB.

More information about the regional policy framework can be found at mwcog.org/TPBpolicy.

Evolution Of The TPB Policy Framework



THE TPB VISION (1998)

The TPB Vision, adopted in 1998, provides a comprehensive set of policy goals, objectives, and strategies that guide transportation planning and investment decisions in the Washington region. The Vision was developed by TPB members and technical staff from throughout the region through a collaborative effort that involved consideration and inclusion of the transportation, land-use, environmental, and economic sectors.

TPB Vision Statement

“In the 21st Century, the Washington metropolitan region remains a vibrant world capital, with a transportation system that provides efficient movement of people and goods. This system promotes the region’s economy and environmental quality, and operates in an attractive and safe setting—it is a system that serves everyone. The system is fiscally sustainable, promotes areas of concentrated growth, manages both demand and capacity, employs the best technology, and joins rail, roadway, bus, air, water, pedestrian and bicycle facilities into a fully interconnected network.”

THE VISION GOALS

1. The Washington metropolitan region’s transportation system will provide reasonable access at reasonable cost to everyone in the region.
2. The Washington metropolitan region will develop, implement, and maintain an interconnected transportation system that enhances quality of life and promotes a strong and growing economy throughout the entire region, including a healthy regional core and dynamic regional activity centers with a mix of jobs, housing and services in a walkable environment.
3. The Washington metropolitan region’s transportation system will give priority to management, performance, maintenance, and safety of all modes and facilities.
4. The Washington metropolitan region will use the best available technology to maximize system effectiveness.
5. The Washington metropolitan region will plan and develop a transportation system that enhances and protects the region’s natural environmental quality, cultural and historic resources, and communities.
6. The Washington metropolitan region will achieve better inter-jurisdictional coordination of transportation and land use planning.
7. The Washington metropolitan region will achieve an enhanced funding mechanism(s) for regional and local transportation system priorities that cannot be implemented with current and forecasted federal, state, and local funding.
8. The Washington metropolitan region will support options for international and inter-regional travel and commerce.

REGION FORWARD: A COMPREHENSIVE GUIDE FOR REGIONAL PLANNING AND MEASURING PROGRESS IN THE 21ST CENTURY (2010)

The Metropolitan Washington Council of Governments developed Region Forward in 2010 to guide local and regional decision making. It spells out nine broad goal areas, one of which is transportation, and numerous objectives and targets for assessing progress toward achieving each of the goals.

Region Forward Goals that Guided Aspects of Visualize 2045

- We seek a broad range of public and private transportation choices for our region which maximizes accessibility and affordability to everyone and minimizes reliance upon single occupancy use of the automobile.
- We seek a transportation system that maximizes community connectivity and walkability, and minimizes ecological harm to the region and world beyond.
- We seek transit-oriented and mixed-use communities emerging in regional Activity Centers that will capture new employment and household growth.
- We seek a significant decrease in greenhouse gas emissions, with substantial reductions from the built environment and transportation sector.
- We seek a diversified, stable, and competitive economy, with a wide range of employment opportunities and a focus on sustainable economic development.
- We seek to minimize economic disparities and enhance the prosperity of each jurisdiction and the region as a whole through balanced growth and access to high-quality jobs for everyone.

THE REGIONAL TRANSPORTATION PRIORITIES PLAN (2014)

The TPB adopted the Regional Transportation Priorities Plan (RTPP) in January 2014. It focuses the region's attention on a handful of transportation priorities and strategies with the greatest potential to advance regional goals rooted in the TPB Vision. The strategies are meant to be "within reach" both financially and politically. The goals in the RTPP are frequently referenced in TPB planning activities, including the work of the Long-Range Plan Task Force (which shaped the aspirational element, see **Chapter 4** for more information) and the submission forms for projects in the financially constrained element of the plan. Pursuing the priorities outlined in this plan will lead to greater economic vitality and a higher quality of life for those that live in the metropolitan Washington region.

Priorities Identified in the RTPP

- 1. Meet Our Existing Obligations:** Funding for maintenance and state-of-good-repair needs should continue to be prioritized over system expansion.
- 2. Strengthen Public Confidence and Ensure Fairness:** Efforts to increase accountability and address the needs of historically transportation-disadvantaged populations should be considered in all stages of project planning, design, and implementation.
- 3. Move More People and Goods More Efficiently:** Improvements to the transportation system should seek to do more with less—to make more efficient use of existing infrastructure and promote greater use of more efficient travel modes for both people and goods.

RTPP Goals

1. Provide a comprehensive range of transportation options
2. Promote a strong regional economy, including a healthy regional core and dynamic Activity Centers
3. Ensure adequate system maintenance, preservation, and safety
4. Maximize operational effectiveness and safety of the transportation system
5. Enhance environmental quality, and protect natural and cultural resources
6. Support inter-regional and international travel and commerce



ASPIRATIONAL INITIATIVES (2017)

In 2017 and 2018 the TPB identified seven initiatives that have potential to improve the performance of the region's transportation system compared to previously adopted long-range transportation plans. The projects, policies, and programs that make up these initiatives were identified based on their ability to make more progress toward achieving the goals laid out in previously adopted TPB and COG governing policy documents.

The Aspirational Initiatives are:

- Bring jobs and housing closer together
- Expand bus rapid transit and transitways
- Move more people on Metrorail
- Increase telecommuting and other options for commuting
- Expand the express highway network
- Improve walk and bike access to transit
- Complete the National Capital Trail

These seven initiatives serve double-duty for Visualize 2045: they provide policy guidance for this plan as well as future plans, and they also serve as concepts for projects, programs,

and policies, comprising the aspirational element of the plan (see [Chapter 4](#)). As the newest piece of the policy framework, the initiatives are meant to provide inspiration and guidance to regional leaders and transportation agencies that identify projects to be included in the financially constrained element of the plan. In future plan updates, the TPB would like to see more projects, programs and policies included in the financially constrained element of the plan that help fulfill these initiatives. By furthering these initiatives the region will continue to build upon a legacy of regional policies that bring the region closer to reaching its goals for an effective transportation system for all its residents.



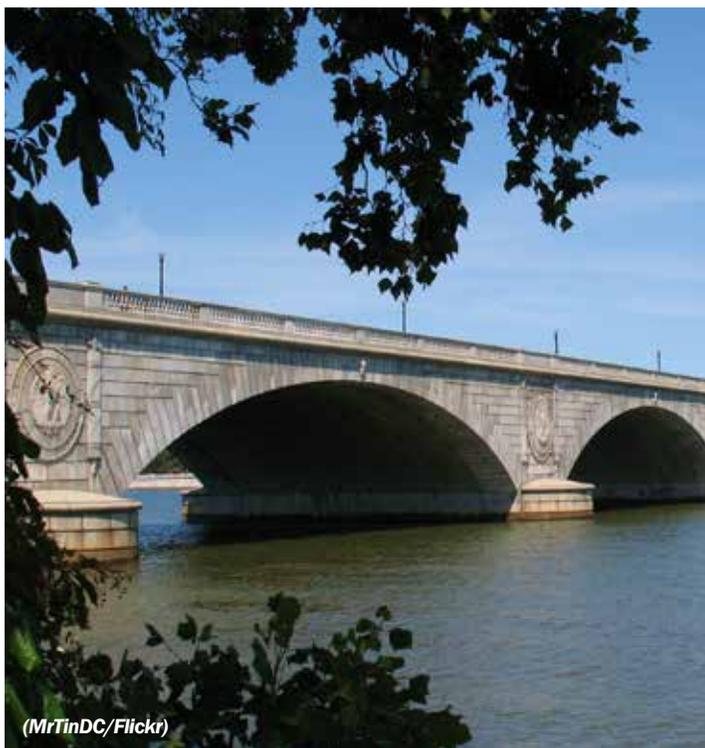
Federal Requirements

As a federally designated metropolitan planning organization, or MPO, the TPB's long-range transportation planning process, including the development and adoption of a long-range transportation plan, is governed by several federal requirements. These requirements must be met for the plan to be approved and for federal transportation dollars to continue flowing to the region. The newest federal surface transportation law is the 2015 Fixing America's Surface Transportation (FAST) Act.

MPOs must develop a regional long-range transportation plan that looks out at least 20 years into the future. The plan must include a policy element to guide the development and selection of projects. And it must include a detailed financial plan demonstrating that funding is "reasonably expected to be available" to build, operate, and maintain the transportation system it spells out. The plan and its various components must be updated at least once every four years.

Appendix K contains a checklist of federal requirements for MPO long-range transportation plans that Visualize 2045 fulfills. The checklist explains the requirements and points readers to locations in the plan document to see where these requirements are fulfilled.

Some highlights of requirements for an MPO's long-range transportation plan are described below.



Consideration of the Federal Planning Factors

In addition to considering regional policies when developing Visualize 2045, the submitting agencies were required to consider ten federal planning factors in developing the plan. These planning factors are referenced at various points throughout Visualize 2045, where relevant. The planning factors are:

- Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency
- Increase the safety of the transportation system for motorized and nonmotorized users
- Increase the security of the transportation system for motorized and nonmotorized users
- Increase the accessibility and mobility of people and for freight
- Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns
- Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight
- Promote efficient system management and operation
- Emphasize the preservation of the existing transportation system
- Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation (New under the FAST Act)
- Enhance travel and tourism (New under the FAST Act)

Responding to New Planning Factors

The last two planning factors are new for this update of the long-range transportation plan: "improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation" and "enhance travel and tourism." Visualize 2045 addresses these planning factors in **Chapter 7** and explains how the TPB is working to contribute to and help coordinate regional resiliency and reliability planning efforts and regional travel and tourism planning efforts.

New Performance-Based Planning and Programming (PBPP) Requirements

The most recent federal transportation authorization requires that states and MPOs “transition to a performance-driven, outcome-based program that provides for a greater level of transparency and accountability, improved project decision-making, and more efficient investment of Federal transportation funds.” To accomplish this, the PBPP process ties the funding of projects and programs to improving measured performance and achieving targets set for future performance. An overview of how the region is working toward achieving the PBPP goals can be found in [Chapter 6](#).

Non-Discrimination and Equity

Federal guidance stipulates that the MPO’s long-range transportation plan must not have disproportionately high and adverse impacts on minority populations and individuals with low incomes. COG’s Title VI Plan (encompassing TPB) provides necessary policies and practices to ensure non-discrimination, available at mwkog.org/TitleVI. Other TPB non-discrimination and equity elements are described in the “Equity and Inclusion” portion of [Chapter 7](#).

Public Participation

Federal law requires MPOs to engage users of all transportation modes who reside, have an interest, or do business in an area affected by transportation decisions. The fundamental objective of involving the public is to ensure that the concerns and issues of everyone with a stake in transportation decisions are included in the development of the policies, programs, and projects being proposed in their communities. To encourage participation, the MPO must develop a participation plan, make public information available in ways that are accessible and understandable by all participants, and encourage the participation of persons underserved by existing transportation systems, such as low-income or minority households and the elderly. Visualize 2045’s public participation efforts are described in [Chapter 8](#) and appendices to this plan summarize distinct public participation activities that helped shape the plan.



CHAPTER 4

ASPIRATIONAL ELEMENT

For the first time in its long-range transportation plan, the TPB is highlighting aspirational ideas for transportation improvements that can help the region move closer to its goals. This chapter explains why this is a first for our region and what the aspirational initiatives are, and issues a call to action for regional leaders to implement the seven initiatives the TPB has endorsed.

Background

Since the TPB's first Financially Constrained Long-Range Transportation Plan (CLRP) in 1994, the plans have only included transportation projects that are expected to be funded. While these long-range transportation plans have been a reflection of the priorities of the TPB's member jurisdictions, they did not envision a future that the region had collectively aspired to; rather, the plans have forecasted what could be expected, given anticipated revenues. Increasingly, revenues are expected to be tight over the years, and TPB members have frequently expressed concerns with the forecast performance of the transportation system under a financially constrained future.

TPB members expressed dissatisfaction that past long-range transportation plans were not anticipated to provide satisfactory future performance of the transportation system nor did they bring the region close enough to reaching goals laid out in TPB and COG policy documents. TPB members' concerns with the future performance of the transportation system were based on future projected conditions, such as the significant projected increases in peak hour congested lane miles and daily vehicle hours of delay, projected reductions in carbon dioxide emissions

falling far short of the region's goal, and the continued dominance of single-occupancy vehicles as the most commonly used mode.

The TPB set out to grapple with these issues in the face of growing pressures on the transportation system as the region continues to grow in population and employment. [Chapter 2](#) describes the vast growth in population and employment that we are expecting in the region between now and 2045. The TPB wanted to be proactive and execute a planning activity that would address questions such as:

- What could the TPB do to help the region grow in the best way possible?
- How can the TPB ensure that residents and workers have options to travel around the region efficiently, affordably, safely, and sustainably?
- How can the TPB help improve accessibility and mobility for all users of the transportation system?
- What can the TPB change about its long-range transportation planning to have a more effective impact on the region's transportation future?

The TPB embarked upon a set of planning activities to explore ways to address these questions. Visualize 2045 is an important piece of the response, marking the first time a TPB long-range transportation plan incorporates a financially unconstrained component. Federal law requires MPOs to develop financially constrained plans, but they do not prohibit regions from also developing more comprehensive transportation plans that include unfunded or "aspirational" components. Indeed, most large MPOs

in the United States currently develop long-range transportation plans that comprise both funded and unfunded elements. This chapter highlights unfunded initiatives that the region has jointly agreed are important to our future—and worth pushing for.

The Seven Endorsed Initiatives

The TPB endorsed seven initiatives in early 2018 for inclusion in the aspirational element of Visualize 2045 and for other future concerted action. The TPB noted that these ideas, if funded and enacted, would have the potential to significantly improve the region's transportation system performance compared to current plans and programs.

With its endorsement, the board issued a call to action for its member jurisdictions and agencies to commit to fully explore the concepts contained in the initiatives and take action to implement projects, programs, and policies to fully realize the potential improvements in the transportation system's performance. In 2018, TPB staff began working with the appropriate subject matter experts to identify specific implementation actions that TPB members could take—individually and collectively—to make aspirational projects, programs, and policies part of the financially constrained element of future TPB long-range plans.

To explore these initiatives in an interactive online map, visit mwkog.org/InitiativesStoryMap.

BRING JOBS AND HOUSING CLOSER TOGETHER

What is it?

More housing and jobs in central locations. There would be new opportunities for people to live or work in Activity Centers – places where jobs and housing are concentrated and it's easy to walk, bike, or take public transit.

Taking advantage of underused Metro stations. Local planning efforts would encourage housing and job growth close to Metrorail stations that aren't as busy as others and have available space nearby for new construction.

Reduced traffic from commuting from outside the region. Our region doesn't have enough housing for our expected growth. By building more housing, we can encourage more people to live in our region instead of commuting in and out every day.

Coordinated local policies. This initiative asks regional leaders to coordinate local policies – through zoning and revisions in local plans – that would allow more people to live closer to jobs.

“Visualize” the future:

Fewer, shorter trips in cars. More housing close to Metro and in Activity Centers would let more people walk to work and transit. That means there would be fewer cars on our region's roads. And that would significantly reduce congestion, making driving more reliable for those who commute by car.

Increased economic opportunity. More jobs would be available to more people within a short distance from home – which is particularly important for low-income workers and those without cars.

Vibrant communities. Imagine being able to walk and bike to work, school, errands, and fun. It's good for our health and for the environment. More household growth concentrated in central locations would help us achieve that future.



EXPAND BUS RAPID TRANSIT AND TRANSITWAYS

What is it?

Buses that mimic rail. Bus rapid transit (BRT) in suburban Maryland, Northern Virginia, and D.C. would provide high-quality transit services that approach the speed of rail, but at a fraction of the cost to build.

A dramatically expanded transit service. BRT, streetcar, and light rail systems would be available for more people in more places throughout the region.

Targeted rail projects. Streetcar and light rail routes would provide targeted connections within the regionwide system, serving high-density locations and promoting economic development.

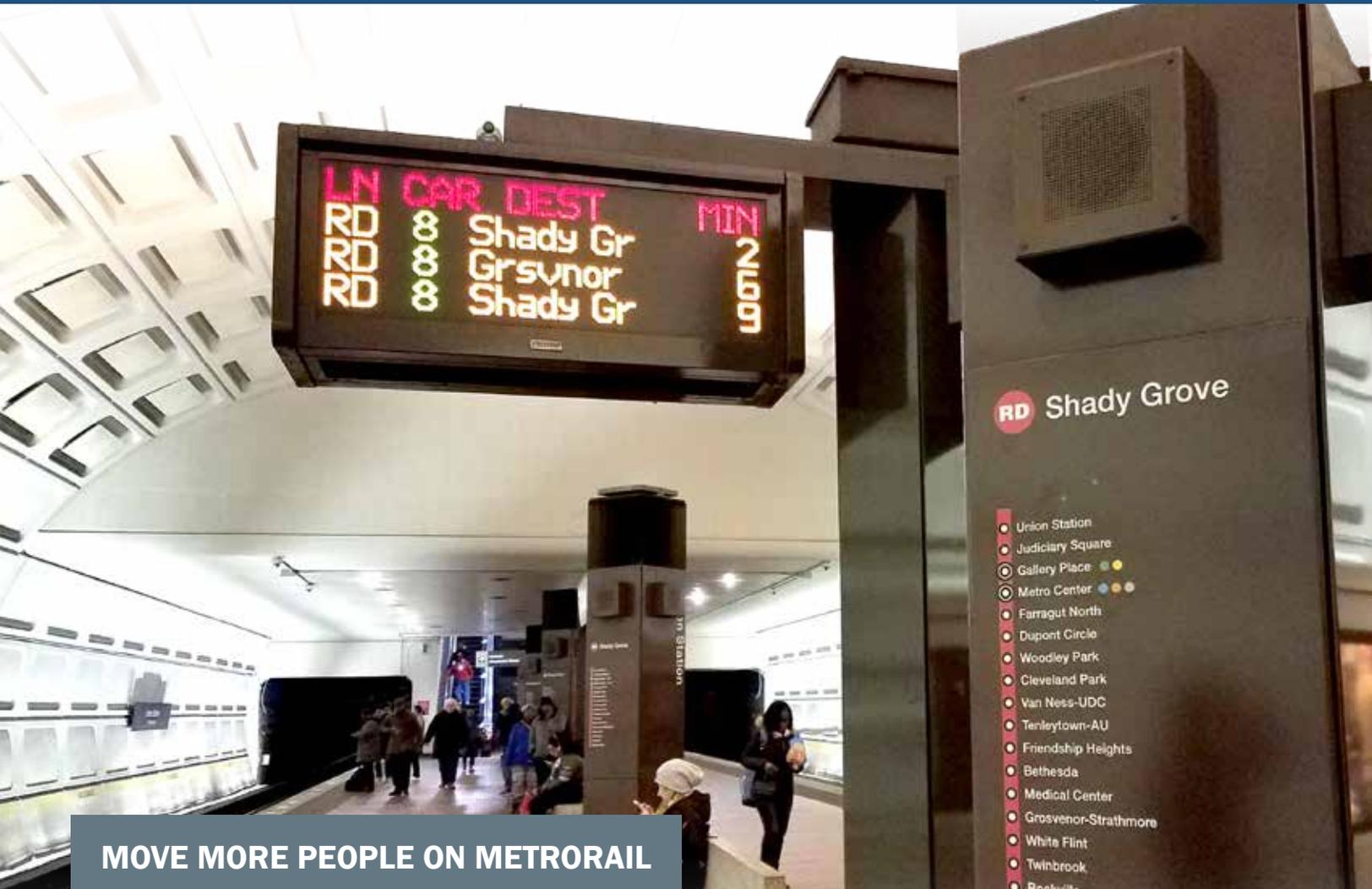
“Visualize” the future:

A diversity of transit options. Imagine having access to express transit, even if you live or work far from a Metrorail station. Fast and reliable transit now comes in many shapes and forms, and in the future, this initiative would provide an abundance of options. BRT buses would operate in their own separated lanes with pre-payment systems and level boarding to get people on and off quickly.

More access to jobs. Along with new transit comes access to new opportunities. BRT, light rail, and streetcars would not only connect the region’s many Activity Centers – our economic engines – but would also help people move around within them. More transit would provide new travel options for scores of people who currently struggle to get to and from work.

Better bike/ped access. New buses and rail encourage walking and bicycling. To maximize the benefit of new transit services, we need to make sure people can get to and from stations on sidewalks, paths and bike lanes safely.





MOVE MORE PEOPLE ON METRORAIL

What is it?

Moving more people through the center of the region.

To move more people on Metrorail, there would be more trains and lines, and stations would be expanded. The focus would be on the downtown core of the region to accommodate more riders where stations and trains are overcrowded.

Longer trains. In the near-term future, eight-car trains (instead of six-car trains) would run on all lines at all times.

Expanded stations. Stations at the heart of the system would be expanded to handle new riders with less crowding. These changes would include expanded mezzanines and new fare gates and escalators.

A second station in Rosslyn. The addition of a second Rosslyn station to increase the frequency of Orange, Blue, and Silver Line trains would relieve a system bottleneck that slows down commutes throughout the region.

A new line in the regional core. A new rail line under the Potomac River (via a new Rosslyn tunnel) would connect Virginia to Georgetown, and on to Union Station.

“Visualize” the future:

Dependability. With Metro restored to an excellent state of good repair, imagine more trains, running more often, with stations that have space for more people. The expanded capacity would make the Metrorail system more reliable and efficient.

Regionwide impacts. Enhancing capacity on the existing system would benefit the whole region. Currently, the 26 stations in the region’s core are the destination or transfer point for 80% of all rail riders system-wide. When those links are clogged, travel everywhere is affected.

Reduced road congestion. These projects would not only affect transit riders. By making it easier to get on the train, we can reduce road congestion significantly and shorten many daily trips, whether on Metro or by car.

World-class system. The economic benefits would be profound. Enhanced capacity on Metrorail would improve access to jobs and strengthen our competitive advantage in the global economy.



PROVIDE MORE TELECOMMUTING AND OTHER OPTIONS FOR COMMUTING

What is it?

Reducing solo car trips. This initiative would expand programs to increase the number of people who telework, ride in carpools, or use transit. These programs can be implemented by employers, government programs, or both.

More workers teleworking. As a result of employer-based incentives, one in five workers in the region would telework each day. That's double the amount today. In addition, workplaces would let employees come to work early or late some days to avoid traveling during rush hour.

Subsidies for not driving. The number of employees receiving transit and carpool subsidies from work would increase significantly. And workers who currently receive free parking could receive the cash value of that benefit to pay for transit or other commuting options (known as parking cash-out.)

Reduced parking incentives at work. Local governments and employers would stop subsidizing the cost of parking in the region's Activity Centers, where jobs and housing are concentrated. This would encourage more people to carpool or take transit. The new parking prices would vary based on distance from central business districts. Areas that currently do not charge for parking would charge lower amounts than those that already charge.

“Visualize” the future:

Getting cars off the road. Imagine a future with fewer cars clogging the roads and polluting the air. This initiative would take many cars off roads due to the number of people telecommuting and using alternate modes on any given day. Without needing to build any new roads or other infrastructure, this initiative greatly lessens congestion due to the vast reduction in people traveling alone in cars for work trips.

Reduced emissions. Vehicle emissions would consequently decrease, greatly benefiting the region's air quality and environment.

EXPAND EXPRESS HIGHWAY NETWORK

What is it?

Congestion-free toll roads. Toll lanes would be added to existing highways throughout the region. Traffic on these lanes would be congestion-free because of dynamic pricing – toll rates increase during the most congested times of day. And higher tolls would reduce demand on the lanes, keeping traffic free-flowing.

Building on an emerging toll road network. Managed lanes exist today on new facilities in Maryland and Virginia. We are already seeing that toll lanes are the most likely way that we will be able to fund needed road projects in our growing region, even as we seek to reduce our dependence on driving alone. They would also encourage carpooling by exempting cars with more passengers from the tolls.

New opportunities for transit. A new network of express buses would travel in the express toll lanes, connecting people and jobs throughout the region. The revenues generated from the tolls would be used to operate the new extensive regional network of high-quality bus services.

“Visualize” the future:

Less congestion, faster trips. The expanded express lane system would reduce average travel times and congestion. Driving would be more reliable and predictable.

Speedy bus service. Operating in free-flowing traffic would ensure reliable bus service. For people who cannot regularly afford to drive in toll lanes, express buses would provide an attractive and dependable way to take advantage of the congestion-free express lanes.

Expanded access to jobs. Express lanes would expand economic opportunity, making it easier for commuters to know with certainty that they can get to work on time on a regular basis.



IMPROVE WALK AND BIKE ACCESS TO TRANSIT

What is it?

More paths to transit. Our region doesn't have enough safe options for walking or bicycling to transit stations. Often, there are barriers in the way, such as a lack of safe sidewalks or crosswalks, or a major road that cannot be crossed. If you live or work within a half mile of a rail or BRT station, you should be able to walk to the station within 10 minutes on average, or bike to the station within a short period.

Removing barriers for walkers and bicyclists. Sidewalks would be built or repaired, crosswalks and crossing signals would be installed, and new trails would be constructed. Walking or biking would be comfortable and convenient.

“Visualize” the future:

Safe and comfortable. Imagine having easy and safe access to transit, free of worry from unsafe sidewalks, poor lighting, or lack of safe crossings. Throughout the region, many more people would have safe and easy access to high-capacity transit – not only would this mean that people's personal safety while walking or biking to transit stations would improve – but it would also mean more people would choose to use transit because it would become a much more attractive option to them.

Providing key links. First- and last-mile connections would provide access to jobs and other destinations within shorter commute times. Such cost-effective measures can improve Metro ridership and stimulate the economy. More people taking transit would take more cars off the roads, improving the environment and helping to reduce congestion for those who drive.

Easily move around your community. Diverse economic activities would thrive if people can easily move around their communities. Seniors, people with disabilities, and transit-dependent populations would have more opportunities to get around without a car. Communities would benefit from increased street life and renewed vibrancy.

COMPLETE THE NATIONAL CAPITAL TRAIL

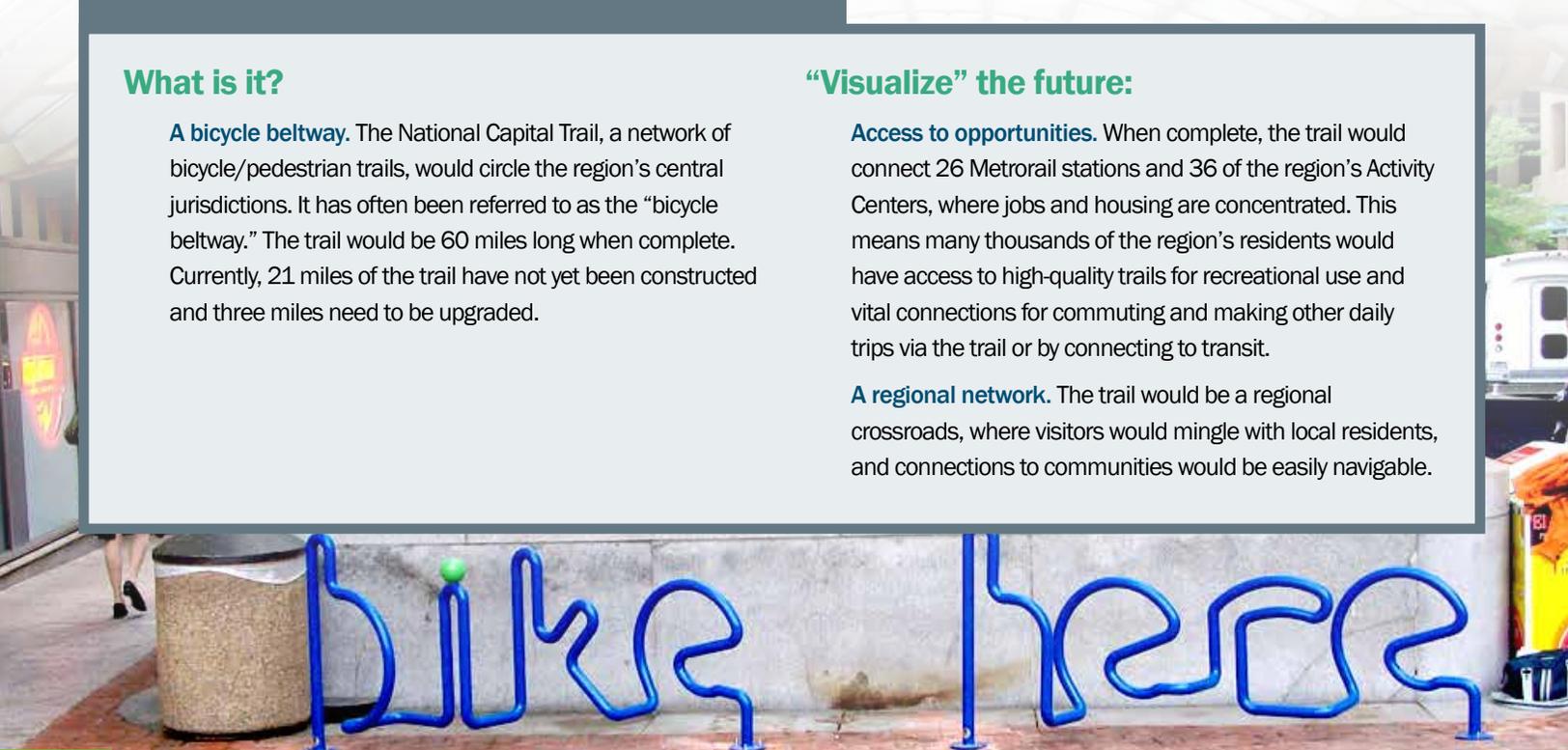
What is it?

A bicycle beltway. The National Capital Trail, a network of bicycle/pedestrian trails, would circle the region's central jurisdictions. It has often been referred to as the “bicycle beltway.” The trail would be 60 miles long when complete. Currently, 21 miles of the trail have not yet been constructed and three miles need to be upgraded.

“Visualize” the future:

Access to opportunities. When complete, the trail would connect 26 Metrorail stations and 36 of the region's Activity Centers, where jobs and housing are concentrated. This means many thousands of the region's residents would have access to high-quality trails for recreational use and vital connections for commuting and making other daily trips via the trail or by connecting to transit.

A regional network. The trail would be a regional crossroads, where visitors would mingle with local residents, and connections to communities would be easily navigable.



Getting to the Seven Endorsed Initiatives

The 2014 performance analysis of the Constrained Long-Range Transportation Plan (CLRP) underwhelmed the TPB in terms of moving closer towards the region's goals. It predicted that road congestion and transit crowding would increase significantly in the coming decades. Board members noted that of the approximately \$250 billion in investment included in the 2014 CLRP, about 83% was to be spent on system maintenance and only 17% was to be spent on system expansion. Relative to the forecast growth in travel demand, the proposed capital investment was noted to be inadequate, leading to system performance that would be less than desirable for some key measures.

Because of the underwhelming future performance of the transportation system the TPB decided that it was time to do something different with the long-range transportation plan. Over the next four years the TPB worked through a new process to identify what would help the region meet its goals. The TPB passed multiple resolutions and convened two working groups from 2014-2018 to address the issues they identified. The Unfunded Capital Needs Working Group convened from 2014-2016 and the Long-Range Plan Task Force picked up where that body left off and convened throughout 2017.¹

STEP 1: Unfunded Projects Analysis

In September 2014, the TPB asked staff to compile an unfunded capital needs inventory that would encompass transportation projects included in the plans of TPB member jurisdictions and transportation agencies but had not yet been submitted for the CLRP due to lack of anticipated funding. This list of projects became known as the “All-Build,” representing projects that would help address current and future demand but that for one reason or another had not yet been fully funded.

TPB staff, with help from TPB members' staff, compiled the inventory that comprised more than a thousand projects, including a large number of small-scale bicycle and pedestrian facility improvement projects as well as over 550 highway and transit projects. Under the direction of the Unfunded Capital Needs Working Group, staff performed an analysis of the project list.² TPB members and staff wanted to answer the question: if these projects were funded and built, would that alleviate the transportation problems we are anticipating will grow and continue into the future?

What Projects Are In The “All-Build”?

The full All-Build list of unmet transportation needs regionwide consists of all the unfunded projects that are in all TPB members' plans. At this time, the TPB is not maintaining a database of all unfunded projects in the region. To find more information about what unfunded projects are in local plans visit TPB members' websites.

The “All-Build” Project List We Studied

The inputs for the All-Build scenario analysis study were drawn from 33 plans and other sources from jurisdictions throughout the region. Some of the key sources include the Northern Virginia Transportation Authority's “TransAction 2040” plan, WMATA's “Momentum” and “ConnectGreater-Washington” plans, the District of Columbia's “moveDC” plan, the Joint Transportation Priorities Letters from Charles, Frederick, Montgomery, and Prince George's counties in Maryland, and the Highway Needs Inventory of the Maryland State Highway Administration (SHA).

The full inventory and a list of source documents can be found at: mwcog.org/AllBuildProjectList2016

Results

The All-Build study was useful for demonstrating that attempting to simply “build our way out” of our congestion problem, in the face of prevailing levels of congestion together with the expected growth, will not be viable. The cost of doing so would be too high. The All-Build scenario included hundreds of projects that together were estimated to cost \$100 billion beyond the \$42 billion assumed in the CLRP – and regional leaders need to be selective when deciding what projects are worth investing in. And even if the money were available for all the projects, the All-Build scenario did not reduce congestion enough to be considered worth the cost. The TPB determined the All-Build project list was not the answer they had been looking for to address the region's needs, and they decided to find other creative ways to reach the region's goals.

The All-Build scenario analysis also underscored the importance of supplementing any proposed system expansions with supporting land-use policies, other policies, pricing mechanisms and other programs. The region must manage transportation demand as well as provide new capacity – making changes in land-use patterns can have a profound impact on demand. The TPB concluded that we can't simply build ourselves out of the challenges we face as a region – and that we need more nuanced approaches that combine projects, programs, and policies.

