LONG RANGE PLAN TASK FORCE: 2040 "NO BUILD" ANALYSIS

Preliminary Summaries

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Long Range Plan Task Force
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Long Range Plan Task Force: Background

Objective:

To improve the performance outcomes of the regional long range plan (LRP)

Identify a limited set of currently unfunded multi-modal projects with the greatest potential to improve regional system performance that the TPB can champion for inclusion into the Constrained Long Range Plan (CLRP)

Long Range Plan Task Force: Background

Approach: Three phases over three years

I: Develop a Baseline Report (FY 2016)

II: Develop a list of Unfunded Regional Priority Projects (FY 2017)

III: Incorporate Unfunded Priority Projects into the LRP (FY 2018)

Phase I: Develop a Baseline Report
Analysis of different 2040 futures

- 2040 "No Build" – scenario assumes projected growth in demand (population and employment) but no future capital improvements ✓

- 2040 "Planned Build" – scenario assumes growth in demand and includes capital improvements assumed in the current (2015) CLRP ✓

- 2040 "All Build" – scenario assumes growth in demand and capital improvements in the current (2015) CLRP, plus all of the currently unfunded capital improvements inventoried by the TPB staff

Baseline: No Build Scenario

- 2040 Population and Employment (Round 8.4 Cooperative Forecasts)
- 2015 Transit and Highway Networks (no capital improvements)
  - Includes:
    - Metro Silver Line Phase 1 (VA)
    - VRE Spotsylvania Station (VA)
    - H St. / Benning Road Streetcar (DC)
    - Roadway lane repurposing for bicycle use (DC)
    - ICC (I-270 to Route 1 in MD)
    - Capital Beltway HOT lanes (Springfield to North of Tysons in VA)
    - I-95 HOT lanes (Edsall Road to VA 610 in VA)

Baseline: Planned Build Scenario

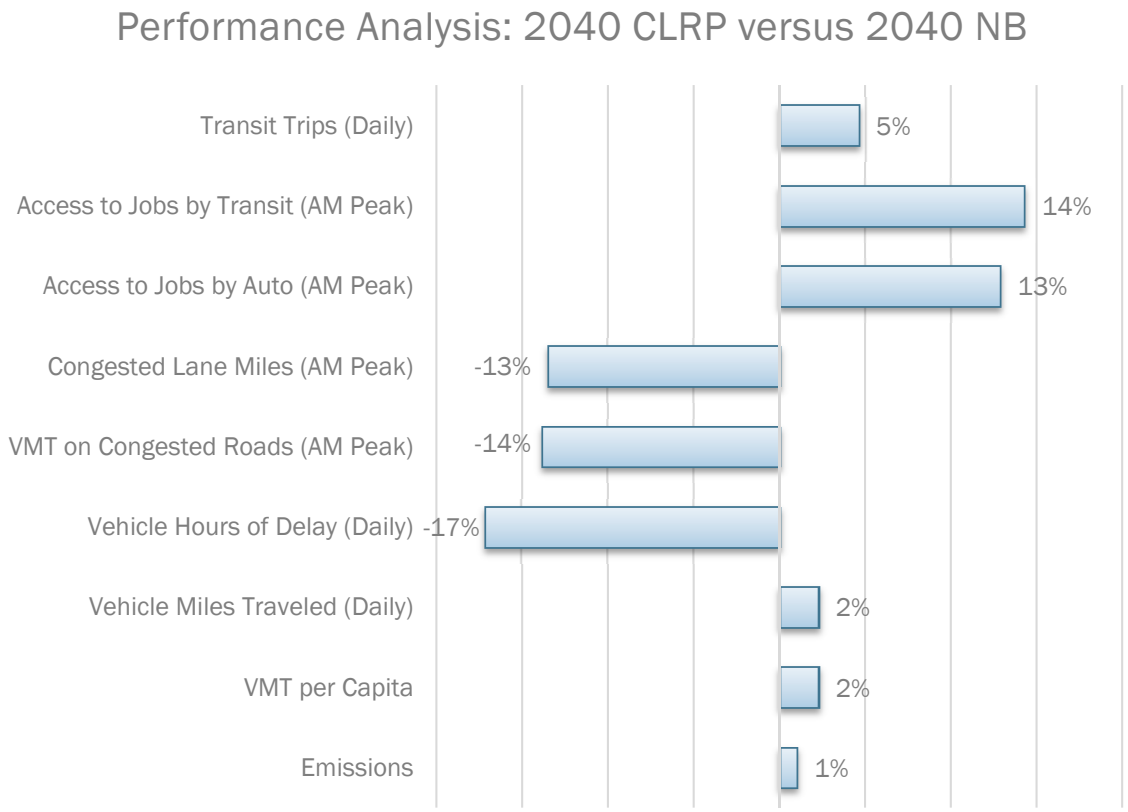
- 2040 Population and Employment (Round 8.4 Cooperative Forecasts)
- 2040 Highway and Transit Networks
- 7% more lane miles of roadway, and 14% more miles of rail / streetcar transit
- $27 billion dedicated to highway expansion and $15 billion to transit expansion
- Project details, including maps: https://www.mwcog.org/clrp/resources/KeyDocs_2015.asp

Technical Analysis:

