

ITEM 8 – Information

April 20, 2022

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

Background:

Staff will provide an overview of the draft plan, TIP and Air Quality Conformity Analysis of the draft Plan and TIP. These materials were made available for a 30-day public comment period starting April 1, 2022. The presentation will include a review of the draft plan and TIP, regional context, financial plan, draft findings of the Air Quality Conformity analysis, and regional transportation system performance analysis.



MEMORANDUM

TO: Transportation Planning Board
FROM: Stacy Cook, TPB Transportation Planner
SUBJECT: Comment Period Now Open on draft documents: 2022 Update to Visualize 2045; FY 2023-2026 TIP, and Air Quality Conformity Analysis of the Plan and TIP
DATE: April 14, 2022

This memorandum provides a brief status update on the development of the Visualize 2045 long-range transportation plan 2022 update. For more information on Visualize 2045, please visit the plan's new website [Visualize2045.org](https://visualize2045.org).

BACKGROUND

On December 16, 2020, the TPB approved the Technical Inputs Solicitation for the update to the technical inputs for the Air Quality Conformity analysis of the TPB's long-range transportation plan, Visualize 2045 (2022 update), and the FY 2023-2026 Transportation Improvement Program (TIP). The TPB staff provided a public comment and interagency review period for the technical inputs in the spring of 2021. Through actions at its June and July 2021 board meetings, the TPB approved the technical inputs that the TPB staff used to conduct the required federal Air Quality Conformity analysis, approximately a nine-month task.

The staff have completed the analysis and draft findings for the Air Quality Conformity analysis are available for public comment (April 1-May 1, 2022). The draft 2022 update to Visualize 2045, the region's draft long-range transportation plan, and the TIP are also available for comment during this same period.

PUBLIC COMMENT IS NOW OPEN:

The TPB staff have released the following draft documents for public comment from April 1-May 1, 2022:

- 2022 Update to Visualize 2045, TPB's long-range transportation plan
- FY 2023-2026 Transportation Improvement Program
- Air Quality Conformity Analysis of the plan and TIP: Summary (this is Appendix C of the plan)

Find these online at: <https://visualize2045.org/plan-update/draft-plan/>

HELP TPB GET THE WORD OUT

To help the members of the TPB and their associated agencies and jurisdictions share information about the plan, the TPB staff have prepared an Ambassador Kit webpage on which one can find talking points, sample newsletter content, social media posts, and a news release that can be tailored by local

governments and organizations. The TPB has also updated the infographics and animated videos that help to communicate about the plan and the TPB's Aspirational Initiatives.

To learn about Visualize 2045, public events, and the comment period, visit:
<https://visualize2045.org/get-involved/>

To share about all things Visualize 2045, visit the Ambassador Kit page:
<https://visualize2045.org/get-involved/ambassador-program/>

The staff have shared the same Ambassador Kit page with:

- Local jurisdiction and agency PIOs
- The TPB Technical Committee
- TPB's Advisory and Subcommittees

A news release was issued April 1 with additional communications in the following days.

PUBLIC ENGAGEMENT – SHARING INFORMATION ABOUT THE PLAN AND TIP

In April 2022, the TPB staff have hosted two virtual open houses and a Transportation Improvement Program (TIP) forum to provide information to interested parties about the draft plan, TIP, and Air Quality Conformity analysis determination.

NEXT STEPS

- After the public comment period is completed on May 1, the TPB staff will summarize the comments as a courtesy to the board.
- At its May meeting, TPB staff will present the comment summary to the board and make all comments received on the plan, TIP, and Air Quality Conformity analysis available for board review. The board will have a month to consider comments before the plan is recommended for approval at its June meeting.
- Also, following the April TPB work session to discuss potential climate goals and mitigation strategies, and subsequent to any action in May by the board, the TPB staff will update as needed, and finalize the plan.
- At the TPB's June meeting, the staff will recommend that the board approve the plan, TIP, and Air Quality Conformity analysis of the plan and TIP, along with the Self-Certification document.

PLAN AND TIP UPDATE SCHEDULE

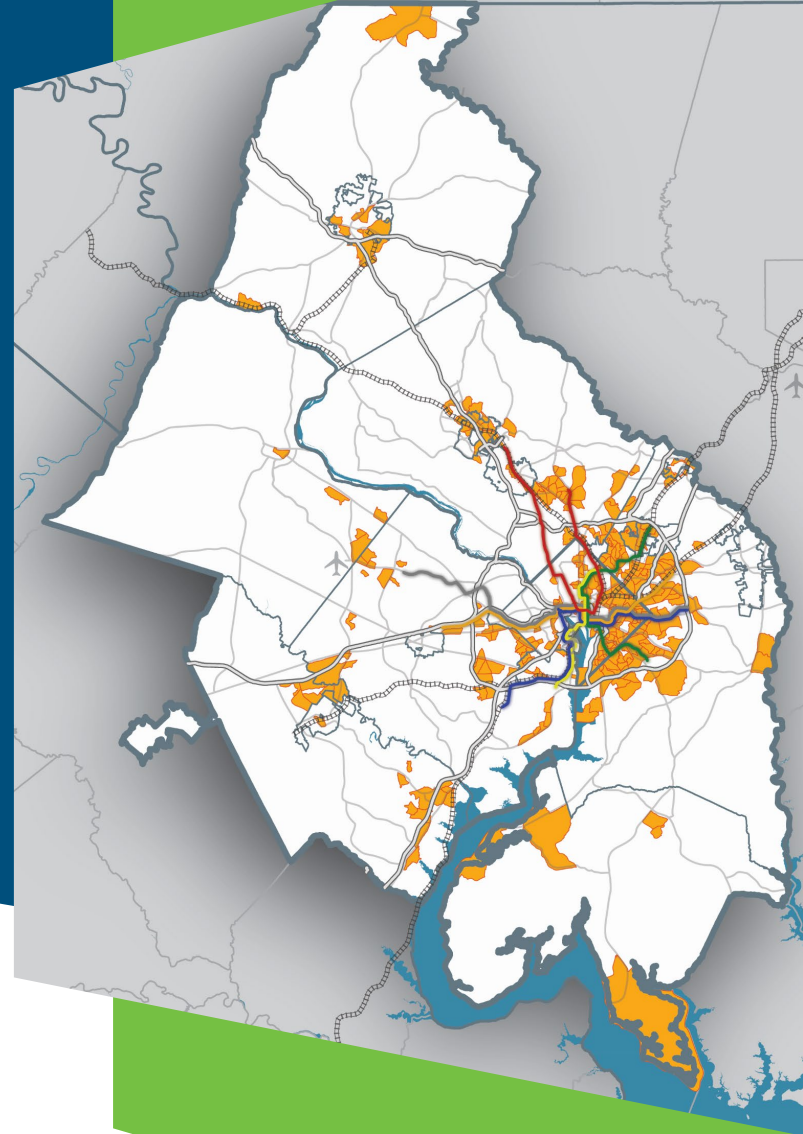
The development of the 2022 update to Visualize 2045 and the FY 2023-2026 TIP remain on schedule.

2020	12/16/20	The TPB will be asked to approve the Technical Input Solicitation document to initiate the Call for Projects.
	2/12/21	Project inputs for the LRTP and Air Quality Conformity (AQC) analysis due to TPB staff.
2021	3/5/21, 4/2/21	The TPB Technical Committee will review the conformity project inputs table in March and the draft inputs to the Plan and the draft AQC scope of work in April.
	4/2/21- 5/3/21	Public comment period on inputs to the Plan/AQC analysis, and AQC scope of work. MWAQC TAC will review this information during the April meeting.
	4/21/2021	TPB will receive a briefing on the draft inputs to the Plan/AQC analysis and the draft AQC scope of work.
	5/19/21	The TPB will receive a summary of the public comments on the draft inputs to the Plan and AQC analysis. The TPB and the agencies sponsoring the projects will have the opportunity to discuss and advise staff on responses.
	6/16/21	The TPB will review responses to comments and updates to inputs to the Plan and scope of work for the AQC analysis. The TPB will be asked to approve the inputs and scope, authorizing staff to begin analysis.
	3/11/22	Transportation Improvement Program (TIP) inputs due for the FY 2023-2026 TIP
2022	4/1/22	The TPB Technical Committee will review the draft results of AQC analysis for the updated Plan and FY 2023-2026 TIP.
	4/1/22 - 5/1/22	Public comment period on the results of AQC analysis Determination for the updated Plan and FY 2023-2026 TIP.
	4/2022	MWAQC and MWAQC TAC will review the draft results of the AQC analysis during their meetings.
	4/20/22	The TPB will review the draft Plan, draft TIP, and AQC analysis and Determination.
	5/18/22	The TPB will review the draft results of the AQC analysis for the Plan and FY 2023-2026 TIP. The TPB will also receive a summary of the comments received on the analysis. The TPB and the agencies sponsoring the projects will have the opportunity to discuss and advise staff on responses to comments.
	6/15/22	The TPB will review the responses to the comments and the results of the AQC analysis. The TPB will be asked to approve the results of the AQC analysis and adopt the updated Plan and the FY 2023-2026 TIP.

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

National Capital Region
Transportation Planning Board

April 20, 2022



visualize
2045

A long-range
transportation plan
for the National
Capital Region

Presentation Overview



1. Overview of the Visualize 2045 update and FY 2023-2026 TIP



2. Financial Plan



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

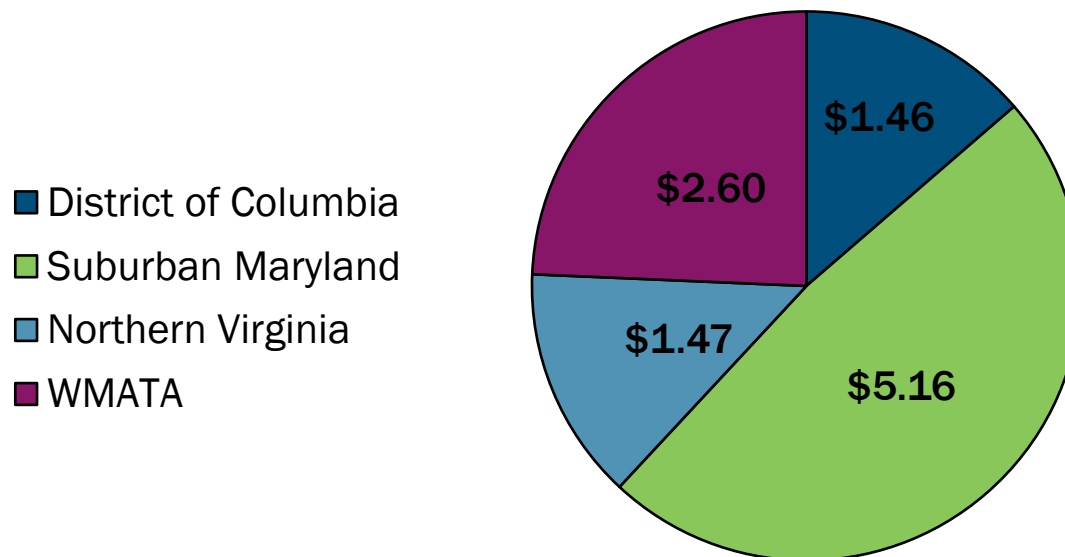
1. Visualize 2045 and the TIP

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

The TIP is the first four years of the plan + other federally funded projects.

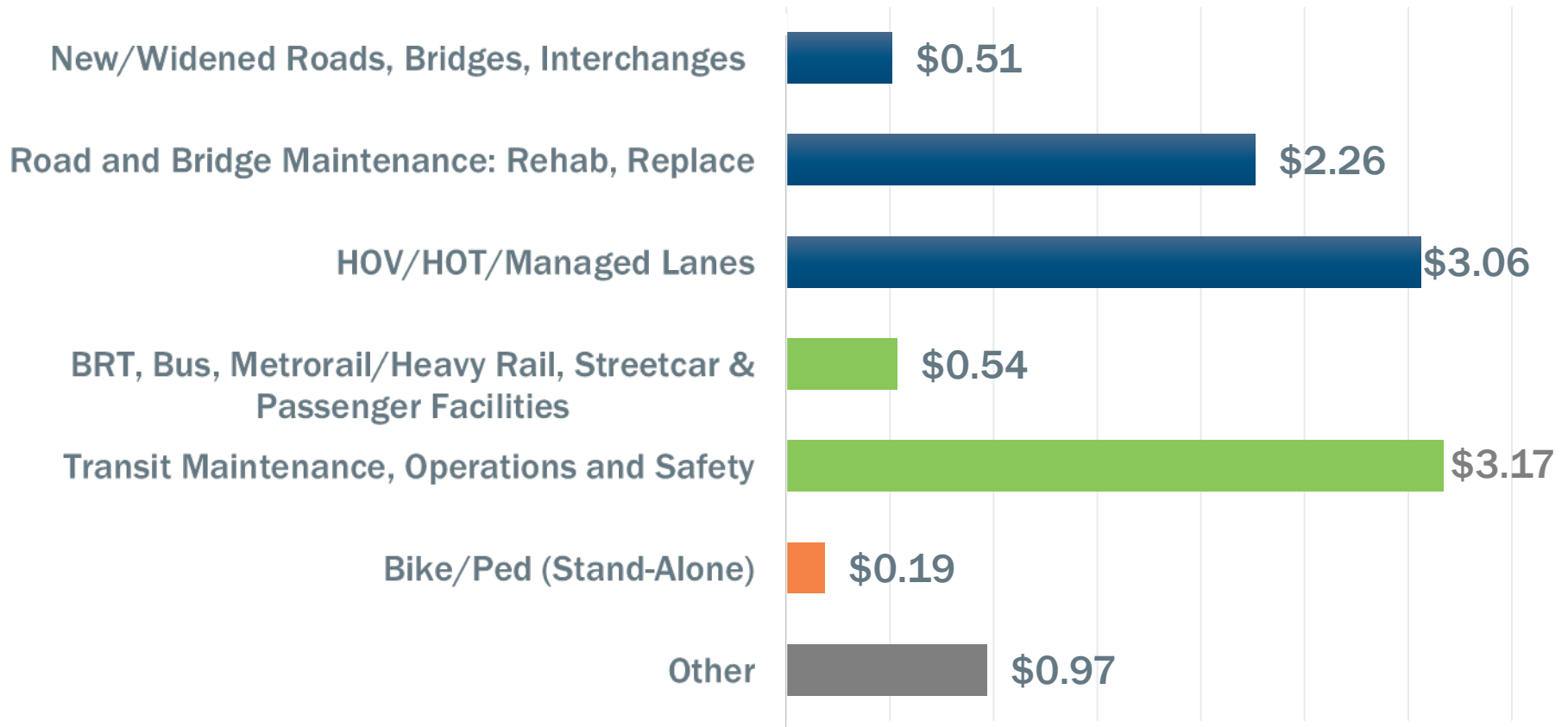
It features more than 300 funding records for projects, programs, and project groupings throughout the region.

