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# Springfield to Quantico Enhanced Public Transportation Feasibility Study

Elected Officials Briefing

June 16, 2021



Virginia Department of Rail and Public Transportation

# Meeting Agenda

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- Introductions / Welcome
- Public and Stakeholder Outreach Status
- Alternatives Definition
- Alternatives Evaluation Measures
- Next Steps

# Study Background

- Virginia General Assembly approved a 2020 budget amendment directing DRPT to conduct a feasibility study :

*"F. The Department of Rail and Public Transportation, in cooperation with Fairfax and Prince William counties, shall evaluate enhanced public transportation services from the Franconia-Springfield Metro Station to Fort Belvoir, Lorton, Potomac Mills, and Marine Corps Base Quantico in Prince William County, including the cost and feasibility of extending the Blue Line and other multimodal options such as bus rapid transit along Interstate 95 and U.S. Route 1. The Director of the Department of Rail and Public Transportation shall submit a report of its findings to the Chairs of the House Appropriations Committee and the Senate Finance and Appropriations Committee by December 1, 2021."*

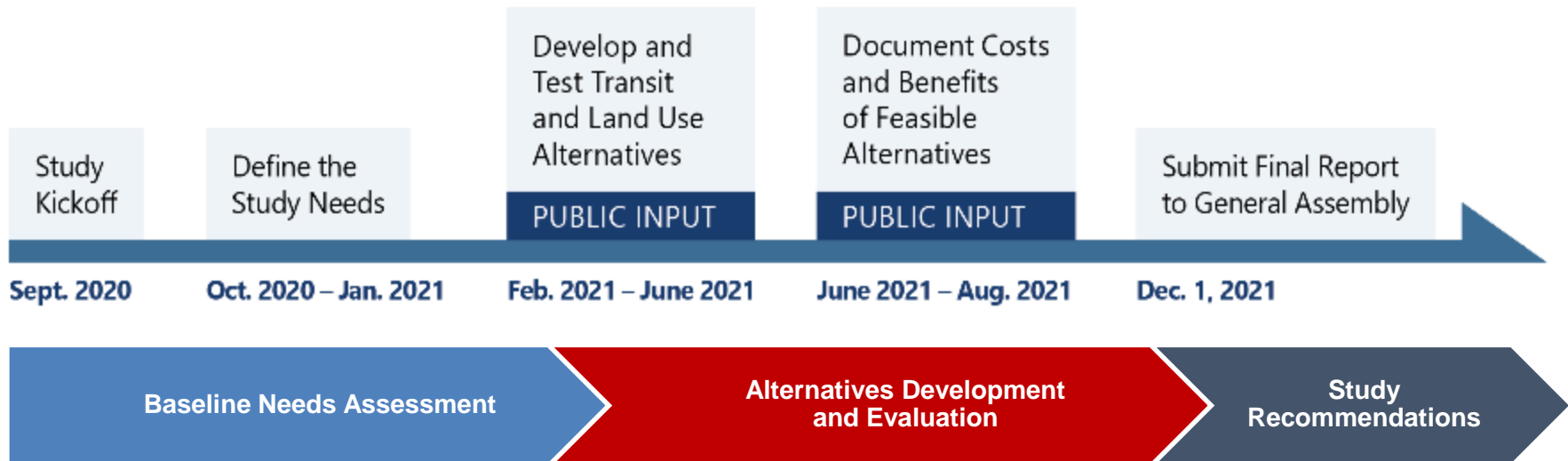
- Study must be completed by December 1, 2021
- A range of multimodal transit investments will be evaluated

# Study Outcomes

*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.*



# Study Schedule



*We are here.*

# Public and Stakeholder Outreach

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# Outreach Status

- Completed Activities
  - DRPT Website Launched
  - Project Factsheet
  - On-Line Survey (open April 12<sup>th</sup> – May 17<sup>th</sup>)
  - Virtual Public Meeting
    - Held May 4<sup>th</sup>
- Future Activities
  - July and September public meetings

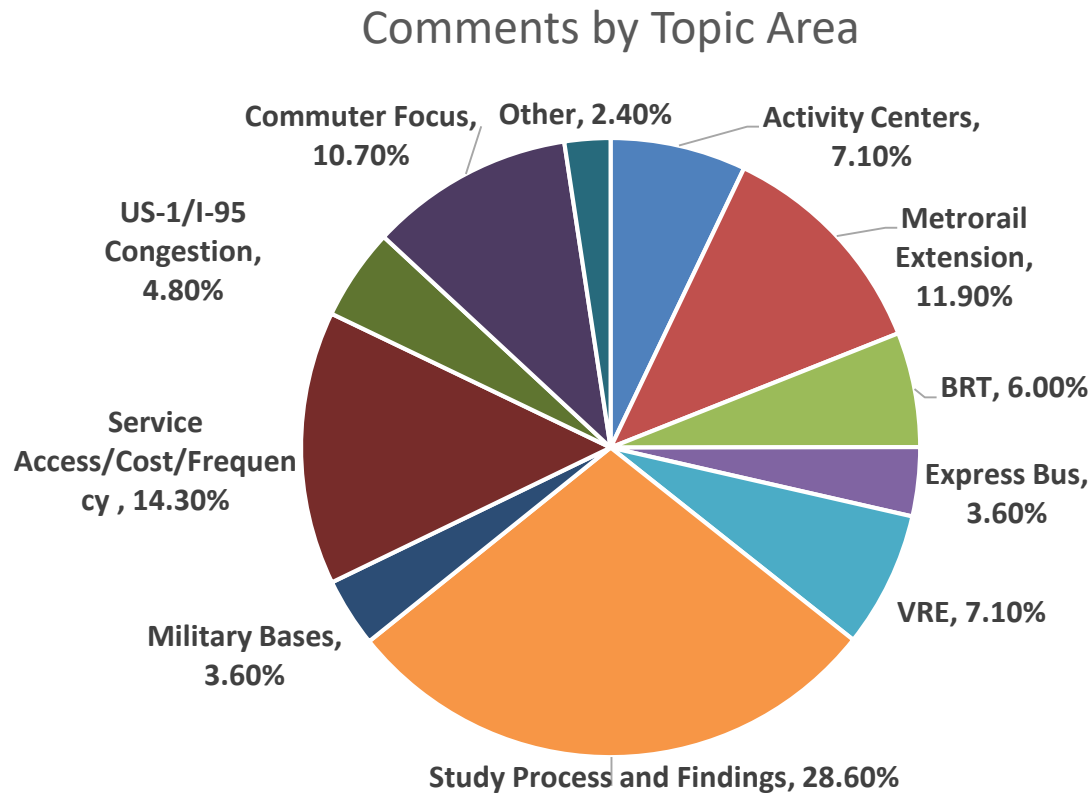


<http://www.drpt.virginia.gov/transit/springfield-to-quantico/>



# Virtual Public Meeting – Common Themes

- Common themes:
  - 51 comments and questions received throughout the meeting through chat and during breakout room discussions



# Virtual Public Meeting – Key Findings

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- Study alternatives are serving the right areas, especially rail to Potomac Mills and a BRT extension to Dumfries, as well as connectivity from Fairfax to Fort Belvoir
- Access and frequency are important but also consider cost and equity
- Analysis of alternatives should be presented relative to costs and success at gathering ridership
- Weekend travel and connections to shopping destinations are important
- Consider the first mile and last mile to stations and military bases

# Land Use Study

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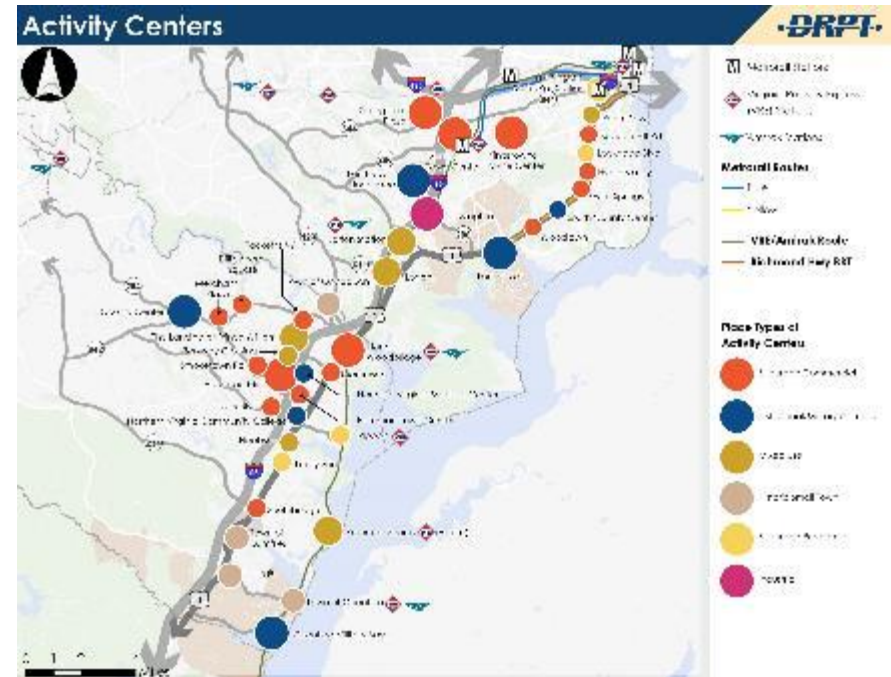
# Corridor Land Use Assessment

## Completed Activities:


- Initial Coordination with County Planning Staff
- Existing conditions analysis and identification of multimodal centers by type
- Identification of potential station locations

## Next Activities:

- Selection of Station Area/Multimodal Center Planning for Station Areas (Up to 10)
- Development of Alternative Land Use Scenarios
- Modeling and Testing of Transit and Land Use Scenarios




