



County of Fairfax, Virginia

Route 7 Bus Rapid Transit Study

Virtual Public Information Meeting

March 19, 2021

March 24, 2021

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Transportation Planning Section

Department of Transportation



- Introduction
- Background & Purpose of the study
- Study Process
- Goals, Objectives, and Performance Metrics
- Alternatives Development
- Alternatives Evaluation
- Preferred Alternative
- Questions/Comments
- Next Steps



Bus Rapid Transit (BRT) is an efficient, comfortable, and cost-effective bus service with:

- Dedicated bus running-way and transit signal priority
- Enhanced stations
 - Off-board fare collection
 - Level boarding
 - Real-time passenger information
 - Other amenities
- Service
 - Frequent and reliable
 - Easily understood routes
 - Limited stops (.25 to .5 mile spacing)
- Branded vehicle and station identity

Ridership and experience comparable to light rail, but with lower capital costs



Metroway - Alexandria, VA



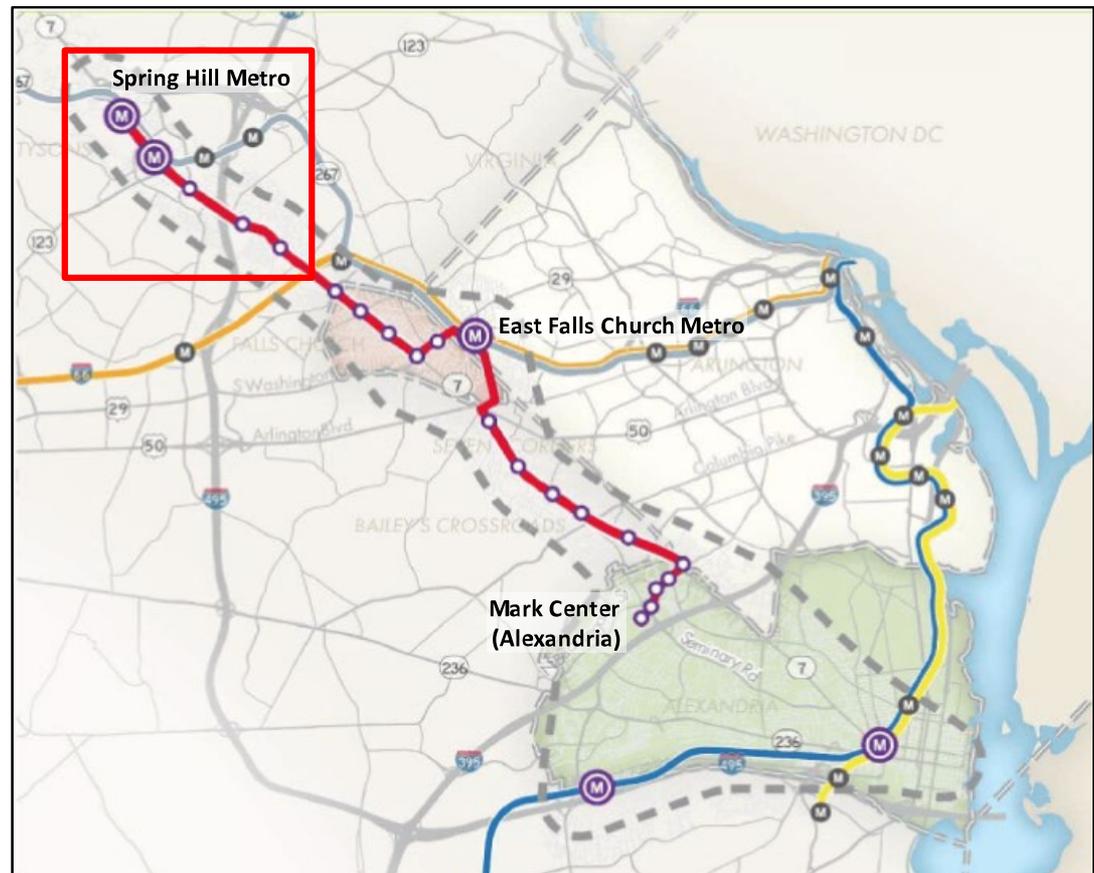
UVX – Provo, UT



Envision Route 7 Transit Study:

- Conducted by Northern Virginia Transportation Commission (NVTC)
- Identified BRT as preferred alternative from Mark Center in Alexandria to Tysons in Phase II
- Recommended dedicated bus lanes within Tysons and provide multimodal solution
- Phase IV will look at transportation analysis for entire Route 7 Corridor

Tysons BRT Study Area



NVTC Envision Route 7 Corridor Alignment

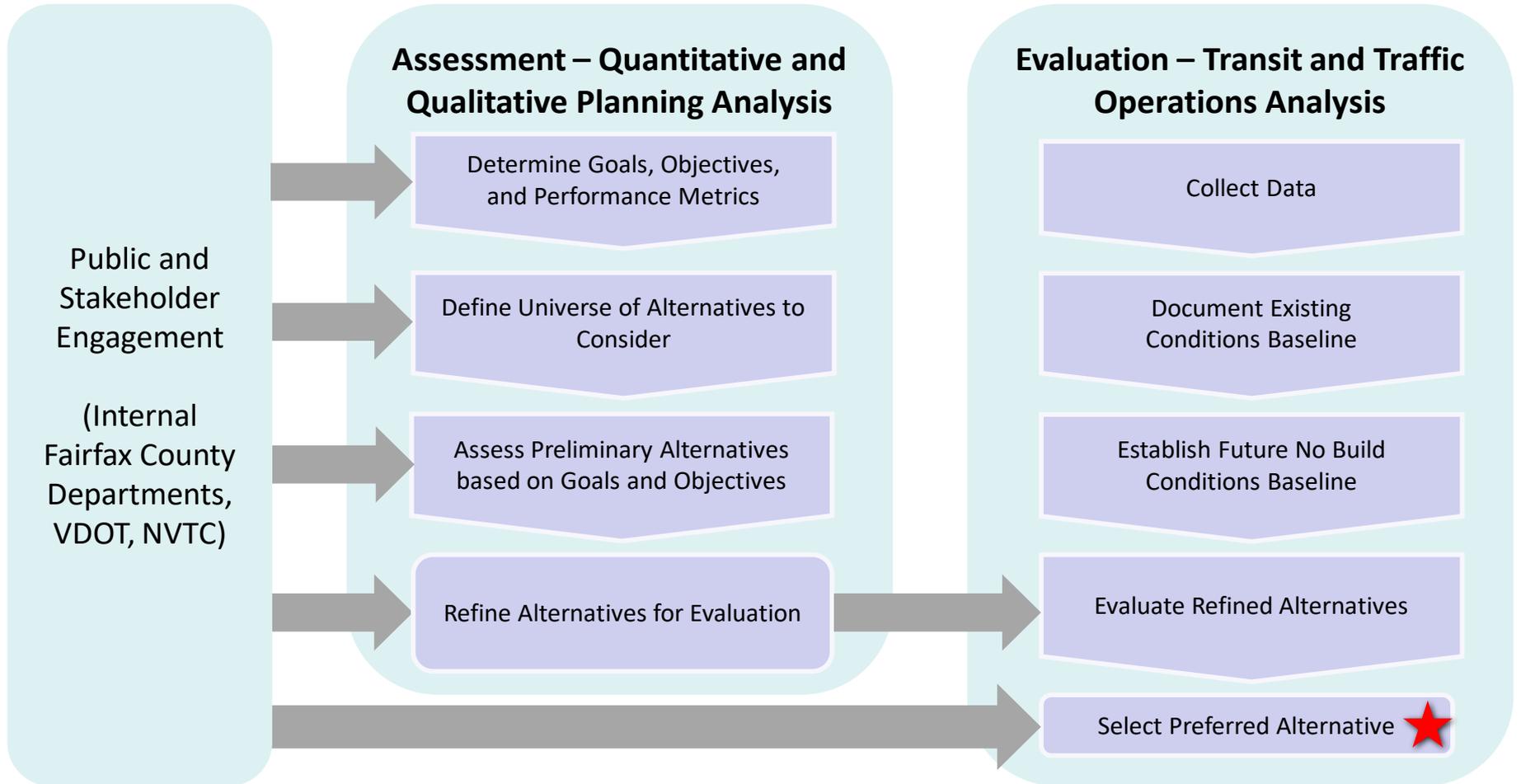


This County study will refine the work done by NVTC and determine:

- **Routing** – What roadway does BRT travel on? What is the terminal station?
- **Alignment** – What is the appropriate BRT running-way: mixed traffic, BAT (Bus and Turn lane only) exclusive curb busway, exclusive median busway, or combination?
- **Cross-sections** – What is the roadway configuration considering BRT and planned roadway widening?
- **Station locations** – Where are the stations located, considering adjacent land use, trip generators, and stop spacing?



