Montgomery County
RAPID TRANSIT
MD 586

Veirs Mill Road BRT Study
TPB Regional Public Transportation Subcommittee
November 22, 2016

Maryland Department of Transportation
MCDOT
Montgomery County Department of Transportation

Agenda

- Purpose and Need
- Existing Conditions
- Transit Project Planning Process
- Alternatives Retained for Detailed Study (ARDS)
- Alternatives Comparison Matrix
- Next Steps

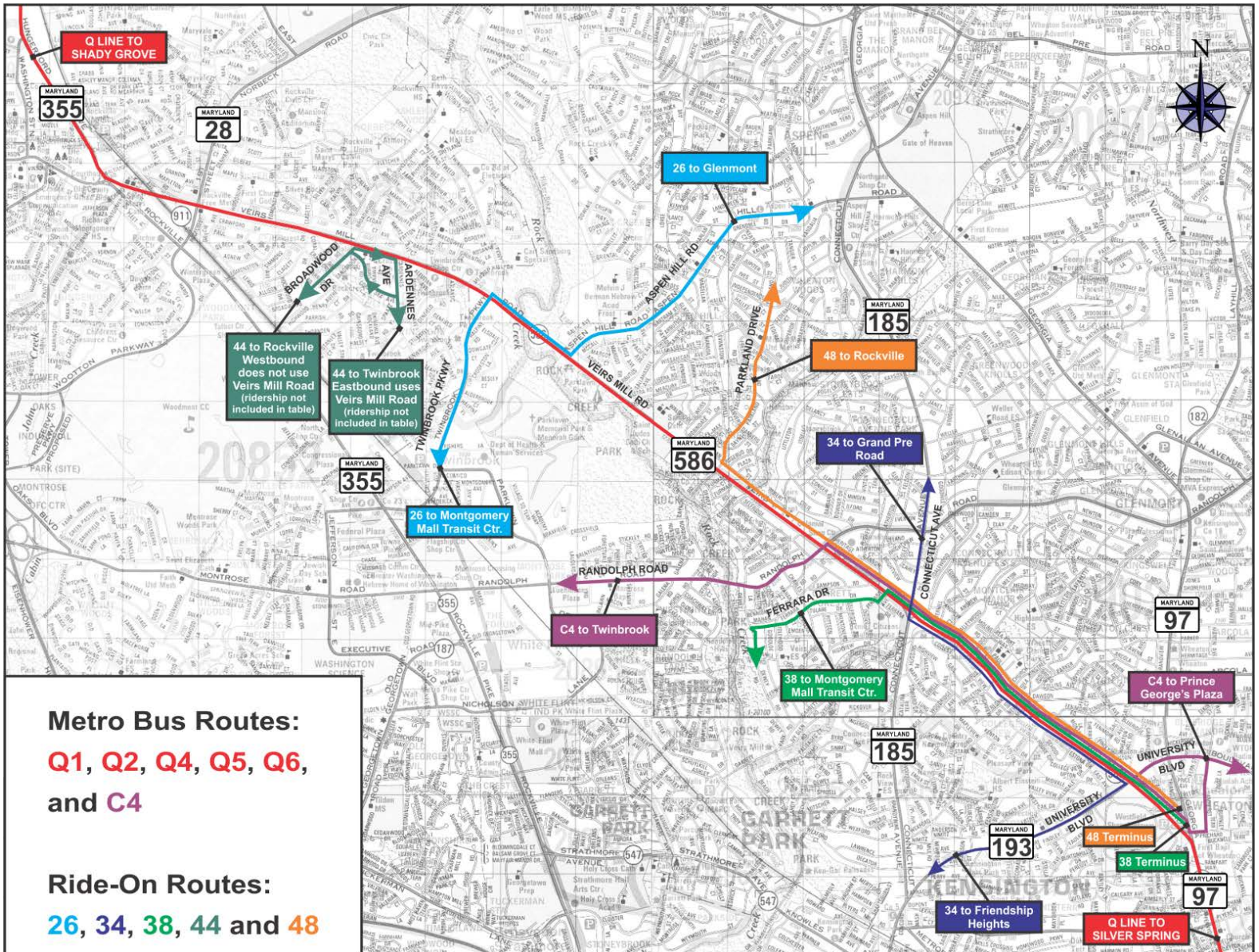
Purpose and Need

- Purpose: To provide a new high-speed, high-efficiency bus line along Veirs Mill Road between Rockville Metrorail Station and Wheaton Metrorail Station
- Four specific needs for the project were identified:
  - System Connectivity
  - Mobility
  - Transit Demand/Attractiveness
  - Livability