Funding Programmed by Jurisdiction (\$10.7 Billion)



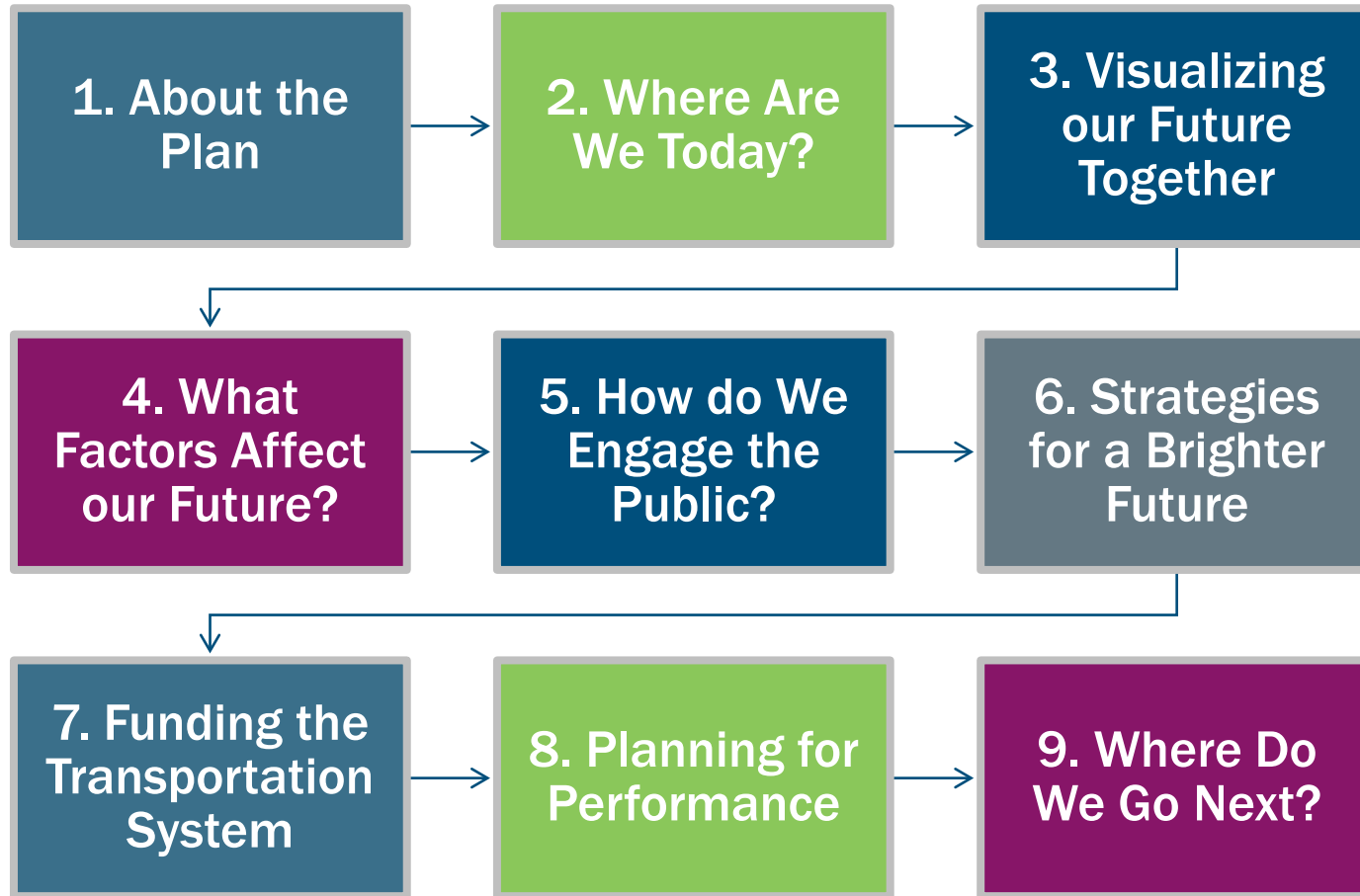
Draft FY 2023-2026 Transportation Improvement Program (TIP) Summary

Funding Programmed by Project Type



Plan Organization: Nine Chapters

Includes Climate Change Mitigation



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	

Highlights of What's New

Applies an 'equity lens' to plan content.

Process:
More information on the planning process:
How does regional planning work?

Public Engagement:
Integrates Voices of the Region findings

Planning Areas:
• Aspirational Initiatives
• transportation modes
• future /fed planning factors including climate (CCMS)/resiliency

Projects:
Integrates project sponsor responses to regional policy questions.

Federal Compliance:
Progress discussions for the PBPP

And the plan maintains a continued focus on demonstrating federal compliance

2. Financial Plan



The 2022 Update to Visualize 2045 meets the federal requirements for fiscal constraint.

Financial Plan



Federal regulations require a financial plan that demonstrates how the adopted long-range transportation plan can be implemented

Forecast year-of-expenditure (YOE) revenues must cover the estimated YOE costs of maintaining, operating, and expanding the highway and transit system

The plan demonstrates that the forecast revenues are reasonably expected to be available to implement Visualize 2045

Financial Plan - Methodology

- For the near-term years, agencies used revenue and expenditure budgets from the approved TIP and Capital Improvement Programs (CIPs)
- For long-term years:
 - Revenues are estimated from extrapolation of past trends as well as assumptions about future increases (beyond current legislation and appropriations)
 - Expenditures are developed from project costs in the Project InfoTrack project database as well as extrapolated costs for maintenance and operations
- Estimated inflation rates are applied to convert estimates of revenues and expenditures to year of expenditure (YOE) dollars

Financial Plan – Key Assumptions (States)

District of Columbia

- Used 2021 budget and 2021-2026 Capital Improvement Plan
- Revenue growth rate of 2.4% after 2027
- Most revenue come from general tax revenues

Suburban Maryland

- State growth rate of 5.3%, federal growth rate of 3.0%
- Private funding to build toll roads

Northern Virginia

- State growth rate of 2.2%, federal growth rate of 1.7%
- Several sources of regional and local funds

Financial Plan – Key Assumptions (WMATA)

WMATA inputs

- Operating revenues and costs based on extrapolation of pre-pandemic trends
- Capital costs based on FY 2021 Budget and FY2021 – FY2026 Capital Improvement Program (CIP)

Assumption that PRIIA funding (\$150M/year federal, matched by DC-MD-VA) would be extended through 2045

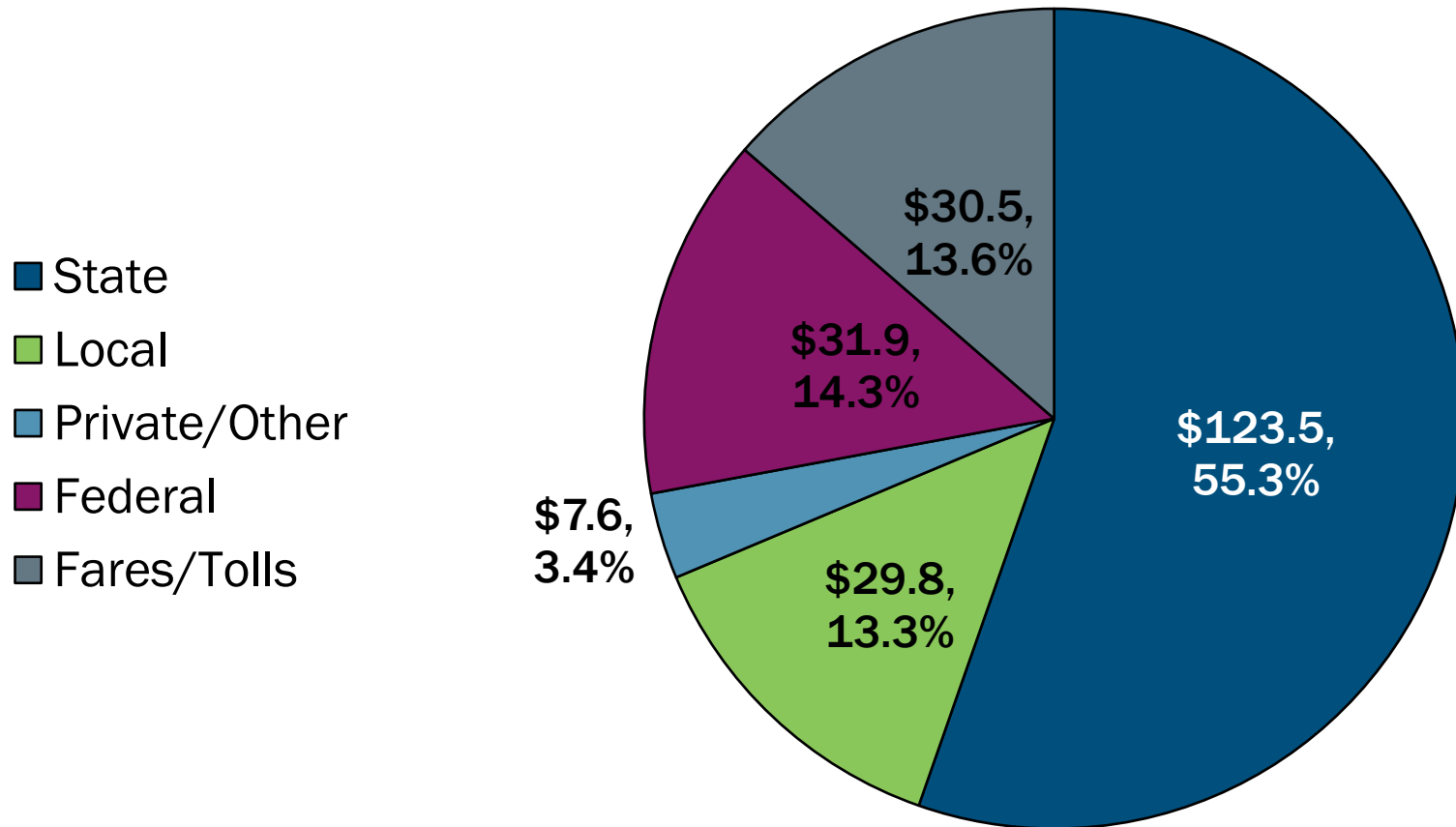
- Extended through 2030 in recent BIL/IIJA federal surface transportation act



Regional Revenues: Visualize 2045

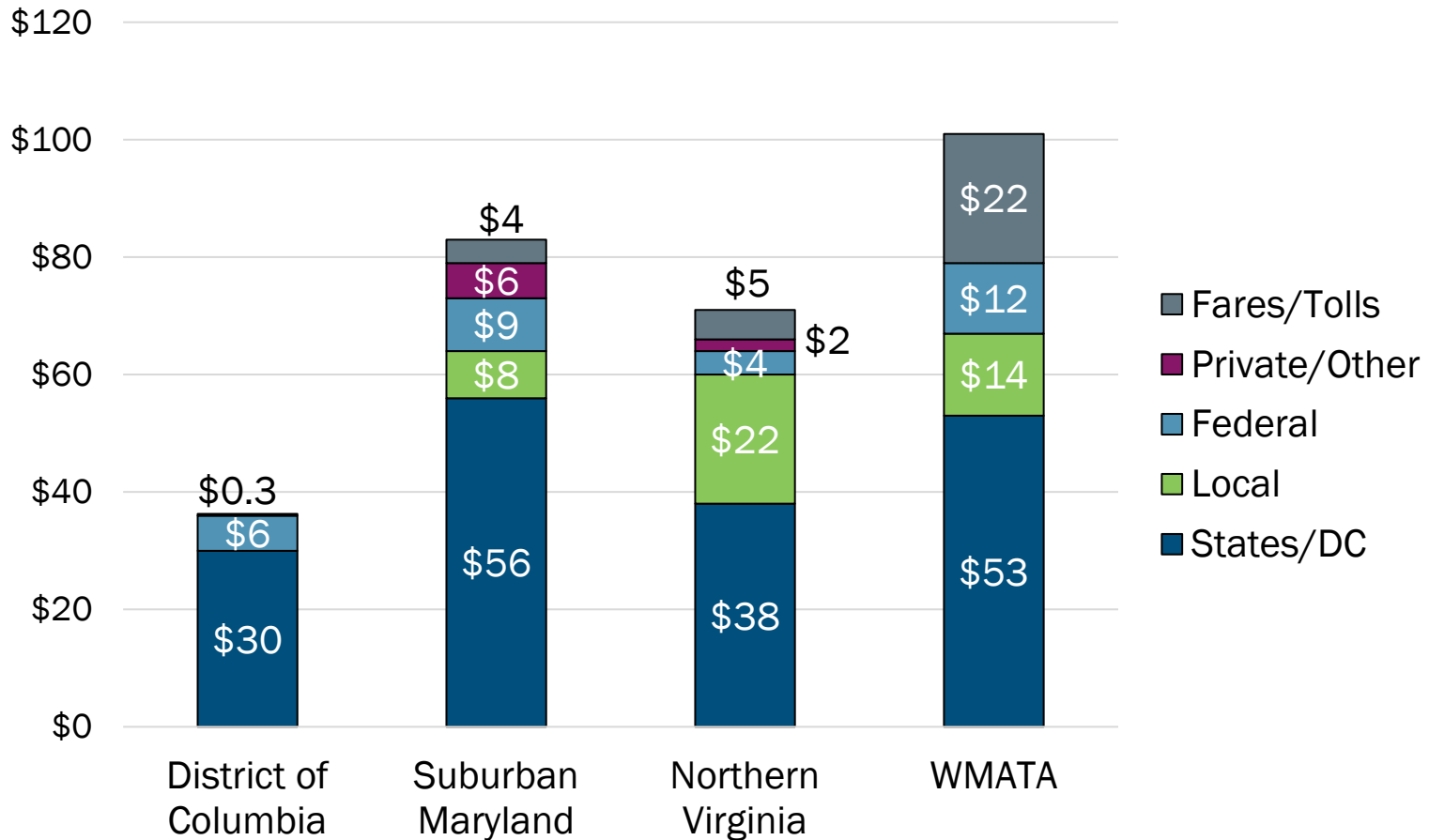
(2023-2045; Billions, in Year of Expenditure)