Scope of study highlighted in purple





Performance Metrics

- Used to quantify/determine progress towards specific goals and objectives:
 - **Access and Mobility**
 - **Mode Share/Efficiency**
 - **Land Use/Economic Vitality**
 - **Equity**
 - **Safety**
 - **Environmental Concerns**
 - **Financial Feasibility**
- Qualitative and quantitative measures using the tools available
- Measures impacts for both transit and roadway users
- Used in a two phased approach (*2045 forecast model analysis*):
 - **Assessment** to pare down the preliminary alternatives considered
 - **Evaluation** of the final three alternatives using modeling tools



ALTERNATIVES EVALUATION

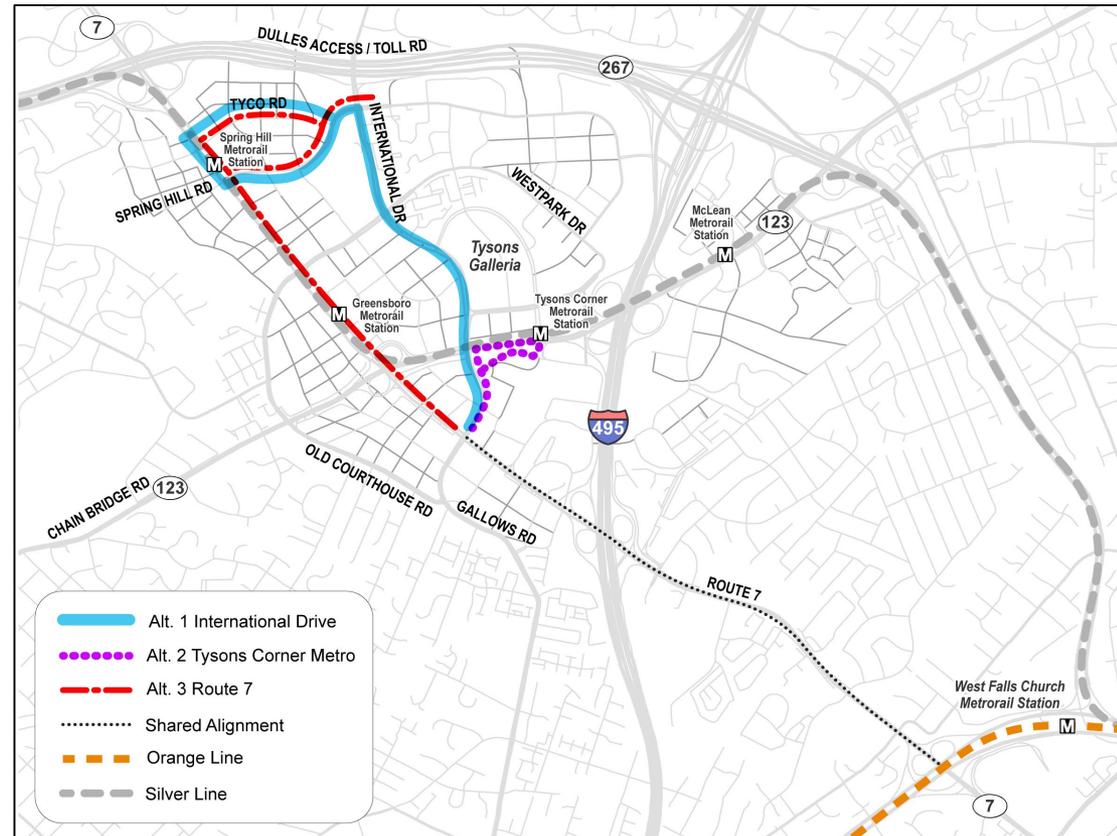


Nine Preliminary Alternatives culled down to three Final Alternatives for Evaluation:

- Alternative 1 - International Drive
- Alternative 2 - Tysons Corner Metro
- Alternative 3 - Route 7

This study assumes:

- Headways:*
 - 10 min peak/15 min off-peak
- Service Span:*
 - Weekday service 5 AM–1 AM
 - Weekend service 6 AM–12 AM
- Articulated buses with capacity of 110 passengers
- Enter/Exit vehicle at all doors
- Transit signal priority
- Enhanced bus stations
- Fare comparable to local bus routes



*Assumptions from 2017 NVTC Study



Bicycle and Pedestrian Facilities

- Pedestrian-refuge islands at median BRT stations reduce crossing distances
- Floating bus stops separate the transit boarding area from the bicycle travel path
- High-quality facilities making station access easy, comfortable, and convenient

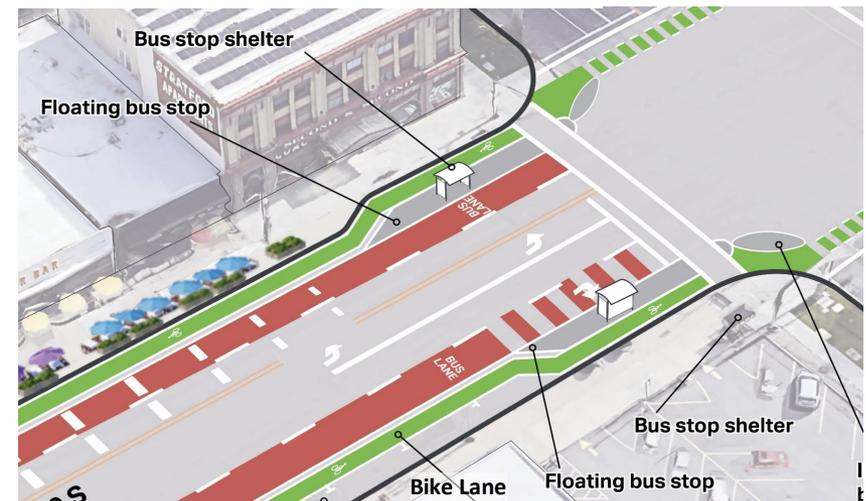
Median vs. Curb-Running Transit

- Managing competition for curb space – buses, turning vehicles, driveway access, bicycles, pedestrians on sidewalks, parked cars, drop-offs, deliveries, etc.
- Median transit running-way helps preserve curb space and mitigate conflicts, particularly for bicycles and pedestrians

Median Transit Lane with Bicycle Lane



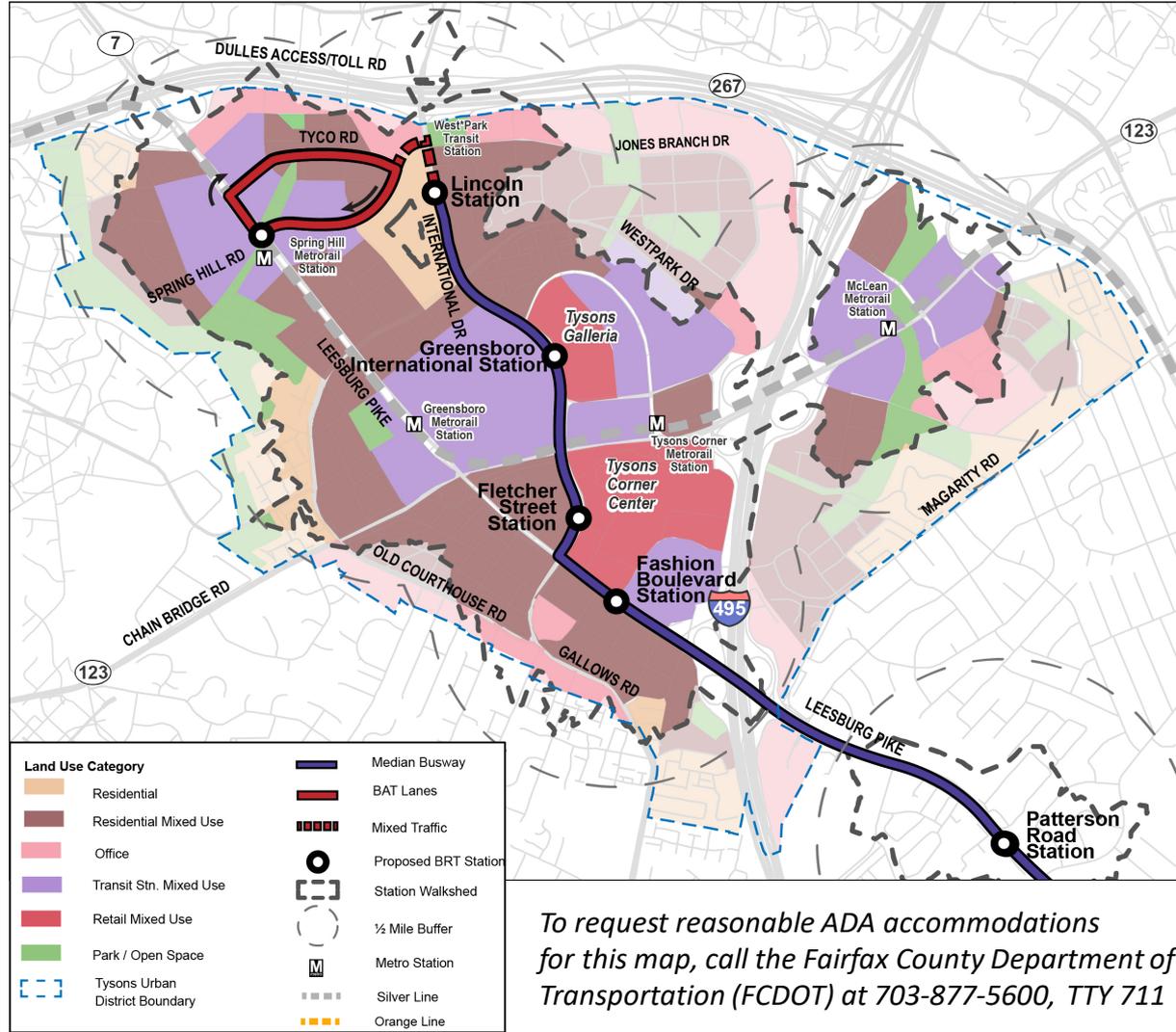
Curb-Running BAT Lane with Bicycle Lane





International Drive

- Terminal Station: Spring Hill Metro
- Six BRT stations
- 3.7-mile route length
- Demographics within ½ mile Walkshed
 - Households: 8,250
 - Population: 16,650
 - Employment: 68,250
- Daily BRT Ridership: 6,700
- Serves mixed use land uses including Residential, Retail, and Transit Oriented along International Drive



