

# Performance Analysis Summary

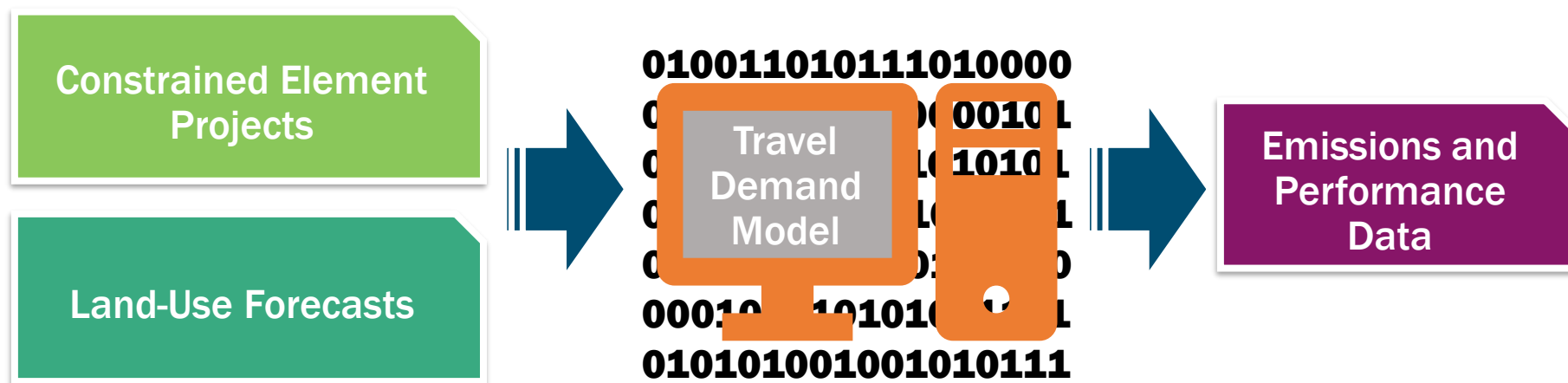
**Sergio Ritacco**  
Transportation Planner

Transportation Planning Board  
September 21, 2018

Item 8



# 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

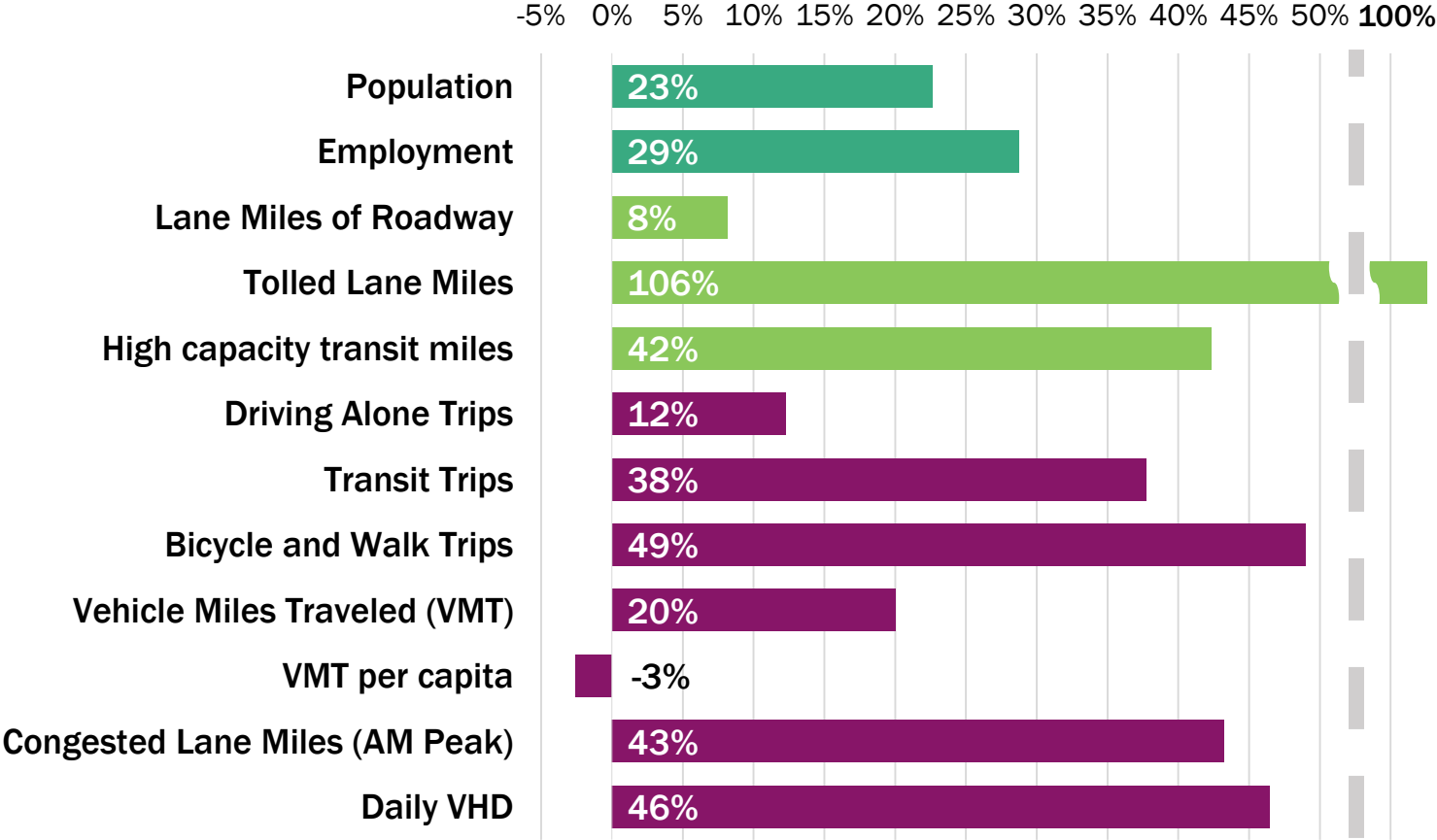
*Grow and  
build*

Forecast growth  
for 2045  
households and  
jobs

All constrained  
element projects  
would be built  
by 2045



# Performance Overview, % Change 2019 – 2045 Build



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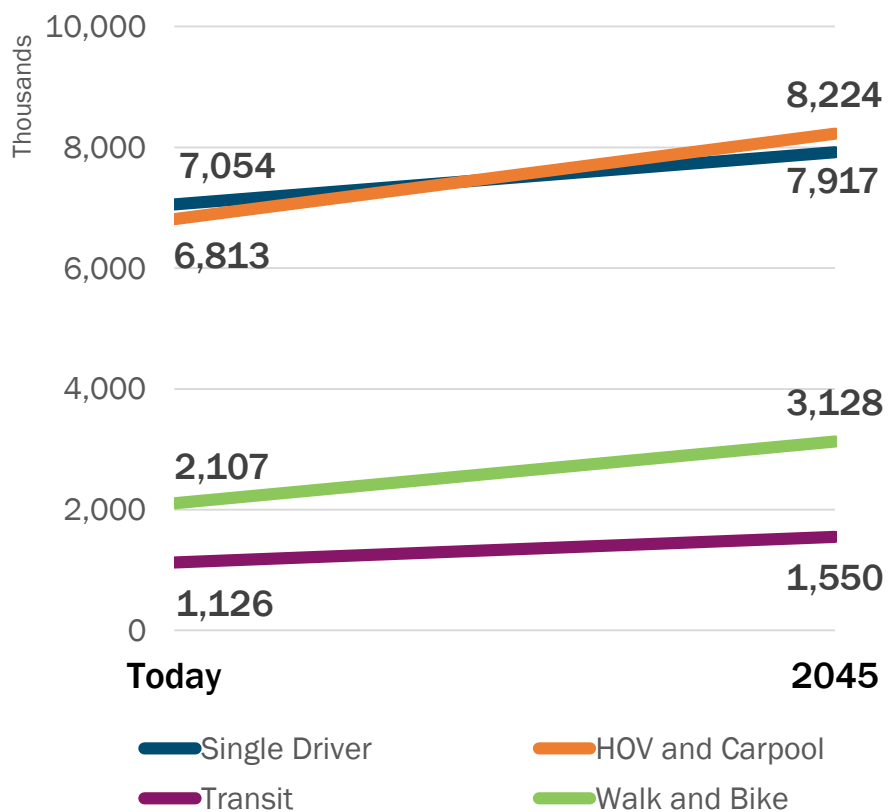
**How does the plan provide for a comprehensive range of transportation options?**



