



TransAction Preview: 2040 Baseline Conditions

May 11, 2017

Agenda

- Overall Approach
- ‘No Build’ (2040) Baseline Conditions
- Draft Plan: Initial Findings

NVTA's
TransAction

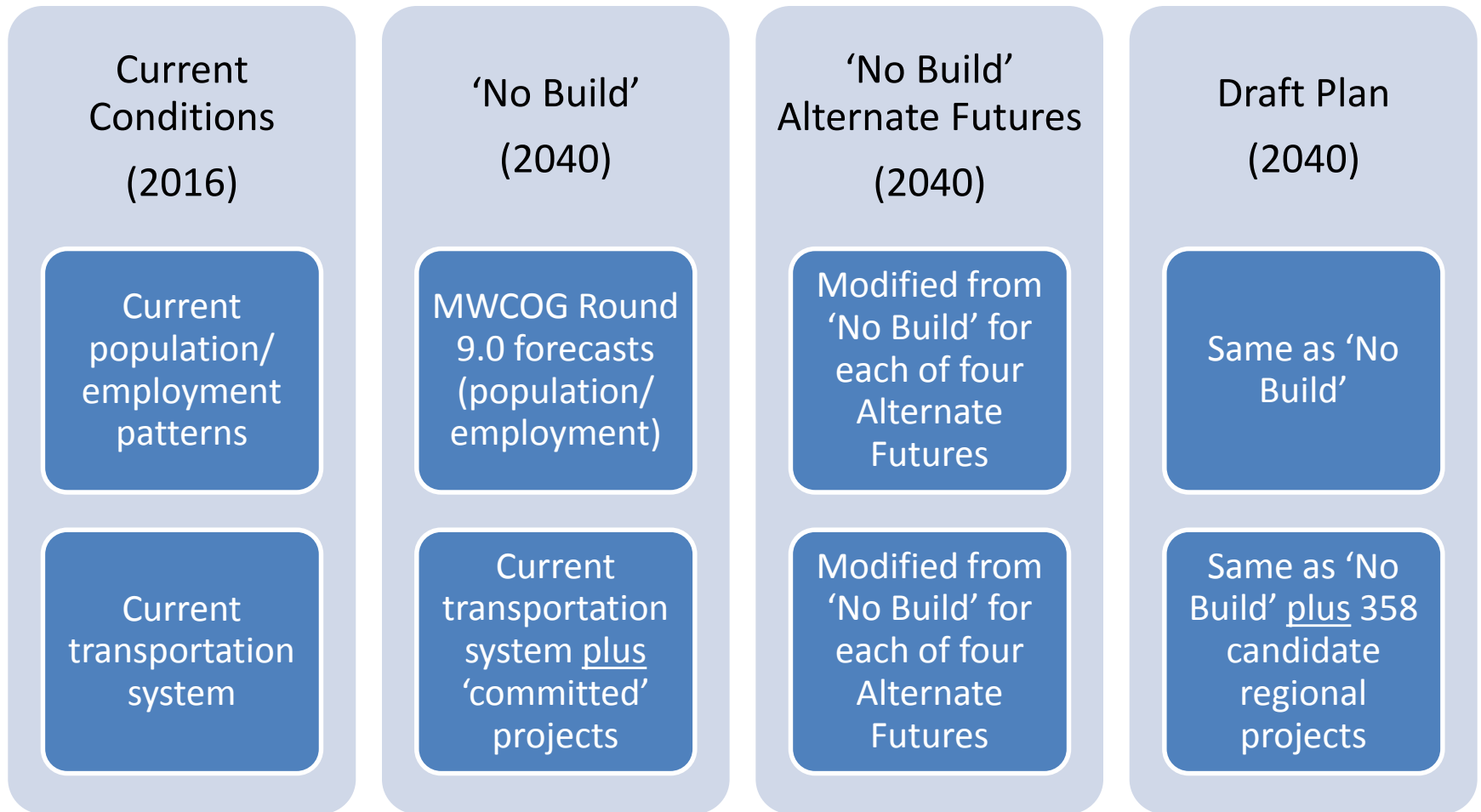
Overall Approach

- Two Parallel Tracks
 - Public Engagement (Spring and Fall 2016)
 - Technical Analysis

Technical Analysis

- Simulated ‘No Build’ conditions in 2040
- Developed a Draft Plan for 2040 including 358 candidate regional projects that address needs:
 - ‘bottom-up’ projects
 - ‘top-down’ projects, e.g. ICM/ITS, TDM, high performance transit
- Compared Draft Plan to ‘No Build’ (2040) conditions
- Compared Draft Plan against four Alternate Futures

Modeling Approach



'No Build' (2040)

- 'Committed' projects include:
 - Projects currently under construction
 - Future projects with full funding
- 'No Build' (2040) includes:
 - Metrorail Silver Line Phase II
 - Transform 66
 - I-395 Express Lanes
 - I-95 Express Lanes extension

Alternate Futures

- Many Alternate Futures are possible
- Four Alternate Futures tested:
 - Scenario A: Technology makes driving easier
 - Scenario B: Changes in travel behavior
 - Scenario C: Dispersed land use growth
 - Scenario D: Concentrated land use growth
- Scenarios are ‘plausible’ alternate futures, but are neither ‘predicted’ nor ‘preferred’; hybrid scenarios are ‘probable’
- Scenario (sensitivity) analysis provides an understanding of the robustness of TransAction findings and recommendations
- NVTa may wish to explore future proactive policy guidance associated with selected Alternate Futures