Unlike the CLRP performance analysis

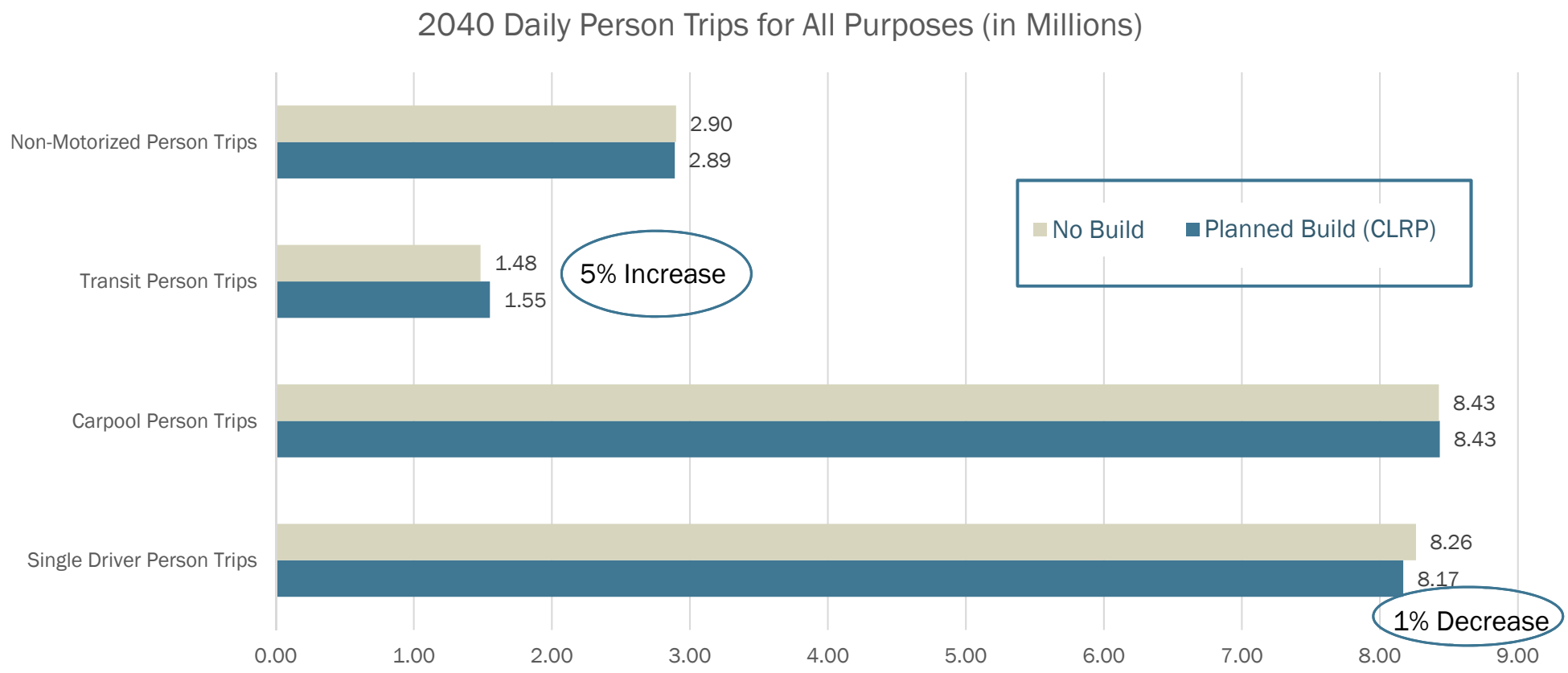
- CLRP Performance Analysis focuses on current and future scenarios:
  - Base: 2015 (CLRP)
  - Build: 2040 (CLRP)
- The Long Range Plan Task Force Analysis focuses on two future scenarios:
  - Base: 2040 No Build
  - Build: 2040 (CLRP)
- Long Range Plan Task Force Analysis evaluates impacts of transportation system improvements in CLRP while holding land use constant

CLRP vs No Build: Key Findings
What Does the CLRP Do?



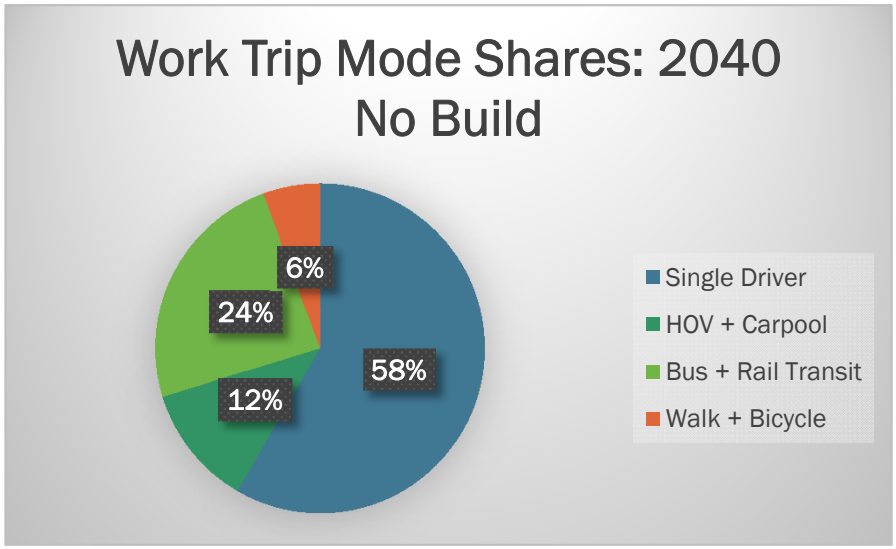
- Transit usage increases
- Access to jobs by transit and auto improves
- Congestion and vehicle hours of delay decrease
- Vehicle miles traveled per capita increase slightly
- Emissions do not change significantly

