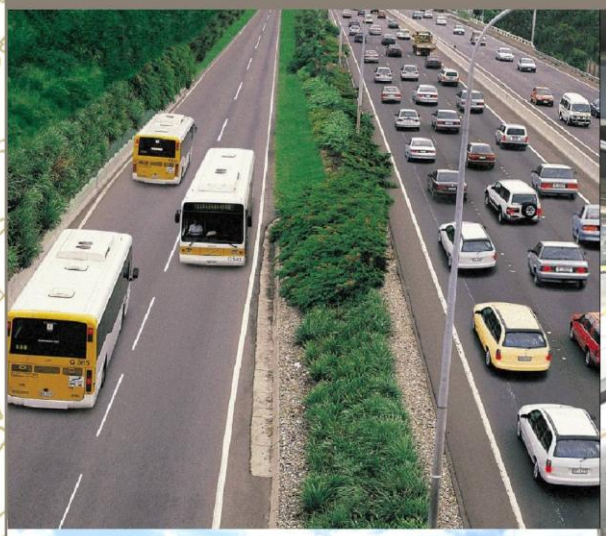
Attachment A

Proposed Public Hearing Draft

Countywide Transit Corridors Functional Master Plan

April 2013



Montgomery County Planning Department
M-NCPPC
MontgomeryPlanning.org

Abstract

This document contains an examination of and recommendations for transit, bicycle, and pedestrian infrastructure that will help create complete transportation options. With the approval and adoption of this functional plan, the *Master Plan of Highways* will become the *Master Plan of Highways and Transitways.*

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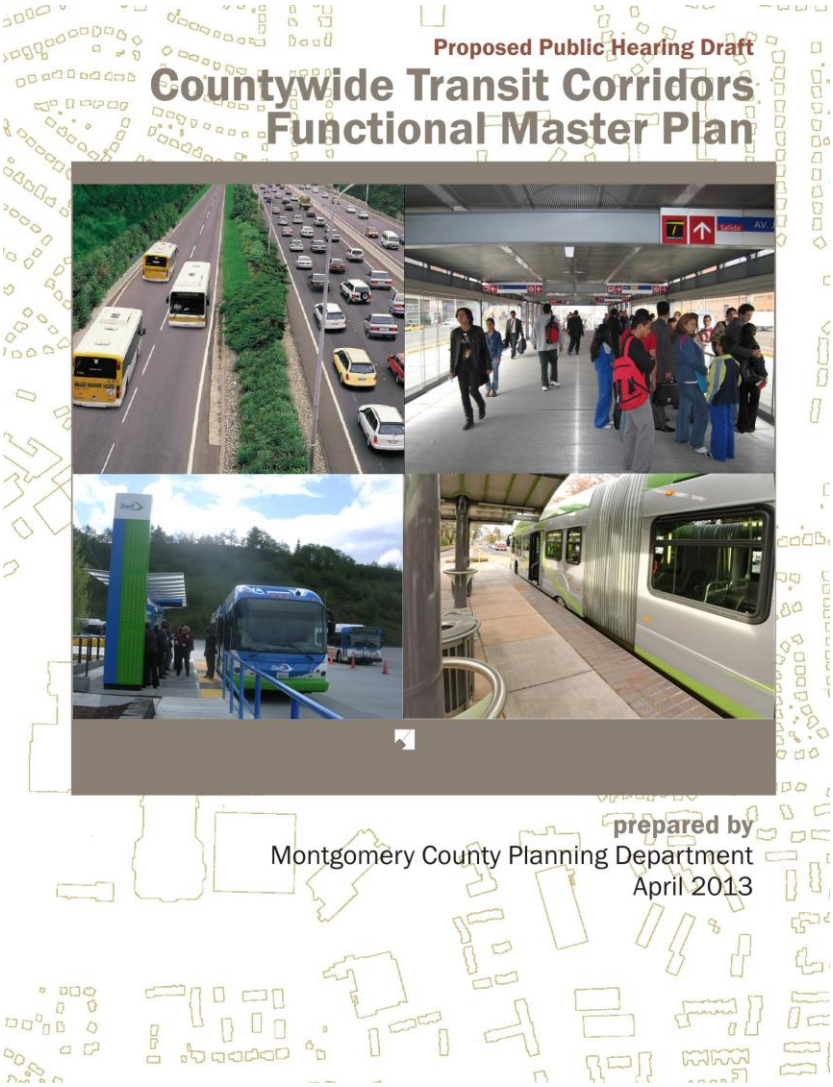

Proposed Public Hearing Draft

Countywide Transit Corridors Functional Master Plan

Prepared by the Montgomery County Planning Department

April 2013

MontgomeryPlanning.org

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Introduction

The Washington, D.C. region is consistently rated among the most congested in the nation, with average commute times exceeding 35 minutes.

Growth is expected to continue in Montgomery County, largely through redevelopment, so options for building new roads or expanding existing ones are limited. Population and employment are forecast to grow significantly, while lane-miles of roadway will not. Even as the County urbanizes, the growth in vehicle trips will outpace the growth in transit trips for commuters. An expansion of high-quality transit service will be needed to move greater numbers of people to and from jobs, homes, shopping, and entertainment areas, reducing the gap between transportation demand and supply and providing County residents a viable and reliable alternative to travel by auto on congested roadways. If this service is not provided, auto congestion will be significantly worse, degrading the quality of life and economic vitality of the County.

Table 1
Montgomery County Demographic and Travel Forecast
(based on the 2012 Constrained Long Range Plan)

	2013	2040	Difference	Percent Difference
Population	997,884	1,203,643	205,759	21%
Employment	529,267	737,364	208,097	39%
Transit work trips	165,121	198,513	33,392	20%
Vehicle work trips	376,269	461,248	84,979	23%
Truck trips	83,024	100,344	17,320	21%
VMT	21,952,932	26,795,176	4,842,244	22%
VMT per capita	22.0	22.3	0.3	1%
Lane-miles*	2,592	2,721	129	5%
Lane-miles of congestion	376	639	263	70%

* Modeled lane miles include freeways, arterials, and many collectors, but few local roads

By 2040, the Metropolitan Washington Council of Governments (MWCOG) projects the region's population to increase by 30 percent and employment to grow by 39 percent.[1] Within Montgomery County, significant changes at the Walter Reed National Military Medical Center, White Flint, U.S. Food and Drug Administration (FDA), the Life Sciences Center, and other commercial and employment centers are expected to impact travel conditions for many.

[1] *Growth Trends to 2040: Cooperative Forecasting in the Washington Region*, 2010

To accomplish this, more efficient use of our public rights-of-way is essential. This plan provides enhanced opportunities for travel by transit to support our economic development and mobility goals in an environmentally sustainable way, and in a way that preserves our existing communities.

Planning Context

Making more efficient use of our existing right of way is not a new approach. Almost 40 years ago, the U.S. Department of Transportation (USDOT) directed Metropolitan Planning Organizations to develop Transportation System Management (TSM) Plans to provide guidance on ways to better utilize existing right of way through means that are less capital intensive and have less impact than building new roads or lanes of traffic. Analysis of a "TSM alternative" is a requirement for major capital projects in urban areas with a population of greater than 200,000.

There are a number of locations within the County today where TSM improvements are in place and providing more efficient use of the right-of-way, such as:

- HOV lanes on I-270
- managed lanes on Colesville Road in Silver Spring north of the CBD and on Georgia Avenue in Montgomery Hills
- off-peak parking on Colesville Road and Georgia Avenue in the Silver Spring CBD and Wisconsin Avenue in the Bethesda CBD that restricts roadway capacity to support economic activity
- longer traffic signal cycles during peak hours to accommodate commuters on the major roadways
- the recent introduction of traffic-signal priority on portions of MD355 to facilitate transit service

Enhanced transit service - including service consisting of many elements of BRT, but short of dedicated lanes requiring heavy construction - is also a recognized TSM strategy. Examples include the MetroExtra service operated by WMATA (which provides limited stop service in mixed traffic), other related near term improvements planned as part of the WMATA Priority Corridor Network program, and the Ride-On Route 100 non-stop service operating via the I-270 HOV lanes.

