



The Financially Constrained

Long-Range Transportation Plan (CLRTP)

For the **National Capital Region**

2013 Performance Analysis

Presentation to the TPB Technical Committee

December 6, 2013

Significant Changes from 2012

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

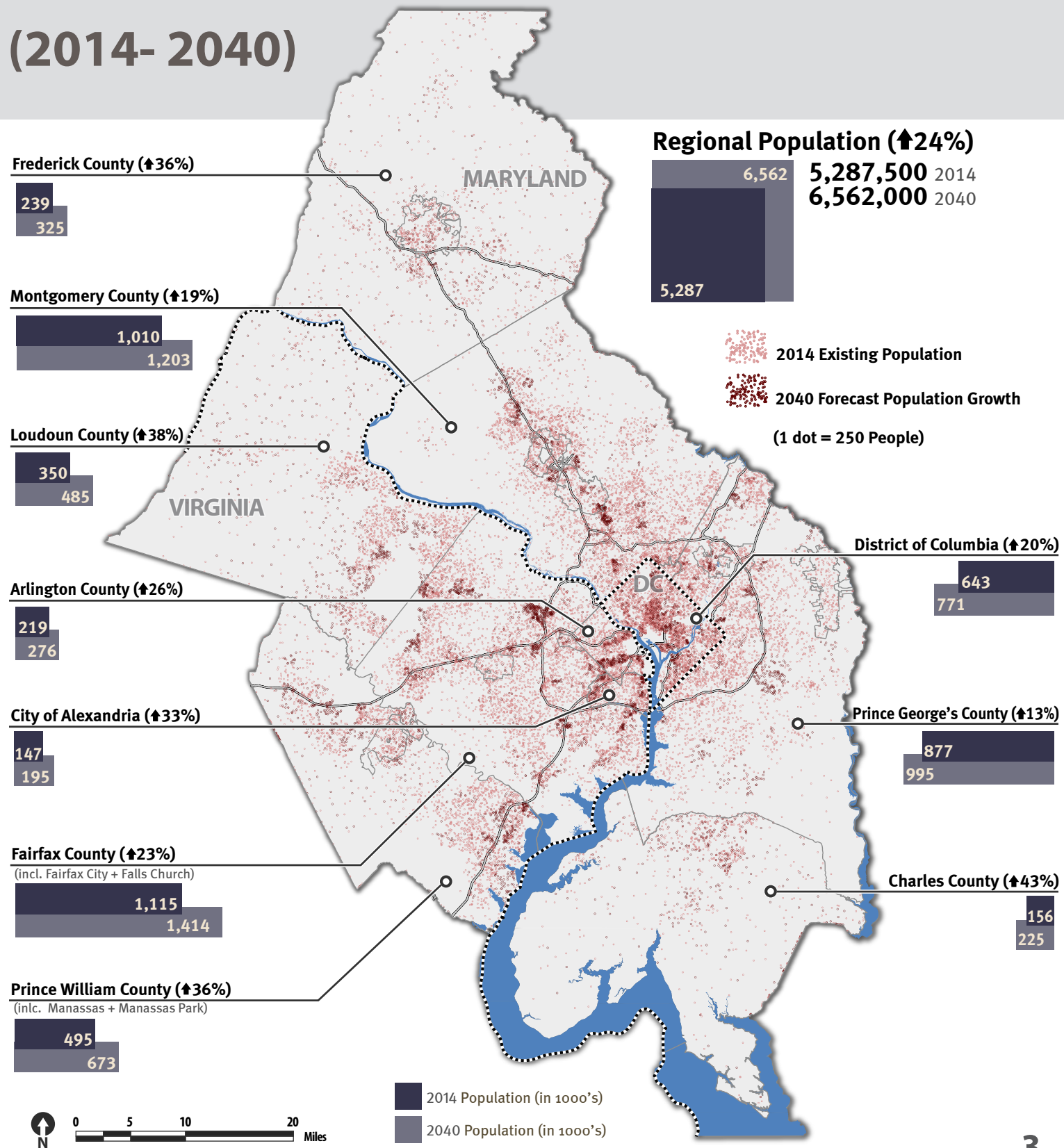
The MOVES2010a emissions model was used for the first time for air quality conformity estimates

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.

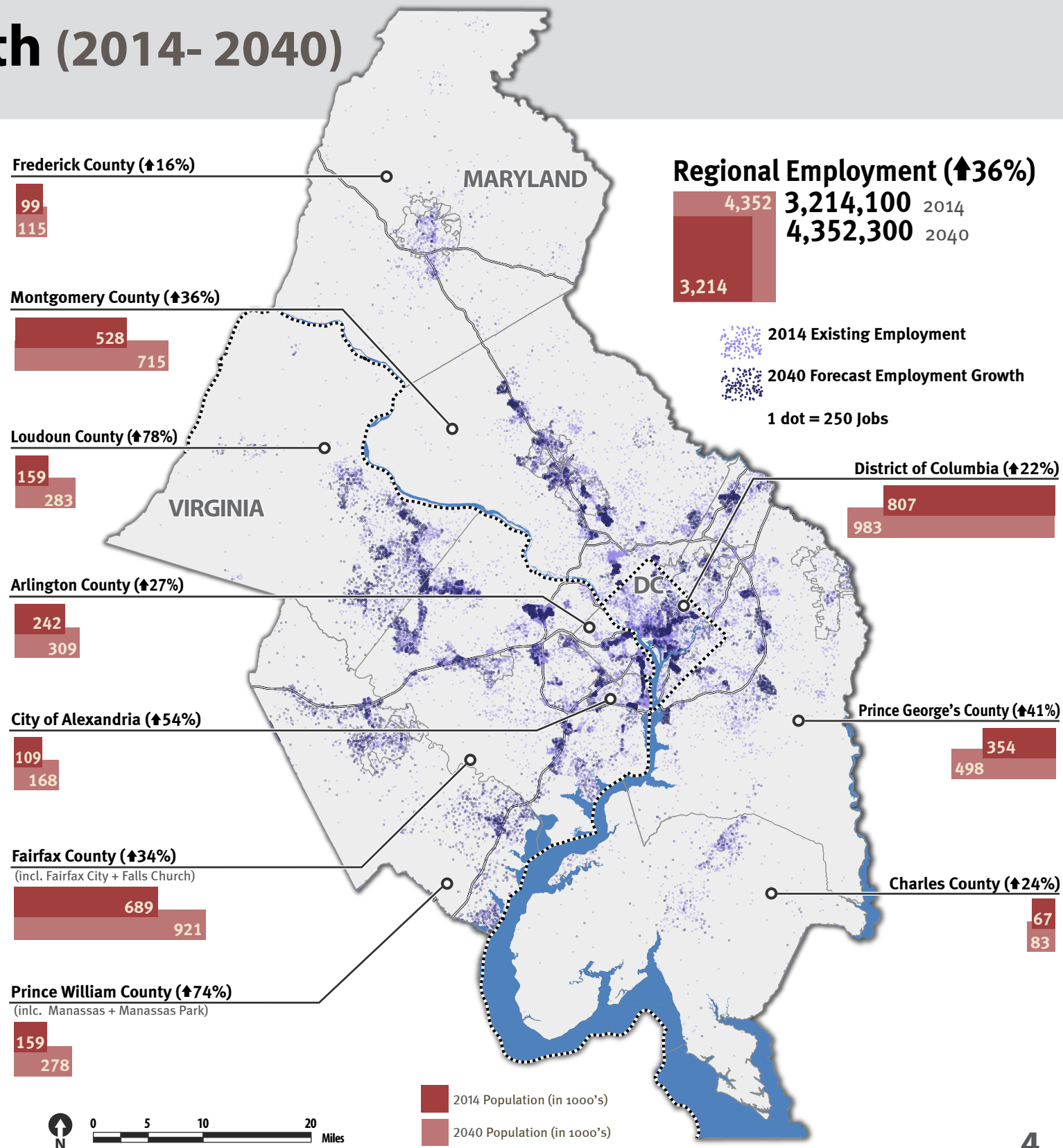


Employment Growth (2014- 2040)

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.