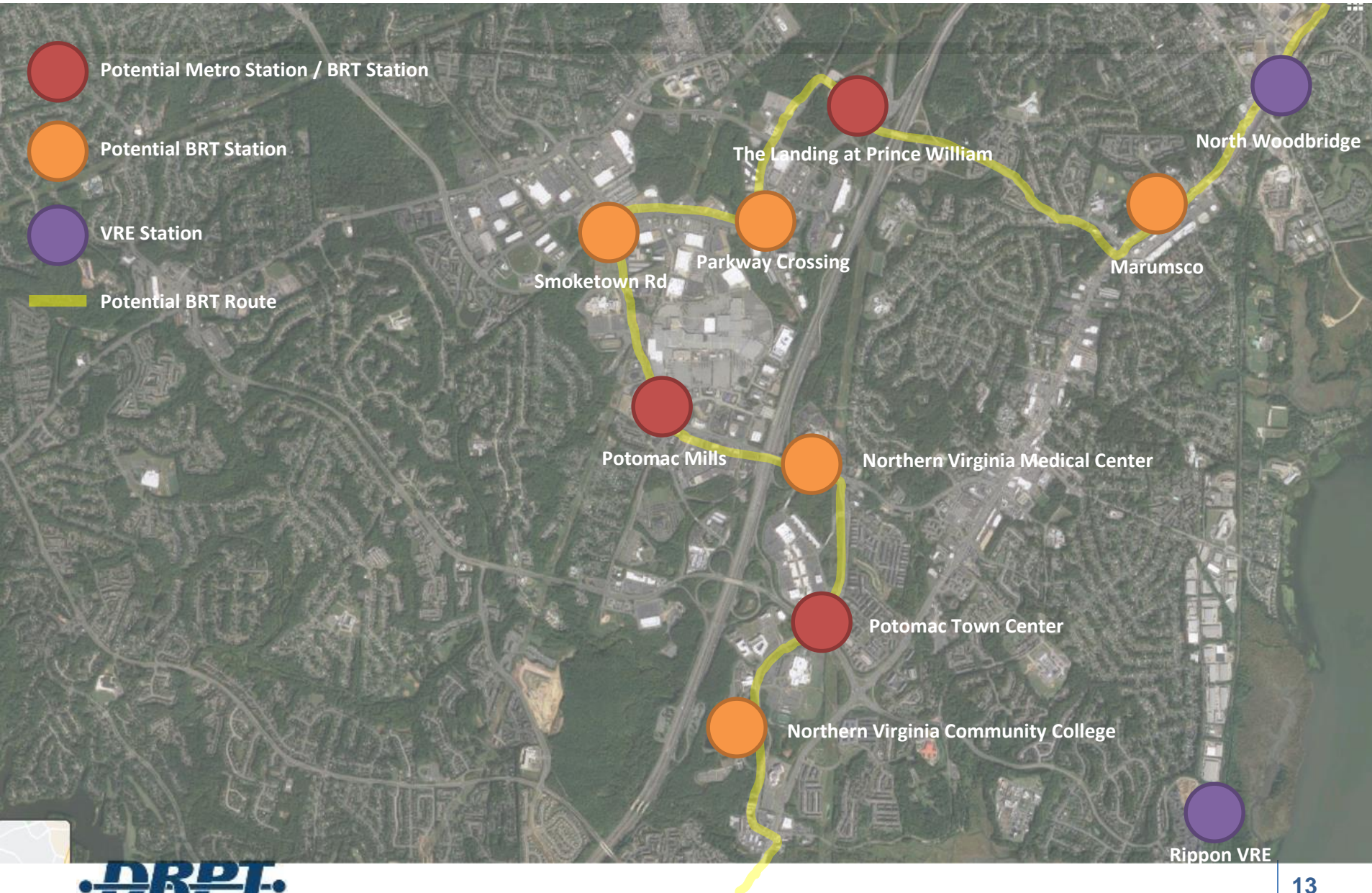
# Potential Focus Area: Potomac Mills Multimodal District

 Potential Metro Station / BRT Station

 Potential BRT Station

 VRE Station

 Potential BRT Route



# Alternatives Definition

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# Transit Modes for Alternatives Testing

## 5 Options:



Metrorail – Blue Line Extension



Metrorail – Yellow Line Extension



Bus Rapid Transit

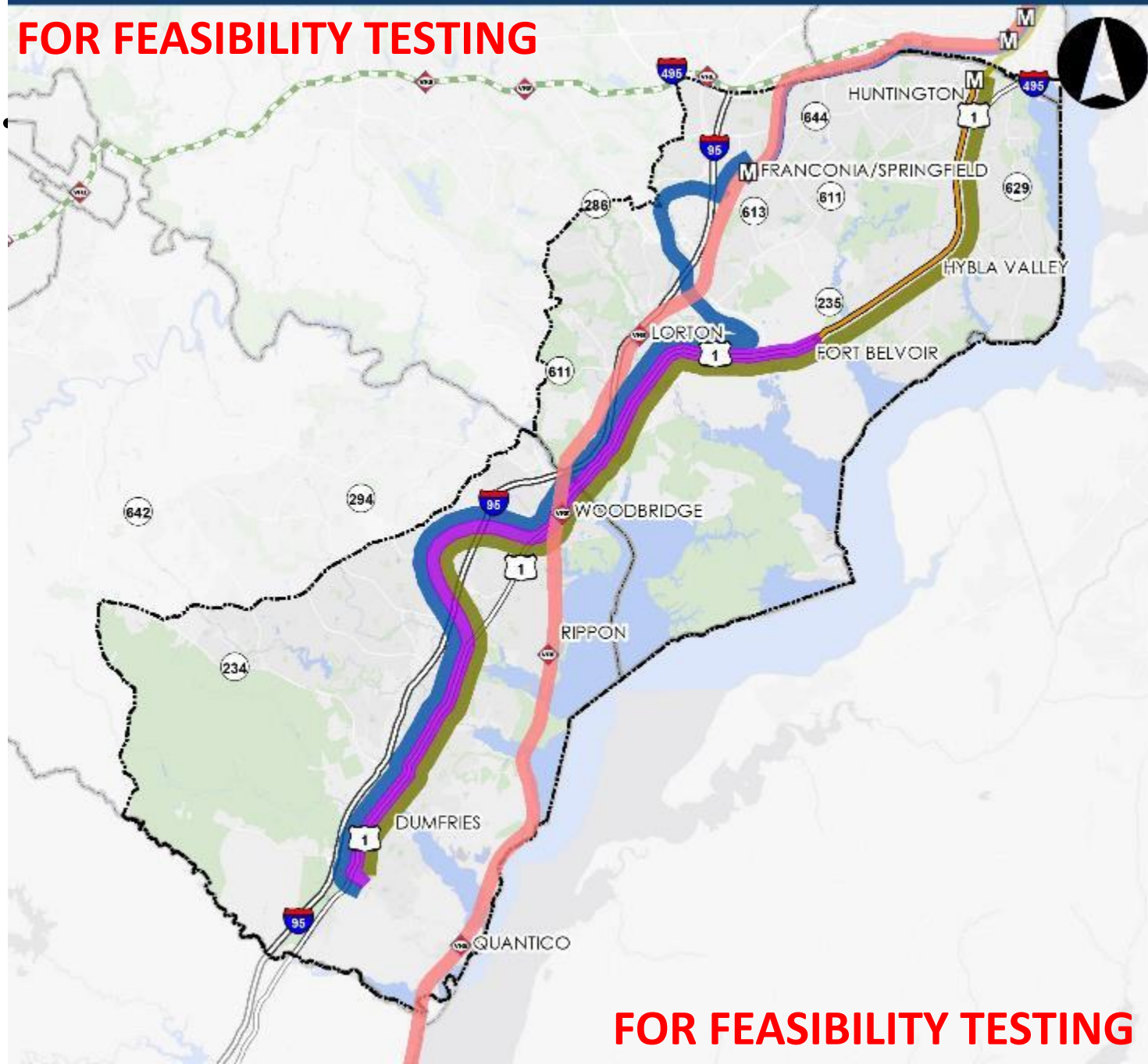


VRE Service Improvements



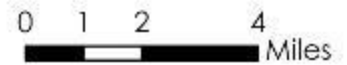
Express Bus Routes

## FOR FEASIBILITY TESTING



- Metrorail Stations
- Virginia Railway Express (VRE) Stations
- County Boundary
- Richmond Highway BRT
- Metrorail Routes**
  - Blue
  - Yellow
- VRE Routes**
  - Manassas
- Alternatives**
  - Blue Line Metrorail
  - Yellow Line Metrorail
  - Bus Rapid Transit
  - Increased Frequency Along Existing VRE Alignment

## FOR FEASIBILITY TESTING



# Identification of Preliminary Station Locations

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**Station locations were identified for Blue, Yellow, BRT, and VRE alternatives using a combination of the following factors:**

- Major activity centers that are on or within ¼ mile of the proposed alignment
- Transfer locations
  - Existing / planned premium transit stations – Metro, BRT, VRE, Amtrak
  - Existing Park and Ride locations
  - Existing local bus routes
- Transit centers/BRT stops identified in small area plans and in the regional model
- Summary of population, employment, and other demographic data within ½ mile radius of activity centers
- Public and stakeholder input

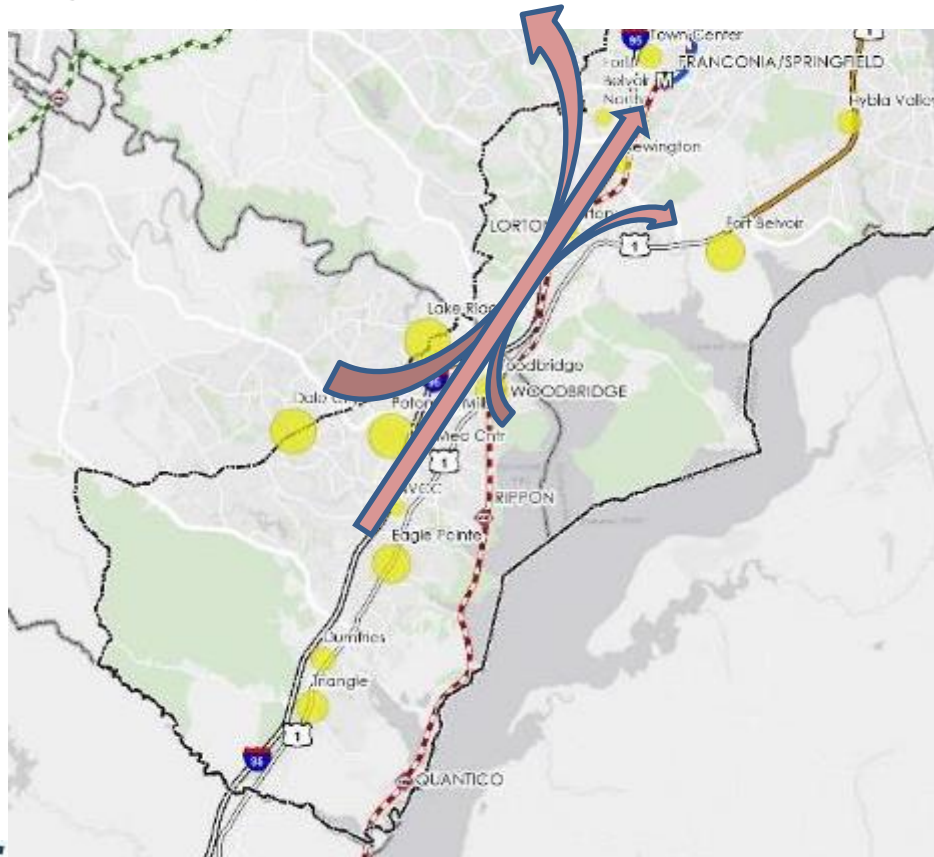
# Express Bus Alternatives

## Origins

Lake Ridge  
Dale City/Potomac Mills, Quantico  
Woodbridge  
Woodbridge  
Woodbridge/Dale City/Quantico

## Destinations







Old Town Alex. via I-95  
Tysons  
Reston  
Fairfax City  
Ft. Belvoir South



# Alternatives Evaluation

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# How will we evaluate feasibility?

| <b>Goals for Enhanced Transit</b>   |   |  |
|---|---|--|
| <b>Ridership Potential</b><br><br>Increase transit usage in the study corridor   | <b>Congestion Mitigation</b><br><br>Reduce the amount of traffic congestion in the study corridor | <b>Equity</b><br><br>Provide a fair distribution of costs and benefits across different population groups |
| <b>Regional Accessibility/Connectivity</b><br><br>Increase access to regional activity centers and meet identified service gaps | <b>Cost-effectiveness</b><br><br>Ensure that resources are used efficiently                      | <b>Development Potential</b><br><br>Create opportunities for development around stations or stops        |

