GetOnBoardBRT MD 355

BUS RAPID TRANSIT IN MONTGOMERY COUNTY

Corridor Summary Report

June 2019

Executive Summary

MONTGOMERY COUNTY MARYLAND

MCDOT Montgomery County Department of Transportation

RideTheFlash.com

Preface

This *Corridor Summary Report* documents Phase 2 of the MD 355 Bus Rapid Transit (BRT) Planning Study. The project is evaluating detailed alternatives for providing enhanced transit service along MD 355 from Bethesda to Clarksburg in Montgomery County, Maryland. In order to evaluate and compare the alternatives in terms reliability, effectiveness, and cost, key factors were developed and analyzed. These factors included: design criteria, traffic modeling, ridership forecasting, and service planning; siting and evaluating station locations; analyzing and documenting environmental features; and sharing this information and requesting feedback through an extensive public involvement program. The culmination of these detailed evaluations was used to quantitatively measure the effectiveness of each of the alternatives to help identify a Recommended Alternative to carry forward into design and construction. The *Corridor Summary Report* documents the process and products that were undertaken to develop the information necessary to complete this phase of the study.

Rapid: Features like limited stops, off-board fare collection, dedicated lanes (where feasible), and level-boarding through all doors make for a faster ride.

Reliable: You'll never wait long and you'll see real-time travel information on message boards at the station so you'll know exactly when the next BRT arrives.

Relaxing: Avoid the stress associated with driving: use Wi-Fi on-board to be more productive, read a book, or simply use the time to rest.

What is Bus Rapid Transit (BRT)?

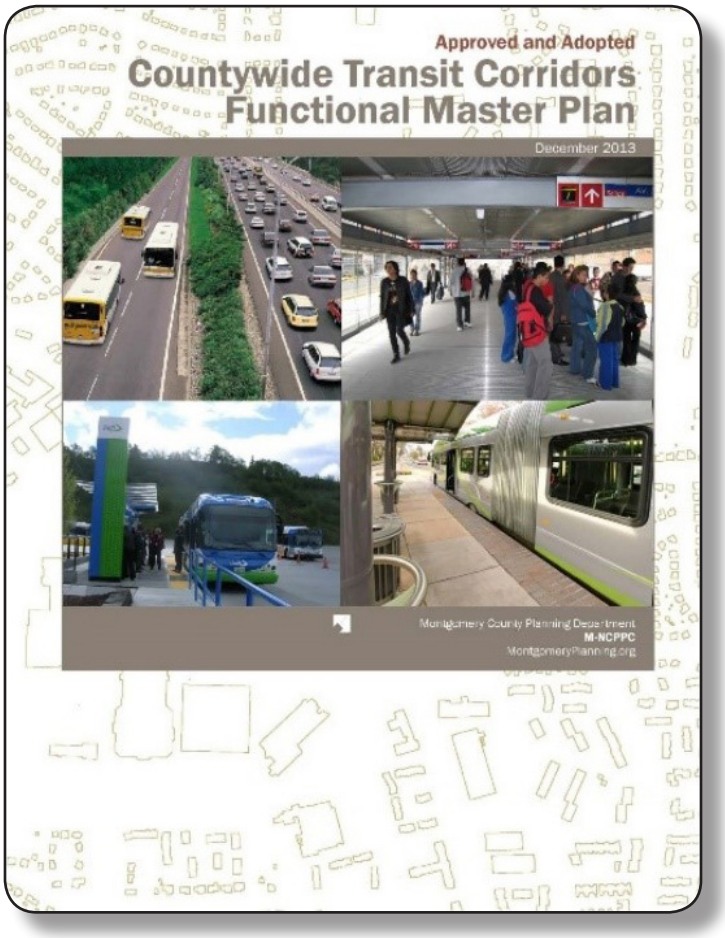
Montgomery County is studying options for a new BRT service along MD 355 called FLASH. BRT is a bus-based rapid transit system with features that improve reliability and capacity, so you can get where you need to go quickly.

MD 355 FLASH Features:

- Frequent, reliable service which means you will never wait long for a bus
- Dedicated lanes, where feasible, to separate buses from traffic, keeping your ride reliable and on-time
- New, enhanced vehicles that include free wi-fi and USB charging ports so you can listen to podcasts, surf the web, or begin your workday during your commute. On-board bike storage lets you bring bicycles right onto the vehicle
- New, comfortable stations that include features to improve efficiency and reliability. BRT stations have SmarTrip-compatible off-board fare collection machines where you pay your fare before the BRT arrives. Real-time transit information screens let you know when the next BRT vehicle is arriving
- Level boarding through all doors, allowing for easy boarding and alighting for all riders, including those with wheelchairs or strollers
- Community-friendly design with enhanced pedestrian and bicycle facilities
- Vehicles equipped with Transit Signal Priority, or TSP, a technology that allows them to communicate with traffic signals to get a little extra green when certain conditions are met
- Uniquely branded FLASH vehicles that look and feel different from local buses

What is the History of the MD 355 BRT Planning Study?

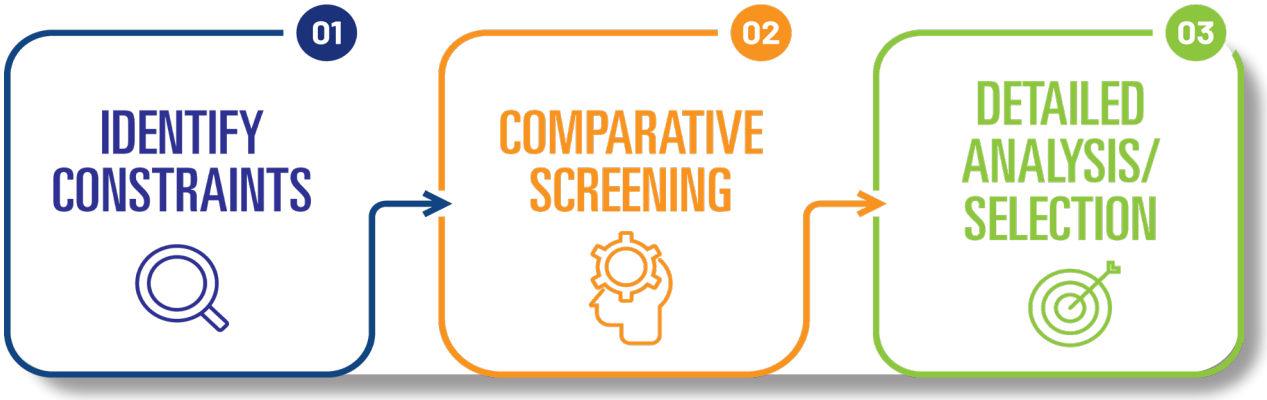
Montgomery County first proposed BRT as the most appropriate mode for improving transit in the MD 355 corridor as part of the 1993 Strategic Transit Plan. In 2011, MCDOT completed the Countywide BRT Study which identified BRT as the preferred mode of transit due to its ability to provide better service to existing transit passengers and attract potential new riders. BRT can provide a fast, convenient, and reliable alternative to driving on congested roadways, and a bus can carry more people in the same space as a car. Acting upon the findings from the 2011 Countywide BRT Study, the Maryland-National Capital Park and Planning Commission (M-NCPPC) developed the Countywide Transit Corridors Functional Master Plan, which was approved and adopted by the Montgomery County Council in December 2013.



The *Functional Master Plan* proposes the development of a BRT network throughout Montgomery County to support mobility, land use, and economic development goals. To ensure network integrity and achieve the County's vision, it recommends and provides the basis for right-of-way reservations required to accommodate BRT along with the allocation of space for vehicular traffic, pedestrians and bicycles in individual transit corridors. The Functional Master Plan contains recommendations for ten BRT corridors in the County, including along MD 355. The first BRT corridor in the county is being implemented along US 29 and will be open in 2020.

