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6

CHAPTER

Strategies for a Brighter Future

Regional Planning Activities and Strategies

This chapter describes the planning activities and strategies that the TPB and its partners use to work toward a brighter future where the transportation system serves the needs of all its users. The transportation system connects the region's communities. All parts of the system must work together to provide a wide range of travel options in the National Capital Region that are safe, efficient, and effective for all travelers. Regional planning and strategies inform how we can grow and invest in the transportation system.

The metropolitan Washington region is expected to experience population and jobs growth in the coming decades. To help the region prepare, the TPB leads regional planning and policy efforts that consider the tradeoffs of various strategies and sets the vision for how our communities grow. These efforts inform strategies that help reduce congestion on the roads, improve transit access and reliability, and make it easier for all 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 to serve the economy, deliver packages to residents and help connect disadvantaged communities to employment, educational, and recreational opportunities. Continue reading to learn more about

WHAT IS A STRATEGY?

A strategy is a way to achieve a goal.

the TPB's planning and regional coordination activities to promote safe, sustainable, and reliable movement for people and goods. Strategies are organized in the following sections:

- **TPB's Aspirational Initiatives** — learn about seven endorsed initiatives that when implemented together will not only improve mobility, accessibility, and air quality in the region but also contribute to the region's GHG reduction and climate resiliency goals.
- **Transportation Options** — learn about the TPB transportation demand management strategies, and planning activities for bicycling, walking, scooting. Find out more about transit planning for local, regional and intercity service, commuter and passenger rail, and learn about planning activities for people that travel in vehicles and by air.
- **Strategies to Address Future and Planning Factors** — learn about a wide range of planning activities to address the factors that must be considered as we plan for the transportation system: safety, equity, land-use, climate mitigation and resiliency, and more.

How Does the TPB Identify Strategies?

As the TPB develops potential strategies, it first considers the current planning context, including the existing transportation system, land use, and social, economic, and environmental conditions. The region has made a substantial investment in thousands of miles of roads, transitways and stations, and bicycle and pedestrian facilities. A primary strategy—protecting this investment through regular maintenance—requires that the region dedicate about 28 percent of the transportation funds to maintaining the state of good repair.

The TPB also considers challenges and opportunities and ensures that strategies to enhance the system are feasible, practical, and implemented in the most effective manner. Strategies are informed by and documented through the numerous TPB planning activities, such as the **Long-Range Plan Task Force** (2016-2017) that led to the TPB endorsement of the seven Aspirational Initiatives, and the 2021 transit service and fare equity study.

EQUITY IN PLANNING

The TPB considers equity in all its work. Each planning area discussed in this chapter highlights equity considerations and discusses ways that TPB considers equity in its planning practices.

By bringing the region together for regional conversations and setting priorities, the TPB developed and continues to assess strategies to reduce transportation emissions and plan for the resilience of the transportation infrastructure in the face of climate change, including the strategies in this chapter from the TPB's most recent study, the Climate Change Mitigation Study of 2021.

The TPB also documents numerous strategies through the federally required Performance-based Planning and Programming approach (PBPP) and Congestion Management Process (CMP), which are explained more in Chapter 8. The TPB and member agencies seek ongoing input from the public and regional partners on challenges and approaches to ensure strategies meet the needs of the people and businesses that rely upon the transportation system.

The TPB coordinates many different types of transportation planning and programs that bring together regional leaders to tackle real-world challenges and take action to make progress toward the vision for the future. Through a consensus-building process informed by the TPB's Technical Committee and sub- and advisory committees, public engagement activities, and objective analysis, the TPB establishes strategies to address the transportation challenges faced today and in years

to come. This chapter provides information about the roles of the TPB committees and strategies to provide a comprehensive range of travel options that address congestion, improve access and mobility for all, mitigate climate change, and protect our natural environment.

How Does the Region Implement Strategies?

Based on each TPB member's unique context, TPB's member agencies implement strategies through transportation and land-use projects, programs, and policies that are informed by the coordination, outreach, surveys, studies, and analysis that TPB conducts through its role as the region's MPO. Some strategies may be implemented by actions of the public, private sector, or non-profits. Learn more about the planning process and implementation in Chapter 1, About the Plan.

UNDERSTANDING THE PLAN

For each project submitted to the plan, the project sponsors indicate how the project helps to advance TPB's goals. They document if each project enhances, promotes, or supports each transportation option, planning area, and federal planning factor. The TPB summarizes these responses in the "Visualize the Future" sections for each topic in this chapter and in Chapter 7.

Each project may enhance, promote, or support more than one transportation option or planning priority. To see a summary of projects and how they help implement the TPB's vision, goals, Aspirational Initiatives, and respond to the planning factors, please see Chapter 7, Funding the Transportation System. **For complete responses by jurisdictions, please visit the Visualize 2045 website.**

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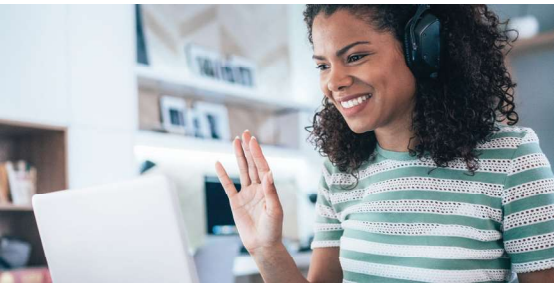

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TPB's Aspirational Initiatives

In 2018, the TPB adopted seven transportation initiatives. Each initiative incorporates policies and transportation solutions that the TPB has championed for years as documented in the CMP. These strategies are most effective when working together by providing more options on a well-integrated and reliable transportation network. As the TPB members prioritize funding and enact these strategies, the region has the potential to significantly improve its transportation system performance. With the update to Visualize 2045, the region will make progress on these initiatives that improve mobility, accessibility, and air quality in the region while contributing to the region's GHG reduction and climate resiliency goals.

Arriving at and promoting implementation of the initiatives:

The TPB led a study that engaged a long-range plan task force to establish consensus on regional policy priorities, which led to the 2018 endorsement of the Aspirational Initiatives, listed below:

- **Bring Jobs and Housing Closer Together** by concentrating more housing and jobs in central locations such as Activity Centers and near high-capacity transit station areas to make it possible for more people of all incomes to live near employment and other frequent destinations. This can enable trips to be shorter and reduce auto trips as people will be able to choose from a range of travel options.
- **Expand Bus Rapid Transit and Transitways** throughout the region to provide people not only more transit options but also a reliable and fast bus service for work and non-work trips.
- **Move More People on Metrorail**, by providing more frequent services with longer trains and expanded stations that are accessible by nonmotorized modes.
- **Provide More Telecommuting and Other Options for Commuting** to take advantage of the many jobs suitable for teleworking and to provide employees with transit and nonmotorized travel benefits and disincentivize commute parking.
- **Expand Express Highway Network** strategically, in an environmentally sensitive manner, to create a network that connects much of the region, featuring express bus systems and allowing carpools and vanpools to be exempt from tolls.
- **Improve Walk and Bike Access to Transit**, as investments that remove barriers to walking and biking to transit stations to reduce auto travel and help fully utilize the investments already made in high-capacity transit.
- **Complete the National Capital Trail Network** to create an extensive network of trails that provides walk and bicycle access to jobs and other activities by connecting communities across the region to Activity Centers.

Following the endorsement of the initiatives, the TPB's staff visited the TPB's technical agencies to discuss the initiatives, learn what the agencies were undertaking that advanced the initiatives, and to identify opportunities for the TPB to support implementation of the initiatives. The TPB promotes the Aspirational Initiatives by providing communications tools such as brochures, infographics and animated videos about the initiatives so that people can learn and share information about the concepts behind these initiatives and the benefits they can bring to the region. See these videos and graphics here:

Download the Infographic

Watch the Animated Video (English and Spanish versions)

The TPB also conducts analysis and develops technical tools, data, products, and programs to support the implementation of initiatives in response to the TPB Resolution R10-2019 which directed staff to conduct activities related to the implementation of three of the Aspirational Initiatives. Learn more about these activities throughout this section.

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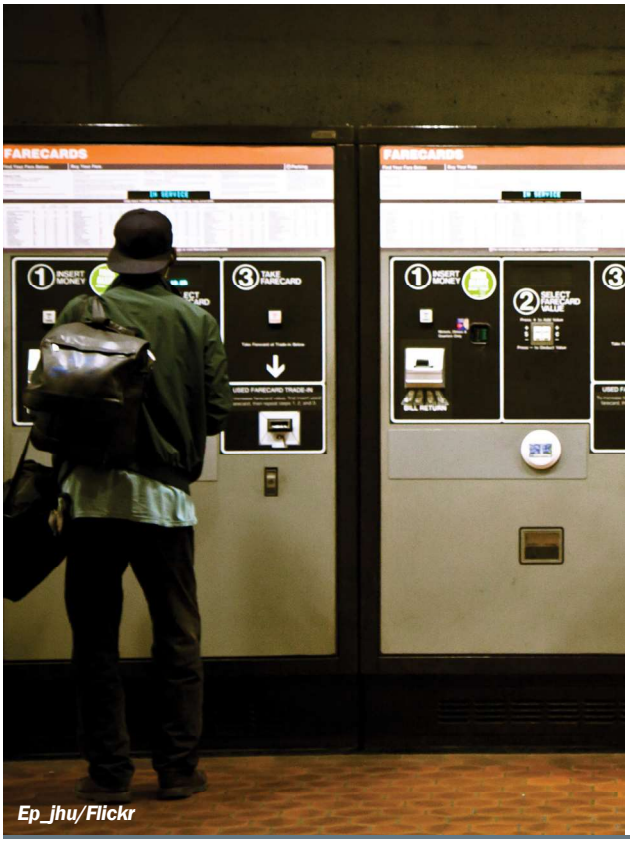

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Equity Considerations

Where and how the Aspirational Initiatives are implemented can have an impact on equity outcomes in our region. To assist implementing agencies consider equity in the planning process, the TPB makes the Equity Emphasis Areas (EEAs) available as a planning tool to examine demographic patterns in the region. For example, EEA locations can be used to plan and prioritize areas to improve walk and bicycles access, transit movements, and routing. The TPB also conducts studies and outreach that consider equity across a range of subjects and encourages the findings to be considered when planning for investments that promote the initiatives. The following pages describe the initiatives and offer data and perspectives from the TPB's focus groups and Aspiration to Implementation activity to provide insights on how the initiatives relate to equity concerns. The benefits of the initiatives, when implemented together regionwide, can address some of the top equity concerns raised during the focus groups, such as safe walk and bike access to transit, housing affordability near a range of transportation options, transportation access, travel time, and reliability.

ASPIRATIONAL INITIATIVES FOR A BETTER TRANSPORTATION SYSTEM

visualize 2045
A long-range transportation plan for the National Capital Region

THE CHALLENGE

By 2045, metropolitan Washington will be home to 1.3 million more people and 1 million more jobs.

Available funding for transportation and the types of planned improvements can't do enough to prevent significant increases in congestion and travel delays.

Transportation Dollars

81% Maintenance and Operations

19% Improvement Projects

THE SOLUTION

TPB's Visualize 2045 plan prioritizes initiatives that make the most of every dollar, offering everyone in the region more options for where to live and how to get around. Here's how:

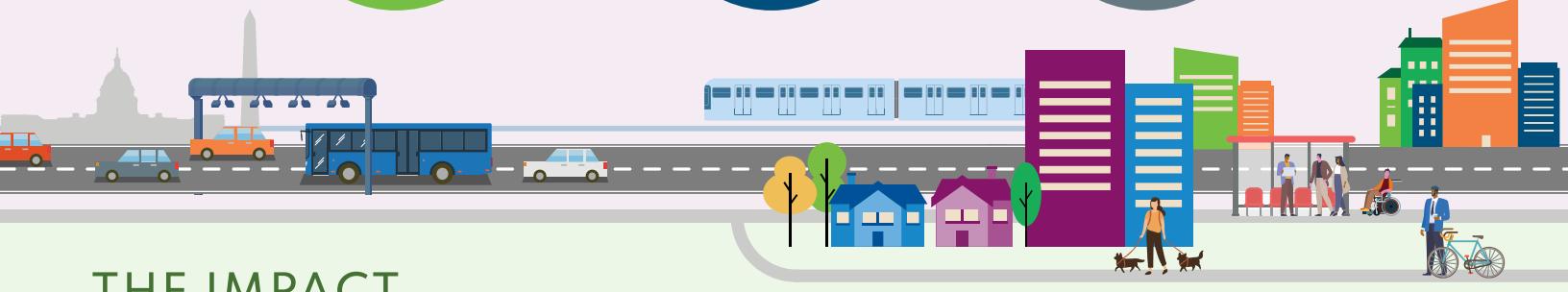
Concentrate land use in Activity Centers where housing, jobs, and transit are close to each other

Circulate people in Activity Centers via safe, accessible travel options for work and play

Connect Activity Centers via high-capacity regional transit and express highways

Aspirational Initiatives

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



THE IMPACT

Improved quality of life

- Vibrant, mixed-use communities
- More and affordable housing options
- More time with family and friends

More ways to get around

- Equitable, accessible, safe choices
- Shorter trips
- Options to walk, bike, drive, and take transit to work and play

Improved economic competitiveness

- More reliable and reduced travel times
- More efficient movement of goods
- Greater access to employment opportunities

Source: TPB

Der Berzerker/Flickr

Beyond DC/Flickr

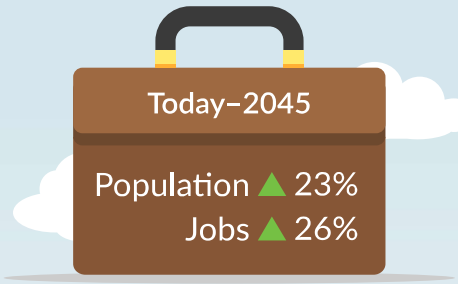
BRING JOBS AND HOUSING CLOSER TOGETHER

visualize 2045
A long-range transportation plan for the National Capital Region

THE CHALLENGE

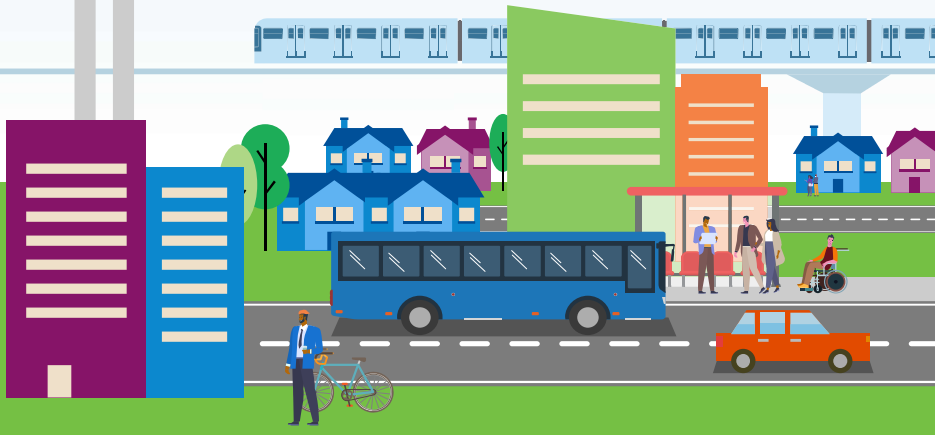
People travel from their homes to find jobs and opportunities. But jobs and housing are often not near each other, leading to longer commutes. A lack of travel options and affordable housing near jobs leads to congestion and delays.

As the region grows, how can we improve travel for all?



Since 2010, the region has focused on building **new homes in Activity Centers**, where housing, jobs, and transit are all close to each other.

But, Activity Centers are home to just **29% of the population**, despite containing **66% of the jobs**.



THE SOLUTION

Here's how we can reduce congestion for everyone, while expanding housing options for people who want to live closer to where jobs are.

- **Create and support policies** that encourage building more housing
  - **320,000** new units needed by 2030
  - **75%** to be affordable and near Activity Centers and transit
- **Improve travel options** in and between Activity Centers

This approach works! More choices mean less congestion.

How we get around is changing

Drive Alone	▼ 13%
Take Transit	▲ 7%
Use Active Travel	▲ Doubled
Telework	▲ Tripled

(Change in each travel type's share of daily commutes, 2001–2019)

THE IMPACT

Source: TPB

Reduced traffic and emissions from transportation

Expanded travel options and shorter trips

Vibrant communities where people can live, work, and play

A stronger economy and improved quality of life

Bring Jobs and Housing Closer Together

What is it?

- **More housing and jobs in central locations.** There will be new opportunities for people to live or work near high-capacity transit (HCT) stations and 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 Metrorail stations** and focusing growth in HCT station areas. 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.
- **Coordinated local policies.** This initiative asks regional leaders to coordinate local policies through zoning and revisions in local plans, allowing more people to live closer to jobs.

Visualize the Future:

- **Fewer, shorter trips in cars.** More housing close to Metrorail stations and in Activity Centers would let more people walk to work and transit. That means fewer cars on our region's roads. And that would significantly reduce congestion, making driving more reliable for those who commute by car.
- **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.
- **Increased economic opportunity.** More jobs would be available to more people within a short distance from home—which is particularly important for the car-free and workers with low income.
- **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.
- **New housing** in Brookland in the District of Columbia demonstrates the concepts of this initiative. In Maryland, new housing planned for and under construction near the Purple Line stops exemplifies this concept. In Virginia, developments planned around the new Silver Line and the North Woodbridge Small Area Plan represent the concepts of this initiative.

TPB's Role

The TPB calls upon regional leaders to promote policies that "Bring Jobs and Housing Closer Together," especially focusing growth in Activity Centers. And, TPB Resolution R4-2022, focuses on building transit-oriented communities (TOC) throughout the region around HCT station areas using Equity Emphasis Areas as a key planning concept and tool to inform decision-making and action. Learn more in the Land Use section of this chapter and visit **TPB's interactive HCT/EEA website** to explore information for planners, policymakers, and other area leaders as they design TOCs and weave equity into planning decisions.

Voices of the Region

Elvert Barnes/Flickr

Focus Groups

Findings from the Focus Groups indicate that a diverse range of people find value in being able to live near work and having safe, reliable, and affordable transportation to employment. Issues of equity were raised on topics such as travel time, cost, and reliability of transportation that makes access to work difficult. Focus Group participants described tradeoffs that they have needed to make, such as taking a lower-paying job because of transportation barriers. By adding more housing that is affordable to people with lower incomes and the general workforce near high-capacity transit in Activity Centers, the TPB's member agencies can address some of these barriers and reduce the tradeoffs that people must make in their daily lives.

Aspiration to Implementation

TPB asked: "How does having options to live near your job, school, and shops affect your life?"

"Having options to live near my job and school is very impactful on my life. It means that I not only have multiple options on where I can potentially work, but the initiative ensures I can make it to school on time and safely. I go to school at George Mason University, and since there is so much reliable transportation namely the Metro and (Fairfax) Cue buses in the area, it makes it easy for me to make it to class and when I study with friends or need to meet a professor."

"It makes all the difference in the world, I'm lucky enough to live within walking distance of a Metro station and it opens up a whole new world for me. Not having to rely on a car for transportation to both my job and also a fun weekend in DC is such a blessing—avoiding traffic and toll fees is always a joy!"

"I currently live in DC and I love having restaurants, and all kinds of places near me. I work in Reston, so it's very convenient too, that both my home and workplace are close to Metro stations. If my workplace was not close to public transportation, I would definitely consider switching jobs. I cannot wait for the Reston Town Center station to open!"

Expand Bus Rapid Transit and Transitways Regionwide

What is it?

- **A dramatically expanded transit service.** Bus rapid transit, or BRT, is an enhanced, high-frequency service that makes use of transitways and brings together other enhancements that can move more people faster and more reliably than traditional bus services. Express bus, 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

- **Bus agencies in metropolitan Washington provide over 164 million trips annually**, and most people live within 1/4 mile of a bus route. But increased traffic means trips are getting slower and less reliable. Enhancements such as dedicated lanes and transit signals that prioritize bus travel can improve mobility.
- **A diversity of transit options.** Imagine having access to express transit, even if you live or work far from a Metrorail or regional rail station. Providing more BRT and transitways in corridors not well served by a Metrorail station can address equity concerns in our region by providing more people, including people living in EEAs with better access to fast, frequent and reliable low-cost transit. BRT buses would operate in their own separated lanes with payment systems and level boarding to get people on and off quickly. Level boarding that does not require stairs or a lift to ride the bus will create an improved experience for people with limited physical abilities.
- **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 access for people who walk and bicycle to transit.** 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.
- **Metroway that connects Alexandria and Arlington, VA** was the first BRT system in our region, launching in 2014. In 2020, Montgomery County, MD, began service on its first Flash BRT line and has plans for several more BRT lines. DDOT is continuing to advance transitways such as the H&I Street Bus Lanes project and the 16th St NW Transit Priority project. Agencies are studying additional BRT potential for the region, expect to see more studies and plans for BRT and transitways, and more projects moving to implementation.

TPB's Role

The TPB has conducted studies that provide analytical backing for the regional benefit of BRT and transitways. The TPB Regional Public Transportation Subcommittee discusses local BRT project features and implementation approaches. The TPB also gathers public opinion through its Voices of the Region outreach and promotes the initiative through **animated videos and infographics**.

Voices of the Region

Survey

Findings indicate that 71 percent of respondents support dedicated bus lanes, and 54 percent support dedicated bus lanes with the removal of on-street parking. When asked about possible changes or improvements to the trip aboard the bus that would make them more likely to ride the bus, the most popular option was if "buses arrived on a reliable schedule," (40 percent) followed by if "buses traveled more quickly" (26 percent) and if "buses were less crowded" (23 percent). By expanding BRT and transitway regionwide, these improvements would be realized.

Focus Groups

Discussions illuminated that travel time and reliability were critical issues for the participants, many of which were people from lower-income or historically disadvantaged groups. The features of BRT, such as transit signal priority, dedicated lanes, and level boarding would provide for increased reliability and less travel time. The higher frequency of buses would mean less waiting and less impacts from "missing the bus".

Beyond DC/Flickr

Aspiration to Implementation

TPB asked: "How does having faster and more frequent bus service affect your life?"

Participants identified benefits including being able to get to important appointments and work without needing a car, getting to work on time, escaping bad weather, and getting home on time:

> "It makes my commute to work, the grocery store, nightlife, and Metro faster, more feasible and convenient."

> "I would be able to visit family more often and it would be easier."

> "Personally, improvements like until-midnight BRT service as far north as Watkins Mill Rd on MD 355 and on routes like MD 586 would give me a lot of extra flexibility for most trips and would likely weigh heavily on my decision to remain car-less long-term."

BUS RAPID TRANSIT AND TRANSITWAYS: FAST-TRACK YOUR TRIP

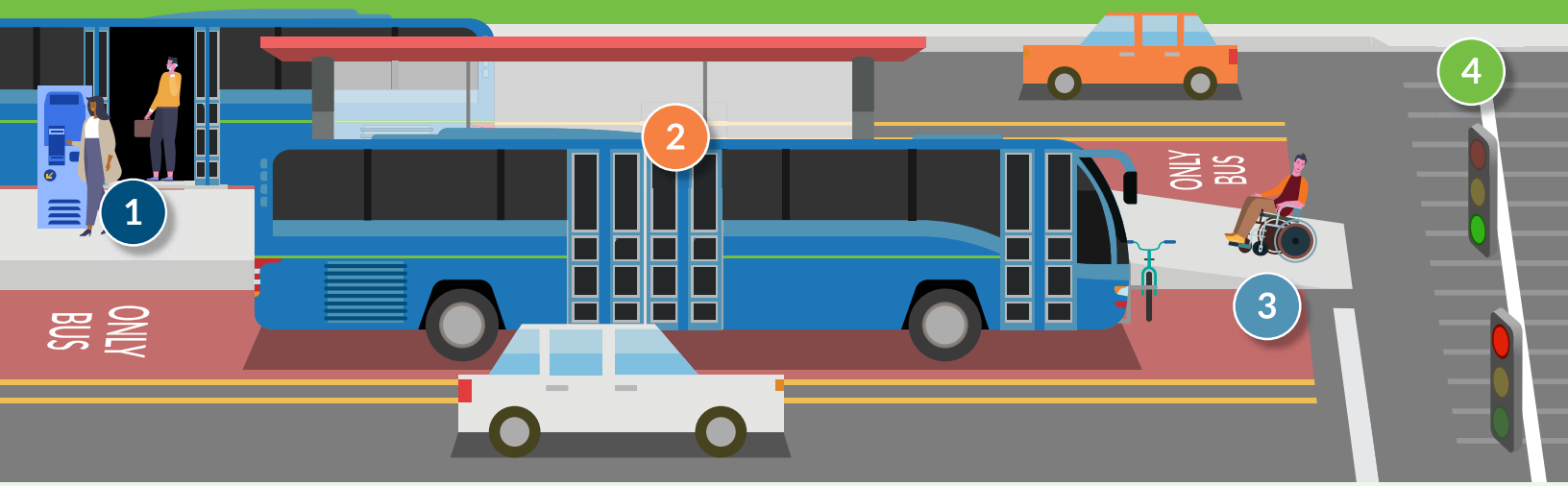
visualize 2045
A long-range transportation plan for the National Capital Region

Bus agencies in metropolitan Washington provide over **164 million trips annually**, and most people live within 1/4 mile of a bus route. But increased traffic means trips are getting slower and less reliable. Enhancements such as dedicated lanes and transit signals that prioritize bus travel can improve mobility.

