



# 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



## WHAT IS BUS RAPID TRANSIT?

*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



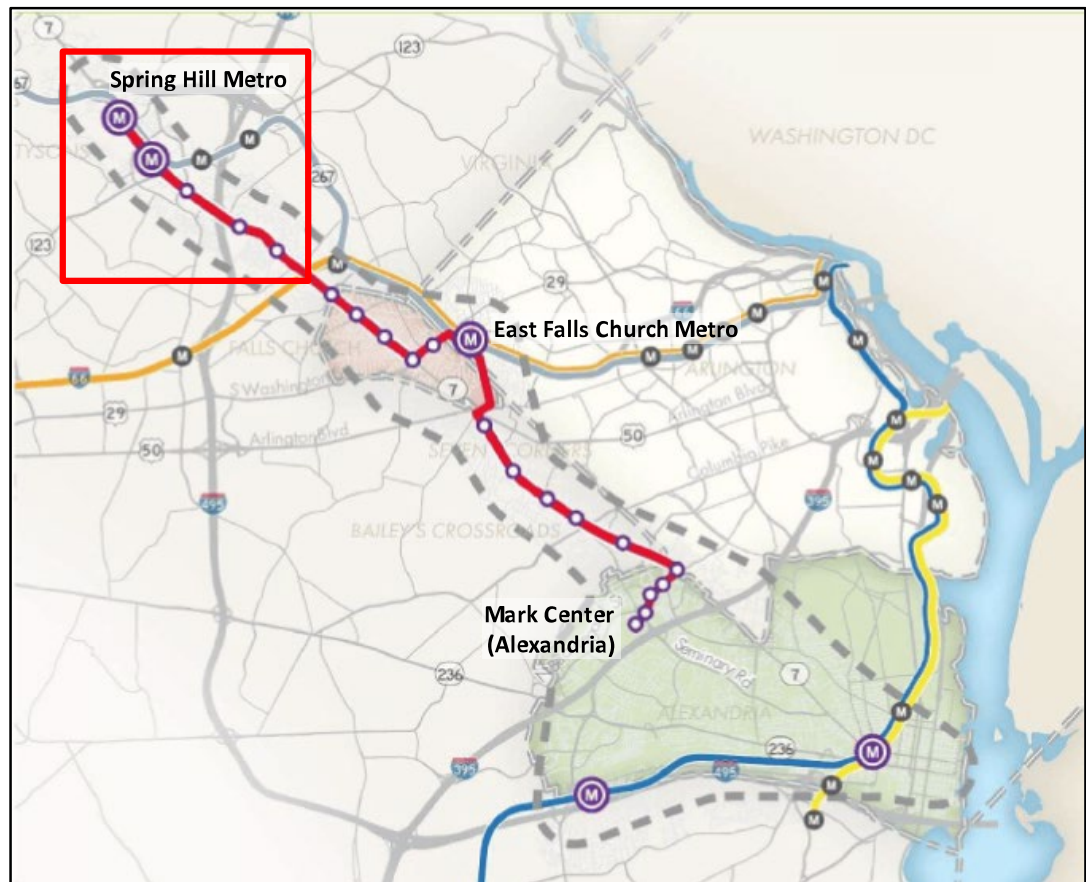
UVX – Provo, UT



*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*



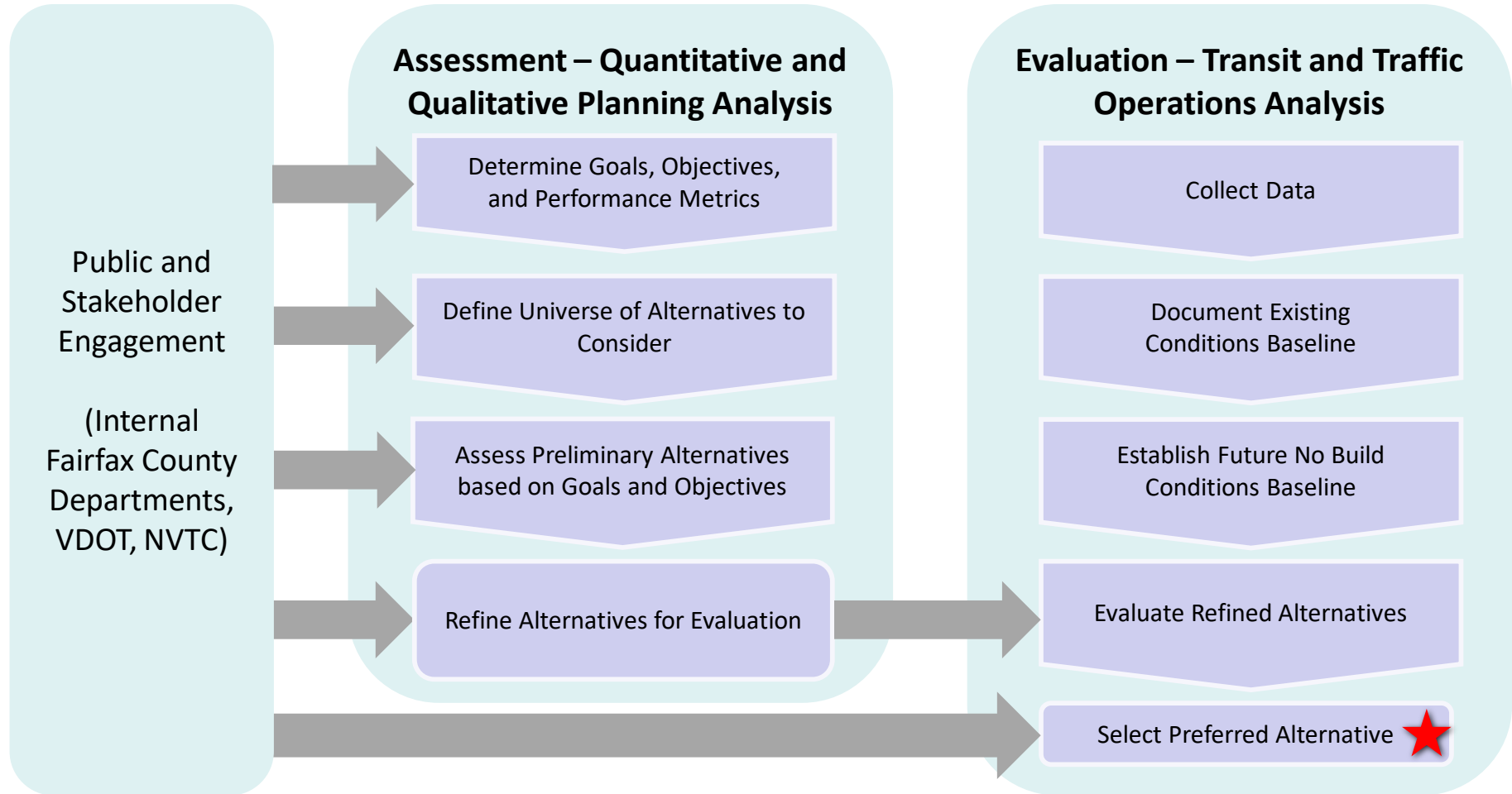


*This County study will refine the work done by NVTC and determine:*

- **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

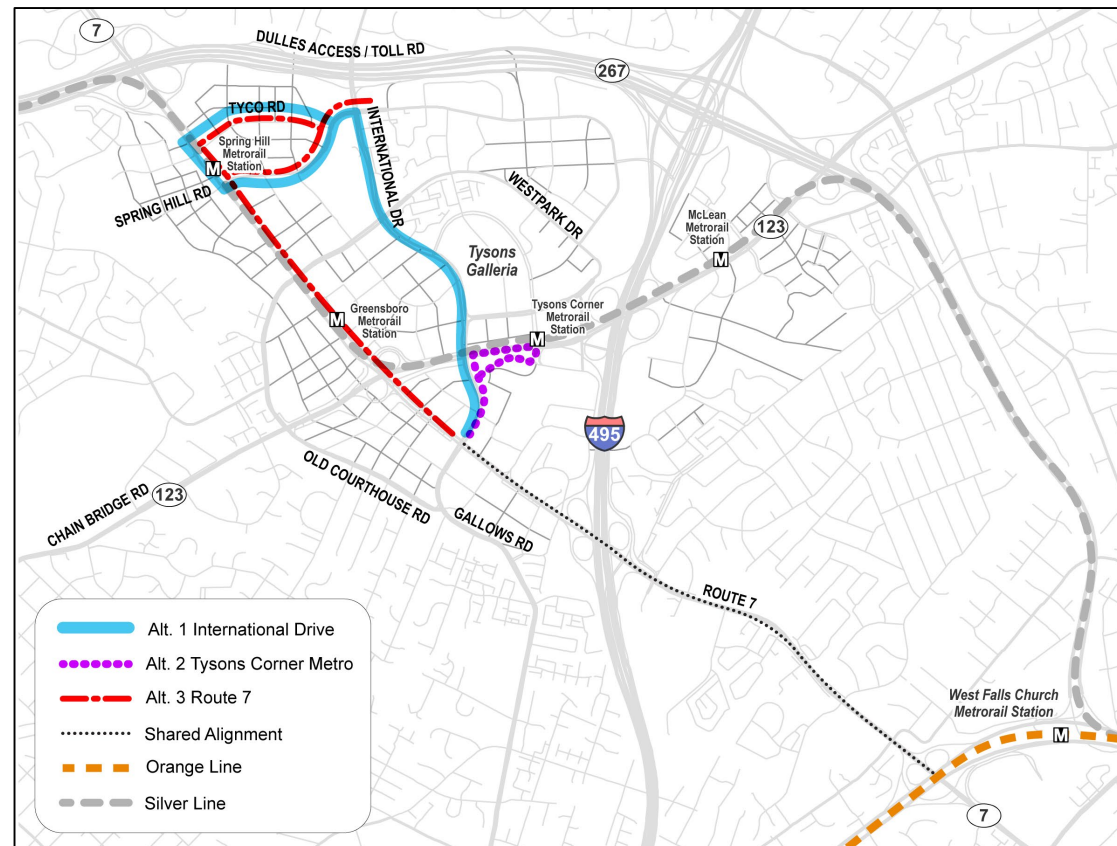