Draft Plan (2040)

- TransAction embraces regional transportation solutions that address regional transportation needs
- TransAction is a fiscally unconstrained plan
- TransAction includes candidate regional projects that are not fully funded, regardless of whether such projects are eligible for NVRTA's regional revenues

Draft Plan (2040)

Total Projects in Draft Plan	Draft Plan Cost Estimate w/ ROW (\$bn)*
358	\$43.9

Project Type	Total Projects**
Roadway	240
Transit	104
Non-motorized	45
ITS ¹ / ICM ² / TDM ³	30

*Cost estimates are for entire projects, regardless of potential funding sources

**Projects can be categorized as multiple types

¹ ITS: Intelligent Transportation Systems

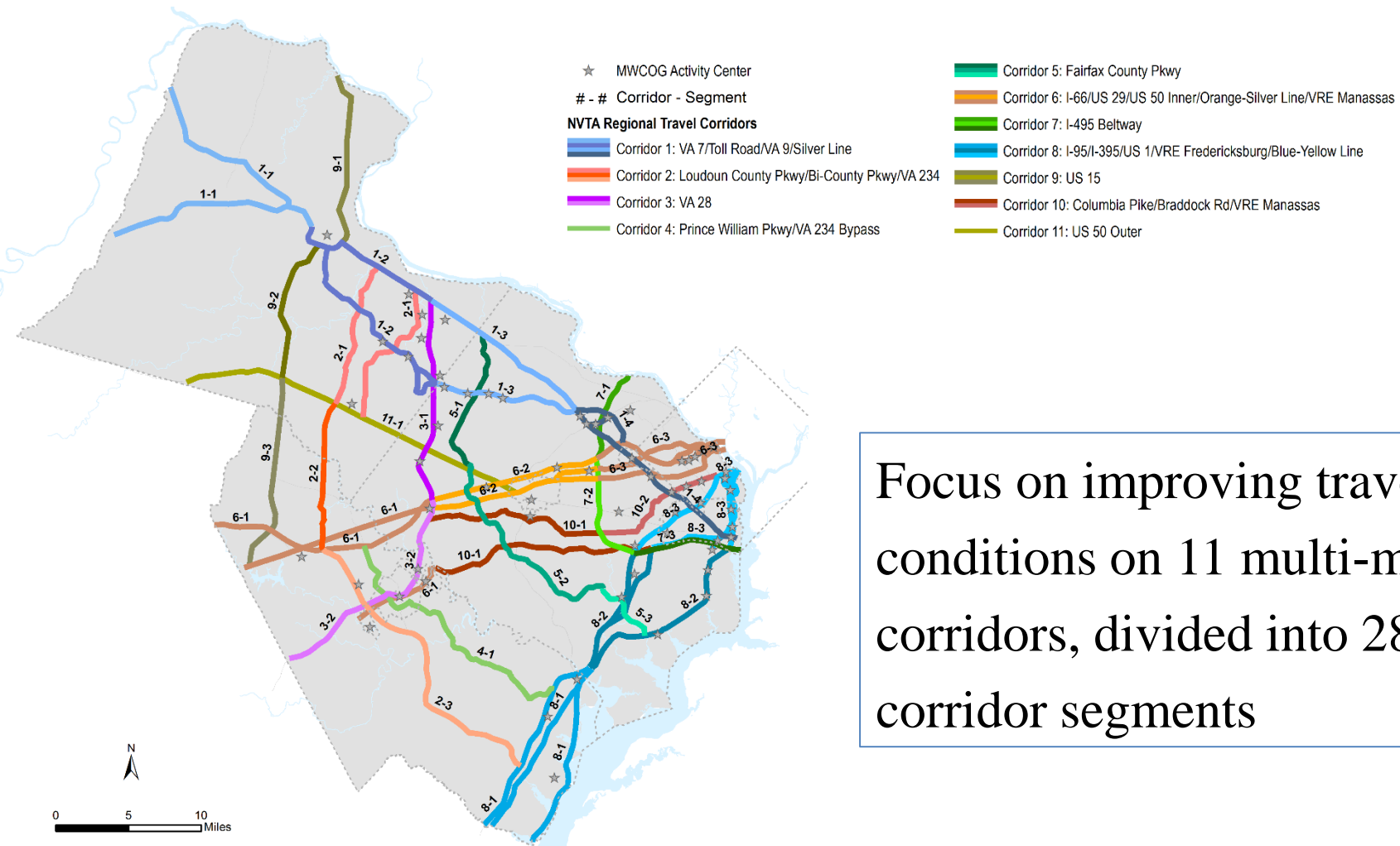
² ICM: Integrated Corridor Management

³ TDM: Transportation Demand Management

Draft Plan (2040)

- Approximately half of the Draft Plan cost estimate associated with 23 ‘Mega’ projects (cost estimate > \$0.25 billion)
 - Metrorail expansions include new Blue Line alignment under the Potomac near Rosslyn, extensions to Centerville and Potomac Mills, additional rolling stock, and station improvements
 - VRE enhancements include rail capacity improvements for the Manassas and Fredericksburg Lines, and between Alexandria and DC
 - New highway crossings over the Potomac River north and south of the Beltway
 - Highway capacity improvements on I-95, US-1, Route 123, Route 234, Route 286, and Seven Corners
 - BRT and/or LRT services along or near US-1, Route 28, Route 7, and Merrifield/Tysons

