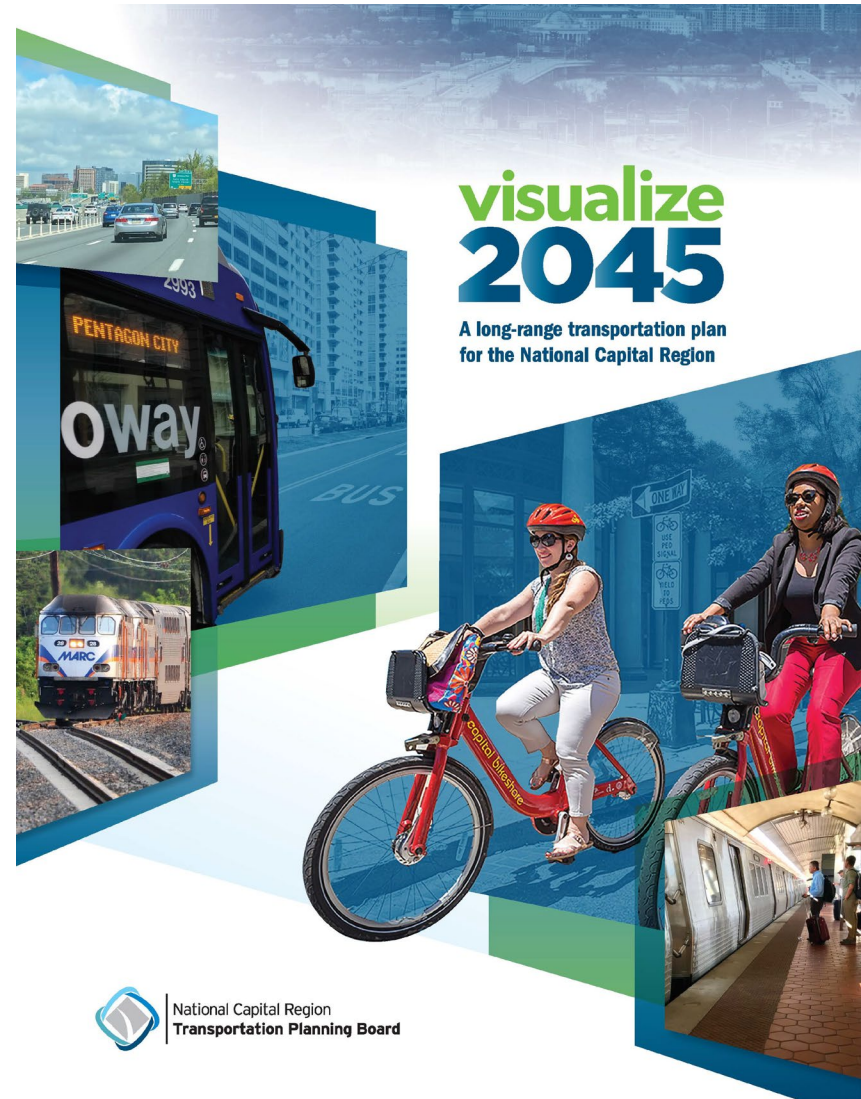


# Welcome to the TPB Virtual Forum!

The presentation will begin at Noon!

- During the virtual forum, we welcome and will get to as many questions as we can.
- To submit your questions: put them in the chat box and direct them to the username: “Ask a Question”



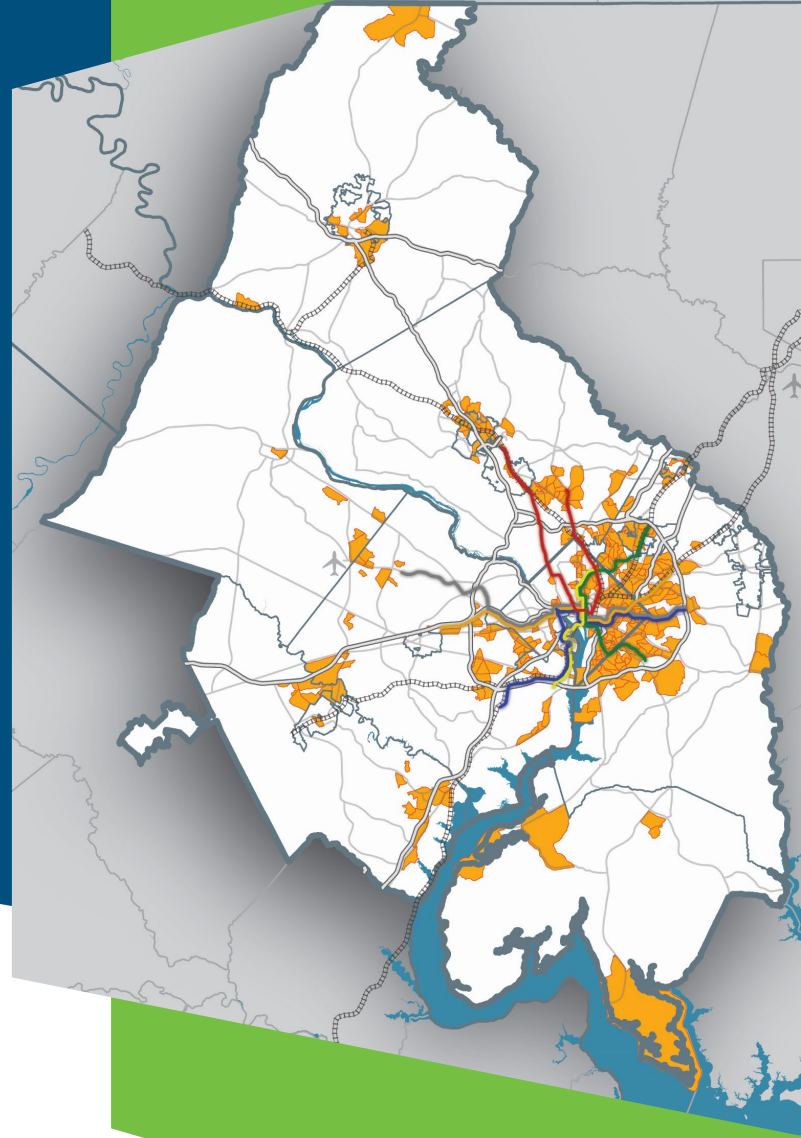
# TPB Virtual Forums: 2022 Update to Visualize 2045

TPB Staff

April 6 and 7, 2022

**visualize**  
**2045**

A long-range  
transportation plan  
for the National  
Capital Region



# Presentation Overview



1. Overview of TPB and Visualize 2045



2. Air Quality Conformity



3. Financial Plan



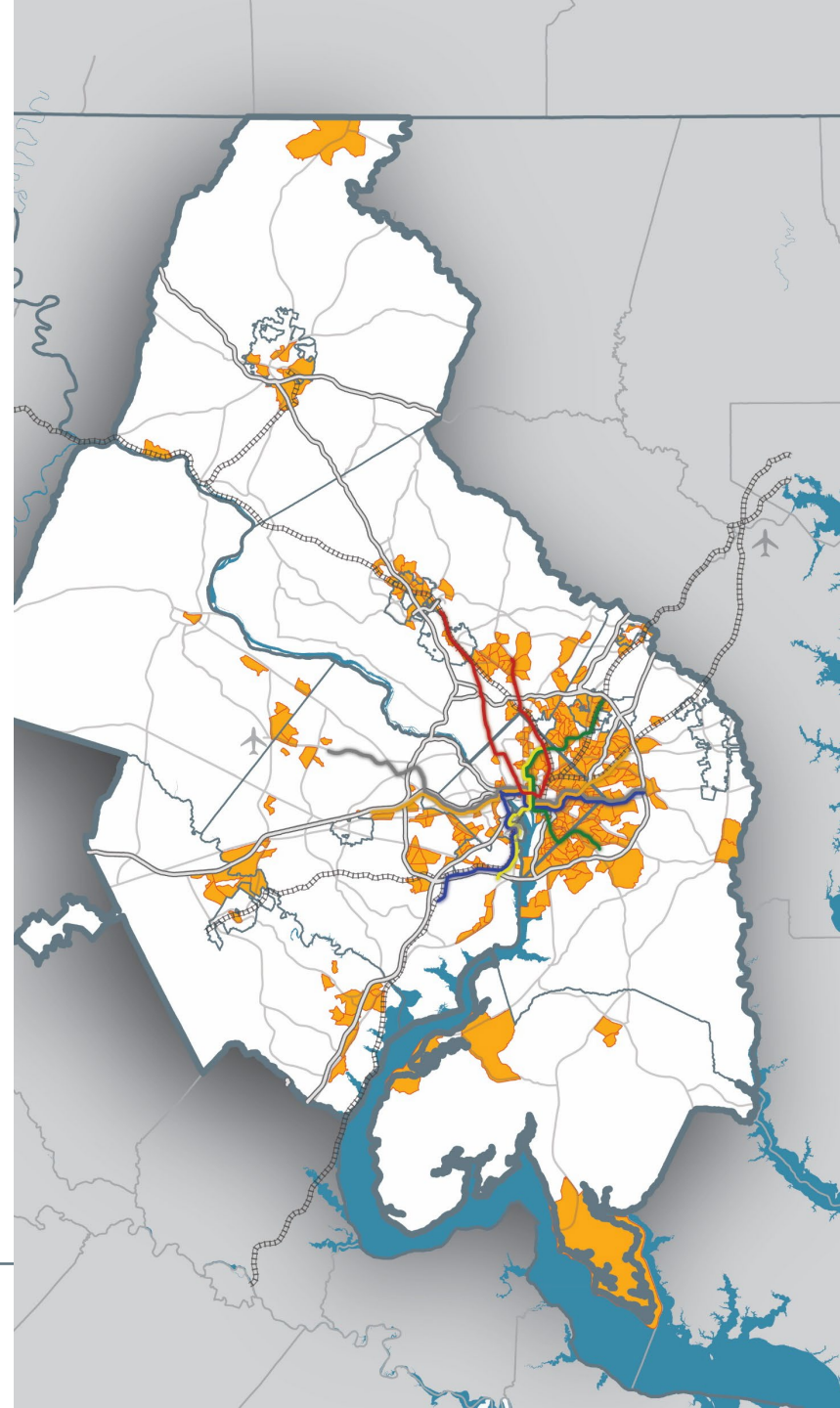
4. Performance of the Regional Transportation System



5. Get the Word Out: Visualize 2045

# About TPB

- National Capital Region  
Transportation Planning Board: TPB
- Federally designated Metropolitan  
Planning Organization (MPO) for the  
Washington region
- 3,500 square miles in area
- Home to about 5.7 million people and  
3.4 million jobs
- Members include:
  - State transportation agencies
  - 23 local jurisdictions
  - State and DC legislatures
  - WMATA, Others
  - 44 Members, 39 'voting'





# What does an MPO do?

- Regional transportation planning organization for the metropolitan region
- Serves as a representative group of local stakeholders of the region
- Carries out a “Continuing, cooperative, and comprehensive” consultation process (3Cs)
- Develops plans and programs that consider all transportation modes
- Works with state air and transportation agencies to meet federal Clean Air Act standards



**Pamela Sebesky**  
**TPB 2022 Chair**  
**City of Manassas, VA**



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

# **1. 2022 Update to Visualize 2045, TPB's Long-range Transportation Plan**

# Top 3 Things to Know about the Visualize 2045 Update

## 1. The plan meets all federal requirements, including:

- ✓ Technical Inputs
- ✓ Fiscal Constraint
- ✓ Air Quality Conformity
- ✓ Implementation of TPB's Public Participation Plan, Title VI\*
- ✓ Performance-Based Planning Requirements

## 2. The plan includes \$223.3 B projected for 2023-2045

- 81%: devoted to the operations and maintenance
- Modal Breakdown:
  - WMATA: 45%
  - Other public transport: 22%
  - Highways: 32%
  - Stand-alone bike/ped: 0.4%.

## 3. We make progress on our goals but also face challenges

- Growth will increase demand, increasing delay and congestion
- Access to transit will increase
- More people, businesses and visitors will have increased travel options



# Draft FY 2023-2026 Transportation Improvement Program (TIP) Summary

- Learn about the TIP next week!
  - April 14, 6-7pm
  - Register at <https://visualize2045.org/get-involved/>
- TIP provides the schedule for the next four years for distributing federal, state, and local funds for state and local transportation projects
- TIP projects include those that are in the first four years of the plan, plus other project types that use federal funding, such as roadway and transit maintenance projects, and operational programs



# Why Have a Regional Plan?

- Working together toward regional goals:
  - Together, major projects, programs, and policies in the region can improve transportation system performance
- MPOs created to ensure regional cooperation in transportation planning—in particular, to improve air quality



# Why Have a Regional Plan?

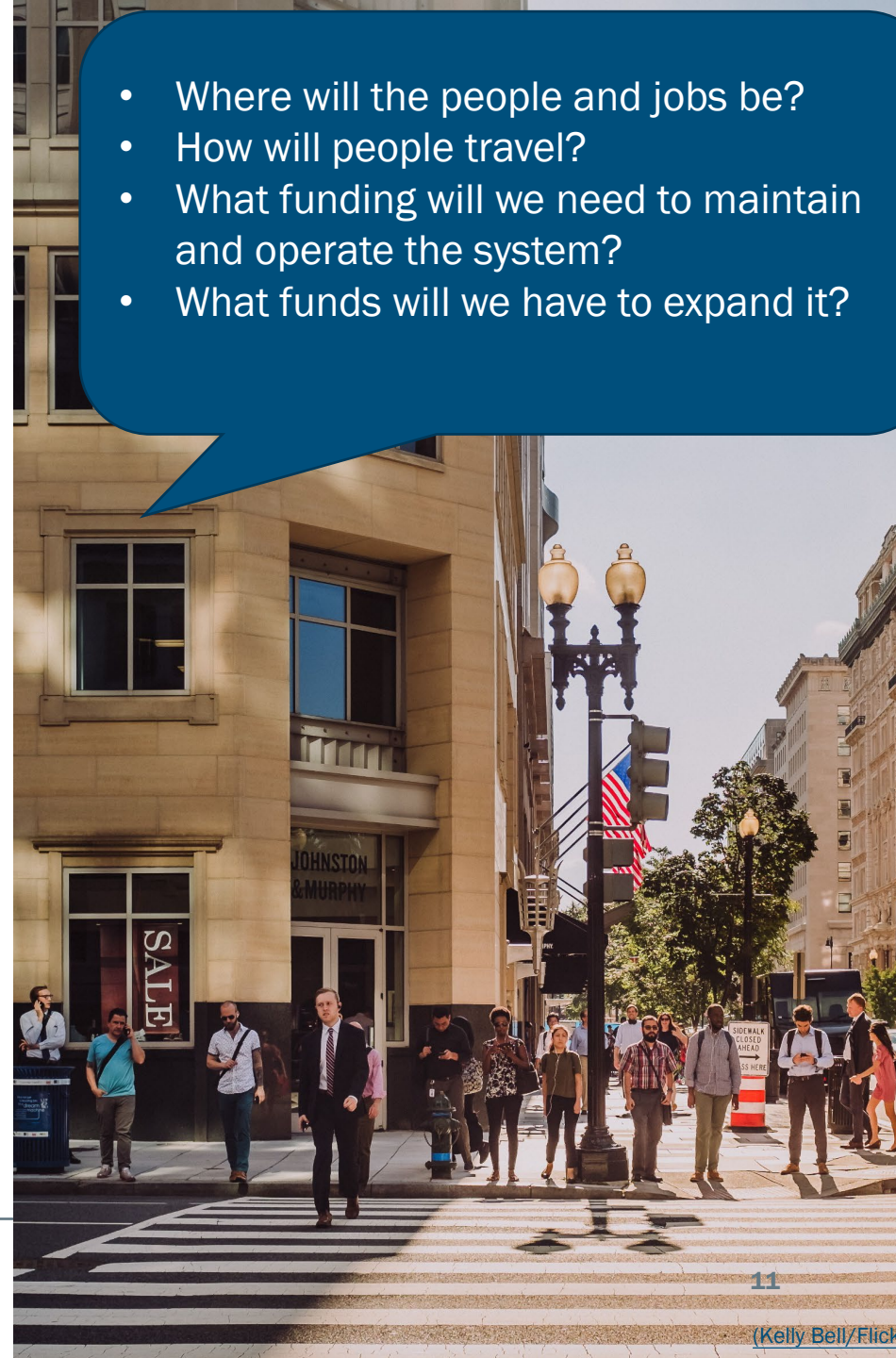
## Planning in Times of Uncertainty

Must plan with many factors in mind

- Equity
- Global economy
- Climate change
- New technologies
- Increased urbanization
- Funding
- A global pandemic... and more

Must develop solutions that are resilient in all futures

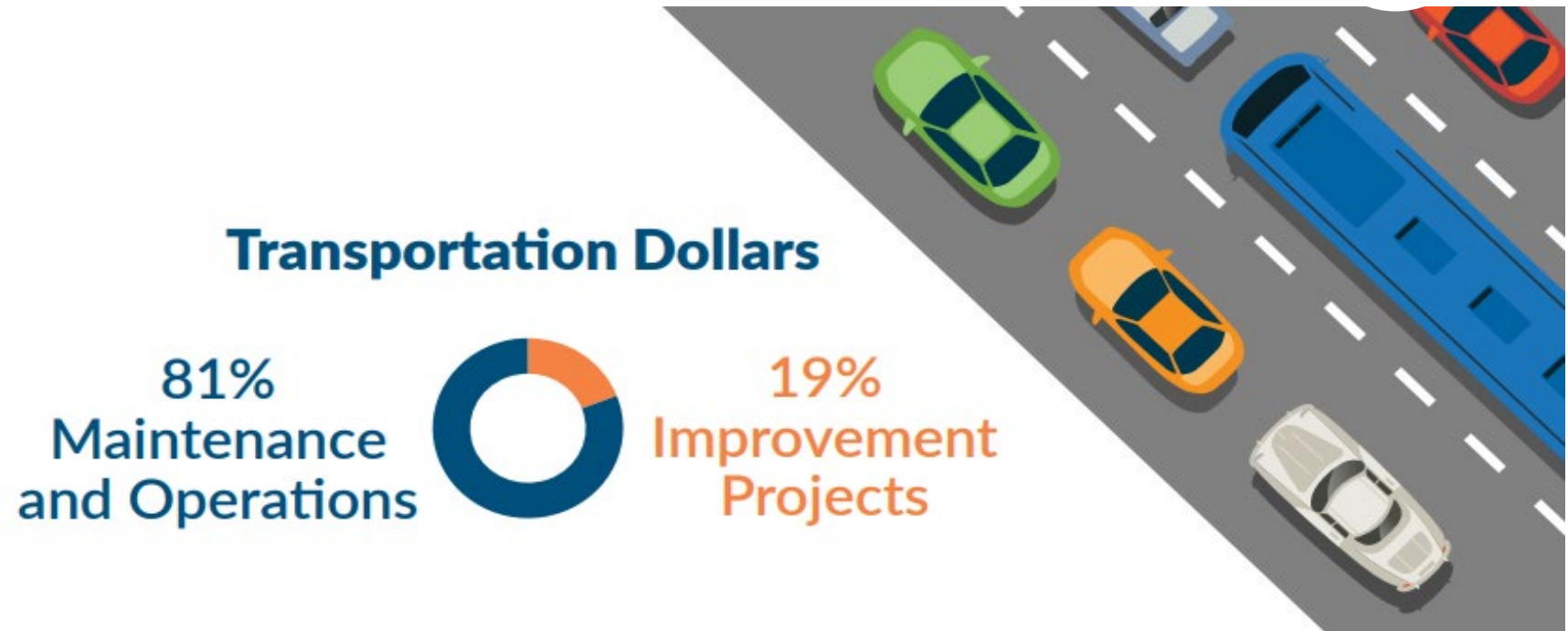
- Where will the people and jobs be?
- How will people travel?
- What funding will we need to maintain and operate the system?
- What funds will we have to expand it?