¹ The full repository of meetings, resolutions and meeting documents can be found at mwcog.org/LRPTF.

² “Phase I Report of the Long-Range Plan Task Force” can be found at mwcog.org/LRPTFreports.

STEP 2: Bundled Projects, Programs, and Policies for Analysis

Having learned from the All-Build study that new capacity projects alone cannot solve the region's transportation issues, the TPB convened the Long-Range Plan Task Force to explore ways to enhance the current mix of projects, programs and policies that make up and underlie the region's long-range transportation plan. The TPB directed the task force to identify six to ten projects, policies, and programs that would have the potential to improve the performance of the region's transportation system and to make substantive progress towards achieving the goals laid out in TPB's and COG's governing documents.

The Long-Range Plan Task Force explored combinations of approaches that would promote multimodal travel and reduce vehicle miles traveled. The early meetings included exercises where members could add any projects, programs or policies to a list of potential ideas. The task force decided to explore ideas in theory, without regard to immediate implementation hurdles such as funding or political and public support. This approach provided the task force with an opportunity to think creatively about novel ideas that could benefit from further analysis.

The task force then combined the projects, programs, and policies into mutually supportive bundles, which became known as "initiatives." These initiatives contained combinations of approaches to expand capacity, reduce demand, and reconfigure land-use. By bundling mutually-supportive ideas together, their collective impact could be magnified. For example, adopting policies encouraging and incentivizing development near transit stations would create new riders and increase transit demand. The resulting demand would need to be met with new investments in transit capacity, such as more frequent or improved service. Doing one without the other could create demand for which there is no capacity, or capacity without adequate demand. The benefits of such steps could be further amplified with policies and programs, such as discounted fares for low-income riders or incentives for using transit provided by employers to their employees, that encourage more people to choose transit

The task force considered dozens of initiative bundles but needed to choose between six and ten to move on to the scenario analysis phase of the study. The task force voted to determine which packages of projects should be studied, made that recommendation to the TPB, and the TPB approved the list of ten initiatives for study.

TPB staff and a consultant team studied the ten initiatives chosen for analysis and presented the results back to the task force and the TPB.³ The scenario analysis exercise demonstrated how the ten initiatives compared to each other in terms of a set of performance measures and challenges agreed upon by the task force. The analysis also compared the projected scenarios of the ten initiatives to current conditions and the planned future under the TPB's 2016 long-range plan.

REGIONAL TRANSPORTATION CHALLENGES

The Long-Range Plan Task Force agreed on a list of 14 regional transportation challenges that they would seek to address through their work, originally drawn from the Regional Transportation Priorities Plan. A few of those challenges were:

- **Housing and Job Location:** Most housing, especially affordable housing, and many of the region's jobs are located in areas outside of Activity Centers where transit, bicycling, and walking are not safe and viable options.
- **Roadway Congestion:** The region's roadways are among the most congested in the nation, making it harder for people and goods to reliably get where they need to go.
- **Transit Crowding:** The transit system currently experiences crowding during peak hours and lacks the capacity to support future population and job growth without reducing ridership.
- **Inadequate Bus Service:** Existing bus service is too limited in its capacity, coverage, frequency, and reliability, making transit a less viable option, especially for people with disabilities and limited incomes.



STEP 3: Endorsed Seven Initiatives with the Most Promise

The TPB had requested that the task force recommend initiatives which would provide the most benefit to the region. The task force came to a consensus that five of the ten initiatives that were studied held the most promise, based on the results from the analysis. On December 6, 2017, the task force agreed to advance five of the ten initiatives that were studied to the TPB for its endorsement (Bring Jobs and Housing Closer Together, Expand Bus Rapid Transit and Transitways, Move More People on Metrorail, Provide More Telecommuting and Other Options for Commuting, and Expand Express Highway Network).

At the December 2017 TPB meeting, the board passed a resolution proclaiming that the TPB “endorses the attached list of five initiatives, found to have the most potential to significantly improve the performance of the region’s transportation system compared to current plans and programs, for future concerted TPB action, and directs staff to include these initiatives in the aspirational element of the TPB’s long-range transportation plan, Visualize 2045.”

The final two of the seven aspirational initiatives were endorsed by the TPB at its January 2018 meeting. These two initiatives focus on regional pedestrian and bicycle improvements (Improve Walk and Bike Access to Transit and Complete the National Capital Trail). In addition to including the initiatives in the aspirational element of Visualize 2045, the TPB resolved that staff should use the initiatives “as a factor in selecting projects for the TPB’s Transportation Land Use Connections (TLC) Program and the federally funded Transportation Alternatives Set-Aside Program,” effectively establishing a system to ensure these initiatives are prioritized through activities the TPB directs.

In endorsing these seven initiatives, TPB has called on regional leaders to act. It’s time to change the way we have been planning. It’s time to shake things up and think outside the box. The December 2017 resolution stated that the TPB “recognizes that the TPB’s endorsement is a milestone first step and calls on its member jurisdictions and agencies to commit to fully explore the initiatives to identify specific implementation actions that could be taken, individually and collectively, to make them part of TPB’s future fiscally constrained long-range plans.”

A Call to Action

The TPB has committed to championing these ideas. In order to make these initiatives a reality, TPB members, TPB staff, and other jurisdictional staff must champion these ideas throughout the region. The TPB and its members need to lead and provide examples to other decisionmakers regionwide. It’s especially important to start regionwide conversations since so many of these initiatives are interconnected. These ideas require regional collaboration across sectors and jurisdictional lines. By working together, we can bring the region closer to a better future.

TPB is calling upon its regional leaders to:

- **Examine, enact and enforce** **POLICIES**
- **Fund and administer** **PROGRAMS**
- **Prioritize and fund** **PROJECTS**

That

- **Better manage peak period travel demand**
- **Reduce single occupant travel**
- **Make transit more viable and affordable**
- **Enhance existing infrastructure**

³ “Phase II Detailed Technical Report - An Assessment of Regional Initiatives for the National Capital Region” can be found at mwcog.org/LRPTReports.



CHAPTER 5

FINANCIALLY CONSTRAINED ELEMENT

The financially constrained element of Visualize 2045 identifies all the regionally significant capital improvements to the region’s highway and transit systems that transportation agencies expect to make and to be able to afford through 2045. It also outlines all anticipated spending on the current and future transportation system’s operations and maintenance over the same timeframe. Any project that might affect future air quality by adding or removing highway or transit capacity is included in this portion of the plan.

The financially constrained element includes regionally significant projects and programs that seek to efficiently move people and goods using a variety of transportation modes. The investments spelled out in this element aim to meet the region’s current mobility and accessibility needs, as well as those that will arise in the future.

There are three major types of projects and programs included in the financially constrained element. They are:

- 1. System Expansion.** Projects that add new capacity by increasing the number of lane-miles of roadway or by building new transit lines or adding service to existing lines.
- 2. State of Good Repair.** Major rehabilitation or complete replacement of aging infrastructure, including bridges, transit vehicles, and technology and communications systems, as they near the end of their useful lifespan.
- 3. Operations and Maintenance.** Day-to-day activities like repaving roadways, inspecting and maintaining bridges, clearing snow and debris, servicing transit vehicles, maintaining and operating traffic signals, and paying train and bus operators.



System expansion investments are detailed as specific projects in the plan. Anticipated investments in state of good repair and operations and maintenance are discussed more generally. These investment details are included as part of the financial analysis of the plan ([Appendix A](#)).

This chapter includes lists and maps of the projects as well as an analysis of how they will help bring the region closer to fulfilling the concepts called for in the seven endorsed aspirational initiatives. This chapter includes summaries of the financial plan and the Air Quality Conformity analysis. It also includes an analysis which demonstrates the projected future performance of the transportation system in 2045.

Projects in the Financially Constrained Element

The following lists and maps highlight more than 100 of the major and regionally significant projects that provide for system expansion and changes in highway or transit capacity. To view an interactive version of the maps in this chapter and to access the project database (including full technical descriptions), please visit visualize2045.org/financially-constrained-element.

In all, the plan includes 1,388 new lane-miles of roadway and 124 new miles of high-capacity transit. [Appendix B: Summary of Projects in the Financially Constrained Element](#) includes a comprehensive listing of all projects in the financially constrained element beyond those highlighted in this chapter (numbering over 600) along with their costs, completion dates, and links to further project information.

FEDERAL REQUIREMENTS

Federal regulations require the TPB to develop a long-range transportation plan identifying the projects expected to be funded within a minimum planning horizon of 20 years. The TPB must demonstrate that there is funding available for those projects. The total expenditures cannot exceed the total anticipated funding. The TPB must also analyze the plan for its effect on the region’s air quality.

Figure 5.1 Projects in the Financially Constrained Element

**Tolled Lanes are a subset of Freeways/Expressways*

	System	Existing	Added by Visualize 2045	Total 2045
Roadway (lane miles)	Freeways / Expressways	3,589	+975	4,564
	Arterials	13,459	+413	13,872
	Total	17,048	+1,388	18,436
Tolled Lanes* (lane miles)		436	+461	897
High-Capacity Transit (miles)	Metrorail	119	+12	131
	Light Rail / Streetcar	2	+21	23
	Bus Rapid Transit	4	+91	95
	Commuter Rail	167	0	167
	Total	292	+124	416



Major Highway Projects

DISTRICT OF COLUMBIA

MAJOR HIGHWAYS

1. I-295 - reconstruct interchange at Malcolm X Blvd, 2020 (\$200M)
2. I-395 - remove 3rd St SB exit ramp, reconfigure 3rd St SB entrance and 2nd St NB exit ramps, reconnect F St between 2nd and 3rd St, 2019 (\$27M)

LOCAL ROADS

3. South Capitol St - convert to 6 lane urban blvd, incl. Frederick Douglass Bridge Reconstruction, 2021 (\$822M)
4. **Lane Reductions/Reconfigurations for Bicycle Lanes, 2018, 2019, 2020, 2024 (not mapped)**

MARYLAND

MAJOR HIGHWAYS

5. I-70 - widen to 6 lanes with interchange at Meadow Rd, 2025, 2035 (\$143M)
6. I-95/I-495 - interchange at Greenbelt Metro Sta, 2030 (\$196M)
7. **I-95/I-495 Traffic Relief Plan, construct 4 managed lanes, 2025 (\$4.2B)**
8. **I-270 Traffic Relief Plan, construct 4 managed lanes, 2025 (\$3.4B)**
9. **I-270 - "Innovative Congestion Management" project to includes auxiliary lanes & add'l improvements, 2019 (\$114M)**
10. I-270 - interchange at Watkins Mill Rd Ext, 2021 (\$120M)
11. Baltimore Washington Parkway (MD-295) at MD-193 (Greenbelt Rd) - intersection improvement, 2020 (\$8.5M)
12. Suitland Pkwy - interchange at Rena/ Forestville Rd, 2025 (\$2.8M)
13. US-1 (Baltimore Ave) - reconstruct 4 lanes, 2030 (\$116M)
14. US-15 (Catocin Mtn Hwy) - reconstruct intersection at Monocacy Blvd, 2018 (\$61M)
15. **US-15 (Frederick Fwy and Catocin Mtn Hwy) - widen to 6 lanes with interchange at Biggs Ford Rd, 2030, 2040, 2045 (\$220M)**
16. **US-29 (Columbia Pke) - improve interchanges at Stewart Ln, Tech Rd/ Industrial Pkwy, Musgrove Rd/Fairland Rd, Greencastle Rd, and Blackburn Rd, 2045 (\$646M)**
17. US-50 (John Hanson Hwy) - westbound ramp to Columbia Park Rd, 2025 (\$64M)
18. **US-301 (Crain Hwy) - widen to 6 lanes, 2045 (\$4.6B)**

19. US-301 - widen Governor Harry Nice Memorial Bridge, 2023 (\$768M)

STATE ROUTES

20. MD-3 (Robert Crain Hwy) - widen to 6 lanes, 2035 (\$1.8B)
21. MD-4 (Pennsylvania Ave) - widen to 6 lanes with interchanges at Dowerhouse Rd, Westphalia Rd, and Suitland Pkwy, 2040 (\$533M)
22. MD-5 (Branch Ave) - upgrade, widen to 6 lanes including interchanges, 2035 (\$790M)
23. MD-28 (Norbeck Rd) / MD-198 (Spencerville Rd) - widen to 4, 6 lanes, 2045 (\$413M)
24. MD-85 (Buckeystown Pke) - widen to 4, 6 lanes, 2021, 2035 (\$220)
25. **MD-97 (Georgia Ave) - widen to 7, 8 lanes, 2025 (\$52M)**
26. MD-97 (Brookeville Bypass) - construct 2 lane bypass, 2021 (\$52M)
27. MD-117 (Clopper Rd) - widen to 4 lanes, 2030 (\$69M)
28. MD-118 (Germantown Rd) - widen to 4 lanes, 2020 (\$4.0M)
29. MD-124 (Woodfield Rd) - widen to 6 lanes, 2035 (\$129M)
30. MD-197 (Collington Rd) - widen to 4/5 lanes, 2025 (\$94M)
31. MD-202 (Landover Rd) - Largo Town Center Metro Access Improvement, reconstruct 6 lanes, 2045 (\$24M)
32. MD-210 (Indian Head Hwy) - upgrade to 6 lanes and interchange improvement, 2040 (\$754M)
33. MD-223 (Woodyard Rd) - widen to 4 lanes, 2020 (\$2.8M)
34. MD-450 (Annapolis Rd) - widen to 4 lanes, 2030 (\$67M)

LOCAL ROADS

35. Mid county Hwy Extension (M-83) - construct 4, 6 lanes, 2025 (\$202M)
36. Middlebrook Rd Extended - widen to 4 lanes, 2025 (\$16M)
37. Montrose Pkwy East - construct 4 lanes, 2025 (\$140M)

VIRGINIA

MAJOR HIGHWAYS

38. I-66 HOT (Inside Beltway), revise operations from HOV 2+ to HOT during peak hours and bus service, 2017, 2021, 2040 (\$375M)
39. I-66 HOT (Outside Beltway) - widen to 6 lanes (3 general purpose, 2 HOT, and 1 auxiliary) and bus service, 2021, 2040 (\$4.4B)

40. I-66 - Extend existing westbound acceleration/ deceleration lane, 2020, 2022 (\$59M)
41. I-95/Fairfax County Parkway - enhanced interchanges for BRAC, 2025 (\$57M)
42. **I-95 - add southbound auxiliary lane, 2028 (\$27M)**
43. I-95/I-495 - reconstruct interchange at Van Dorn St, 2030 (\$40M)
44. I-395 HOT - additional lane and revise operation from HOV 3+ during peak to HOT 3+, 2019 (\$220M)
45. I-395 - construct new south bound lane, 2018, 2020 (\$58M)
46. **I-495 - construct 4 HOT lanes, 2025 (\$500M)**
47. I-495 Auxiliary Lanes - construct 2 auxiliary lanes in both directions, 2030
48. I-495 - interchange at VA 267, 2030 (\$70M)
49. Dulles Toll Rd (VA-267) - Collector-Distributor Road west-bound, 2037 (\$62M)
50. Dulles Toll Rd (VA-267) - Collector-Distributor Road east-bound, 2036 (\$124M)
51. Dulles Toll Rd (VA-267) - interchange at New Boone Blvd Extension, 2037 (\$79M)
52. Dulles Toll Rd (VA-267) - interchange at Greensboro Drive/Tyco Rd, 2036 (\$28M)
53. Dulles Access Rd (VA 267) - widen to 6 lanes including interchange reconstruct at I-495, 2030 (\$40M)
54. US-1 (Jefferson Davis Hwy) - widen to 6 lanes, 2040 (\$58M)
55. US-1 (Richmond Hwy) - widen to 6 lanes, 2025, 2035 (\$37M)
56. US-1 (Richmond Hwy) - widen to 6 lanes, 2024, 2030 (\$127M)
57. US-1 (Richmond Hwy) - widen to 6 lanes, 2035 (\$125M)
58. US-15 (James Madison Hwy) - widen to 4 lanes, 2024, 2030 (\$45M)
59. **US-15 (James Madison Hwy) - widen to 4 lanes, 2022, 2025 (\$33M)**
60. US-15 (James Madison Hwy) - widen to 4 lanes, 2030, 2040 (\$54M)
61. US-29 (Lee Hwy) - widen to 5 lanes and improve I-66 interchange, 2030 (\$255M)
62. US-29 (Lee Hwy) - widen to 3, 6 lanes, 2017, 2025 (\$130M)
63. US-50 (Lee Jackson Memorial Hwy) - widen to 6 lanes, 2025 (\$100M)
64. US-50 (Arlington Blvd) - widen/reconstruct 6 lanes including interchanges, 2020, 2025 (\$249M)

STATE ROUTES

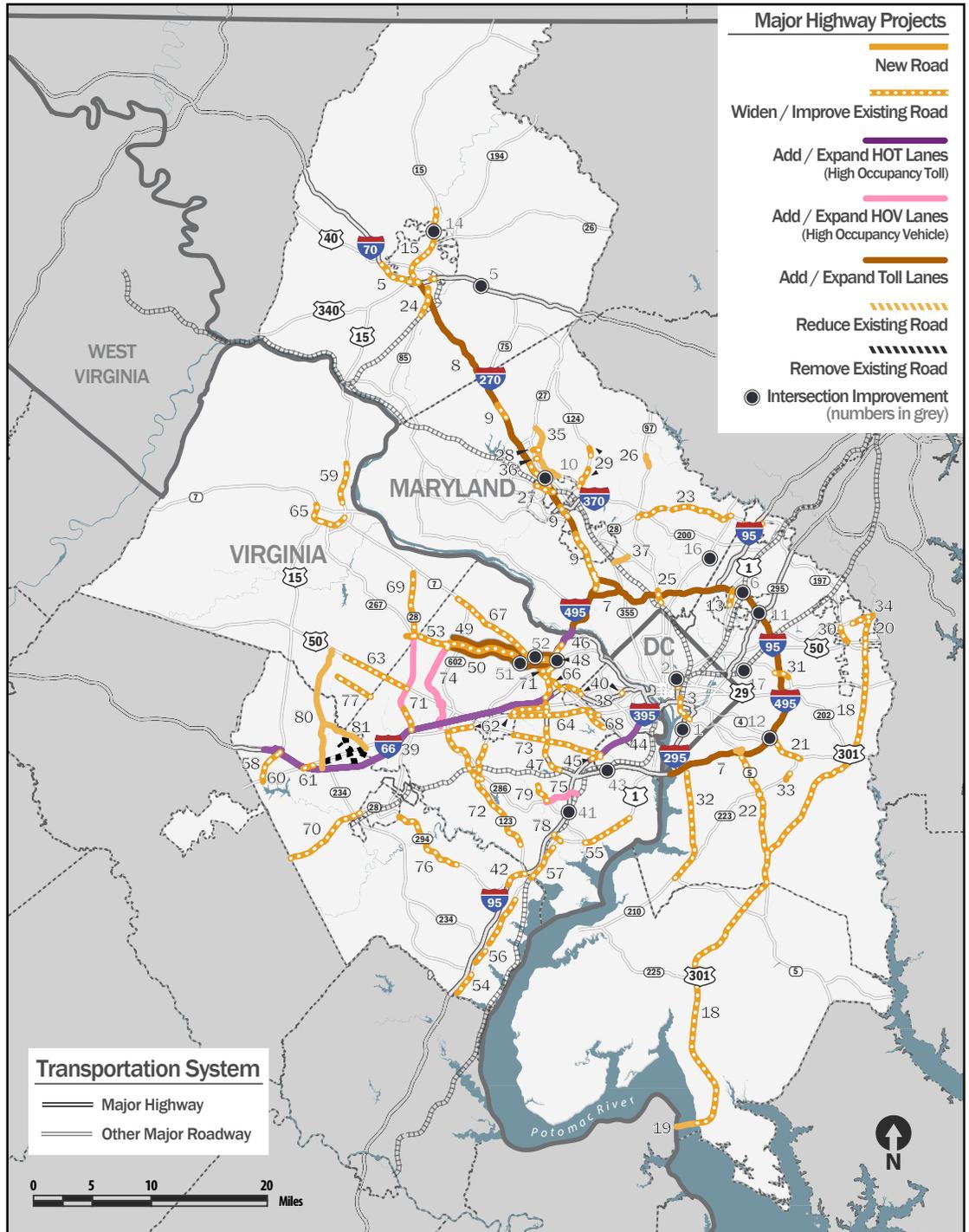
- 65. VA-7/US-15 Bypass (Harry Byrd Hwy) - widen to 6 lanes, 2035, 2040 (\$55M)
- 66. VA-7 (Leesburg Pke) - widen to 6 lanes, 2021 (\$71M)
- 67. VA-7 (Leesburg Pke) - widen to 6, 8 lanes, 2021, 2025, 2030 (\$49M)
- 68. VA-7 (Leesburg Pke) - widen to 6 lanes, 2020, 2025 (\$34M)
- 69. VA 28 (Sully Rd) HOV, widen to 8-10 lanes, HOV in additional lanes during peak, 2016, 2025, 2040 (\$100M)
- 70. VA-28 (Nokesville Rd) - widen to 4 or 6 lanes, 2019, 2025, 2022, 2040 (\$71M)
- 71. VA-123 (Chain Bridge Rd) - widen to 8 lanes, 2021 (\$22M)
- 72. VA-123 (Ox Road) - widen to 4, 6 lanes, 2020, 2025 (\$69.9M)
- 73. VA-236 (Little River Tpke) - widen to 6 lanes, 2030 (\$58M)
- 74. VA-286 (Fairfax County Pkwy) HOV - widen to 6 lanes, HOV in additional lanes during Peak, 2025, 2035 (\$295M)
- 75. VA-289 (Franconia/ Springfield Parkway), HOV lanes with interchange at Neuman St, 2025 (\$16M)
- 76. VA-294 (Prince William Pkwy) - widen to 6 lanes, 2040 (\$263M)
- 77. **VA-620 (Braddock Rd) - widen to 4 lanes, 2025, 2027 (\$165M)**
- 78. VA-638 (Pohick Rd) - widen to 4 lanes, 2020 (\$12M)
- 79. VA-638 (Rolling Rd) - widen to 4 Lanes, 2025 (\$31M)

LOCAL ROADS

- 80. Manassas Bypass (VA-234 Bypass) - construct 4 lanes, 2040 (\$96M)
- 81. Manassas Battlefield Bypass - construct 4 lanes and close portions of US-29 (Lee Hwy) and VA-234 (Sudley Rd), 2035, 2040 (\$28M)

Note: New or significantly changed projects are identified with **bold text**. Costs identified include total project costs which may include additional elements presented in another list(s).

Figure 5.2 Major Highway Projects



Major HOT, HOV, and Toll Lane Projects

MARYLAND

MAJOR HIGHWAYS

1. I-95/I-495 Traffic Relief Plan, construct 4 managed lanes, 2025 (\$4.2B)
2. I-270 Traffic Relief Plan, construct 4 managed lanes, 2025 (\$3.4B)

VIRGINIA

MAJOR HIGHWAYS

3. I-66 HOT (Inside Beltway), revise operations from HOV 2+ to HOT during peak hours and bus service, 2017, 2021, 2040 (\$375M)
4. I-66 HOT (Outside Beltway) - widen to 6 lanes (3 general purpose, 2 HOT, and 1 auxiliary) and bus service, 2021, 2040 (\$4.4B)
5. I-66 - construct HOV ramps to access Vienna Metro Sta, 2021 (\$41M)
6. **I-495 - construct 4 HOT lanes, 2025 (\$500M)**
7. I-395 HOT - additional lane and revise operation from HOV 3+ during peak to HOT 3+, 2019 (\$220M)
8. Dulles Toll Rd (VA-267) - Collector-Distributor Road west-bound, 2037 (\$62M)
9. Dulles Toll Rd (VA-267) - Collector-Distributor Road east-bound, 2036 (\$124M)
10. Dulles Toll Rd (VA-267) - interchange at New Boone Blvd Extension, 2037 (\$79M)
11. Dulles Toll Rd (VA-267) - interchange at Greensboro Drive/Tyco Rd, 2036 (\$28M)

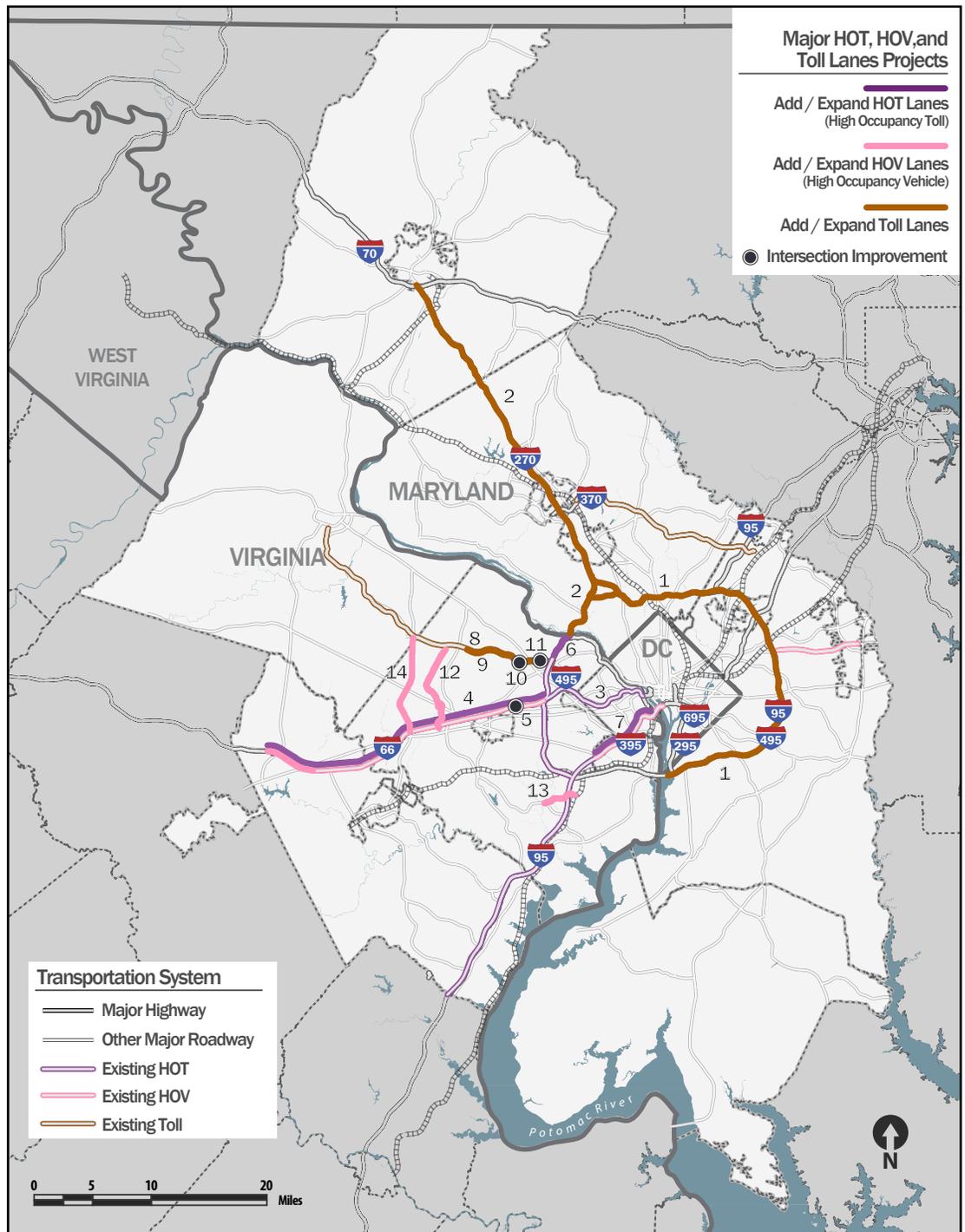
STATE ROUTES

12. VA-286 (Fairfax County Pkwy) HOV - widen to 6 lanes, HOV in additional lanes during peak, 2025, 2035 (\$296M)
13. VA-289 (Franconia/Springfield Parkway), HOV lanes with interchange at Neuman St, 2025 (\$16M)
14. VA-28 (Sully Rd) HOV, widen to 8-10 lanes, HOV in additional lanes during peak, 2016, 2025, 2040 (\$100M)

Note: New or significantly changed projects are identified with **bold text**. Costs identified include total project costs which may include additional elements presented in another list(s).

*HOT = High-Occupancy Toll Lanes
HOV = High-Occupancy Vehicle Lanes

Figure 5.3 Major HOT, HOV, and Toll Lane Projects



Major Transit Projects

DISTRICT OF COLUMBIA

1. DC Streetcar, 2023, 2026 (\$348M)
2. DC Dedicated Bicycle Lane Network, 2019, 2024 (not mapped) (\$800k)
3. 16th Street Bus Priority Improvements, 2021 (\$15M)

MARYLAND

4. Corridor Cities Transitway BRT - from Shady Grove to COMSAT, 2020 (\$545M)
5. North Bethesda Transitway BRT - from Montgomery Mall to White Flint Metro, 2040 (\$115M)
6. Veirs Mill Rd BRT - from Wheaton Metro to Rockville Metro, 2030 (\$6M)
7. Randolph Rd BRT - from US-29 to MD-355, 2040 (\$102M)
8. New Hampshire Ave. BRT - from Takoma Metro to Colesville P&R, 2045 (\$285M)
9. US-29 BRT - from Silver Spring Metro to Burtonsville P&R, 2020 (\$39M)
10. MD-355 BRT - from Bethesda Metro to Clarksburg, 2040 (\$1B)
11. MARC - Increase trip capacity and frequency along all commuter rail lines, 2029 (\$1B)
12. Purple Line - Bethesda to New Carrollton, 2020 (\$2.4B)

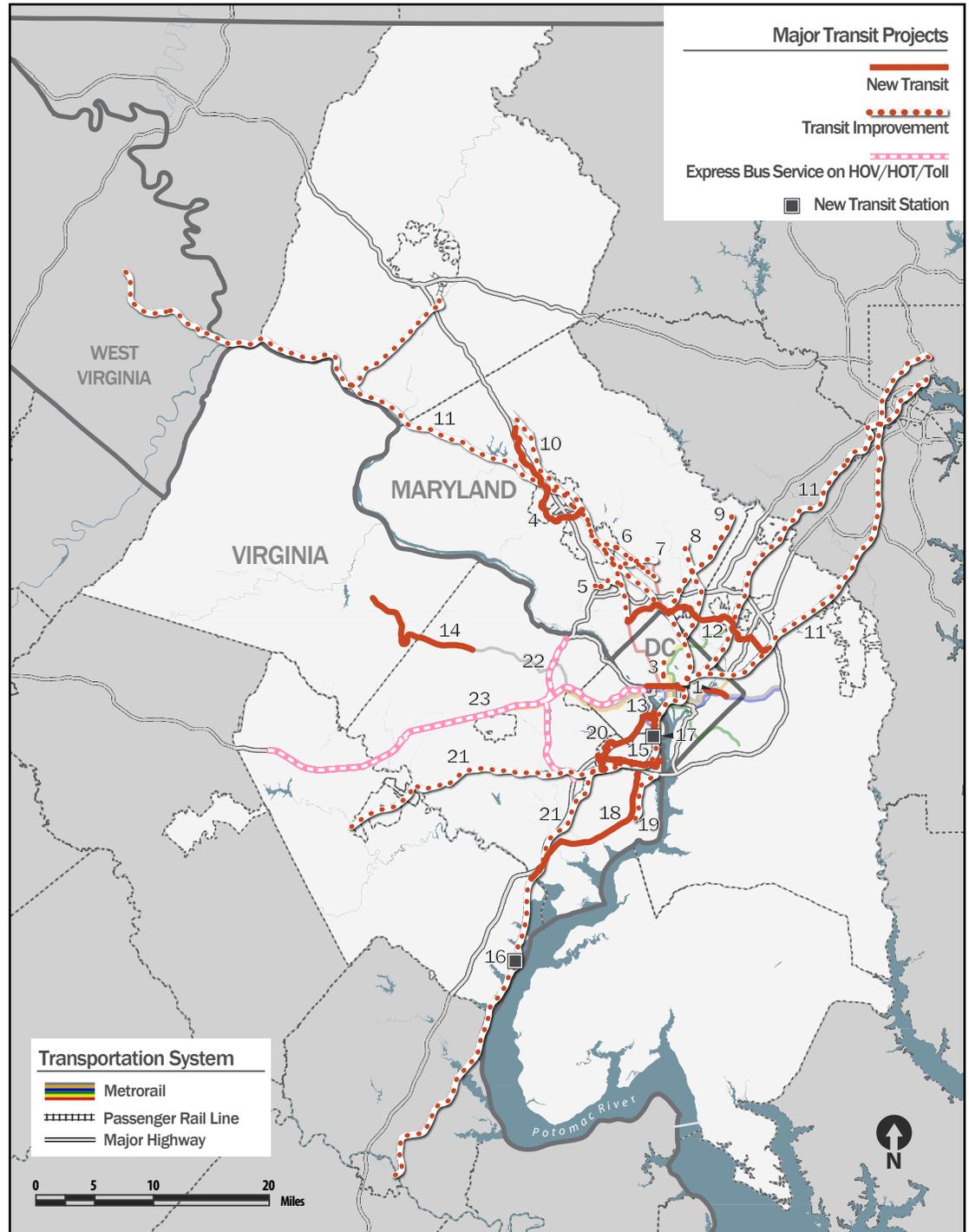
VIRGINIA

13. Crystal City Transitway: Northern Extension BRT, 2023 (\$24M)
14. Metro Silver Line (Dulles Corridor Metrorail Project) - Phase 2, 2020 (\$2.9B)
15. Duke St Transitway - King St Metro to Fairfax County line, 2024 (\$19M)
16. Potomac Shores VRE Station, 2019 (\$26M)
17. Potomac Yard Metro Station, 2021 (\$268M)
18. US-1 BRT from Huntington Metro Station to Woodbridge, 2030 (\$504M)
19. US-1 bus lanes and improved intersections, 2035 (\$37M)

20. West End Transitway - Van Dorn St Metro to Pentagon Metro, 2024 (\$140M)
21. VRE - Reduce headways along the Manassas and Fredericksburg Lines, 2020 (\$105M)
22. I-495 HOT Lane Express Bus Service, 2030 (\$254M)
23. I-66 HOT Lane Enhanced Bus Service, 2025, 2040

Note: New or significantly changed projects are identified with **bold text**. Costs identified include total project costs which may include additional elements presented in another list(s).