## *Nine Preliminary Alternatives culled down to three Final Alternatives for Evaluation:*

- 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





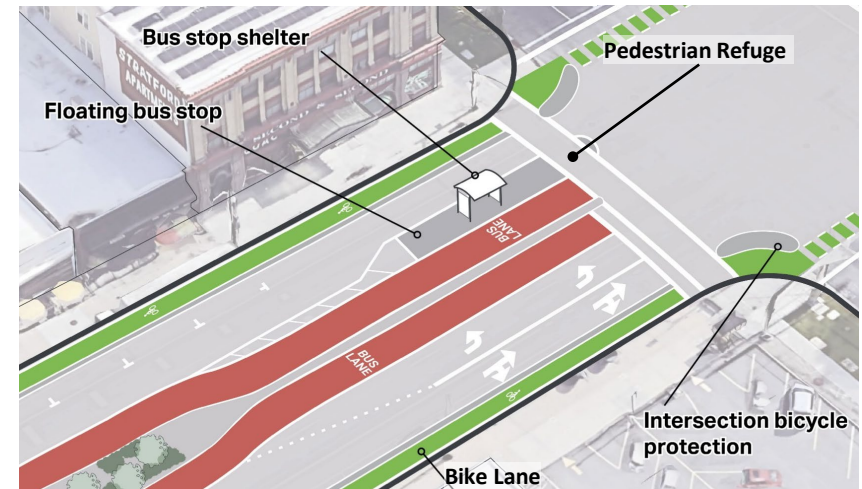
## *Bicycle and Pedestrian Facilities*

- 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

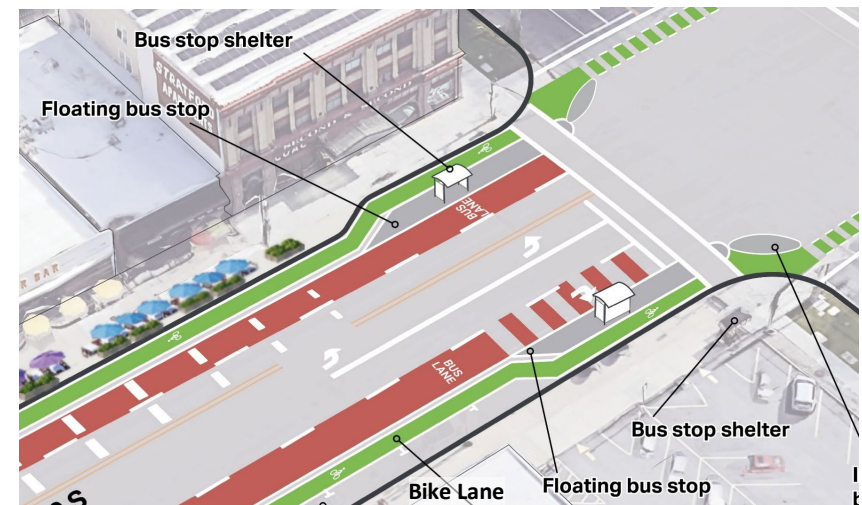
## *Median vs. Curb-Running Transit*

- 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*



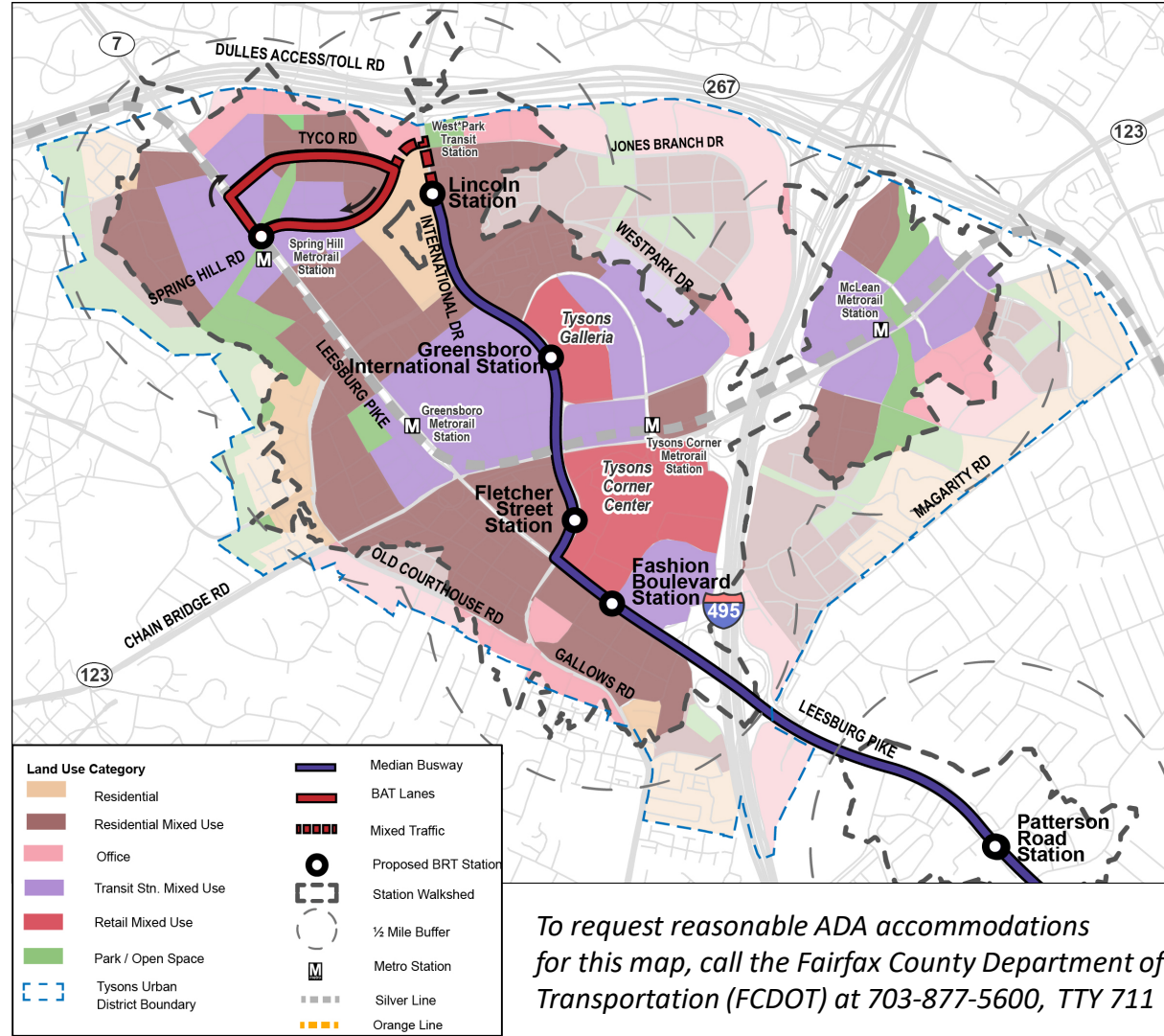
*Curb-Running BAT Lane with Bicycle Lane*