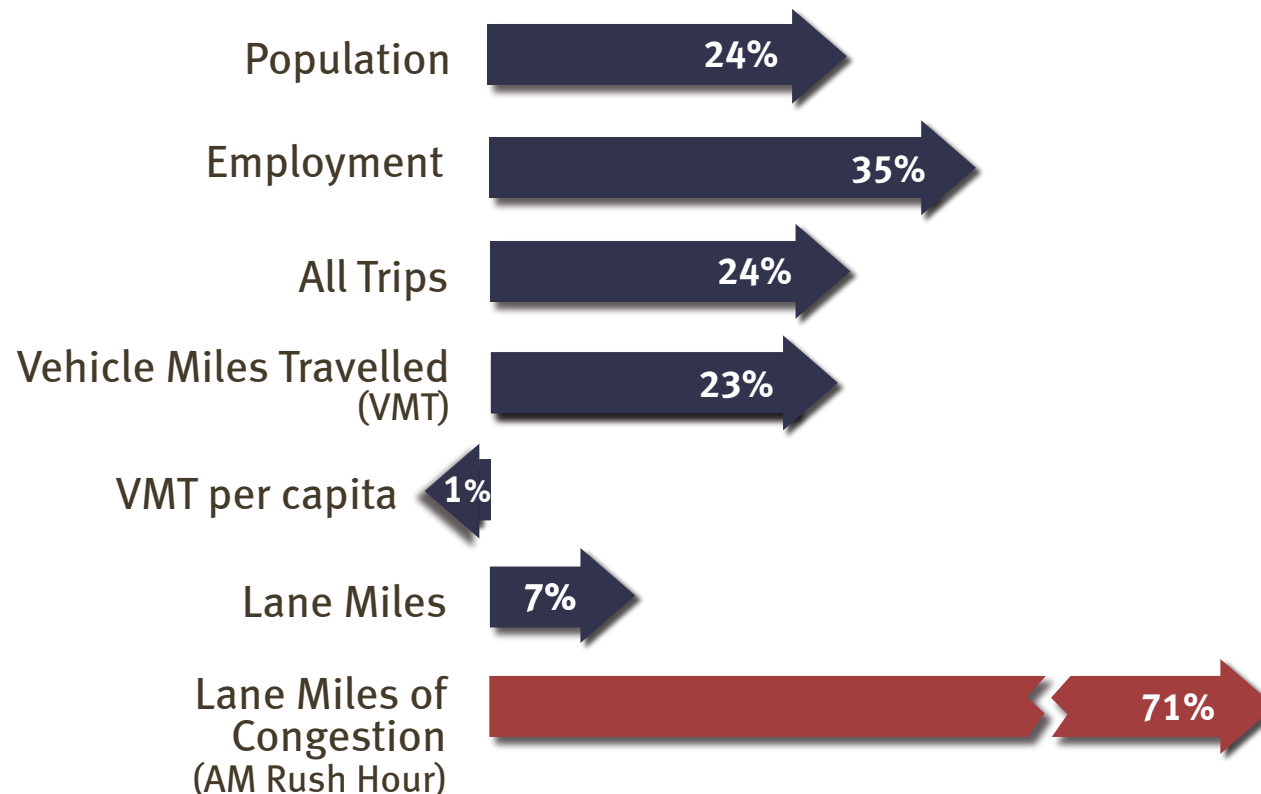


Travel Demand (2014- 2040)

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

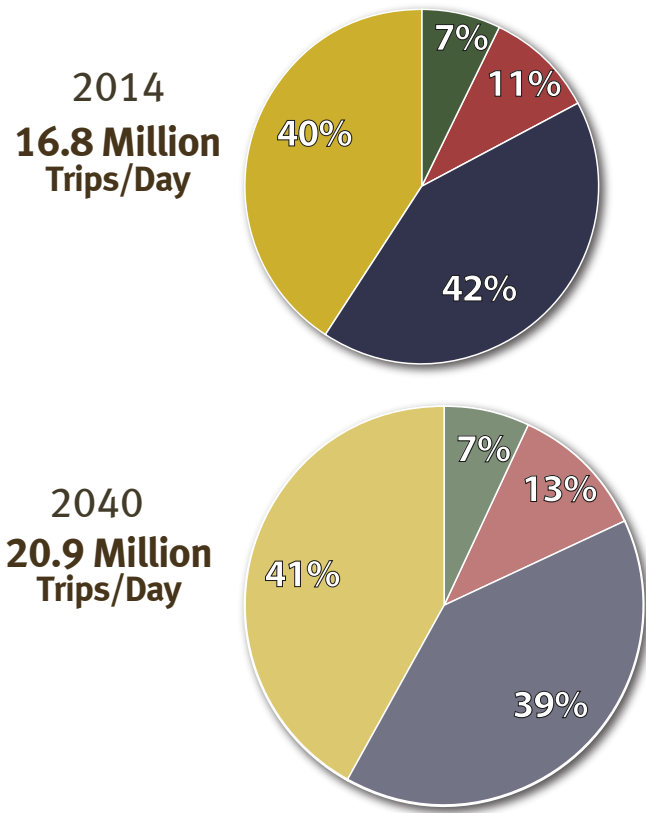


Daily Travel (2014- 2040)