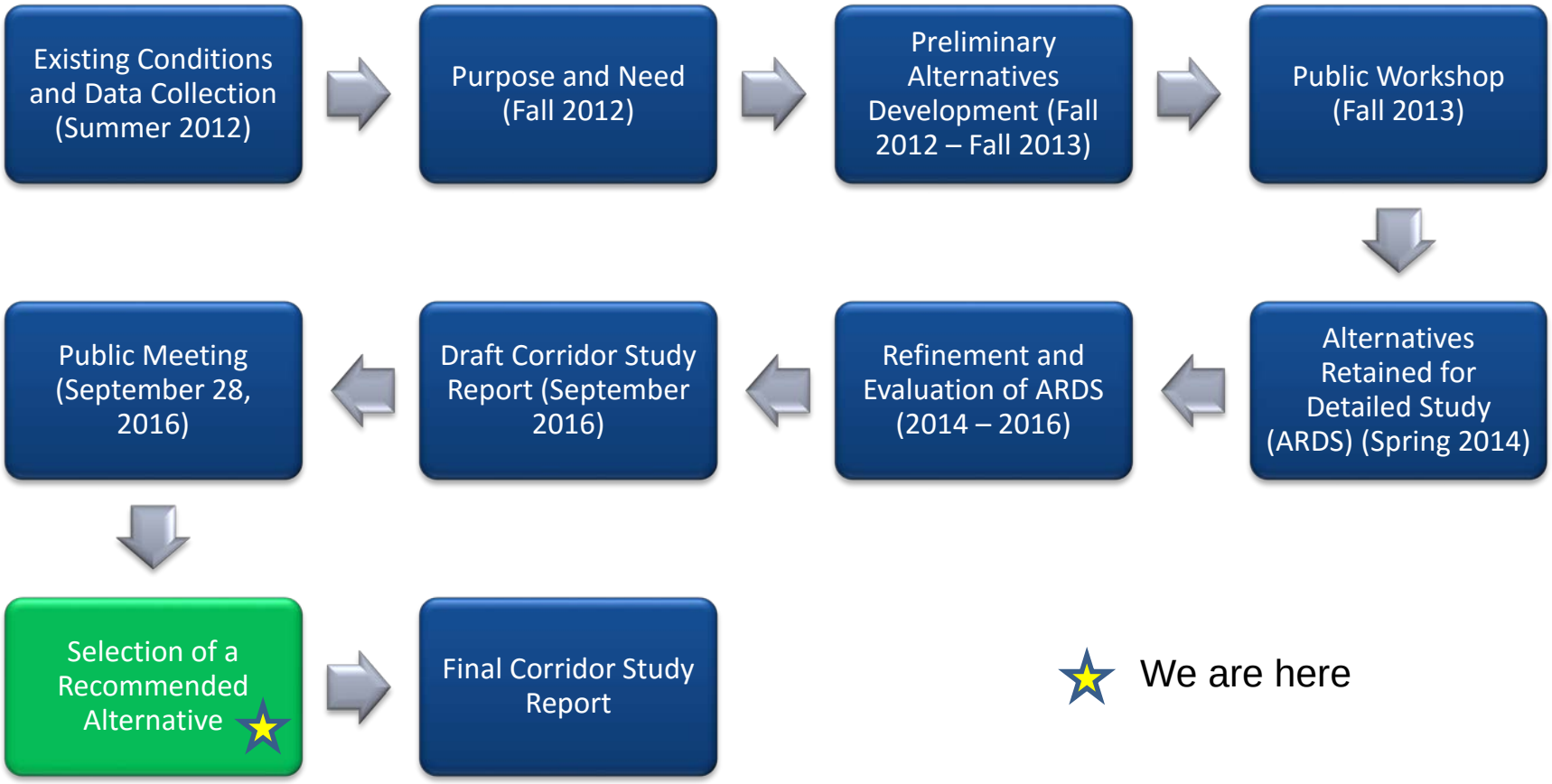
Existing Roadway Conditions

- 6.7-mile corridor
- Functional classification: Other principal arterial
- Number of lanes: varies from 4 to 6
- 16 different typical sections
- Intersections:
  - 20 signalized
  - 26 unsignalized intersections and numerous driveways
- Metrobus and Ride On bus service
- Service roads along much of the corridor
- Sidewalks typically present with some gaps but no designated bicycle facilities

Existing Bus Service (WMATA and Ride On)