What is the MD 355 BRT Planning Study Process?

The MD 355 BRT Corridor Planning Study utilized the recommendations from the Countywide Transit Corridors Functional Master Plan to help inform the three-step process developed to recommend an alternative:



Step 1 - Identify Constraints (Complete): This process included data collection of existing transit operations, traffic volumes, crash statistics, environmental information, and aerial mapping. This information was used to prepare a Draft Preliminary Purpose and Need document, which is discussed in more detail in **Chapter 2**.

Step 2 - Comparative Screening (Complete): Using the information developed in Step 1, a set of Conceptual Alternatives was developed for testing purposes. The analysis performed during this step was used to screen out elements that showed the least benefit, to improve the alternatives, and to develop a refined set of alternatives that would be analyzed in further detail during the next step. This work was completed by the Maryland Department of Transportation Maryland Transit Administration (MDOT MTA) in Phase 1 of the MD 355 BRT Corridor Study.

Step 3 - Detailed Analysis / Selection (Current Phase): This is the current step in the corridor planning process, called Phase 2 of the MD 355 BRT Planning Study. It builds upon the Conceptual Alternatives developed in Phase 1, refining and analyzing alternatives in further detail. Additional engineering was done for each Build Alternative to better identify constraints and potential impacts. The traffic and travel demand modeling were refined to reflect the latest design and operating assumptions. Station locations were examined through a two-step process to further assess their viability. The result is a set of detailed measures providing quantitative results for comparison of the alternatives against themselves.

This *Corridor Summary Report* represents the culmination of Step 3 and presents the results and the findings of the analysis of each alternative. This report will document the County Council's selection of a Recommended Alternative, which will be the basis of detailed design. The outcomes of the study can be used in the future for final design and environmental analysis and documentation.

Why are We Doing the MD 355 BRT Planning Study?

The purpose of the project is to provide a new transit service with greater travel speed and frequency along MD 355 between Bethesda and Clarksburg that will help accomplish the following:

- **Enhance transit connectivity and multimodal integration along the corridor as part of a coordinated regional transit network;**
- **Improve the ability for buses to move along the corridor (bus mobility) with increased operational efficiency, on-time performance/reliability, and travel times;**
- **Address current and future bus ridership demands;**
- **Attract new riders and provide improved service options for existing riders as an alternative to congested automobile travel through the corridor;**
- **Support approved Master Planned residential and commercial growth along the corridor;**
- **Improve transit access to major employment and activity centers;**
- **Achieve Master Planned non-auto driver modal share;**
- **Provide a sustainable and cost-effective transit service; and**
- **Improve the safety of travel for all modes along the corridor.**

BRT on MD 355 will help address:

MOBILITY ALONG CORRIDOR

Traffic delay and poor transit reliability are significant challenges for travelers along the corridor today and this is likely to worsen in the future.

Traffic congestion is a major issue on MD 355, with slow peak period and peak direction travel speeds and multiple failing intersections and roadway segments. Future traffic projections show that the significant growth in population and employment along the MD 355 Corridor will further degrade traffic conditions. This congestion is a contributing factor affecting the reliability of existing transit service. BRT on MD 355 would increase the efficiency with which the roadway space is used, allowing more people to traverse the corridor in a reliable, affordable, and safe way.

HIGH TRANSIT DEMAND ALONG COORIDOR

The MD 355 corridor has some of the highest ridership bus routes in the Ride On system. However, the on-time performance of Ride On and Metrobus routes (at 72 percent and 77 percent, respectively) suffers due to congestion. BRT priority treatments would significantly improve the speed and reliability of bus service along the corridor.

GROWTH (POPULATION AND ECONOMIC)

Montgomery County is the most populous county in Maryland with over 300,000 people living in the study area and home to over 280,000 jobs. Increases in both population and jobs within the study area are expected to outpace growth in the county overall, with areas of concentrated growth forecast to occur in the segment north of I-495 (Capital Beltway) through Rockville to Gaithersburg.

BRT along MD 355 will accommodate this growth by providing an option for people to get around aside from driving a car. BRT can also support the growth of pedestrian-friendly places, reducing the need to drive.

The following goals and objectives were developed to assess the ability of each alternative to meet the Purpose and Need of the MD 355 BRT Planning Study:

PROJECT GOALS

PROVIDE AN APPEALING, FUNCTIONAL, AND HIGH QUALITY TRANSIT SERVICE

- Reduce travel times
- Increase service reliability
- Increase ridership
- Be a user-friendly route
- Complement Metrorail and local bus service

IMPROVE MOBILITY OPPORTUNITIES, ACCESSIBILITY, AND TRANSPORTATION CHOICES FOR ALL

- Improve access to jobs and other destinations
- Minimize traffic impacts and use roadway space efficiently
- Improve bicycle and pedestrian facilities
- Improve service and increase transit options for everyone

SUPPORT MASTER PLAN DEVELOPMENT

- Improve transit service to existing and planned developments
- Locate stations to support walkability

SUPPORT SUSTAINABLE AND COST-EFFECTIVE TRANSPORTATION SOLUTIONS

- Minimize environmental, cultural, and property impacts
- Use practical design to minimize capital and operating costs

What are the Alternatives for the MD 355 BRT Planning Study?

Four Build Alternatives plus the No-Build Alternative were initially identified for analysis:

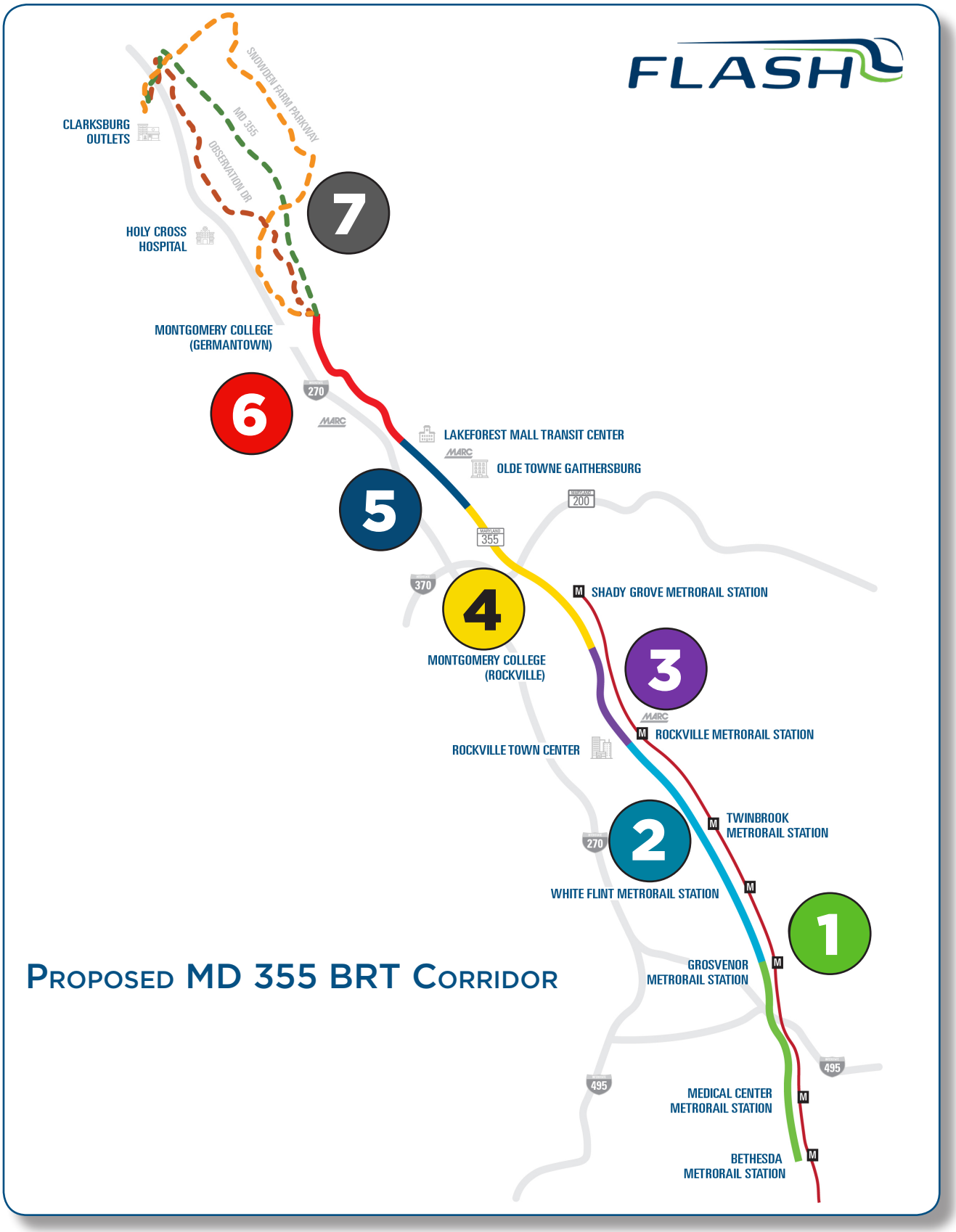
- **TSM Alternative**
- **Alternative A (mixed traffic)**
- **Alternative B (mostly median-running)**
- **Alternative C (mostly curb-running)**

