

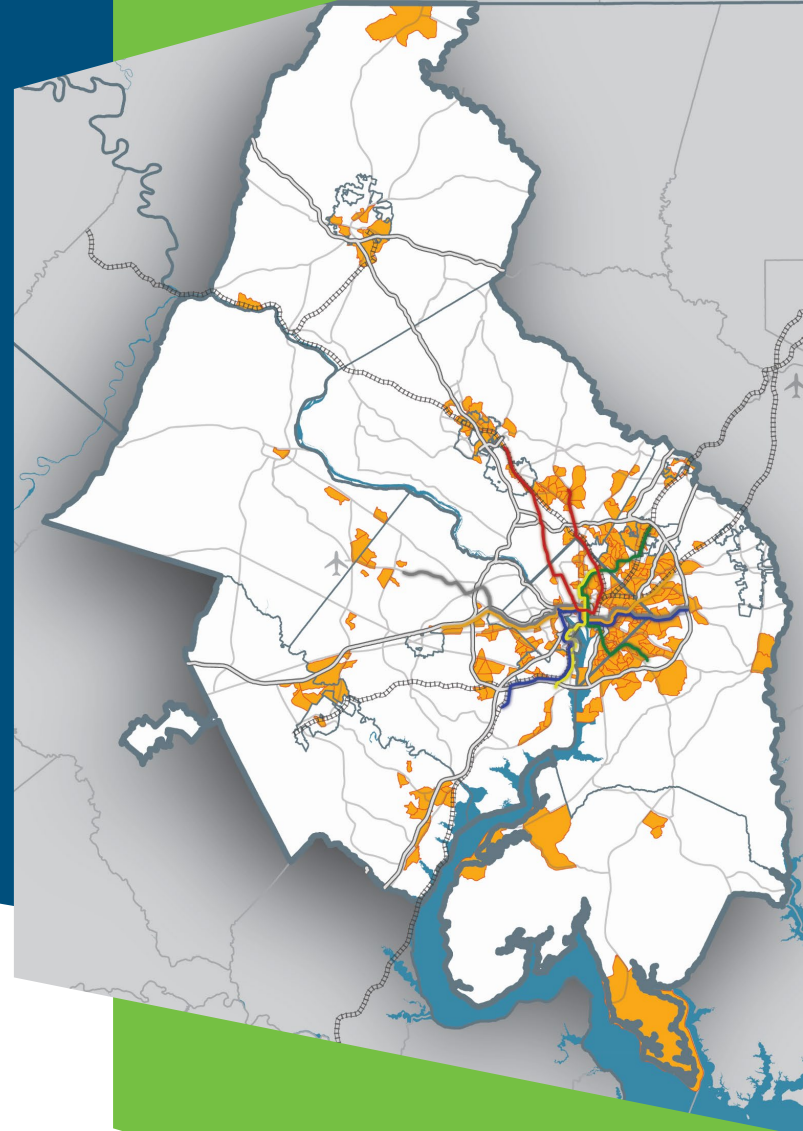
# 2022 Update to Visualize 2045, FY 2023-2026 TIP and the Air Quality Conformity Analysis

SPOTS

May 10, 2022

**visualize**  
**2045**

A long-range  
transportation plan  
for the National  
Capital Region



# Presentation Overview



1. Overview of the Visualize 2045 update



2. Funding the Transportation System



3. Air Quality Conformity



4. Performance Analysis - Regional Transportation System



5. Get the Word Out: Visualize 2045

# Top 3 Things to Know about the Visualize 2045 Update

## 1. It 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. It projects \$223.3 Billion expended for 2023-2045

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

## 3. It forecasts progress on goals but also challenges

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

\*EJ Analysis will be conducted on the approved plan

# 1. Visualize 2045 and the TIP

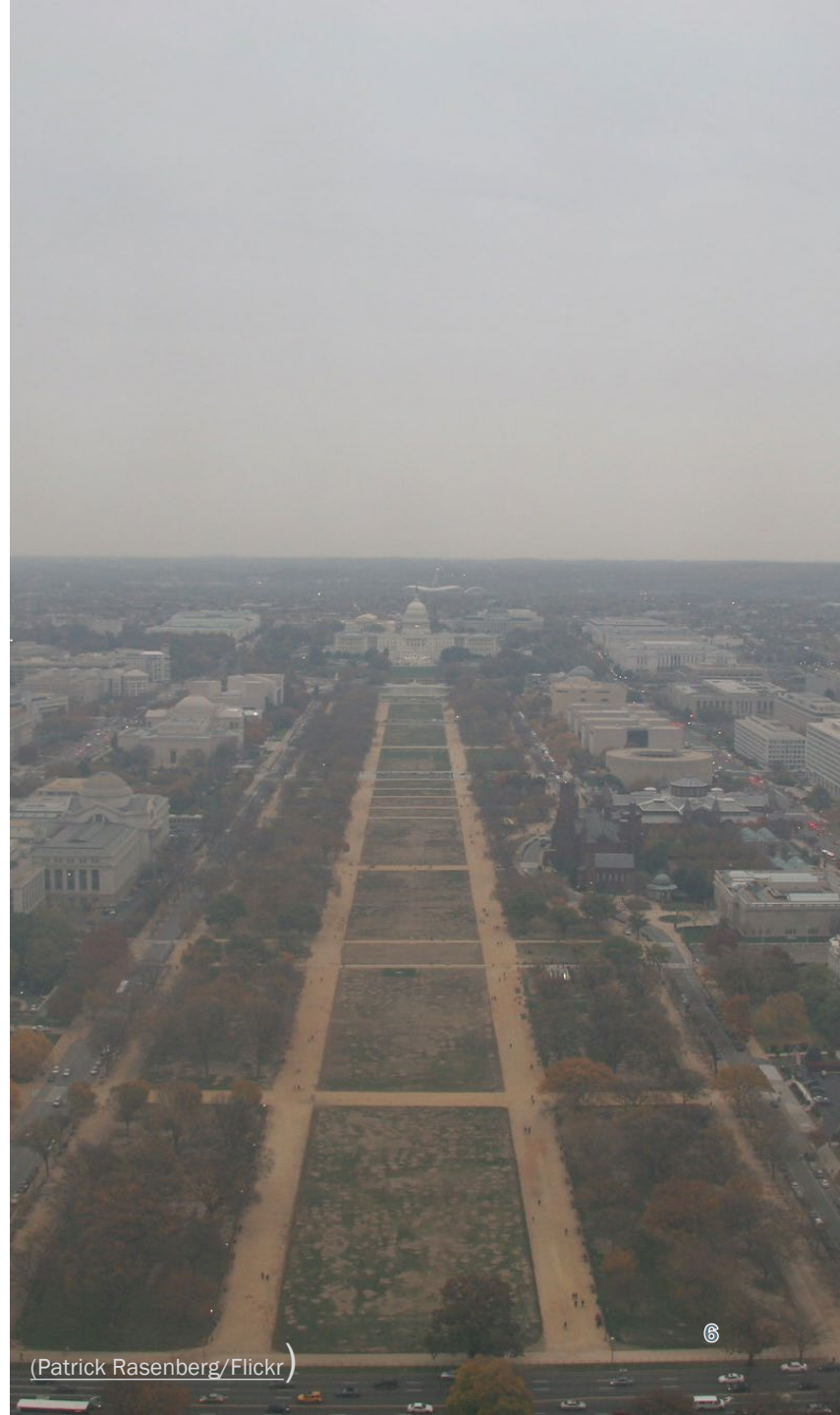
# Draft FY 2023-2026 Transportation Improvement Program (TIP) Summary

- About \$11 Billion in funding for next four years
- 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?

