



Route 1 Multimodal Alternatives Analysis

Regional Bus Subcommittee Meeting

April 22, 2014





1. What is the Route 1 Multimodal Alternatives Analysis?

Purpose and Need

Purpose:

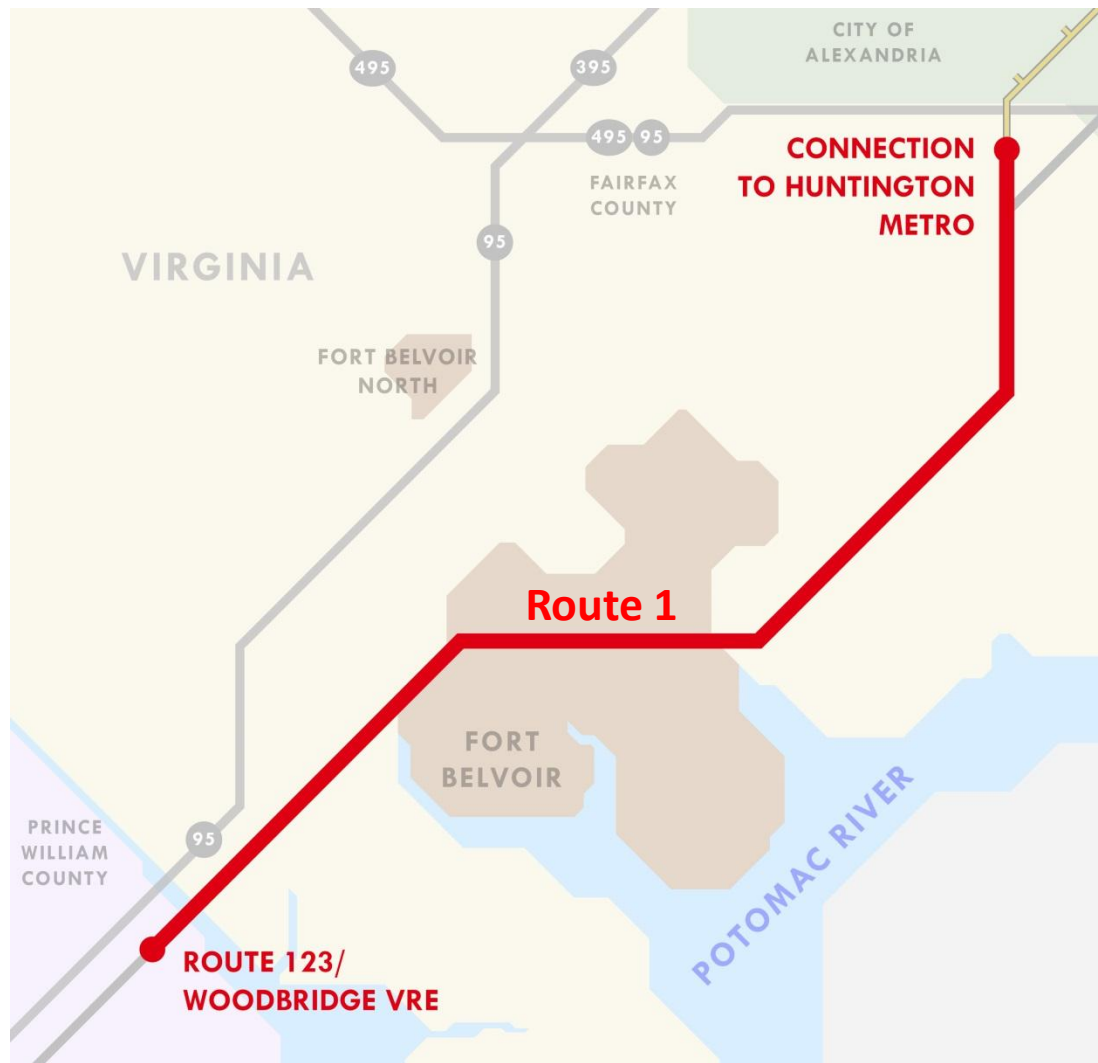
Provide improved performance for transit, bicycle and pedestrian, and vehicular conditions and facilities along the Route 1 corridor that support long-term growth and economic development.

Needs:

- Attractive and competitive transit service
- Safe and accessible pedestrian and bicycle access
- Appropriate level of vehicle accommodation
- Support and accommodate more robust land development



Project Corridor



Project goals

GOAL 1: Expand attractive multimodal travel options to improve local and regional mobility

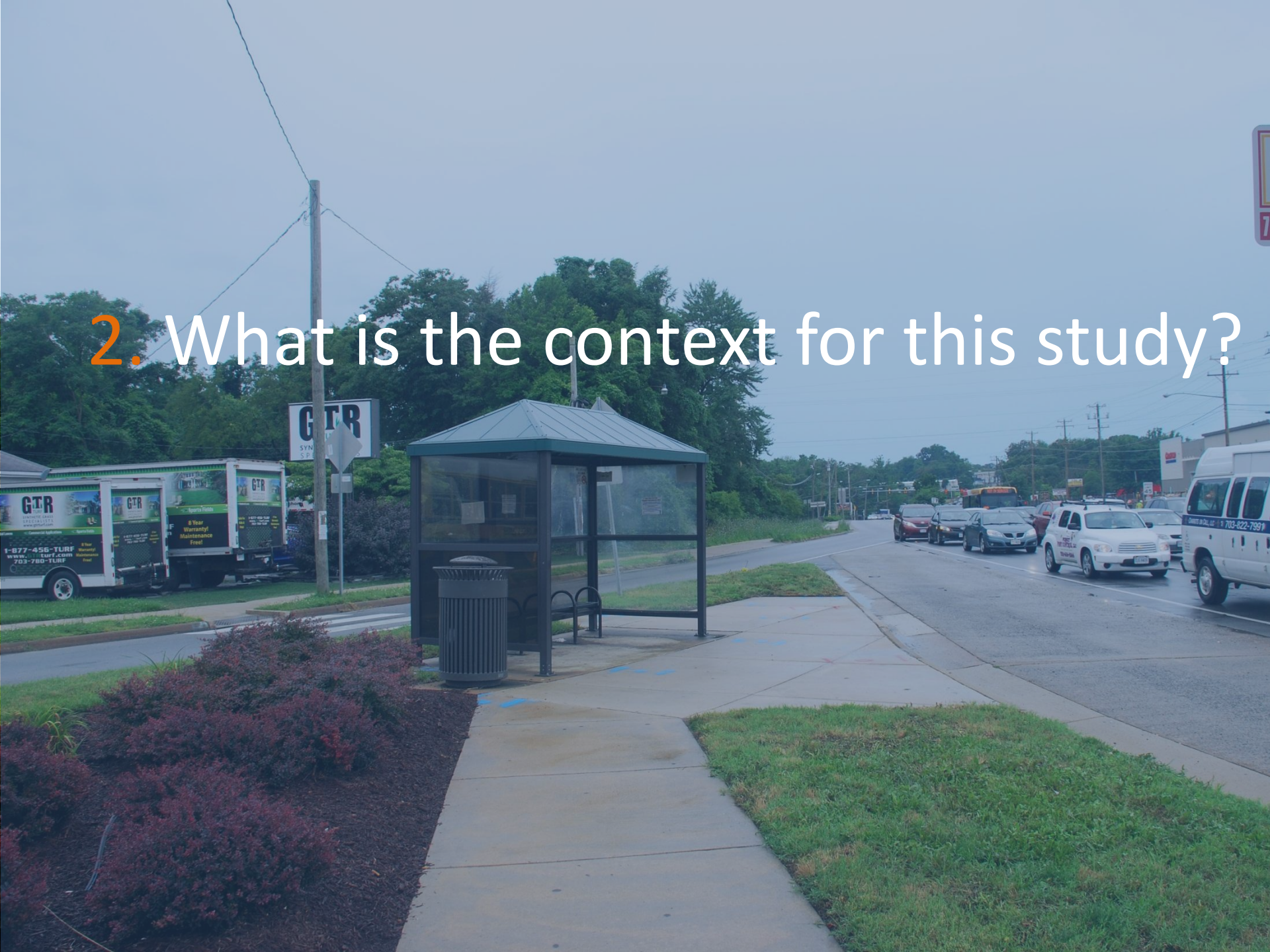
GOAL 2: Improve safety; increase accessibility