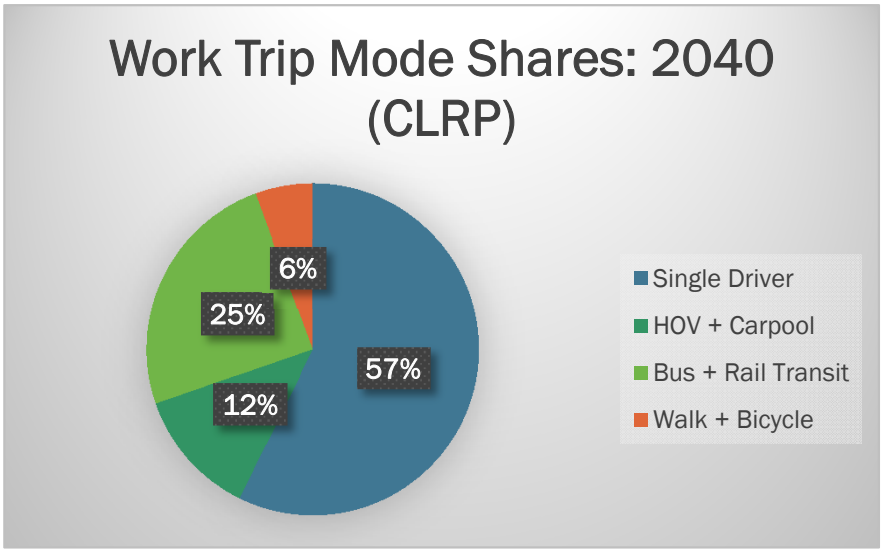
CLRP vs No Build: Transit Usage



- Daily transit person trips increase; single driver person trips decrease

CLRP vs No Build: Transit Usage

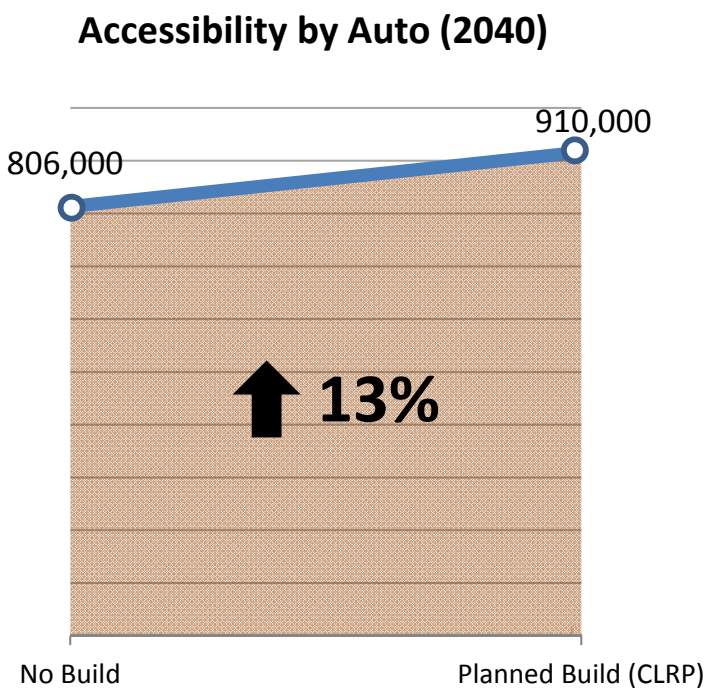


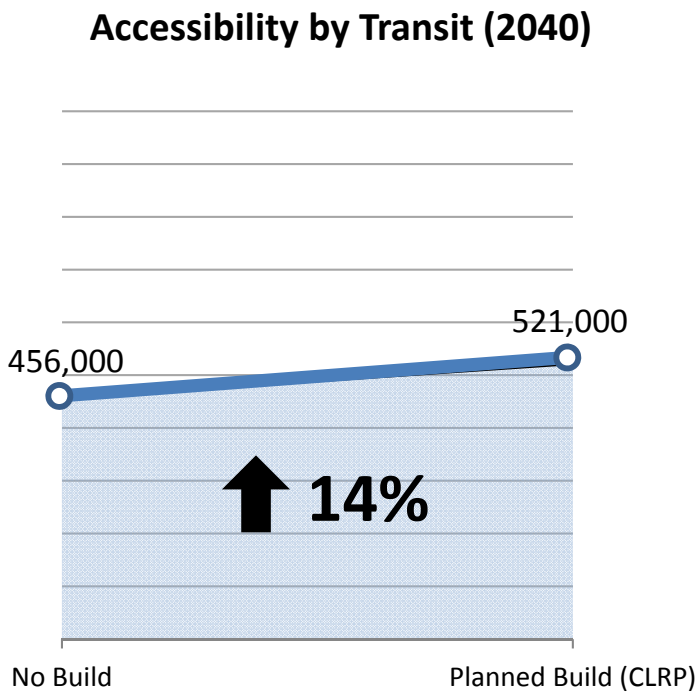


- Share of transit work trips increases; share of single driver work trips decreases
- Share of transit trips for all trip purposes remains unchanged