Following the completion of the alternatives analysis, an additional alternative, **Alternative B Modified**, was developed in an attempt to reduce costs and right-of-way needs. More detailed information can be found in **Chapter 3** of this *Corridor Summary Report* and in the *Alternatives Technical Report*.

Alignment Segments

MD 355 is a roadway thats changes character as it transitions from the urban setting of downtown Bethesda to the exurban setting in Clarksburg. The roadway was divided into seven segments because of this varying character in an effort to provide for the different design types. The seven segments are described in the table below and shown in the following map. Segments may be referenced when describing the alternative results.

Segment	Geographic Description
7	Clarksburg to Middlebrook Road
6	Middlebrook Road to MD 124
5	MD 124 to Summit Avenue
4	Summit Avenue to College Parkway
3	College Parkway to Dodge Street
2	Dodge Street to Grosvenor Metrorail
1	Grosvenor Metrorail to Bethesda Metrorail



Proposed MD 355 BRT Corridor

Alternatives

No-Build Alternative:

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

Transportation Systems Management (TSM) Alternative:

- Ride On extRa service extended south to Bethesda and north to Clarksburg
- Extension of TSP introduced as part of the Ride On extRa service
- Travels in mixed traffic

Alternatives A, B, B Modified and C all include BRT features such as: **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 and queue jumps

Alternative B

- Mostly Median-Running and dedicated lanes where feasible

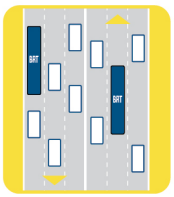
Alternative B Modified

- Mostly Median-Running dedicated lanes where feasible
- Segments 4, 5, and 6 would include a single, one-way peak period median busway

Alternative C

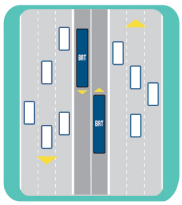
- Mostly Curb-Running dedicated lanes where feasible and queue jumps

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.



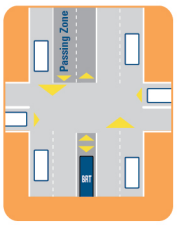
MIXED TRAFFIC

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



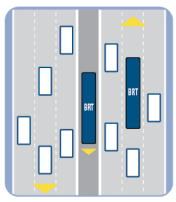
TWO MEDIAN BRT LANES

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 raced 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.



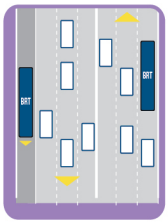
ONE MEDIAN BRT LANE (REVERSIBLE OR BI-DIRECTIONAL)

This configuration could allow for two different types of operations: bi-directional or reversible direction operations. With reversible 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. In bi-directional operations, BRT vehicles traveling in both directions would share a single dedicated lane in the center of the roadway.



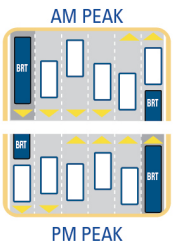
ONE MEDIAN BRT LANE (FIXED)

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.



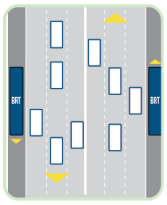
ONE CURB BRT LANE (FIXED SOUTHBOUND)

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.



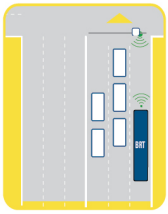
ONE CURB BRT LANE (PEAK DIRECTION ONLY)

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.



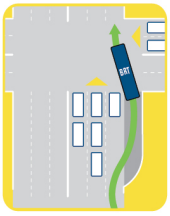
TWO CURB BRT LANES

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.



TRANSIT SIGNAL PRIORITY

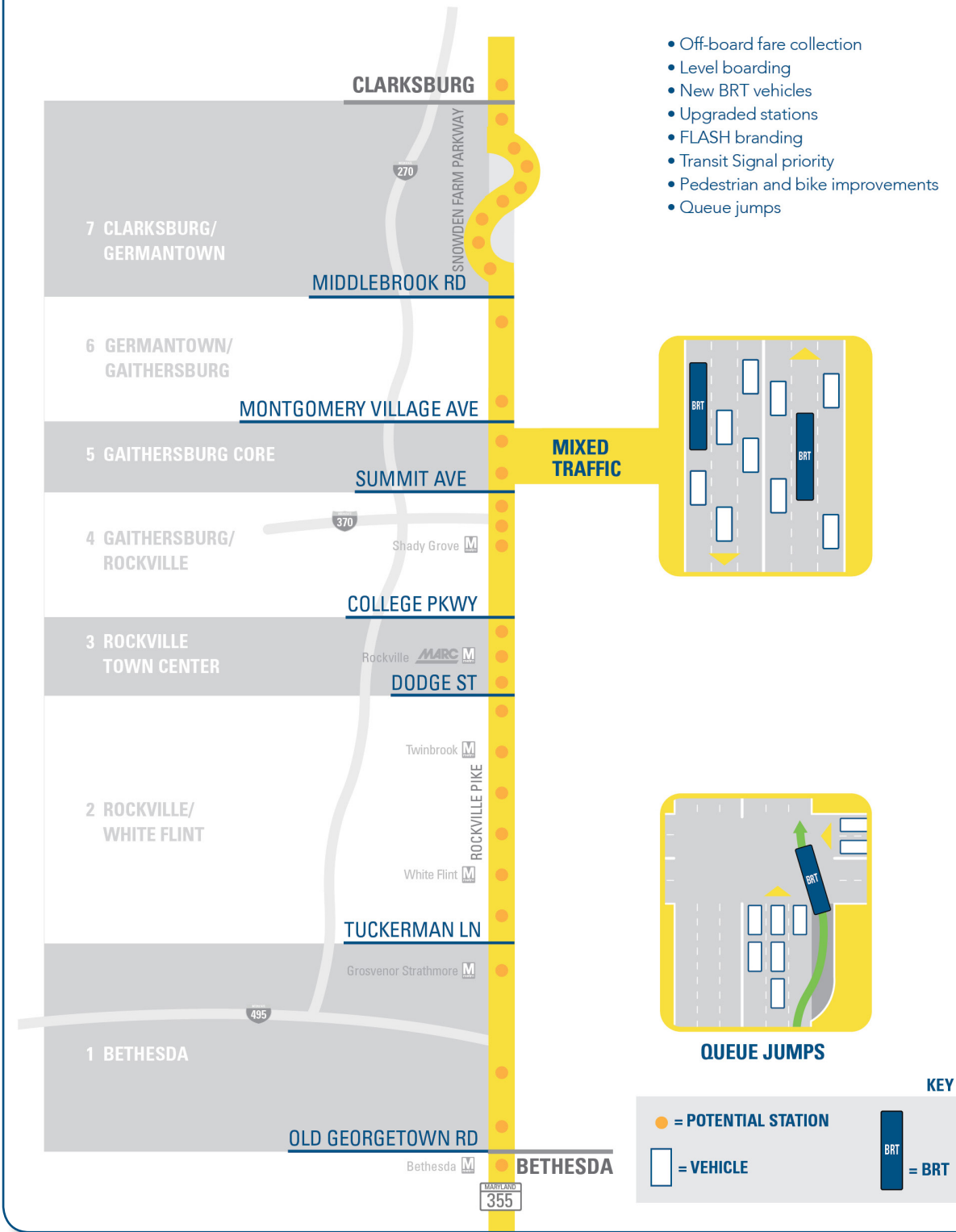
Transit Signal Priority (TSP) would give priority to BRT vehicles when certain conditions are met by either extending a green light or shortening a red light to allow an approaching BRT to pass through the intersection. TSP was implemented on the MD 355 corridor between the Lakeforest Transit Center 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.

