Montgomery Planning

BUS RAPID TRANSIT BRIEFING

Description

Planning Staff will provide an overview of Bus Rapid Transit in Montgomery County.

David Anspacher, Chief, Countywide Planning & Policy Division
david.anspacher@montgomeryplanning.org, 301-495-2191

INFORMATION

Date Submitted

April 11, 2025

Planning Division

Countywide Planning & Policy

Planning Board Information

MCPB

Item No. 5

April 24, 2025

CONTENTS

SECTION 1 – OVERVIEW

Planning Staff will provide the Planning Board with an overview of Bus Rapid Transit (BRT), including the following topics:

- Description of Bus Rapid Transit
- Relationship to *Thrive Montgomery 2050*
- Master Planning
- Project Implementation

SECTION 2 – DESCRIPTION OF BUS RAPID TRANSIT

Bus Rapid Transit, or BRT, is a high-quality and high-capacity bus-based transit system that delivers reliable, comfortable, convenient, and branded transit service. Because BRT contains features similar to light rail or the Metrorail system, it is more reliable, comfortable, and convenient than local bus services and can avoid the causes of delay that slow Metrobus and RideOn and the reliability issues that make these bus services often less desirable than Metrorail.

To achieve the full promise of BRT service, each of the four performance characteristics described below must be met:

1. **Reliability**. High-quality BRT service makes travel predictable. This is the main advantage of BRT service over travel by private vehicle and is critical to encouraging motorists to switch to transit. The main feature that achieves reliability is the dedicated transitway. Dedicated transitways are bus-only lanes that ensure that bus travel times are predictable from day to day by reducing the impacts of non-recurring congestion (congestion that cannot be anticipated because it is caused by irregular incidents such as road work, collisions, and vehicle breakdowns)[1].

2. **Comfort**. High-quality BRT service includes amenities that reduce the stresses of travel and enables people to use their time productively. Features that create a high-quality level of comfort include:

    - Premium transit vehicles
    - Enhanced stations
    - Real time information
    - Off-board fare collection
    - Wi-Fi

3. **Convenience.** High-quality BRT service transports passengers to places quickly and provides Metrorail-like service frequency so that passengers do not have to consult a schedule; upon

[1] Emergency responders can use the bus-only lanes.

arrival at the station, they can expect the BRT vehicle to arrive within a few minutes. Features that create a BRT level of convenience include:

- Dedicated transitways
- Transit signal priority
- Queue jumps
- Frequent / all-day transit service
- Off-board fare collection
- Level boarding

4. **Branding.** High-quality BRT creates a distinctive transit service – much like Metrorail – that is recognized and distinguished as reliable, comfortable and convenient. Distinctive features include:

    - Dedicated transitways
    - Premium transit vehicles
    - Enhanced stations
    - Frequent / all-day transit service

Attachment A provides additional details on the components.

SECTION 3 – RELATIONSHIP TO THRIVE MONTGOMERY 2050

Developing a BRT network is central to realizing the vision in *Thrive Montgomery 2050* to "Build a frequent, fast, convenient, reliable, safe, and accessible transit system." Thrive (page 113) includes these practices to help achieve this vision:

- Build a network of rail, bus rapid transit, and local bus infrastructure and services—including demand-responsive transit service[2]—that make transit the fastest, most convenient, and most reliable way to travel to centers of economic, social, and educational activity and opportunity, both within and beyond Montgomery County.
- Convert existing general purpose traffic lanes to dedicated transit lanes, in a manner consistent with other county policies.
- Connect historically disadvantaged people and parts of the county to jobs, amenities, and services by prioritizing investments in increasing access to frequent and reliable morning to late night transit service.
- Ensure safe and comfortable access to transit stations via walking, rolling, and bicycling.