# The Challenge

By 2045, metropolitan Washington will be home to 1.3 million more people and about 1 million more jobs. Daily trips will increase from 18 million per day to 21 million





# TPB's Aspirational Initiatives

- Bring Jobs and Housing Closer Together
- Expand Bus Rapid Transit and Transitways Regionwide
- Move More People on Metrorail
- Provide More Telecommuting and Other Options for Commuting
- Expand Express Highway Network
- Improve Walk and Bike Access to Transit
- Complete the National Capital Trail Network

See chapters 6 and 7 for discussion regarding implementation of initiatives



# Many Federal Requirements

<b>Federal Planning Factors</b> <ul style="list-style-type: none"> <li>• Preservation of the existing transportation system.</li> <li>• Efficient system management &amp; operation</li> <li>• Integration &amp; connectivity across and between modes</li> <li>• Support the economic vitality of the metropolitan area</li> <li>• Protect &amp; enhance the environment</li> <li>• Increase the security of the transportation system</li> <li>• Support homeland security &amp; safeguard security of all users</li> <li>• Improve resiliency &amp; reliability of transportation system</li> <li>• Increase the safety of the transportation system</li> <li>• Increase accessibility &amp; mobility of people</li> <li>• Increase accessibility &amp; mobility of freight</li> <li>• Enhance travel and tourism.</li> </ul>	<b>Financial Constraint</b> Funds must be reasonably expected to be available.	<b>Air Quality</b> Emissions generated by use of the transportation system in the future must not exceed pollution budgets set by the EPA.
	<b>Public Participation</b>	<b>Performance-Based Planning and Programming</b> <ul style="list-style-type: none"> <li>• Highway Safety</li> <li>• Highway Assets</li> <li>• Highway System Performance</li> <li>• Vehicular Emissions</li> <li>• Transit Asset Management</li> <li>• Transit Safety</li> </ul>
	<b>Congestion Management Process</b> Agencies must consider alternatives to adding capacity for single-occupant vehicles	
	<b>Title VI and Environmental Justice</b>	

# Two Parts of Visualize 2045

## Plan's Constrained Element

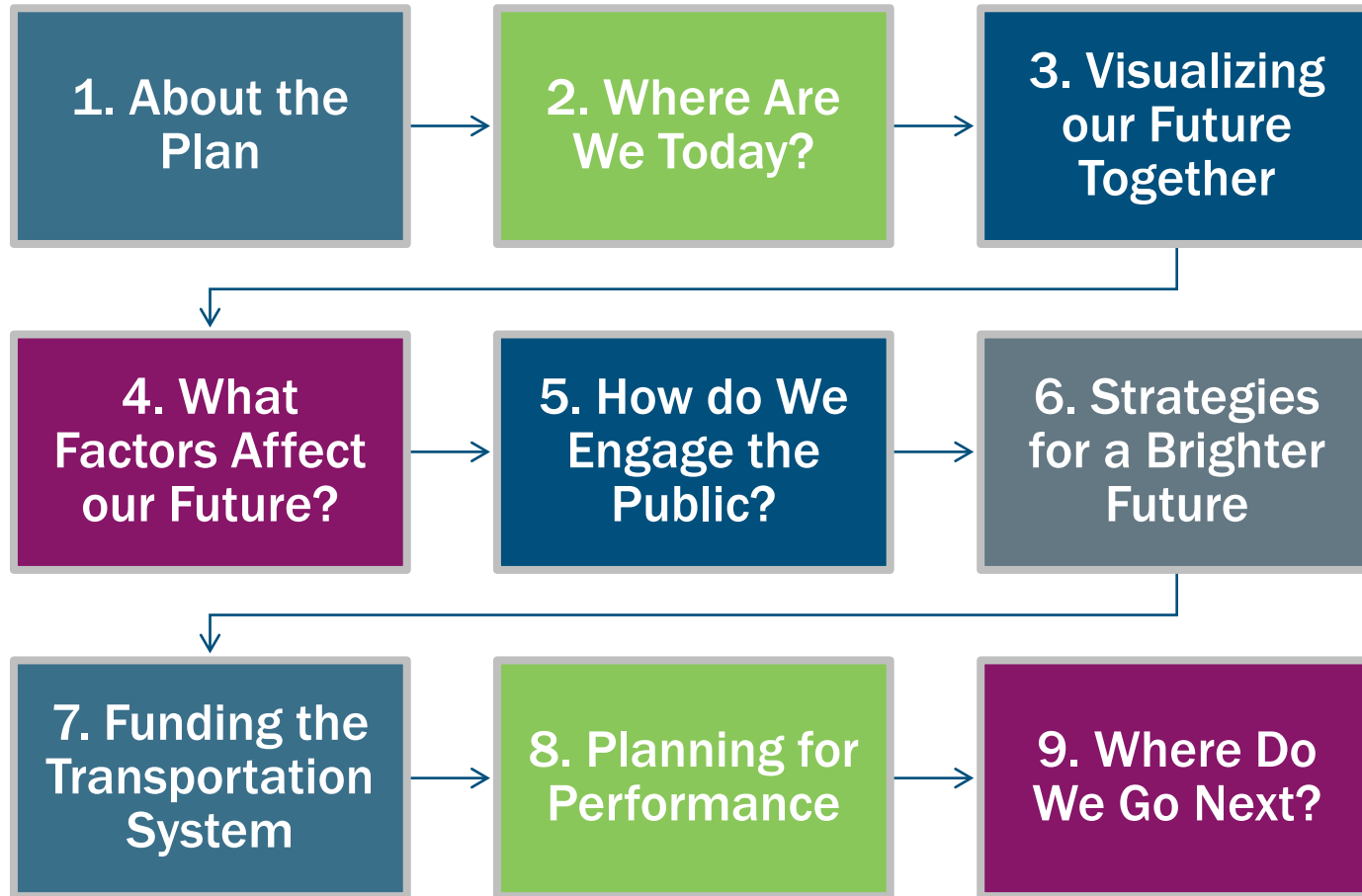
- Regionally-significant projects from approved local plans
- Projects are vetted through local planning processes
- Constrained by what we can afford over years of the plan and analysis requirements

## Rest of the Plan

- Vision and Goals
- Reflects Where We are Today
- Factors we must Consider when Planning for the Future
- Public Opinion
- Strategies for a Better Future (and more)

# Plan Organization: Nine Chapters

Includes Climate  
Change Mitigation





# Chapter 6: Strategies for a Brighter Future

## Aspirational Initiatives

### Transportation Options:

- TDM
- Bike/Ped/Micromobility
- Transit (new) including Intercity bus
- Driving and Riding (new)
- Airport Systems

**Equity considerations and planning discussed in each section**

## Future Factors/Federal Planning Factors

- Equity and Inclusion
- Coordinated Human Transportation Services Plan
- Climate Change Mitigation and Resiliency
- Environmental Consultation and Mitigation
- Safety
- Land-Use (including affordability and HCT/EEA planning)
- Freight
- Funding
- Public Health
- Management and Operations
- Emerging Technology/CAV
- Emergency Preparedness and Transportation Security
- Travel and Tourism

# Plan Appendices

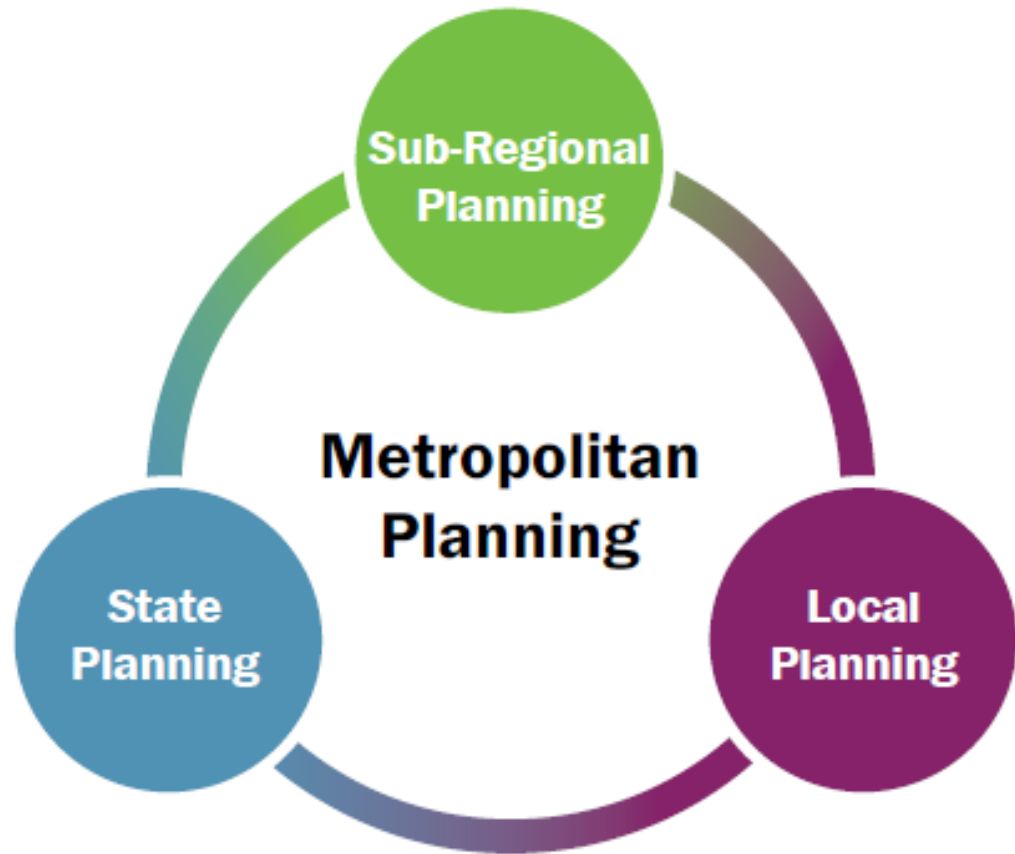
A. Financial Plan	B. Summary of Projects in the Fiscally Constrained Element	C. Air Quality Conformity Analysis	D. Systems Performance Report	E. Congestion Management Process – impact on plan development
F. Safety Planning	G. Environmental Consultation and Mitigation	H. Public Participation Summary	I. Summary of Public Comments	J. Summary of Transit Plans (TDP/TSP) in Region
	K. Federal Compliance Checklist	L. TPB Resiliency Study Whitepaper	M. TPB Climate Change Mitigation Study	

# Related Planning Efforts

**Review** the plans developed by the TPB, states, localities, regional and transit agencies in the region, and provide input when they are updated.

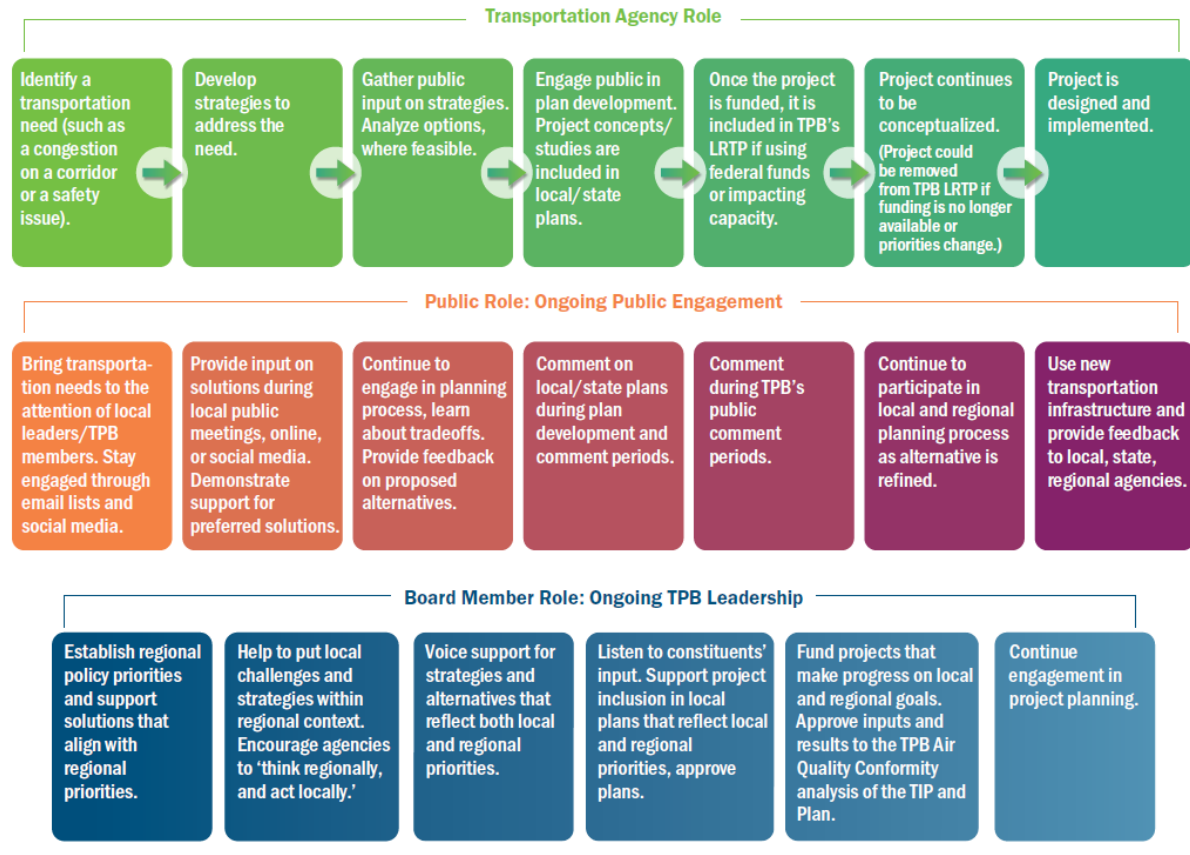
Other TPB plans and activities	A few of the state and regional plans include
<ul style="list-style-type: none"><li>• Freight Plan</li><li>• Bicycle and Pedestrian Plan</li><li>• Commuter Connections Travel Demand Management Program</li><li>• Transit Planning</li><li>• Environmental Planning</li><li>• Safety Planning</li><li>• ....and more</li></ul>	<ul style="list-style-type: none"><li>• State of Maryland LRTP</li><li>• District of Columbia, LRTP</li><li>• Commonwealth of Virginia LRTP</li><li>• Washington Metropolitan Area Transit Authority Initiatives (including strategic, capital, and service plans)</li><li>• Northern Virginia Transportation Authority LRTP, TransAction</li></ul>

# How does a project get into the plan?

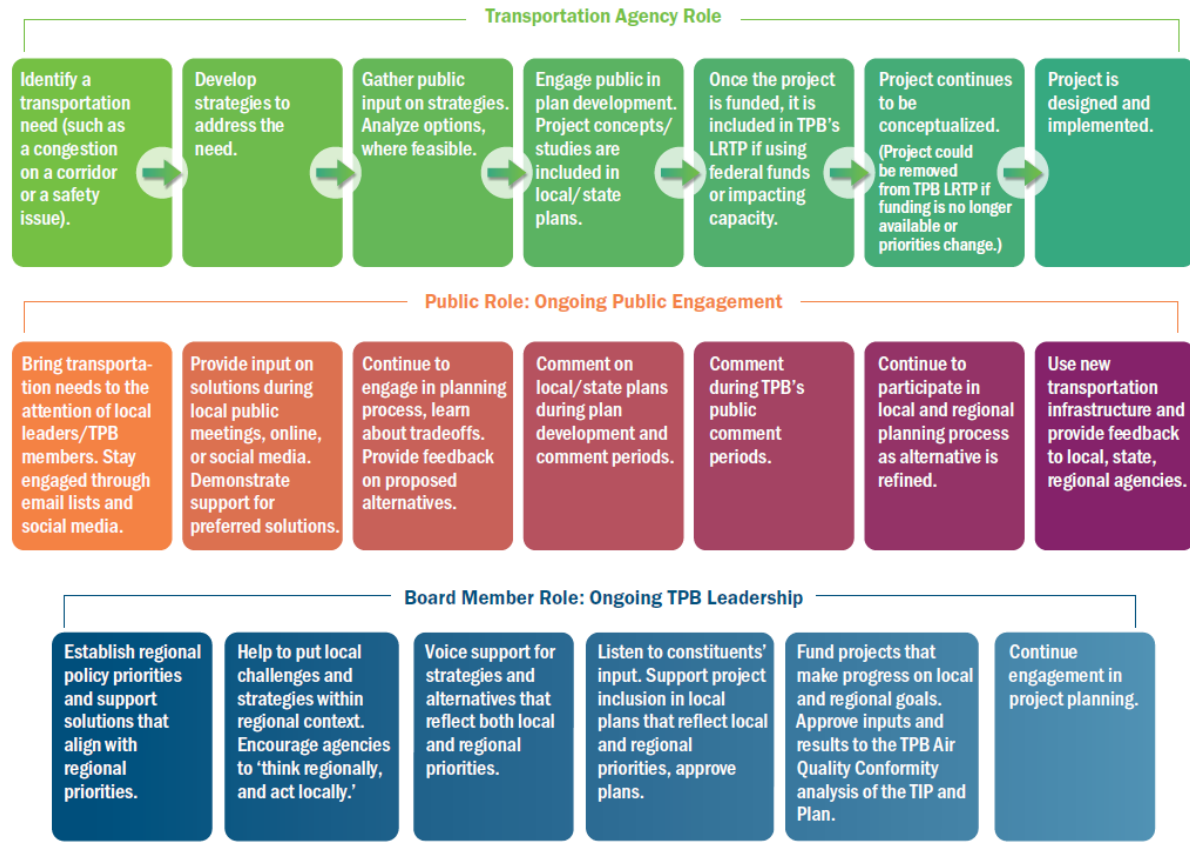




# What is TPB's role in influencing projects?



# What is your role, in influencing projects?



# What is your role, in influencing projects?

## You can also “Think Regionally, and Act Locally”:

- Identify local transportation challenges
- Be part of the solution: participate in surveys, polls, in-person or virtual meetings
- Weigh in on proposed solutions
- Support funding and prioritizing of projects that implement the Aspirational Initiatives and other TPB-endorsed strategies
- Examine your transportation options—try something new as more options are made available