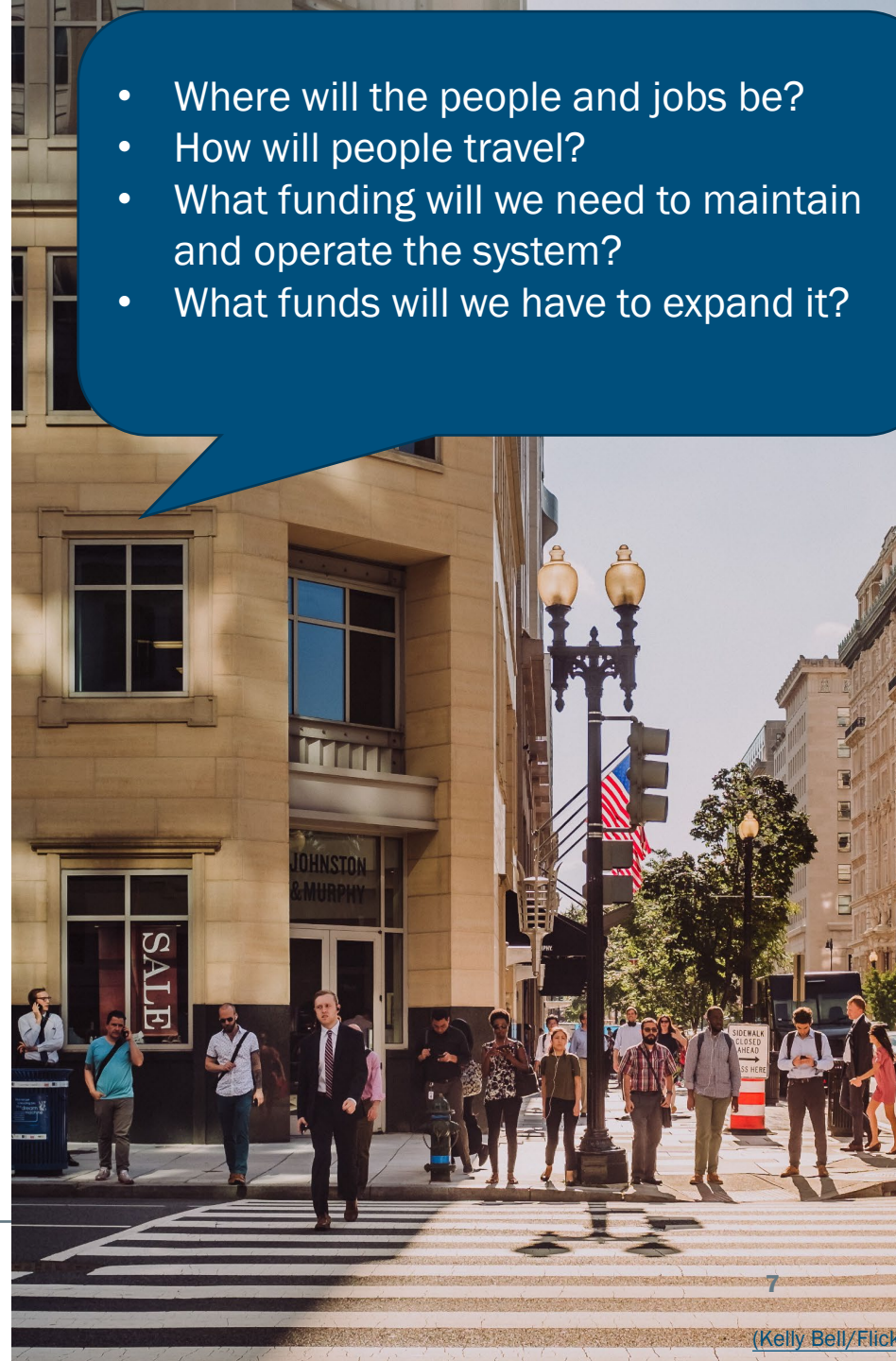
## Planning in Times of Uncertainty

Must plan with many factors in mind

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

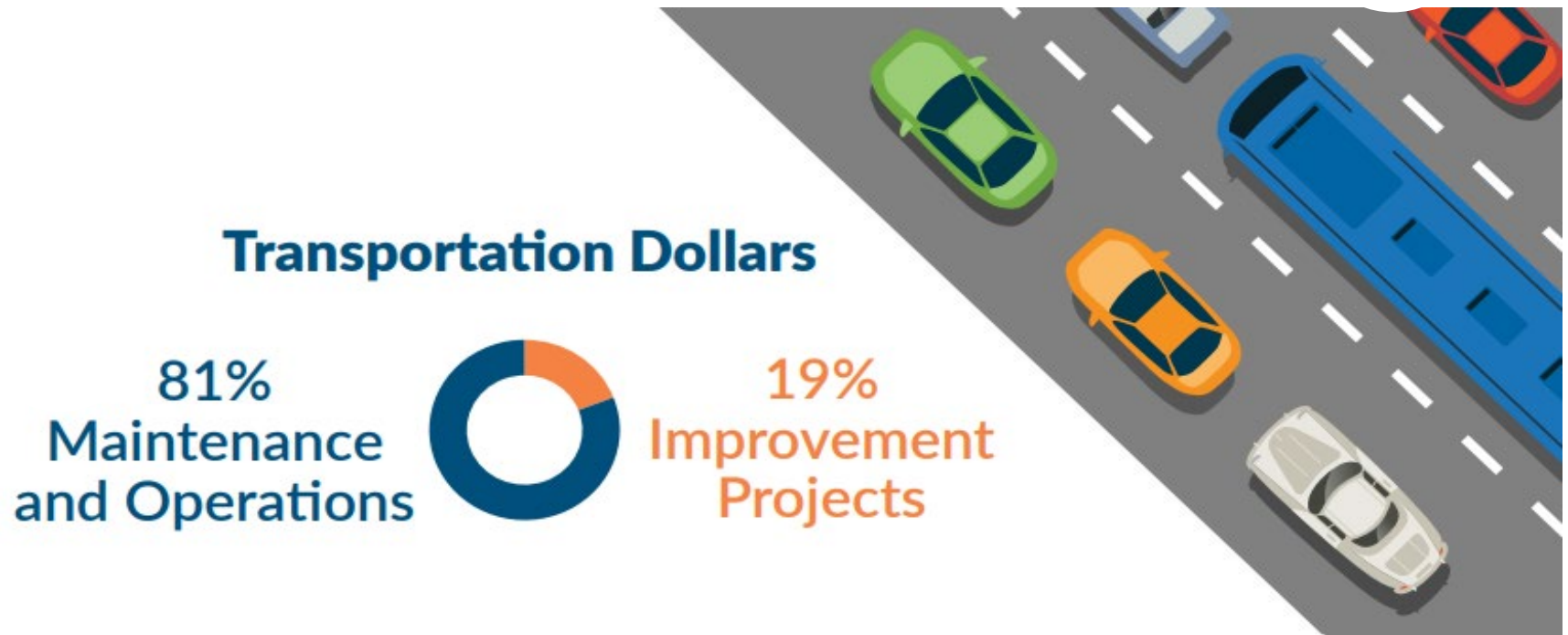
Must develop solutions that are resilient in all futures

- 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.





# 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

## ASPIRATIONAL INITIATIVES FOR A BETTER TRANSPORTATION SYSTEM

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**.

**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

National Capital Region  
Transportation Planning Board

Plan Together. Prosper Together.

Back local transportation projects that support these efforts.

visualize2045.org

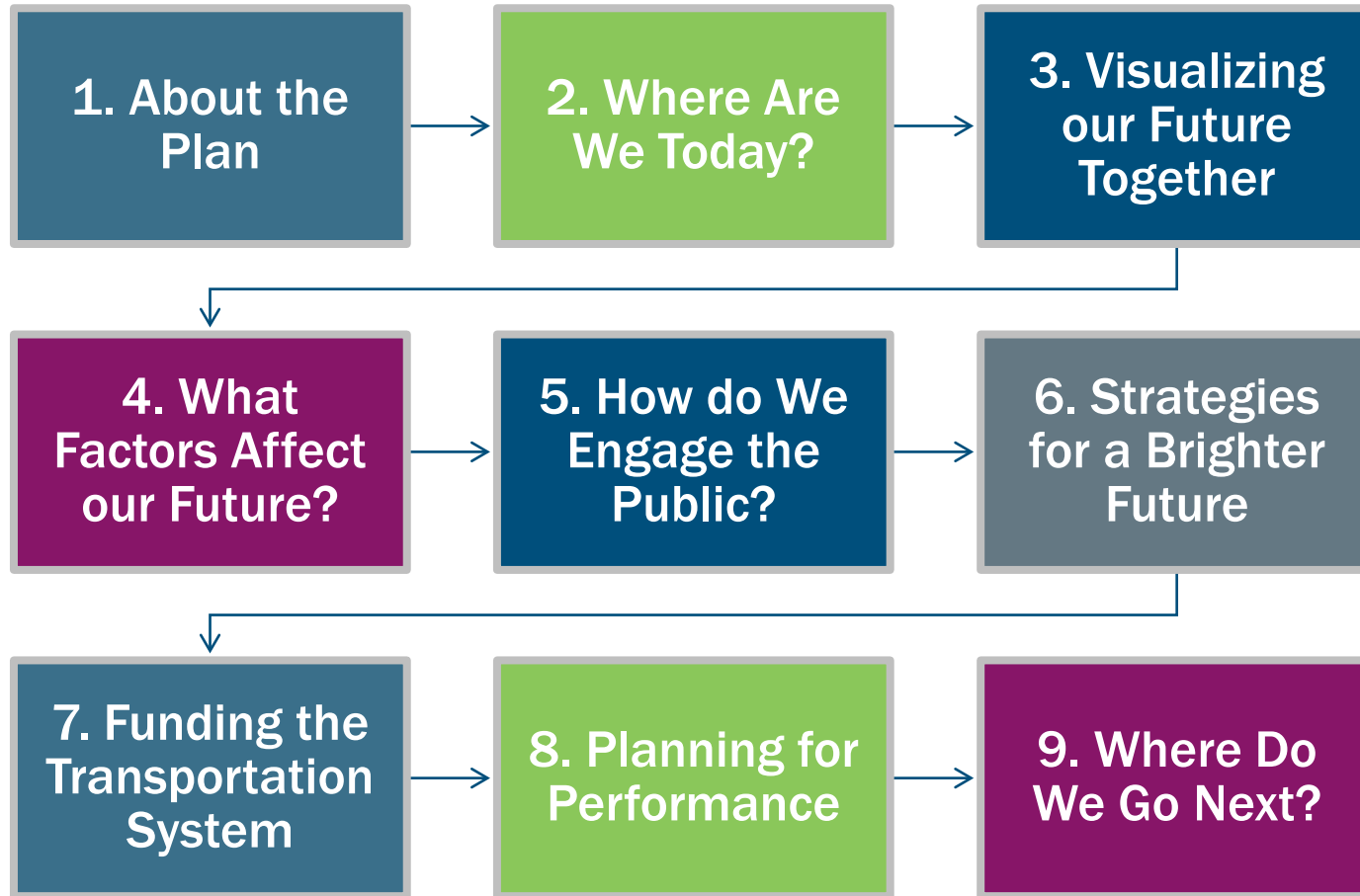
Think regionally, act locally.

