

Springfield to Quantico Enhanced Public Transportation Feasibility Study

Technical Advisory Committee Meeting #2
December 3, 2020



Virginia Department of Rail and Public Transportation

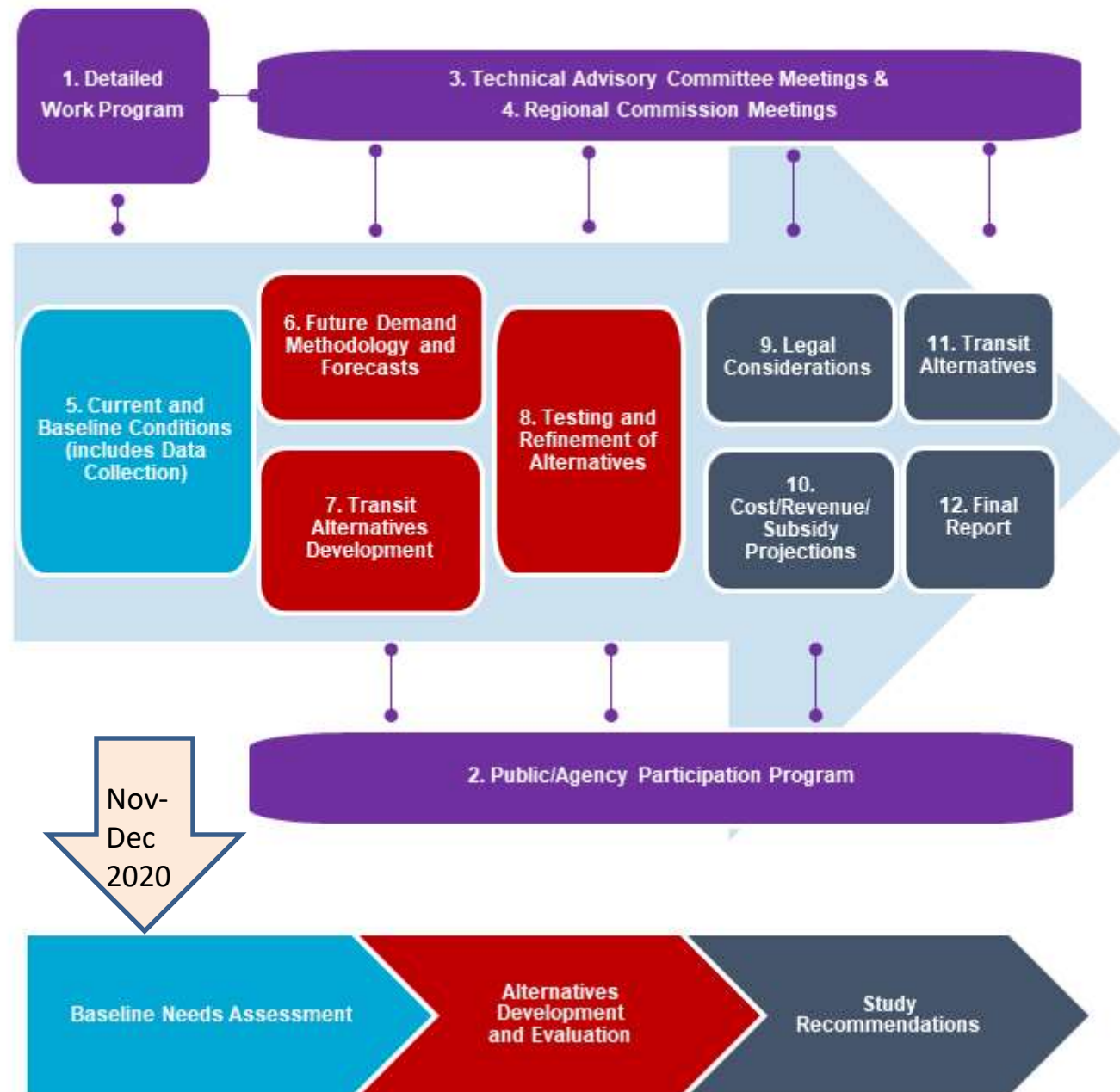
Meeting Agenda

- Introductions / Welcome
- Meeting Objectives
- Public/Stakeholder Outreach Status
- Transforming Rail in Virginia
- Existing Transit Service
- Relevant Studies and Plans
- Future Baseline Network Definition
- Travel Demand Forecasting Approach
- Next Steps – Needs Assessment

Study Purpose

This study will provide a comprehensive, objective evaluation of a range of potential future enhanced transit alternatives that compares the cost, benefits, and impacts of each option to inform recommendations about future investment in the corridor.





Public/Stakeholder Outreach Status

- Legislative briefing planned for December
- Public-facing outreach to begin in late January
 - Project Factsheet
 - DRPT Website Information



Transforming Rail in Virginia Program

- On December 19th Governor Northam, Secretary Valentine, CSX, Amtrak, and VRE announced a **\$3.7B** landmark deal that includes purchase of over:
 - **350 miles** of railroad ROW
 - **225 miles** of track
- Commonwealth to fund approximately 2/3 with state and local revenues
- Federal support will help fund a program to begin separating passenger and freight rail in Virginia



Major Program Features

Phases 1 & 2

- Acquisition of ROW, track and passenger rights from CSX
- Build-out of infrastructure in two phases – \$3.2B – includes Long Bridge
- Completion of phases will result in additional VRE / Amtrak service
- Path forward to full separation of freight and passenger service in future
- Preservation of future rail corridors