Figure 5.4 Major Transit Projects



Financially Constrained Element and Aspirational Initiatives

Visualize 2045 calls upon local jurisdictions and funding agencies to implement projects, programs, and policies in line with the seven aspirational initiatives described in [Chapter 4](#). These initiatives represent regionally agreed-upon concepts to pursue to help the region attain its goals for the transportation system in the future.

In some cases, TPB member jurisdictions are already planning and implementing parts of these initiatives. Others have yet to be planned and funded. This section summarizes how the financially constrained element includes projects that support the initiatives. The TPB believes that the anticipated growth in travel demand calls for increasing investment in projects, programs, and policies in line with the aspirational initiatives. In future long-range transportation plans, the TPB would like to see more projects, programs, and policies that support the seven endorsed initiatives incorporated into the financially constrained elements.

This high-level summary is not a fully exhaustive analysis of all the projects in the constrained element and their connection to the endorsed initiatives. Rather, it highlights some key examples to illustrate progress on the region's aspirations.

Bring Jobs and Housing Closer Together

This initiative is focused on achieving a balanced distribution of jobs and housing throughout the region and adding more housing to the region to meet the forecast growth in jobs. Some projects in the financially constrained element do address future land-use assumptions, such as Embark Richmond Highway, which includes plans for complementary new development and rapid transit.

While projects in the constrained element do reflect current locally adopted land-use plans, they may not fully complement the balanced distribution of jobs and housing throughout the region envisioned under this initiative. COG's Cooperative Forecasts of Population, Households, and Employment projects that much of the new housing and jobs in the region will be located in regional Activity Centers. While the strategy of growing in Activity Centers has proven to be effective and holds promise for the future, this initiative calls for more to be done in terms of optimizing the distribution of jobs and housing across jurisdictions and to also bring more housing into the region.

TPB and COG leaders are working together to harness the expertise of COG's Planning Directors Technical Advisory Committee and COG's Housing Directors Advisory Committee for their advice on how to more fully implement this initiative.



Expand Bus Rapid Transit and Transitways

The financially constrained element includes five new bus rapid transit (BRT) routes in Montgomery County. The endorsed initiative encourages BRT systems to operate fully in dedicated rights-of-way, which these four BRT routes do not entirely do. The constrained element also includes the Crystal City Transitway BRT expansion. This project expands upon the existing Metroway system and results in a route which will run partially on an exclusive right-of-way. Other BRT in the plan includes the Corridor Cities Transitway BRT in Maryland and the Richmond Highway BRT in Virginia, both of which will run in exclusive rights-of-way.

TPB's Regional Public Transportation Subcommittee will advise the TPB on how the region's BRT network can be further expanded in the years to come.



(BeyondDC/Flickr)

Provide More Telecommuting and Other Options for Commuting

The financially constrained element of Visualize 2045 includes funding for travel demand management programs such as the TPB's Commuter Connections program. Such programs encourage and incentivize telework and transit use through employer-provided subsidies, among other actions. They help push our region to more rapidly adopt alternative transportation strategies to reduce vehicle miles traveled and relieve congestion.

The Commuter Connections Subcommittee will advise the TPB on how to further enhance and grow the transportation demand management programs and policies called for in this initiative.



(Aimee Custis/Flickr)

Move More People on Metrorail

The financially constrained element includes plans for expanding capacity on Metrorail by running all 8-car trains during peak hours and making capacity improvements to stations in the system core. These improvements directly support the endorsed initiative. The initiative calls for other core capacity improvements to Metrorail including a new Rosslyn tunnel and station, which are not yet included in the financially constrained element of the plan.



(Lea Latumahina/Flickr)

Expand Express Highway Network

Visualize 2045's financially constrained element includes one major project that fully supports this initiative: High-Occupancy Toll (HOT) lanes on the northern portion of I-495 in Virginia. This project includes express toll lanes with toll-free travel for high-occupancy vehicles. Express bus service will also run on the express lanes.

The financially constrained element also includes adding dynamically-priced toll lanes along I-495 in Maryland and I-270. These projects, otherwise known as the "Traffic Relief Plan," support the endorsed initiative by adding express tolling but fall short of fulfilling the calls in the endorsed initiative to add express bus service to connect Activity Centers and to allow for HOVs to travel for free in the express lanes.

Improve Walk and Bike Access to Transit

The financially constrained element includes expanding the network of dedicated bicycle lanes in the District of Columbia which will allow more people to bicycle for their daily trips and connect to Metro and other transit options. This project supports bicycle movement but does not explicitly address the pedestrian experience.

For the most part, bicycle and pedestrian improvements are not included in the financially constrained portion of the region's long-range transportation plan because they are typically not large enough to be considered "regionally significant" to impact Air Quality Conformity. Such improvements may also be incorporated into highway or transit projects but not explicitly mentioned in the constrained element. However, Visualize 2045 calls attention to other ways that the TPB promotes and supports improvement of walk and bike access to transit: see the Bicycle and Pedestrian Element in [Chapter 7](#) as well as more information about this endorsed initiative in [Chapter 4](#).

TPB's Bicycle and Pedestrian Subcommittee advises the TPB on ways to create more safe and efficient opportunities for walking and bicycling to transit stations.

Complete the National Capital Trail

The National Capital Trail will circle the region's inner jurisdictions with a fully connected bicycle and pedestrian path separated from motor vehicle traffic. Most of the upgrades to existing trails and new trails that need to be built in order to complete the National Capital Trail will not fall within the purview of the constrained element of Visualize 2045 because the trails will typically not impact Air Quality Conformity. However, some pieces of the National Capital Trail are related to other projects in the financially constrained element of the plan – once the Purple Line is completed, the portion of the National Capital Trail between Bethesda and Silver Spring, which is currently closed for construction, will be reopened and vastly improved compared to the previous conditions of the trail.

Visualize 2045 calls attention to other ways that the TPB promotes and supports bicycle and pedestrian trails: see the Bicycle and Pedestrian Element in [Chapter 7](#) as well as more information about this endorsed initiative in [Chapter 4](#).

TPB's Bicycle and Pedestrian Subcommittee advises the TPB on the National Capital Trail and other bicycle and pedestrian trail improvements.



Financial Plan Summary

The financial analysis is meant to demonstrate that the region has forecast revenues which are reasonably expected to be available to cover the estimated costs of adequately maintaining, operating, and expanding the highway and transit system. This analysis is a required element of the TPB's long-range transportation plan. [Appendix A: Financial Plan of Visualize 2045](#) contains the full financial analysis, while this section provides a summary.

The financially constrained element of Visualize 2045 is fiscally realistic, balancing all proposed new project investments and system maintenance and operating costs with reasonable revenue expectations, as agreed upon by TPB and its implementation agency partners in the metropolitan transportation planning process.

A total of \$291.1 billion¹ in transportation revenues and expenditures is projected for the National Capital Region for the 27-year period of 2019 to 2045. WMATA's expenditures will constitute 48%, local public transportation 18%, and highways 34% of the total through 2045.

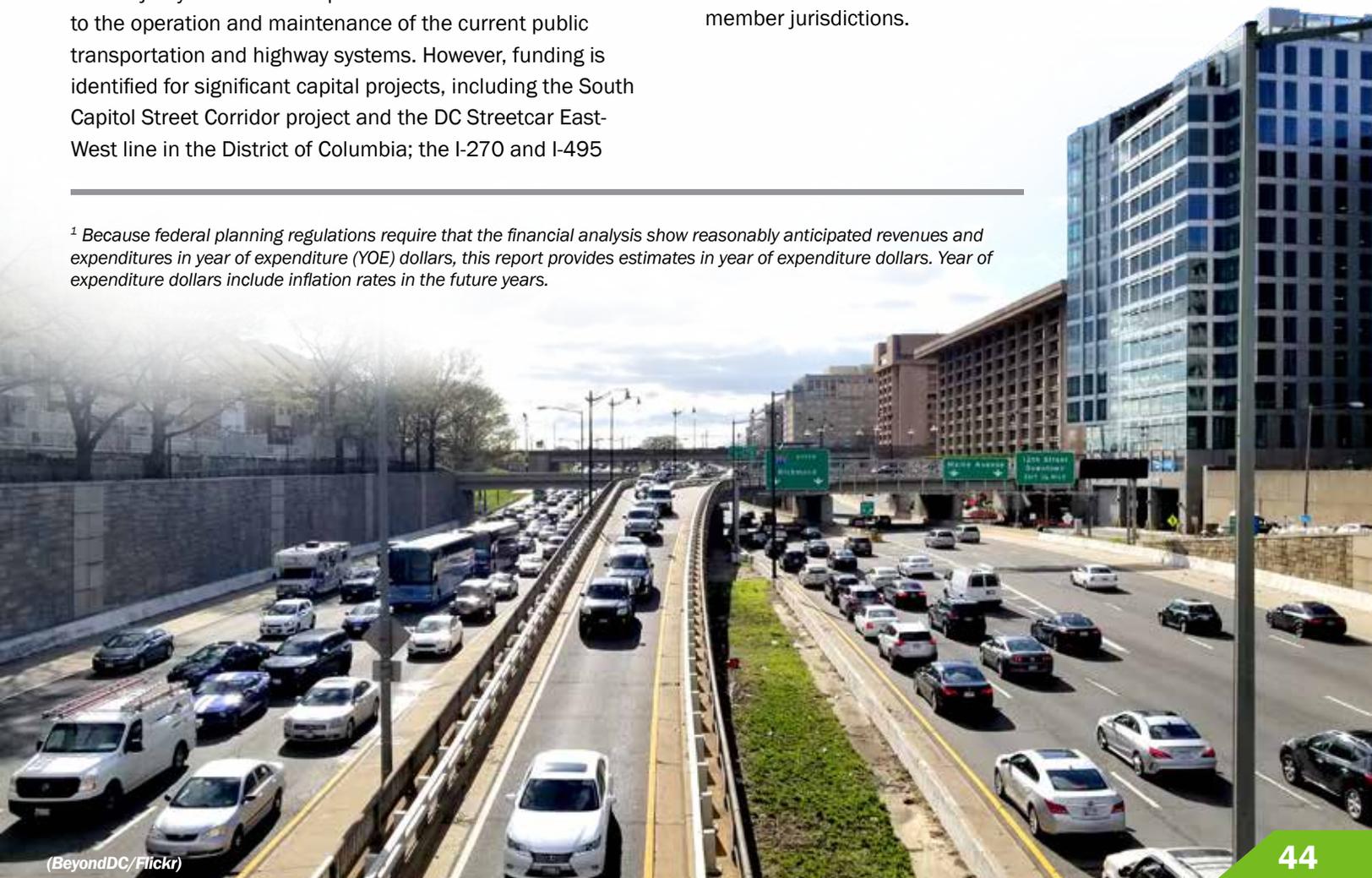
The majority of future transportation revenues will be devoted to the operation and maintenance of the current public transportation and highway systems. However, funding is identified for significant capital projects, including the South Capitol Street Corridor project and the DC Streetcar East-West line in the District of Columbia; the I-270 and I-495

Traffic Relief Plan, the replacement of the Nice Bridge and construction of the Purple Line, and the MARC Growth and Investment Plan for commuter rail in Maryland; and the I-66 HOT Lanes, completion of phase two of the Metrorail Silver Line, and the VRE System Expansion Plan in Virginia, among other projects.

Most importantly, the plan also demonstrates full funding for WMATA's forecast operational and state of good repair needs through 2045. The increasing need for state of good repair funding to renew and rehabilitate the 40-year old Metrorail system and to operate and maintain the region's largest bus and paratransit fleet requires considerable financial resources. Over the past few years, the need for additional funding for Metro has been a subject of agreement by the region's leaders, and the District, Maryland, and Virginia have all identified additional funding for Metro this year.

The inputs to the financial plan were prepared by the TPB member jurisdiction and agency staffs, working with the TPB staff. The forecasts and assumptions were reviewed by a working group and subsequently reported to and reviewed by the TPB's Technical Committee. The expenditure and revenue estimates for the WMATA transit system were developed, reviewed and agreed upon jointly between WMATA and its member jurisdictions.

¹ Because federal planning regulations require that the financial analysis show reasonably anticipated revenues and expenditures in year of expenditure (YOE) dollars, this report provides estimates in year of expenditure dollars. Year of expenditure dollars include inflation rates in the future years.



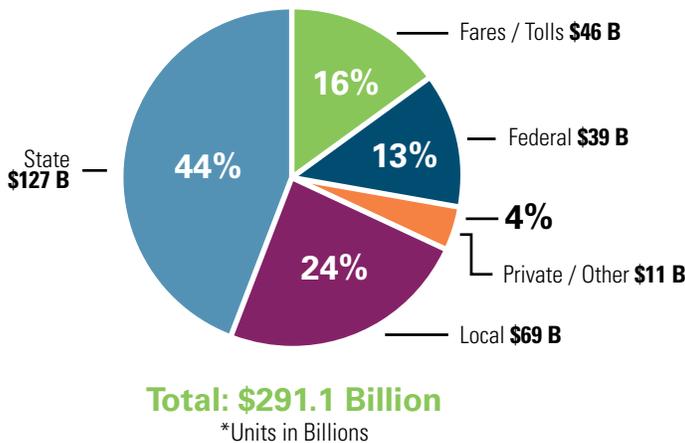
Forecast Revenues

State DOTs, public transportation providers, other transportation agencies and jurisdictions, and the TPB cooperatively developed reasonable estimates of funds that will be available to support the implementation of the constrained element of Visualize 2045. More details can be found in [Appendix A](#) regarding the assumptions agencies made in developing the forecast revenues.

The financial analysis summarizes the revenues (Figure 5.5) for the constrained element of the long-range transportation plan for the period 2019 through 2045. There are five sources of revenue: federal, state, regional/local, private/other, and fares/tolls.

Overall, federal revenue as a proportion of total revenue is 13%, while state (including the District of Columbia) sources are the largest single source at 44%. Local funds, which include funds collected across Northern Virginia, represent 24% of revenue. User fees from fares and tolls are 16% of the total revenues, while bonds, private, or other sources account for 4% of total revenues.

Figure 5.5 Revenues by Funding Source



Forecast Expenditures

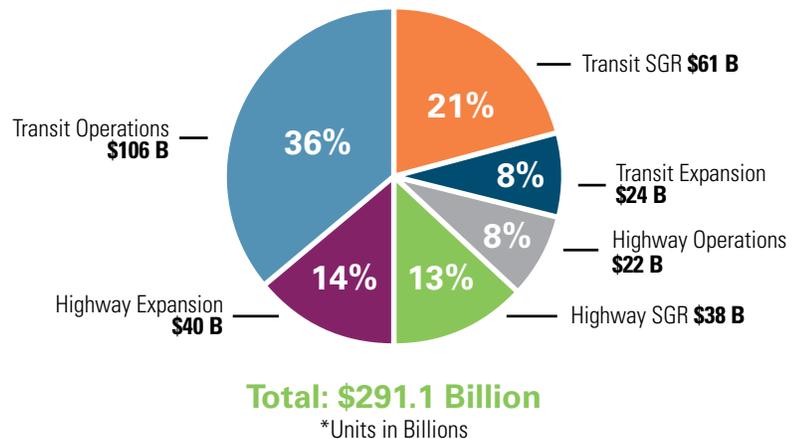
The financial analysis forecasts the costs of operating, maintaining and expanding the transportation system (Figure 5.6). Notably, only a fraction of the funds is for expansion of the region's highway and transit systems; most expenditures are to operate and maintain the system and fund state of good repair projects to repair or replace infrastructure including highway bridges, transit vehicles, and other assets. There are three categories of expenditure: operations & maintenance, capital - state of good repair, and capital - expansion.

The financial analysis demonstrates that the region has reasonably expected funds for the projects in the constrained element of Visualize 2045.

Sixty-six percent of expenditures are slated for public transportation and 34% is slated for highways. Within the expenditures, operating the transportation system is forecast to take up 44%, maintaining the system in a state-of-good-repair is forecasted to take up 34%, and expansion is the smallest portion, with 22%. While operating the system constitutes the largest portion of all transit expenditures it constitutes the smallest portion of all highway expenditures.

Together, balancing revenues and expenditures demonstrates fiscal constraint and the region's ability to pay for the long-range transportation plan.

Figure 5.6 Expenditures by Type and Mode



Performance Analysis Summary

The performance analysis of the financially constrained element of Visualize 2045 uses output from the TPB’s travel demand model, which forecasts where, when, and how people will travel around the region in coming decades. To make its predictions, the model relies on the latest regional population and job growth forecasts from the Metropolitan Washington Council of Governments, information on existing travel patterns from the TPB’s Household Travel Survey, and the future transportation system laid out in the constrained element of Visualize 2045.¹

The performance analysis considers how well the anticipated transportation system will accommodate rising travel demand and address current mobility and accessibility challenges. It also examines how the future system will support or advance key strategies in regional transportation policy documents. The results of the analysis can help decision-makers and the public better understand what changes to current plans and funding might be needed to achieve different future outcomes.

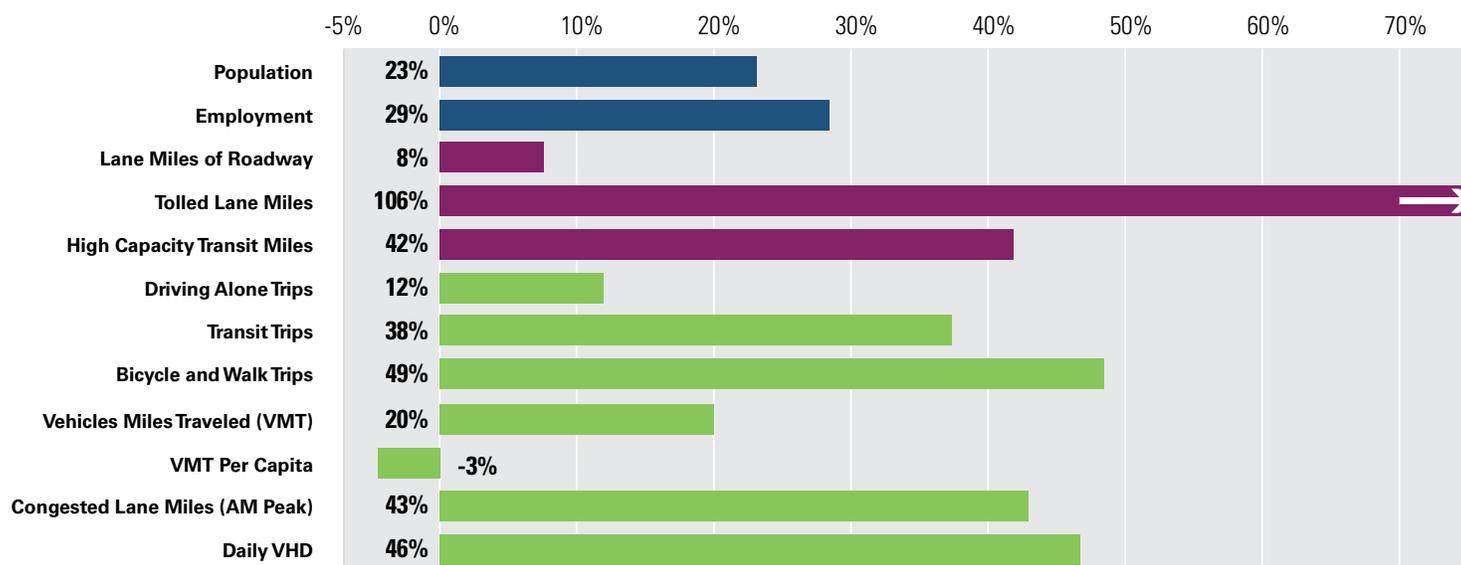
As with past forecasts, this analysis primarily compares conditions today with a future, labelled “2045 Build,” that includes the transportation projects anticipated under the plan’s financially constrained element. However, for the first time, the analysis also looks at a “2045 No-Build” scenario, which represents a future in which no new transportation projects would be constructed, but anticipated population and job growth would still occur.

The analysis shows that expected growth in the region will continue to place demand on the transportation network (see Figure 5.7). By 2045, the region is expected to welcome an additional 1.3 million people and nearly 1 million jobs, increases of 23% and 29%, respectively, over today. This growth will be seen throughout the region but will be especially focused in Activity Centers. Two-thirds of new residents and three quarters of new jobs will be located inside the centers.

The region is employing a variety of methods to meet future mobility and accessibility demands and make progress on regional transportation policy priorities and aspirations. Based on the more than 600 projects in the financially constrained element of the plan, by 2045 there will be approximately 1,400 new lane miles of roadways, of which approximately 460 miles will be managed lanes. There will also be numerous improvements in High Capacity Transit (HCT) throughout the region. Bus Rapid Transit, for example, will increase from four miles today to 95 miles by 2045. Enhancements are also planned in Metrorail, commuter rail and light rail systems. These additions will lead to greater use of transit and carpooling, as well as more walking and biking.

Forecasts are mixed regarding future road use. Twenty-five years from now, the average person is expected to drive less than today. But population and employment will grow faster than the highway and transit systems will expand, and the resulting pressure on the system will accelerate congestion and crowding. As a result, some areas of the region will experience a reduction in the average number of jobs accessible by auto within a 45-minute commute.

Figure 5.7 Constrained Element Performance Analysis Summary (percent change between Today and 2045 Build)

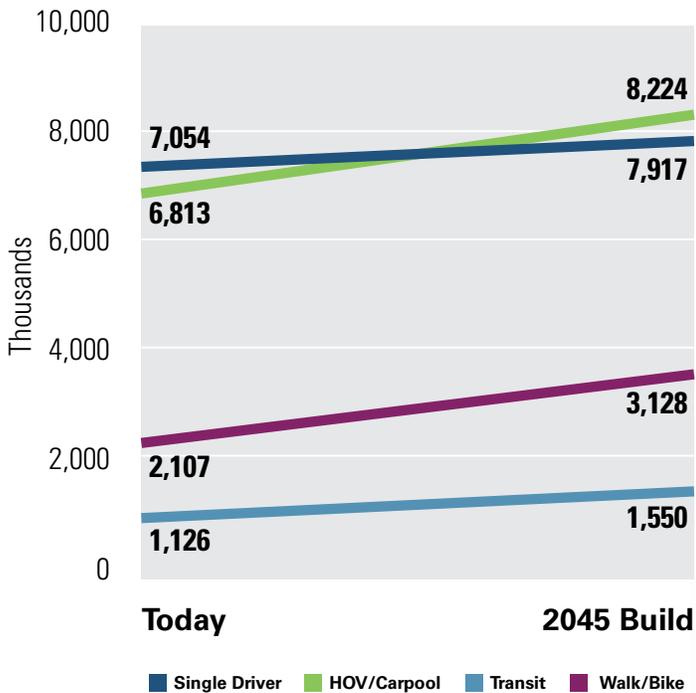


¹ The results of this analysis use the following input data: MWCOG’s Round 9.1 Cooperative Land-Use Forecasts, TPB’s Version 2.3.75 Travel Demand Model, 2016 Vehicle Registration Data, and EPA’s MOVES 2014a Mobile Emissions Model. Results of this analysis are for the TPB Planning Area. These findings are based on regional model estimates that come with a degree of uncertainty.

PROVIDING A COMPREHENSIVE RANGE OF TRANSPORTATION OPTIONS

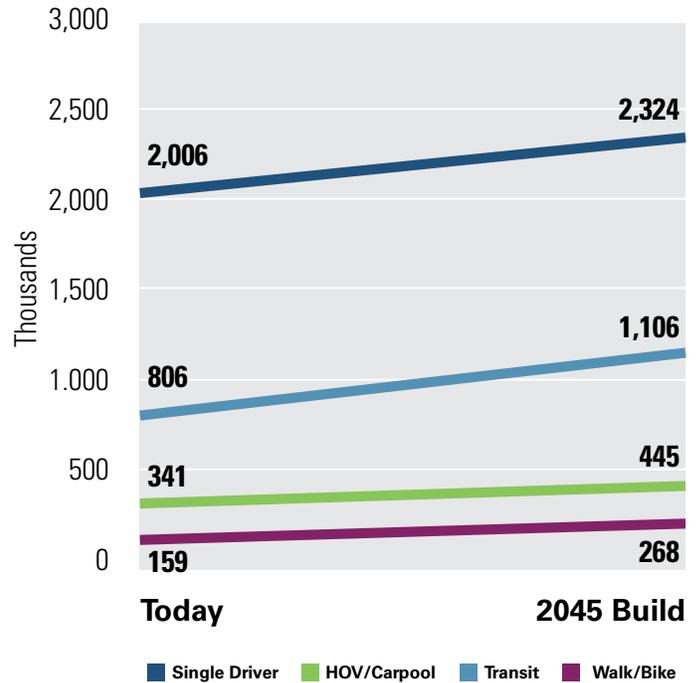
By 2045, the region’s transportation system is expected to handle 3.7 million more trips, an increase of 22%. With greater demand placed on the transportation network, the region will seek to accommodate new trips on various modes (see Figure 5.8). Overall, in 2045, automobiles will continue to be the predominant way people travel in the region. However, while solo driving is the most common way that people make trips today, in 2045 HOV trips will be the most common. Transit trips and walk/bike trips will grow at rates faster than trips made by auto, including HOV and driving alone.

Figure 5.8 All Trips by Mode



For work trips, commuters are more likely to drive alone than to use any other mode, both today and in 2045 (see Figure 5.9). But transit is also very important for commuting, accounting for 27% of all work trips forecast for 2045. And the rate of growth will be faster for transit trips and walking and biking than for commute trips for solo driving and HOV.

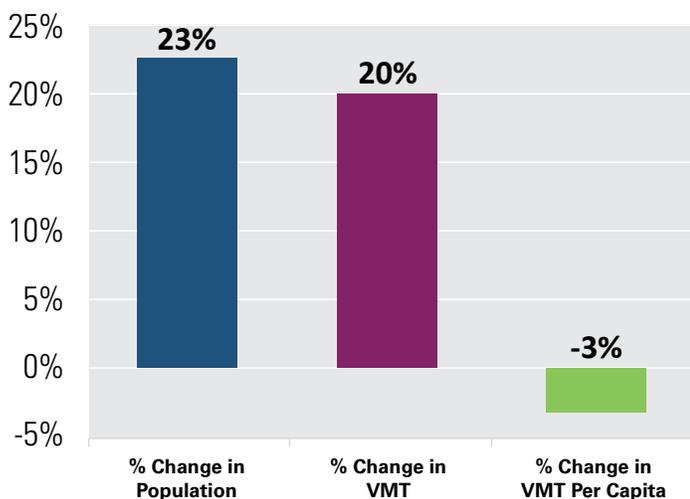
Figure 5.9 Work Trips by Mode



(RaksyBH/Shutterstock)

Growth in the region’s population will exceed growth in vehicle miles travelled (VMT), which means that on average, a person is forecast to drive 3% fewer miles in 2045 (see Figure 5.9). This continues a decline in VMT per capita reported in the 2016 performance analysis of the TPB’s long-range plan. Projected land-use patterns, travel patterns, and increased use of non-auto modes are likely behind this trend.

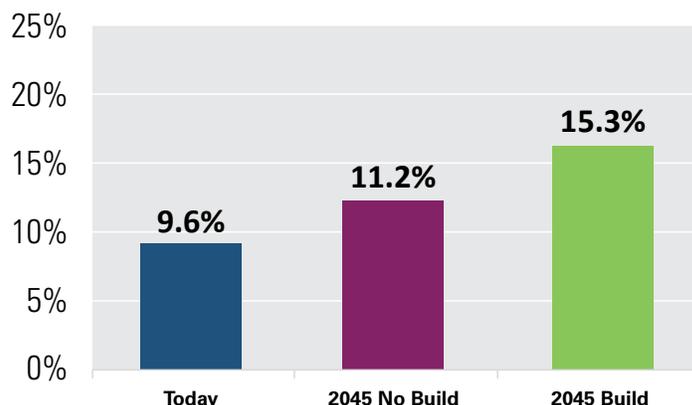
Figure 5.10 Vehicle Miles Travelled Per Capita (Today - 2045 Build)



For the first time, this analysis of the TPB’s long-range plan looks at the forecast use of reliable modes (see Figure 5.10), which include managed lanes (HOV and priced lanes), fixed guideway rail and bus rapid transit service, and bike and pedestrian travel. The analysis found that travel will substantially increase on these modes, which are less susceptible to congestion and day-to-day travel time fluctuations. The 2045 No Build scenario forecasts an increase in the use of reliable modes at a much lower rate than the 2045 Build analysis, suggesting that anticipated transportation projects over the next 25 years will significantly contribute to system reliability.

Public outreach for Visualize 2045 found that “reliability” was a dominant factor influencing residents’ daily decisions about how, when, and where to travel (see page 97).

Figure 5.11 Percent of Daily Person Miles Traveled on Reliable Modes



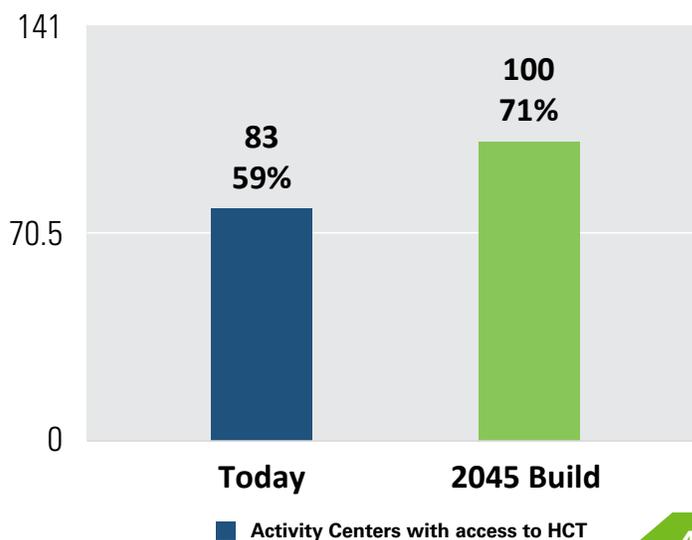
Note: Reliable modes include managed lanes (HOV and priced lanes), fixed guideway rail and bus rapid transit service, and bike and pedestrian travel.

ACCESS AND CONNECTIVITY

Land-use forecasts presented in Chapter 2 show that the region is planning extensive new housing and employment within Activity Centers. Although more people currently live outside of Activity Centers than inside them – and that will continue to be the case in 2045 – population growth will be more than 50% faster within the centers. Activity Centers will also be a nexus for employment growth, with three out of four new jobs, between today and 2045, expected to be in Activity Centers.

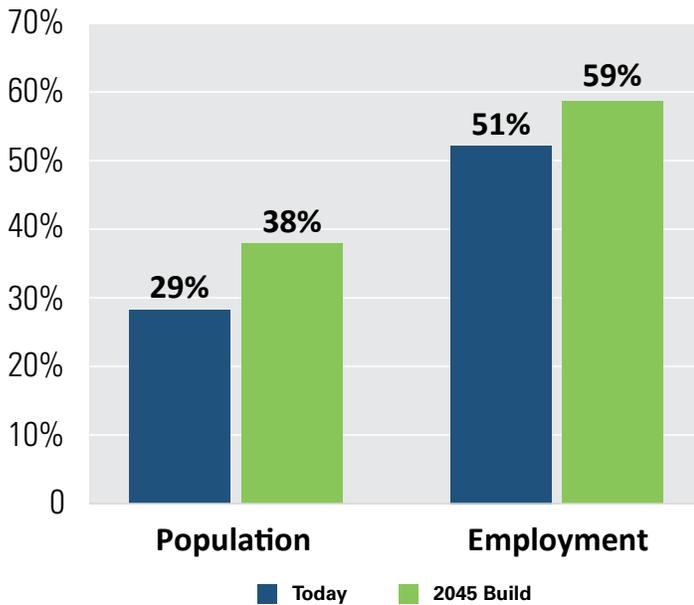
The region’s plans for growth in these areas will be complemented by new transportation connections, especially transit. By 2045, there will be significant increases in high-capacity transit links to Activity Centers (see Figure 5.12), which will improve region-wide access to transit. Currently, 59% of Activity Centers are connected to high-capacity transit. By 2045 that number will increase to 71%.

Figure 5.12 Number of Activity Centers with Access to HCT



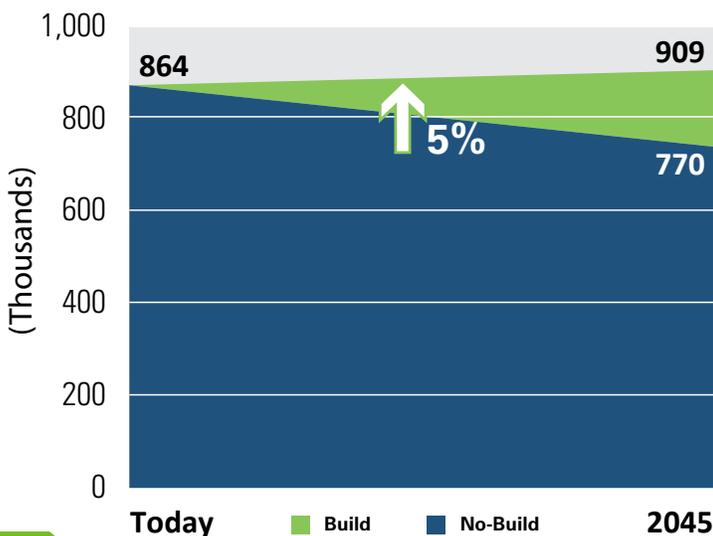
Many more people and jobs overall will have better access to high-capacity transit (see Figure 5.13). In 2045, 38% of the region’s population is forecast to live within walking distance of such transit, compared to 29% today. Further, 59% of jobs will accessible on foot to high-capacity transit, compared to 51% today.