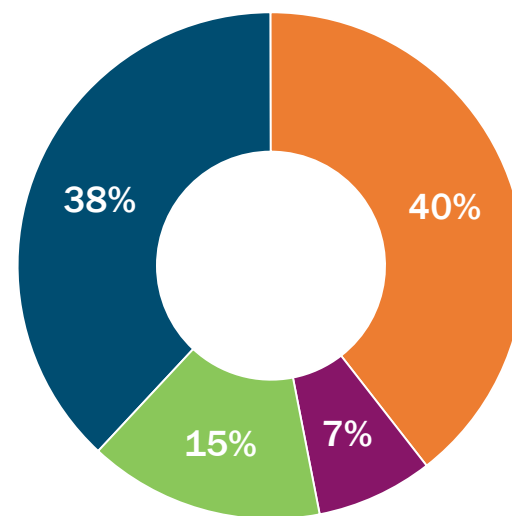
# All Trips: HOV surpasses Driving Alone

**HOV trips** will be more common than **driving alone**.

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



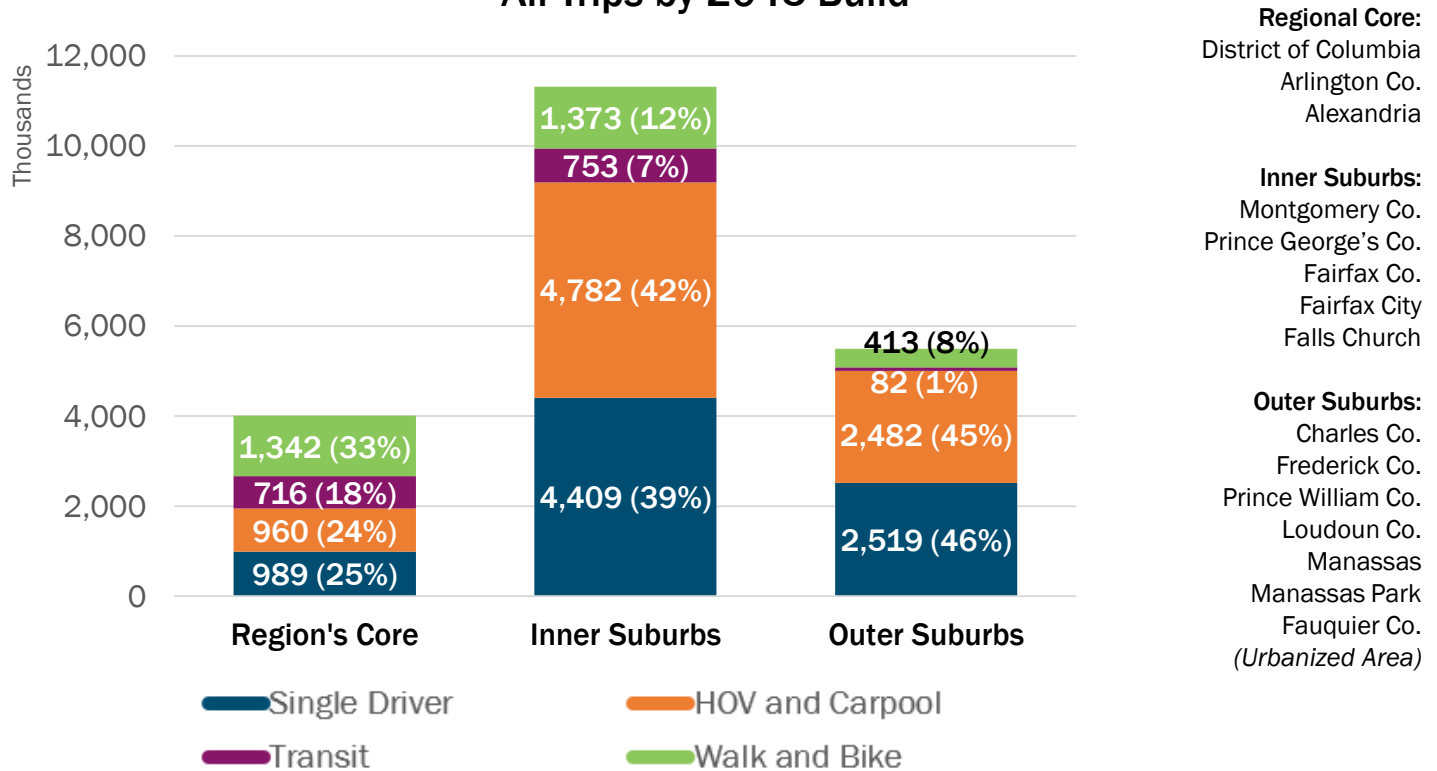
Mode Share in 2045 Build



# All Trips: Geographic Differences

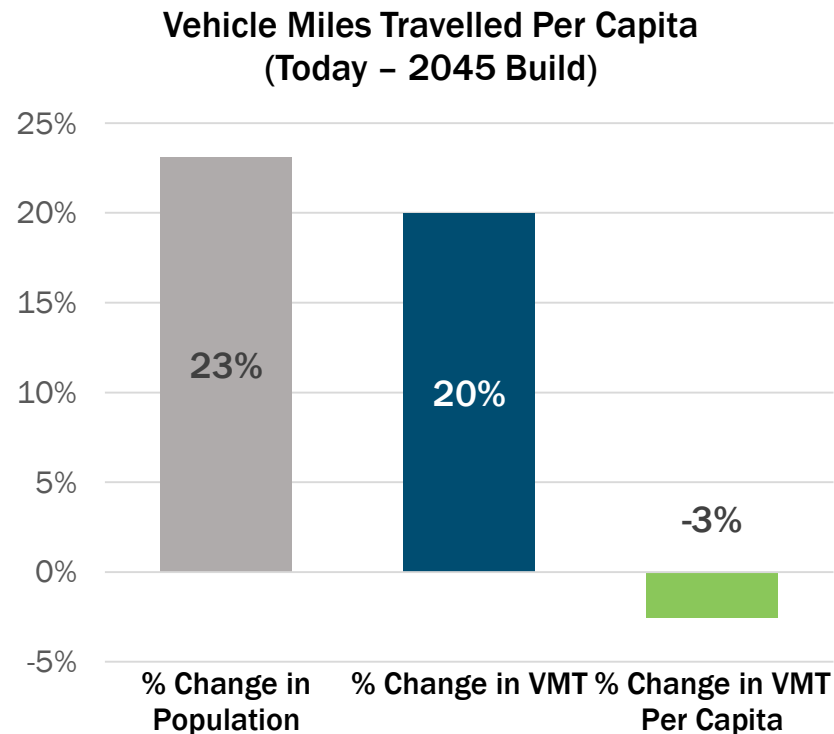
Majority of trips will continue to be generated in the Inner Suburbs. Walk, Bike, and Transit shares decline the further one is from the core.