Total of \$223.3 Billion



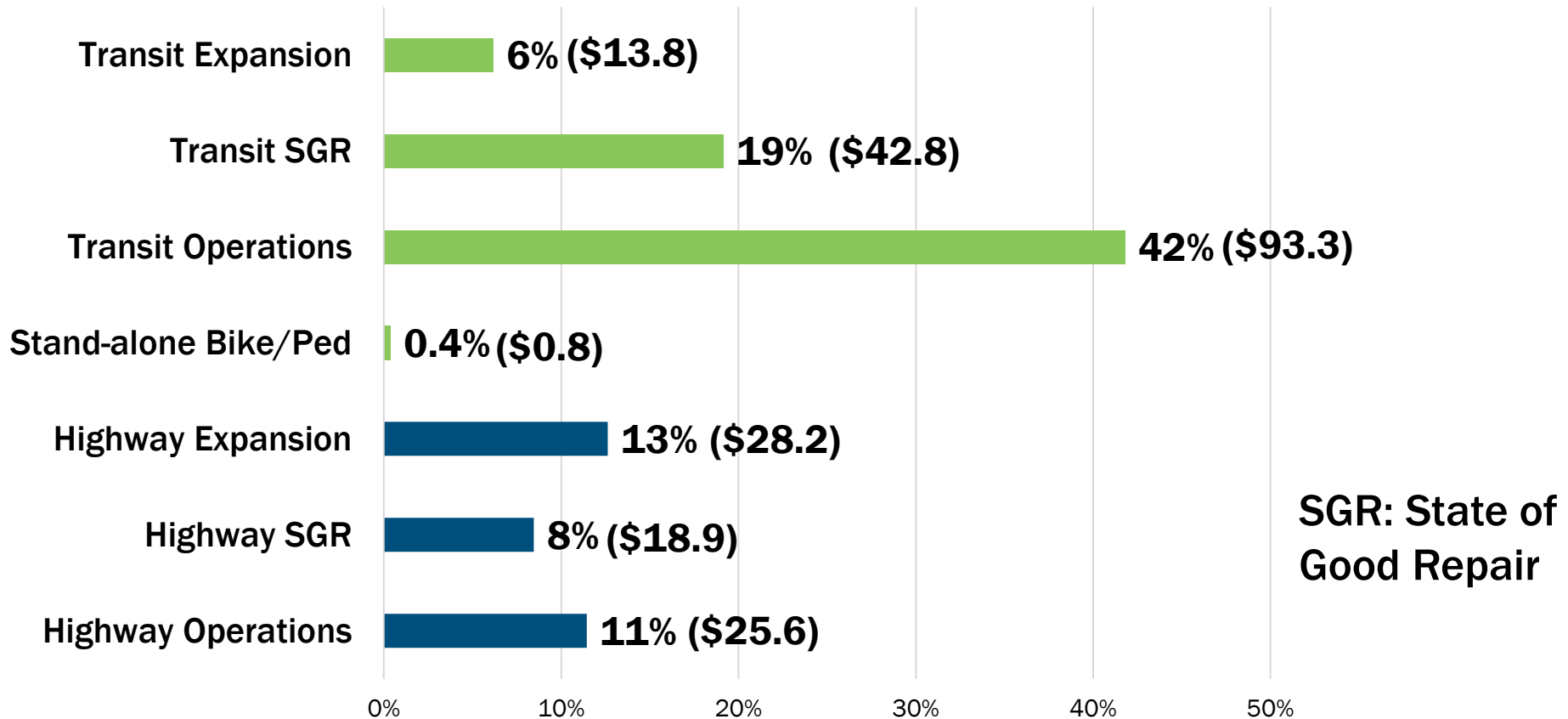
Regional Revenues Breakdown: Visualize 2045

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



Regional Expenditures: Visualize 2045

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



SGR: State of Good Repair

Total = \$223.3 Billion

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



Financial Plan – Summary

The Financial Analysis demonstrates that the forecast revenues are reasonably expected to be available to implement Visualize 2045

- Demonstrates the region’s commitment to maintaining a State of Good Repair for highways and public transportation systems
- Provides for operations and maintenance of the existing transportation system
- Provides for capacity expansion to address forecasted growth in the region’s population and economy

The Financial Plan is Appendix A of the Visualize 2045 plan

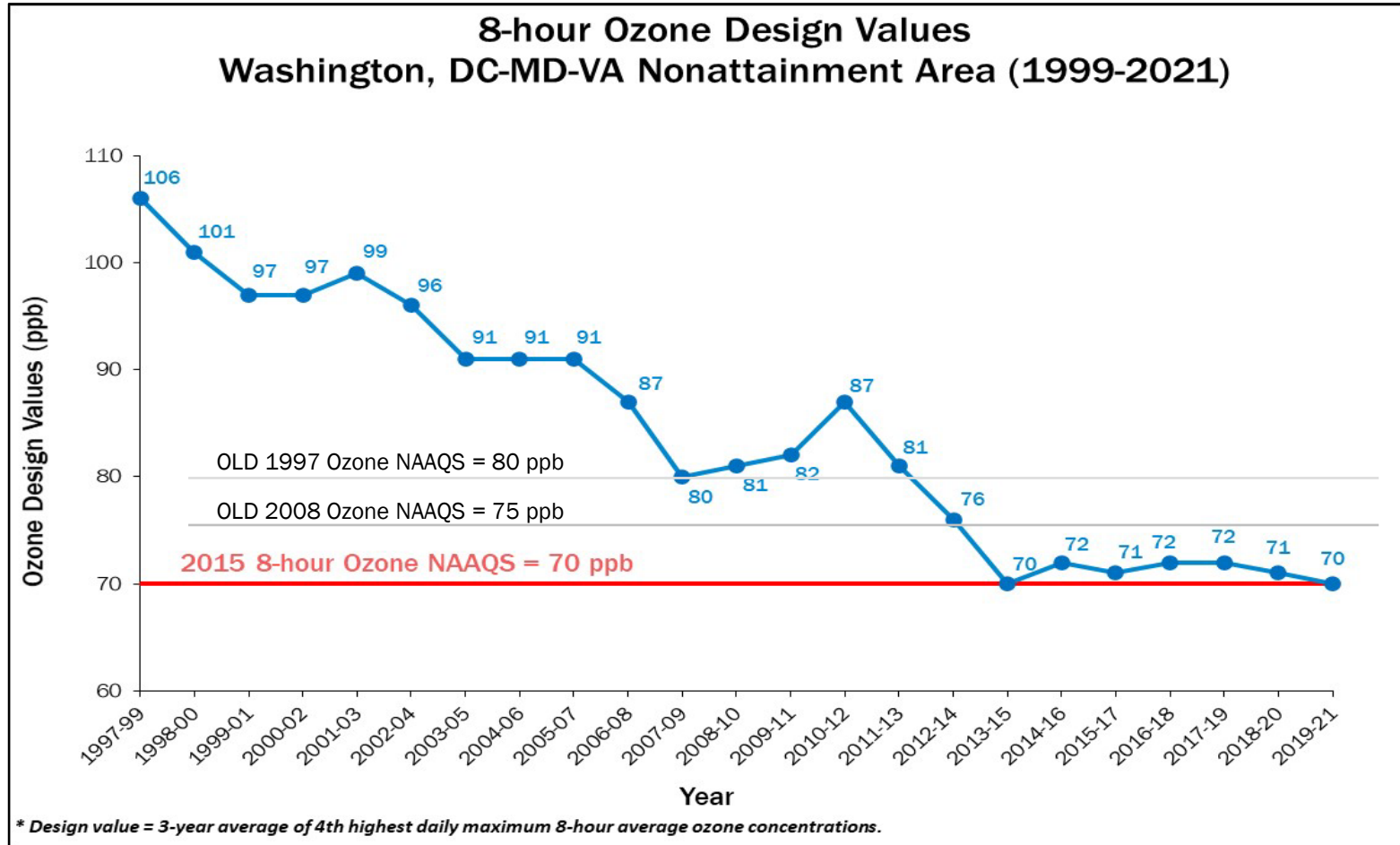
3. Air Quality Conformity



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

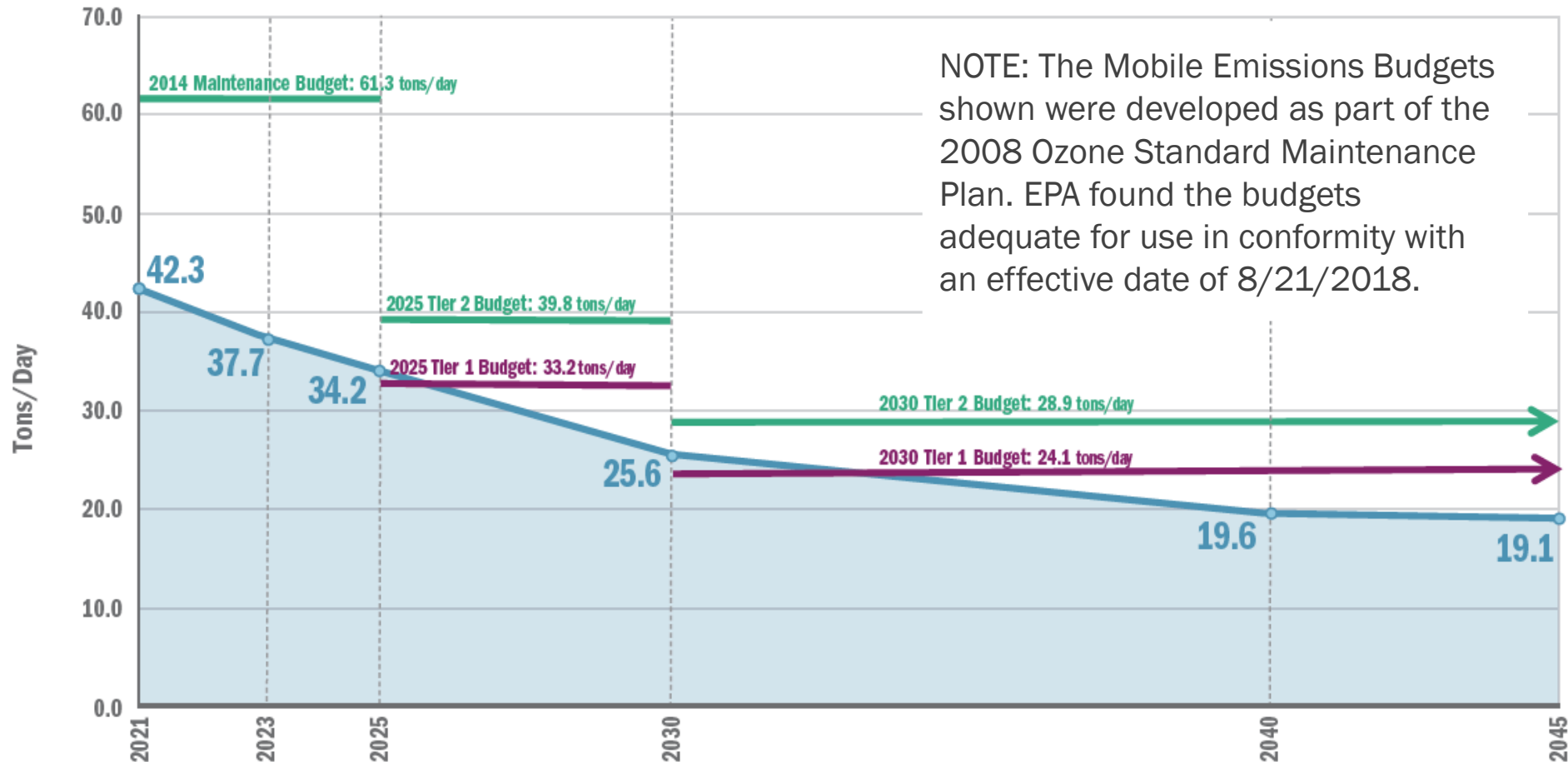


Source: MWAQC Staff

Air Quality Conformity

Forecast
Data

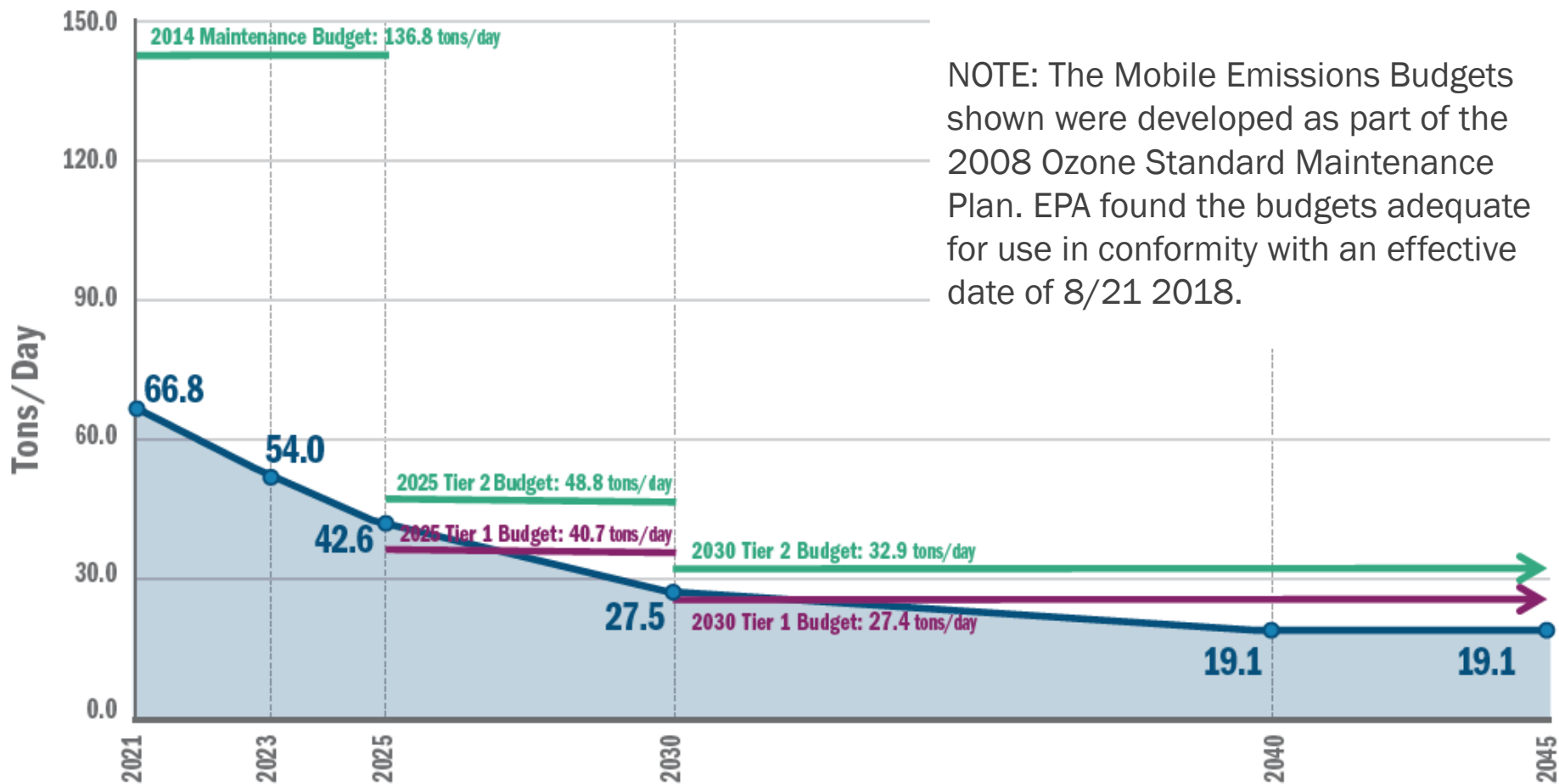
2022 Update to Visualize 2045 Air Quality Conformity Mobile Source Emissions and Mobile Emissions Budgets Ozone Season: Volatile Organic Compounds (VOCs)



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.