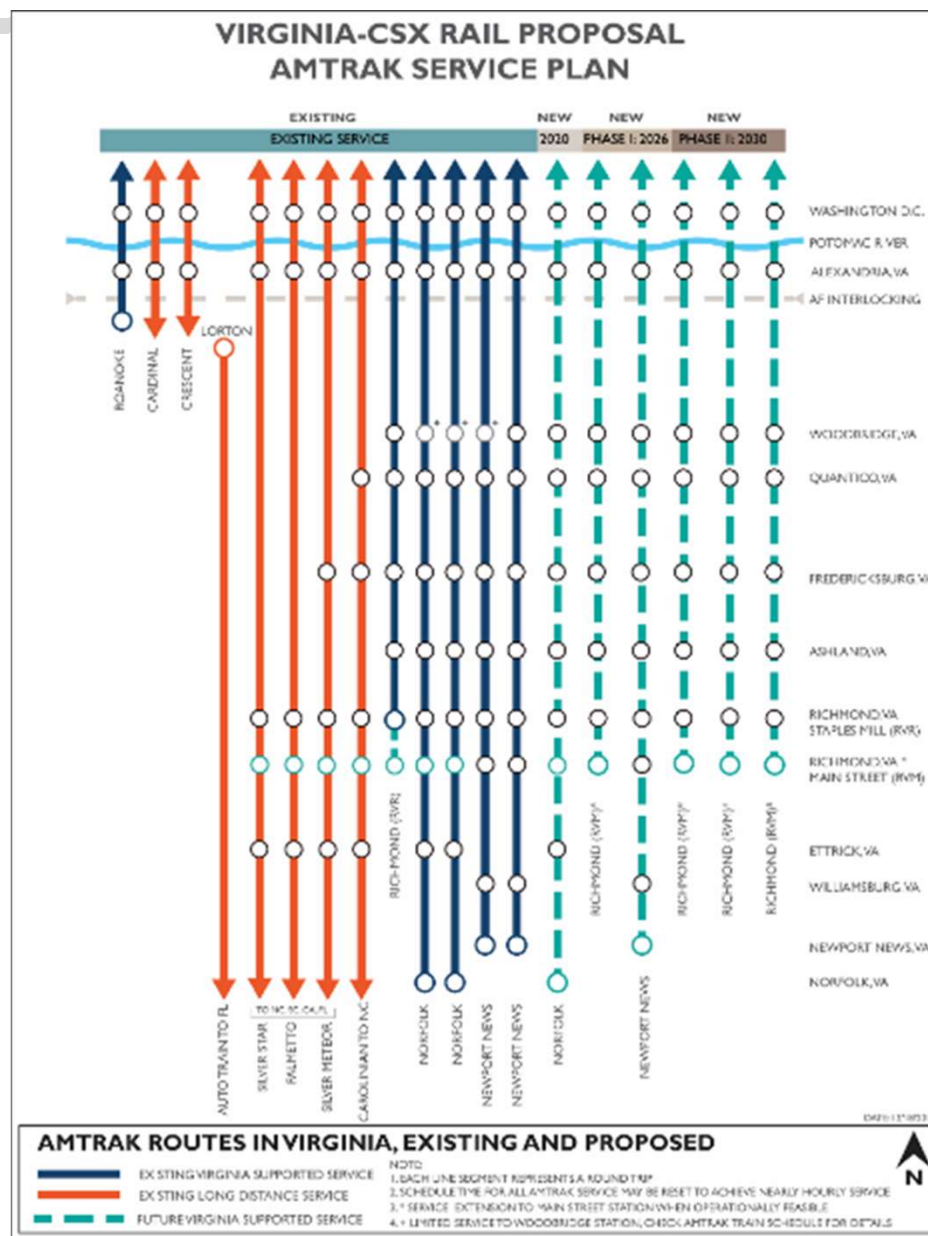
Phases 3 & 4

- Dedicated track through Spotsylvania

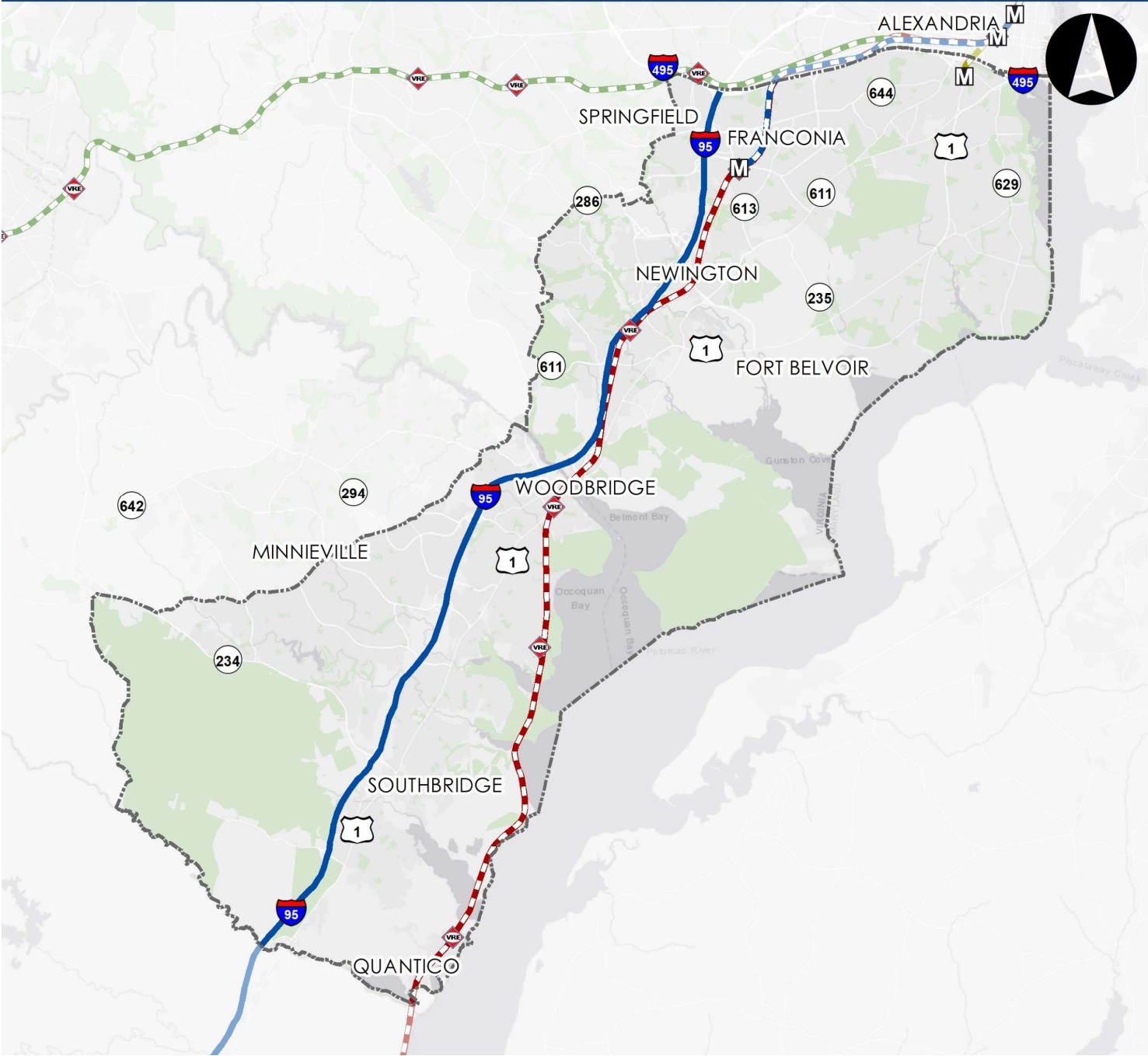


Program Service

- Provides Virginia with control and guaranteed VRE / Amtrak service
- Double state-supported Amtrak, with nearly hourly service from DC to Richmond
- Additional train to Norfolk with mid-day arrival/departure
- New round-trip to Newport News
- Increase VRE service by 75% along the Fredericksburg line
- Allows future ability to increase Roanoke Amtrak service and VRE Manassas Line



STUDY AREA



M Metrorail Stations

VRE Virginia Railway Express (VRE) Stations

Study Area

I-95

Metrorail Routes

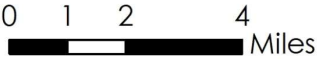
Blue

Yellow

VRE Routes

Fredericksburg

Manassas



Data Compilation

- Operational characteristics, ridership, and cost data from transit service providers in the study area
- Existing and future population and employment projections
- Traffic volume and speed data in the I-95 corridor, including VDOT traffic counts and Probe Data quantifying travel speeds and reliability (e.g., INRIX data)
- Available data regarding usage of the existing I 95 Express Lanes
- Park & ride facilities and usage
- Regional travel patterns, including from the MWCOG/TPB model, the latest ACS-based CTPP data, Streetlight origin/destination data

Baseline Conditions

- Transportation network
 - Transit – operators, routes, ridership
 - Highway – key routes, traffic volumes, reliability issues
 - Park & Ride – locations, usage
 - HOV/Carpooling use; TDM organizations
- Land Use
- Travel Markets

Existing Transit Service (2019)

- Bus (Fairfax Connector, PRTC, Metrobus) – Commute/Express and Local Bus/Feeder
 - Fairfax Connector – 23 local and 8 commuter/express routes
 - PRTC – 6 local and 11 commuter/express routes
 - Metrobus – REX and Springfield Circulator
- MetroRail – Blue Line Franconia-Springfield and Yellow Line Huntington Metrorail stations
- Commuter Rail (VRE/state-sponsored Amtrak) - 5 VRE stations
- Private (Martz)

Plans and Studies Reviewed

Statewide Plans

- VTrans 2040 – Mid-Term Transportation Needs (2020)
- VTrans 2040 – 2025 Needs Assessment (2017)
- VTrans 2040 - Vision, Goals & Objectives, and Guiding Principles (2015)

Regional Plans

- **MWCOG Visualize 2045 Financially Constrained Element (2018) (CLRP)**
- MWCOG Regional Transportation Priorities Plan (2014)
- MWCOG Region Forward Plan for 2050 (2010)
- NVTA TransAction 2040 Update (2017, original plan from 2012)

County Plans

- Prince William County Comprehensive Plan (2008, amended 2019)
- Fairfax County Comprehensive Plan (2017)

Funding Programs

- **MWCOG FY 2021-2024 Transportation Improvement Program**
- **NVTA FY 2020-2025 Six Year Program**
- **NVTA FY 2014-2025 Funded Project List**
- **NVTC I-95/I-395 Commuter Choice FY 2020**



Bolded plans were found to be most relevant to informing the development of the future baseline and potential future alternatives.