CLRP vs No Build: Jobs Accessibility

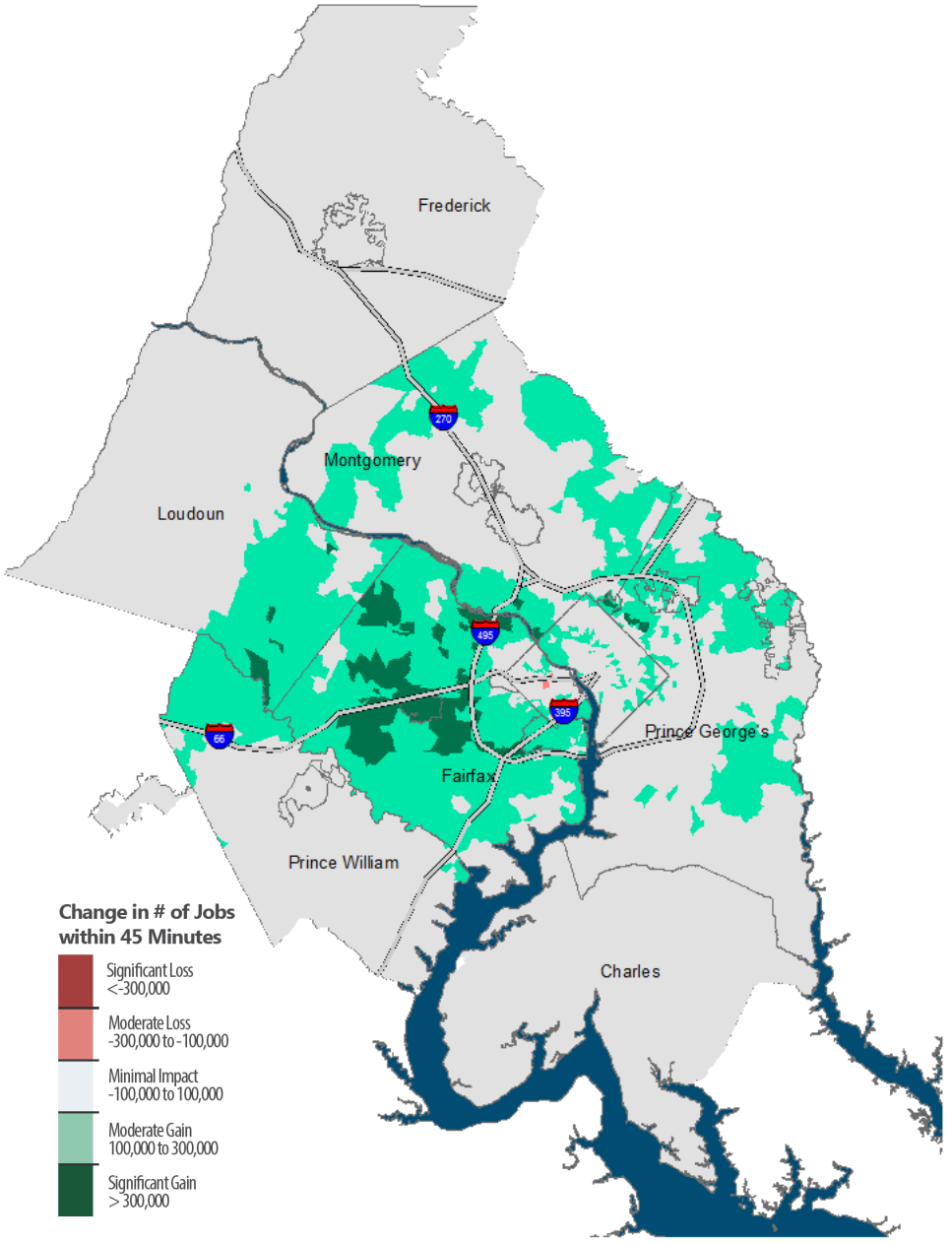
- CLRP increases the number of jobs accessible within 45 minutes by automobile and transit