All Trips by 2045 Build



# Average driving per person decreases

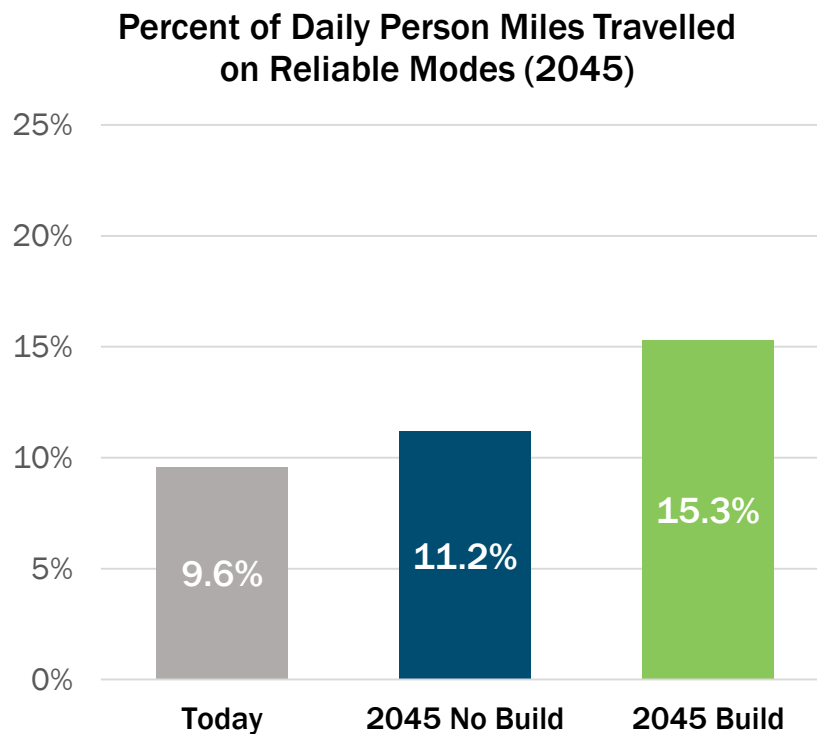
Total daily driving in the region is expected to grow but at a rate lower than population growth.





# Travel on reliable modes will increase

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



*Includes express toll lanes with dynamic toll rates (HOT), HOV lanes, the ICC, Dulles Airport Access Road, Metrorail, Commuter Rail, Light Rail, Streetcar, Bus Rapid Transit, long-haul express buses, and bike and pedestrian*



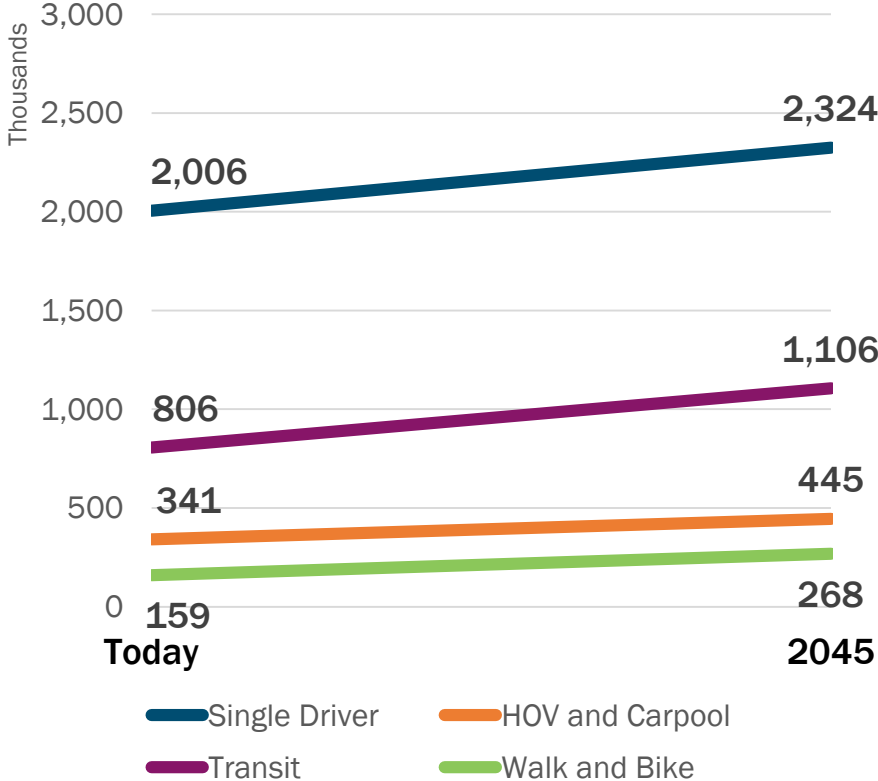
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# How does the plan affect commuting to work?