Building a BRT network is also central to achieving the compact growth pillar of Thrive to: "Promote and prioritize public investment in infrastructure in activity centers and along growth corridors and leverage it to attract future private investment in a compact form." Thrive (page 73) includes this practice to help achieve the vision:

- Establish high-quality transit infrastructure along growth corridors through capital investment and ensure reliable, frequent service through operational investment.

[2] Demand response transit is a flexible, on-demand public transportation service that operates without fixed routes or schedules. In Montgomery County, it is operated as RideOn Flex and provides service in the Rockville and Glenmont/Wheaton areas.

SECTION 4 – MASTER PLANNING

Montgomery County comprehensively incorporated BRT into its master plans as part of the *Countywide Transit Corridors Functional Master Plan* (2013). The main functions of this plan are to:

- Establish a vision for BRT in Montgomery County.
- Identify whether transitways are to have dedicated bus lanes.
- Identify the location of BRT stations.
- Establish the master plan right-of-way along transit corridors.

This plan is an infrastructure plan that establishes where capital investments would improve the speed, convenience, and reliability of transit services. It is not a routing plan, as decisions about routing and operations, including frequency, are the purview of transit operators.

The plan was an intentionally high-level effort, and updates to the plan's recommendations were anticipated in future master plans. Page 17 states: "This Plan anticipates that the recommended transit network also can be adapted and will therefore evolve over time to meet the particular transit needs and operating characteristics of each corridor segment and activity center." Therefore, future plans can make the following changes:

- Shift station locations to match their land use vision as part of area master plans.
- Confirm or revise the master plan right-of-way.
- Identify the alignment configuration (curb running vs median) as appropriate.
- Modify, add, or remove stations to reflect MCDOT facility planning studies.
- Modify transitway alignments to reflect MCDOT facility planning studies.

Over the years, the following master plans have made modifications to the planned network, including:

- *Bethesda Downtown Plan* (2017)
- *Veirs Mill Corridor Master Plan* (2019)
- *Shady Grove Minor Master Plan Amendment* (2021)
- *Silver Spring Downtown and Adjacent Communities Plan* (2021)
- *Corridor Forward:* the *I-270 Transit Plan* (2022)
- *Fairland and Briggs Chaney Master Plan* (2023)
- *Great Seneca Plan: Connecting Life and Science* (2023)
- Planning Board Draft of the *Master Plan of Highways and Transitways (2025)*

Some of these master plans made major changes to the planned BRT network. For example, *Corridor Forward: the I-270 Transit Plan* (2022) removed the Corridor Cities Transitway from the master plan and replaced is with shorter "Corridor Connectors" – non-BRT busways with dedicated bus lanes that connect communities and feed into the MD 355 BRT corridor. The *Veirs Mill Corridor Master Plan* (2019) further defined the busway alignment along that corridor by specifying it as curb-running. Other plans

have added, removed, or relocated transit stations to match their land use visions, such as the Planning Board Draft of the *Master Plan of Highways and Transitways* (2025).

Montgomery County's planned BRT network, branded as Flash, is shown below.