The provision of dedicated lanes for enhanced transit service is the focus of this update to the County's Master Plan of Highways. This Plan used as its starting point for evaluation the 150-mile BRT network described in the *MCDOT Feasibility Study Report*, completed in August 2011, as well as the later recommendations of the County Executive's Transit Task Force, whose final recommendations were delivered in May 2012. This Plan uses an expanded approach to meeting transportation challenges, however, addressing primarily the needs of a bus rapid transit (BRT) system, but also the designation of bicycle-pedestrian priority areas and the need for expanded MARC commuter rail service to support a transportation network that is better integrated.

This Plan identifies additional rights-of-way for corridor segments that are needed to ensure the overall transit network integrity while limiting impacts upon adjacent property. It recommends the more efficient use of existing rights-of- way by preferential transit accommodation where confirmed through more detailed facility studies and operational planning. This plan does not envision that full-time dedicated bus lanes will be implemented as a first step in most locations. Since a large part of the initial ridership for BRT service will come from existing transit users whose numbers do not warrant a high level of treatment at this time, it is likely that there will be an incremental introduction of priority

treatments and features that, with actual operating and ridership experience, ultimately lead to the maximum level of treatment appropriate for the specific corridor in question.

Task Force report:
http://www.montgomeryplanning.org/viewer.shtm#http://www.montgomerycountymd.gov/content/dot/MCBRTStudyfinalreport110728.pdf

MCDOT report:
http://www6.montgomerycountymd.gov/Apps/cex/transit/reportfinal.asp

BRT service on the recommended transit corridor network will fill a notable gap in the transit services between dense redeveloping areas inside the Beltway, emerging mixed-use activity centers, and commuter corridors. Travelers in Montgomery County currently have the following transit options:

- high-speed/high-capacity heavy rail systems (Metrorail or MARC) largely built for commuters
- local and regional bus services that connect commuters from residential areas to employment centers via express buses along the interstates (MTA express bus), and
- local buses that move slowly along increasingly congested roadways and make frequent stops (Metrobus and Ride On).

Plans are underway to create two additional high-capacity transit corridors—the Purple Line and Corridor Cities Transitway (CCT)—where high development densities and a mix of land uses are either present or planned. However, much of the County will still lack reliable, high-quality transit service that provides a viable alternative to driving an automobile and that provides connectivity among multiple County activity centers.

BRT is a flexible service with a number of potential combinations of attributes. Some BRT corridors include an exclusive transitway with little or no conflicts with other vehicles. Other corridors may take advantage of off-board fare payment, traffic signal priority, and/or increased distance between stops - but few other attributes most often associated with BRT. A single corridor may evolve over time from one with fewer attributes to one with an exclusive transitway as facilities are designed and tested over time.

The transit corridors recommended in this Plan are intended to facilitate the following three types or levels of BRT services:

- BRT—Activity Center Corridor, defined by moderate-speed, high-frequency, all-day transit service. It is most appropriate on activity center corridors that connect multiple dense, mixed-use areas.
- BRT—Express Corridor, defined by high-speed, moderate-frequency, peak-period service. It is most appropriate on access-controlled express corridors that connect commuters at park-and-ride lots to employment centers.
- BRT—Commuter Corridor, defined by moderate-speed, moderate-frequency, limited-stop transit service during peak periods. It is most appropriate on commuter corridors that connect moderate density residential areas to employment centers.

These BRT services would fit into a typology of transit services as follows:

Table 2 Transit Service Typology

Service	Market	Examples	Speed	Frequency	Span	Stop Spacing
Commuter rail	commuters	MARC Brunswick Line	very high	low	peak period	very high
Metrorail	all trips	Red Line	high	high	all day	high
Light rail	all trips	Purple Line	moderate	high	all day	moderate
BRT—Activity Center Corridor	all trips	Corridor Cities Transitway	moderate	high	all day	moderate
BRT—Express Corridor	commuters	US 29	high	moderate	peak period	high
BRT—Commuter Corridor	all trips	K9 MetroExtra route	moderate	moderate	peak period	moderate
Local bus	all trips	Metrobus, Ride On	low	low	varies	low

A transit corridor network that supports these high-quality bus services will improve accessibility and mobility to serve the development envisioned by the County's adopted land use plans. Implementing this Functional Plan will help further the General Plan's transportation goal, which is to:

> "Enhance mobility by providing a safe and efficient transportation system offering a wide range of alternatives that serve the environmental, economic, social, and land use needs of the County and provide a framework for development." (page 63)

The facilities recommended by this Plan will improve transit service through the following enhancements:

- Implementing treatments such as exclusive or dedicated lanes, queue-jumpers, and/or transit signal priority to improve the vehicle's operating speeds along selected segments of the network.
- Providing express and limited stop service to and from key activity centers.
- Providing off-board fare collection and level boarding to reduce the time it takes passengers to enter and exit a bus.

The County is focusing future development in compact, mixed-use areas that reduce the need for driving and enhancing its pedestrian, bicycle, and transit network with sustainable, cost-effective solutions. A key support for this development pattern is a high-quality, reliable transit system that enables people to leave their cars at home. While light rail is an appropriate system to connect high-density activity centers, such as the Purple Line between Bethesda and Silver Spring, it is not cost-effective for most of the County's transit corridors.

BRT works where development densities may be lower than those that warrant light rail, but where greater speed and efficiency for transit services is needed. This Plan recommends a network of additional BRT transit corridors that will be integrated with the Corridor Cities Transitway (CCT), now in preliminary design as a BRT facility. 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.

To support this changing land use policy direction, transportation success must be measured differently. For example, rather than focusing on the number of cars that can move through an intersection, a typical transportation system performance assessment, the County should focus on person-throughput: providing as many people as possible with reliable travel options along its major transportation corridors and where feasible, providing a travel advantage to those who use transit and reducing the growth of traffic congestion into the future.

Nationwide, BRT systems have proved to be beneficial for travelers, reducing travel time and increasing service reliability. The experience of those systems was used to determine where additional right-of-way should be identified and protected for the construction of future transitways and transit stations.

person-throughput: the number of persons that can be carried in a particular lane or roadway in one hour
corridor: a public right-of-way for transportation that contains one or more of the following: a roadway, transitway, bikeway, or pedestrian facilities
transit corridor treatment: the physical space in the public right-of-way intended to be used by BRT service
bus route: a designated set of roadway segments used by a regularly scheduled bus service

Summary Recommendations

Functional plans provide the intermediate level of planning detail between the General Plan and area master plans, in this case, providing the legal basis for securing adequate rights-of-way to accommodate the desired facilities. The focus of this Plan is to**:**

- identify the rights-of-way needed to accommodate the desired BRT network, facilitating superior transit service along many of the county's major roadways
- recommend a minimum public right-of-way for each affected roadway and any changes to the planned number of travel lanes
- identify recommended station locations.

This Plan recommends a network of ten transit corridors (see Map 1), with specified rights-of-way and treatments, as well as direction for more extensive transit corridor treatments that may be warranted in the future.

Map 1 Recommended BRT Corridors

Corridor 1: Georgia Avenue North
Corridor 2: Georgia Avenue South
Corridor 3: MD 355 North
Corridor 4: MD 355 South
Corridor 5: New Hampshire Avenue
Corridor 6: North Bethesda Transitway
Corridor 7: Randolph Road
Corridor 8: University Boulevard
Corridor 9: US 29
Corridor 10: Veirs Mill Road

The Plan also recommends:

- designating Bicycle-Pedestrian Priority Areas around major stations to promote safe, convenient access for transit patrons
- adding a third track on a portion of the MARC Brunswick Line to promote regional transit service improvements.