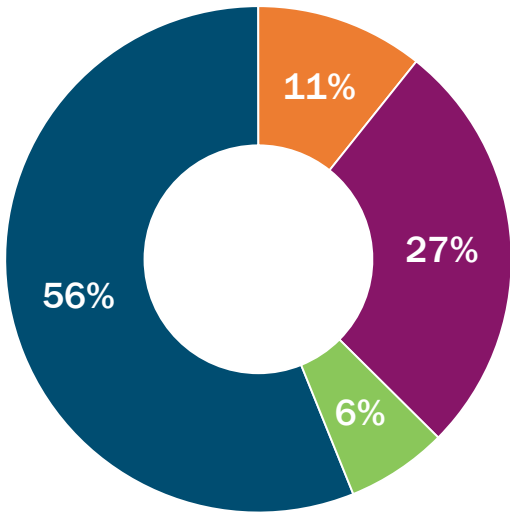


# Work Trips: Driving alone predominates

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



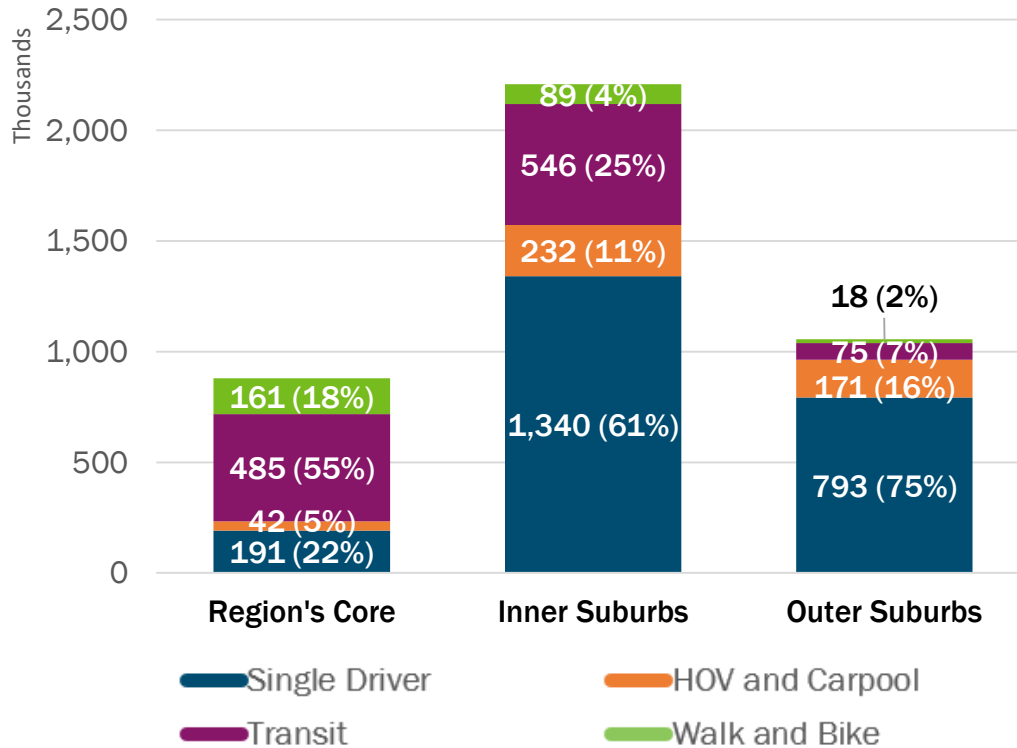
Mode Share in 2045 Build



# 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 Build



**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)



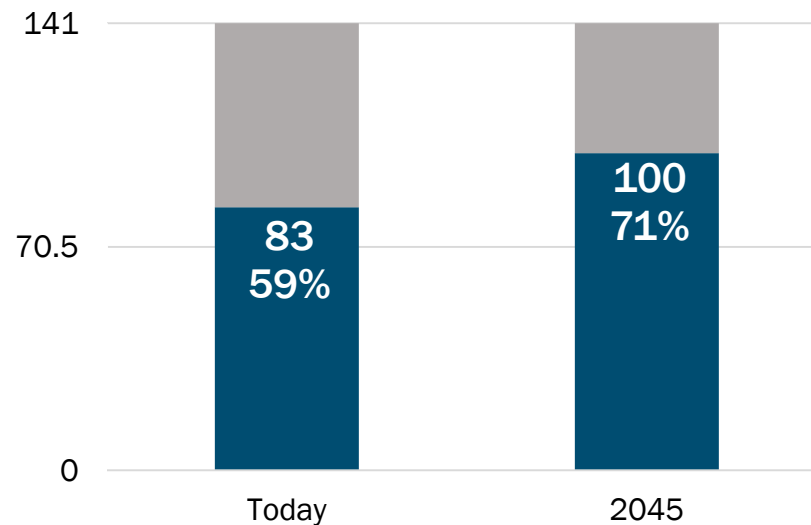
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# How does the plan affect transit access and connectivity?



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

In 2045, 17 Additional Activity Centers will have access to HCT



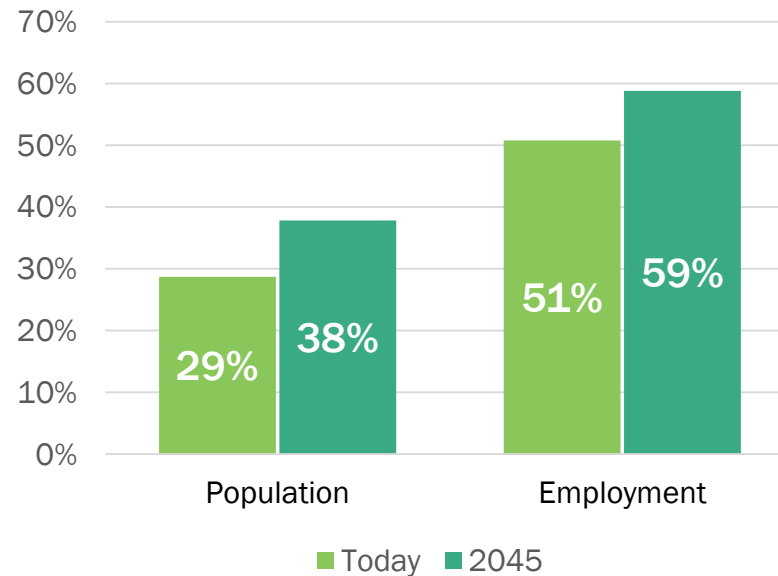
■ Activity Centers with access to HCT

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



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

**% of Population and Jobs in Proximity to HCT (2045 Build)**

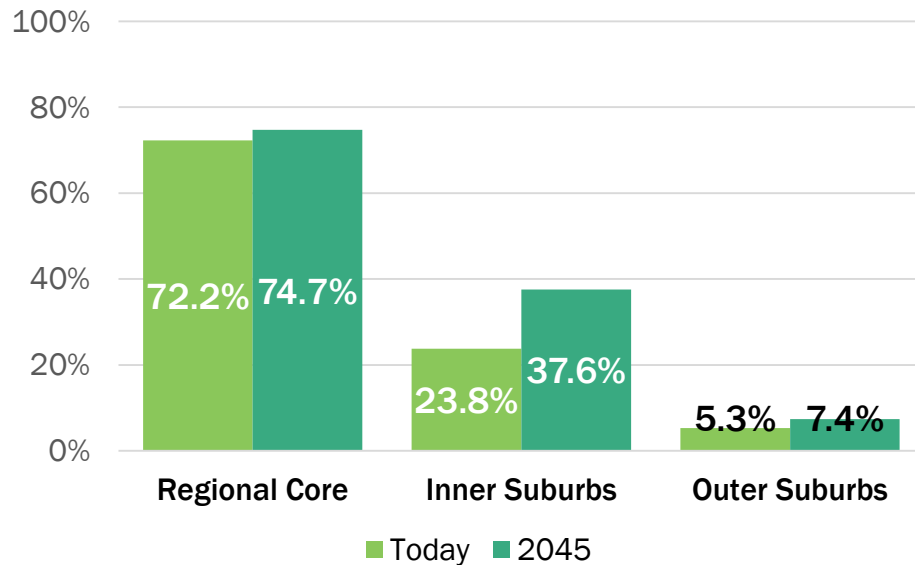


- “Proximity” defined as within one mile of rail or within a ½ mile of bus rapid transit (BRT)
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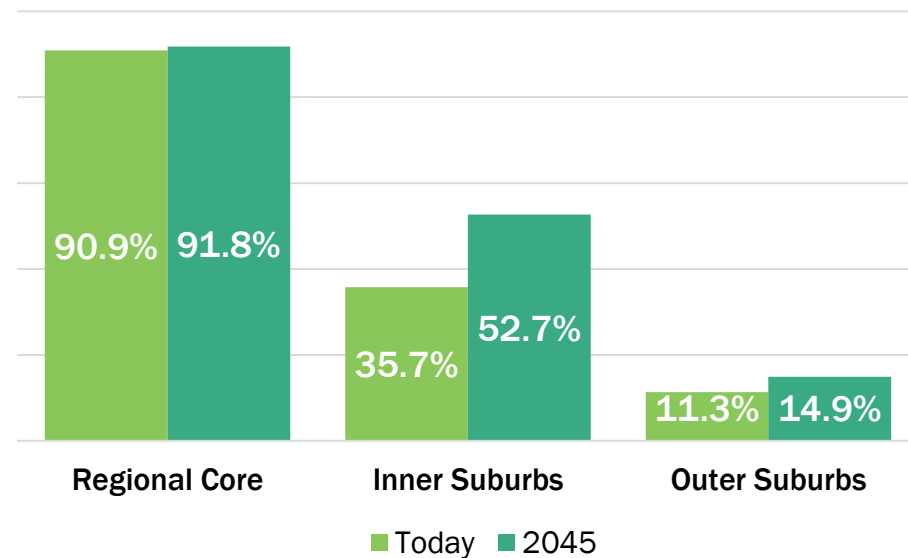