GOAL 3: Increase economic viability and vitality of the corridor

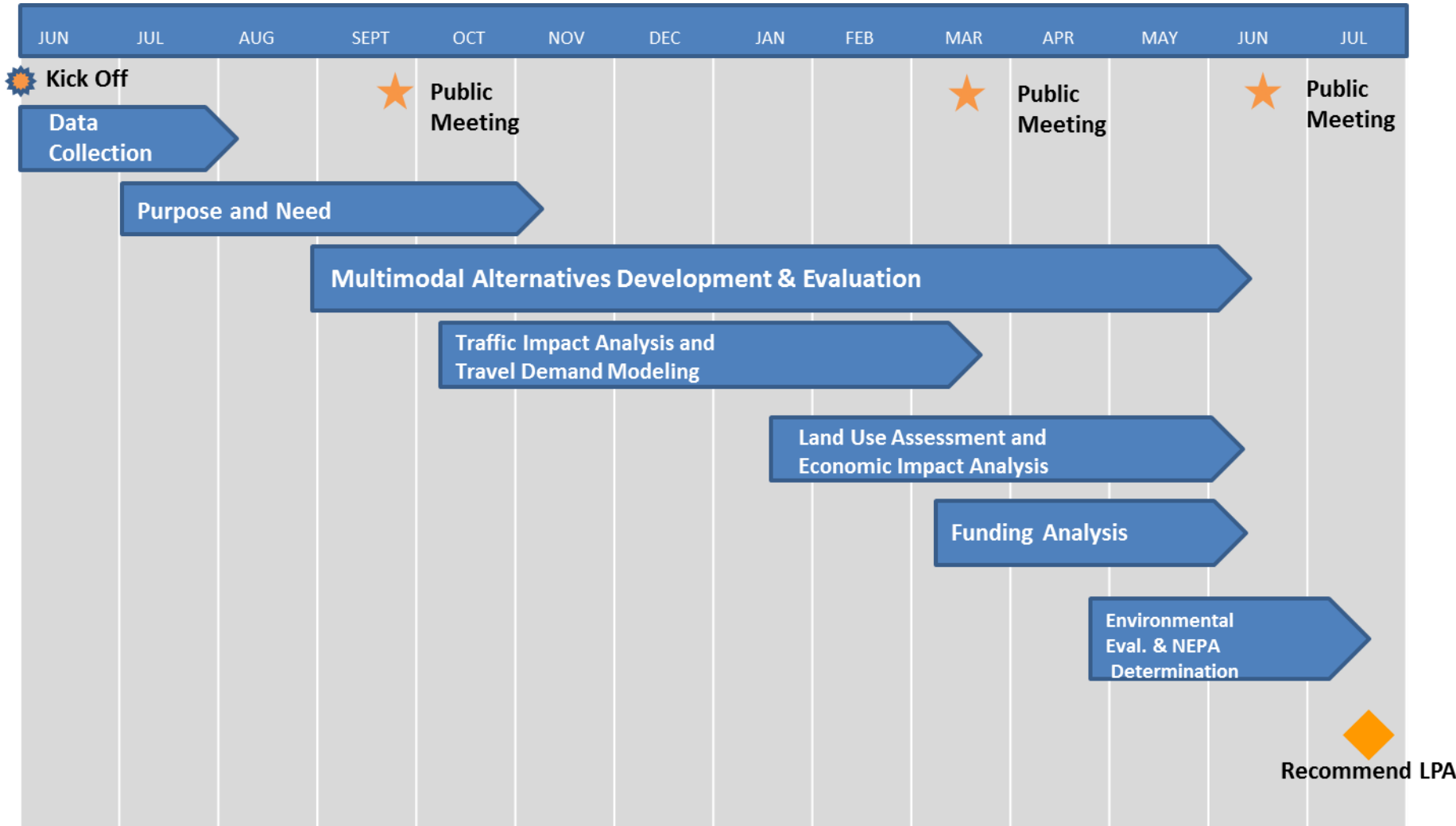
GOAL 4: Support community health and minimize impacts on community resources



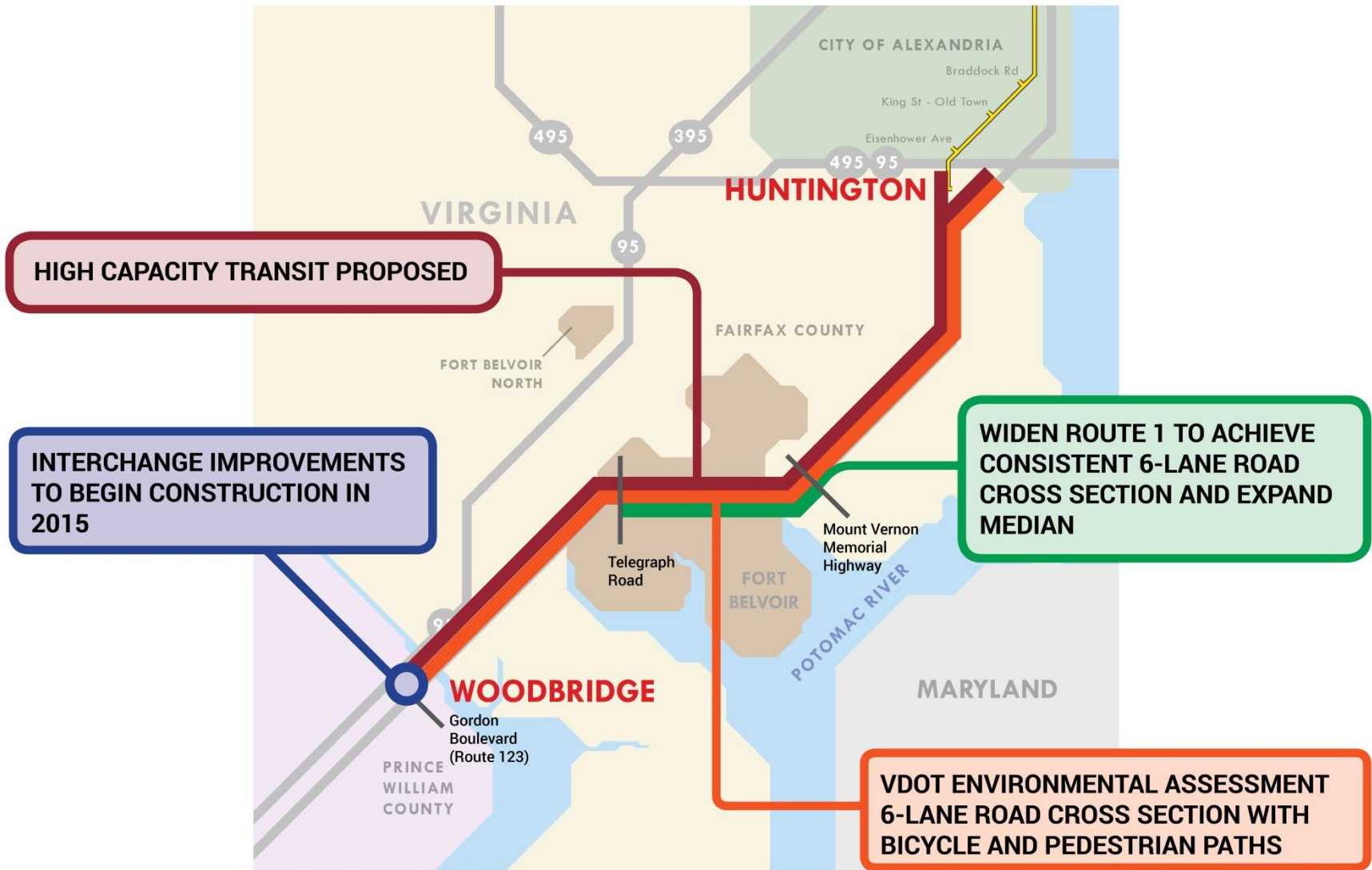
2. What is the context for this study?