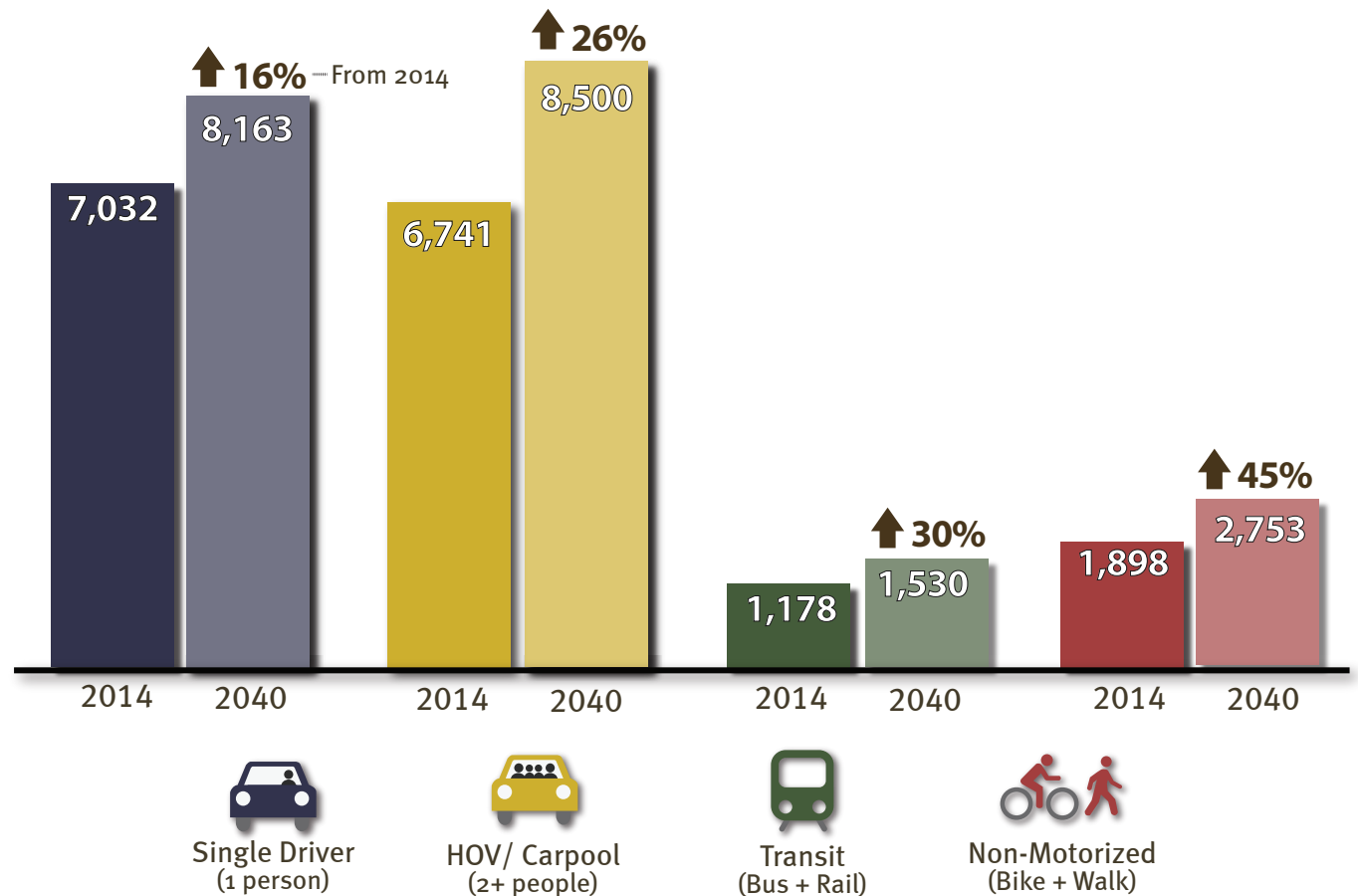
By 2040, trips made by drivers of single-occupant vehicles are expected to drop by a few percentage points, while carpool trips and non-motorized vehicle trips are expected to increase slightly.

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)

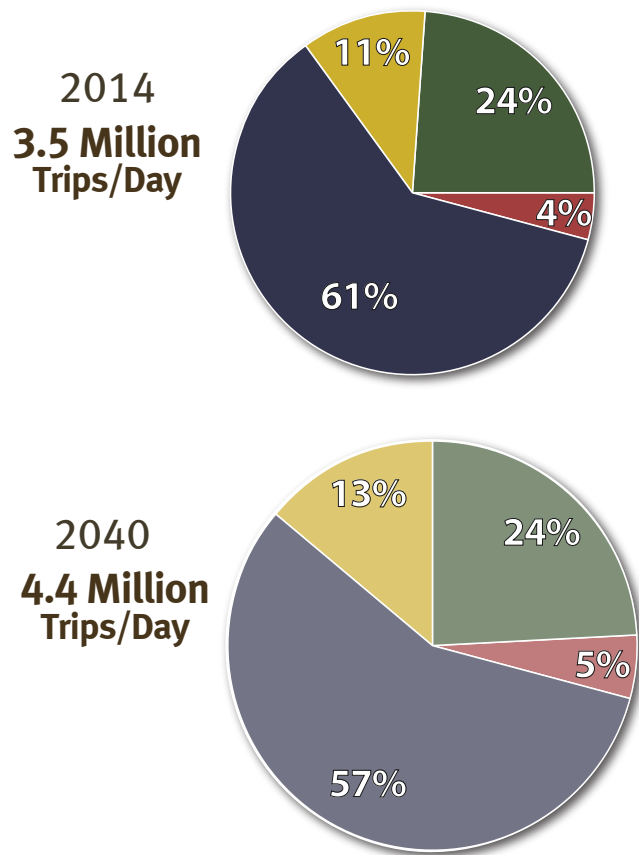


Commute Travel (2014- 2040)

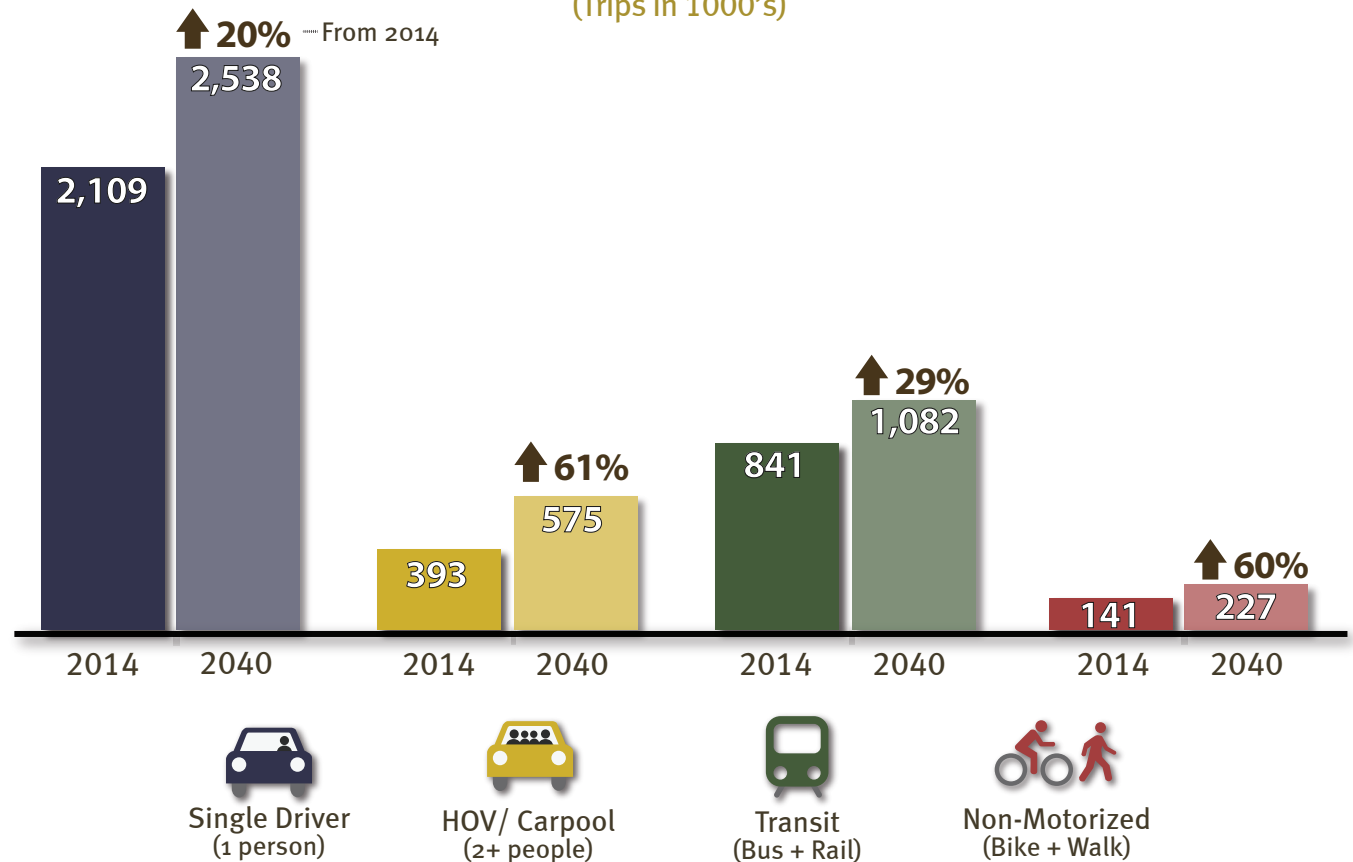
Population and job growth region-wide will lead to an increase in the total number of commute trips. Work trips are expected to account for 20% of all travel, but 40% of all vehicle miles travelled.