# Increase in People and Jobs close to High Capacity Transit (HCT)

**% of Population in Proximity to HCT (2045 Build)**



**% of Jobs in Proximity to HCT (2045 Build)**



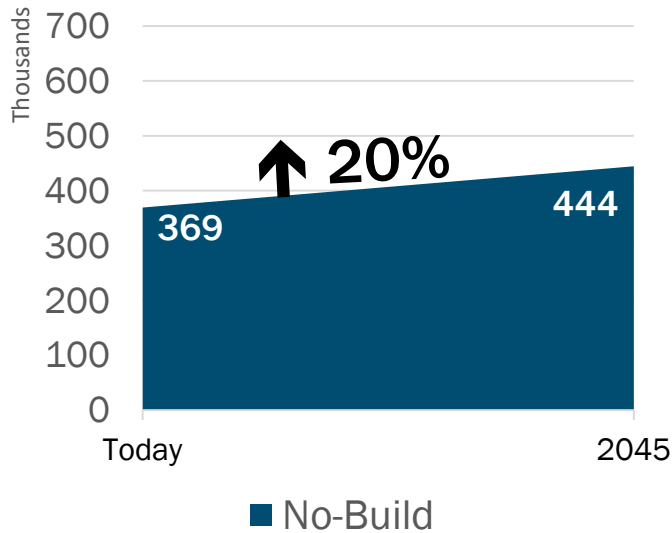
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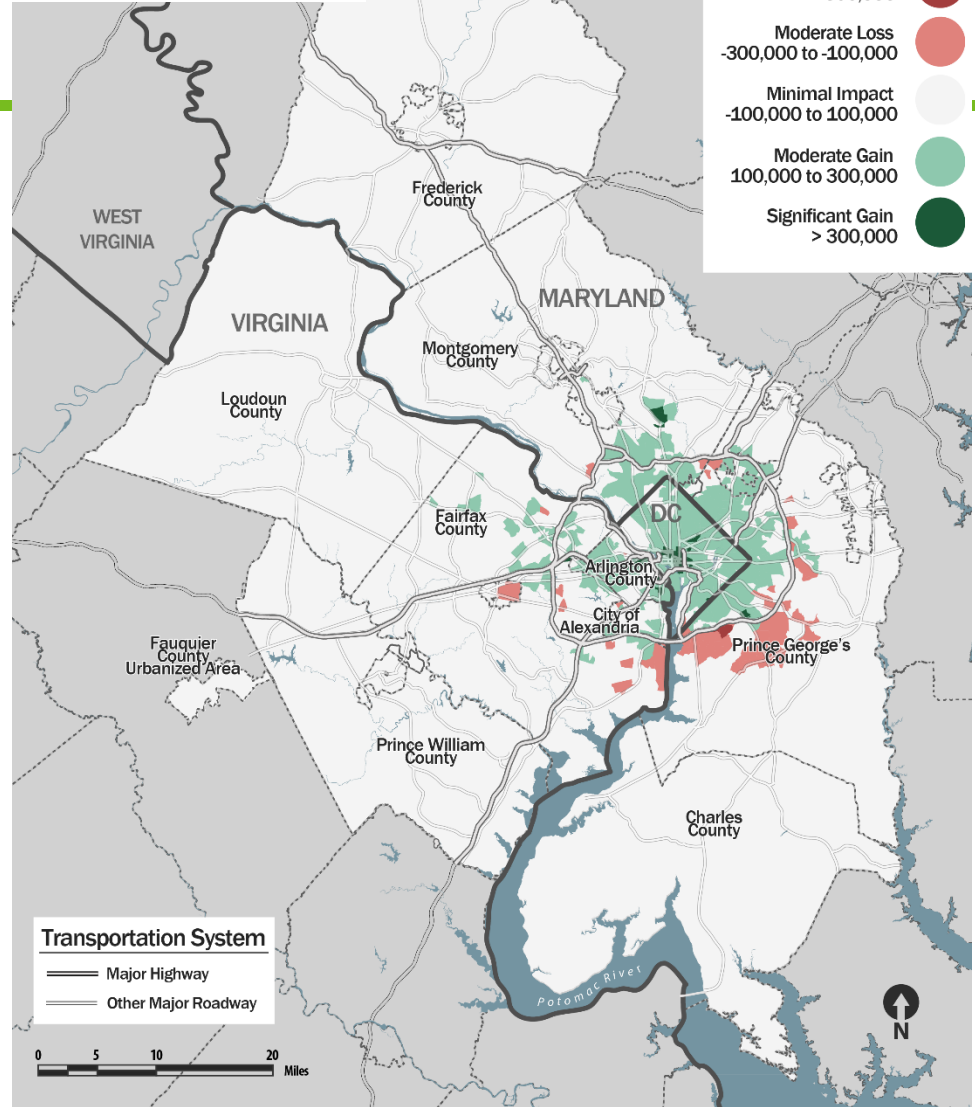
# Change in Access to Jobs by Transit

## Regional Change in Access to Jobs by Transit



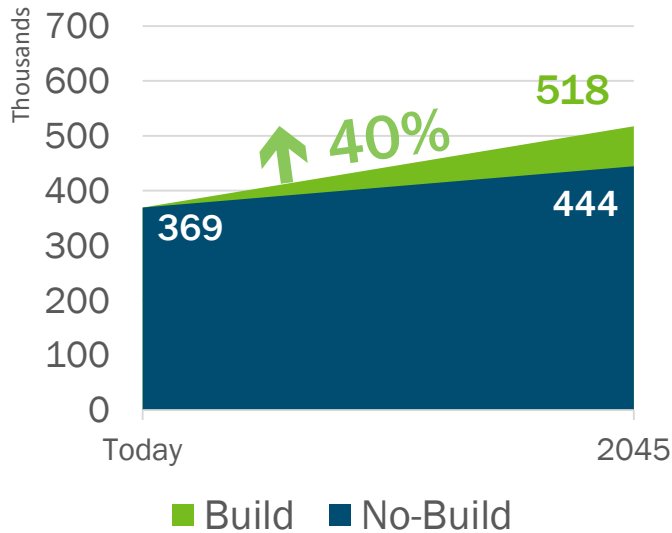
These numbers represent the average number of jobs accessible via transit within a 45-minute commute based on where people live.