# Next Steps

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- Next round of public meetings anticipated late July
- Future Elected Officials Briefings will seek input on the next phases of the study including:
  - Alternatives Evaluation Results & Land Use Assessment Findings
  - Draft Study Recommendations
- Draft report will be completed by September
- Final report submitted to General Assembly by December 1, 2021

# Discussion & Meeting Wrap-Up

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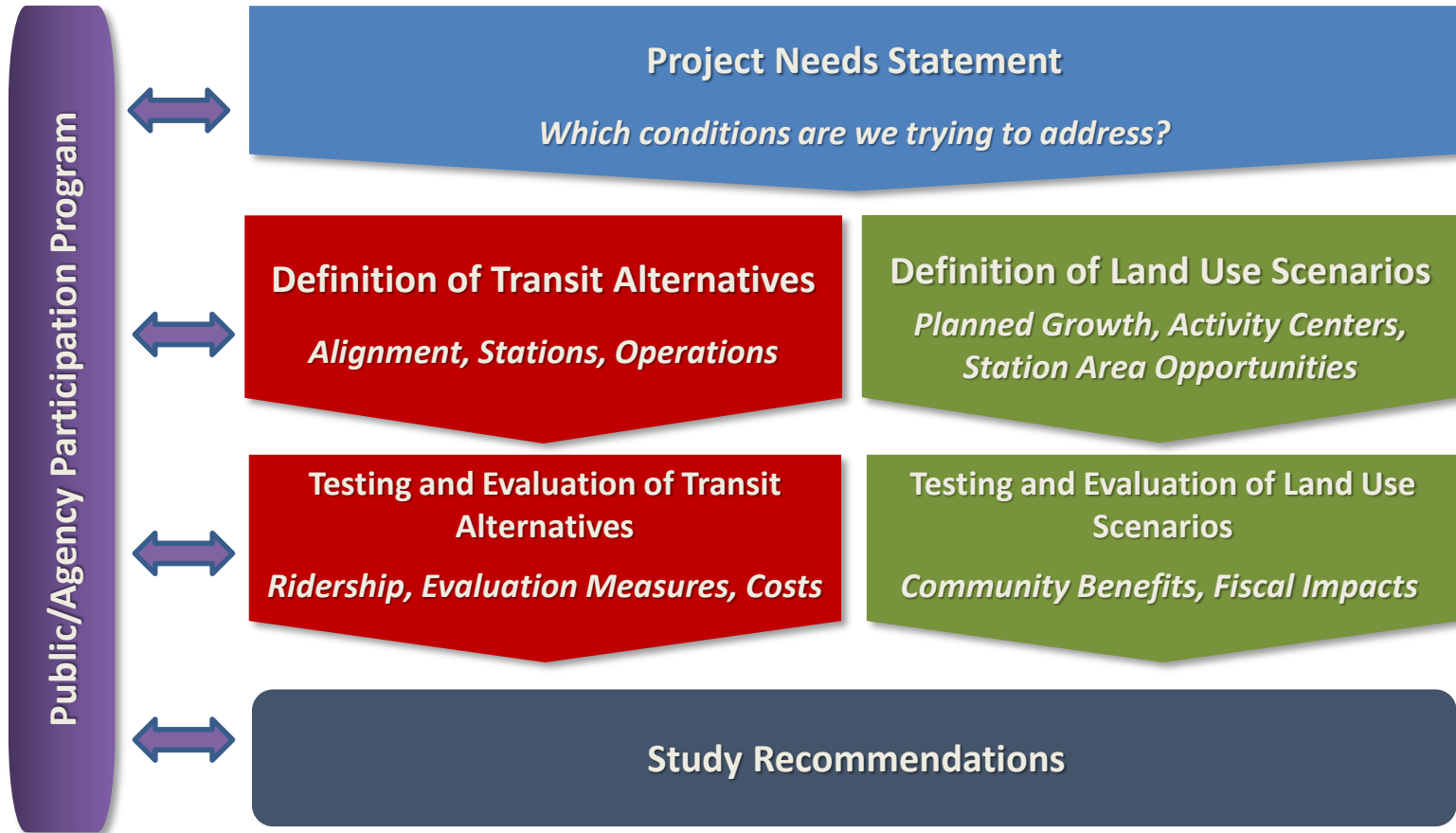


Virginia Department of Rail and Public Transportation

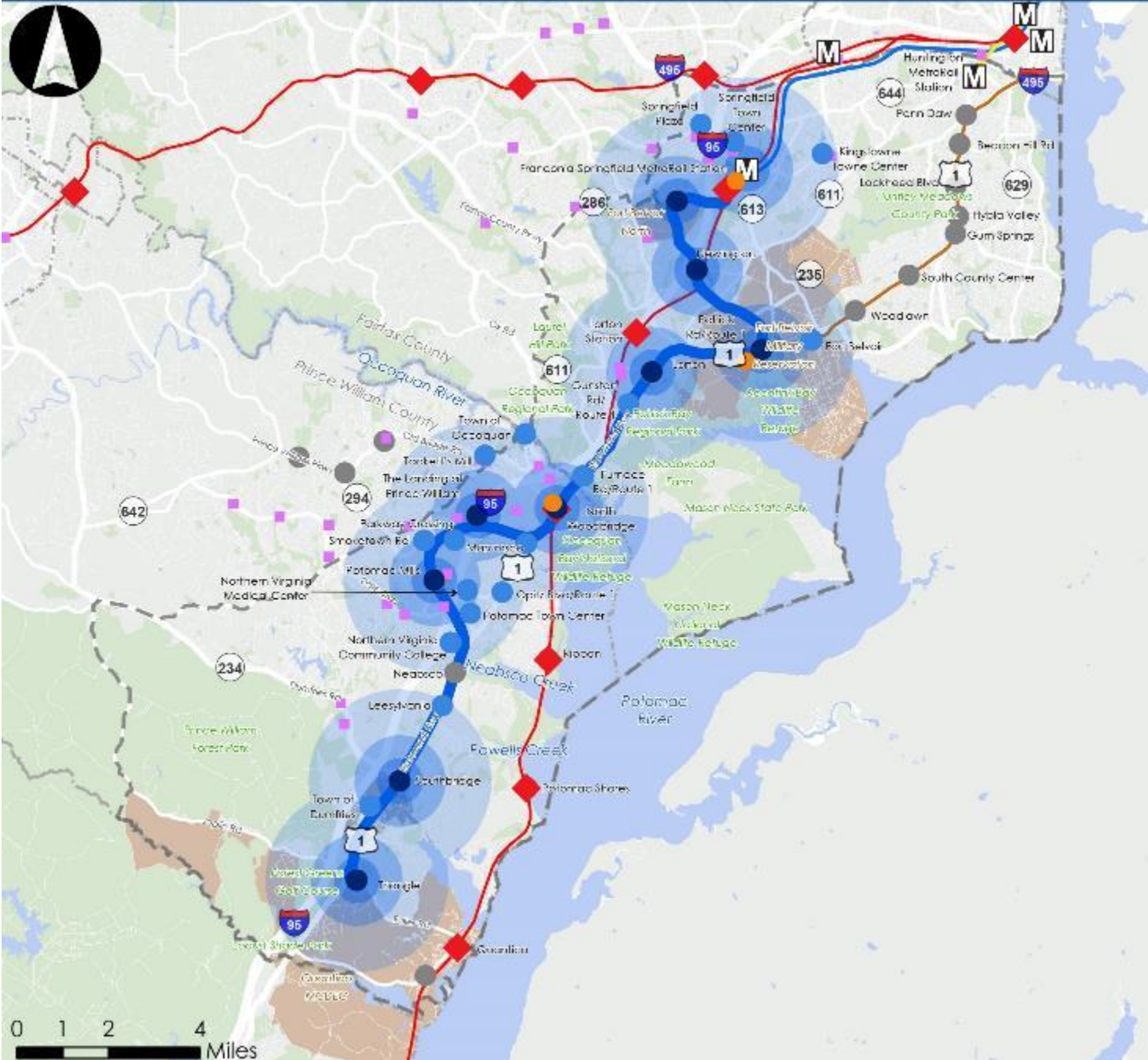
# Additional Slides

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# Study Technical Approach

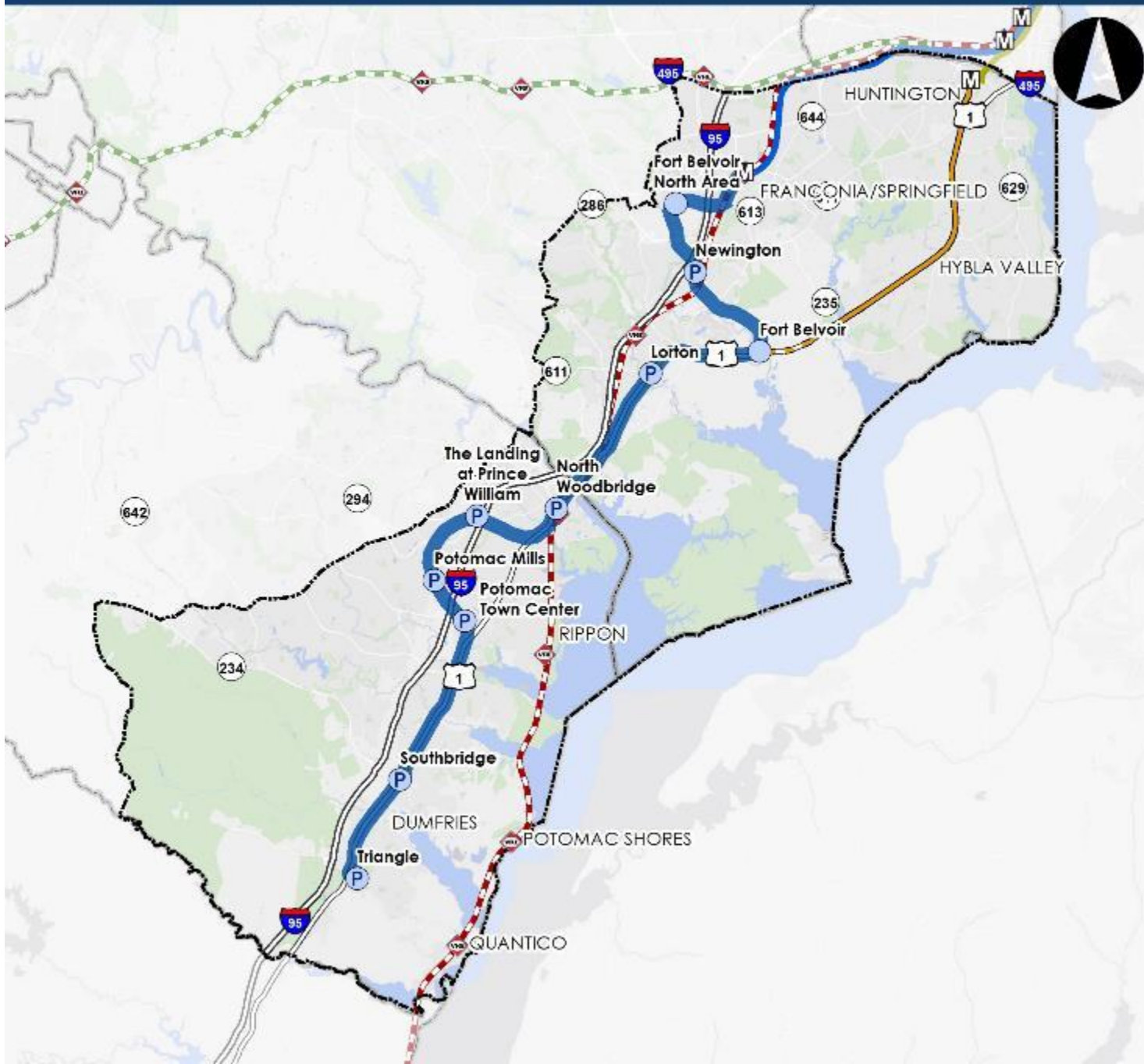


# Potential Blue Line Alternative



- M** Metrorail Stations
- ◆** Virginia Railway Express (VRE) Stations
- VRE & Amtrak Routes
- Richmond BRT
- Metrorail Routes**
- Blue
- Yellow
- [ ]** Study Area
- [ - - - ]** Counties
- Existing Park and Ride Location
- Transfer Point
- Potential Metrorail Station
- Activity Center within 2-mile radius buffer of potential Metrorail Station
- Activity Center outside 2-mile radius buffer of potential Metrorail Station
- Blue Line Extension Alignment
- 0.5-mile radius buffer of potential Metrorail Station
- 1-mile radius buffer of potential Metrorail Station
- 2-mile radius buffer of potential Metrorail Station