# 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>	

# Plan Organization: Nine Chapters

Includes Climate Change Mitigation



# Performance and Operations In Visualize 2045

- Highlights:
  - Chapter 6:
    - Operations and Maintenance
    - Emerging Technologies
    - CAV principles
  - Chapter 8
    - Performance Based Planning and Programming - data
    - Congestion Management Process (CMP\_ – overview (also, Appendix E, which describes how the CMP influences plan development
    - TPB System Performance Analysis

# 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	

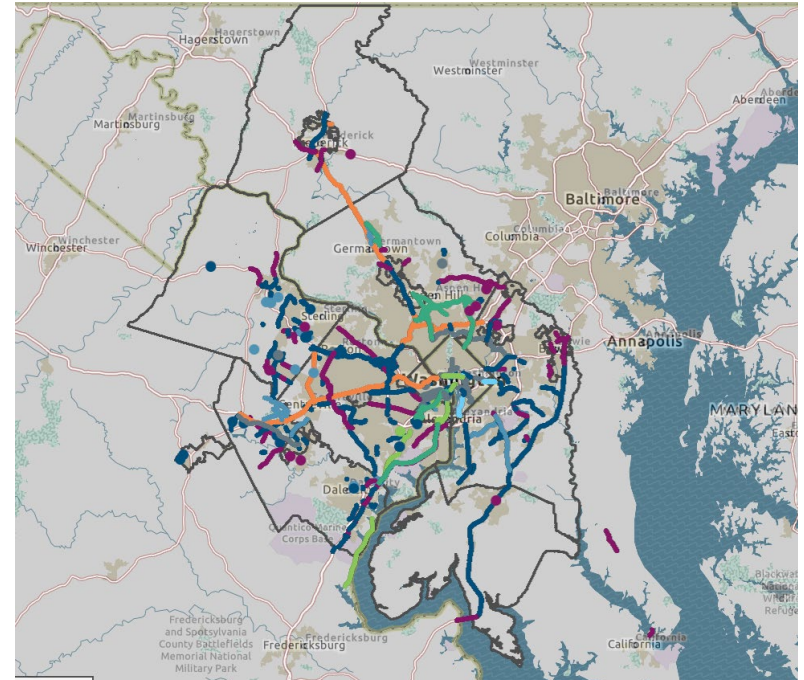
# 3. Funding the Transportation System: The Financial Plan



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

# 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

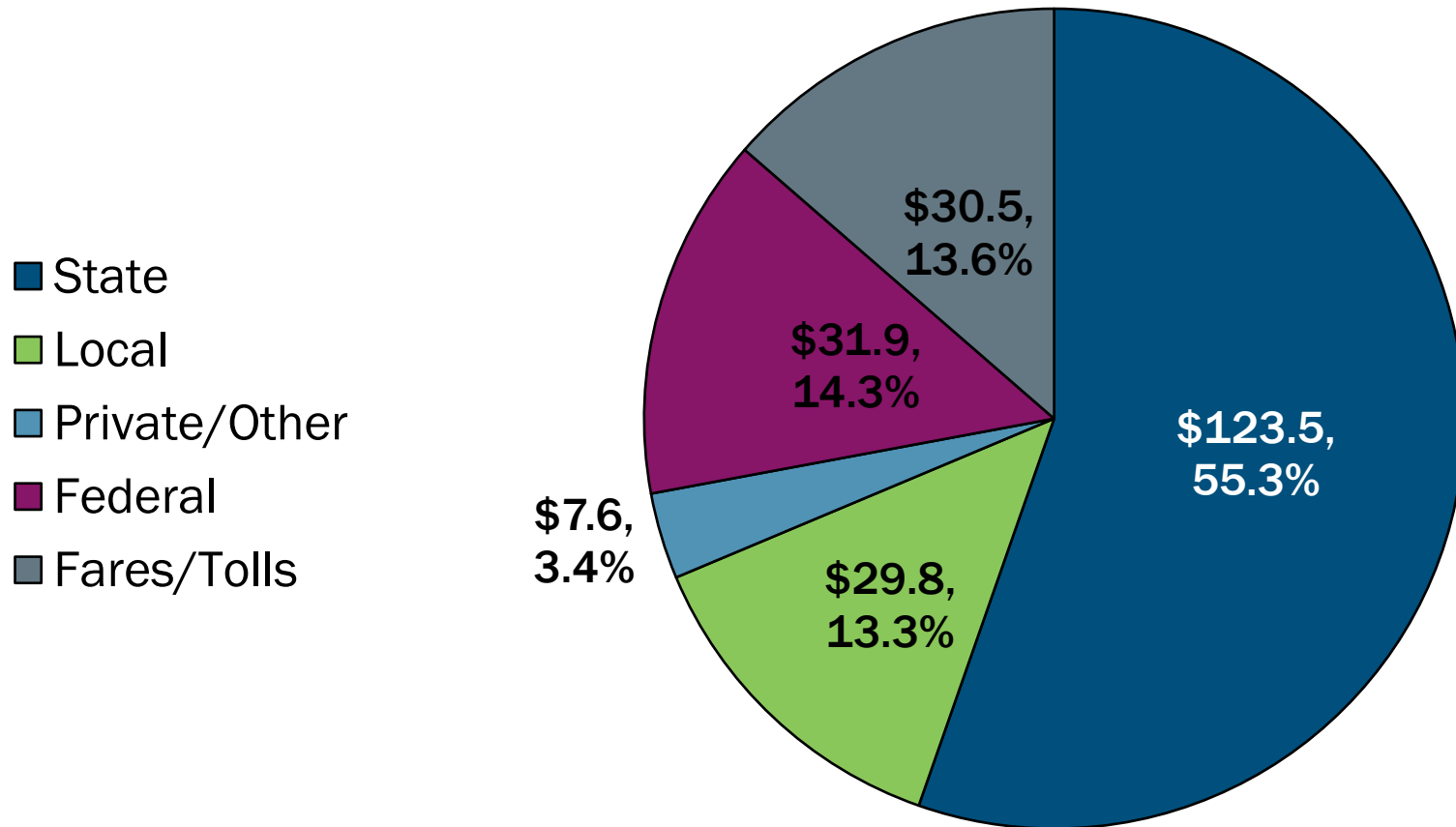


New Interactive Project Map  
<https://www.mwcog.org/maps/map-listing/visualize-2045-project-map/>