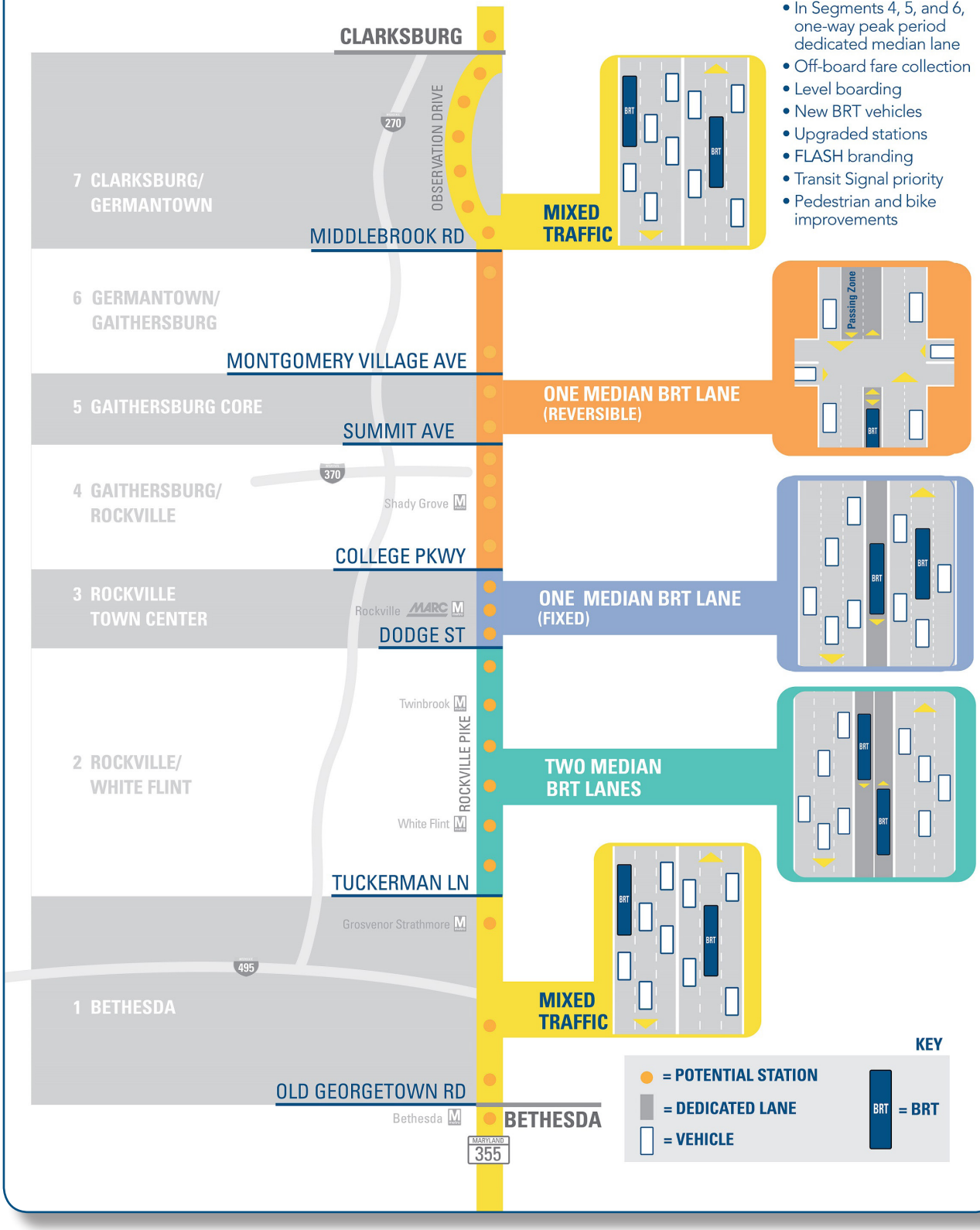
Alternative A - BRT with Queue Jumps

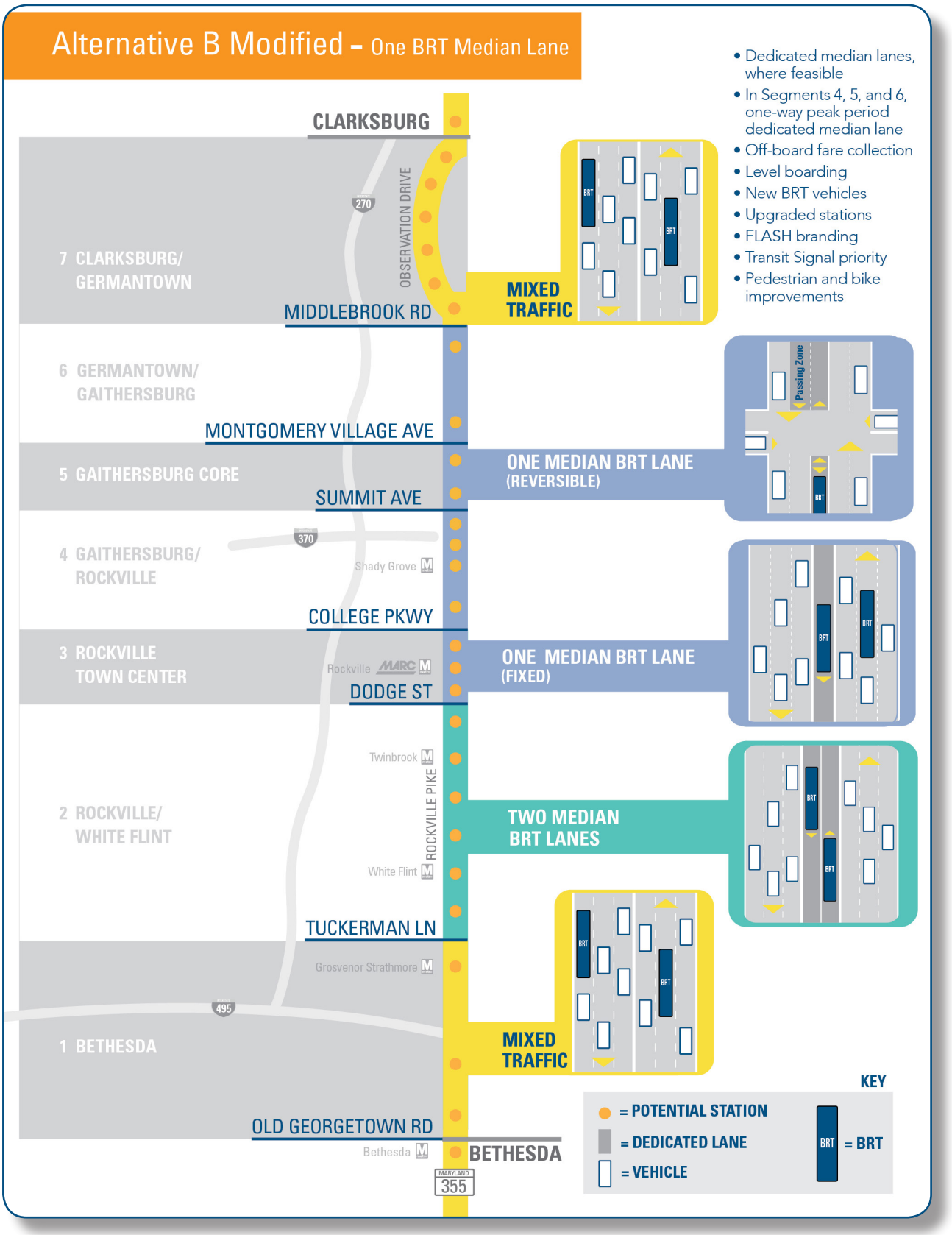


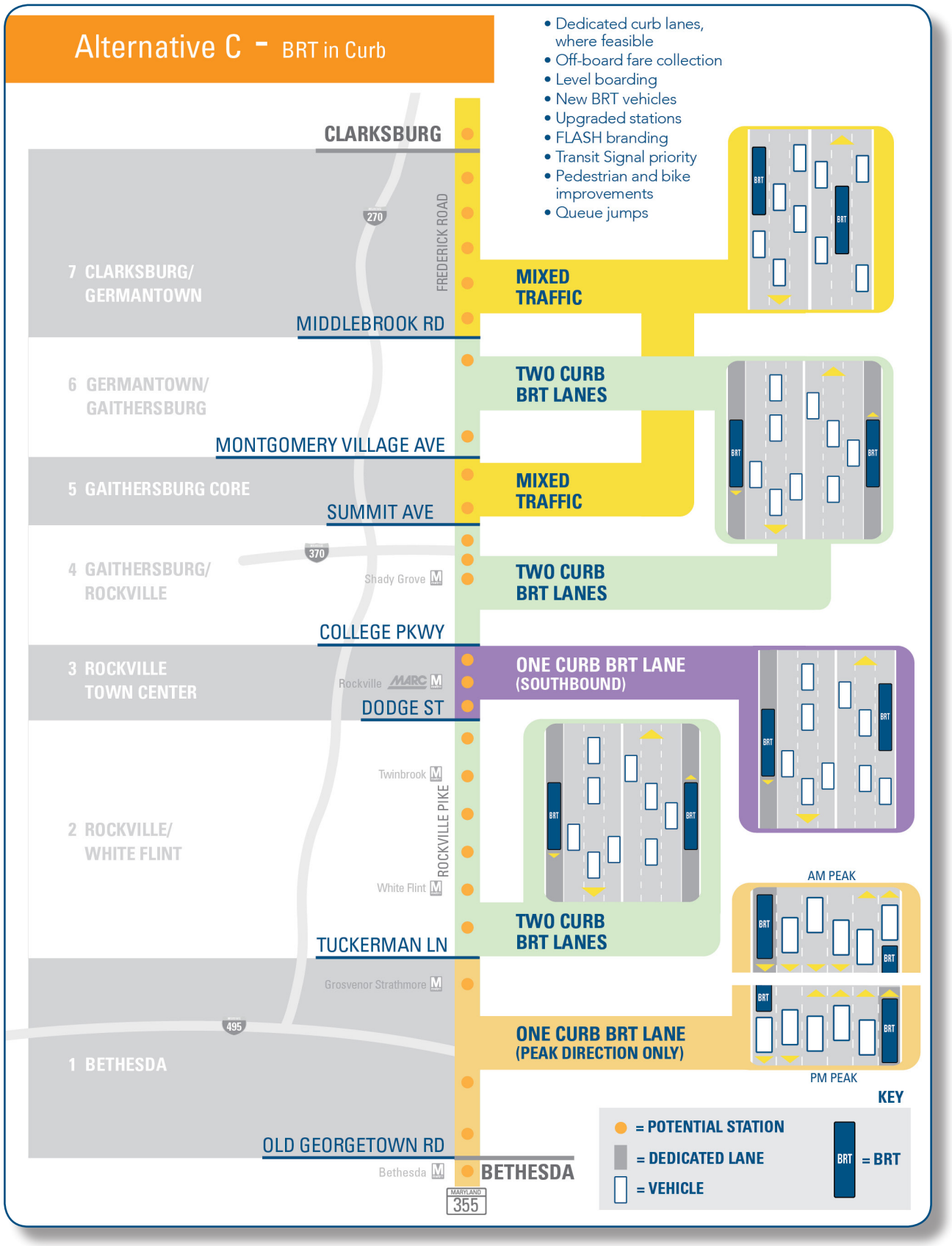
- Off-board fare collection
- Level boarding
- New BRT vehicles
- Upgraded stations
- FLASH branding
- Transit Signal priority
- Pedestrian and bike improvements
- Queue jumps

Alternative B Modified – One BRT Median Lane

- Dedicated median lanes, where feasible
- In Segments 4, 5, and 6, one-way peak period dedicated median lane
- Off-board fare collection
- Level boarding
- New BRT vehicles
- Upgraded stations
- FLASH branding
- Transit Signal priority
- Pedestrian and bike improvements




Alternative B Modified – One BRT Median Lane
• Dedicated median lanes, where feasible
• In Segments 4, 5, and 6, one-way peak period dedicated median lane