# POTENTIAL BLUE LINE ALTERNATIVE



M Metrorail Stations

VRCE Virginia Railway Express (VRE) Stations

County Boundary

### Metrorail Routes

- Blue
- Yellow

### VRE Routes

- Fredericksburg
- Manassas

Richmond Highway BRT

Richmond Highway BRT Extension

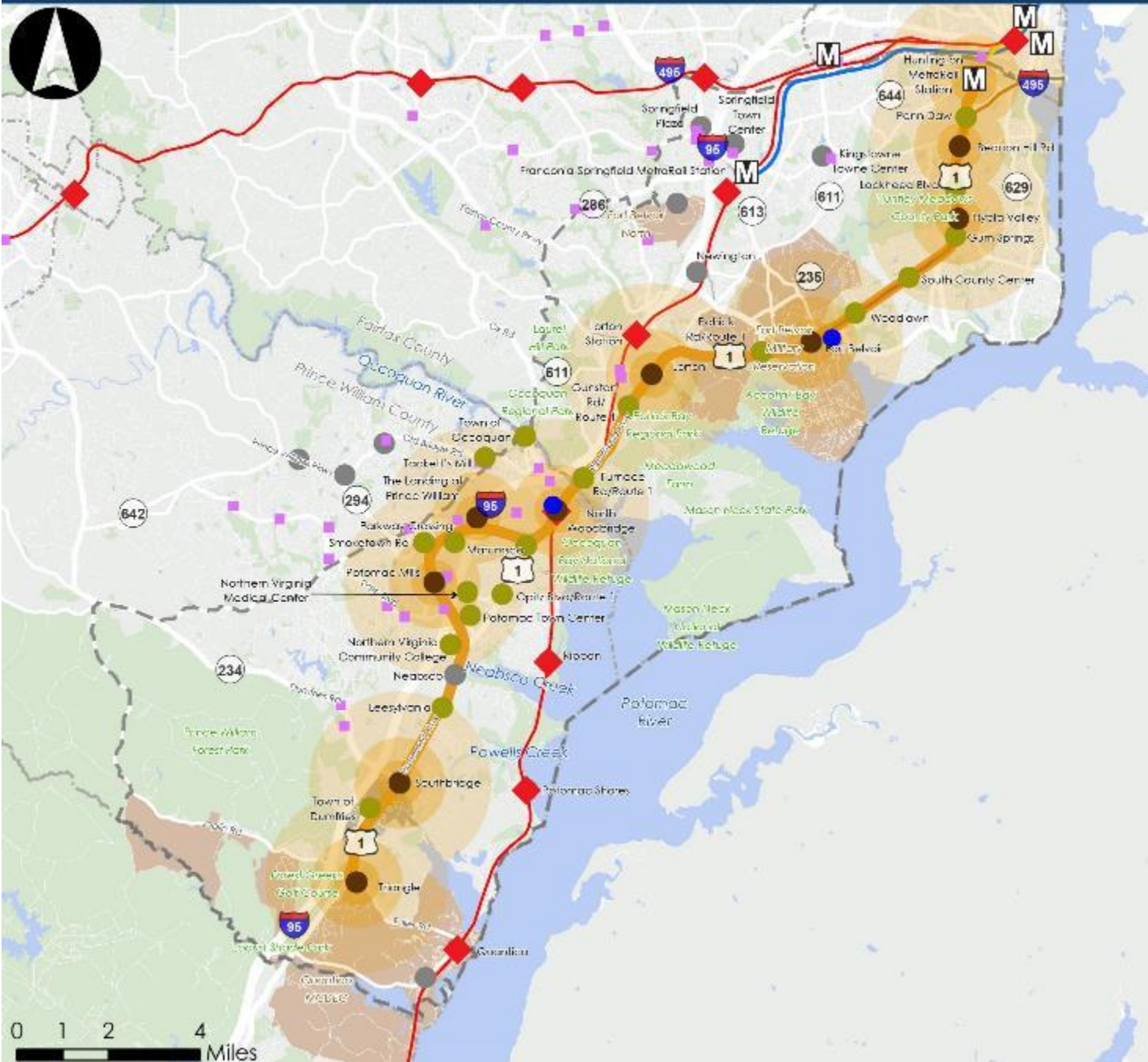
Potential Blue Line Alignment

### Potential Blue Line Stations

- With Parking
- Without Parking

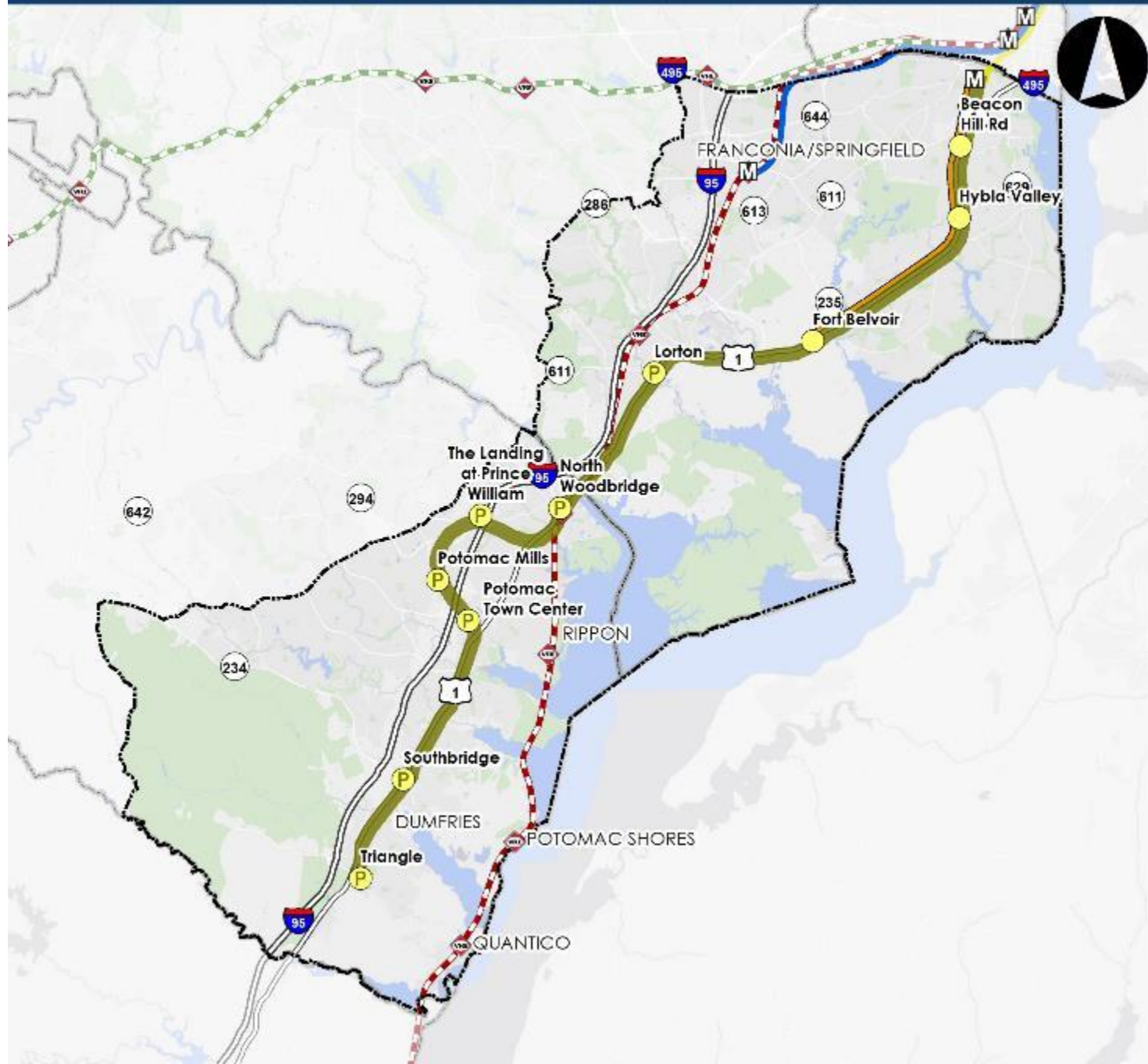


# Potential Yellow Line Alternative



- M** MetroRail Stations
- ◆** Virginia Railway Express (VRE) Stations
- VRE & Amtrak Routes
- Richmond BRT
- MetroRail Routes**
- Blue
- Yellow
- [ ]** Study Area
- [ ]** Counties
- Existing Park and Ride Location
- Transfer Point
- Potential MetroRail Station
- Activity Center within 2-mile radius buffer of potential MetroRail Station
- Activity Center outside 2-mile radius buffer of potential MetroRail Station
- Yellow Line Extension Alignment
- 0.5-mile radius buffer of potential MetroRail Station
- 1-mile radius buffer of potential MetroRail Station
- 2-mile radius buffer of potential MetroRail Station