# Regional Revenues: Visualize 2045

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

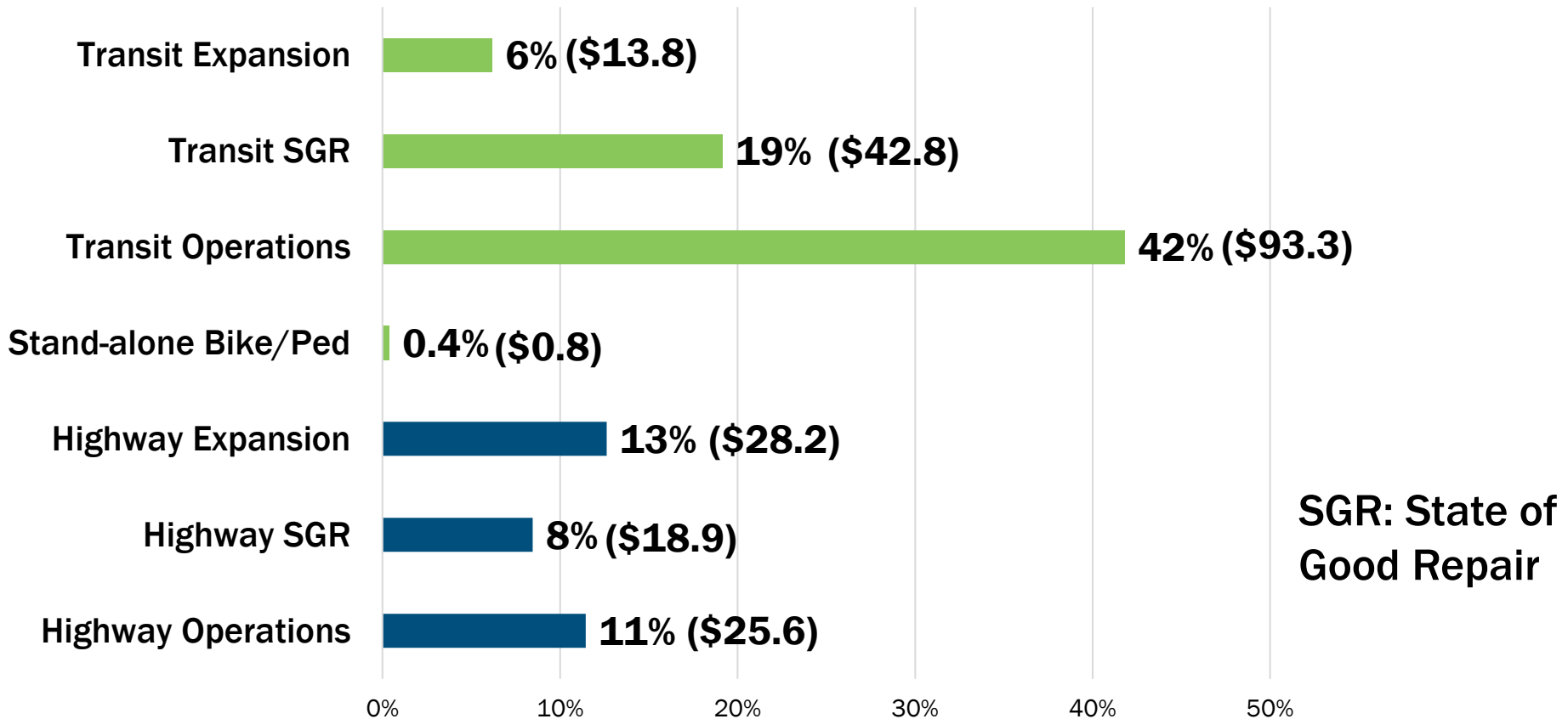
**Total of \$223.3 Billion**





# Regional Expenditures: Visualize 2045

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



SGR: State of Good Repair

**Total = \$223.3 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

# 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



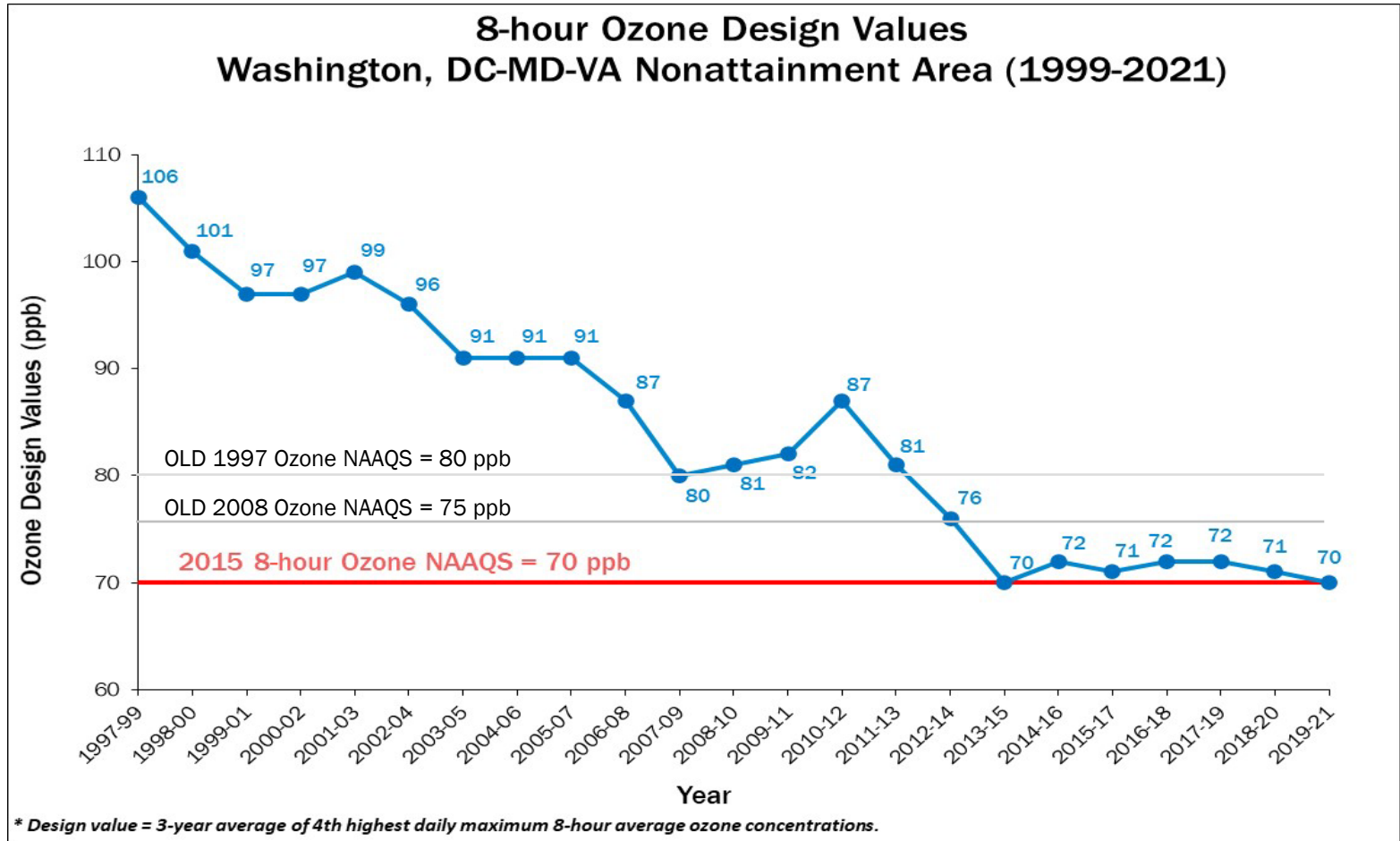
### 3. Air Quality Conformity



*The 2022 Update to Visualize 2045 meets the federal Air Quality Conformity requirements—mobile source VOC and NOx emissions associated with the plan/TIP are below EPA approved motor vehicle emissions budgets.*