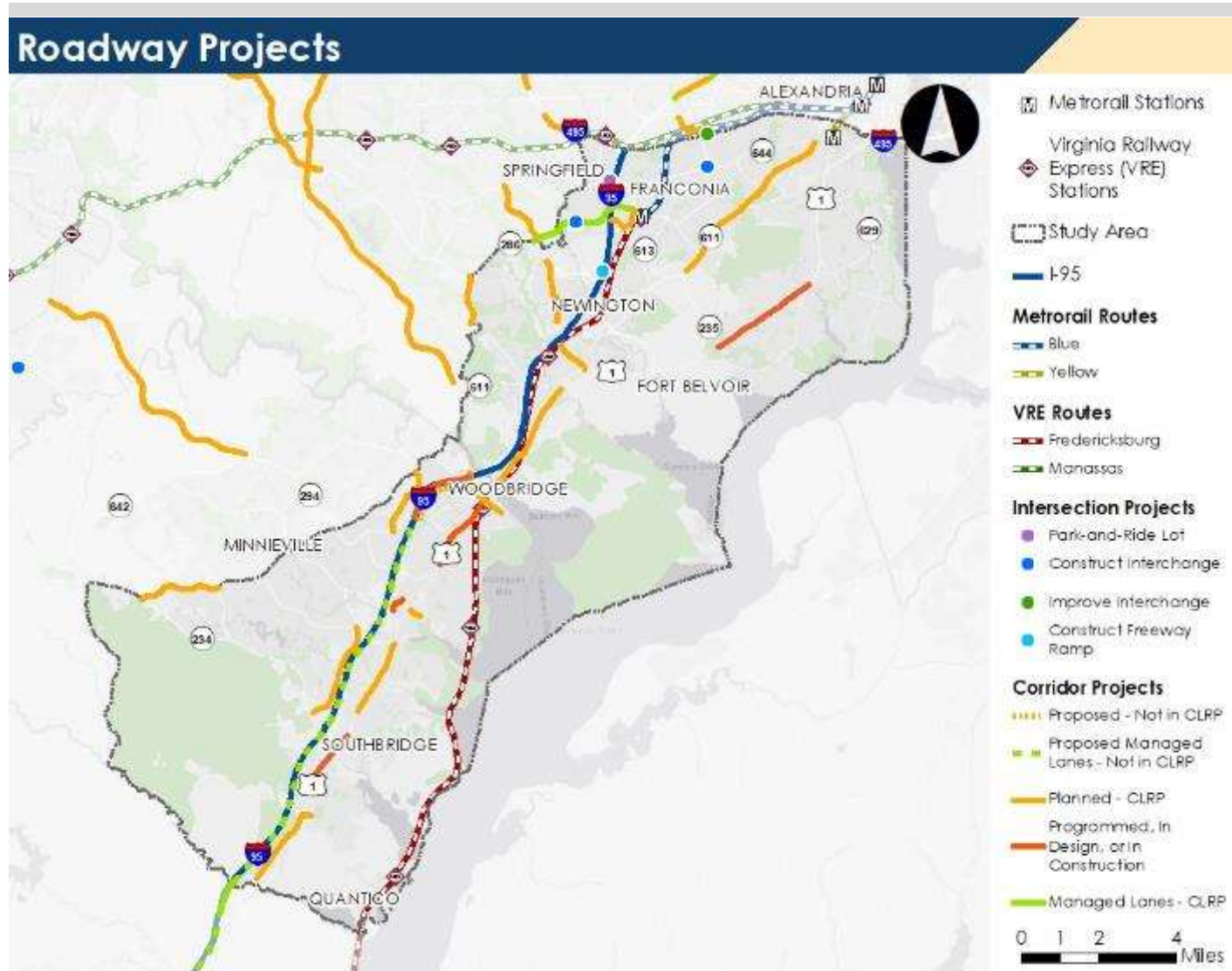
Plans and Studies Reviewed

Rail Plans	Transit Plans	Corridor Studies	Ferry Studies	Bicycle and Pedestrian Plans
<ul style="list-style-type: none"> • Transforming Rail in Virginia (2020) – Program Website, Network Map, and Presentation Slides • DPRT DC2RVA Southeast High Speed Rail (DC to Richmond) <ul style="list-style-type: none"> • Tier II Final Environmental Impact Statement (FEIS) (2019) • Tier II Draft Environmental Impact Statement (DEIS) (2017) • VRE Strategic Plan (2004) • VRE System Plan 2040 (2014) • VRE Transit Development Plan FY 2020-2025 (2019) 	<ul style="list-style-type: none"> • DRPT I-95/I-395 Transit/TDM Study (2017) • Fairfax County Transit Development Plan FY 2016-2022 (2016) • PRTC (OmniRide) 2012-2017 Transit Development Plan (2011) • PRTC (OmniRide) Strategic Plan (2017) • WMATA Core Capacity Study (2002) • WMATA Momentum Strategic Plan 2013-2025 (2013) • WMATA Connect Greater Washington Transit System Plan (2014) • WMATA Blue/Orange/Silver Capacity & Reliability Study (ongoing) 	<ul style="list-style-type: none"> • I-95 Interim Corridor Improvement Plan (2020) • Fairfax County and Franconia-Springfield Parkways Study (ongoing) • DRPT Route 1 Multimodal Alternatives Analysis (2015) 	<ul style="list-style-type: none"> • NVRC Market Analysis for Commuter Ferry Service on the Occoquan, Potomac, and Anacostia Rivers (2015) • NVRC Commuter Fast Ferry Project Development Phase Woodbridge to JBAB/National Harbor/Southwest DC (Draft Infrastructure Gap Analysis) (2018) 	<ul style="list-style-type: none"> • Fairfax County Bicycle Master Plan (2014) • Bicycle and Pedestrian Plan for the National Capital Region (2014)



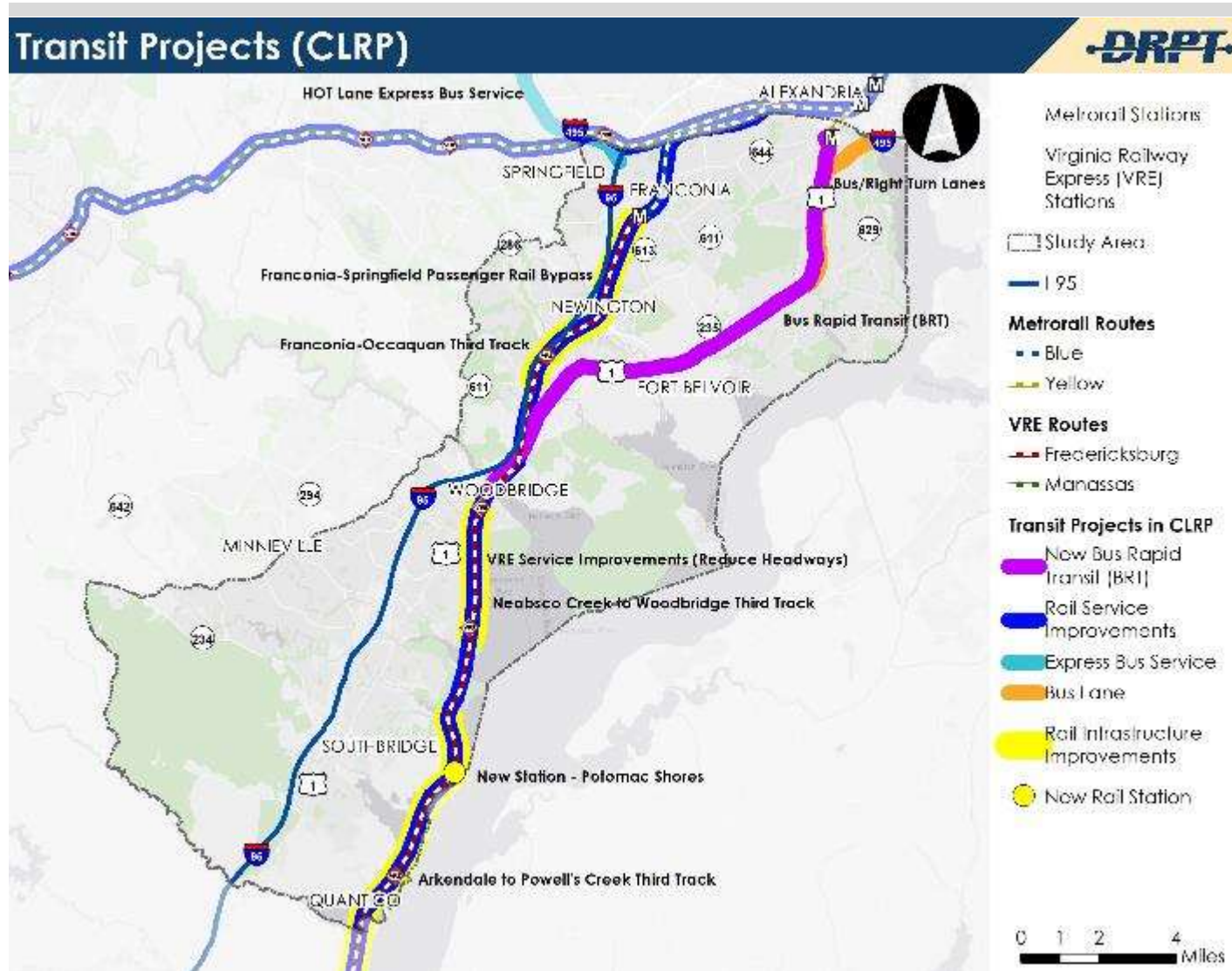
Bolded plans were found to be most relevant to informing the development of the future baseline and potential future alternatives.

Roadway Projects



- I-95: Auxiliary lanes, managed lanes, interchange/ ramp projects
- Route 1: Widening to 6 lanes
- Widening of cross-regional routes

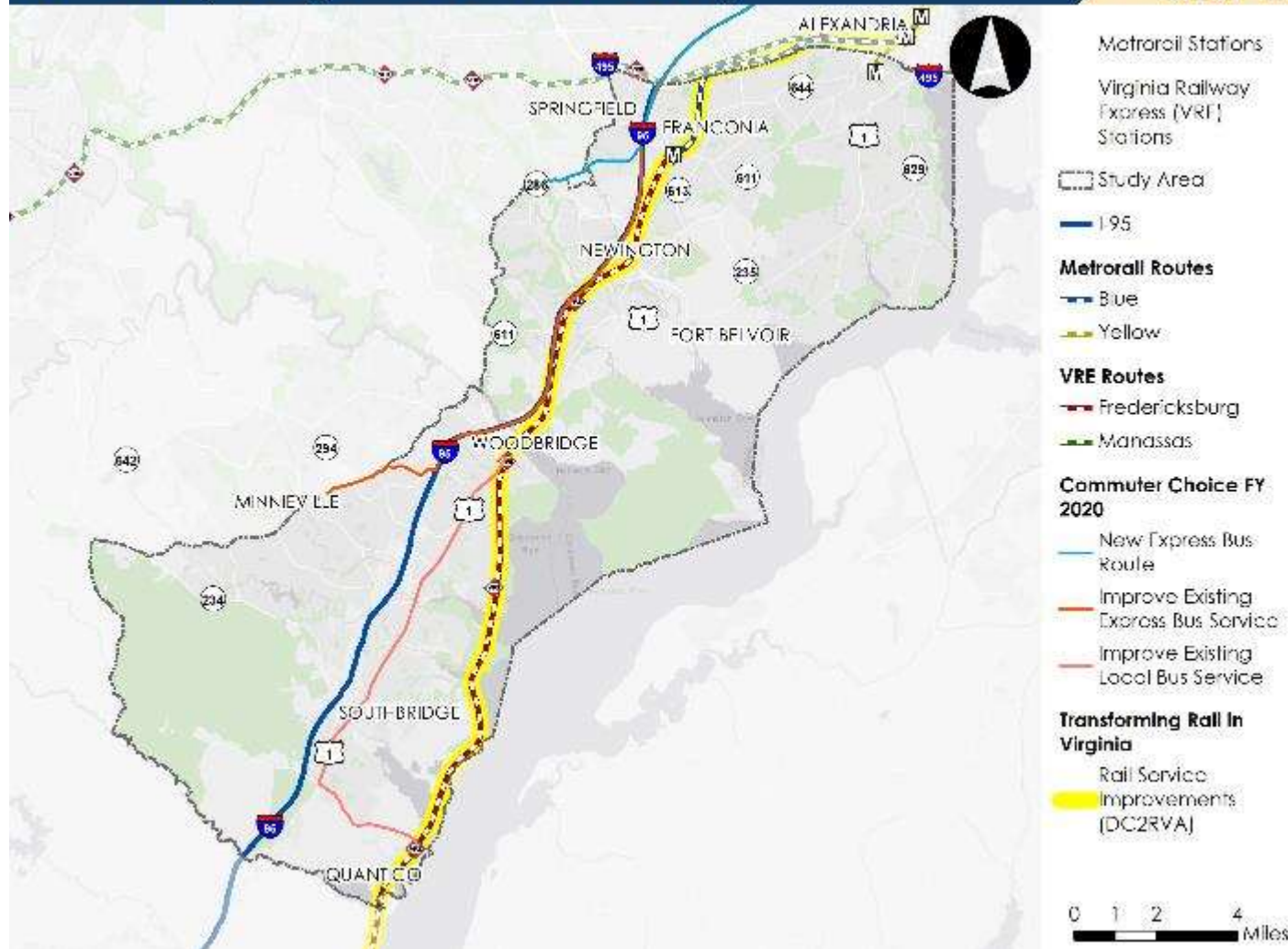
Transit Projects - CLRP



- VRE service improvements
- Route 1 BRT
- Rail infrastructure improvements (overlap with Transforming Rail in Virginia)