Transit Project Planning Process



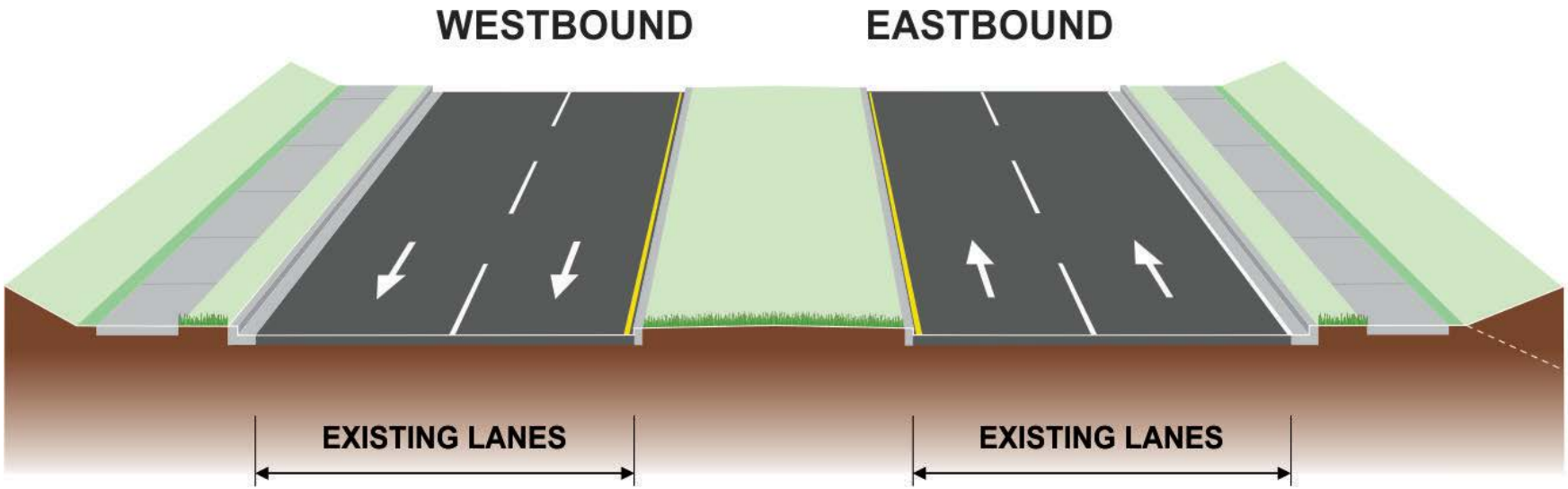
Alternatives Retained for Detailed Study

- Alternative 1: No-Build
- Alternative 2: Enhanced bus service with infrastructure improvements*
- Alternative 3: New BRT service in dedicated curb lanes (where feasible)
- Alternative 5B: New BRT service in one bi-directional median lane or two dedicated median lanes

*Infrastructure improvements include queue jump lanes, transit signal priority (TSP), and bus stop upgrades

Alternative 1 (No-Build)

