

Performance Analysis Summary

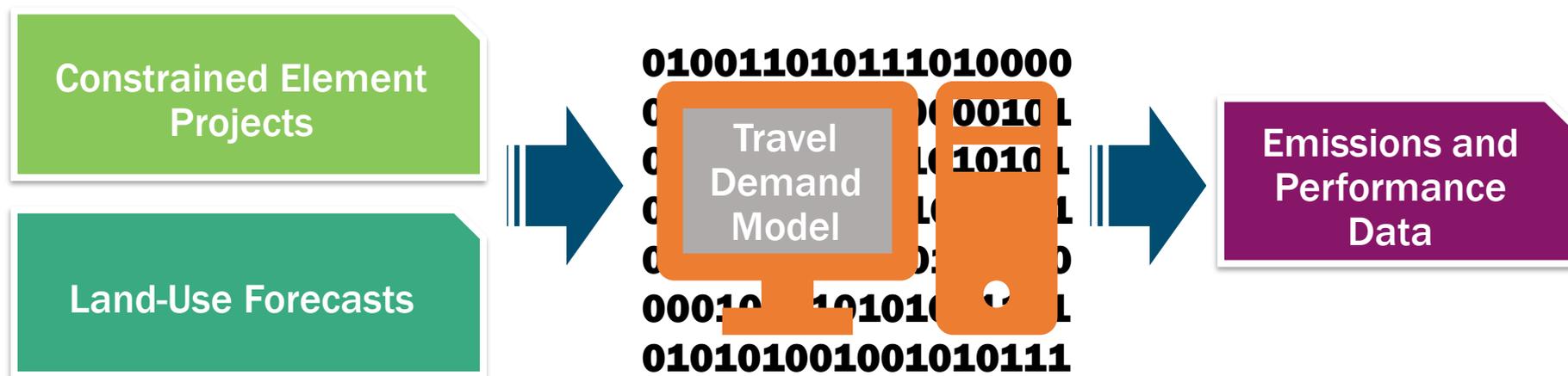
Sergio Ritacco
Transportation Planner

TPB Technical Committee
September 7, 2018

Item 2



What is the Performance Analysis?



- Round 9.1 Cooperative Land-Use Forecasts
- Version 2.3.75 Travel Demand Model
- Analysis of TPB Planning Area
- 2016 Vehicle Registration Data
- EPA's MOVES 2014a Mobile Emissions Model



Comparison of Three Scenarios



Today (2019)

Today's
households and
jobs

Projects on the
ground in 2019



2045 No-Build

*Grow but
don't build*

Forecast growth
for 2045
households and
jobs

No new projects
beyond what is
on the ground in
2019



2045 Planned Build

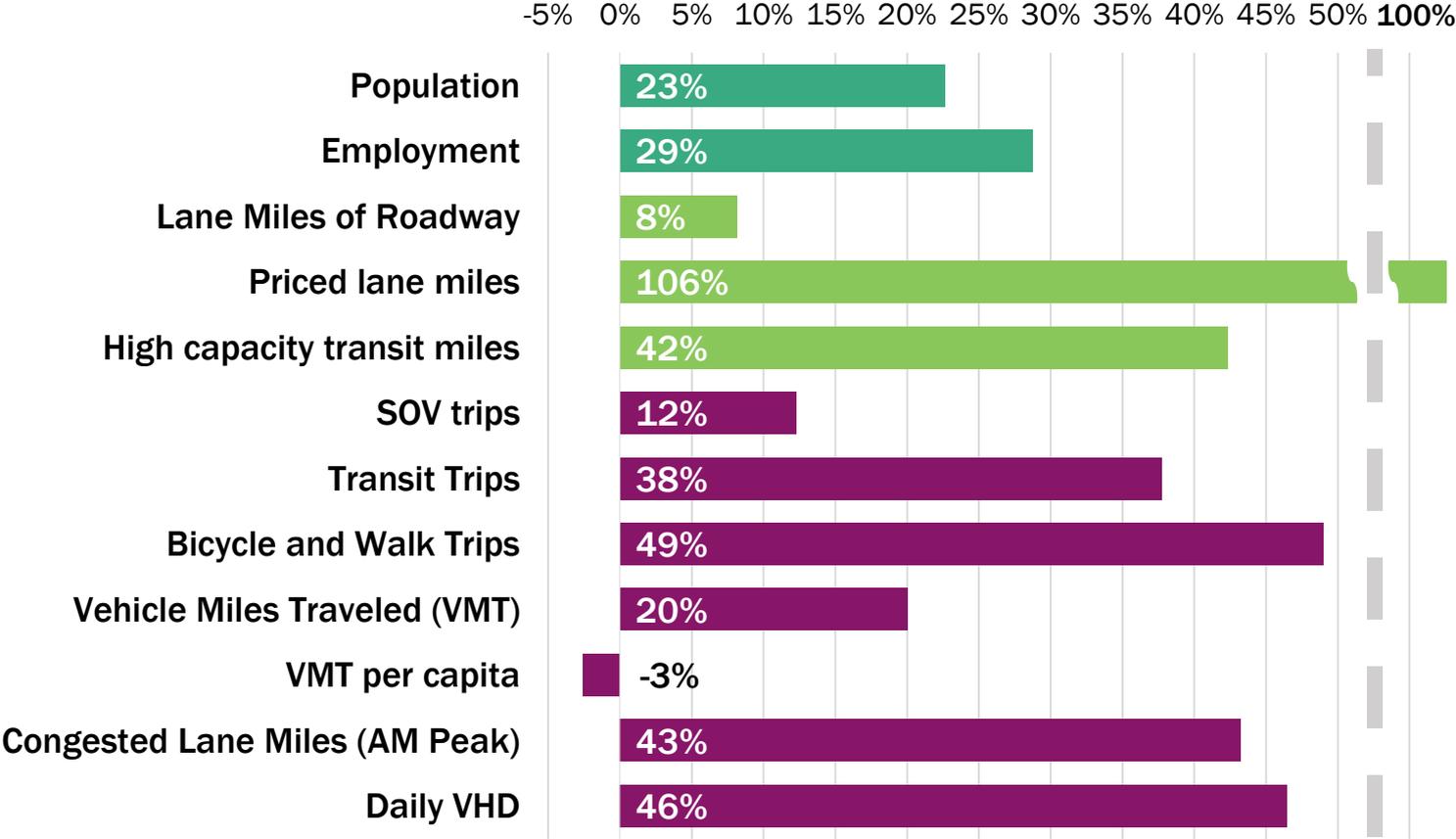
*Grow and
build*

Forecast growth
for 2045
households and
jobs

All constrained
element projects
would be built
by 2045



Performance Overview, % Change 2019 – 2045 Build



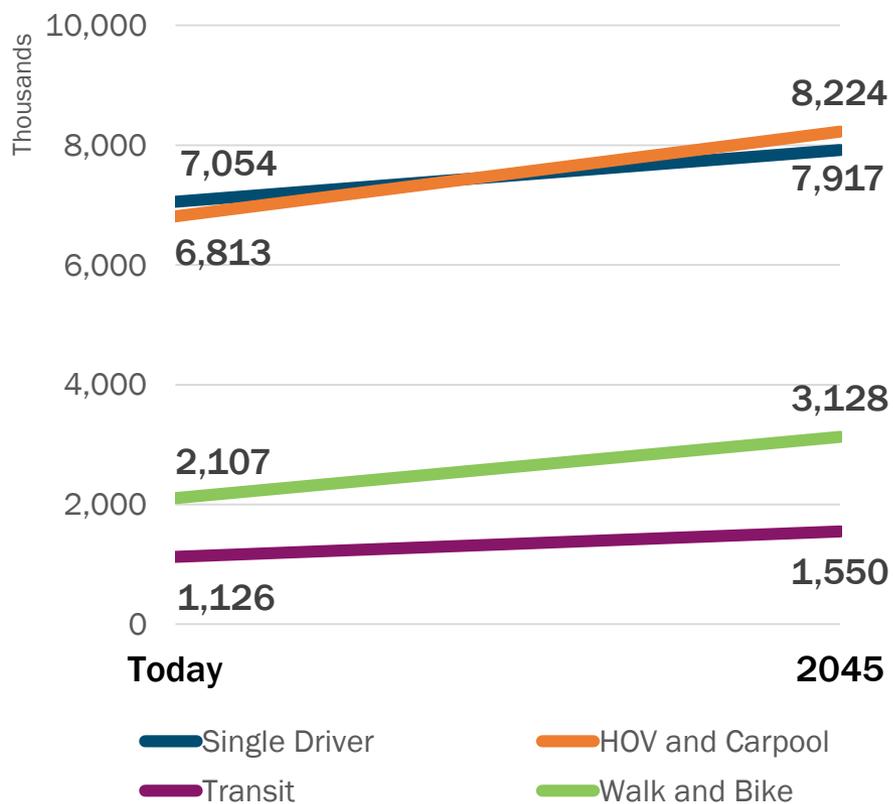
How does the plan provide for a comprehensive range of transportation options?