# POTENTIAL YELLOW LINE ALTERNATIVE



M Metrorail Stations

Virginia Railway Express (VRE) Stations

County Boundary

Richmond Highway BRT

### Metrorail Routes

Blue  
Yellow

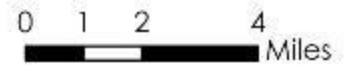
### VRE Routes

Fredericksburg  
Manassas

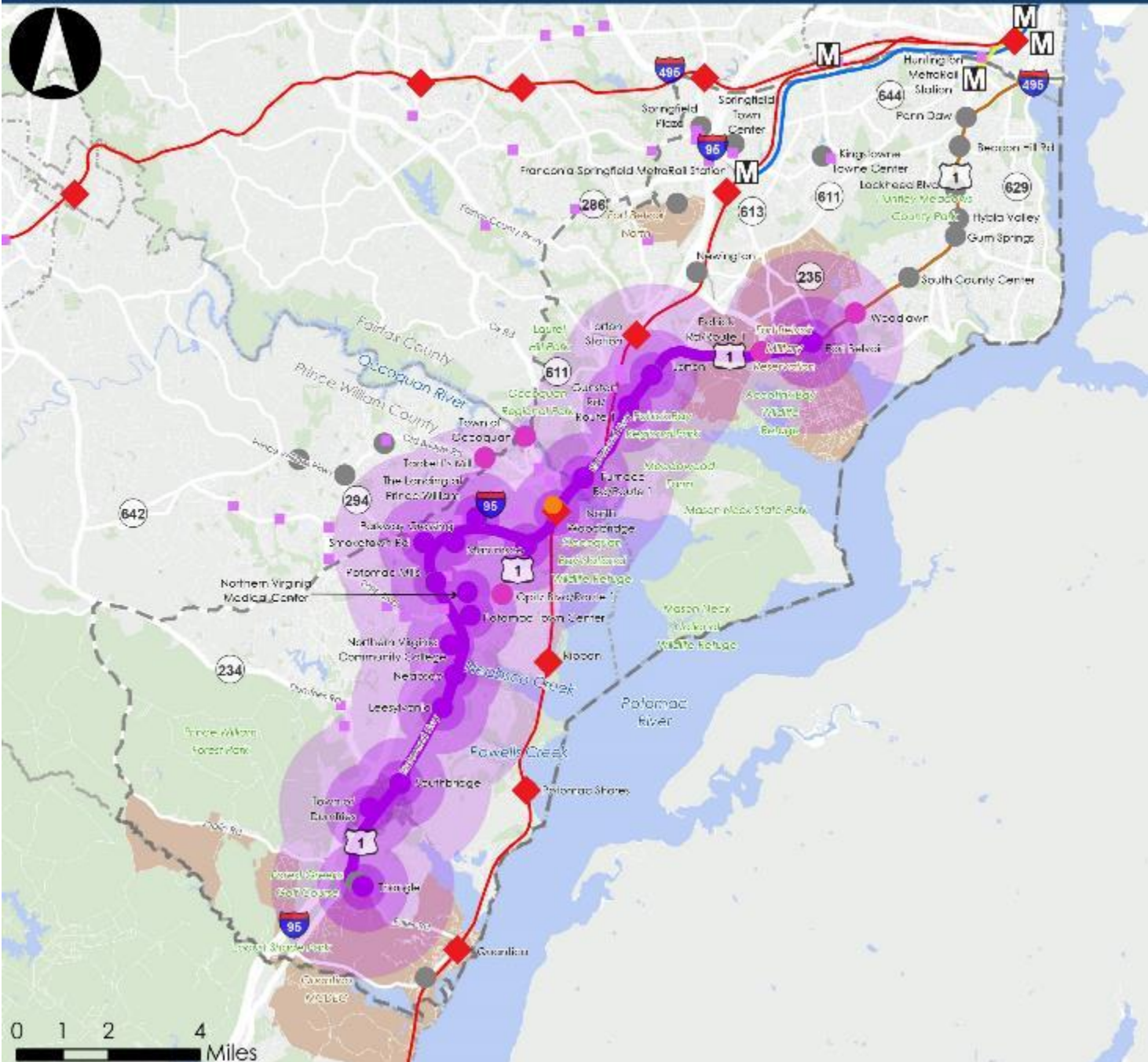
Potential Yellow Line Alignment

### Potential Yellow Line Stations

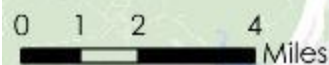
With Parking  
Without Parking



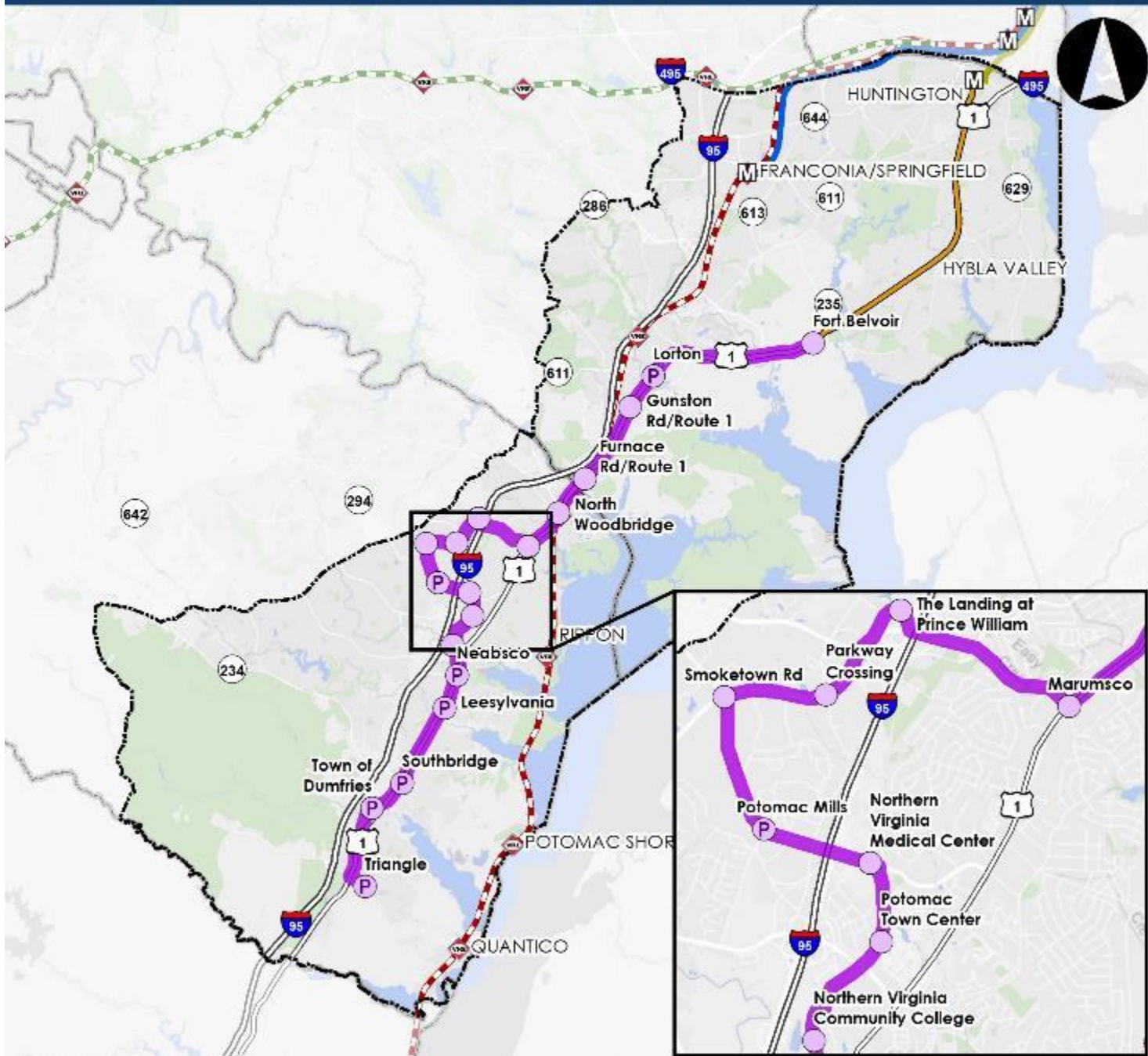
# Potential BRT Alternative



- M** Metrorail Stations
- ◆** Virginia Railway Express (VRE) Stations
- VRE & Amtrak Routes
- Richmond BRT
- Metrorail Routes**
- Blue
- Yellow
- [ ]** Study Area
- [ ]** Counties
- Existing Park and Ride Location
- Transfer Point
- Potential BRT Station
- Activity Center within 2-mile radius buffer of potential BRT Station
- Activity Center outside 2-mile radius buffer of potential BRT Station
- Potential BRT Alignment
- 0.5-mile radius buffer of potential BRT Station
- 1-mile radius buffer of potential BRT Station
- 2-mile radius buffer of potential BRT Station



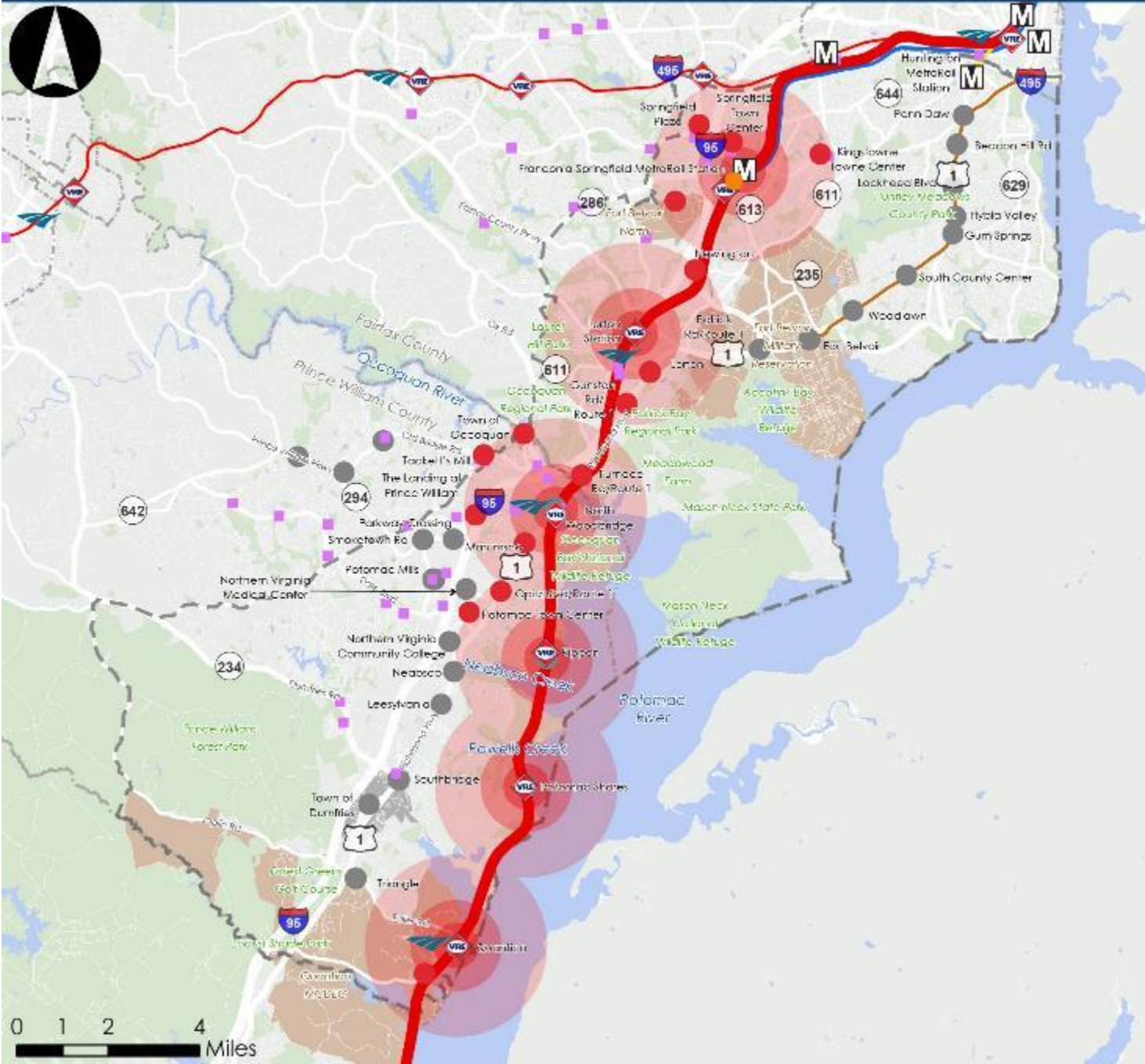
# POTENTIAL BRT ALTERNATIVE



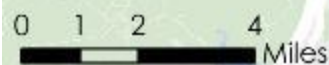
- Metrorail Stations
- Virginia Railway Express (VRE) Stations
- County Boundary
- Richmond Highway BRT
- Metrorail Routes**
  - Blue
  - Yellow
- VRE Routes**
  - Fredericksburg
  - Manassas
- Potential BRT Alignment**
  - Potential BRT Alignment
- Potential BRT Stations**
  - With Parking
  - Without Parking