Air Quality Conformity

	Maintenance SIP Mobile Budgets	2022 Update to Visualize 2045 Conformity Emissions
Cooperative Forecasts	Round 9.0	Round 9.2
Vehicle Fleet	2014 VIN	2020 VIN
Travel Demand Model	Version 2.3.66	Version 2.4
Project Inputs	2016 CLRP	2022 Update to Visualize 2045
Metrorail Constraint	yes	no

4. Performance Analysis - Regional Transportation System

Performance Results and the TPB Policy Framework

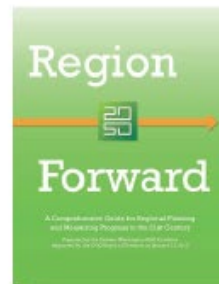
The TPB measures performance as one way of tracking progress on the goals and priorities presented in the TPB Policy Framework

The Evolution of the TPB Policy Framework

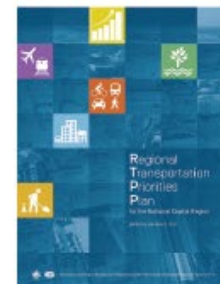
1998



2010



2014



2018



Planning Policy Focus Area Universe



LRTP System Performance Measures

EJ Analysis and other EEA Insights	GHG	NOX, VOC	VMT Per Capita
Mode Share and Geographic Variance	Trips on “Reliability-Enhanced” Modes	Number of People Living Near HCT	Multimodal Accessibility
Daily Hours of Vehicle Delay	Average Delay per Trip	Congested Lane Miles	Population Density, Location of Growth
Traffic Proximity	Job Access by Driving	Transit Ridership	Job Access by Transit

The TPB Uses Performance Measures (PMs) for Many Planning Activities

- Regional Air Quality Conformity Analysis
(2 PMs)
- Environmental Justice Analysis
(10 PMs)
- Performance-Based Planning and Programming
(26 PMs)
- Long-Range Plan Task Force
(18 PMs)
- LRTP Performance Analysis
(>20 PMs)
- And...more

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%

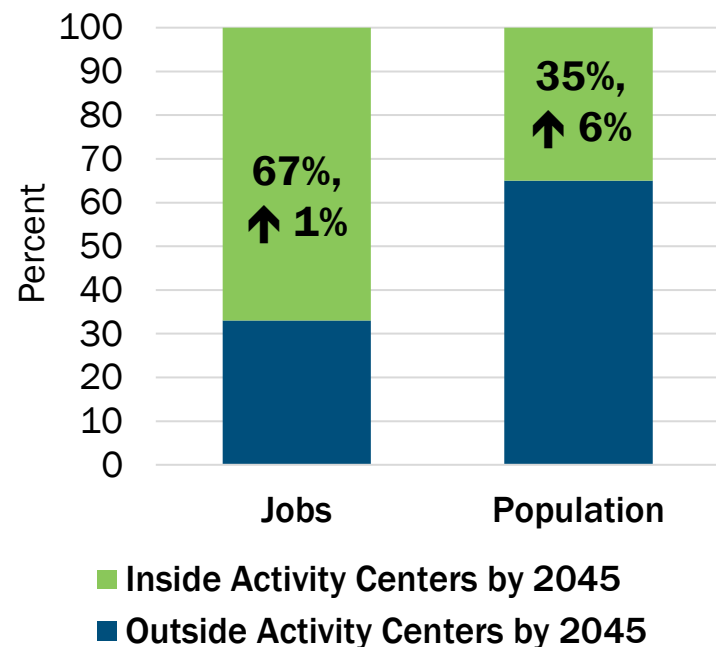
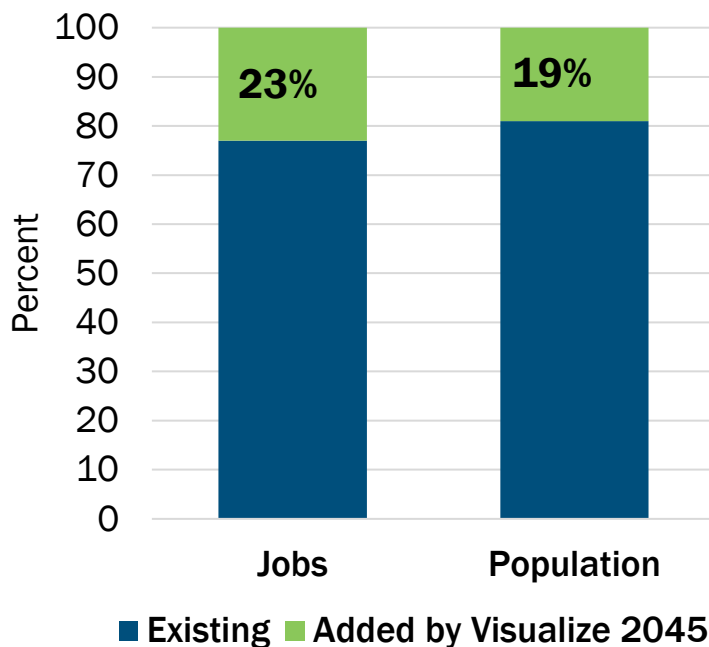


(Ron Cogswell/Flickr)

The Region Will Continue To Grow...

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

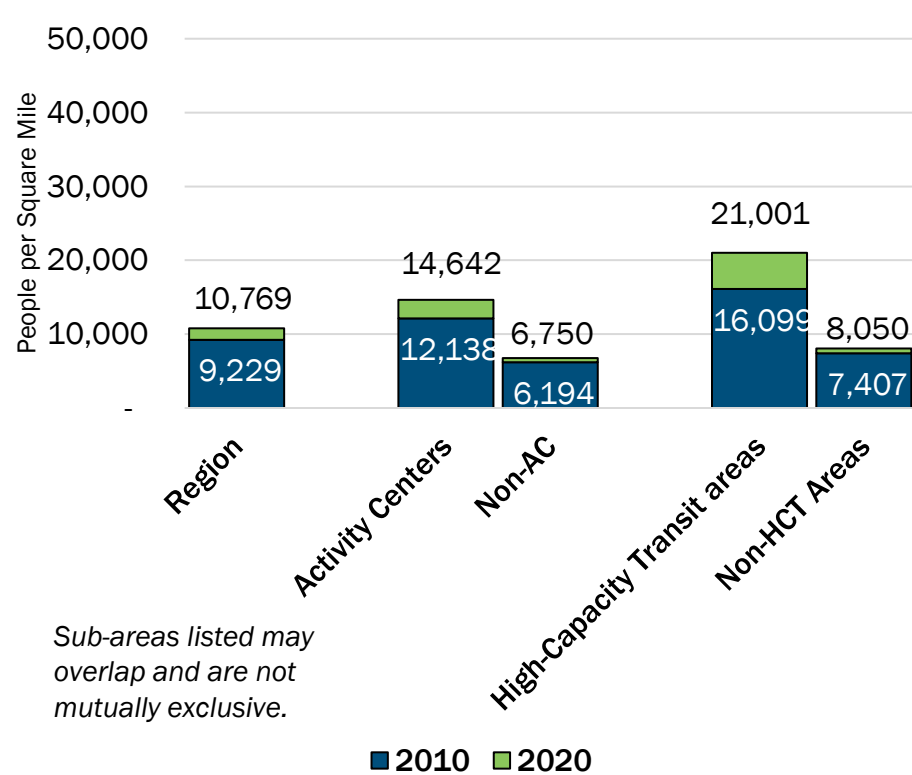
With more people and jobs, the transportation systems will need to continue handling its current and forecasted demand. Activity Centers will contain 67% of jobs (up from 66%) and 35% of the population (up from 29%)



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

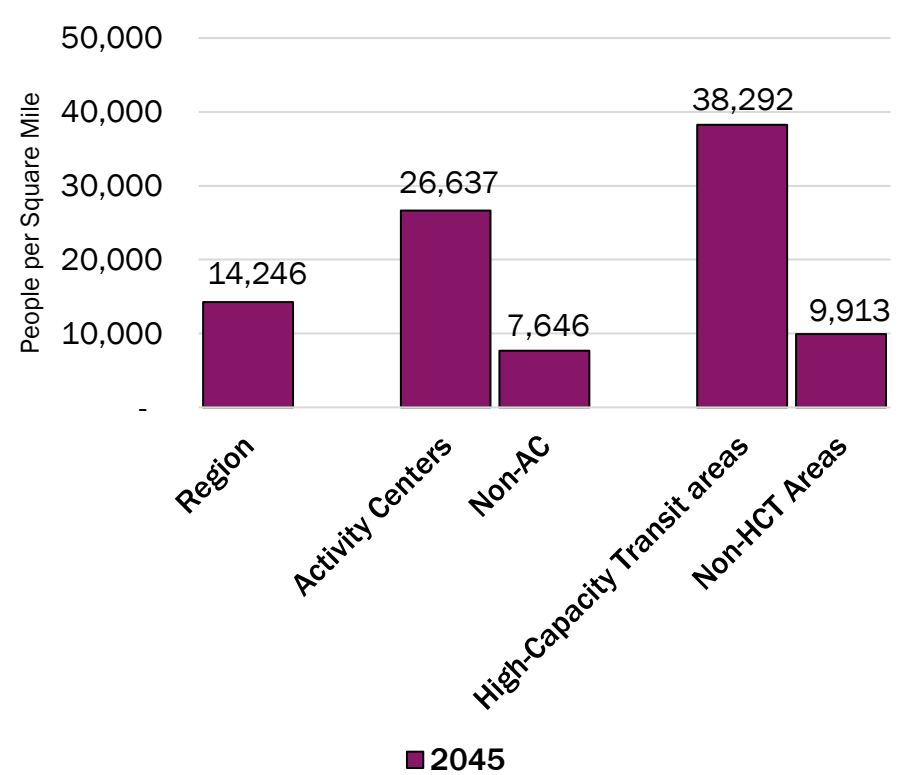
...and Increase in Density

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.



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:

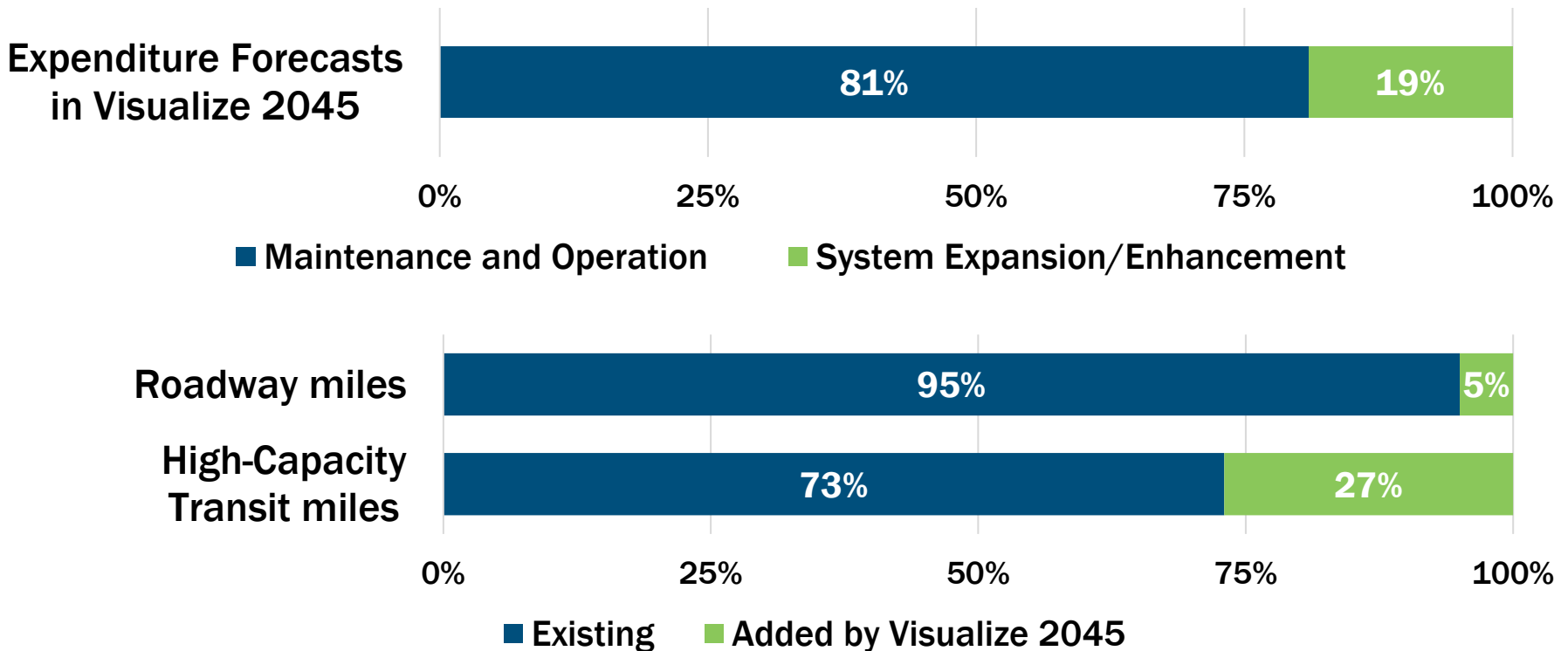
- Metrorail
- Commuter Rail
- Streetcar
- Light Rail
- Bus Rapid Transit