• Off-board fare collection
• Level boarding
• New BRT vehicles
• Upgraded stations
• FLASH branding
• Transit Signal priority
• Pedestrian and bike improvements
CLARKSBURG
7 CLARKSBURG/ GERMANTOWN
OBSERVATION DRIVE
270
MIDDLEBROOK RD
MIXED TRAFFIC
BRT
6 GERMANTOWN/ GAITHERSBURG
MONTGOMERY VILLAGE AVE
5 GAITHERSBURG CORE
SUMMIT AVE
ONE MEDIAN BRT LANE (REVERSIBLE)
Passing Zone
370
4 GAITHERSBURG/ ROCKVILLE
Shady Grove
COLLEGE PKWY
3 ROCKVILLE TOWN CENTER
Rockville
MARC
DODGE ST
ONE MEDIAN BRT LANE (FIXED)
Twinbrook
ROCKVILLE PIKE
2 ROCKVILLE/ WHITE FLINT
White Flint
TWO MEDIAN BRT LANES
TUCKERMAN LN
Grosvenor Strathmore
495
1 BETHESDA
MIXED TRAFFIC
KEY
= POTENTIAL STATION
= DEDICATED LANE
= VEHICLE
= BRT
OLD GEORGETOWN RD
Bethesda
BETHESDA
MARYLAND 355