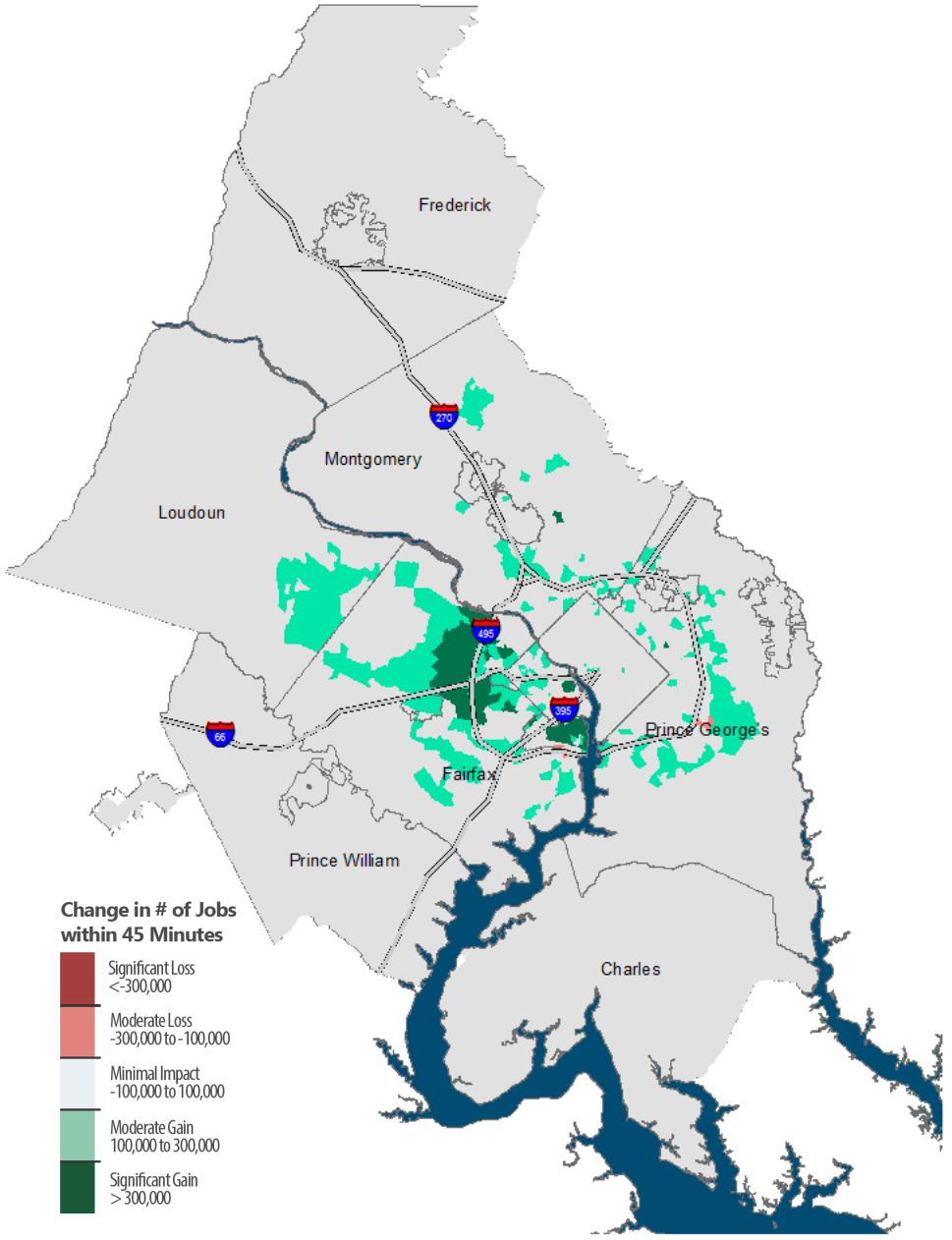
CLRP vs No Build: Change in Auto Access to Jobs

- CLRP increases access to jobs by auto throughout the region, with largest increases in accessibility taking place in the I-66 Corridor Outside of the Beltway



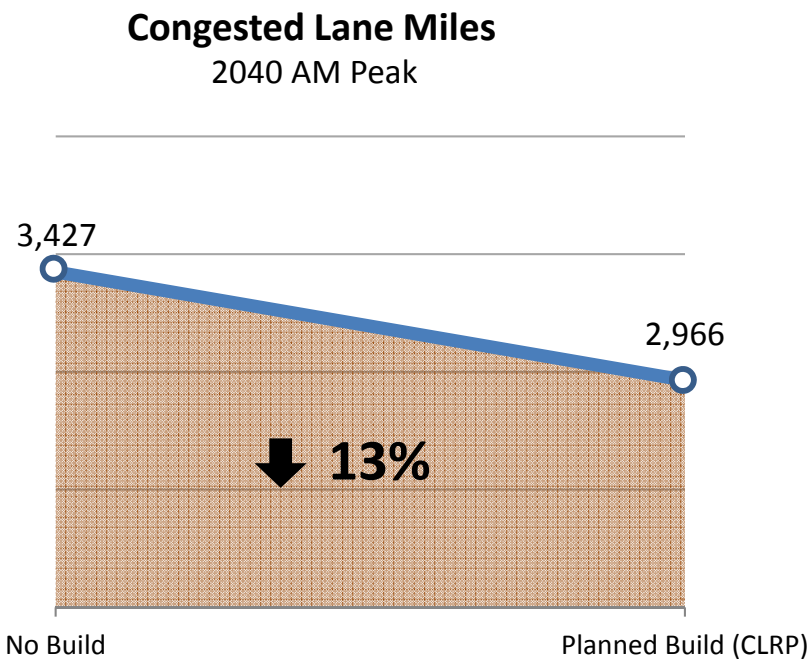
CLRP vs No Build: Change in Transit Access to Jobs

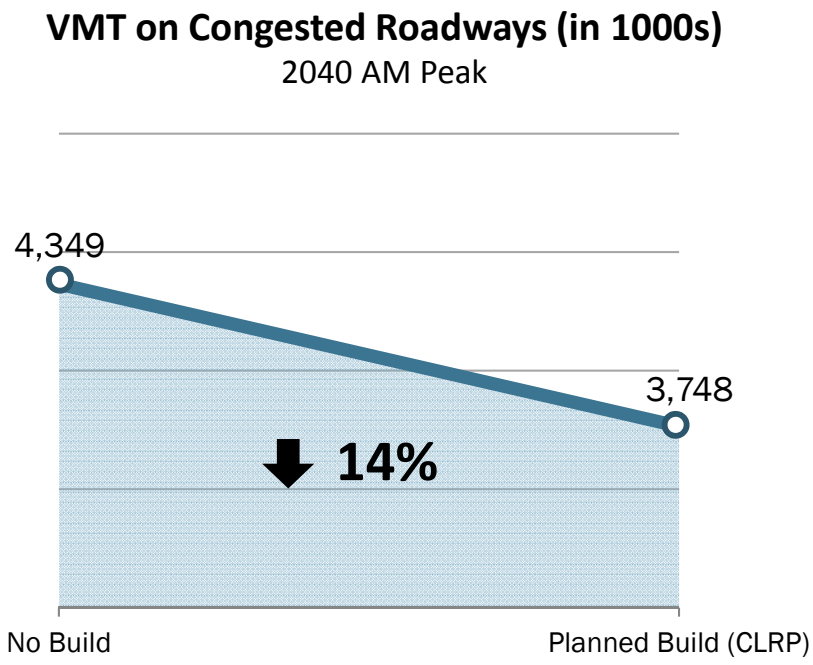
- CLRP increases access to jobs by transit throughout the region
- Increase in the I-66 Corridor Outside of the Beltway with addition of new express bus services
- Increase in Blue / Yellow line corridor in Virginia with addition of Potomac Yards Station