Data from monitors throughout the region

# Air Quality Trend 1999-2021

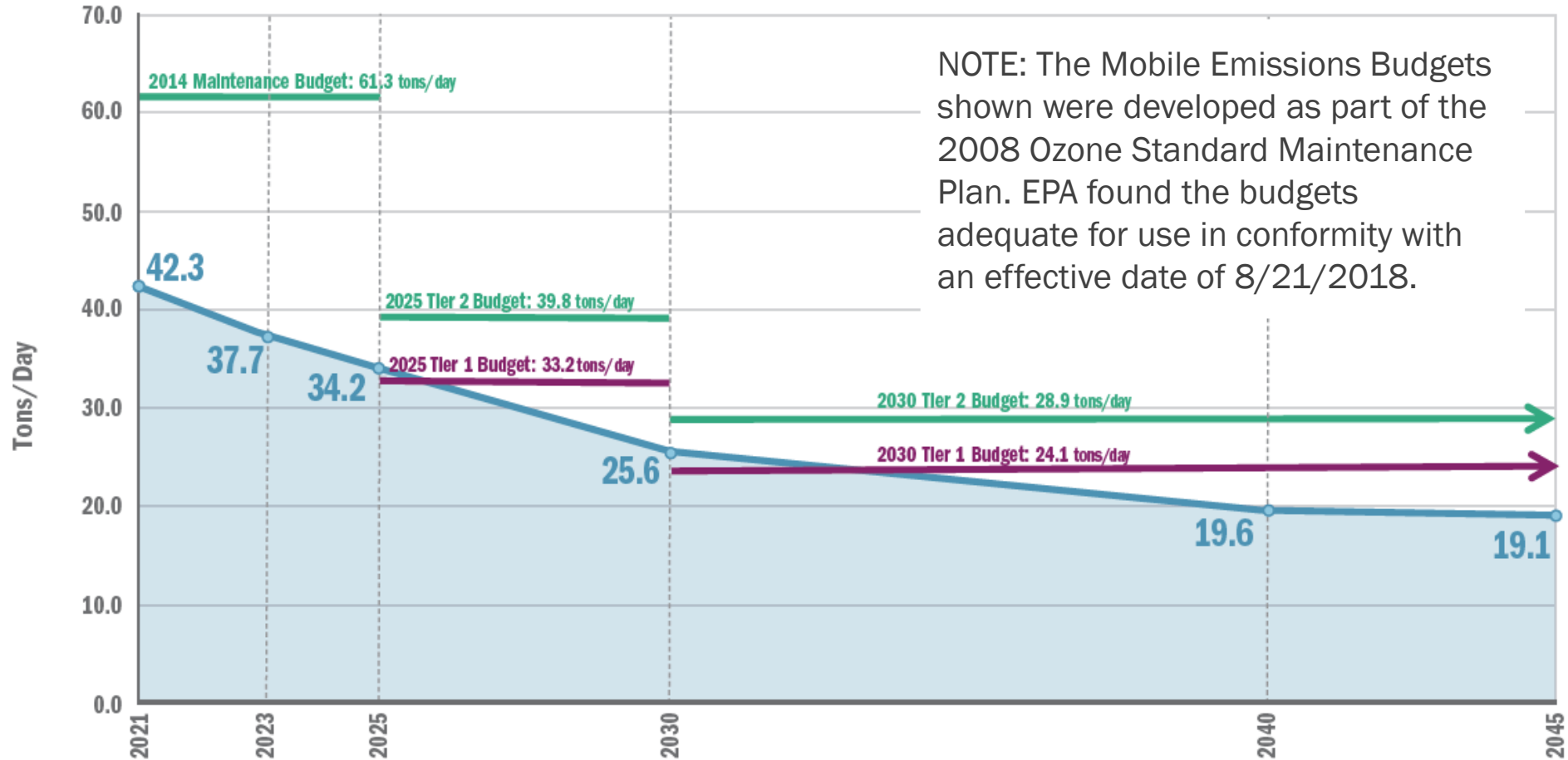


Source: MWAQC Staff

# Air Quality Conformity

Forecast  
Data

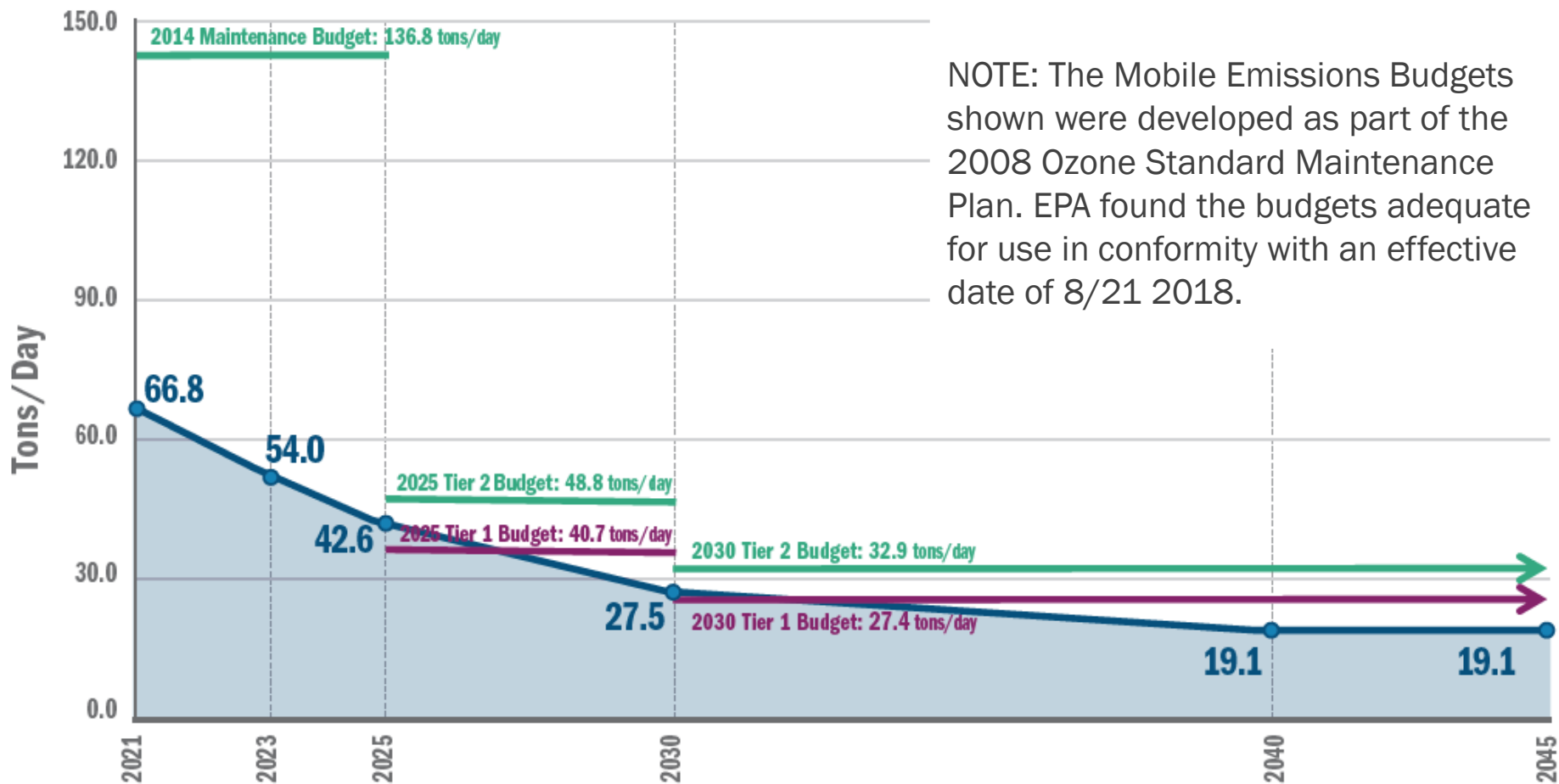
## 2022 Update to Visualize 2045 Air Quality Conformity Mobile Source Emissions and Mobile Emissions Budgets Ozone Season: Volatile Organic Compounds (VOCs)



# Air Quality Conformity

Forecast  
Data

## 2022 Update to Visualize 2045 Air Quality Conformity Mobile Source Emissions and Mobile Emissions Budgets Ozone Season Nitrogen Oxides (NOx)



NOTE: The Mobile Emissions Budgets shown were developed as part of the 2008 Ozone Standard Maintenance Plan. EPA found the budgets adequate for use in conformity with an effective date of 8/21 2018.

## 4. Performance Analysis - Regional Transportation System



# Performance Results and the TPB Policy Framework

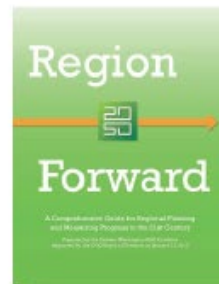
The TPB measures performance as one way of tracking progress on the goals and priorities presented in the TPB Policy Framework

## The Evolution of the TPB Policy Framework

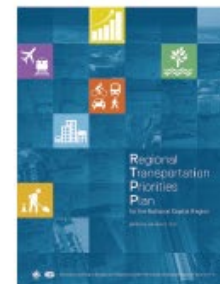
1998



2010



2014



2018



# Key Takeaways

- Access to transit will continue to grow, providing an important alternative.
- The region is forecast to make progress towards many of 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.



# Key Takeaways (cont.)

- Expected growth will likely increase demand, increasing delay and congestion and reducing job access by auto 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.



Photo by DDOT



(AimeeCustis/Flickr)

# Regional Growth and Policy Context

# The Region Will Continue To Grow...

About 80% of 2045 land-use is already in place. Activity Centers will contain 67% of jobs (up from 66%) and 35% of the population (up from 29%), Bringing Jobs and Housing Closer Together.

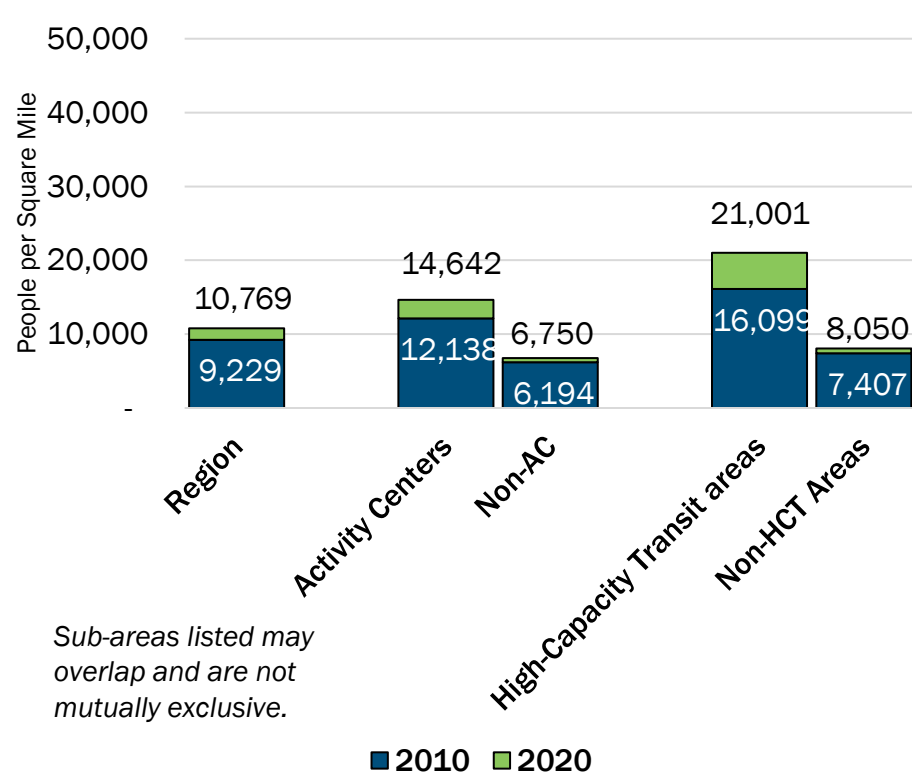
	Today	2045	
People	5.7 M	7.0 M	↑23%
Jobs	3.4 M	4.3 M	↑25%



(Ron Cogswell/Flickr)

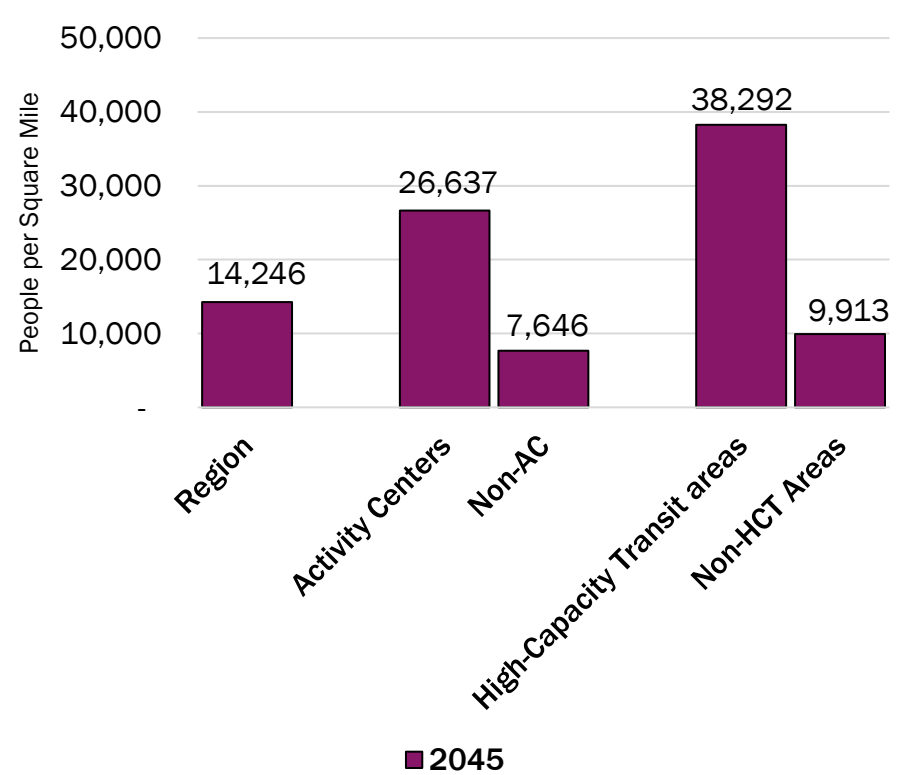
# ...and Increase in Density

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.