## Today to 2045 No Build



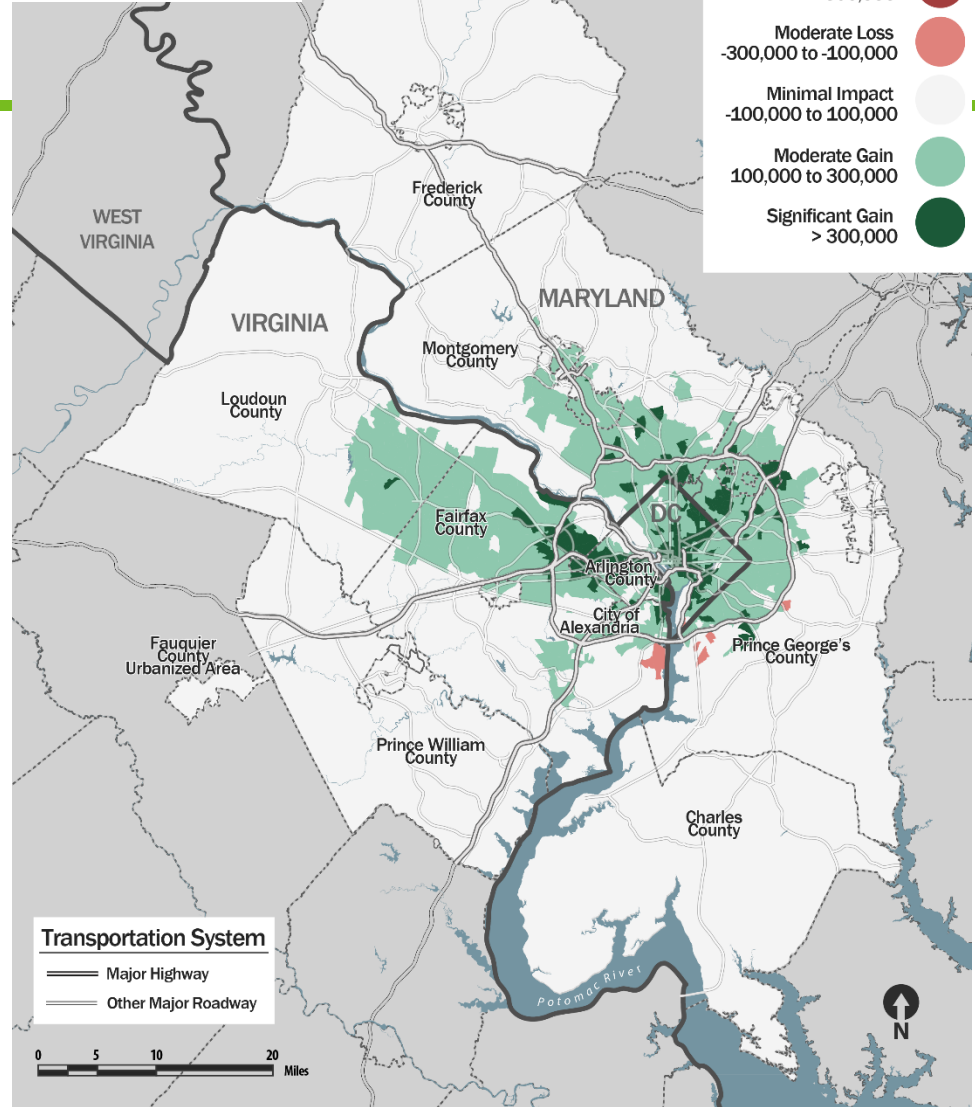
# Change in Access to Jobs by Transit

## 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 Build



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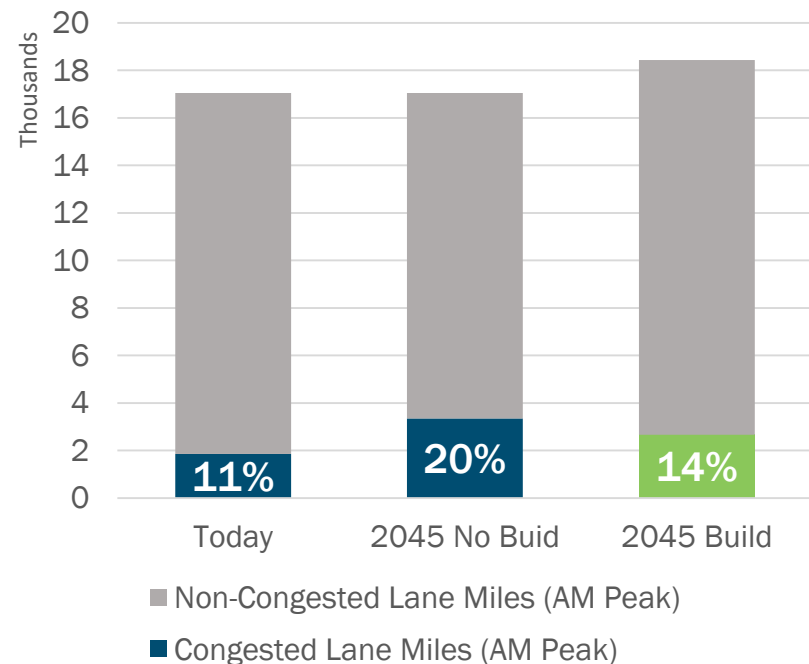
# How will roadway congestion change?



# System-wide roadway congestion will increase

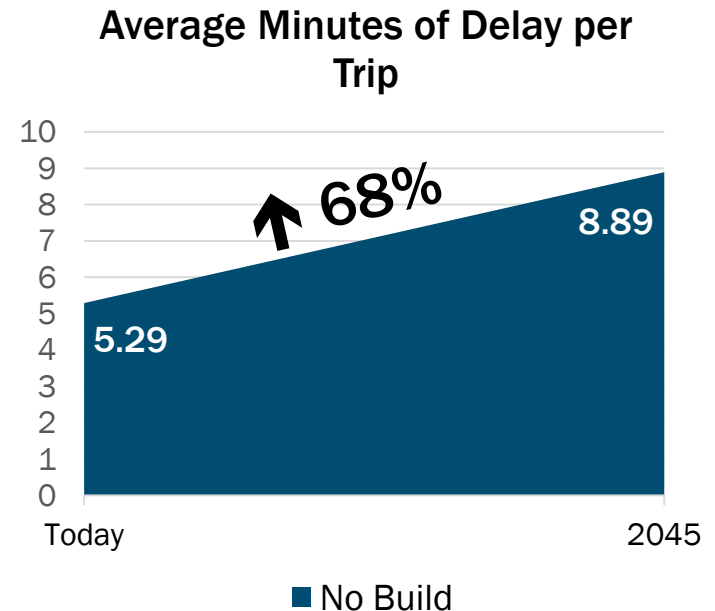
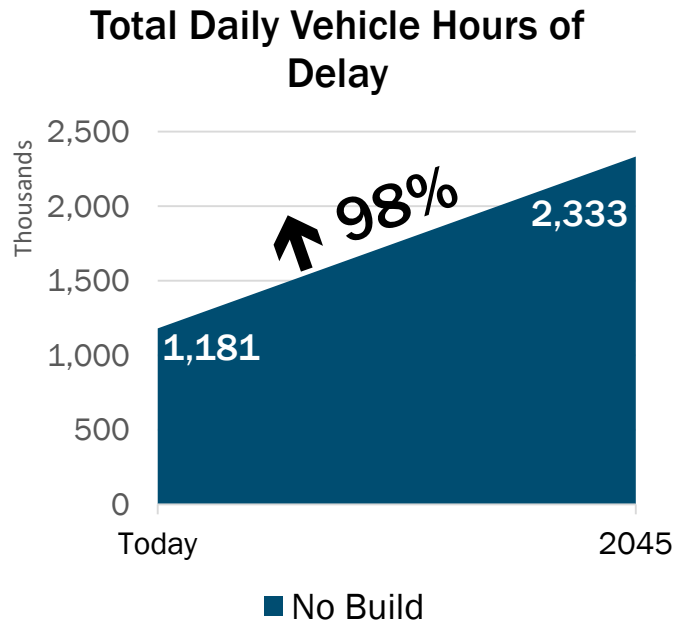
- By 2045, congested lane miles during the AM peak will increase from 1,857 to 2,660, a 43% increase to Today.
- Share of lane miles congested makes up a small but growing percent of roadways.
- Congested lane miles will be 21% lower than in No Build scenario (*Grow but don't build*).

Share of Total Lane Miles Congested



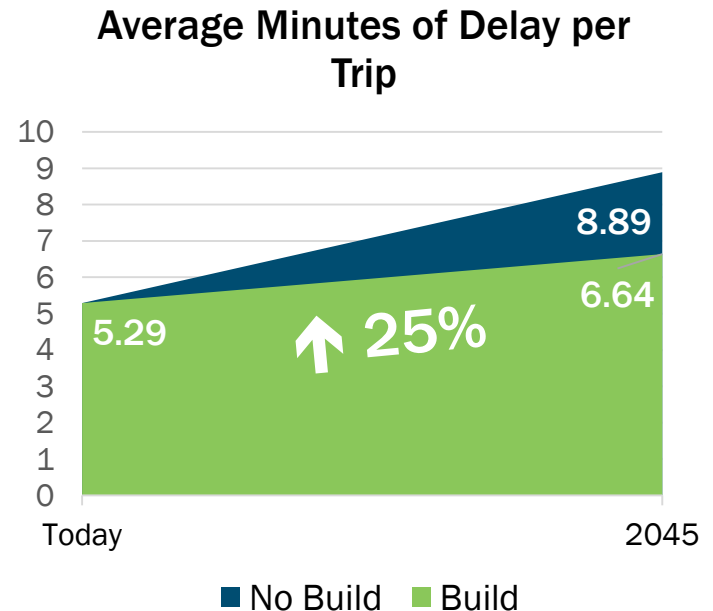
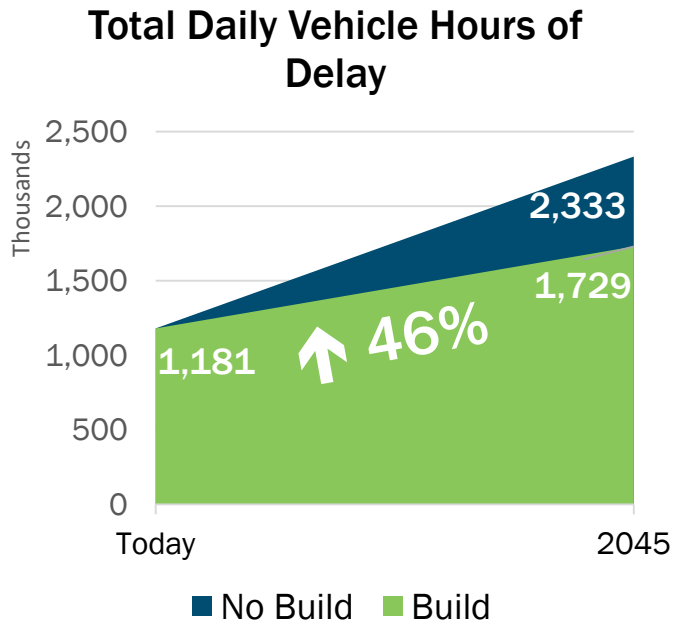
# Lost time in traffic