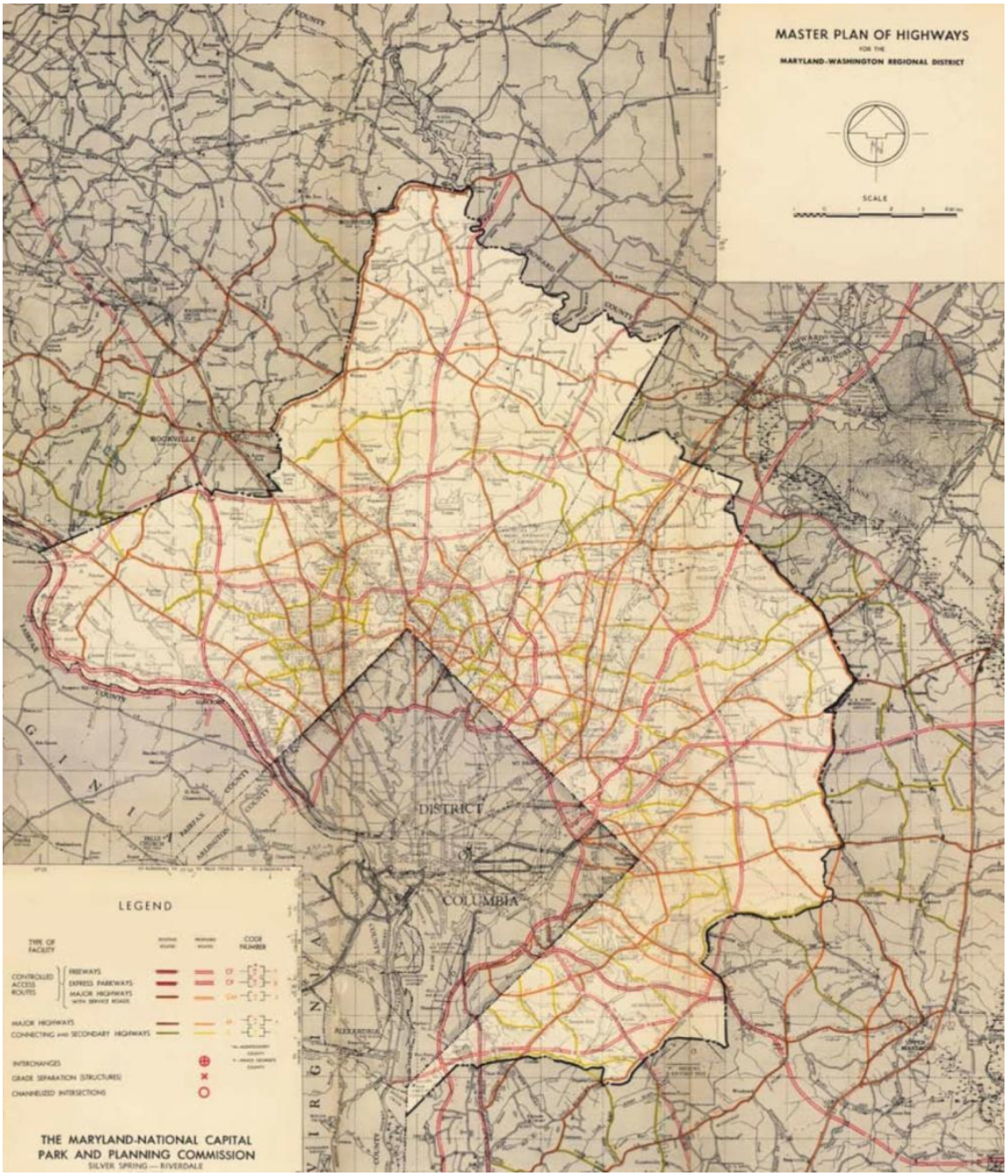
This Plan's recommended transit corridor network is intended to serve current and planned land use in adopted master and sector plans. No changes to land use or zoning are recommended in this Functional Plan.

This Plan establishes the direction for more detailed work to be done in project planning along individual transit corridors; it also recommends that a greater level of transit treatments be considered for these corridors as part of future master or sector plan updates (see page 21). The corridor segment treatment, length, and station locations are all subject to modification during these more detailed planning and engineering phases of project development and implementation.

Background

The first *Master Plan of Highways* (MPOH) was approved and adopted in 1931, shortly after the creation of the Maryland-National Capital Park and Planning Commission in 1927. The last comprehensive update to the MPOH was approved and adopted in 1955 (see Figure 1). It covered the Maryland-Washington Regional District as it existed at the time, Montgomery County's portion of which was about one-third of the County's current area—east of Georgia Avenue, east and south of the City of Rockville, and the southeast portion of Potomac.

Figure 1 *Master Plan of Highways*, 1955



Rather than a comprehensive update, the MPOH has been updated periodically, focusing on specific projects or geographic areas. Area master plans were revised in the 1970s to include the Metrorail Red Line, but the MPOH map was not revised to include transitways until 1986. Transitways now included in the MPOH are:

- Purple Line Transitway
- Corridor Cities Transitway
- North Bethesda Transitway
- Georgia Avenue Busway.

Since 1955, there have been updates and amendments to the MPOH through various approved and adopted functional, master, and sector plans. The most significant countywide update since 1955 was the creation of the *Rustic Roads Functional Master Plan* (RRFMP) in 1996, which sought to preserve many of the roads in the rural area of the County to reflect and further the goals of the 1980 *Functional Master Plan for the Preservation of Agricultural and Rural Open Space*.

This Plan complements the RRFMP by reflecting the growing urbanization of the I-270 corridor and the down-County area. It will provide the mobility needed to accommodate that growth while minimizing the adverse impacts on quality of life for those who live, work, and patronize the businesses along major roadways.

The General Plan recommends “an interconnected transportation system that provides choices in the modes and routes of travel.” A BRT system would better enable transit riders to travel on a network of corridors with few transfers and with reliable service, helping to fulfill the General Plan’s transportation vision.

Vision

This Plan will greatly increase the extent of high-quality transit service to serve the County's most densely developed areas, areas planned for redevelopment, and areas planned for new dense development. As the County urbanizes, BRT will provide the transit service needed to move more people to and from jobs, homes, shopping, and entertainment areas. Transit's more efficient use of public rights-of-way will support economic development in an environmentally sustainable way and in a way that preserves existing communities.

Why Bus Rapid Transit?

With exclusive or dedicated lanes, signal priority, and a greater spacing between stops, BRT will:

- provide better service to existing transit passengers whose travel time would be reduced
- provide a fast, convenient, reliable alternative to the single-occupant vehicle and increasingly congested roads
- move more people in the same space as a general purpose lane at a higher average level of service
- act as a bridge between rail transit and extensive local bus service
- intercept many non-County residents before they reach the County's more heavily developed areas, allowing roadway capacity to better serve planned development within the County.

BRT can be implemented more easily and quickly than light rail, at a lower capital cost, and is far more flexible. BRT routes can use a single transit corridor or parts of multiple corridors, which can also accommodate local buses that are included in the County's bus service plan for the network.

Finally, BRT can be implemented in phases, integrating improvements in vehicles, stations, and runningways as operating and capital funds become available, and as the related varying levels of transit supportive densities materialize along segments of the corridors.

Fitting BRT into the County's Transportation Network

Metrorail is the backbone of the County's transit network, providing transit service via the Red Line within the County and to downtown Washington, D.C. It provides service to about three-quarters of a million passengers systemwide on an average weekday, significantly reducing the peak-hour travel burden on the region's roadway network. This service has replaced the need for approximately 1,000 lane-miles of roadway and thousands of parking spaces.

The Purple Line, planned as Light Rail Transit (LRT) will provide the next layer of transit service, connecting down-County activity centers, the two Red Line corridors, and Montgomery County with Prince George's County. Bus rapid transit would form the next layer of transit service. Local, circulator or shuttle, limited-stop, and commuter/express bus routes and MARC commuter rail complete the network.

In addition to serving activity centers directly, BRT on the recommended transit corridors will serve as feeders to Metrorail and MARC stations, and local bus service and shuttles will feed into the recommended corridors. Montgomery County has one of the largest suburban bus services in the country, providing thirty million trips per year. Ride On's extensive network of local routes will continue to provide access to both the BRT and Metrorail systems, as will the Metrobus network.

The introduction of extensive high-quality transit service on the County's roadways will provide an attractive alternative to private automobiles. In addition to recommendations in the General Plan and many master plans to increase the percentage of residents using transit, specific mode share goals of up to 50 percent non-single-occupant vehicle travel are already in place in several areas of the County. The recommended transit network would provide the superior transit facilities necessary to achieve these goals.