Bus rapid transit, or BRT, is an enhanced, high-frequency service that makes use of transitways and brings together other enhancements that can move more people faster and more reliably than traditional bus services.

HOW IT WORKS

1. Improved stations have **offboard fare collection** and **platform-level, all-door boarding**.
2. **Frequent, reliable service** shortens wait times.
3. Transitways with **dedicated lanes** provide faster trips.
4. **Transit signal priority** and **queue jumping** let BRT buses go first at traffic lights, reducing delay.



WHY IT MATTERS

- More reliable, faster trips
- More affordable travel options
- Expanded access to jobs and opportunities
- Improved mobility options
- Fewer greenhouse gas emissions

BRT and Transitways in Your Neighborhood

Location	Description
Metroway BRT: Arlington and Alexandria, VA	5.6 miles connecting the Pentagon City and Braddock Road Metrorail stations
Flash BRT: Montgomery County, MD	14-mile stretch of U.S. Route 29
Transitway: District of Columbia	3 miles along 16th Street NW

Beyond DC/Flickr

Elvert Barnes/Flickr

Move More People on Metrorail

What is it?

- **Making strategic investments to get more people moving through the center of the region 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.
- **Other Metrorail enhancements** such as new stations and services.

Visualize the Future

- **Dependability.** With major investments to bring Metrorail to a 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.
- **Region-wide 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 percent of all rail riders system-wide. When those links are clogged, travel everywhere is affected.
- **Alleviate congestion.** These projects would not only affect transit riders. By making it easier to get on the train, we can ease congestion on the roadways and improve travel time for trips people take daily, whether on Metrorail or by car.
- **World-class system.** The economic benefits to the people and businesses in our region by helping them conduct their daily business travel with ease. Enhanced capacity on Metrorail would improve access to jobs and strengthen our competitive advantage in the global economy.
- **More cars, more stations.** In addition to the eight-car trains that will be added to the Metrorail system, another example of a project in the constrained element that will help to move more people on Metrorail is the new Potomac Yard Station in Alexandria (CE1978).

TPB's Role

The TPB has long championed Metrorail as a critical service in the region. At key moments, the TPB has come together to push for increased regional transit funding. The TPB promotes Metrorail service improvements that will help people in our region get where they need to go reliably, conveniently, and with limited carbon footprint.

Voices of the Region

Survey

When asked about possible changes or improvements to rail transit that would make them more likely to ride, the most popular choice was for "trains [to come] more frequently" (chosen by 40 percent), followed by if "trains were less crowded" (35 percent). These two choices are closely related, and the improvements to Metrorail captured in this initiative would realize both of these preferred improvements.

Focus Groups

Discussions regarding Metrorail focused on affordability, not only of the fares but of housing that is proximate to Metrorail. This finding demonstrates how the initiatives will be most effective when implemented together, including working toward focusing housing development that is affordable near high-capacity transit, while also providing other fast reliable transit in areas not close to Metrorail.

Aspiration to Implementation

TPB asked: "How does having frequent Metrorail and eight-car trains affect your life?"

Participants noted that these impacts would mean they'd take Metro instead of other options, citing an improved quality of commute, less waiting, more flexibility, and environmental benefits:

> "Makes it much more likely that I'd use the Metro as my go-to transportation choice."

> "Having access to reliable Metrorail is necessary for my daily life and allows me to commute to work without stress. It also allows me to have an active social life on the weekends, as I have friends who live all around the DMV."

> "More frequent service would mean much less waiting for me to get to work or to go to meetings, or in DC for dining out, baseball, and other events."

> "Frequency is freedom. Life is so much easier when you aren't planning around a schedule and makes up for the everyday unexpected issues that might delay you."

> "It means I can take Metro to work instead of driving, which cuts down on greenhouse gases and the hassle of parking. It also means I can find a spot on the train at rush-hour in the morning."

> "It not only saves me from headaches from having to figure out how to get places when it's not peak hours, it also makes it easier for me and my friends to commit to more environmentally sustainable choices and lifestyles."

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, find 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 and new telework habits developed during the COVID-19 pandemic, the amount of people that will telework in the future will likely be higher than before the COVID-19 pandemic. Regional survey responses about telework preferences indicate that this is a reasonable expectation in years to come. In addition, workplaces would let employees come to work early or late some days to avoid traveling during rush hour.
- **Subsidies for not driving.** Employer-funded transportation benefits would be more supportive of non-SOV options. Many more employees would receive transit and carpool subsidies from their employer. 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 road, polluting the air and emitting GHG that contribute to climate changes. 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 at any given time.
- **Reduced emissions.** Vehicle emissions would consequently decrease, greatly benefiting the region's air quality and environment.

TPB's Role

The TPB's Commuter Connections program is a regional network that provides commuter services and information to area residents and employers in the metropolitan Washington region to reduce traffic congestion and emissions caused by single occupant vehicles (SOVs). To support implementation of this initiative the Commuter Connections staff produced telework and flexwork materials including sample agreements and policy templates, FAQs, best practices for teleworking, and updated information on alternative work schedules. Find these on the **Commuter Connections website**. Learn more in the Travel Demand Management (TDM) section of this chapter.

Voices of the Region


Tyler Ingram/ Flickr

Survey

The survey asked all respondents that were currently telecommuting about their future telecommuting preferences. If given the choice to return to a work location once the COVID-19 pandemic is over, two-thirds said their preference would be to telework some days and commute to their work location some days (65 percent). One quarter wanted to telework full time (26 percent) and only 9 percent wanted to return to their work location full-time. Those who wanted to telecommute some days were asked how many days they would ideally want to stay home. Half wanted to telework three-four days (49 percent) and 41 percent wanted to telework for two days.

Focus Groups

Discussions touched on travel demand management including transit and telework. Some participants noted that the COVID-19 public health crisis allowed people in the outer suburbs to experience working from home. The majority of the participants said they appreciated the chance to avoid traffic and road safety issues that are commonplace for people from the outer suburbs. However, participants also said they feared that an increase in teleworking will reduce the pressure on transportation agencies to connect the outer suburbs to the rest of the region with expanded transportation choices.

Aspiration to Implementation

TPB asked: "How does having options to work from home affect your life?"

"The pandemic has forced a good deal of work to be done by telework. While not everyone can benefit from it, many white-collar workers can. Flexible telework allows me to structure my days more creatively to get both work and personal affairs done more efficiently."

"It has greatly benefited my life. I am more patient because I am spending less time in traffic, more efficient because I'm not rushing to finish to beat traffic to get home. And, I'm saving money by not purchasing as much gas for my car."

"I will save 4 hours of daily commute and no more before and aftercare payment. Better life for my children who no longer need to be up early to be dropped off."

Expand Express Highway Network

What is it?

Congestion-free toll roads where transit and carpool or vanpool with 3+ people ride for free. Dynamically priced lanes would be added to existing highways throughout the region. Traffic on these lanes would be free of congestion 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 and carpool 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. They would also encourage carpooling by exempting cars with 3+ people from the tolls.

New opportunities for transit. A new network of express buses would travel in the express 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.

Examples of expressways in the region include the express lanes on I-66, funds from tolls on these lanes have raised substantial funds to support transit in northern Virginia. The Maryland 'Op Lanes' (the largest initiative of the MDOT SHA's statewide Traffic Relief Plan) planned for I-495 and I-270 are another example of dynamically managed lanes. This plan update includes three different segments of the proposed Op Lanes: (1) managed lanes on I-495 from George Washington Memorial Parkway to MD 187 and on I-270 from the I-495 to I-370, (I-270 southern segment) to be constructed by 2025; (2) managed lanes on I-270 from I-370 to I-70, (I-270 northern segment) to be constructed by 2030; and (3) managed lanes on I-495 from MD 187 to the Woodrow Wilson Bridge, referred to as the eastern segment, included as a study, not construction.

TPB's Role

The TPB has long championed congestion relief, documenting analysis and strategies in its CMP. Congestion impacts people and business traveling today. With forecasts for an additional 1.3 million people and nearly 1 million jobs by 2045, the challenge is not only to reduce congestion and transportation emissions but to mitigate growth in congestion and delay resulting from additional demand. Expressways that incentivize carpools and vanpools and expedite transit service, while using dynamic tolling to manage congestion, are one strategy that can help the region meet its goals.

Voices of the Region


MDOT/Flickr

Survey

The survey asked all respondents how big of a concern traffic congestion is to them personally. Over two-thirds of respondents (69 percent) say that congestion is a concern that impacts the quality of their lives, with 44 percent saying it is a significant concern. More than half of residents of the outer suburbs said congestion was a significant concern, which is significantly higher than residents of the Core (54 percent versus 27 percent).

Focus Groups

The expanded express highway network, working in coordination with the other initiatives, is a congestion-relieving tactic. Dynamically managed lanes, as supported by the TPB, would permit buses to operate at improved speeds and allow carpools and vanpools to ride for free. Nonetheless, the participants of the Focus Groups who identified as frequent drivers expressed significant concern about the cost and fairness of tolls noting that driving from the inner suburbs to the core of the region is an inequitable experience for those with limited income.

Aspiration to Implementation

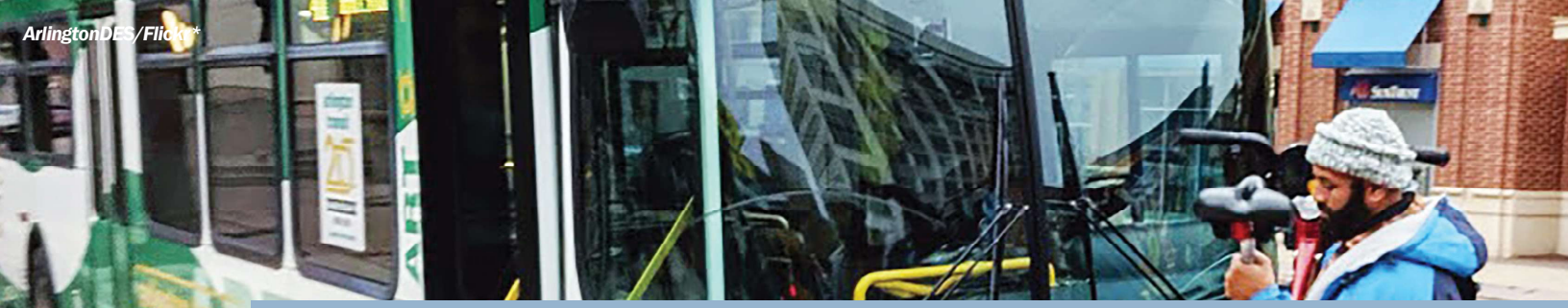
TPB asked: "How does having express toll lanes as an option affect your life?"

Responses regarding this initiative's impact were more varied, with several people feeling unsure about the strategy, others expressing equity and cost concerns, and others noting the benefit of reliable travel times, reduced congestion, and optional tolls:

> "Makes drives around DC area more certain in terms of how much time they will take."

> "Do not add toll lanes. This makes the expense of driving to work even higher—cutting back on how much I make per day. This especially effects people with hourly positions who aren't making that much per hour."

> "Allows me to decide how important it is to save time when traveling."


ArlingtonDES/Flickr*

Improve Walk and Bike Access to Transit

What is it?

More and better paths to transit. Our region doesn't have enough safe options for walking or bicycling to transit stops and 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 or roll to the station within 10 minutes on average, or easily bike to the station.

Removing barriers for walkers and bicyclists. Sidewalks would be built or repaired, crosswalks and bike facilities 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 gaps in sidewalk networks, 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 with 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. Older adults, 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.

TPB's Role

With board direction to support implementation of this initiative, the TPB staff conducted the Transit Within Reach project that prioritized locations with the greatest need and opportunity to improve pedestrian and bicycle access to transit. These "Transit Access Focus Areas" (TAFAs) are distributed across the TPB's jurisdictions, serve a variety of transit systems, and all are located within a half mile of one of the region's Activity Centers. Forty-three out of 49 TAFAs are in Equity Emphasis Areas, which have high concentrations of low-income population and communities of color. In 2020, through Resolution R4-2021, the TPB adopted the TAFAs and asked TPB member jurisdictions to prioritize projects, programs, and policies that will implement improvements in the TAFAs.

To further advance its work with TAFAs and more broadly to promote implementation of the initiative, the TPB has established the Transit Within Reach Program to move small high-impact projects into preliminary design or preliminary engineering (30 percent). **See an interactive map and listing of the TAFAs online at: mwcog.org/maps/map-listing/tafa/.** To support and advance transit-oriented communities (TOCs) the TPB staff developed an **interactive web map** to build understanding and awareness of high-capacity transit (HCT) station areas, or areas around Metrorail, commuter rail, light rail, streetcar, bus rapid transit, and multimodal stations. Agencies and organizations can use the map to identify opportunities for enhancing housing and transportation connectivity in areas served by transit, with consideration given to benefits to disadvantaged populations by considering connectivity to and within EEAs.

Voices of the Region


Kelly Bell/Flickr

Survey

The survey asked which improvements or changes would make respondents more likely to walk, bike, or use an e-powered or mobility device to go to the train station or bus stop. The most popular choice was "if there were sidewalks and safe crossings all the way there" (36 percent), followed by if "my route to the train or bus was quicker or more direct" (27 percent). This shows that residents may experience a certain number of obstacles to getting to transit in a direct or safe way; for example if there are streets that are difficult to cross to get to a bus stop. This initiative recognizes the importance of these improvements to people in the region and how safety and connectivity impact how people choose to travel.

Focus Groups

The Focus Group findings revealed that improving bicycling and walking to transit can have positive impacts on equity goals, improving transportation access for people with lower incomes and historically disadvantaged communities. For the participants of the Focus Groups, the sense of feeling like a second-class citizen was emphasized in the conversation about feeling safe while walking or biking to transit. Participants felt like they have the bus stops and Metrorail stations that they needed but did not think that they had the methods to get there safely. The primary safety concern was being able to safely walk or bike to bus stops and transit stations, especially after coming from work at night. Some participants noted that to walk or bike to transit in the future they need to have the infrastructure—such as bike lanes, connected trails or bikes lanes, and protected bike lanes to use during night—in place to make them feel safe to do that. People in the inner suburb focus group noted the cost of getting to transit stations as a concern. People explained that they lived in areas in which biking and walking to transit did not feel safe. As a result, people had to take a bus to get to the train station. The cost of taking the bus plus the train made their commute cost high to the point that it was no longer feasible. Similar to the experience from people with low incomes, people from the inner suburbs also said that they are forced to decline jobs because the commuting cost would exceed the income that they would bring home.

Aspiration to Implementation

TPB asked: "How does having an easy walk or bike ride to your bus or train affect your life?"

"Knowing that my walk to my transit stops is reliable lets me plan my commute with confidence. The fact that my house is near a station or stop also makes it easier to use public transportation when the weather is bad. That consistency lets me keep transit and climate change in my mind."

"It affects my ability to make it to places such as doctors appointments and getting groceries. I am thankful that there is at least a bus system in this area and the Metro isn't too far away, but traveling sometimes involves walking on the side of highways that don't have any or adequate sidewalks, which feels very unsafe…Having more sidewalks and paths that are pedestrian friendly would make it easier to get to places in Virginia, from towns, to even stores."

"Having an easy walk or bike ride means that I'm more likely to go out to the movies, eat out, sit in the parks, and meet my neighbors. It means fewer trips done by car to see friends and get to work and less pollution in my neighborhood and in the region overall. It helps me stay fit and mobile even with post-COVID health issues. It helps me improve my mood, being able to move my body as part of my travel or commute."

Complete the National Capital Trail Network

What is it?

The National Capital Trail Network is a long-distance, continuous network of low-stress, mostly off-road bicycle and pedestrian trails that will serve the entire metropolitan Washington region. The network will be over 1,400 miles long when complete, with 645 miles already built.

Visualize the Future

Access for People of All Ages and Abilities. People will be able to get on these trails and be confident that they can go as far as they like, from one end of the region to the other, on a facility network that minimizes stress and supports safety.

Access to Opportunities. When complete, the trail would connect 136 of the region's Activity Centers, where jobs, housing, and transit are concentrated. Over 4 million people and 2 ½ million jobs will be located within a half mile of the network. People will be able to bike or walk to jobs, school, or entertainment.

Access to Nature. The trail network will provide healthy, low-stress access from cities and neighborhoods to parks and rural areas.

TPB's Role

Through regional analysis and member input, staff produced a framework for the National Capital Trail Network, a long-distance, continuous network of low-stress, mostly off-road bicycle and pedestrian trails that will serve the entire Washington region. Approved by the board in 2020, the network will be updated over time. **See an interactive map of the National Capital Trail Network as approved 2020 online at mwcog.org/maps/map-listing/national-capital-trail-network/.**

Voices of the Region

Survey

The Voices of the Region survey asked respondents which improvements would make them more likely to use a bicycle. While 42 percent said that no change would make a difference to them, the top substantive choices were related to bicycle infrastructure: If "bicycle lanes and routes were more direct and complete" (34 percent), followed by if "bicycle lanes were separate from vehicles by a barrier" (32 percent) and if "there were bike lanes or trails near my home" (31 percent). This initiative responds to each of these preferences, by better linking communities via a network of trails separated from vehicle traffic.

Focus Groups

Findings revealed that a connected network of trails is desired for both recreation and transportation, improving access and pedestrian and bicyclist safety. Participants noted trails are lacking in parts of the region.

John Brighenti/Flickr

Aspiration to Implementation

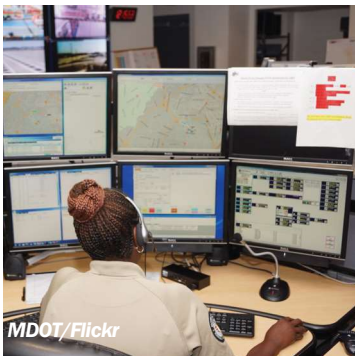
TPB asked: "How does having a connected network of regional trails affect your life?"

"It is a great initiative which will definitely help to develop the area more functionally and enhance the living resources in the neighborhood, as particularly we like to have walks with my 4 year old son with development delay and explore the new unknown destinations and be closer to the nature."

"Safe, well-maintained regional trails impact me massively. Cycling is my preferred mode of transportation, so more trails- especially trails that lead to centers of business, shopping, and dining-means I'm spending less time on the beltway, reducing emissions, and improving my health. As an overweight guy, I cherish any opportunity to fit some exercise into a busy schedule."

"Currently I use the trails mainly for fitness and recreation. I would prefer to use my bicycle for transportation whenever possible, and I use the trails when available. Some of the trails connect areas in better, safer ways to where I'd like to go, but there are some routes they do not cover that are dangerous to ride by bike. I would like to see more routes designed for efficient commuting in my area, not just recreation."

"It helps me get to where I need to go through an alternative commute while enabling me to live a healthier and happier life."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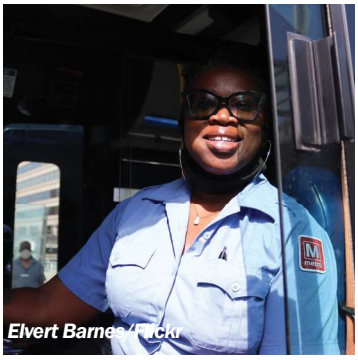
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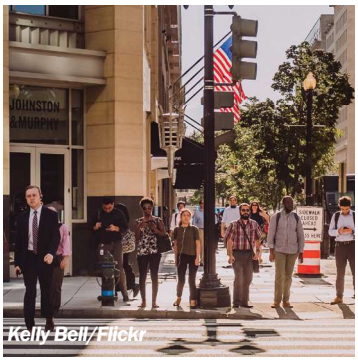

Kelly Bell/Flickr

How to Support the Aspirational Initiatives

TPB: Members can consider how and where in their jurisdiction or agency's planning and policy processes the jurisdiction or agency can take action toward the Aspirational Initiatives. While barriers such as funding silos and long project development timelines are legitimate constraints, when possible, seek opportunities to prioritize or expedite projects, programs, and policies that align with the initiatives.

Technical Staff: Staff to TPB members can consider how initiative concepts can help to solve local and regional challenges. Staff can use the EEA tools and findings from other TPB studies and research to inform the development of projects, programs and policies. Staff can review, share, and consider the implications of the Voices of the Region's findings to inform or enhance project, policy and program development.

The Public: Members of the public can participate in the local planning process through avenues such as local surveys, focus groups, social media, and community planning and budget meetings. The public can participate in local meetings about new development and transportation projects. They can support initiatives that they find important and emphasize what project features and outcomes are most important to them. People can write to local leaders to show support for the initiatives and projects that align with the ideas behind these initiatives such improving bike and walk access to transit. A few specific examples include:

- Show support for new BRT and transitways plans projects in your jurisdiction. Support funding the projects and project features that make these projects successful, such as level boarding, dedicated lanes and transit signal priority.
- Support new transit-oriented development and affordable developments in your jurisdiction to help make room for more people in our region.

Organizations: Share the TPB's Aspirational Initiatives with stakeholders. Promote or support implementation of the initiatives that align with the agency's mission.

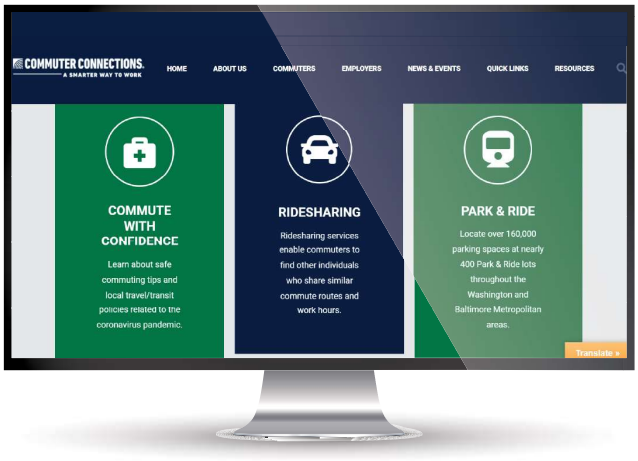
Everyone: Share the animated videos and infographics that the TPB has produced to communicate the concepts and benefits of the Aspirational Initiatives. **Find these at Visualize2045.org.**

Transportation Options

As a growing and diverse region, metropolitan Washington needs a transportation system that provides a wide range of ways to get around. Through the TPB, transportation agencies in the region work together to provide more convenient and affordable transportation options, allowing each person to choose what works best for them. This update to Visualize 2045 emphasizes the need for transportation options, programs, and policies that will help the region work together to address climate change, improve safety, and advance equity in the region. Strategies include the integration of the transportation system and access to more transportation choices, such as riding transit, walking, or biking, so that everyone can connect more easily to activities, services, and opportunities.

Transportation Demand Management

Many of the strategies in this section represent Transportation Demand Management (TDM) approaches 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 to reduce traffic congestion and emissions caused by single occupant vehicles (SOVs). The outreach mission creates 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.



Equity Considerations

Providing travel demand management means increasing access to travel options and telework that can expand the number of jobs that a person might be able to access within the region and help employer or government TDM incentive programs to reduce travel costs. Shorter and non-SOV commutes can reduce emissions and provide health benefits to commuters. While many lower-paying jobs do not have telework as an option, promoting telework in the region helps reduce congestion for those that need to drive or take transit to go to and from work.