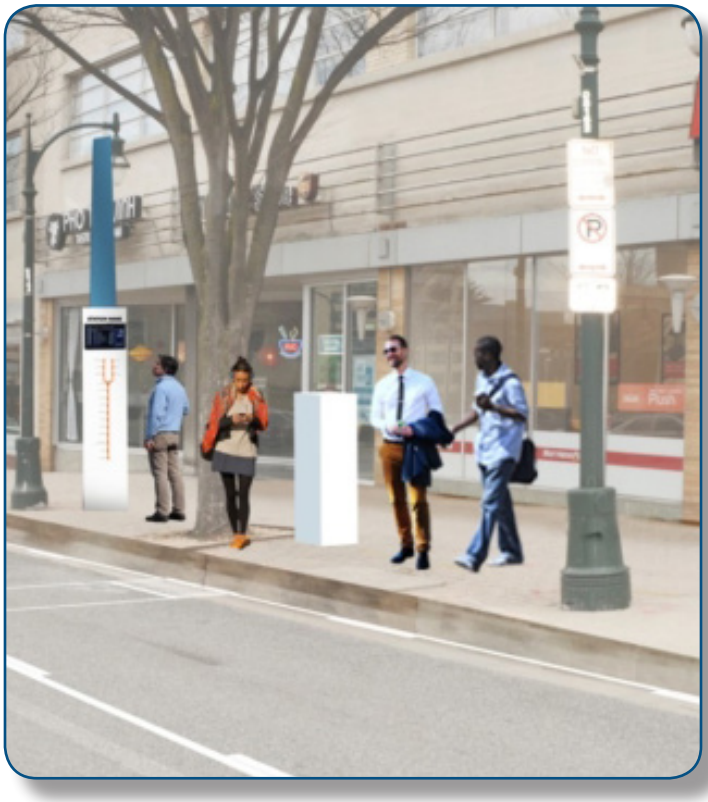

Alternative C - BRT in Curb
• Dedicated curb lanes, where feasible
• Off-board fare collection
• Level boarding
• New BRT vehicles
• Upgraded stations
• FLASH branding
• Transit Signal priority
• Pedestrian and bike improvements
• Queue jumps
CLARKSBURG
FREDERICK ROAD
270
7 CLARKSBURG/ GERMANTOWN
MIXED TRAFFIC
MIDDLEBROOK RD
6 GERMANTOWN/ GAITHERSBURG
TWO CURB BRT LANES
MONTGOMERY VILLAGE AVE
5 GAITHERSBURG CORE
MIXED TRAFFIC
SUMMIT AVE
370
4 GAITHERSBURG/ ROCKVILLE
Shady Grove
TWO CURB BRT LANES
COLLEGE PKWY
3 ROCKVILLE TOWN CENTER
Rockville MARC
ONE CURB BRT LANE (SOUTHBOUND)
DODGE ST
Twinbrook
ROCKVILLE PIKE
2 ROCKVILLE/ WHITE FLINT
White Flint
AM PEAK
TWO CURB BRT LANES
TUCKERMAN LN
Grosvenor Strathmore
495
ONE CURB BRT LANE (PEAK DIRECTION ONLY)
PM PEAK
1 BETHESDA
KEY
= POTENTIAL STATION
= DEDICATED LANE
= VEHICLE
BRT = BRT
OLD GEORGETOWN RD
Bethesda
BETHESDA
MARYLAND 355

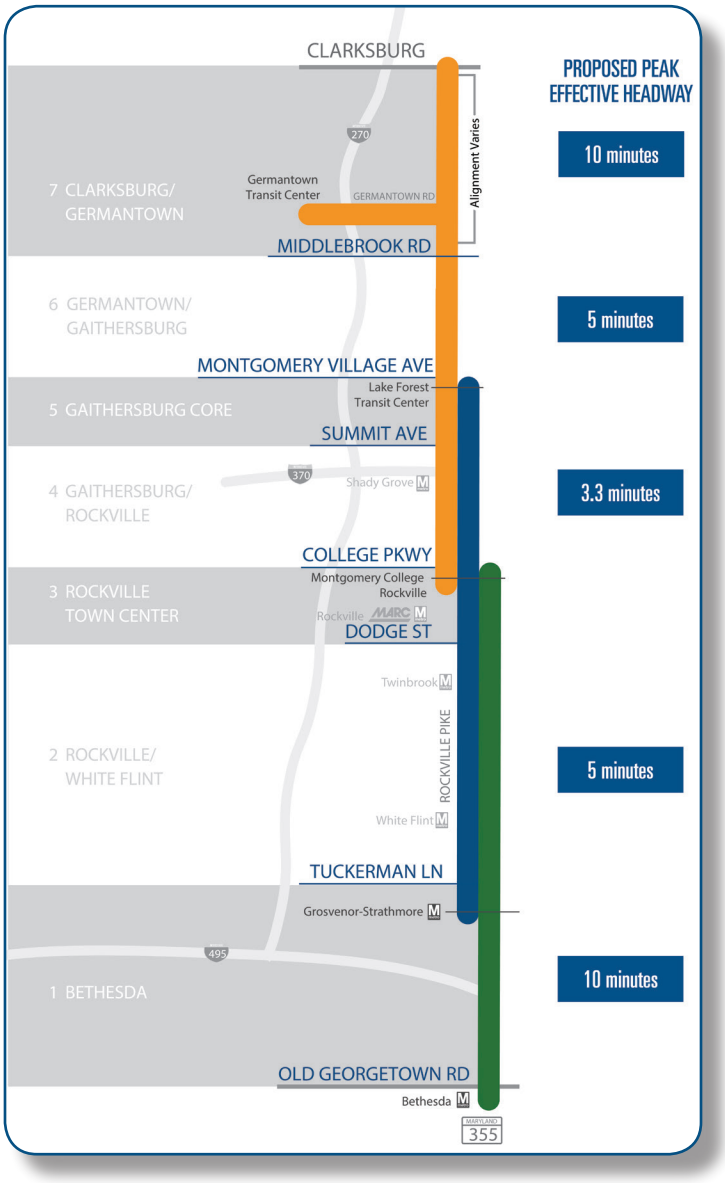
How Will the BRT Operate?

There are four route patterns proposed for the proposed BRT service:

- FLASH 1C: Clarksburg to Montgomery College – Rockville
- FLASH 1G: Germantown to Montgomery College – Rockville
- FLASH 2: Lakeforest Transit Center to Grosvenor Metro
- FLASH 3: Montgomery College – Rockville to Bethesda

The BRT would operate from 4:15 AM - 1:45 AM daily, and each service pattern would operate every ten minutes during the peak period, which is defined as between 6:00 AM to 9:00 PM. Where the route patterns overlap, the effective headways (or time between buses) are shorter.





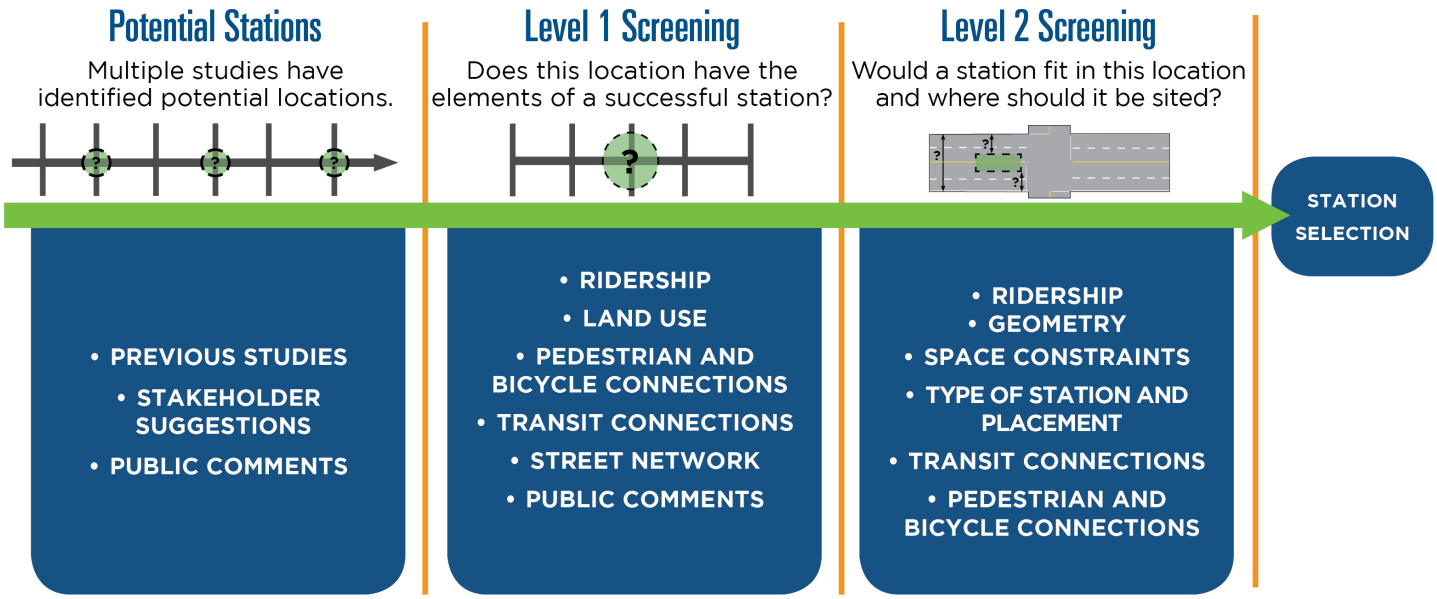
Where are the BRT Stations?