At the same time, BRT service on the transit corridor network recommended by this Plan would improve the overall operation of the roadway network for drivers still using the roads by increasing average travel speeds and reducing the growth in congestion countywide. (Appendix A shows the results for the three transit corridor networks modeled.) The impacts on individual corridors will depend greatly on the final transit corridor treatment selected by the implementing agency and must be determined during detailed project planning and service planning following the adoption of this Functional Plan.

This Plan makes no recommendations for adding park-and-ride facilities, so BRT access would be via existing parking facilities, biking, and walking. While adding park-and-ride lots could increase ridership, the locations of these lots should be carefully considered to match the function of each recommended BRT corridor:

- BRT—Activity Center: because these corridors connect multiple dense, mixed-use areas, all station areas should prioritize pedestrian, bicycle, and transit access; park-and-ride lots should be discouraged.
- BRT—Express Corridors: because these corridors connect park-and-ride lots to employment centers, park-and-ride BRT stations should prioritize vehicular and transit access, though pedestrian, bicycle, and transit access should be the focus at all other stations.
- BRT—Commuter Corridors: because these corridors connect moderate density residential areas to employment centers, most station areas should prioritize pedestrian, bicycle, and transit access. Park-and-ride lots may be appropriate at some locations, especially end-of-the-line stations and connections to interstates and expressways, but multi-modal access should be provided.

This Plan recommends that additional park-and-ride lots be considered in future area master plans:

- as an interim use where transit-oriented redevelopment is an appropriate long term goal, or
- as a long-term use where transit-oriented development would not be feasible or would otherwise be inconsistent with the master plan's objectives.

The Plan recommends sufficient rights-of-way for safe, adequate access along the transit corridors, improvements to existing bicycle and pedestrian facilities in the areas around recommended stations, and the designation of Bicycle-Pedestrian Priority Areas at major transit stations.

Guiding Principles

The 1993 General Plan Refinement shifted the County's transportation goal toward meeting travel demand by providing good alternatives to the single-occupant vehicle:

> *The 1969 Circulation Goal was to "provide a balanced circulation system which most efficiently serves the economic, social, and environmental structures of the area." The General Plan Refinement renames the goal to the Transportation Goal. One important conceptual change in this goal is the movement away from accommodating travel demand and towards managing travel demand and encouraging the availability of alternatives to the single- occupant vehicle. The Refinement effort thus abandons phrases such as "carry the required volume" and "accommodate travel demand" because the demand for single- occupant vehicle travel will usually outstrip the County's ability to meet it. (p. 61)*
>
> *Making better use of the transportation system already in place, getting more people into trains, cars, and buses in future right-of-way, and creating an environment conducive to walking and biking are all necessary elements to achieve an affordable balance between the demand for, and supply of, transportation. (p. 60)*
>
> *A key aspect of making the County more accessible by transit and walking is that it can reduce travel by car. Favoring transit can make more efficient use of the existing roadway network and can reduce air pollution. (p.17)*

To further the transportation goal, this Plan recommends:

- designating exclusive or dedicated bus lanes, wherever there is sufficient forecast demand to support their use, to promote optimal transit speeds in urban areas and surrounding suburban areas
- implementing transit facilities and services where and when they would serve the greatest number of people on individual corridors and where there would be an improvement to the overall operation of the county's transportation network
- expanding regional rail transit service
- supporting policies and programs that increase the comfort and safety of pedestrians and bicyclists traveling to and from transit facilities.
- minimizing the construction of additional pavement to limit impacts on the environment and on adjacent communities

A strong transit network is essential to support economic development in planned growth areas. The recommended transit corridors will facilitate BRT and other high-quality transit services as well as potentially accommodate other bus services such as Metrobus and Ride On and provide connections to Metrorail, the Purple Line, and MARC.

Determining BRT Treatments

The transit corridors in MCDOT's Feasibility Study Report and those recommended by the County Executive's Transit Task Force were analyzed to consider:

- forecast transit ridership (see Appendixes 1 and 2)
- general traffic volumes and patterns
- existing roadside development
- planned land use.

This Plan's corridor treatment recommendations are tailored to reflect the specific conditions for each corridor segment and include the following decisions.

- Are dedicated lanes warranted?
- Should the dedicated lanes be at the curb or in the median?
- Can existing travel lanes be repurposed as dedicated bus lanes?
- What segments of the recommended transit network can be implemented without adversely affecting current planned land use or general traffic operations? What segments require further study as part of an area master plan effort?

The attached Appendix B includes a detailed description of the specific conditions in each corridor and the rationale behind the treatment recommended. The following summarizes the basis for these decisions.

Dedicated Lanes

The ridership used to determine when a dedicated bus lane is warranted can vary nationally depending on the jurisdiction but are typically around 1,200 passengers per peak hour in the peak direction (pphpd). This Plan's recommendations are based on a lower threshold of 1,000 pphpd to reflect:

- the high level of analysis of the large network studied
- the long time frame of the Functional Plan, which accommodates build-out of current planned land use beyond the 2040 forecast year
- hard-to-measure model attributes that may significantly increase forecast ridership. Preliminary modeling work done for the Veirs Mill Road Corridor indicated that the forecast ridership could be undercounted by up to 30% because of these attributes, which include:
    - service branding
    - reliability
    - span of service hours
    - comfort
    - protection from weather
    - the chances of finding a seat
    - other passenger amenities

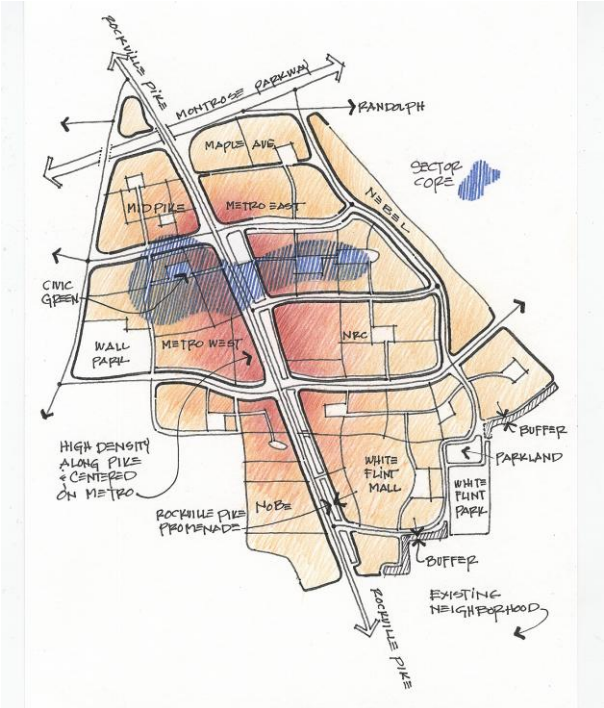
Where forecast BRT ridership was less than the 1,000 pphpd threshold, it was combined with forecast local bus ridership to identify corridor segments where dedicated lanes could improve bus travel for all transit users. Corridor segments that fell below 1,000 pphpd in combined BRT and local bus ridership were generally not recommended for inclusion in the Plan. In select cases, largely because of network integrity considerations, some lower-ridership segments were retained, most often as mixed traffic operations.

Median vs. Curb Lanes

Median busways have exclusive rights-of-way and provide the highest level of BRT accommodation. They are recommended where the peak hour forecast ridership is very high. For example, the *Transit Capacity and Quality of Service Manual* sets consideration of a median busway at 2,400 people in the peak hour in the peak direction (pphpd), however some jurisdictions have set that threshold between 1,500-1,700 pphpd for policy reasons. This is a reasonable approach for Montgomery County to consider as well, for the same reasons outlined in Dedicated Lanes above, and this Plan uses a threshold of 1,600 pphpd to determine where median busways are desirable.

Higher bus ridership forecasts make a median busway more desirable since it provides the highest level of service for riders, even though it requires a wider right-of-way and makes left-turns for general traffic more difficult. A supporting street grid however, makes accommodating a median busway easier by giving options for parallel routes and turning movements, e.g. the White Flint Sector Plan area.

Figure 2 Proposed White Flint Street Grid



The existing and proposed street grid in White Flint provides alternative routes to MD 355. Proposed redevelopment will add mixed-uses, open spaces, and travel options.