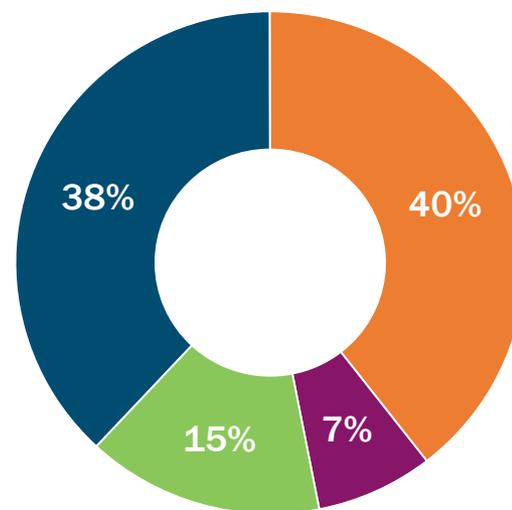
All Trips: HOV surpasses SOV

HOV trips will be more common than driving alone.

Walk and Bicycle trips ↑ by 49% and Transit trips ↑ by 38%.

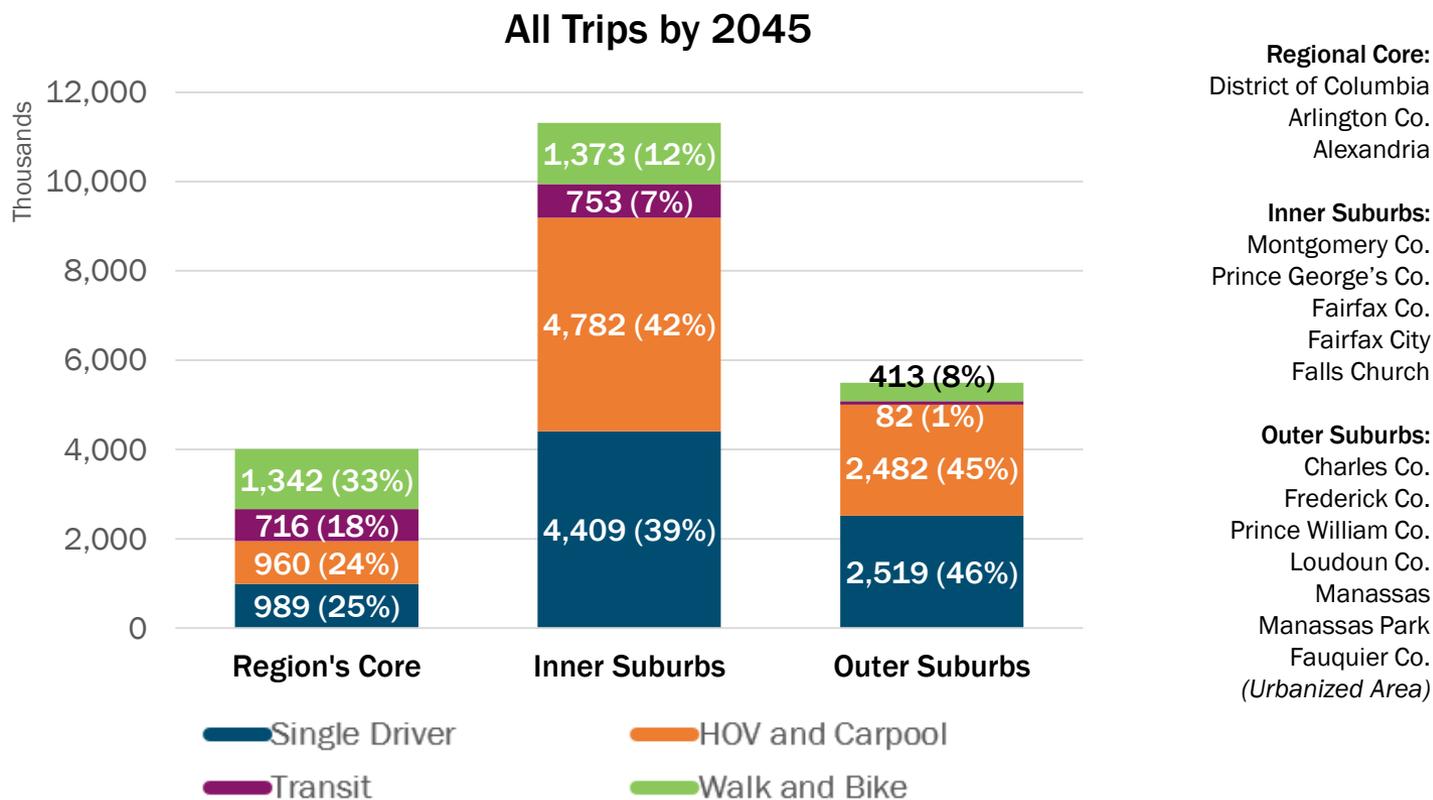


Mode Share in 2045



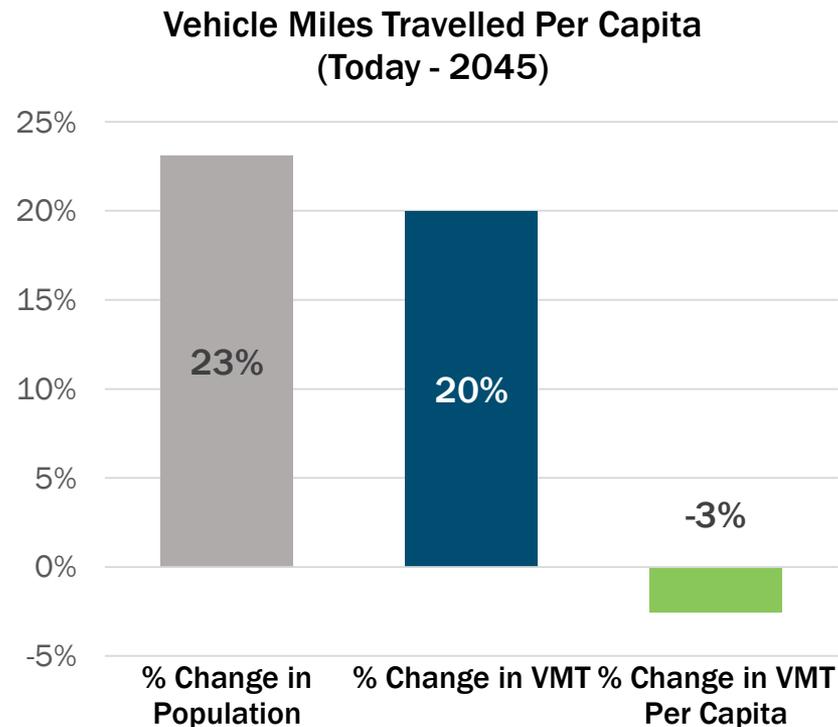
All Trips: Geographic Differences

Majority of trips will continue to be generated in the Inner Suburbs. Walk, Bike, and Transit shares decline the further one is from the core.