Figure 5.13 Percent of Population and Jobs in Proximity to HCT



Today, on average, the region’s residents can reach 864,000 jobs within a 45-minute drive from home. By 2045, with the addition of population, jobs, and transportation improvements, residents will be able to access 909,000 jobs within a 45-minute auto commute (see Figure 5.14). This represents a 5% increase, between today and 2045, in access to jobs by auto throughout the region. In contrast, if no new transportation projects are built in the coming decades (2045 No-Build), access to jobs will decrease significantly.

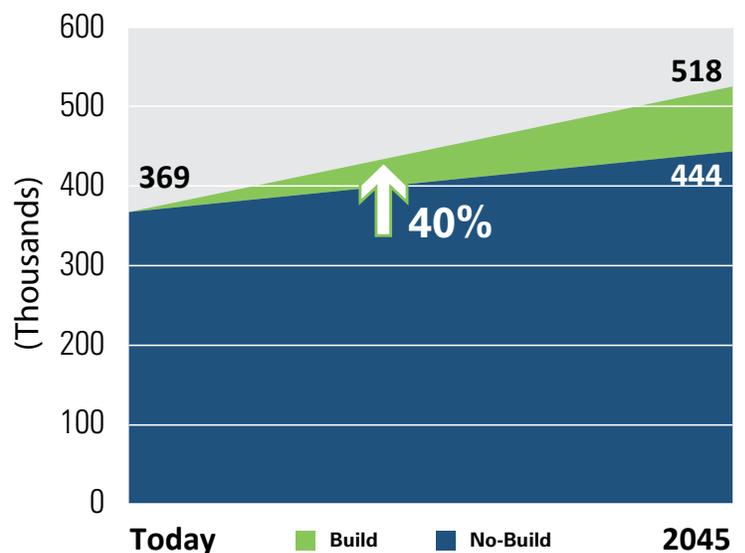
Figure 5.14 Change in Access to Jobs by Auto



The geographic distribution of the change in job access is not equally shared throughout the region, as shown in the detailed map of model output results (see Figure 5.16). The forecast shows declines in job accessibility by auto on the eastern side of the region and areas inside the Capital Beltway. This anticipated decline is likely the result of two important factors: anticipated increases in roadway congestion, which make it more difficult to reach other parts of the region by car within 45 minutes, and the location of most new jobs between now and 2045 which are expected to be in western jurisdictions beyond a 45-minute commute for those living in the east.

The analysis of job access by transit shows a more positive general trend. By 2045 the average number of jobs accessible within a 45-minute transit commute will increase substantially from 369,000 to 518,000, an increase of 40% (see Figure 5.15). This significant gain is likely linked to the forecast increase in jobs near existing transit stations and the expansion of higher quality transit service to more areas of the region, particularly Activity Centers.

Figure 5.15 Change in Access to Jobs by Transit



The No-Build analysis, which is depicted in Figure 5.15 as well, identifies a much smaller increase of 20% in access to jobs by transit, from 369,000 to 444,000. This smaller rate of growth suggests that the transportation projects in the constrained element of Visualize 2045 will make a major difference in providing people with more access to jobs by transit throughout the region.

An examination of the geographic distribution of these changes between today and 2045 shows that most places that currently have access to transit will experience increases in the number of jobs that are accessible within a 45-minute transit commute (see Figure 5.17). Furthermore, parts of the region where new transit projects are planned are also forecasted to gain access to additional jobs.

Figure 5.16 Change in Access to Jobs by Auto between Today and 2045 Build

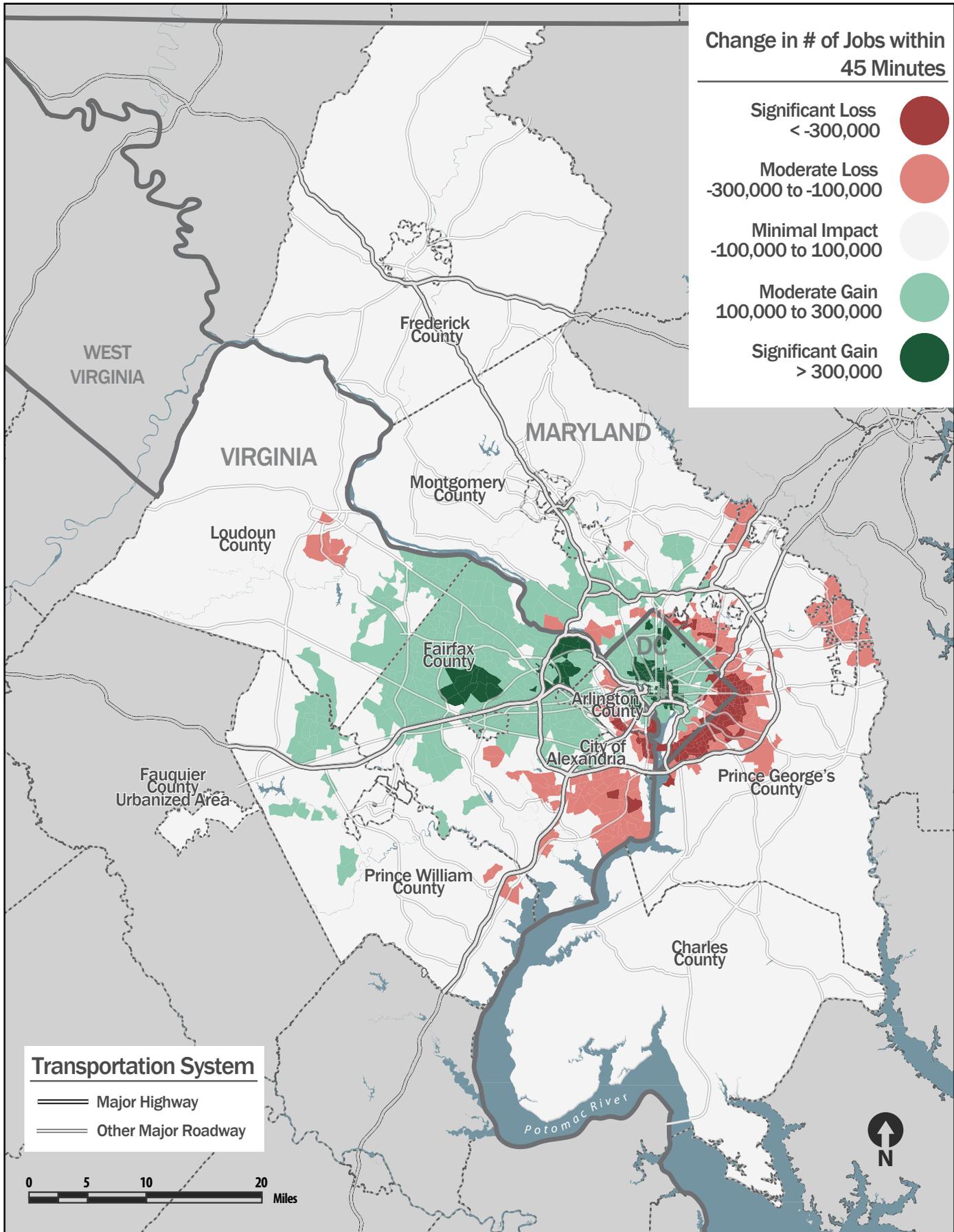
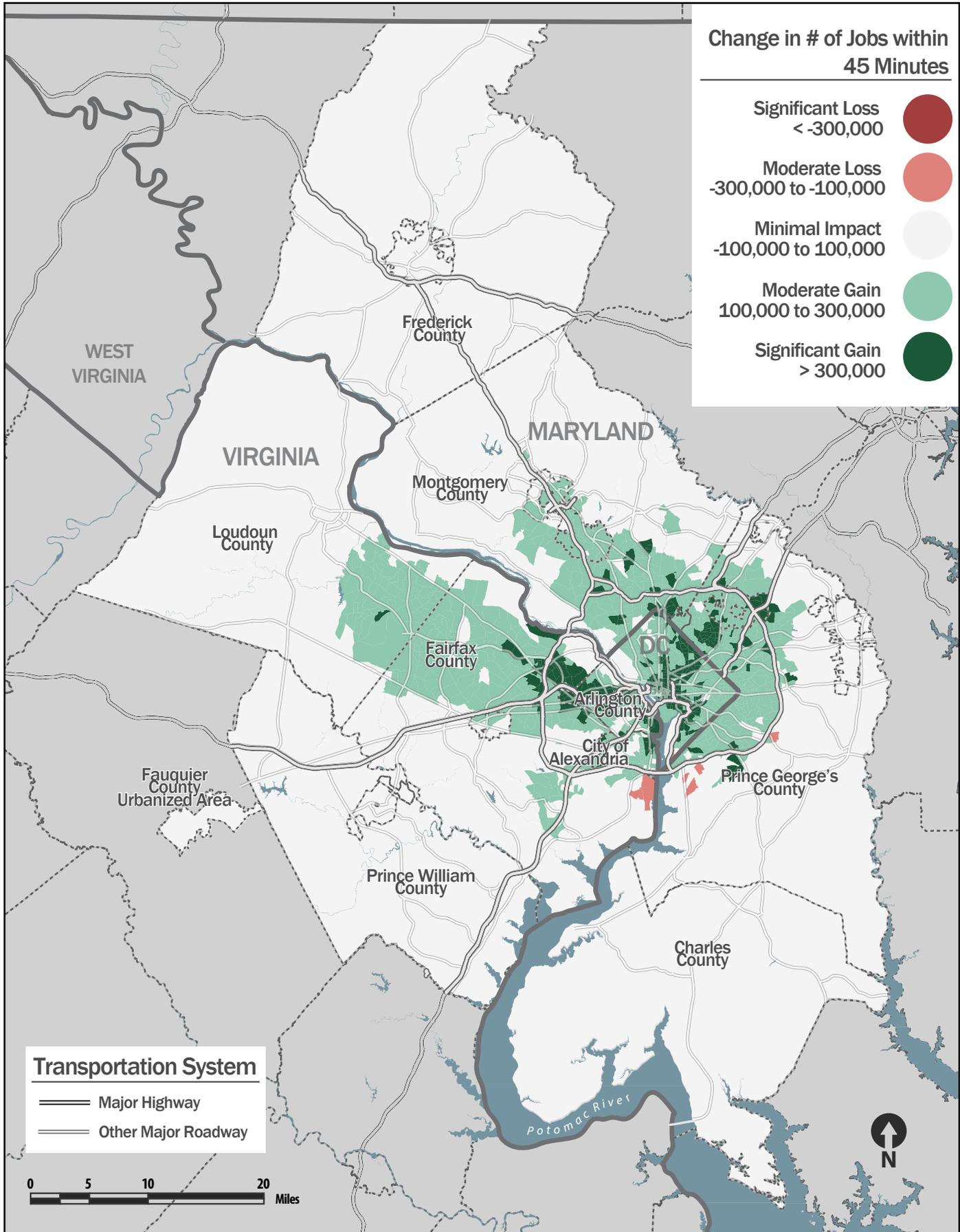


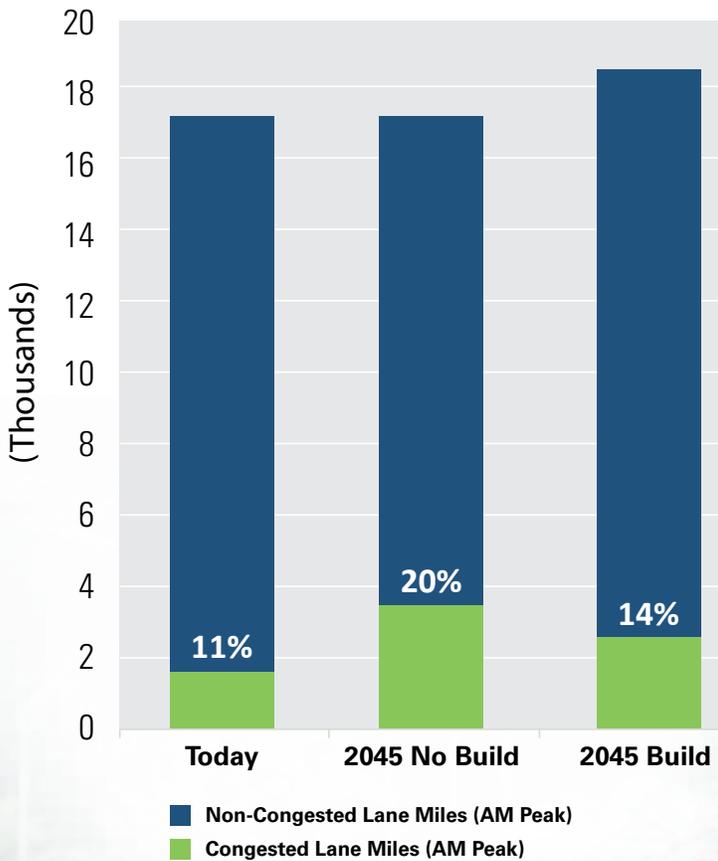
Figure 5.17 Change in Access to Jobs by Transit between Today and 2045 Build



CONGESTION AND DELAY

Highway congestion is forecast to get worse in the coming decades, although the number of congested roads will remain a relatively small fraction of total lane miles. Today, during the morning peak hour, 11% of lane miles in the region are congested. In 2045, that number will grow to 14% under the financially constrained element (the “2045 Build”) of Visualize 2045 (see Figure 5.18). This means approximately 800 more lane miles will be congested in the morning—an increase of 43% between today and 2045.

Figure 5.18 Share of Total Lane Miles Congested



While congestion will remain a growing challenge, the projects in the constrained element of Visualize 2045 will moderate the anticipated increase in congestion. Analysis of the No Build scenario helps to illustrate this point. If we do not build the transportation improvements of the plan’s constrained element (2045 No Build), forecasts show that 20% of the region’s lane miles will be congested.

While congestion on many roads is expected to increase, some segments of highway will see a slight relief in congestion because of capacity expansions or changes in travel behavior (see Figure 5.19). Major highways where improvements in congestion are anticipated include portions of I-95 in northern Virginia and I-495 inner and outer loops in suburban Maryland. Also, even though the new plan shows increases in congestion on I-270 and parts of the Beltway relative to today, the congestion in these locations was more severe in the previous plan (2016 CLRP).

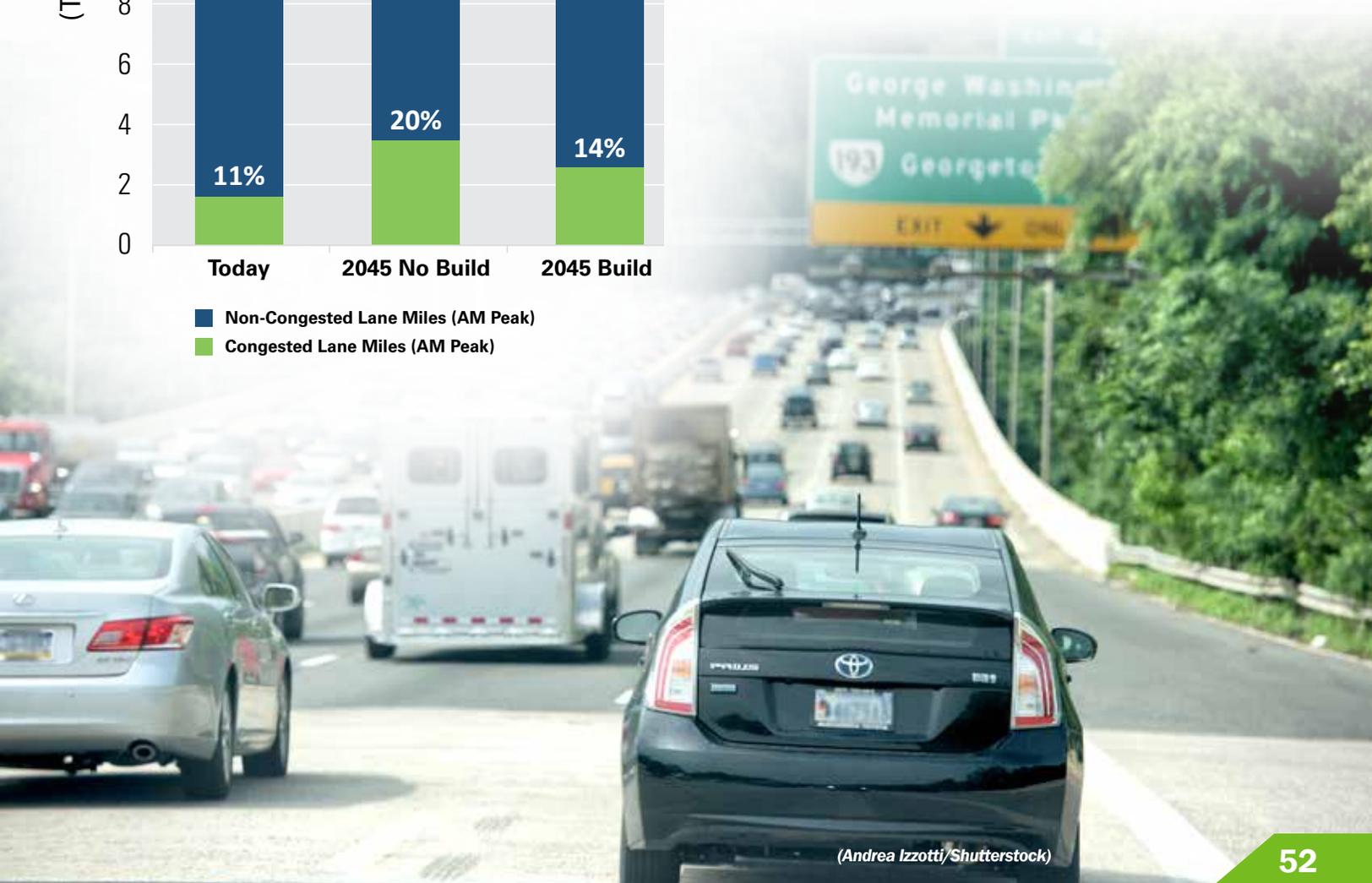
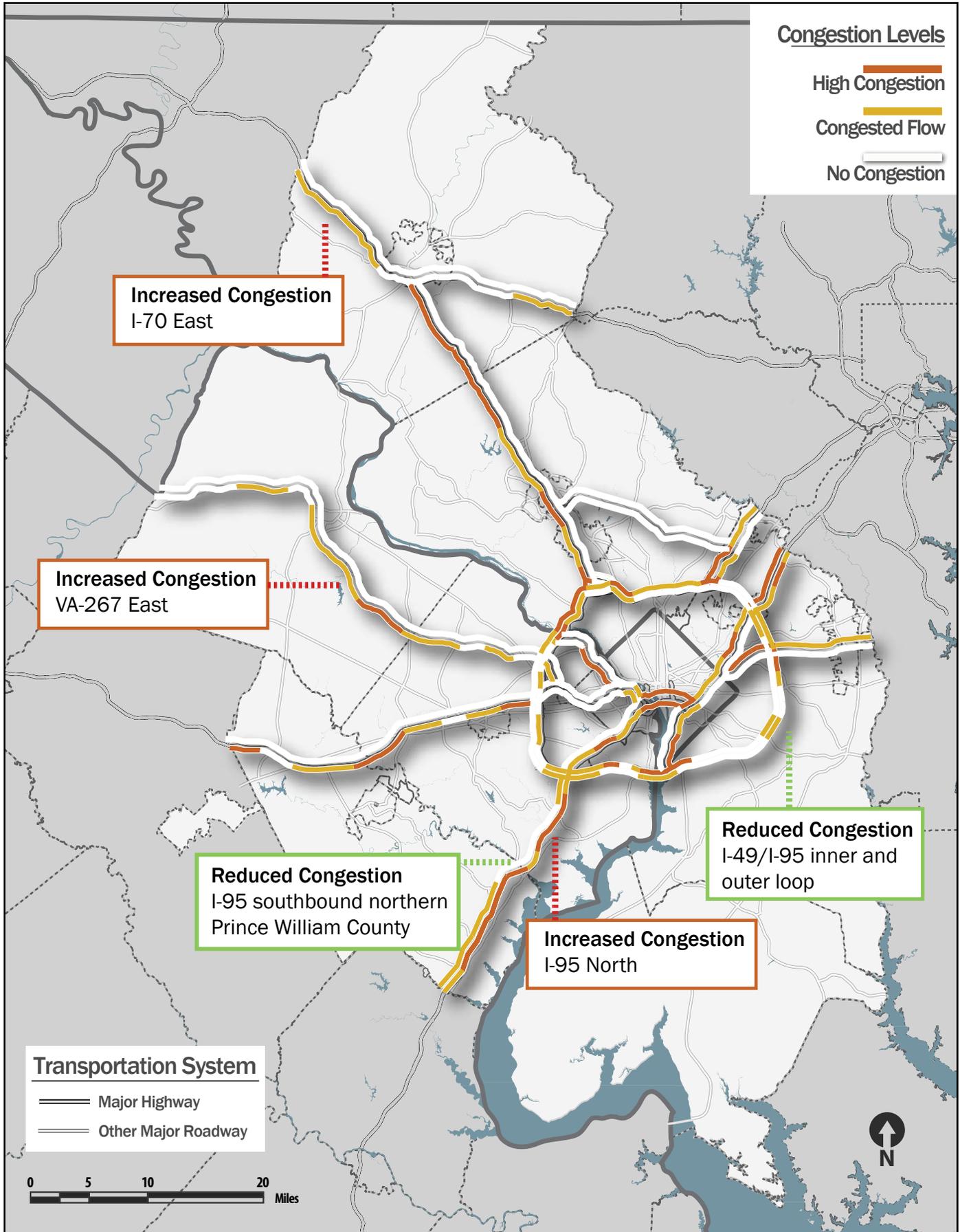


Figure 5.19 2045 Major Highway Congestion Map (AM Peak)



Total daily vehicle hours of delay, which represents time spent in traffic in congested conditions, are forecast to increase by 46% between today and 2045 (see Figure 5.20). A similar measure, average vehicle delay per trip shows an increase from 5.29 minutes today to 6.64 minutes in 2045 (see Figure 5.21), a change of 25%.

While congestion will continue to be a challenge for this region, it is worth noting that the forecast rate of growth in vehicle hours of delay for this plan (46%) is much lower than a comparable

prediction for the region's long-range transportation plan in 2016, which estimated an increase of 74%. Further, Visualize 2045's forecast increase of 46% in hours of delay is significantly lower than the No-Build forecasts, which showed this measure nearly doubling between now and 2045. Similarly, the increase in the average minutes of delay per trip would increase much more substantially – nearly 70% – under the No-Build future.

Figure 5.20 Total Daily Vehicle Hours of Delay

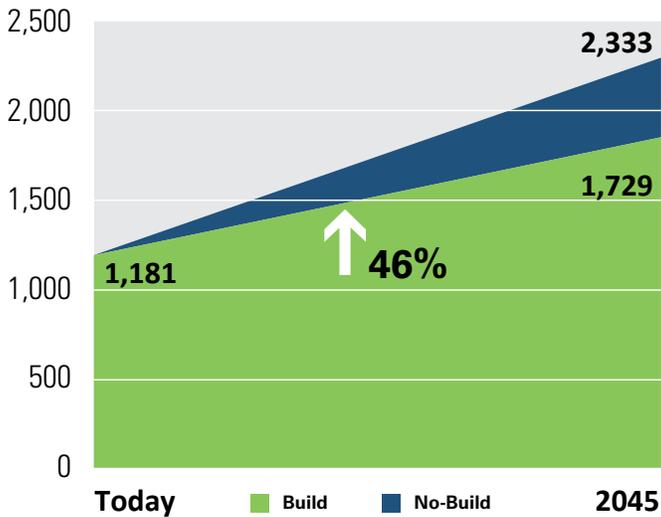
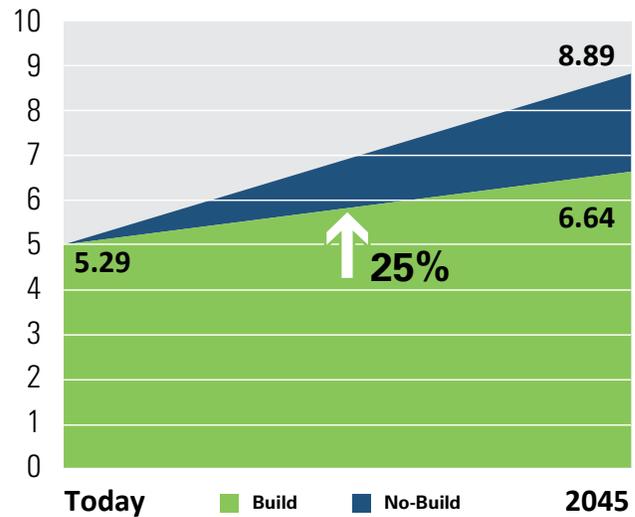


Figure 5.21 Average Minutes of Delay per Trip



Air Quality Conformity Analysis Summary

The air quality analysis demonstrates how the region is working towards its environmental goals. One of these goals comes from the Regional Transportation Priorities Plan (RTPP), which states the TPB's work should “enhance environmental quality and protect natural and cultural resources.”

The financially constrained element of Visualize 2045 must demonstrate that future emissions under the plan are consistent—“in conformity”—with emissions levels set forth in air quality plans adopted by the states. Federal law requires “conformity findings” in all metropolitan regions that are currently not in attainment of certain federal air quality standards. Since the Washington region does not currently meet federal standards for ground-level ozone, the TPB must demonstrate that future vehicle-related emissions of ozone-forming pollutants will, under the proposed constrained element plan, remain below the approved limits. This section summarizes the air quality conformity analysis, and the full document can be found in [Appendix C: Air Quality Conformity Report](#).

Pollutants Analyzed

The Washington metropolitan area currently does not meet federal air quality standards for ground-level ozone, meaning that the amount of ozone present in the air exceeds the maximum allowed. Ozone pollution is harmful to people and the environment. Therefore, the region must show through a detailed technical analysis that future vehicle-related emissions of the two key ingredients in the formation of ozone—nitrogen oxides (NO_x) and volatile organic compounds (VOCs)—are expected to remain below approved regional limits. The Metropolitan Washington Air Quality Committee (MWAQC) facilitates the establishment of the regional limits for on-road mobile emissions of VOCs and NO_x, which combine in sunlight on hot summer days to form ground-level ozone. Motor vehicles are one of several sources responsible for VOC and NO_x emissions in the region. A few examples of others include: power plants, residential heating and air conditioning, dry cleaners, gas stations, boats, airplanes, construction vehicles, and lawn equipment.

FEDERAL REQUIREMENTS

The Clean Air Act requires that transportation and air quality planning be integrated in regions like this one that are designated by the U.S. Environmental Protection Agency (EPA) as air quality “nonattainment” areas. In such areas, as well as in areas designated as “maintenance”, federal funding and approval for transportation projects is only available if transportation activities are consistent with the region’s air quality goals.

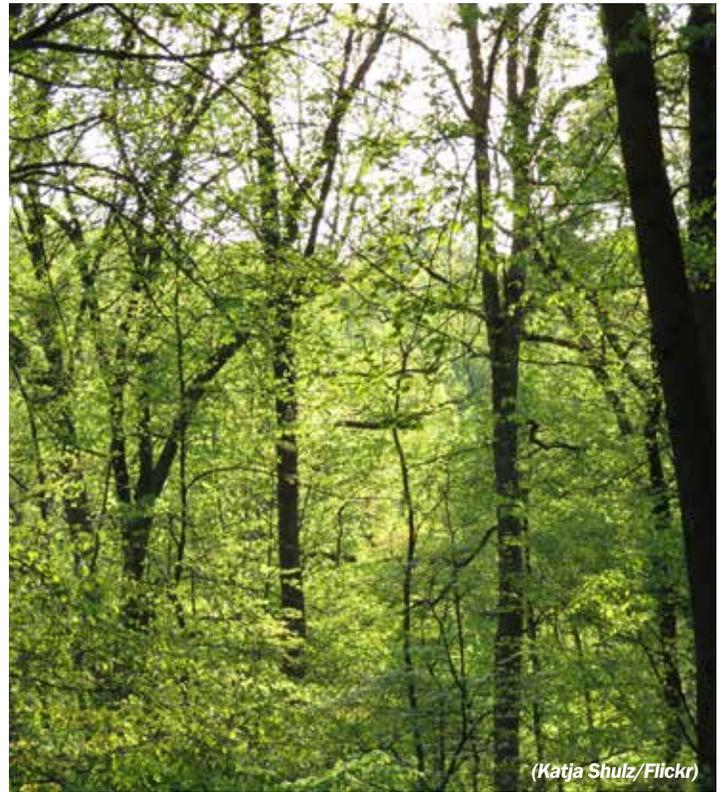
Before Visualize 2045 can be adopted, the TPB must approve a “conformity determination” showing that anticipated future vehicle-related emissions will remain below regional limits (known formally as “motor vehicle emissions budgets”) that have been set by the region’s air quality improvement plan (known as the “State Implementation Plan” or “SIP”) and approved by the EPA. The Metropolitan Washington Air Quality Committee (MWAQC) is the body responsible for developing the regional air quality plan. The conformity determination will demonstrate that the constrained element of Visualize 2045 is consistent – “in conformity” – with the regional limits.



Air Quality Conformity Analysis Results

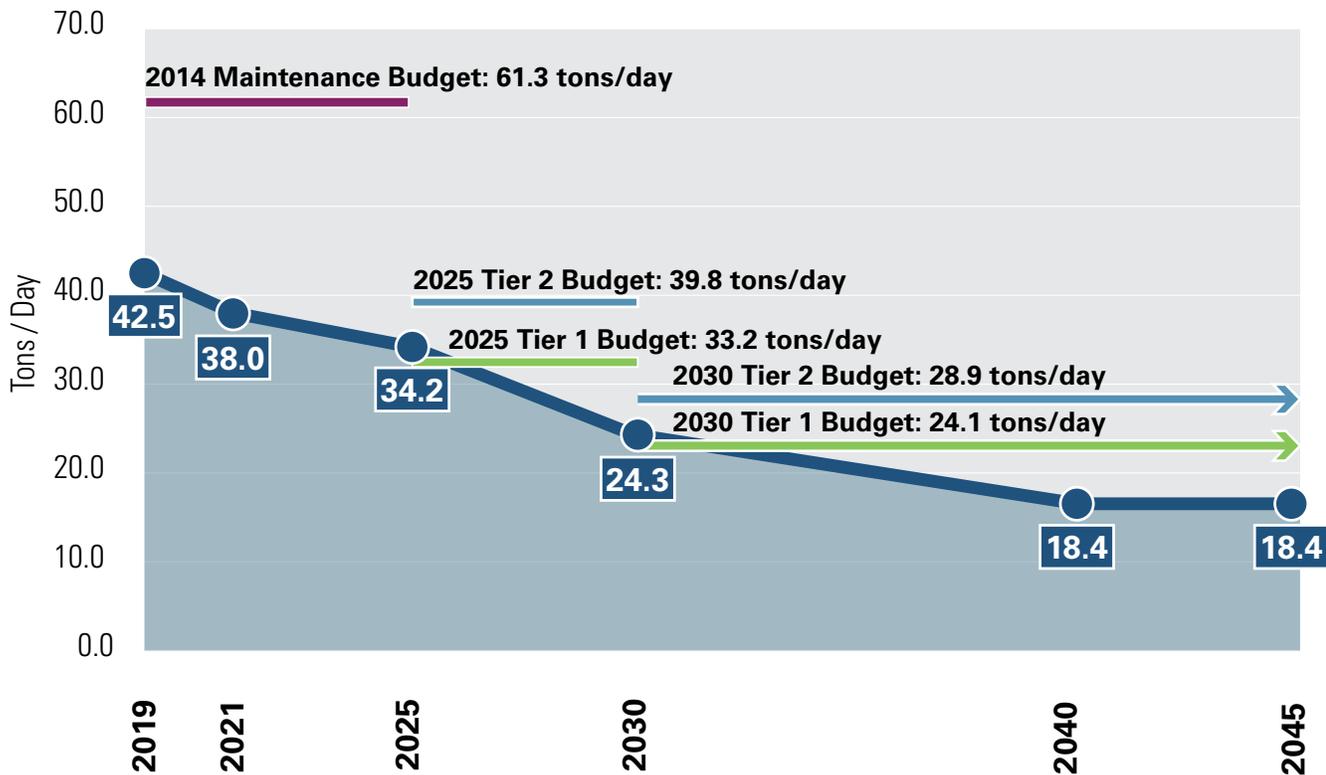
Under the constrained element of Visualize 2045, mobile emissions are expected to drop steadily (Figures 5.22 and 5.23) mainly due to tougher fuel and vehicle efficiency standards.² In spite of increased travel, mobile emissions are expected to steadily decrease through the 2045 horizon year of the plan, mainly as cars and trucks meeting tougher new federal fuel and vehicle efficiency standards enter the region's vehicle fleet and as changes are made to the formulation of vehicle fuel. Changes in development patterns, investments in transit and other travel options, and improved operational efficiency of area roadways will also contribute to reductions in vehicle-related emissions.

The plan's air quality conformity assessment included comparing forecasted mobile source emissions to the region's two tiers of mobile emissions budgets for volatile organic compounds (VOC) and nitrogen oxides (NOx). The conformity analysis found that forecasts of mobile emissions for VOC and NOx are within required budgets for all analysis years of the plan. Details related to the two tiers of mobile budgets can be found in [Appendix C](#).