Future area master plan updates, particularly in station areas, should consider ways to enhance the street grid at critical locations. More detailed planning will be required during implementation to determine location-specific solutions to the traffic challenges posed by a median busway.

Corridors with lower forecast BRT ridership but with high combined BRT and local bus ridership are better suited to curb lane operations. Dedicated curb lanes may be shared with express and limited-stop bus services to provide faster, more dependable bus service for all corridor transit patrons in the corridor. Dedicated curb lanes may also be the best interim treatment where a median busway is

desired but where obtaining sufficient right-of-way is not possible in the near term without excessively adverse impacts.

The treatments recommended in this Plan are intended to determine the rights-of-way necessary to facilitate the development of a network of dedicated transit lanes. This Plan recognizes however, that the final decision on treatment in each transit corridor must be made at the time of implementation when a transit service plan is in place and:

- the benefits of accommodating BRT and/or other bus services in the dedicated lanes can be quantified
- the traffic impacts of implementing curb lanes vs. a median busway can be more closely studied
- the impacts on adjacent properties can be determined.

This Plan is intended to provide flexibility for the implementing agency to make the choice of a curb or median busway as the best way to achieve dedicated lanes.

Lane Repurposing

After determining whether dedicated median or curb lanes are warranted on a corridor, the next step is to determine how to achieve them, whether to repurpose existing travel lanes, use the median where it's wide enough to accommodate the desired treatment, or identify additional right-of-way.

An important goal of this Plan is to increase person-throughput, the number of people that can be accommodated within our often constrained public rights-of-way. Lane-repurposing—designating an existing travel lane for bus use only—provides the most efficient use of available transportation facilities. In addition to Central Business District areas where constructing additional lanes is most often not practical, lane repurposing is recommended where the number of forecast transit riders exceeds the general purpose lane capacity and/or where general traffic demand would not exceed capacity.

In many segments of the proposed BRT corridors, the 2040 forecast bus ridership surpasses, and in some cases far surpasses, the person-throughput of a single general purpose traffic lane. Implementing necessary and more efficient transit facilities should reflect the priority given to transit in the General Plan (see references on p. 18).

Where bus rapid transit would move people most efficiently in a corridor, the dedicated space needed to accommodate transit should be provided; the remaining lanes would continue to be available for general traffic. The recommended bus lanes would provide a greater level of person-throughput, potentially at a higher average level of service for all users of the road. Because of heavy traffic demands, future congestion may still be unacceptably high in the remaining lanes. The desirability of providing additional general traffic lanes should then be considered along with the impacts associated with constructing the additional pavement.

The desire to reduce congestion by providing more roadway capacity must be weighed against the benefits of increasing transit ridership. However, the transportation modeling performed for this Plan forecasts an overall improvement in traffic speeds with the introduction of BRT over the no-build condition. More detailed planning will be required during implementation to determine location-specific impacts on traffic in areas where lane-repurposing is recommended.

In addition to the person-throughput measure of whether a bus lane or a general traffic lane can move the most people, lane-repurposing should also be considered where it would result in the greatest improvement in level-of-service for all users of the roadway. Where the forecast BRT ridership on a congested roadway is greater than the capacity of a general traffic lane, the lane-repurposing test is met. But while the general traffic lanes may experience the same poor level of service, the bus lane carries a greater number of people in fewer vehicles with a far higher level of service, significantly increasing the average level of service for all users of the roadway.

This Plan recommends that facility planning should consider improvements in the weighted average level of service for all users of the roadway when evaluating the costs and benefits of constructing additional pavement to achieve the recommended transit facilities.

Master Plan Phasing

This Plan makes recommendations for a network of 79 miles of transit corridors based on the following phasing.

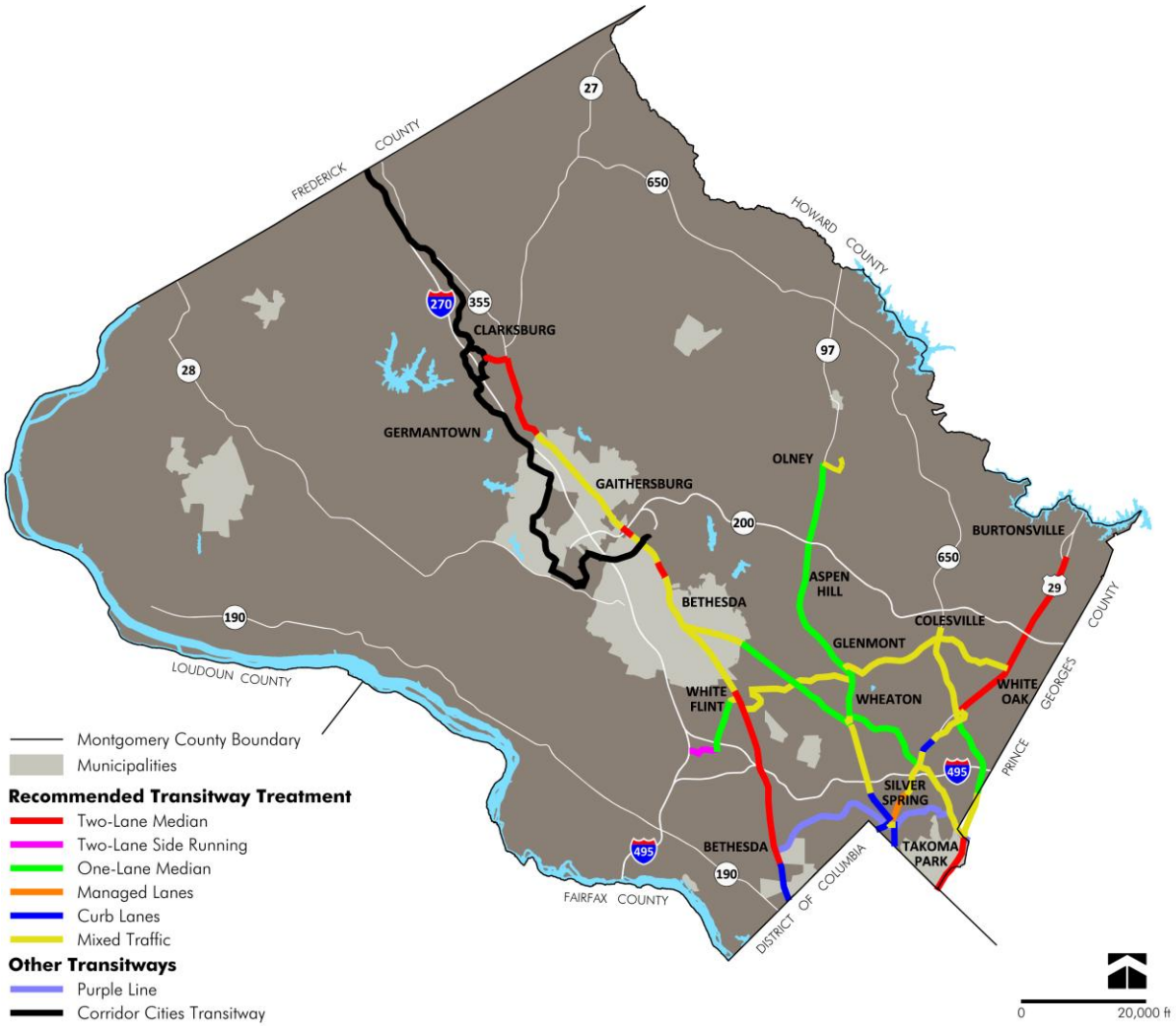
Phase 1 – corridors and treatments warranted by current zoning and related 2040 forecast bus ridership that can be accomplished without major impacts on existing development. Only Phase 1 transit corridor segments have recommended rights-of-way that should be used to pursue BRT implementation in the near term.

Phase 2 – greater corridor treatments warranted if pursued in conjunction with potential land use changes in future area master or sector plan updates. These treatments require additional study to confirm the recommended treatment and right-of-way.

Phase 2 recommendations are intended as policy guidance for future area master or sector plan updates, including those of Prince George's County and the Cities of Rockville and Gaithersburg, jurisdictions that must pursue their own master plan processes to determine the ultimate recommended rights-of-way.