Transit Projects – Funded but not in CLRP

Transit Projects (Funded - Not in CLRP)



- Inter-city rail service improvements
- New and improved express bus services



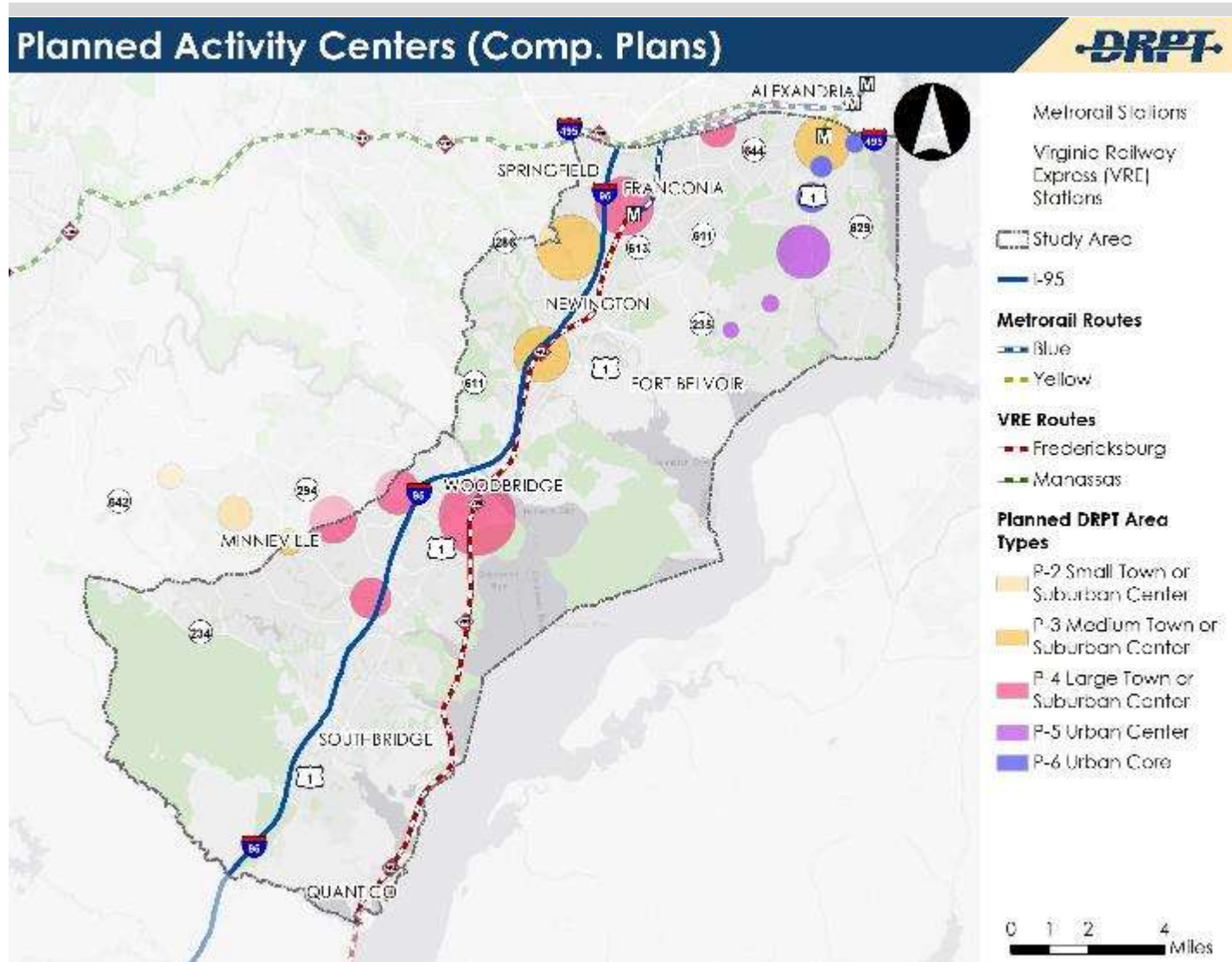
Proposed Future Baseline (2045) - Transit

- Current Bus, Metrorail, Commuter Rail, Private Bus
- Improvements in CLRP
 - Potomac Shores VRE station (2022)
 - Route 1 BRT to replace REX
 - Phase I & II – Fort Belvoir to Huntington Metro (2030)
 - Phase III – Fort Belvoir to Woodbridge (2032 plus)
 - PRTC increases in frequency for some routes – programmed for 2020
- Improvements to Commuter Rail – Transforming Rail in Virginia
 - Double VRE and Amtrak state-sponsored service on Fredericksburg Line
 - Add weekend service
- Planned/Funded Improvement but not in CLRP
 - New Route 1 Commuter Bus Route (FC) – Route 172 between Huntington Metro and Lorton VRE
 - Not including services planned/proposed in TDPs that are not funded
- Changes in Bus Service (Metrobus changes due to pandemic – will they be reinstated?)

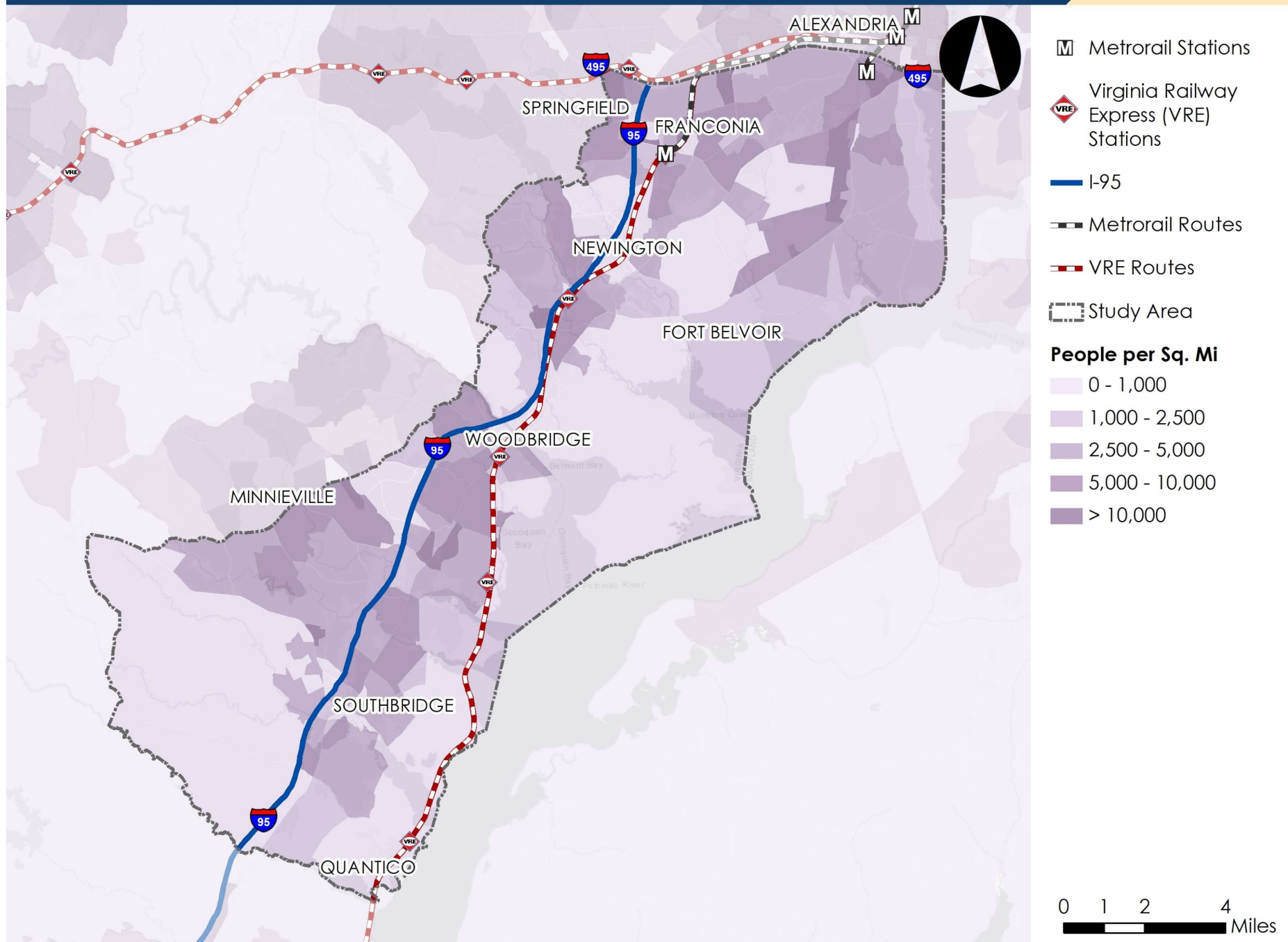
Land Use Maps

- Planned Activity Centers
- 2020 Population Density
- 2045 Population Density
- Change in Population Density
- 2020 Employment
- 2045 Employment
- Change in Employment Density