Corridors and Segments



Focus on improving travel conditions on 11 multi-modal corridors, divided into 28 corridor segments

Process – Performance Measures

- Performance Measures
 - Performance of the plan evaluated at multiple levels (regional, corridor, corridor segment)
 - Evaluation uses 15 measures, including all seven HB 599 (2012) measures; each measure weighted 5 or 10 percent
 - Integrates HB 599 process into TransAction
- Benefit/Cost Analysis
 - TransAction includes a ‘planning level’ BCA, using project cost estimates and encompassing all performance measures

Process – Performance Measures

Vision													
In the 21st century, Northern Virginia will develop and sustain a multimodal transportation system that enhances quality of life and supports economic growth. Investments in the system will provide effective transportation benefits, promote areas of concentrated growth, manage both demand and capacity, and employ the best technology, joining rail, roadway, bus, air, water, pedestrian, and bicycle facilities into an interconnected network that is fiscally sustainable.													
Goals	Objectives		Measures					FY2017 HB599 weightings	TA Sub- Cmtee	TAC	PCAC	Mean	PPC
Goal 1: Enhance quality of life and economic strength of Northern Virginia through transportation	1.1	Reduce congestion and crowding experienced by travelers in the region	1.1.1	Total Person Hours of Delay (HB599)	①		③	9.1	10	10	9	9.7	10
			1.1.2	Transit Crowding (HB599)	①	②		5.2	5	6	5	5.3	5
			1.1.3	Person Hours of Congested Travel in Automobiles (HB599)	①		③	6.9	5	8	7	6.7	5
			1.1.4	Person Hours of Congested Travel in Transit Vehicles (HB599)	①		③	5.3	5	7	5	5.7	5
	1.2	Improve Travel Time Reliability	1.2.1	Congestion Severity: Maximum Travel Time Ratio	①	②			2	2	9	4.3	5
			1.2.2	Congestion Duration (HB599)	①	②	③	12.6	8	15	9	10.7	10
	1.3	Increase access to jobs, employees, markets, and destinations	1.3.1	Percent of jobs/population within 1/2 mile of high frequency and/or high performance transit	①				5	7	3	5.0	5
			1.3.2	Access to Jobs within 45 mins by auto or within 60 mins by transit (HB599)	①			4.3	10	5	3	6.0	5
	1.4	Improve connections among and within areas of concentrated growth	1.4.1	Average travel time per motorized trip between Regional Activity Centers	①				5	5	2	4.0	5
			1.4.2	Walkable/bikeable environment within a Regional Activity Center	①		③		5	5	3	4.3	5
								60	70	55	61.7	60	
Goal 2: Enable optimal use of the transportation network and leverage the existing network	2.1	Improve the safety of transportation network	2.1.1	Safety of the transportation system	①	②			5	5	10	6.7	5
	2.2	Increase integration between modes and systems	2.2.1	First and last mile connections	①	②			13	8	6	9.0	10
	2.3	Provide more route and mode options to expand travel choices and improve resiliency of the system	2.3.1	Share of travel by non-SOV modes	①	②	③		15	5	7	9.0	10
	2.4	Sustain and improve operation of the regional system	2.4.1	Person hours of travel caused by 10% increase in PM peak hour demand (HB599)		②		1.6	2	2	2	2.0	5
								35	20	25	26.7	30	
Goal 3: Reduce negative impacts of transportation on communities and the environment	3.1	Reduce transportation-related emissions	3.1.1	Vehicle miles traveled (VMT) by speed			③		5	10	20	11.7	10
									5	10	20	11.7	10
								5	10	20	11.7	10	
HB599 Measures								45	45	53	40	46	45
Other Measures								55	55	47	60	54	55
Total								100	100	100	100	100	100

Notes

① ② ③ indicate primary goal supported by each measure

① ② ③ indicate other goals supported by each measure

Measures 1.4.2, 2.1.1, and 2.2.1 are qualitative measures. All others are quantitative measures.

