



The Financially Constrained

Long-Range Transportation Plan (CLRTP)

For the **National Capital Region**

2013 Performance Analysis

Presentation to the Metropolitan Washington Air Quality Committee

February 26, 2014

What is the Long-Range Transportation Plan (CLRP)?

- » **The CLRP identifies regionally significant transportation projects and programs that are planned between now and 2040**
 - Over 750 Projects are included from simple highway landscaping projects to billion-dollar highway and transit projects
 - Funding for programs that aim to make the transportation system in Metropolitan Washington better and more efficient
- » **Some specific projects in the CLRP include:**
 - Metro's Silver Line and Columbia Pike Street Car (in VA)
 - The Purple Line and the Corridor Cities Transitway (in MD)
 - The H. St. / Benning Rd. Street Car (in DC)
 - Approx. 1,200 new lane-miles of roadway including Express Toll lanes on I-95 in VA
 - 25 improved highway interchanges



CLRP
Long-Range
Transportation Plan

For a complete listing of projects and programs in the CLRP, visit:

<http://www.mwcog.org/clrp/>

Land Use and Travel Demand Updates

- » **Changes to the Round 8.2a Population and Employment Forecasts:**
 - Update includes results from the 2010 U.S. Census for all jurisdictions
 - Forecast estimates have been reduced in early years, but the outer years (2030, 2040) remain similar to past rounds

- » **Changes to the Version 2.3 Travel Model** (based on recent validation work):
 - The share of non-work, non-motorized trips in densely populated areas was marginally increased based on recent findings from the Geographically Focused Household Travel Surveys
 - Measured time penalties were used to improve the match between estimated and observed traffic crossing the Potomac River
 - Extensive coding refinements to the highway network were implemented using recent federal functional classification data obtained from the state

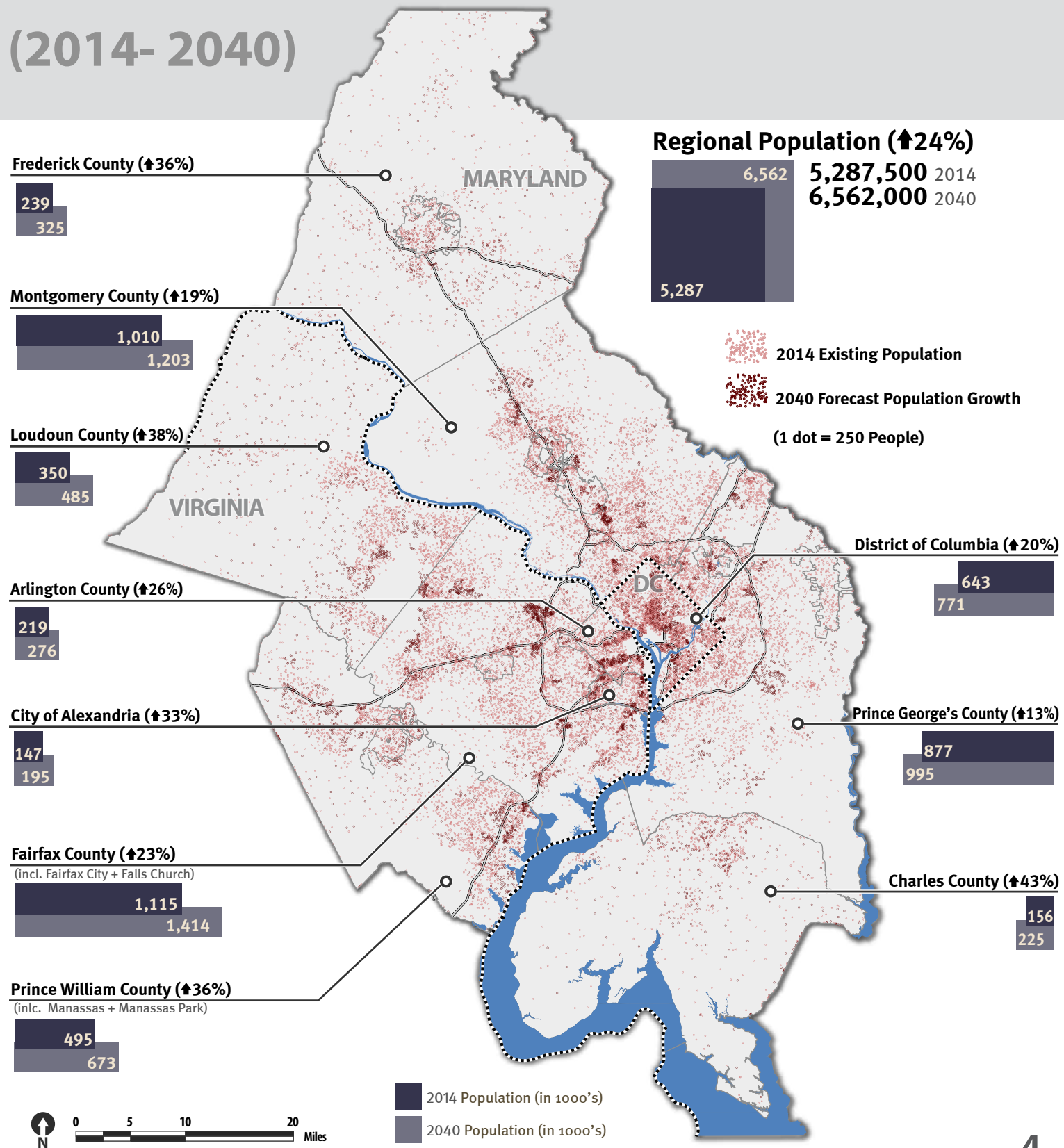
- » **The MOVES2010a emissions model was used for the first time for air quality conformity estimates**

Population Growth (2014- 2040)

By 2040 the region's population will grow by 24% to over 6.5 million people.

The population of the outer jurisdictions is expected to grow at a faster rate than the inner jurisdictions.

The inner jurisdictions will retain the majority of the region's population in 2040.

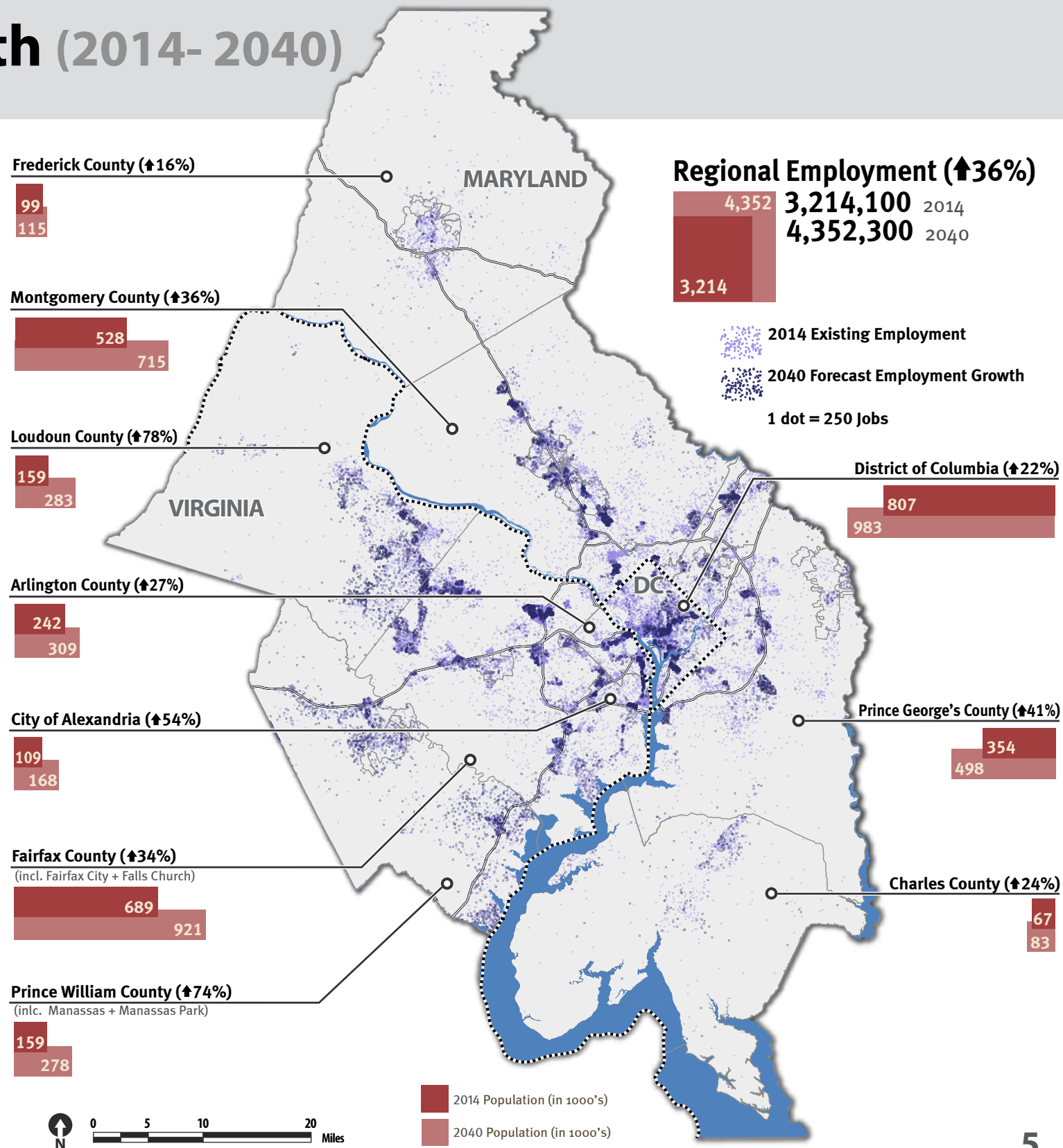


Employment Growth (2014- 2040)

By 2040 the region's employment will grow by 36%.