TPB's Role

Commuter Connections is the major demand management component of the TPB's congestion management process (CMP) that helps support regional air quality goals. Its products and services are provided to member agencies through central program administration, implementation, and monitoring of 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

coordinated regionally through subcommittees and ad-hoc groups, which meet regularly and as needed. Commuter Connections network members also assist employers to start or expand commuter benefit programs. The TPB staff provides regional resources such as telework and "flexwork" policy templates that employers can use to tailor their worksite programs. Regionwide incentive programs such as Guaranteed Ride Home, CarpoolNow, Flextime Rewards, 'Pool Rewards program, and incenTrip can help nudge commuters out of their SOV mode into ridesharing, transit, and active transportation modes of travel. 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 input into program services. **More information about Commuter Connections can be found at commuterconnections.org.**

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 traveled. During the COVID-19 pandemic, surveys show there was a significant increase in telework, walking, and biking, while there was a decrease in transit and driving. While short-term impacts of the pandemic were significant, the long-term impacts on travel behavior are unknown The TPB will continue to monitor system usage through its various programs, including the 2022 State of the Commute Survey and will forecast transportation system usage based on objective information and sound planning assumptions. Looking to 2045, when another 1.3 million people and nearly one million jobs will be added to the region, the importance of managing transportation

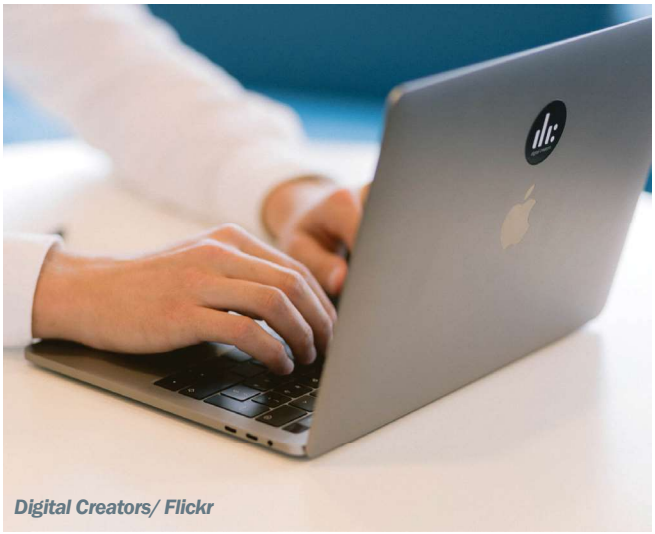
Bossi/Flickr

demand will only increase. Enabling people to not drive alone in the future will make the region's air cleaner and will help meet the 2030 GHG reduction goals of the COG Climate and Energy Action plan (endorsed by the TPB in 2020), and will help reduce congestion on the roads.

The sponsors for the projects in the constrained element identified 42 projects as implementing the Aspirational Initiative that focuses on transportation demand management: Provide More Telecommuting and Other Options for Commuting. The sponsors also identified hundreds of other projects that improve or expand alternatives to driving, a key feature of transportation demand management. See a summary table by project type in Chapter 7, Funding the Transportation System. Projects examples in the constrained element that promote TDM and descriptions of benefits from project sponsors include the White Flint District East and West (CE5985 and CE5986) in Montgomery County that supports expanding BRT and providing access to BRT and Metrorail.

Ongoing Challenges

TDM faces many challenges in influencing commuters to choose other ways to get to work. Concerns related to public health following the COVID-19 pandemic might impact people's attitudes when choosing to drive or take transit. Commuters may not understand the value of carpools or vanpools because they may have trouble quantifying how much time they spend commuting. As commuters seek housing that they can afford, they may not find sufficient affordable housing near high quality transit options. Employer policies may also encourage driving by offering free parking and low gas prices may encourage more people to continue to drive alone.



Digital Creators/ Flickr

Table 6.1: Commuter Connections Program Daily Impacts (2018 – 2019)

Measure	Reduction
Vehicle Trips	137,000
Vehicle Miles of Travel	2,648,000
Nitrogen Oxides (NOx)	0.5 Tons
Volatile Organic Compounds (VOC)	0.4 Tons

The Policy Context

Impact of the Aspirational Initiatives

Transportation Demand Management is the basis for the telework and other commute options initiative that implement priority TDM and CMP strategies.

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.

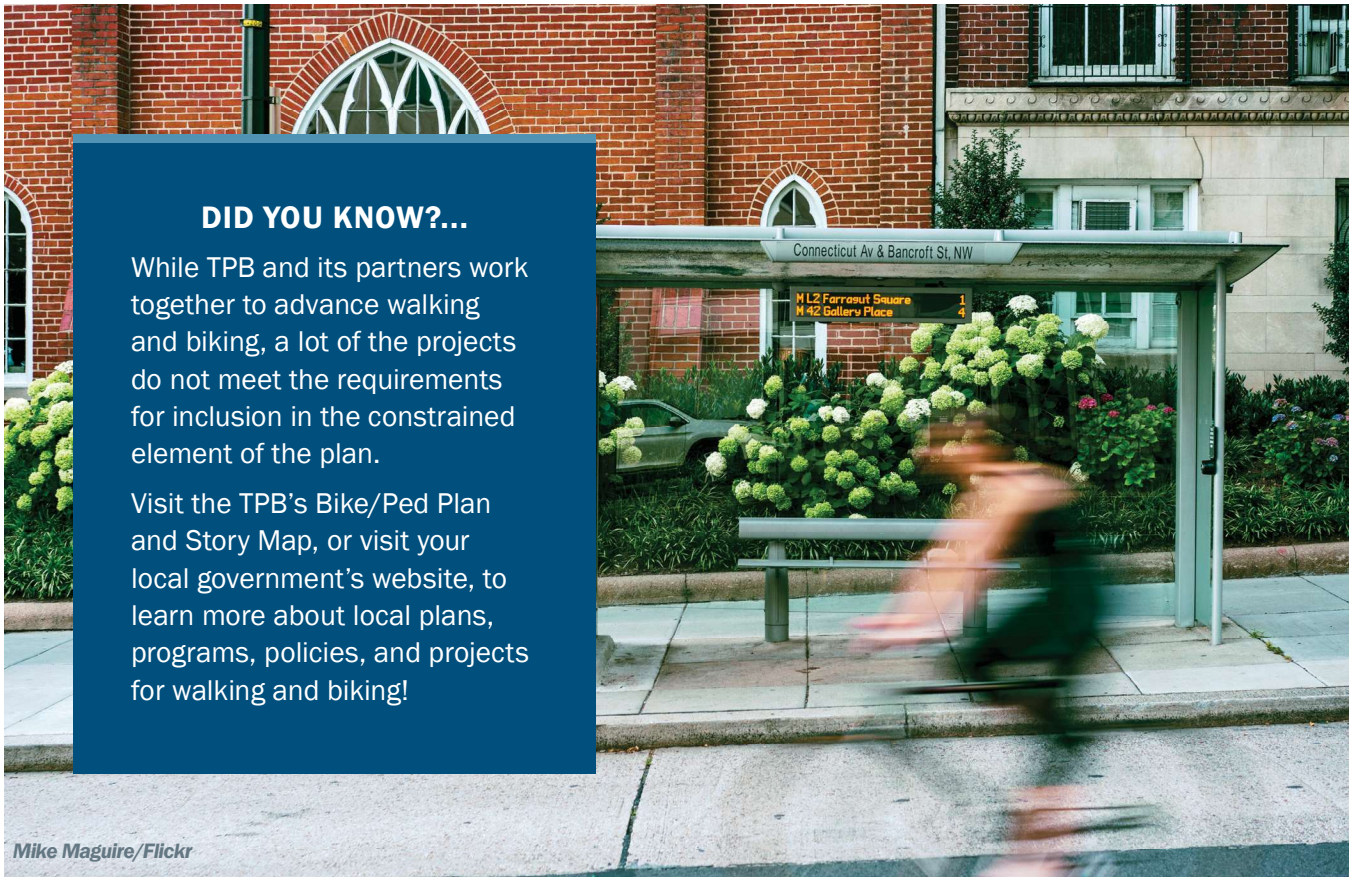
Bicycles, Pedestrians, and Micromobility

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 Yard in Alexandria. Projects like the National Capital Trail Network, a 1,400-mile trail network, which is one of the TPB priority initiatives, are knitting existing disconnected trails across the region into a true network. Projects such as the Washington Boulevard Trail, the Bethesda Trolley Trail, and the Rhode Island Avenue Trolley Trail are linking residential and commercial areas to nearby parks, transit and other community assets. As of 2019, about 3.3 percent of work trips in the region were on foot, scooter, or bike.[28]

Currently, there are over 800 miles of bike paths and over 400 miles of bike lanes in the region. Since 2014, the region has added roughly 350 miles of paved bike paths and bike lanes to the network, or roughly 60 miles per year. Walking and biking are forecast to increase at much higher rates than any other mode of travel. Where trails can be added alongside rail and utilities, further expansion is possible. See the performance analysis summary in Chapter 8, Planning for Performance. An additional 2,445 miles of bicycle and pedestrian facilities are planned through 2045, including over 1,200 miles of shared use paths, 600 miles of standard bike lanes, and 190 miles of protected bike lanes.

Equity Considerations

Some income and historically disadvantaged populations live in areas that have high levels of walking but substandard or missing pedestrian and bicycle facilities.



DID YOU KNOW?...

While TPB and its partners work together to advance walking and biking, a lot of the projects do not meet the requirements for inclusion in the constrained element of the plan.

Visit the TPB's Bike/Ped Plan and Story Map, or visit your local government's website, to learn more about local plans, programs, policies, and projects for walking and biking!

Mike Maguire/Flickr

28 Commuter Connections 2019 State of the Commute Survey Report published June, 2020

Pedestrian and bicyclist fatality rates are higher in Equity Emphasis Areas (EEA), small geographic areas that have concentrations of low-income and/or minority populations.

The Bicycle and Pedestrian plan includes 293 pedestrian and bicycle projects that will be in an EEA: 72 percent of EEAs will get at least one project. These projects can improve the transportation access and safety for the historically disadvantaged populations living in EEAs. The plan includes projects judged to have regional significance but does not include most sidewalk projects. The National Capital Trail Network will pass within half a mile of 136 of the region's 141 Activity Centers, as well as 308 of the 351 EEAs, connecting them to jobs, shopping, parks, and other amenities.

TPB's Access for All Committee provides input into the design and operations of trails and sidewalks, particularly relating to the resolution of conflicts between bikes, e-scooters and pedestrians with disabilities.

TPB's Role

As long-time regional priorities, biking and walking are highlighted in the TPB's Vision, RTPP, and in Visualize 2045. As more jurisdictions have added micromobility options, the TPB staff has hosted bikeshare and e-scooter workshops to coordinate and share information. 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 91 percent of the local jurisdictions in the region have a Complete Streets policy. The effects can be seen throughout the region as new road projects routinely include bicycle and pedestrian facilities.

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 state, local, and agency plans. An updated plan is due for public release in Spring 2022. **More information about the plan can be found at mwcog.org/BikePedPlan.**

Ted Eytan/ Flickr

DDOT DC/ Flickr

The Policy Context

Impact of the Aspirational Initiatives

Completing the National Capital Trail Network and focusing investments in Transit Access Focus Areas will help complete networks and improve connectivity for people who choose to walk, bike, or use e-scooters to get to transit and other destinations.

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.

The TPB's Bicycle and Pedestrian Subcommittee oversees the maintenance of the regional Bicycle and Pedestrian Plan and advises other TPB planning areas and initiatives. The subcommittee advised on the plan for the National Capital Trail Network, which the TPB adopted in 2020. The subcommittee also helps state and local agencies share information and coordinate their bicycle, pedestrian, and micromobility planning efforts.

The TPB provides technical assistance grants to its member agencies and partners to design and construct projects that improve pedestrian and bicycle access. The TPB's activities include "Street Smart," a cost-effective regional media campaign that draws attention to the human impact of unsafe driving. Through Commuter Connections programs such as Bike-to-Work Day, COG and the TPB promote bicycling as a commuter option.

Visualize The Future

In the future, as agencies complete projects in Transit Access Focus Areas, complete the National Trail Network, and construct other projects that improve connectivity, people in the region will have even more options to travel throughout the region by foot, bike, or scooter. More trails, sidewalks, and ways to get around safely and comfortably will inspire more people to choose biking, walking, and micromobility options. It will also minimize congestion by taking cars off the roads, improve the environment, and provide a healthy way to travel.

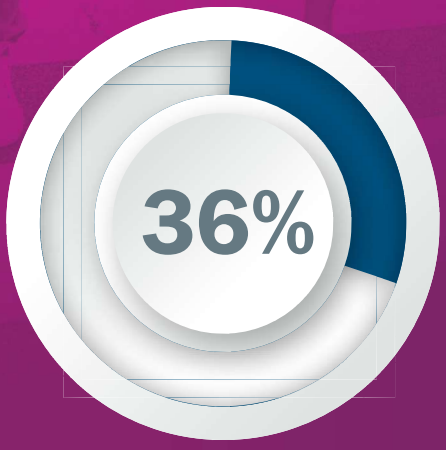
The sponsors for the projects in the constrained element identified numerous projects that promote, enhance, or support improved active travel, including 211 projects that make it easier to walk and 205 projects for people that bike or use micromobility options such as e-scooters. They also identified 162 projects that implement the initiative "Improve Walk and Bike Access to Transit" and another 32 that implement the initiatives to "Complete the National Capital Trail Network". For example, in the District of Columbia, the Pennsylvania Ave SE (CE3654) project will build bike lanes past the Eastern Market Metrorail Station. Also, in the District of Columbia, the project to Reconstruct New Jersey Avenue NW from H Street to N Street (CE3399) improves safety, neighborhood connectivity, and mobility for all modes. The project includes a protected intersection to improve safety for cyclists. Beyond the constrained

Jeff Vincent/Flickr

Voices of the Region

A FEW KEY SURVEY RESULTS:

When asked which improvements or changes would make them more likely to walk, bike, or use an e-powered or mobility device to the train station or bus stop, the most popular choice was "if there were sidewalks and safe crossings all the way there" (36%), followed by if "my route to the train or bus was quicker or more direct" (27%).



36% of respondents would consider using a shared e-scooter or e-bike to take short trips (less than one mile) to transit or other destinations.

Younger respondents were significantly more likely to select "Yes" relative to senior respondents (56% vs 9%).

element, transportation agencies are moving forward numerous projects through the Transportation Alternatives program. The TPB provides technical assistance through the Transportation and Land-Use Connections (TLC) and Transit Access Focus Area (TAFA) programs to advance this planning area, including funding the Suitland-Silver Hill Neighborhood pedestrian and Bike Access Improvement Project in Prince George's County, MD.

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, but the implementation of Complete Streets policies and the National Capital Trail Network is providing more networks and connections for people that choose to walk and bike. Safe and adequate accommodation for people that walk and bike is a challenge in low-density communities. At the same time, the growth of new micromobility modes can create conflicts with pedestrians.

Jack Prommel/ Unsplash

Beyond DC/Flickr

Transit

The region boasts one of the premier public transit systems in the country. Metro moves hundreds of thousands of people—commuters, students, and tourists each workday on rail, bus, and paratransit. See Chapter 2, "Where are We Today?" for usage statistics. Commuter rail services in Maryland (MARC) and Virginia (VRE) and dozens of local bus and other transit providers move many thousands more. Together, these transit services play a critical role in providing affordable transportation options, sustaining economic vitality, providing high-quality alternatives to driving, building communities, and reducing environmental impacts. Transit ridership has been significantly impacted by the pandemic, with changing travel patterns and services, and the rise of telework, long-term impacts are not yet known. Learn more in Chapter 2.

Transit planning in the region involves all transit agencies and jurisdictions as well as various regional organizations. WMATA operates Metrorail, Metrobus, and MetroAccess, which together carry close to 85 percent of all public transportation trips in the region. WMATA has its own planning documents, and in 2020 concluded a regional effort to reimagine bus service in the region, the "Bus Transformation Project." DDOT, the MDOT MTA, and the Virginia DRPT also engage in transit planning, such as MDOT MTA's 2020 **MARC Cornerstone Plan**. Local jurisdictions and operators develop more detailed plans for transit service, typically published as Transit Development Plans or Transit Strategic Plans. A summary of these plans is included in Appendix J. Other regional organizations plan for transit, including the NVTC, which is leading development of the proposed VA-7 BRT line and providing transit operating funds, and the NVTA, which conducts multimodal planning and funds transit capital projects.

Equity Considerations

Many essential workers depend on transit to reach their jobs, and in turn, many of these people are also from population groups (e.g., people of color, low-income households, non-native English speakers) and communities that face historical disadvantage and marginalization in access to transportation. This was of critical importance during the pandemic when transit services were drastically reduced in March 2020. As transit service was restored in 2021, there is greater focus on ensuring restoration and improving access to public transportation for these groups.

In 2021, the TPB commissioned a white paper and analysis of transit service in the region and the needs of the population during the pandemic but also looked at needs beyond the pandemic to when normal transit service is restored. The analysis assessed bus service (route coverage, frequency, time of day, and span of service) during the pandemic for those living in the region's EEAs, historically disadvantaged populations, and low-wage workers. It also compared current service to pre-pandemic service. The analysis examined how equitably service is distributed and identified gaps in that service that could be filled to improve equity.

The key finding from the white paper analysis was that overall, marginalized groups have more access to transit when compared to the region as a whole:

- 65 percent of people of color, and 74 percent of low-income households are within a one-quarter mile of a bus stop, compared to 60 percent of the region as a whole.
- 44 percent of people of color, and 54 percent of low-income households have access to high frequency (every 15-minute or better) service in the morning peak period, compared to 41 percent of the region as a whole.

However, when looking at low-wage workers, only 61 percent are within one-quarter mile of a

Voices of the Region

A FEW KEY SURVEY RESULTS:

Improvements to the Transportation Infrastructure

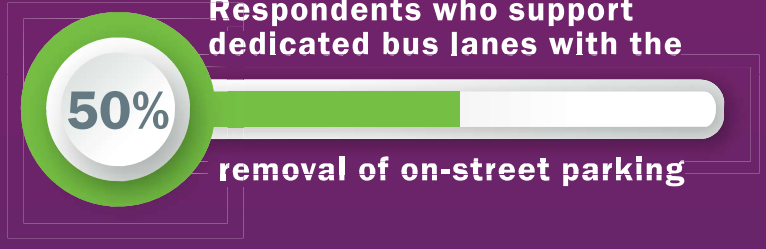
Over half of regular transit user respondents indicated real-time bus information at bus stops would be the largest factor to make them more likely to take a bus. Users also identified shade (43%) and adequate lighting (27%) as important factors. Reliable on-time performance would be the most significant improvement to their bus ridership experience.

To improve rail transit, survey respondents prioritized more frequent (40%), and less crowded (35%) trains.

Future Transportation Investments

Improved/expanded public transportation service was one of the most often mentioned transportation investments that future generations would thank us for tomorrow.

BROADER OPINION RESPONSES:



bus stop, and this figure drops to 31 percent for high-frequency, peak period service. This illustrates that these populations have significantly less access to bus service when compared to the overall population.

TPB's EEAs have a higher percentage of residents within a one-quarter mile of a bus stop for every analyzed sub-group, often by a factor of 20 percentage points. However, this is compared to the entire region, which is overall less dense than the EEAs.

TPB'S Role

The TPB, as the MPO for the National Capital Region, closely coordinates with the states, local jurisdictions, transit agencies and other organizations in the planning and programming of public transportation improvements. Transit projects using federal funds or those that are regionally significant are included in the LRTP, the TIP, and in modeling and analysis used to meet federal surface transportation and environmental requirements. Transit service is a key component included in the regional travel demand model used to forecast future travel demand and meet air quality requirements.

Beyond federal requirements, the TPB interfaces with its members on issues related to public transportation, including governance, funding, equity, the environment, safety, and other areas of interest. The TPB's Regional Public Transportation Subcommittee was formed by resolution of the TPB on January 17, 2007, as the Regional Bus Subcommittee. Its mission is to provide a permanent process for the coordination of bus planning throughout the metropolitan Washington region, and for incorporating regional bus plans into the LRTP. The subcommittee reports to the TPB Technical Committee on issues and interests of the region's public transportation providers.

In response to the federal Surface Transportation Act Moving Ahead for Progress in the 21st Century (MAP-21), and the requirement for increased representation of public transportation on MPOs, the TPB passed a resolution in September 2014 declaring itself in compliance with MAP-21. It also called for further dialogue and the reconstitution of the TPB's Regional Bus Subcommittee as the Regional Public Transportation Subcommittee (RPTS) to include all regional providers of public transportation. The mission, goals, and membership of the reconstituted subcommittee were approved by the TPB Technical Committee. The TPB develops an annual "State of Public Transportation" report to communicate public transportation provider interests to the TPB.

The Policy Context

Impact of the Aspirational Initiatives

Expanding BRT and transitways throughout the region with improved bicycle and pedestrian connections would provide more people access to high-capacity transit and additional connectivity to destinations throughout the region, including 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 numerous destinations served by Metrorail, including 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.

Mario Sessions/Unsplash

Visualize the Future

Sponsors for projects in the constrained element identified numerous projects that promote, enhance, or support transit, including 67 that enhance or expand Metro infrastructure, 30 for commuter rail, nine for streetcar or light rail, and 30 for BRT, 92 for commuter/express bus, 102 for Metrobus, and 205 for local bus. Hundreds of projects support the TPB's policy priority of walking and biking, which can improve access to transit.

The project sponsors identified 162 projects that implement the initiative "Improve Walk and Bike Access to Transit" and another 47 that implement the initiatives to "Expand Bus Rapid Transit and Transitways". Example projects and benefits identified by the sponsors include the H&I Street Bus Lanes transitways project (part of T3212) which provides increased reliability in transit options for commuting to and through the downtown core bringing jobs and housing closer together. The 16th St NW Transit Priority project (T6638) will add bus lanes on a major bus route increasing the speed and reliability of bus lines utilized by thousands of riders every day. In Prince William, Virginia, the VRE Broad Run expansion (CE2420) will promote high-capacity transit by expanding service on the VRE Manassas line and improving station access. In Montgomery County, MD, the US 29 Bus Rapid Transit Phase 2 project (CE3765) will expand BRT, improve access to Metrorail at Silver Spring Metrorail Station, and "Improve Walk and Bike Access to Transit". **For more examples, see Chapter 7 or retrieve the full policy documentation on the Visualize 2045 website.**

Regional planning and investment in customer centers, transit facilities, and a modern rail and bus fleet are needed to ensure that transit service is an efficient, effective, and attractive transportation choice. In the long-term, a renewed emphasis on transit-oriented communities will provide expanded mobility for all travel options. Transit providers are also investing in electric buses and other clean technologies that will have environmental benefits. As Bus Rapid Transit (BRT) routes are added to the region's transit network, jurisdictions and agencies need to work together on integration, compatibility, customer information, and overall coordinated regional transit planning. Going forward, the region needs to identify and plan for transit fleet and facility needs to meet forecasted population and employment growth and regional goals for reducing vehicle-miles traveled (VMT) per capita and increasing transit mode share.

Primary objectives include:

- Improved quality of service for customers is the number one priority, including information, accessibility, security, and safety.
- An integrated network of regional bus service, including commuter bus and routes connecting regional hubs.
- Regional transit, intermodal transfer centers, and intercity bus centers are needed at Activity Centers and regional hubs to provide customers with access to jobs and amenities and to connecting transit services.

Ongoing Challenges

Beyond implementation of the Aspirational Initiatives, more detailed and complementary opportunities exist for investment in public transportation. Funding transit at the levels needed for reliability and frequency in all areas is an ongoing challenge, as are the capital investments needed to maintain the systems in a state of good repair and to expand capacity. Continuing investments are focused on improving bus access to regional hubs and Activity Centers through bus priority treatments along major arteries and at the access points, including transit signal priority (TSP), queue jumps, and bus-only or transit/HOV lanes. In addition, central bus storage/layover sites are of importance for downtown DC, as well as inner suburb Activity Centers such as Rosslyn and Silver Spring, where there is strong demand for transit service. Hundreds of local, commuter, tour and intercity buses need locations to layover at transit hubs; a critical need in providing efficient, on-time service. Other investments are in bus stop rationalization and improvements along with curbside management so that transit connections are safe, easy, and accessible for mobility needs customers. Finally, fleet facilities for maintenance and storage are needed in locations that match service needs.

Beyond DC/Flickr

Intercity Travel: Buses and Rail

Intercity buses connect the metropolitan Washington area to New York City, Philadelphia, and other major cities or destinations. These buses serve thousands of person trips daily.

In addition to privately operated bus services offered by companies such as Greyhound, Megabus, and Peter Pan. Virginia funds The Breeze intercity buses, with the initial 2017 route serving Blacksburg, Staunton, and Front Royal. New routes from Dansville via Lynchburg and Charlottesville and from Martinsburg via Richmond were added in 2021—all connecting into Union Station in downtown DC. The region also benefits from multiple commuter bus options that provide car-free travel to and from major employment centers.

The region has a major terminal for intercity Amtrak passenger rail traveling up and down the East Coast as well as west to Pittsburgh and Chicago, southwest to Atlanta, and south to the Carolinas and Florida. While many travelers are heading north, Lorton, VA, is the northern terminus for Amtrak's Auto-Train service to Sanford, FL (Orlando). In addition, Virginia is investing significantly in improving rail service in the state, both leading the new Long Bridge project across the Potomac River as well as purchasing the right-of-way for construction of additional tracks on the DC-Richmond corridor and expanding service to other parts of the state and onwards to North Carolina.

Equity Considerations

Intercity fares are mostly at market rates, with some discounts for frequent travelers. Public support for intercity travel has primarily been through investment in terminals. However, Virginia's support for The Breeze service offers a model for expansion of intercity bus services to additional destinations at reasonable prices. Other opportunities to provide intercity travel options to low-income residents should be explored.

TPB'S Role

The TPB's Regional Public Transportation Subcommittee, whose mission is to provide a permanent process for coordinating public transportation planning throughout the region, discusses coordination with intercity travel operations and customer needs. The TPB conducts planning activities to support intercity bus planning, most recently, it conducted a count in 2016 to inform the 2017 report: **Intercity Bus Traffic and Patronage in the Metropolitan Washington Region**.