Future area master or sector plan updates should consider the relationship of building locations and heights to the ultimate roadway width to ensure a transit-oriented development pattern that promotes pedestrian safety. The concurrent creation of urban design guidelines should be considered for all recommended transit corridors with greater than six lanes to establish minimum building heights and build-to requirements.

Map 2 Recommended Phase 1 Transit Network
(Typical transit corridor treatments on a six-lane roadway are shown in Figures 3 through 8)



Map 3 Recommended Phase 2 Transit Network
(Typical transit corridor treatments on a six-lane roadway are shown in Figures 3 through 8)

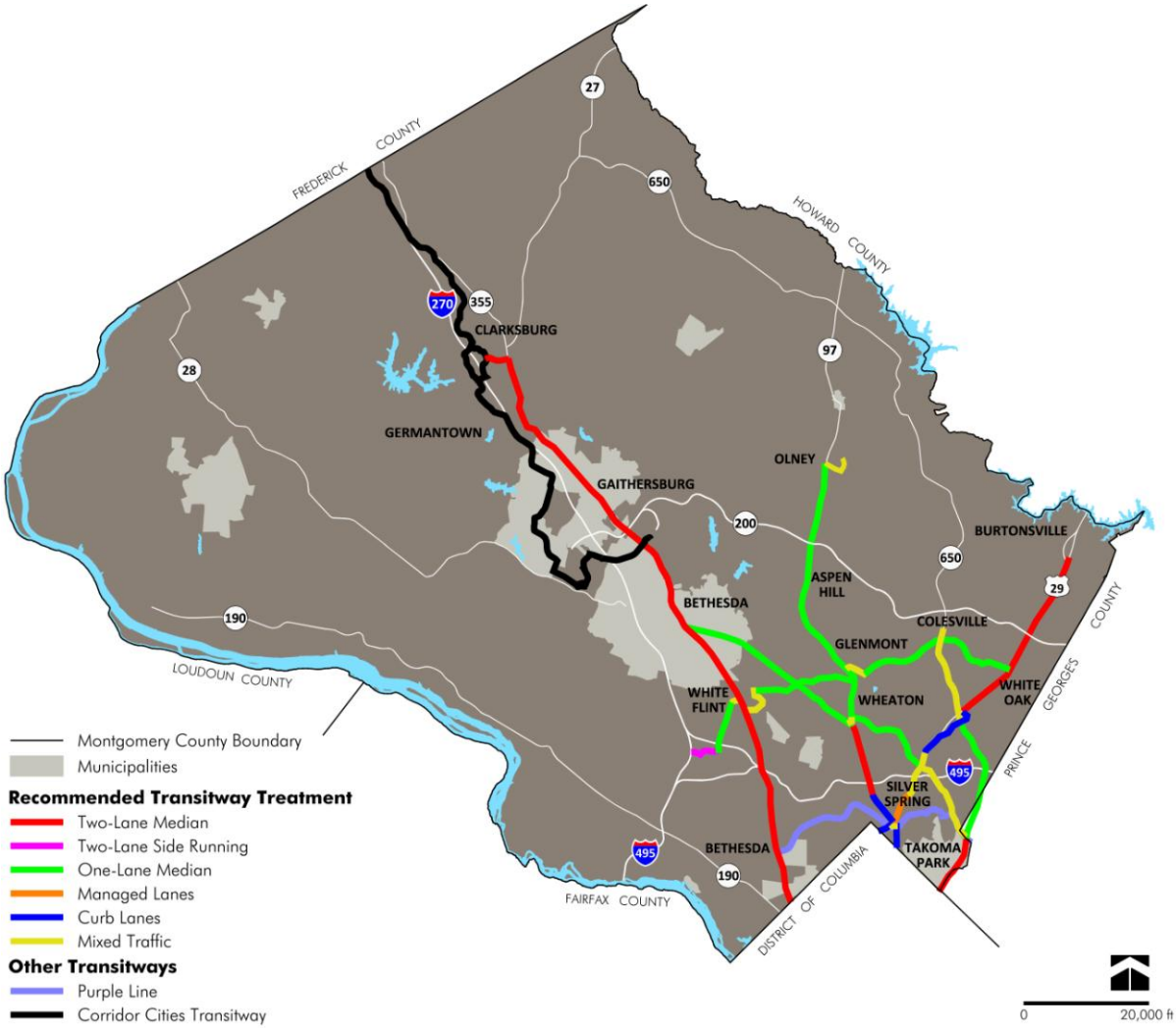


Figure 3 Recommended Corridor Segment Treatment: Two-Lane Median Busway

One lane would be dedicated to BRT service on either side of the roadway median, with a two-foot-wide buffer separating the bus lanes from general traffic.

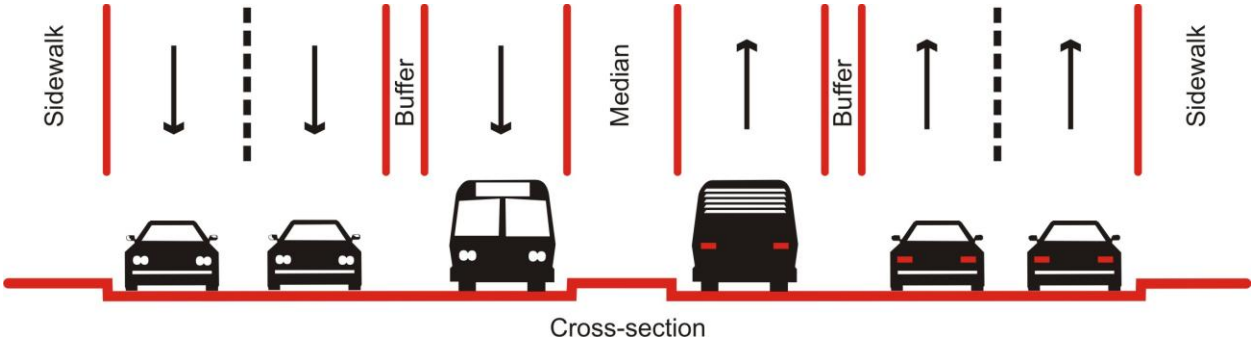


Figure 4 Recommended Corridor Segment Treatment: Two-Lane Side Busway

A two-lane busway to serve BRT would be constructed on one side of the roadway, with a two-foot-wide buffer separating the bus lanes from general traffic.

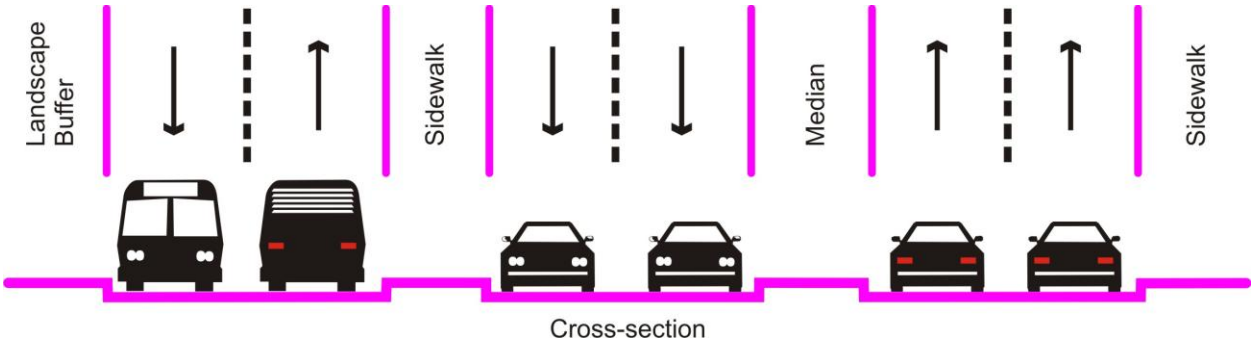


Figure 5 Recommended Corridor Segment Treatment: One-Lane Median Busway

One lane would be dedicated to BRT service in the center of the roadway separated from general traffic by a median on either side. This lane would in most cases accommodate BRT service in one direction only, but could accommodate bi-directional BRT service if provided with adequate passing lanes.