Project Schedule



Planned Improvements



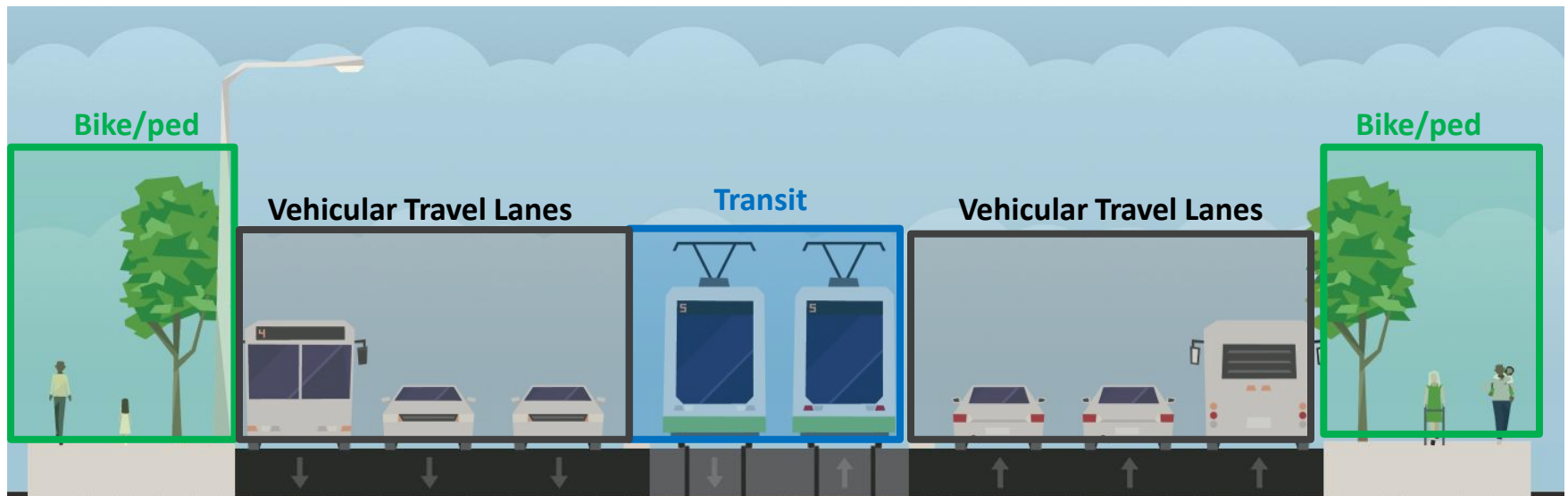
Other Related Studies

- **2035 & 2040 Constrained Long Range Plan** (TPB, 2013)
- **Fairfax County Transit Network Plan** (Fairfax, ongoing)
- **Momentum** (Metro, 2013)
- **Regional Transit System Plan** (Metro, 2014)
- **Fort Belvoir Master Plan** (DOD, ongoing)
- **Route 1 Transit Centers Plan** (Fairfax, ongoing)



Outcome of the Current Study

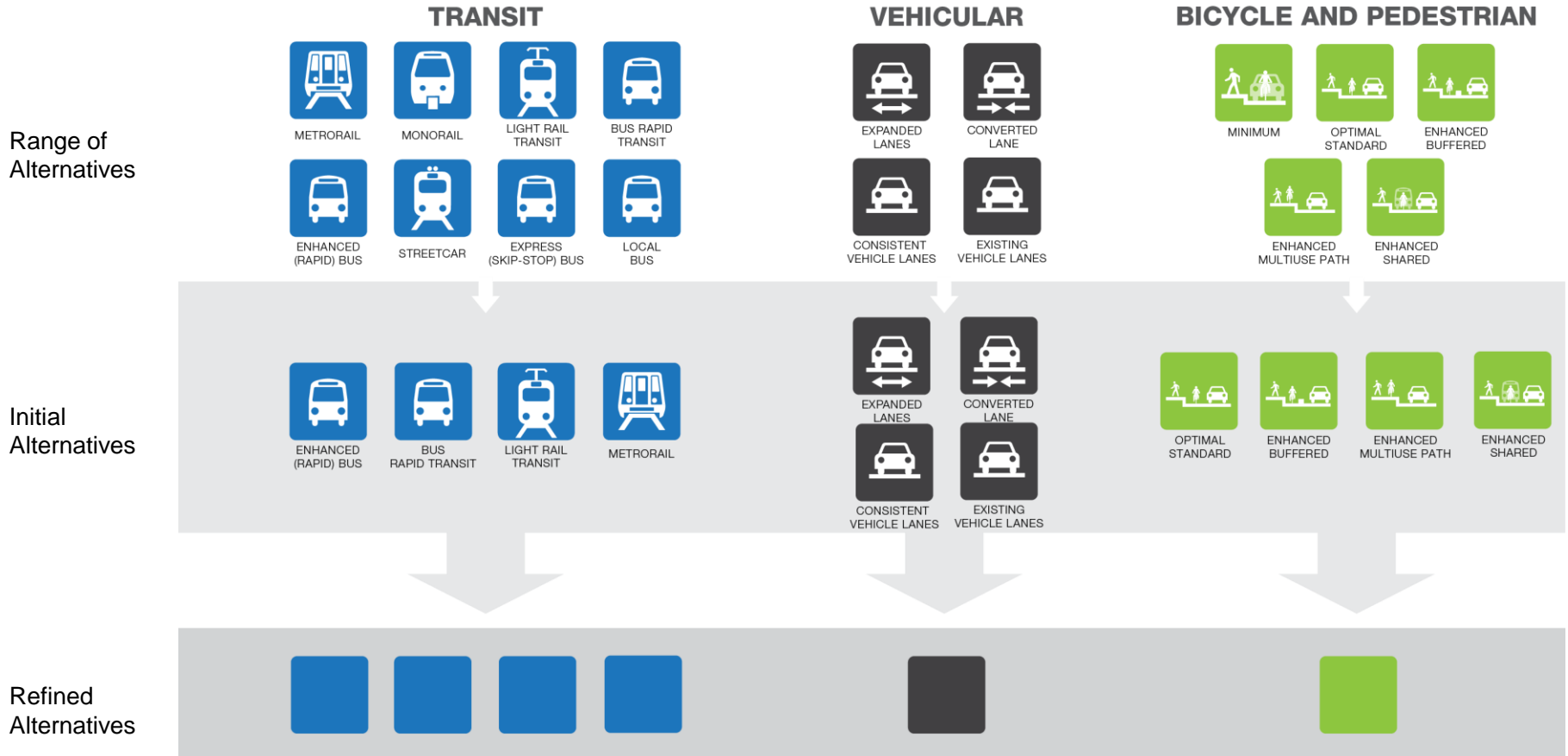
- A recommended multimodal transportation plan for implementation in the Route 1 corridor
- The recommended plan will have three elements:
 - **Transit**: Mode and alignment
 - **Vehicular**: Number of automobile travel lanes
 - **Bike/Ped**: Facilities and location



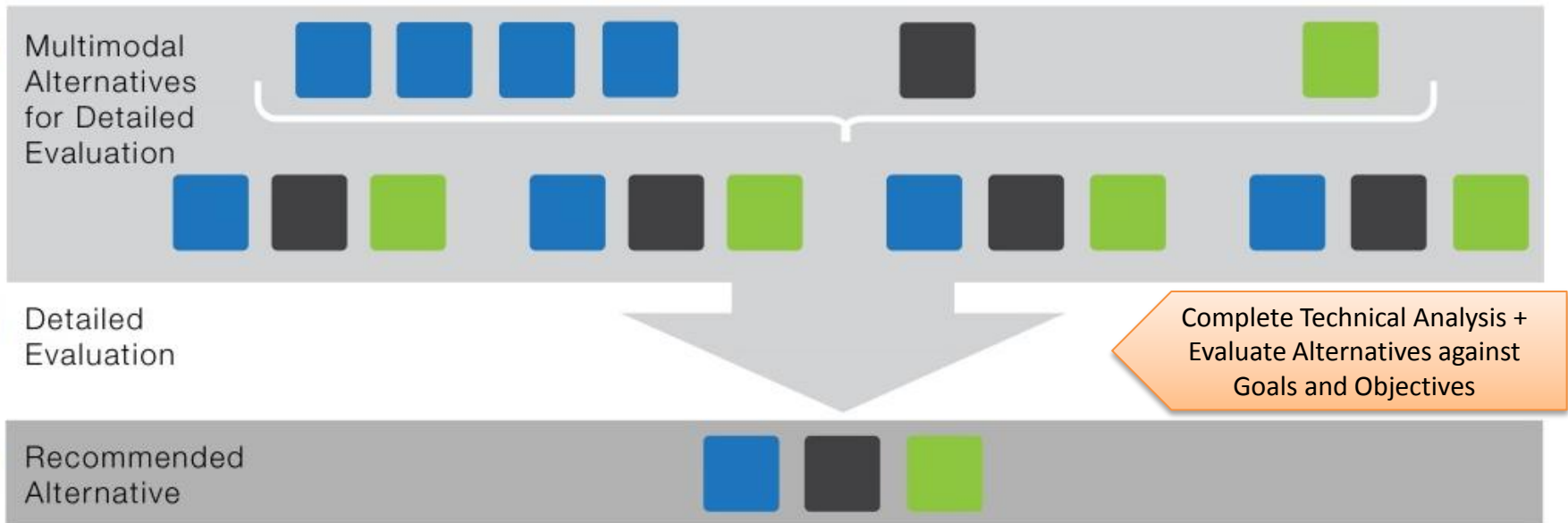


3. What are the road and bike/pedestrian alternatives?

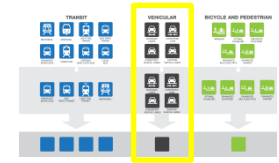
Step 1: Identify the best transportation options



Step 2: Combine options into multimodal alternatives



Vehicular Travel Lanes Alternatives



Existing Lanes

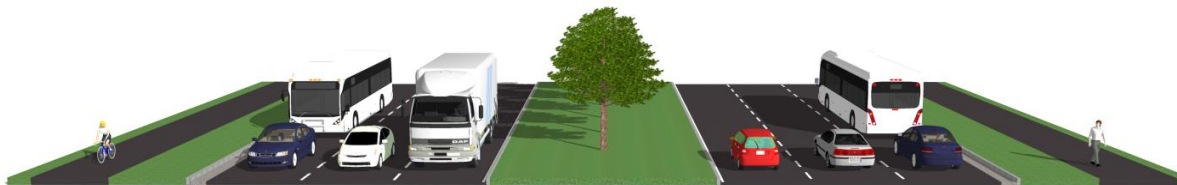


Expanded Lanes:

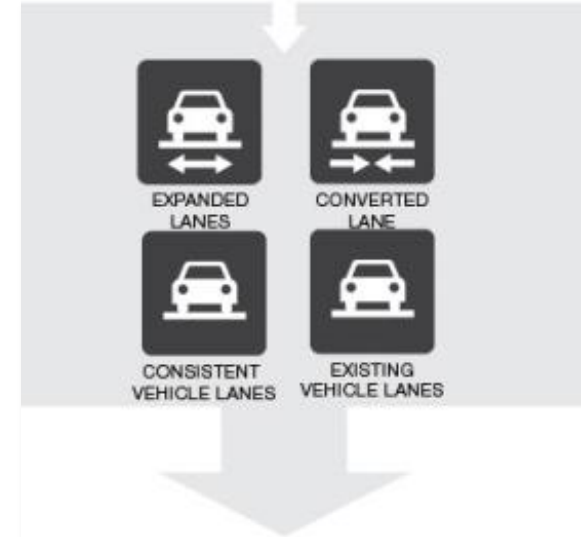
Three or four lanes, depending on location along the corridor



Converted Lanes



Consistent Lanes



Key Evaluation factors:

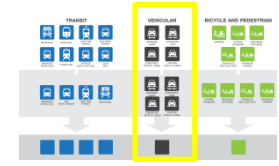
- Level of Service (LOS)
- Volume-to-Capacity (V/C)
- Right of Way (ROW) impacts

Other, qualitative factors:

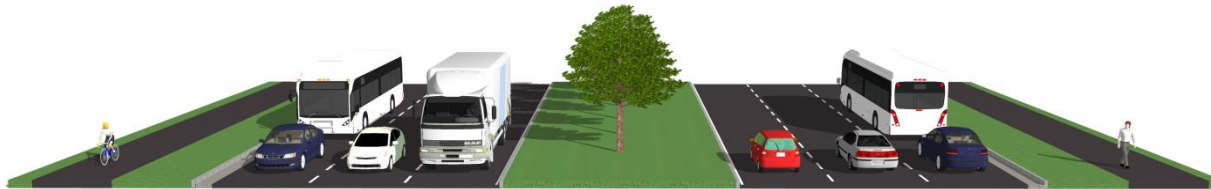
- Maintaining existing speeds
- Minimizing lane transitions
- Reducing pedestrian crossing distance/time



Vehicular Lanes Recommendation



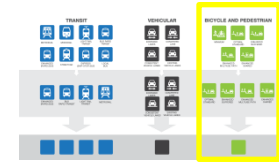
Consistent, 6 vehicular lanes along the entire corridor



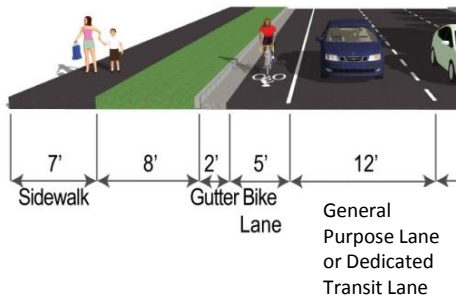
- 1. Recommendation from prior studies and plans**
(VDOT and Fairfax County Comprehensive Plan)
- 2. Technical evaluation based on traffic and right-of-way analysis**
- 3. Confirmed findings with VDOT**



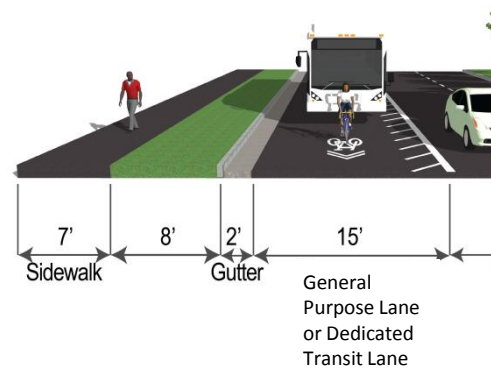
Bicycle and Pedestrian Alternatives



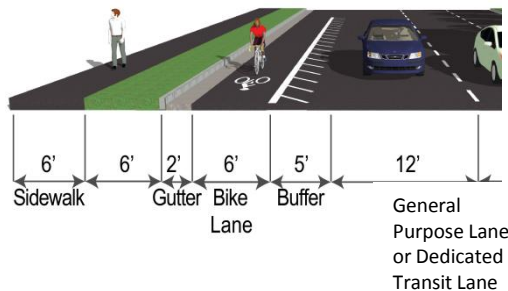
Sidewalk + bike lane



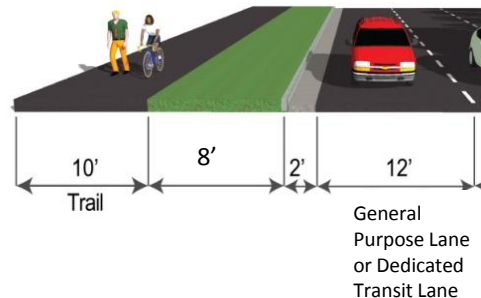
Sidewalk + bus/bike lane



Sidewalk + buffered bike lane



Multiuse path (bike and ped)

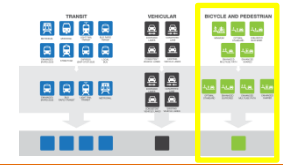


Key Evaluation factors:

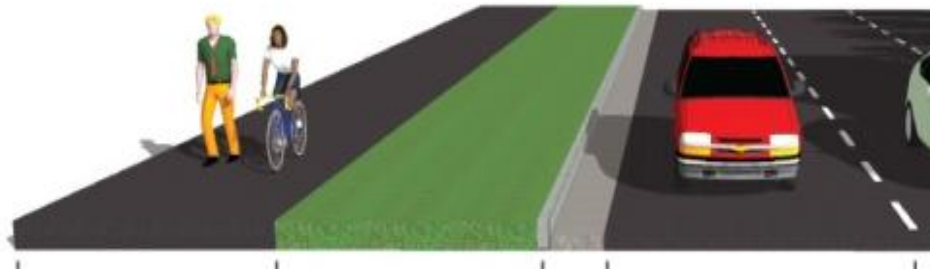
- Safety and comfort for cyclists of all abilities
- ROW impacts

Measures and factors:

- Bicycle compatibility index and Bicycle Level of Service
- Possible to implement incrementally / flexible over time



10-foot Multiuse Path (both sides of street)



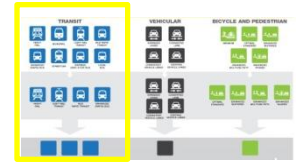
- 1. Technical evaluation based on trade-offs among accessibility, safety, and required right-of-way**
- 2. Note: implementation of recommended section varies along corridor**



4. What are the transit alternatives?

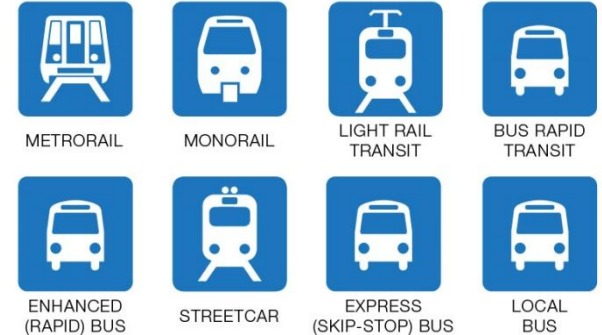


Transit Evaluation: Overview

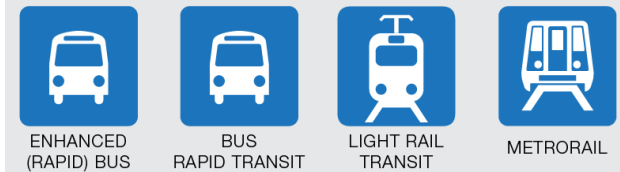


1. Screened a wide range of transit alternatives based on basic project requirements to arrive at four initial alternatives
2. Analyzed four transit alternatives to identify the most promising for further evaluation