Employment is expected to grow fastest in the outer jurisdictions of Virginia, but the highest concentration of jobs will be in the District of Columbia, Fairfax County, VA, and Montgomery County, MD in 2040.

In 2040 population will be slightly more dispersed than it is today, and jobs will continue to concentrate toward the western side of the region.

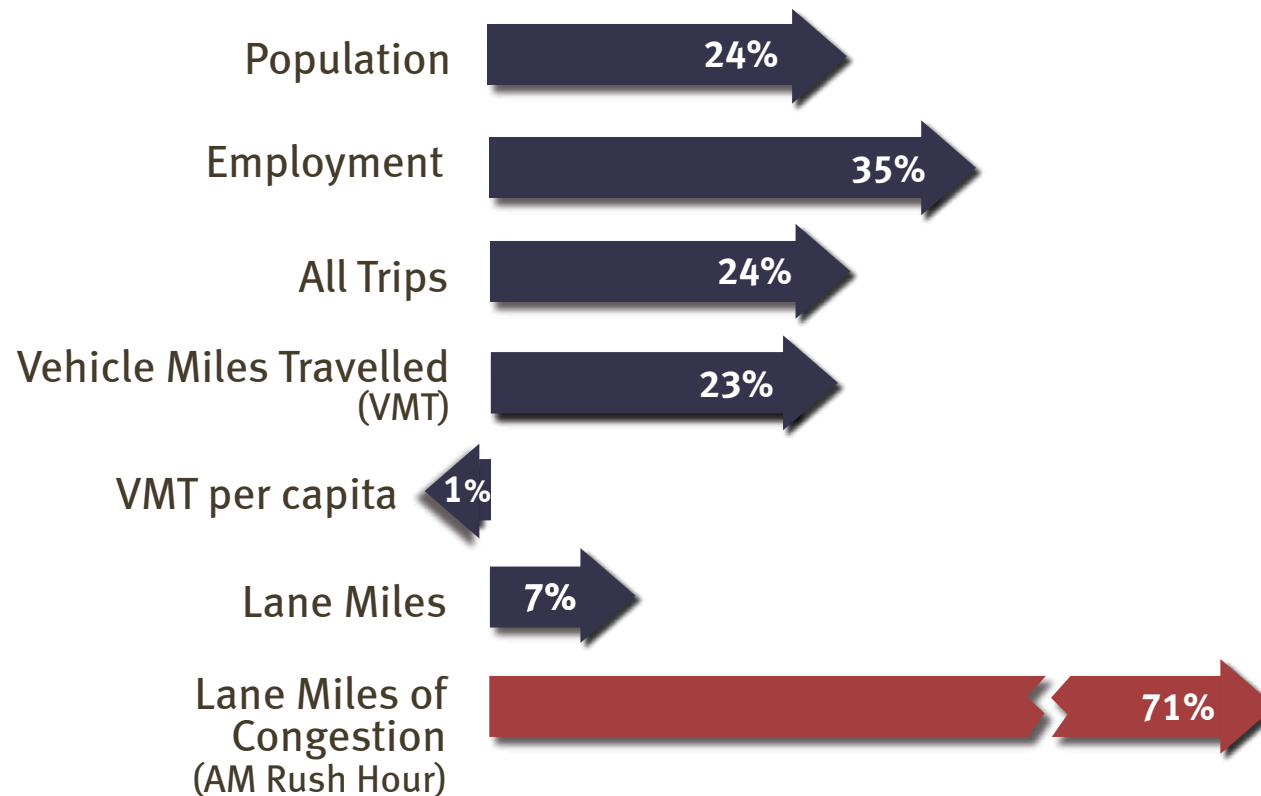


Travel Demand (2014- 2040)

Region-wide the total number of trips taken is expected to increase by 24%. The overall amount of driving in the region (VMT) is expected to grow by 23%, slightly less than population, which means VMT per capita is forecast to drop by 1%.

The increase in demand on the roadways (+24% more trips) is forecast to outpace the increase in supply (+7% lane miles), leading to a significant increase in congestion (+71% lane miles of congestion).

Change in Land Use and Travel Forecast 2014-2040

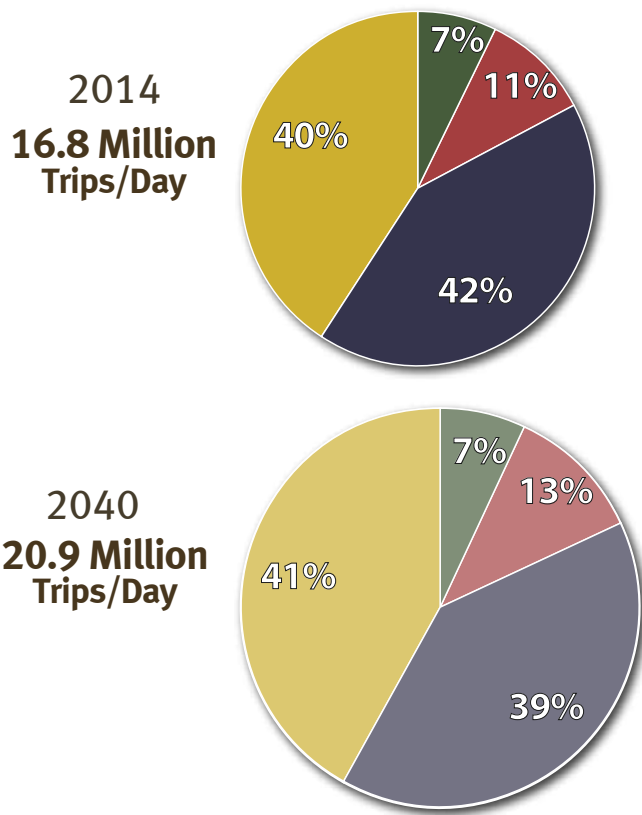


Daily Travel (2014- 2040)

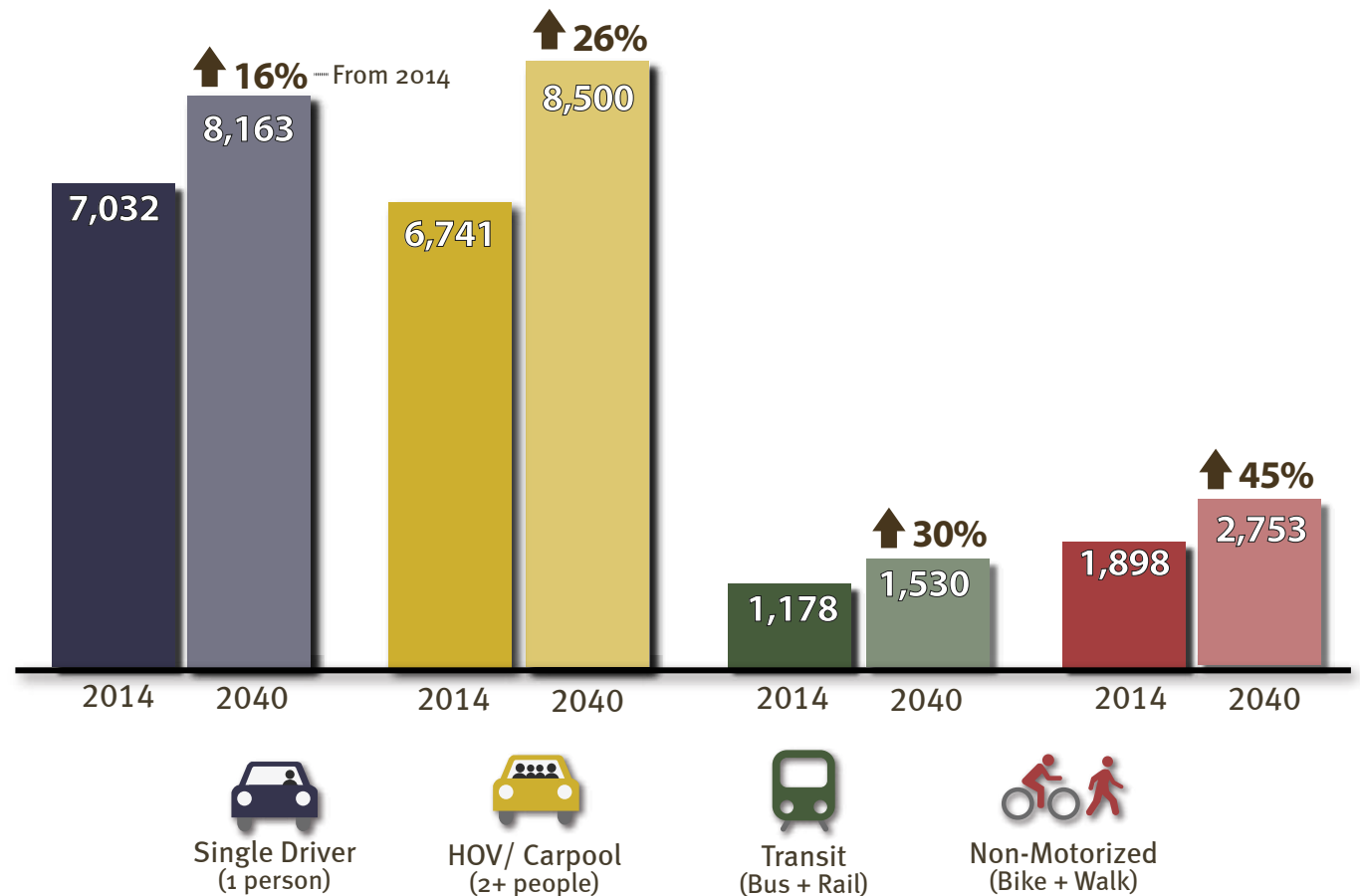
By 2040, trips made by drivers of single-occupant vehicles are expected to drop by a few percentage points, while carpool trips and non-motorized vehicle trips are expected to increase slightly.