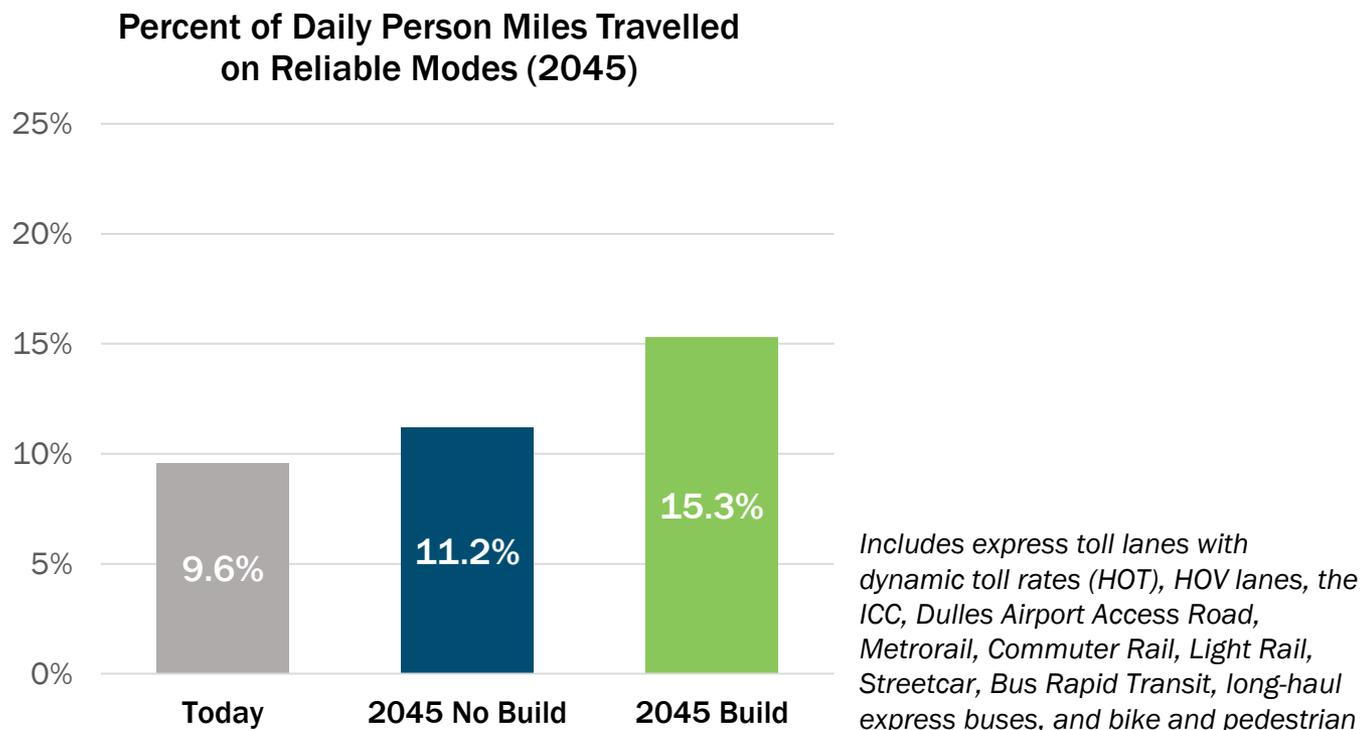
Average driving per person decreases

Total daily driving in the region is expected to grow but at a rate lower than population growth.



Travel on reliable modes will increase

A 59% increase in the proportion of daily travel on reliable modes in 2045 Build relative to Today suggest people will use modes with greater reliability if available.

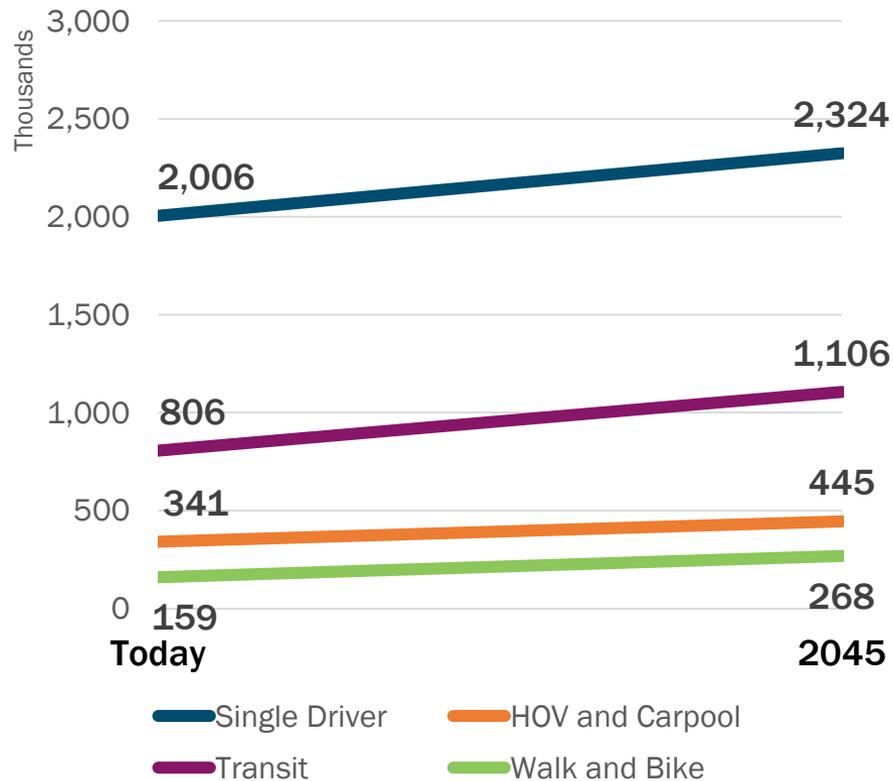


How does the plan affect commuting to work?

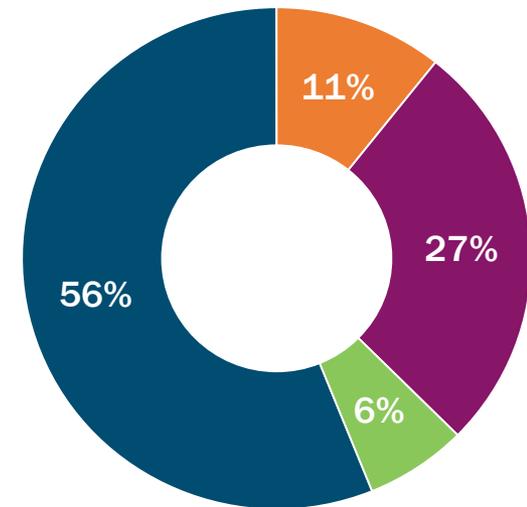


Work Trips: Driving alone predominates

Though **Walk and Bicycle** trips ↑ by 68% and
Transit trips ↑ by 37%.



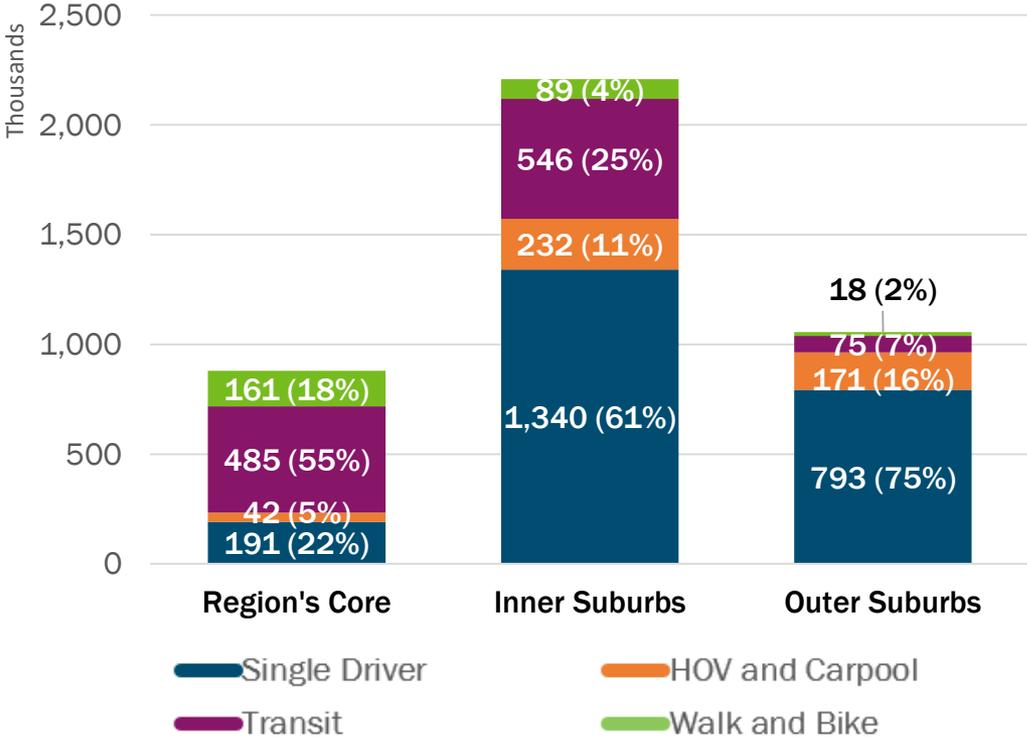
Mode Share in 2045



Work Trips: Geographic Differences

In the Region Core workers are more likely to use **transit**.
 Outside the core **driving alone** is the predominant mode.