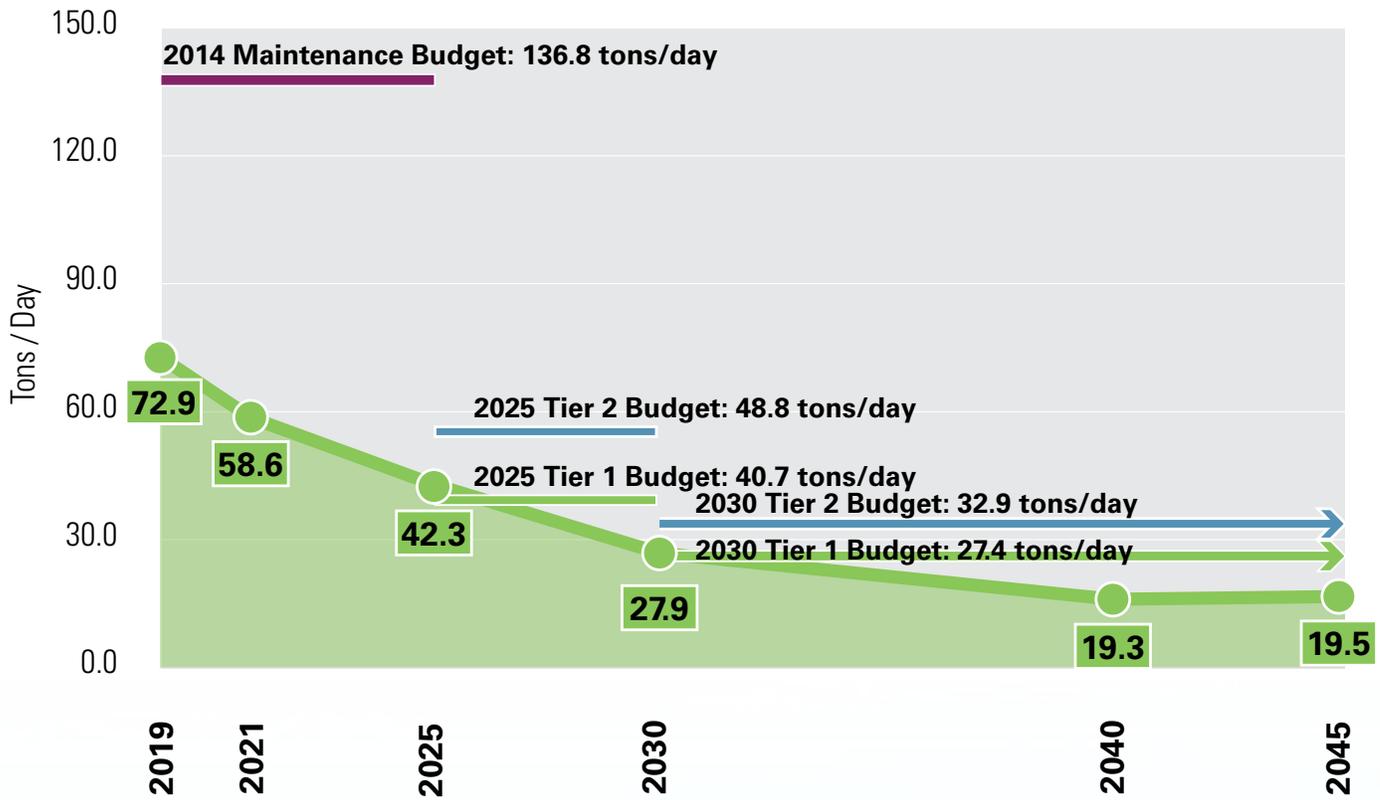
(Katja Shulz/Flickr)

Figure 5.22 Volatile Organic Compound (VOC) Mobile Source Emissions and Budgets



² NOTE: The mobile budgets shown were developed as part of the 2008 Ozone Standard Maintenance Plan. EPA found the budgets adequate for use in conformity. The adequacy finding was published in the Federal Register on August 6, 2018 with an effective date of August 21, 2018.

Figure 5.23 Precursor Nitrogen Oxide (NOx) Mobile Source Emissions and Budgets



Greenhouse Gases

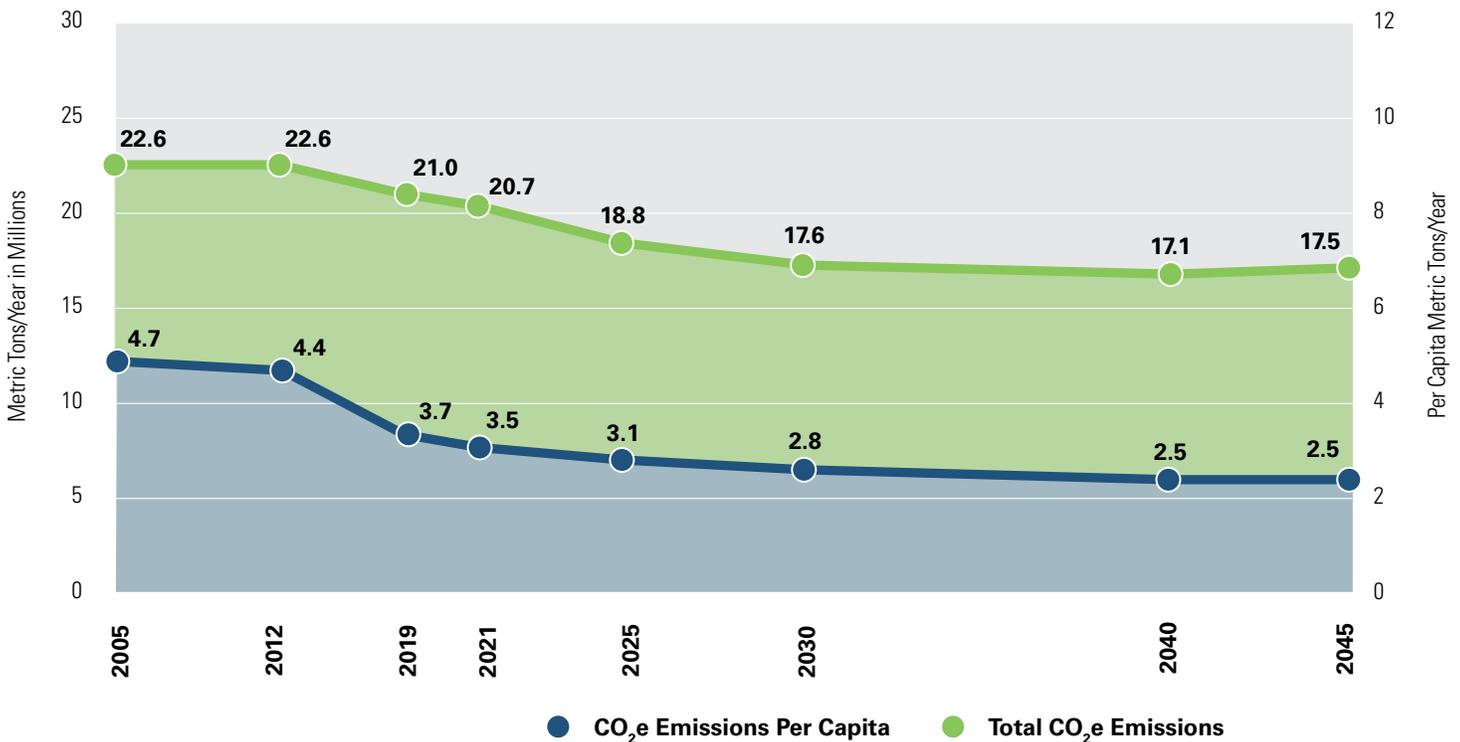
Unlike the two specific pollutants regulated by federal law in this region, greenhouse gases, such as carbon dioxide, are not regulated by the federal government and are not included in the Air Quality Conformity analysis. In 2010, the TPB started proactively estimating and reporting future greenhouse gas mobile source emissions (as carbon dioxide equivalent or CO₂e) in the long-range transportation plan.

Since 2005, the base year for the COG Climate Change Report, absolute greenhouse gas emissions have decreased by 7%. By 2045, the latest analysis shows that GHG emissions are forecasted to be 23% below 2005 emissions levels, or 16% below today's emissions levels, with a slight uptick between 2040 and 2045. Greenhouse gas emissions per capita are expected to decrease by 32% between today and 2045 (Figure 5.24). The emissions reductions are largely attributed to increased fuel efficiency standards, but the uptick between 2040 and 2045 occurs as cleaner vehicles have saturated the fleet, and the benefits from fuel efficiency standards can no longer keep pace with VMT increases.



(Mike Flippo/Shutterstock)

Figure 5.24 Greenhouse Gas Mobile Source Emissions (CO₂e)





CHAPTER 6

PERFORMANCE PLANNING

The TPB has championed improvements in the ways the region’s transportation system is managed and operated. This chapter describes the purpose of performance planning, highlighting the Performance-Based Planning and Programming (PBPP) federal requirements and significance. The Congestion Management Process (CMP), a systematic process that provides for safe and effective management and operation of the transportation system, is discussed. Then, other TPB planning efforts focused on safety and its importance throughout the transportation planning process are also described.



(Jonathon Colman/Flickr)

Performance-Based Planning and Programming

Performance-based planning and programming (PBPP) is a new process requiring states and MPOs to “transition to a performance-driven, outcome-based program that provides for a greater level of transparency and accountability, improved project decision-making, and more efficient investment of federal transportation funds.”¹ In coordination with partners, the TPB is tasked with setting targets for 25 performance measures. As PBPP progresses over the years, performance compared to the targets will help inform funding decisions and help achieve targets. More information about the TPB’s PBPP efforts can be found in [Appendix D: PBPP System Performance Report](#) and at mwkog.org/PBPP.

The TPB, states, and providers of public transportation use the PBPP process in the following areas:

- Highway Safety;
- Highway Assets;
- Highway System Performance;
- Vehicular Emissions;
- Transit Asset Management; and
- Transit Safety.

¹ Federal Register, Vol. 81, No. 103, Friday, May 27, 2016, page 34051, Section B.1.

Figure 6.1 Breakdown of the Six PBPP Areas and Measures

PERFORMANCE AREA	MEASURE	METRIC
Highway Safety	5-Year Rolling Average	<ul style="list-style-type: none"> • # of Fatalities • Rate of Fatalities • # of Serious Injuries • Rate of Serious Injuries • # of Non-Motorized Fatalities and Serious Injuries
Highway Asset Management	Percent of Pavement Lane Miles*	<ul style="list-style-type: none"> • In Good Condition • In Poor Condition
	Percent of Bridge Deck Area	<ul style="list-style-type: none"> • In Good Condition • In Poor Condition
Performance of National Highway System	Percent of Person Miles Traveled ¹	Level of Travel Time Reliability
Freight Movement Reliability	Index	Truck Travel Time Reliability
Roadway Congestion	Annual Hours Per Capita	Peak Hour Excessive Delay
	Percent of	Non-Single Occupancy Vehicle Travel
Vehicular Emissions	Total Emissions Reduction	Volatile Organic Compounds and Nitrogen Oxides
Transit Asset Management	Percent of	<ul style="list-style-type: none"> • Service Vehicles exceeding Useful Life • Revenue Vehicles exceeding Useful Life • Track Segments with Performance Restrictions • Facilities rated Marginal or Poor
		<ul style="list-style-type: none"> • Fatalities by Mode • Reportable Injuries by Mode • Reportable Safety Events by Mode
Transit Safety	Number and Rate (per Revenue Vehicle Mile)	<ul style="list-style-type: none"> • Reportable Injuries by Mode • Reportable Safety Events by Mode
	Mean Distance	Between Major Mechanical Failures by Mode

* Measures calculated separately for the Interstate and for the National Highway System (excluding Interstate).



Performance Measures and Targets

For each of the six areas, the TPB is responsible for determining how to calculate measures and set targets for the metropolitan planning area (see Figure 6.1 for all the categories and measures). The TPB's efforts overlap with state-level transportation agencies and public providers of transportation who are also responsible for calculating measures and setting targets at the state level or for the transit system. As a result, the TPB coordinates with the states and transit agencies in establishing measures and targets for the region. This ensures consistency in the methods used to calculate measures and adequately reflects the various factors considered. The following sections describe the processes of developing the targets and share the targets which have been set by the TPB.



Highway Safety

Figure 6.2 lists the five specific federally-prescribed highway safety measures for which the TPB is required to establish targets. The targets are established for one year into the future and are updated at the end of the target year. Once the targets are established, the TPB must collect data and report to the state DOTs the performance outcomes for each measure annually and include the results in the long-range transportation plan. The results of this monitoring effort are intended to inform future funding decisions on projects and programs that affect highway safety. The monitoring results are also intended to inform the next update of the target.

In January 2018 the TPB adopted the targets displayed in Figure 6.2 for each of the five measures. In 2019, when data becomes available, the targets will be compared to actual performance (using a five-year rolling average) to determine if targets were achieved.² The TPB will also update these targets for the year 2019.

REGIONAL HIGHWAY SAFETY TARGET SETTING APPROACH

The TPB's planning area, for which performance targets are to be established, lies within three different jurisdictions: the District of Columbia, Maryland, and Virginia. As such, regional highway safety targets were determined by identifying sub-targets for the District of Columbia, Maryland, and Virginia portions of the region and applying each state's target setting approach to their respective portion of the region. Targets for the region were developed by mathematically combining the three sub-targets into an overall target for the region (see Figure 6.2).

Figure 6.2 - 2018 Regional Highway Safety Targets (Five Year Rolling Average)

	2018 Target
Number of fatalities	253
Rate of fatalities per 100 million vehicle miles of travel	0.59
Number of serious injuries	3,007
Rate of serious injuries per 100 million vehicle miles of travel	6.79
Number of nonmotorist fatalities and serious injuries	529

² As required by federal rule, annual safety targets are expressed as five-year rolling averages. Additional detail: [gpo.gov/fdsys/pkg/FR-2016-03-15/pdf/2016-05202.pdf](https://www.gpo.gov/fdsys/pkg/FR-2016-03-15/pdf/2016-05202.pdf).

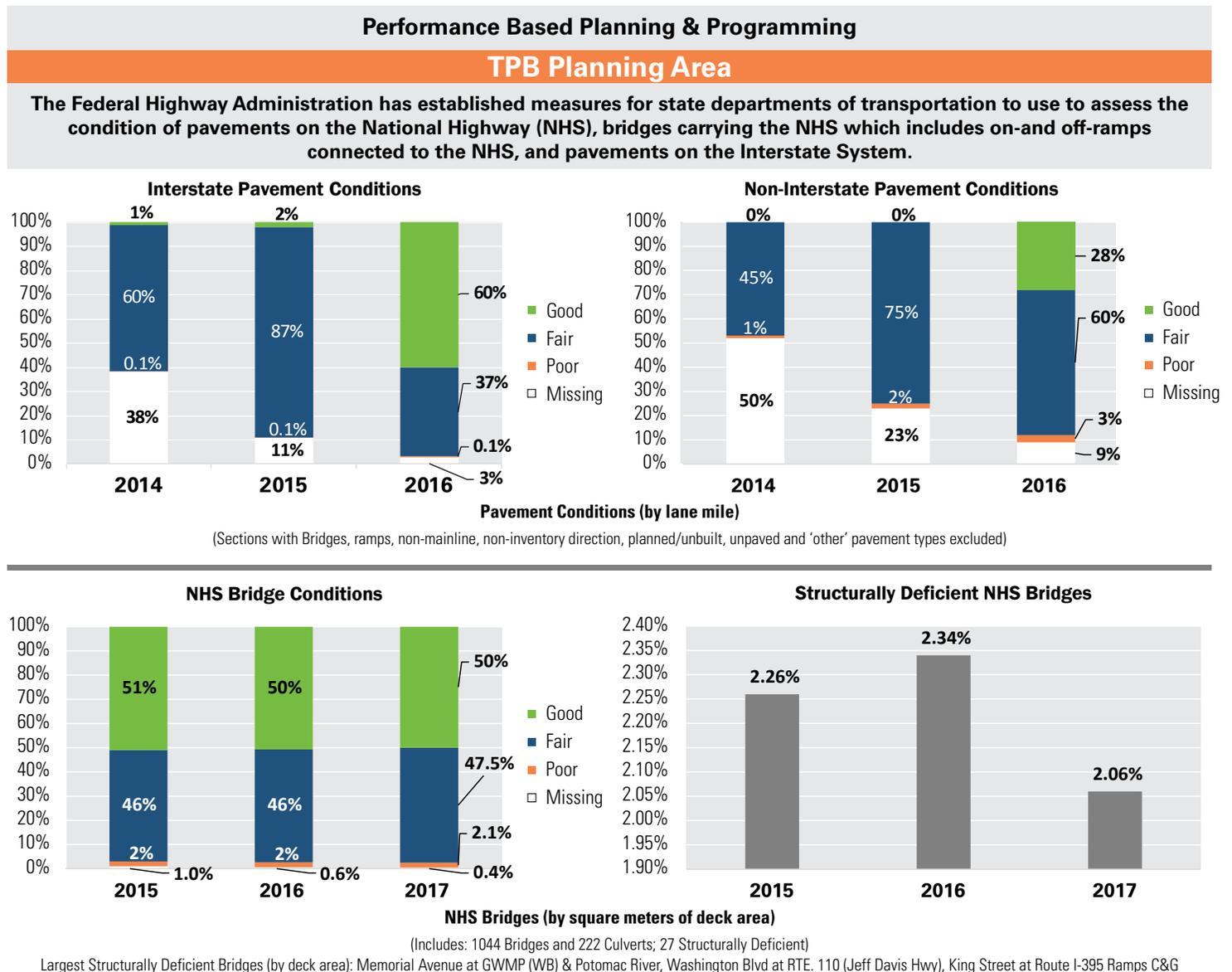
Highway Asset Management

Figure 6.3 shows the six specific federally-prescribed highway asset management measures for which the TPB is required to establish targets. The targets are established for the four-year period of 2018-2021 and are updated biennially to track the condition of highway pavement and bridges in the region.³ Once the targets are established, the TPB must collect data and report the performance outcomes for each measure biennially to the state DOTs and also include the results in the long-range transportation plan. The results of this monitoring effort are intended to inform future funding decisions on projects and programs that affect highway assets. The monitoring results are also intended to inform the next update of the target.

REGIONAL HIGHWAY ASSET TARGET SETTING APPROACH

The TPB's planning area, for which performance targets are to be established, lies within three different jurisdictions: the District of Columbia, Maryland, and Virginia. As such, regional highway asset targets were determined by identifying sub-targets for the District of Columbia, Maryland, and Virginia portions of the region and applying each state's target setting approach to their respective portion of the region. These sub-targets are informed by state-specific pavement and bridge condition results reported to federal databases. Targets for the region were developed by combining the sub-targets for each state-portion of the region to create the region-wide net result (see Figure 6.3).

Figure 6.3 Pavement and Bridge Condition for the TPB Planning Area



³ As required by federal Pavement and Bridge Condition Performance Measures rule, State DOTs must establish two-year and four-year targets on a biennial cycle. Additional detail: gpo.gov/fdsys/pkg/FR-2017-01-18/pdf/2017-00550.pdf.

Highway System Performance

Figure 6.4 lists the five specific federally-prescribed highway system performance measures, through the lenses of congestion and freight, for which the TPB is required to establish targets.

WHAT IS THE NATIONAL PERFORMANCE MANAGEMENT RESEARCH DATA SET (NPMRDS)?

Since July 2013, the NPMRDS provides monthly average travel times on the National Highway System (NHS) and is used in calculating four of the measures in the System Performance measures final rule. The NPMRDS is a monthly archive of average travel times, reported every 5 minutes when data is available, on the NHS. The travel times are based on vehicle probe-based data and include “all traffic,” “freight,” and “passenger travel.” FHWA provides access to the NPMRDS to State DOT and MPO partners for their performance management activities.

The targets are established for a two- and four-year period (2018-2019 and 2018-2021) and are updated biennially to track the condition of highway pavement and bridges in the region.⁴ After the TPB established its targets in June and July 2018, it must collect data and report the performance outcomes for each measure to the Federal Highway Administration (FHWA). The results of this monitoring effort are intended to inform future funding decisions on projects and programs that affect highway assets. The monitoring results are also intended to inform the next update of the target.

Figure 6.4 System Performance Measures

Performance Measure	2018 - 2019 Two Year Target	2018 - 2021 Four Year Target
Interstate Travel Time Reliability (TTR)	Not Required	58.5%
NHS (Non-Interstate) Travel Time Reliability (TTR)	Not Required	72.7%
Freight Reliability (TTTR)	Not Required	2.12
Peak Hour Excessive Delay (PHED)*	Not Required	26.7 hours
Mode Share (Non-SOV)*	36.9%	37.2%

* Target set for the Washington, DC-MD-VA Urbanized Area

⁴ Under this rule, DOTs must establish two-year and four-year targets related to highway system performance on a biennial cycle. Additional detail: [gpo.gov/fdsys/pkg/FR-2017-01-18/pdf/2017-00681.pdf](https://www.gpo.gov/fdsys/pkg/FR-2017-01-18/pdf/2017-00681.pdf).

⁵ Interstate TTR, Non-interstate NHS TTR, Truck TTR Index, and the Annual Hours of PHED Per Capita can all be obtained through NPMRDS, either in raw form or with the measures calculated by the contracted entity supporting the data set. The TPB and the three states all used NPMRDS to determine their performance for these measures.

Annual Hours of PHED and Percent of Non-SOV Travel on the NHS are calculated for the Washington, DC-MD-VA urbanized area, as defined by the Census Bureau, rather than for the MPO planning area. For these two measures, the applicable State DOTs and MPOs must coordinate on and collectively establish a single, unified 2-year (non-SOV only) and 4-year target (PHED and non-SOV) for each applicable urbanized area of greater than one million people. The TPB has set targets for the Washington DC-MD-VA urbanized area.

REGIONAL SYSTEM PERFORMANCE TARGET SETTING APPROACH

The TPB’s planning area, for which performance targets are to be established, lies within three different jurisdictions: the District of Columbia, Maryland, and Virginia. As such, regional highway safety targets were determined by using data from the National Performance Management Research Data Set (NPMRDS) that is input by the District of Columbia, Maryland, and Virginia portions of the region. The TPB then adopted its own methodology for forecasting future performance by applying related indicators from the region’s travel demand model to forecast two- and four-year performance for the region (see Figure 6.4).

In total, five measures are used to track system performance of the region’s highway system: Interstate Travel Time Reliability (TTR), Non-interstate National Highway System TTR, Truck TTR Index, Annual Hours of Peak Hour Excessive Delay (PHED) Per Capita, and Percent of Non-SOV Travel on the NHS.⁵



Vehicular Emissions

Figure 6.5 lists the two pollutants under the federally-prescribed vehicular emissions measure for which the states and the TPB are required to establish targets. The targets are established for a two- and four-year period (2018-2019 and 2018-2021) and are updated biennially to track the condition vehicular emission reduction in the region. Once the targets are established, the TPB must collect data and report the performance outcomes for each measure biennially to the state DOTs. The results of this monitoring effort are intended to inform future funding decisions on projects and programs that affect vehicle emissions. The monitoring results are also intended to inform the next update of the target.

REGIONAL EMISSIONS REDUCTIONS TARGET SETTING APPROACH

The TPB's planning area, for which performance targets are to be established, lies within three different jurisdictions: the District of Columbia, Maryland, and Virginia. Each state receives federal funds for the Congestion Mitigation and Air Quality (CMAQ) program. Federal CMAQ program funds are used for a wide range of qualifying projects that are expected to mitigate congestion or reduce emissions of select pollutants that affect air quality. As such, the states and the TPB must coordinate on and collectively establish a single, unified two- and four-year target for the estimated reductions in emissions of each applicable pollutant due to CMAQ funded projects.

The Washington, DC area is being monitored for air quality affected by Volatile Organic Compounds (VOCs) and Nitrogen Oxides (NO_x) pollutants. Accordingly, the TPB has worked with the three states to collect any data on past emissions reductions calculations and on those anticipated in the next four years to set targets. Unlike all the other performance measures, the Emissions Reductions measure is based only on calculations and not on any data of actual performance or conditions.

Figure 6.5 CMAQ Program Targets: On-Road Mobile Emissions Reductions

	Pollutant	FFY 2018 - 2019 Two Year Target	FFY 2018 - 2021 Four Year Target
Emissions Reductions	Volatile Organic Compounds (VOCs)*	1.838 Kg/day	2.195 Kg/day
	Nitrogen Oxides (NO _x)*	4.019 Kg/day	4.703 Kg/day

* Target set for the TPB's portion of the Washington, DC-MD-VA Ozone nonattainment area



Transit Asset Management

Figure 6.6 lists the four specific federally-prescribed transit asset management measures for which providers of public transportation and the TPB must collect and report on for the TPB planning area. These measure the performance of transit asset management to ensure effective operation, maintenance, and improvements of capital assets through their useful life.⁶ The targets are established annually and developed along with a four-year plan for managing these capital assets. Providers first set targets by January 1, 2017 with the TPB adopting its initial set of transit asset targets in June 2017. The TPB must collect data and report the performance outcomes for each measure in the long-range transportation plan. The results of this monitoring effort are intended to inform future funding decisions on projects and programs that affect transit assets. The monitoring results are also intended to inform the next update of the target.



REGIONAL TRANSIT ASSET MANAGEMENT TARGET SETTING APPROACH

The TPB's planning area for which transit asset management performance targets are to be established includes seven Tier 1 agencies (public transportation operators of rail or more than 100 vehicles) and twelve Tier 2 agencies (operate less than 100 vehicles). Tier 1 agencies report their information to the FTA directly and to the TPB. Tier 2 agencies submit information to their respective state transit agencies, the Maryland Transit Administration or the Virginia Department of Rail and Public Transportation, which then group the information for reporting to the FTA and to the TPB. TPB collated the information and adopted the targets of the seven Tier 1 and the Tier 2 agencies for the region as a whole.

The four transit asset performance measures are split between two age-based (Rolling Stock and Equipment) and two condition-based measures (Condition of Infrastructure and Condition of Station/Facilities). For each type of asset, a threshold is established for permissible age or condition (e.g., a bus should be no more than 15 years old, or a facility should not have any failing components). Targets are set by the providers of public transportation on the maximum percentage of assets that are allowed to exceed the threshold (e.g., no more than 8% of buses can exceed 15 years old). Figure 6.6 presents the regional targets accounting for the differences in targets and standards among the region's providers of public transportation.

Figure 6.6 2017 Regional Transit Asset Management Targets (Maximum percentage of assets allowed to exceed threshold condition)

Reporting Entity	Rolling Stock	Service Vehicles	Rail Infrastructure	Station/ Facility Condition
WMATA	1% Rail, 3% Bus	15% ^{c,d}	5%	32%
DDOT	0% Rail, 40% Bus	20% ^c	5%	20%
Fairfax Co.	10%	14% ^e	n/a	0%
Montgomery Co.	8% ^a	50% ^{c,d}	n/a	50% ^f
Prince George's Co.	0%	18% ^d	n/a	0%
PRTC	46% ^b	50% ^c	n/a	0%
VRE	0% Rail	50% ^e	n/a	0%
Maryland Tier 2 (MTA)	24% ^a	31% ^d	n/a	25% ^f
Virginia Tier 2 (DRPT)	20%	Not reported	n/a	20%

a: heavy-duty buses; b: 45-foot buses; c: autos; d: trucks; e: service vehicles; f: maintenance/administrative facilities

⁶ Additional detail: gpo.gov/fdsys/pkg/FR-2016-07-26/pdf/2016-16883.pdf

Transit Safety

The federal transit safety rules require providers of public transportation and the TPB to collect and report data for four performance measures that track the condition of transit safety in the TPB planning area.⁷ These measures include the number and rate of fatalities, injuries, safety events (derailments, collisions, fires, and evacuations), and also system reliability (mean distance between major and other mechanical system failures). Initial reporting on transit safety performance and establishment of targets is not required until July 2020 and will be the subject of coordination over the next year. Once the targets are established, the TPB must collect data and report the performance outcomes in the long-range transportation plan. The results of this monitoring effort are intended to inform future funding decisions on projects and programs that affect transit safety. The monitoring results are also intended to inform the next update of the target.

PBPP and the Financially Constrained Projects

The projects incorporated into the financially constrained element of Visualize 2045 and the projects and programs that are programmed for funding in the FY 2019-2024 TIP reflect the current goals of the region's transportation agencies. As the new PBPP process and its systematic measurement of performance versus targets is implemented, the plans and programs of the region's agencies, many of which already have considered similar goals, will evolve to more explicitly address performance and the targets.

Congestion Management Process

Like the TPB's PBPP activities, the TPB has an important role to play in understanding and identifying the full range of strategies to address traffic congestion in the region. Federal law requires the TPB to provide for "safe and effective integrated management and operation of the multimodal transportation system... through the use of travel demand reduction and operational management strategies."

Further information on the Congestion Management Process (CMP) can be found in [Appendix E: Congestion Management Process Federal Compliance and Impact on Plan Development](#). Detail on monitoring and evaluating transportation system performance can be found in separate publications, including the biennial CMP Technical Report (mwkog.org/CMP) and the quarterly Regional Congestion Reports (mwkog.org/congestion).

Overview

The CMP provides for a systematic approach to monitoring the performance of the region's transportation system and identifying and evaluating the benefits that various congestion management strategies may have. Through various programs, the CMP monitors the performance of the transportation system. With accurate and reliable data, the TPB and regional partners work to establish strategies and initiatives to help alleviate congestion. Both demand management and operational management strategies are pursued. Demand management seeks to reduce congestion by reducing the number of vehicles (especially single-occupant vehicles) on the road during high-volume time periods while operational management focuses on incident management, technology advances, and, when necessary, capacity increases.

THE POLICY CONTEXT

Aspirational Initiatives

Five of the initiatives are aimed at congestion and travel demand issues and can help the region better prepare for the impacts of congestion on the transportation network.

Planning Factors

- Promote efficient system management and operation.
- Support the economic vitality of the metropolitan area.
- Enhance the integration and connectivity of the transportation system.

RTPP Goals

- Maximize operational effectiveness and safety of the transportation system.

CMP activities benefit strongly from regional participation. The TPB Technical Committee, the Systems Performance, Operations, and Technology Subcommittee, and the Commuter Connections Subcommittee consult regularly on staff's work. Further, TPB's Commuter Connections program plays a critical role in implementing the most impactful strategies for demand management.

⁷ Additional detail: [gpo.gov/fdsys/pkg/FR-2017-01-18/pdf/2017-00678.pdf](https://www.gpo.gov/fdsys/pkg/FR-2017-01-18/pdf/2017-00678.pdf) and <https://www.gpo.gov/fdsys/pkg/FR-2018-07-19/pdf/2018-15167.pdf>

Ongoing Challenges

The region's transportation agencies regularly work in close coordination to address issues surrounding congestion management. Despite significant investments in mitigation strategies, congestion will continue to be a challenge as the region's population and employment continues to grow within the same geographic area. The CMP will continue to provide the critical data and strategies for addressing this regional challenge.

Safety Planning

A safe transportation system is a foundational element of a livable region. With approximately 260 deaths and nearly 3,000 serious injuries in crashes every year on the region's roads, improving safety of all modes is critical to improving the quality of life for citizens and visitors. The TPB works to reduce fatalities and serious injuries on the region's roadways and to meet regional-level transportation safety federal regulations that seek to "increase the safety of the transportation system for motorized and non-motorized users."⁸

Overview

Through the transportation planning process, PBPP, and the public participation process, the TPB ensures safety is considered throughout its programs and plans. Safety is a part of the long-range transportation planning process, it is considered in the projects that go into the financially constrained element of the long-range transportation plan, in PBPP measures and targets requirements, and throughout other Visualize 2045 elements. The TPB's Transportation Safety Subcommittee meets regularly to guide ongoing highway safety analysis, identify the most significant highway safety problems, and foster regional coordination. Further, the TPB leads the annual Street Smart Pedestrian and Bicycle Safety campaign to educate drivers, pedestrians, and bicyclists about safe use of the region's roadways.

⁸ Additional detail: 23 USC 134 (h)

SAFETY PLANNING

Aspirational Initiatives

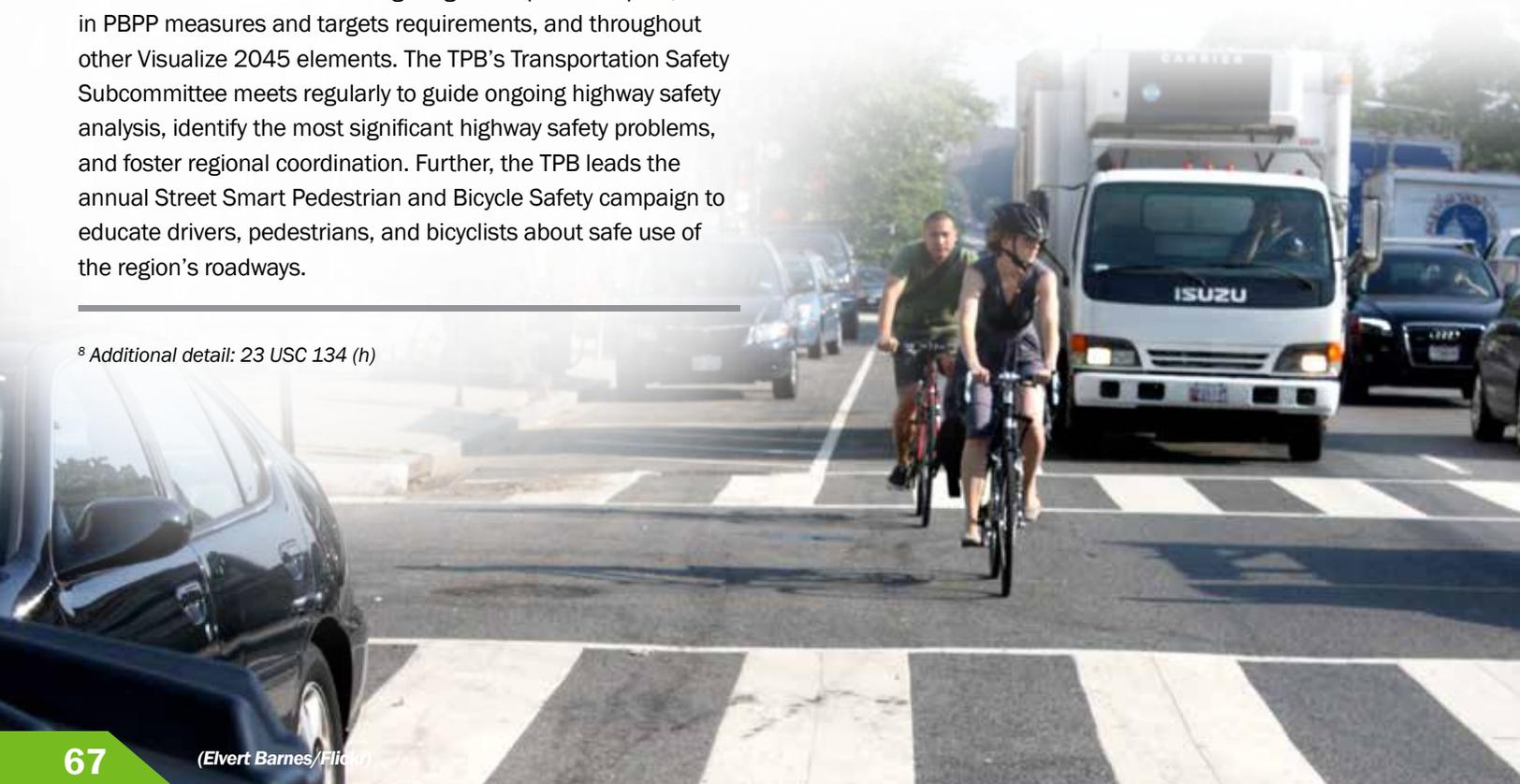
The aspirational initiatives have the potential to improve safety in the region by enabling more people to use transit, which is safer than car travel, and improving access and safety for pedestrians and bicyclists.