Ongoing Challenges

As the region continues to experience population and economic growth, there will be additional competition for station locations and staging areas for intercity buses, commuter buses, and tour buses in Activity Centers. The development and implementation of a regional strategy for intercity bus terminal and storage is needed to provide support for the bus industry, public and private.

Visualize the Future

The sponsors for the projects in the constrained element identified 36 projects that promote, enhance, or support intercity bus, and 14 projects that support travel on Amtrak. For example, the project sponsors for the expansion of the Long Bridge with the Virginia Passenger Rail Authority Rail Capacity Projects (T6727) and the Alexandria 4th Track Project (T6673) indicated that the projects will double the long-term capacity for passenger and freight rail traffic and improve the reliability and connectivity of rail service. This expansion will contribute to a more cohesive railroad network connecting the areas between Richmond, VA, and Baltimore, MD.

An expanded network of intercity bus and rail travel options could provide for increased mobility outside of the private automobile, providing more options for youth, seniors, and traditionally underserved groups that do not have access to or are not comfortable using private automobiles for long-distance trips. Plans for Union Station in the District of Columbia to expand the station and increase rail and intercity bus options could be complemented by investment at other intercity terminals and services. As more expressways are implemented in the region, buses using the managed lanes will benefit from faster and more reliable travel, reducing travel time and delays.

Ivan Radic/Flickr

Voices of the Region

A FEW KEY SURVEY RESULTS:

Congestion Concerns for Outer Suburbs

More than half of residents of the outer suburbs said congestion was a significant concern (54%), compared to (27%) of residents in the region's core.

REAL PEOPLE WITH REAL VOICES:

"I think more and more people are going to be moving farther out, especially if telework continues for most people. More people are going to move out where the housing is more affordable, and I hope that the planning board people are going to be thinking about how to make those areas more accessible with the buses, with the trains, what people are talking about. Just realizing that more and more of these places that seem farther away need to be connected as more people move out there."

— Resident of Ashburn, VA

Driving and Riding in a Vehicle

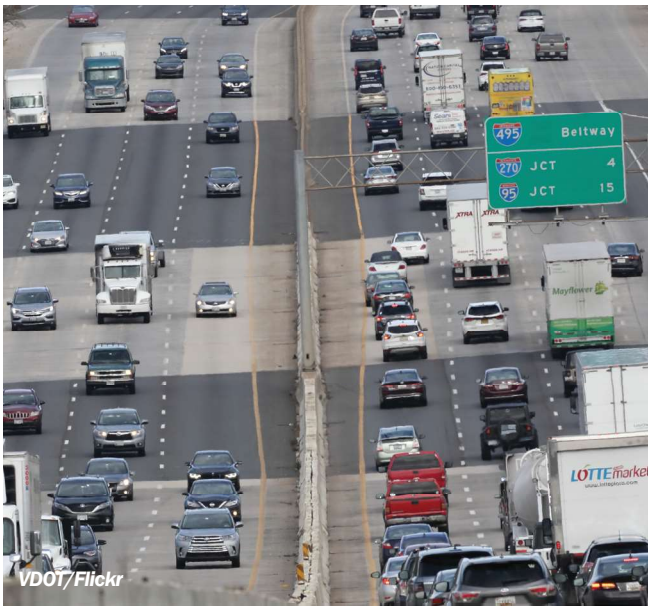
The region's extensive highway and road network provides connectivity for people and goods to destinations across the region. Every day, millions of people travel on our region's roads to access jobs, schools, and medical care, as well as shopping, entertainment, and recreational opportunities. Roads also carry most goods delivered to homes, schools, businesses, and stores in the region. The TPB encourages people who travel in vehicles to share the ride through carpooling when possible. In the last decade, rideshare and ridehail services have grown creating new opportunities for people to share rides, or use a vehicle as-needed rather than investing in a vehicle, but these services could also encourage more trips in cars. The 2017-2018 Regional Travel Survey reports nearly three times the amount of taxi and ridehail travel in 2017-2018 compared to the 2007-2008 survey. The TPB continues to monitor the impact of these services on transportation demand and travel choice, especially given recent short-term disruptions to travel trends due to the COVID-19 pandemic. Long-term impacts of the pandemic remain uncertain.

The responsibility for planning and investing in the region's roadways is shared by state, county, and local transportation planning agencies. Generally, each road has an owner that is responsible for how that roadway functions, including roadway performance and congestion, maintenance, safety, and alignment with Complete Streets policies. Maintaining facilities in a state of good repair is a critical, if unsung, emphasis of transportation agencies' future investments, whether bridge or pavement conditions, traffic signals, lighting,

signage, or other infrastructure. While all roads in the region form the network that connects our communities, only those projects of regional significance that are required for inclusion in the region's air quality analysis or that use federal funding are included in the constrained element.

Equity Considerations

Each part of the transportation system plays a unique role in connecting people to life's destinations. The region's roadways provide access to jobs, education, and recreation from the suburban residential and employment areas that are not presently served by high-capacity and frequent transit. While the region's transportation agencies continue to enhance transit, walking, and biking options, for some people, traveling by vehicle is their preferred or most practical and economic choice for commuting to work, school, caring for family or participating in other life activities. The relationship of affordable housing and transportation choices is closely linked, as much of the region's housing that is more affordable tends to be in suburban and non-urban areas that lack frequent and rapid transit, which leads to a reliance upon driving. Carpooling can create economic opportunities for traveling on HOV or carpool-eligible lanes.



VDOT/Flickr

TPB's Role

While encouraging a range of multimodal solutions and travel demand management, the TPB is committed to improving conditions for people that travel by vehicle. The TPB has a long history of developing potential strategies that members implement around the region to improve the driving experience, from maintaining roads and bridges in a state of good repair for safety and comfort, to managing congestion through a range of strategies that improve travel time and reduce delay that TPB documents in its Congestion Management Process (CMP). Through its safety program, the TPB also helps to improve the safety for all people using the transportation system. Learn more about the TPB planning activities to reduce congestion, improve roadway safety, and maintain roadway quality, including the federally required Performance-Based Planning and Programming Process and Congestion Management Process in Chapter 8 and in the Safety and Operations and Management sections of this chapter.

Visualize the Future

People, roadways, and vehicles may become more connected and safer through ongoing planning, investment, land use coordination and transportation system technologies including the connectivity of vehicles and transportation infrastructure and increased vehicle automation. Learn more about how TPB is preparing for the uncertainty around potential benefits and challenges of these technologies in the Emerging Technologies and Operations section of this chapter.

The sponsors for the projects in the constrained element identified 243 projects that promote, enhance, or support improved travel for people that drive or ride in vehicles to get around and 74 projects that support the movement of high-occupancy vehicles. The sponsors identified 32 of the projects in the constrained element as implementing the Aspirational Initiative "Expand the Express Highway Network" which promotes transit and carpooling or vanpooling with 3+ to ride free on expressways. **See the complete responses for all project at visualize2045.org/plan-update.**

Example projects in the constrained element that support vehicle travel include the I-295/Malcolm X Interchange Project (T5723) that will improve access to major employment centers (US Department of Homeland Security, Joint Base Anacostia-Bolling) and improve safety for motorists. Also, the US 15 Corridor project (CE3567) north of the City of Frederick, located within the more rural portion of Frederick County, MD, will serve a population with a lower income level, reduced access to medical care and, in some cases, less access to transportation. Improving the network will help those living locally to have a safe and reliable transportation system that is essential to travel to and from work.

In Virginia, the construction of a new interchange on I-70 (CE2250) in Fairfax County will open the area to new development allowing those that live locally to have job opportunities close to home and a safe and reliable transportation system. The Franconia-Springfield Parkway (CE1833) will improve a heavily utilized route to the Franconia-Springfield Transit Center that is used by buses and personal vehicles. This project will also contribute to the development of an interconnected transportation system that enhances quality of life and promotes a strong and growing economy in Fairfax County and throughout the entire region. In Prince William County, the project to widen Route 28 (CE3219) supports a local Small Area Plan to advance the Aspirational Initiative to "Bring Jobs and Housing Closer Together" and supports future regional plans for BRT or enhanced transit services on the corridor.

Ongoing Challenges

As the region plans for another forecasted 1.3 million people and nearly 1 million jobs in the region by 2045, there is a need to improve the efficiency of the available roadway system since there are limited options for expansion. As TPB policy priorities focus on Transportation Demand Management strategies, as documented in the CMP, the region's transportation agencies will need to invest and plan for roadways that support travel by people walking, biking, taking transit, and driving. Roads will need to accommodate the freight movement necessary for the livelihood of the region's communities. Roads will need to provide access and mobility to all people. They will need to be resilient and reliable to serve the additional transportation demand and challenges that may come with increases in extreme weather.

The Policy Context

Impact of the Aspirational Initiatives

Expansion of the express travel network would provide several benefits for people driving or riding in vehicles, including reducing congestion and incentivizing travelers to either carpool or travel by transit vehicle.

Planning Factors

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

RTPP Goals

- Maximize operational effectiveness and safety of the transportation system.
- Provide a comprehensive range of transportation options.
- Support inter-regional and international travel and commerce.


Prince William County

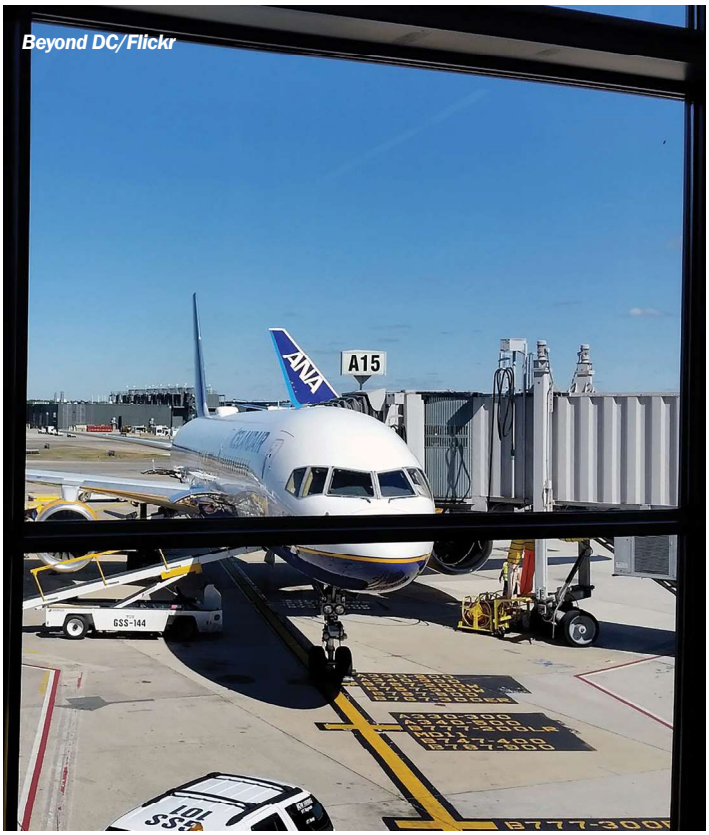
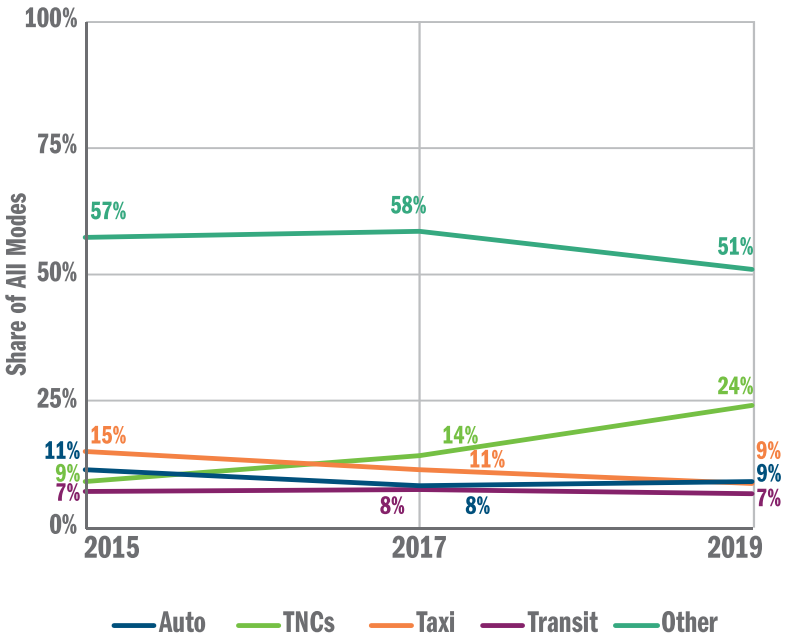


Figure 6.1: Mode of Access to Airport for Departing Passengers, 2015, 2017, 2019 (Source: Regional Air Passenger Survey, TPB Continuous Airport Systems Planning)



Airport Systems Planning

In a typical year, more than 37 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). In all, the airports directly or indirectly support more than 450,000 jobs and some $50 billion in annual economic activity. Due to the COVID-19 pandemic, the region experienced a 65-percent decline in the number of people traveling through DCA, IAD, and BWI—down from 37 million in 2019 to 13 million air passengers in 2020. The TPB Aviation Technical Subcommittee and associated TPB staff continue to monitor the impacts that COVID has had on the industry.

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, including the anticipated completion of the Silver Line.

Equity Considerations

A region with equitable and resilient air systems is one that is logistically and financially accessible to all individuals who must reach the airport in a timely fashion, including airport workers. Many airport workers do not earn incomes that enable them to own a private vehicle and are thus reliant on the current public transit system, which has geographic as well as schedule-related limitations for these individuals reaching their place of work in a safe, timely, and affordable manner.

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 6.1 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**.

Visualize the Future

The sponsors for the projects in the constrained element identified 24 projects that promote, enhance, or support air passenger travel. According to the Federal Aviation Administration (FAA) 2019 Passenger Boarding data and 2045 Terminal Area Forecasts, overall enplanement (boarding air passengers) at BWI, DCA, and IAD are projected to increase by 46 percent between 2019 and 2045. 2019 was selected as the base year in this calculation because it represents pre-pandemic conditions. When considering the significant decreases in enplanements resulting from the pandemic during 2020, enplanements at all three airports would increase 317 percent between 2020 and 2045 due to the unusually low base year number.[29] As the region's airports continue to recover from the COVID-19 air travel downturn, the TPB's airport systems planning and coordination efforts will continue to make access to air travel easier for air passengers, airport employees, and freight shippers alike. One significant change will be the upcoming expansion of Metrorail's Silver Line beyond Dulles Airport.

Ongoing Challenges

The COVID-19 pandemic is a global aviation industry challenge. The recovery process continues to be monitored by TPB staff and communicated to TPB member jurisdictions and other key stakeholders who are deeply invested in the recovery of the economic engine of the region's commercial airports. Additionally, the advancement of technological disruptors, such as connected and automated vehicles, flying taxis (such as Uber Elevate), and unmanned aerial vehicles (e.g., drones) continue be factored into long term regional airport systems ground access planning efforts. Finally, with the forthcoming 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 Metrorail extension.

The Policy Context

Impact of the 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.

29 Base Year; Source: FAA, Enplanements at all Commercial Service Airports, Calendar Year 2019 Passenger Boarding Data (Final) faa.gov/airports/planning_capacity/passenger_allcargo_stats/passenger/media/cy19-commercial-service-enplanements.pdf. Forecast Year: Source: FAA Terminal Area Forecasts, faa.gov/data_research/aviation/taf/media/TAFSummaryFY2020-2045.pdf

Strategies to Address Future and Planning Factors

Equity and Inclusion:

The TPB has been long 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. The TPB proactively ensures that people with limited English skills and those with disabilities can fully participate in and benefit from TPB-related work.

Mike Maguire/Flickr

TPB's Role

In 2020, the TPB approved a resolution reestablishing its commitment to equity and anti-racism. The TPB's equity resolution affirms that equity, as a foundational principle, will be woven throughout TPB's analyses, operations, procurement, programs, and priorities. As such, this chapter's discussion of strategies now includes a discussion of equity considerations and planning activities.

In 2017, the TPB adopted "Equity Emphasis Areas" (EEAs, Figure 6.2) as a tool to examine demographic patterns in the region and to analyze Visualize 2045 (2018) for disproportionate and adverse impacts on historically disadvantaged populations. EEAs are small geographic areas that have concentrations of low-income and/or minority populations based on Census data. More information including an online interactive map of the EEAs helps inform the region about spatial patterns for various population groups: **mwcog.org/EEAs**.

The TPB uses EEAs to analyze the financially constrained element of Visualize 2045 by looking at the forecasted performance of the transportation system for the year 2045, comparing accessibility and mobility measures for the EEAs versus the rest of the region. The EEAs are also used as a tool in other COG and TPB planning activities. The data have been made available to local jurisdictions to assist them in considering equity in initiatives, such as housing, education, health care, and parks. The EEAs are a criteria for selection of projects that receive TPB programmatic funding.

The TPB also has a proactive public involvement process to ensure the concerns of historically disadvantaged populations are being heard. Through the Voices of the Region public engagement, the TPB expanded its public opinion and outreach efforts to inform this plan and other regional planning activities. Chapter 5 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. Appendix H provides a deeper discussion on these topics. The regional makeup of these communities can be seen in Figure 6.3. Finally, COG's Title VI Plan provides necessary policies and practices to ensure non-discrimination, and is available at **online**.

Figure 6.2: Equity Emphasis Areas

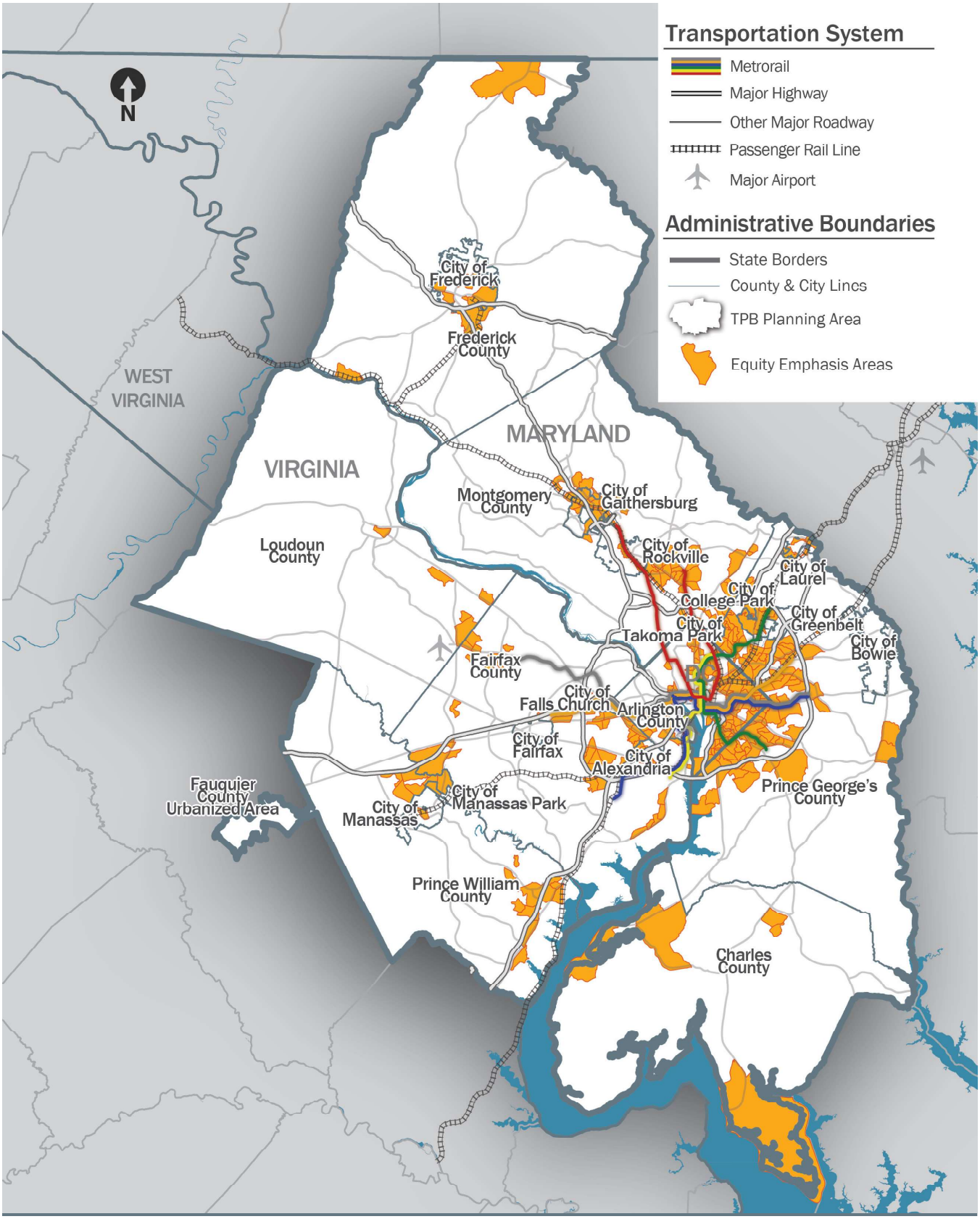
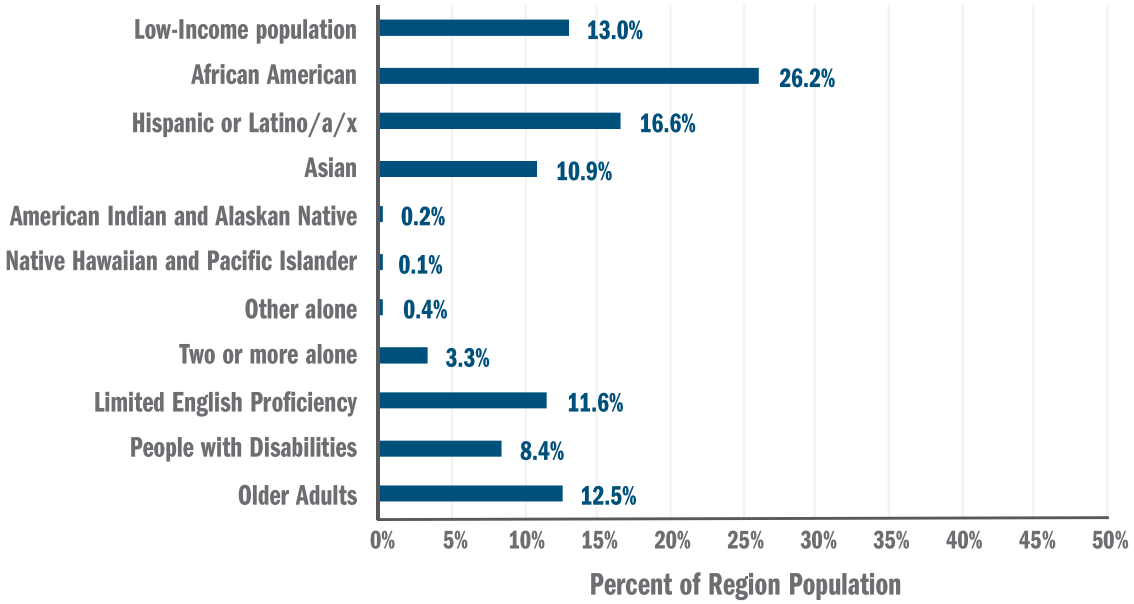


Figure 6.3: Regional Demographic Profile of Transportation — Disadvantaged Populations in the Washington Region, 2019 (Source: 2015 – 2019 U.S. Census American Community Survey)



Voices of the Region

LOW-INCOME PERSPECTIVE

Respondents with low-income who commute were significantly more likely to walk to work or school during the pandemic, relative to non-low-income respondents. They were also significantly less likely to telecommute. Respondents with low income were significantly more likely to ride the bus if the stops or stations were cleaner, the buses were less crowded, and the fare was cheaper.

"In terms of addressing equity, frankly because I have a place of privilege I don't have an equity concern for myself, but the reality is that there are too many resources going to people like me and where I live and not enough going to places that are heavily bus-dependent, or heavily transportation-dependent, or even for drivers."

— Resident of Montgomery County, MD

Visualize the Future

The TPB looks to have the region's future transportation system function in a way that is fair, equitable, and has addressed the wrongs of the past. While equity may mean something different to each individual, all people should feel safe and have a comprehensive range of affordable options to get where they need to go. The TPB will continue to view all its work through an equity lens and support its members in doing the same by providing policy guidance, tools, and data to support decision-making.