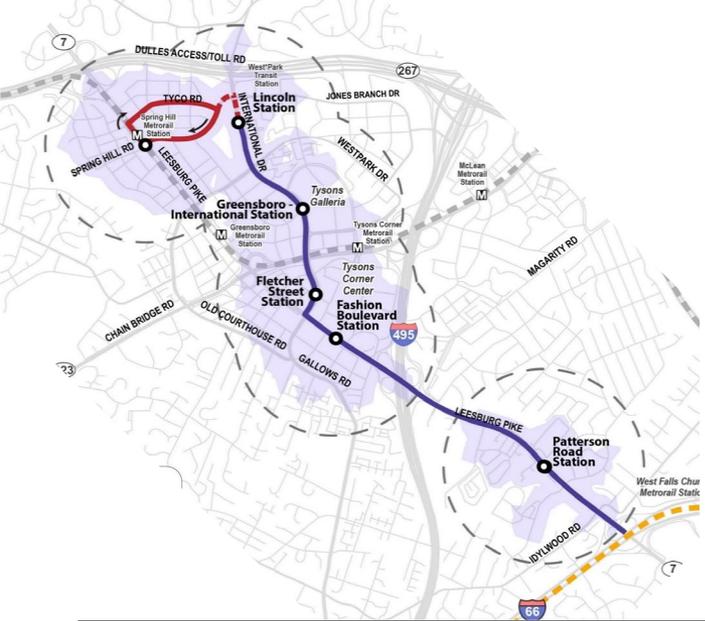
To request reasonable ADA accommodations for this map, call the Fairfax County Department of Transportation (FCDOT) at 703-877-5600, TTY 711



Cross Section:

- Median runningway on Route 7 and International Drive
- “Bus and Turn only” BAT Lanes on Spring Hill Road and Tyco Road couplet

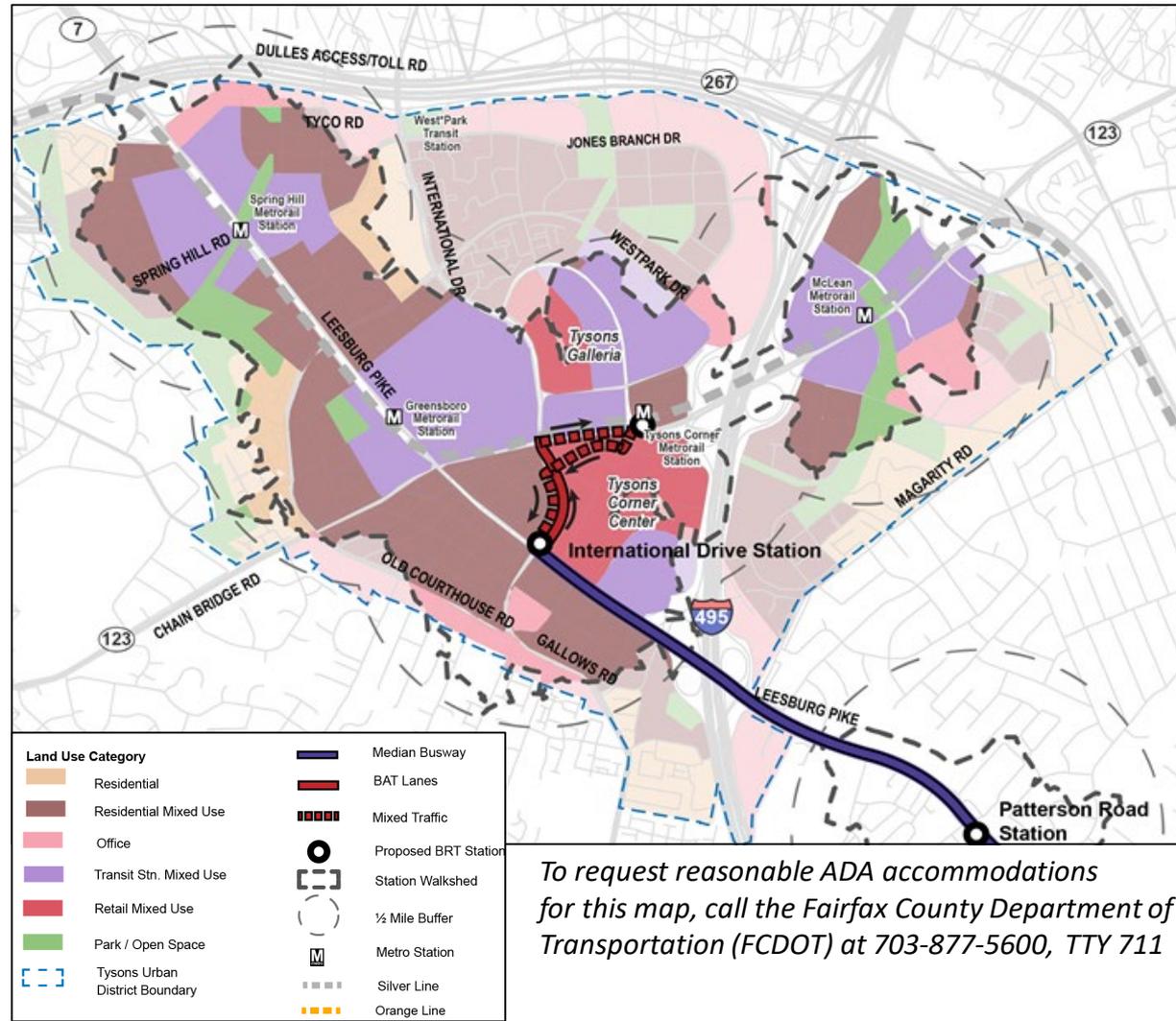
Street Name and Section	Description
Tyco Road	Eastbound BAT lane and two general traffic lanes in each direction
Spring Hill Road	Westbound BAT lane and two general traffic lanes in each direction
International Drive – Lincoln Circle to Spring Hill Road	Mixed traffic in both directions to facilitate transition to/from median busway
International Drive – Route 7 to Lincoln Circle	Median busway and two general traffic lanes in each direction
Route 7 – International Drive to I-495	Median busway and three general traffic lanes in each direction
Route 7 – I-495 to I-66	Median busway and two general traffic lanes in each direction





Tysons Corner Metro

- Terminal Station: Tysons Corner Metro
- Three BRT stations
- 2.3-mile route length
- Demographics within ½ mile Walkshed
 - Households: 5,500
 - Population: 11,500
 - Employment: 61,683
- Daily BRT Ridership: 3,500
- Serves major generator and Metrorail at Tysons Corner Center

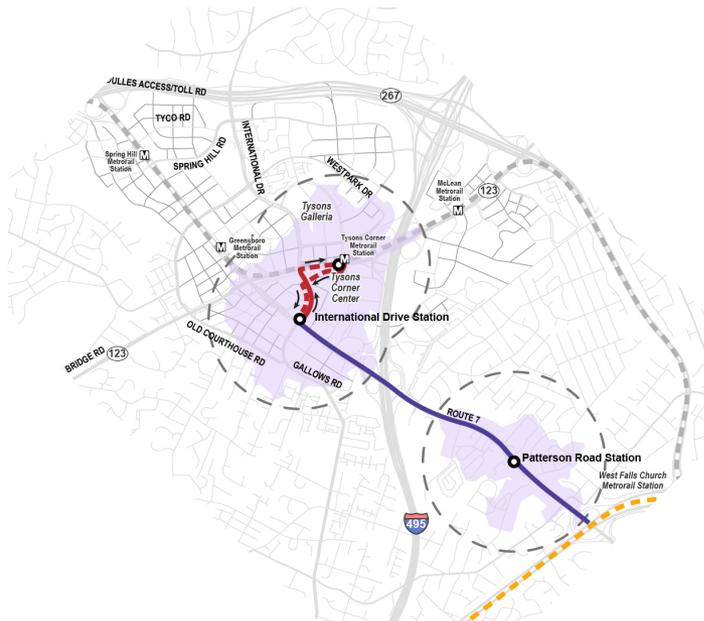


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Cross Section:

- Median runningway on Route 7
- BAT Lane northbound on International Drive
- Mixed traffic southbound on Tysons One Place and International Drive

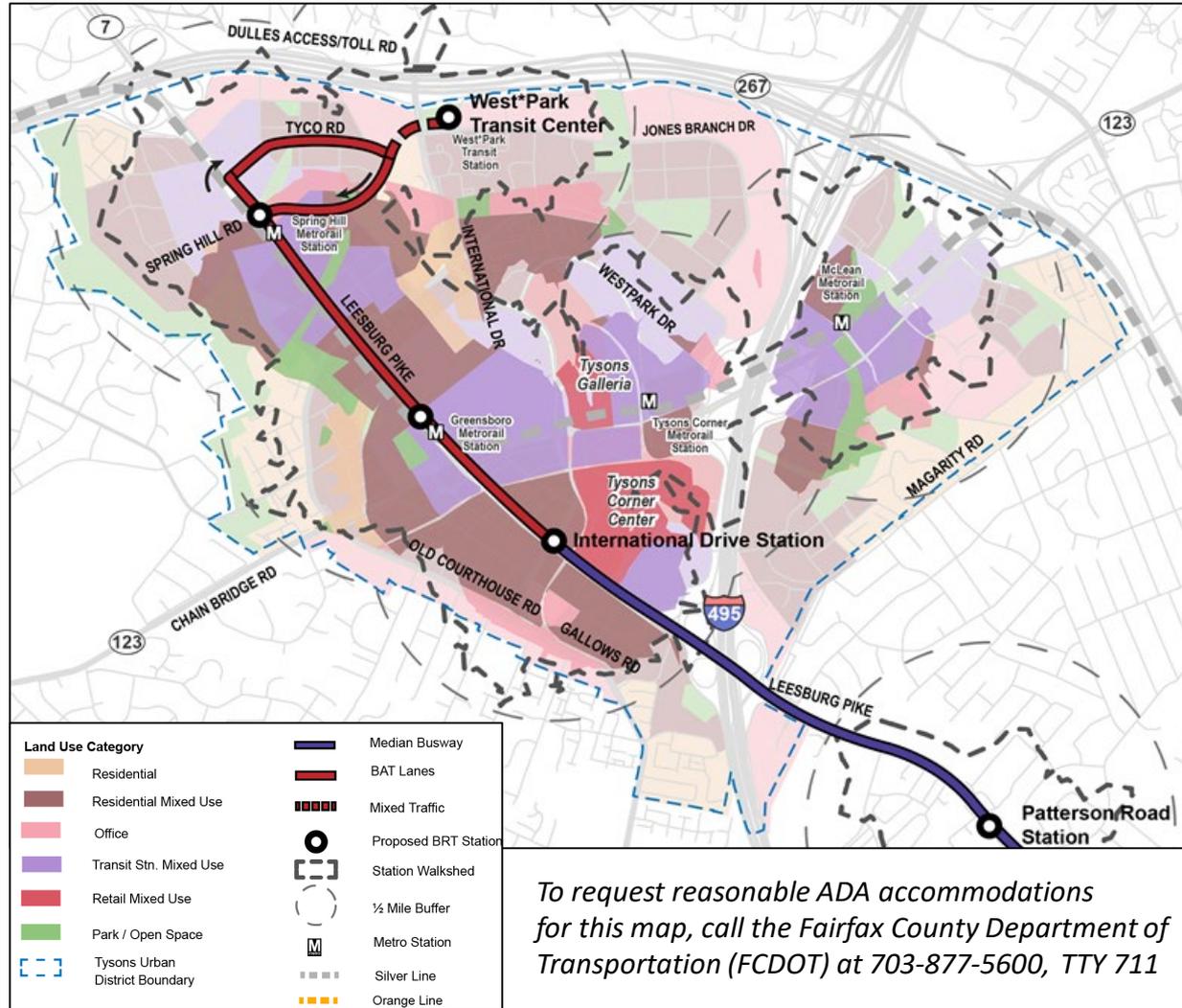


Street Name and Section	Description
Chain Bridge Road	Four general traffic lanes in each direction; BRT operates in mixed traffic in the EB direction to bus loop
Tysons One Place	One general traffic lane in each direction; BRT operates in mixed traffic in the WB direction
International Drive – Route 7 to Chain Bridge Road	Northbound BAT lane and two general traffic lanes, three southbound general traffic lanes; BRT operates in mixed traffic in SB direction
Route 7 – International Drive to I-495	Median busway and three general traffic lanes in each direction
Route 7 – I-495 to I-66	Median busway and two general traffic lanes in each direction



Route 7

- Terminal Station: West*Park Transit Center
- Five BRT stations
- 3.8-mile route length
- Demographics within ½ mile Walkshed
 - Households: 7,400
 - Population: 15,000
 - Employment: 66,200
- Daily BRT Ridership: 7,000
- Serves Transit Oriented mixed use around existing Metrorail Stations on Route 7

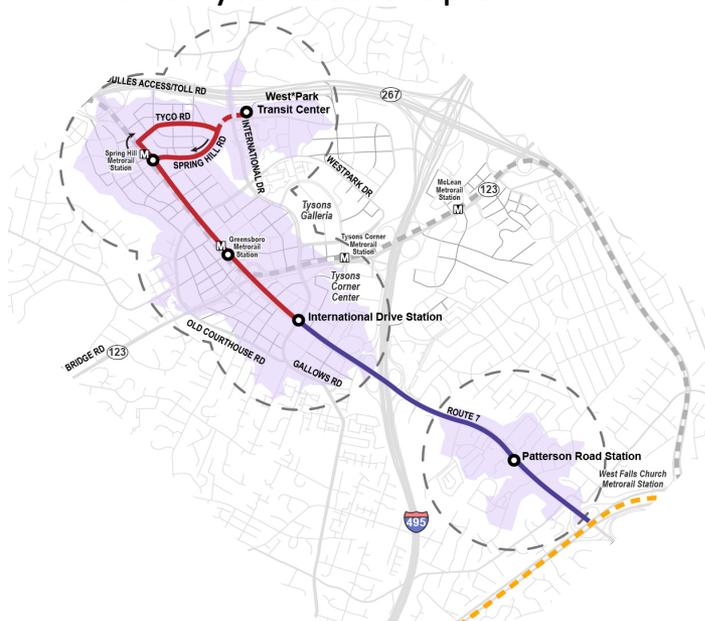


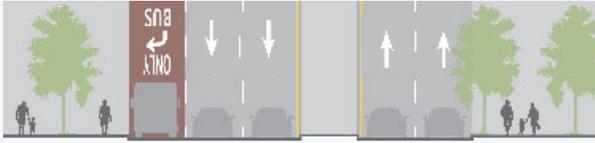
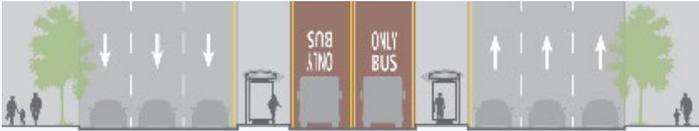
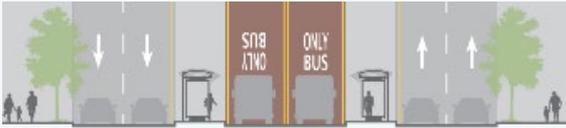
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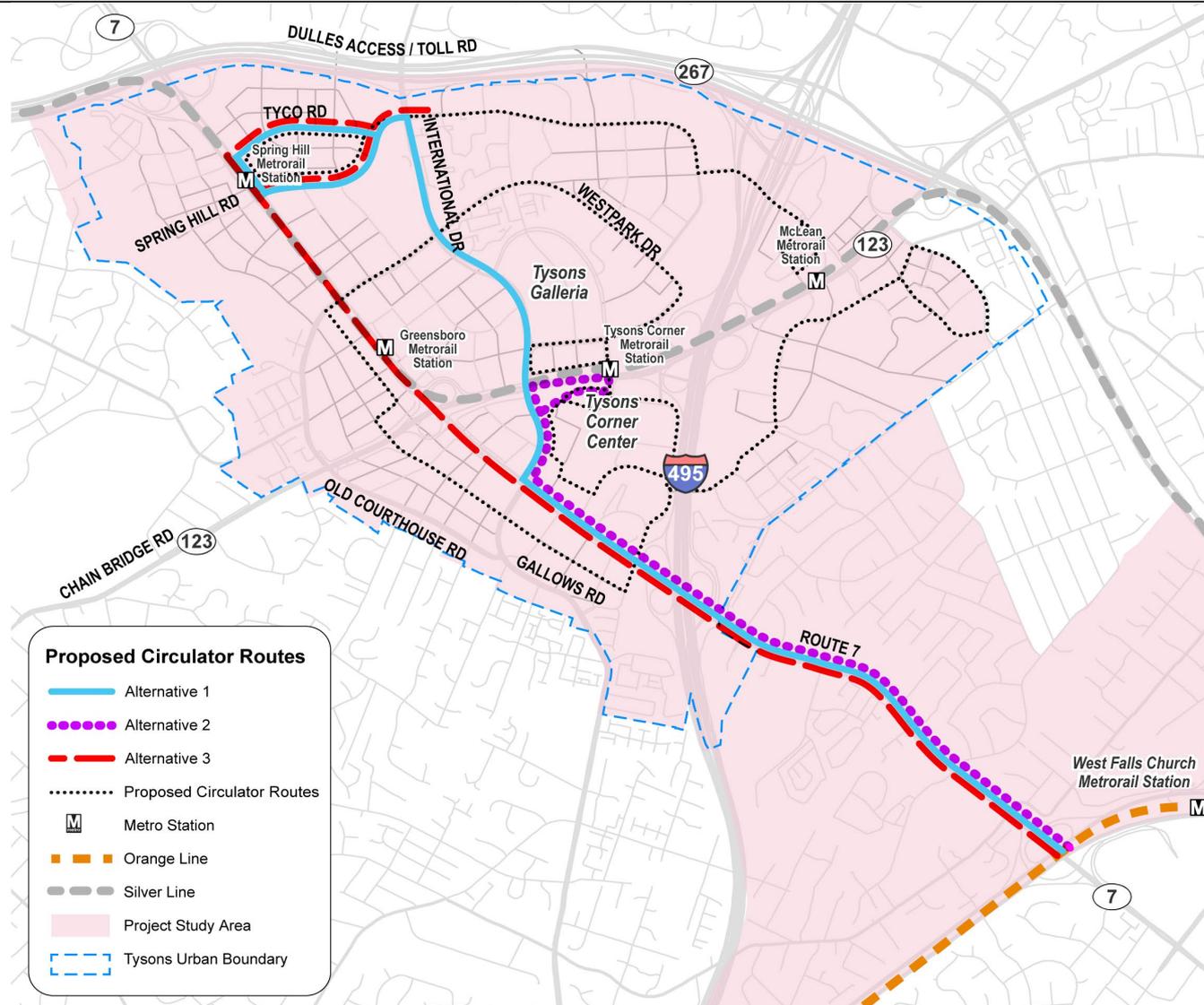