### 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



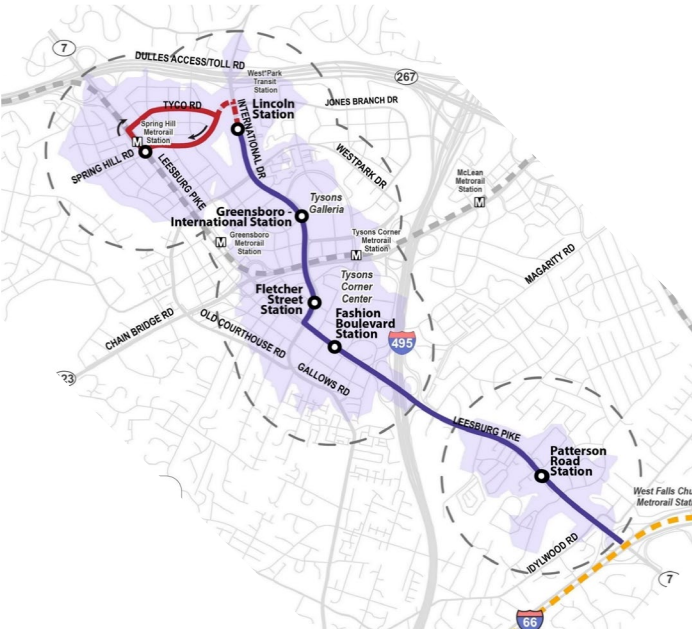
*To request reasonable ADA accommodations for this map, call the Fairfax County Department of Transportation (FCDOT) at 703-877-5600, TTY 711*