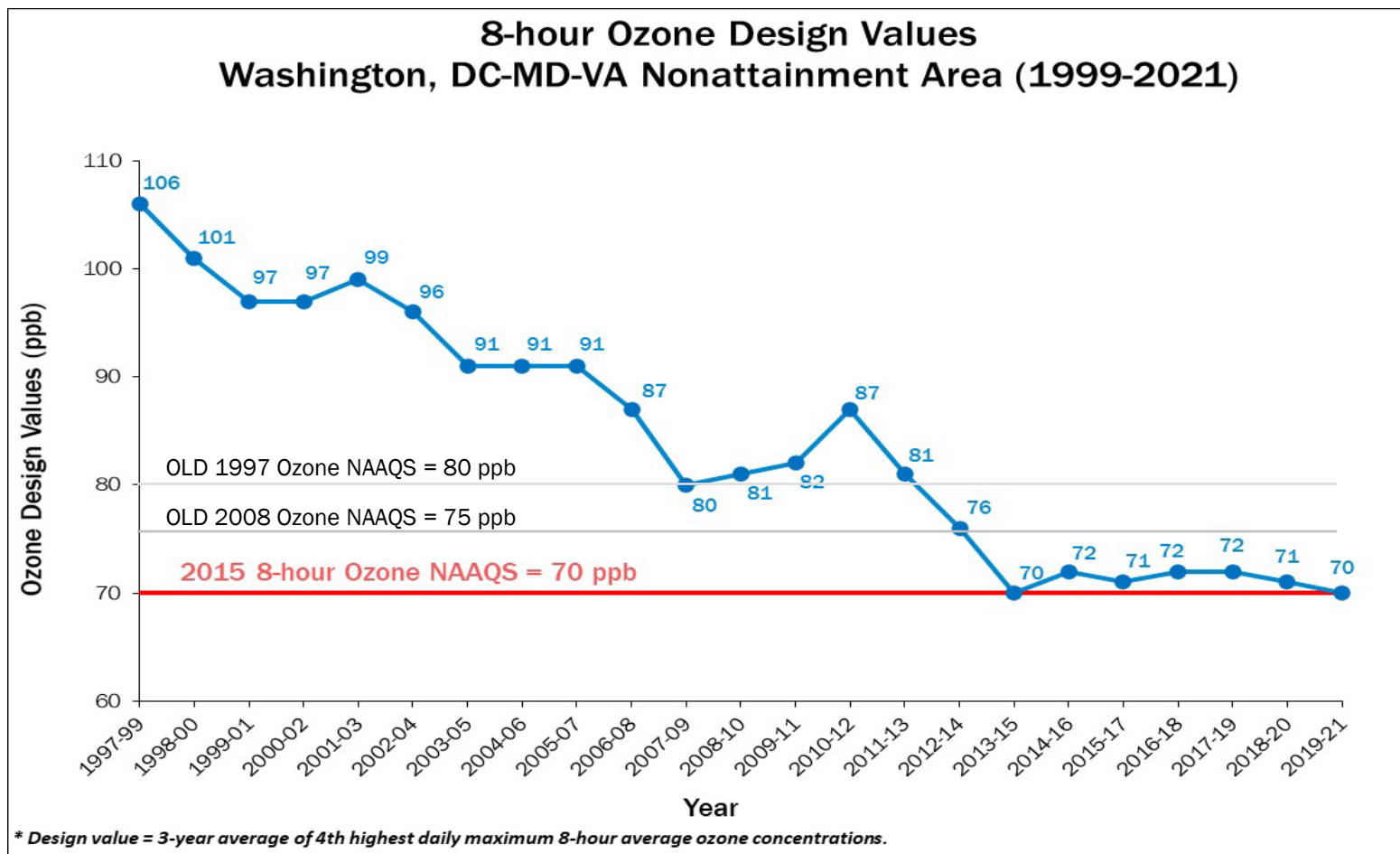
## 2. Air Quality Conformity



*The 2022 Update to Visualize meets the federal Air Quality Conformity requirements—mobile source VOC and NO<sub>x</sub> emissions associated with the plan/TIP are below EPA approved motor vehicle emissions budgets.*

# Air Quality Trend 1999-2021

Data from  
monitors  
throughout  
the region



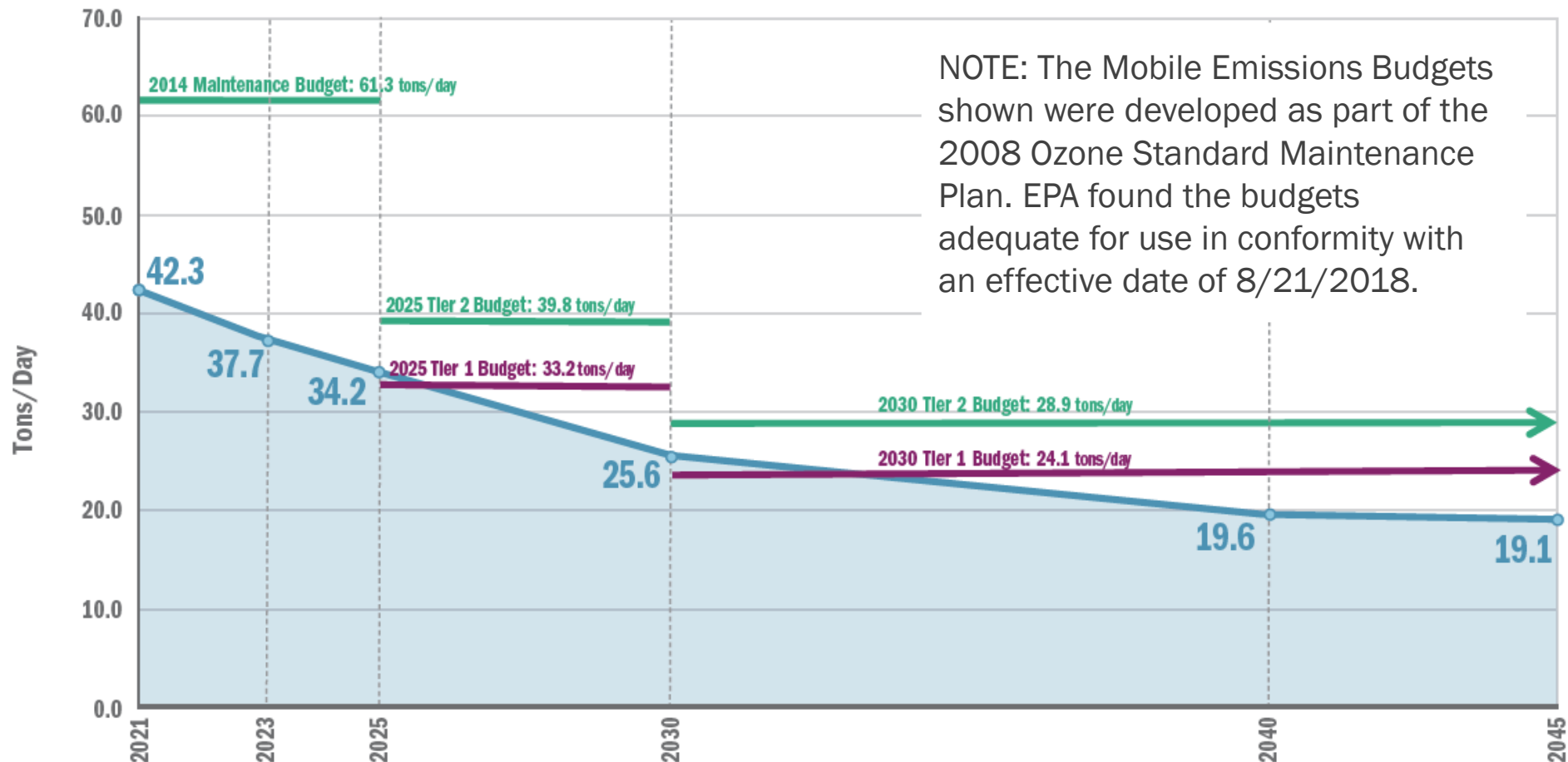
Source: MWAQC Staff



# Air Quality Conformity

Forecast  
Data

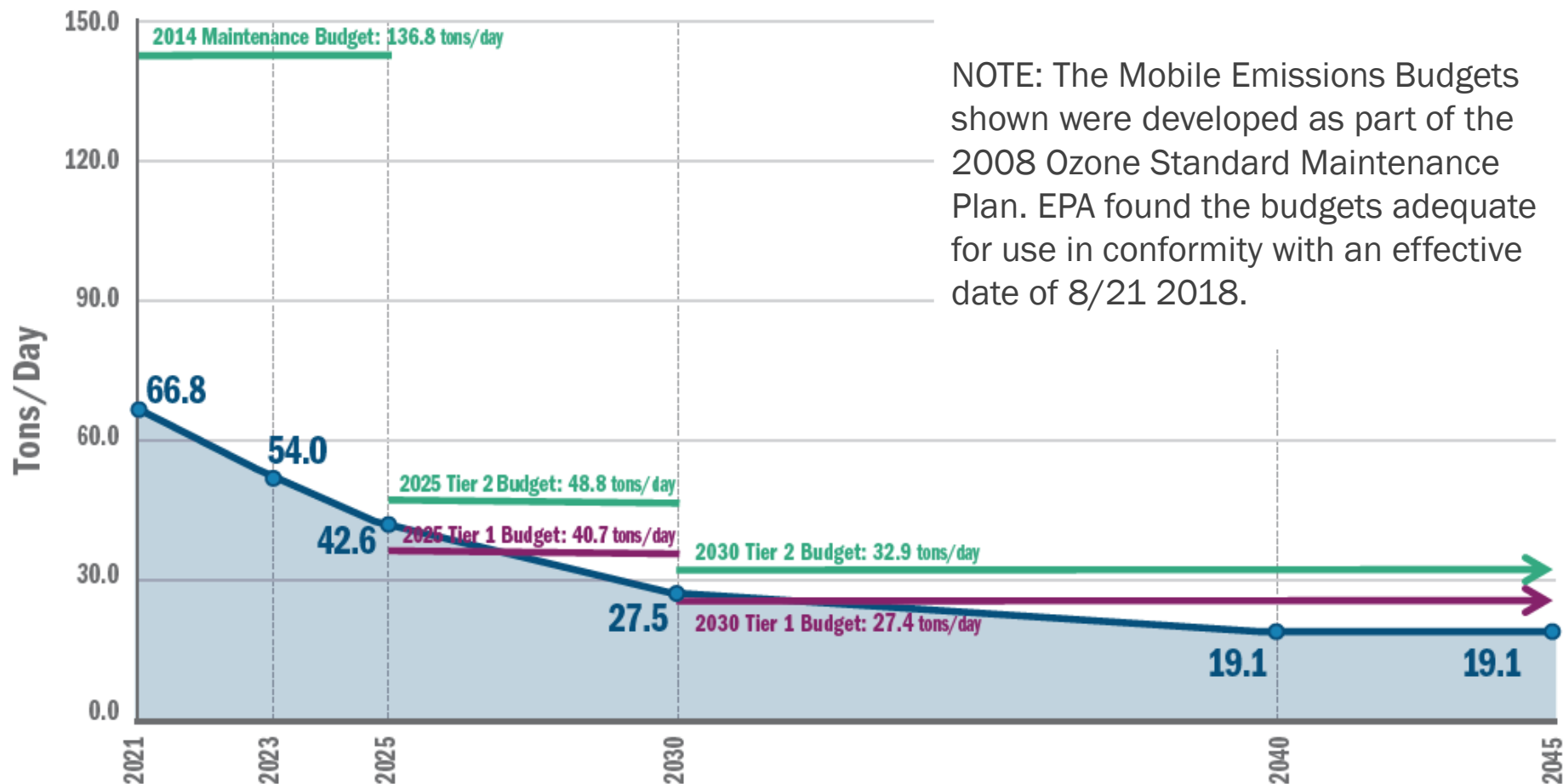
## 2022 Update to Visualize 2045 Air Quality Conformity Mobile Source Emissions and Mobile Emissions Budgets Ozone Season: Volatile Organic Compounds (VOCs)



# Air Quality Conformity

Forecast  
Data

## 2022 Update to Visualize 2045 Air Quality Conformity Mobile Source Emissions and Mobile Emissions Budgets Ozone Season Nitrogen Oxides (NO<sub>x</sub>)



### 3. Funding the Transportation System: The Financial Plan

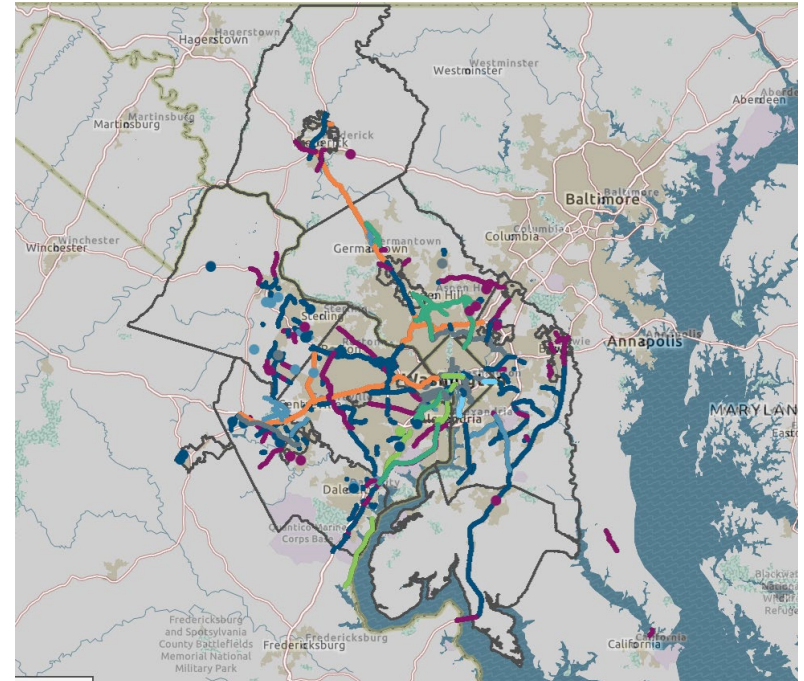


*The 2022  
Update to Visualize  
2045 long-range  
transportation plan  
meets the federal  
requirements for  
fiscal constraint.*

**visualize**  
**2045**

# Financially Constrained Element

- Includes more than 100 major projects that expand or change the region's highway or transit system capacity ...and hundreds more
- See Appendix B: Summary of Projects in the Financially Constrained Element for more details



New Interactive Project Map  
<https://www.mwcog.org/maps/map-listing/visualize-2045-project-map/>

# How Does the Region Pay for Transportation?

- Funding is provided by the federal, state, and local governments
- Generally, revenues are generated through a "user pay" system
- Typical revenue sources: fuel taxes, vehicle registration fees, transit fares, tolls, and other mechanisms, and some general taxes
- State and local funding allocation to projects varies across jurisdictions
- Federal funds are available through grants and specific funding programs
- The time from an idea to construction can take decades for major projects

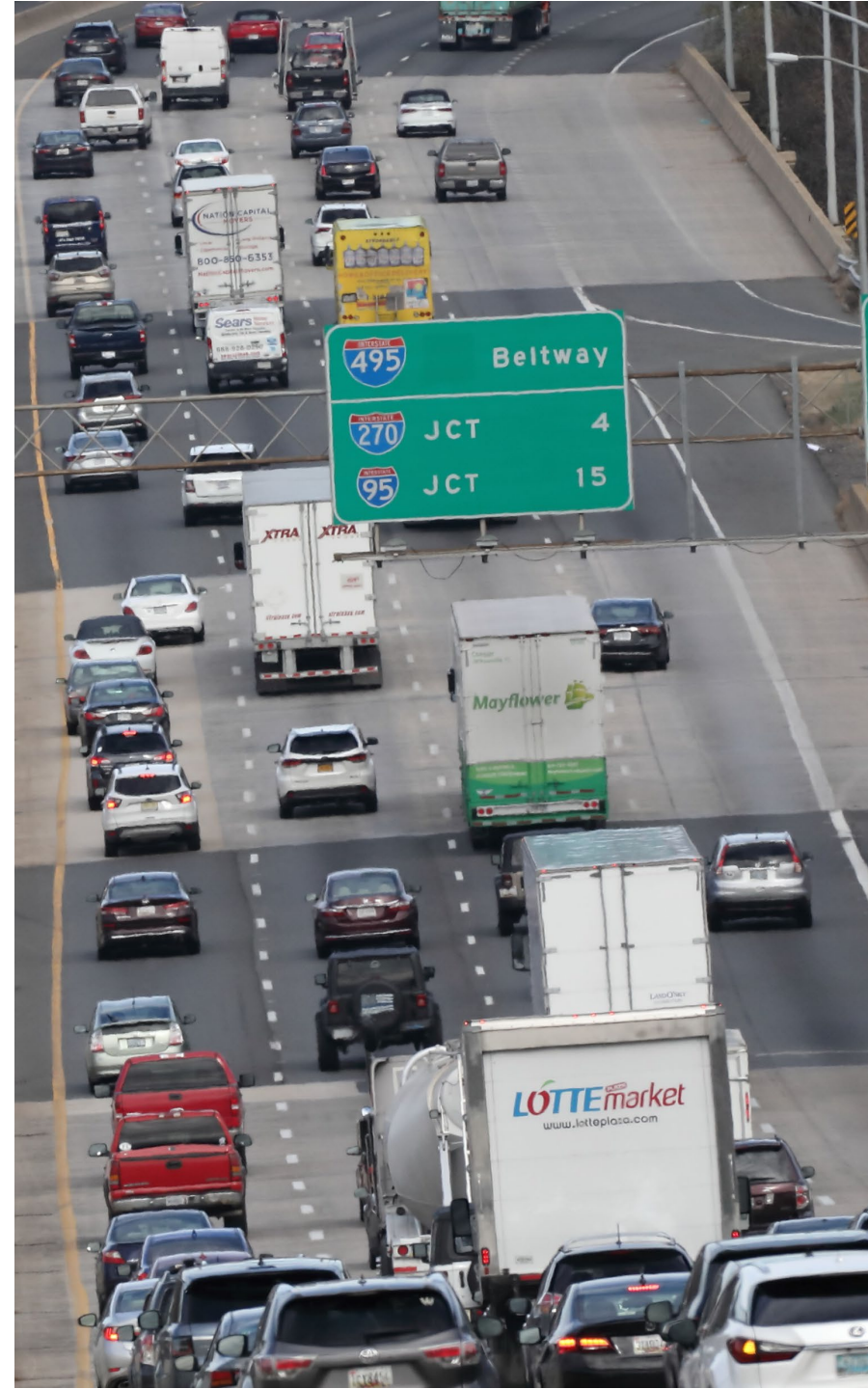
## WHAT ARE "FUNDING SILOS?"