Cross Section:

- Median runningway on Route 7 to International Drive
- BAT Lane on Route 7 from International Drive to Tyco Road
- BAT Lanes on Spring Hill Road and Tyco Road couplet



Street Name and Section	Description
<p>Tyco Road</p> 	<p>Northbound BAT lane and two general traffic lanes in each direction</p>
<p>Spring Hill Road</p> 	<p>Southbound BAT lane and two general traffic lanes in each direction</p>
<p>Route 7 – Spring Hill road to International Drive</p> 	<p>Curb BAT lanes and three general traffic lanes in each direction</p>
<p>Route 7 – International Drive to I-495</p> 	<p>Median busway and three general traffic lanes in each direction</p>
<p>Route 7 – I-495 to I-66</p> 	<p>Median busway and two general traffic lanes in each direction</p>

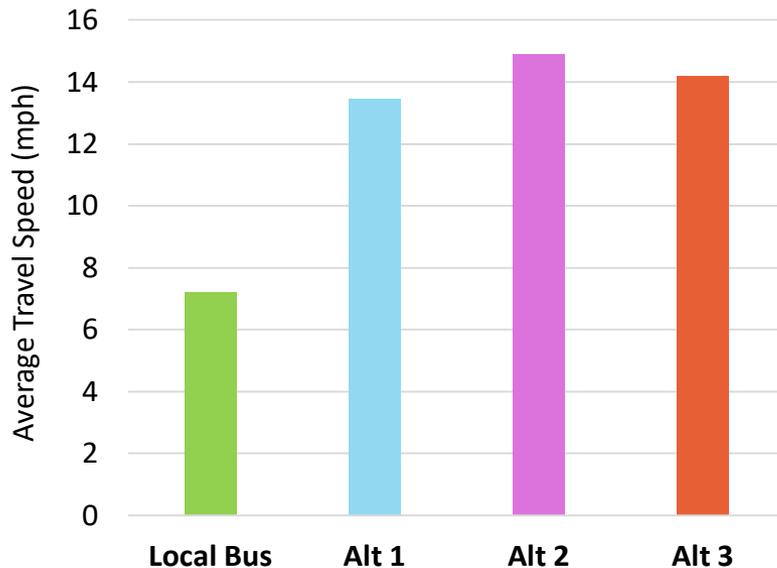




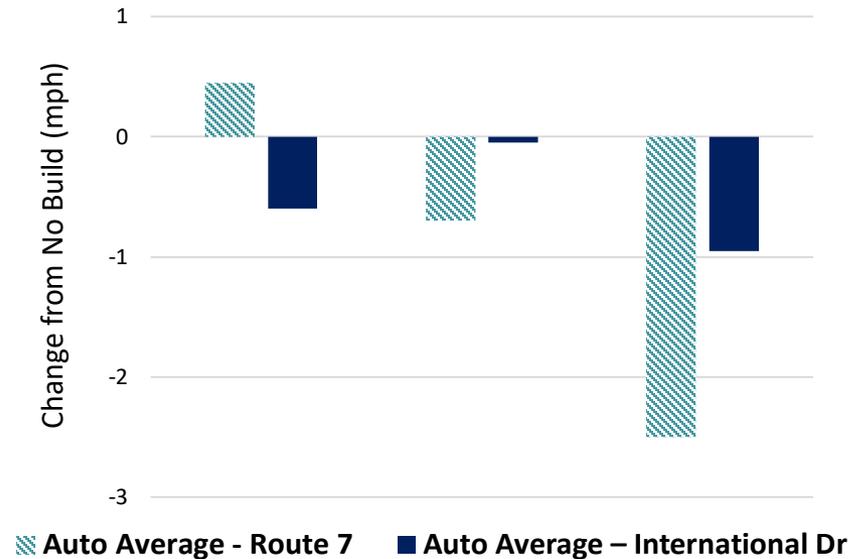
Average Travel Speeds (mph)

- BRT speeds exceed local bus speeds
- BRT on International Drive (Alt 1) has the least amount of impact to travel corridors
- BRT on Route 7 (Alt 3) has the most impacts to travel corridors