Work Trips by 2045



- Regional Core:**
 - District of Columbia
 - Arlington Co.
 - Alexandria
- Inner Suburbs:**
 - Montgomery Co.
 - Prince George's Co.
 - Fairfax Co.
 - Fairfax City
 - Falls Church
- Outer Suburbs:**
 - Charles Co.
 - Frederick Co.
 - Prince William Co.
 - Loudoun Co.
 - Manassas
 - Manassas Park
 - Fauquier Co.
 - (Urbanized Area)

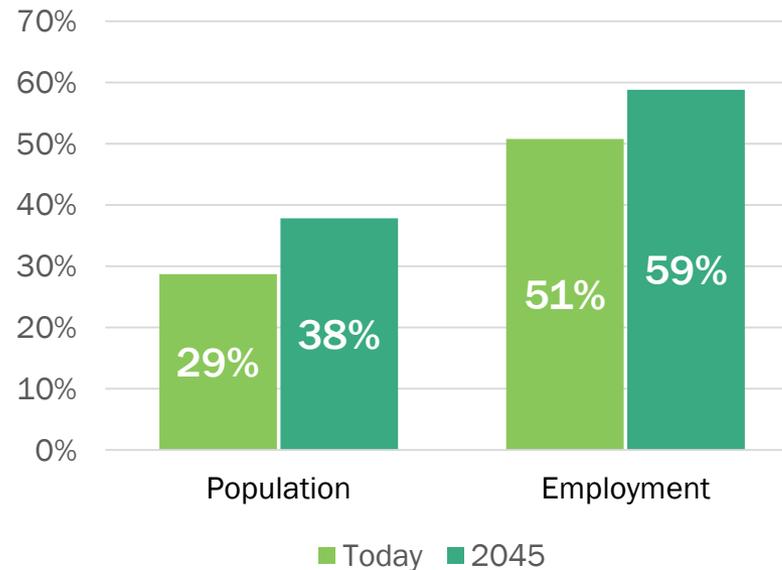


How does the plan affect transit access and connectivity?



Increase in People and Jobs close to High Capacity Transit (HCT)

% of Population and Jobs in Proximity to HCT

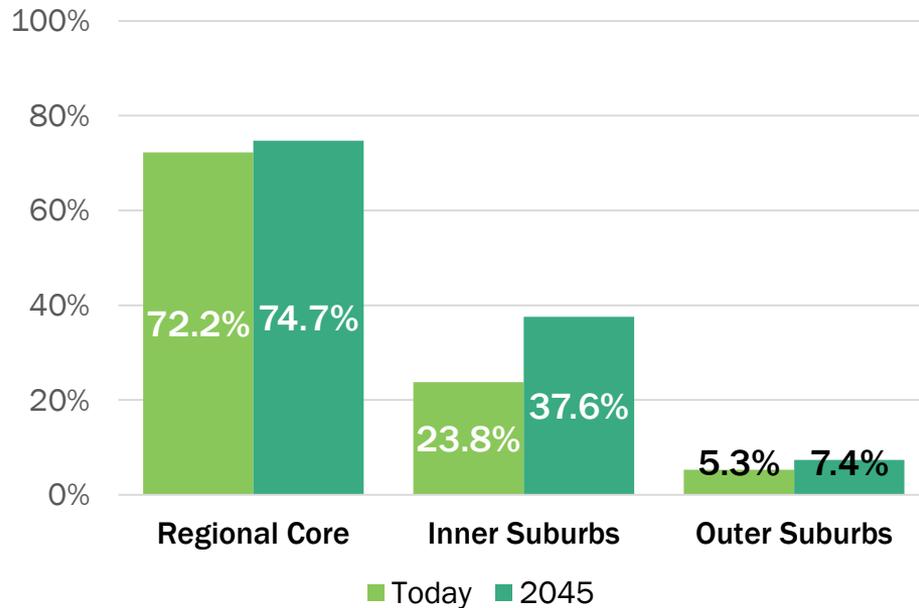


- “Proximity” defined as within one mile of rail or within a ½ mile of bus rapid transit (BRT)
- “High-capacity transit” defined to include Metrorail, commuter rail, streetcar, light rail or BRT.

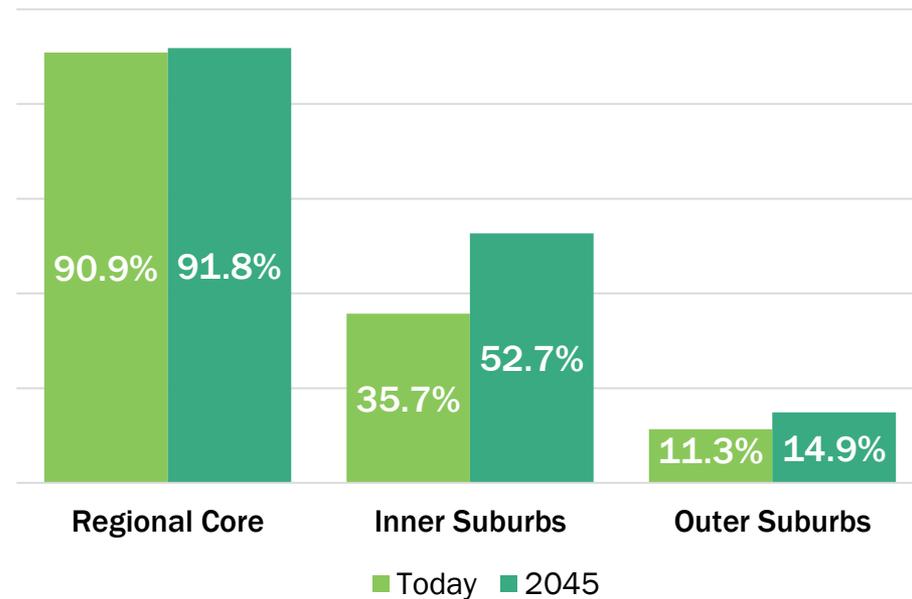


Increase in People and Jobs close to High Capacity Transit (HCT)