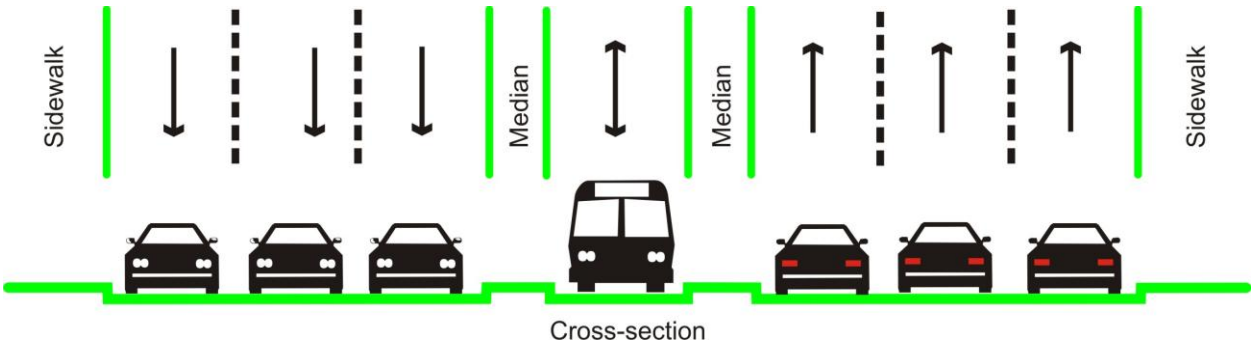


Figure 6 Recommended Corridor Segment Treatment: Managed Lanes

One lane would be dedicated to BRT service during peak hours in the peak direction of travel only on roads that have reversible-lane
operation.

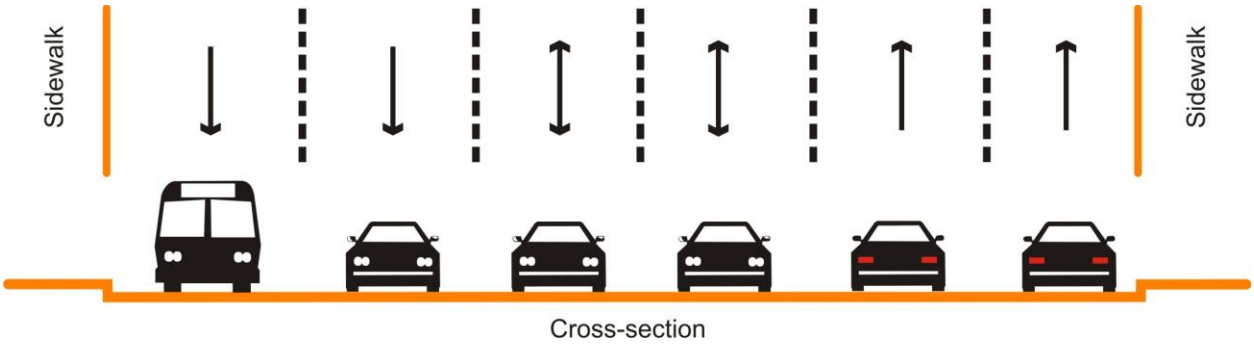


Figure 7 Recommended Corridor Segment Treatment: Curb Lanes

The outside lanes adjacent to the curb (nearest the sidewalk) would be dedicated to BRT service, either during peak hours or all
day.

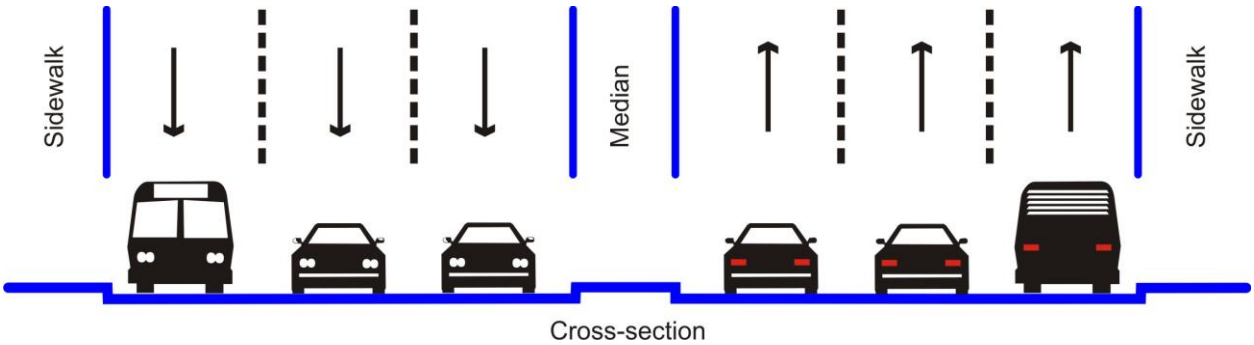
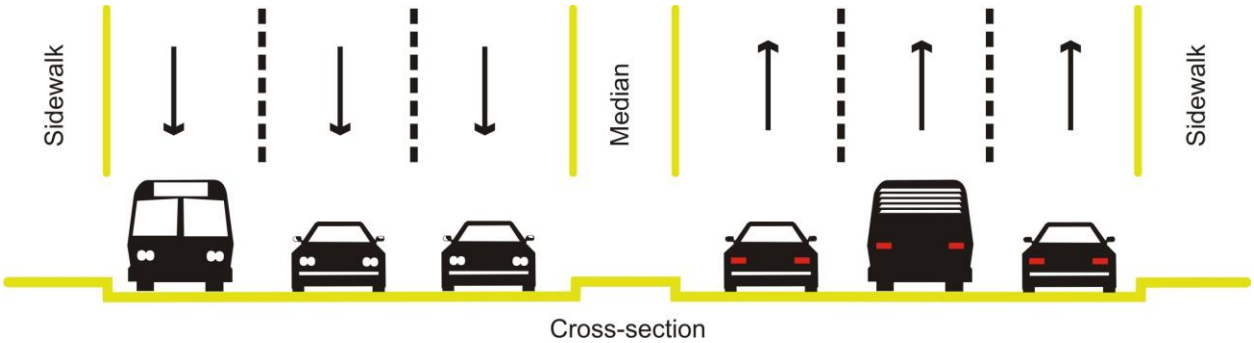


Figure 8 Recommended Corridor Segment Treatment: Mixed Traffic

No dedicated space would be provided for BRT service. Buses would typically operate as they do now but some additional accommodation at intersection could be provided, such as queue jumpers (short passing lanes) and/or traffic-signal priority.



Recommended Corridors

This Plan recommends the following ten corridors:
Corridor 1: Georgia Avenue North
Corridor 2: Georgia Avenue South
Corridor 3: MD 355 North
Corridor 4: MD 355 South
Corridor 5: New Hampshire Avenue
Corridor 6: North Bethesda Transitway
Corridor 7: Randolph Road
Corridor 8: University Boulevard
Corridor 9: US 29
Corridor 10: Veirs Mill Road

The recommendations for each corridor include:

- dedicating public rights-of-way for several transit corridors
- specific treatments for each corridor segment
- changes in the number of master planned travel lanes
- intersections at which transit stations should be located.

Stations are identified by the station type and right-of-way, but the specific location of the station and associated right-of-way should be determined during facility planning. Additional right-of-way will also be required at some intersections to accommodate turn lanes. The typical rights-of-way associated with stations and turn lanes at intersections are shown in Consultant Memoranda in Appendix 13.

Appendix B contains a summary of the changes in recommended rights-of-way and number of travel lanes from the current master plan, as well as the forecast ridership for each recommended corridor.

Appendix C shows the relationship of the recommended transit corridor network to forecast jobs and housing

Corridor 1: Georgia Avenue North

Georgia Avenue North is a commuter corridor, with most traffic flowing southbound in the morning and northbound in the evening. The corridor has several activity nodes, notably the commercial centers at Wheaton and Glenmont, and their respective Metrorail stations. Aspen Hill and Olney are at the northern end, with residential uses in between.

The corridor includes the Georgia Avenue Busway, a long-planned transitway in the wide median between Glenmont and Olney recommended in the 1997 *Glenmont Sector Plan*, 1994 *Aspen Hill Master Plan*, and 2005 *Olney Master Plan*.

Since congestion tends to occur in the peak direction of traffic, a single dedicated transit lane is sufficient for achieving a travel speed consistent with commuter BRT service.