Average BRT Speed

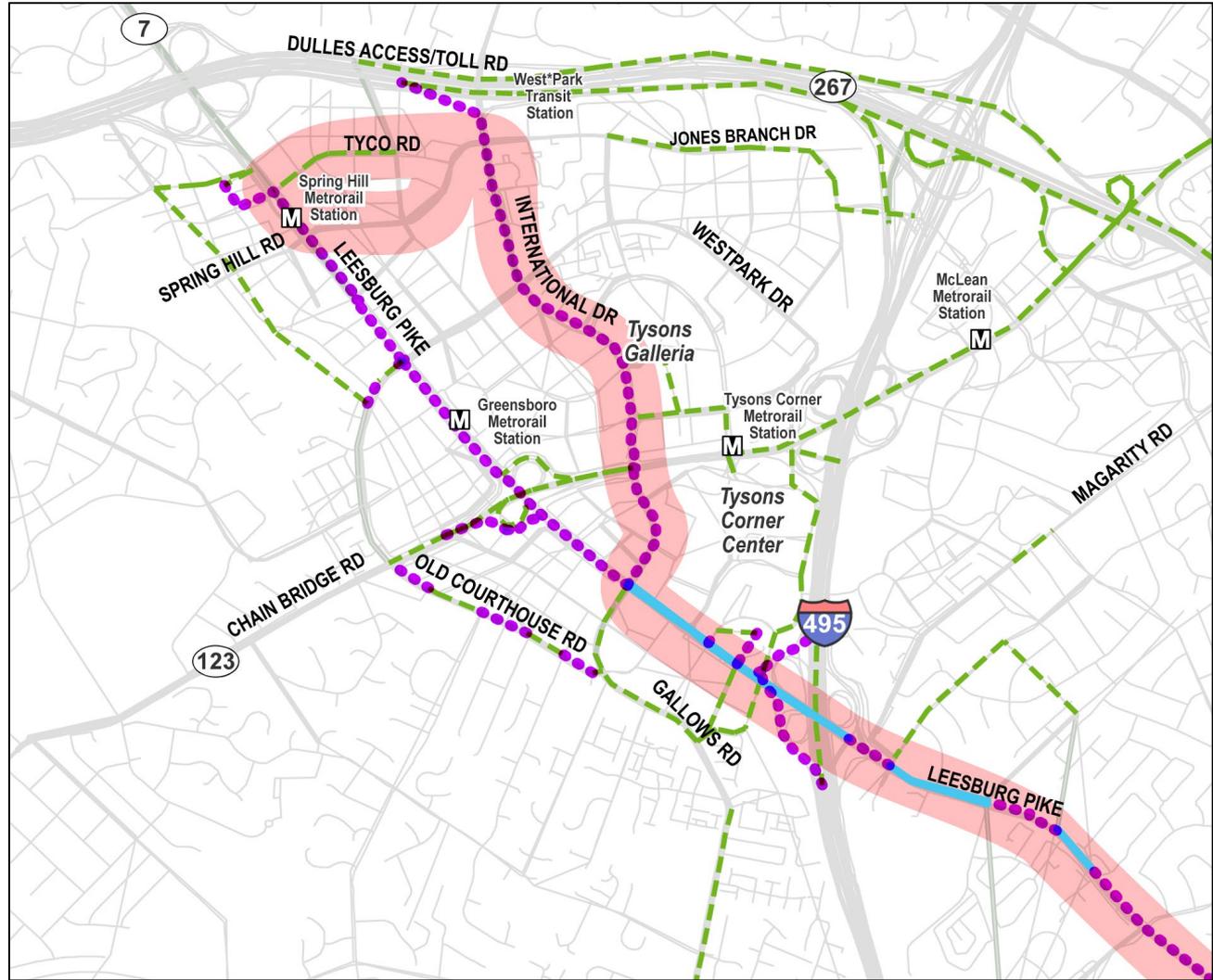


Average Auto Travel Speed Changes





ALTERNATIVE 1 INTERNATIONAL DRIVE

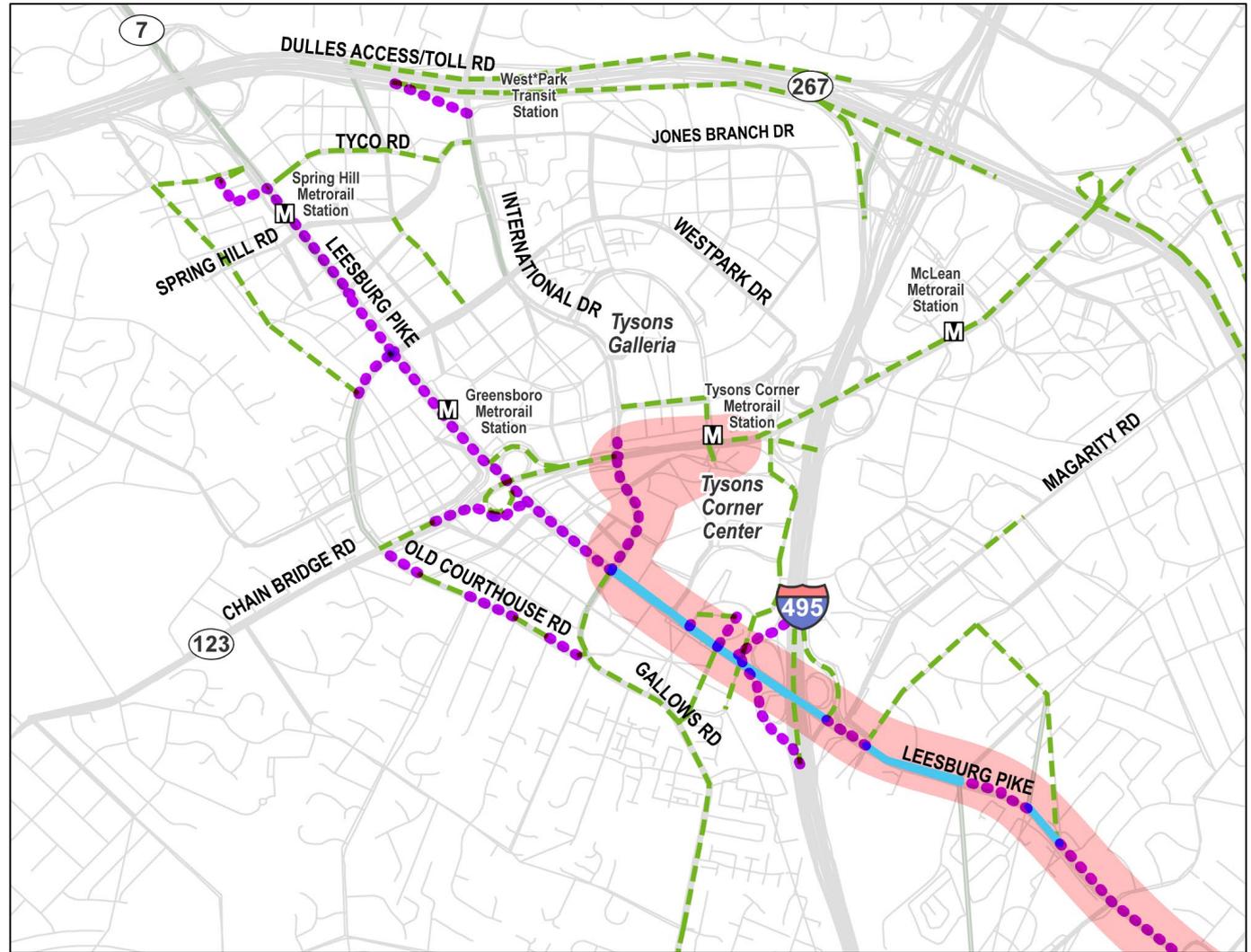


Average Daily Traffic
ADT Change:
No Build to Alt

- Significant decrease (Blue line)
- Decrease (Purple dotted line)
- Increase (Green dashed line)
- Alternative 1 Alignment (Pink shaded area)
- Metro Station (M icon)