% of Population in Proximity to HCT



% of Jobs in Proximity to HCT

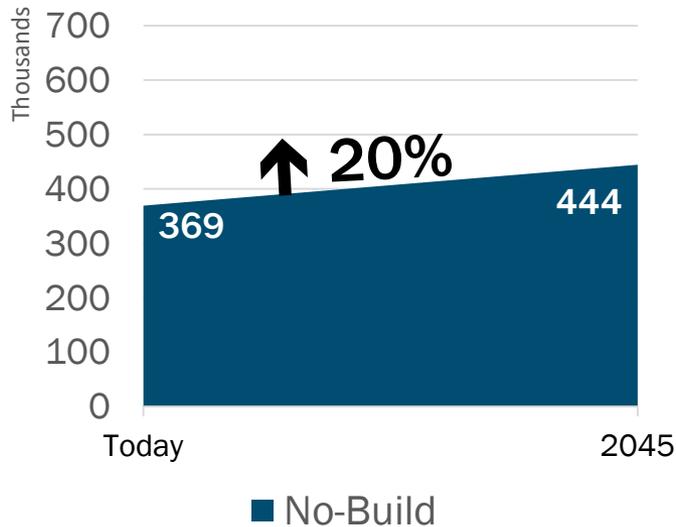


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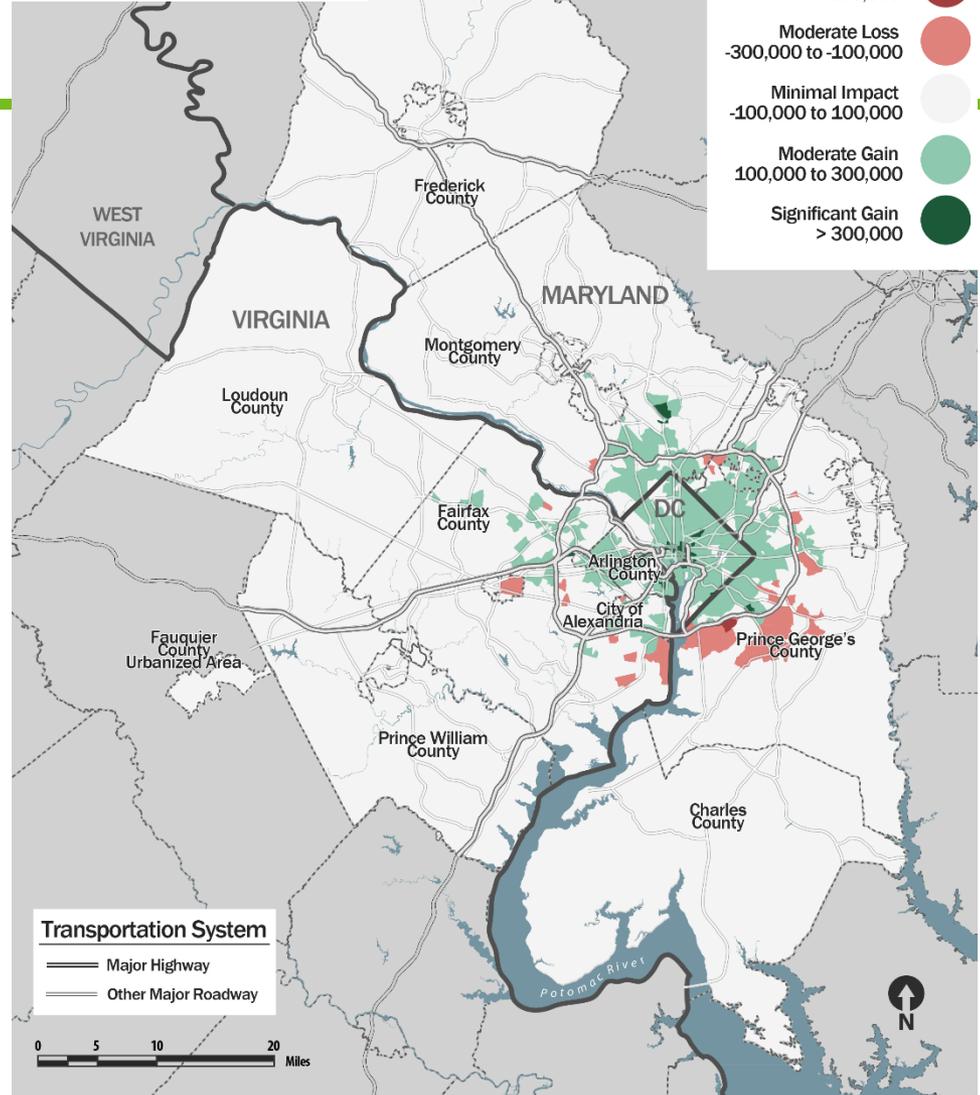
Change in Access to Jobs by Transit

Regional Change in Access to Jobs by Transit



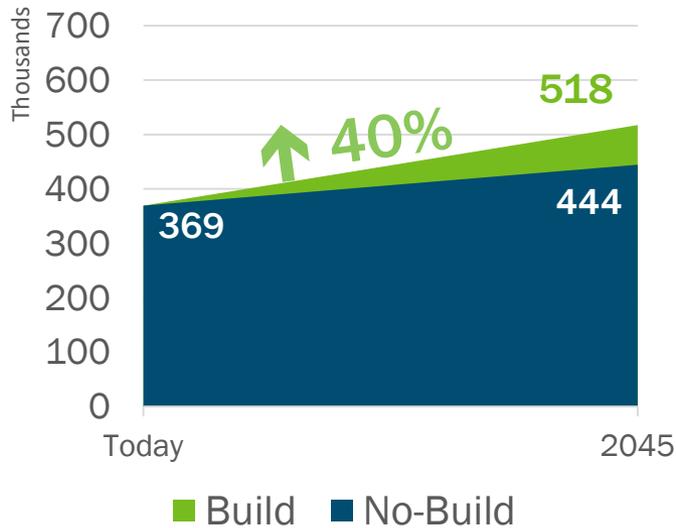
These numbers represent the average number of jobs accessible via transit within a 45-minute commute based on where people live.

Today to 2045 No Build



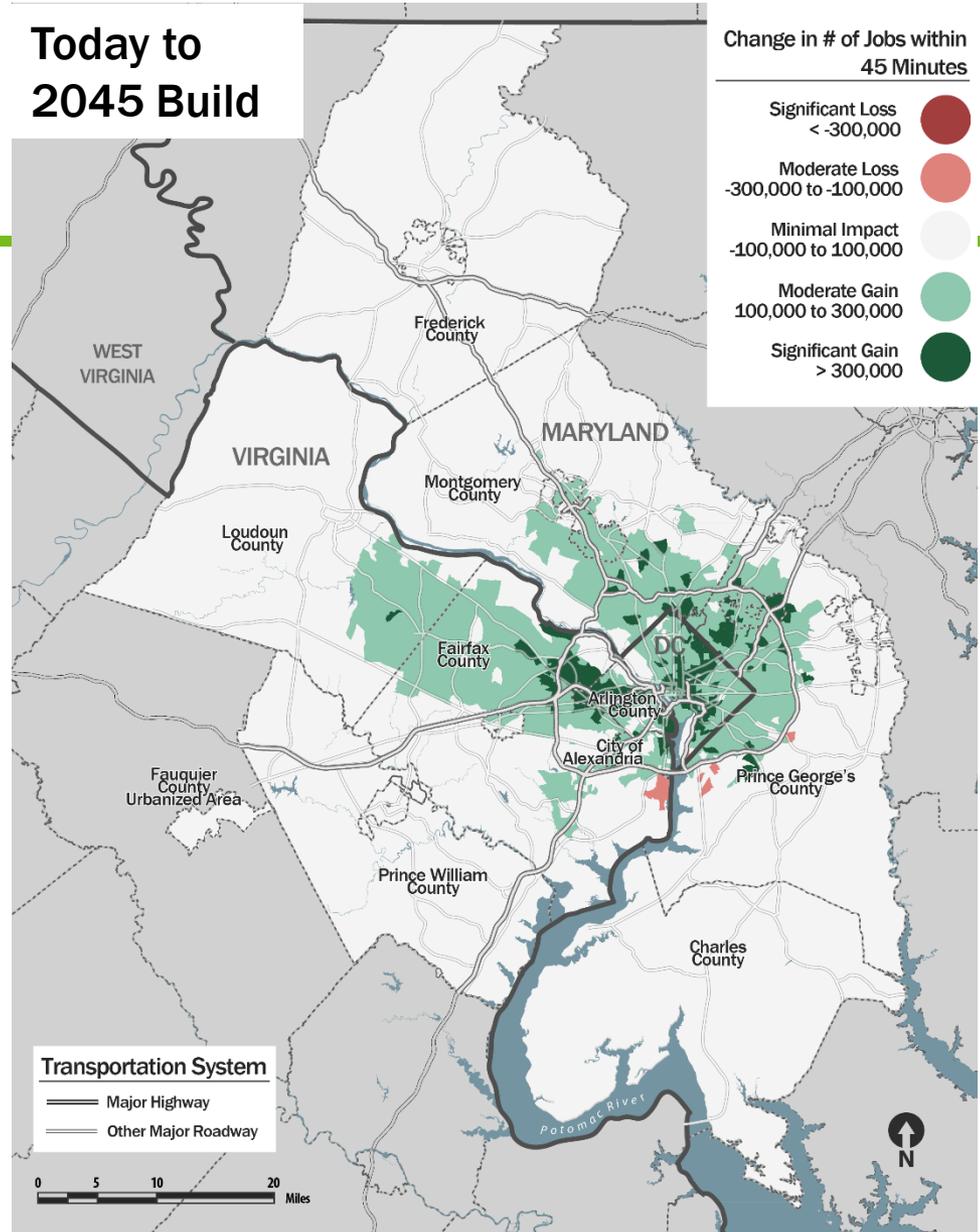
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Today to 2045 Build