Transportation funding is not one "pot" of money that can be spent on any transportation project, program, or service. Federal and state laws and policies dictate where and how transportation funds can be applied, which separates the funding available into "silos."



# Does the Region Have Enough Funding for Transportation?

- Most of the **increased travel demand** will fall upon the existing highway and transit systems
- Even with **planned investments** in transportation capacity, long-term performance analyses of past plans have predicted that travel congestion will increase significantly
- Even with **technological improvements** and changes in trip demand (e.g., increased telework, home delivery, etc.), increases in travel congestion are predicted



# What Are Federal Requirements to Fund Visualize 2045?

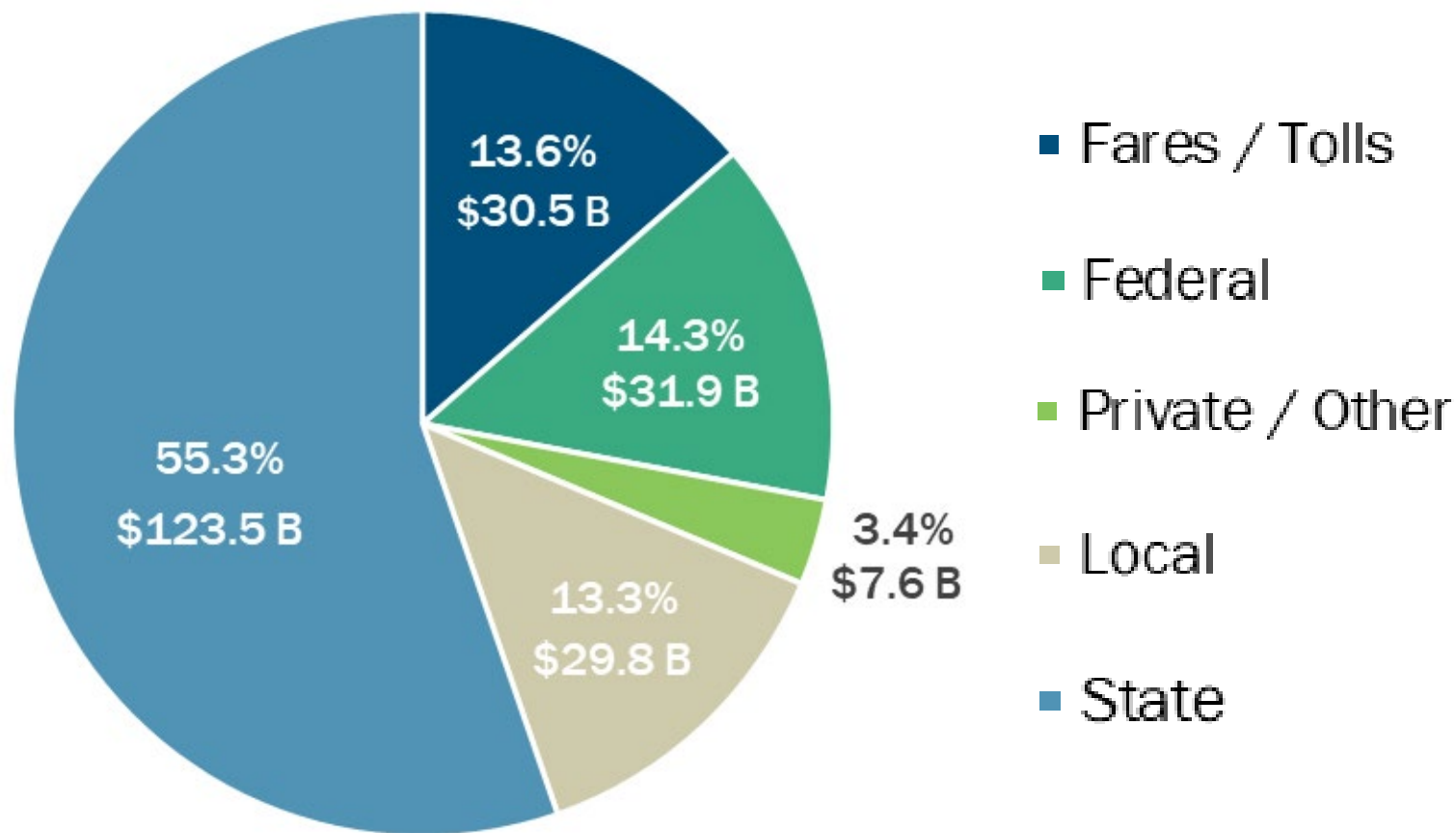
- 20+ year horizon
- For purposes of transportation system operations and maintenance: system-level estimates of costs and revenue sources
- Estimates of funds that will be available to support metropolitan transportation plan implementation
- All necessary financial resources from public and private sources that are **reasonably expected** to be made available to carry out the transportation plan shall be identified



§ 450.324 Development and content of the metropolitan transportation plan.

# Regional Revenues: Visualize 2045

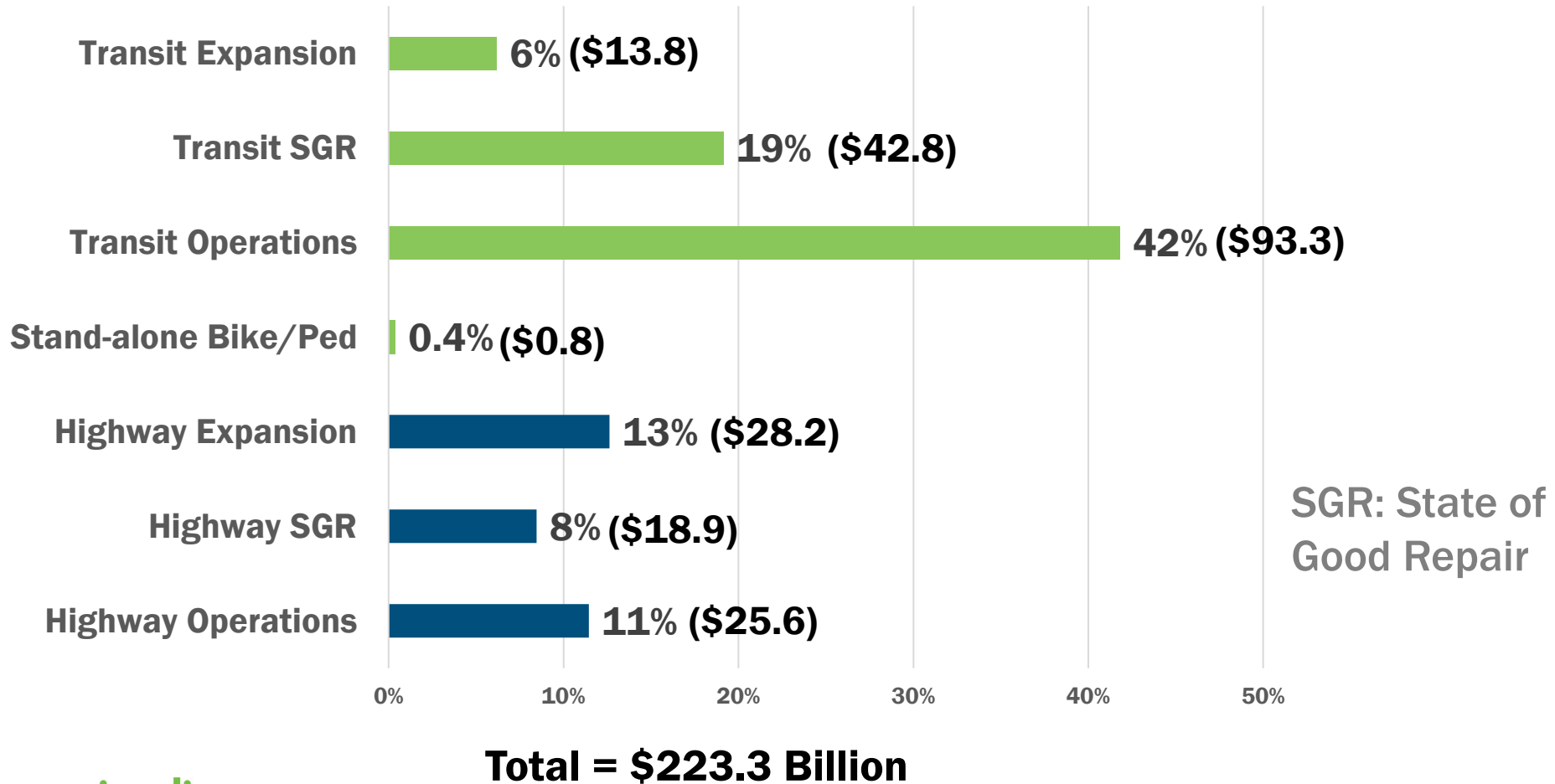
(2023-2045; Billions, in Year of Expenditure)



**Total = \$223.3 Billion**

# Regional Expenditures: Visualize 2045

(2023-2045; Billions, in Year of Expenditure)





# The Region's Biggest Project – WMATA

- WMATA expenditures are 45% of total plan – about \$101 Billion
  - State of Good Repair: \$33.2 Billion
  - Operations: \$64.5 Billion
- Expansion: \$3.2 Billion, funded through the jurisdictions in where the projects are located





# All Transit

- Transit Expansion:  
6%, \$13.8 Billion
- State of Good Repair:  
19%, \$42.8 Billion
- Transit Operations:  
42%, \$93.3 Billion



# Funding Bicycle and Pedestrian Projects

- A small majority of bicycle and pedestrian projects are 'stand alone' projects
- Most bike/ped projects are part of larger projects – funding is not broken out to reflect bike/ped costs of these projects
- Most jurisdictions have complete streets policies
- 0.4%, \$0.8 Billion





# Funding the Roads

- Federal Congestion Management Process requires consideration of travel demand reduction and operational management strategies before expansion
- Federal Performance-Based Planning requires agencies to examine performance – such as roadway quality, emissions, safety and congestion
- Expansion: 13%, \$28.2 Billion
- State of Good Repair: 8%, \$18.9 Billion
- Operations: 11%, \$25.6 Billion



# Implementing the Aspirational Initiatives

- Many projects implement one or more Aspirational Initiatives
- For example, project sponsors indicated 36 projects implement portions of the National Capital Trail Network



127

BRING  
JOBS AND  
HOUSING  
CLOSER  
TOGETHER

47

EXPAND  
BRT AND  
TRANSITWAYS  
REGIONWIDE

48

MOVE MORE  
PEOPLE ON  
METRORAIL

42

PROVIDE MORE  
TELECOMMUTING  
AND OTHER  
OPTIONS FOR  
COMMUTING

32

EXPAND  
EXPRESS  
HIGHWAY  
NETWORK

162

IMPROVE  
WALK AND  
BIKE ACCESS  
TO TRANSIT

36

COMPLETE  
THE NATIONAL  
CAPITAL TRAIL  
NETWORK

Questions?



## 4. Performance Analysis - Regional Transportation System

# Key Takeaways

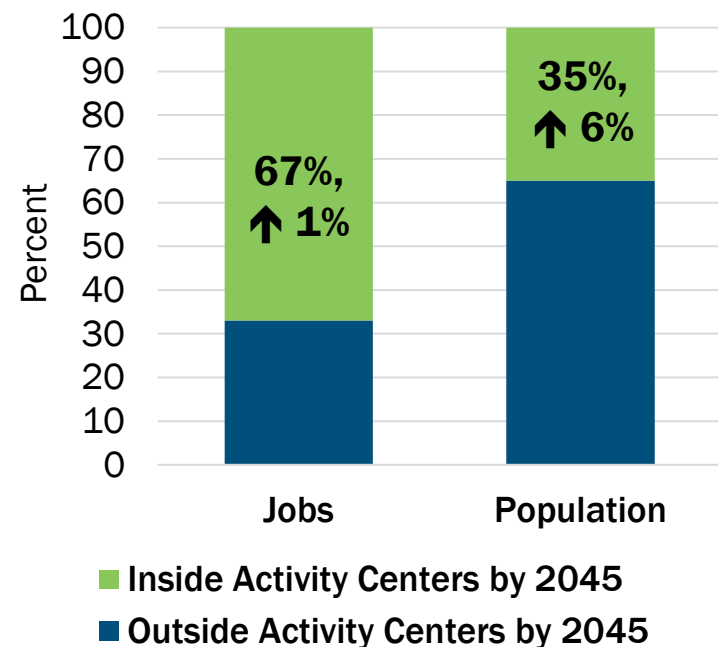
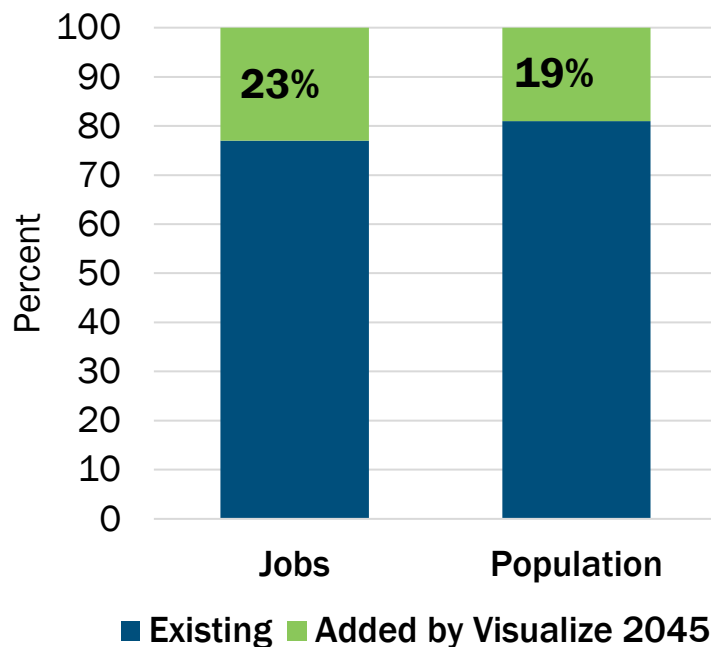
- Expected growth will likely **increase demand, increasing delay and congestion** and reducing job access for some parts of the region
- Financial **obligations to maintain and operate** the existing system limits expansions and enhancements
- **Future uncertainties** will impact the region between now and 2045
- **Access to transit will continue to grow**, providing an important alternative
- The region is forecast to **make progress towards its goals** -- despite demand from growth, and limited funds for transportation enhancements
- More people, businesses and visitors will have **more travel options** which is reflected in forecast mode share

# Regional Growth and Policy Context

# The Region Will Continue To Grow...

About 80% of 2045 land-use is already in place.