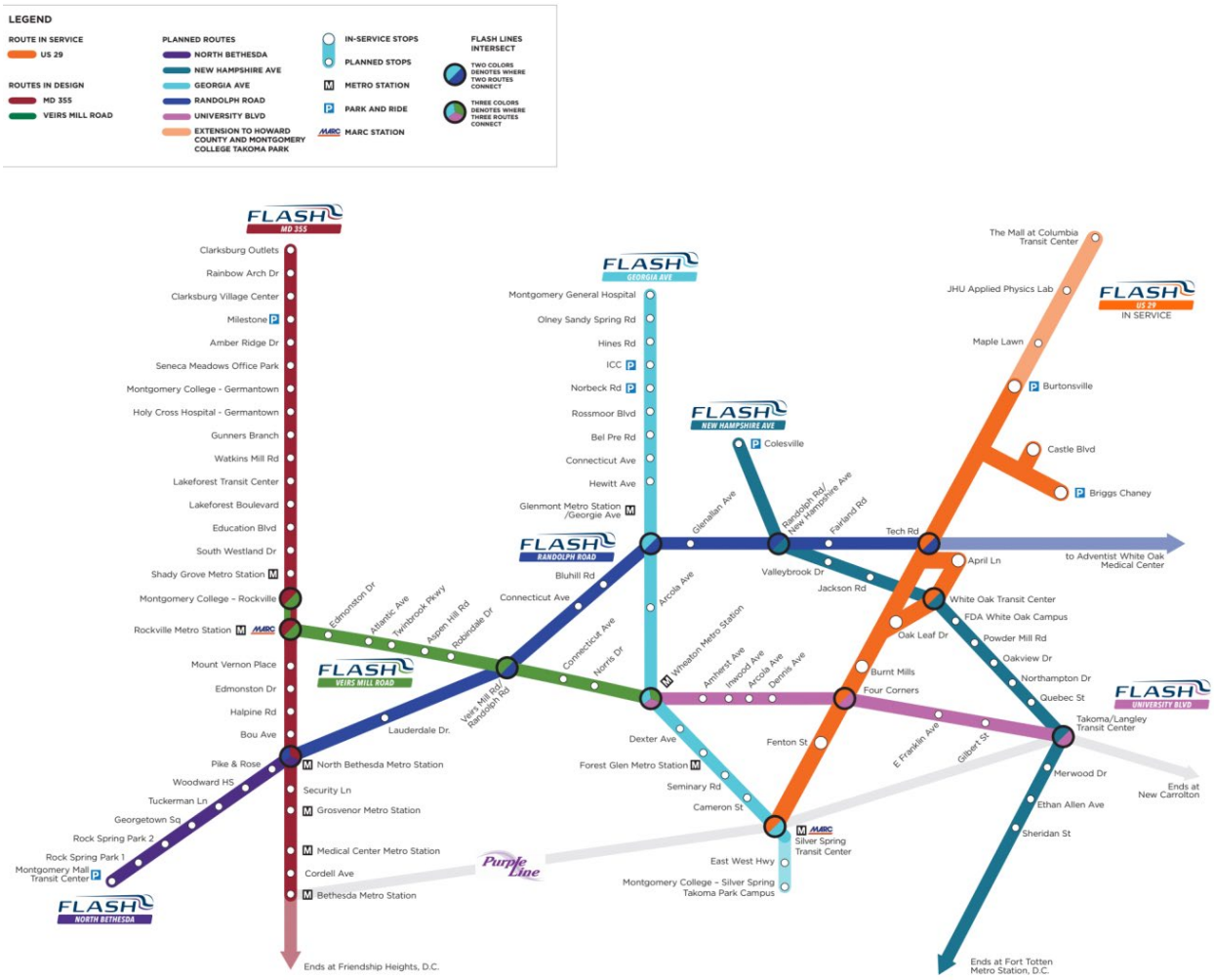

Figure 1: Planned Bus Rapid Transit Network

SECTION 5 – PROJECT IMPLEMENTATION

The typical life of a BRT project starts with inclusion in the county's master plans and ends with construction. The various phases of project development are shown in the image below. The Planning Board's role is highlighted and includes three tasks:

- Transmit **Draft Plans to the County Council**
- Review project alternatives and recommend to the County Council advancing a **Preferred Alternative**
- Review the project design as part of the **Mandatory Referral Review**