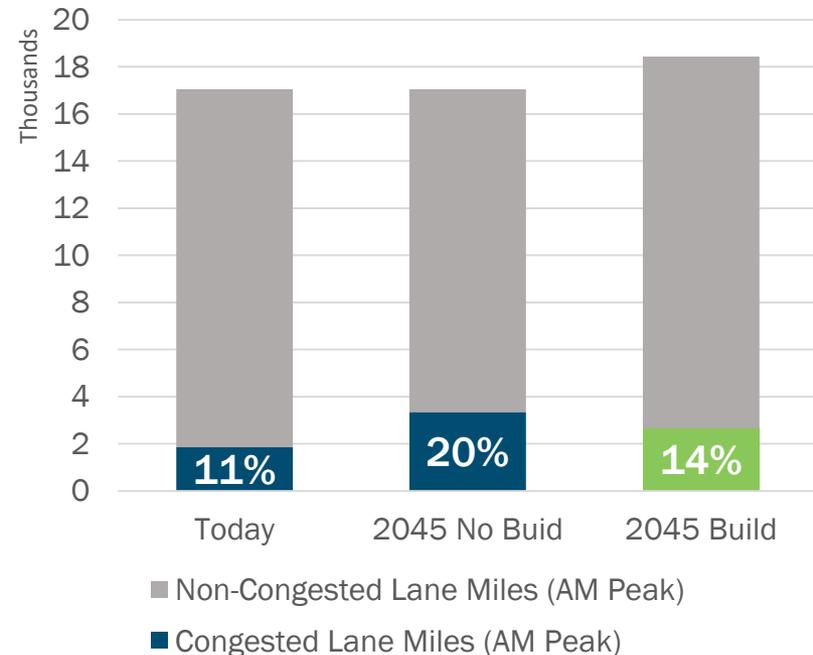
How will roadway congestion change?



System-wide roadway congestion will increase

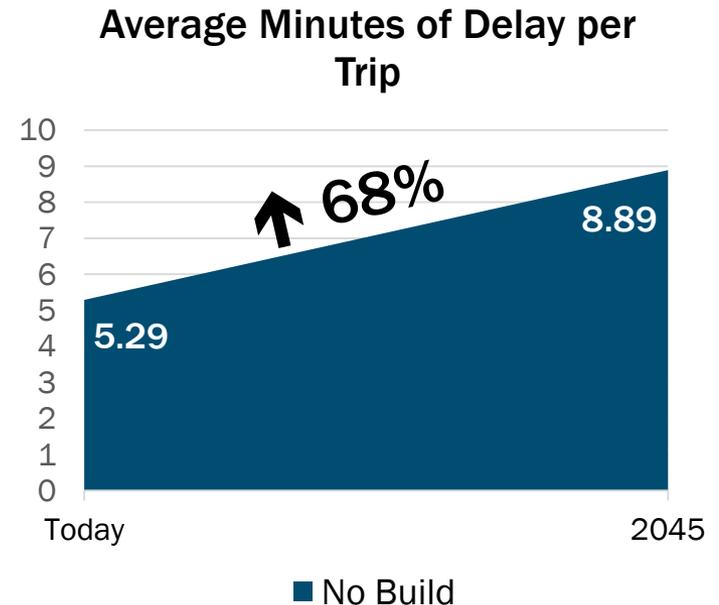
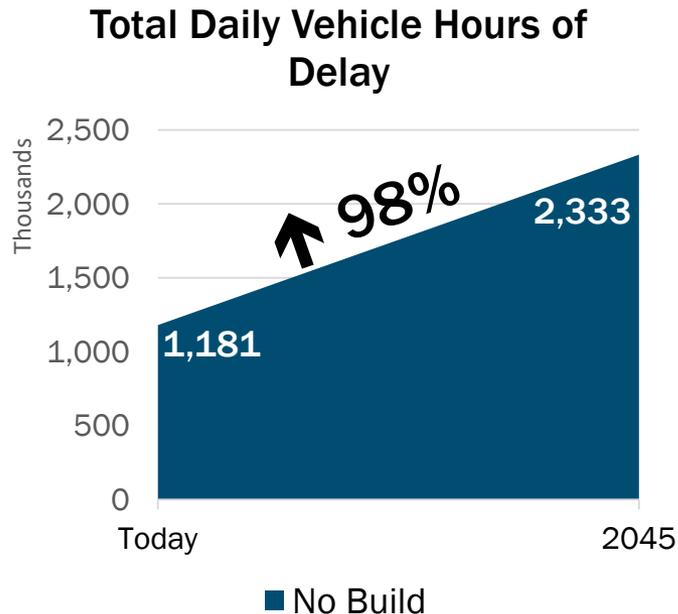
- By 2045, congested lane miles during the AM peak will increase from 1,857 to 2,660, a 43% increase to Today.
- Share of lane miles congested make up a small but growing percent of roadways.
- Congested lane miles will be 21% lower than in No Build scenario (*Grow but don't build*).

Share of Total Lane Miles Congested



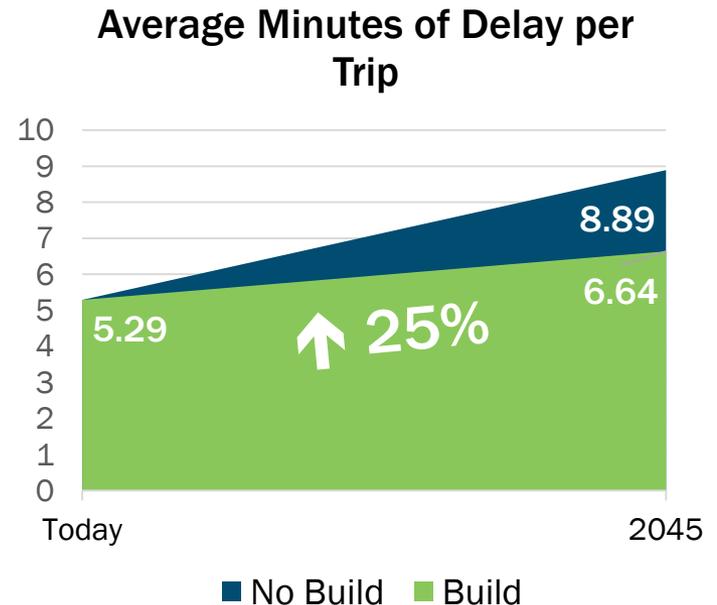
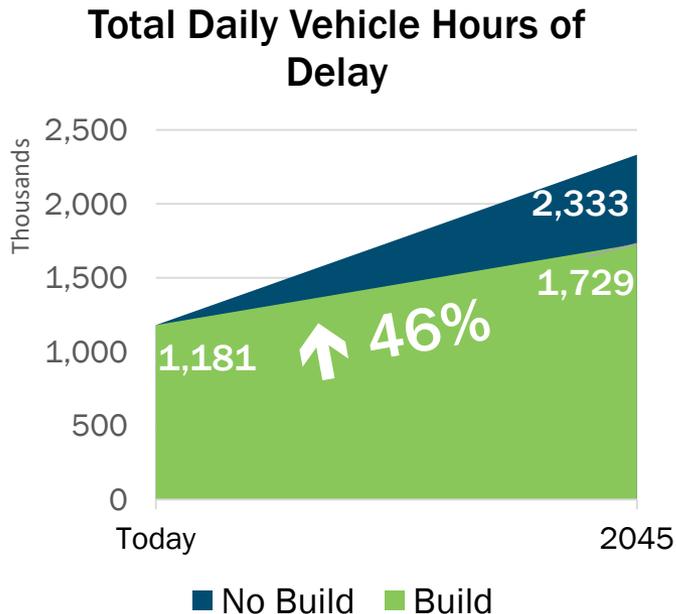
Lost time in traffic

If we grow and don't build, total vehicle hours of delay will double and avg. delay per trip will grow by 3 mins 30 secs.