Reminders

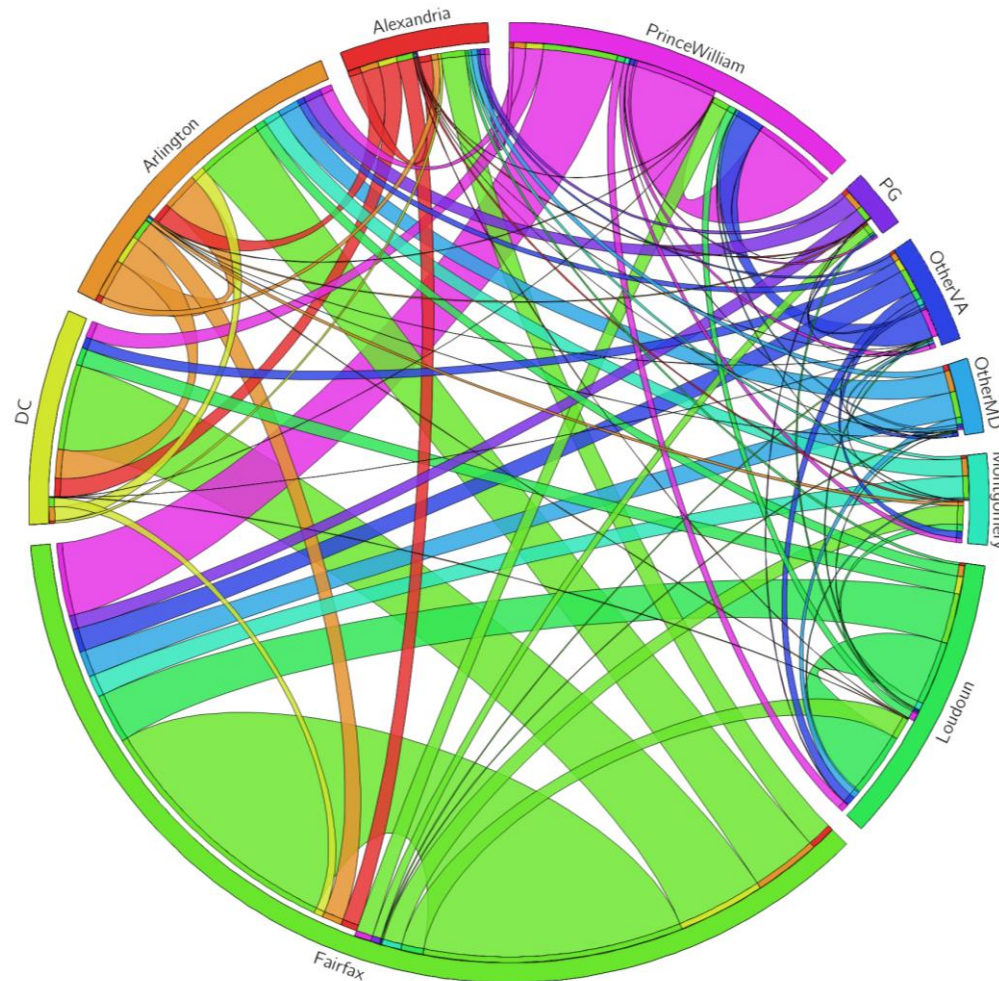
- TransAction is a multi-modal long range regional transportation plan; it does not seek to evaluate or optimize individual projects
- Focus on ‘bigger picture’ relative changes rather than microscopic details
- Analytical approach addresses recurring congestion

Population and Employment

	Current Conditions (2016)	'No Build' (2040)	% Change
Population			
Northern VA	2,413,009	2,994,401	24%
DC Metro	7,150,948	8,788,431	23%
Employment			
Northern VA	1,362,880	1,873,262	37%
DC Metro	4,066,099	5,253,305	29%