Range of Alternatives



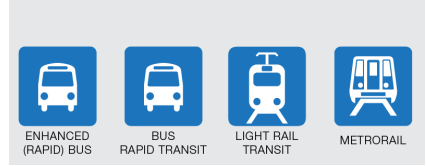
Initial Alternatives



Refined Alternatives

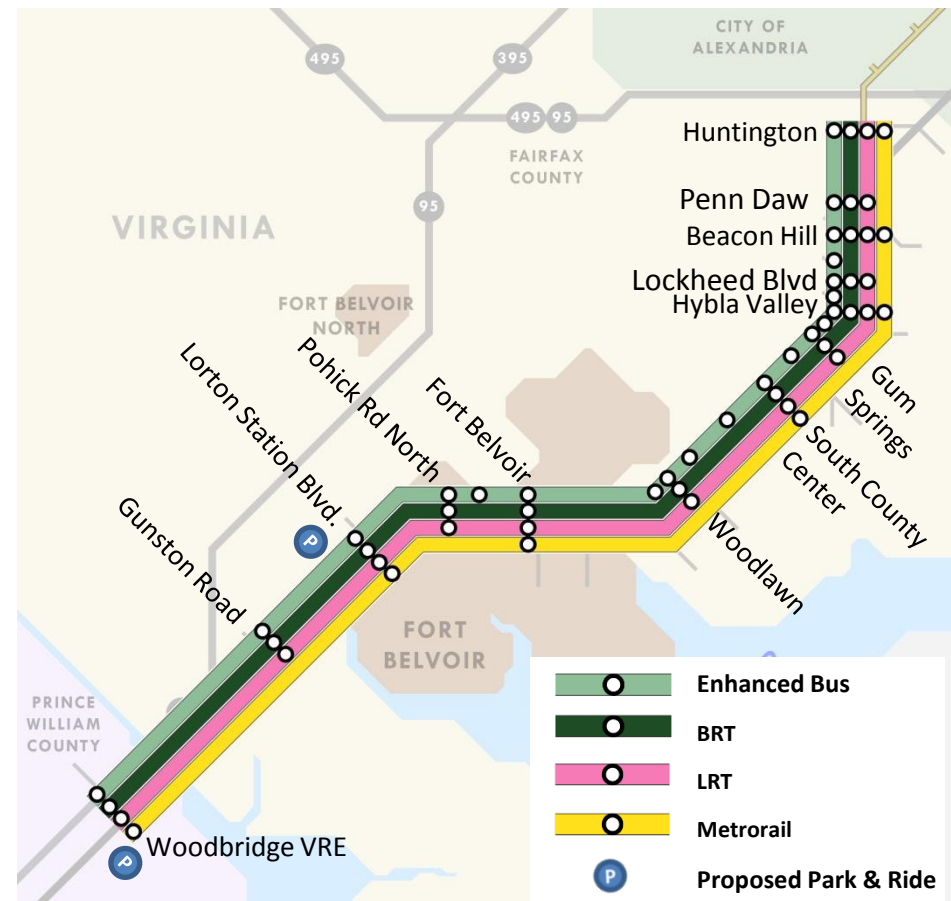


Initial Alternatives



Four Initial Transit Alternatives:

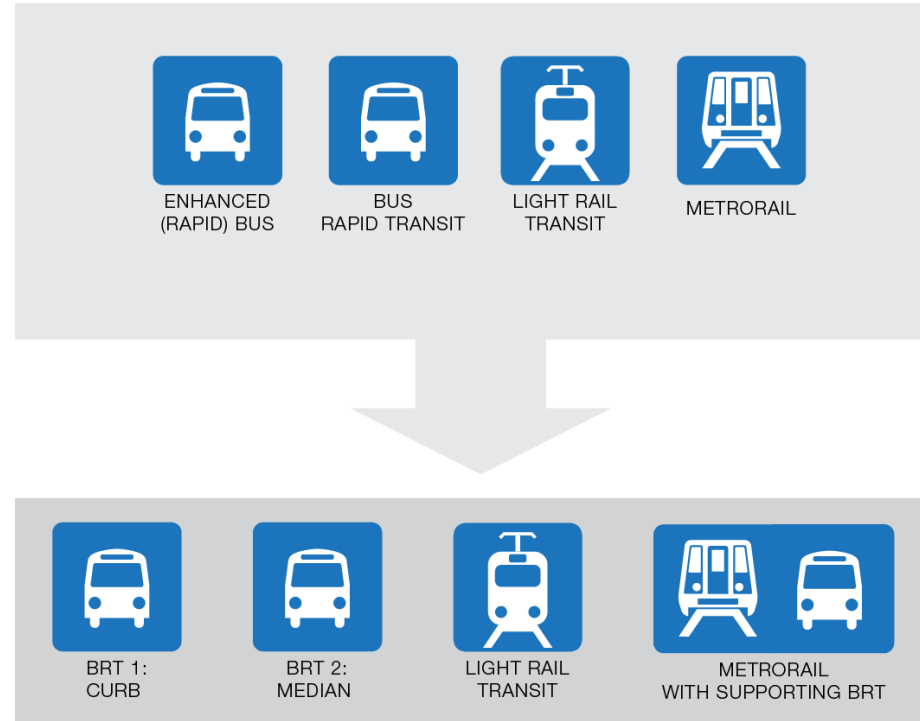
- Enhanced Bus
- Bus Rapid Transit (BRT)
- Light Rail Transit (LRT)
- Metrorail



How do we refine the initial alternatives for further evaluation?

1. Quantitative Key Indicators:

- Ridership
- Estimated Capital Cost
- Estimated O&M Cost
- Cost per Rider



2. Land Use Analysis

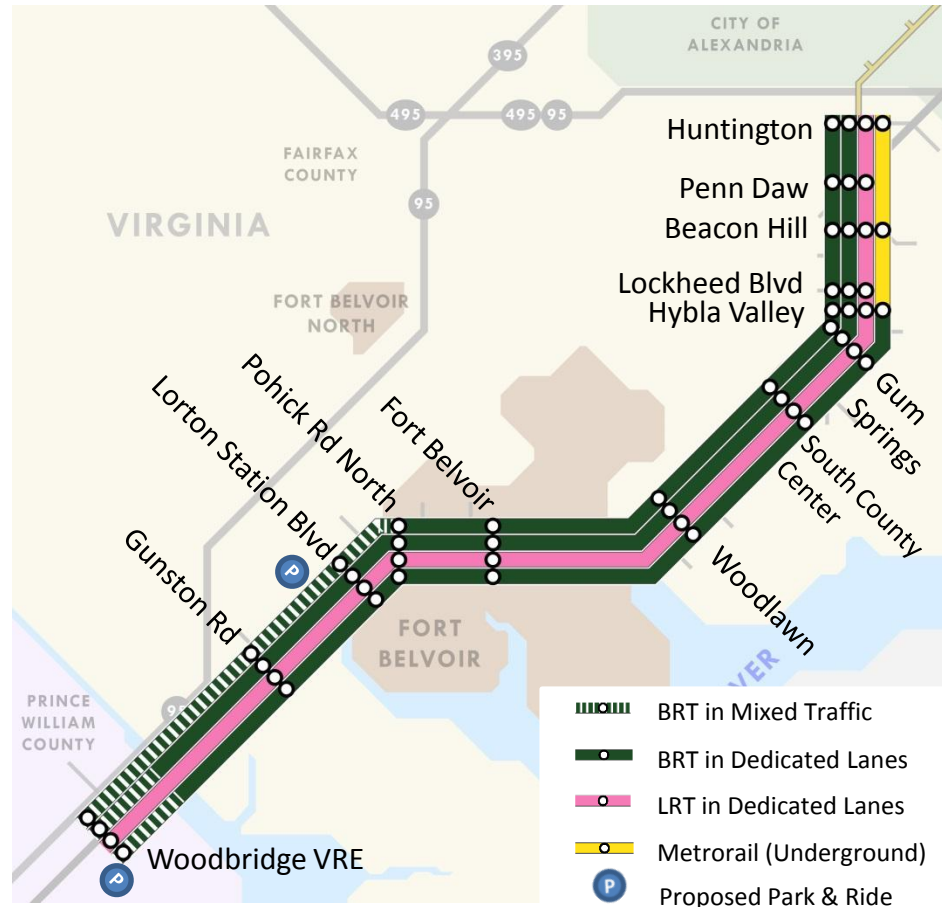
Four Refined Alternatives for Further Evaluation