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



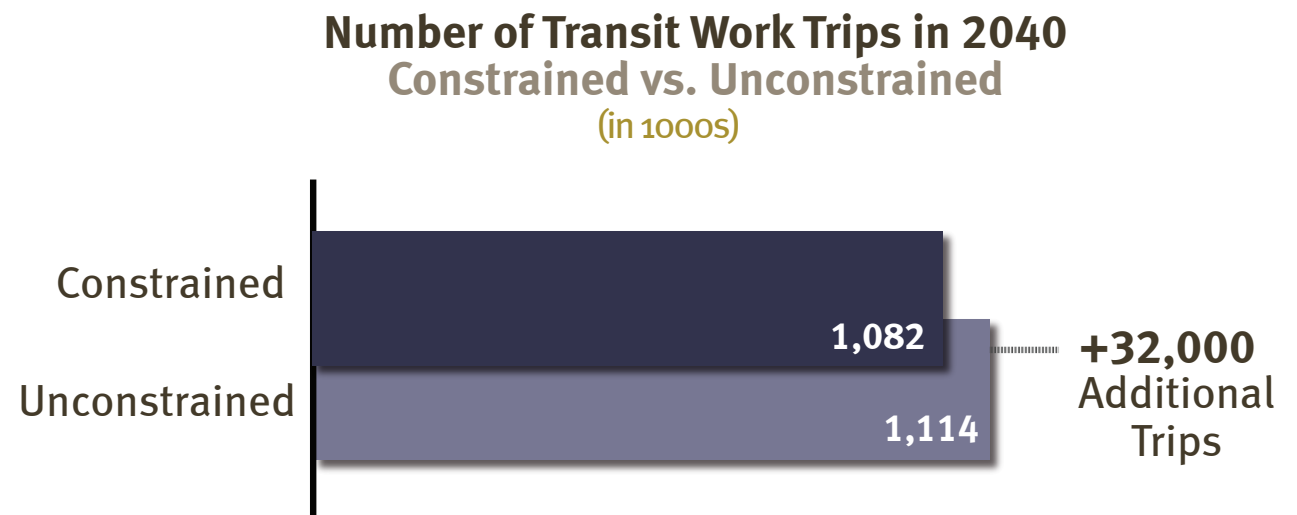
Trips by Mode - Commute Travel 2014 to 2040 (Trips in 1000's)



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.

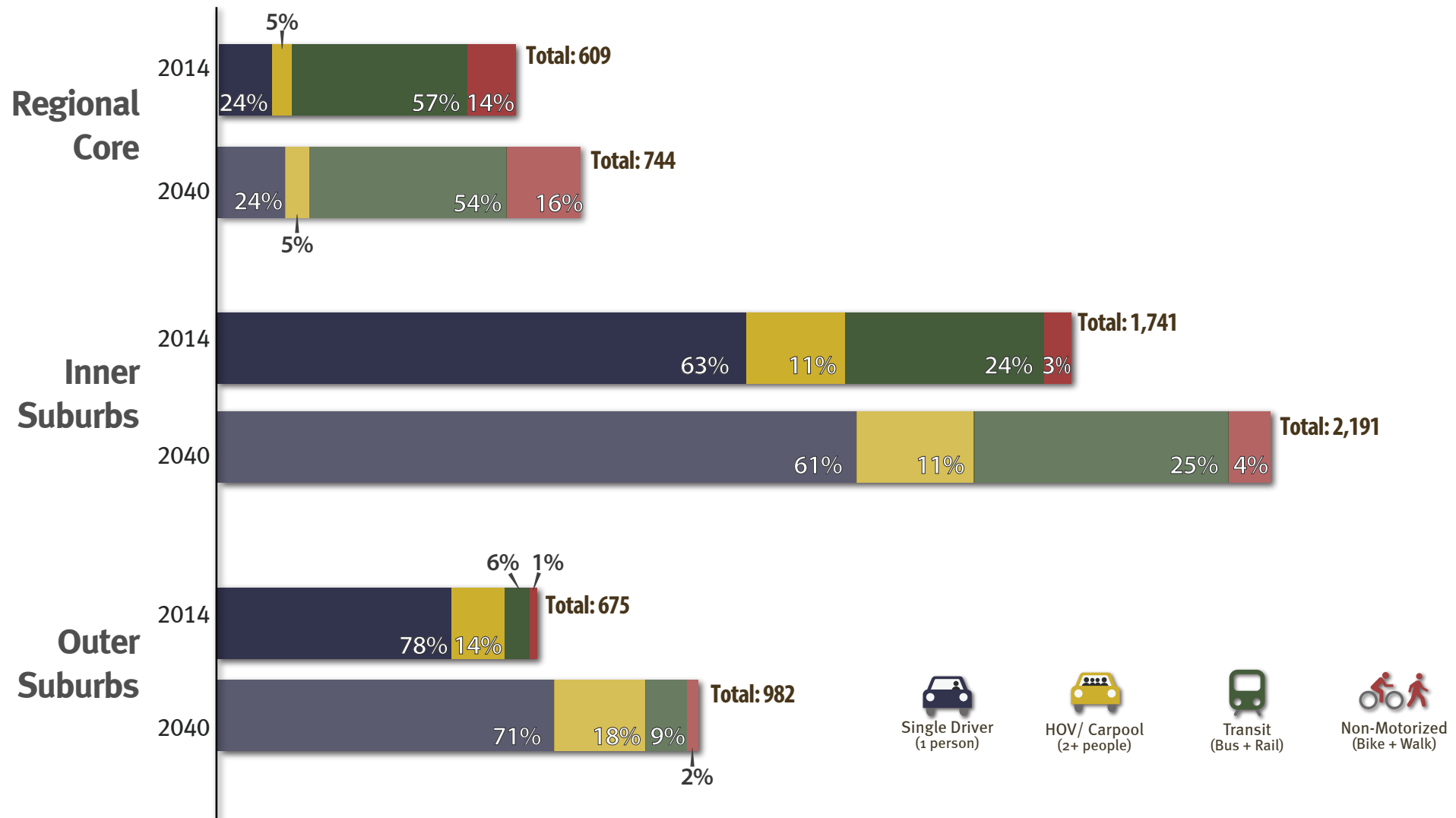
When this constraint on Metrorail trips is lifted, there is an increase of 32,000 transit work trips in 2040. This brings the commute mode share for transit up to 25% from 24%.