Building on the Environmental Justice analysis that is conducted after the completion of each plan, as part of the solicitation of technical inputs for this plan, the TPB asked project sponsors several questions about if the projects serve EEAs and how they consider issues of equity. Project sponsors indicated that 109 projects in the constrained element of this plan are in EEAs, and 129 projects

The Policy Context

Impact of the Aspirational Initiatives

Together, the initiatives would provide more transportation options in the region improving affordable transportation access to jobs and other life destinations. The EEAs may be used by state and local agencies, at their discretion, to consider equity in any of the initiatives and are a criteria considered in the prioritization of TAFA and other grants that implement the access to transit initiative. When complete, the NCTN will serve 308 of the 351 EEAs. Optimizing land-use to "Bring Jobs and Housing Closer Together" could improve accessibility for people living in the EEAs.

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.

connect an EEA to a regional Activity Center. These projects should help improve the transportation options in EEAs for people that live in and near them, and help people move among EEAs and regional Activity Centers, where there are higher concentration of jobs and other life destinations.

The TPB also asked project sponsors to provide responses as to how each existing and new project further supports or advances equity as described by the TPB July 2020 resolution.

For example, The project to create an Overpass of I-495 at Tysons Corner Center (CE3157) is in an Activity Center and is near an EEA. The project improves connectivity and accessibility to transit for people with low income and minority populations. The proposed improvements for the US 301 Corridor in Waldorf (CE2239) including a grade-separation at MD 5, would support the connection of an EEA with various activity and employment centers in Waldorf, Charles County, and throughout the metropolitan Washington area.

To see a total of all projects that serve or are in EEAs, see Chapter 7. **Retrieve the full policy documentation with responses and narratives for each project on the Visualize 2045 website.**

Ongoing Challenges

Making a real difference in people's lives to improve equity in the region and righting wrongs of the past is not an easy objective; it requires concerted action across numerous disciplines, jurisdictions, and agencies. Also, 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 projects in 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.

Coordinated Human Transportation Services Plan

TPB and COG strive to improve mobility for persons with disabilities, older adults, and other transportation-disadvantaged populations. The TPB is the designated recipient of the Federal Transit Administration's (FTA) Enhanced Mobility of Seniors and Individuals with Disabilities program administered by COG. Under the guidance of its federally required Coordinated Human Transportation Services Plan (Coordinated Plan), the matching grant program funds projects seeking to improve access to transportation for older adults and people with disabilities. The plan was last updated in 2018 and is being updated in 2022.

Equity Considerations

As expressed by members of the Access for All Advisory Committee and recorded in the Coordinated Plan, older adults and persons with disabilities experience transportation challenges not shared by the general public. The principles of the Coordinated Plan, including the right to mobility, customer focus, elimination of service gaps, and maximizing efficiency of service delivery, aim to guide the TPB's work toward increasing equity for these traditionally disadvantaged population groups. Further, using Equity Emphasis Areas, consideration of low-income and racial and ethnic populations is embedded in the Enhanced Mobility Program's project selection criteria.

TPB's Role

The Coordinated Plan highlights unmet transportation needs for people with disabilities and older adults, identifying strategies to meet those needs. These needs encompass accessibility, availability, affordability, and awareness of mobility options. The Coordinated Plan includes priority projects that can help the region better serve targeted groups. This information and identified priority projects inform the selection process for Enhanced Mobility program grant funding. The TPB's Access for All Advisory Committee provides input and participates in the development of the Coordinated Plan.

Since 2014, the TPB has conducted four Enhanced Mobility solicitations and awarded more than 92 projects totaling over $34 million. These grants give more options to people who would otherwise have limited mobility. **More information on the Coordinated Plan and Enhanced Mobility can be found here**.

Visualize the Future

The TPB's Human Service Transportation Coordination work moves the region toward 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 can guide discussions about future transportation opportunities. In some cases, technological advancements in mobility help address the needs of transportation-disadvantaged populations.

A few examples of projects that the TPB funded in 2022 include: a project to continue and expand the Fairfax Mobility Access Project (FXMAP) which seeks to enhance awareness of transportation programs and develop training programs to teach how to use them, develop and implement new transportation options, and coordinate services. Another example is funding for two replacement buses and associated operating expenses for transportation to and from Easterseals' Adult Medical Day program that provides activities, socialization, nutritious meals, management of chronic conditions, and clinical oversight for older adults and adults with disabilities in Prince George's and Montgomery Counties. TPB also funded two wheelchair accessible minivans and two 15-passenger buses, and associated operating expenses, for the Arc of Greater Prince William/INSIGHT, Inc, to be used to transport adults with developmental disabilities to and from employment, mobile work training groups, adult day program sites, medical appointments, and community integration activities.

Ongoing Challenges

A variety of transportation options and strategies are needed to meet the wide-ranging challenges faced by older adults, people with disabilities, and those with limited incomes. As the region's population continues to age, addressing the unique mobility needs of older drivers may include helping them transition from driving to other modes of transportation and communicating the various mobility options available to them.

Also important is ensuring that people with disabilities can use pedestrian infrastructure, public transit, and tailored transportation options such as door-to-door services. Inclusive planning involves having continued discussions with community groups and transportation-disadvantaged populations. Engaging them can help optimize app-based services and CAV in a way that is more universally accessible and contribute to planning where technology can help address the unique mobility challenges of older adults and people with disabilities. The TPB staff have presented on CAV topics to the AFA to get their insights on opportunities and challenges and have used the committee feedback to inform the CAV principles.

The Policy Context

Impact of the Aspirational Initiatives

The transit-focused initiatives that promote transit access, BRT, and Metro 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.

John M/Flickr

WORKING TOGETHER

Our region is working together to mitigate climate change and prepare our transportation system to be resilient to changes in climate.

Climate Change Mitigation and Resiliency

Weather is the current state of the atmosphere in an area, climate is the long-term weather pattern. Climate change refers to long-term changes to the climate due to global warming. Climate change is real, largely caused by human activity, and is having a noticeable impact on the natural and built environment globally, including warming the atmosphere, ocean, and land. The changes are being driven by greenhouse gases (GHG) (e.g., carbon dioxide, methane, nitrous oxide) that are emitted from various activities, including the burning of fossil fuels.

Climate change impacts transportation infrastructure and services by increasing the intensity, frequency, and duration of extreme weather, which can mean more fallen trees, flooding, and damage to roads, rail, and other infrastructure. Impacts on transportation infrastructure could disrupt service, such as flooding interrupting bus routing and timing, or affect state of good repair due to increased frequency of extreme weather.

To prevent severe climate change globally, the region needs to do its part to substantially reduce GHG emissions (climate change mitigation) and prepare for the effects of climate change (resiliency/adaptation). In 2008, the COG Board adopted regional GHG reduction goals for 2012 (10 percent below a "business as usual" forecast), 2020 (20 percent below 2005 levels), and 2050 (80 percent below 2005 levels) for the metropolitan Washington region. In 2020, the COG Board adopted an interim GHG reduction goal for 2030 (50 percent below 2005 levels). The various sectors contributing GHGs include built environment (residential and commercial building energy), transportation, agriculture, and waste (water and solid). The transportation sector includes both on-road transportation (e.g., cars, trucks, buses) and nonroad transportation (e.g., marine vessels, aviation, rail, and off-road vehicles, such as farm and construction vehicles). In 2020 COG developed a Climate and Energy Action Plan (CEAP) that examined a set of actions in various sectors, which if implemented, could reduce the region's GHG by 50 percent below 2005 levels by 2030. The TPB has endorsed both sets of GHG reduction goals.

Mitigating Climate Change

TPB's Role

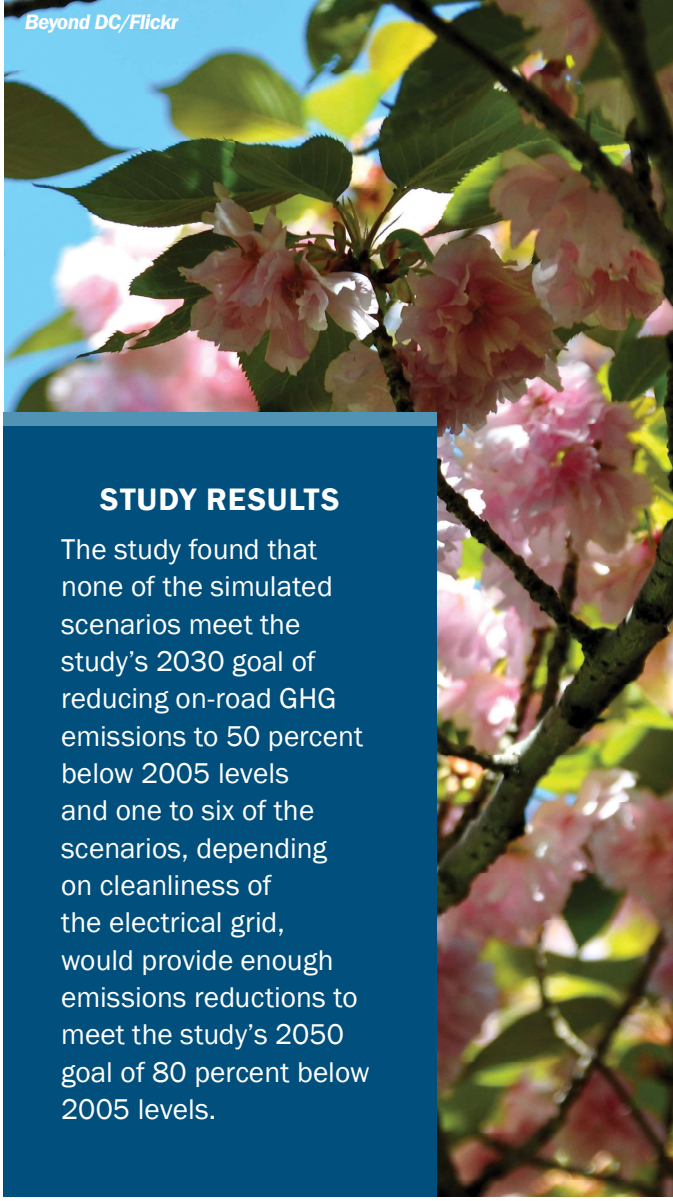
The TPB policy framework has long included goals regarding protecting the natural environment. The TPB takes action to respond to all of its goals, including conducting studies to identify the most effective strategies that members can incorporate into planning activities. Recent studies have focused on safety, transit equity, and climate mitigation and resiliency.

COG and the TPB have worked extensively with their member agencies and partners on approaches to mitigate climate change and prepare the region for impacts of climate change. Since 2010, the TPB has estimated the changes in on-road GHG emissions due to motor vehicles using the roads in its LRTP. For the 2018 LRTP, by 2045, GHG emissions were forecasted to be 23 percent below 2005 emissions levels, or 16 percent below 2018 emissions levels. The TPB has conducted several studies to explore specific strategies that could reduce on-road GHG emissions. Learn more **online** or in Appendix M that summarizes the 2021 study.

Climate Change Mitigation Study (CCMS) of 2021

While the regional GHG goals are multi-sector and not sector-specific, the TPB recognizes that on-road transportation contributes a large share of regional GHG emissions, over 30 percent. The TPB has long sought to reduce GHG emissions from on-road transportation sector. To this end, and to respond to the TPB's endorsement of the region's interim 2030 GHG reduction goal, the TPB undertook the CCMS.

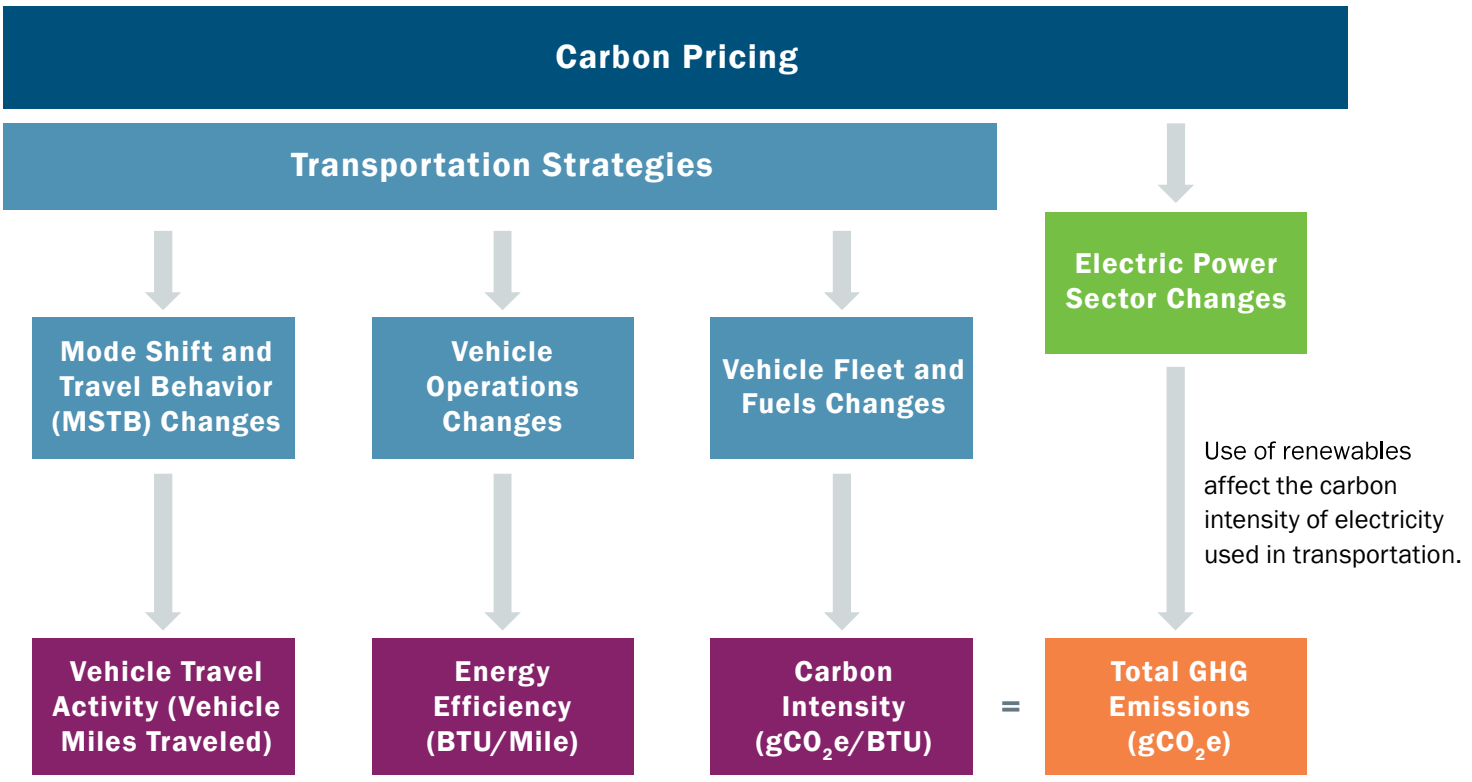
The study sought to answer the question "What would it take to reduce on-road transportation-sector GHG emissions by 50 percent by 2030 and by 80 percent by 2050, compared to the 2005 level?" by conducting a scenario analysis that estimated the GHG impacts of numerous on-road transportation strategies and combinations of strategies. Figure 6.4 illustrates the ways in which transportation strategies impact on-road transportation GHG emissions, coming from motor vehicles. This study defines on-road transportation GHG emissions as emissions coming directly from motor vehicles, including tailpipe and evaporative emissions plus emissions from electricity associated with the use of zero-emission vehicles (ZEVs), such as electric vehicles (EVs). This study did not explicitly analyze carbon pricing but recognized it might support other strategies.


Beyond DC/Flickr

STUDY RESULTS

The study found that none of the simulated scenarios meet the study's 2030 goal of reducing on-road GHG emissions to 50 percent below 2005 levels and one to six of the scenarios, depending on cleanliness of the electrical grid, would provide enough emissions reductions to meet the study's 2050 goal of 80 percent below 2005 levels.

Figure 6.4: Strategies and Pathways for Reducing GHG Emissions from Transportation



Scenarios

After a review of past TPB and COG studies and an extensive literature review, the study team developed a set of scenarios for analysis. The scenarios were examined to understand which actions would significantly reduce GHG in the transportation sector, without regard to whether the strategies were within the TPB's purview, and without regard to cost, politically feasibility, or public acceptance.

The scenarios explored in this analysis included a broad array of strategies under **three primary pathways** for reducing GHGs from on-road transportation sources:

1. **Vehicle Technologies and Fuels:** Strategies to shift the fleet of motor vehicles to electric vehicles (EVs) and increase the share of lower carbon fuels (e.g., biofuels).
2. **Mode Shift and Travel Behavior (MSTB):** Strategies to reduce auto vehicle travel, typically measured by vehicle miles of travel (VMT), by shifting travel from driving alone to more efficient modes, such as transit, ridesharing, bicycling, and walking; reducing auto vehicle trip lengths, such as through land-use strategies; or reducing trip-making entirely, such as through telework.
3. **Transportation Systems Management and Operations (TSMO):** Strategies to optimize the efficiency of travel by reducing vehicle travel delay and/or encourage more eco-friendly driving patterns (such as avoiding excessive breaking and acceleration).

The study also considered three different scenarios for how the electric grid could be powered, including a carbon-free grid scenario.

Voices of the Region

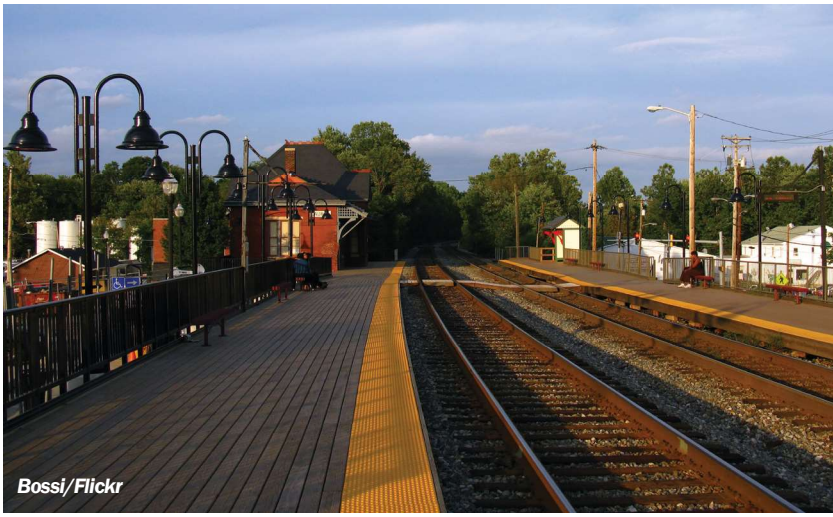
A FEW KEY SURVEY RESULTS:

When asked what improvements would make a person more likely to walk, bike or take an e-powered or mobility device to the train station or bus stop, more than 6% of respondents said a more shaded route to the bus stop or station. That increased to 13% for respondents under 30.

Key Findings

Achieving the TPB study's goals of a 50 percent reduction in on-road GHG emissions (from the 2005 level) by 2030 is extremely ambitious, and none of the scenarios were estimated to achieve this goal. Less than a decade away, there is very little time to get to the level of vehicle technology adoption and VMT reduction required to meet this goal. On-road transportation, however, can contribute substantial GHG reductions to help support the region's GHG reduction goals. Already, the TPB's system performance analysis shows that while VMT is increasing, per capita VMT and GHG are decreasing, due to how people travel, vehicle technologies, and fuel efficiency improvements.

Several scenarios (generally those with a combination of strategies) achieved the level of on-road GHG reductions assumed in the technical analysis that supported COG's 2030 CEAP, which demonstrated that the region could meet the overall 2030 goal. In 2050, with the reference case electrical grid, the analysis showed that the 2050 goal is met with only the most aggressive scenario. Under assumptions about a cleaner electrical grid, four to six of the ten scenarios were able to achieve the 2050 goal. Achieving an 80 percent reduction in on-road GHG emissions (from the 2005 level) by 2050 is possible with vehicle technology advancements and a clean electrical grid. Mode shift and travel behavior strategies support GHG reductions but are less impactful for GHG reductions when nearly all on-road vehicles are EVs, and the electrical grid is carbon neutral.



Bossi/Flickr

Types of Analysis

This study involved two different types of analysis:

ANALYSIS 1:

- Three "top-down" scenarios were developed and analyzed to identify by how much vehicle miles traveled (VMT) would need to be reduced, or what level of ZEV adoption would be needed, to meet the 50 percent and 80 percent reduction goals by 2030 and 2050, respectively.

ANALYSIS 2:

- Ten "bottom-up" scenarios were developed to assess how much GHG reduction might be expected with implementation of different sets of strategies to determine which scenarios could meet the 2030 and 2050 GHG reduction goals. (See the CCMS report for details.)

Elvert Barnes/Flickr

2022 TPB Greenhouse Gas Reduction Goals and Strategies

At its June 2022 meeting, the TPB adopted **Resolution R18-2022** detailing new GHG reduction goals and strategies specific to the on-road transportation sector, as detailed below. This decision was informed in part by TPB and COG climate work, the findings of the TPB Climate Change Mitigation Study of 2021, TPB member considerations of the feasibility of each strategy, a TPB member survey, and discussions during two climate change mitigation work sessions in 2022.

Goals

The TPB adopted regional, voluntary, on-road transportation-sector-specific goals to reduce GHG emissions 50% below 2005 levels by 2030 and 80% below 2005 levels by 2050. These goal levels are numerically identical to the regional, non-sector-specific goals, and are also more aggressive than the contributions that had been assumed from the on-road transportation sector in COG's 2030 Climate and Energy Action Plan.

Strategies to Implement

The TPB adopted seven greenhouse gas reduction strategies that have the potential to reduce on-road transportation GHG emissions:

- Improve walk/bike access to all TPB identified high-capacity transit stations.
- Increase walk/bike modes of travel - Complete the TPB's National Capital Trail Network by 2030.
- Convert private and public sector light, medium and heavy-duty vehicles, and public transit buses to clean fuels by 2030.
- Deploy a region-wide robust electric vehicle charging network (or refueling stations for alternate fuels).
- Add additional housing units near TPB-identified high-capacity transit stations and in COG's Regional Activity Centers.
- Reduce travel times on all public transportation bus services.
- Implement transportation system management and operations (TSMO) improvement measures at all eligible locations by 2030.

Strategies to Explore

The TPB identified seven other greenhouse gas reduction strategies, also focused on on-road GHG emissions, which merit further discussion and study, so that they may be considered for possible future inclusion into the region's planning priorities:

- Take action to shift growth in jobs and housing from locations currently forecast to locations near TPB-identified high-capacity transit stations and in COG's Regional Activity Centers to improve the jobs-housing balance locally.
- Make all public bus transportation in the region fare-free by 2030.
- Make all public rail transportation in the region fare-free by 2030.
- Price workplace parking for employees – only in Activity Centers by 2030 and everywhere by 2050.
- Convert a higher proportion of daily work trips to telework by 2030 and beyond.
- Charge a new fee per vehicle mile of travel (VMT) by motorized, private, passenger vehicles in addition to the prevailing transportation fees and fuel taxes.
- Charge a "cordon fee," per motorized vehicle trip for all vehicles entering Activity Centers by 2030.

Impacts of the CCMS on Regional Planning and Strategy Implementation Considerations

The strategies in the scenarios were not limited to strategies within the TPB's purview, and were developed without regard to cost, politically feasibility, and public acceptance. To mitigate climate change, action and cooperation will be required all levels of government—local, state, and federal. Mitigation also will also require actions by the private sector and the public.

Additionally, the study also did not examine strategies for their interrelationships with other sectors. For example, telework could reduce personal vehicle trips, VMT, and associated GHG; but it could possibly increase GHGs from energy use, depending on energy source, when people work from home across the region as they would use additional lights, and heating and cooling of homes. Many strategies across sectors will need to be implemented together to see significant progress toward the 2030 and 2050 goals.

Implementation actions must consider social and economic effects, such as potential social and economic costs of teleworking, implications on regional competitiveness (positive or negative), and the impacts of costs imposed through pricing strategies (road pricing, parking pricing, fuel taxes, or carbon taxes) on households.

Strategies must also be examined for their potential impacts on transportation revenues and expenditures. For example, reducing transit fares and shifting to EVs would both lead to losses of traditional revenue sources for transportation (transit fares and gas taxes). Additionally, transit enhancements require significant, long-term spending. The funding gap from revenue loss and additional cost from investments would need to be reconciled. Furthermore, agencies would need to identify upfront costs for widespread vehicle electrification and costs associated with incentive programs and policies. Funding would also be needed to cover costs associated with education and awareness programming for each strategy.

Equity Considerations

As the region plans to implement strategies that can reduce GHG from the on-road transportation, there are many implications for equity that need to be considered. Some of these include:

- **Vehicle electrification:** EV planning needs to include strategies to ensure access to EVs and charging infrastructure, which could be difficult for some population segments (medium- and low-income, multifamily residents, renters, and for car-owners that park on-street).
- **Teleworking:** May not be applicable for workers in many service industries. An increase in teleworking could also have potential impacts on service-focused businesses, which often employ low-income workers (e.g., restaurants and other in-person services).
- **Parking pricing, cordon pricing, and VMT fees:** Costs can disproportionately affect low-income households and may be regressive. Fees can be designed with equity in mind, accounting for factors such as household income (e.g., credits for low-income households), and use of funds for transit and equity-focused services.