Although mode share is not forecast to change significantly, the number of trips taken using each mode will go up substantially.

**Mode Share for All Trips
2014 to 2040**



**Trips by Mode - All Travel
2014 to 2040**
(Trips in 1000's)



TPB Planning Area

Regional Core, Inner Suburbs, and Outer Suburbs

Regional Core:

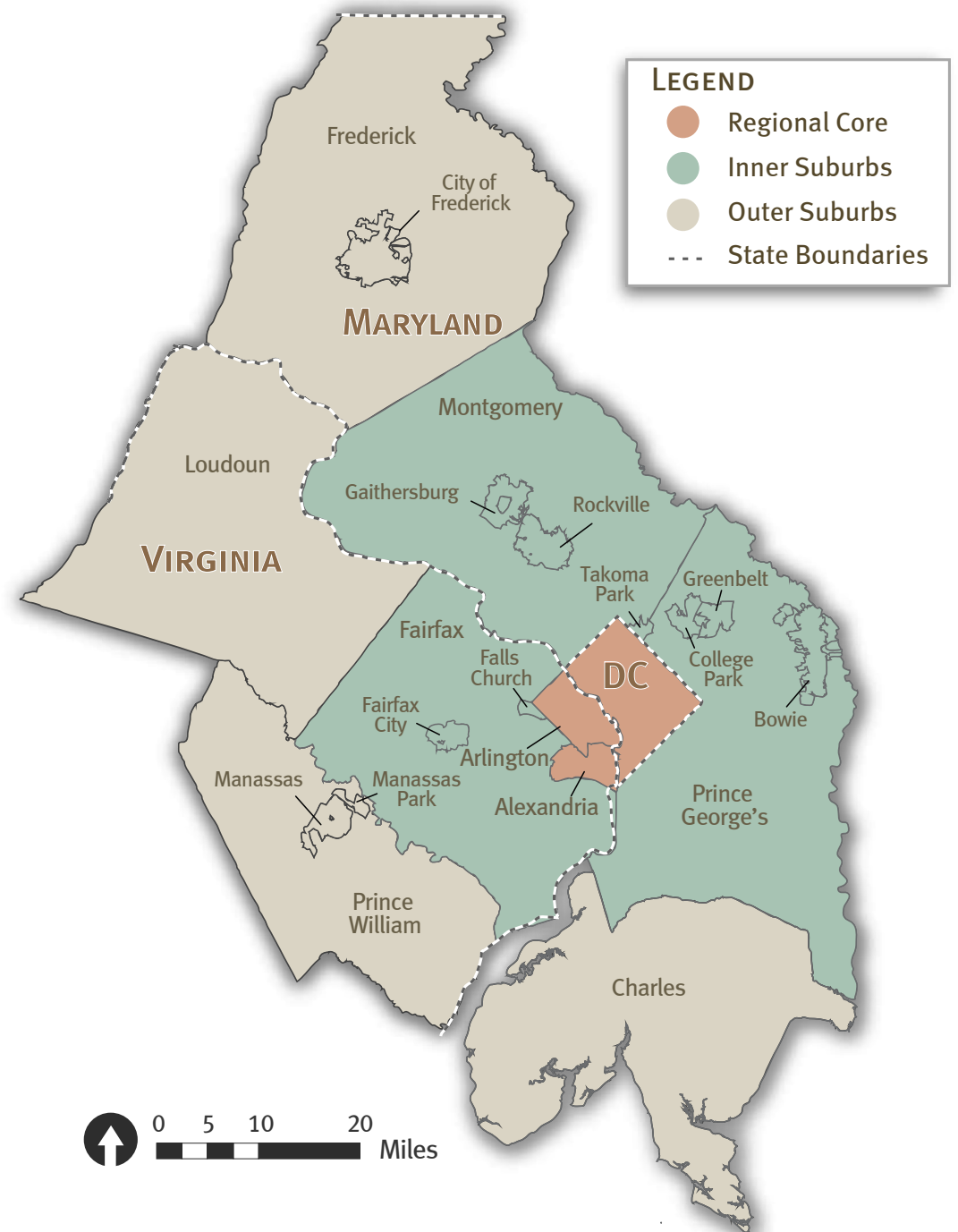
- Washington, DC
- Arlington, VA
- Alexandria, VA

Inner Suburbs:

- Fairfax County, VA
(Incl. Falls Church and Fairfax City)
- Montgomery County, MD
- Prince George's County, MD

Outer Suburbs:

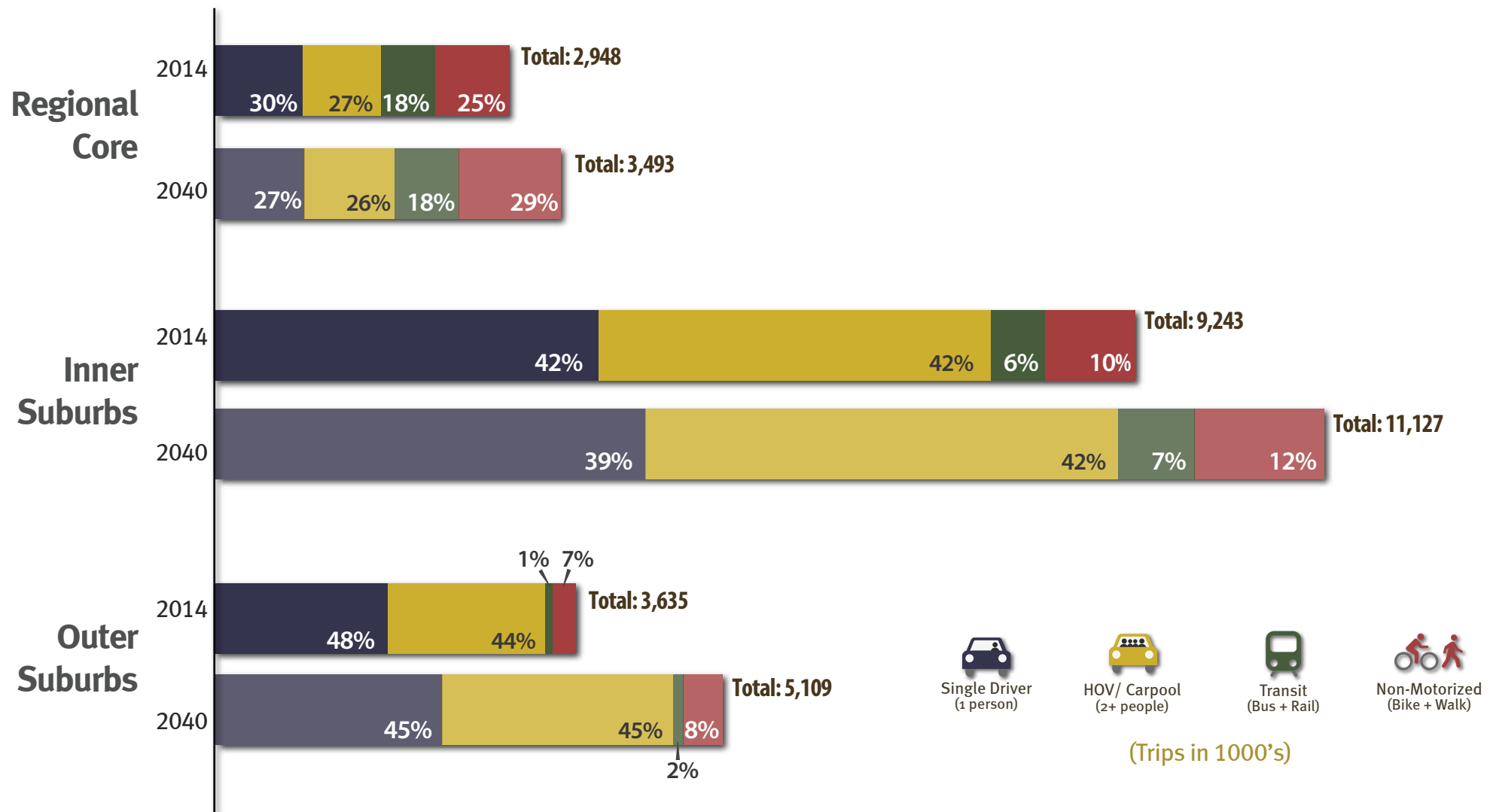
- Charles County, MD
- Frederick County, MD
- Loudoun County, VA
- Prince William County, VA
(Incl. Manassas and Manassas Park)



Daily Travel Mode Share (2014- 2040)

By regional core, inner suburbs, and outer suburbs

Daily travel mode share also varies by geography. By 2040 slight changes in mode share are expected all three areas. In the regional core single driver trips are expected to decrease in favor of more non-motorized trips. In the inner suburbs single driver trips are expected to drop slightly while the share transit and non-motorized trips increase slightly. In the outer suburbs, single driver trips are expected to go down while transit, carpool, and non-motorized trips are expected to increase slightly.