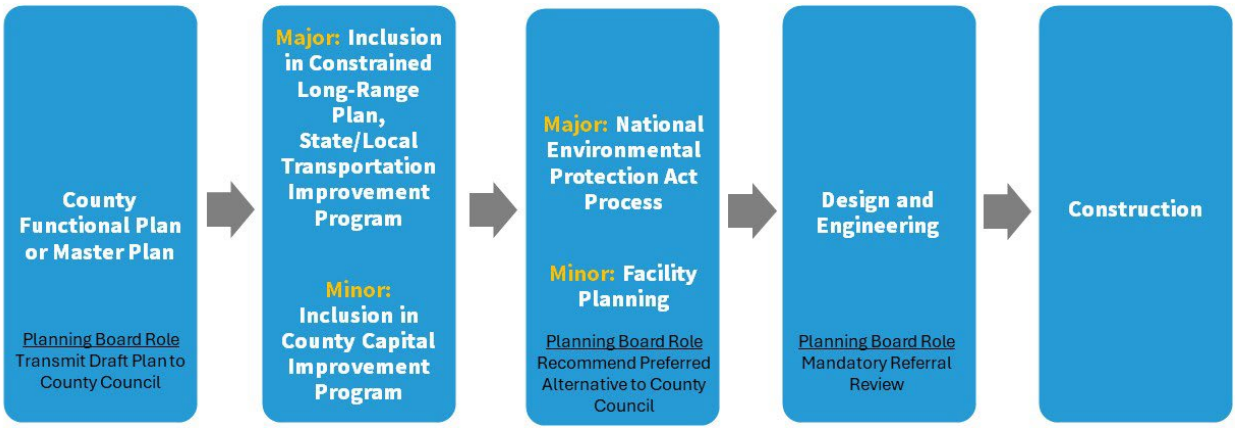

Figure 2: Life of a Project

Of Montgomery County's eight planned BRT corridors, five are in various stages of implementation:

- **US 29 BRT**: Phase 1 of the US 29 Flash opened in 2020 between Downtown Silver Spring and Briggs Chaney, with weekend service to Burtonsville. The service currently has premium buses and stations. Phase 2 is under design and will introduce dedicated bus lanes along the corridor. Additionally, funding is available to extend the route to Howard County.
- **MD 355 BRT**: The County Council selected a preferred alternative in 2019, and MCDOT completed preliminary engineering in 2022. The Planning Board's mandatory referral is anticipated in 2025. The project is currently undergoing federal and state environmental processes. Implementation is contingent on federal funding.
- **Veirs Mill Road BRT**: The County Council selected a preferred alternative in 2017, and the Planning Board conducted the mandatory referral in 2023. The project has completed 95% design. Implementation is contingent on state and federal funding.
- **New Hampshire Ave BRT**: This project is in the planning phase and is currently evaluating alternatives. Later this year the Planning Board will review alternative designs for the BRT.
- **North Bethesda BRT**: This project is in the planning phase and is currently evaluating alternatives. Later this year the Planning Board will review alternative designs for the BRT.