Lost time in traffic

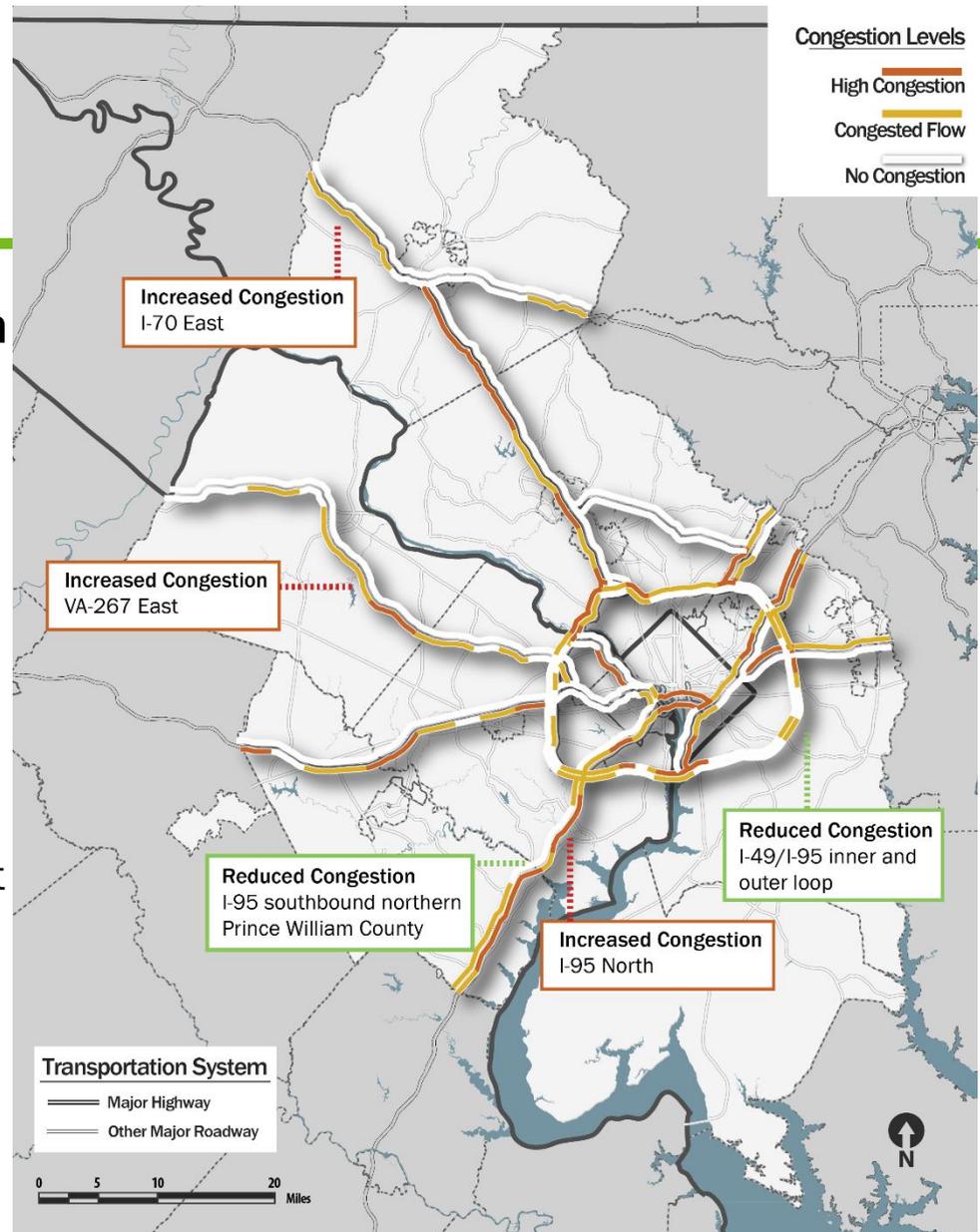
If we grow and build what is planned, total vehicle hours of delay and avg. delay per trip will still grow though less severe.



Roadway congestion

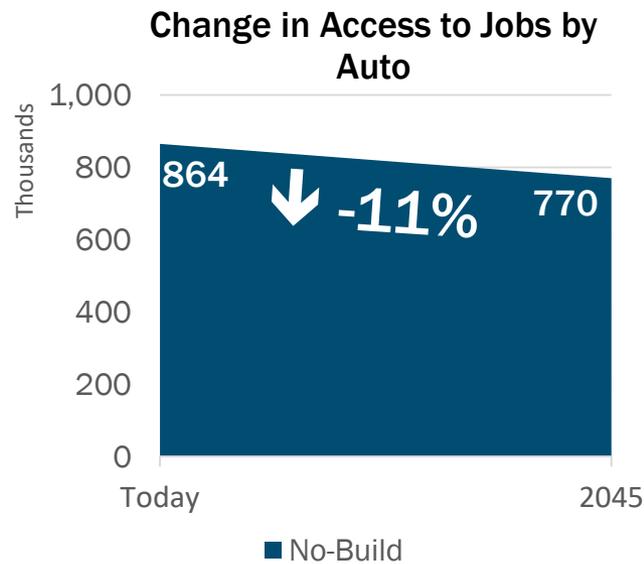
2045 Major Highway Congestion (AM Peak, General Purpose Lanes)

- Congestion on many segments of the region's major highway system is expected to get worse.
- Some segments will see relief due to capacity expansions, inclusion of managed lane projects, or Metro core capacity expansion.
- All tolled managed lanes facilities (not shown) are projected to experience free flow conditions in 2045 as designed.