CLRP vs No Build: Roadway Congestion

- Peak hour congested lane miles and VMT on congested roadways decrease

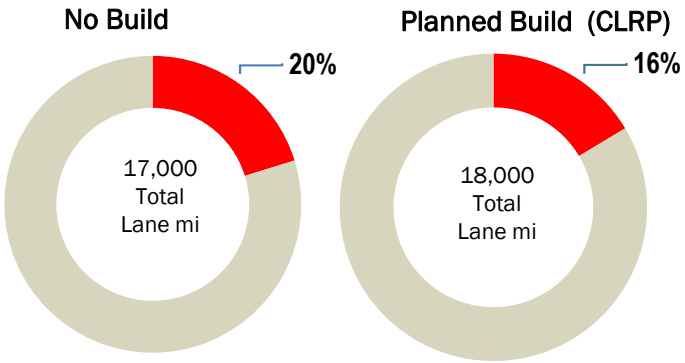




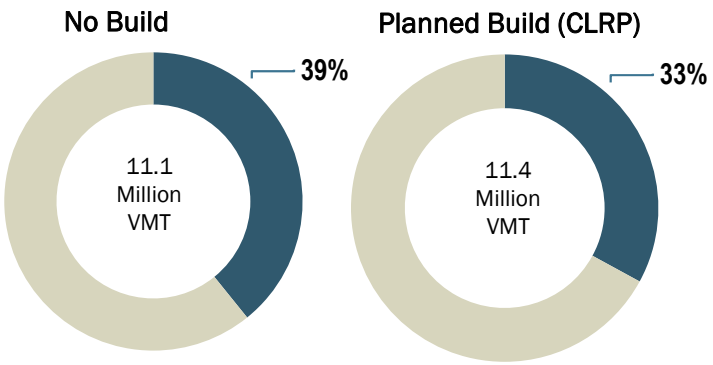
CLRP vs No Build: Roadway Congestion

- Share of total congested lane miles and share of VMT on congested roadways decrease