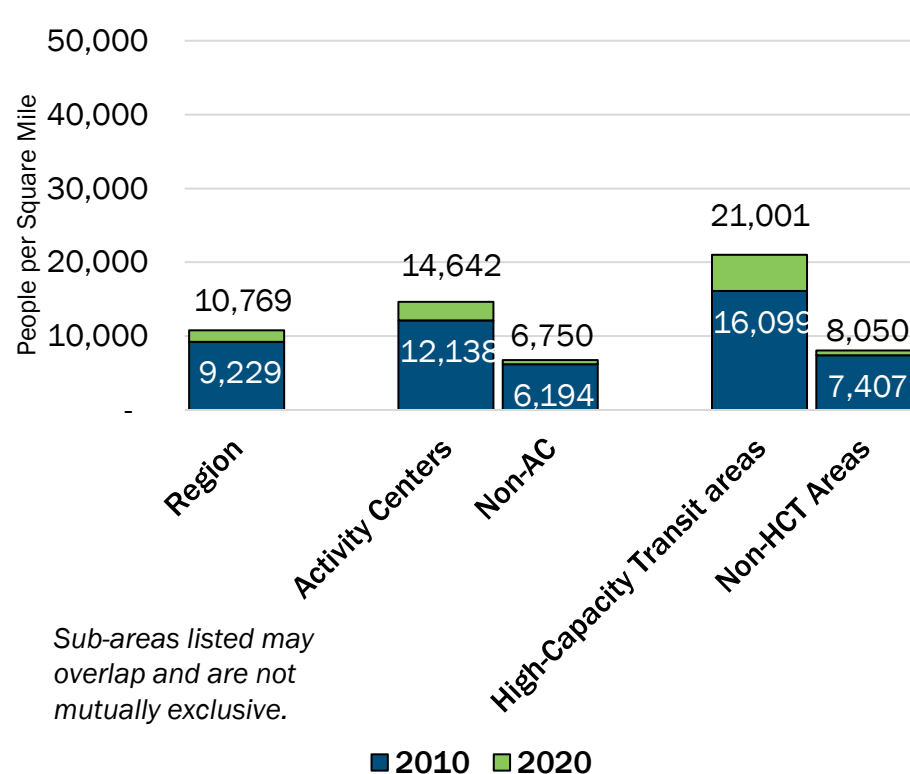
With more people and jobs, the transportation systems will need to continue handling its current and forecasted demand. Activity Centers will contain 67% of jobs (up from 66%) and 35% of the population (up from 29%)



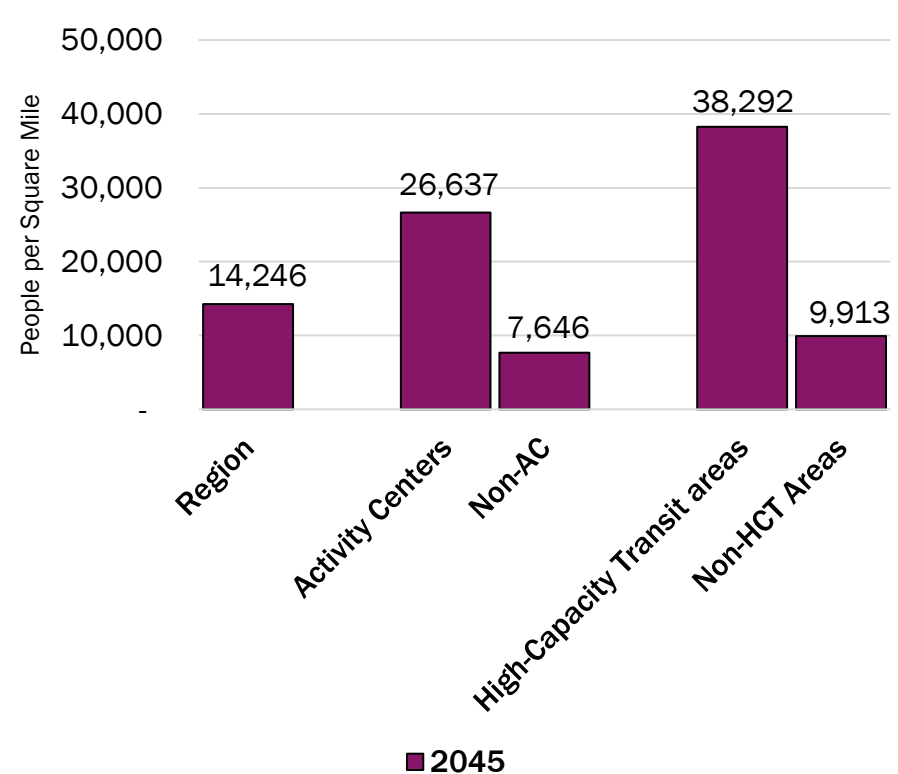
Note: Staff analysis of U.S. Decennial Census Block Groups

# ...and Increase in Density

Evidence suggests the region is making progress towards goal to concentrate land-use in the right areas, like Activity Centers and High-Capacity Transit areas.



**Note:** Staff analysis of U.S. Decennial Census Block Groups



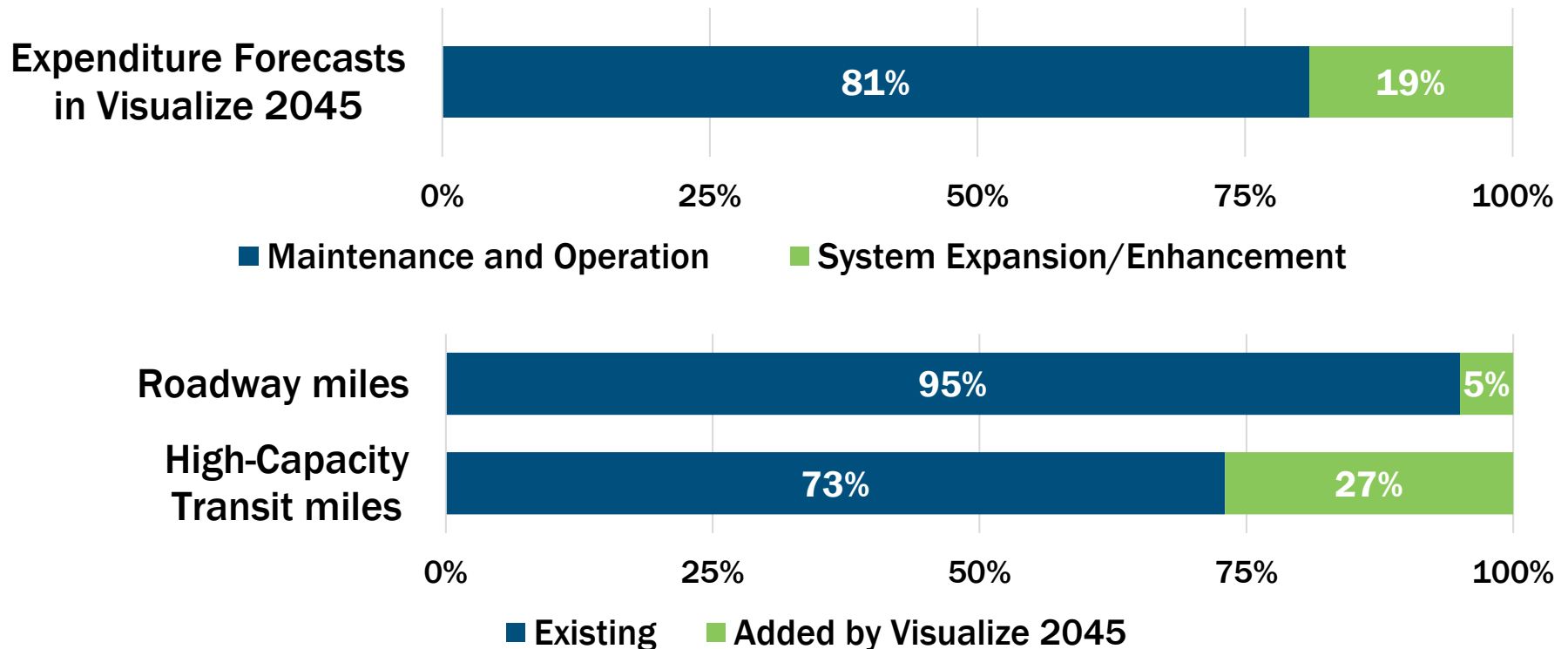
**Note:** Staff analysis of COG Cooperative Forecast Transportation Analysis Zones



# Funding for Expansion is Limited

Of the \$223.3 Billion Year of Expenditure dollars in Visualize 2045, only 19% is available for the type of system expansion and enhancement projects that advance our shared goals.

Resulting in an additional 5% of roadways and 27% of High-Capacity Transit.



# Why the TPB Measures Performance

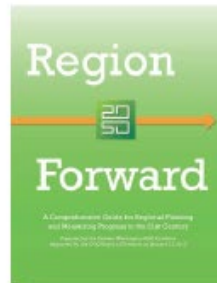
The TPB measures performance as one way of tracking progress on the goals and priorities presented in the TPB Policy Framework

## The Evolution of the TPB Policy Framework

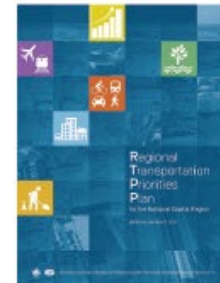
1998



2010



2014

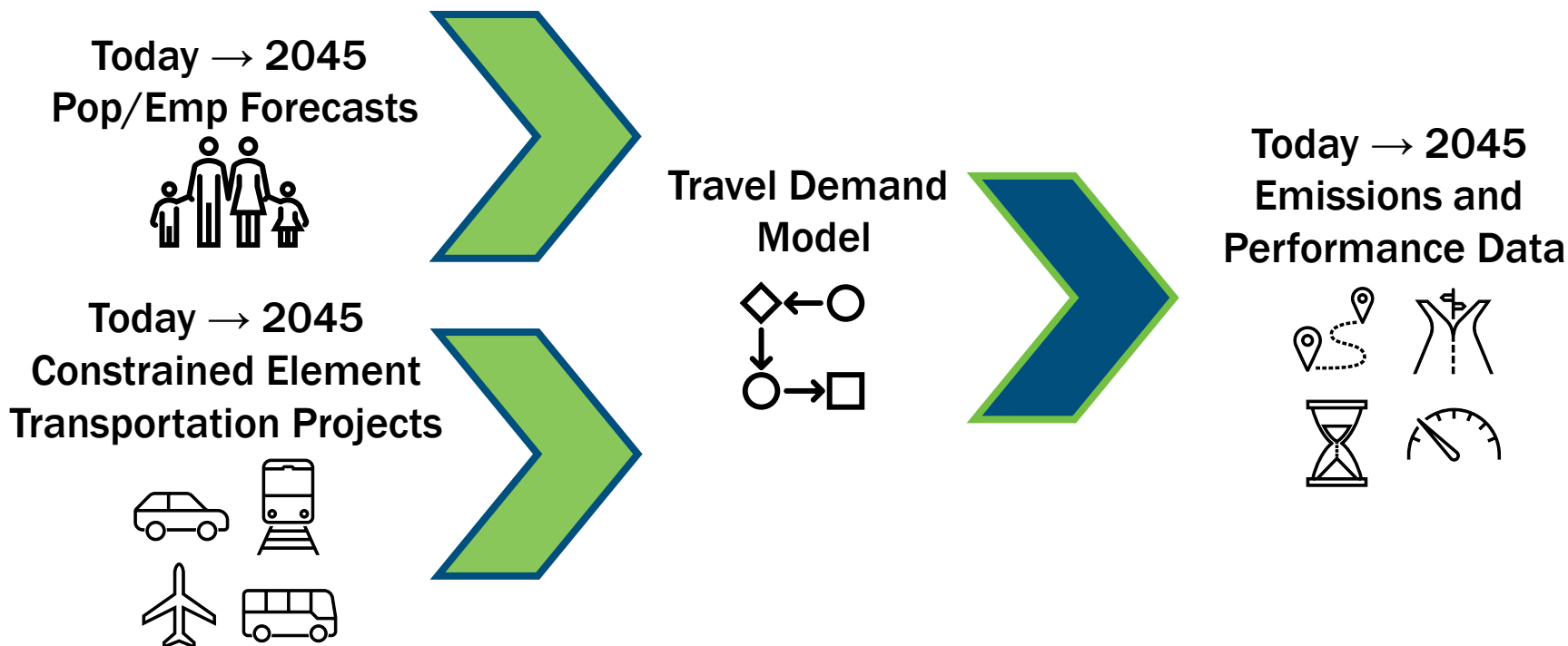


2018



## Planning Policy Focus Areas

# Travel Demand Model Forecasts the Impact of Changes to Land-use and Transportation



- Round 9.2 Cooperative Forecasts
- Gen2/Version 2.4 Travel Demand Model
- Analysis of TPB Planning Area
- 2020 Vehicle Registration Data
- EPA's MOVES 2014b Mobile Emissions Model
- Other source noted on corresponding slide

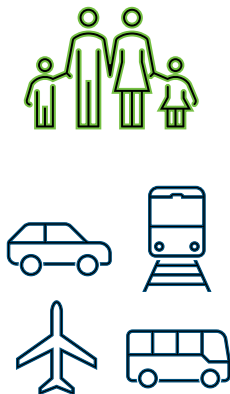
# Three Scenarios

Scenarios enable us to isolate for the impact of the new set of transportation projects, programs, and policies.

## Today (2023)

Today's households and jobs

Transportation projects on the ground in 2023



## 2045 No Build

Forecast growth for 2045 households and jobs

No new transportation projects beyond 2023



## 2045 Planned Build (2045 Build)

Forecast growth for 2045 households and jobs

All transportation projects built by 2045

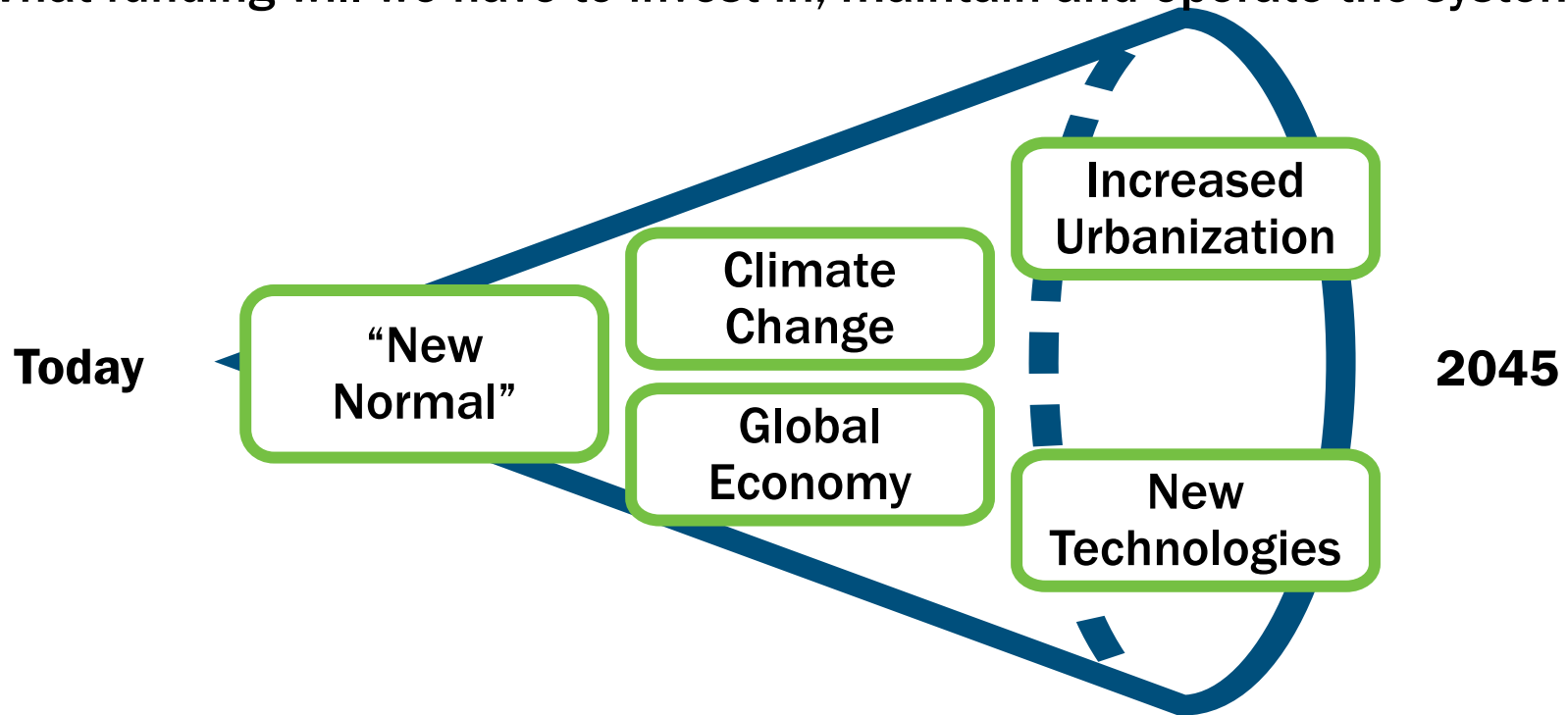


# Planning Uncertainties that Will Likely Impact the Future of Travel

Where will the people and jobs be?

How will people travel?

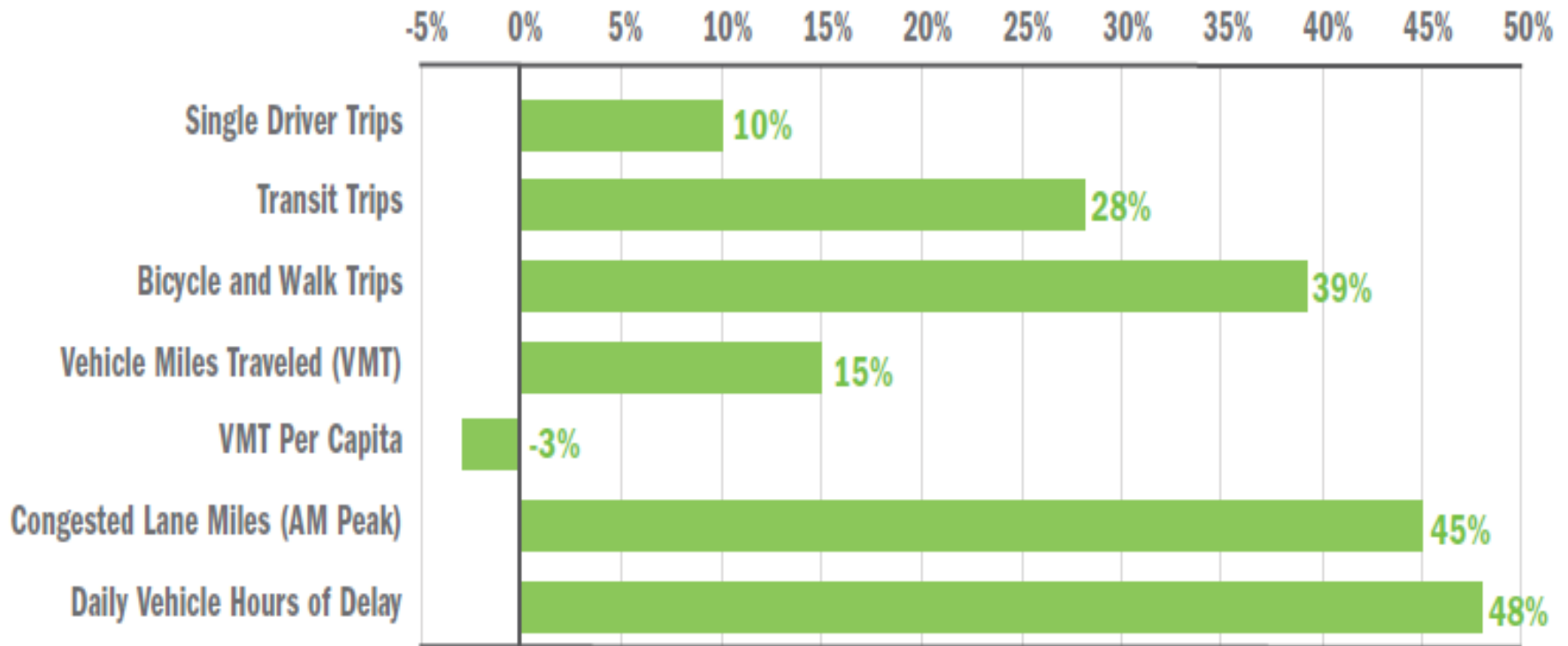
What funding will we have to invest in, maintain and operate the system?