Funding for Expansion is Limited

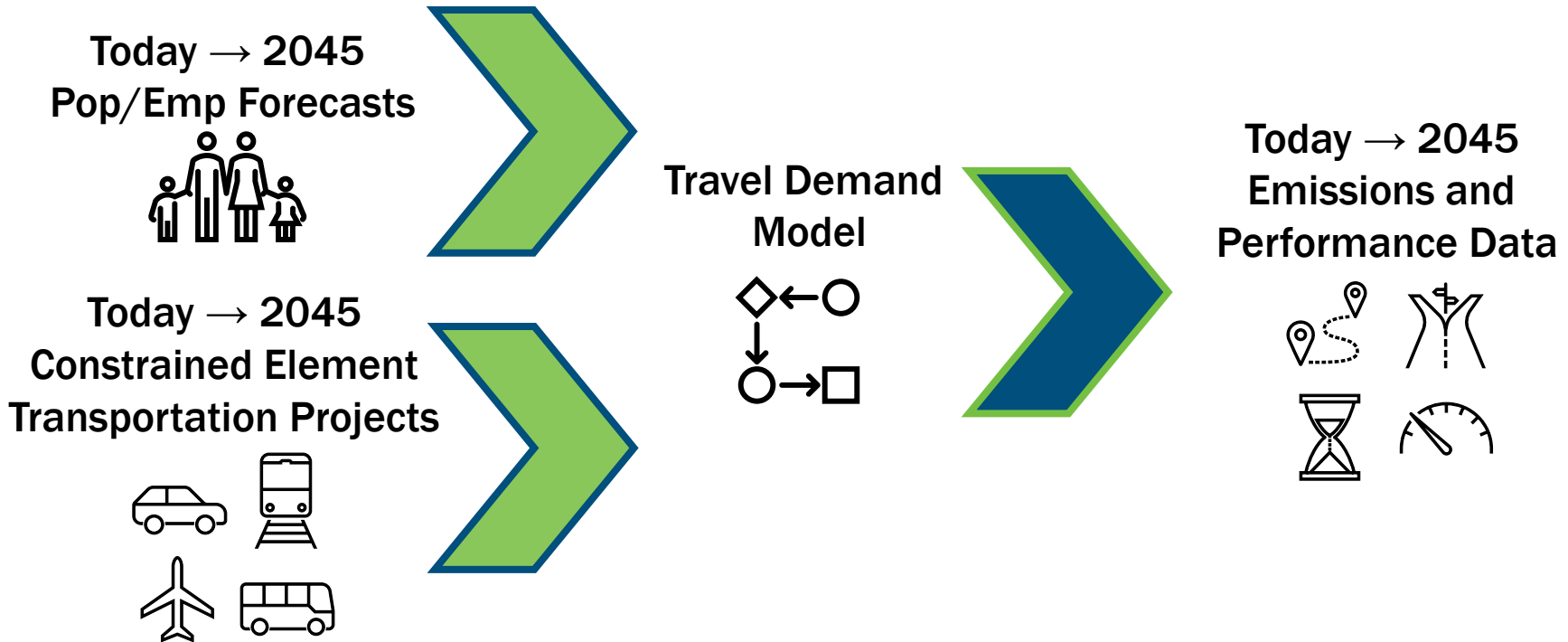
Of the \$223.3 Billion Year of Expenditure dollars in Visualize 2045, only 19% is available for the type of system expansion and enhancement projects that advance our shared goals.

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



Conducting the
performance
analysis of
Visualize 2045

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

Assumptions in the Travel Demand Model

- Validated and reflective of pre-COVID conditions
- Transit
 - The base transit reflects December 2019 schedules with transit service projects built upon it
 - WMATA Transit fares are current to June 2021
- Highway tolls in the travel model are current to January 2021
- Vehicle fleet data are current to December 2020

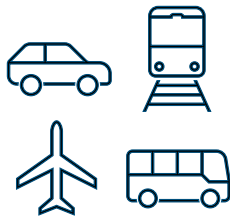
Three Scenarios

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

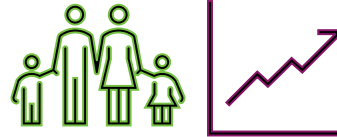
Transportation projects on the ground in 2023



2045 No Build

Forecast growth for 2045 households and jobs

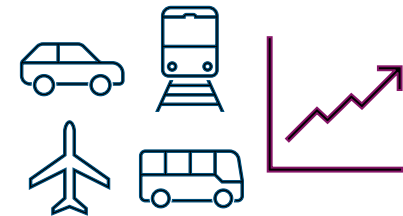
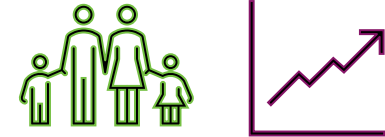
No new transportation projects beyond 2023



2045 Planned Build

Forecast growth for 2045 households and jobs

All transportation projects built by 2045

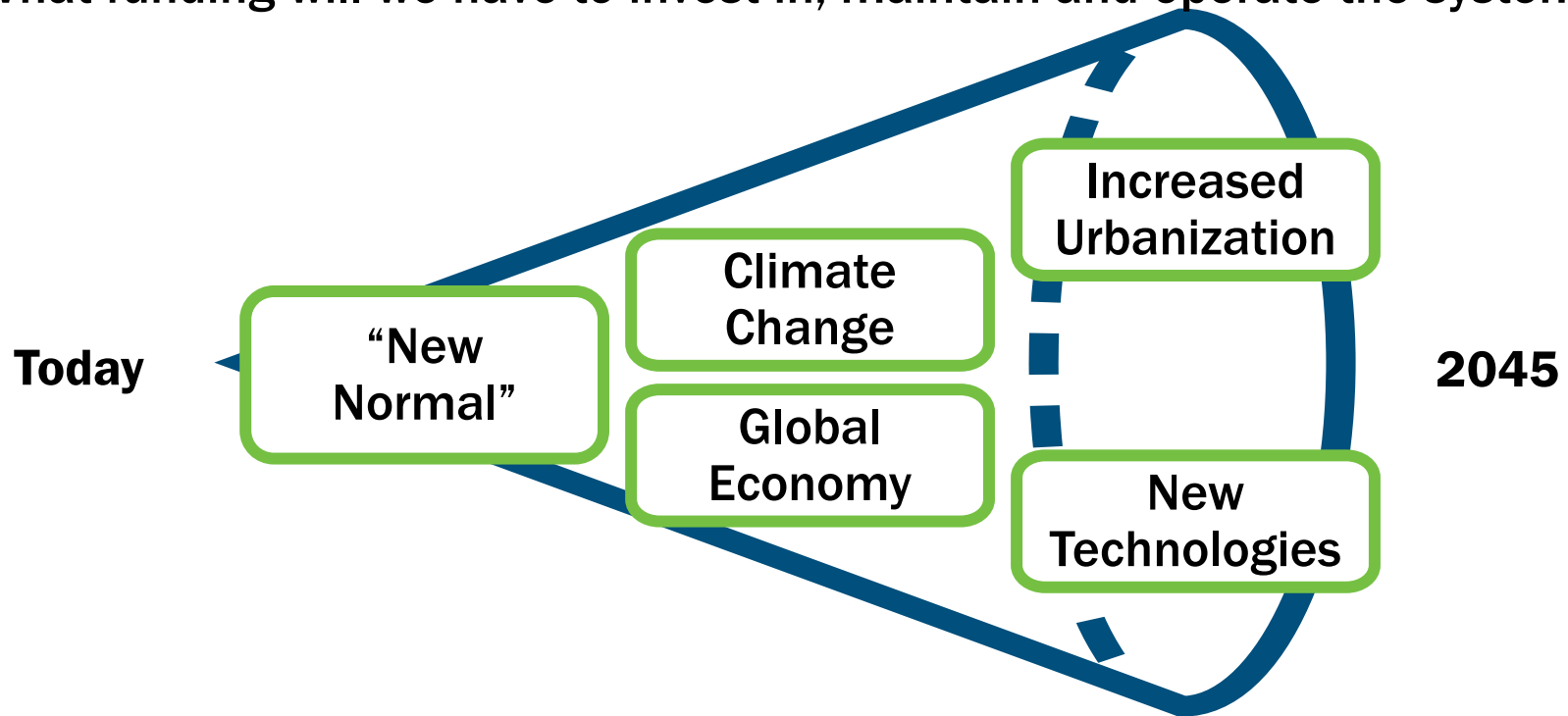


Planning Uncertainties that Will Likely Impact the Future of Travel

Where will the people and jobs be?

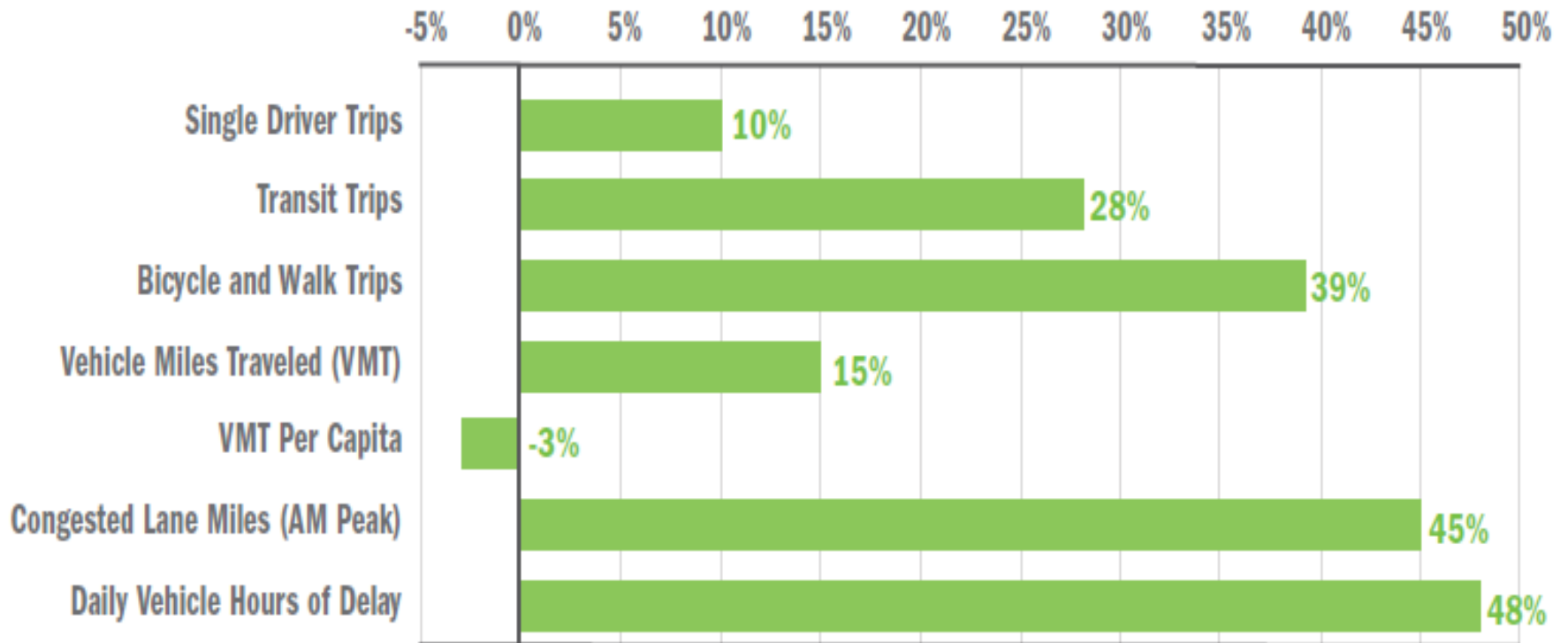
How will people travel?

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



Performance Overview

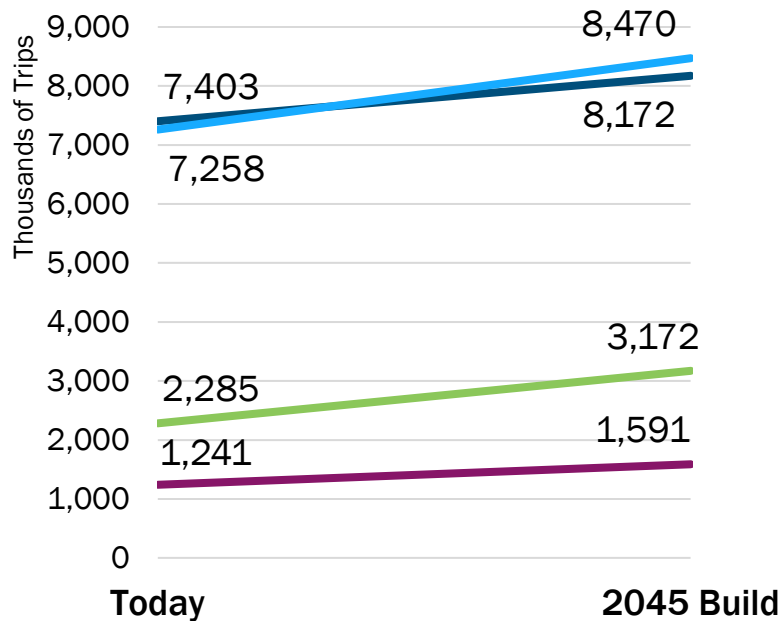
Percent Change 2023-2045



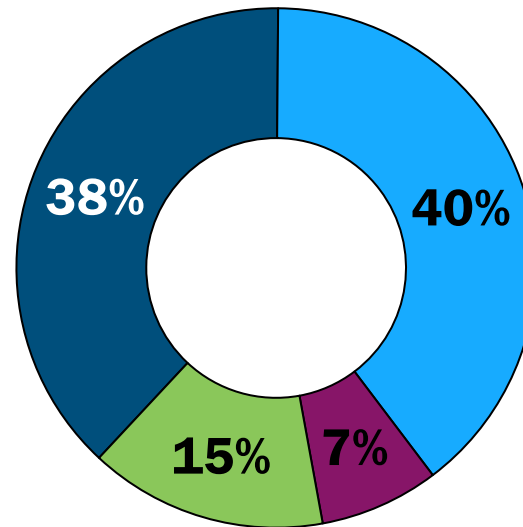
How is travel
expected to change
in the region over
time?