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

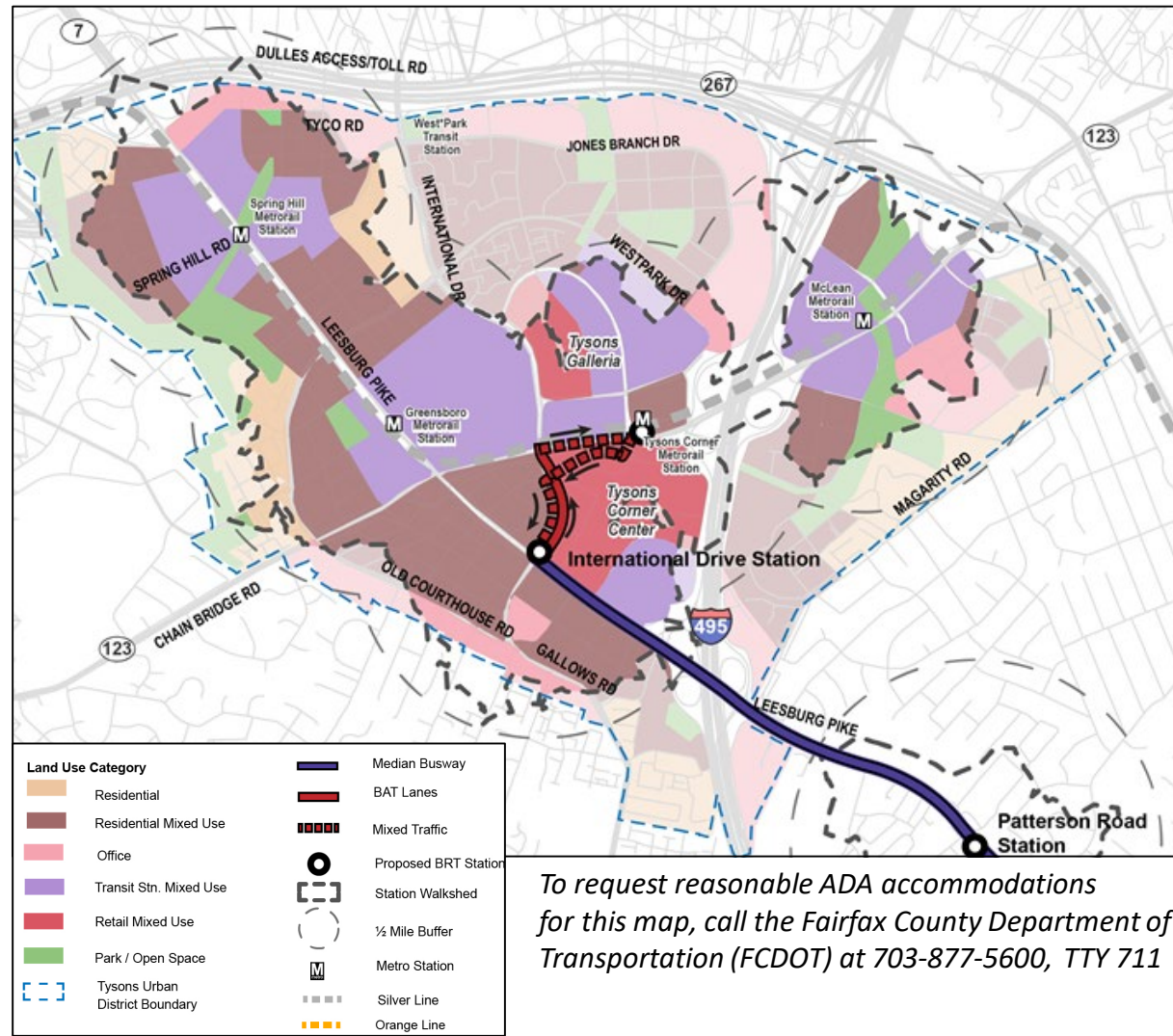






### Tysons Corner Metro

- 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

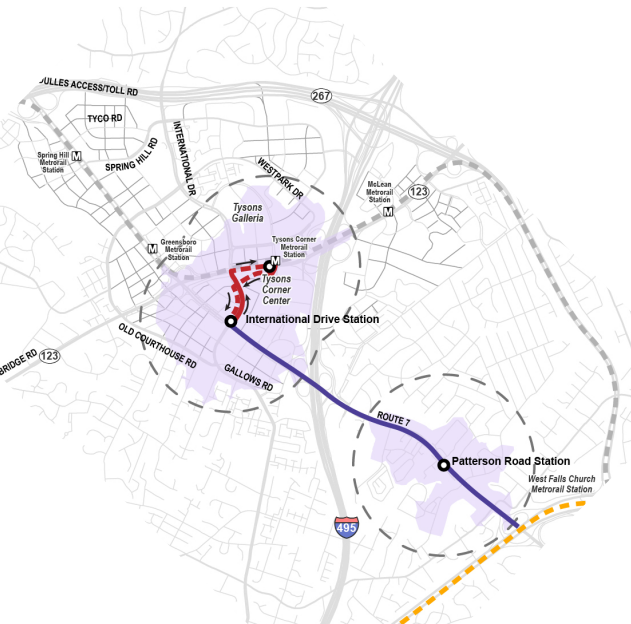


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*Cross Section:*

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



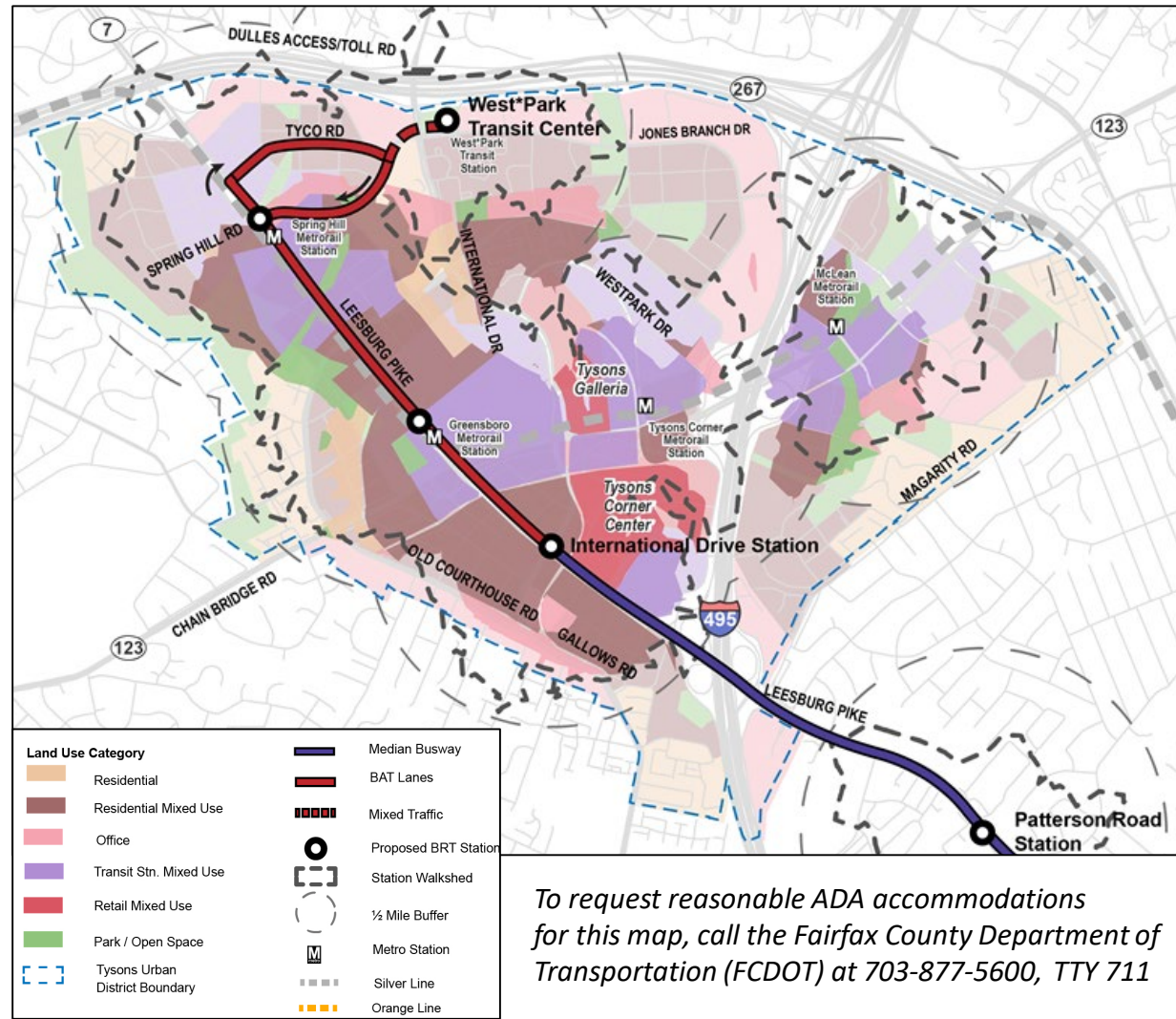
Street Name and Section	Description
Chain Bridge Road	Four general traffic lanes in each direction; BRT operates in mixed traffic in the EB direction to bus loop
Tysons One Place	One general traffic lane in each direction; BRT operates in mixed traffic in the WB direction
International Drive – Route 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

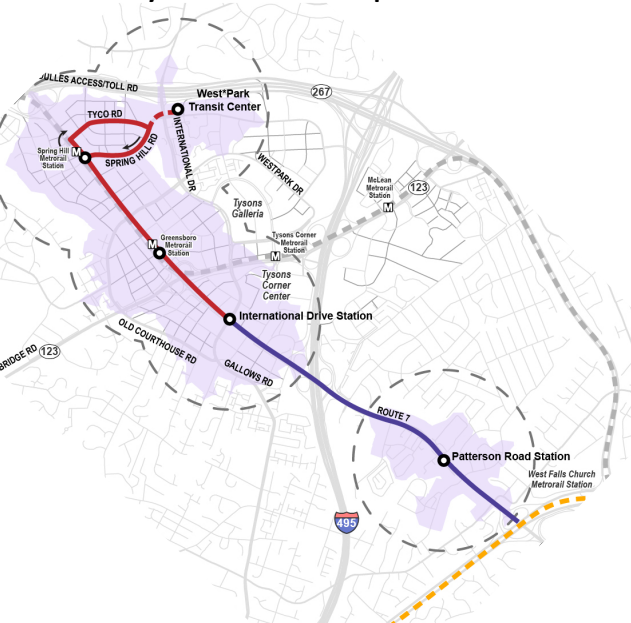


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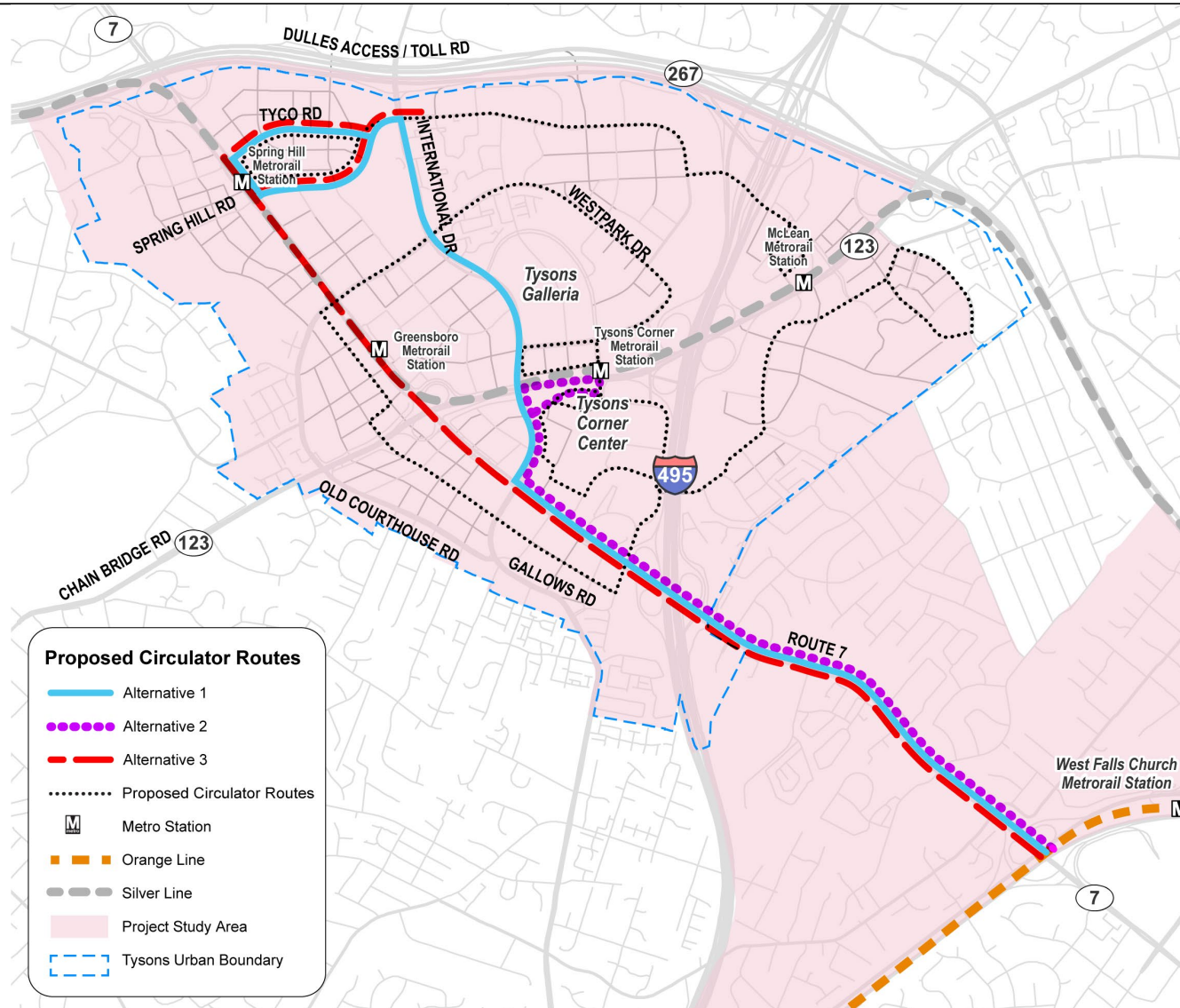