Voices of the Region

A FEW KEY SURVEY RESULTS:

Residents in the region are concerned about climate change and transportation.

The "Voices of the Region" survey found that 84% of residents agree that elected officials need to consider the impacts of climate change when planning for transportation in the future, with 72% strongly agreeing with the statement. People under 30 years of age especially agreed (92% somewhat or strongly agreeing) that elected officials should consider climate change impacts in planning.

Photo by Amanda Farber

Planning for a Resilient Region

Disruptions to the region's transportation system can have many causes, one is natural hazards, such as severe storms. The past decade has seen an uptick the intensity, frequency, and duration of these natural hazards as the climate has begun to change. In our region, some of the hazards include extreme heat or cold, extreme storm events, and flooding of all kinds: coastal flooding, flooding from rivers and streams, and flash floods that can occur away from bodies of water.

Metropolitan Washington has long dealt with these natural hazards, but recent trends due to climate change are making it more crucial for the region's leaders to plan for resilience. As the region's population and infrastructure investments grow, these hazards pose risks to our people, environment, and economy. Congress has recognized this need nationwide, adding resilience and stormwater as factors that transportation agencies must consider when planning.

TPB's Role

The TPB endorsed the COG resilience goal of "becoming a Climate Ready Region and making significant progress to be a Climate Resilient Region by 2030." It also confirmed need to incorporate equity principles and expand education on climate change into its members' actions to reach climate mitigation and resiliency goals.

In 2021, the TPB conducted a **study to support regional planning for resilience** and implementation of resilience actions items documented in the COG 2030 Climate and Energy and Action Plan. The study is summarized in Appendix L. While the term "resilience" can have many applications, the study used the federal transportation agencies' definition "the ability to anticipate, prepare for, and adapt to changing conditions and withstand, respond to, and recover rapidly from disruptions."

The study included a point-in-time **inventory of resiliency activities** underway in the region to document the many ways in which the region's agencies are planning for transportation resiliency. These include, but are not limited to setting goals, conducting analysis, developing strategic plans, adding specialized staff and updating project selection criteria to consider resilience. The study resulted in a **report** that synthesizes the research findings, documents regional vulnerabilities to natural hazards, discusses strategies for resilience, addresses equity in resiliency planning and the identifies potential TPB roles in future resilience planning efforts.

The TPB coordinates with other sectors when planning for a resilient future. For example, improving the region's tree cover can help mitigate impacts of localized transportation pollution, lessen the "heat island" effect and related health impacts of long-term exposure to air pollution, and enhance the overall quality of life for residents. COG's Department of Environmental Planning is actively engaged in advancing policies and solutions to stabilize and improve the region's tree canopy and land cover. The COG Regional Tree Canopy Subcommittee, dedicated to the management of the tree and forest canopy in the region, published in 2018 a **Tree Canopy Management Strategy**, a framework of policies and recommendations that can be used to address challenges and threats to urban forests.

Equity Considerations

Planning for resiliency is not just a technical analysis activity but one with real-world implications and consequences for the region's residents. The TPB is working to understand the potential equity impacts of natural hazard risks and how agencies can take action.

Natural hazards impact people and communities differently, and many traditionally marginalized populations may be particularly vulnerable to the impacts, such as:

- **Greater exposure:** Extreme heat impacts are stronger in highly urbanized areas with abundant pavement and little green space, known as the urban heat island effect. The effect tends to be highest in neighborhoods with a lot of rental properties and households earning lower incomes.
- **Higher sensitivity:** Vulnerable populations can include older adults or those with medical conditions that may make them more susceptible to harm during a climate event. For example, these populations are more likely to suffer from heatstroke during a heat wave.
- **Less adaptive capacity:** Underserved communities may lack resources needed to adapt to climate shocks and stressors, such as air conditioning, air filters, or the ability to easily evacuate and relocate if necessary.

Ongoing Challenges

Some strategies that can contribute to climate mitigation and resiliency are unlikely to benefit all; this could precipitate long-established structural equity issues. During the COVID-19 pandemic, some jobs were classified as "essential" including government, health care, grocery store, public works, and others. During the surge of pandemic-fueled teleworking, regional surveying found that only 32 percent of employed individuals that self-identified as "essential workers," could use telecommuting, compared to 81 percent of workers without this classification. "Essential" workers may not have the choice to work from home to limit their carbon footprint or avoid extreme weather in the region.

Also, transit improvements and the regional priority to focus new growth around HCT station areas need be paired with the protection and production of affordable housing located near the stations, the region's core, and Activity Centers to make "green" and reliable travel options available to all people.


Arlington DES/Flickr

Another challenge is funding the necessary improvements to mitigate and prepare for climate change. As about 81 percent of funding must be directed to maintaining and operating the existing transportation system, little funding is available for enhancements. Like it has done to address other goals, such as safety, the region will need to integrate climate mitigation and resiliency considerations into all aspects of planning, programming, project development, and operations to get the most benefit out of every dollar.

Visualize the Future

A resilient transportation system will be one where users of the transportation system have a range of options that help them limit the carbon footprint of travel. As people walk and bike to destinations, including transit stops, the presence of shade provided by tree cover can provide for a cooler trip. In the face of severe weather, communication systems will alert travelers of potential hazards, enabling people to make safe choices about when, where, and how to travel. Planning for the infrastructure and operational systems will enable the system to withstand, respond to, and recover rapidly from disruptions while continuing to serve the travel needs of people traveling in and through the region. Project sponsors identified 185 projects in the constrained element that contribute to the reduction of GHG emissions and 93 projects that contribute to resiliency and stormwater management.

Environmental Consultation and Mitigation

The TPB's environmental consultation and mitigation activities provide resources and opportunities for environmental and historic preservation 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 during the development of the transportation plan that engages, as appropriate, state and local agencies responsible for land-use management, natural resources, environmental protections, conservation, and historic preservation. 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 stormwater 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: **mwcog.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.

Ted Eytan/Flickr

Safety Planning

A safe transportation system is a foundational element of a livable region. With approximately 300 deaths and nearly 2,500 serious injuries in crashes every year on the region's roads, improving the safety of all modes is critical to improving the quality of life for residents and visitors. Learn more about safety performance data in Chapter 8, Planning for Performance. The TPB is committed to reducing fatalities and serious injuries on the region's roadways and meeting regional-level transportation safety federal regulations that seek to increase the safety of the transportation system for motorized and nonmotorized users.

Equity Considerations

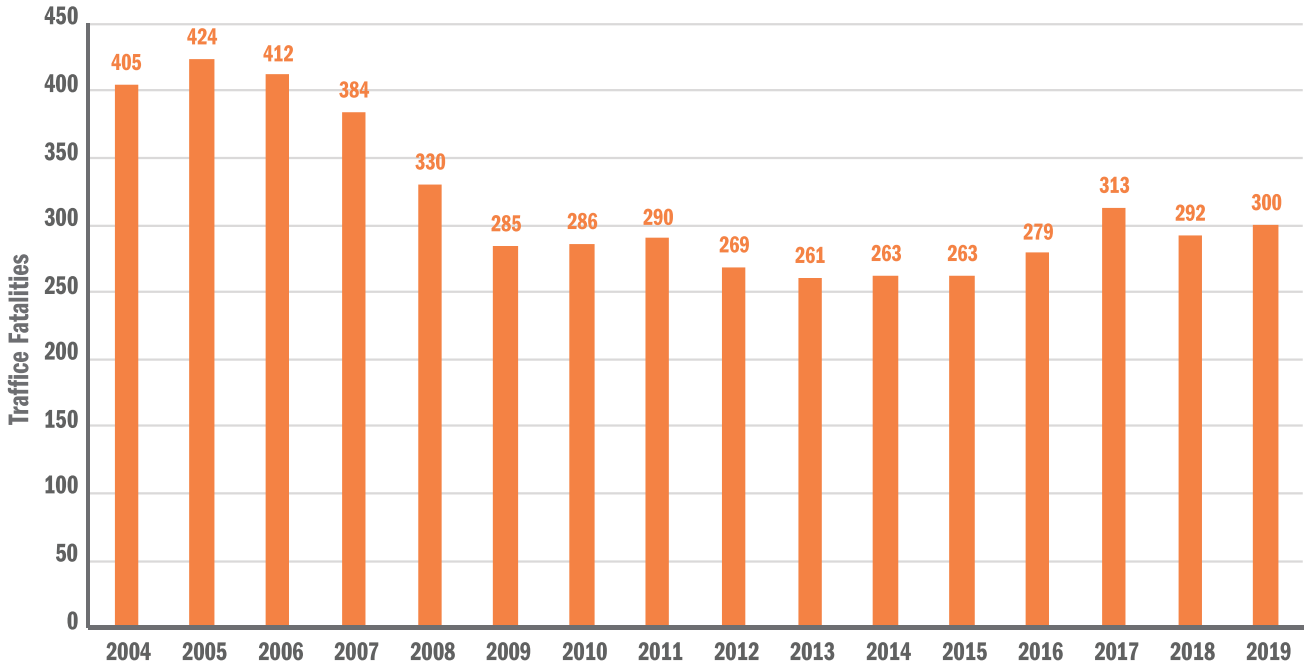
The **Regional Roadway Safety Study**, published in 2020, revealed that while 28 percent of the region's residents live in EEAs, or areas with larger concentrations of minority and low-income populations, over 34 percent of the region's roadway fatalities occur in EEAs. Fatal crashes within EEAs were more likely to occur at intersections, involve pedestrians, and/or involve young drivers than fatal crashes not within EEAs. The TPB is committed to working with its member jurisdictions to develop and implement projects, programs, and policies to equitably improve safety outcomes for all roadway users and has tailored its Regional Roadway Safety Program to prioritize safety investments in EEAs.

TPB's Role

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 target requirements, and throughout other Visualize 2045 elements. The TPB Voices of the Region focus groups included safety as one of the primary discussion elements to provide insight as to safety concerns from the perspective of people living in the region's communities.

The TPB's Transportation Safety Subcommittee meets regularly to guide ongoing highway safety analysis, identify the most significant highway safety problems,

Figure 6.5: Total Traffic Fatalities in the National Capital Region, 2004 – 2019 (Source: National Highway Traffic Safety Administration, Fatality Analysis Reporting System)



CityofStPete/Flickr

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.

While fatalities on the region's roadways dropped significantly between 2005 and 2013, they have since risen by nearly 15 percent between 2013 and 2019 (Figure 6.5) and most of that increase is due to greater numbers of bicyclist and pedestrian fatalities.

In 2020, the TPB adopted **Resolution R3-2021** articulating a policy statement on roadway safety and establishing the Regional Roadway Safety Program. This resolution was informed by the results of an in-depth **consultant-led study** commissioned by the TPB to understand the factors behind the unacceptably high number of traffic fatalities and serious injuries on the region's roadways and identify evidence-based strategies to address them.

The Regional Roadway Safety Program, funded at $250,000 for its first two years, provides short-term consultant services to member jurisdictions to assist with planning or engineering projects that address roadway safety issues. Examples include studies as well as planning and design projects that will lead to a reduction in fatal and serious injury crashes. The program provides consultant assistance of up to $60,000 for studies or planning projects, and up to $80,000 for design or preliminary engineering projects.

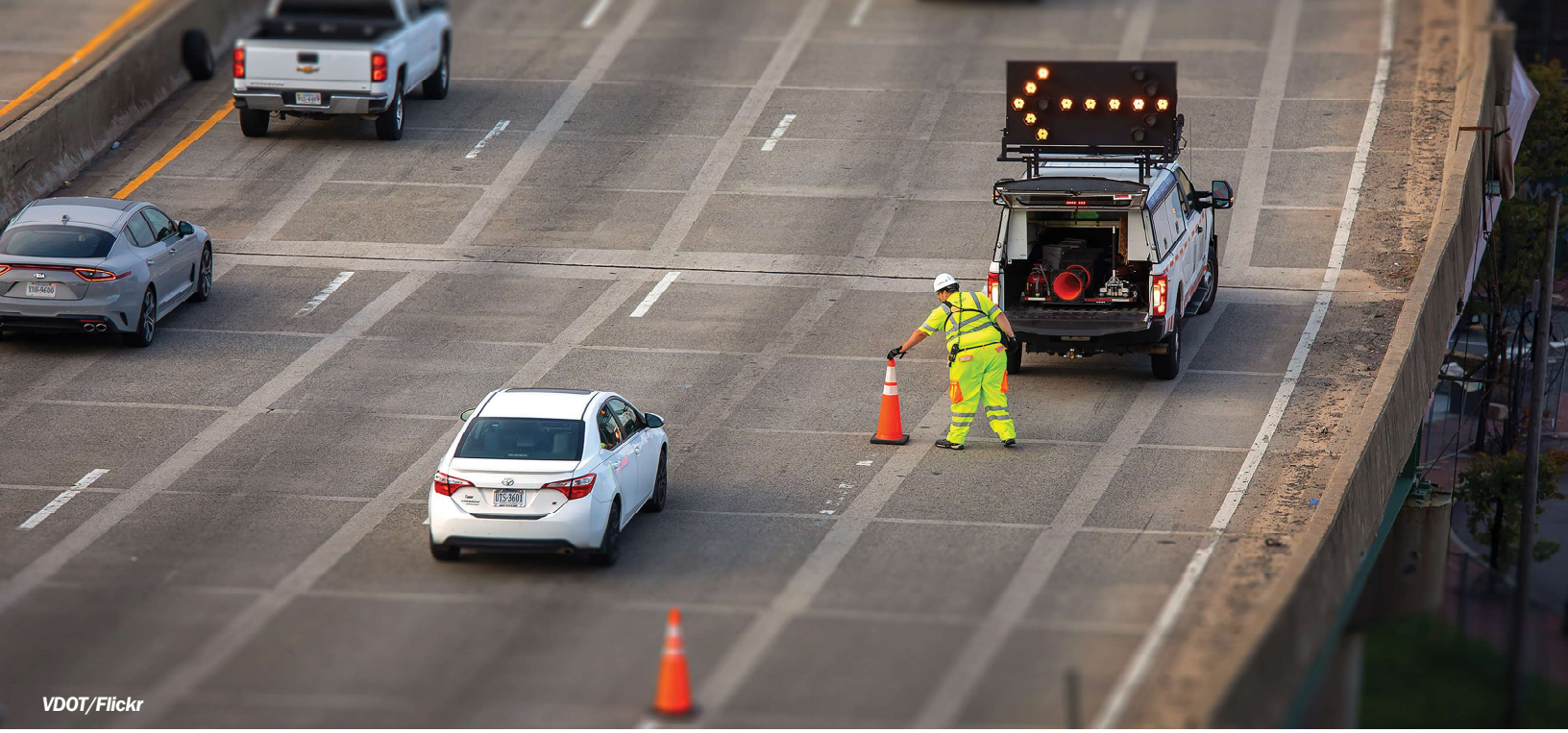
Visualize the Future

The public depends on regional leaders to improve safety on the transportation network. The TPB and its regional partners are striving to reduce traffic fatalities and serious injuries. The Commonwealth of Virginia supports the Toward Zero Deaths national standard, while the State of Maryland, the District of Columbia, the City of Alexandria, Arlington County, Montgomery County, and Prince George's County have each adopted Vision Zero policies. These programs and policies aim to achieve a roadway system with no traffic-related fatalities or serious injuries.

The sponsors for the projects in the constrained element identified 277 that respond to the federal safety planning factor, and 188 projects that significantly reduce fatalities or injuries among motorists, transit users, pedestrians, and/or bicyclists. In some cases, these may be safety-specific projects, other projects may include elements that enhance safety. For example, in Maryland the MD 97 at MD 28 grade-separated interchange (CE1211) will contribute to a reduction in travel time, support the use multiple modal options, and enhance safety. See the safety program to learn more about several specific safety projects that TPB funded in 2021.

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 addressing these challenges by ensuring that the best policies, programs, and projects are implemented to reduce traffic-related fatalities and injuries.



VDOT/Flickr

TPB'S POLICY STATEMENT ON ROADWAY SAFETY

The National Capital Region Transportation Planning Board urges its members to reaffirm road user safety as a top priority and prioritize the implementation of projects, programs, and policies, in an equitable and non-racist manner. This is consistent with the TPB's Equity Policy statement that strives to reduce the number of fatal and serious injury crashes on the region's roadways by taking actions, and working individually and/or collectively as described in the following sections:

Section 1:

- Increase seat belt use among all occupants in a motor vehicle;
- Reduce unsafe vehicle speeds on all roadways in the region; and
- Reduce impaired and distracted driving.

Section 2:

- Identify and implement applicable countermeasures, especially those described in R3-2021, as appropriate and on a case-by-case basis, in an equitable and non-racist manner, consistent with the TPB's policy statement on equity.

Section 3:

- Establish and fund a Regional Safety Program at the TPB to assist its member jurisdictions and the region to develop and/or implement projects, programs or policies to equitably improve safety outcomes for all roadway users. Funding for the first year of the Regional Safety Program will total $250,000.

Section 4:

- Request member jurisdictions and agencies to adopt safety goals consistent with Vision Zero or Towards Zero Death policies and develop local roadway safety plans and ensure their equitable impacts on all road users.
- Request member states to adopt procedures that increase the use of ignition interlock devices for impaired driving offenders.

Safety Program

The TPB's has funded technical assistance for its first set of safety improvement projects through its new Regional Roadway Safety Program. Five projects will receive expert consultant services to help with planning and design. The projects were primarily selected for their potential to save lives and reduce injuries on the region's roadways. Other important factors in the selection process included a focus on serving EEAs, or areas with larger concentrations of minority and low-income populations, potential for improving road user behavior such as speeding or distracted driving, and collaboration among jurisdictions and agencies, among other criteria. The five projects are shown below.

VDOT/Flickr

Table 6.2: Year One TPB Regional Safety Program Recipients

Project Names	Project Summary
MD 650 High Injury Network Safety Study (Montgomery County)	A roadway safety audit for safety improvements along MD 650 from I-495 to MD 320 in Montgomery and Prince George's Counties.
Roadway Safety Audits and Design Recommendation for County-Maintained High Injury Network (Prince George's County)	Roadway safety audits to identify traffic safety issues faced by pedestrians and bicyclists on two Prince George's County roadway segments and design recommendations for safety improvements along these segments.
Bowie Road Safety Audit (City of Laurel)	A roadway safety audit on Bowie Road, which connects US 1 to MD 197 in the City of Laurel. The audit will examine roadway safety and traffic signal effectiveness to mitigate hazards for all road users.
Arlington School Zone Speed Camera Guidelines (Arlington County)	Develop data-driven, equitable guidelines to help identify, prioritize, and implement speed cameras in school zones, including a review and incorporation of best practices and lessons learned from other jurisdictions that have undertaken similar efforts.
Herndon Parkway (Exchange to Spring) Complete Street	Safety Improvements (Fairfax County): A Completes Streets design for Herndon Parkway in Fairfax County, between Exchange Street and Spring Street, for safer infrastructure for those traveling between the W&OD Trail, Herndon Metrorail Station, and adjacent areas.

The Policy Context

Impact of the Aspirational Initiatives

While many factors impact safety, the 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.

VDOT/Flickr

Voices of the Region

The Voices of the Region outreach gathered public perspectives on transportation safety in the region. The survey asked respondents whether they experienced any transportation barriers to getting where they need to go from where they live. Participants could select three options from a list of potential barriers. Nineteen percent of respondents selected "it feels unsafe to walk and bike," and 11 percent selected "I don't feel safe crossing the street."

The Voices of the Region focus groups included a discussion on safety. Staff identified common themes across the sessions. These recurring patterns provide opportunities for multi-jurisdictional regional planning to implement Visualize 2045 as well as future TPB planning activities.

Common safety themes included:

- **Pedestrian and bike infrastructure is missing.** Participants in numerous sessions said that walking and biking often feel like life-threatening activities. They noted the absence of sidewalks, crosswalks, and bike lanes. "No one wants to die on their way to work or their way home," said a suburban participant. "Protected bike lanes—not just like plastic barriers, but truly, *truly* protected bike lanes—that would be a huge thing."
- **After-hours fears.** Concerns about safety often focused on traveling in the evenings and at night. Many of these participants work in the service industry and do not have nine-to-five schedules. Participants expressed fears about walking on dark streets with the presence of fast-moving cars.
- **Aggressive driving.** Many participants, particularly from suburban locations, spoke about feeling unsafe when they drive, particularly when encountering aggressive drivers, when driving on poorly lit roads, or driving in congestion. Bike safety concerns stemmed from their perceived lack of speed limit enforcement and having to compete for road space with cars that are going 15 to 20 mph above the speed limit. To address this issue, participants suggested better enforcement of speed limits, including installing speed cameras, and placing more speed bumps across residential areas.

Transportation agencies can respond to some of the concerns reported on safety by implementing the strategies that the TPB Safety study identified, responding to the TPB safety policy and applying for technical assistance through the TPB safety program. Learn more in Appendix F of this plan which expands on regional safety planning. **Read the Voices of the Region reports online.**

Ted Eytan/Flickr

Ron Cogswell/ Flickr

Land Use

The term land-use refers to where and how we use the land in our communities. State enabling legislation guides local land-use planning, policies and roles. Land use policies and priorities in the region range from protecting land for agricultural uses to the development of affordable housing near high-capacity transit stations and focusing growth in Activity Centers. Local land use planning and coordination is a critical and effective transportation strategy, and therefore is a TPB priority, as demonstrated in the TPB Policy Framework. This plan acknowledges the complex and important relationship between land use and transportation. That relationship has shaped existing communities and can influence the future quality of the environment. Together land use and transportation influence how goods and services are distributed as well as the environment, health, community character, and economic vitality of the region's communities. Land use and transportation also influence the access to services, length of trips, travel options and how people choose to travel. Coordinated planning plays a key role in effectively using existing facilities, continuing sustainable development, and maintaining global competitiveness.

Equity Considerations

Where and how land is used in the region's communities has historical and ongoing equity implications. Historically, racial segregation in the United States limited where people of color could live, work, and how they traveled. Historical inequality

Voices of the Region

FINDING ON INNER SUBURBS

The main concern identified by people in the inner suburb's Focus Group session was the cost of getting to transit stations. People explained that they lived in areas in which biking and walking biking to transit did not feel safe. As a result, people had to take a bus to get to the train station. The cost of taking the bus, plus the train, made their commute cost high to the point that it was no longer feasible. Those who identified as being frequent drivers said that they were pushed to drive because the cost of transit was too high, and their travel route was too inconvenient.

of opportunities still impacts communities and the people in the region. Today, a primary equity issue being examined by COG and TPB is the affordability of housing and transportation costs. These costs can mean that people with low incomes and historically disadvantaged populations are pressed to make difficult tradeoffs about where to live and work, and how to travel. Costs can be a barrier to life's opportunities, including employment, education, and other important destinations. The TPB Voices of the Region focus group findings found lower income individuals were making tradeoffs due to these competing costs, such as taking a less desirable job closer to home to avoid higher travel costs. Lower cost housing, especially housing for larger families, is increasingly found in suburban or exurban communities, which are seeing an increase in lower income residents,[30] The TPB Focus Groups found that people with lower incomes, especially those in suburban or exurban areas, can find themselves with limited transportation options, pushing them into car ownership or having to travel longer distances to employment which can increase transit costs and travel time.

Together, elected officials and staff of transportation, planning, and housing agencies are working with public and private partners to examine and develop potential strategies to address the inequities in the region that are embedded in the land use and transportation relationship.

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 for the optimal locations for federal facilities throughout the National Capital Region.

The TPB Technical Committee and COG's Planning Directors Technical Advisory Committee (PDTAC) coordinate at the technical and policy level. Working through COG's Cooperative Forecasting Program, COG member local governments develop forecasts of employment, population, and households by jurisdiction and Traffic Analysis Zone (TAZ) in five-year increments through the TPB horizon year (2045 for this plan). COG staff also coordinates with adjacent MPOs (the Baltimore Metropolitan Council, the Fredericksburg Area MPO) and other jurisdictions within the TPB "Model Region" footprint to obtain similar growth assumptions for those areas.

Voices of the Region

"I think if I were a transportation official, I would focus on developing land around the stations to provide more housing and more services, like a grocery store, for example. (I would not) need to go far to get the things I needed. That would also make car-free living a lot easier. It would also make living in the suburbs car-free easier than it is now. That's the big thing, developing around stations."

— Resident of North Bethesda

30 Willow Lung-Amam, Ph.D.; Co-Authors: Katrin Anacker, Ph.D. & Nicholas Finio, Worlds Away in Suburbia: The Changing Geography of High-Poverty Neighborhoods in the Washington, DC Metro, College Park, MD, 2019, presentation to COG, Region Forward.

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 TLC program supports planning for vibrant and accessible communities. The program provides technical assistance to local jurisdictions working on creative and sustainable plans and projects. It also supports a competitive selection process for the federal Transportation Alternatives Set Aside Program to fund projects aligned with the TPB's regional priorities and goals. It also provides a way for planners in the region to share information about best practices and model projects through the TLC Peer Exchange Network.