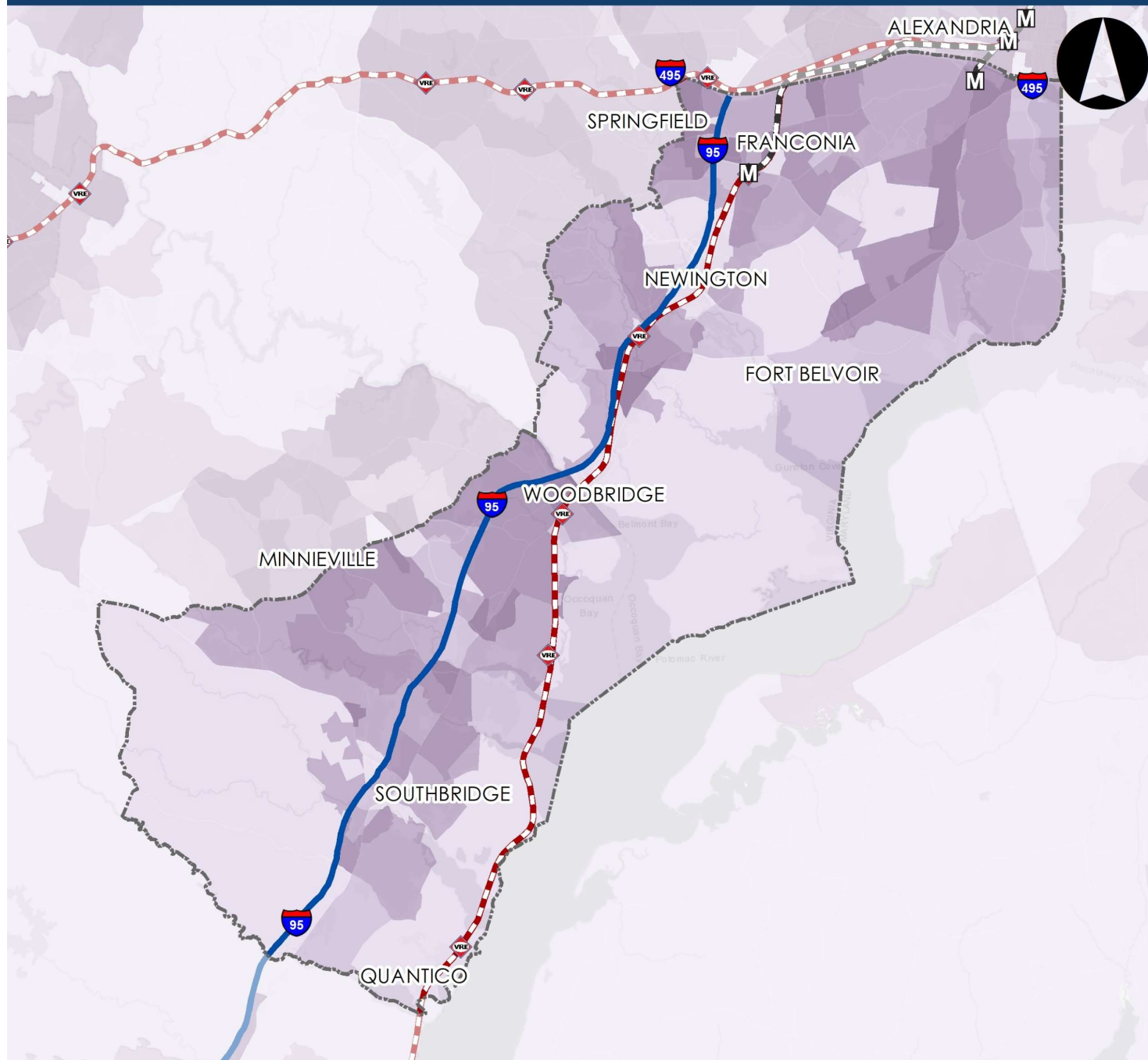
Planned Activity Centers



2020 POPULATION DENSITY



2045 POPULATION DENSITY



M Metrorail Stations

Virginia Railway Express (VRE) Stations

I-95

Metrorail Routes

VRE Routes

Study Area

People per Sq. Mi

0 - 1,000

1,000 - 2,500

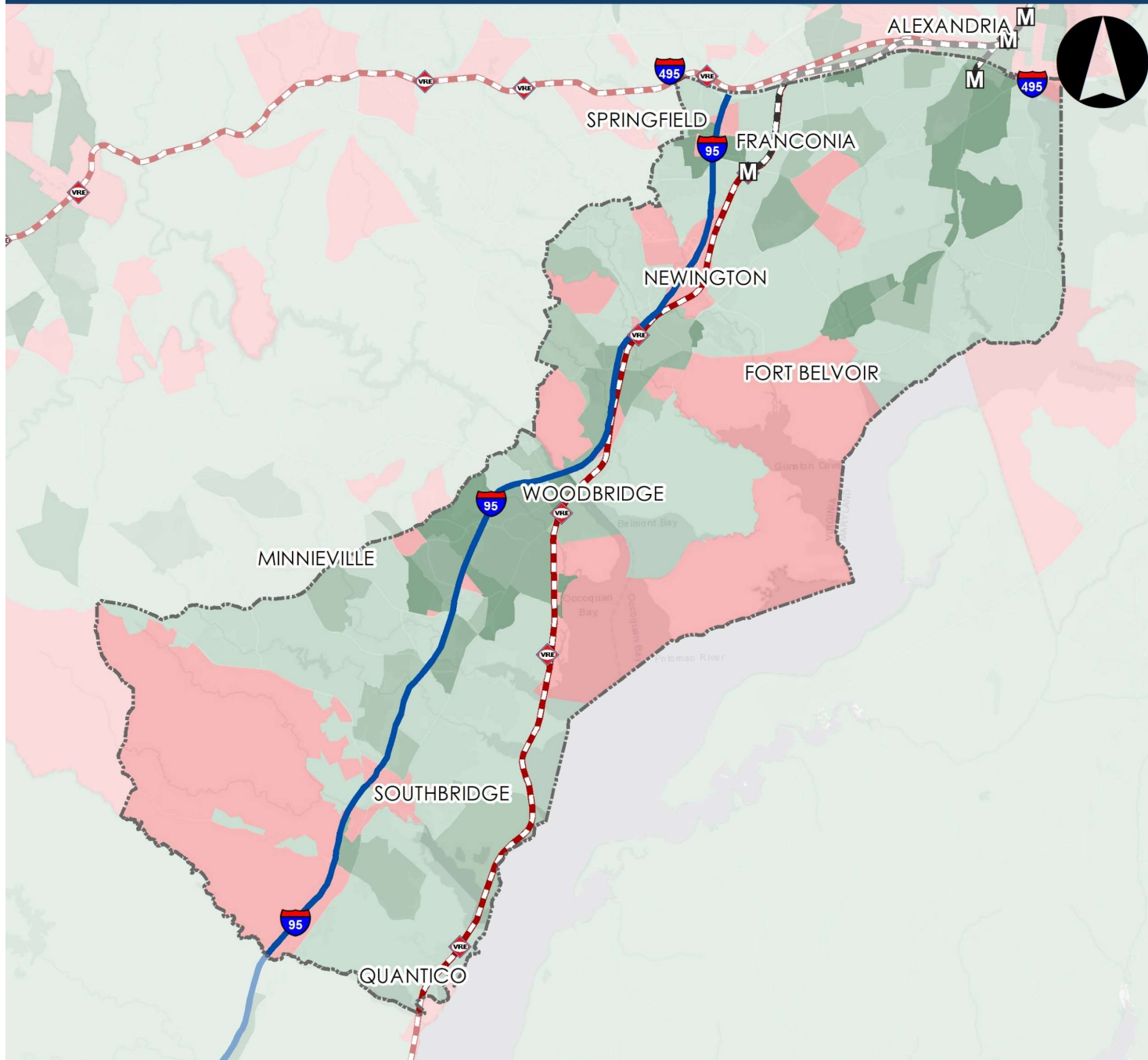
2,500 - 5,000

5,000 - 10,000

> 10,000

0 1 2 4 Miles

CHANGE IN POPULATION DENSITY (2020 TO 2045)



M Metrorail Stations

Virginia Railway Express (VRE) Stations

I-95

Metrorail Routes

VRE Routes

Study Area

Change in People per Sq. Mi (2020 to 2045)