Commute Patterns

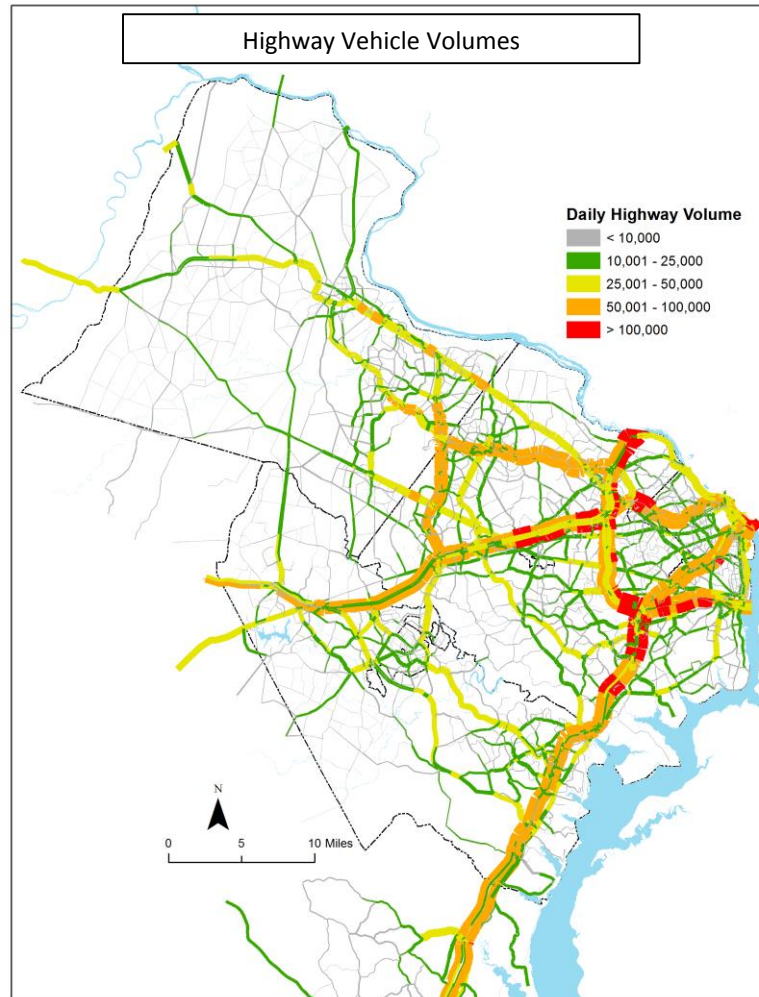
'No Build' (2040)
Commute Patterns



Source: MWCOC 2040 Travel Forecasts, Round 9.0 Land Use

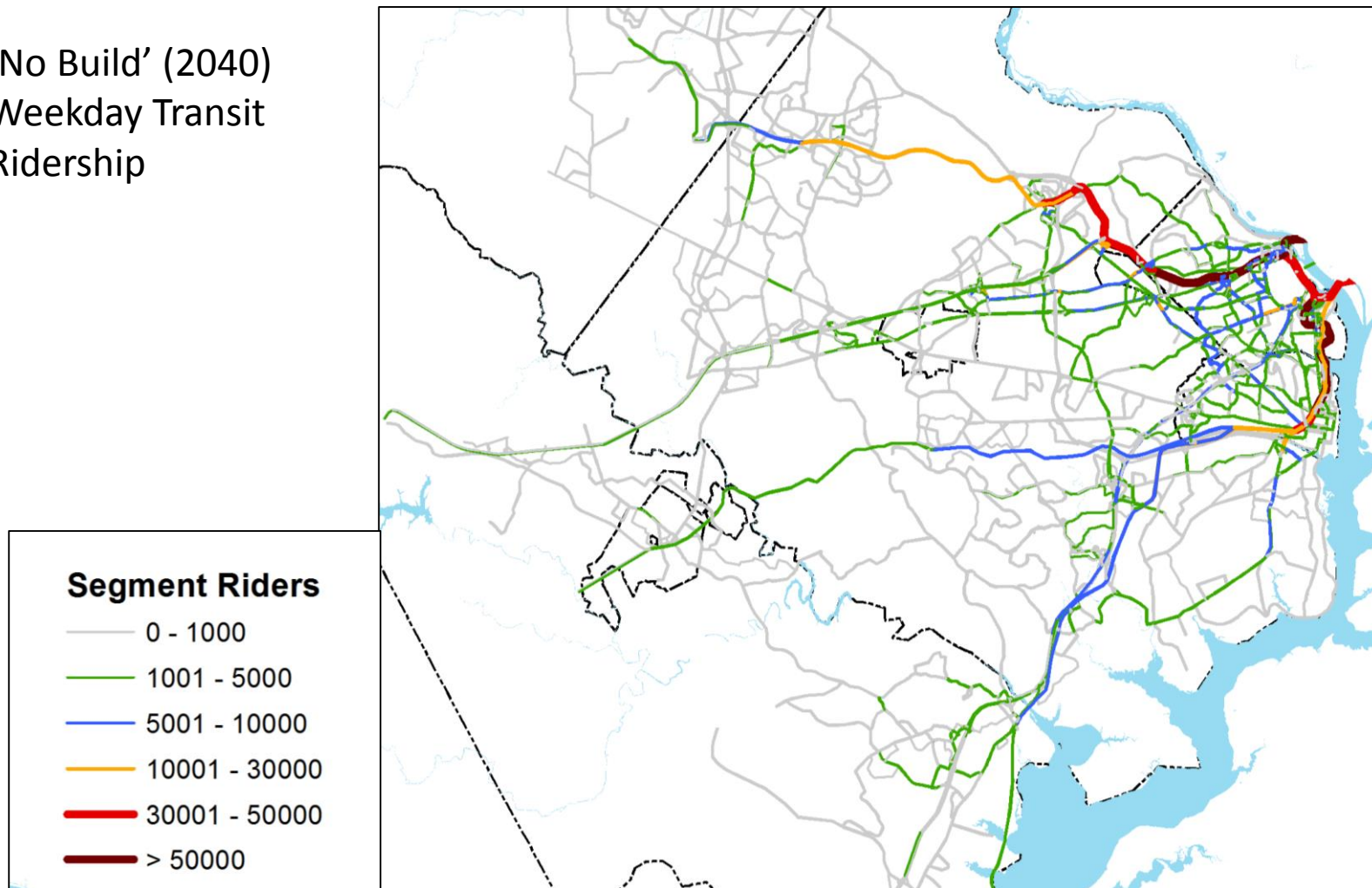
Weekday Highway Vehicle Volumes

'No Build' (2040)
Weekday Highway
Vehicle Volumes



Weekday Transit Ridership

'No Build' (2040)
Weekday Transit
Ridership

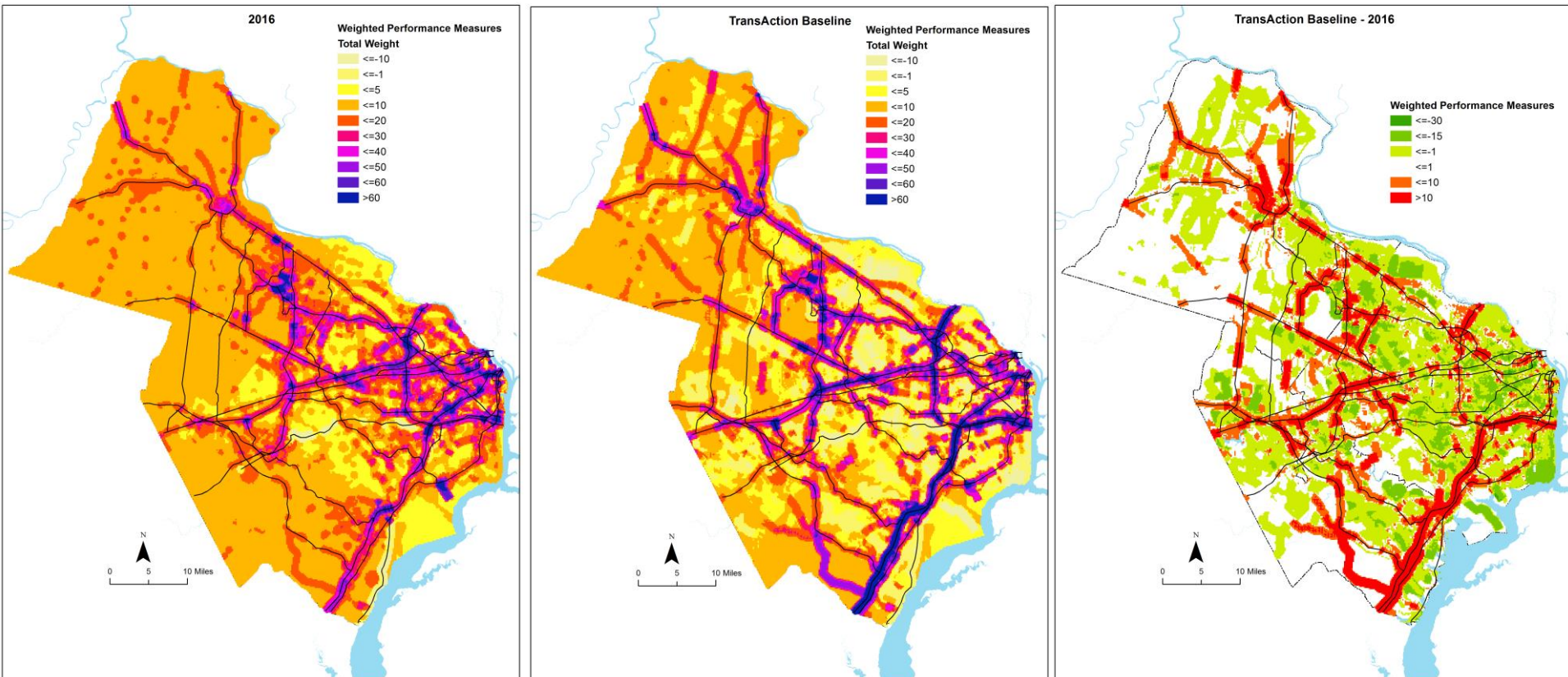


Selected Measures

Measures (Weekday)	Current Conditions (2016)	'No Build' (2040)	% Change