Focusing on Regional Activity Centers and High-Capacity Transit Station Areas

In 2013, COG designated 141 Activity Centers, which include existing urban centers, priority development areas, transit hubs, suburban town centers, and traditional towns throughout the region (Figure 6.6). First called for by the TPB in the 1998 "Vision Plan," Activity Centers are primarily mixed-use housing and job centers, usually near transit, and as noted in the adopted

Beyond DC/Flickr

goals of **Region Forward**, intended to be the focus much of the region's future growth. The Activity Center designation helps support land use planning and guide investments in infrastructure and development. The TPB systems performance analysis (Chapter 8) examines transportation performance related to the Activity Centers, and the TPB decennial Regional Transportation Survey examines survey results in the context of the Activity Centers.

Concentrating residential and commercial development in dense, mixed-use Activity Centers is a strategy that the TPB has encouraged jurisdictions throughout the

Figure 6.6: Growth Inside and Outside of Activity Centers — Population and Employment (Source: Council of Governments, Cooperative Forecast, Round 9.2)

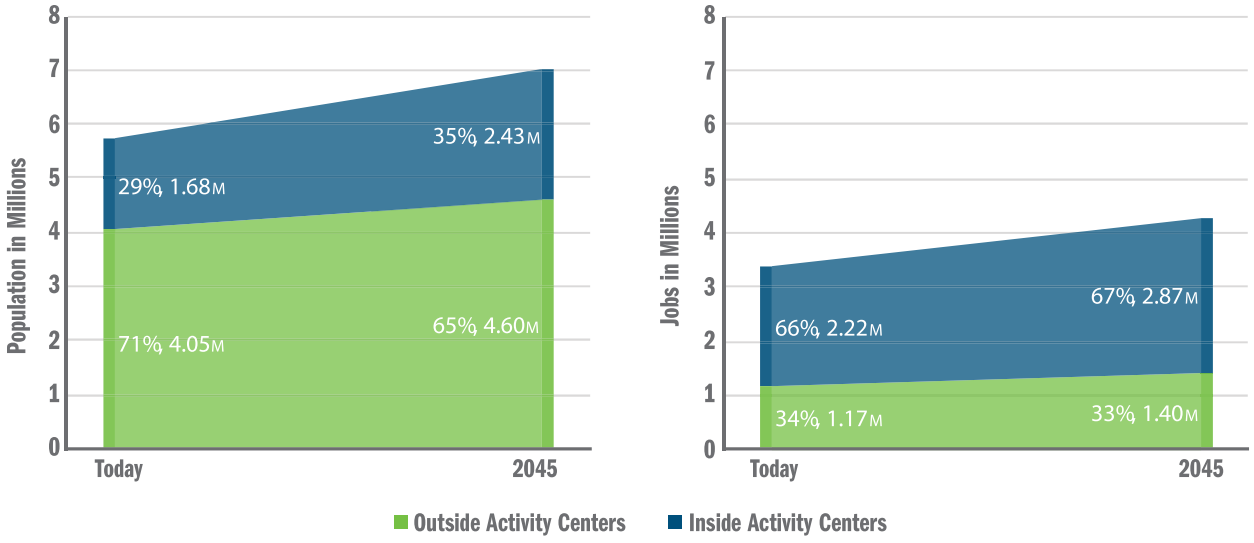
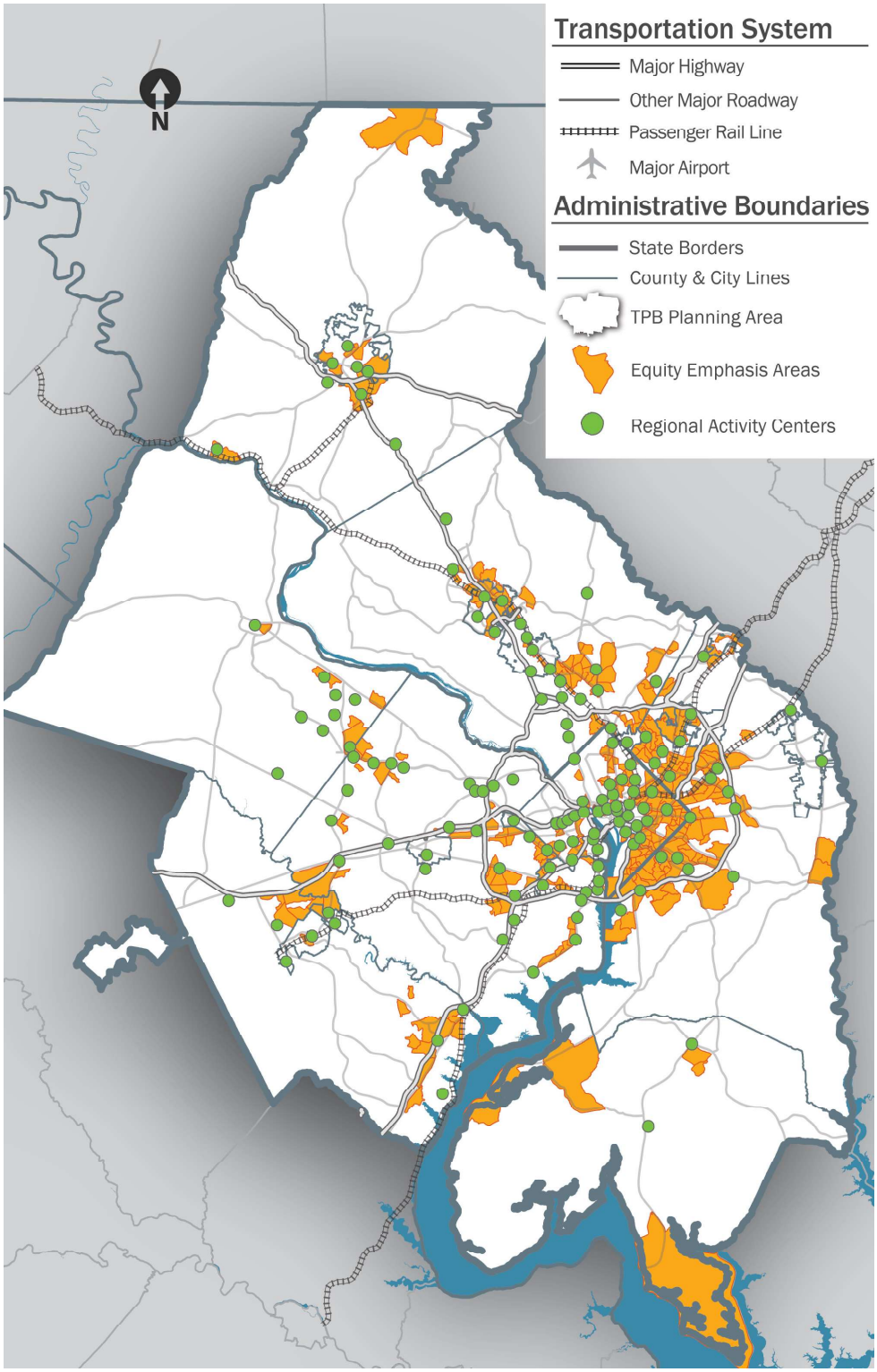


Figure 6.7: Regional Activity Centers



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, one of TPB's overarching strategies. This encouragement has paid off. Figure 6.6 shows existing development and predicted growth inside and outside of Activity Centers. Currently, 29 percent of the region's population lives within Activity Centers, and 66 percent of jobs are located within them.

In the future, growth will be even more concentrated in Activity Centers. By 2045, 35 percent of the region's population will live in Activity Centers, and 67 percent of the region's jobs are forecasted to be in Activity Centers.[31] By pushing the pace on implementing policies that encourage development in Activity Centers, promoting housing affordability in Activity Centers, and by continuing to invest good public transit, the region can reap even greater benefits from this type of land use planning.

31 MWCOG Cooperative Forecast 9.2

Addressing Affordability and Focusing Growth

Today there is a mismatch between the amount of housing and jobs. This affects the area's affordability, potentially undercuts the region's appeal to new companies and talent and necessitates commuting into the region for work, straining the transportation system. In seeking a better balance between growth in jobs and housing, a TPB task force determined a jobs-to-housing ratio of 1.54 that could optimize economic competitiveness and improve future transportation system performance. Using the ratio, COG determined the region needs, by 2030, at least 75,000 additional households beyond those currently anticipated. As reported in COG's report, the Future of Housing in Greater Washington (2019) this is the region's "housing shortfall," and it is expected to worsen without intervention.[32]

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To address the regional housing shortfall and affordability challenges in 2019, the COG Board of Directors approved three Housing Targets:

1. The Region needs 320,000 housing units in the next 10 years, 75,000 more than currently anticipated.
2. At least 75 percent of all new housing, or 240,000 total units, should be in Activity Centers or near high-capacity transit.
3. At least 75 percent of new housing should be affordable to low and middle-income households.

The region is responding to the day-to-day challenges of people who are struggling with high costs of housing and transportation by focusing on more housing, including more affordable housing options, in places where people will have better access to transit, biking, and walking. A recent analysis by the TPB determined that additional housing in the region would improve transportation system performance, particularly if those units were strategically located in Activity Centers and near high-capacity transit stations.

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. The TPB and COG boards, through separate resolutions, have prioritized growth around high-capacity transit stations, also endorsing using EEAs as a planning tool. **Learn more here.**

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 in Activity Centers. With continued coordination, these urban centers, suburban town centers, traditional towns, and transit hubs will continue to develop into vibrant places that support the region's economic vitality.

32 The Future of Housing in Greater Washington, Metropolitan Washington Council of Governments, 2019; mwcog.org/file.aspx?D=fm3D7QGdShaKtXGTFc%2F2%2FkmFDELDfmztf9tyGOazIfE%3D&A=%2BMuPOFdKMk3DLhEx3thTiAUvJU8YEzEd4F5hNvLignY%3D

angela n./Flickr

Through investments in and beyond the constrained element of the plan, more people will have access to walkable communities with more affordable housing and a wider range of transportation options. The sponsors for the projects in the constrained element identified numerous projects as supporting land use planning coordination, with 117 connecting one Activity Center to another with another 79 connecting an Activity Center to another part of the region, and 129 of these connecting an Activity Center to an EEA. Project sponsors identified 127 projects in the constrained element as promoting the "Bring Jobs and Housing Closer Together" initiative and 314 projects as supporting the federal economic vitality planning factor. For example, a project that will accommodate increased transit-oriented development is the Ballston-MU Metro Station West Entrance (CE3633) in Arlington. This project will construct a second mezzanine and sidewalk entrance to the station. In the City of Alexandria, the new pedestrian bridge over I-395 at Landmark (CE3768) will improve walk access to a new transit hub. The Sterling Boulevard Extension (CE3329) is planned to help connect the roadway system with new transit stations. Beyond the constrained element, grant recipients of the TPB's Transportation and Land-Use Connection program will contribute to a brighter future.

For example, the program funds the preliminary design for new shared-use path connection within Broad Run Transit Access Focus Area (TAFA), making it easier for people in the City of Manassas, VA to take VRE rail to work, or for people to travel to DC to access jobs.

Ongoing Challenges

While transportation and planning agencies take steps to achieve the regional land-use and transportation targets and goals, 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. Much of the region's transportation system, housing and employment centers are already in place. New jobs will continue to be more concentrated in Activity Centers and more housing will be developed in Activity Centers than in the past. In establishing the 2019 Housing Targets, however, the Planning Directors, Housing Directors and COG Board acknowledged the tremendous challenges in preserving and creating new affordable housing within Activity Centers. Planning for new development is a long-term investment in the region.

The Policy Context

Impact of the Aspirational Initiatives

The initiative Bring Jobs and Housing Closer Together is focused on land use and transportation coordination. The region can optimize regional land use by focusing new development in Activity Centers and near high-capacity transit so people that live and work in the region will have more options for housing and travel and better access to life's destinations.

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.

Freight Planning

Each year 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. Nearly every physical thing, from food to clothes, from medicines to the furniture in homes, and everything in between was transported on a truck for at least some part of its journey. 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.

Equity Considerations

The costs and benefits of freight transportation should be distributed equitably. Freight-related environmental justice issues arise when the costs (externalities) of freight, such as noise and air pollution, are unfairly concentrated in low-income and minority communities. Conversely, it is also unfair for the benefits of freight innovations, such as low-or zero-emission freight vehicles, delivery lockers, etc. to be concentrated in higher income neighborhoods.

Bossi/Flickr

TPB's Role

Planning for freight movement and parking is a collaborative and education-oriented process. One of the TPB's key roles in freight planning 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 Plan 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. 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 was completed in 2016 and includes a set of 17 freight policies developed and approved by the TPB. **The Freight Plan, policies, as well as information about other freight topics can be found at mwcog.org/freight.**

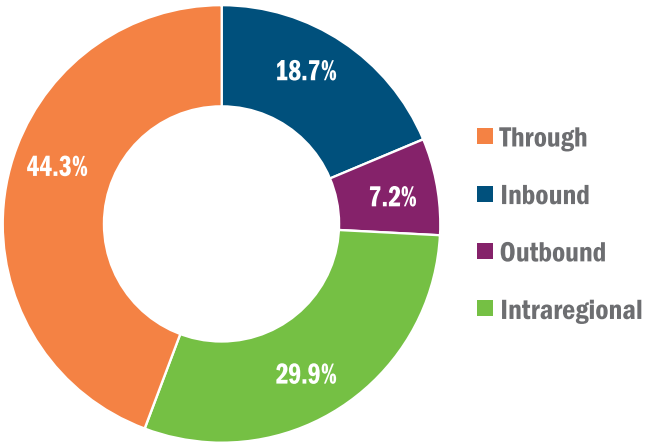
Voices of the Region
ON FREIGHT NEEDS

Freight Needs in our Transportation Future

One year after the pandemic is over, a majority (58%) say that they expect their online shopping habits to continue.

This could have lasting impacts on long-range regional planning, including addressing changing demands for retail space and freight-related needs.

Figure 6.8: Direction of Freight by Weight



- Inbound freight is moved from other states, or other countries, to the region.
- Outbound freight is moved from the region to other areas of the United States or to other countries.
- Intraregional freight is moved from one point in the region to another point in the region.
- Through freight is moved from a location outside of the region to another location outside of the region via transportation infrastructure within the region.

Visualize the Future

Efficient movement of goods is vital to the economy and is an enabler of livability that supports businesses of all types and allows residents of the region to enjoy a high quality of life. Analyses of federal data indicate the region receives about 2.5 times more inbound freight than outbound freight (see Figure 6.8). 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 the region. Through collaborative efforts and planning, the TPB is committed to helping the region realize the benefits of freight while mitigating its negative externalities.

The sponsors for the projects in the constrained element identified 185 projects that support the freight planning factor and increase accessibility and mobility of people and freight. They identified numerous projects that enhance, support, or promote freight movements, including 58 projects that support long-haul trucking, 162 that support local delivery, eight freight rail projects and 17 that support freight air. Examples cited by the project sponsors include the Virginia Passenger Rail Authority Rail Capacity Projects (T6727) and Alexandria 4th Track Project (T6673) that will double the long-term capacity for passenger and freight rail traffic and improve the reliability of rail service. In Frederick County, MD, the I-70/US 40 Corridor project (CE1187) will reduce travel times and is designated priority freight movement project in the MD State Freight Plan; I-70 is a component a network TPB identified as important freight corridors within TPB's planning area. The MD 85 corridor in the county

The Policy Context

Impact of the Aspirational Initiatives

By addressing the congestion and mobility challenges forecast for the region, the initiatives would improve the ability of the transportation system to respond to the needs of freight movement.

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.

will alleviate existing safety, capacity, and operational deficiencies while accommodating traffic increases in the county's primary commercial and employment corridor. Beyond the constrained element, as small package deliveries increase, regional agencies continue to work together on curb management to help communities rethink how to accommodate the numerous uses that require curb space on streets, from bicyclists and scooters to transit and freight.

Ongoing Challenges

During the COVID-19 pandemic, people increasingly turned to e-commerce to get needed goods delivered to their homes, accelerating a trend that was already well-established. Businesses have rapidly evolved to accommodate the heightened demand. This continued expansion of e-commerce has increased the number of trucks competing for the limited supply of roadway and curbside space, increasing curbside management challenges. Street design features common in more densely populated areas, such as bike lanes and narrower intersections with tighter turning radii, make it more 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 and deliver goods to homes on residential streets, the negative aspects of freight such as unwanted noise, pollutants, and vibrations from freight vehicles present significant challenges to communities in the region.

Photo by FAM

Funding

Funding for the transportation system flows to and through the TPB from federal, state and local sources. Approximately 81 percent of the federal, state, local and transit agency transportation funding is allocated to the maintenance and operations of the existing infrastructure, leaving only 19 percent for system enhancements. To meet the growing demand for an efficient and resilient transportation system the region needs to make the most of every dollar.

Equity Considerations

As transportation agencies invest funds in projects, programs and policies, the impact of those projects on the opportunities in life accessible to disadvantaged individuals and people with low income can be examined by looking at whether and how those investments serve the TPB equity emphasis areas (EEA). Sponsors of projects indicated that 109 projects in the constrained element of this plan are in EEAs, and 129 projects connect an EEA to a regional Activity Center, totaling an estimated $41.8 billion in project funds. These projects should help improve the transportation options in EEAs for people that live in and near them. They should also help people move between EEAs and regional Activity Centers, where there are higher concentration of jobs and other life destinations. Like the TPB's past plans, upon approval, the TPB staff will conduct a federally required environmental justice analysis to examine how the future transportation system is forecasted to serve the EEAs compared to the entire region. This analysis is used to inform plans and to inform planning and development of the long-term projects in the plan.

TPB's Role

The TPB prepares plans and programs that the federal government must approve for federal-aid transportation funds to flow to the Washington region. The TPB must demonstrate that this update to Visualize 2045 is financially constrained. This means that the region must show it can reasonably anticipate revenues to cover the projects, programs and policies listed in the constrained element of the plan that extends to 2045. The TPB also supports ongoing flow of funds by administrating the TIP.

Photo by DDOT

Beyond federal requirements, as needs and opportunities arise, the TPB conducts studies and coordination activities to explore and inform possible revenue streams and funding strategies. The TPB led regional coordination, resulting in a dedicated funding agreement for Metro in 2018, with the governments of Maryland, Washington, the District of Columbia, and Virginia jointly providing up to $500 million annually to fund the Washington Metropolitan Area Transit Authority (WMATA). The funds are used to repair and sustain the Metro system, including improving rail cars and buses, replacing older equipment and catching up on delayed repairs across the 50-year-old system. This commitment is the first stable funding source for Metro since it was established in 1967. The funding amounts for each government are calculated according to population density, average weekday ridership and the number of stations operating in each region.

In 2014, the TPB began the long-range plan task force study. The 2014 performance analysis of the constrained element of the plan underwhelmed the TPB in terms of moving closer towards the region's goals. It forecasted that road congestion and transit crowding

would increase significantly in the coming decades despite the investment of about $250 billion dollars across the region of which about $42 billion was for system expansion. Relative to the forecast growth in travel demand, the proposed capital investment was noted to be inadequate. In response, the TPB conducted a study to identify what would help the region meet its goals. The analysis and consensus building discussions led to the TPB endorsing the Aspirational Initiatives in 2018. The initiatives are concepts that agencies are already advancing in the region. With additional focus on planning and funding more of such concepts, the initiatives could be expected to improve the function of the transportation system.

Visualize the Future

By 2045, metropolitan Washington will be home to 1.3 million more people and nearly 1 million more jobs.

Available funding for transportation and the types of planned improvements cannot do enough to prevent significant increases in congestion and travel delays. To ensure a quality transportation system in the future, it must be maintained today. As agencies in the region advance projects that respond to regional and local goals, those enhancements to the system will help people have more reliable travel options that will allow them to arrive on time and safely. With changes in travel behavior, fuel use and energy sources, the region's transportation system can reduce its carbon footprint. The sponsoring agencies identified 131 projects in the constrained element of the plan that contribute to enhanced system maintenance and preservation. They identified numerous projects as implementing the Aspirational Initiative concepts and as mitigating GHG that impacts climate change. See more in Chapter 7, Funding the Transportation System.

Ongoing Challenges

With most funding directed to maintaining and operating the extensive transportation system that already serves the region, prioritizing the use of remaining funds among the many competing needs is a challenge. While the Congress recently passed a new funding package, often, federal funding is uncertain over the long-term, and the many difficulties in raising additional funding for transportation have been, and will continue to be, challenges. The fact that transportation funding is "siloed" can challenge agencies as well, since most federal funds can be used only for specific purposes. Learn more in Chapter 7, Funding the Transportation System.

The Policy Context

Impact of the Aspirational Initiatives

While most funding is dedicated to preserving the existing transportation system, the initiatives provide the opportunity for the region to make the most of every dollar spent on transportation enhancements.

Planning Factors

- Emphasize the preservation of the existing transportation system.

RTPP Goals

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

Public Health

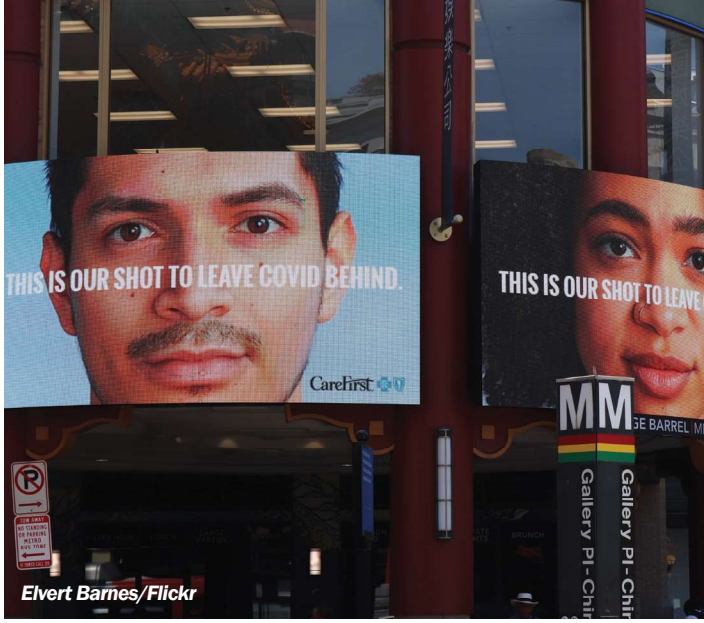
Considering public health in the transportation planning process is vital to advance the delivery of healthier communities, and underscores investments in walking and biking and other active travel options. Public health considerations include access to transportation options, access to goods and services, and issues such as air quality and traffic safety. Impacts of COVID-19 have raised new transportation planning considerations. By aligning transportation planning with public health considerations, it is possible to plan for healthier communities and better outcomes.

Equity Considerations

Public health, transportation, and equity are closely interrelated. As discussed in Chapter 2, environmental and transportation impacts can lead to significant health risks through exposure to certain forms of air pollution. National studies and reports have found that communities of color are more likely to experience higher levels of these emissions compared to other communities. This is due to the location of the communities being close to congested or high-volume roadways. EEAs in the region, small areas with high concentrations of individuals with low income, communities of color, or both, experience 57 percent greater traffic volume than non-EEAs.[33]

In 2018, the Virginia Commonwealth University (VCU) Center on Society and Health conducted a study for COG called Uneven Opportunities to analyze the health of the region at the neighborhood level. Using census tracts, it measured differences in life expectancy across the region along with the social determinants of health contributing to life expectancy. The data was used to create a tool measuring life expectancy in the census tracts called the Healthy Places Index (HPI). The HPI can be used by transportation policymakers and providers to help prioritize transportation investments and improve transportation options for neighborhoods with the greatest health needs. The TPB considers the EEAs in its planning and grants administration to improve safety and access to transit and other destinations for people that choose to bike or walk.

33 TPB Staff Analysis of US EPA EJ Screen Data Retrieved from US DOT Traffic Data; 25th Percentile of Region Block Groups in Traffic Proximity and Volume, 2017



Elvert Barnes/Flickr

Voices of the Region
ON HEALTHY TRAVEL

Approximately 6 out of 10 respondents supported more or wider sidewalks and bike lanes (63%), even if it meant a reduction in parking availability.

"Future transportation investments should emphasize health benefits of car-alternative travel like biking and walking, which are forms of exercise and reduce pollution."

— Resident of the District of Columbia

"I just think everybody should have a walkable neighborhood. Where everyone has equal access to grocery stores, dairies, pharmacies…there are so many places in the area that are food deserts. So people are forced to get into their car and go to another neighborhood to shop."

— Resident of Prince George's County

Elvert Barnes/Flickr

TPB's Role

Working towards a healthy region for all residents and visitors involves planning and coordination across borders on issues from everyday wellness to emergency response. Engagement with land-use, transportation, and environmental decision-makers is also critical since health is so closely tied with the communities in which people live.