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

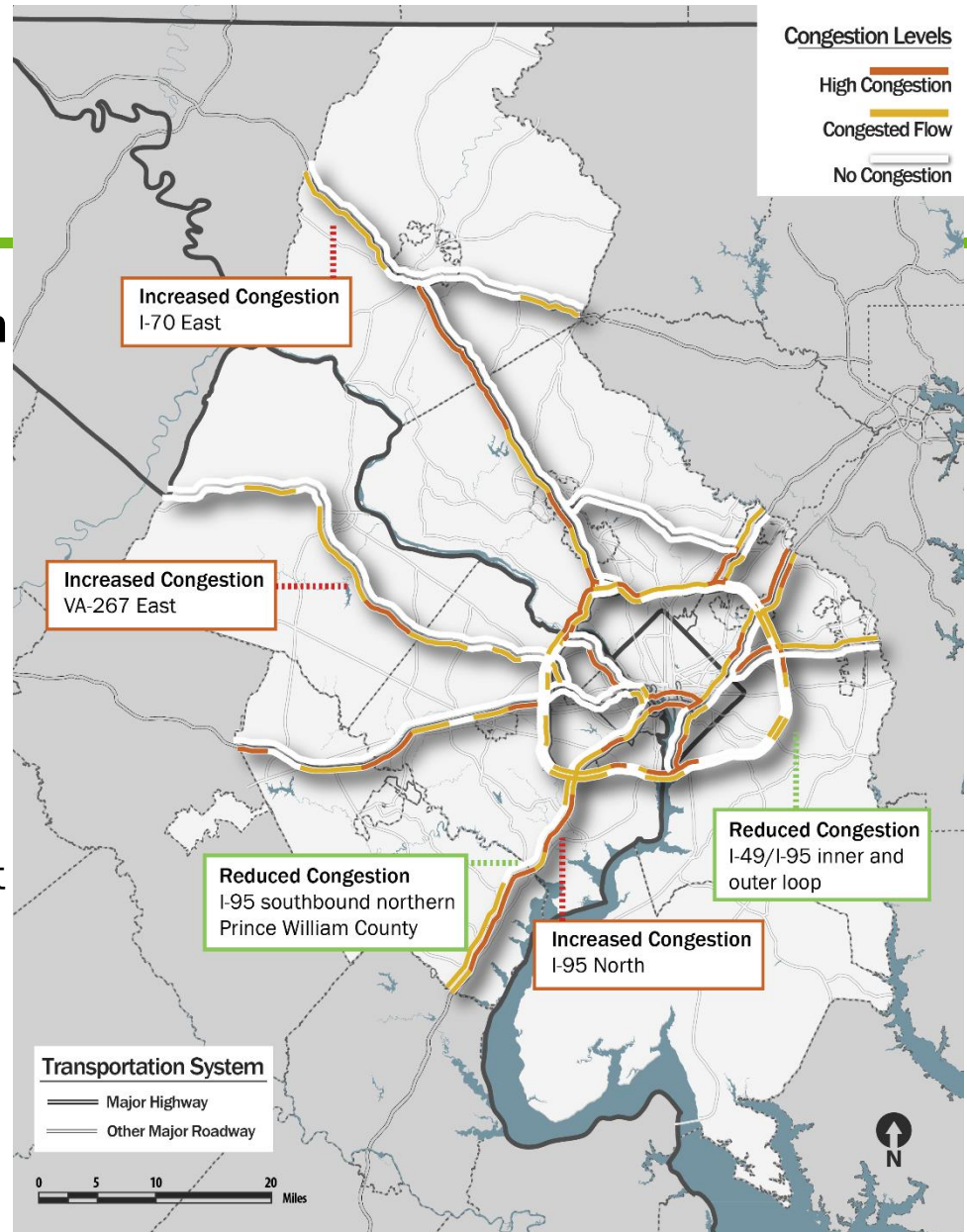
If we grow and build what is planned, total vehicle hours of delay and avg. delay per trip will still grow though less severe.



# Roadway congestion

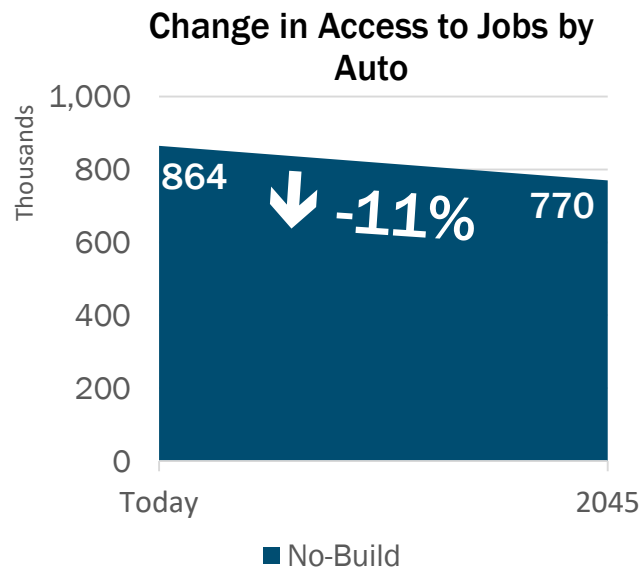
## 2045 Major Highway Congestion (AM Peak, General Purpose Lanes)

- 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.