Motorized Trips	8,737,000	10,462,000	19.7%
Auto Trips	7,862,000	9,432,000	20.0%
Transit Trips	876,000	1,030,000	17.6%
Transit Share	10.0%	9.8%	-0.2%
Transit Boardings	1,002,000	1,359,000	35.6%
Miles of Travel	104,838k	125,378k	19.6%
Hours of Travel	3,298,000	5,811,000	76.2%
Hours of Delay	1,007,000	3,030,000	201%
Transit Crowding	10,800	20,100	86.8%

Impact of 'No Build' (2040)

'No Build' (2040) compared to Current Conditions (2016)



Alternate Futures: Key Highlights

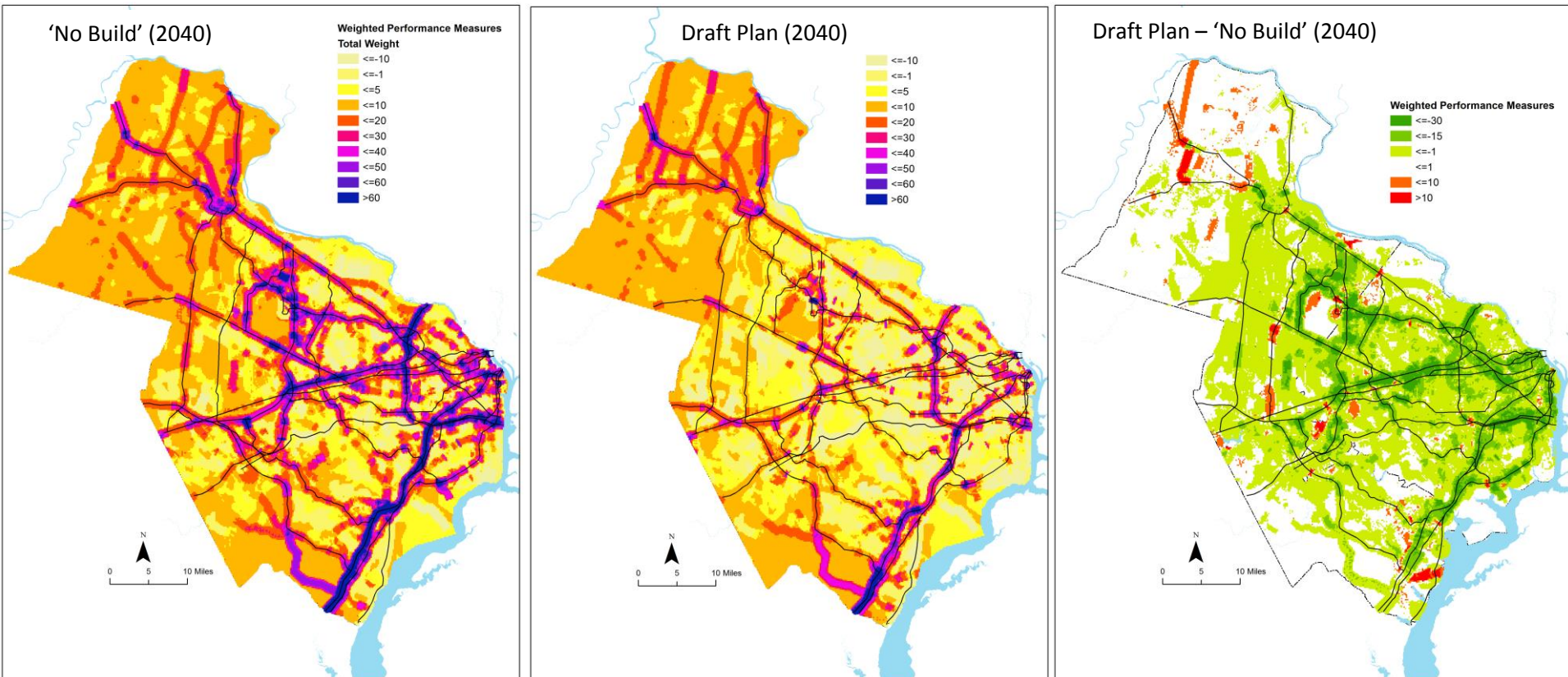
- Scenarios A and B provide the greatest improvement in travel conditions over the 2040 TransAction Baseline
 - Scenario A has the lowest person hours of delay (less than 55% of Baseline and Scenarios C and D)
 - Scenario B has the lowest level of transit crowding
- Scenarios C and D highlight the relationship between land use and transportation
 - Scenario C appears to be the least desirable alternate future, is still better than the 2040 TransAction Baseline