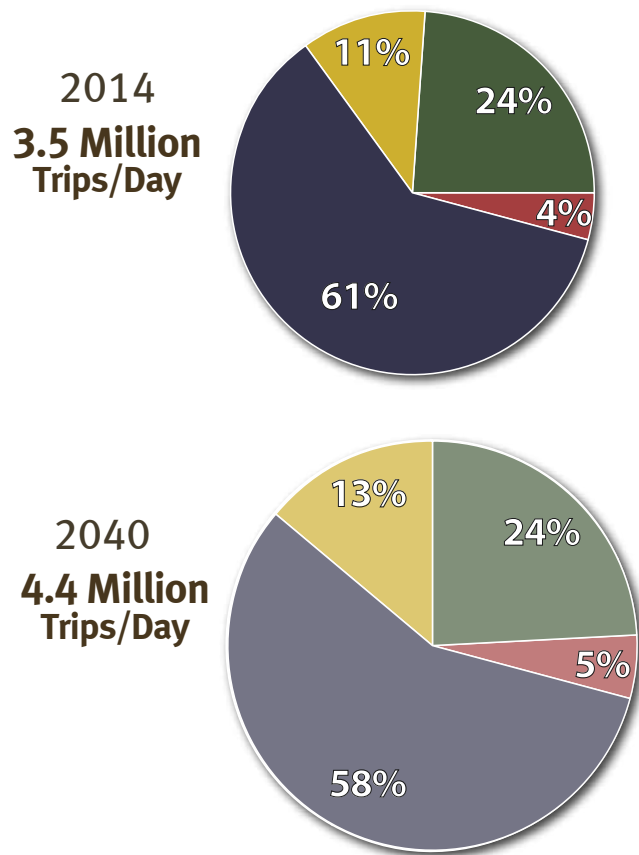


Commute Travel (2014- 2040)

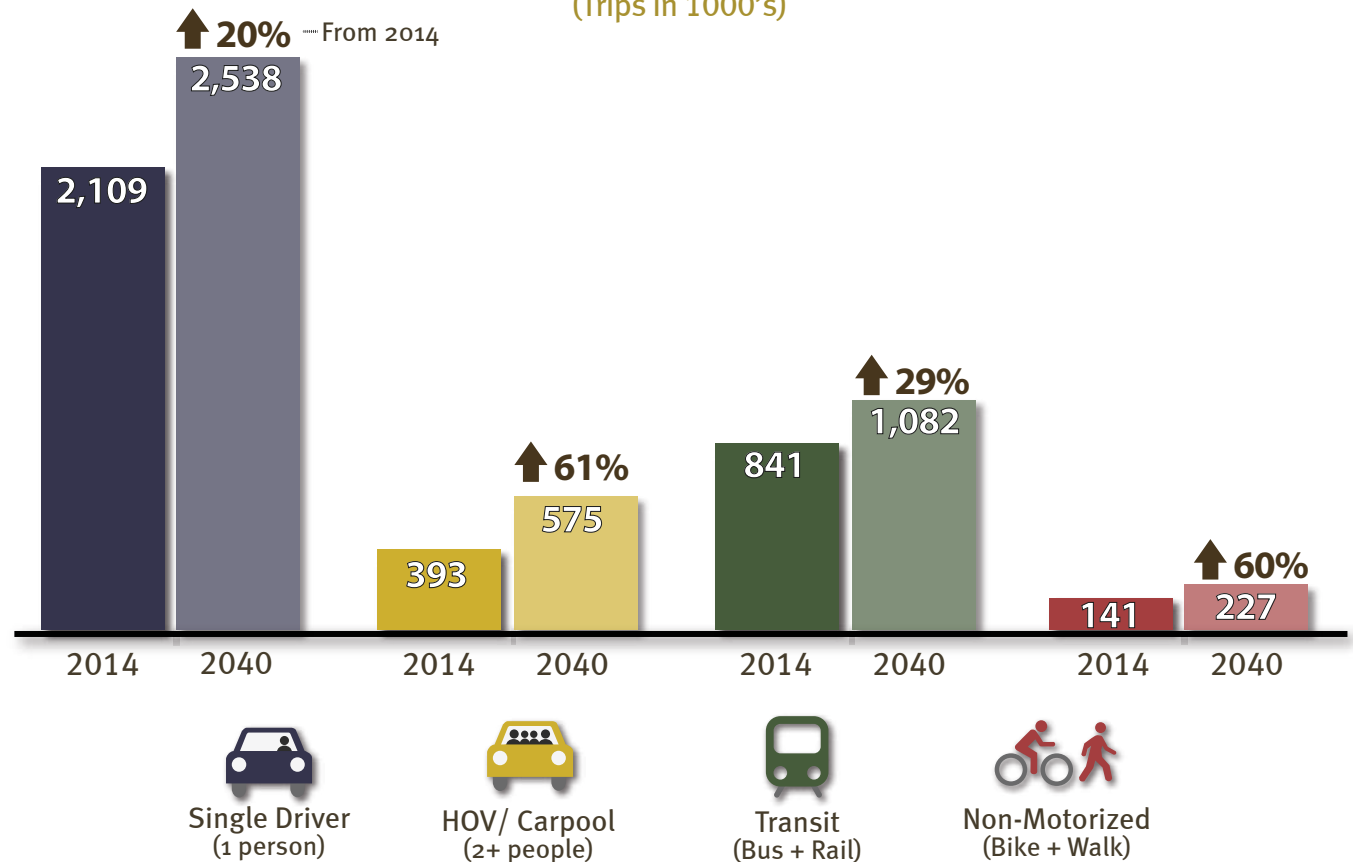
Population and job growth region-wide will lead to an increase in the total number of commute trips. Work trips are expected to account for 20% of all travel, but 40% of all vehicle miles travelled.

The share of works trips taken by single-occupant vehicles is expected to drop from 61% to 57%, carpool trips are expected to increase from 11% to 13%, and non-motorized trips from 4% to 5%.

Mode Share for Commute Travel
2014 to 2040



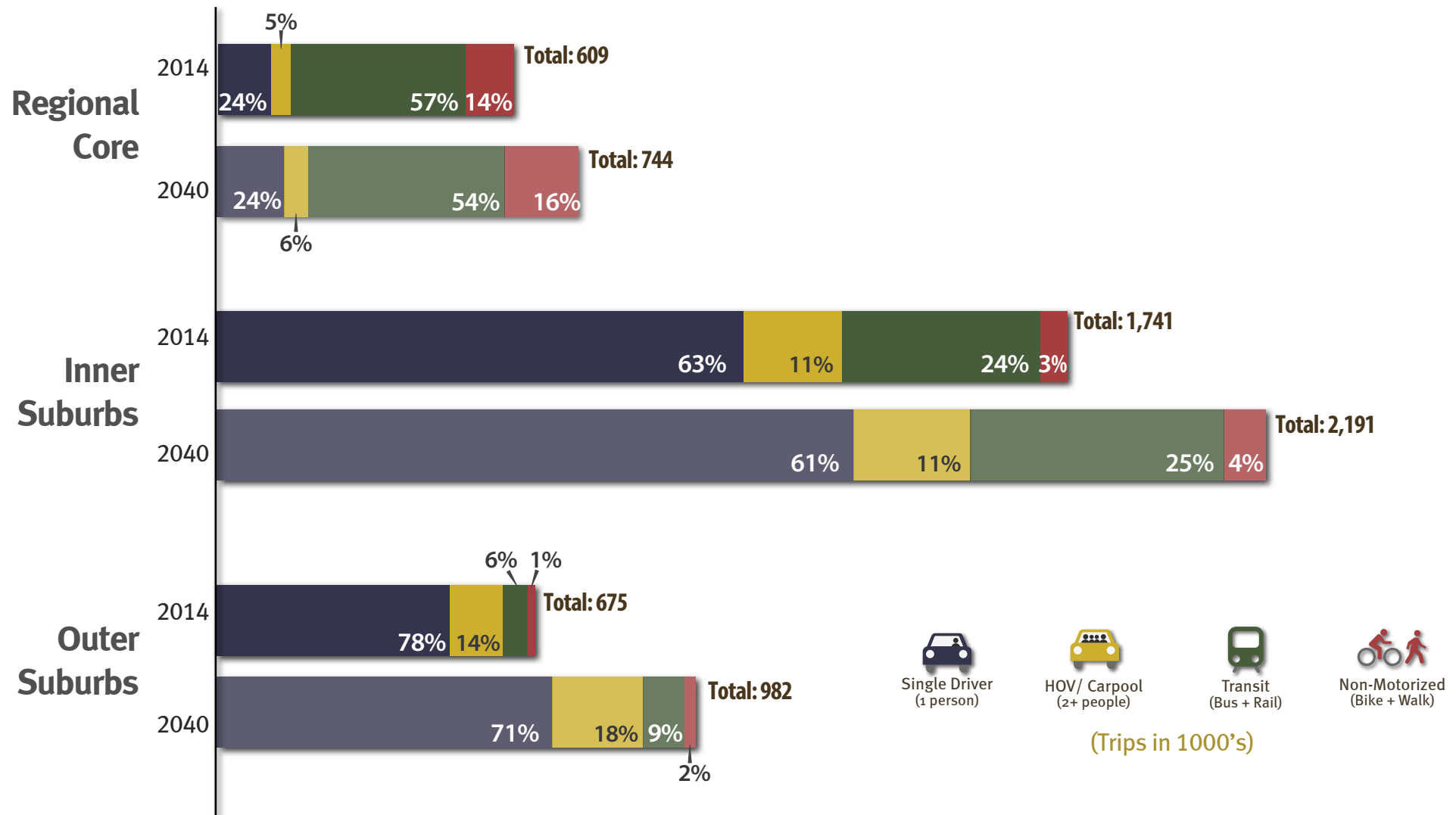
Trips by Mode - Commute Travel
2014 to 2040
(Trips in 1000's)