Planning Factors

- Increase the safety of the transportation system.
- Support the economic vitality of the metropolitan area.
- Promote efficient system management and operation.

RTPP Goals

- Maximize operational effectiveness and safety of the transportation system.
- Ensure adequate system maintenance, preservation, and safety.



Visualize the Future

The TPB and regional partners are striving to reduce traffic fatalities and serious injuries. Maryland and Virginia support the Toward Zero Deaths national standard, and the District of Columbia, City of Alexandria, and Montgomery County have adopted Vision Zero policies – these programs and policies aim to achieve a highway system with no fatalities or serious injuries involving road traffic.

The public depends on regional leaders to continue to improve safety on the transportation network. While fatalities on the region's roadways dropped by about a third between 2006 and 2012, they have remained relatively steady since then. Regional safety planning must continue to be at the forefront of policy discussions for the reductions in fatalities to resume.

Ongoing Challenges

Every year, more than 45 billion miles of vehicle travel occur in the region. Addressing the complex issues of driver behavior, including distraction, impairment, speeding, and seat belt use, is difficult and requires continual effort. Further, the design and construction of infrastructure that is more forgiving of human error is challenging and resource intensive. The TPB and regional partners are committed to ensuring that the best policies, programs, and projects are implemented to reduce fatalities and injuries.

CHAPTER 7

ADDITIONAL ELEMENTS

Introduction

The TPB coordinates many different types of transportation planning and programs which convene regional leaders to plan for a better future. This chapter summarizes many of the TPB's activities in this regard.

No one piece of the transportation system functions in a vacuum - various elements must work together to move people and goods efficiently and effectively in the National Capital Region. Regional planning and policy efforts help the region prepare for more people, help reduce congestion on the roads, and make it easier for people to walk and bike, leave their cars at home, or not own a car at all. They make it easier for freight to move through the region and help connect transportation-disadvantaged communities. Most importantly, this coordination helps our region accomplish its goals and further its policy priorities.

Moving People and Goods

The region's transportation system must be able to move people and goods both within the region and beyond. Bicycle and pedestrian planning helps more people get around without needing access to cars. Freight planning not only helps move goods but also supports the economy. Intercity buses and airports provide connections to cities across the nation and the world.

Bicycle and Pedestrian Planning

The metropolitan Washington region is a national leader in bicycle and pedestrian-oriented community design. Bike sharing, protected bike lanes, bike trails, and bike parking have been critical to the success of new developments such as the Wharf in the District of Columbia and Potomac Yards in Arlington. Projects like the National Capital Trail, a circumferential route around the core of the region, are knitting trails across the region into a true network, and projects like Frederick's Ballenger Creek Trail are linking residential and commercial areas to parks and other community assets.

Currently, there are over 500 miles of bike paths and over 200 miles of bike lanes in the region. Since 2006, the region has added roughly 300 miles of paved bike paths and bike lanes to the network, or roughly 20 miles per year. Walking and biking are forecast to increase at much higher rates than any other mode of travel (see the performance analysis summary in [Chapter 5](#)).

TPB'S ROLE

As long-time regional priorities, biking and walking are highlighted in the TPB's Vision, RTPP, and the recently endorsed aspirational initiatives. In 2012, the TPB adopted a regional Complete Streets policy that helped build a consensus that the transportation system should provide safe and adequate accommodation for all users. Today, all three states and most of the local jurisdictions in the region have a Complete Streets policy.

The TPB's Bicycle and Pedestrian Subcommittee oversees the maintenance of the regional Bicycle and Pedestrian Plan, as well as the region's Street Smart Pedestrian and Bicycle Safety Campaign. The subcommittee also helps state and local agencies share information and coordinate their bicycle and pedestrian planning efforts. The subcommittee worked with stakeholders, including the National Park Service, to identify trail gaps and needed improvements for the National Capital Trail, a bike route around the urban core, and the subcommittee also promoted the trail as an initiative for the TPB's endorsement.

The 2015 Bicycle and Pedestrian Plan for the National Capital Region identifies the capital improvements, studies, actions, and strategies that the region proposes to carry out by 2040 for major bicycle and pedestrian improvements in the state, local, and agency plans. The plan provides a regional picture of bicycle and pedestrian planning and serves as a resource for planners and the public. The plan is updated every four years, with a new version due for public release in Fall 2018. More information about the plan can be found at mwcog.org/BikePedPlan.

Other TPB activities include "Street Smart," a cost-effective regional media campaign that draws attention to the human impact of unsafe driving and, through Commuter Connections, COG and the TPB promote bicycling as a commuter option through programs like Bike to Work Day.

VISUALIZE THE FUTURE

In the future, people in the region will have even more options to travel throughout the region by foot or by bike. More trails, sidewalks, and ways to get around safely and comfortably will not only inspire more people to choose biking and walking but also reduce congestion by taking cars off the roads, improve the environment, and provide a healthy way to travel.

ONGOING CHALLENGES

The boom in walking and bicycling has been largely confined to the urban core and a few places in the inner suburbs. Much of the region is built around driving. Safe and adequate accommodation for pedestrians and bicyclists is a challenge in low-density communities, where roads are wider and traffic speeds are higher.



THE POLICY CONTEXT

Aspirational Initiatives

Completing the National Capital Trail and making it easier to walk and bike to transit are two of the seven initiatives.

Planning Factors

- Increase the safety of the transportation system for motorized and nonmotorized users.
- Protect and enhance the environment, promote energy conservation, improve the quality of life,

and promote consistency between transportation improvements and State and local planned growth and economic development patterns.

RTPP Goals

- Provide a comprehensive range of transportation options
- Promote a strong regional economy, including a healthy regional core and dynamic activity centers
- Maximize operational effectiveness and safety of the transportation system.

Freight Planning

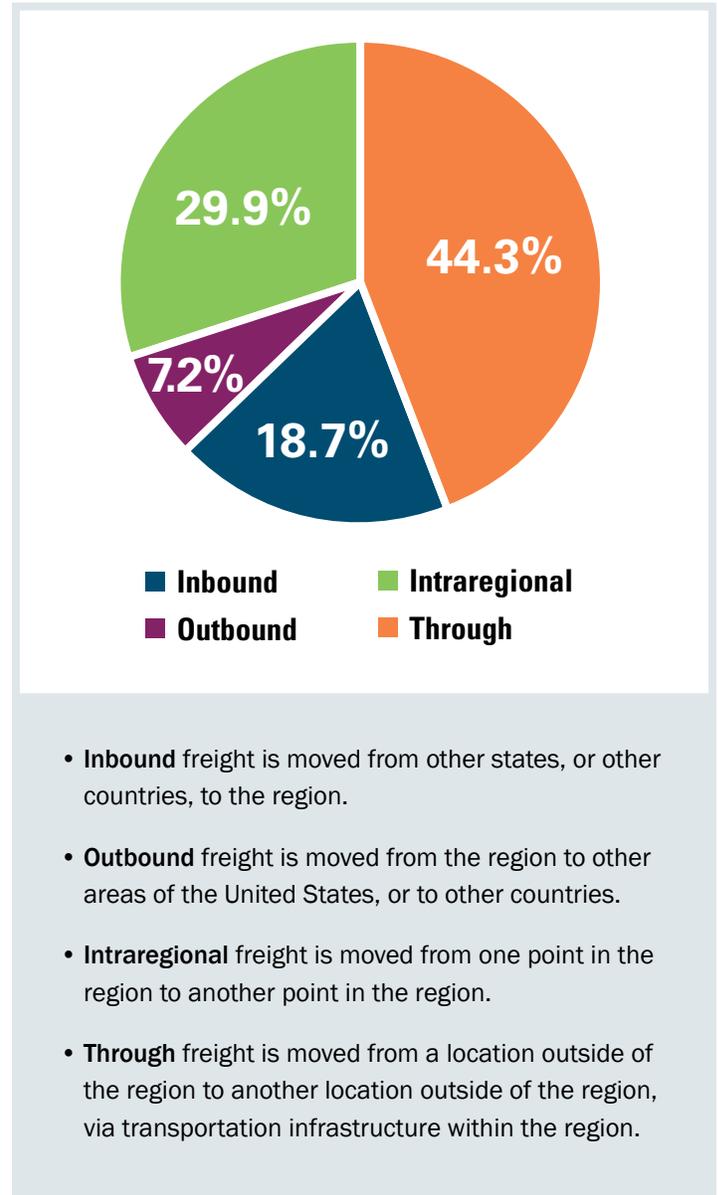
Each year hundreds of millions of tons of freight valued in the billions of dollars move over the region's roadways and railways and pass through its airports, contributing to the economic vitality of metropolitan Washington. The TPB has an important role to play in ensuring that the regional transportation system continues to be responsive to and supportive of the freight demands placed upon it by its residents, businesses, and visitors.

TPB'S ROLE

The freight element is a collaborative and education-oriented process. One of the TPB's key roles in this element is to host the TPB Freight Subcommittee, which provides a venue in which both public- and private-sector representatives share information and provide freight-related input to the regional transportation planning process. Other key activities include fostering coordination on freight transportation issues and disseminating research findings to member jurisdictions and other public- and private-sector stakeholders.

The National Capital Region Freight Plan² is produced (or updated) roughly every four years. This plan describes the role freight transportation plays in the region's economy, discusses the drivers of freight demand and the freight flows resulting from it, identifies the most significant freight issues in the region, and provides policies and recommendations to ensure the multimodal freight transportation system continues to support the economy of the region and the quality of life of its residents and visitors. The most recent update to this plan was completed in 2016 and includes a set of 17 freight policies developed and approved by the TPB (see the TPB-approved freight policies on page 80 of the Freight Plan). The Freight Plan as well as information about other freight topics can be found at mwcog.org/freight.

Figure 7.1 Direction of Freight by Weight



² National Capital Region Freight Plan. July 2016. mwcog.org/documents/2010/07/28/national-capital-region-freight-plan-freight/



VISUALIZE THE FUTURE

Efficient movement of goods is vital to our economy and is an enabler of livability – it supports businesses of all types and allows residents of the region to enjoy a high quality of life. Analyses of federal data indicate that the region receives about 2½ times more inbound freight than it produces outbound freight (see Figure 7.1). The forecast for continued economic growth along the eastern seaboard, throughout the nation, and across the world will result in greater quantities of goods moving into, out of, and through our region. Through collaborative efforts and planning, the TPB is committed to helping the region realize the benefits of freight while mitigating its negative externalities.

ONGOING CHALLENGES

More people now than ever order goods online and for delivery to their residence, workplace, or other convenient locations, and businesses have responded by investing in new technologies and systems to better satisfy these demands. The resulting growth of e-commerce combined with the desire by many people to live in amenity-rich urban neighborhoods has increased the number of trucks competing for the limited supply of roadway and curbside space. Street design features common in more densely populated areas, such as bike lanes and narrower intersections with tighter turning radii, can make it difficult for trucks to navigate turns, and trucks making deliveries can block access for pedestrians and cyclists. As more trucks operate in dense urban areas, some negative aspects of freight such as unwanted noise, pollutants, and vibrations from freight vehicles present significant challenges to communities in our region.

THE POLICY CONTEXT

Aspirational Initiatives

By addressing the congestion and mobility challenges forecast for the region, the aspirational initiatives would improve the ability of the transportation system to respond to the demands that freight deliveries place on it.

Planning Factors

- Increase the accessibility and mobility of people and freight.

- Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.

RTPP Goals

- Promote a strong regional economy, including a healthy regional core and dynamic Activity Centers.
- Support inter-regional and international travel and commerce.



Airport Systems Planning

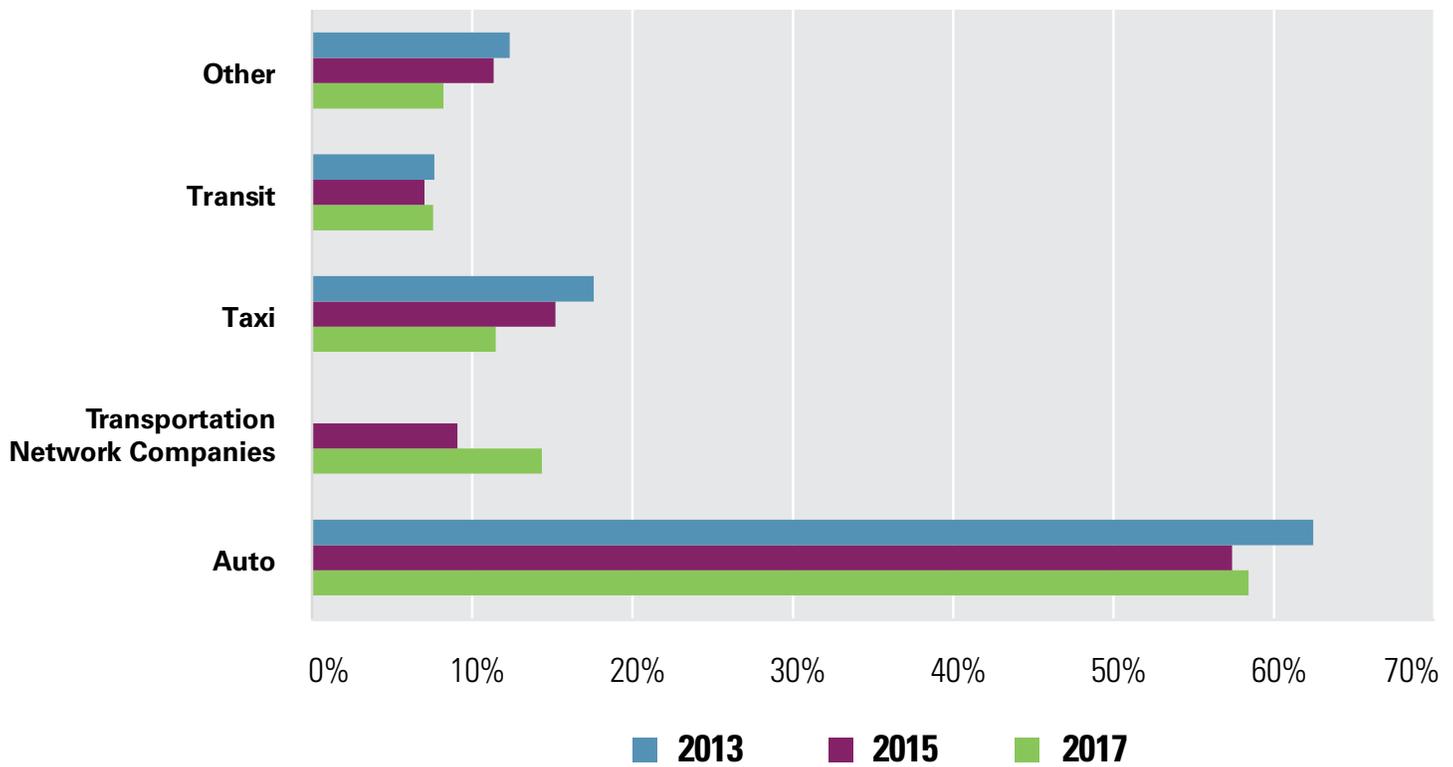
Each year, more than 35 million people and 400,000 tons of freight cargo pass through the region's three major airports—Ronald Reagan Washington National (DCA), Washington Dulles International (IAD), and Baltimore-Washington International Thurgood Marshall (BWI) airports. In all, the airports directly or indirectly support more than 450,000 jobs and some \$50 billion in annual economic activity.

Through its Continuous Airport Systems Planning (CASP) program, the TPB supports the planning, development, and operation of airport facilities and the transportation facilities that serve the airports in a systematic framework for the region. This work includes monitoring local air travel patterns, forecasting future air passenger and air cargo needs, and developing plans for improving how people and goods get to and from the region's airports.

TPB'S ROLE

The CASP program is developed, implemented, and monitored under the oversight of the Aviation Technical Subcommittee, which is responsible for coordinating airport system planning with the regional transportation planning process. The airport system planning process begins with a regional air passenger survey and is followed by forecasts of future air passenger travel and the ground travel of these air passengers to and from the airports. These forecasts in turn influence the Regional Airport System Plan update. Figure 7.2 shows some of the information that the TPB gathers on ground travel to the region's airports. More information about the airport system planning process can be found at mwcog.org/CASP.

Figure 7.2 Departing Passengers Mode of Access to Airport



VISUALIZE THE FUTURE

According to the Federal Aviation Administration (FAA) Terminal Area Forecast, between 2015 and 2040, overall enplanement (boarding air passengers) in the region is projected to increase by 62%. As the region's airports will continue to serve more and more passengers each year, the TPB's airport systems planning and coordination efforts will help make access to air travel easier for air passengers, airport employees, and freight products alike. One significant change in the near future will be the upcoming expansion of Metrorail's Silver Line to Dulles Airport.

ONGOING CHALLENGES

Recently, as more people use application-based ride hailing services (transportation network companies, also known as TNCs, like Uber and Lyft), fewer people are using taxis and – pending additional data - other transportation modes as well. This trend should be carefully monitored as reductions in transit ridership due to TNC growth could counter ongoing regional efforts to reduce roadway congestion. Technological disruptors, such as autonomous vehicles, flying taxis (such as Uber Elevate), and unmanned aerial vehicles (i.e. drones) must be factored into long-term regional airport systems ground access planning efforts. Additionally, with the upcoming expansion of Metrorail's Silver Line to Dulles Airport, upcoming air passenger surveys must be designed in a way to accurately measure the impact of the Metro extension.

THE POLICY CONTEXT

Aspirational Initiatives

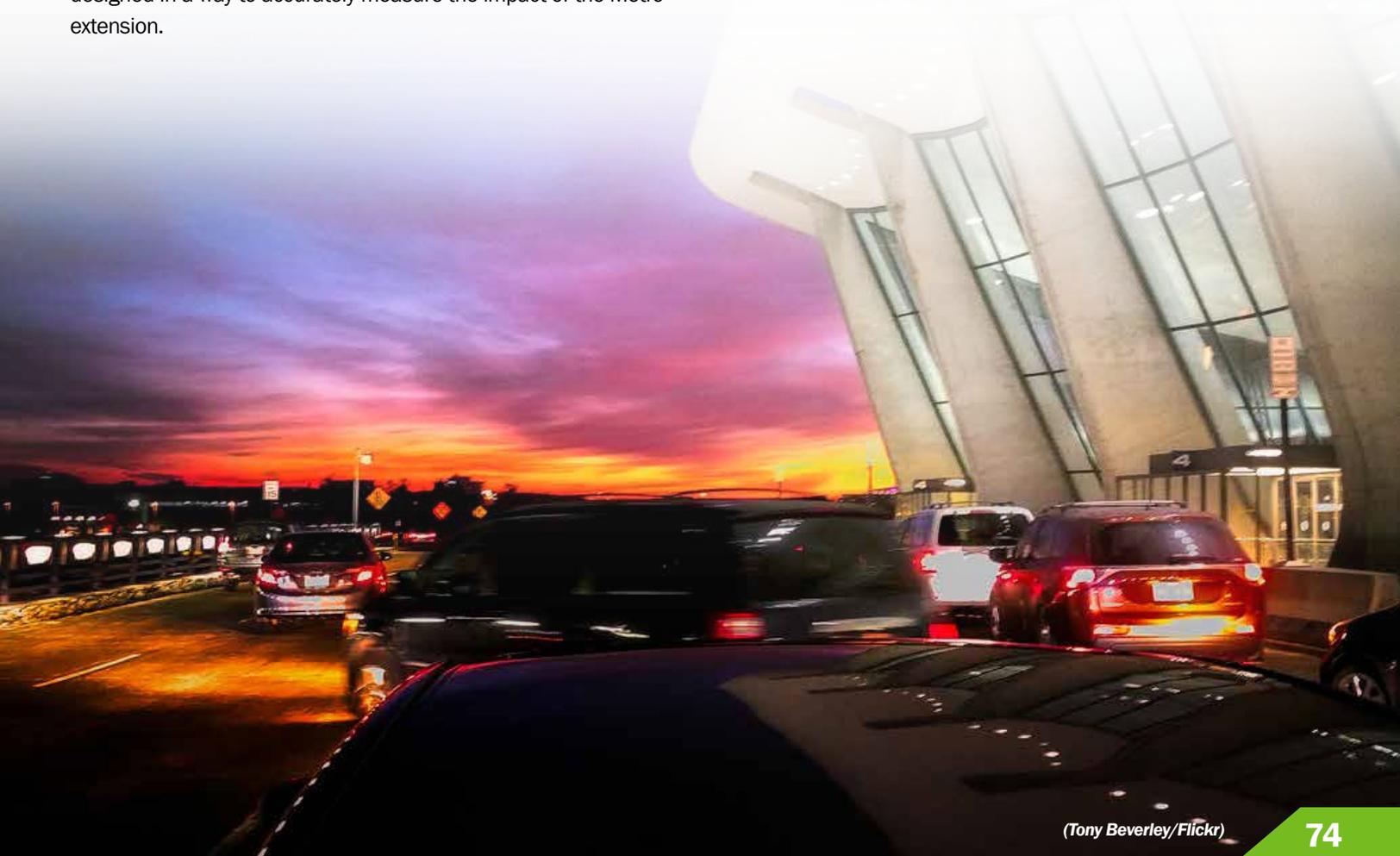
The express travel network would provide several benefits for airport ground access connectivity, including reducing congestion and incentivizing travelers to either carpool or travel by transit vehicle. Expanding Metrorail capacity would increase logistical ease and comfort for those traveling by Metrorail to and from airports.

Planning Factors

- Enhance travel and tourism.
- Increase accessibility and mobility of people.
- Increase accessibility and mobility of freight.

RTPP Goals

- Provide a comprehensive range of transportation options.
- Support inter-regional and international travel and commerce.



Intercity Buses

Intercity buses are privately operated bus services that travel between the metropolitan Washington area and other major cities or destinations, primarily for non-commuting purposes.³ The region’s intercity bus network serves thousands of person trips daily through companies such as Greyhound and Peter Pan. While these trips are primarily originating from or traveling to the New York City metropolitan area in and out of Union Station in Washington, DC, opportunities remain for a regionally coordinated effort to capture additional markets and expand capacity and connectivity to stations throughout the region.



(Elvert Barnes/Flickr)

TPB’S ROLE

In 2016 TPB completed a study called “Intercity Bus Traffic and Patronage in the Metropolitan Washington Region.”⁴ This study was the region’s first known effort to quantify intercity bus ridership, the locations where travelers board and alight, and origins and destinations outside of the region (some results are shown in Table 7.3). The study has the potential to inform transportation demand management and other TPB planning efforts. The study also has laid the groundwork for developing a regional strategy to expand, enhance, and better coordinate increased capacity, multimodal connectivity, information sharing, and tourism efforts for the region’s intercity bus network. The TPB’s intercity bus planning efforts are overseen by the Regional Public Transportation Subcommittee, whose mission is to provide a permanent process for coordinating public transportation planning throughout the region.

Figure 7.3 Top Seven Origins/Destinations of Intercity Bus Routes

Place of Origin or Destination	Daily Bus Routes	Percentage
New York	301	34%
District of Columbia	232	27%
Virginia (outside TPB modeled region)	98	11%
Virginia (inside TPB modeled region)	71	8%
Pennsylvania	58	7%
Maryland (outside TPB modeled region)	49	6%
Maryland (inside TPB modeled region)	42	5%

³ The definition of intercity buses excludes commuter bus service to suburban and exurban areas of Maryland and Virginia, nor does it include transit bus service provided by WMATA and the local governments of the region. Sightseeing, charter bus, school bus and contract bus services are also not included in the definition of intercity bus.

⁴ Intercity Bus Traffic and Patronage in the Metropolitan Washington Region, January 2017 (TPB, 2017) mwcog.org/documents/2017/01/18/intercity-bus-traffic-and-patronage-in-the-metropolitan-washington-region-bus/

ONGOING CHALLENGES

As the region continues to experience great economic success, and the increased density that comes with it, there will be additional competition for staging areas among intercity buses, commuter buses, and tour buses. Developing a regional intercity bus strategy that establishes the appropriate systems for effectively coordinating across jurisdictional and agency boundaries is a key step to further coordinating and improving activities for the future.

VISUALIZE THE FUTURE

The existing robust network of intercity buses could be made even better in the future with coordinated planning activities. Additional studies and other efforts for improving the region's intercity bus network might include conducting bus passenger surveys that collect more detailed information about when and why people travel by intercity bus. Such a survey could provide key insights that help shape a regional strategy for coordinating and expanding intercity bus services. The attainment of this additional information could also potentially help integrate external transit trip data into the TPB travel demand model.

THE POLICY CONTEXT

Aspirational Initiatives

Expanding BRT throughout the region with improved bicycle and pedestrian connections would provide additional connectivity needed for making existing and future intercity bus stations more accessible for all. Expanding Metrorail core capacity would provide logistical ease and comfort for those traveling by Metrorail to and from the region's intercity bus stations.

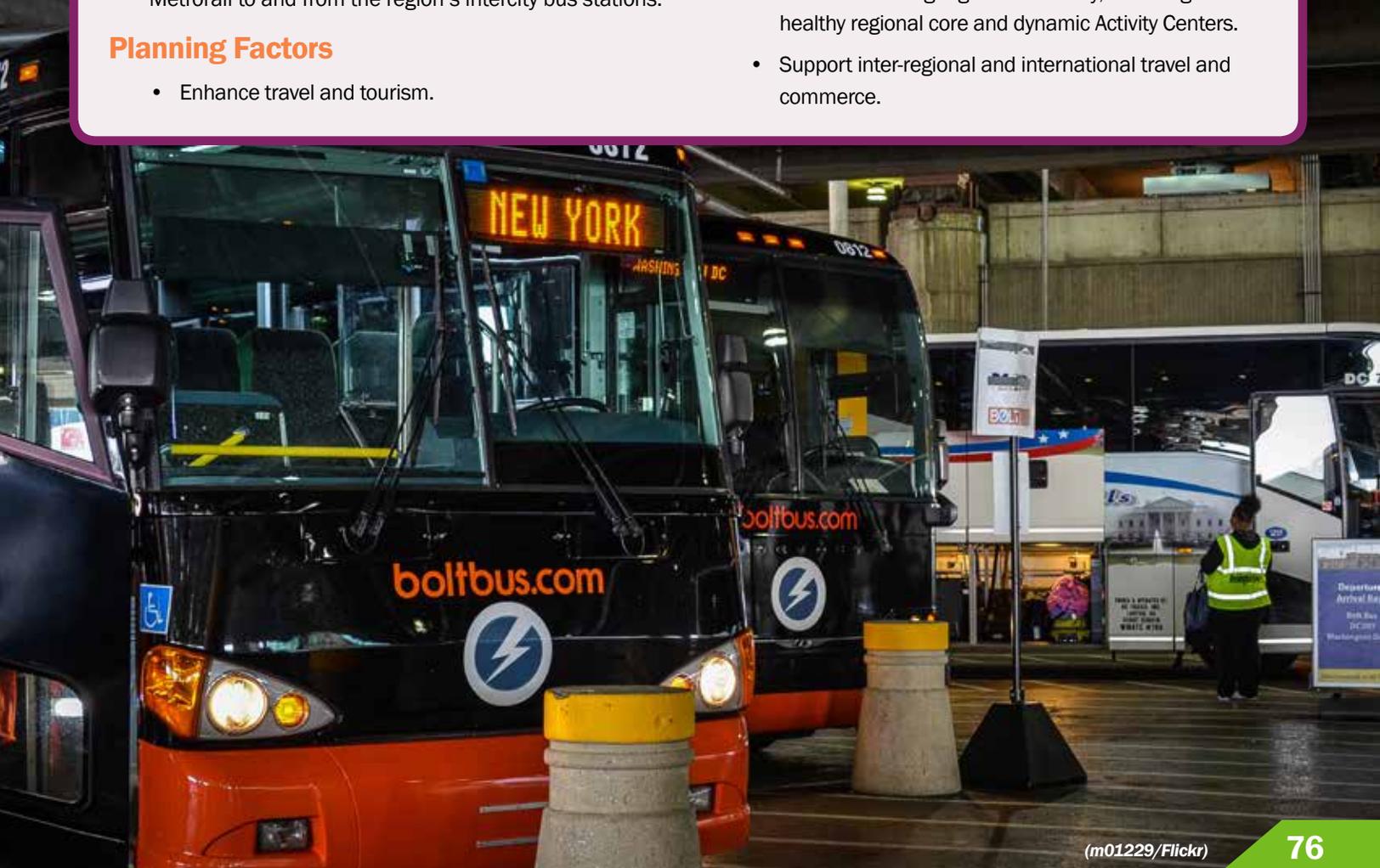
Planning Factors

- Enhance travel and tourism.

- Increase the accessibility and mobility of people and for freight.
- Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.

RTPP Goals

- Promote a strong regional economy, including a healthy regional core and dynamic Activity Centers.
- Support inter-regional and international travel and commerce.



Planning and Policy

Transportation systems work best when they are integrated with local land-use, consider the environment, and serve all the region's residents. These systems also must work well when they are disrupted by weather events or emergencies such as flooding, snow, fires, or human acts. By working together as a region, we can plan better systems to address people's needs and implement a transportation network that works for everyone.

Land-Use Coordination

Land-use and transportation have a complex and intertwined relationship. Together they influence travel behavior, how goods and services are distributed, the environment, health, community character, and economic vitality. Coordinated planning plays a key role in effectively using existing facilities, continuing sustainable development, and maintaining global competitiveness.

TPB'S ROLE

The TPB and its staff collaborate with COG's Department of Community Planning and Services (DCPS) staff to support regional land-use and transportation coordination. At the policy level, the TPB, COG Board, and Region Forward Coalition work to develop long-range regional planning goals and to integrate planning policies around land-use, transportation, housing, and the environment.

Through staff support, local jurisdictions are provided with opportunities to inform the TPB about market conditions, real estate development, land-use plans, and growth forecasts for employment, population, and households. In addition, DCPS staff also coordinates closely with the National Capital Planning Commission (NCPC) and General Services Administration (GSA) in planning and locating federal facilities throughout the region. The TPB Technical Committee and COG's Planning Directors Technical Advisory Committee (PDTAC) coordinate at the technical and policy level. COG's Cooperative Forecasting Program develops forecasts of employment, population, and households. The TPB's Travel Forecasting Subcommittee oversees how these forecasts are used to develop the regional travel demand forecasting model as well as the collection of household travel behavior data.

The TPB's Transportation/Land Use Connections (TLC) program supports planning for vibrant and accessible communities. The program has three major components. First, it provides technical assistance to local jurisdictions working on creative and sustainable plans and projects. Second, it supports a competitive selection process for the federal Transportation Alternatives Set Aside Program and seeks to fund projects aligned with TPB's regional priorities and goals. And third, it provides a way for planners in the region to share information about best practices and model projects through the TLC Peer Exchange Network.



VISUALIZE THE FUTURE

Through coordinated land-use and transportation planning, the region has prioritized employment, population, and household growth in Activity Centers and near premium transit. Two-thirds of forecasted employment growth and nearly one-third of forecasted population growth between now and 2045 is forecasted to be located in Activity Centers. With continued coordination, these urban centers, suburban town centers, traditional towns, and transit hubs will develop into vibrant places that support the region's economic vitality.

ONGOING CHALLENGES

Land-use goals approved in COG's Region Forward plan recommend focusing half of the region's residential growth and three-fourths of future job growth in Activity Centers. Due to the desirability of these places, focusing affordably priced housing in Activity Centers is particularly challenging. Also, while the TPB has endorsed aspirational goals to re-direct additional growth into Activity Centers, high-capacity transit stations, or other key locations, it is important to acknowledge that more than three-quarters of the total number of jobs and housing forecast for the year 2045 already exist. Jobs will continue be more concentrated in Activity Centers and housing will grow more in Activity Centers than in the past – but a fair amount of housing will continue to grow outside Activity Centers. Regional leaders will continue to face the challenge of balancing job and housing growth. Much of the anticipated development for the next decade is underway, so policy makers will need to act now to influence these longer-term goals.