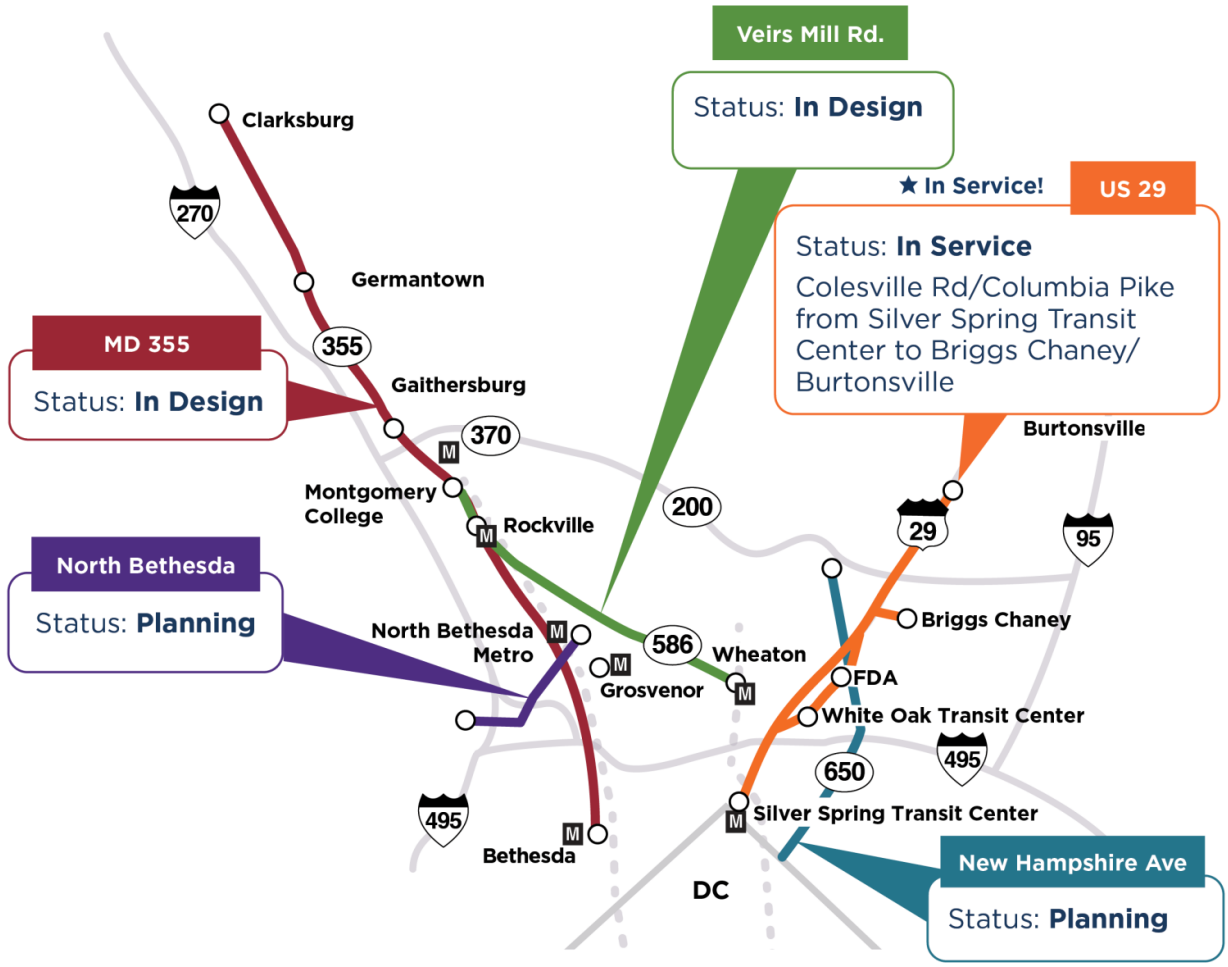

Figure 3: Status of Montgomery County's BRT Program

More information on Montgomery County's BRT program is available at:
https://www.montgomerycountymd.gov/brt/

ATTACHMENT A – COMPONENTS OF BUS RAPID TRANSIT

This section of the staff report provides a description of several BRT components, including transitway types, operational improvements, and station enhancements.

Transitway Types

Transit service can be provided via a variety of transitway types: a dedicated two-lane median transitway, a dedicated one-lane median transitway (to accommodate transit service in one direction or in both directions), dedicated curb lanes transitway, or running in mixed traffic. The transitways can be mixed and matched along the corridor to provide the best solution within the existing constraints and needs of the area. These transitway types are described in more detail below.

Dedicated Two-Lane Median Transitway

Two lanes located in the center of the roadway that are dedicated for use by the BRT vehicle and may be physically separated from traffic by a raised curb or median. Median BRT lanes minimize conflicts with general purpose traffic lanes and allow the BRT vehicle to travel with faster speeds and greater travel time reliability. To avoid conflicts with BRT vehicles, general traffic is only permitted to make left turns at signalized intersections. Two-lane median transitways require the most space and are therefore the most costly and impactful to implement. An example of a two-lane median transitway is the Metroway on US 1 in Alexandria.