Commute Mode Share (2014- 2040)

By regional core, inner suburbs, and outer suburbs

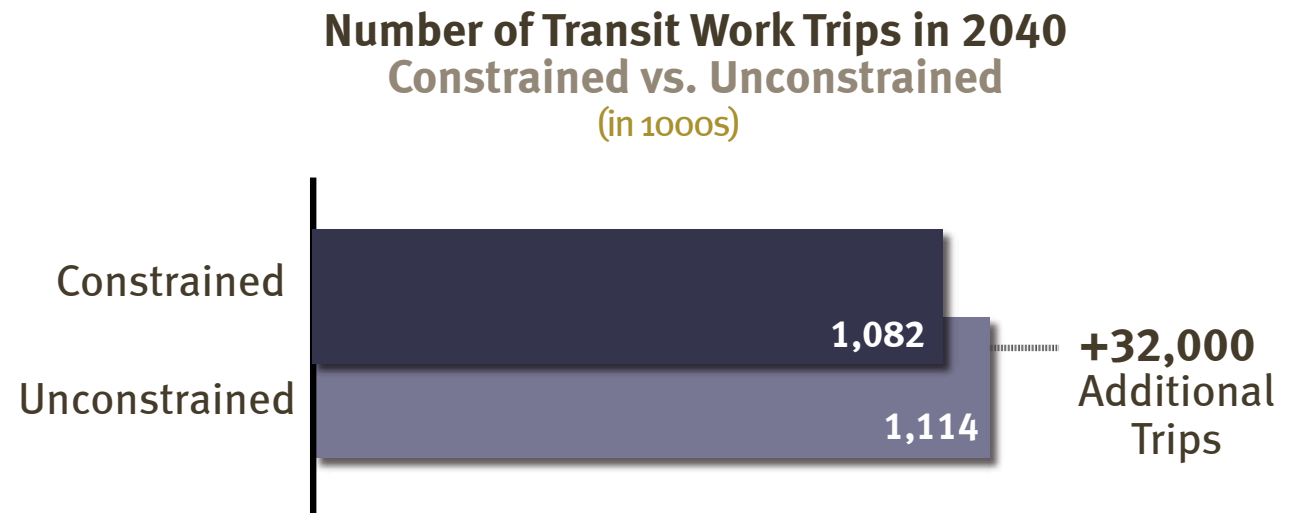
Today, commute mode share varies by geography and by 2040 slight changes in mode share are expected all three areas. In the regional core the share of transit trips is predicted to drop in favor of more walk and bike trips. In the inner suburbs single driver trips are expected to drop slightly in favor of slightly more transit and non-motorized trips. And in the outer suburbs, single driver trips are expected to go down while transit and carpool trips are expected to increase.



Unconstrained Transit (2014- 2040)

To address the lack of identified funding for WMATA's future rehabilitation and maintenance needs beyond 2020, Metrorail ridership to or through the core area was constrained to 2020 levels.

When this constraint on Metrorail trips is lifted, there is an increase of 32,000 transit work trips in 2040. This brings the commute mode share for transit up to 25% from 24%.

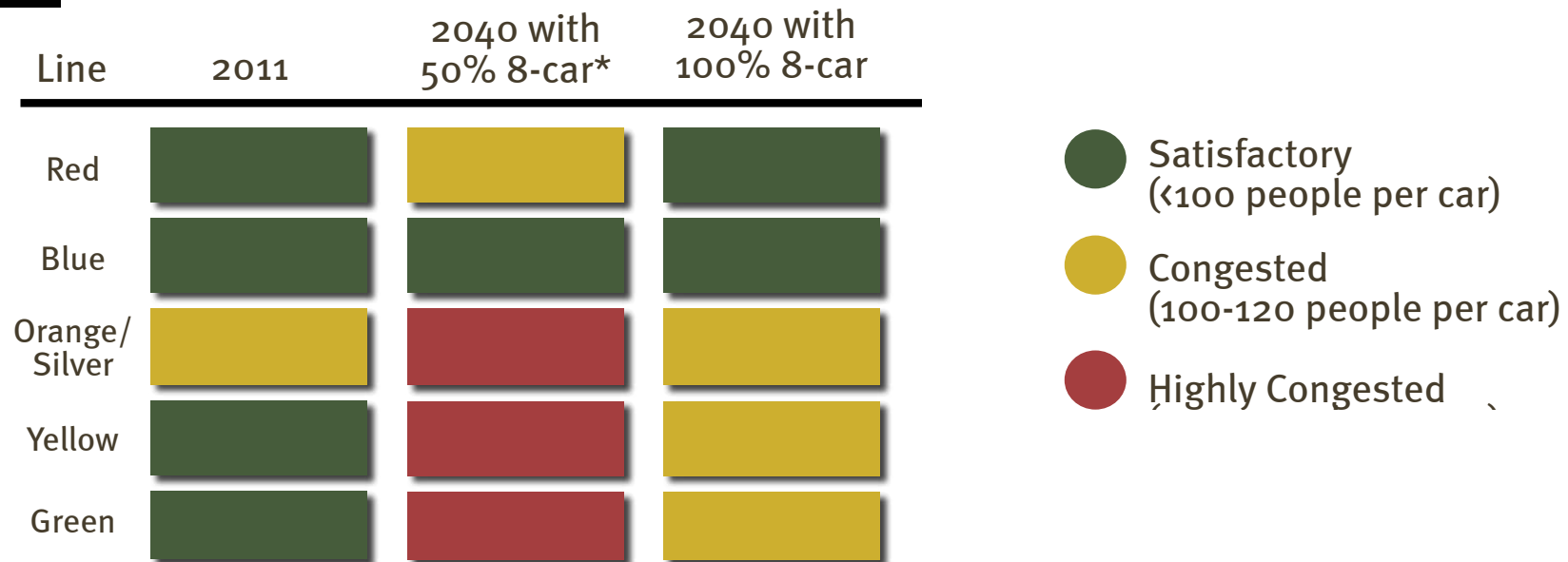


Transit Congestion (2011- 2040)

The Metrorail system will likely reach capacity on trips to and through the regional core, due to lack of funding for capacity enhancements.

Without additional railcars beyond those currently funded, all lines entering the core will become congested by 2040.

M MetroRail Congestion AM rush hour



*The 2013 CLRP assumes 50% 8-car trains in 2040

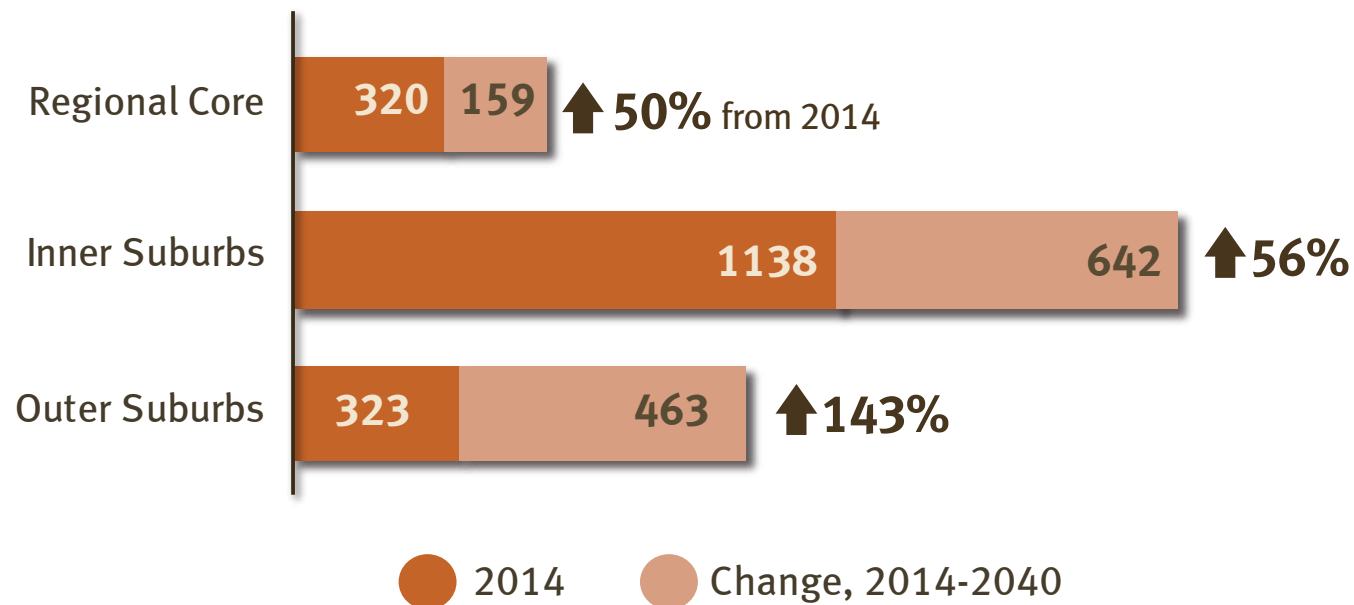
Source: WMATA 2011

Roadway Congestion (2014- 2040)

Severe stop-and-go congestion during the AM peak is expected to be prevalent throughout the entire region in 2040. Outer suburban jurisdictions are forecast to experience the greatest increase in congestion, while the already congested inner suburbs will experience the worst overall congestion.