The TPB actively supports strategies that benefit the safety and public health of the region. Many of the TPB's Aspirational Initiatives prioritize fewer vehicle trips and support increased infrastructure for multimodal options, including walking and biking. These infrastructure improvements include protected bike lanes, bike and walk paths, and bikeshare. These additions—coupled with TPB bikeshare and e-scooter coordination workshops—work together to promote a safer and healthier lifestyle in the region. The TPB also conducts air quality and pollution analysis. Results of this analysis help to provide agencies with data showing impacts of the transportation system and how communities are affected.

The TPB tracks and reports a range of impacts and planning efforts related to the COVID-19 pandemic, which was also a topic in the TPB's Voices of the Region and Commuter Connections surveys.

Visualize the Future

The federal requirements regarding air quality and environmental impacts as considered in the National Environmental Policy Act underscore the relationship between the environmental health and health of the public. The TPB has several resources available that can work together to improve public health in the region.

The Policy Context

Impact of the Aspirational Initiatives

Working together, the initiatives provide the opportunity for reduced emissions and improved connectivity that could include better access to destinations that impact public health, such as grocery stores and medical facilities.

Several initiatives aim to improve the safety of and access to options for active travel.

Planning Factors

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

RTPP Goals

- Maximize operational effectiveness and safety of the transportation system.
- Enhance environmental quality, and protect natural and cultural resources.
- Provide a comprehensive range of transportation options.

Application of resources like the Healthy Places index and making investments in infrastructure for biking, walking, and other infrastructure that improves air quality can improve future health outcomes.

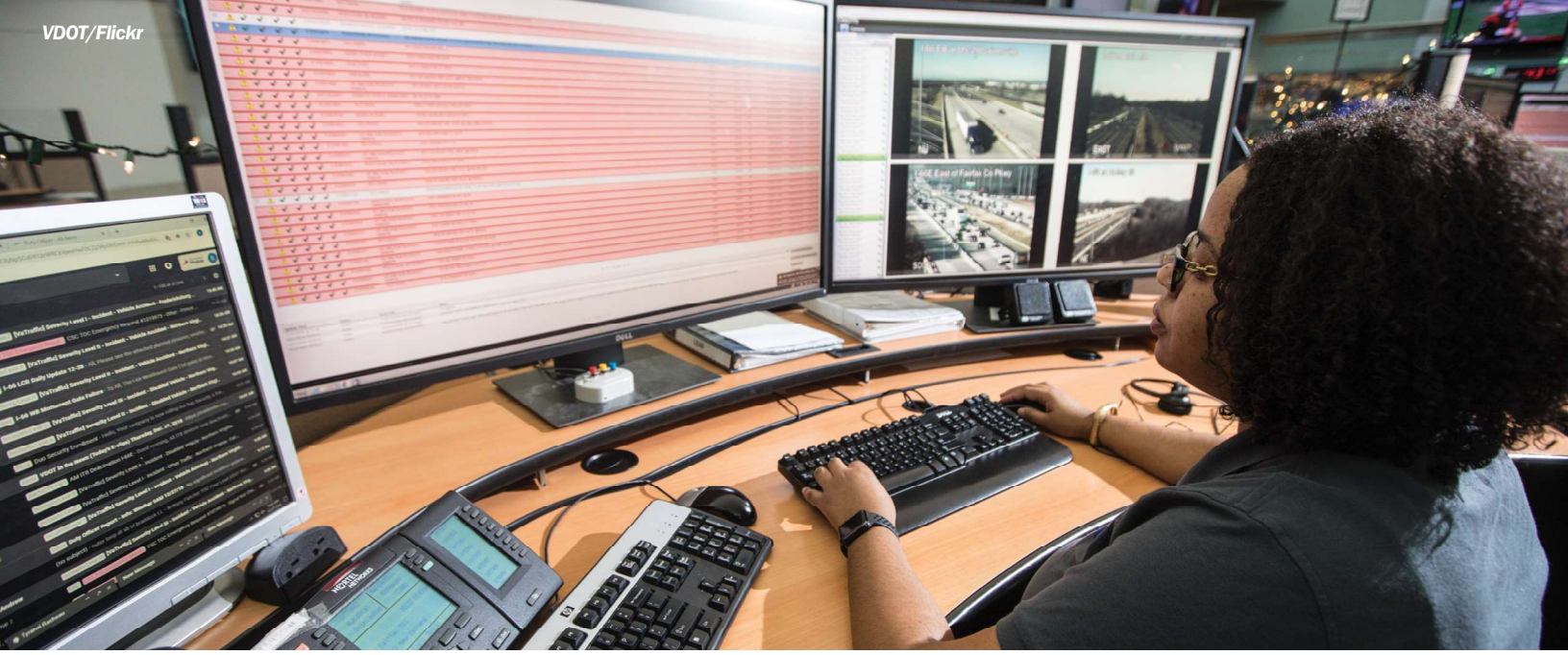
There are many projects in and beyond the constrained element that improve safety, increase opportunities for active travel, and work to improve and maintain environmental health from air and land to waterways. The sponsors for the projects in the constrained element identified numerous projects that promote, enhance, or support improved active travel including 211 projects that make it easier to walk and 205 projects for biking or use of micromobility options such as e-scooters. They also identified 162 projects that implement the initiative "Improve Walk and Bike Access to Transit" and another 32 that implement the initiative to "Complete the National Capital Trail Network". Project sponsors identified 181 projects that are anticipated to reduce criteria pollutants, 185 that mitigate GHG and 209 that support environmental health.

For example, in the District of Columbia, the New York Avenue Streetscape and Trail Project (CE3655) will construct bicycle and pedestrian facilities where none currently exists, thereby reducing trips by SOV, providing options for active travel, and potentially mitigating vehicle trips that would produce emissions.

Ongoing Challenges

As of 2022, the many uncertainties with the future of COVID-19 and the reopening of businesses and schools remain. As vaccines are produced and residents attempt to return to their daily lives, variants of the virus have also emerged that set things back. COG and the TPB will continue to monitor, report, and support the region and its localities during these times. Challenges in air quality and emissions are present with the region expecting an increase of over 20 percent more residents and jobs by 2045. To combat this challenge and improve public health, the TPB supports initiatives, programs, and policies that promote the use and access of multimodal options as an alternative to vehicle trips. Safety is also an ongoing challenge. The TPB is working to reduce transportation fatalities and injuries through analysis and studies so that residents and workers can live and travel safely throughout the region.

Beyond DC/Flickr


VDOT/Flickr

Management and Operations

People who use the transportation system look for a range of comfortable, reliable and practical options that meet their transportation needs. Travelers and freight movement in the region need information to know what to expect on the transportation system to make decisions about when and how they will travel. The TPB and its members work together to manage demand, coordinate the management and operations of the transportation system, provide information to travelers, and examine new technology options and their potential impacts.

To maximize past investments in the region's extensive transportation system and get 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. See Chapter 8, Planning for Performance, to learn more about Visualize 2045's federally required Congestion Management Process and the strategies to reduce recurring congestion. Examples of management and operations (M&O) planning and techniques include providing real-time traveler information that keeps people informed, ramp metering, timing traffic signals to improve 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.

Equity Considerations

An effectively managed transportation system can benefit all travelers by bolstering safety, reducing delay due to incidents, and improving reliability. Transportation agencies must ensure that M&O strategies do not have disproportional impacts to any population or area, nor to transit riders, bicyclists, or pedestrians. Moreover, strategies that improve equity should be priorities for implementation, and approaches should benefit all populations and areas of the region. New applications and technologies that support M&O, such as real-time travel information, should consider who has access to the technologies that will be used and how to ensure all people are able to benefit from real-time information.

TPB's Role

The TPB Vision states that "[the] 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.

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. The TPB also maintains a Regional Intelligent Transportation Systems (ITS) Architecture website that provides a regional ITS

framework for the foreseeable future and serves as a resource for developing ITS technology. Additionally, emerging technologies such as CAVs will impact how the public chooses to travel or move goods in the region. SPOTS monitors CAV and other technological developments for their impacts and opportunities. (Learn more in the CAV Highlight). **More information about TPB's M&O activities can be found at mwcog.org/mgmt-ops.**

Visualize the Future

People and freight in the region rely on robust transportation-related information technology every day. New technologies continue to advance and are increasingly integrated so that phones, infrastructure, vehicles, and even bicycles can connect, monitor, and communicate about the transportation system. The demand for reliable, current and dynamic information is growing. The TPB continues to expand its use of new and emerging data and tools in regional transportation planning, and has been examining the potential use of big data products. Transportation agencies are advancing technological capabilities with useful features that benefit people and freight moving in and through the region. Sponsors for projects in the constrained element identified 84 projects that are expected to reduce travel time without adding capacity, and 239 projects that respond to the need to maximize operational effectiveness and safety of the transportation system.

- **MDOT's I-270 Innovative Congestion Management Project** that uses a two-pronged approach that combines roadway improvements with innovative technologies and techniques such as applied Intelligent Transportation Systems (ITS), use of cameras and sensors to monitor traffic volumes and communicate to dynamic traffic management, and real time communications to drivers.
- **The VDOT and NVTA "Virginia Regional Multi-Modal Mobility Program" (RM3P)** partnership leverages the collaborative use of real-time data by Virginia's public and private sectors to improve travel safety, reliability, and mobility, and to give the public the tools to make more informed travel choices.
- **DDOT's MoveDC plan** has established Mobility Priority Networks that "show where DDOT will invest in safety and mobility improvements for specific modes of transportation. The goal of these networks is to make it easier to move both people and goods while enhancing safety, efficiency, connectivity, and access.
- **Through the Commuter Connections program**, the TPB promotes TDM strategies implemented by TPB members and other private partners, to provide alternatives to driving alone and offer simple ways to find other travel options, with the goal of easing congestion on the roads.

The Policy Context

Impact of the Aspirational Initiatives

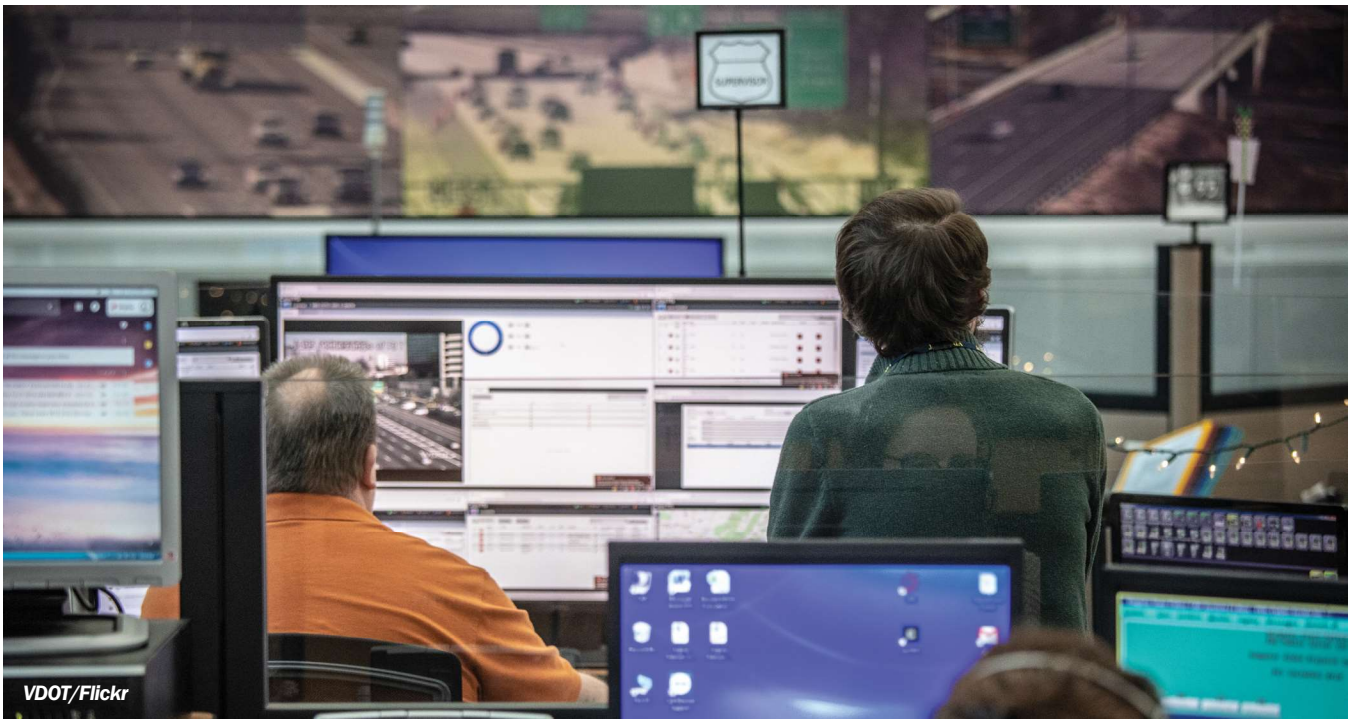
Technology, management, and operations will be key components of the BRT and regional express travel network initiatives. Real-time systems monitoring and "smart" infrastructure enable the safety and travel efficiencies that are key objectives of these initiatives.

Planning Factors

- Increase the safety of the transportation system for motorized and nonmotorized users.
- Improve resiliency and reliability of the transportation system.
- Promote efficient system management and operation.
- Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency.

RTPP Goals

- Maximize operational effectiveness and safety of the transportation system.


VDOT/Flickr

Operational improvements using communications and other new technologies can be very cost effective and are increasingly common solutions. For example, in certain corridors, equipment detects changing traffic flows and automatically adjusts signal timing accordingly. Advanced data systems share traveler information, whether through public services such as agency websites, mobile phone apps like the Commuter Connections incenTrip, or the media. This helps the public avoid recurring and non-recurring traffic congestion. It enables travelers to choose between options of driving, taking transit, biking, walking, or scooting. Electronic signs and apps show when the next bus will arrive at a stop, freeway signs show the travel time to the next major interchange, and information available on mobile phone apps enables travelers to make safe, timely, reliable, and environmentally mindful travel choices.

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 the region.

Ongoing Challenges

The challenges to effectively managing and operating the transportation system are always evolving, The TPB and COG examine issues that will impact how the system functions, such as climate change impacts, where and how people make purchases, equity considerations, and technological evolutions implemented by the public and private sectors. Rapid technological changes challenge transportation agencies to keep up because today's cutting-edge technology is tomorrow's outdated one. Agencies will also need to coordinate to ensure technologies are interoperable when necessary. The public's travel patterns change quickly based on cost, need, and the options provided to them as well as outside factors like the impacts of the global pandemic that began in 2019. Transportation agencies will need to anticipate needs and adjust. The TPB helps regional transportation agencies face these challenges by continually facilitating information exchange and collaboration, examining potential impacts of technologies, and encouraging technology that is compatible across jurisdictional boundaries.

Emerging Technology

While technological advancement is at the heart of M&O, questions as to when, how, and who will be implementing technologies means there is much uncertainty. Transportation agencies anticipate that the shift from today's automobiles to CAVs will have broad and significant impacts on various facets of mobility and society: traffic safety, personal and freight mobility, changing models of vehicle ownership and use, public transit services, and where people choose to live and travel. Given the sheer number of factors that will influence CAV deployment, much uncertainty surrounds how CAVs will function on the highways and local roads. However, CAVs are likely to impact regional transportation planning to meet our goals and priorities and will impact planning activities in significant ways.

The TPB conducted a study with consultant support and guidance from a temporary working group. The result was a white paper to assist the TPB in addressing that uncertainty in planning for CAVs on the region's transportation system. Specifically, it looks to inform regional conversations on CAVs and TPB's role related to this topic by examining:

- Areas where TPB goals, policies, and activities may substantially interact with CAVs.
- Potential CAV deployment impacts (issues, challenges, opportunities) as they relate to corresponding jurisdictional authorities and roles (primary, secondary, collaborative).
- Opportunities to enhance CAV considerations within TPB's planning products/activities.

The paper also supports development of the region's planning, policy, and programming priorities related to CAVs and identifies actions the TPB may take to further achieve its goals and minimize the potential for adverse impacts as CAVs are deployed. Resulting from this work are the TPB's regional CAV principles to guide the planning and future incorporation of CAV into the transportation system.

CAV Impacts: Relation to Regional Goals and Agency Roles

Research conducted for the white paper identified the following areas of CAV deployment impact, which pertain directly or indirectly to the role of regional long-range transportation planning in the metropolitan Washington region and to the roles of transportation agencies generally:

- **TRAVEL:** includes impacts that directly relate to the mobility of the traveling public, motor carriers, and other road users (access, active/public transportation, goods movement, travel behavior, and safety).
- **SOCIETAL:** includes impacts of broad societal concern (equity, employment/economic development, environment, and land-use).
- **ORGANIZATIONAL:** includes impacts directly related to the activities and responsibilities of infrastructure owner/operators and transportation planning agencies (data coordination, emergency preparedness, funding, infrastructure, operations, reliability, security/privacy, and travel forecasting).

Ivan Radic/Flickr

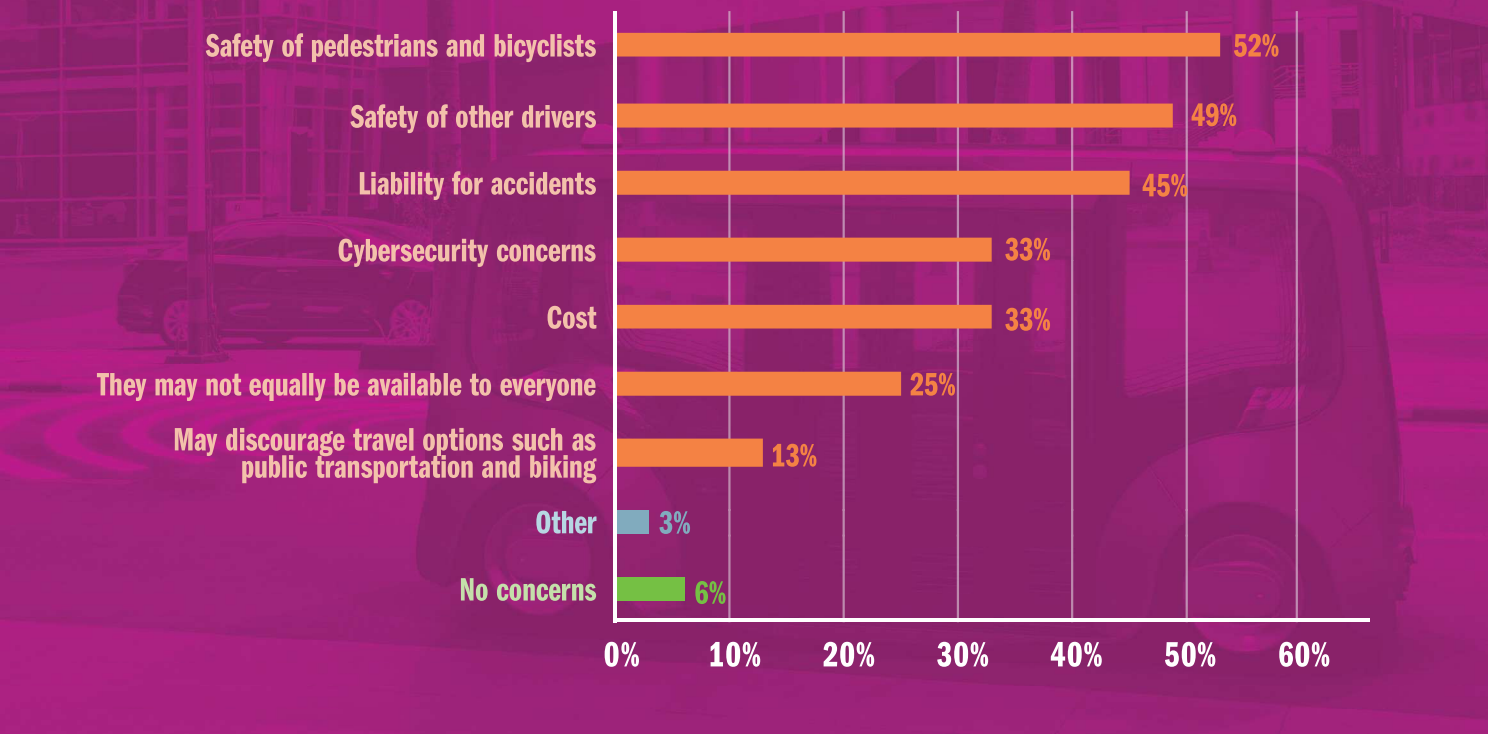
The white paper provides a link between the CAV deployment impact areas/categories and select TPB policy goals and objectives. This helps demonstrate the relevance of CAV impacts to nearly every area of the agency's goals and activities. Relative levels of certainty and risk associated with each of the impact areas are also explored. The white paper identifies high-level roles for transportation agencies at various jurisdictional levels as they relate to CAV deployment.

Equity Considerations

The ongoing evolution and implementation of CAVs requires a close examination of equity concerns such as how to ensure the benefits of the new technologies are affordable and available to all. Making vehicles available through shared mobility is an example. Looking ahead, agencies will need to consider access for vulnerable and disadvantaged populations such as those with low incomes or those who lack credit cards that are often required for services. When the topic of CAV was discussed with the Access for All Advisory committee, concerns were raised over the potential for inequitable distribution of shared mobility services and vehicle design to accommodate people with physical disabilities. Committee members recognized that CAV might provide improved connections and services for people that cannot drive: over 2.7 million adults in the District of Columbia, Maryland, and Virginia have a disability that might impact their ability to drive.[34] Other benefits might include better access for people in remote or underserved areas and the reduced need for private vehicles.

As technology can solve inequities as well as create new ones, planning for equity must remain at the forefront for CAV, for example considering equity during testing and implementation of new technologies.

Voices of the Region ON DRIVERLESS CARS



34 Behavioral Risk Factor Surveillance System Data – BRFSS, 2019, for the District of Columbia, Maryland, and Virginia

Transportation Planning Board CAV Principles

The TPB staff worked with the SPOTS, CAC, and AFA Committees to develop a draft set of principles for review based on findings and recommendations of the CAV white paper, discussions during the four CAV webinars TPB hosted in 2020 and 2021, and other existing TPB policy documents. The TPB approved these principles at its January 2022 meeting as part of this update to Visualize 2045.


Sac State/Flickr

CAV Principles

Any deployment of CAVs in the National Capital Region should:

1. Ensure the safety of everyone on or near transportation facilities, in all situations.
2. Ensure CAVs' benefits are available equitably to all people in the region and avoid disproportionate negative impacts to any group or community.
3. Increase mobility options for all.
4. Increase opportunities for and quality of accessible transportation, including for persons with disabilities.
5. Maintain and enhance opportunities for and the quality of bicycling and walking in the region.
6. Retain the operational priority for ridesharing and transit vehicles on the region's roadways.
7. Enhance the provision of transit, including providing opportunities for microtransit access to the region's high-capacity transit (HCT) stations.
8. Bolster regional environmental and land use objectives, including prioritizing shared vehicles and advancing decarbonization of the transportation system.
9. Prioritize reduction of vehicle miles of travel and minimize zero occupant vehicle miles of travel.
10. Ensure freight and goods movements that help minimize disruptions and facilitate livability of the region's communities.
11. Ensure security (including cybersecurity) and privacy and prevent risks to people and infrastructure.
12. Interoperate safely with non-automated vehicles, vehicles with differing levels of automation, and all other transportation system users.
13. Be accompanied by addressal of legal liability issues relating to crashes, failures, and safety, including ensuring that CAVs at varying levels of capability are operated within those vehicles' technological capabilities and limitations and stipulating safe and responsible actions and choices by vehicle manufacturers, owners, operators, and users.
14. Bolster effectiveness of emergency and incident response, systems management by traffic operations centers, and information sharing among agencies and the public.
15. Bolster interjurisdictional coordination and technical interoperability among TPB member agencies, in conjunction with relevant national efforts and standards.
16. Provide public revenues that are no less than the costs they impose on infrastructure, transportation systems management and operations, and communities.
17. Make data freely available to TPB member agencies to enhance planning, operations, and emergency preparedness and response.
18. Be accompanied by robust efforts by TPB and member agencies to keep abreast of evolving technology to enhance support of TPB's goals.

Emergency Preparedness and Transportation Security

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.

Equity Considerations

Ensuring the safety and security of all populations, including the most disadvantaged, is critical to consider in planning for emergency preparedness and transportation security. The TPB conducts analysis using the EEAs to examine where the most disadvantaged populations live and the types of travel options used. This information can inform and be used by planners for this planning area.

TPB's Role

Visualize 2045 both supports and reflects a wide-ranging set of emergency preparedness planning activities. The TPB coordinates efforts with 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 the 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 mwcog.org/public-safety-and-homeland-security/planning-areas.**

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, the TPB and COG help the region prepare for emergencies and incidents today and into the future. Sponsors of the projects in the constrained element identified 142 projects that respond to the federal planning factor regarding homeland security.


Phil Roeder/Flickr