THE POLICY CONTEXT

Aspirational Initiatives

Analyzing growth, providing technical assistance, and sharing best practices for placemaking and development play fundamental roles in the optimizing regional land-use balance initiative. This coordination plays a fundamental role in helping the region increase jobs and housing around underused rail stations and Activity Centers with high-capacity transit. It also helps coordinate building the additional housing needed to match employment demand shown in regional projections.

Planning Factors

- Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency.
- Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns.

RTPP Goals

- Promote a strong regional economy, including a healthy regional core and dynamic Activity Centers.



Equity and Inclusion

The TPB is committed to ensuring transportation-disadvantaged populations are actively included in the planning process. The TPB works to meet and exceed federal requirements by first engaging these populations on regional issues and, secondly, evaluating the financially constrained element of Visualize 2045 for disproportionately high and adverse impacts on low-income and minority populations.⁵ The TPB proactively ensures that people with limited English skills and those with disabilities can fully participate in and benefit from TPB-related work.

TPB'S ROLE

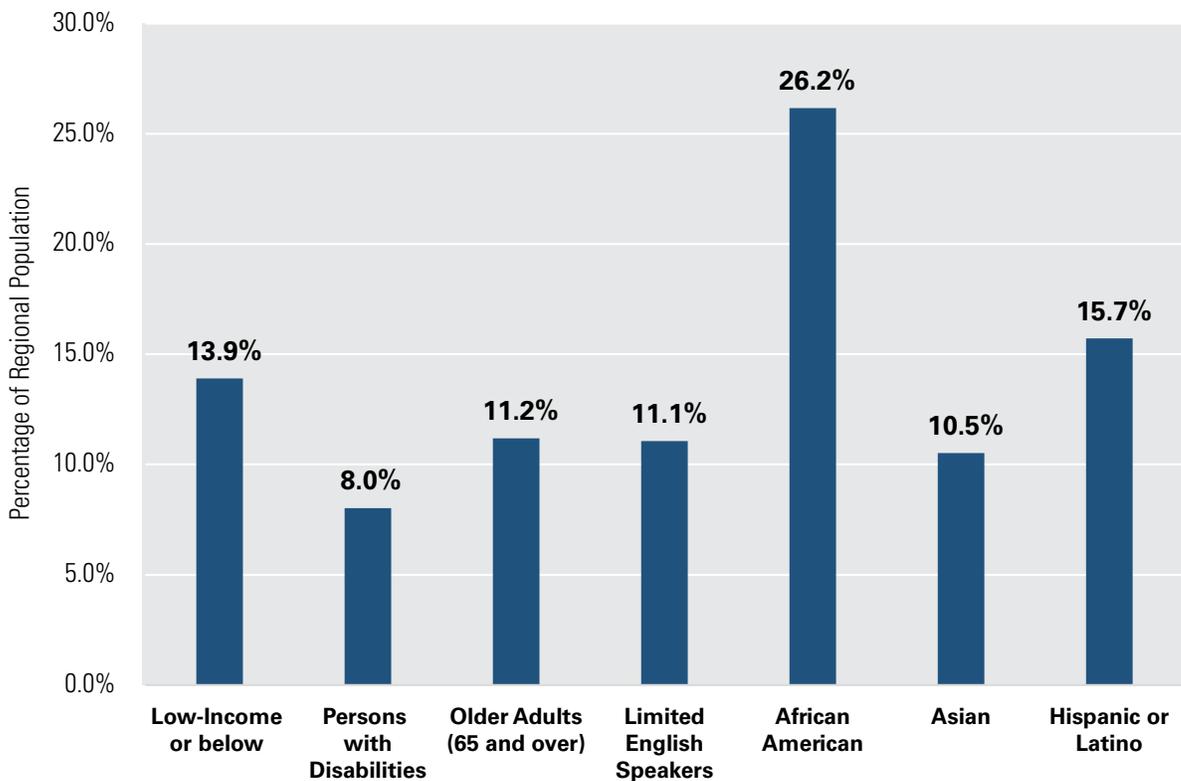
In 2017, the TPB adopted the “Equity Emphasis Areas” (EEAs, Figure 7.5) as a tool to examine demographic patterns in our region and also to analyze the regional long-range transportation plan for disproportionate and adverse impacts. EEAs are small geographic areas that have concentrations of low-income and/or minority populations based on Census data. An online interactive map of the EEAs helps inform the region about spatial patterns

for various population groups: mwcog.org/EEAmap. More information about the EEAs can be found at mwcog.org/EEA.

The EEAs will be used to analyze the financially constrained element of Visualize 2045 by comparing accessibility and mobility measures in the Equity Emphasis Areas versus the rest of the region projected for the year 2045. The EEAs are also used in other COG and TPB planning activities and the data have been made available to local jurisdictions to assist them in considering equity in initiatives, such as housing, education, health care and greenspace.

The TPB also has a proactive public involvement process to ensure that the concerns of these populations are being heard. [Chapter 8](#) describes this process, including the important role that the Access for All Advisory Committee plays, advising the TPB on transportation issues, programs, policies, and services important to traditionally underserved communities. The regional makeup of these communities can be seen in Figure 7.4.⁶ Finally, COG’s Title VI Plan provides necessary policies and practices to ensure non-discrimination, available at mwcog.org/TitleVI.

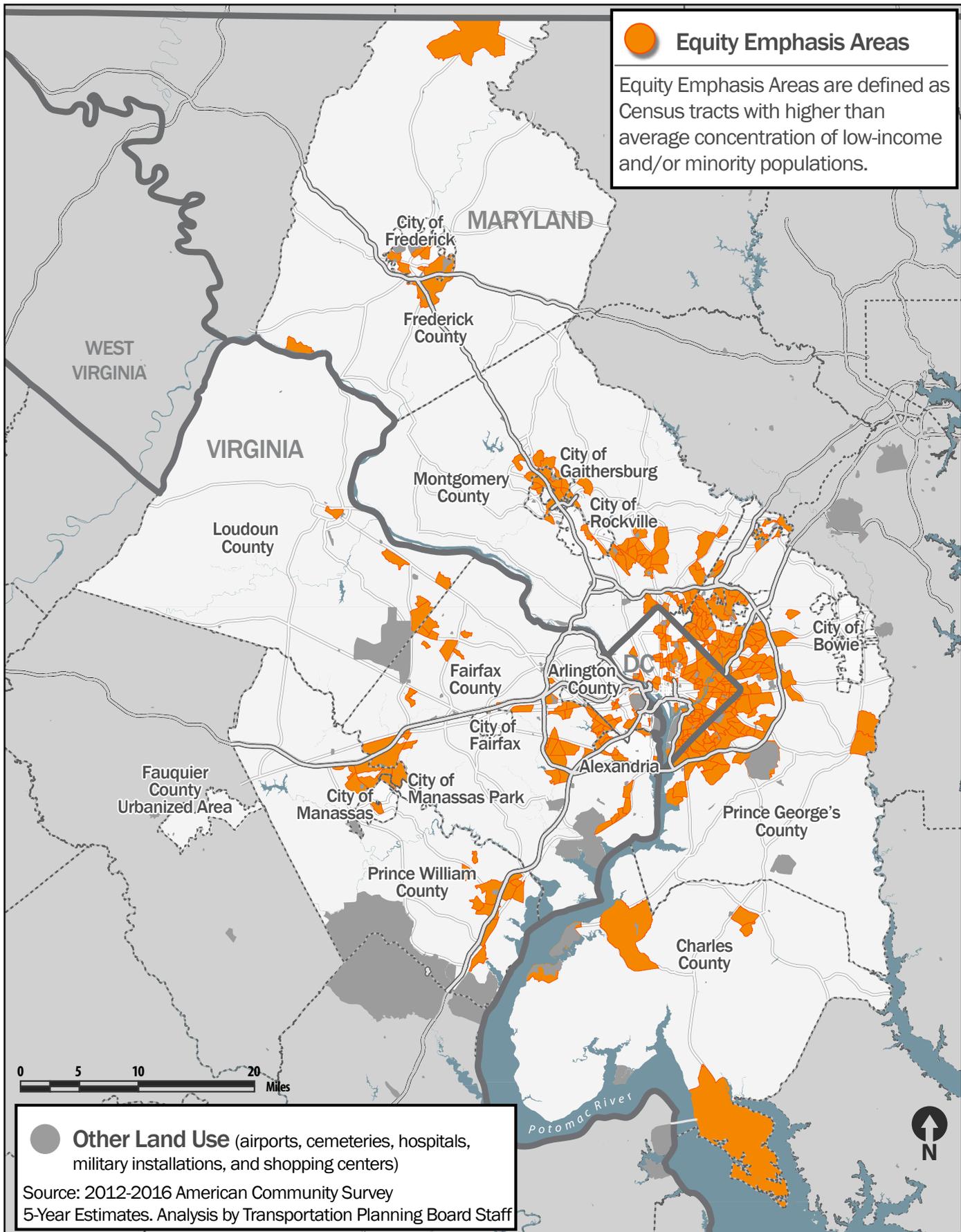
Figure 7.4 Regional Demographic Profile of Transportation-Disadvantaged Populations in the Washington Region, 2016 (Source: 2012-2016 U.S. Census American Community Survey)



⁵ The legal basis for this requirement comes from Title VI of the 1964 Civil Rights Act and Executive Order 12898 on Environmental Justice (EJ). These requirements mean that the TPB must not deny participation in or the benefits of planning activities based on an individual’s race, ethnicity, or income.

⁶ Due to each groups’ unique sampling “Percent of Region” will not compute with total population; “Low-income” is commonly defined as income between 100-150% of the poverty level. For a family of four an annual income of \$36,509 or below is considered low income; “Persons with disabilities” includes individuals with a physical, sensory, and/or cognitive disability; Limited English Proficiency includes individuals who speak English less than “very well.”

Figure 7.5 Equity Emphasis Areas



ONGOING CHALLENGES

In a dynamic and growing region such as the metropolitan Washington area, demographics shift and change – often quickly – and it’s a challenge to keep demographic data up to date. This makes analyzing the future impact of the financially constrained element of Visualize 2045 on transportation-disadvantaged populations even more challenging. Forecasting the impacts of the constrained element on these populations in the future is an inexact science. The TPB is committed to using the most current methods of analysis, the latest demographic data, and public engagement methods to help inform the region about the transportation needs of all population groups—and to creating a fair, accessible, and inclusive transportation system.

THE POLICY CONTEXT

Aspirational Initiatives

The Equity Emphasis Areas may be used by state and local agencies, at their discretion, to consider equity in any of the initiatives. Optimizing land-use in which jobs and housing are closer together could improve accessibility in the Equity Emphasis Areas.

Planning Factors

- Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns.

RTPP Goals

- Promote a strong regional economy, including a healthy regional core and dynamic Activity Centers.
- Enhance environmental quality and protect natural and cultural resources.



Coordinated Human Service Transportation Plan

INTRODUCTION

The TPB engages in human service transportation coordination efforts to improve transportation for persons with disabilities, older adults, and other transportation-disadvantaged populations. TPB partners with COG, which is the designated recipient of the Federal Transit Administration's (FTA) Enhanced Mobility of Seniors and Individuals with Disabilities program. The Enhanced Mobility program provides matching grants to improve access to transportation for older adults and people with disabilities.

A coordinated human service transportation plan is required to guide Enhanced Mobility funding decisions. The TPB adopted the Coordinated Human Service Transportation Plan in 2014. An update is scheduled to be adopted in late 2018.



TPB'S ROLE

The coordinated plan highlights unmet transportation needs for people with disabilities, older adults, and those with low incomes, and identifies strategies to meet those needs. These needs can be grouped into four themes: accessibility, availability, affordability and awareness.

The plan also includes priority projects that can help the region better serve targeted groups. The priority projects and the selection criteria inform the selection process for Enhanced Mobility grant funding. Since 2007, the TPB has awarded more than 100 projects totalling over \$60 million in Enhanced Mobility, Job Access and Reverse Commute and New Freedom grants. These grants have given more options to people who otherwise have few. The Access for All Advisory Committee is charged with providing input into the development of the coordinated plan. The Coordinated Plan can be found on the Enhanced Mobility website, tpbcoordination.org.

VISUALIZE THE FUTURE

The TPB's Human Service Transportation Coordination work moves the region towards a more inclusive transportation system and true "access for all." While the unmet needs for transportation-disadvantaged populations are broad and wide-ranging, the coordinated plan helps inform the region about current conditions and also can guide discussions about future transportation opportunities and in some cases, how technology can address the needs of transportation disadvantaged populations.



ONGOING CHALLENGES

In this diverse and complex region, a variety of transportation options and strategies will be needed to meet the wide-ranging and broad challenges faced by older adults, people with disabilities, and those with limited incomes today and in the future. As the population continues to age, meeting the needs of older drivers and transitioning people from driving to other options will be important. Ensuring that people with disabilities can access and use pedestrian infrastructure and public transit will also be imperative, as well as providing tailored transportation options such as door-to-door services.

Inclusive planning for the region's transportation future involves having continued discussions with community groups and transportation-disadvantaged populations. In particular, engaging these populations to help make app-based services and automated vehicles universally accessible will contribute to planning for a region that fulfills the hopes people have for addressing mobility challenges with technology.

THE POLICY CONTEXT

Aspirational Initiatives

The transit-focused initiatives, such as the bus rapid transit and Metrorail ones, could help address the unmet transportation needs of people with disabilities and older adults. Optimizing the region's land-use and building more housing in Activity Centers would provide more easily accessible services for transportation-disadvantaged populations.

Planning Factors

- Increase the accessibility and mobility of people and freight
- Increase the safety of the transportation system for motorized and nonmotorized users

RTPP Goals

- Provide a comprehensive range of transportation options
- Maximize operational effectiveness and safety of the transportation system



Travel and Tourism

INTRODUCTION

Tourism is one of the largest export sectors in the metropolitan Washington regional economy, accounting for \$6.8 billion of the \$27 billion total 2014 export value.⁷ The region's transportation infrastructure is a key element to the tourism economy: there are three major commercial airports, significant intercity rail and bus networks, as well as one of the largest rail and bus transit systems in the country. Opportunities abound for aligning transportation planning efforts with a regional travel and tourism strategy to meet the transportation needs of the region's current and future tourism economy.



(Jeffrey Zeldman/Flickr)

TPB'S ROLE

Travel and tourism planning is overseen by the Regional Public Transportation Subcommittee (RPTS),⁸ whose mission is to provide a permanent process for coordinating public transportation planning throughout the metropolitan Washington region. Visualize 2045 marks the first time the TPB is incorporating travel and tourism into the long-range transportation plan due to new federal requirements. However, over the past few decades TPB and COG have laid the policy and research groundwork for regional travel and tourism planning. Visualize 2045 marks a new phase in that planning effort.

- The TPB Vision emphasizes a regional transportation system that promotes the region's economy and joins rail, roadway, bus, air, water, pedestrian, and bicycle fatalities into a fully interconnected network.
- Among other relevant elements within the Regional Transportation Priorities Plan, Goal Six calls for the support of inter-regional and international travel and commerce.
- A 2016 TPB study, "Intercity Bus Traffic and Patronage in the Metropolitan Washington Region,"⁹ is the region's first known effort to quantify intercity bus ridership, where travelers board and alight, and origins and destinations outside of the region.
- A COG report called "State of the Region: Economic Competitiveness Report"¹⁰ highlights some of the many regional attractions fueling growth in the National Capital Region's tourism industry, including the dozens of museums, embassies, and entertainment venues, combined with natural amenities such as major rivers and almost 190,000 acres of parklands.

⁷ *Benchmarking Greater Washington's Global Reach: The National Capital Region in the World Economy, Global Cities Initiative, 2015*-page 16

⁸ For more information about the TPB's Regional Public Transportation Subcommittee, please visit mwcof.org/committees/regional-public-transportation-subcommittee/

⁹ *Intercity Bus Traffic and Patronage in the Metropolitan Washington Region, January 2017 (TPB, 2017)*
mwcof.org/documents/2017/01/18/intercity-bus-traffic-and-patronage-in-the-metropolitan-washington-region-bus/

¹⁰ *State of the Region: Economic Competitiveness Report (MWCOG, 2016)*
mwcof.org/documents/2016/1/13/state-of-the-region-economic-competitiveness-report/

VISUALIZE THE FUTURE

The TPB has the opportunity to embark on developing a regional strategy for travel and tourism, although exact pathways still need to be determined. Additional studies and other coordinated efforts for developing a regional travel and tourism strategy could include conducting regional surveys on people traveling to the region for vacation purposes, which would collect key information regarding travel behavior as it pertains to tourism. This information could also provide additional relevant data to the TPB's travel demand model, which currently does not include external public transit trips.

ONGOING CHALLENGES

The region prioritizes making our transportation system easy to use for everyone regardless of whether they live here or not, but there are still challenges. Having easy-to-understand signage on public transit, on roadways and in airports is key, as well as providing information in different languages. Making travel affordable matters to visitors and residents alike. With so many jurisdictions in the National Capital Area it can also be a challenge for users to understand the different transit systems and transfer between them. Developing a regional strategy that establishes the appropriate systems for effectively coordinating travel and tourism efforts across jurisdictional and agency boundaries will require significant cooperation and strategic planning.

THE POLICY CONTEXT

Aspirational Initiatives

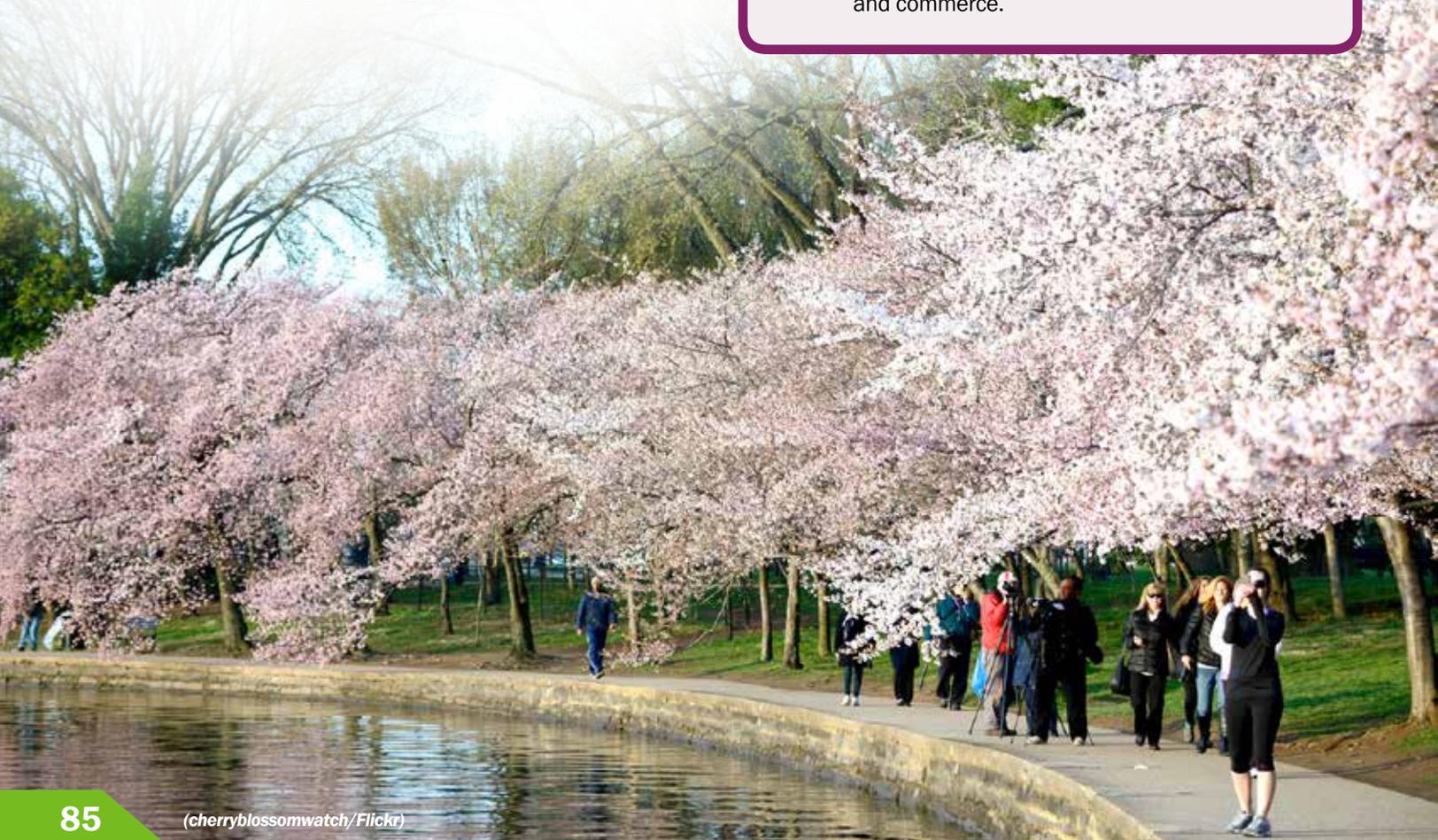
Metrorail core capacity improvements and expanding BRT in the region would provide more frequent and reliable public transportation, which is essential for providing a welcoming and efficient system to support travel and tourism. Bicycle and pedestrian improvements around transit stations will also encourage public transportation use among tourists.

Planning Factors

- Enhance travel and tourism.
- Support the economic vitality of the metropolitan area.
- Enhance the integration and connectivity of the transportation system across and between modes for people.

RTPP Goals

- Promote a strong regional economy, including a healthy regional core and dynamic Activity Centers.
- Support inter-regional and international travel and commerce.



Resiliency and Reliability

INTRODUCTION

In the context of this plan, “resiliency” is the ability of transportation systems to withstand or recover from extreme or changing conditions and continue to provide reliable mobility and accessibility in the region. Impacts of weather, other natural events, or man-made events need to be considered in resiliency. Examples of such impacts include hurricanes and other high wind events, floods, snow and ice, wildfires, temperature extremes, earthquakes, and other hazards.

TPB’S ROLE

Resiliency and reliability are key concerns to the TPB, and this topic is a federally-required element of metropolitan transportation plans. Many events over the years serve as reminders that the region must be as prepared as possible to deal with disruptions to the system from weather-related events. Visualize 2045 supports the region’s transportation agencies in their resiliency activities in coordination with Metropolitan Washington Council of Governments Department of Environmental Programs (DEP - for more information visit mwcog.org/environment).

Ensuring resiliency involves understanding hazards and identifying mitigation strategies. Ensuring reliability involves providing near-term continuity of operations and eventual recovery to normal operations by using operations or demand-oriented strategies. TPB, DEP, and external agencies such as the U.S. Army Corps of Engineers will continue to coordinate efforts to plan for resiliency and reliability in the region.

VISUALIZE THE FUTURE

The damage from extreme events can lead to severe or extended challenges to affected residents and to the region’s economy. A resilient transportation system, as envisioned by Visualize 2045, could mitigate or lessen such impacts.

ONGOING CHALLENGES

What will the nature of hazards be in 2045? Uncertainty is a big challenge to planning for a resilient transportation system in the future. Additionally, hazards may occur infrequently but can have a high-impact when they do occur. There are also tradeoffs in determining how to use limited resources in transportation planning – how resiliency ends up being prioritized will impact whether resources will go towards improving the existing system versus spending money on other objectives such as expanded capacity or new services.

THE POLICY CONTEXT

Aspirational Initiatives

The initiatives support resiliency and reliability by promoting alternative means of mobility. Improved transit and non-motorized facilities will provide people with more options for travel in the event of a disturbance. Additionally, the initiative promoting telework and subsidies for transit will help regional preparedness because telework plays an important role in “continuity of operations” of public and private-sector employers during emergencies.

Planning Factors

- Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation.
- Increase the safety of the transportation system for motorized and nonmotorized users.

RTPP Goals

- Maximize operational effectiveness and safety of the transportation system and commerce.



Emergency Preparedness and Transportation Security

INTRODUCTION

The transportation system plays an important role in emergencies ranging from everyday traffic incidents to major disasters. Many events over the years, notably the attacks of September 11, 2001, serve as reminders that the region must be as prepared as possible. Preparedness and security are key concerns of the TPB.

TPB'S ROLE

Visualize 2045 both supports and reflects a wider-ranging set of emergency preparedness planning activities. The TPB coordinates efforts with the Metropolitan Washington Council of Governments' (COG's) Homeland Security and Public Safety program, which brings together emergency preparedness and public safety officials from across the region. Together, COG and TPB help facilitate coordination across the region to ensure the preparedness, resiliency and safety of our transportation system. Federal, state, and regional homeland security requirements are fulfilled through numerous COG committees that convene transportation and public safety subject matter experts, especially COG's Transportation Emergency Preparedness Committee. For more information, visit mwkog.org/public-safety-and-homeland-security/

VISUALIZE THE FUTURE

The public depends upon the mobility and accessibility that the region's transportation system provides. Emergencies can place exceptional strains on the transportation system, at times when the transportation system is so critical to the public's well-being. Being as ready as possible, whether through resilient infrastructure, operational programs, or information sharing, is vital in transportation's role in emergencies. By coordinating efforts, TPB and COG help the region prepare for emergencies and incidents today and into the future.

ONGOING CHALLENGES

The region's transportation and public safety agencies regularly work in close coordination to address issues of security and emergency preparedness. Risks to the security of the region's transportation system are myriad and constantly evolving. Regional officials are tasked with the challenge of prioritizing security considerations while also taking into account mobility and accessibility needs.

THE POLICY CONTEXT

Aspirational Initiatives

The initiative encouraging increased teleworking will help regional preparedness because telework plays an important role in "continuity of operations" of public and private-sector employers during emergencies.

Planning Factors

- Increase the safety of the transportation system for motorized and nonmotorized users.
- Increase the security of the transportation system for motorized and nonmotorized users.

RTPP Goals

- Maximize operational effectiveness and safety of the transportation system.

Operations and Technology

Transportation systems need to be monitored and maintained on a regular basis so travelers can get the most out of the system no matter how they get around. Transportation Demand Management (TDM) helps people find alternatives to driving alone and gives them simple ways to find other options with the goal of easing congestion on the roads. In the future, emerging technologies may allow better ways of operating the system or provide even more options for people to get around. These programs and technology help provide people in the region with the most up-to-date information, so travelers know what to expect or can have the chance to adjust.



Management and Operations

INTRODUCTION

Getting the most out of the existing transportation system is an important goal of the TPB. Actively managing the system, through management and operations planning and techniques, is one of the most effective ways to accomplish this goal. Transportation agencies are tasked with ensuring that the region's transportation system operates efficiently when faced with incidents, emergencies or varying travel conditions. Examples of management and operations (M&O) planning and techniques include providing real-time traveler information that keeps people informed, timing traffic signals to optimize traffic flow, and creating response plans for managing incidents when they occur; applying current and evolving information technologies such as these often shows strong benefit-cost outcomes.

TPB'S ROLE

The TPB Vision states that “[t]he Washington metropolitan region will use the best available technology to maximize system effectiveness.” The TPB and the region's transportation operators pursue efficient and effective M&O solutions to the region's transportation problems through committee work and other activities such as the Metropolitan Area Transportation Operations Coordination (MATOC) program.¹¹ TPB's Systems Performance, Operations and Technology Subcommittee (SPOTS) explores ways M&O strategies can improve congestion, safety, maintenance, and system efficiency. Identifying technologies, projects and actions that will support effective M&O in the region is a core SPOTS planning program activity. TPB also maintains a Regional Intelligent Transportation Systems (ITS) Architecture website¹² that provides a regional ITS framework for the foreseeable future and serves as a resource for developing ITS technology. More information about TPB's M&O activities can be found at mwkog.org/mgmt-ops.

VISUALIZE THE FUTURE

People in the region rely on robust transportation-related information technology every day, while planning for travel and travelling, and the demand for good, dynamic information is growing. Technological capabilities are expanding, bringing more useful features and information to travelers. For example, in certain corridors, equipment detects changing traffic flows and automatically adjusts traffic signal timing accordingly. Additionally, advanced data systems feed traveler information, whether through public services such as 511 websites, mobile phone apps, or the media, helping the public avoid recurring and non-recurring traffic congestion, as well as enabling travelers to choose between options of driving, taking transit, or biking/walking. Electronic signs show when the next bus will arrive at a stop, freeway signs show the travel time to the next major interchange, and multitudes of information are available on mobile phone apps. In the future, these technologies that are currently available will become more widespread; more robust and dynamic technology will enhance the operation of the transportation system to help people travel more efficiently in our region.

¹¹ MATOC is a consortium of the major transportation agencies of the National Capital Region, whose staff ensures regional real-time information-sharing about incidents and traffic conditions, helping to facilitate the M&O actions of member agencies. See matoc.org.

¹² The Regional Intelligent Transportation Systems (ITS) Architecture website can be found at mwkog.org/itsarch/.

ONGOING CHALLENGES

Rapid technological changes challenge transportation agencies to keep up – today’s cutting-edge technology is tomorrow’s outdated technology. The public’s travel patterns change quickly, and transportation agencies must always be ready to adjust. TPB will help regional transportation agencies face these challenges by continually facilitating information exchange and collaboration.

THE POLICY CONTEXT

Aspirational Initiatives

Technology, management and operations will be key components of the BRT and regional express travel network initiatives. Real-time systems monitoring and “smart” infrastructure enable the safety and travel efficiencies that are key objectives of these initiatives.

Planning Factors

- Increase the safety of the transportation system for motorized and nonmotorized users.
- Increase the security of the transportation system for motorized and nonmotorized users.

RTPP Goals

- Maximize operational effectiveness and safety of the transportation system.

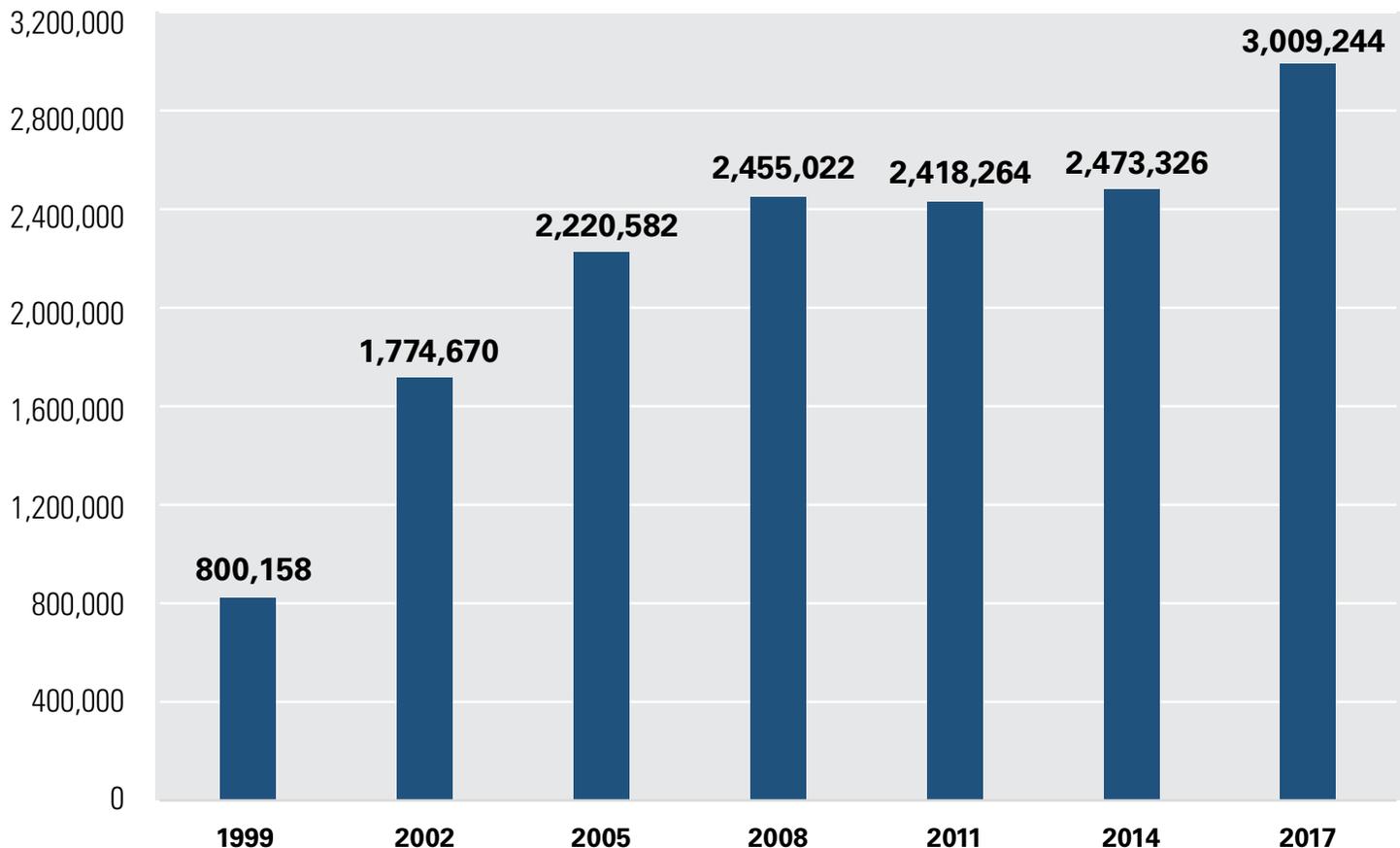
Transportation Demand Management

INTRODUCTION

Transportation Demand Management (TDM) is intended to help people find and use alternatives to driving alone. TDM uses marketing, incentives, and employer-based programs to reduce congestion and improve air quality. Commuter Connections is the TPB’s TDM program. The Commuter Connections regional network provides commuter services and information to area residents and employers in the Washington metropolitan region to reduce traffic congestion and emissions caused by single occupant vehicles (SOVs). The outreach mission is to create awareness of SOV alternatives and their resulting benefits, to build the Commuter Connections network as an umbrella resource that provides support services to network organizations and individuals who currently drive alone, and to facilitate those who are seeking to change SOV behavior by providing information about commute alternatives. The Commuter Connections network primarily promotes activities including ridesharing, using transit, bicycling, walking, teleworking, and employer services.