# Performance Overview

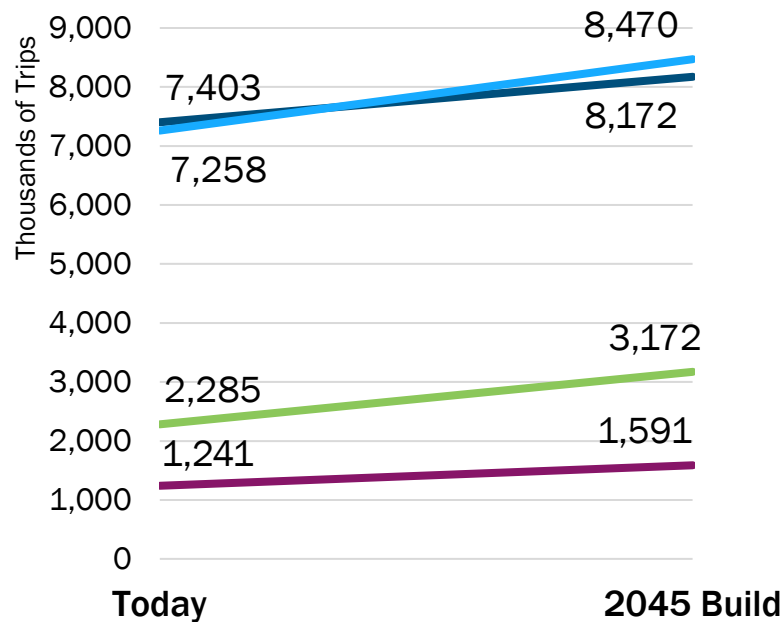
## *Percent Change 2023-2045*



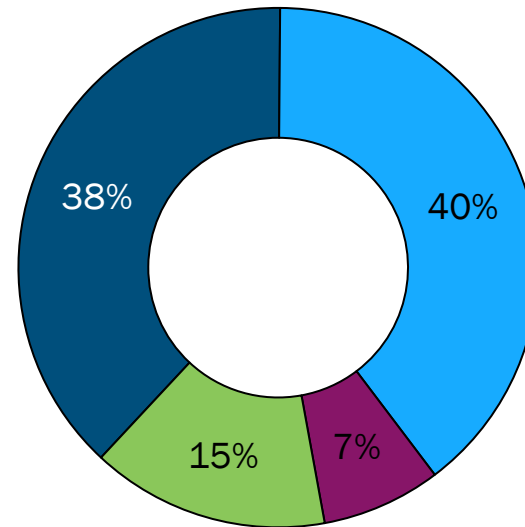
How is travel  
expected to change  
in the region over  
time?

# Region Continues to be Auto Dependent

Looking at All Trips, **HOV and carpool** expected to be more common than **driving alone**.  
Percent increase in **Walk and Bicycle** is greater than any other Mode.



Mode Share, 2045 Build



SOV

Transit

HOV and Carpool

Walk and Bike

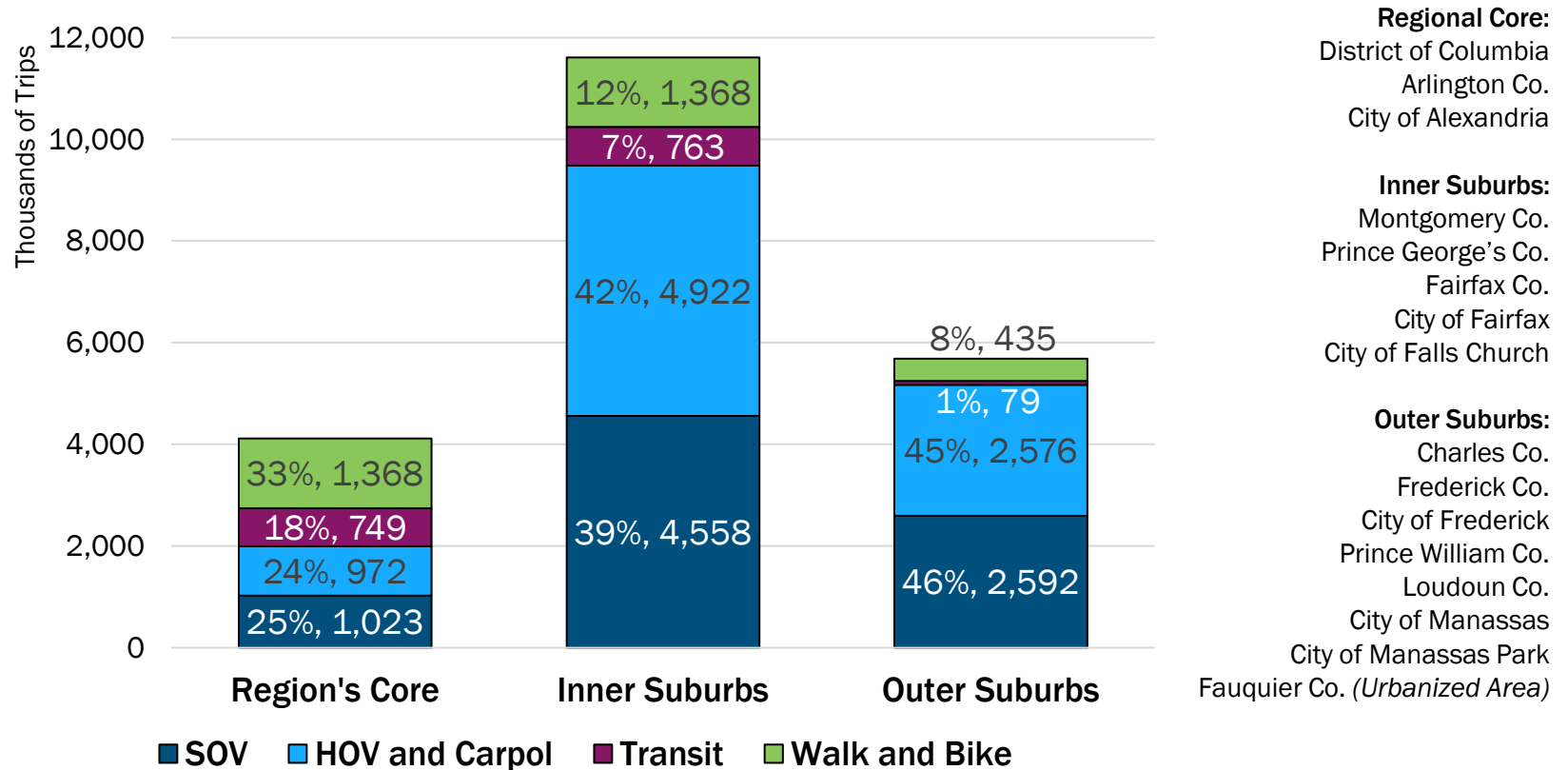
Single Occupancy Vehicle - SOV

High Occupancy Vehicle- HOV

# Geographic Differences, All Trips (2045)

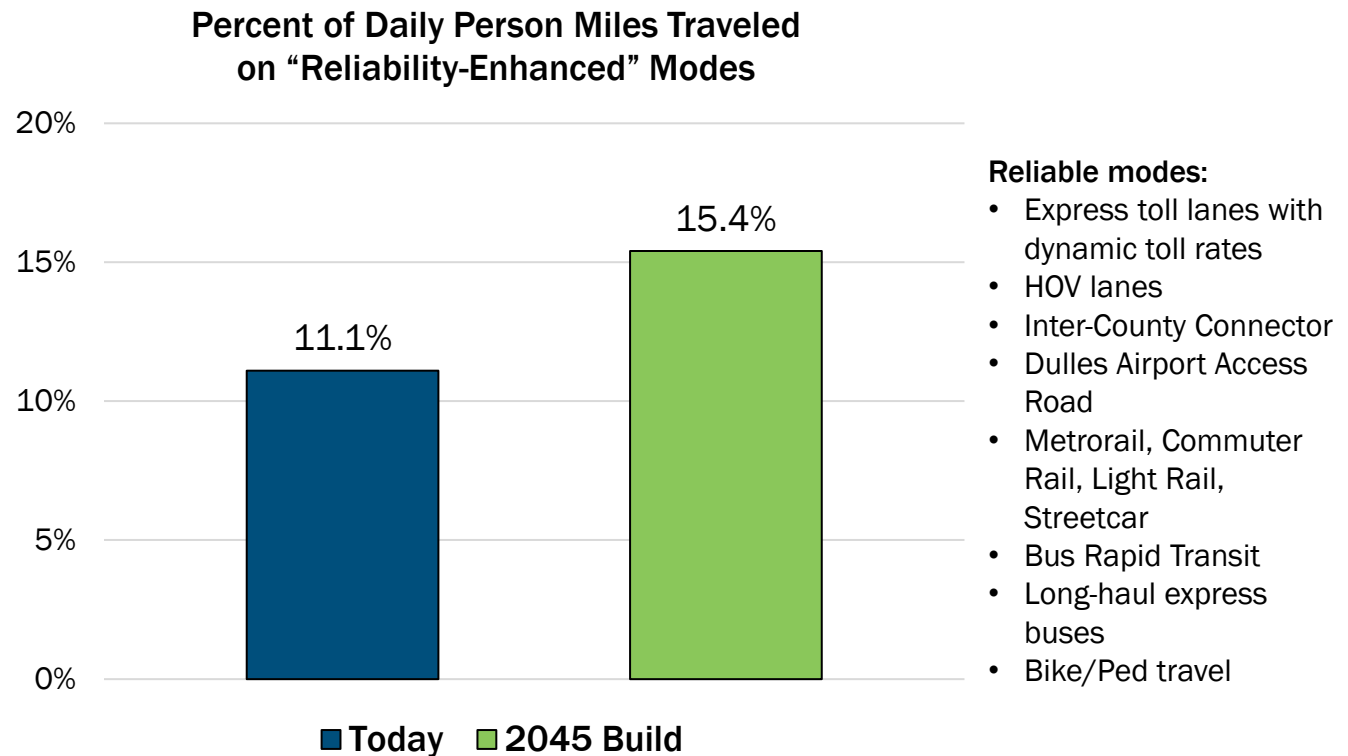
HOV and carpool will be as common as driving alone.

Where Transit is available, Transit and Walk and Bike trips are more common.



# Avoiding Congestion and Delay: More Travel on Reliable Modes

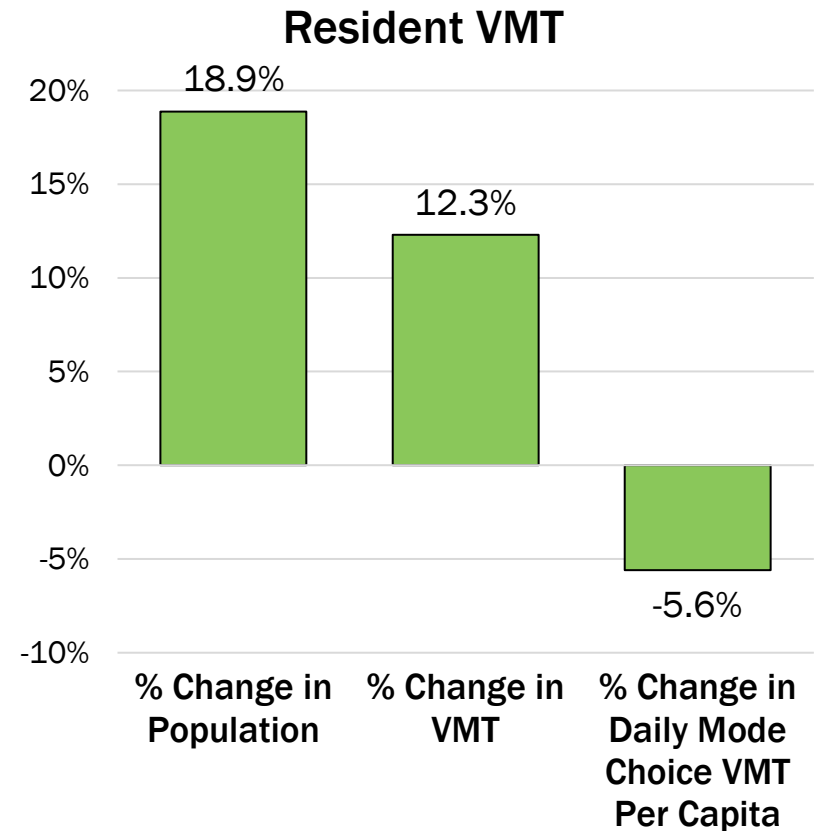
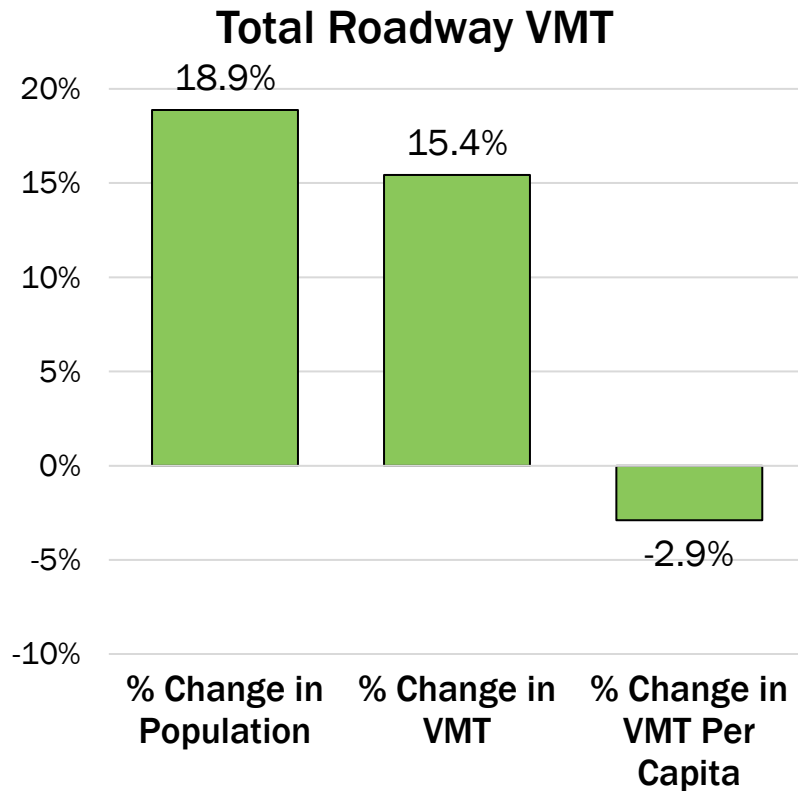
A greater percent of travel in the region will be taken on reliable highway, transit, and walk/bike facilities/modes that are less impacted by congestion and delay.





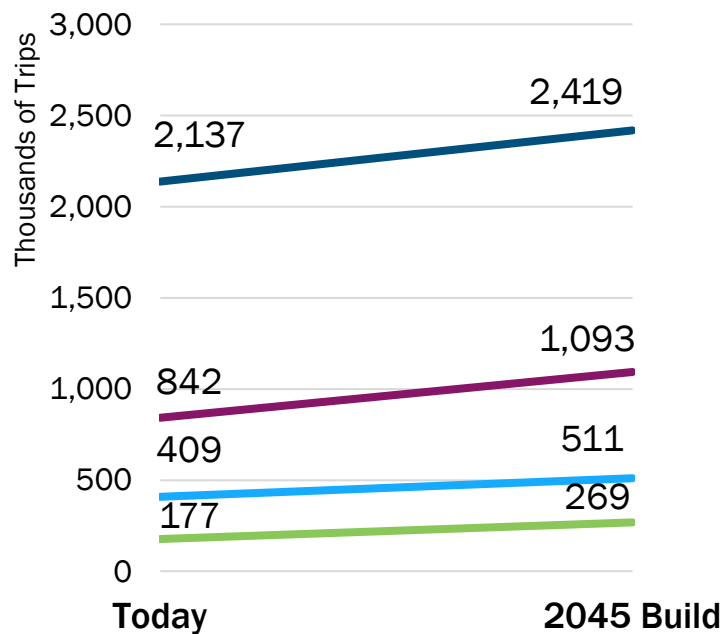
# Driving in the Region to Decline Per Capita

VMT per capita of region residents declines by more than 5%. Residential vehicle use has the most potential for change compared to other uses, such as commercial.