< 0

0 - 500

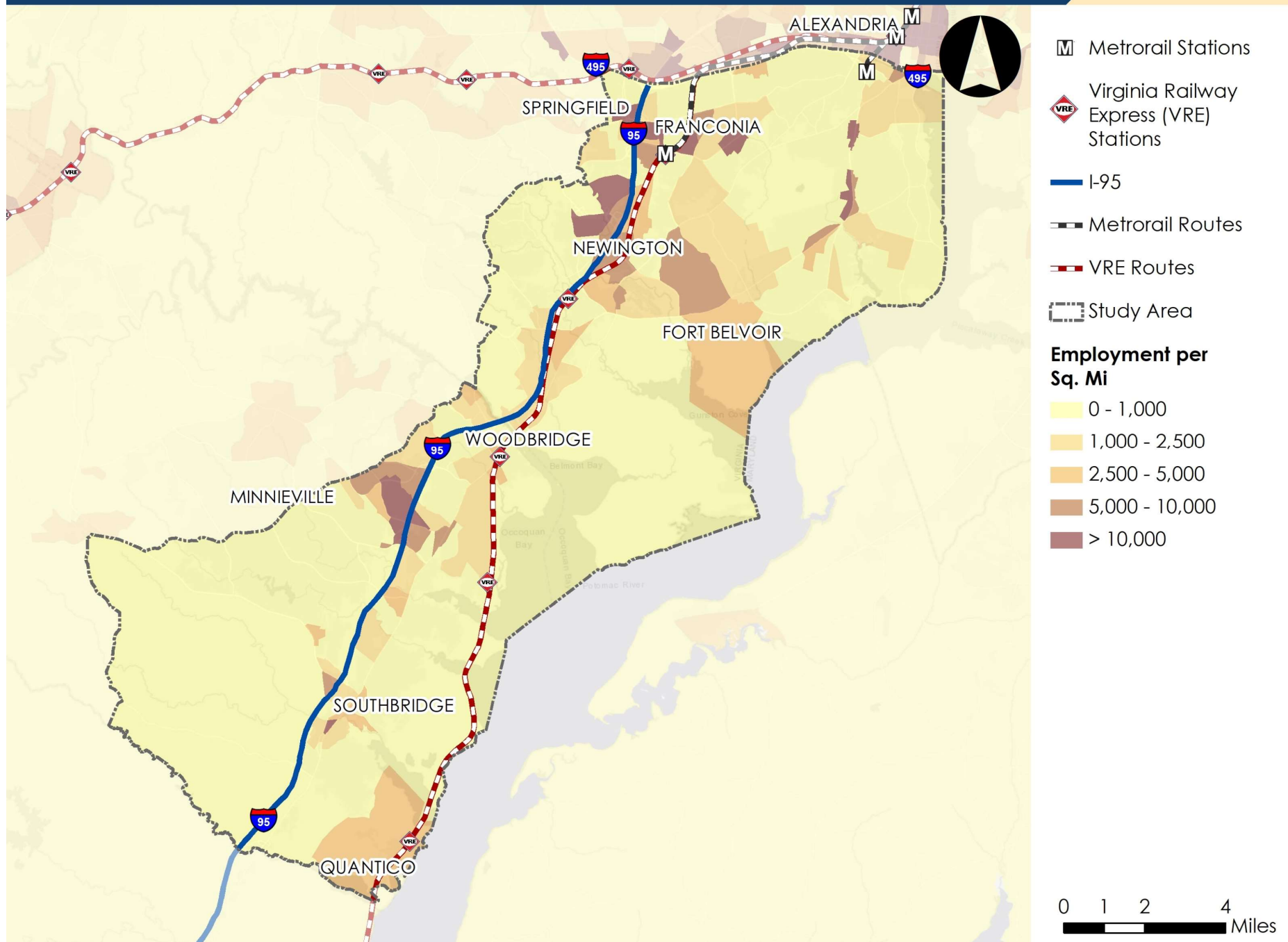
500 - 1,000

1,000 - 2,500

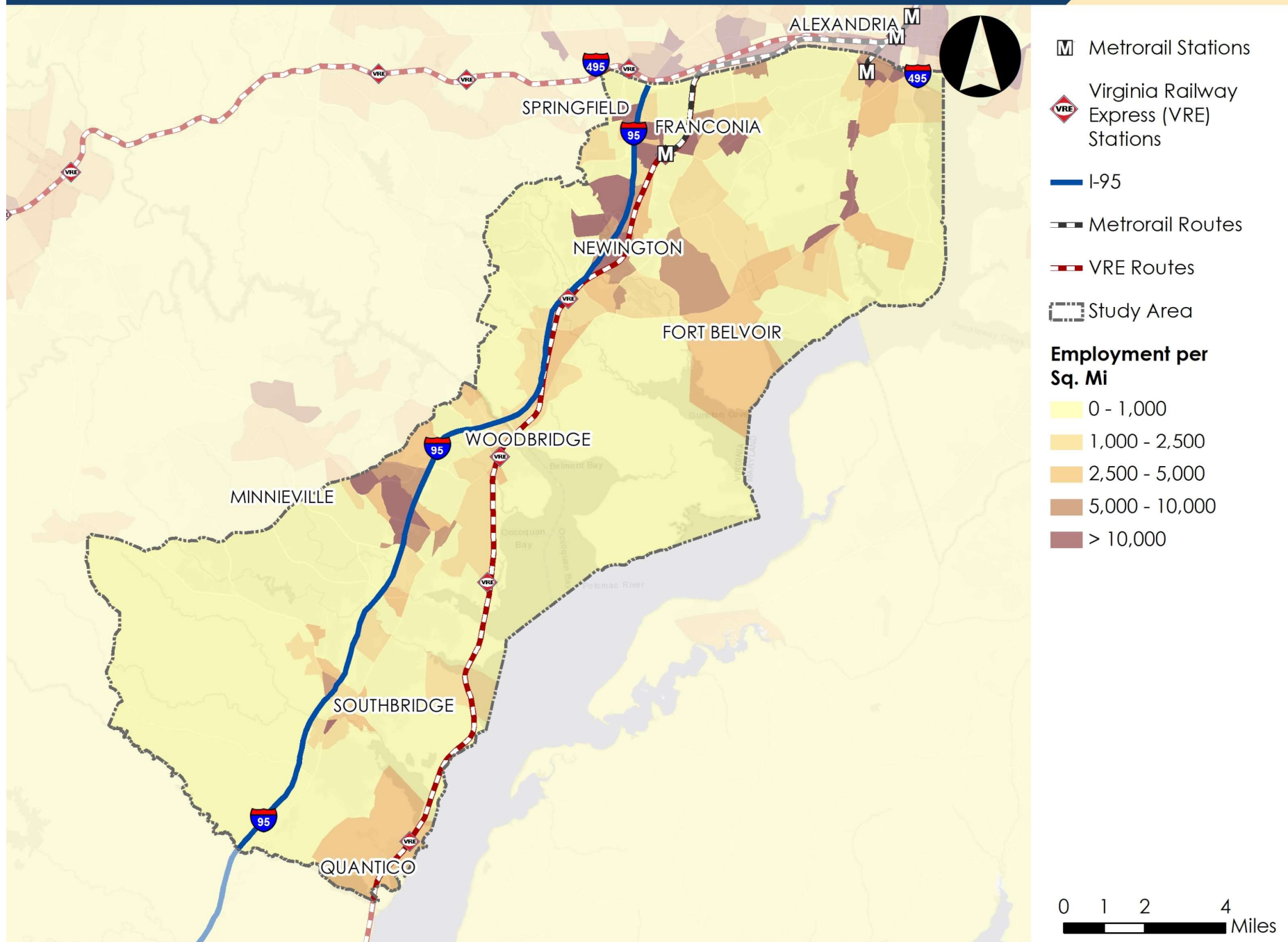
> 2,500

0 1 2 4 Miles

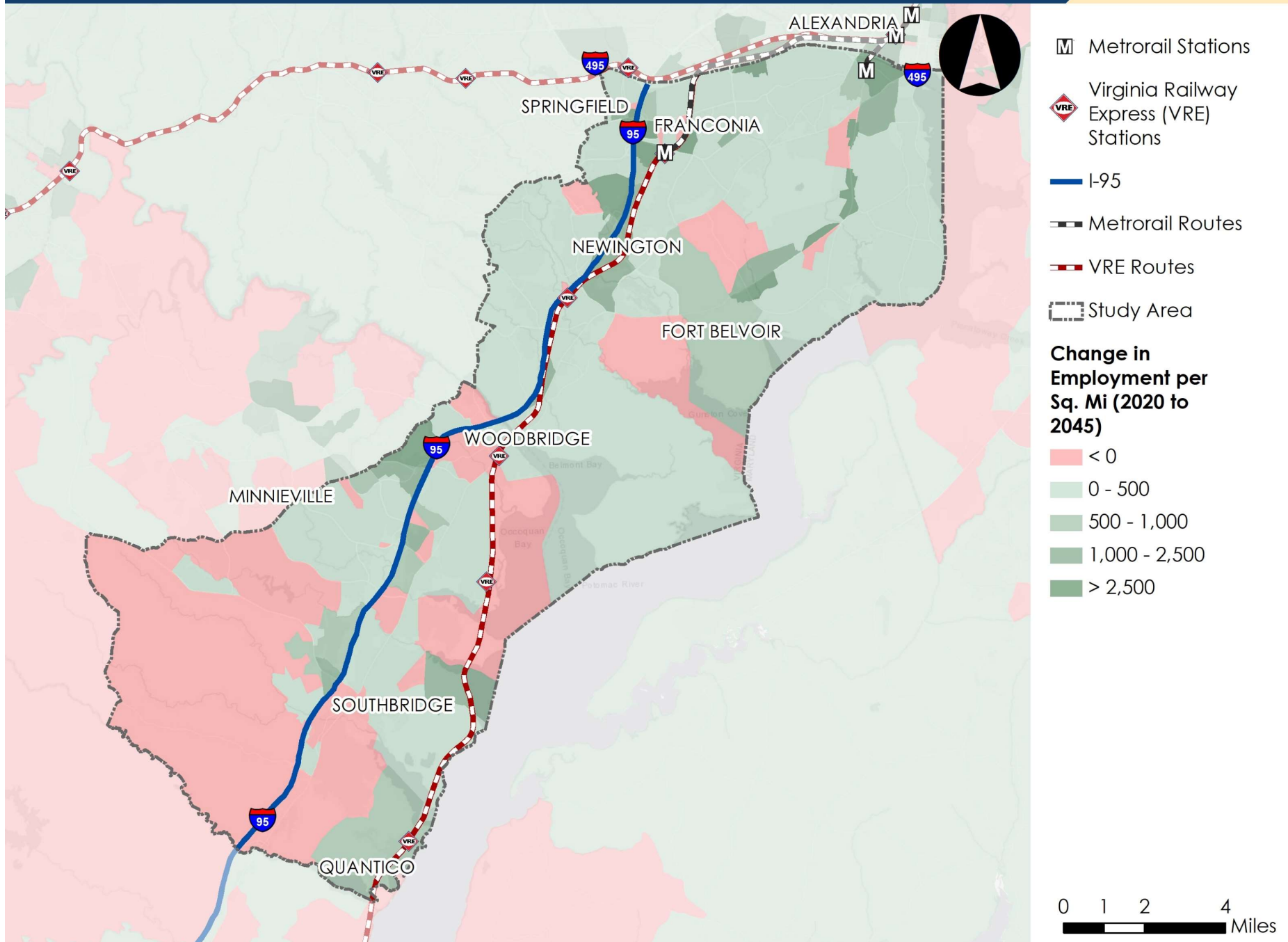
2020 EMPLOYMENT DENSITY



2045 EMPLOYMENT DENSITY



CHANGE IN EMPLOYMENT DENSITY (2020 TO 245)