Commute Mode Share (2014- 2040)

By regional core, inner suburbs, and outer suburbs

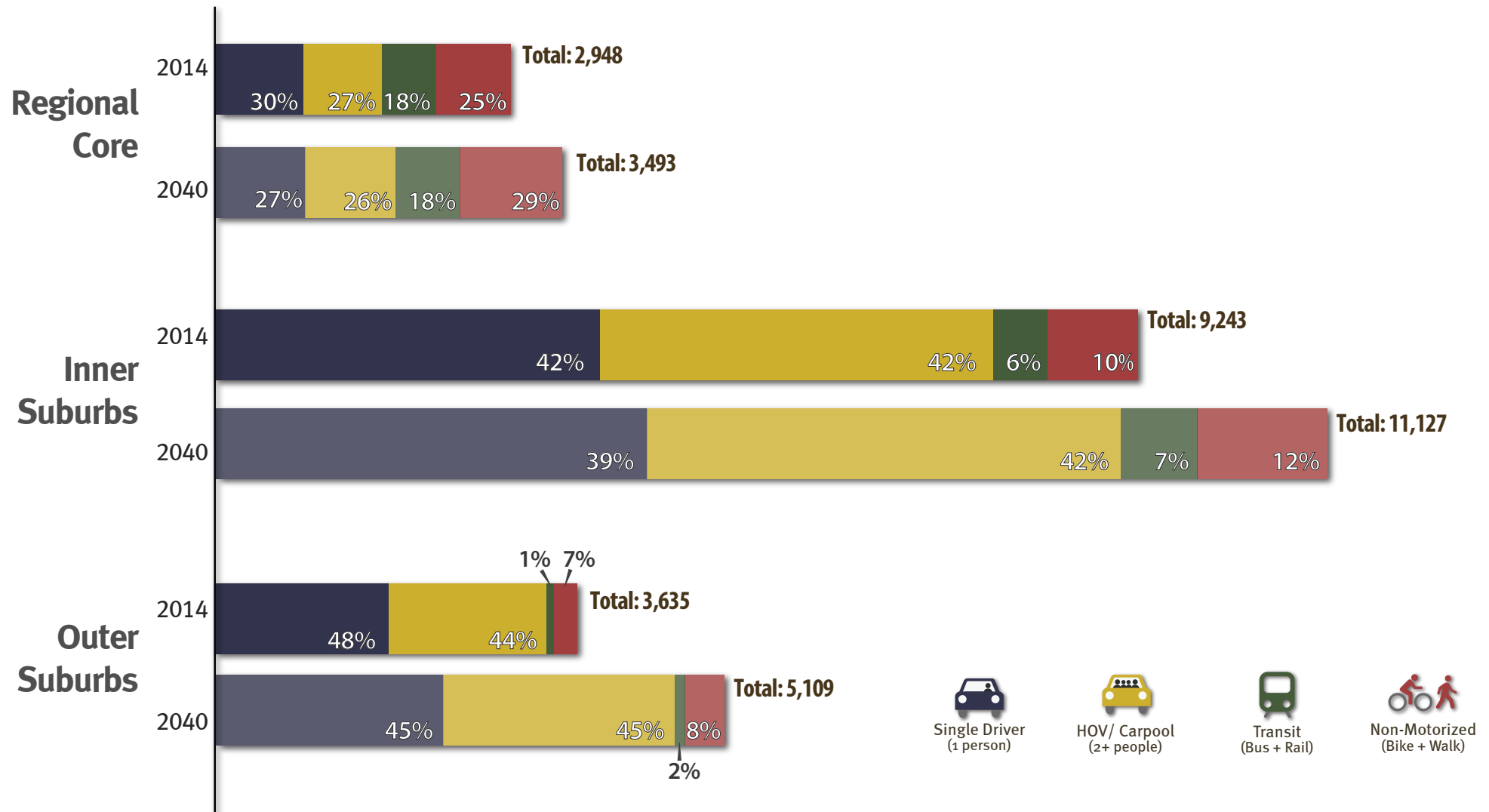
Today, commute mode share varies by geography and by 2040 slight changes in mode share are expected all three areas. In the regional core the share of transit trips is predicted to drop in favor of more walk and bike trips. In the inner suburbs single driver trips are expected to drop slightly in favor 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.



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.

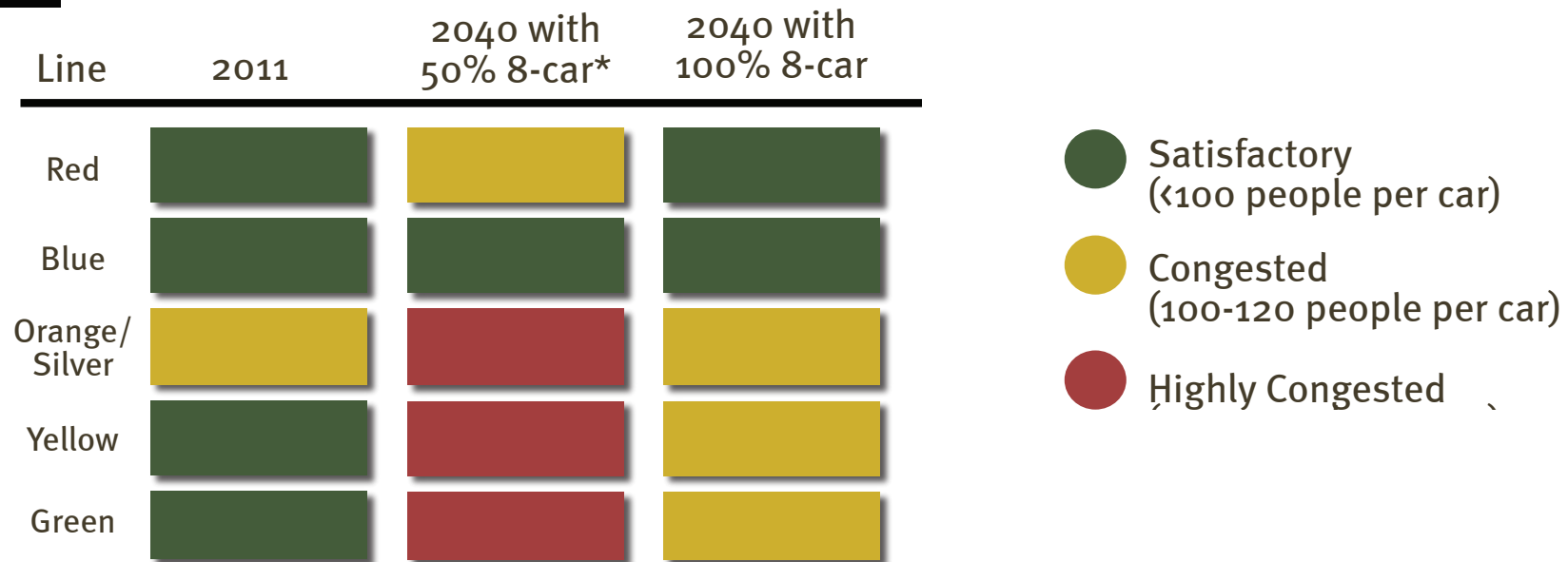


Transit Congestion (2011- 2040)

