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.
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.

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).

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.

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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

Population Growth (Today - 2045)
Existing population and forecast population growth

Today Existing Population
2045 Forecast Population Growth
1 dot = 500 People
Source: MWCOG Cooperative Forecast Round 9.1

Today Existing Population
- Frederick County (30.6%)
- Montgomery County (17.1%)
- Loudoun County (22.9%)
- Arlington County (28.3%)
- City of Alexandria (32.9%)
- Fauquier County (37.4%)
- Fairfax County (23.1%)
- Prince William County (24.8%)
- Prince George’s County (8.3%)
- District of Columbia (37.5%)
- Charles County (44.4%)

2045 Forecast Population Growth
- Frederick County (5,652)
- Montgomery County (6,955)

Population Growth
- 23%
Figure 2.4 Forecast Employment Growth Today-2045

Job Growth (Today - 2045)
Existing jobs and forecast job growth

<table>
<thead>
<tr>
<th>County</th>
<th>Employment Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frederick County (25.2%)</td>
<td>1,166</td>
</tr>
<tr>
<td>Montgomery County (26.0%)</td>
<td>679</td>
</tr>
<tr>
<td>Loudoun County (53.6%)</td>
<td>347</td>
</tr>
<tr>
<td>Arlington County (24.9%)</td>
<td>215</td>
</tr>
<tr>
<td>City of Alexandria (41.8%)</td>
<td>190</td>
</tr>
<tr>
<td>Fauquier County (37.4%)</td>
<td>116</td>
</tr>
<tr>
<td>Fairfax County (27.9%)</td>
<td>932</td>
</tr>
<tr>
<td>Prince William County (52.9%)</td>
<td>402</td>
</tr>
<tr>
<td>Prince George’s County (15.9%)</td>
<td>347</td>
</tr>
<tr>
<td>Charles County (31.1%)</td>
<td>192</td>
</tr>
<tr>
<td>District of Columbia (24.9%)</td>
<td>1,045</td>
</tr>
</tbody>
</table>

1 dot = 500 Jobs
Source: MWCOG Cooperative Forecast Round 9.1

Employment Growth
3,340 4,301
29%
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. 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

**Population**

1,300,000 New People (+23%)

**Jobs**

960,000 New Jobs (+29%)

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 of 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 aspects 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.

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.

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. Additionally, the National Capital Region is fourth in the U.S. in the average number of transit trips taken per month. 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.

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. 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.

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

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7 Performance analysis of financially constrained element of Visualize 2045.
9 Regional Transportation Data Clearinghouse - Transit Data Collection. www.rtdc-mwcog.opendata.arcgis.com/
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

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)
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.

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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)

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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)

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19 TPB Continuous Air System Planning Program.

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.