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



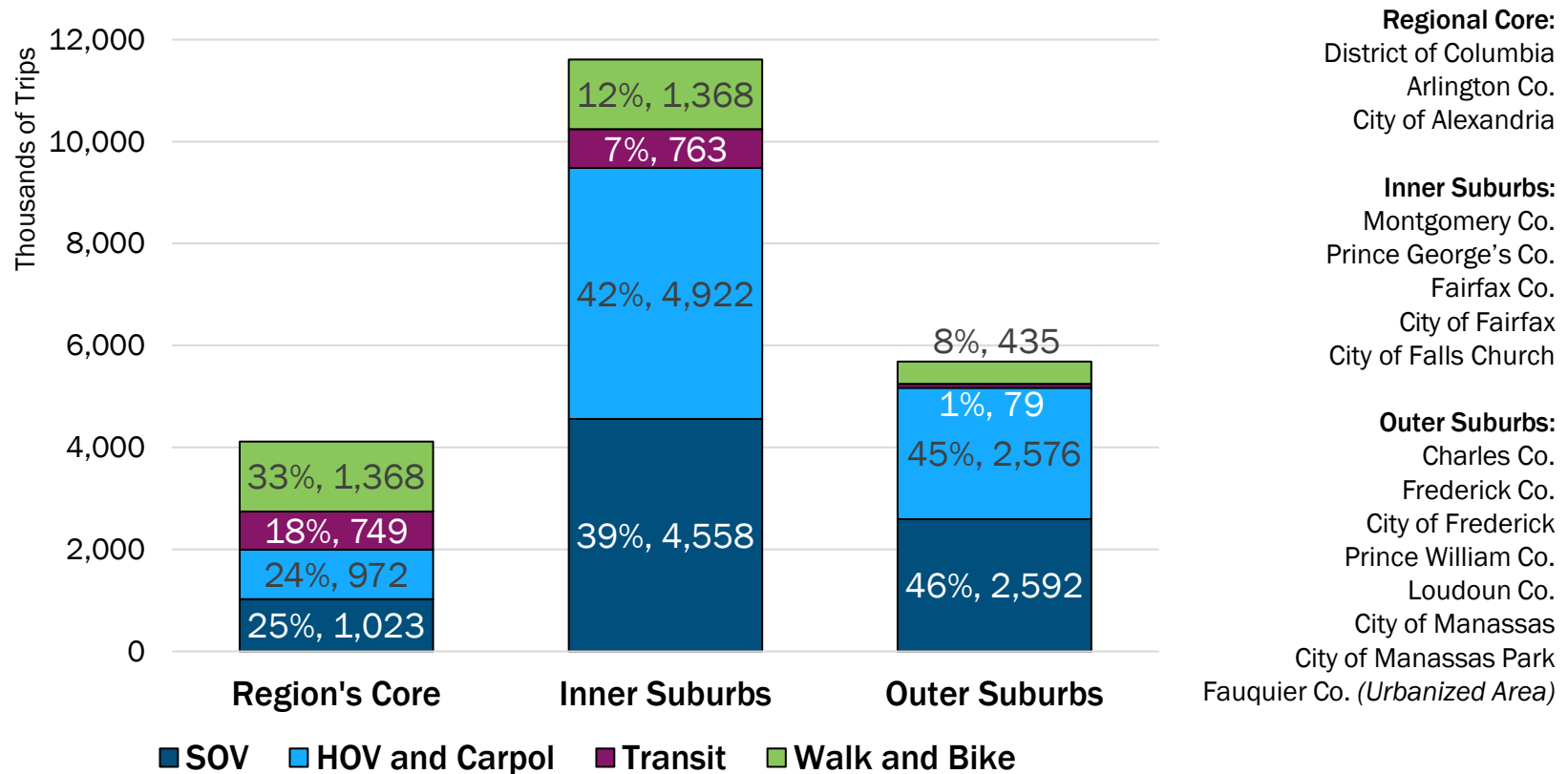
SOV
 HOV and Carpool
 Transit
 Walk and Bike

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

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

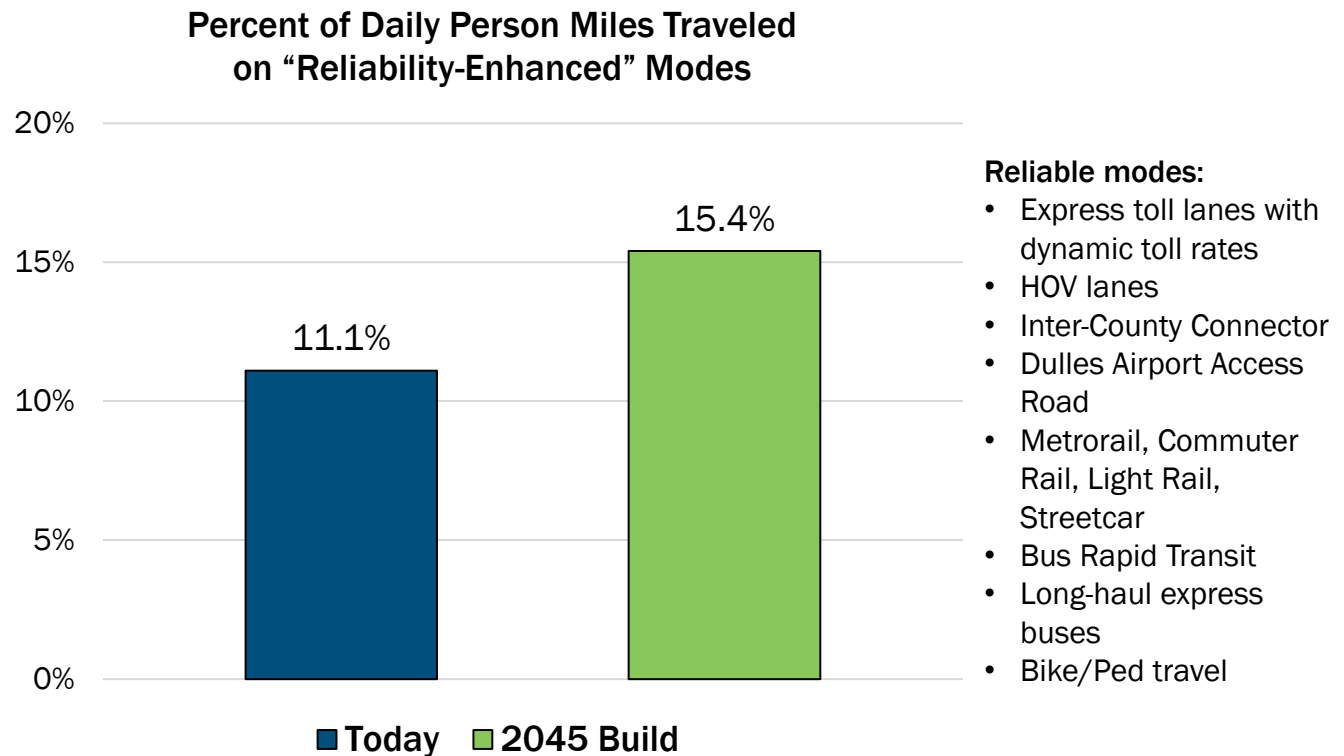


(BeyondDC/Flickr)



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

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

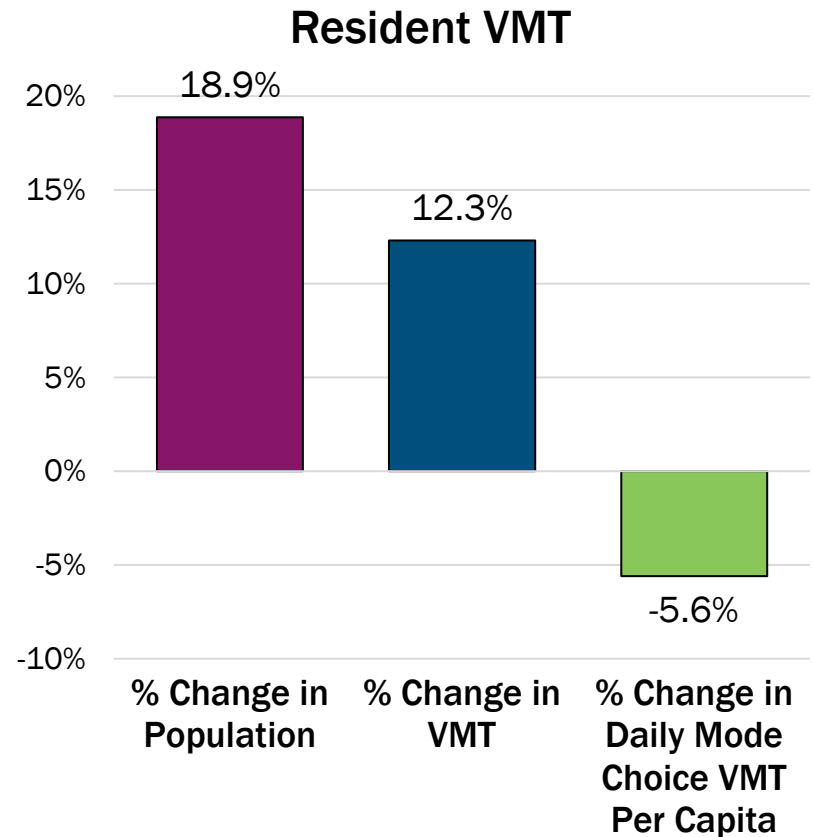
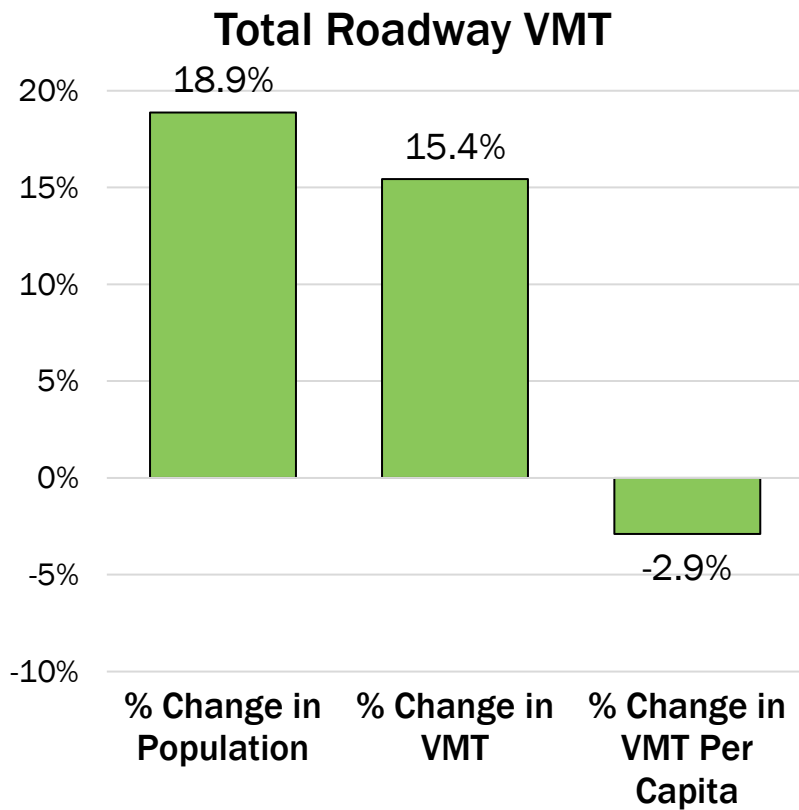
↑ **15.4%** • The **Vehicle Miles Traveled (VMT)** increase at a lower rate

↓ **-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.



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.



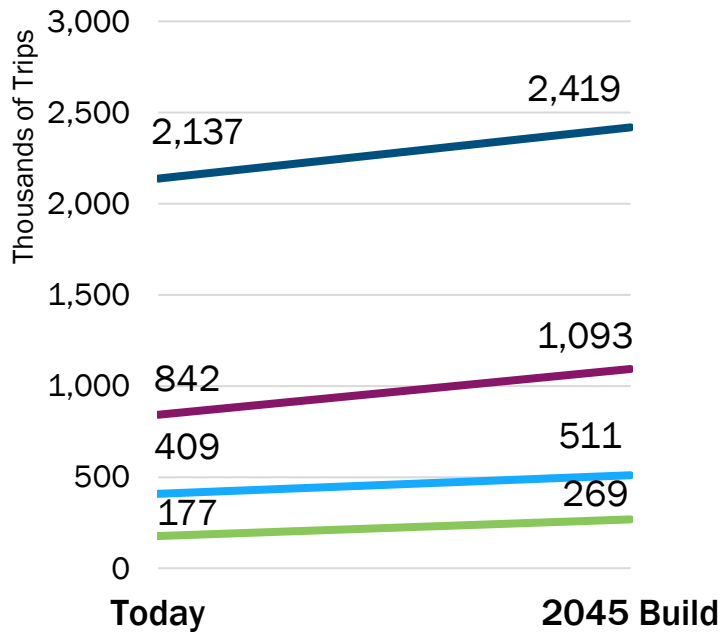
How does the plan
support traveling to
work?

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

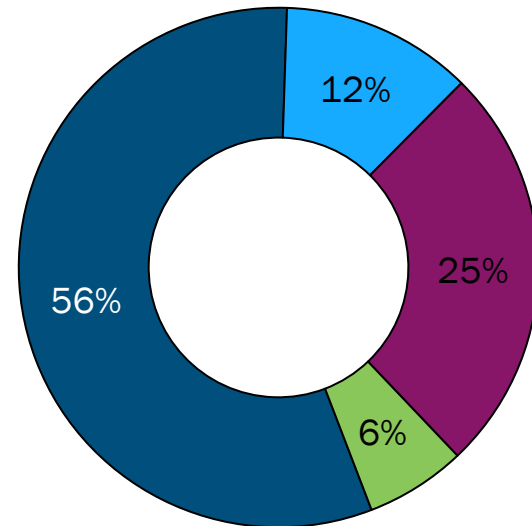
Mode Share, 2045 Build



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

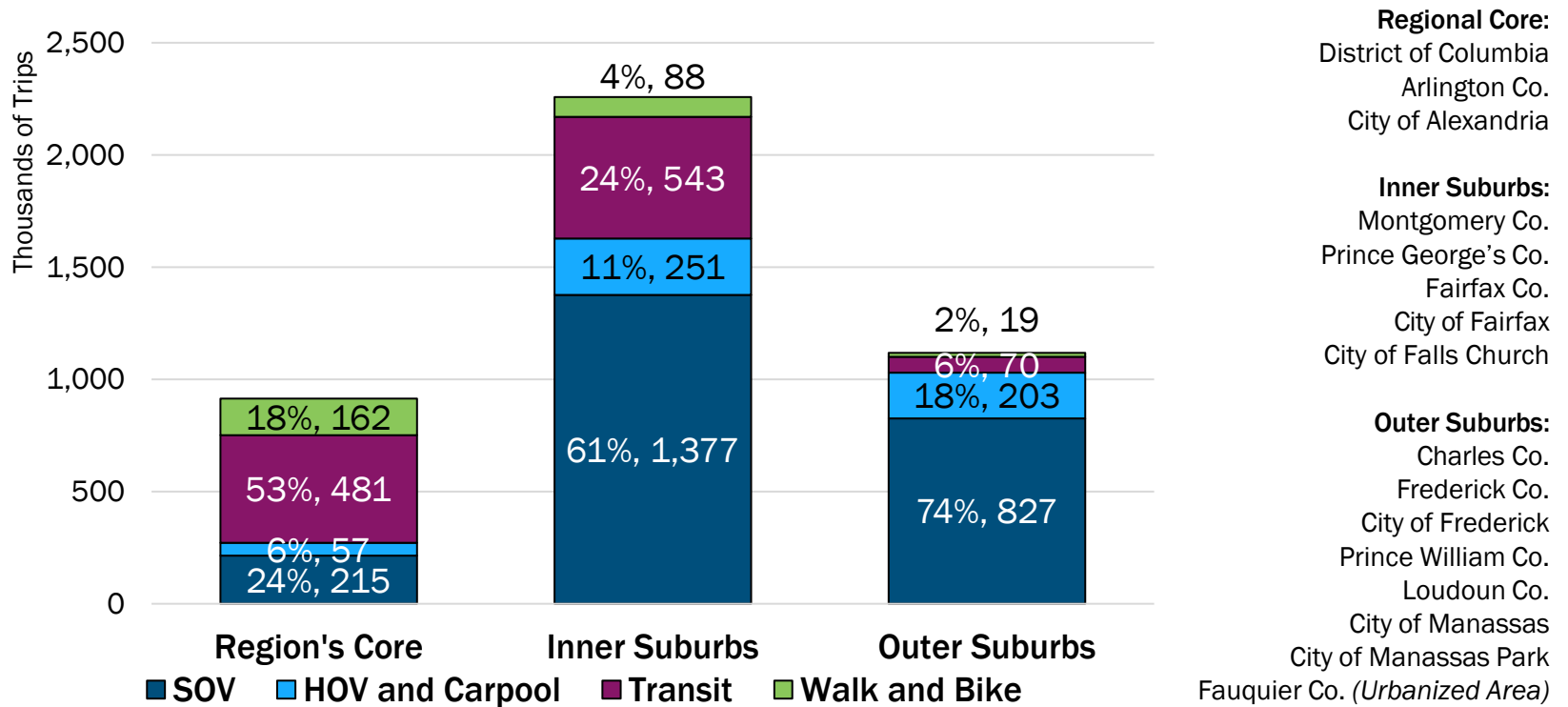
Taking Transit to Work Increases When Readily Available & Serving Density