Travel Demand Forecasting Methodology

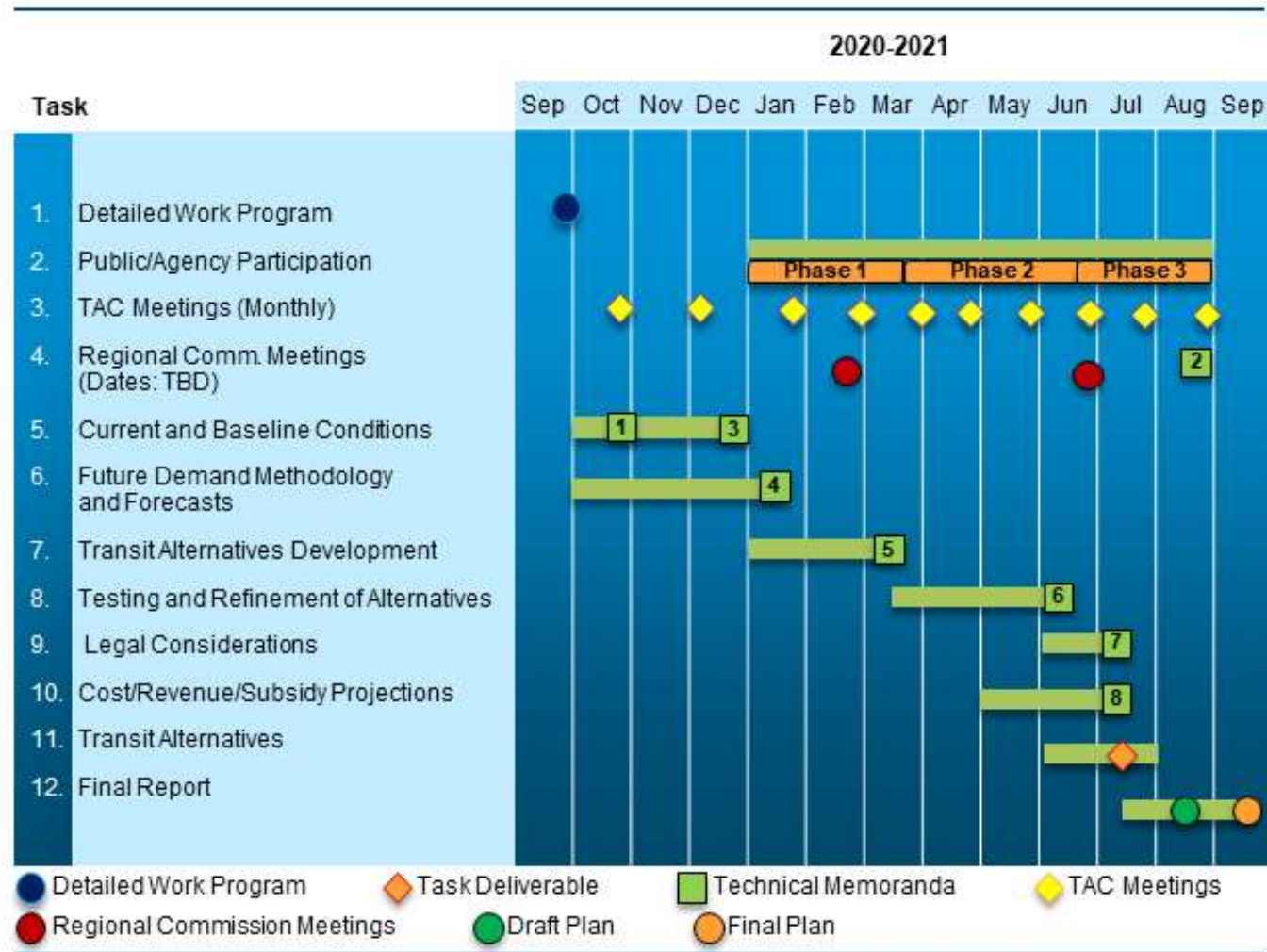
- Regional Travel Demand Model
 - Latest officially adopted COG/TPB Version 2.3.78 with Cooperative Forecasts Round 9.1a
 - Base year 2019, intermediate year 2025, and horizon year 2045
- Model Validation for the Study Area
 - Review of model inputs and assumptions, including network coding
 - Reasonableness checking of estimated travel patterns and modal shares versus observed data
 - Validation and calibration of assignment results
 - VRE ridership has been historically underestimated in the model
 - Calibration of model parameters and inputs for the study area reduced underestimation from -75% to -12%
 - Commuter buses (PRTC and MARTZ) and VRE ridership: 8%
 - Franconia-Springfield Metro ridership: -1%

Schedule for Future TAC Meetings

TAC #	Month	Topics to Be Covered
3	Jan. 2021	<ul style="list-style-type: none">• Baseline conditions and future needs (Task 5)• Future Baseline forecasts (Task 6)
4	Feb. 2021	<ul style="list-style-type: none">• Approach to Transit Alternatives Development (Task 7)• Cost/Revenue/Subsidy Methodology (Task 10)
5	Mar. 2021	<ul style="list-style-type: none">• Transit Alternatives Development (Task 7)
6	Apr. 2021	<ul style="list-style-type: none">• Transit Alternatives Development (Task 7)
7	May 2021	<ul style="list-style-type: none">• Testing of Alternatives – Initial Results (Task 8)
8	Jun. 2021	<ul style="list-style-type: none">• Testing of Alternatives – Refinements and Sensitivity Tests (Task 8)• Legal Considerations (Task 9)• Cost/Revenue/Subsidy Projections (Task 10)
9	Jul. 2021	<ul style="list-style-type: none">• Summary of Transit Alternatives Results (Task 11)
10	Aug. 2021	<ul style="list-style-type: none">• Draft Study Findings and Recommendations (Task 12)