*Cross Section:*

- 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



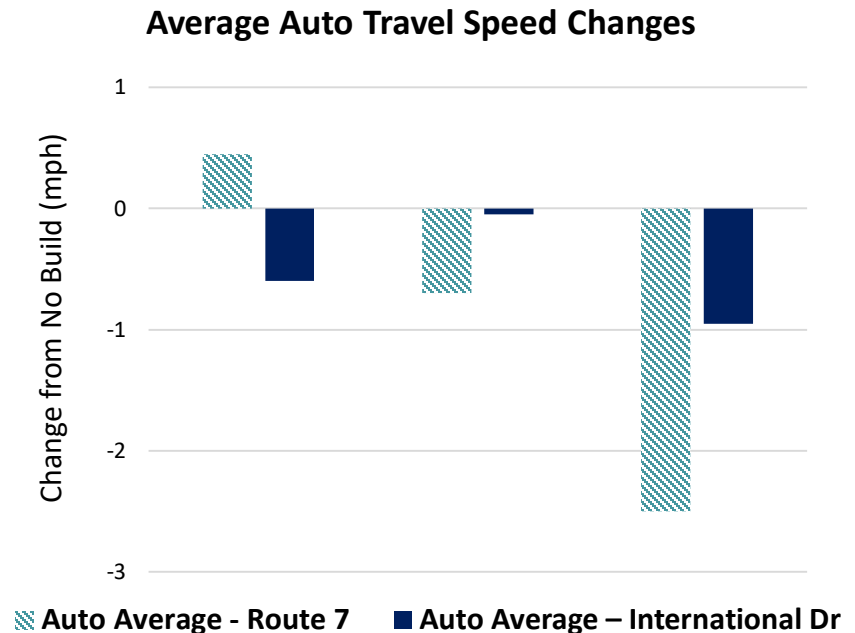
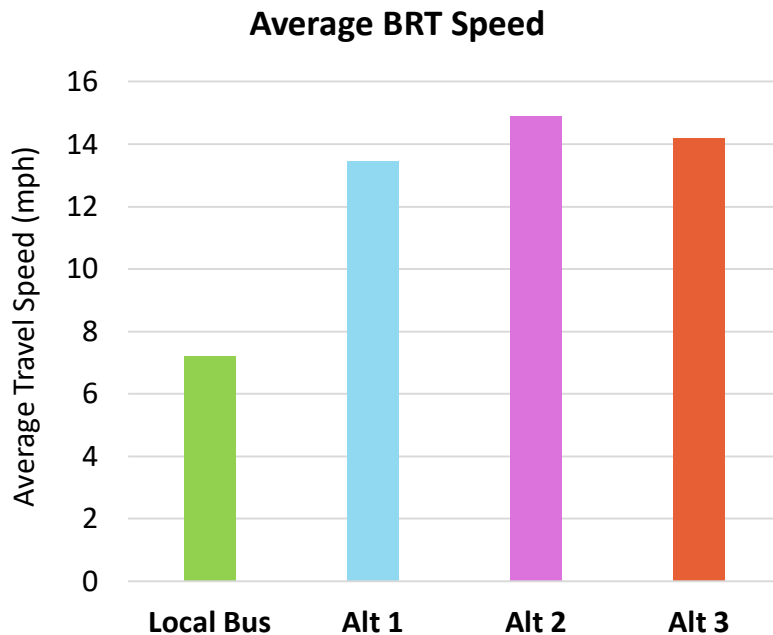
Street Name and Section	Description
<b>Tyco Road</b>	Northbound BAT lane and two general traffic lanes in each direction
<b>Spring Hill Road</b>	Southbound BAT lane and two general traffic lanes in each direction
<b>Route 7 – Spring Hill road to International Drive</b>	Curb BAT lanes and three general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





## Average Travel Speeds (mph)

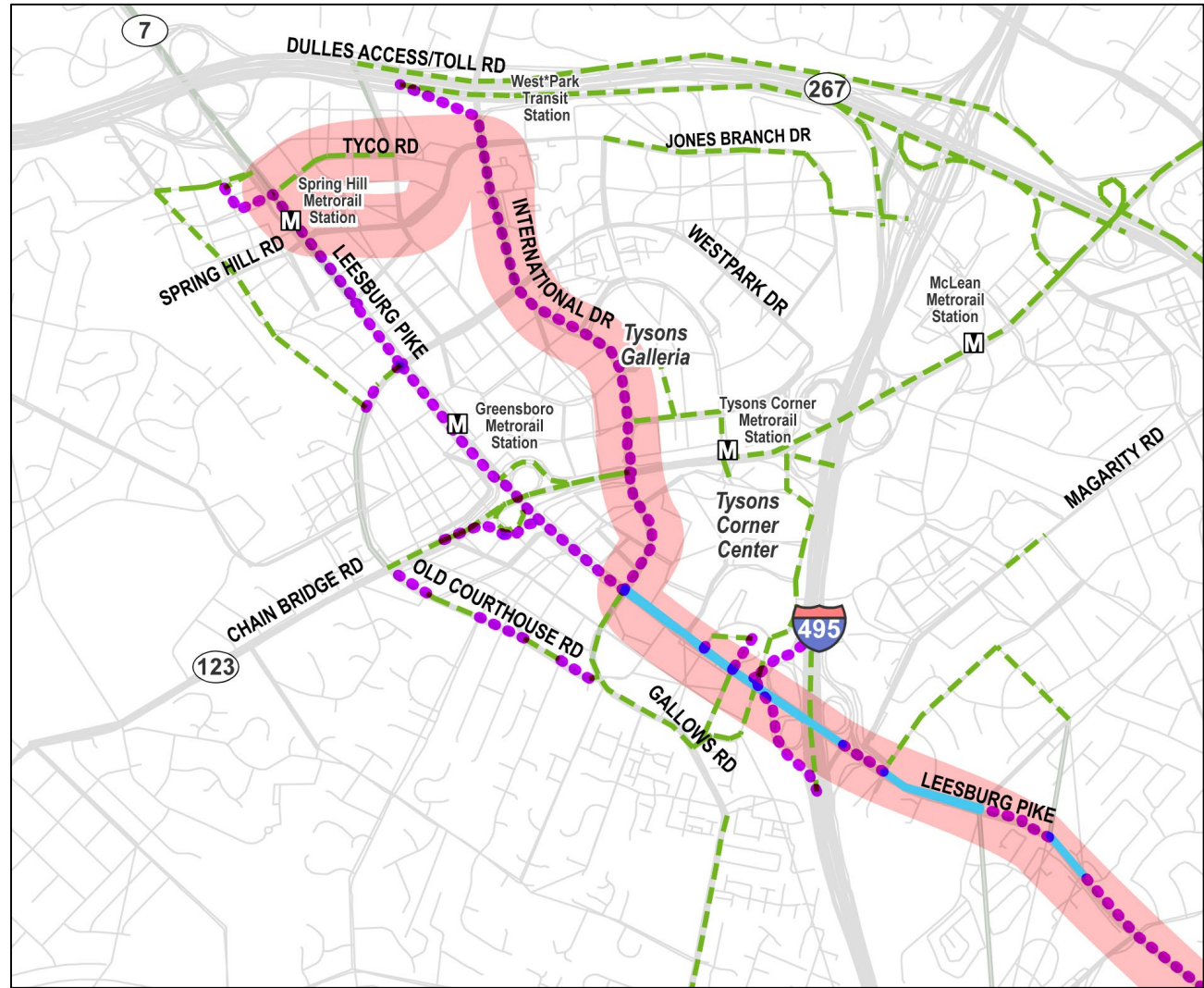
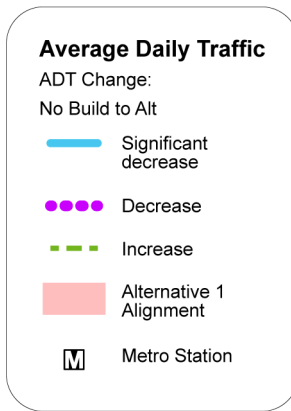
- BRT speeds exceed local bus speeds
- BRT on International Drive (Alt 1) has the least amount of impact to travel corridors
- BRT on Route 7 (Alt 3) has the most impacts to travel corridors