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

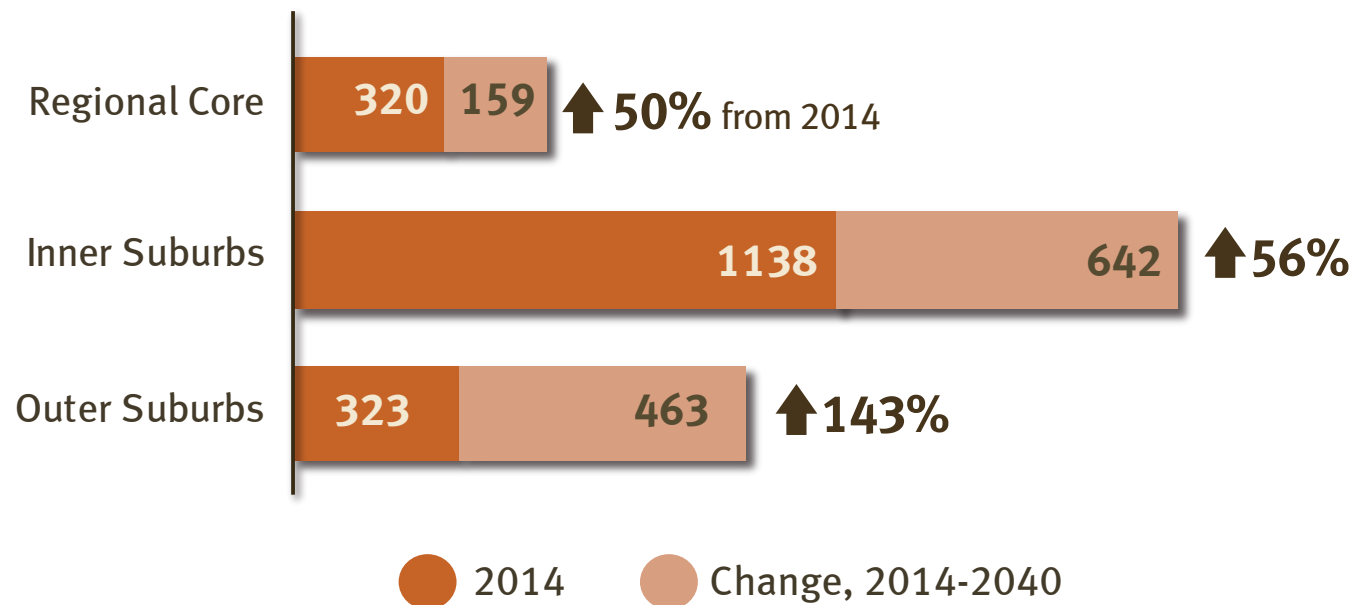
Source: WMATA 2011

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

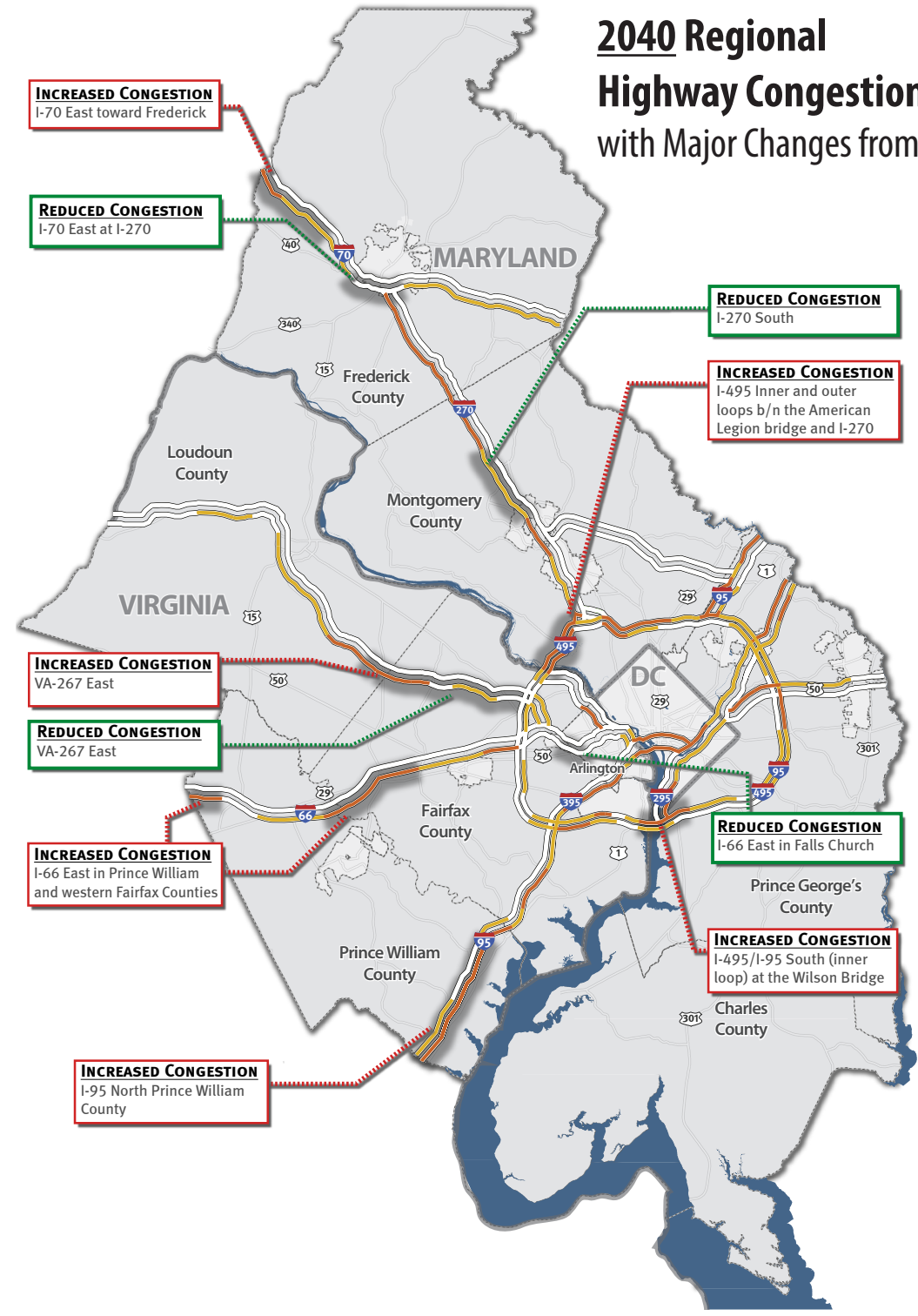


Highway Congestion (2014- 2040)

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

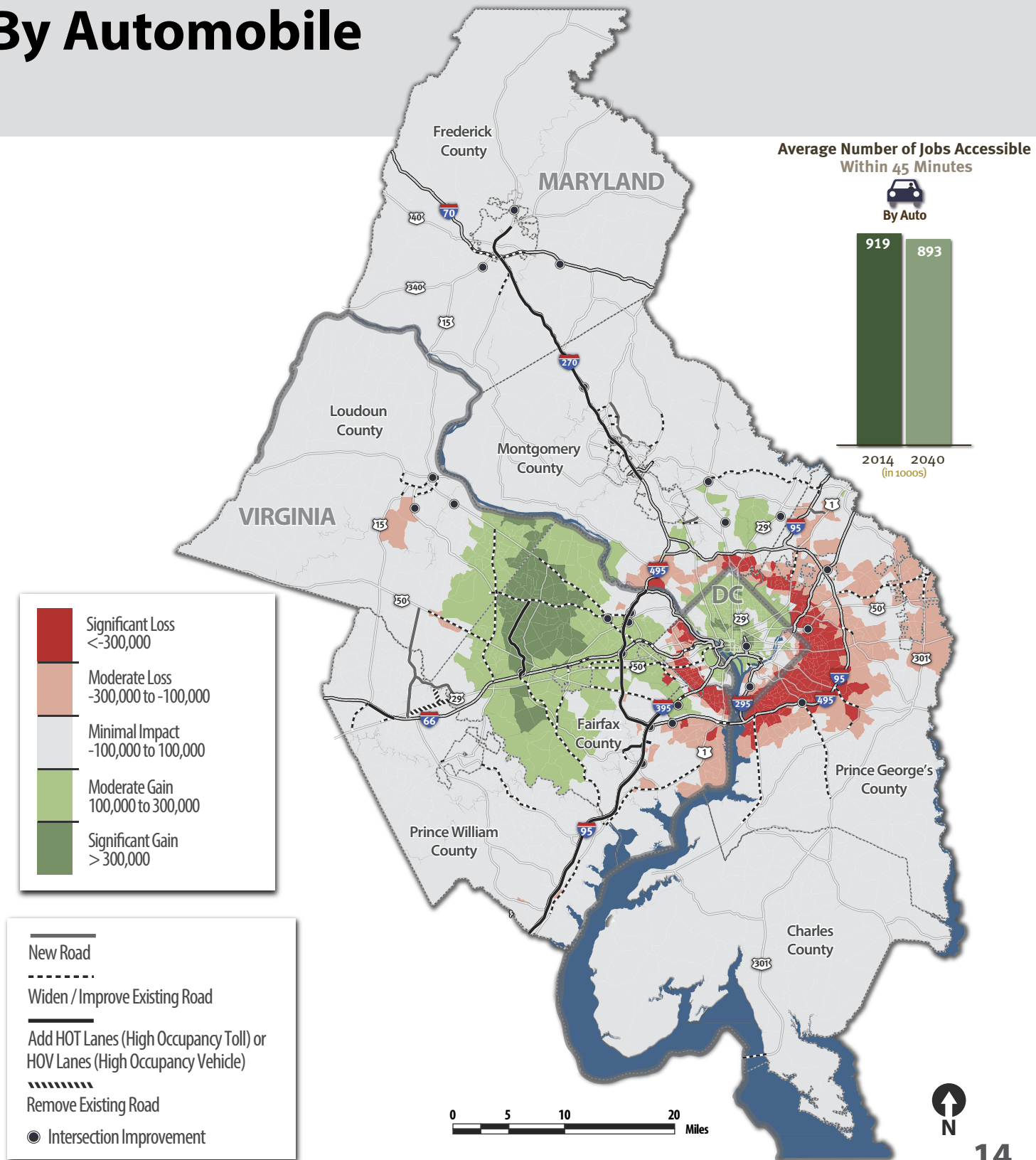
INCREASED CONGESTION
 I-495/I-95 South (inner loop) at the Wilson Bridge