Alternative 1:
Bus Rapid Transit 1- Curbside

Alternative 2:
Bus Rapid Transit 2- Median

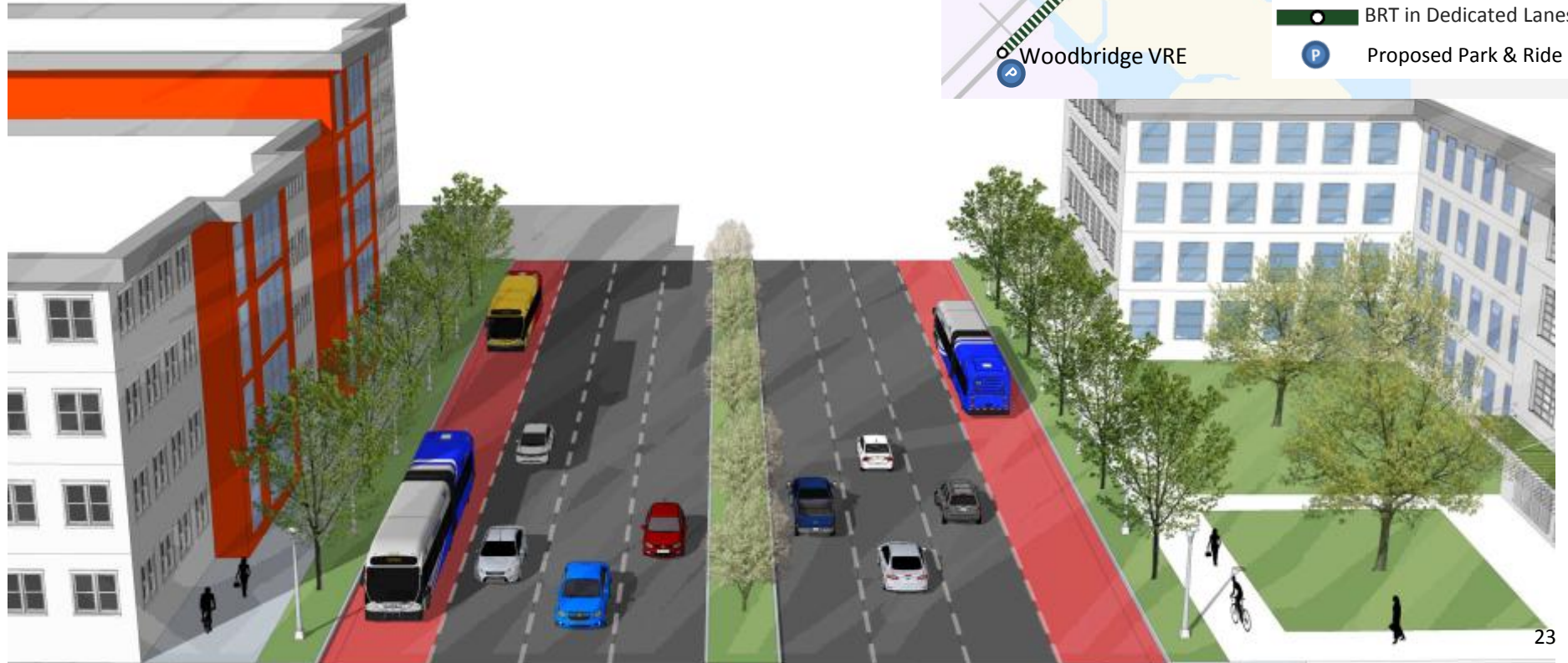
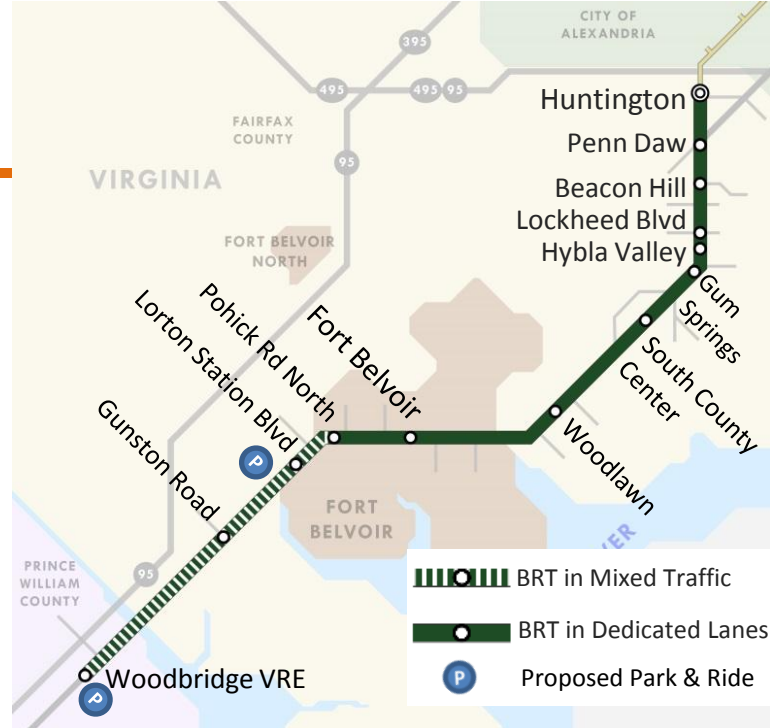
Alternative 3:
Light Rail Transit

Alternative 4:
Metrorail- BRT Hybrid



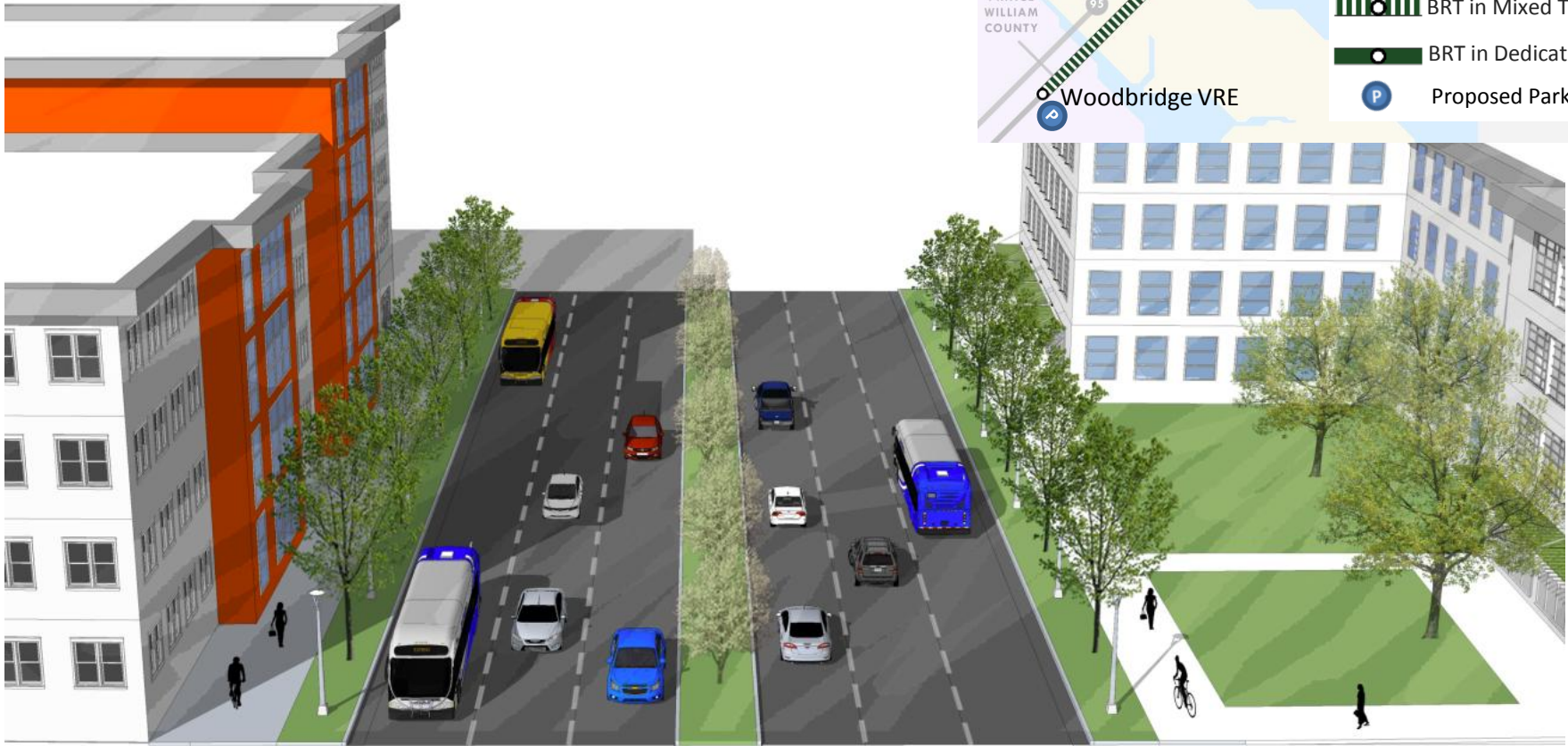
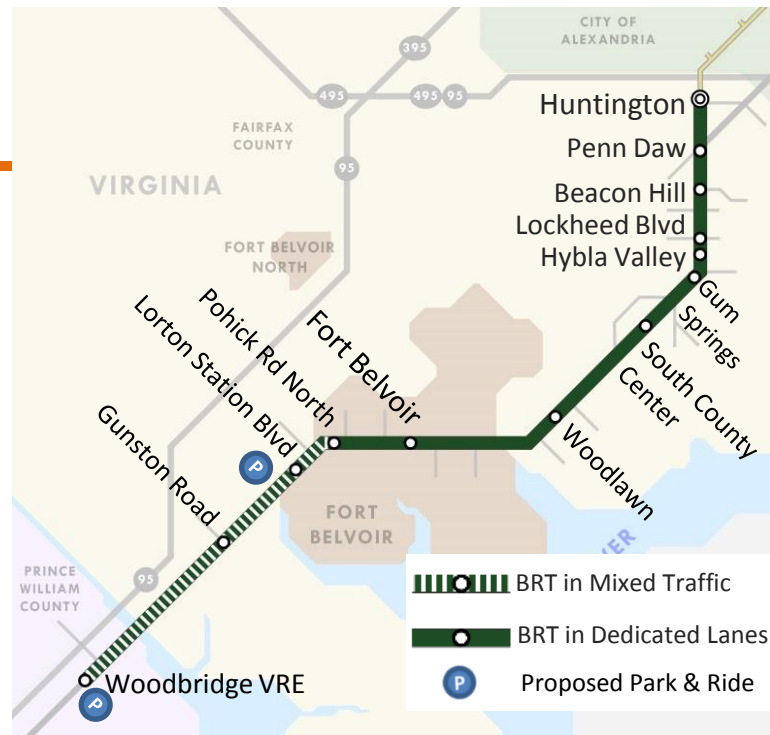
Alternative 1: Bus Rapid Transit 1 – Curbside