Draft Plan: Initial Findings

Measures (Weekday)	Current Conditions (2016)	'No Build' (2040)	Draft Plan (2040)	% Change
Motorized Trips	8,737,000	10,462,000	10,563,000	1.0%
Auto Trips	7,862,000	9,432,000	9,444,000	0.1%
Transit Trips	876,000	1,030,000	1,119,000	8.7%
Transit Share	10.0%	9.8%	10.6%	8.2%
Transit Boardings	1,002,000	1,359,000	1,539,000	13.2%
Miles of Travel	104,838k	125,378k	124,829k	-0.4%
Hours of Travel	3,298,000	5,811,000	4,387,000	-24.5%
Hours of Delay	1,007,000	3,030,000	1,645,000	-45.7%
Transit Crowding	10,800	20,100	7,100	-64.9%

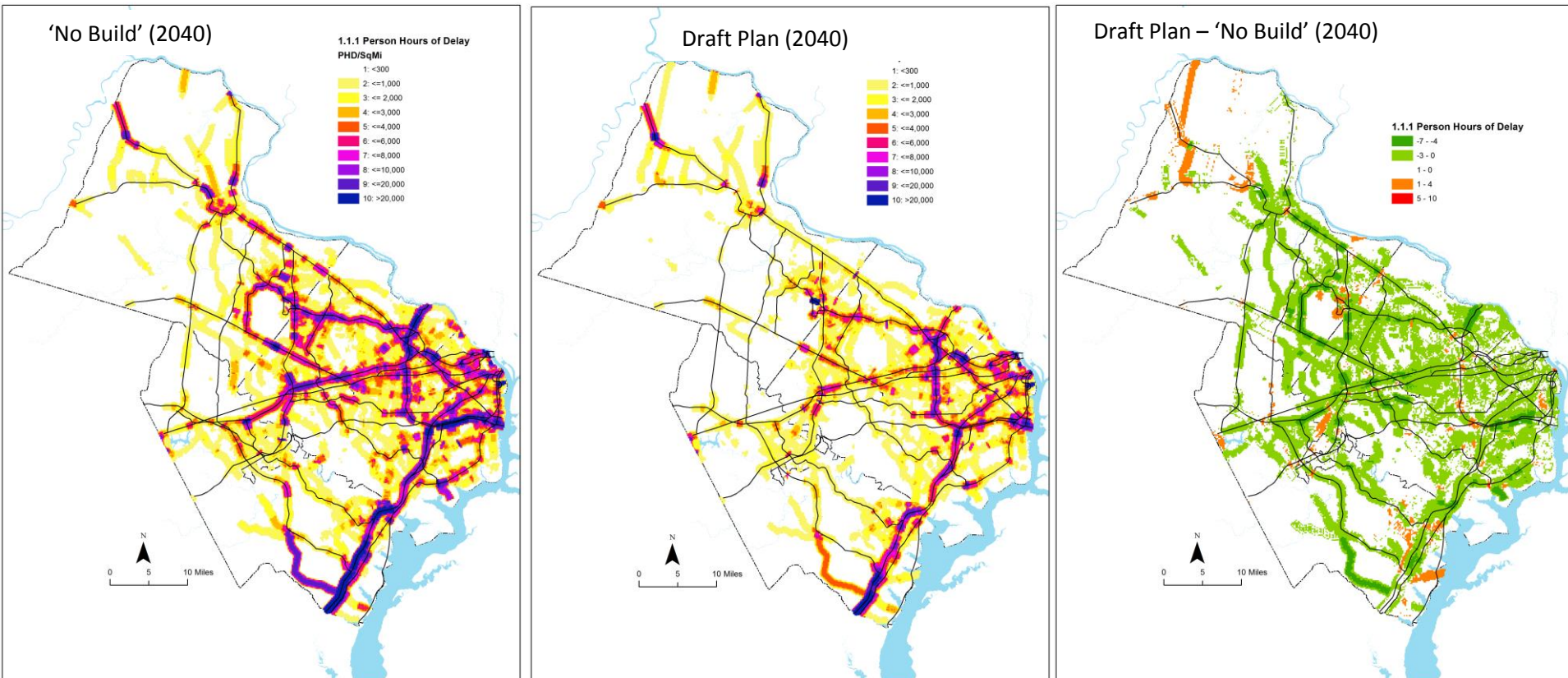
Overall Impact of Draft Plan

Draft Plan (2040) compared to 'No Build' (2040)



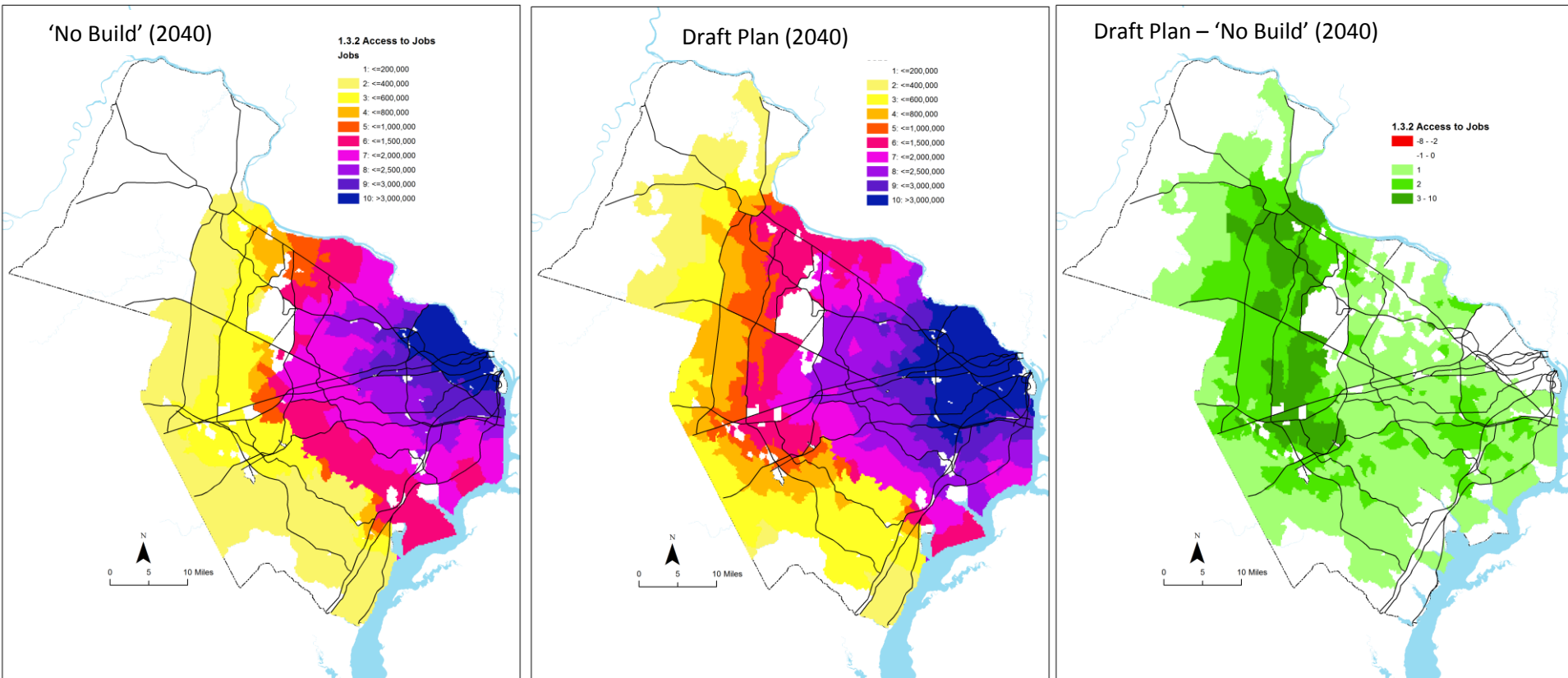
Impact on Person Hours of Delay

Draft Plan (2040) compared to 'No Build' (2040)



Impact on Access to Jobs

Draft Plan (2040) compared to 'No Build' (2040)



Draft Plan: Summary

- Compared to the ‘No Build’ (2040), the Draft Plan:
 - Modestly increased total trips (1.0%), but with increased transit share (by 8.2%)
 - Person miles traveled decreased marginally, but person hours of travel and hours of delay noticeably reduced (by 25% and 46%)
 - Transit crowding significantly reduced (by 65%) to below 2016 levels, in part due to regional BRT/LRT additions
 - Noticeable improvement in job accessibility for residents in a broad corridor from Leesburg to Prince William County
 - Residual problem areas include I-95 and I-495