INCREASED CONGESTION
 I-95 North Prince William County

Accessibility to Jobs By Automobile (2014- 2040)

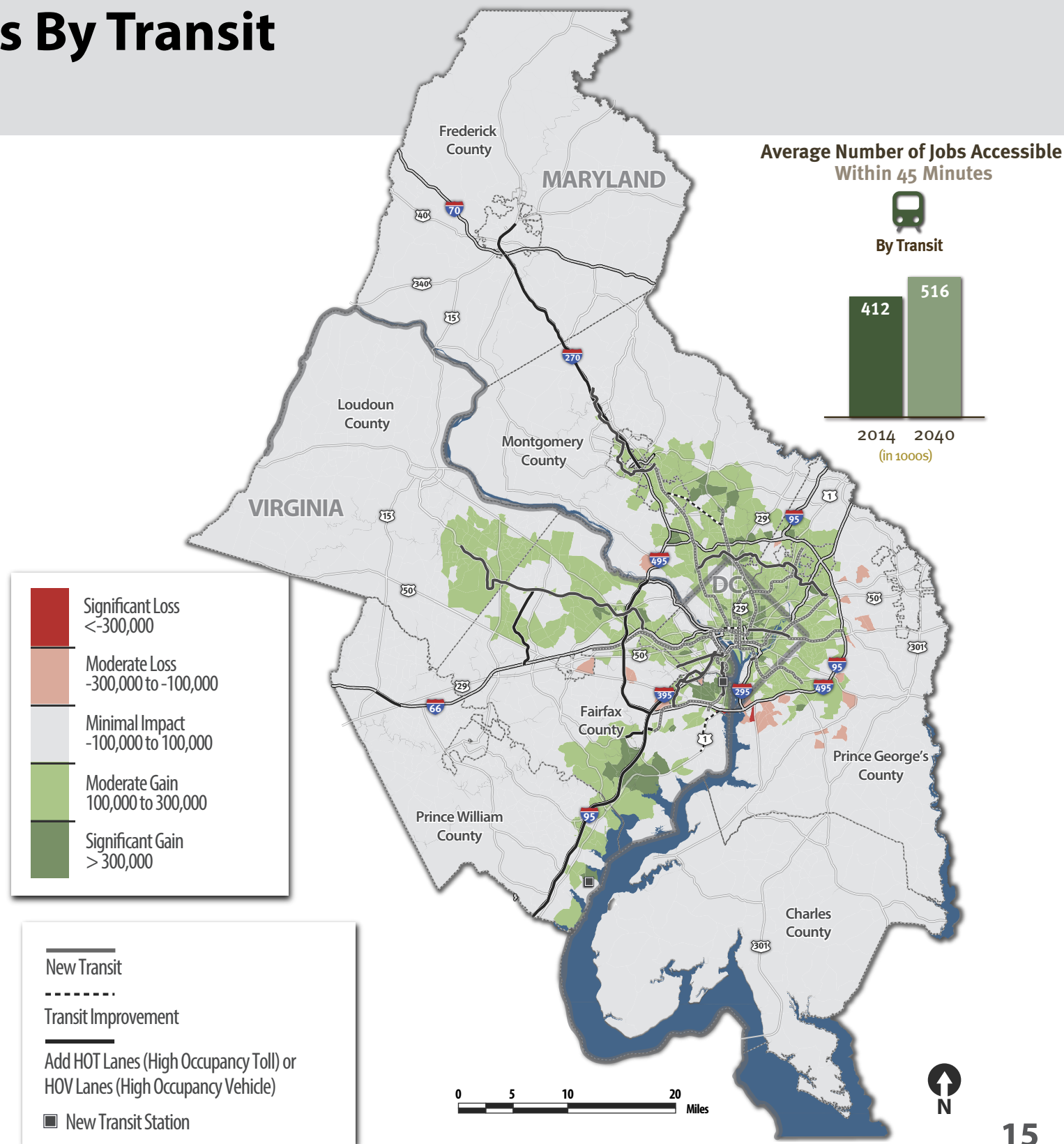
The average number of jobs accessible within a 45 minute automobile commute is expected to go down slightly.

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.

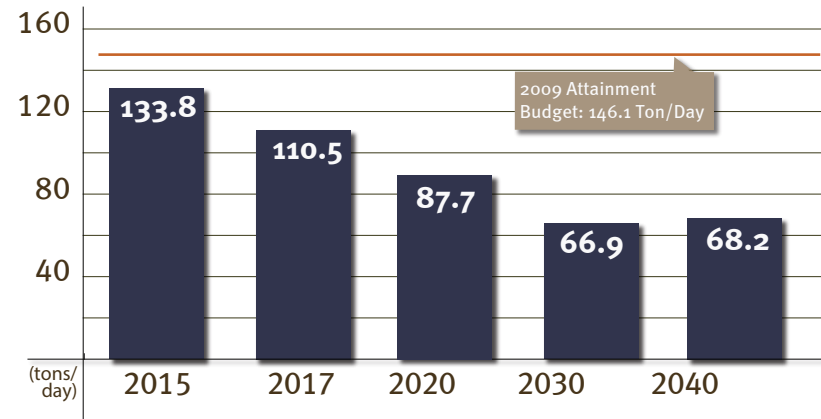


Air Quality - Criteria Pollutants (2014- 2040)