Share of Congested Lane Miles
2040 AM Peak

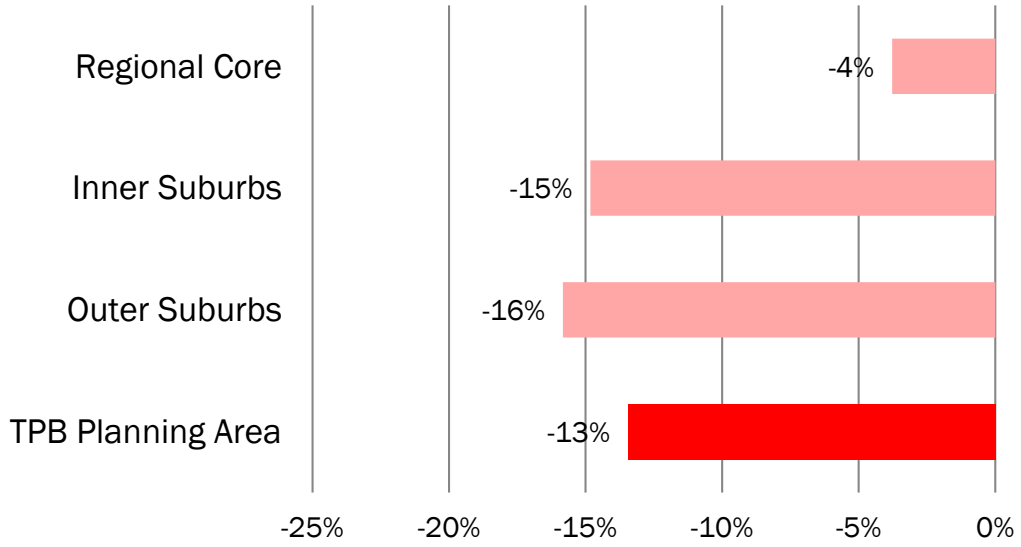


Share of VMT on Congested Roadways
2040 AM Peak



CLRP vs No Build: Geographic Differences in Congested Lane Miles

Percent Change in AM Peak Hour Congested Lane Miles



Regional Core:
District of Columbia
Arlington Co.
Alexandria

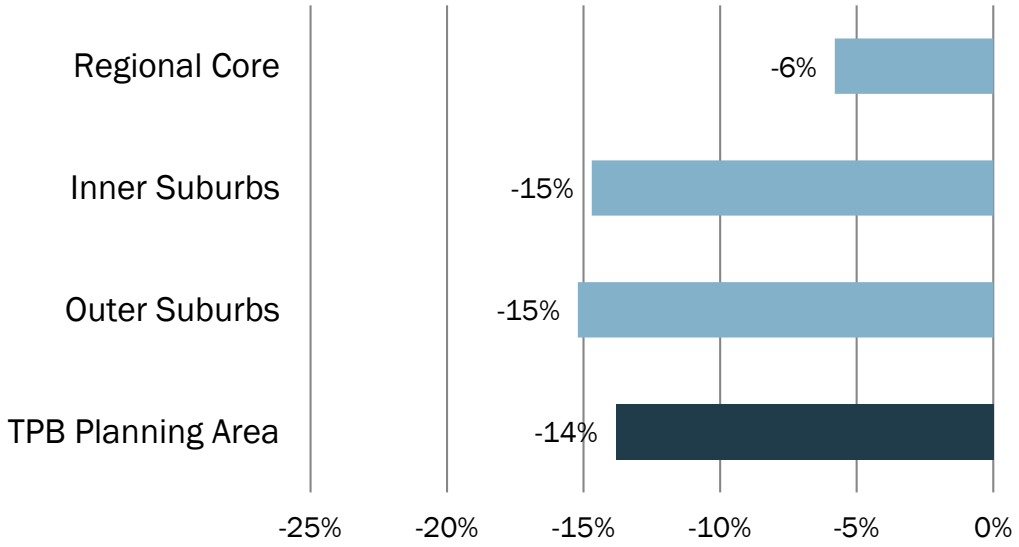
Inner Suburbs:
Montgomery Co.
Prince George's Co.
Fairfax Co.
Falls Church
Fairfax City

Outer Suburbs:
Charles Co.
Frederick Co.
Loudoun Co.
Prince William Co.
Manassas
Manassas Park
Fauquier Co.
(Urbanized Area)

- Congested lane miles in AM Peak decrease in each geographic sub-area, with largest decreases occurring in Inner and Outer Suburbs

CLRP vs No Build: Geographic Differences in VMT on Congested Roads

Percent Change in AM Peak Hour VMT on Congested Roadways



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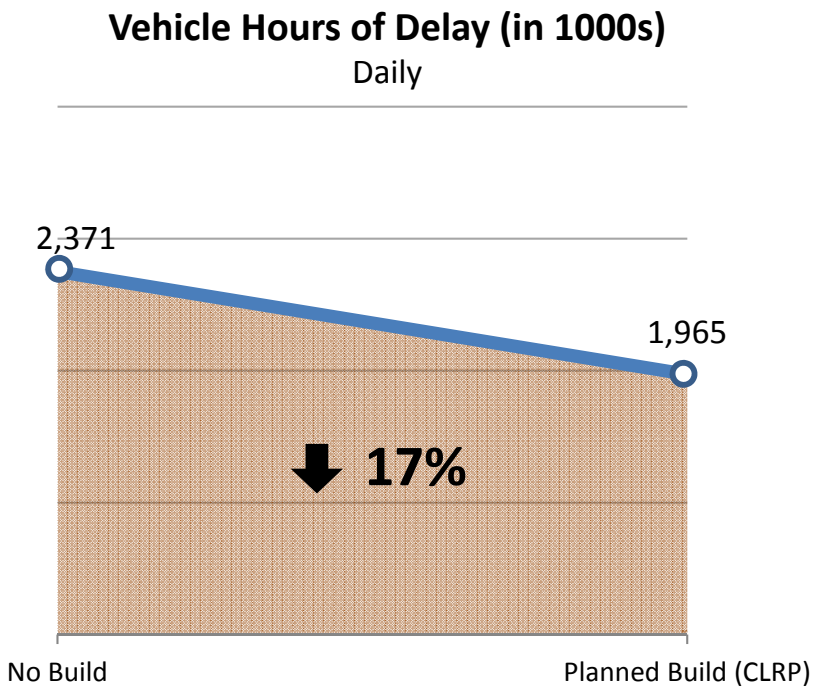
Frederick Co.
Loudoun Co.
Prince William Co.
Manassas
Manassas Park
Fauquier Co.
(Urbanized Area)

- VMT on congested roadways in AM Peak decreases in each geographic sub-area, with largest reductions occurring in Inner and Outer Suburbs

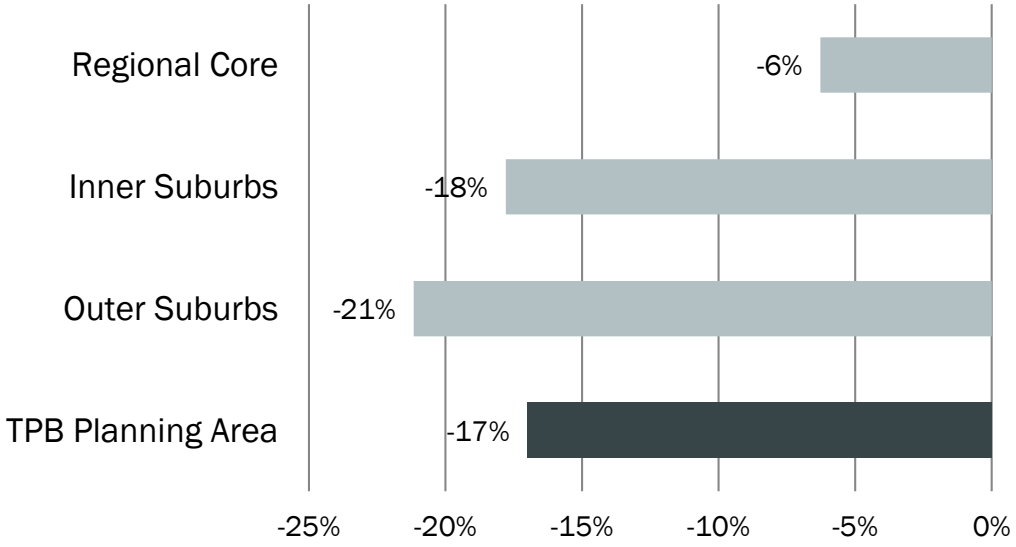
CLRP vs No Build: Vehicle Hours of Delay