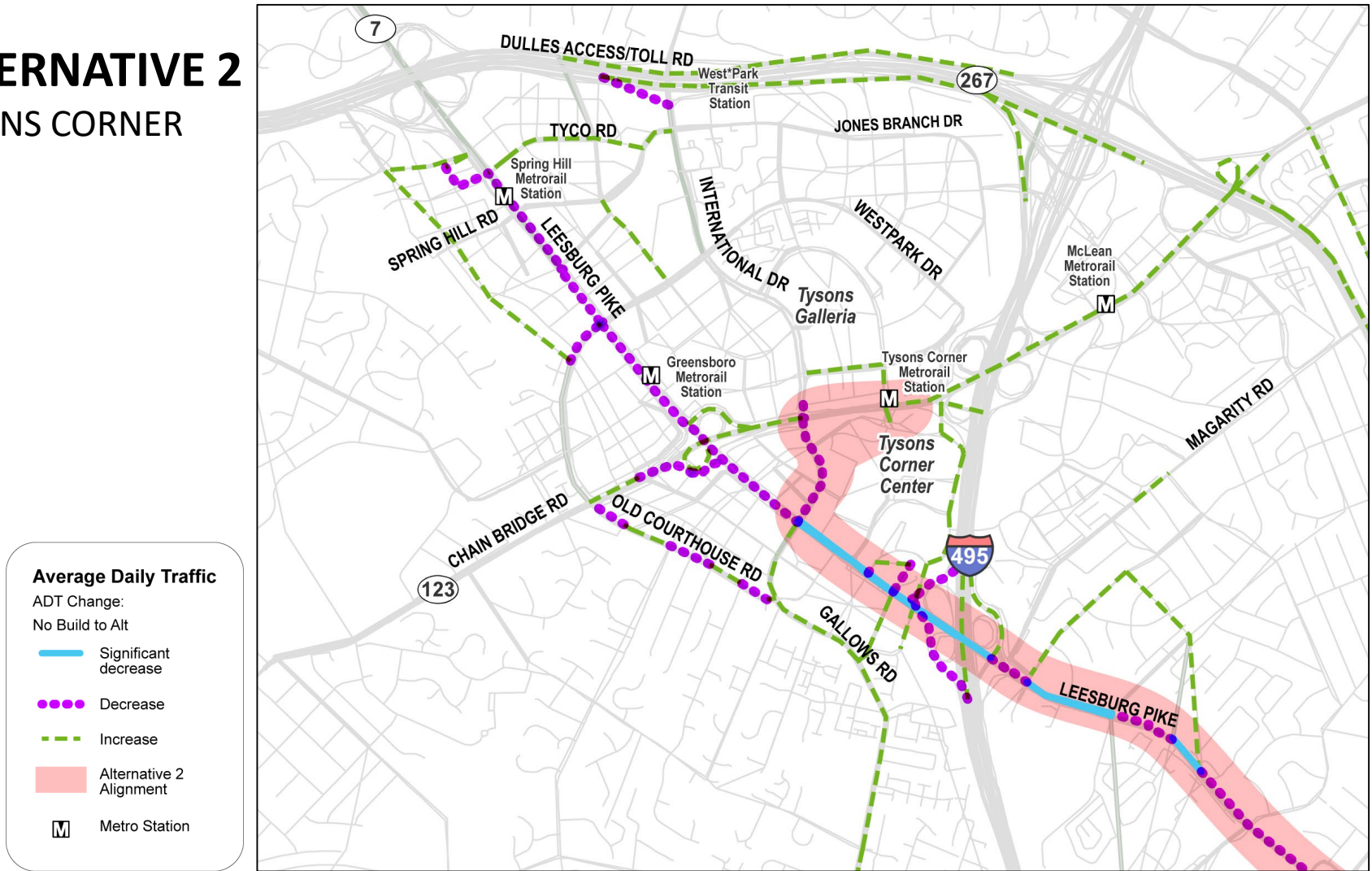
## ALTERNATIVE 1 INTERNATIONAL DRIVE





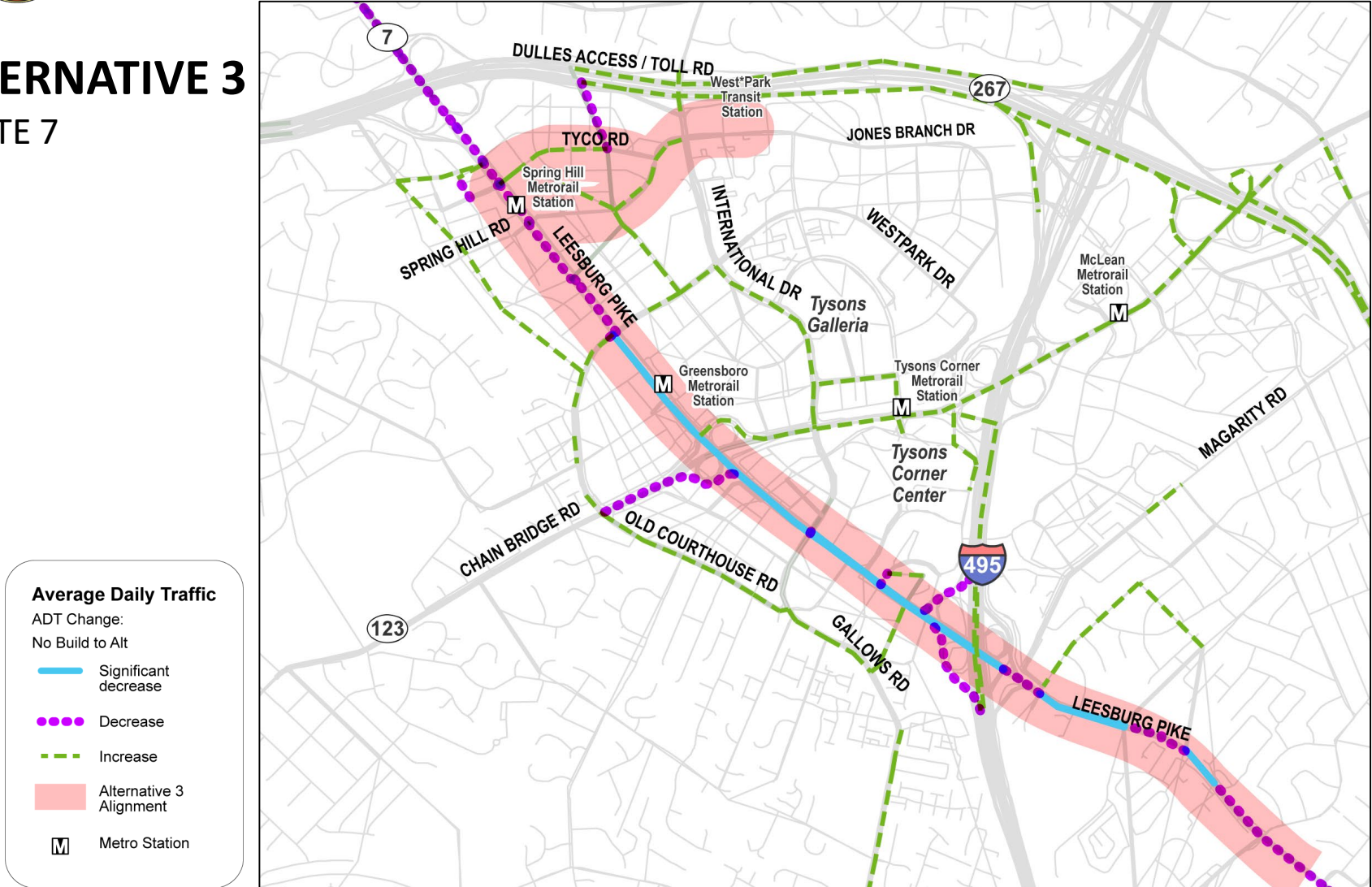


## ALTERNATIVE 2 TYSONS CORNER





## ALTERNATIVE 3 ROUTE 7



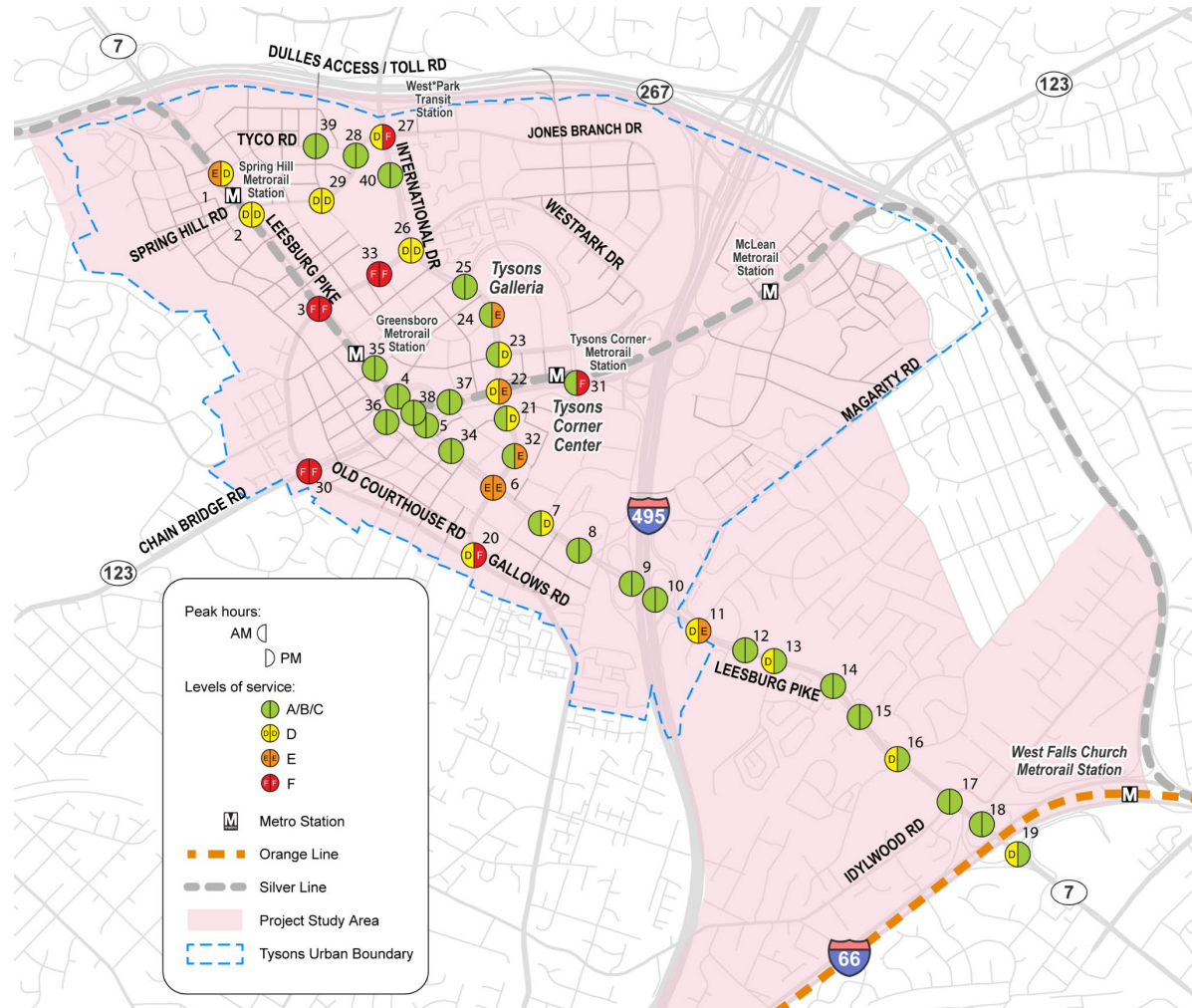


## Automobile Intersection LOS Number of Failing Intersections

	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





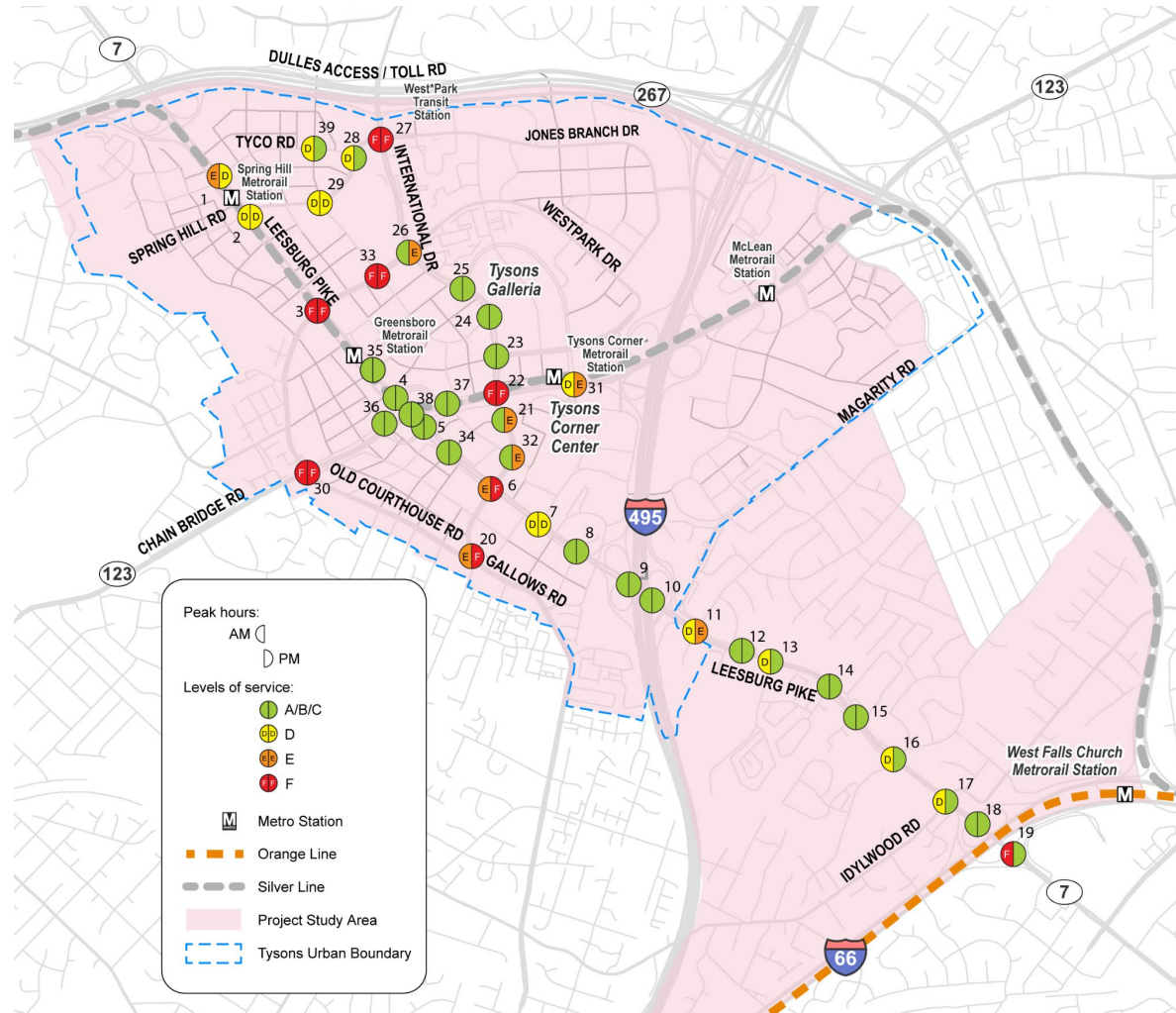