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



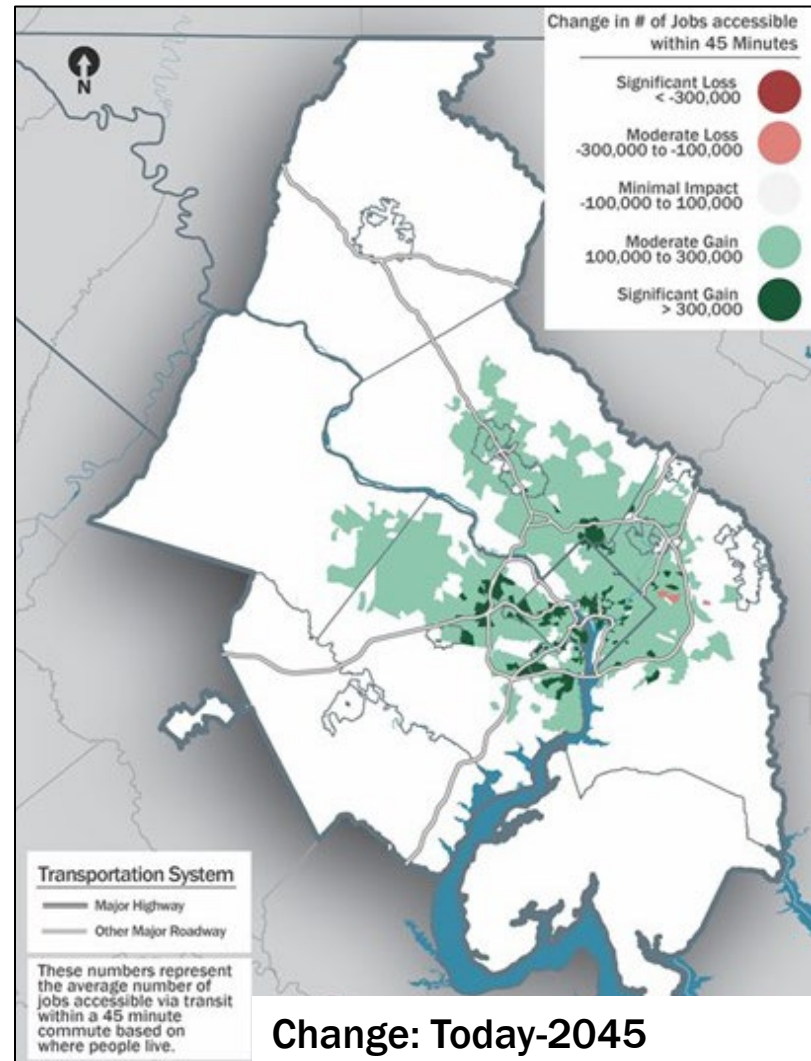
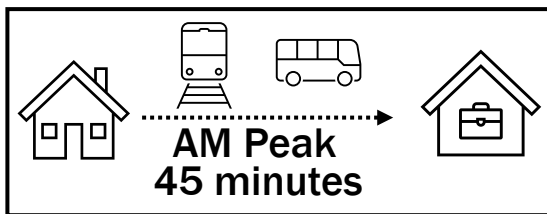
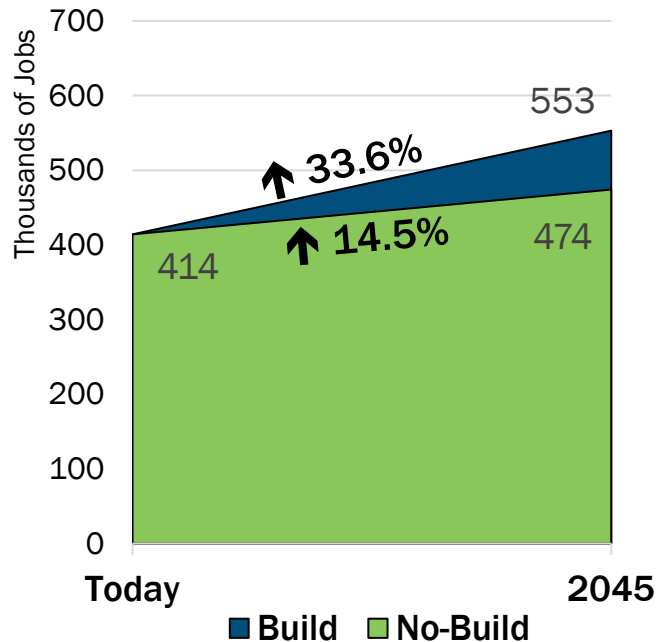
Taking Transit to Work Increases When Readily Available

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



How are new transit projects forecast to impact the region?

Change in Access to Jobs, Transit

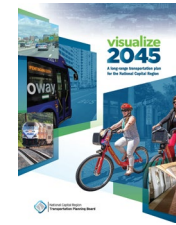


Change: Today-2045

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.

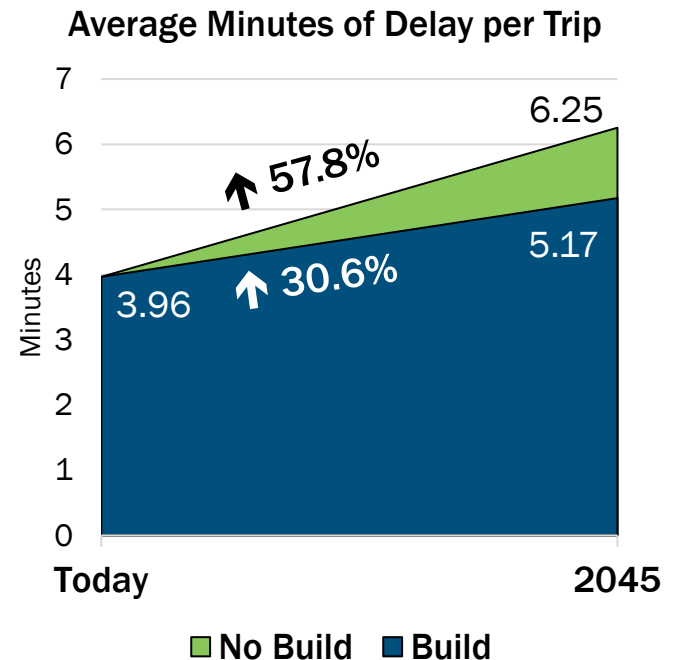
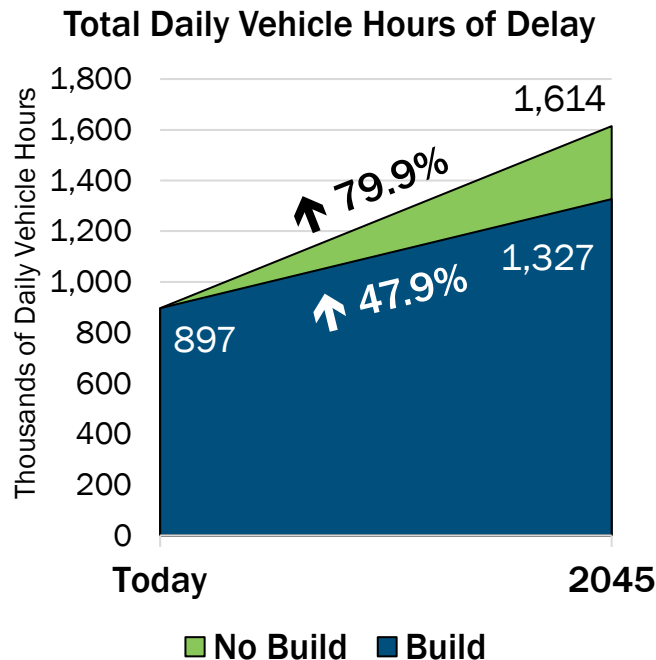


- Major increases without implementing the Plan:
 - Delay: **↑80%**
 - Congestion: **↑58%**

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

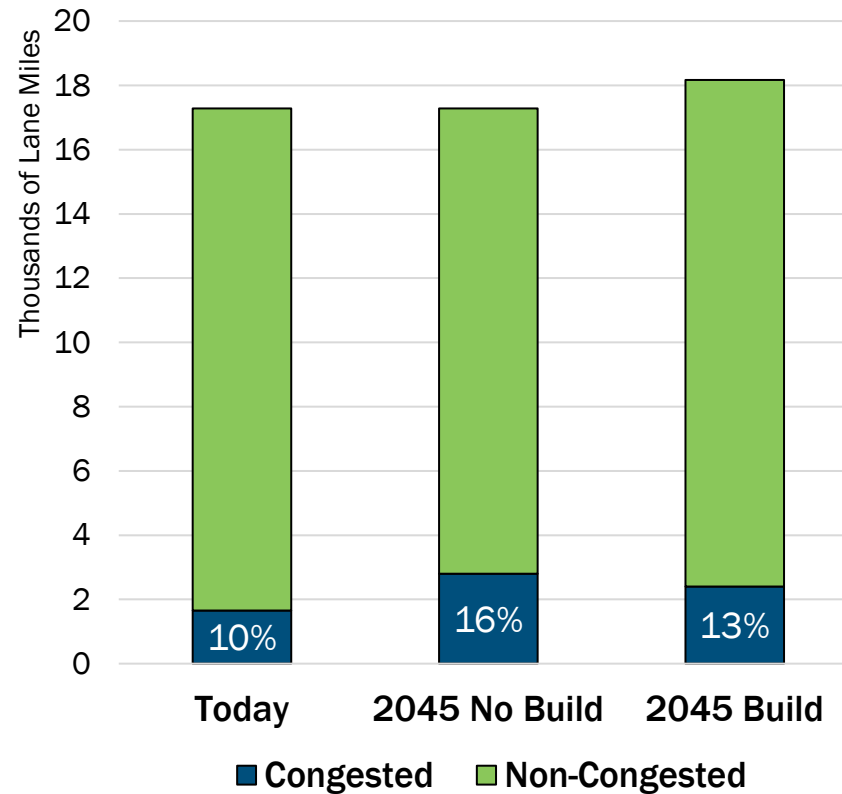
Delay and Congestion Continue Impacting the Region

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

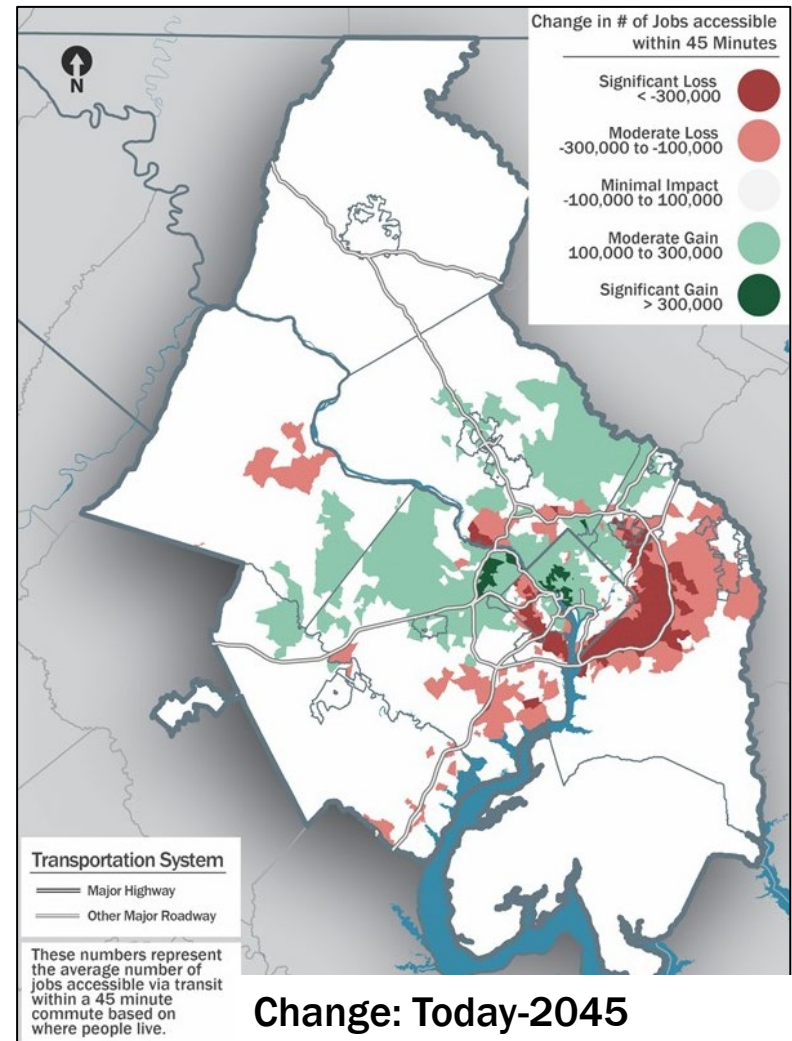
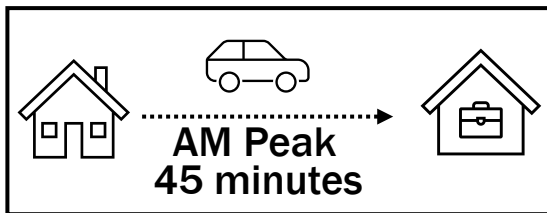
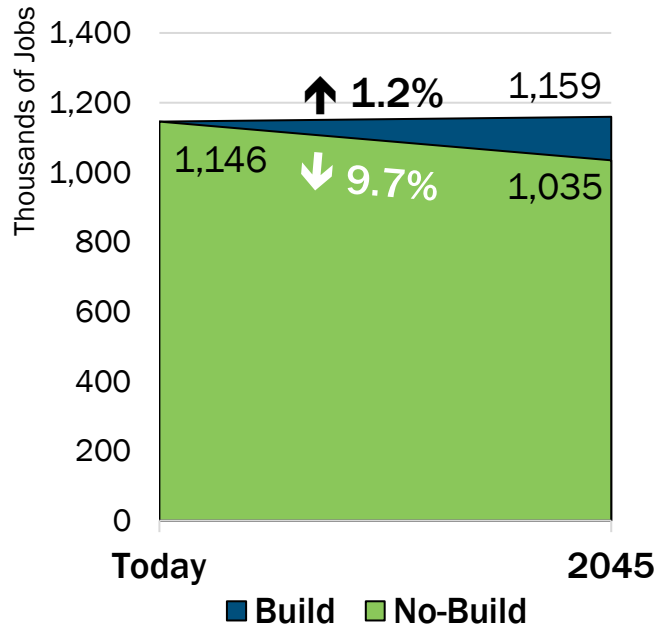