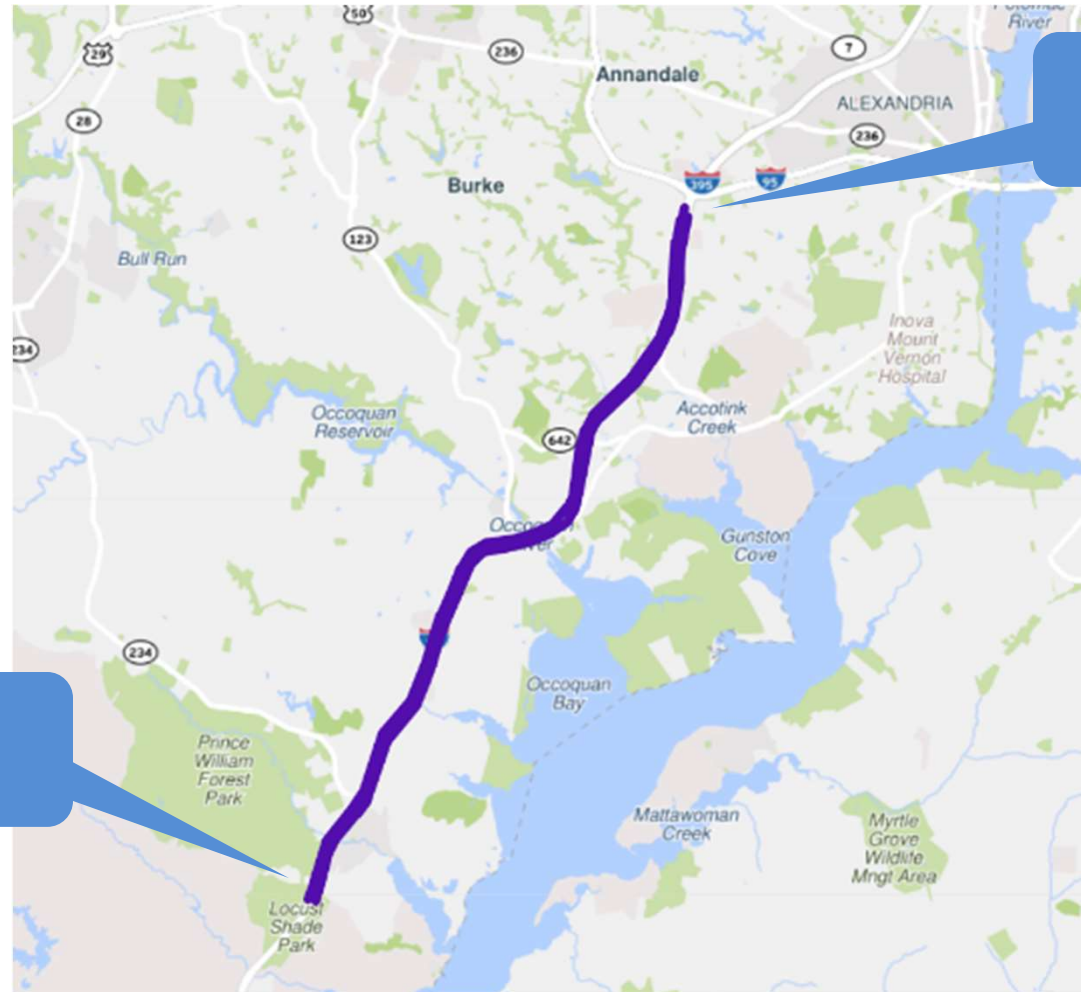
Additional Slides

Study Schedule



Highway Analysis using Vehicle Probe Data

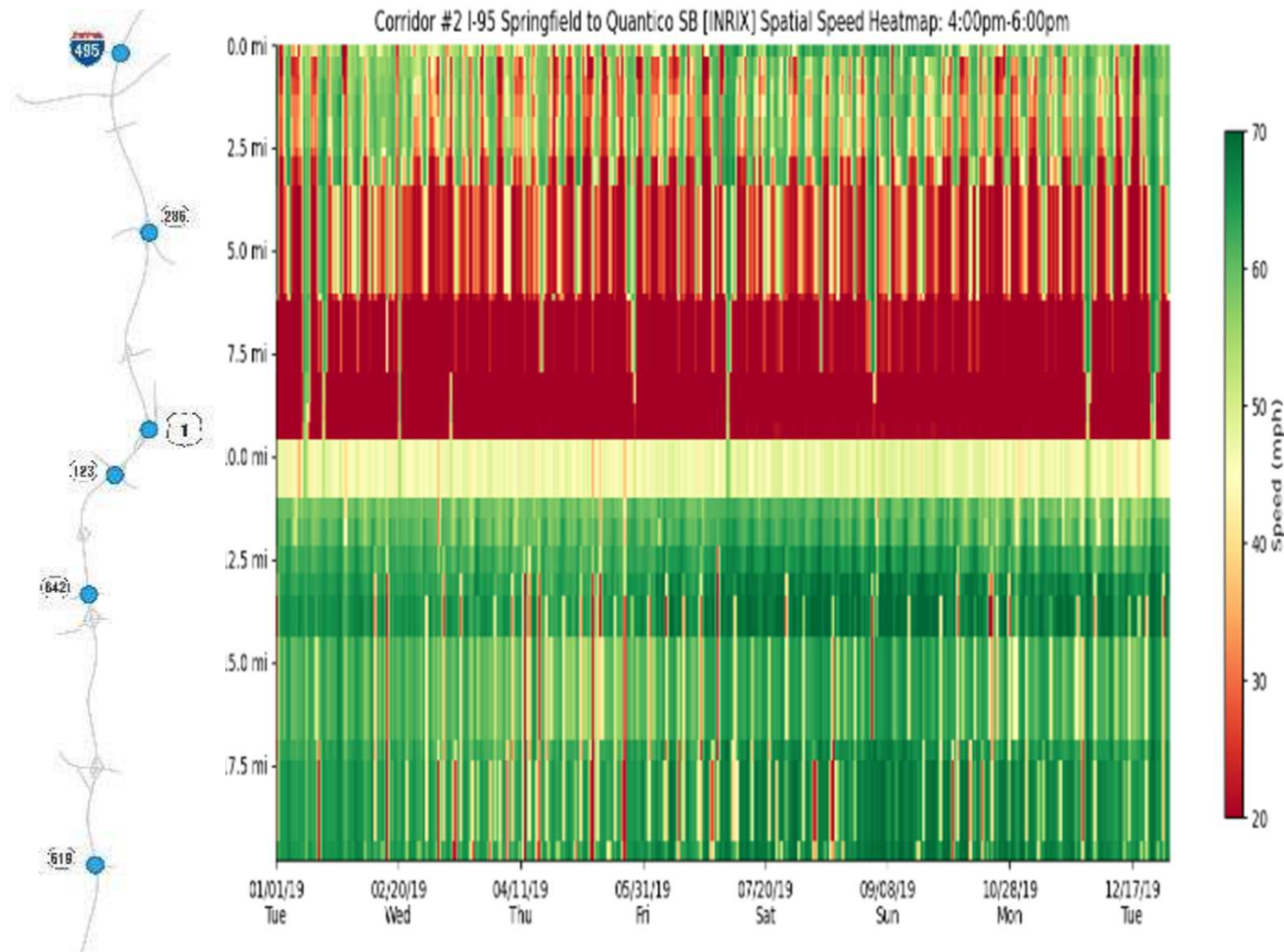
- I-95 Highway Analysis Boundaries



Springfield:
I/95/I-495/I-395
Interchange

Quantico:
I-95/Route 619
Interchange

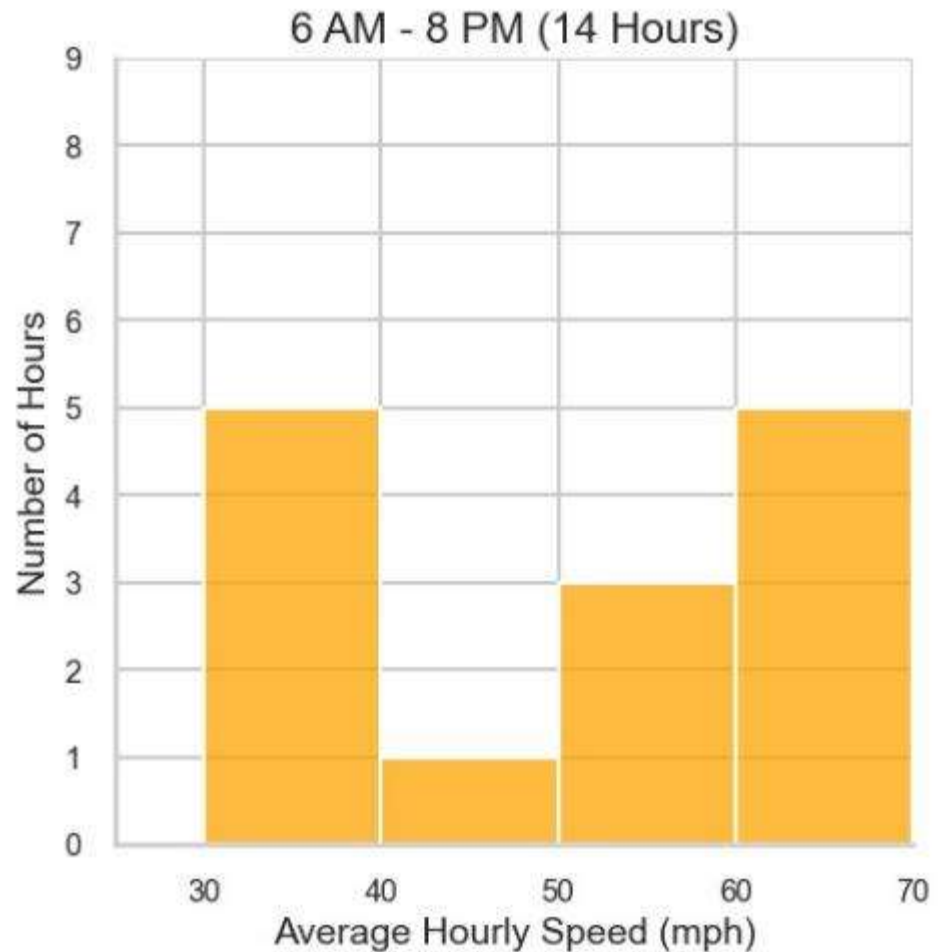
Interstate-95 Southbound Vehicle Speeds



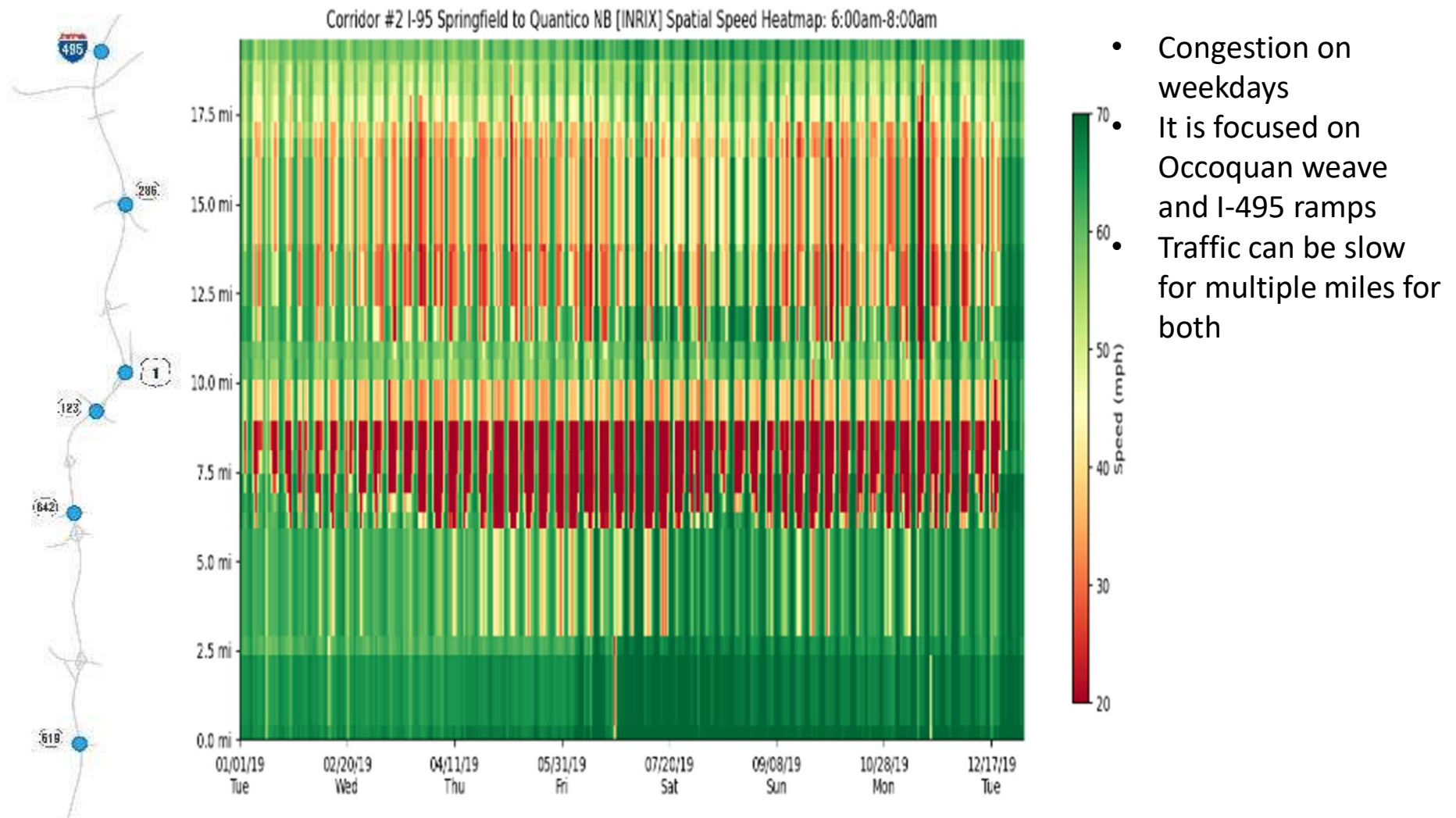
- Congestion is daily
- It is focused on Occoquan weave and lane drop
- Traffic can be slow to the Beltway

Interstate-95 Southbound: Congestion Duration

Measure	Value
Springfield to Quantico Distance	19.8 miles
Free-flow speed	65 mph
Free-flow travel time	18 minutes



Interstate-95 Northbound Vehicle Speeds



Interstate-95 Northbound: Congestion Duration

Measure	Value
Springfield to Quantico Distance	19.6 miles
Free-flow speed	67 mph
Free-flow travel time	18 minutes