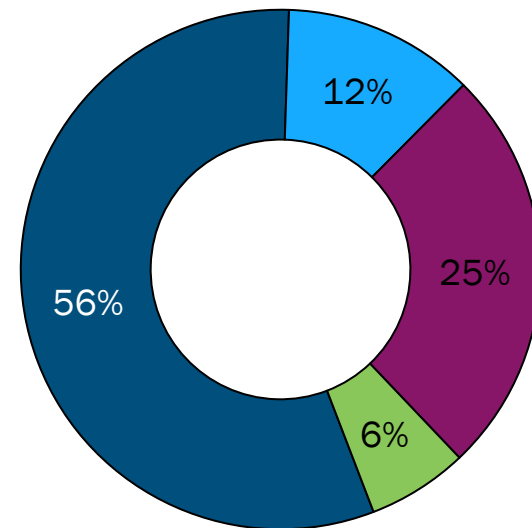


**How does the plan  
support traveling to  
work?**

# Most of Work Trips will be Driving Alone, 1/4 of Work Trips on Transit



Mode Share, 2045 Build



SOV

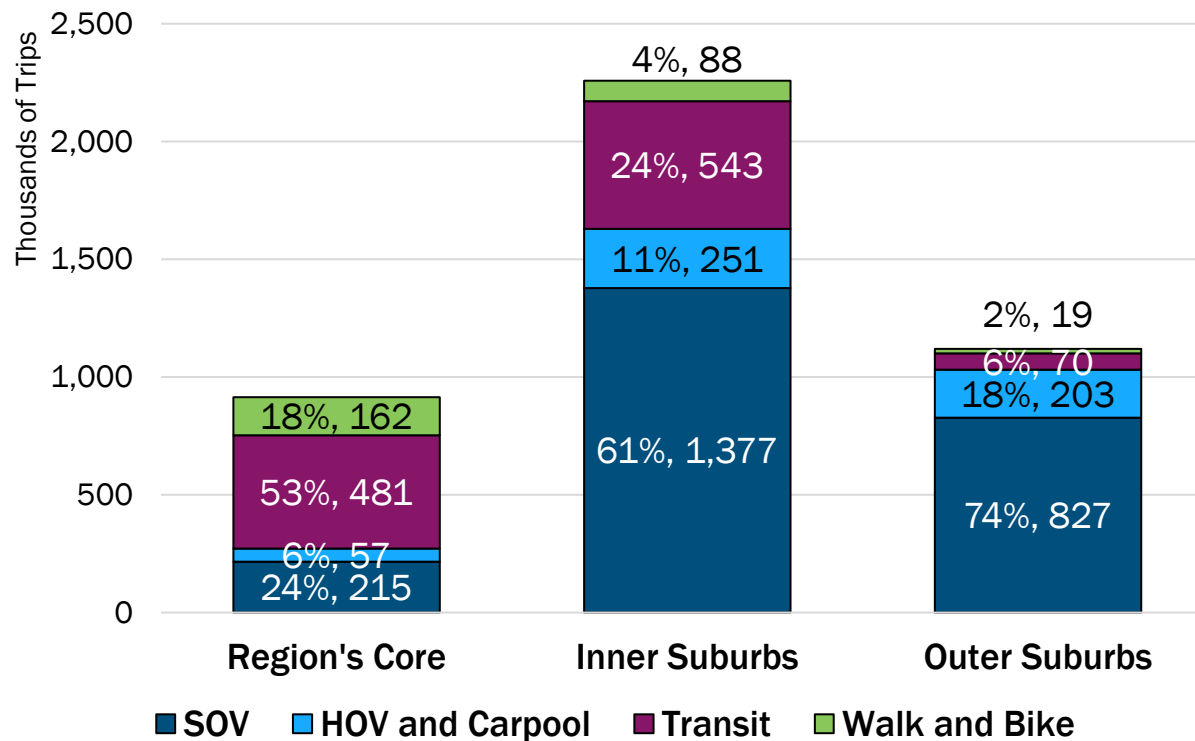
Transit

HOV and Carpool

Walk and Bike

# Taking Transit to Work Increases When Readily Available

By 2045, in the Region's Core, majority of work trips will be on transit and nearly a quarter in the Inner Suburban jurisdictions.



**Regional Core:**  
 District of Columbia  
 Arlington Co.  
 City of Alexandria

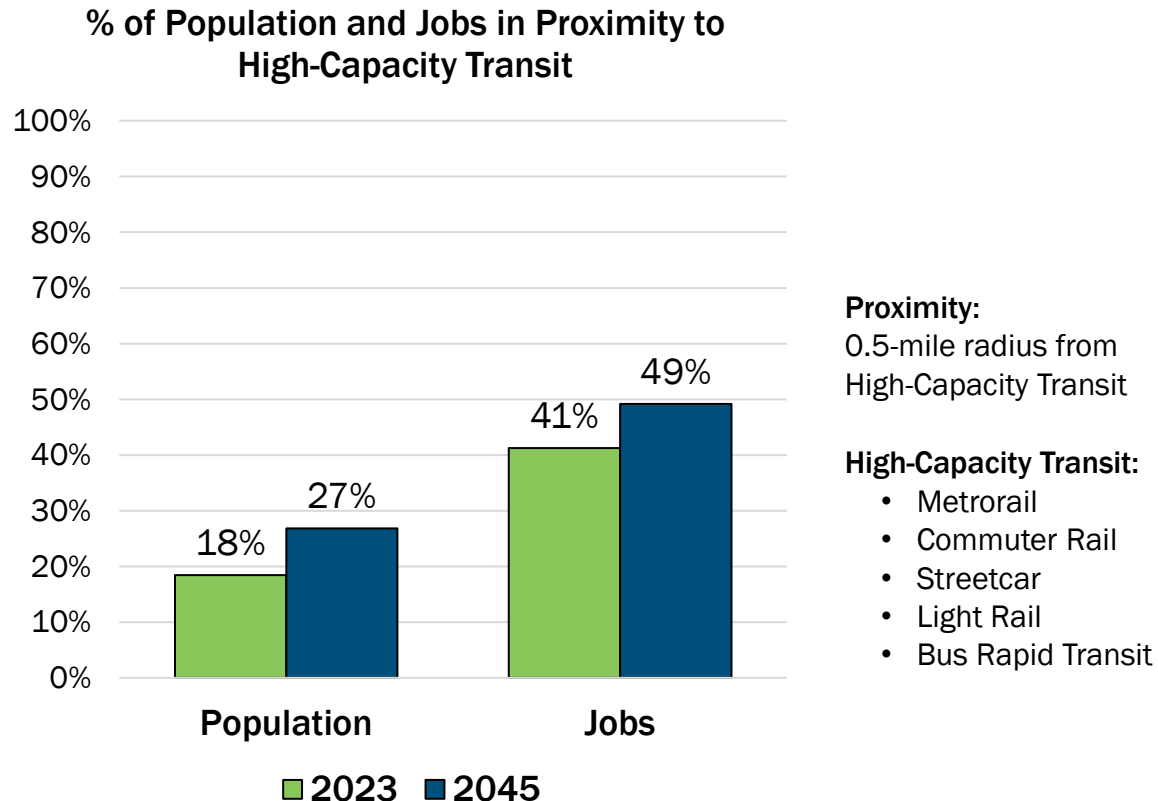
**Inner Suburbs:**  
 Montgomery Co.  
 Prince George's Co.  
 Fairfax Co.  
 City of Fairfax  
 City of Falls Church

**Outer Suburbs:**  
 Charles Co.  
 Frederick Co.  
 City of Frederick  
 Prince William Co.  
 Loudoun Co.  
 City of Manassas  
 City of Manassas Park  
 Fauquier Co. (Urbanized Area)

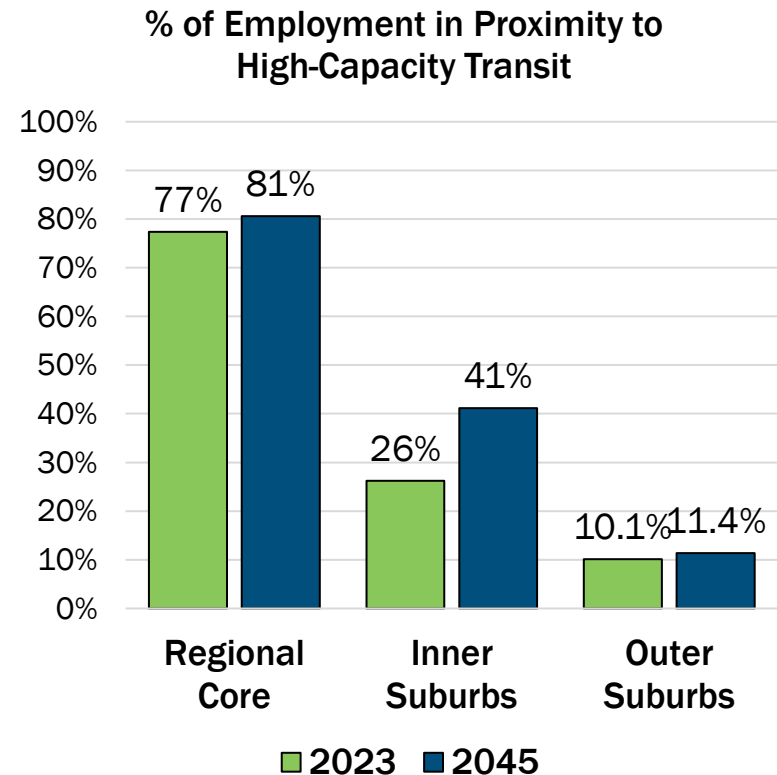
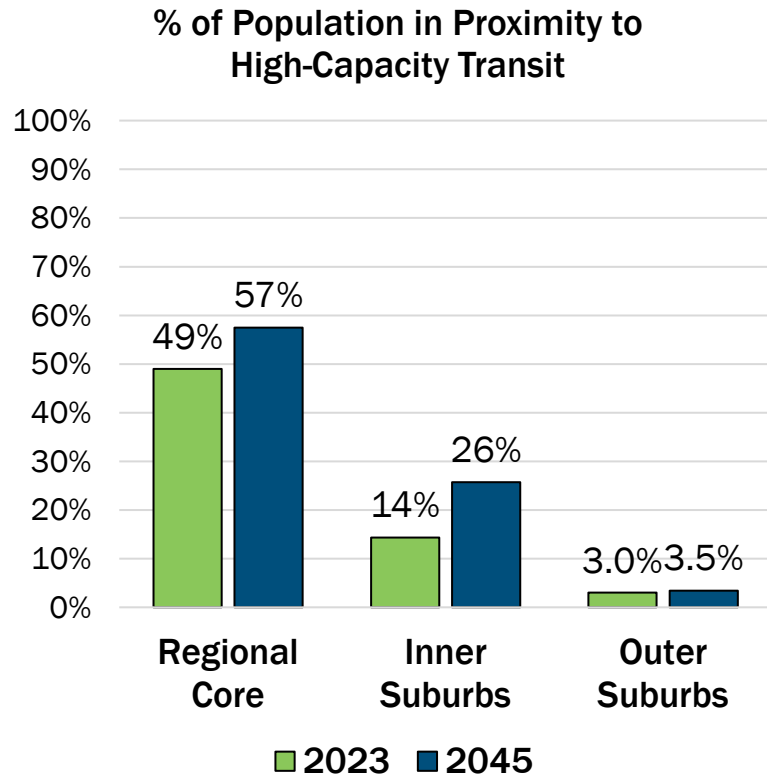
**How are new transit  
projects forecast to  
impact the region?**



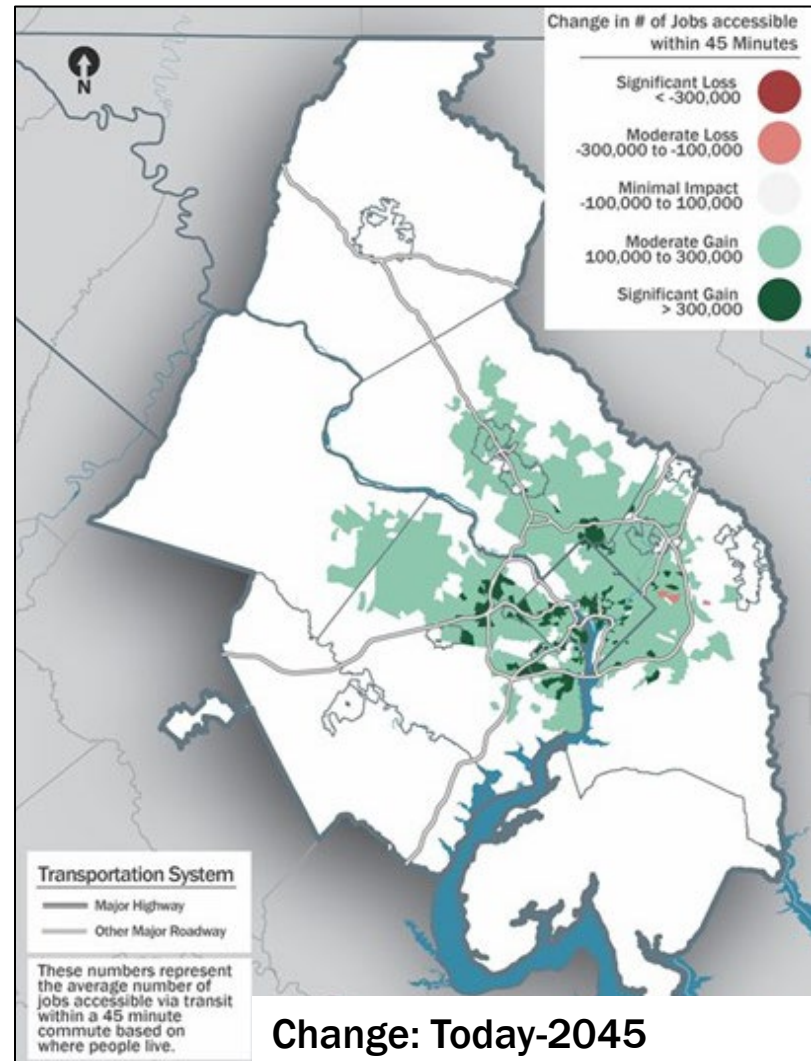
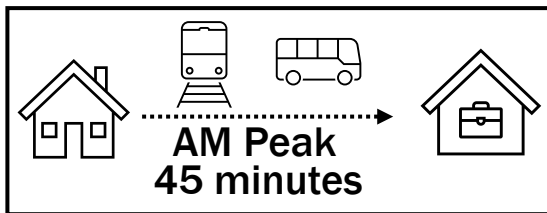
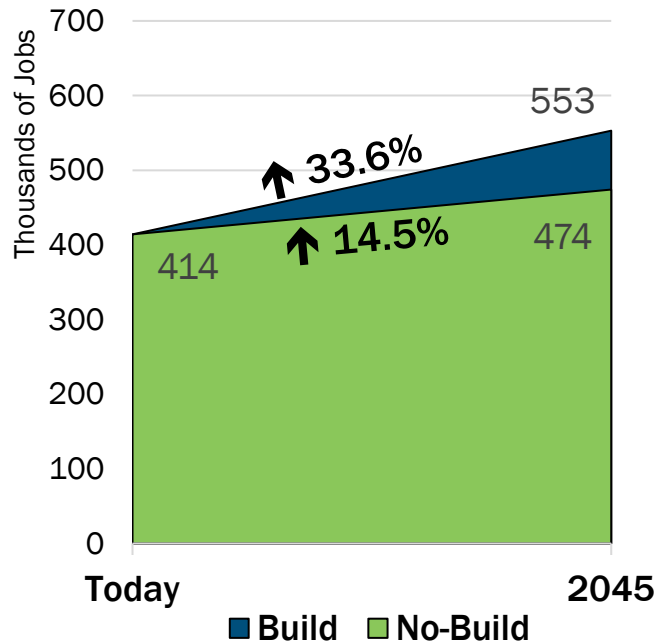
# By 2045, More than 1/4 of People and 1/2 of Jobs will be Close to High-Capacity Transit