The Metroway BRT Service Operates in a Two-Lane Median Transitway

Dedicated One-Lane Median Transitway

Multiple types of BRT operations are being considered utilizing a single BRT lane, including bi-directional, fixed direction, and reversible transit operations.

In bi-directional operations, BRT vehicles traveling in both directions share a single dedicated lane in the center of the roadway. Since the BRT vehicles travel within this one lane in both directions, passing zones are created, generally at station locations, so BRT vehicles moving in opposite directions do not conflict with each other.

In fixed-direction operations, a single median BRT lane is used solely by the BRT vehicles in one direction. The BRT vehicles travel in general purpose traffic lanes in the other direction.

In reversible-direction operations, the direction of the BRT vehicle in the one-lane median varies depending on the time of day. BRT vehicles traveling in the peak direction use the median BRT lane and BRT vehicles traveling in the non-peak direction use the general traffic lanes. An example of a one-lane median transitway is the Emerald Express in Eugene, Oregon.

One-lane median transitways are most appropriate on roadways where the directional split of travel varies by the time of day. In the peak direction it provides fast speeds and reliability but is less costly and impactful than two-lane median transitways. On roads where the directional split of travel is balanced, one-lane median transitway result in slower speeds and less travel time reliability for the direction of travel that uses general traffic lanes.

A One-Lane Median Transitway in Eugene, Oregon

Dedicated Curb Lanes Transitway

The lanes adjacent to the curb are used exclusively by the BRT vehicle, local buses, emergency responders, and right-turning vehicles. The roadway surface may be painted or otherwise marked to reinforce the lane designation. Similar to the median guideways, multiple types of dedicated curb lane operations are being considered including two lanes (one on each side of the roadway), and one curb BRT lane in locations where existing constraints make additional widening impactive and where off-peak BRT vehicles can efficiently operate in mixed traffic. This transitway is less costly and impactful than the two-lane and one-lane median transitways, but speed and travel time reliability will suffer due to right turning vehicles and non-recurring congestion. An example of a curb lane transitway is in Washington, DC, though they also exist in Montgomery County on Georgia Avenue, University Boulevard, Veirs Mill Road, and others.

Curb Lane Transitway in Washington, DC

Mixed Traffic

The BRT vehicle travels in the same lanes as traffic. It would not have lanes dedicated for its use.

Operational Improvements

Transit Signal Priority

Transit Signal Priority (TSP) gives priority to BRT vehicles when certain conditions are met by either extending a green light or shortening a red light by a few seconds to allow an approaching BRT vehicle

to pass through the intersection. TSP was implemented on the MD 355 corridor between Medical Center and the Lakeforest Transit Center as part of Ride On Extra service.

Queue Jumps

Queue jumps are a short section of widened roadway or an existing right turn lane to allow BRT vehicles to bypass congestion or delays at intersections. In most applications, queue jumps are used in conjunction with TSP to provide a lane and dedicated BRT signal that allows BRT vehicles to enter an intersection and "jump" ahead of the other vehicles stopped at the light. In some locations where constraints allow, the roadway is widened to provide a receiving lane that allows the BRT vehicle to merge into traffic beyond the signal. This is beneficial if there is no "BRT Only" signal phase.

Transit Vehicles

Premium Transit Vehicles

BRT vehicles offer a higher quality of service than typical transit vehicles.

The BRT Vehicle for the US 29 Flash

Level Boarding

Like Metrorail, BRT services provide level boardings, which allows persons with mobility challenges to board the BRT vehicle more easily.

Level Boardings on the Emerald Express in Eugene, Oregon

Station Enhancements

Enhanced Stations

BRT services include enhanced stations with weather protection, seating, lighting, off-board fare collection, real time information displays, landscaping/hardscaping and bicycle accommodations.

An Enhanced Station on the US 29 Flash in Briggs Chaney

Off-Board Fare Collection

Like Metrorail, BRT services collect fares from passengers before they board the vehicle, to reduce travel time delay.

Off-Board Fare Collection in Toronto, Canada