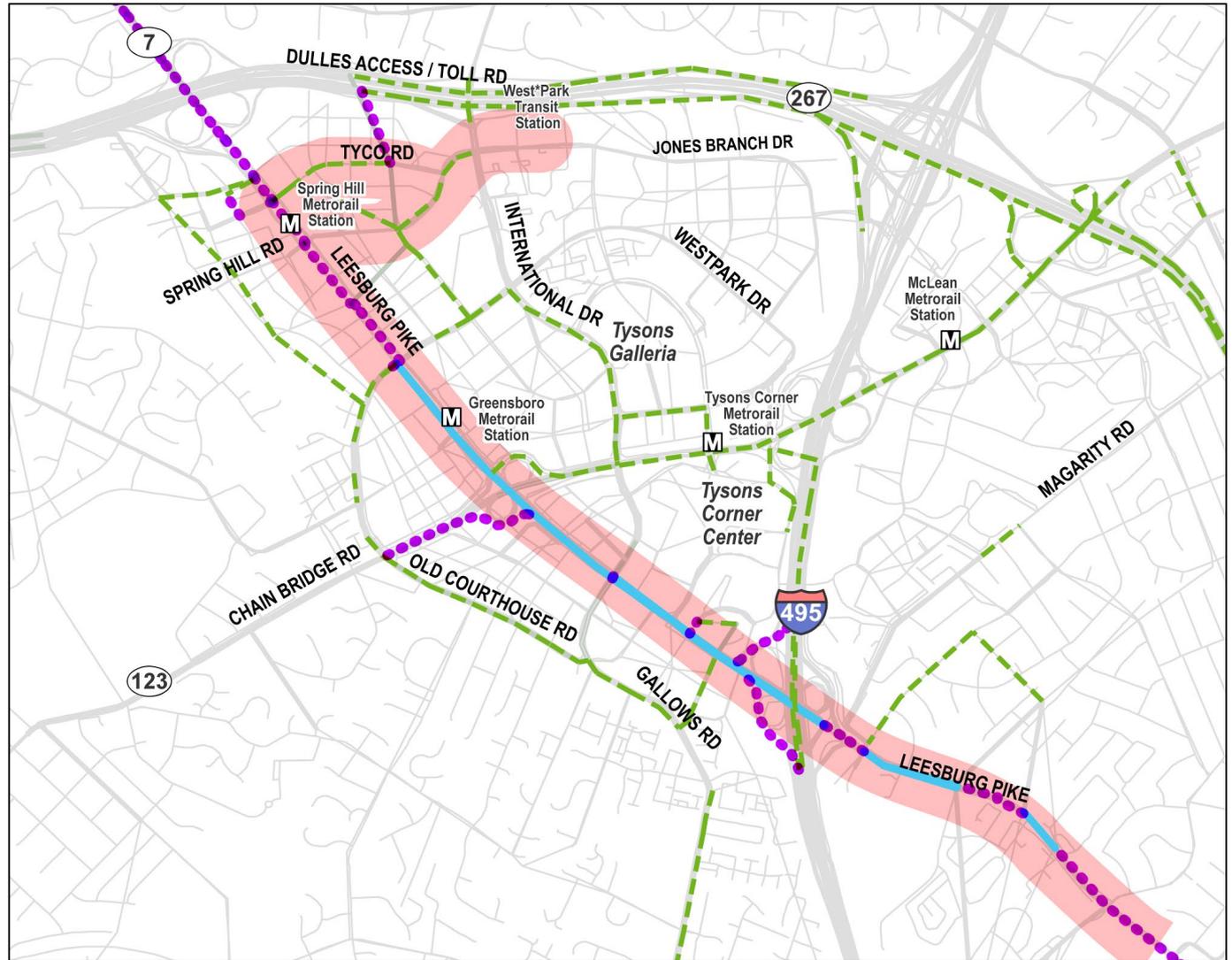


ALTERNATIVE 2 TYSONS CORNER





ALTERNATIVE 3 ROUTE 7



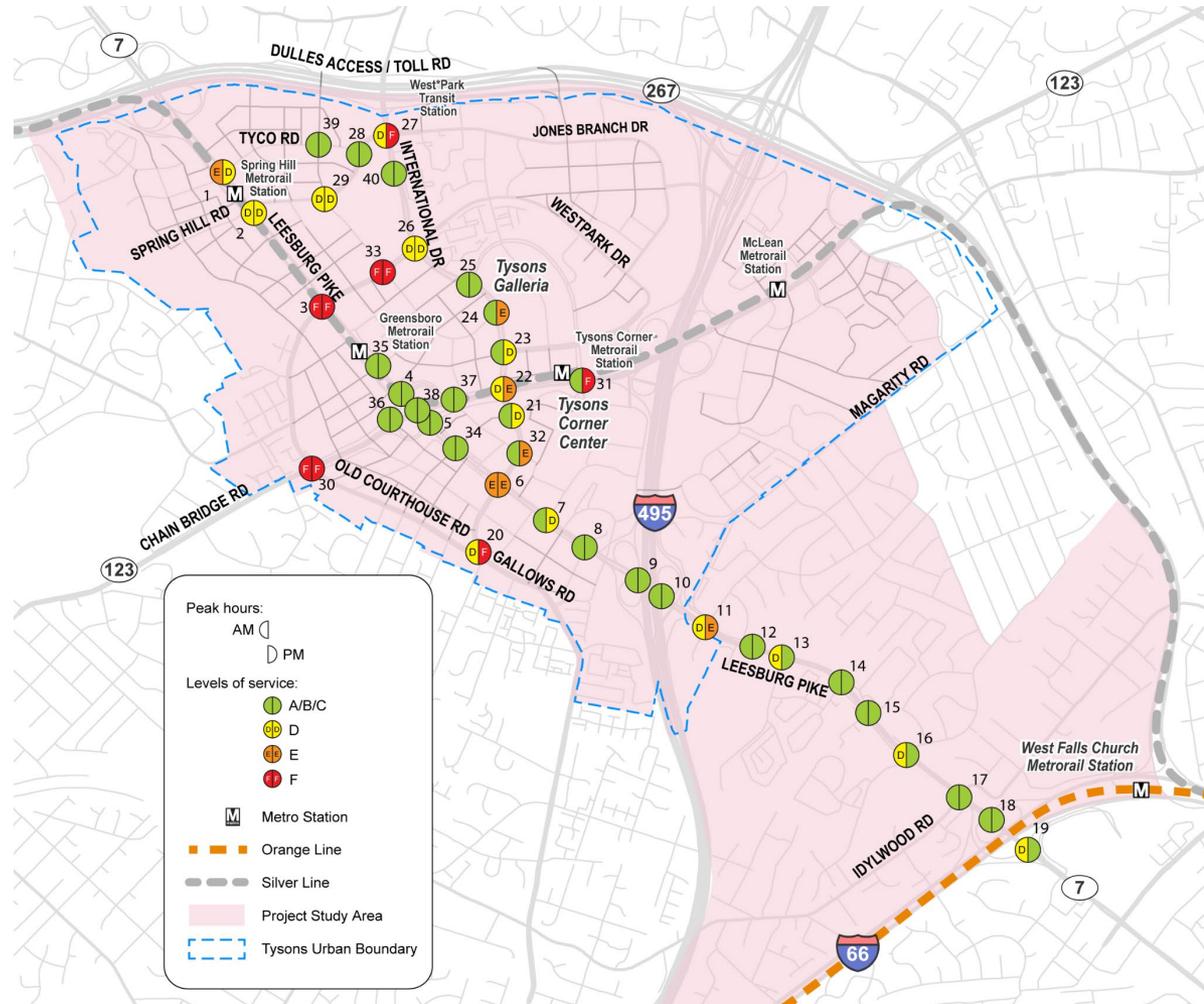


**Automobile Intersection LOS
Number of Failing Intersections**

	No Build	Alt 1	Alt 2	Alt 3
AM	5	3	6	6
PM	8	6	6	9

**Automobile Intersection Delay
Average**

	No Build	Alt 1	Alt 2	Alt 3
AM	41.0	35.6	39.7	46.2
PM	43.7	39.9	42.6	51.5



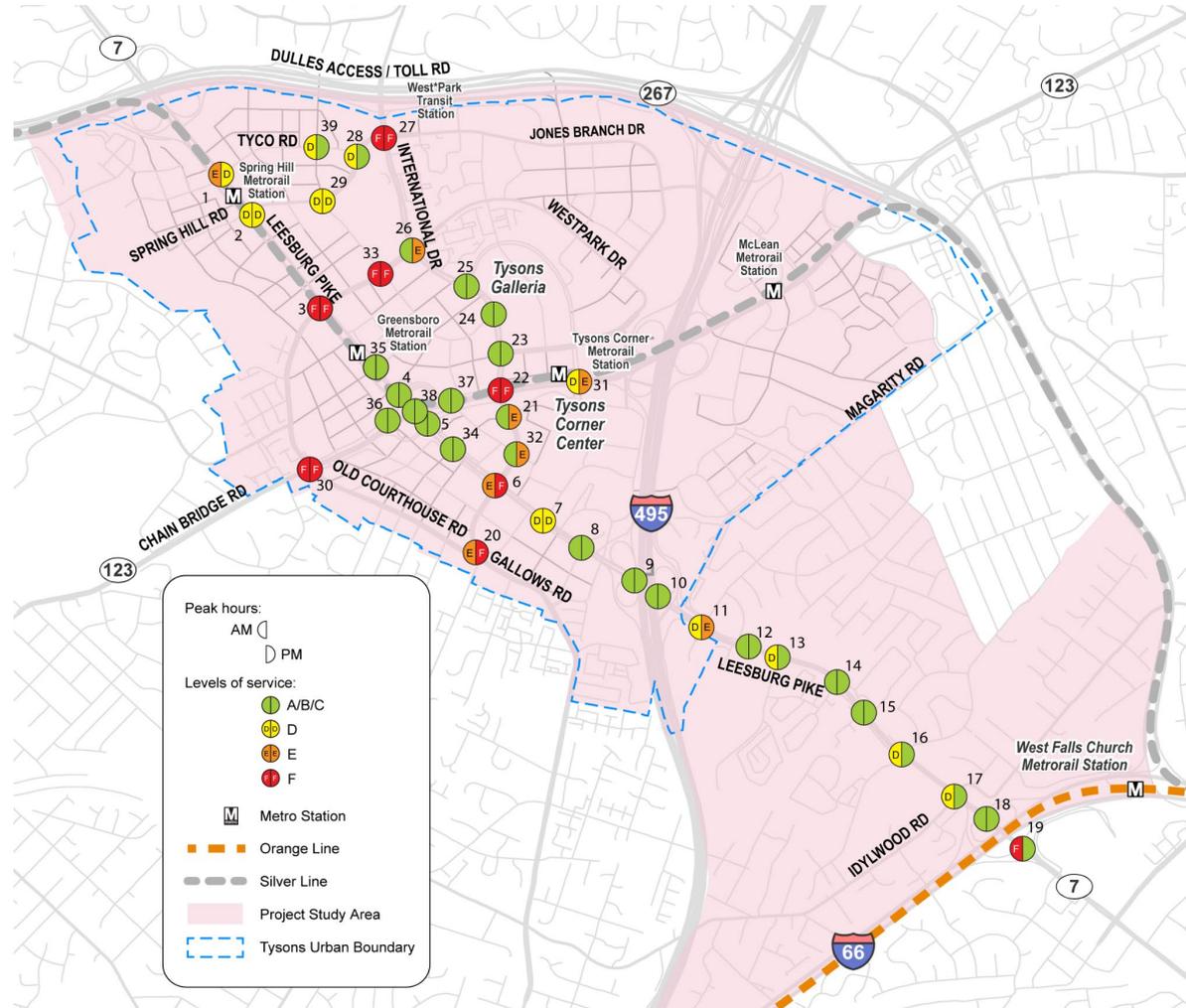


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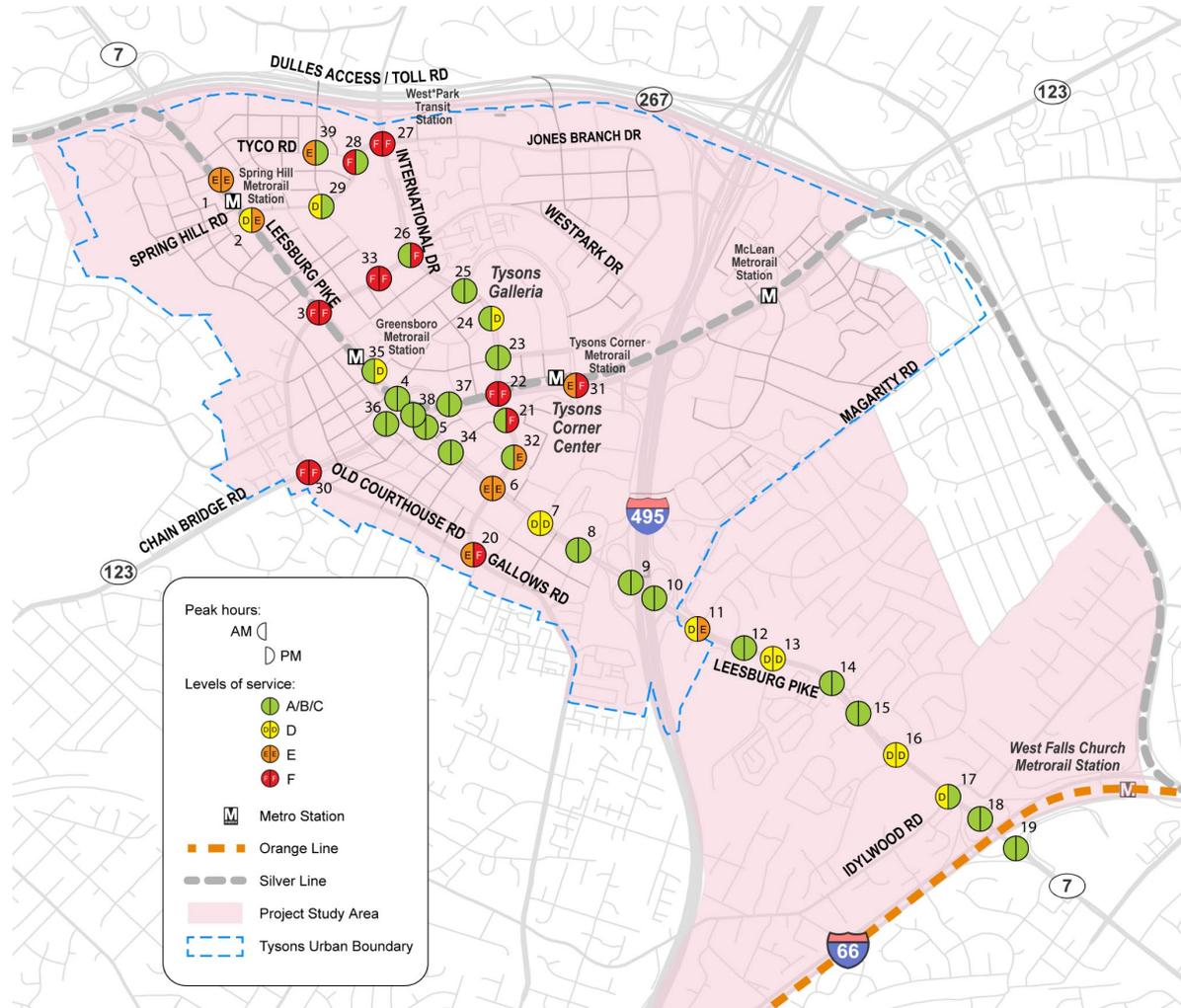


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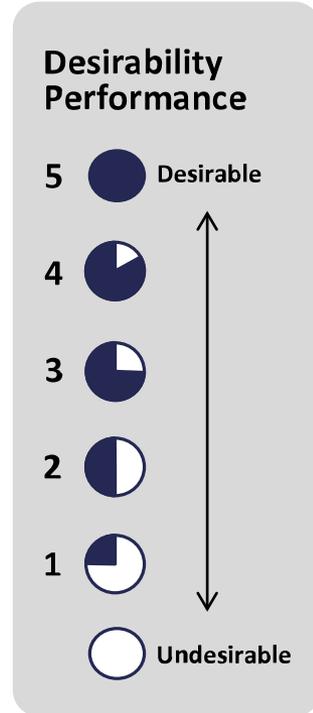
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Measure of Effectiveness	Alternatives		
	Alternative 1 International Dr	Alternative 2 Tysons Corner Metro	Alternative 3 Route 7
Goal: Access and Mobility – Provide choices through accessible transit service			
Objective: Serve population, employment, and activity centers with BRT			
Demographics (HH, Pop, Emp)	5	1	3