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

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



Note: Staff analysis of COG Cooperative Forecast Transportation Analysis Zones

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

## % of Population and Jobs in Proximity to High-Capacity Transit

	Today	2045	
People	18%	27%	↑26%
Jobs	41%	49%	↑25%

### Proximity:

0.5-mile radius from High-Capacity Transit

### High-Capacity Transit:

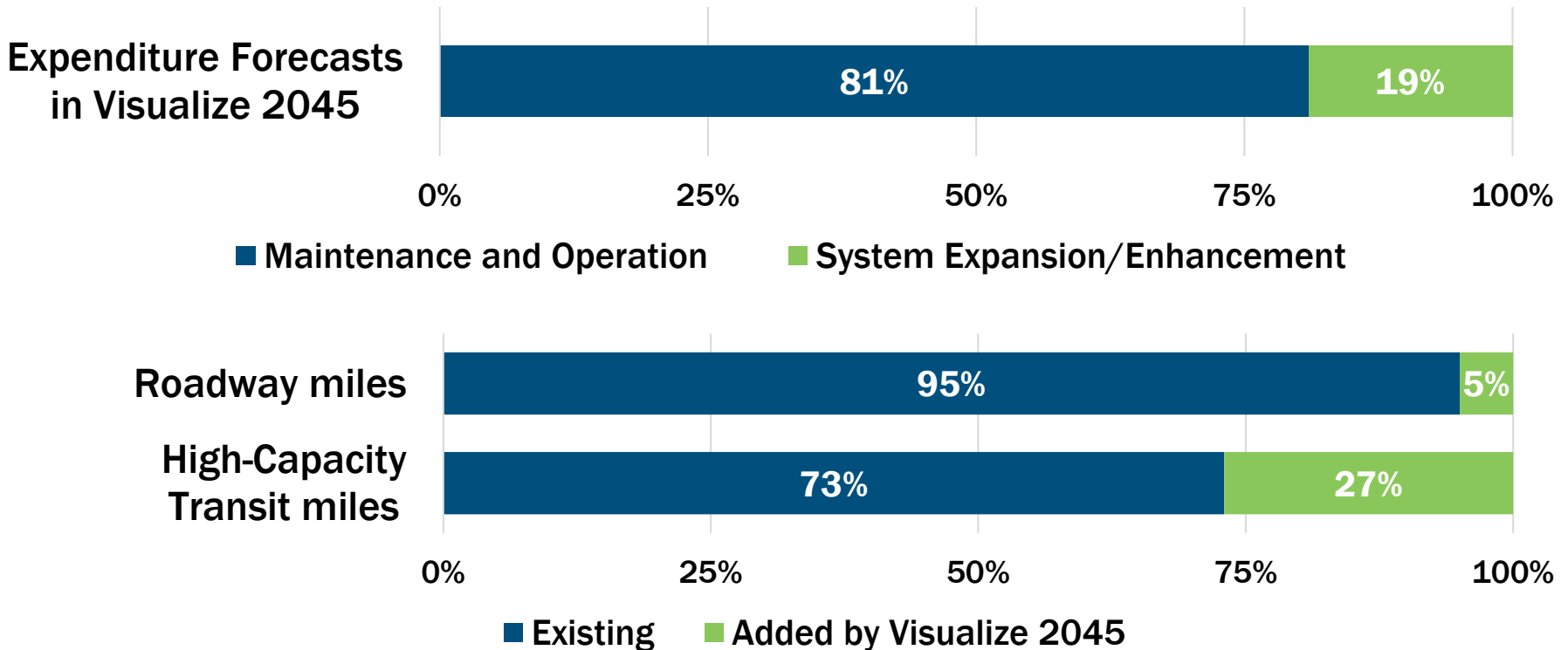
- Metrorail
- Commuter Rail
- Streetcar
- Light Rail
- Bus Rapid Transit



# 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.





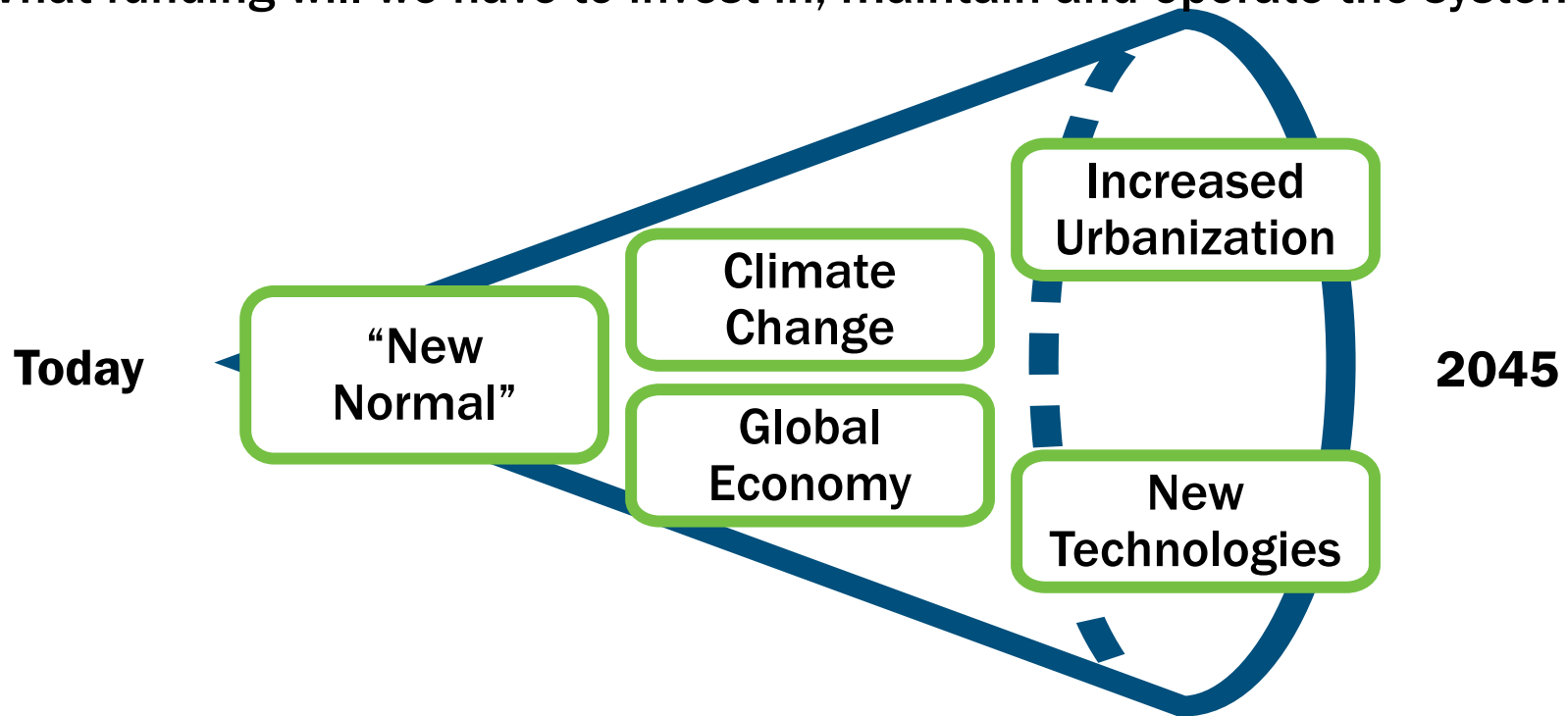
Conducting the  
performance  
analysis of  
**Visualize 2045**

# Planning Uncertainties that Will Likely Impact the Future of Travel

Where will the people and jobs be?

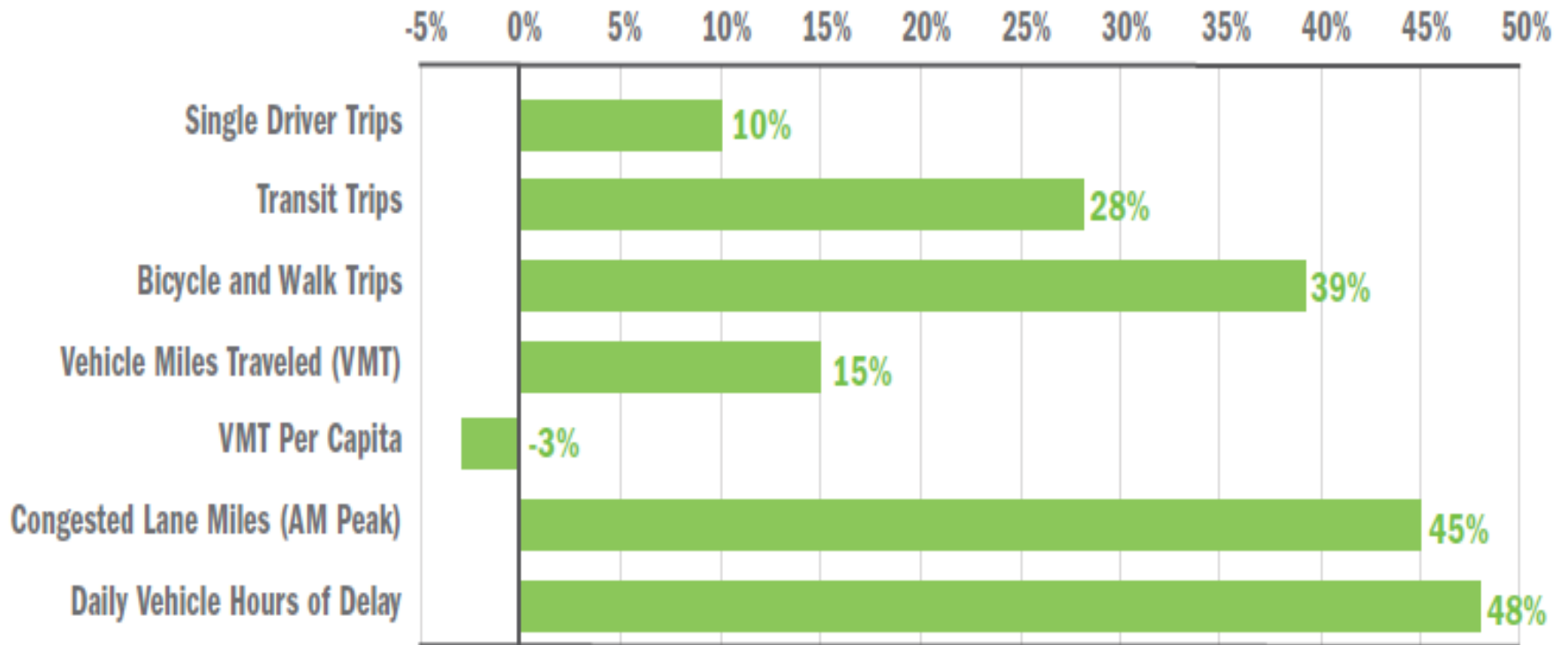
How will people travel?