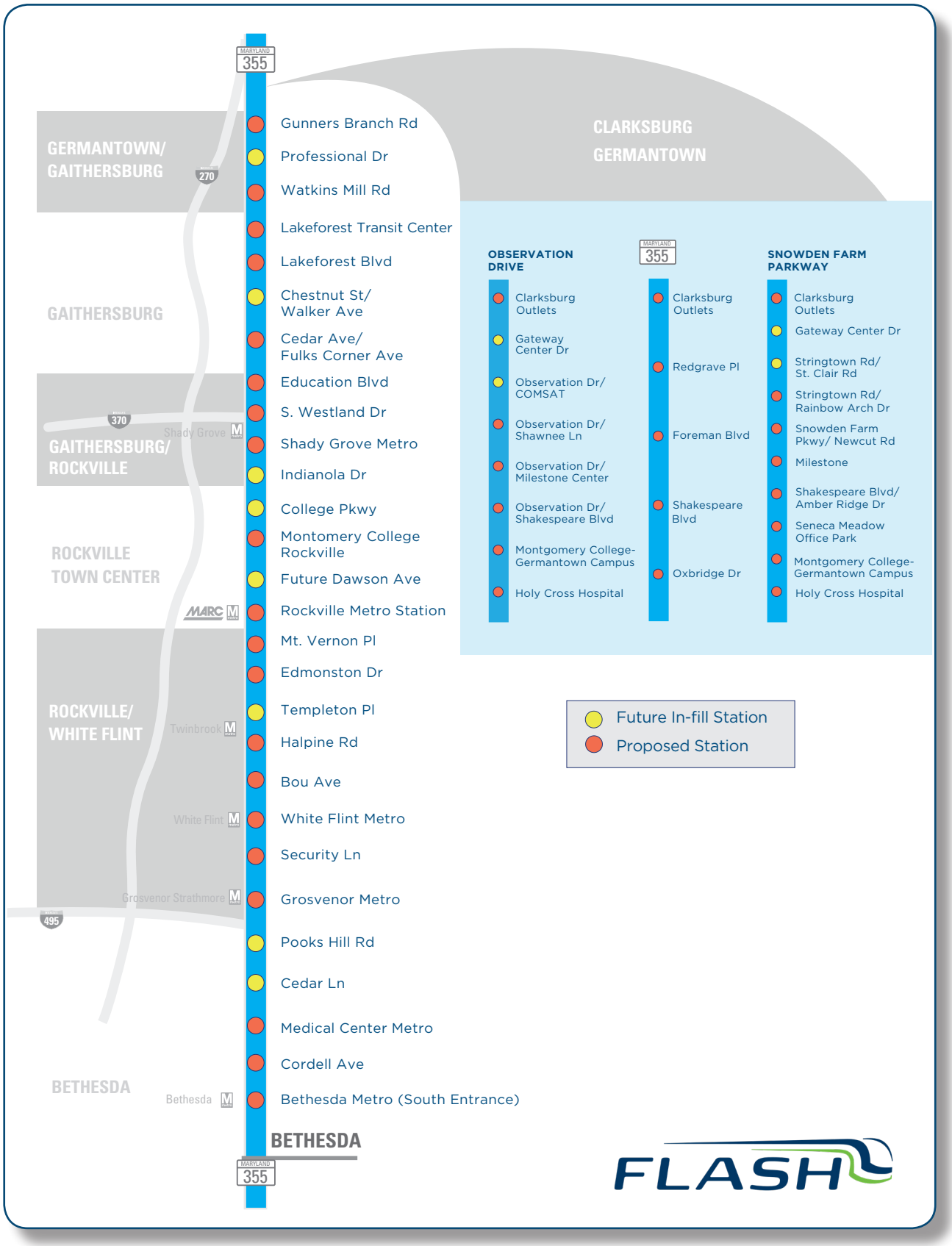
As part of Phase 2 of the MD 355 BRT Planning Study, a comprehensive assessment of potential station locations was performed that included two levels of station screening to evaluate the station options and ultimately determine a set of recommended stations to carry forward in the Alternatives.

A number of future "infill" stations were also identified that may become suitable after the initial launch of BRT service. A list of all of the station locations can be found in *Section 3.9* and more detail on the station selection process can be found in the *Station Screening Report*.

STATION SCREENING PROCESS

MCDOT has completed a two-level screening of potential station locations.




MARYLAND 355
GERMANTOWN/ GAITHERSBURG
270
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ROCKVILLE TOWN CENTER
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ROCKVILLE/ WHITE FLINT
Twinbrook
White Flint
Grosvenor Strathmore
495
BETHESDA
Bethesda
MARYLAND 355
Gunners Branch Rd
Professional Dr
Watkins Mill Rd
Lakeforest Transit Center
Lakeforest Blvd
Chestnut St/ Walker Ave
Cedar Ave/ Fulks Corner Ave
Education Blvd
S. Westland Dr
Shady Grove Metro
Indianola Dr
College Pkwy
Montomery College Rockville
Future Dawson Ave
Rockville Metro Station
Mt. Vernon Pl
Edmonston Dr
Templeton Pl
Halpine Rd
Bou Ave
White Flint Metro
Security Ln
Grosvenor Metro
Pooks Hill Rd
Cedar Ln
Medical Center Metro
Cordell Ave
Bethesda Metro (South Entrance)
BETHESDA
MARYLAND 355
CLARKSBURG
GERMANTOWN
OBSERVATION DRIVE
Clarksburg Outlets
Gateway Center Dr
Observation Dr/ COMSAT
Observation Dr/ Shawnee Ln
Observation Dr/ Milestone Center
Observation Dr/ Shakespeare Blvd
Montgomery College- Germantown Campus
Holy Cross Hospital
MARYLAND 355
Clarksburg Outlets
Redgrave Pl
Foreman Blvd
Shakespeare Blvd
Oxbridge Dr
SNOWDEN FARM PARKWAY
Clarksburg Outlets
Gateway Center Dr
Stringtown Rd/ St. Clair Rd
Stringtown Rd/ Rainbow Arch Dr
Snowden Farm Pkwy/ Newcut Rd
Milestone
Shakespeare Blvd/ Amber Ridge Dr
Seneca Meadow Office Park
Montgomery College- Germantown Campus
Holy Cross Hospital
Future In-fill Station
Proposed Station
FLASH

How do the MD 355 BRT Alternatives Compare?

The goals and objectives outlined above and in **Chapter 2** of this *Corridor Summary Report* were further developed into a set of criteria called Measures of Effectiveness (MOEs) to evaluate the alternatives. The team assessed MOEs for each alternative. These assessments will inform the selection of a Recommended Alternative and the ultimate development of a recommended phasing and implementation plan.

All the BRT alternatives would generate high ridership compared to the No-Build and TSM Alternatives. Alternatives B and B Modified display the highest ridership, approximately doubling the No-Build Alternative. It should be noted that approximately 50% of the ridership would occur in the off-peak period, showing there is a high-demand for frequent, all-day service.