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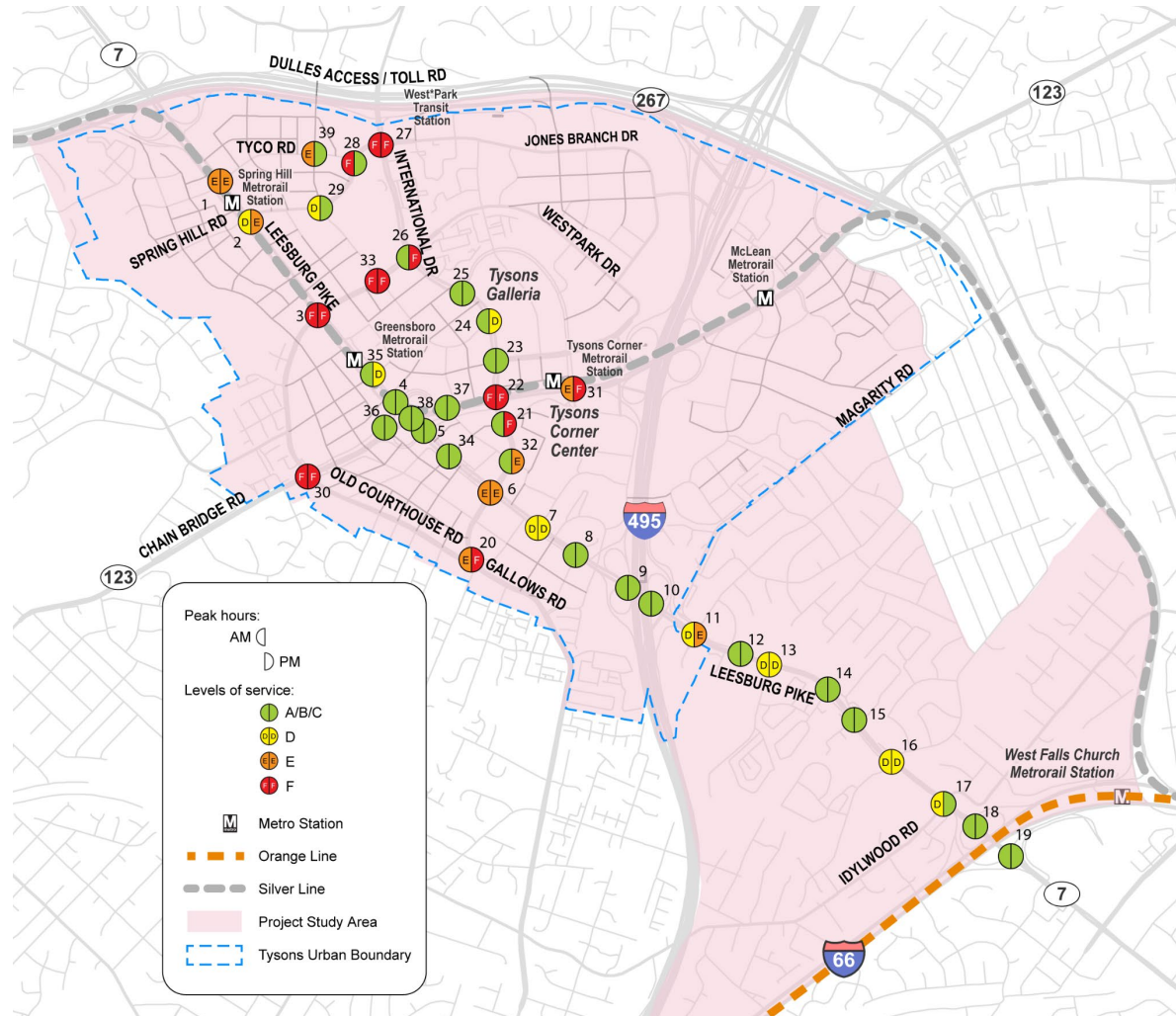


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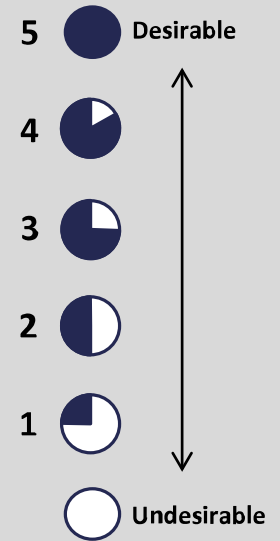






Measure of Effectiveness	Alternatives		
	Alternative 1 International Dr	Alternative 2 Tysons Corner Metro	Alternative 3 Route 7
<b>Goal: Access and Mobility – Provide choices through accessible transit service</b>			