TPB’S ROLE

Commuter Connections is the major demand management component of the TPB’s congestion management process and it helps support regional air quality goals. Its products and services are provided to member agencies through central program administration, implementation, and monitoring tasks outlined in the annual Commuter Connections Work Program. Approximately 30 independently run programs are members of the Commuter Connections network. Each has its own funding sources, budgets, goals, staff, and operational strategies. Many of the operational logistics are carried out at the local level and are coordinated regionally through subcommittees and ad-hoc groups, which meet both regularly and as needed. This allows for each jurisdictional program to have its own strategic TDM plan based on local resources and needs. The Commuter Connections Subcommittee provides overall technical review and provides input to program services. More information about Commuter Connections can be found at www.commuterconnections.org.

Figure 7.6 Daily Vehicle Mile Travels Reduced in the Region by the Commuter Connections Program (1999-2017)

VISUALIZE THE FUTURE

The Commuter Connections program is generally regarded as among the most effective commuter assistance programs in the nation in terms of reducing vehicle trips and vehicle miles travelled. Fewer people choosing to drive alone in the future will make the region's air cleaner and help reduce congestion on the roads.

ONGOING CHALLENGES

TDM faces many challenges in influencing commuters to choose other ways to get to work. Commuters may not understand the value of carpools or vanpools because they may have trouble quantifying how much time they spend commuting. Employer policies may reduce access to telework options and may encourage driving by offering free parking. In addition, low gas prices may encourage more people to continue to drive alone.

THE POLICY CONTEXT

Aspirational Initiatives

Transportation demand management is the basis for the telework and other commute options initiatives. Commuter Connections promotes and encourages employer-based parking cash-out, transit/vanpool benefits, teleworking, and flexible work schedules.

Planning Factors

- Protect and enhance the environment, promote energy conservation, and improve the quality of life.

RTPP Goals

- Provide a comprehensive range of transportation options.

Evolving Technology

INTRODUCTION

There is much uncertainty about the future of technology's impacts on transportation. This uncertainty makes it hard to predict how and when these evolving technologies will impact transportation systems and travel behavior. The changes could range from small to major "disruptive" changes. Chief among these will be the emergence of autonomous vehicles. Other evolving technologies relevant to transportation include systems that provide for operational efficiency and improved safety of roadway travel, tools that make public transit more convenient and efficient, and smart device applications that allow people to hail a ride or use a shared car, bicycle, or motorized scooter.

TPB'S ROLE

TPB has long championed emerging technologies for infrastructure but must now plan for the impacts of autonomous vehicles and other major new user technologies while accounting for the uncertainties of their implementation and impacts. The TPB Vision states that "the Washington metropolitan region will use the best available technology to maximize system effectiveness." The TPB's Technical Committee and its advisory committees, particularly the Systems Performance Operations, and Technology Subcommittee (SPOTS), will continue to monitor the impacts and advise the TPB as technologies evolve.

VISUALIZE THE FUTURE

The ideal future will provide more transportation choices for everyone, with heightened efficiency and fewer negative externalities for our region. Technology could help make passenger travel and freight movement more seamless and safe.

ONGOING CHALLENGES

There is a great deal of uncertainty surrounding the potential impacts of emerging and future technologies. Some challenges include the safety impacts of mixing newer self-driving cars with older non-self-driving cars, pedestrian and bicyclist safety, and impacts on the viability of public transportation services. Impacts, both good and bad, could reach far beyond transportation infrastructure and its operations, to job/economic impacts as well as urban form, density, and sprawl. Key to addressing these challenges will be working hard to sustain our community values as articulated in the TPB Vision even in the face of these disruptive changes.

THE POLICY CONTEXT

Aspirational Initiatives

Synergies may emerge between future technologically advanced vehicles and a number of the initiatives, most explicitly the bus rapid transit network and the regional express travel network.

Planning Factors

- Increase the accessibility and mobility of people and freight.
- Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.

RTPP Goals

- Maximize operational effectiveness and safety of the transportation system.
- Enhance environmental quality, and protect natural and cultural resources.

ENVIRONMENTAL CONSULTATION AND MITIGATION

The TPB's environmental consultation and mitigation activities provide resources and opportunities for environmental and historic resources agencies at the state and local levels to engage in the regional long-range transportation planning process.

Through TPB and COG committees and the public participation process, the TPB conducts a consultation effort that engages, as appropriate, state and local agencies responsible for land-use management, natural resources, environmental protections, conservation, and historic preservation concerning the development of the transportation plan. The consultation process includes a comparison of the transportation plans with state conservation plans or maps and inventories of natural or historic resources.

The TPB also must include a discussion of possible mitigation activities that may have the greatest potential to restore and maintain environmental functions, (see [Appendix G](#)). The areas where mitigation efforts can be focused include: neighborhoods and communities, cultural resources; wetlands and water resources; forested and other natural areas; endangered and threatened species; and air quality. State and

local transportation agencies examine, document and implement any needed environmental mitigation actions at the individual project level.

Possible environmental mitigation activities may include: avoiding impacts altogether; minimizing a proposed activity/project size or its involvement; rectifying impacts (restoring temporary impacts); employing special features or operational management measures to reduce impacts; and compensating for environmental impacts by providing suitable, replacement or substitute environmental resources of equivalent or greater value, on or off-site. Some more specific examples of commonly used mitigation activities at the project level in the region include: minimizing noise impact with sound barriers, replacing or restoring wetlands, improving storm water management, replacing or restoring forested areas, and minimizing the idling of heavy construction vehicles.

A new interactive map provides a regional-level resource to inform the relationship between the transportation and environmental concerns: mwco.org/EnviroInventoryMap. The map allows the public and decision makers to view the natural resource data layers along with the transportation

projects expected to be built by 2045 from the financially constrained element of this plan. By defining and inventorying environmental resources and data, the interactive map can be used to inform state and local agencies and the public about the relationship between the projects in the constrained element and environmental concerns at the regional scale.

Visualize 2045: Environmental Consultation - Environmental Inventory Mapping

Floodplains

Green Infrastructure

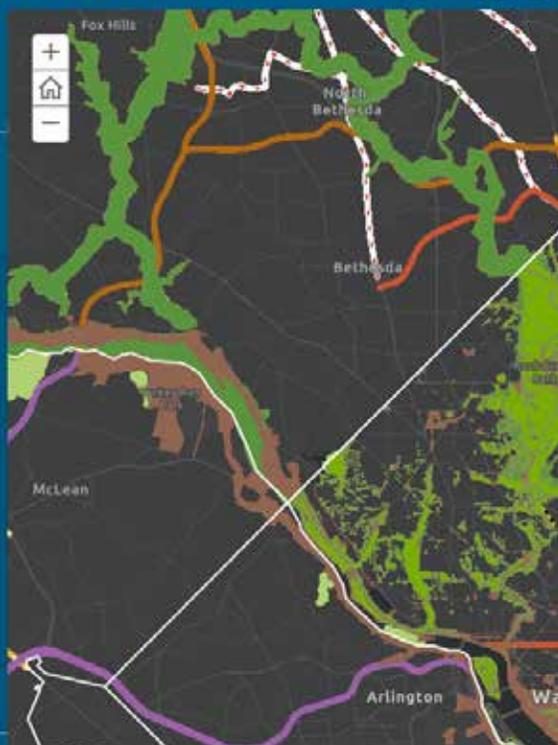
Shows large contiguous areas of natural land cover.

The District of Columbia Wooded Areas represents planimetric Wooded Areas. These features were originally captured in 1999 and updated in 2005, 2008, 2010, and 2013.

The Virginia cores and buffers layer represents "cores," or unfragmented natural habitats and large patches of natural land cover with at least 100 acres of interior conditions, and "natural landscape blocks", or slightly fragmented areas of natural cover that buffer cores from major roads and human land uses.

The Maryland Green Infrastructure, Hubs and Corridors layer shows "hubs," which are contiguous areas of at least 100 acres of interior forest, unmodified wetlands, important animal and plant habitats, sensitive aquatic habitats, and/or existing protected natural resource lands that buffered from major roads and/or human land uses; and "corridors," which connect generally similar types of hubs together to help animals and plant propagules to move between hubs.

Source: National Park Service, District of Columbia Department





CHAPTER 8

PLAN DEVELOPMENT AND PUBLIC PARTICIPATION

The TPB developed Visualize 2045 over a four-year period between 2014 and 2018. The planning process began with an affirmation of regional policies and subsequently included the development of key components – aspirational and financially constrained elements, a financial plan, and other plan elements. In 2017 and 2018, a variety of public outreach activities were conducted to acquaint the public with the purpose and scope of Visualize 2045 and to obtain input about residents' hopes and concerns.

Plan Development Process

Measuring Progress in Achieving Regional Policies

The approval of the Regional Transportation Priorities Plan (RTPP) in January 2014 marked the beginning of planning activities that culminated four years later in Visualize 2045. The RTPP, which took three years to develop, was fundamentally a policy plan that reaffirmed the transportation goals first articulated in the TPB Vision of 1998. The RTPP called upon the region to implement common-sense strategies to improve mobility and accessibility over the coming decades. For more information about the RTPP see Chapter 3 (Regional Policy) or go to mwco.org/RTPP.

Recognizing that the RTPP was finalized too late to have an impact on the contents of the 2014 Constrained Long-Range Plan (CLRP), the TPB asked staff to incorporate the RTPP framework into the development of future long-range transportation plans, particularly the quadrennial update scheduled for 2018, which later evolved into Visualize 2045. To provide a baseline for future policy development, the TPB in 2014 asked staff to conduct a qualitative assessment of how the 2014 CLRP served the goals identified in the RTPP.¹ The RTPP framework also guided the performance analysis of CLRP updates that were conducted in 2015 and 2016.

Following RTPP approval, TPB staff regularly communicated with its partners and member agencies to obtain input as to how well the region has been meeting its transportation goals. In 2014, for example, regional planning staff conducted listening sessions with more than 90 staff members of the TPB's member jurisdictions to learn about staff's ideas for how to implement the RTPP. Activities such as these identified where the region has been making progress, as well as how our transportation achievements may be falling short. This input formed the basis for many policy discussions and planning activities during the development of Visualize 2045.

¹ The assessment can be found at mwco.org/RTPPassessment.



Visualize 2045 was developed within the context of today's conditions, current trends, and forecasts of the transportation system in the future. [Chapter 2](#) describes many of these conditions in detail. To summarize, some broader trends that were considered during the development of Visualize 2045 include the following key points:

- Activity Centers are being effectively used to focus growth, enhance opportunities for walking and biking, and improve regional connections.
- The region is diversifying its public transit systems by developing new cost-efficient options like bus rapid transit.
- Congestion and delay will increase, according to forecasts. The region is building more express toll lanes to provide alternatives to congested roads.
- Until 2018, funding for vital core capacity improvements on Metro has been lacking, including funding for eight-car trains and core station expansions. (These and other improvements that are necessary to accommodate ridership growth have been funded in Visualize 2045.)
- Regional economic disparities continue to affect transportation patterns. Forecasts show that jobs will continue to be concentrated on the western side of the region, leading to longer auto commutes for those in the east, greater transit crowding in the regional core, and significant unused transit capacity in reverse commuter directions.
- Our commitment to maintenance is increasingly solid. Since 2014, the TPB's long-range transportation plan has demonstrated full funding for maintenance, operations, and state of good repair.

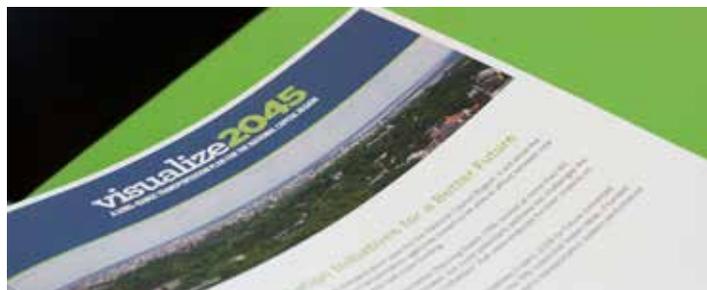
Looking at Aspirational Ideas

Early in the process of developing Visualize 2045, regional leaders emphasized the importance of looking outside the financially constrained box of previous TPB plans.² The TPB established a task force in 2014 to look at projects, programs and policies that were not yet funded, but could have a positive impact on the region's transportation future. The work of this group, originally called the Unfunded Needs Capital Working Group and later dubbed the Long-Range Plan Task Force, is described in more detail in [Chapter 4](#) (Aspirational Initiatives).

In 2017, TPB leaders determined that the time was right to expand the scope of the region's next long-range transportation plan beyond the financial constraints that defined previous plans. The task force was charged with conducting a set of planning activities that would culminate in the approval of a plan in 2018 that for the first time would incorporate an aspirational, unfunded component. Ultimately, the TPB determined that the new plan would highlight unfunded initiatives that the region consensually agrees are important to our future—and worth pushing for.

With this newly expanded scope for long-range planning, the TPB embarked upon a more deliberate and comprehensive planning process that would integrate a variety of regional planning activities, as well as more extensive public involvement activities.

The Long-Range Plan Task Force's work concluded in December 2017 with the TPB's endorsement of five initiatives for future concerted action. The endorsement also called for these initiatives to be included in the aspirational element of Visualize 2045. In January 2018 the TPB endorsed two other initiatives—focused on biking and walking—to add to the aspirational element. The TPB noted that if funded and enacted, the seven initiatives would have the potential to significantly improve the region's transportation system performance compared to current plans and programs. The initiatives are listed and explained in [Chapter 4](#) (Aspirational Initiatives).



² The story of how the aspirational, unfunded portion of Visualize 2045 is recounted here in brief, in order to explain how it fits into the broader planning process. A fuller description of the process by which the TPB arrived at the seven endorsed initiatives can be found in [Chapter 4](#) (Aspirational Initiatives).

Meeting Federal Requirements and Developing Other Planning Products

While the scope of Visualize 2045 is much broader than the CLRP was in the past, it nonetheless must continue to meet federal regulations, including the requirement that the regional plan must include a financially constrained list of projects, which make up [Chapter 5](#). Federal regulations also require the financially constrained element to be analyzed to show it is in conformity with regional air quality limits and that its financial plan demonstrates that the anticipated revenues for the projects match anticipated expenditures.

The process for pulling together Visualize 2045 also integrated a variety of other TPB planning activities and products, such as the National Capital Region's Freight Plan and Bicycle and Pedestrian Plan, which are described in [Chapter 7](#). To a large extent, the cycles for developing other TPB plans and programs operate according to their own schedules that are driven by staggered work plans and subcommittee activities. Therefore, the content of these elements in Visualize 2045 represents a snapshot in ongoing and evolving planning processes.

Reaching Out to the Public

The TPB's Participation Plan establishes the TPB's policy to provide public access and involvement under a true collaborative planning process in which the interests of all of the stakeholders - public and private - are reflected and considered. Accordingly, it is the TPB's intent to make both its policy and technical process inclusive of, and accessible to, all of its stakeholders. The Participation Plan was last updated in 2014 and will be updated again in 2019.

Two citizen committees regularly advise the TPB: the Citizens Advisory Committee (CAC) and the Access for All Advisory Committee (AFA). The CAC is a group of 15 people from throughout the Washington metropolitan region who represent diverse viewpoints on long-term transportation policy. The mission of the CAC is to promote public involvement in transportation planning for the region, and to provide independent, region-oriented citizen advice to the TPB on transportation plans and issues. The AFA is made up of community leaders from around the region and advises the TPB on issues and services that are important to low-income communities, minority communities, people with limited English skills, individuals with disabilities, and older adults.

2017 TPB Citizens Advisory Committee



Visualize 2045 Public Outreach Process

PHASE 1: TAKING THE PULSE OF THE REGION

Phase 1 public outreach, which was conducted in 2017, focused on a public input survey that was intended to “take the pulse of the region” on overarching transportation issues. The survey was designed to obtain a high-level assessment of people’s attitudes towards transportation in the region – what they care about, what they are concerned about, and what they would like to see happen in the future. A detailed report about the survey’s purpose, methodology and findings can be found in [Appendix H - Report on Phase 1 of Public Outreach: Public Input Survey](#).

The survey was available as an online tool using Metroquest’s public engagement software. To encourage widespread participation, and to also obtain a representative sample of residents in the region, the survey was conducted in two ways: as an open survey available to anyone and with an invitation-only randomized sample.

The open survey was available for anyone to take online. To increase visibility and encourage input from a variety of residents, TPB staff and a consultant team conducted the survey at 15 locations around the region in the summer of 2017, including farmers markets and community events. At these events, residents were encouraged to take the 10-minute survey using tablet computers. In addition, staff encouraged participation by handing out postcards with a link to the survey website at Metro stations and conducted extensive online promotion. These efforts paid off with more than 6,000 completed surveys.

The invitation-only randomized sample was designed to provide a statistically valid representation of the region’s residents. TPB staff purchased a random selection of addresses and sent invitation letters offering \$15 gift cards to people who completed the survey. This outreach yielded more than 750 responses, greatly exceeding the survey’s minimum target of 600. The residents who responded represented a statistically representative cross-section of regional residents.

Phase 1 outreach successfully “cast a wide net,” obtaining high-level input from a large number of the region’s residents. Building on that work, Phase 2 outreach sought meaningful conversations to “dig deeper” into the concerns identified in Phase 1.



In the past, long-range transportation plans developed by the TPB offered limited opportunity for public involvement to directly shape the contents of the plan. This was because the previous version of the TPB’s long-range transportation plan only included projects that the region anticipated could be funded.

But the TPB’s decision to include an aspirational element in Visualize 2045 created an opportunity to more fully incorporate public input in the plan’s development. For this plan, public input was essential because Visualize 2045 offered the TPB the chance to articulate not simply what the region anticipates will be funded, but what the TPB thinks should be funded. This new element gave planners the chance to ask the public about new directions the region might take.

Throughout 2017 and 2018, TPB staff conducted multiple outreach activities to hear from residents about their attitudes and ideas about transportation in the region, and more specifically about their reactions to the aspirational initiatives. The CAC and AFA played important roles in helping shape the activities described below – and they also provided valuable feedback to staff about their own reactions and opinions about the direction of transportation planning in the region.

In addition to the outreach described below, the TPB conducted multiple public comment periods at various stages of plan development – the public comment period opportunities and comments are summarized in [Appendix J - Summary of Comments from Public Comment Periods](#).

PHASE 2: DIGGING DEEPER

Phase 2 included a series of public forums conducted throughout the region in April and May of 2018, and open houses conducted in September of 2018. A detailed report about the purpose, methodology and findings from the public forums and open houses can be found in [Appendix I - Report on Phase 2 of Public Outreach: Public Forums and Open Houses](#).

During April and May 2018, staff conducted 12 forums. The forums included nine evening sessions in the TPB’s member jurisdictions, special sessions for the Access for All Advisory Committee and the Citizens Advisory Committee, and a virtual session conducted as a webinar.

The forums obtained qualitative input in a focus-group setting with small group discussions. Participants were encouraged to think about the initiatives not just as long-term strategies but as opportunities for small, incremental improvements— things that can make a difference in people’s lives in the short-term, while giving them increased confidence in the future. The sessions were intended to tease out reactions to the seven aspirational initiatives, helping the TPB and staff to better understand the participants’ underlying motivations, hopes, and concerns.

To wrap up outreach activities, the TPB held three open houses in September 2018 as part of the final public comment period for Visualize 2045. Hosted in Maryland, the District of Columbia, and Virginia, these sessions featured a room-full of display boards with content derived from the draft elements of the plan. Subject-matter experts from the TPB staff and the TPB’s member governments were on-hand at the open houses to talk with the region’s residents in informal, one-on-one conversations. Some participants came to discuss specific projects, while others wanted to learn about the plan’s regional analysis and forecasts. Still other attendees came to share their ideas about emerging challenges and future planning activities. In all, more than 100 people attended these events to learn about and discuss the full range of content in Visualize 2045, including major planned improvements, the system performance analysis, the financial plan, and aspirational elements.

Public Outreach Findings

The outreach for Visualize 2045 used different tools to reach as many people as possible and obtain different types of input. The activities were intended to facilitate an extended discussion over the past two years in which information and ideas were exchanged. In the first part of the regional discussion, residents were given the chance to express their concerns and frustrations. In the second phase, they were presented with ideas for the future and were asked what they thought would work, what might be problematic, and how we should move forward.

INPUT FROM PHASE 1 SURVEY

Concerns about the reliability of transportation dominated the input received in the public input survey that the TPB conducted in 2017. The survey asked respondents to select two factors, out of a list of five, that have the greatest influence on their daily decisions about how, when, and where to travel. Reliability stood out as the most important factor for 65% of all random-sample respondents, which placed it far ahead of other identified factors. Travel time was the second-most important factor, selected by 45% of random-sample respondents.

Closer analysis showed that reliability was also the highest rated factor across all travel modes – including drivers, transit users and pedestrians and bicyclists – with more than one-half of respondents of all modes selecting reliability as a top factor. Across other groups, including where people live and their age, reliability also generally ranked highest as the top factor influencing travel decisions. The exception to this finding was for low-income respondents who prioritized “affordability” over reliability.

The survey findings suggest that daily travel decisions can be challenging in our region because preferred options are not always dependable. When further probed about issues that affect their travel experience, survey respondents identified “traffic congestion” and “time spent in traffic” as their top concerns.

In written comments on the survey, respondents indicated that everyday transportation hassles affect their quality of life. “I have to allow for 1.5 to 2 hours just to travel 23 miles,” wrote one survey taker. Others noted the limitations that transportation challenges place on economic opportunity. “I limit where I’d consider working due to traffic and the time it takes to get there,” noted one respondent.

Many survey comments provided suggestions to improve reliability and save travel time. “Light rail or more/improved Metro would get people off the roads,” wrote one survey taker. Another suggested that “More frequent train VRE departure times, and weekend service are needed for getting in and out of northern VA and DC for those of us who live beyond Metro.”

Top Factors Influencing People’s Travel Choices

65%

of random sample respondents selected **RELIABILITY** as a top factor influencing their travel choices

45%

of random sample respondents selected **TRAVEL TIME** as a top factor influencing their travel choices

OBSERVATIONS FROM PHASE 2 PUBLIC FORUMS

Picking up on concerns about reliability that were frequently noted in the 2017 survey, the Phase 2 public forums explored opportunities to improve transportation conditions in the future by implementing the TPB's endorsed initiatives. Across the discussions at all 12 public forums, some overarching themes emerged.

First, the concepts underlying the TPB endorsed aspirational initiatives seem to be quite familiar to people who care about transportation. Forum participants quickly grasped the concepts underlying the seven initiatives and, in many cases, they indicated they have daily experience with them. They seemed to understand that to a large extent, the power of these ideas lies in their very practicality and familiarity.

Participants also emphasized that there are things the region should be doing better right now, and many expressed frustration that progress is not happening fast enough. In every session, people identified specific facilities that they wanted built, and they noted improvements, such as operational changes, that could be implemented relatively quickly. Forum attendees also suggested that initiatives should be implemented in combination with each other for maximum effectiveness. For example, they observed that transit improvements can be enhanced by better pedestrian access.

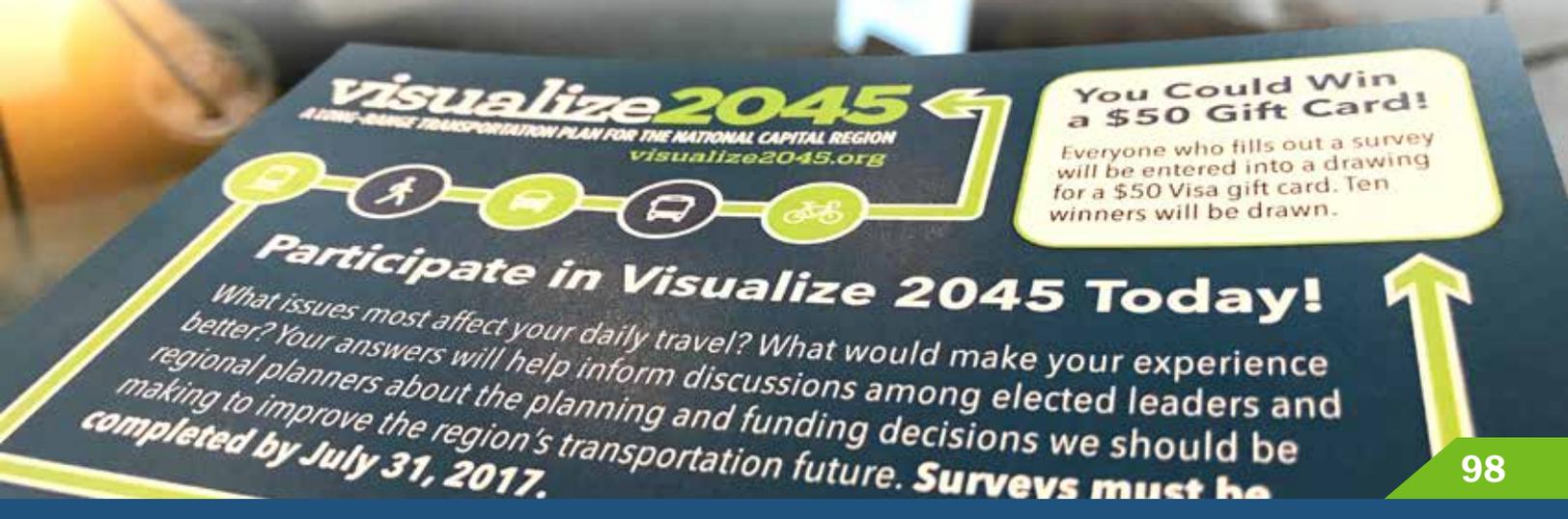
Equity and balance are growing concerns in the region, according to forum participants. Many expressed concern that some communities are being left behind. Some are worried about affordable housing and gentrification, and the acute transportation challenges that low-income people face. Others emphasized that we need to pay attention to the specific needs of all corners of the region. For example, in some outlying locations, participants noted that telecommuting is not viable because broadband internet service is not available.

Finally, forum participants suggested that the TPB needs to think more "outside the box." At some sessions, participants were critical of the TPB's initiatives, suggesting they were simply repackaged old ideas that were evidence of outmoded thinking. And even among those participants who broadly supported the initiatives, there were calls for regional leaders to start thinking in a more visionary sense, by pro-actively anticipating a world in which technology and other changes will call for bold solutions.

INCORPORATING FINDINGS INTO VISUALIZE 2045

Visualize 2045 will guide regional transportation decision-making for the next four years. It is a living document that was influenced by public input, and public input will continue to influence and shape how the plan is carried out.

Concerns about reliability, quality of life, and equity that were brought up in the public involvement activities were some of the key issues that drove the TPB to incorporate an unfunded element and endorse the aspirational initiatives. Now that we have the aspirational initiatives, the TPB is using them as a guide for action – calling upon jurisdictions and funding agencies to plan and fund projects, programs, and policies that will help implement the initiatives. As the TPB continues to promote its aspirations, public involvement will be essential. Already, the opinions, reactions, and ideas gathered from the public forums about the initiatives will be valuable information to the TPB, as the information gathered at the public forums sheds light on what the public is most interested in as well as most concerned about. This will be supplemented by future public engagement. Together the TPB and its stakeholders will continue to work together to shape a brighter future for transportation in the National Capital Region.





CHAPTER 9

CONCLUSION

As we visualize our transportation future over the next 25 years, what does it look like? More travel alternatives? Shorter trips? Increased access to opportunity? Hopefully, all these things and more.

The challenges of the future are significant, but the good news is that we are taking positive steps forward. The transportation system laid out in Visualize 2045 will increase the variety of travel options available to communities in all corners of the region.

We are expanding public transportation. By the middle of the 21st Century, we will have moved into a new era in which a range of efficient and innovative transit options will be available. Within the next decade, we will finish work on the Purple Line, the Silver Line, and several new bus rapid transit (BRT) systems.

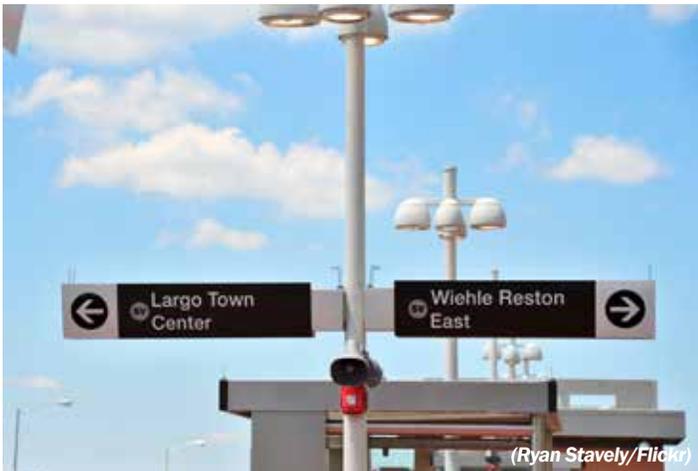
The region's road system will also undergo profound changes.

As we seek to alleviate congestion and raise revenue, an increasing share of our roads will be priced. By 2045 we will have doubled the tolled lanes in the region, investments which are intended to provide more options for travelers and more reliable travel speeds throughout the day.

And in 2045, more people will live and work in communities where driving is less essential.

As a region, we have embraced the concept of Activity Centers, which are engines for economic growth and a force for environmental stewardship. Land-use forecasts for 2045 show an increased share of jobs (67%) and housing (35%) located in Activity Centers. The forecasts also predict that these centers will provide increasing opportunities for people to travel via bicycle, walking, and transit.





But while we continue to move forward, we are facing major challenges.

Transit is not a realistic option for enough people. Only 29% of the population currently lives within close proximity to high-capacity transit (Metrorail, commuter rail, light rail, streetcar or BRT). With the planned transportation improvements and increase in population, by 2045 the share of people living near high-capacity transit will increase to 38%. This is good, but the majority of people still will not have quick access to high-capacity transit, which creates impediments for young people, elderly people, people with disabilities, and low-income people.

We are still too auto-dependent. The majority of commuters today - 61% - still drive to work alone, and that number is forecast to go down only a few percentage points in 25 years.

Congestion remains a daunting challenge. Vehicle hours of delay is forecast to increase by 47% in the next 25 years, given current plans. Because our region has a strong economy, our population and jobs will continue to grow, which is the main contributing factor for growing congestion. We need to continue to explore innovative ways to move more people more efficiently, and transition away from measuring success based on how many cars we can move, focusing more on how many people we can move.

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With these challenges in mind, the TPB decided that Visualize 2045 would not simply identify the future we can anticipate given current funding; it would also include an articulation of the region's aspirations – a vision of the kind of future we would like to have, not just the future that current trends are dictating.

The aspirational element in this plan, which is featured in [Chapter 4](#), describes ideas that we already know can make the future brighter. The TPB's seven aspirational initiatives call for projects, programs, and policies that the region has agreed will make transportation conditions better, both in the short-term and 25 years from now. These are things that all corners of the region agree on – the core and the suburbs, eastern and western sides of the region, and representatives from different political ideologies. We have consensus that these are good ideas.

The TPB is committed to maximizing the efficiency of the transportation systems that are already in place.

Why? Because the aspirational initiatives are based on proven strategies that make economic sense, given how challenging it is to operate, maintain and expand our aging transportation infrastructure. The TPB is committed to maximizing the efficiency of the transportation systems that are already in place. That continues to be the TPB's top priority, which is why Visualize 2045 calls for a commitment to maintain the transportation infrastructure in a state of good repair and to fully implement travel demand management strategies.



With the aspirational initiatives TPB is calling for regional decision-makers to:

- Encourage jobs and housing to be located closer together because it is an efficient use of space.
- Maximize the efficiency of the existing Metrorail system by expanding its capacity in the region's core.
- Grow bus rapid transit throughout the region because it will bring high-capacity transit to new population and job centers, providing more people with more efficient travel options.
- Ensure that safe and efficient walking and biking options grow throughout the region, providing for more reliable and enjoyable travel and recreation.
- Develop a strategically designed network of managed and tolled lanes that encourage and incentivize carpooling and accommodate an enhanced express bus network throughout the region, connecting Activity Centers.

These strategies use resources wisely and effectively to move more people more efficiently.

Not surprisingly, the TPB has heard from those who think the aspirational initiatives in Visualize 2045 are not visionary enough and do not adequately consider future technologies. That sentiment certainly holds an element of truth and a challenge for future planning. Yes, big changes are afoot. Climate change is already having profound impacts, and the transportation system plays a large role in emissions, even while we stay below our emissions budgets. Ride-hailing apps like Lyft and Uber impact people's travel choice and behavior; connected vehicles/semi- and fully autonomous vehicle systems are being tested and have the potential to affect both travel behavior as well as operations; internet commerce is shaking up travel patterns for passengers and freight alike. These evolving technologies will have an as-of-yet unknown impact on the region and on our society.



Future versions of our regional long-range transportation plan will need to continue to address emerging trends and accommodate the uncertainties. The TPB's planners and analysts are engaged in activities to better understand evolving technology and trends, including the region's strengths, weaknesses, and opportunities for addressing them in future regional plans.

In the meantime, Visualize 2045 calls upon the region to embrace and celebrate how far we have come and how far we can go. The power of this plan and the vision it offers lies in its very pragmatism. The aspirational initiatives are things we can do right now—and we already are doing some of them in various forms. From years of experience, we already know that these kinds of changes can make a positive difference. More importantly, we know they can be even more powerful if we pick up the pace and begin to implement these kinds of changes more pervasively and with more vigor.

When the future residents of the National Capital Region look back at the early 21st Century, how will they assess the plans we are making today? Hopefully, they will value the pragmatism and stewardship of the decisions that are reflected in Visualize 2045 – the value placed on taking care of the system that is already in place, providing new choices for travel, and connecting communities to economic opportunity, while being open to transformational changes in how mobility and accessibility needs are met.

And hopefully, the region's residents of 2045 will thank us for positioning them to thrive in our region and visualize a future that offers even more exciting prospects for generations to come.

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and celebrate how far we have come and how far we can go.**



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