- Vehicle hours of delay are reduced



CLRP vs No Build: Geographic Differences in Vehicle Hours of Delay

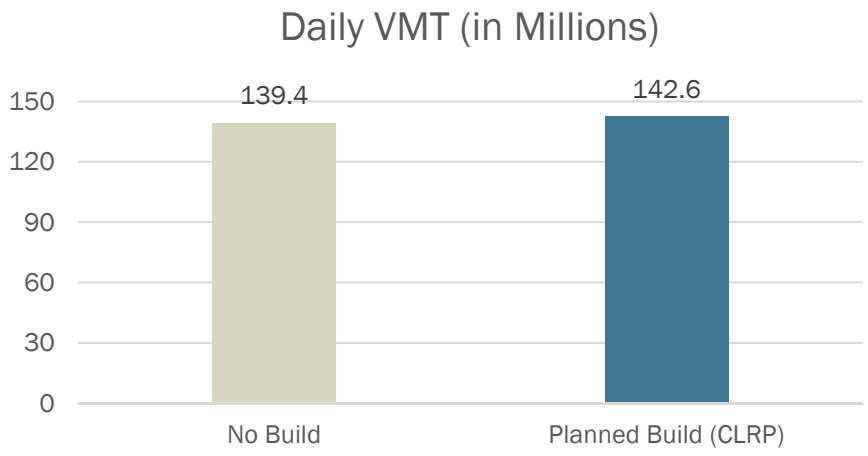
Percent Change in Daily Vehicle Hours of Delay (VHD) by Geographic Sub-Area

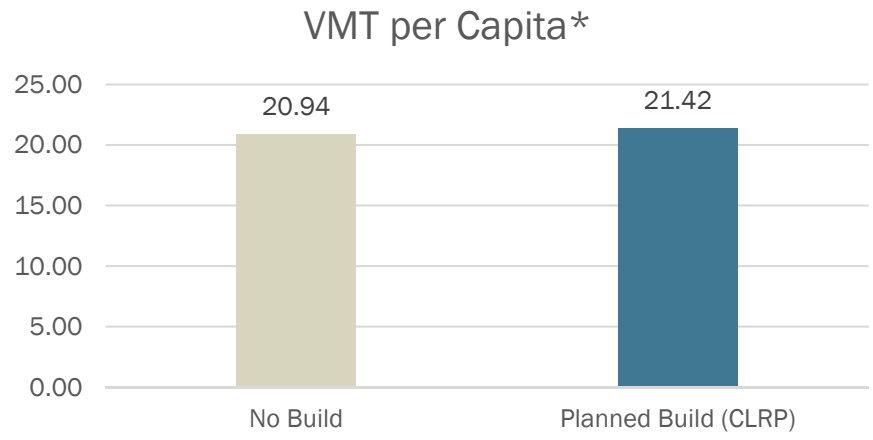


- Daily vehicle hours of delay decline in each geographic sub-area, with largest reductions taking place in Inner and Outer Suburbs

CLRP vs No Build: Vehicle Miles Traveled per Capita

- Daily VMT and VMT per capita increase by 2% in CLRP relative to No Build
- Increased congestion with No Build results in shorter trip lengths and reduced VMT





* 2040 VMT per Capita in NB and CLRP is lower than today

CLRP vs No Build: Mobile Source Emissions

- Very small change in emission levels (within 1%)

UCN Emission Comparisons: Planned Build (CLRP) Vs. No Build

Pollutant*	No Build	Planned Build (CLRP)	Δ	%Δ
Direct PM2.5	724.8	720.1	-4.6	-0.6%
PM 2.5 Precursor NOx	8,036.1	8,111.3	75.2	0.9%
Ozone Season VOC	19.1	19.1	0.0	0.0%
Ozone Season NOx	20.2	20.4	0.2	1.0%
Winter CO	121.3	121.9	0.6	0.5%
CO2e	17.5	17.7	0	0.9%

* Direct PM2.5 and PM2.5 Precursor NOx in tons/year

* Ozone season VOC and NOx, and Winter CO in seasonal tons/day

* CO2e in millions of metric tons/year

Key Findings: What Does the CLRP Do?

- Increases daily transit person trips (5%) and share of transit work trips (1%)
- Decreases daily single person auto trips (1%) and share of single person auto work trips (1%)
- Reduces roadway congestion - vehicle hours of delay (17%), VMT on congested roadways (14%), share of congested VMT (6%) and share of congested lane miles (4%)
- Increases accessibility to jobs by auto (13%) and transit (14%) within 45 minutes during morning commute
- Increases total VMT and VMT per capita by 2%
- Emission estimates in CLRP change very slightly and are within 1% of No Build estimates

What Does This Mean?

- Investments in highway and transit capacity in the CLRP lead to:
  - Significant reductions in congestion relative to No Build
  - Increased transit usage
- System-wide expansion of highway and transit infrastructure leads to sizeable increases in accessibility to jobs
- Reduced congestion due to improvements in system performance results in a slight increase in VMT
- Changes in travel patterns, modes and conditions yield little change in emissions of criteria pollutants and greenhouse gas (CO_2e) emissions

Next Steps

- Staff will continue with input preparations for All-Build scenario

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