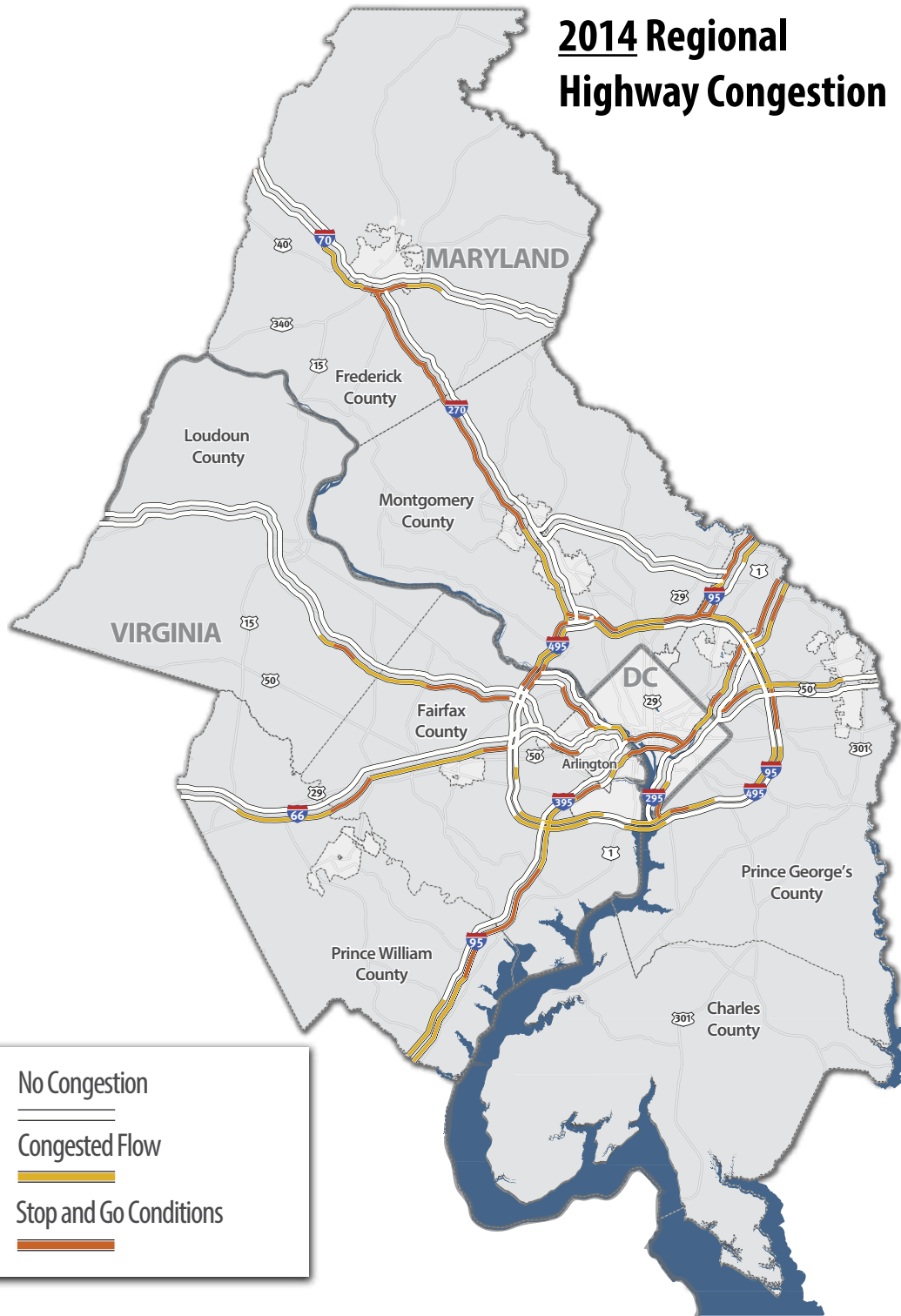


Lane Miles of Congestion AM rush hour

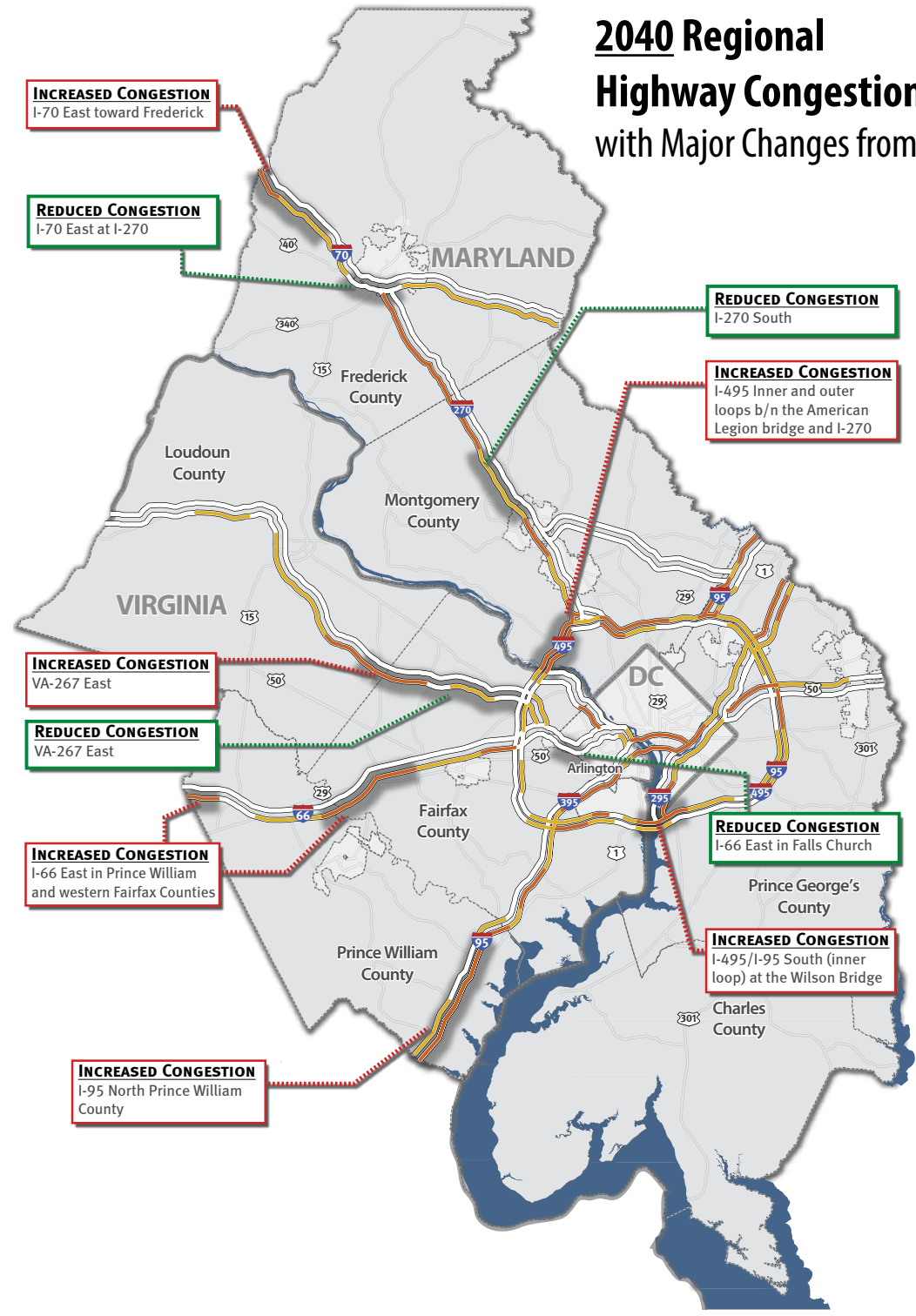


Highway Congestion AM Peak Period (2014- 2040)

2014 Regional Highway Congestion



2040 Regional Highway Congestion with Major Changes from 2014



No Congestion
 Congested Flow
 Stop and Go Conditions

INCREASED CONGESTION
 I-70 East toward Frederick

REDUCED CONGESTION
 I-70 East at I-270

REDUCED CONGESTION
 I-270 South

INCREASED CONGESTION
 I-495 Inner and outer loops b/n the American Legion bridge and I-270

INCREASED CONGESTION
 VA-267 East

REDUCED CONGESTION
 VA-267 East

INCREASED CONGESTION
 I-66 East in Prince William and western Fairfax Counties

REDUCED CONGESTION
 I-66 East in Falls Church

INCREASED CONGESTION
 I-495/I-95 South (inner loop) at the Wilson Bridge

INCREASED CONGESTION
 I-95 North Prince William County

Highway Congestion (2014- 2040)

AM congestion is expected to increase throughout most of the region in 2040, particularly in the following outer jurisdiction locations:

- **I-70 East** toward Frederick
- The **Beltway** both directions between I-270 and the American Legion Bridge
- Parts of **VA-267 East** in Fairfax County
- Parts of **I-66 East** in Prince William and Fairfax Counties
- **I-95 North** in Prince William County
- The **Wilson Bridge** on the inner loop of the beltway

Congestion reductions are forecast in the following locations:

- **I-70 East** at the I-270 interchange (widening)
- Along parts of **I-270 South** (Corridor Cities Transitway, HOV, and widening)
- **VA-267 East** (collector/distributor roads and Silver Line to Loudoun)
- And **I-66 East** inside the beltway (spot improvements and increase to HOV3+)

Accessibility to Jobs

What is Job Accessibility?