Transit travel times between key origins and destinations would improve under the BRT alternatives when compared to the No-Build and TSM Alternatives. This will make it easier and more convenient for people to use transit after BRT is implemented.

Alternatives B and C would provide the greatest travel time savings, due to the addition of dedicated transit lanes. Alternatives B and C would also offer better overall reliability. Under variable traffic conditions such as construction, car breakdowns, and vehicle crashes, Alternative B should perform more reliably due to its physical separation from traffic.

Alternatives B and C would provide greater travel time savings than Alternative A, due to dedicated transit lanes

All the BRT Alternatives – Alternatives A, B, B Modified, and C – would improve access to and from housing, jobs, and activity centers for everyone, including key demographic groups.

Each of the BRT Alternatives would meet the project goal of providing improved access or increased transit options.

Traffic congestion is projected to get worse in 2040 regardless of which alternative is chosen and roadway congestion was found to be similar across all alternatives. Average delay per person would increase slightly (30 seconds or less) between the No-Build Alternative and the BRT Alternatives. Overall, the BRT Alternatives meet the project's objective of balancing the mobility needs of all users of the corridor.

More people from key demographic groups will have increased access to their destinations under the BRT Alternatives

SUPPORT MASTER PLAN DEVELOPMENT

The BRT Alternatives would support the growth of pedestrian-friendly places and advance the goals of the multiple jurisdictions and the Master and Sector Planned areas that span the corridor. Plans for areas along the MD 355 corridor propose enhanced transit to support their mobility, land use, and economic development goals.

BRT stations are proposed near existing or future land uses that are supportive of transit (including a mix of uses, high density, activity centers, or walkability) and would help accommodate redevelopment opportunities.

SUPPORT SUSTAINABLE AND COST-EFFECTIVE TRANSPORTATION SOLUTIONS

Environmental and Cultural Resources

Conceptual design of all alternatives sought to minimize impacts and right-of-way needs. Preliminary impacts to the natural environment and cultural or man-made resources were identified as minimal. There are no anticipated impacts to forests or streams in the area, and minimal potential impacts to wetlands, floodplains, and endangered species. For cultural impacts, sites were identified that will require a more detailed assessment as design advances to determine the site-specific impacts.

Right-of-Way Needs

Each of the Build Alternatives would require some degree of right-of-way in certain locations beyond what currently exists. Most of the right-of-way needs would be along the roadway frontage of properties along MD 355. As design advances, further avoidance and minimization strategies to reduce right-of-way needs will be investigated.

The conceptual design would fit within the right-of-way set aside in the various master plans. However, much of this right-of-way is not currently dedicated for transportation use. As properties come before the Planning Board and other jurisdictions for redevelopment, the County will work with applicants to address master planned right-of-way needs.

RIGHT-OF-WAY NEEDS BY ALTERNATIVE

TSM	<1 ACRE
Alternative A	13 ACRES
Alternative B	61 ACRES
Alternative B Modified	54 ACRES
Alternative C	39 ACRES

Cost

The Build Alternatives have a range of costs based on both the level of infrastructure investment and the location along the corridor.

TOTAL CAPITAL COSTS

ALTERNATIVE	TSM	A Mixed Traffic	B Median	B Mod. Median	C Curb
CAPITAL COSTS	$5M	$141M	$849M	$784M	$497M
BUSES	$10M	$43M	$37M	$37M	$37M
TOTAL COSTS	$15M	$184M	$886M	$820M	$534M

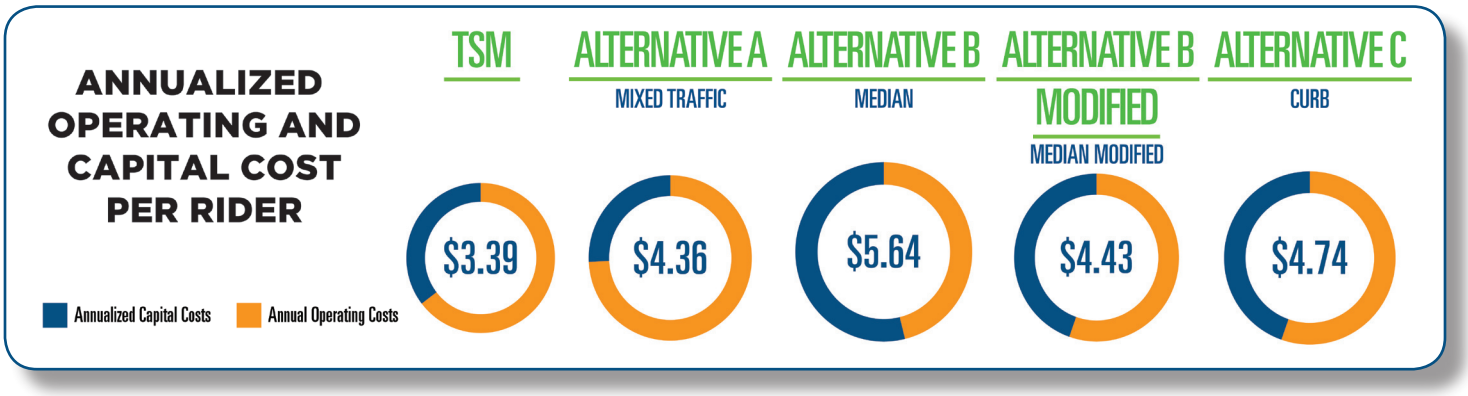
Alternative B would be the most expensive because it contains the most roadway widening, right-of-way needs, and impacts to existing utilities and infrastructure. Alternative B would also provide the greatest separation of the BRT from general purpose traffic and roadway congestion, which would result in increased reliability, travel times, and the highest ridership of any alternative.

When compared with Alternative B, Alternative B Modified would reduce the overall project cost by $65M. The single lane reversible guideway would provide separation from mixed traffic for BRT vehicles in the peak direction in Segments 4 through 6, thus providing similar reliability, travel times, and ridership as Alternative B in those Segments.

Alternative C would include roadway widening and costs to provide a dedicated curb-running transit guideway that could be shared by BRT and local bus service. The overall cost for Alternative C is lower than Alternative B, but it would not provide full separation for the BRT from traffic needing to use the curb lane to turn right at intersections or driveways. This lack of physical separation would likely not provide the same reliability as Alternative B.

Alternative A would be the least expensive BRT Alternative because it would operate in mixed traffic and only require roadway widening at queue jump locations. However, because the BRT would operate in mixed traffic, Alternative A would experience longer travel times and less reliability than Alternatives B, B Modified, and C.

Annualized capital and operating costs per annual rider were developed for each Build Alternative based on FTA guidelines that account for the typical life span of different project components. The annualization of capital and operating costs provides the best cost comparison for the alternatives because it combines operational costs, capital costs, and ridership. This comparison appears to support the selection of a BRT Alternative.



What are the Next Steps for the MD 355 BRT?

Following the selection of a Recommended Alternative, the MD 355 BRT project would move into Preliminary Engineering, which includes surveys; additional, more detailed traffic studies; final environmental documentation; development of final concepts; and a detailed scope, schedule, and cost estimate for construction. The project would then move into final design and ultimately construction. All of these steps are contingent on available funding. Given the length of the corridor and varying characteristics of the existing conditions, it is anticipated that the Recommended Alternative would be implemented in stages.

Public involvement has and will continue to play and important role in the planning and design of BRT on MD 355. Public involvement for the project in Phase 2 included a series of Community Updates, Public Open Houses, and Community Advisory Committee (CAC) meetings which was a continuation of the public outreach that began in Phase 1. In addition, www.RidetheFLASH.com is available to inform the public about BRT and keep them up-to-date on project information. As the project progresses through preliminary engineering and final design, public involvement and opportunities to provide input will continue.