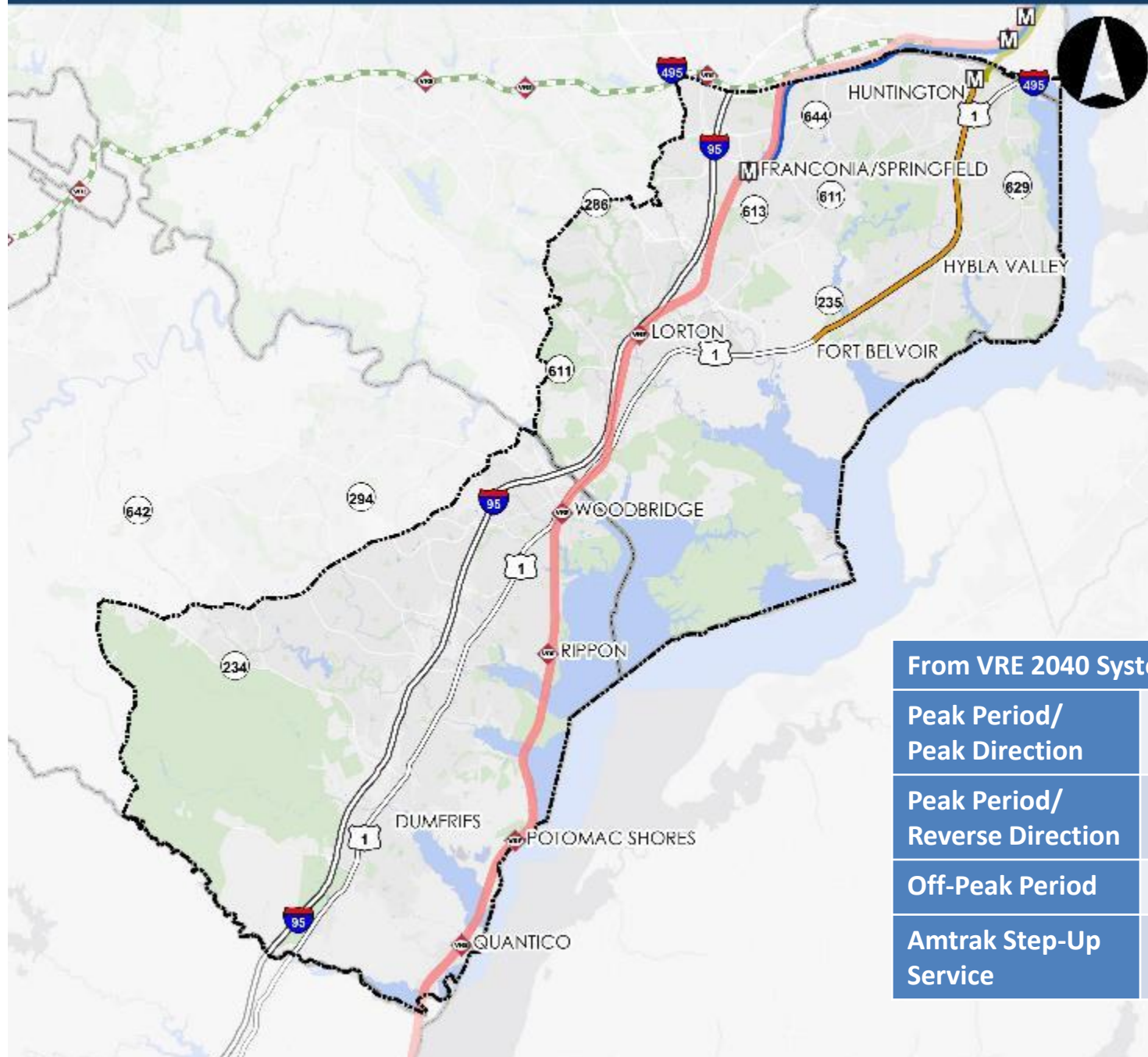
# Potential VRE Alternative



- M** Metrorail Stations
- VRE** Virginia Railway Express (VRE) Stations
- Amtrak Stations
- VRE & Amtrak Routes
- Richmond BRT
- Metrorail Routes**
- Blue
- Yellow
- Study Area
- Counties
- Existing Park and Ride Location
- Transfer Point
- Activity Center within 2-mile radius buffer of potential VRE Station
- Activity Center outside 2-mile radius buffer of potential VRE Station
- Potential VRE Alignment
- 0.5-mile radius buffer of potential VRE Station
- 1-mile radius buffer of potential VRE Station
- 2-mile radius buffer of potential VRE Station

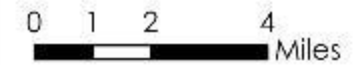


# POTENTIAL VRE ALTERNATIVE

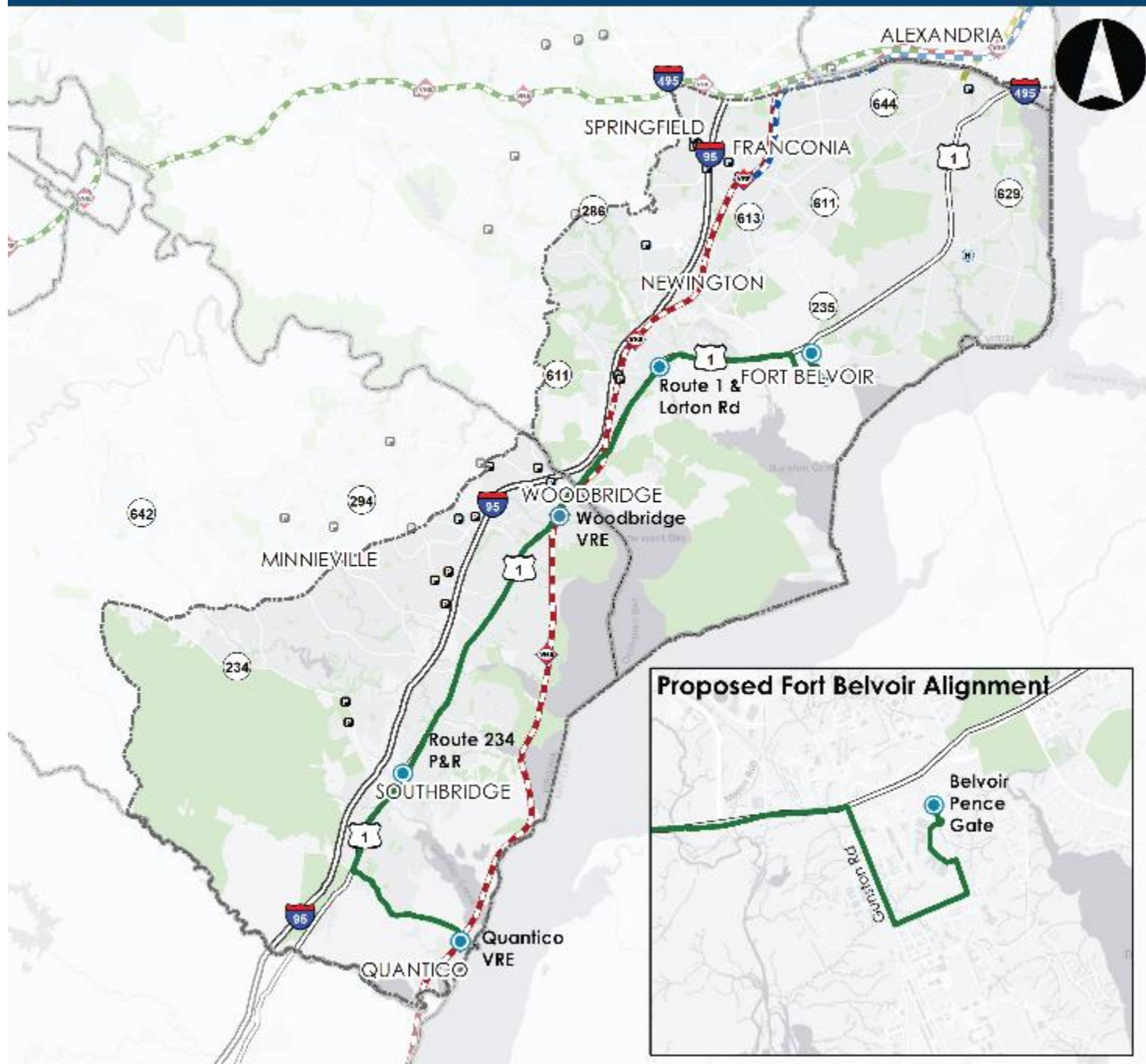


- Metro Station
- Virginia Railway Express (VRE) Stations
- County Boundary
- Richmond Highway BRT
- Metro Rail Routes**
  - Blue
  - Yellow
- VRE Routes**
  - Manassas
  - Increased Frequency along Existing VRE Alignment

| From VRE 2040 System Plan         |  |
|-----------------------------------|--|
| Peak Period/<br>Peak Direction    | 15 mins                                |
| Peak Period/<br>Reverse Direction | 30 mins                                |
| Off-Peak Period                   | 60 mins                                |
| Amtrak Step-Up<br>Service         | 60 mins peak period/<br>direction only |