LOCATION OF JOBS

+



TRAVEL TIME
(BY AUTO OR TRANSIT)

=

ACCESSIBILITY
[NUMBER OF JOBS
WITHIN 45 MINUTE
COMMUTE]

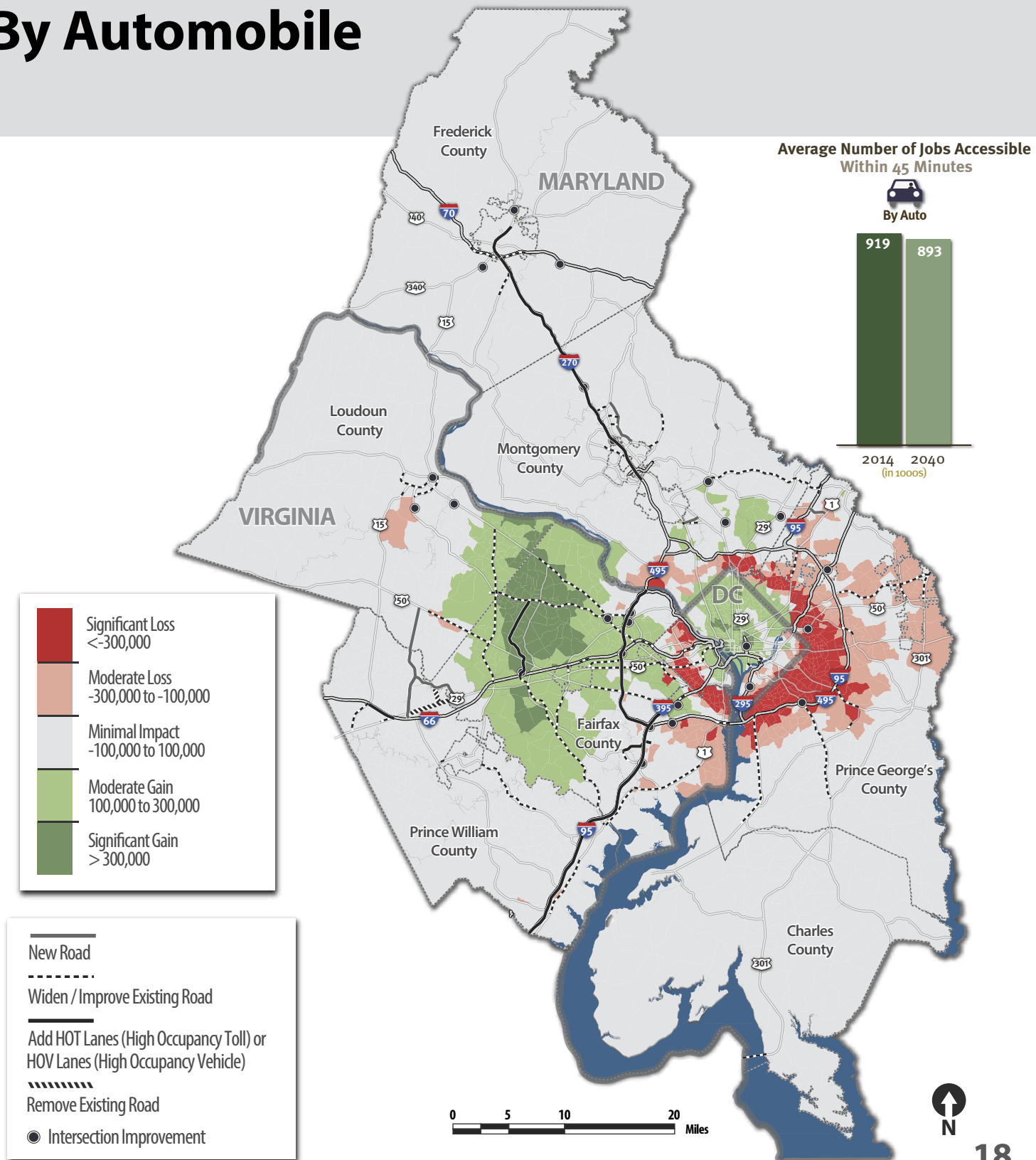
Jobs are considered to be **accessible** if they are within a 45 minute commute range.

Accessibility to Jobs By Automobile

(2014- 2040)

The average number of jobs accessible within a 45 minute automobile commute is expected to go down slightly.

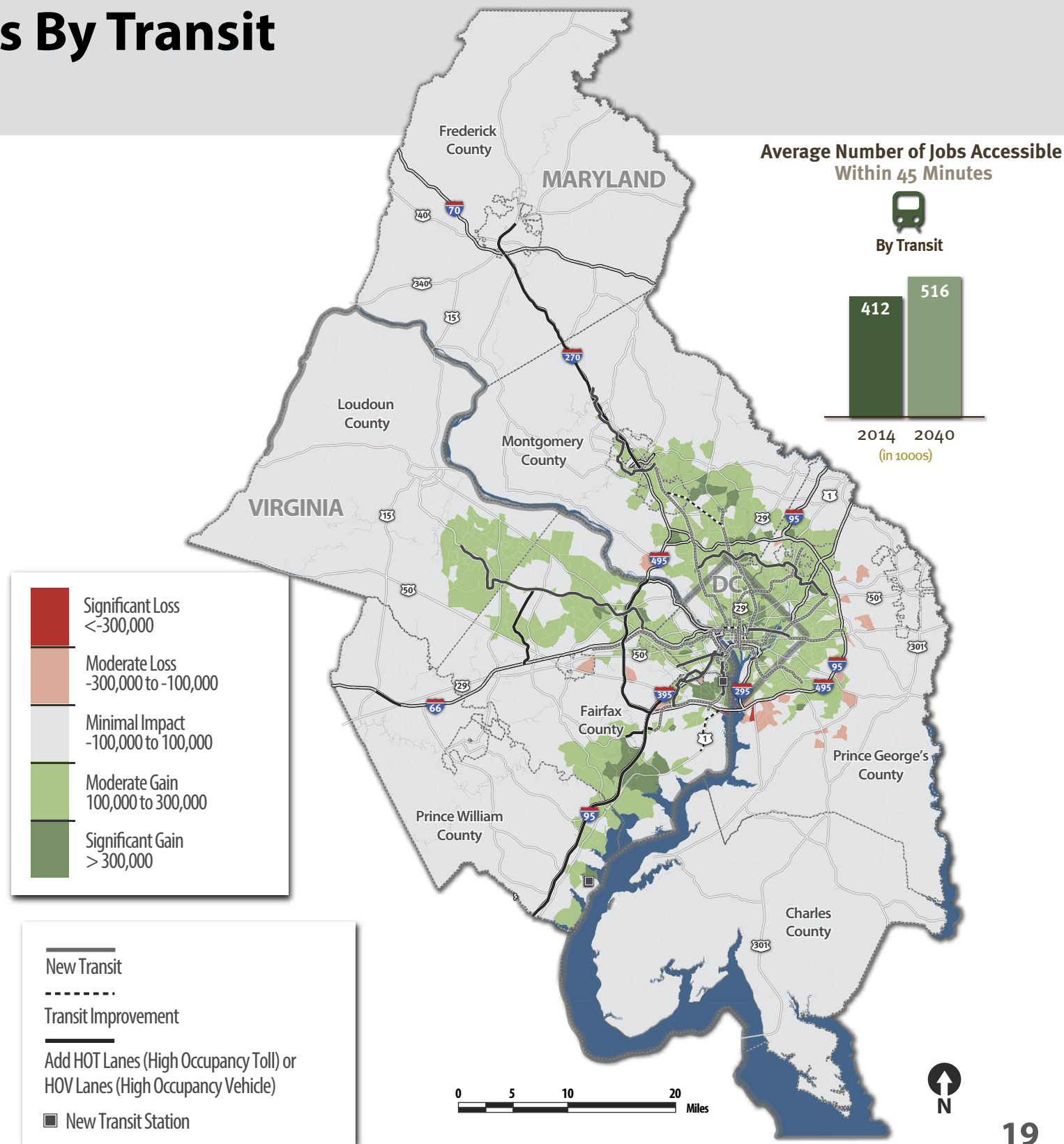
The greatest reductions in job accessibility are expected to be on the eastern side of the region, due to increases in congestion system-wide and a higher concentration of future jobs on the west side.



Accessibility to Jobs By Transit

(2014- 2040)

Average accessibility by transit is forecast to increase, but will remain significantly lower than by automobile.

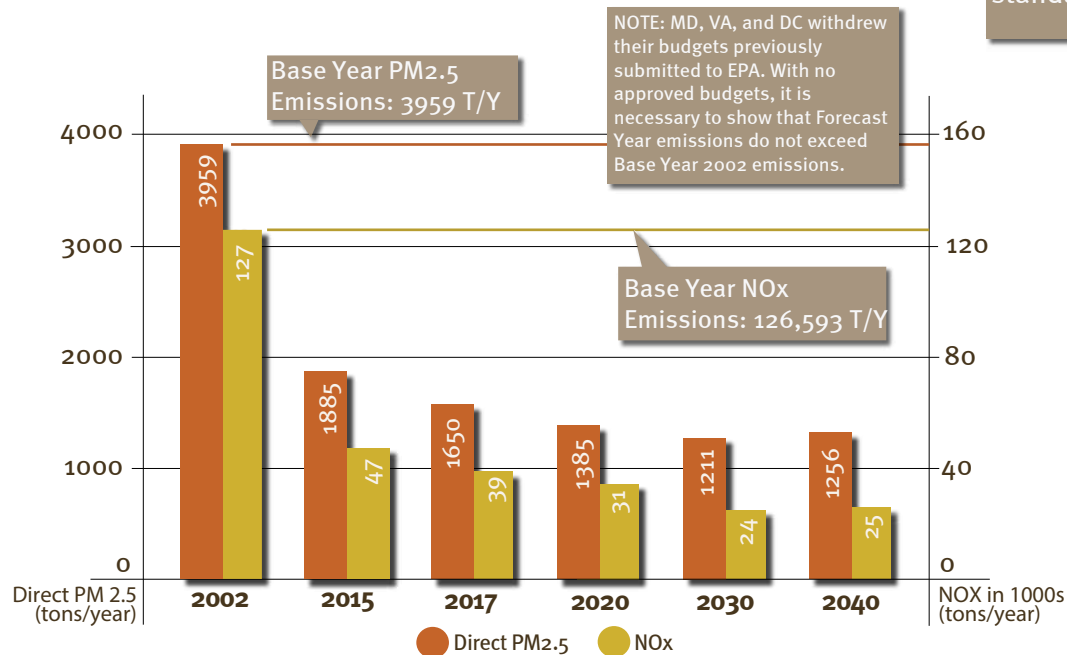


Air Quality - Criteria Pollutants (2014- 2040)