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



# Performance Overview

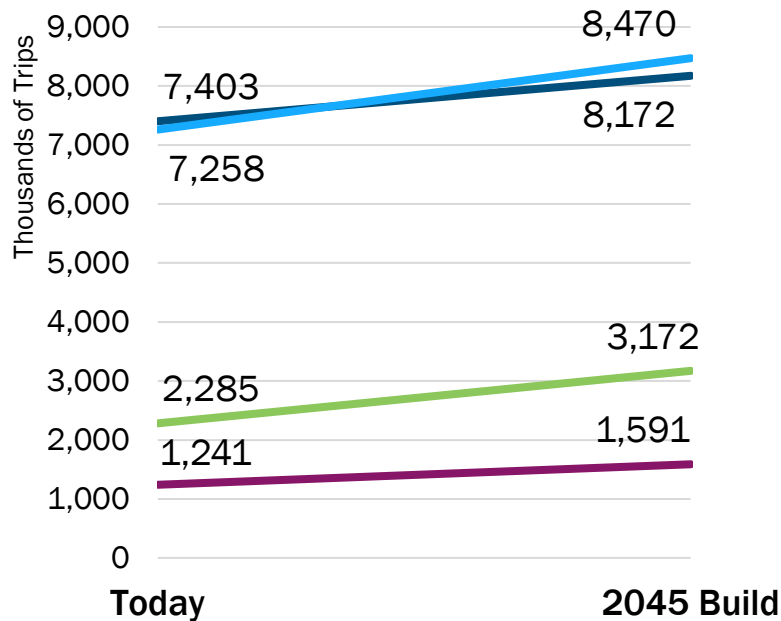
## *Percent Change 2023-2045*



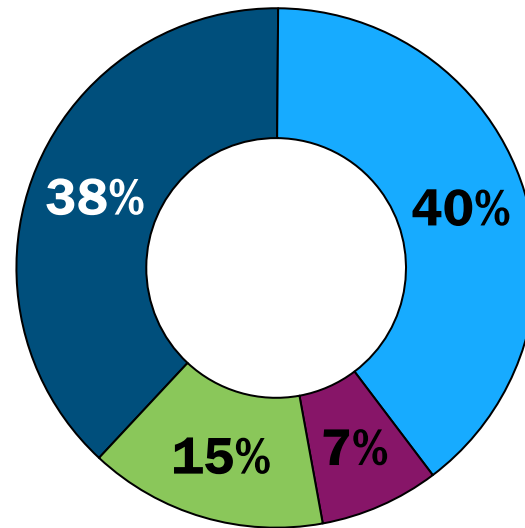
How is travel  
expected to change  
in the region over  
time?

# 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      HOV and Carpool  
 Transit      Walk and Bike

Single Occupancy Vehicle - SOV  
 High Occupancy Vehicle- HOV

# Avoiding Congestion and Delay: More Travel on Reliable Modes

Travel in the region on reliable modes that are represented by the Aspirational Initiatives will increase from **11% to 15%**. These options are less impacted by congestion and delay.



## “Reliable modes:”

- Metrorail, Commuter Rail, Light Rail, Streetcar
- Express toll lanes with dynamic toll rates
- HOV lanes
- Inter-County Connector
- Dulles Airport Access Road
- Bus Rapid Transit
- Long-haul express buses
- Bike/Ped travel



(BeyondDC/Flickr)



# Driving in the Region to Decline Per Capita

↑ **18.9%** • While **population** is forecast to grow in this region

↑ **15.4%** • The **Vehicle Miles Traveled (VMT)** increase at a lower rate

↓ **-5.6%** • As a result, **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



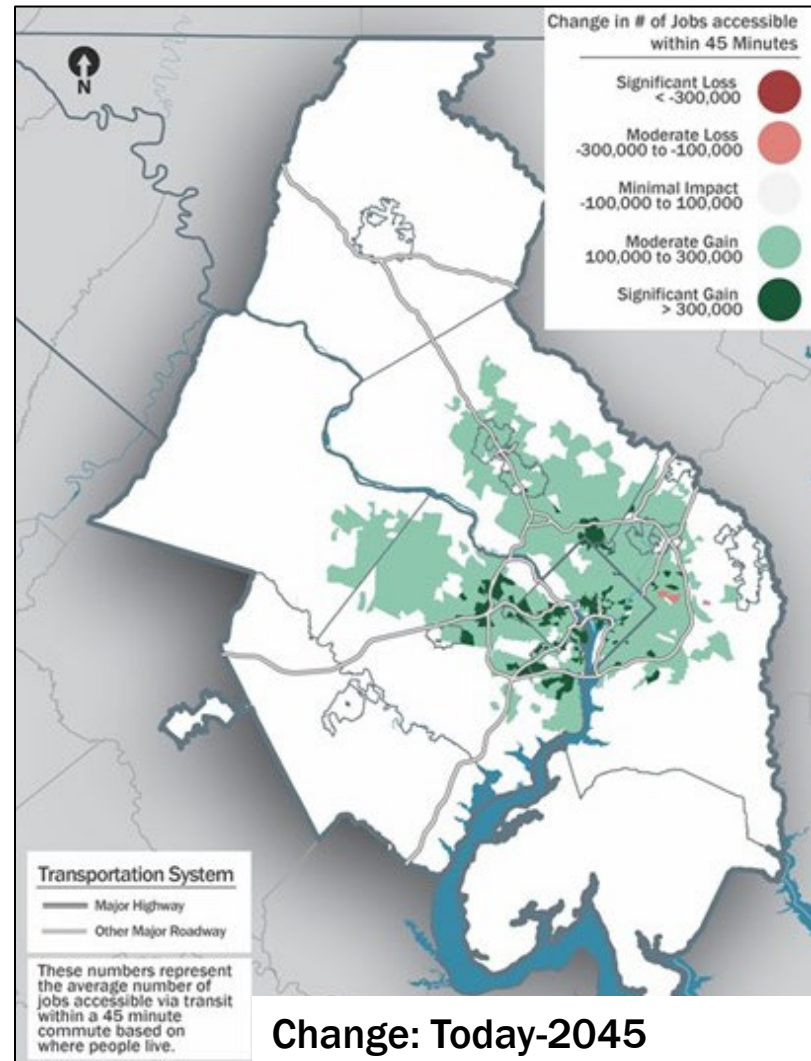
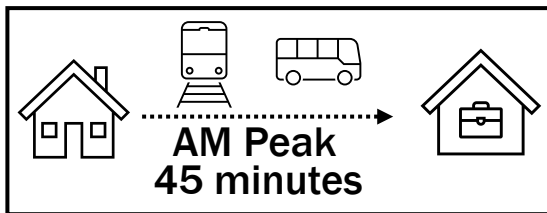
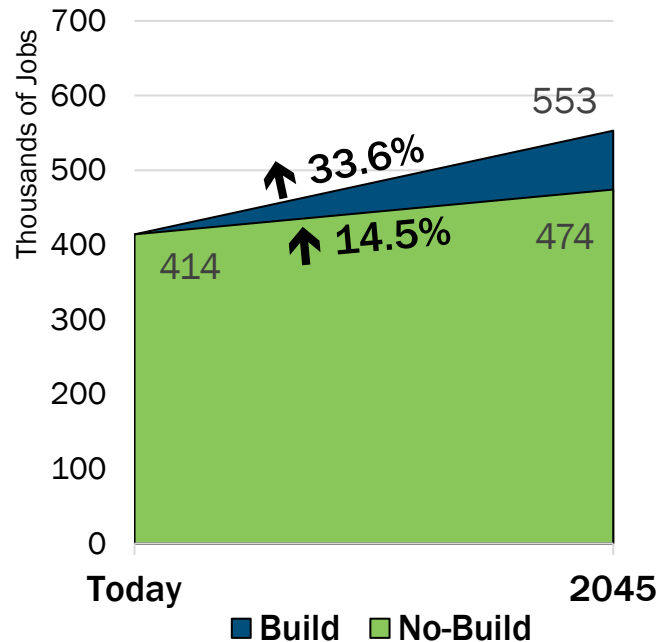
# Taking Transit to Work Increases When Readily Available & Serving Density

By 2045, in the Region's Core, majority of work trips will be on transit (53%) and nearly a quarter in the Inner Suburbs, compared to 6% in Outer Suburbs



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

# Change in Access to Jobs, Transit

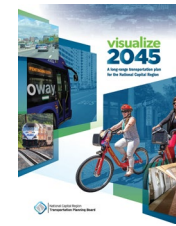


Change: Today-2045

How will the  
highway network  
serve the region?