BRT operates in dedicated curbside lanes from Huntington to Pohick Road North



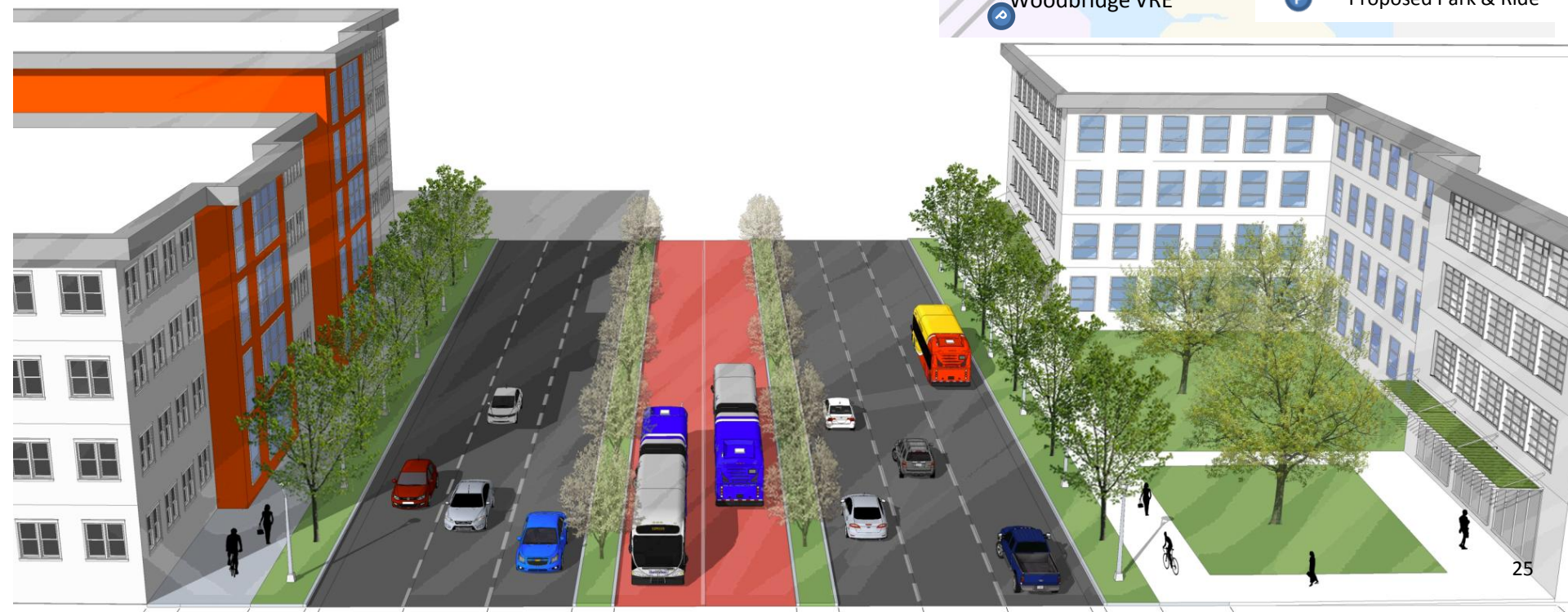
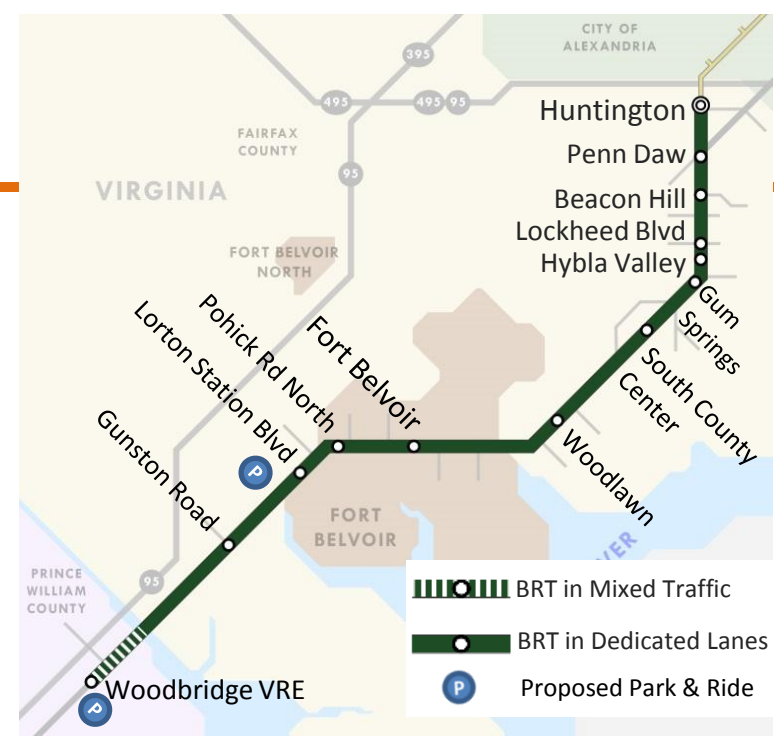
Alternative 1: Bus Rapid Transit 1 – Curbside

BRT operates in mixed traffic between Pohick Road North and Woodbridge



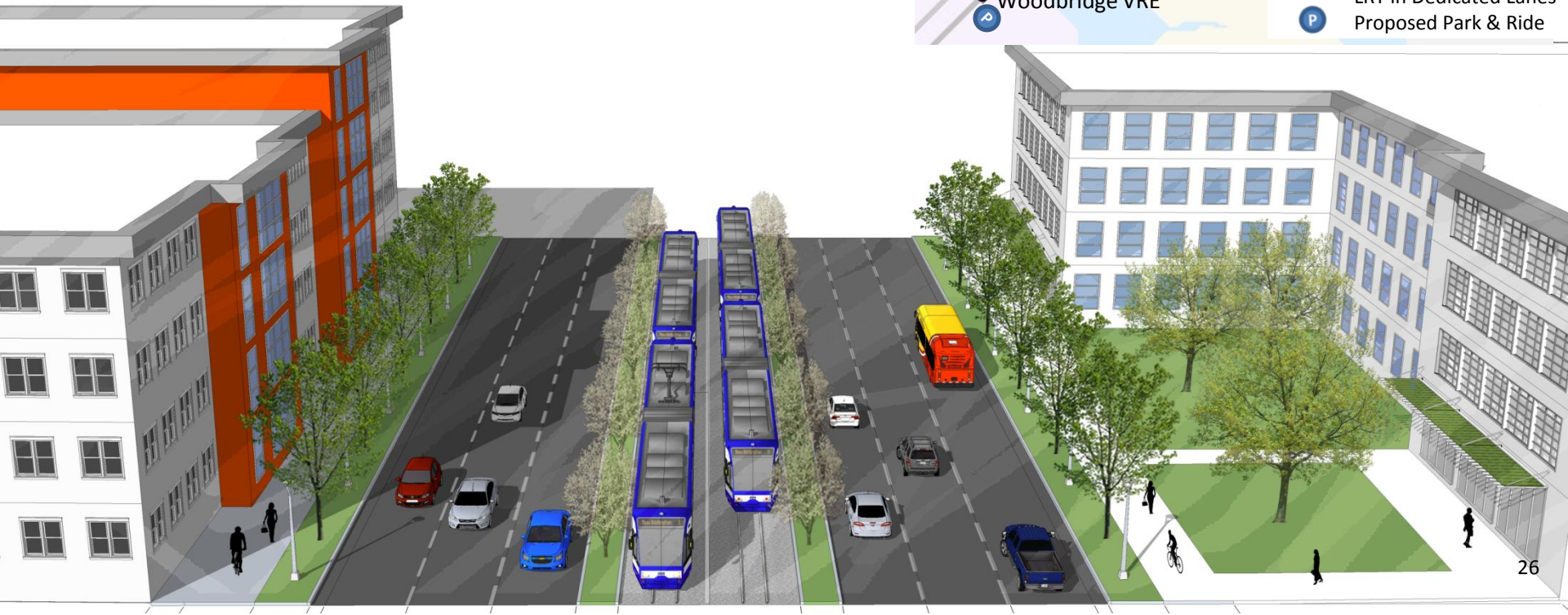
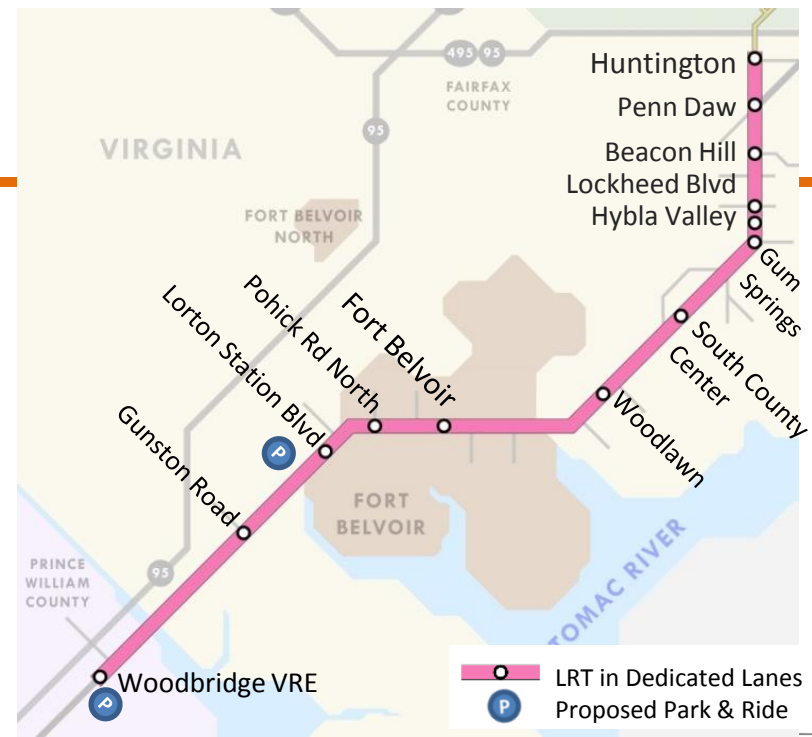
Alternative 2: Bus Rapid Transit 2 - Median