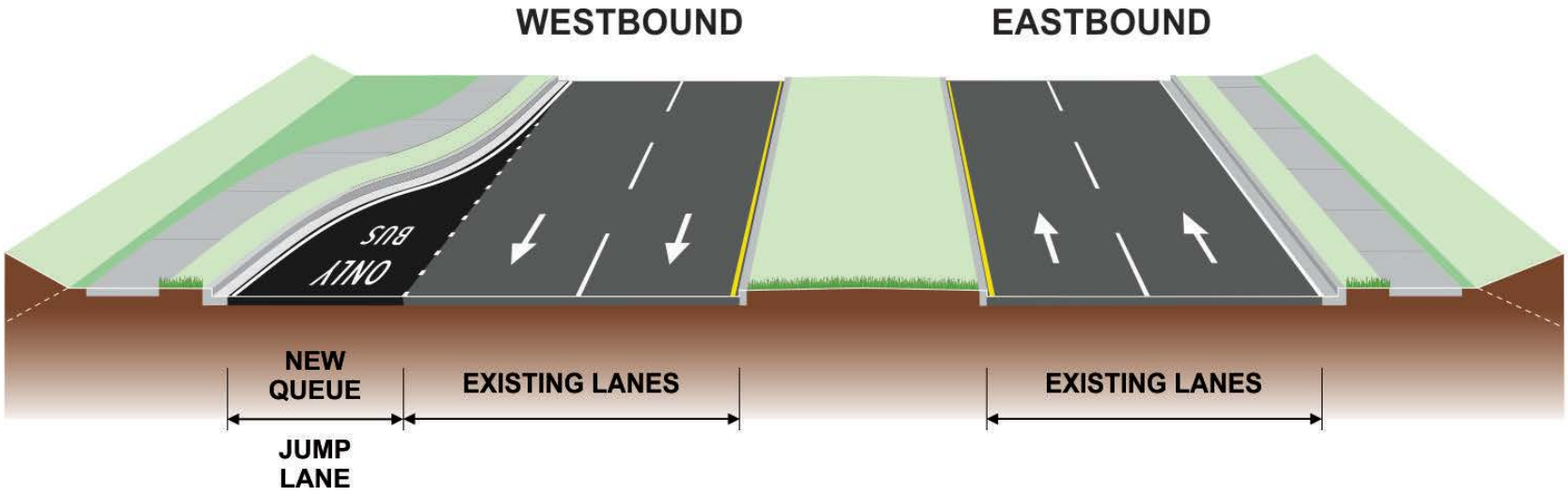
- Runningway: existing lanes in mixed traffic
- Service: existing local bus service
- Includes any projects already included in the CLRP



*This typical section is for an existing four-lane section. The number of lanes in Alternative 1 would match the existing conditions.

Alternative 2

- Runningway: Add queue jumps at select intersections; use existing lanes with mixed traffic otherwise; no change to service roads
- Service: Similar to WMATA's proposed Q9 express bus service
- Add Transit Signal Priority (TSP) at select locations and optimize signals
- Upgrade existing bus stops
- No change to service roads