# Core and Inner Suburbs: a Large Share of Jobs and People Close to HCT



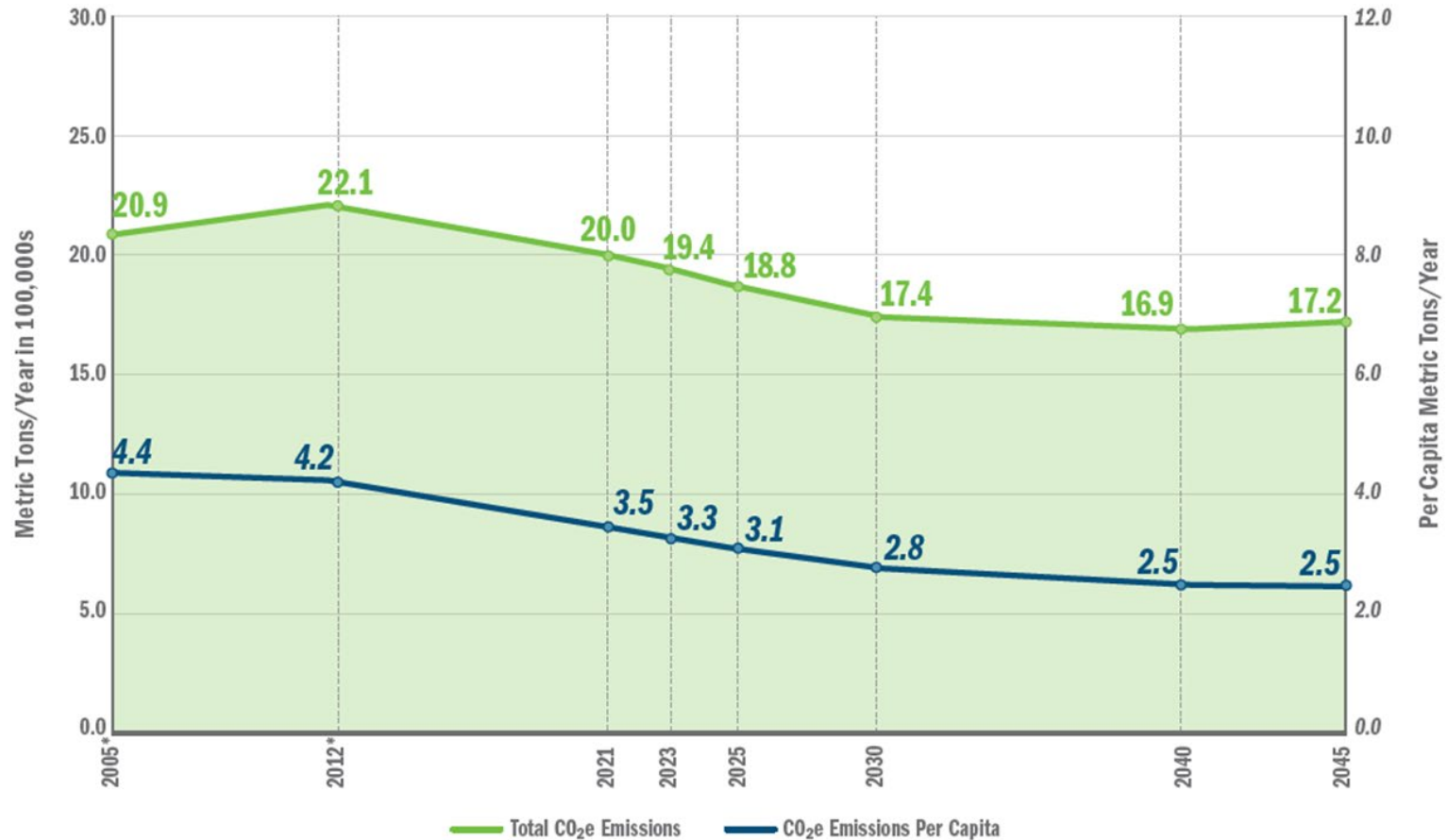
# Change in Access to Jobs, Transit



Change: Today-2045

# Forecast Greenhouse Gases

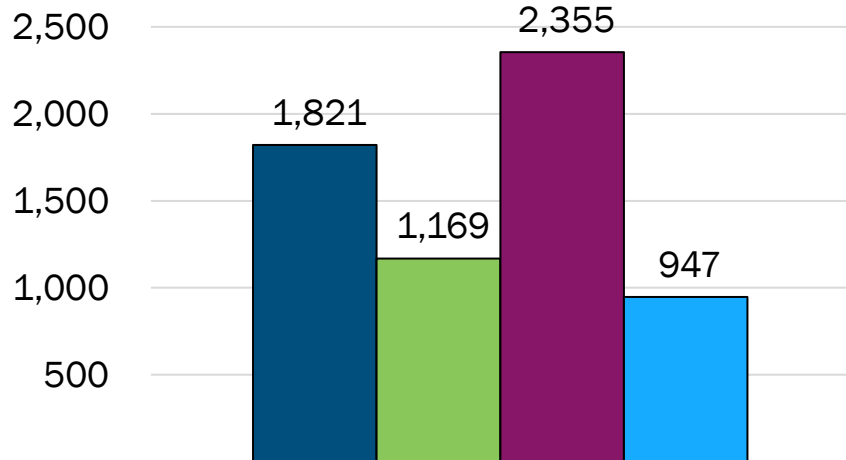
## Greenhouse Gas Mobile Source Emissions CO<sub>2</sub>e and CO<sub>2</sub>e Per Capita



\*NOTE: 2005 and 2012 are historic estimates.

# Proximity to Traffic, Today

## Average Traffic Proximity and Volume

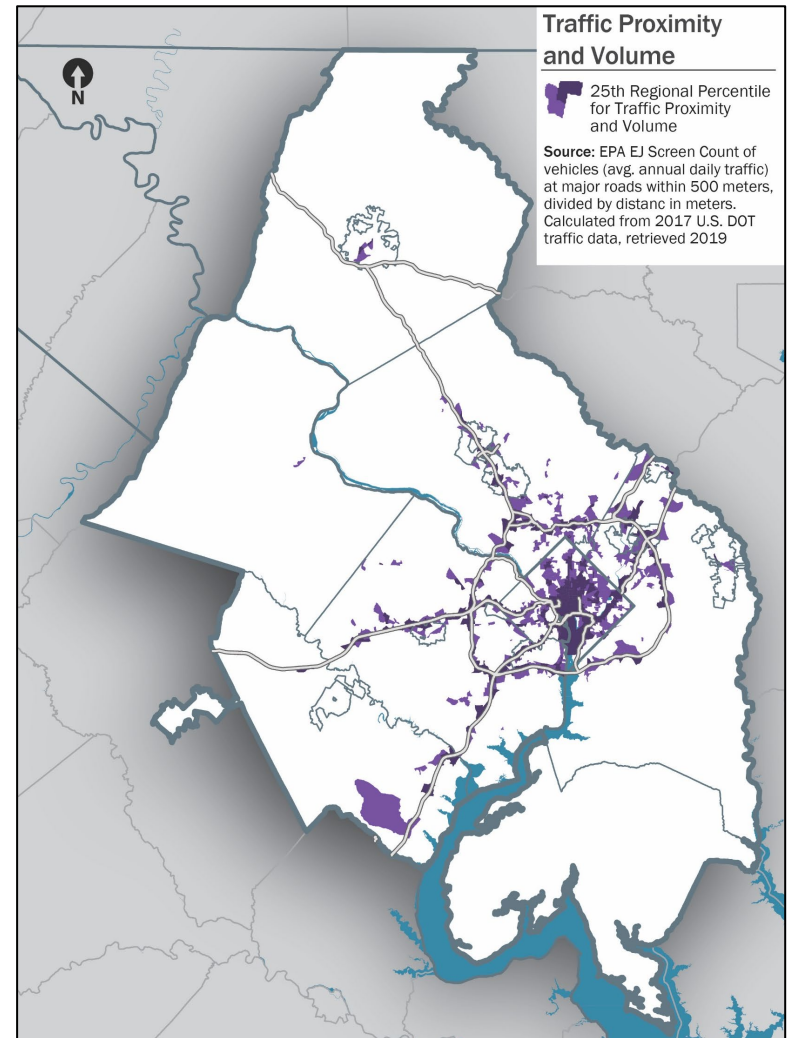


Count of vehicles per day at major roads within 500 meters divided by distance

- Equity Emphasis Areas
- Non-Equity Emphasis Areas
- Activity Centers
- Non-Activity Centers

Note: Sub-areas listed may overlap and are not mutually exclusive.

Source: EPA EJ Screen

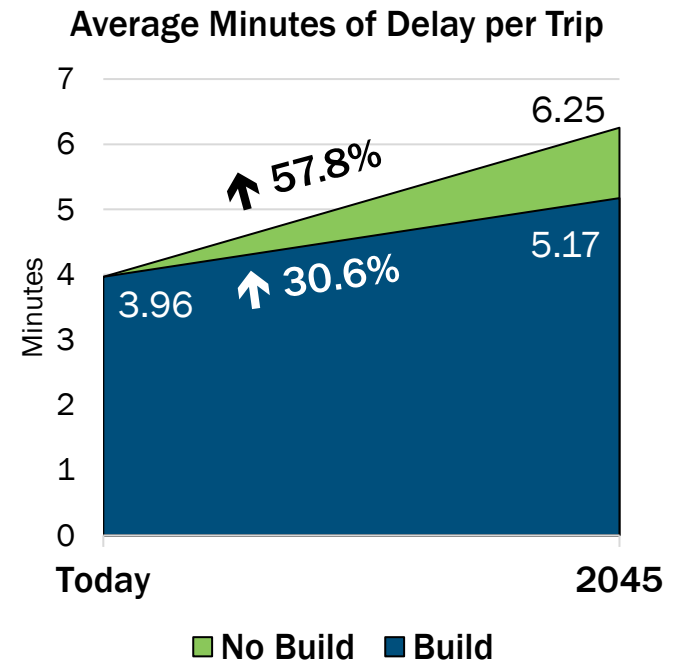
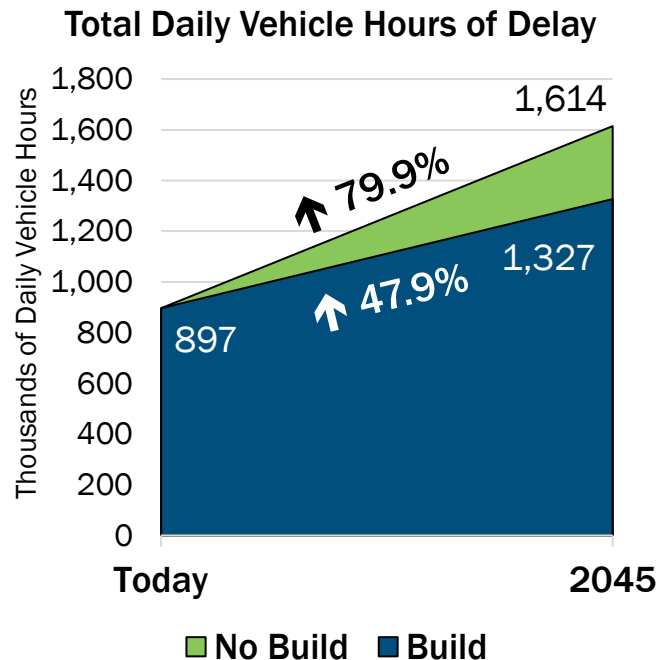


How will the  
highway network  
serve the region?

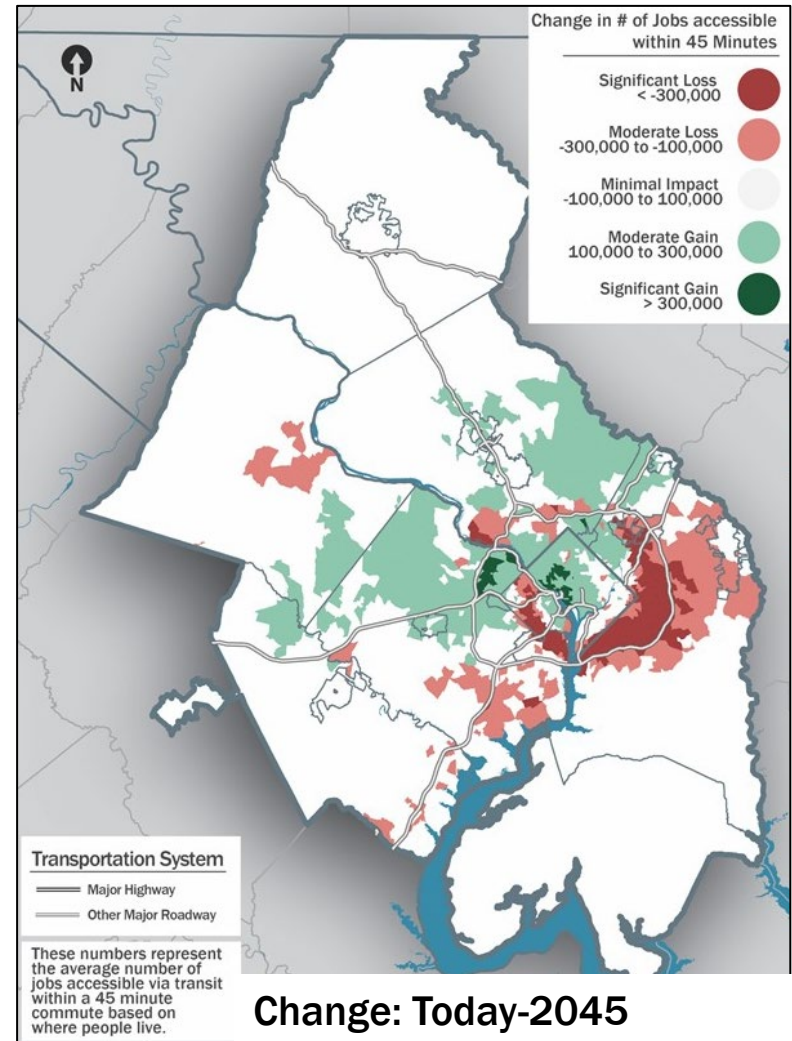
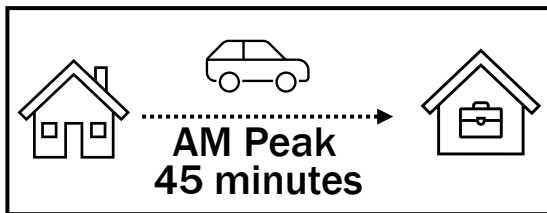
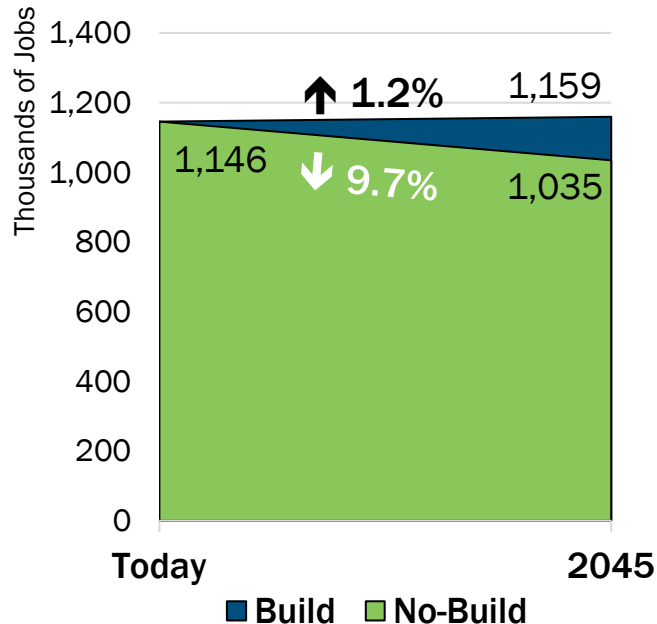


# Delay and Congestion Continue Impacting the Region

New roadway projects will make a difference, but delay and congestion will continue to be a part of life in this region.



# Change in Access to Jobs, Auto

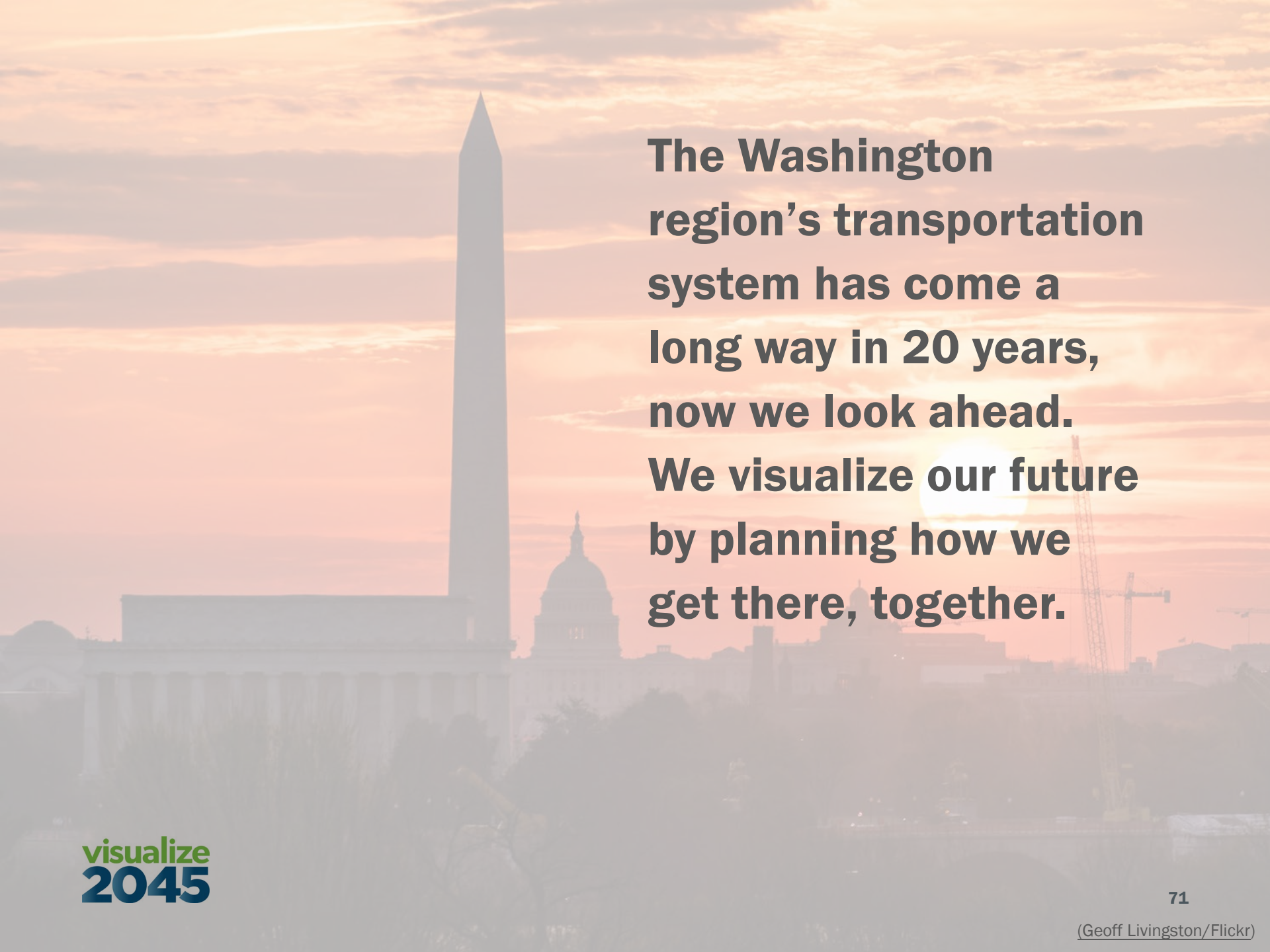


Questions?

## 5. Getting the Word Out

### Materials to View and Share:

- **visualize2045.org**
- **The Voices of the Region Story Map**
  - <https://www.mwcog.org/maps/map-listing/voices-of-the-region/>
- **The Visualize 2045 Interactive Project Map**
  - <https://www.mwcog.org/maps/map-listing/visualize-2045-project-map/>
- **Ambassador Kit includes:**
  - talking points
  - sample email/web posts
  - sample social media posts
- **Fact Sheet:** Board members have also received a fact sheet with key information about the plan



**The Washington  
region's transportation  
system has come a  
long way in 20 years,  
now we look ahead.  
We visualize our future  
by planning how we  
get there, together.**

# Next Steps

- April 1 - May 1, 2022: Public Comment Period on the draft: plan, TIP and Air Quality Conformity Analysis of the plan and TIP
- May 2022 TPB meeting:
  - Staff present public comment summary
- June 2022 TPB meeting:
  - Staff recommendation for approval of the update to Visualize 2045



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