Objective: Serve population, employment, and activity centers with BRT			
Demographics (HH, Pop, Emp)	5	1	3
<b>Goal: Transportation Network Performance – Ensure efficient movement of people and goods</b>			
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

## Desirability Performance



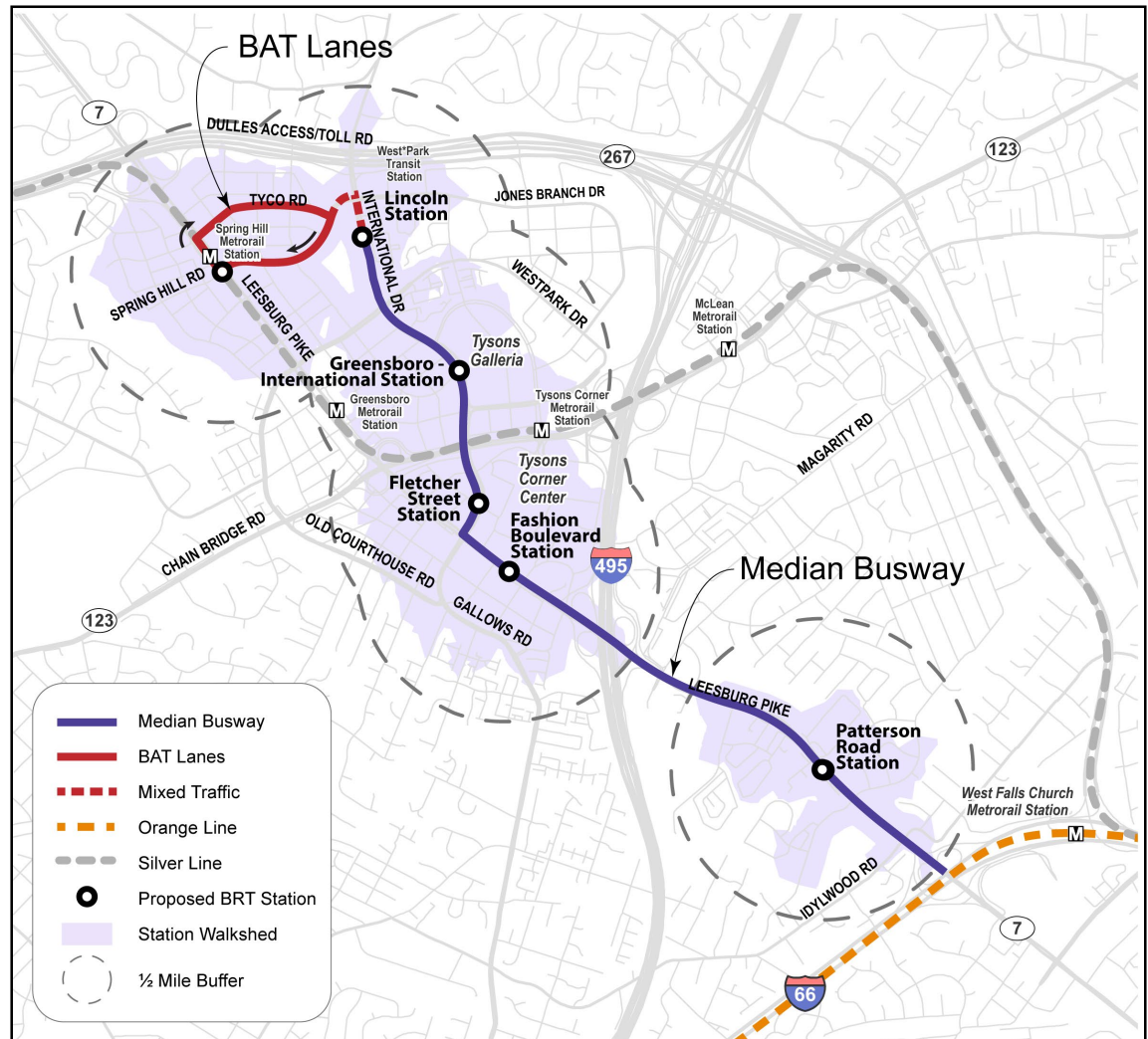


# PREFERRED ALTERNATIVE



## 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