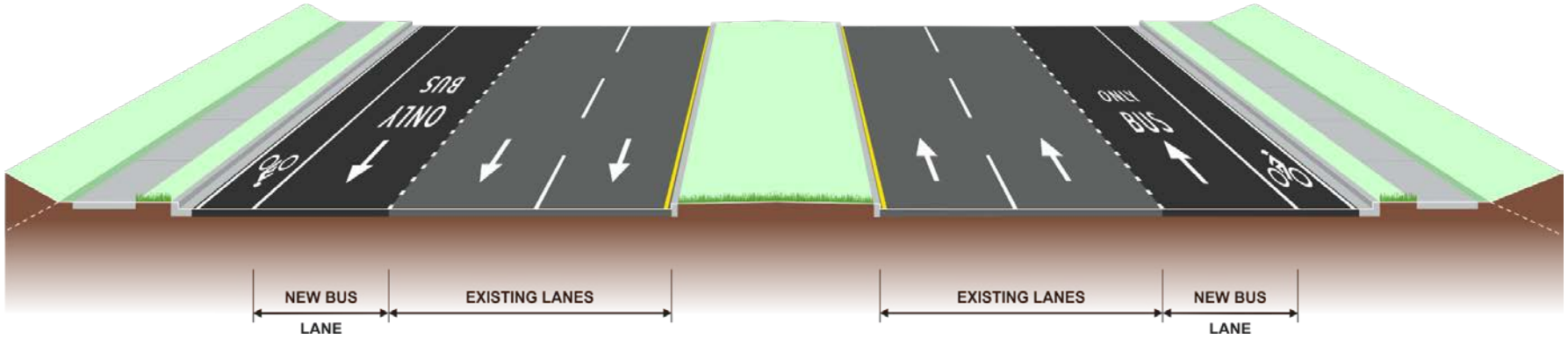


Service Characteristics – Alternative 2

- Overview
  - New express bus limited service
  - 12 stops
  - Existing local service – continue with 43 stops
- Wheaton Metro station to Rockville Metro station
  - 12 minute headways (peak)
  - 15 minute headways (off-peak)
  - Span of service: 6 AM to Midnight
- Rockville Metro Station to Montgomery College
  - 36 minute headways (peak)
  - 45 minute headways (off-peak)
  - Span of service: 8 AM to 10 PM

Alternative 3

- Runningway: Curb-running dedicated lanes where feasible; existing lanes in mixed traffic otherwise; no change to service roads
- Service: New BRT service
- Constructs additional dedicated lanes where there would be minimal impacts on existing properties
- Constructs new BRT stations
- Provides bike lanes where feasible
- No change to service roads

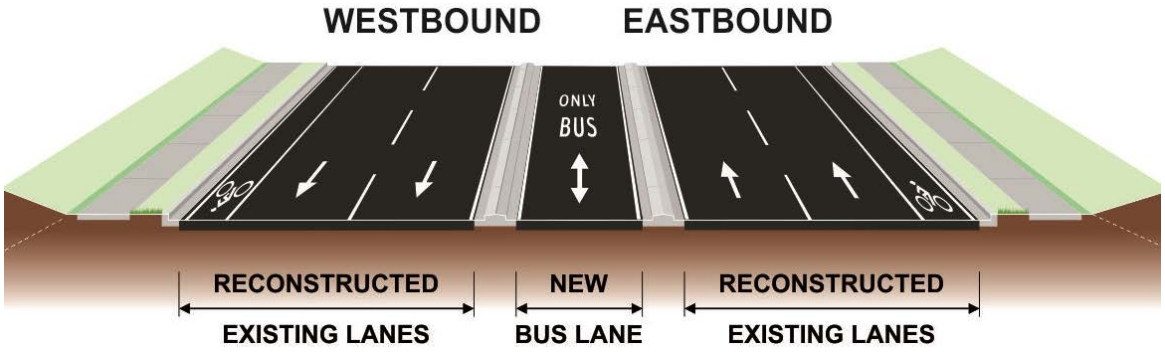


Alternative 5B

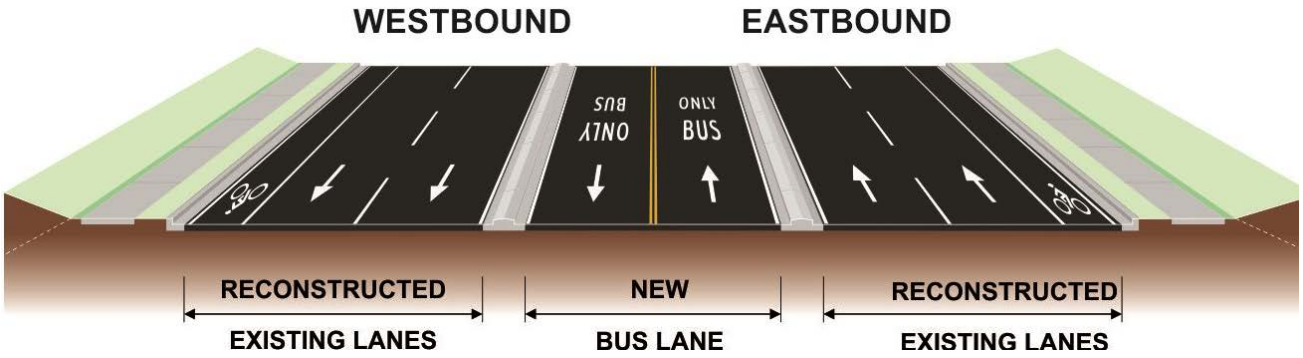
- Runningway: New dedicated BRT lane(s) in median for two-way travel
  - Provide two-way travel in one or two new dedicated lanes
  - One-lane, median-running dedicated lane in both directions – buses pass each other at stations
  - Two dedicated lanes provided where feasible
  - Requires tight BRT operational schedule
- Service: New BRT service
- Constructs new BRT stations
- Provides bike lanes where feasible
- No change to service roads