BRT operates in median in dedicated lanes in Fairfax County; transitions to mixed traffic in Prince William County



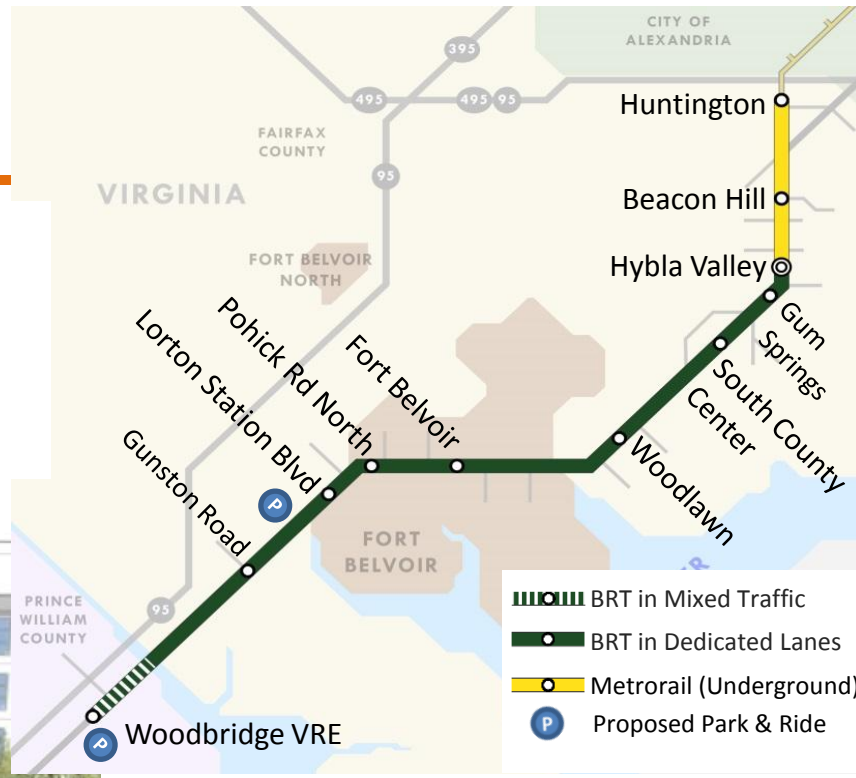
Alternative 3: Light Rail Transit (Median)

Light Rail operates in median in dedicated lanes for entire corridor



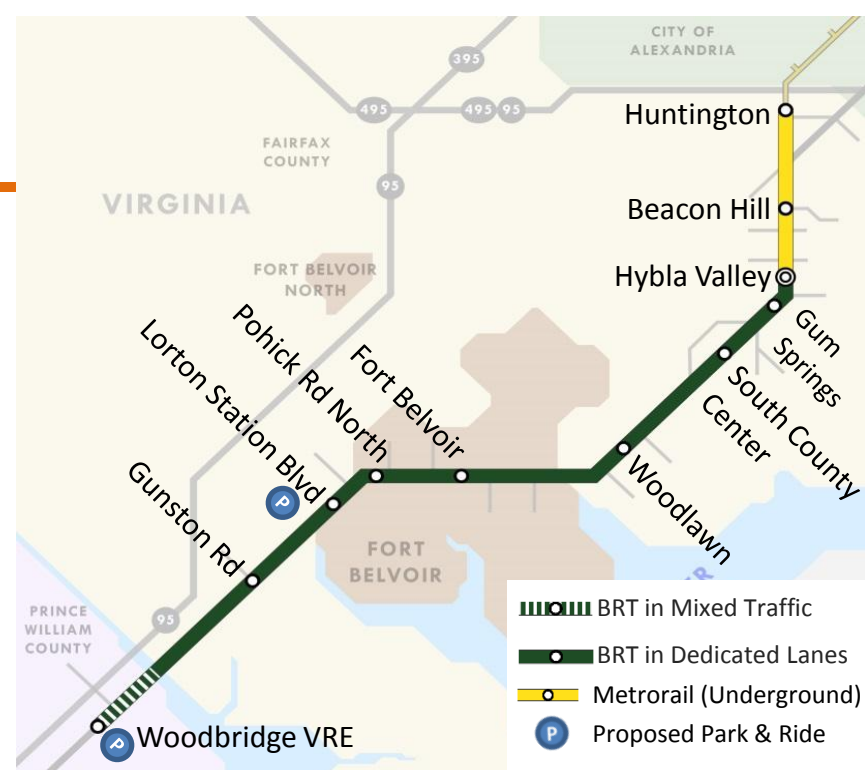
Alternative 4: Metrorail- BRT Hybrid

Metrorail operates underground from
Huntington to Hybla Valley;
Transfer to BRT service at Hybla Valley to
Woodbridge

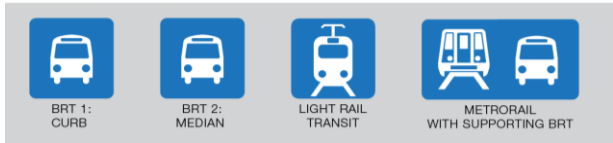


Alternative 4: Metrorail- BRT Hybrid

BRT operates in dedicated lanes from Hybla Valley, and transitions to mixed traffic in Prince William County



Key Indicators: Refined Transit Alternatives



	Bus Rapid Transit 1- Curbside	Bus Rapid Transit 2- Median	Light Rail Transit- Median	Metrorail/BRT Hybrid
Average Weekday Ridership (2035)	15,200 (1,500 net new riders)	16,600 (2,000 net new riders)	18,400 (2,500 net new riders)	26,500* (BRT 10,600; Metro 22,900) (4,750 net new riders)
Conceptual Capital Cost	\$500 M	\$780 M	\$1.20 B	\$1.57 B
Annual O&M Cost	\$18 M	\$17 M	\$24 M	\$31 M
Cost Per Rider**	\$12	\$15	\$21	\$18

* Corridor ridership, excluding transfers between Metrorail and BRT portions

**Assumes Annualized Capital Cost + Operating Costs divided by total boardings (2035)

Note: FTA Cost Effectiveness measure averages current (2015) and horizon year (2035) costs and boardings



5. What are the next steps?



Outcome of the study:

- Next public meeting: June 2014
- Recommend a program of road, bike and pedestrian improvements, and a high-quality transit alternative to be carried forward for implementation
- Consider project funding options
- Determine the appropriate level of environmental documentation: July 2014



Who should I contact if I have a question?

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