# Express Bus Alternative: Fort Belvoir Service



Study Area

### Route

Quantico/Dale  
 City/Woodbridge - Ft. Belvoir

Proposed Stops

County Boundary

Metro Stations

Virginia Railway Express (VRE) Stations

Park and Rides

### Metro Routes

Blue

Yellow

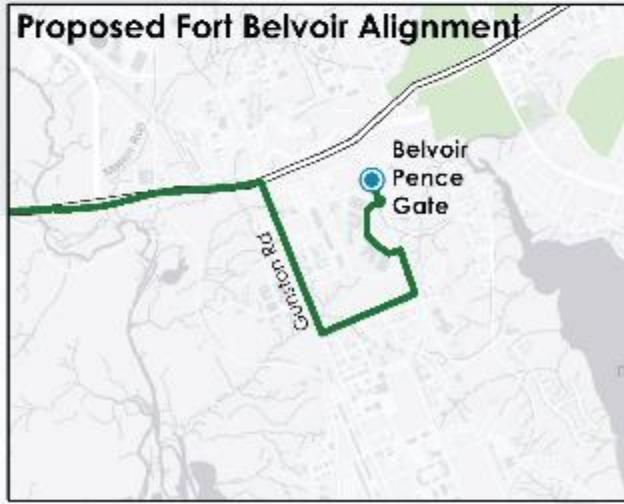
### VRE Routes

Fredericksburg

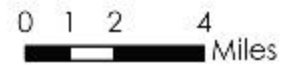
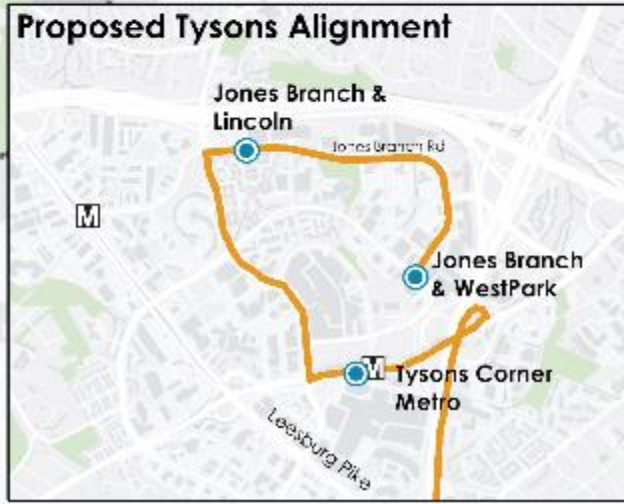
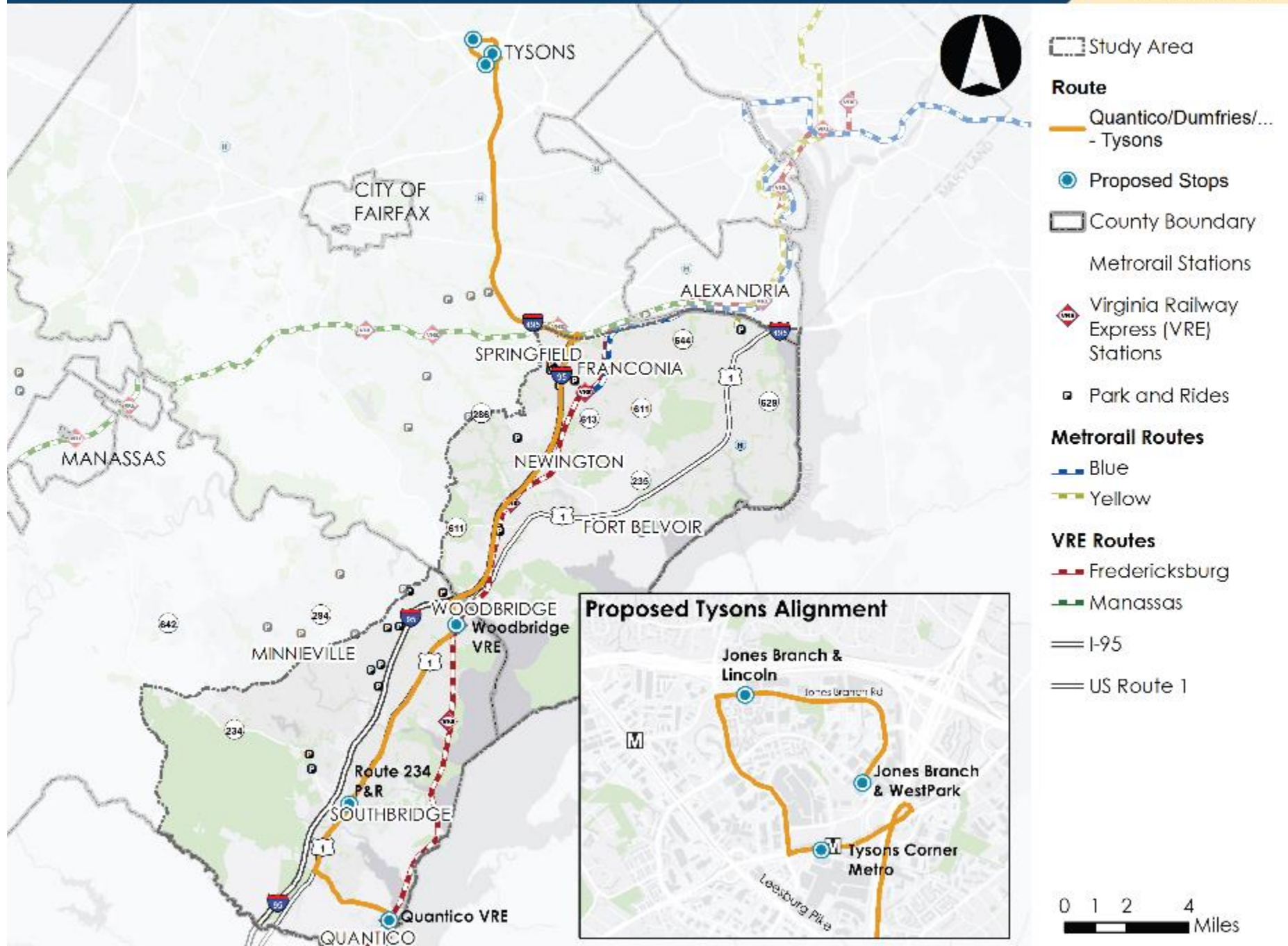
Manassas