Alternative 5B

Bi-directional Median



Two-lane Median



- BRT buses would use the median lane(s)
- Local buses would use the curb lanes
- Prohibits unsignalized left turns

Service Characteristics – Alternatives 3 & 5B

- Overview
  - New BRT service
  - 12 stations (curbside and/or median)
  - Existing local service – continue with 43 stops
- Wheaton Metro station to Rockville Metro station
  - 6 minute headways (peak)
  - 10 minute headways (off-peak)
  - Span of service: 6 AM to Midnight
- Rockville Metro Station to Montgomery College
  - 18 minute headways (peak)
  - 30 minute headways (off-peak)
  - Span of service: 8 AM to 10 PM

Station Locations

- Current station locations
  - Montgomery College
  - Rockville Metrorail Station
  - First Street (MD 28)
  - Broadwood Drive
  - Twinbrook Parkway
  - Aspen Hill Road
  - Parkland Drive
  - Randolph Road
  - Connecticut Avenue (MD 185)
  - Newport Mill Road
  - University Boulevard (MD 193)
  - Wheaton Metrorail Station

- Other possible station locations
  - Edmonston Drive
  - Atlantic Avenue (project team recommends a station at Atlantic Avenue based on public comments and discussions with the City)
  - Robindale Drive

Metroway BRT in Alexandria, VA

Photo credit: National Association of City Transportation Officials

Alternatives Comparison Matrix

- Expected ridership
- Travel times
- Costs
- Environmental impacts

Expected Ridership (2040)

	Alt. 1 (No-Build)	Alt. 2	Alt. 3	Alt. 5B
Total Daily BRT/Enhanced Bus Service Boardings	N/A	2,600	6,400	7,300
Total Daily Transit Boardings in Study Area	32,300	33,400	35,000	35,300
New Transit Riders	N/A	1,100	2,700	3,000

Key Points:

- The number of daily BRT boardings in the median BRT alternative (5B) is 14% higher than the curb-running alternative (3), and nearly three times higher than in Alternative 2
- All 3 build alternatives increase transit ridership in the corridor
- All 3 build alternatives attract “new” transit riders
- The build alternatives would provide a higher-quality service for the many transit riders along the corridor

Peak Hour (4-5 PM) Travel Time in Minutes Between Rockville and Wheaton (2040)

		Existing	Alt. 1 (No-Build)	Alt. 2	Alt. 3	Alt. 5B
Eastbound	Enhanced bus/BRT	N/A	N/A	24.9	25.3	23.7
	Local Buses	33.5	40.4	32.7	30.4	33.8
	Automobiles	19.2	27.9	22.3	20.2	22.1
Westbound	Enhanced bus/BRT	N/A	N/A	22.3	25.7	24.6
	Local Buses	28.4	32.9	29.1	29.0	34.6
	Automobiles	16.4	24.4	18.6	20.2	23.6

Key Point:

- Travel times for the proposed BRT are lower than the No-Build local buses

Peak Hour (7-8 AM) Travel Time in Minutes Between Rockville and Wheaton (2040)