Goal: Transportation Network Performance – Ensure efficient movement of people and goods			
Objective: Improve Transit Operations in Corridor			
BRT Ridership	4	2	5
Local Bus Travel Speed in Study Area	2	2	2
BRT Reliability 95th Percentile Travel Times	3	5	2
Average Automobile Travel Speed	5	3	1
Automobile Intersection Delay	5	3	1
Pedestrian Crossing Times	3	3	2



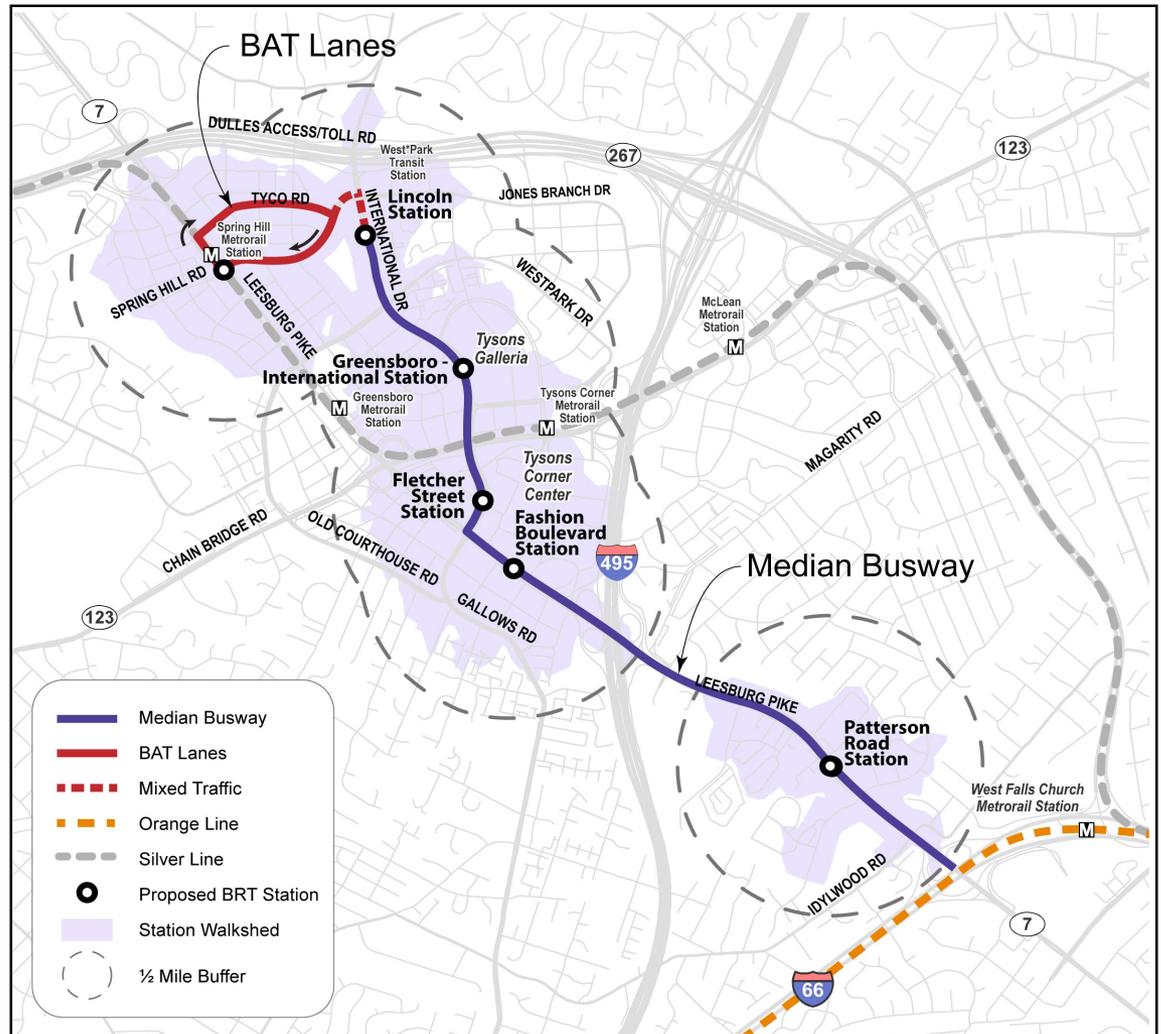


PREFERRED ALTERNATIVE



Alternative 1: International Drive to Spring Hill Metro

- Serves more people, jobs, and households in Tysons
- Creates a more robust transit network within Tysons
- Minimizes negative impact on the transportation network in study area





What comes next?

- **Public Survey (open to April 14)**
<https://www.surveymonkey.com/r/TysonsBRT>
- **Final Report Spring/Summer 2021**
- **NVTC Envision Route 7 Phase IV starts this Summer 2021**
 - **Transportation analysis for the Falls Church (I-66 to Mark Center)**





Questions/Comments