I-95

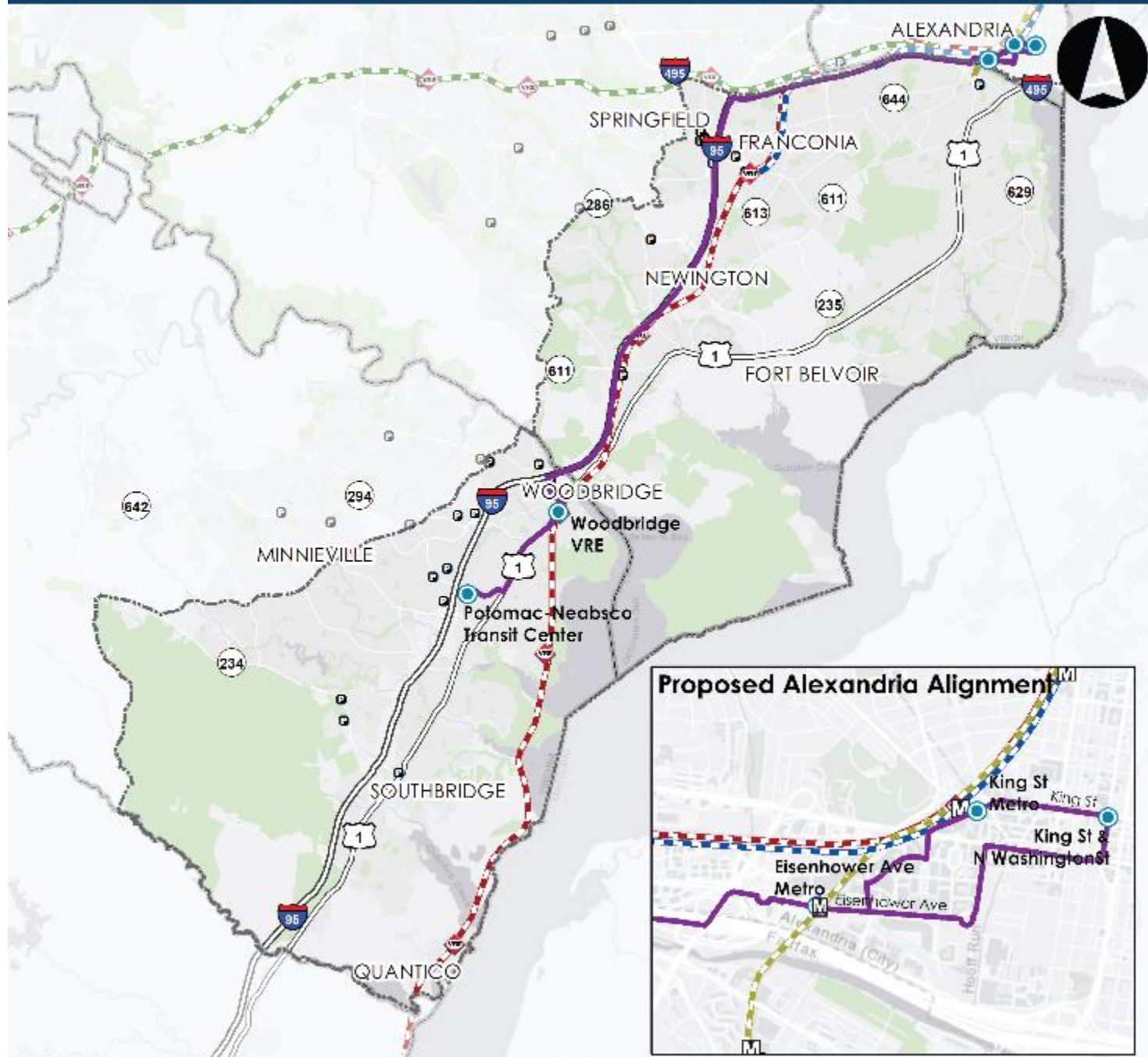
US Route 1



# Express Bus Alternative: Extended Tysons Service



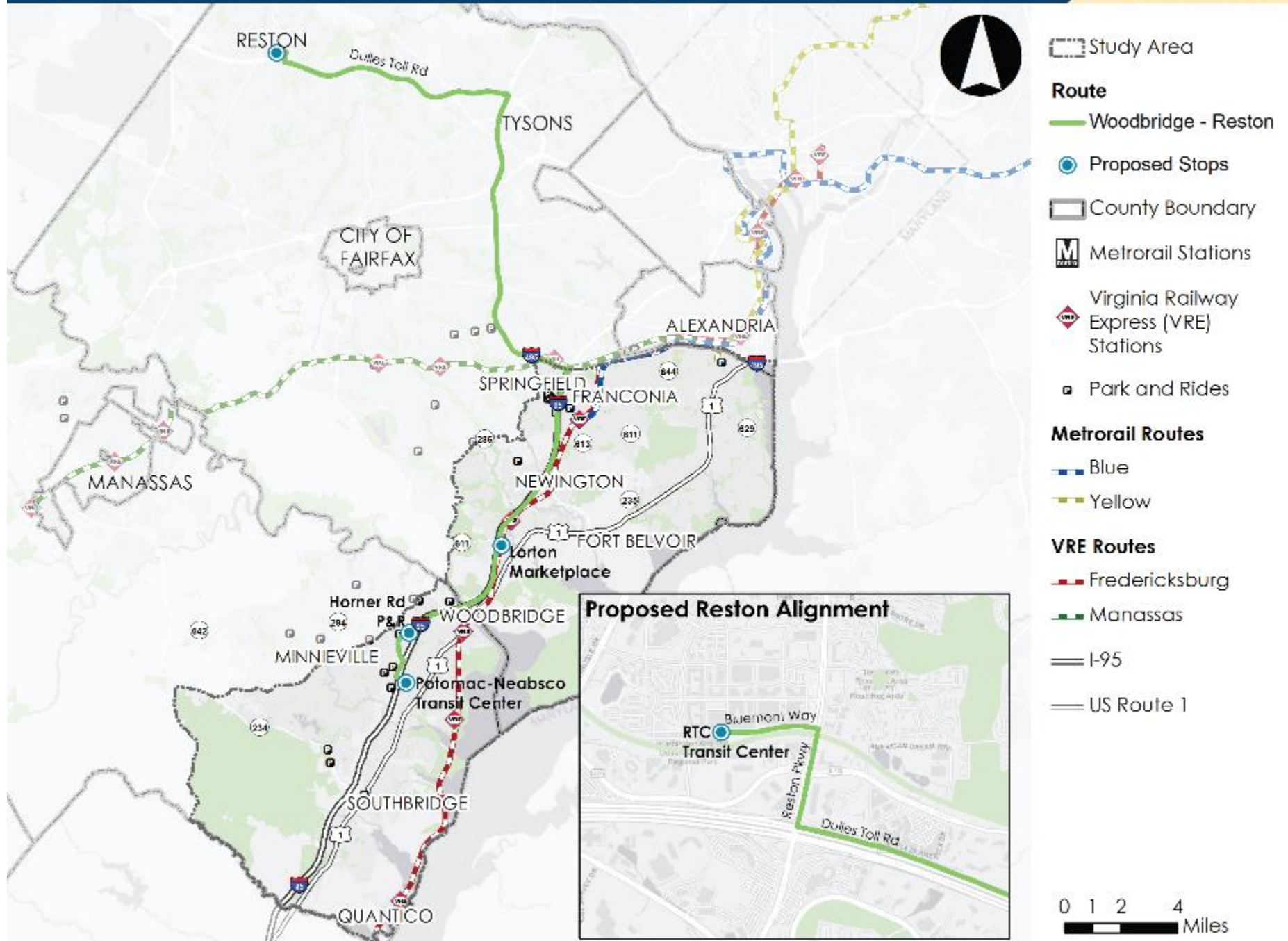
# Express Bus Alternative: Woodbridge-Alexandria



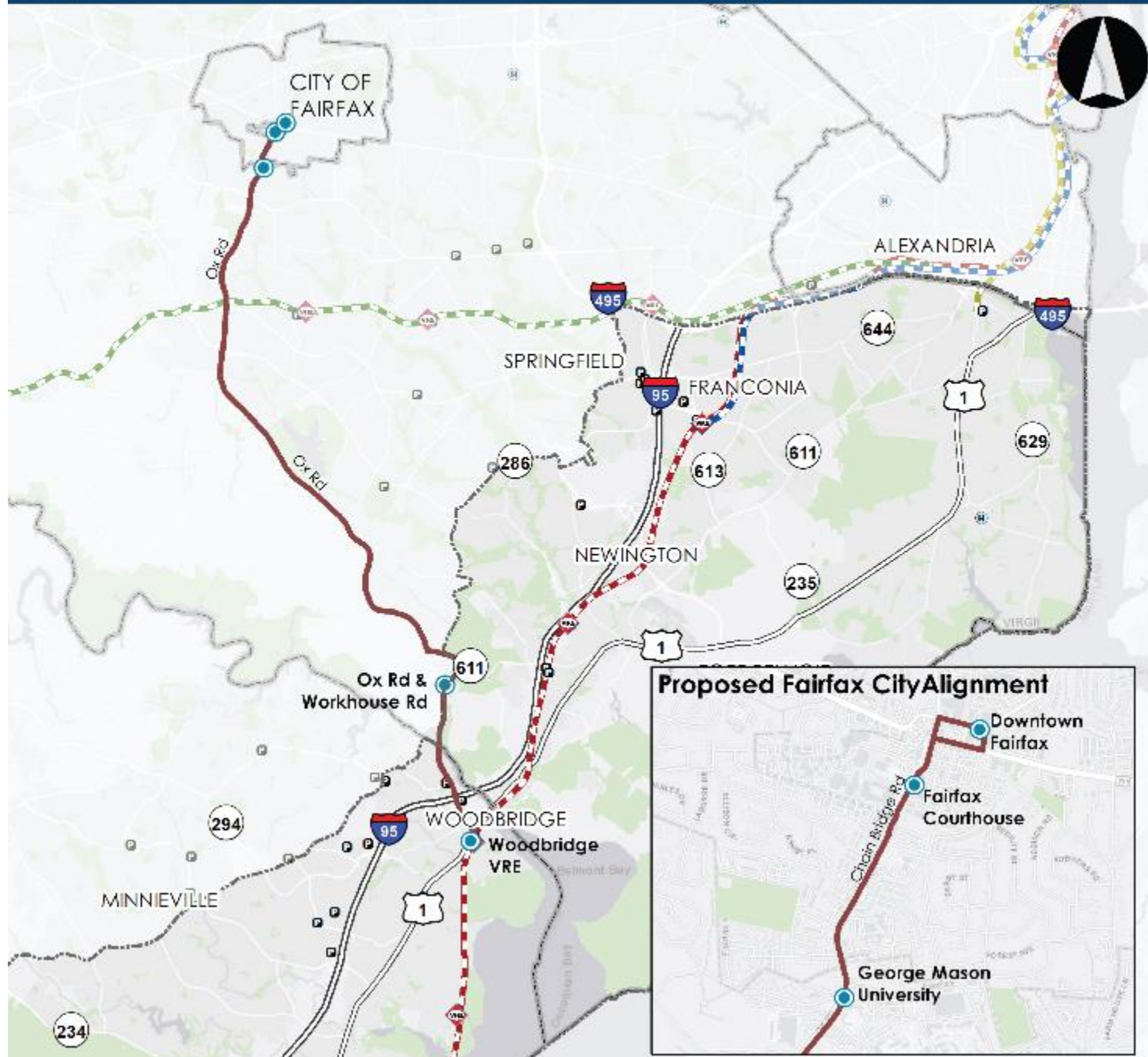
-  Study Area
- Route**
-  Woodbridge - Alexandria
-  Proposed Stops
-  County Boundary
-  Metrorail Stations
-  Virginia Railway Express (VRE) Stations
-  Park and Rides
- Metrorail Routes**
-  Blue
-  Yellow
- VRE Routes**
-  Fredericksburg
-  Manassas
-  I-95
-  US Route 1



# Express Bus Alternative: Woodbridge-Reston



# Express Bus Alternative: Woodbridge-Fairfax City



Study Area

**Route**

Woodbridge - Fairfax City

Proposed Stops

County Boundary

Metrorail Stations

Virginia Railway Express (VRE) Stations

Park and Rides

**Metrorail Routes**

Blue

Yellow

**VRE Routes**

Fredericksburg

Manassas

I-95

US Route 1



# Draft Evaluation Framework

## Ridership Potential



Increase transit usage in the study corridor

- Total daily transit trips
- Ridership on the alternative (boardings)
- Person-Miles Traveled (PMT) on transit in the study corridor
- Transit person-throughput at key cutlines

## Congestion Mitigation



Reduce the amount of traffic congestion in the study corridor

- Vehicle Miles Traveled (VMT) in congestion by severity in the Study corridor
  - Severe congestion
  - Heavy Congestion
  - Moderate Congestion
  - Uncongested

# Draft Evaluation Framework

## Regional Accessibility/ Connectivity



Increase access to regional activity centers and meet identified service gaps

- Population and Jobs within ½ mile of transit
- Access to Jobs: number of jobs accessible within 60 mins by transit
- Number of residents able to access key employment centers by transit within 60 mins
  - As identified by legislation: MCB-Quantico, Ft. Belvoir, Lorton, Potomac Mills

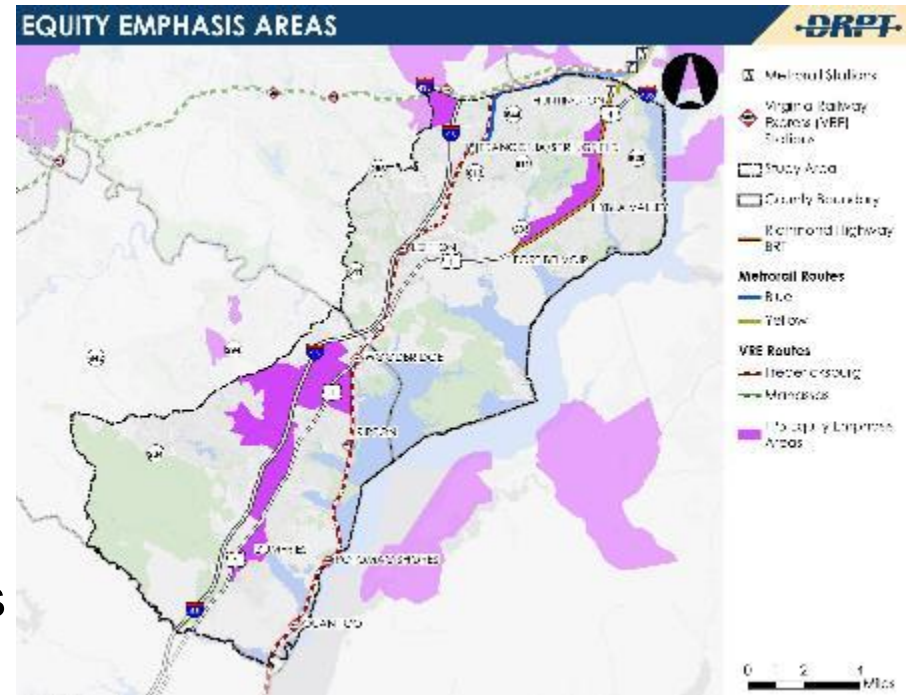
# Draft Evaluation Framework

## Equity



Provide a fair distribution of costs and benefits across different population groups

- Access to Jobs in Equity Emphasis Areas (EEAs): number of jobs accessible within 60 mins by transit
- Total daily transit trips to/from EEAs
- EEA population within ½ mile of transit
- Affordability of transit fares



*Equity Emphasis Areas are defined by COG/TPB as Census tracts with higher-than-average concentrations of low-income, minority populations, or both. EEAs will be used to analyze impacts on Title VI/Environmental Justice (EJ) protected populations.*

# Draft Evaluation Framework

## Cost-effectiveness



Ensure that resources are used efficiently

- Total Cost: Capital and Operating costs
- Total Cost per Boarding
- Total Cost per Person-Mile Traveled (PMT) on transit
- Total Cost per Boarding by residents of Equity Emphasis Areas

## Cost Calculations will include high level estimates of:

### Capital Costs:

- Runway
- Rolling Stock
- Stations
- Parking Facilities
- No Yard or Garages
- No Land Acquisition

### Operating Costs:

- Hourly operating costs for the Alternative
- Any supporting changes to local bus network
- Farebox Recovery
- Metrorail operating costs will be estimated using Subsidy Allocation formula

# How will we evaluate feasibility?

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## Development Potential



Create opportunities for development around stations or stops

- Potential development around selected station areas
- Note – to be used in the land use scenario testing phase (not for initial alternatives using COG cooperative forecasts)