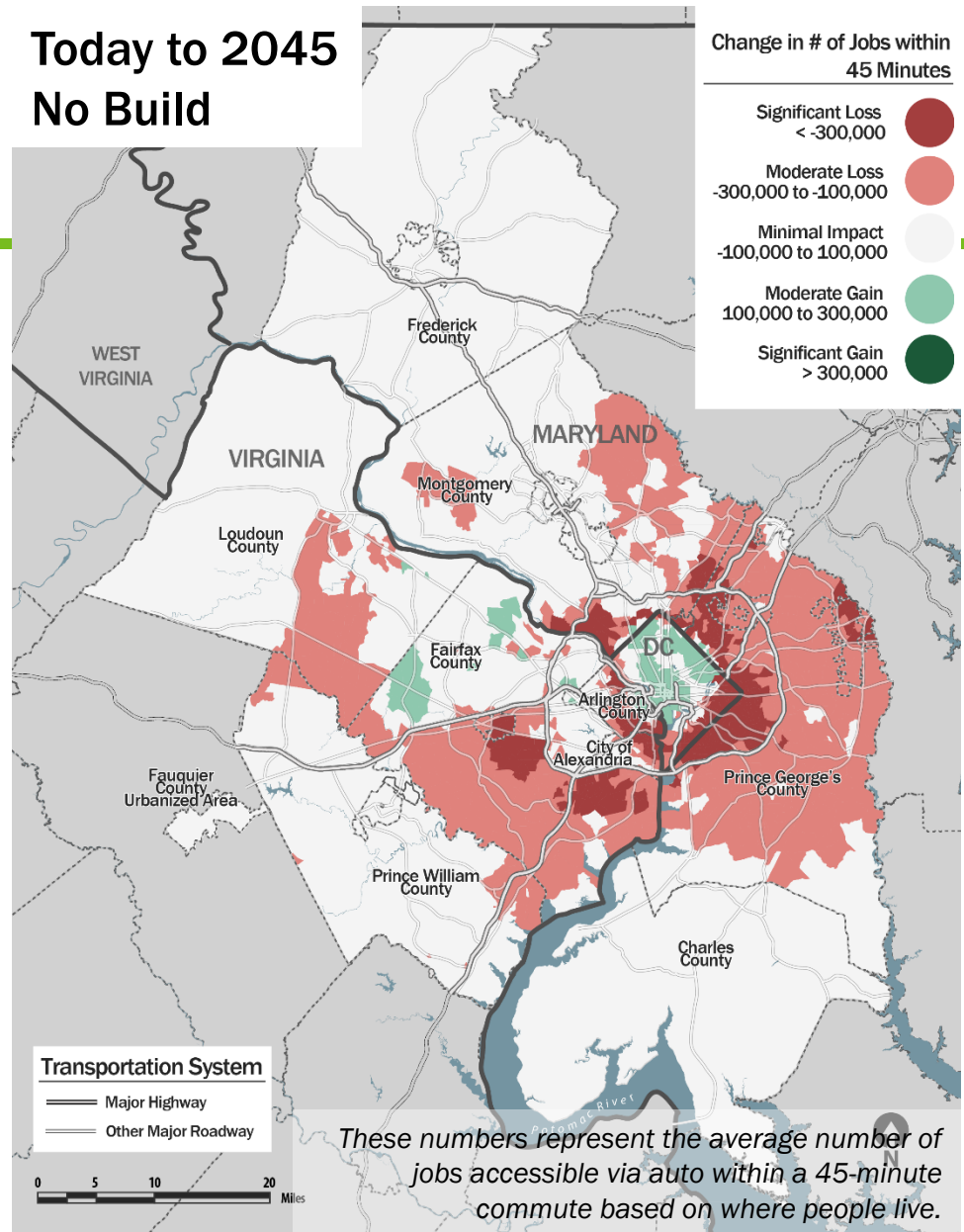


# Change in Access to Jobs by Auto

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



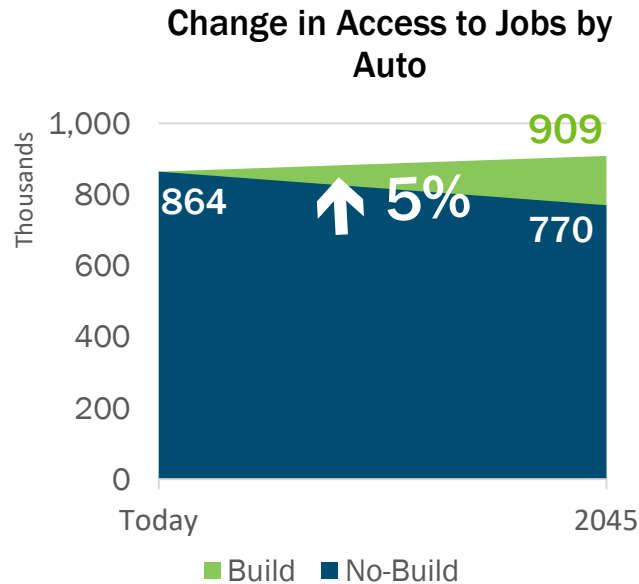
## Today to 2045 No Build



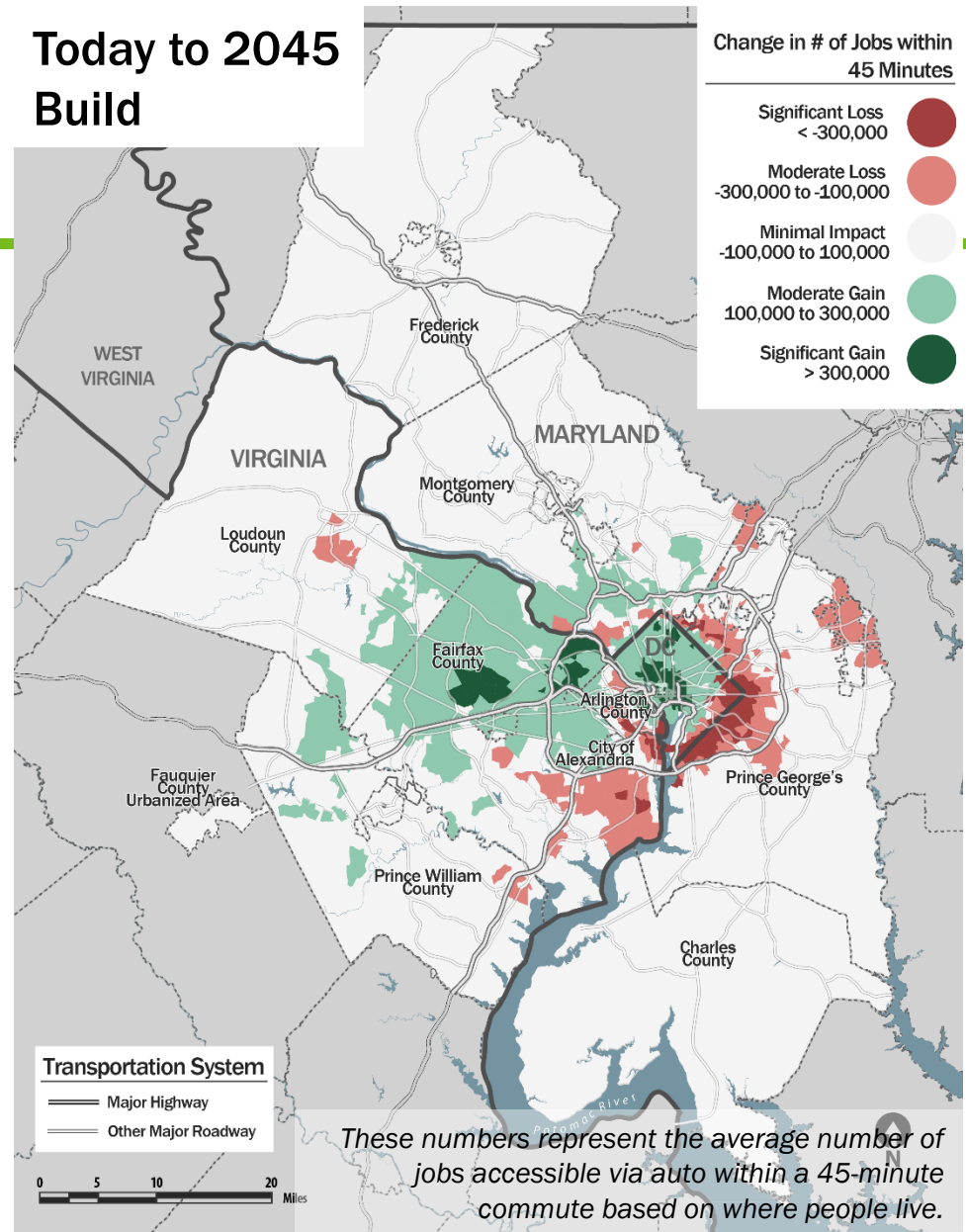


# Change in Access to Jobs by Auto

- 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

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- 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.

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- 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.



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