Congested Lane Miles, AM Peak

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

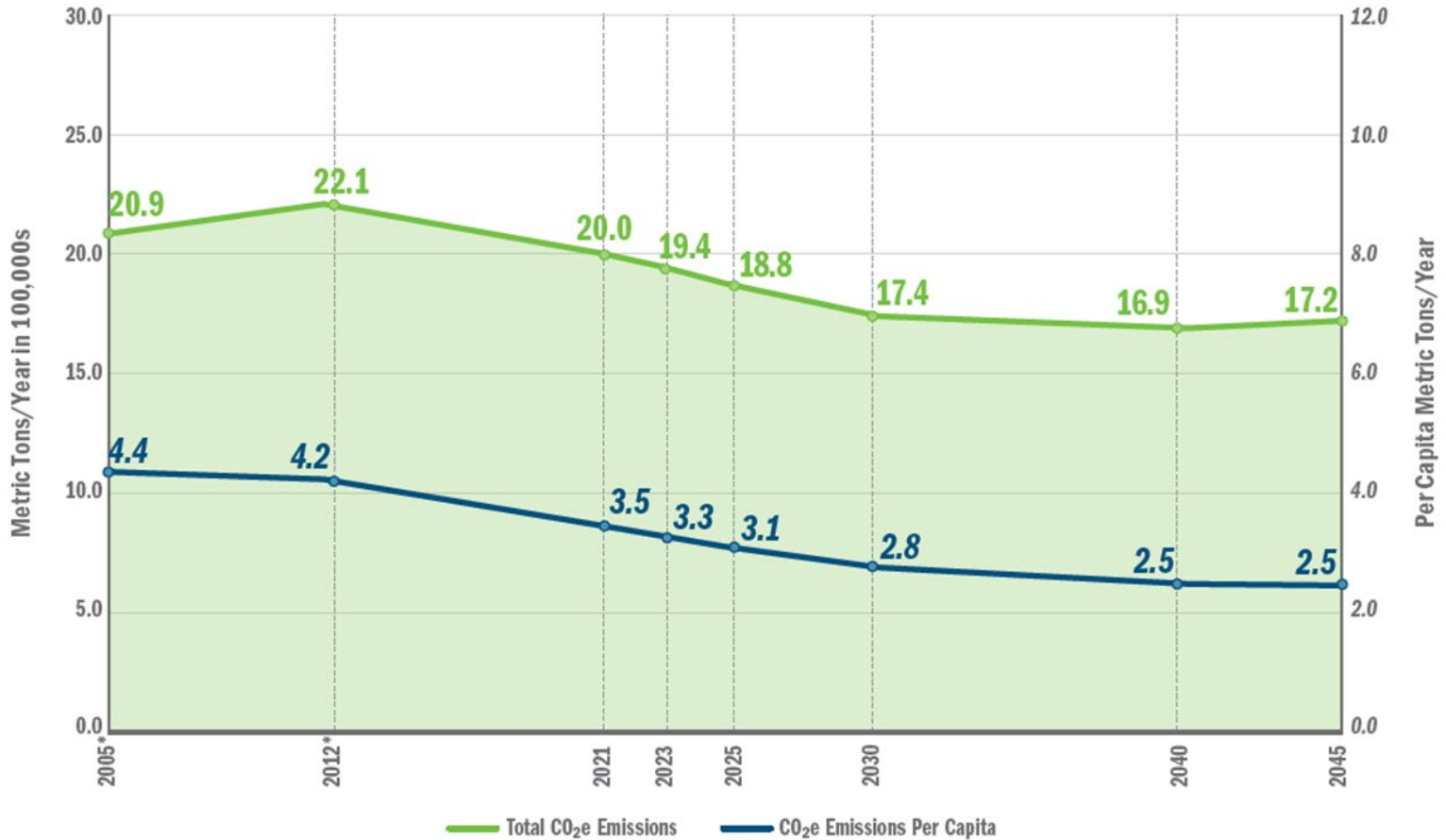


Change in Access to Jobs, Auto



Forecast Greenhouse Gases

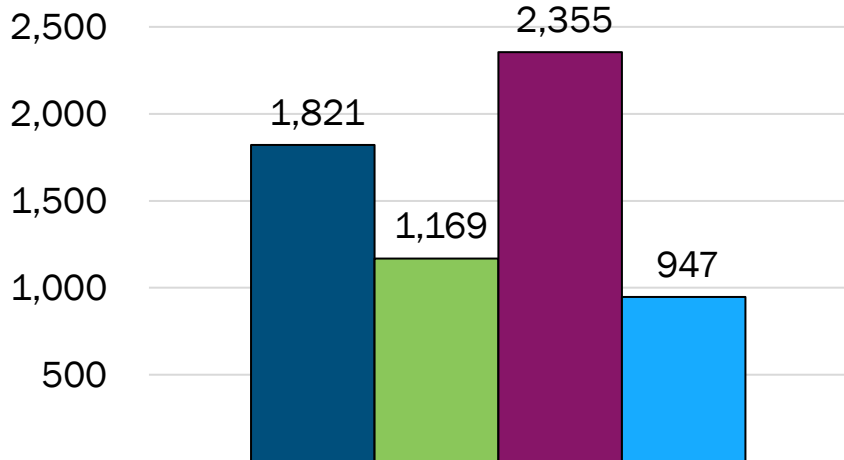
Greenhouse Gas Mobile Source Emissions CO₂e and CO₂e Per Capita



*NOTE: 2005 and 2012 are historic estimates.

Proximity to Traffic, Today

Average Traffic Proximity and Volume

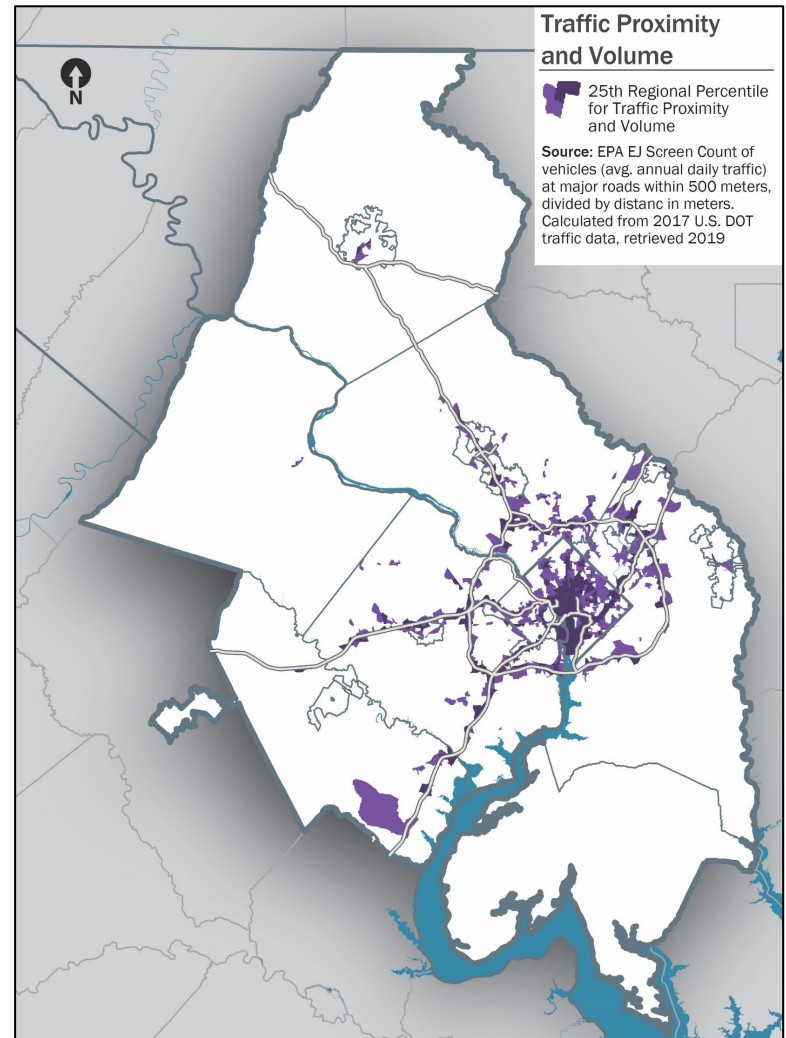


Count of vehicles per day at major roads within 500 meters divided by distance

- 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



Proximity to Traffic, Today

- Proximity to congested roadways and high levels of vehicle volume in the National Capital Region are not felt equally.
- Communities closer to the region's core, interstates, or major highways experience greater exposure than in outer suburban or rural parts.
- In Activity Centers, proximity and level of traffic is 150 percent higher than in non-Activity Centers. This is likely reflective of high traffic counts on highways and major roads near Activity Centers.
- From an equity perspective, EEAs in the region experience 57 percent greater traffic volume than non-EEAs. The proximity of many EEAs near the region's core and along major roadways leads to the uneven experience.

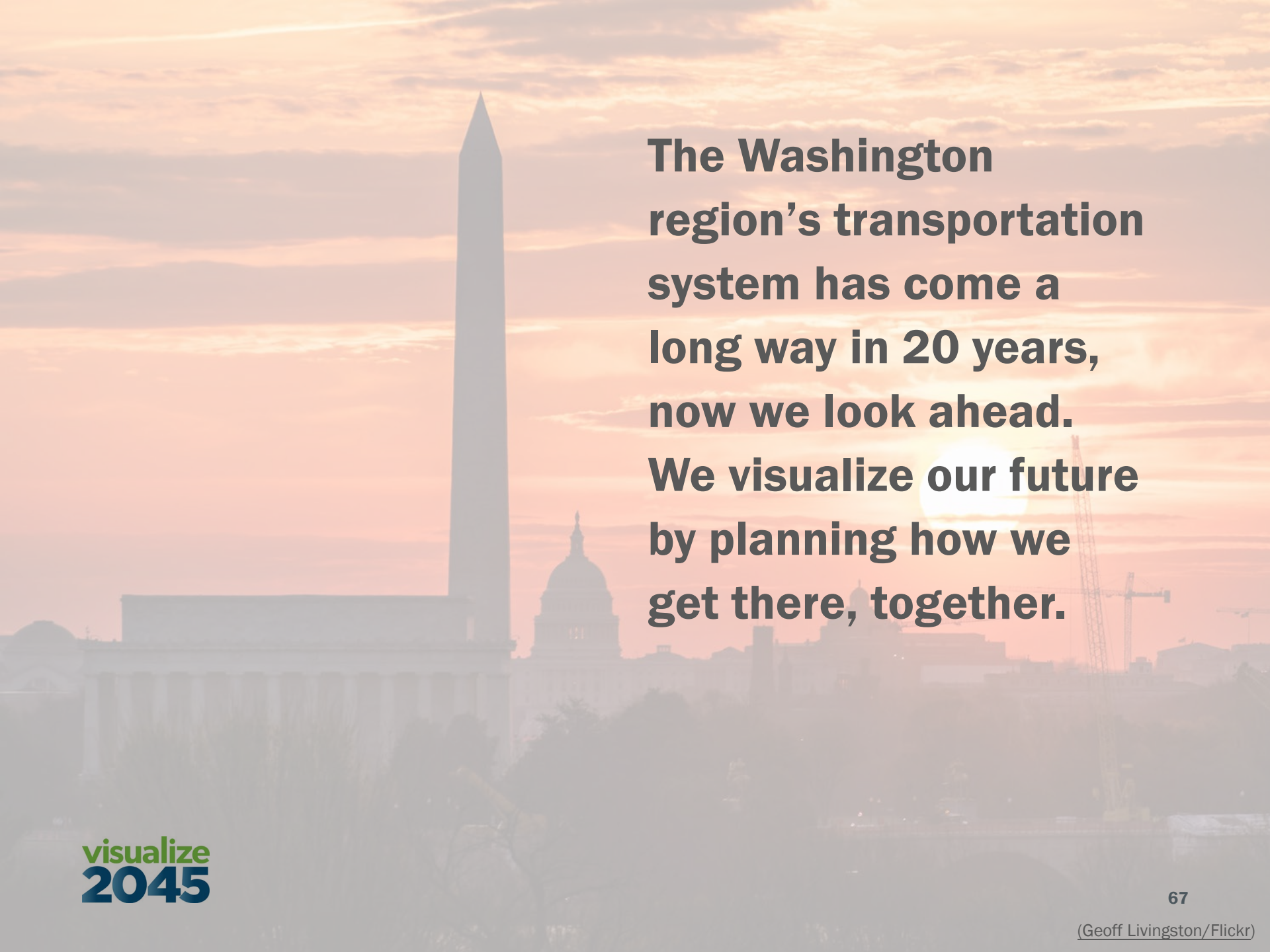
Note: Sub-areas listed may overlap and are not mutually exclusive.

Source: EPA EJ Screen

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



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.

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