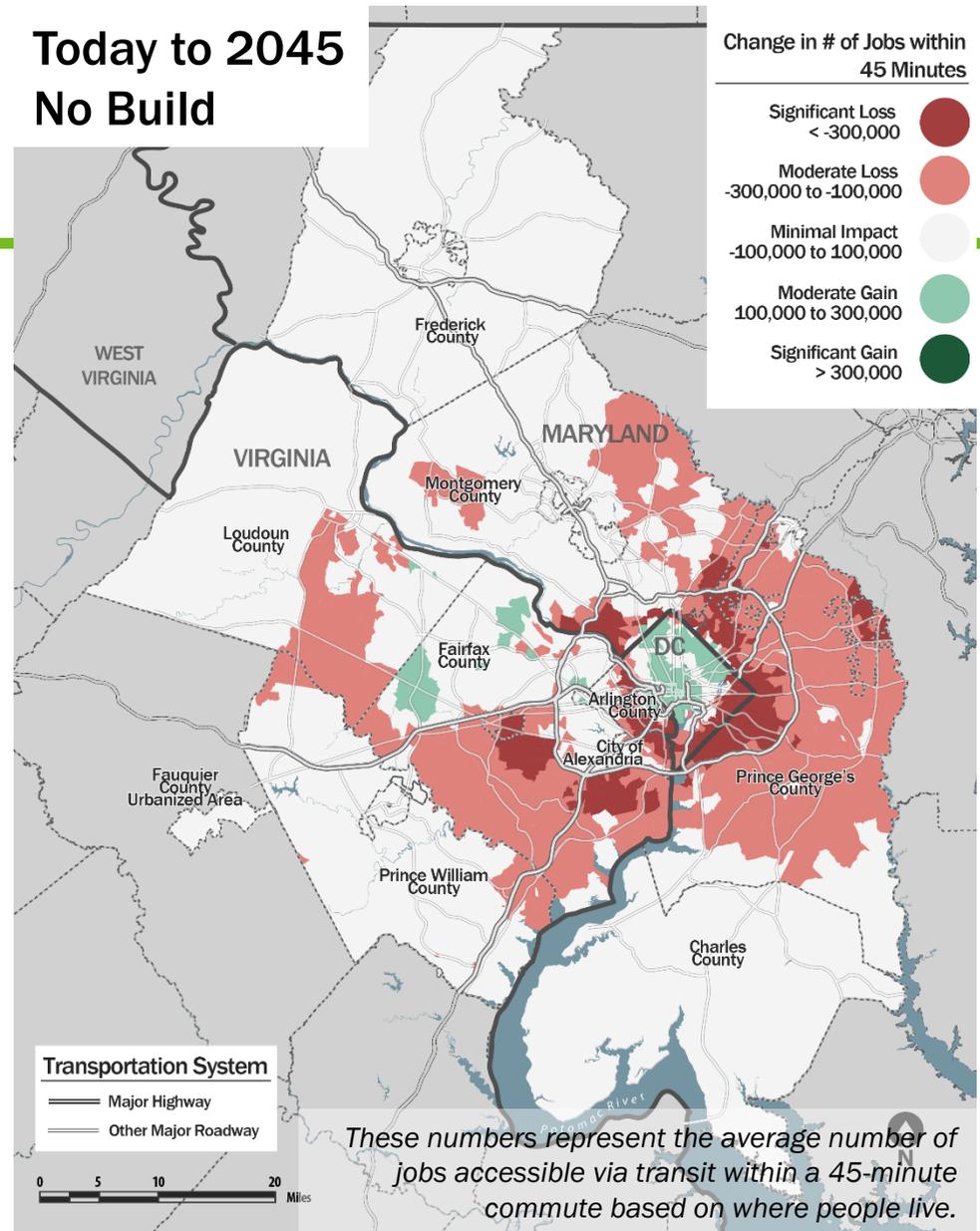


Change in Access to Jobs by Auto

- If we grow and do not build, the region will experience significant declines in job access in 2045 compared to today.

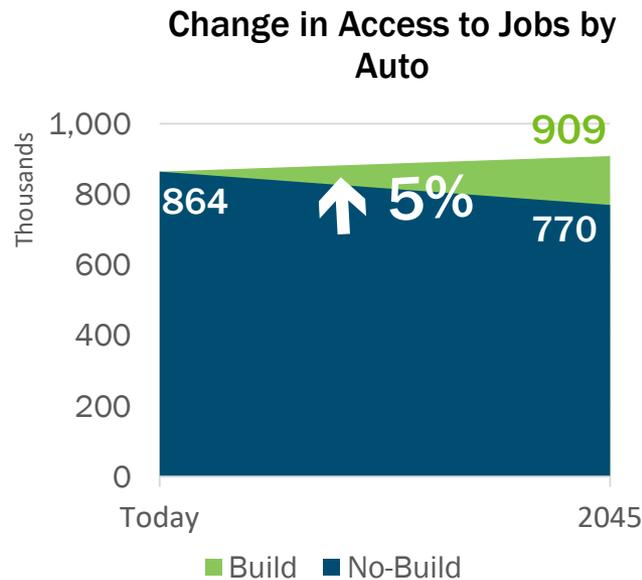


Today to 2045 No Build

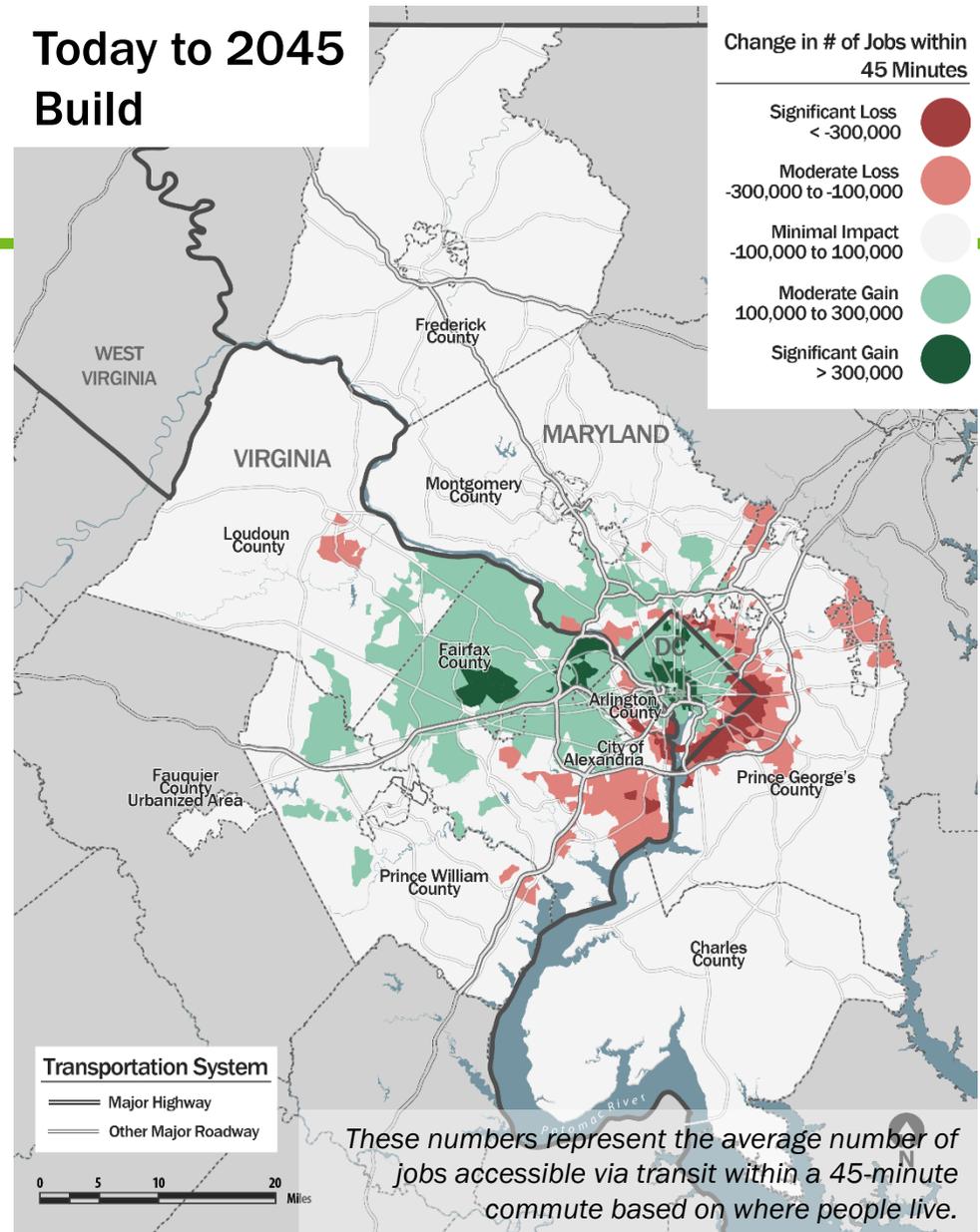


Change in Access to Jobs by Auto

- If we grow and build as planned, the region will experience more access to jobs on average.
- Some areas will continue to see declines in access to jobs within 45 mins.



Today to 2045 Build



Findings overview

- Growth in the region will continue to place demand on the transportation network.
- The region will employ various elements to meet the demand and make progress towards regional transportation policies, however, challenges will continue to exist though at levels less severe than identified in previous analyses.
- HOV will be more common than driving alone.
- Walk and bicycle trips **↑** by 49% and Transit trips **↑** by 38%.
- The average person will drive 3% **↓** in 2045 (miles).



Findings overview, contd.

- Use of reliable modes, including managed lanes and HOT lanes, high capacity transit, and walk and bike facilities, ↑ by 6% points.
- By 2045, 38% of people and 59% of jobs will be close to High Capacity Transit.
- By 2045, total vehicle hours of delay ↑ by 46% and avg. delay per trip ↑ by 25%.
- The region will experience ↑ of 40% in transit and ↑ of 5% in highway access to jobs, although some areas will still see declines.



Sergio Ritacco

Transportation Planner
(202) 962-3232
sritacco@mwcog.org

visualize2045.org

Metropolitan Washington Council of Governments
777 North Capitol Street NE, Suite 300
Washington, DC 20002