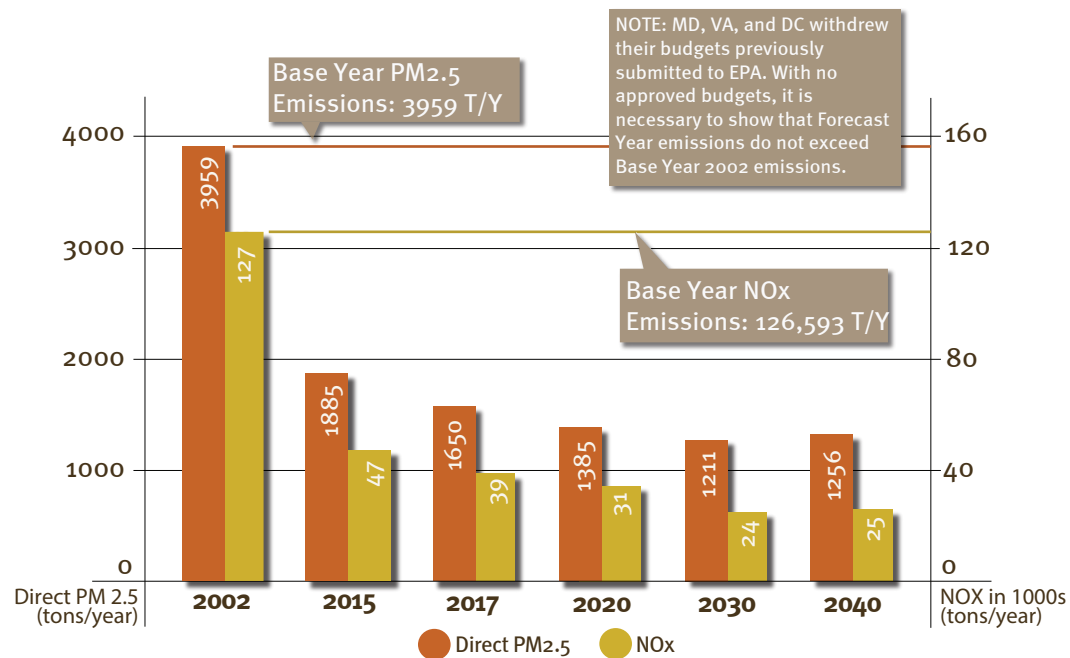
The CLRP shows substantial reductions in all main pollutants through 2020, with a very small uptick between 2030 and 2040.

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

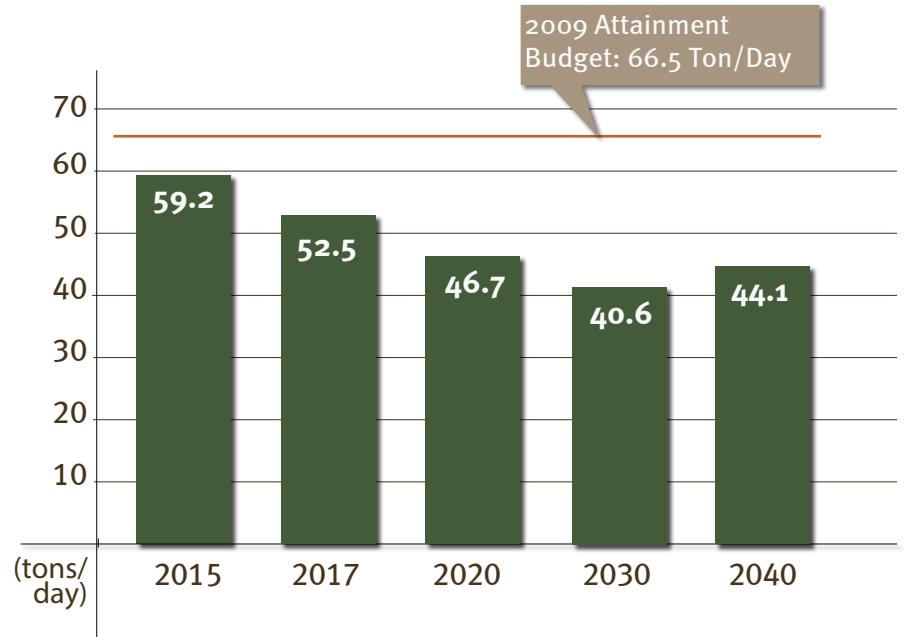
Mobile Source NOx Emissions FOR THE 8-HOUR OZONE ATTAINMENT AREA



PM2.5 and Precursor NOx Emissions

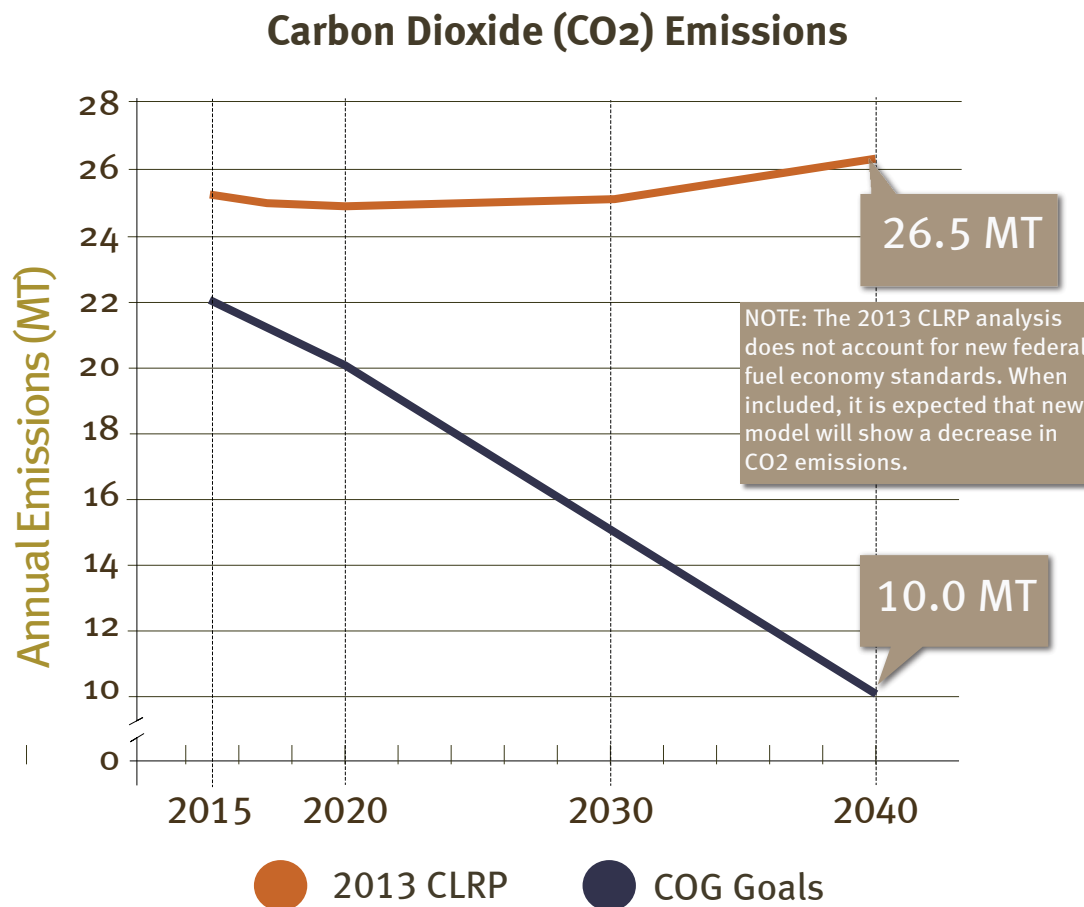


Ozone Season VOC Emissions FOR THE 8-HOUR OZONE ATTAINMENT AREA



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 moderation in CO₂ emissions by 2040 are currently forecast, the regional target is far from being met. Similar to other pollutants, CO₂ emissions are projected to increase between 2030 and 2040.