Five Alternatives for the MD 355 BRT are being considered as part of Phase 2, including a No-Build Alternative, which serves as a baseline for comparison. Each Alternative will be compared quantitatively using a set of evaluation criteria (measures of effectiveness (MOEs)), and, ultimately, an alternative will be recommended for more detailed design and subsequent phased implementation.

The alternatives include the following features:

### **NO-BUILD ALTERNATIVE:**

 Ride On extRa service, including Transit Signal Priority (TSP), as implemented in October 2017

## TRANSPORTATION SYSTEMS MANAGEMENT (TSM) ALTERNATIVE

- Ride On extRa service extended south to Bethesda and north to Clarksburg
- As the baseline for comparison, the No-Build Alternative includes no improvements beyond existing services and projects in the Financially Constrained Long-Range Transportation Plan
- Extension of TSP introduced as part of the Ride On extRa service
- Travels in mixed traffic

Alternatives A, B, and C all include BRT features such as: **Queue jumps**, **TSP** in additional locations (see descriptions on following board), **off-board fare collection**, **level boarding**, **new BRT vehicles**, **upgraded stations**, and **Flash branding**.

### **ALTERNATIVE A**

- Mixed Traffic with BRT Features
- In Segment 7, Alternative A would travel along Snowden Farm Parkway to Clarksburg

### **ALTERNATIVE B**

Mostly Median-Running with queue jumps and dedicated lanes where feasible

 In Segment 7, Alternative B would travel along Observation Drive, including the yet-tobe constructed portion, to Clarksburg

## **ALTERNATIVE C**

- Mostly Curb-Running with dedicated lanes where feasible
- In Segment 7, Alternative C would travel along MD 355 to Clarksburg



The MD 355 BRT Project may employ a variety of treatments along the length of the corridor to best fit within the surrounding area. Some of the options under consideration are described below.



### MIXED TRAFFIC

The BRT would travel with general traffic. It would not have lanes dedicated for its use.



### **ONE CURB BRT LANE** (FIXED SOUTHBOUND)

The lane adjacent to the curb along southbound MD 355 would be used exclusively by the BRT, local buses and right-turning vehicles. BRT vehicles heading northbound on MD 355 would travel with general traffic.



### TWO MEDIAN BRT LANES

Two lanes located in the center of the roadway would be dedicated for use by the BRT, and may be physically separated from traffic by a raised curb or median. Median BRT lanes would minimize conflicts with general traffic and allow the BRT to operate faster and more reliably. However, the BRT lanes would interact with other traffic at intersecting cross streets. To avoid conflicts, general traffic could only make left turns at signalized intersections.



### **ONE CURB BRT LANE** (PEAK DIRECTION ONLY)



**PM PEAK** 

A curb BRT lane would be created by re-purposing the peak direction curb lane to accommodate BRT buses, local buses, and right-turning vehicles. The two center general traffic lanes would have a reversible operation with different AM/PM lane configurations. BRT vehicles heading in the off-peak direction would travel with general traffic.



### **ONE MEDIAN BRT LANE** (BI-DIRECTIONAL)

BRT vehicles traveling in both directions would share a single dedicated lane in the center of the roadway. Since the BRT travels within this one lane in both directions, passing zones would be created so BRT vehicles moving in opposite directions would not conflict with each other.



## **TWO CURB BRT LANES**

The two lanes adjacent to the curb (one on each side of the roadway) would be used exclusively by the BRT, local buses and right-turning vehicles.



### **ONE MEDIAN BRT LANE** (FIXED OR REVERSIBLE)

Two types of BRT operations are being considered in these locations: fixedand reversible-direction operations. In fixed-direction operations, a single median BRT lane would be used solely by the southbound BRT at all times of the day. The northbound BRT would travel in mixed traffic. In reversible-direction operations, the direction of the BRT in the one median lane would vary depending on the time of day. BRT vehicles traveling in the peak direction would use the median BRT lane and BRT vehicles traveling in the non-peak direction would be in mixed traffic.



## **TRANSIT SIGNAL PRIORITY**

Transit Signal Priority (TSP) would give priority to BRT vehicles when certain conditions are met by either extending a green light or shortening a red light to allow an approaching BRT to pass through the intersection. TSP was implemented on the MD 355 corridor between the Lakeforest Transit Center and Medical Center as part of the new Ride On Extra service in October 2017.



# **QUEUE JUMP**

A queue jump is a short section of roadway widening on an approach to an intersection designated for exclusive use of the BRT. A queue jump allows BRT vehicles to bypass congestion or delays at intersections. In most applications, queue jumps are used in conjunction with TSP to allow vehicles to enter an intersection with a special signal ahead of other vehicles.



## Alternative A - BRT with Queue Jumps



## Alternative B - BRT in Median



## Alternative C - BRT in Curb







# MD 355 TYPICAL SECTIONS

## Alternative B – BRT in Median

The MD 355 corridor has many demands for space, including through traffic, turning vehicles, BRT vehicles, BRT stations, pedestrians, bicyclists, and green space. <u>The Maximized Typical</u> <u>Sections</u> accommodate all of these elements based on a preferred design. In places where space is constrained, certain elements may need to be reduced as shown in the Minimized Typical Section. As redevelopment or other changes occur along the corridor, additional elements or amenities may be added. In other words, implementation of a Minimized Typical Section does not necessarily preclude adding elements that are shown in the Maximized Typical Section in the future.

### **CONSIDERATIONS FOR MEDIAN SECTION**

• Minimal interaction with general purpose traffic, faster travel time due to separated travel lanes reducing potential for delays, and no conflicts with existing driveways and access

- points
- More widening required compared to curb running
- Requires traffic signal modifications to address left turning traffic
- Median busways provide enhanced visbility for the service

## **MAXIMIZED TYPICAL SECTION**

![](_page_6_Picture_10.jpeg)

### **MINIMIZED TYPICAL SECTION**

![](_page_6_Picture_13.jpeg)

![](_page_6_Picture_14.jpeg)

# MD 355 TYPICAL SECTIONS

## Alternative C – BRT in Curb

The MD 355 corridor has many demands for space, including through traffic, turning vehicles, BRT vehicles, BRT stations, pedestrians, bicyclists, and green space. <u>The Maximized Typical</u> <u>Sections</u> accommodate all of these elements based on a preferred design. In places where space is constrained, certain elements may need to be reduced as shown in the <u>Minimized Typical Section</u>. As redevelopment or other changes occur along the corridor, additional elements or amenities may be added. In other words, implementation of a Minimized Typical Section does not necessarily preclude adding elements that are shown in the Maximized Typical Section in the future.

### **CURB LANE CONSIDERATIONS**

Less widening required compared to median running
Potential conflicts with existing driveways and access points

Potential right turn conflicts, which will may impact travel time

Shared stations and pedestrian zones

### **MAXIMIZED TYPICAL SECTION**

![](_page_7_Picture_8.jpeg)

**MINIMIZED TYPICAL SECTION** 

![](_page_7_Picture_10.jpeg)

![](_page_7_Picture_11.jpeg)