# Delay and Congestion Continue Impacting the Region

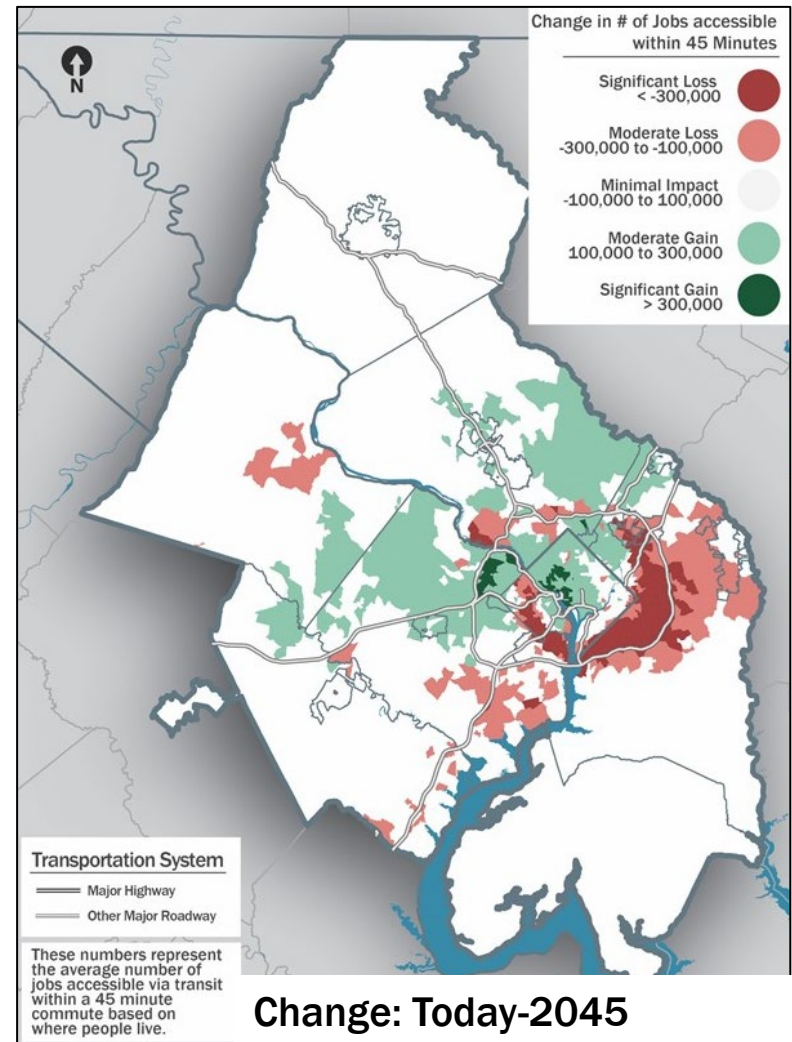
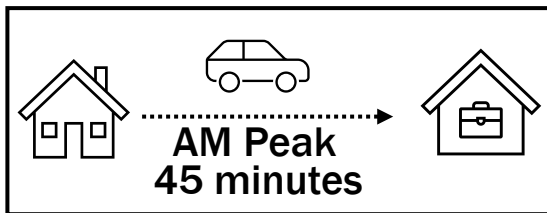
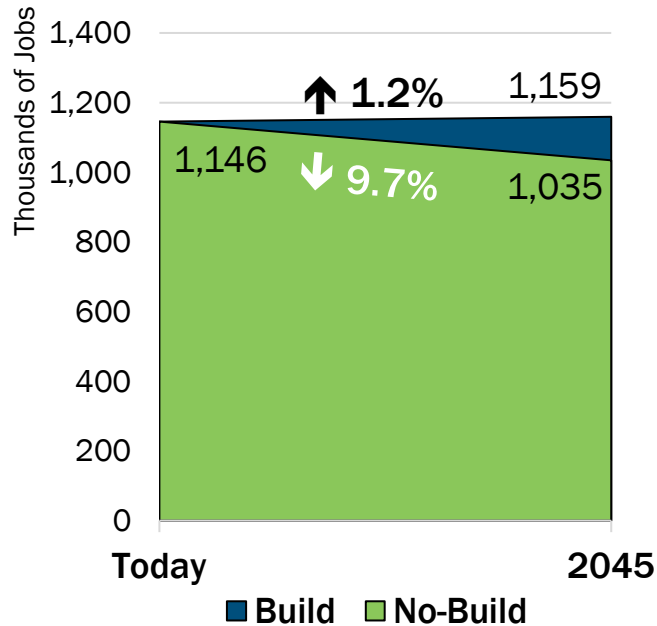
New roadway projects will make a difference, but delay and congestion will continue to be a part of life in this region.



- Major increases without implementing the Plan:
  - Delay: **↑80%**
  - Congestion: **↑58%**

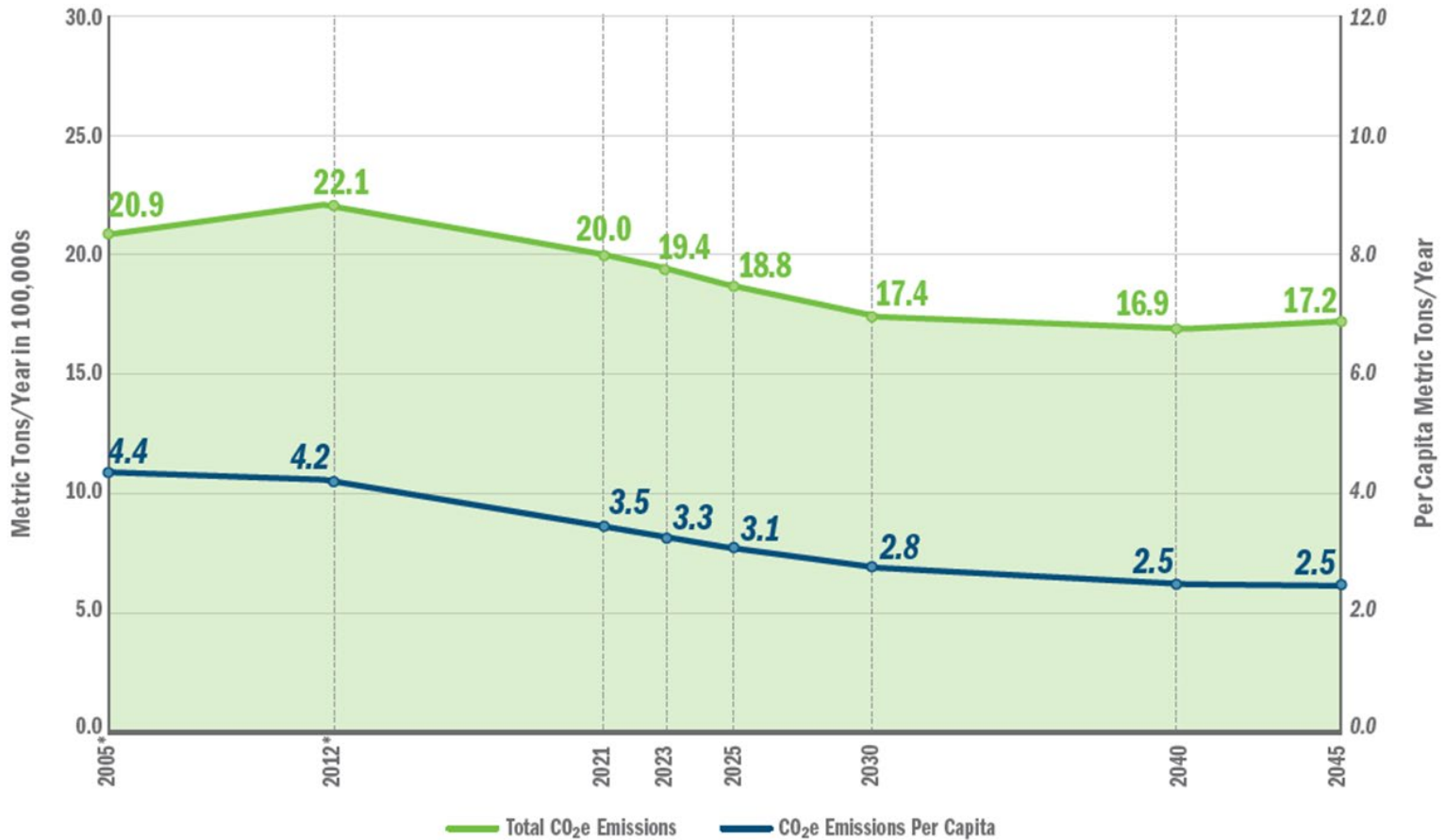
- Still increases but less so by implementing the Plan:
  - Delay: **↑48%**
  - Congestion: **↑31%**

# Change in Access to Jobs, Auto



# 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.



## 5. Getting the Word Out

### Materials to View and Share:

- [visualize2045.org](https://www.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

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# **visualize2045.org**

**[mwkog.org/TPB](http://mwkog.org/TPB)**

Metropolitan Washington  
Council of Governments

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Washington, DC 20002

# 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