		Existing	Alt. 1 (No-Build)	Alt. 2	Alt. 3	Alt. 5B
Eastbound	Enhanced bus/BRT	N/A	N/A	27.9	26.2	22.8
	Local Buses	32.7	35.5	36.7	34.0	37.1
	Automobiles	17.2	22.5	20.7	21.3	22.1
Westbound	Enhanced bus/BRT	N/A	N/A	21.6	22.7	25.5
	Local Buses	29.3	29.5	28.8	29.2	32.0
	Automobiles	19.8	19.6	18.6	20.5	24.6

Key Point:

- Travel times for the proposed BRT are lower than the No-Build local buses

Costs (in millions)

	Alt. 1 (No-Build)	Alt. 2	Alt. 3	Alt. 5B
Right-of-Way (ROW)	-	$6	$13	$35
Engineering and Construction	-	$23	$119	$238
Vehicles	-	$5	$17	$17
Total Capital Cost	**-**	**$35**	**$148**	**$289**
Annual Operating Cost	-	$3	$5	$5

Key Point:

- The capital cost of the median BRT alternative (5B) is nearly double the cost of the curb-running alternative (3), and more than eight times the cost of Alternative 2

Community Impacts

	Alt. 1 (No-Build)	Alt. 2	Alt. 3	Alt. 5B
Number of Properties Impacted				
Property Impacts (greater than 0.1 acres)	-	1	4	14
Property Impacts (greater than 0.02 and less than or equal to 0.1 acres)	-	7	16	37
Property Impacts (less than or equal to 0.02 acres)	-	19	96	166
Potential Residential Relocations	-	4	7	9-17[1]
Potential Business Displacements	-	1	2	3
Public Parks Affected[2]	-	1	3	5
Total Public Park ROW Required (acres)	-	0.2	0.6	1.6
Public/Community Facilities Affected[2,3]	-	1	6	9
Total Public/Community Facility ROW Required (acres)[3]	-	0.0	0.1	0.4

[1]The range is due to the uncertainty in the final station locations.
[2]Public parks and public/community facilities were determined to be "affected" if a temporary construction easement or right-of-way would be required on the property.
[3]Public/Community facilities do not include public parks.

Key Points:

- The right-of-way required from most of the impacted properties is minor (less than 0.02 acres)
- Station locations affect the property impacts and potential relocations/displacements

Cultural and Natural Resource Impacts

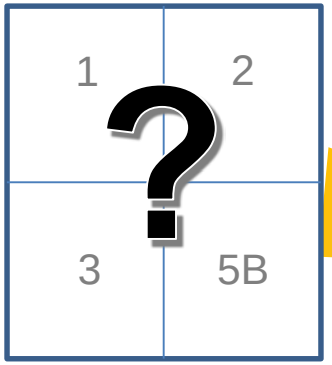
	Alt. 1 (No-Build)	Alt. 2	Alt. 3	Alt. 5B
Historic Structures	-	0	4	2
Historic Structures – Effect Determination	No effect	No Effect	No Adverse Effect	Adverse Effect
Stream Crossings	-	0	2	10
Stream Impact (linear feet)	-	0	47	864
100-Year Floodplain (acres)	-	0	<0.1	0.3
Wetlands (acres)	-	0	<0.1	<0.1
Forests (acres)	-	0.8	1.2	3.1
Green Infrastructure (acres)	-	0.2	<0.1	1.7
Federally or State Listed RTE Species	-	0	0	0

Key Point:

- Natural environmental impacts are focused in the parks and at the stream crossings

Next Steps

Selection of a Recommended Alternative

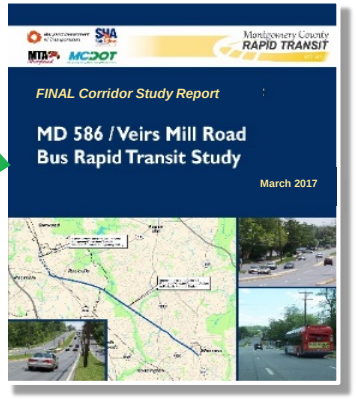


Winter 2016/2017

CAC Meeting #9

January/February 2017

Final Corridor Study Report



March 2017

QUESTIONS