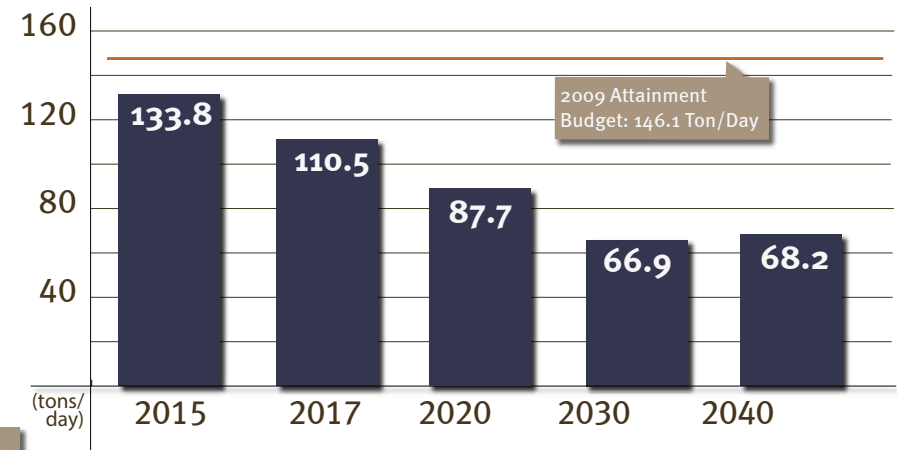
The CLRP shows substantial reductions in all main pollutants through 2020, with a very small uptick between 2030 and 2040.

Estimated emissions are well within the approved budget for each pollutant through 2040.

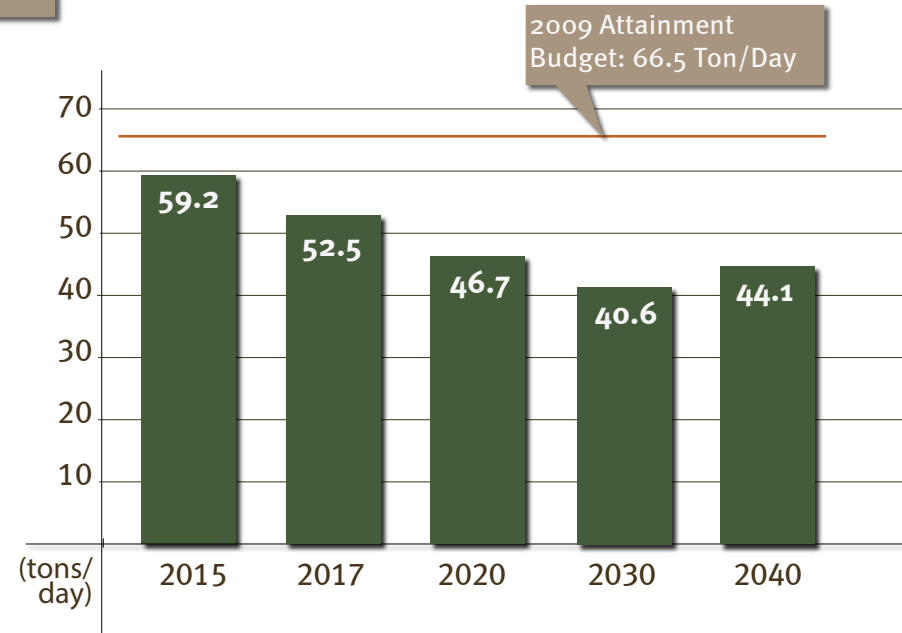
PM_{2.5} and Precursor NO_x Emissions (1997 PM_{2.5} NAAQS, 15 mg/m³)



Mobile Source NO_x Emissions (1997 PM_{2.5} NAAQS, 15 mg/m³)

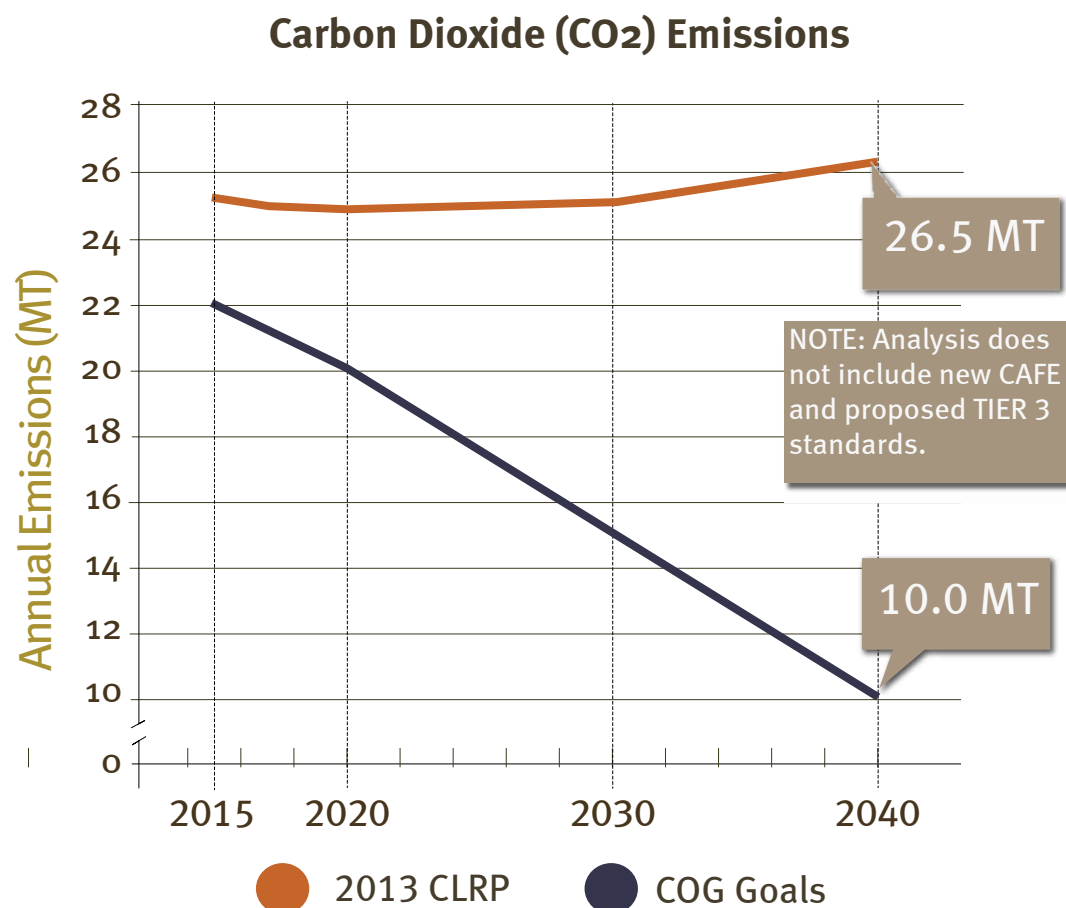


Ozone Season VOC Emissions (1997 PM_{2.5} NAAQS, 15 mg/m³)



Air Quality - Carbon Dioxide (CO₂)

(2014- 2040)



The COG climate change report of November 2008 set a goal of reducing the region's CO₂ output to 80% below 2005 levels. To meet this goal, transportation related CO₂ emissions would need to be reduced by 60% compared to 2005 levels by 2040.

While some small reductions in CO₂ emissions in the short term are currently forecast, emissions are projected to increase after 2030.

*** The newest federal CAFE standards are not included in this analysis, but will substantially reduce forecast emissions in the later years of this analysis.*

Key Findings (2014- 2040)

- » **The share of daily and commute travel by single drivers is expected to decrease** in favor of other modes, especially in the outer suburbs.
- » **The share of commute travel by carpool is forecast to grow measurably**, especially in the outer suburbs, as the requirement for the use of High-Occupancy Vehicle (HOV) lanes becomes HOV 3+ region-wide and the system of HOV and High Occupancy Toll (HOT) facilities expands.
- » **The share of both daily and commute travel by transit is not expected to increase through 2040**, although the number of transit trips is expected to increase by 30%.

Key Findings (2014- 2040)

- » **The share of total daily travel by walking and biking is forecast to increase**, region-wide and in the regional core, inner suburbs, and outer suburbs, as more of the region's future growth is now projected to occur in Regional Activity Centers.
- » Although overall **AM peak highway congestion is expected to increase substantially** between now and 2040, **some reductions in AM peak highway congestion are seen in a few corridors** where a combination of multi-modal highway, HOV/HOT, and transit projects are planned.

Continuing Challenges



» **Metrorail State of Good Repair:** Funding to address deferred Metrorail rehabilitation and maintenance needs is committed only through 2020.

» **Transit Congestion:** The Metrorail system will experience increasingly severe crowding problems, and lack the capacity to support forecasted population and employment growth.



» **Roadway Congestion:** The region's roadways will remain among the most congested in the nation, impacting the peak period travel of people and goods.

» **Housing & Job Location:** More residential and economic growth needs to be encouraged in activity centers and near existing and planned transit stations, especially on the east side of the region.