Phase 1 recommendations:

- Along Prince Phillip Drive from the planned Olney Transit Center to Olney-Sandy Spring Road, a mixed traffic transitway.
- Along Olney-Sandy Spring Road from Prince Phillip Drive to Georgia Avenue, a mixed traffic transitway.
- Along Georgia Avenue from Olney-Sandy Spring Road in Olney to Reedie Road in Wheaton, a reversible one-lane median transitway.
- Along Reedie Road from Georgia Ave to Veirs Mill Road, a mixed traffic transitway.

This Plan also recommends implementing a cycle track in the median to achieve a bicycle facility that avoids the driveway interruptions of the more typical location at the side of the roadway and permit cyclists to travel safely at a higher speed. The higher quality of such a path negates the need for on-road bike lanes. The cycle track will end at Glenallan Avenue where users can transfer to the Wheaton Metro Station or the Glenmont Greenway.

Station Locations
Montgomery General Hospital
MD 108 and MD 97
MD 97 and Hines Road
ICC park-and-ride
MD 97 and Norbeck Road park-and-ride
MD 197 and Bel Pre Road
MD 97 and Rossmoor Boulevard
MD 97 and MD 185
MD 97 and Hewitt Avenue
Glenmont Metro Station
MD 197 and Randolph Road
MD 97 and Arcola Avenue
Wheaton Metro Station

Map 4 Georgia Avenue North Corridor

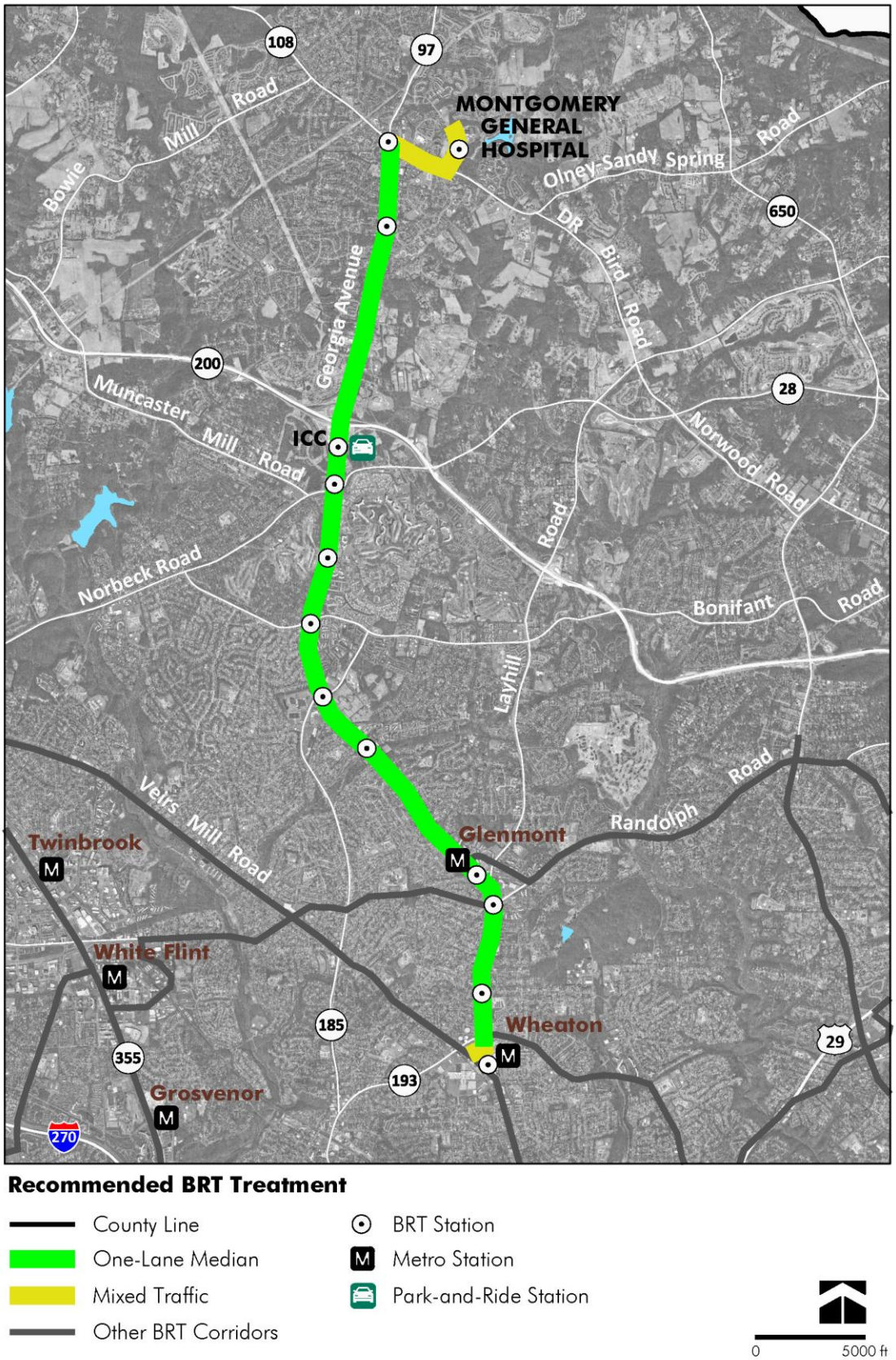


Table 3: Corridor Recommendations, Georgia Avenue North

Road	From	To	Existing # of Lanes	Existing Master Plan		Phase 1		
				r.o.w.	Lanes	Treatment	r.o.w.	Lanes
Prince Phillip Drive	Brooke Farm Dr	MD 108	2	80	4	Mixed Traffic	80	4
Olney Sandy Spring Road	Prince Phillip Dr	Spartan Rd	4	150	4		150	4
Olney Sandy Spring Road	Spartan Rd	Georgia Ave	4	150	4		150	4
Georgia Avenue	MD 108	Spartan Rd	4	120	4	Reversible One-Lane Median	121	4 + 1 bus
Georgia Avenue	Spartan Rd	200 ft south of Queen Mary Dr	4	150	4 + 2 bus		150	4 + 1 bus
Georgia Avenue	200 ft south of Queen Mary Dr	Old Baltimore Rd	4	150	4 + 2 bus	Reversible One-Lane Median	150	4 + 1 bus
Georgia Avenue	Old Baltimore Rd	Emory Ln	4 to 5	150	4 + 2 bus		150	4 + 1 bus
Georgia Avenue	Emory Ln	MD 28	5 to 6	150	6 + 2 bus		150	6 + 1 bus
Georgia Avenue	MD 28	Matthew Henson State Park	6	150	6 + 1 bus		150	6 + 1 bus
Georgia Avenue	Matthew Henson State Park	Weller Rd	6	120	6		130	6 + 1 bus
Georgia Avenue	Weller Rd	Denley Rd	6	135	6 + 1 bus		135	6 + 1 bus
Georgia Avenue	Denley Rd	Layhill Rd	6	145	6 + 1 bus		145	6 + 1 bus
Georgia Avenue	Layhill Rd	Randolph Rd	6	170	6		170	6 + 1 bus
Georgia Avenue	Randolph Rd	500 ft south of Randolph Rd	6	170	6		170	6 + 1 bus
Georgia Avenue	500 ft south of Randolph Rd	Mason St	6	120	6		124	6 + 1 bus
Georgia Avenue	Mason St	400 ft north of Blueridge Ave	6	120	6		120	6 + 1 bus
Georgia Avenue	400 ft north of Blueridge Ave	Reedie Rd	6	120	6		129	6 + 1 bus
Reedie Road	Georgia Ave	Veirs Mill Rd	2	70	2	Mixed Traffic	70	2

Table 4: Corridor Recommendations, Georgia Avenue North Cycle Track

Route Number	Name	Type	Limits
CT-2	Georgia Ave	Cycle Track	Queen Mary Dr to Glenallen Ave

Corridor 2: Georgia Avenue South

Like its partner to the north, the Georgia Avenue South is a commuter corridor, with most traffic (and congestion) flowing southbound in the morning and northbound in the evening. The corridor has several activity nodes, notably the Wheaton and Silver Spring CBDs with their respective Metrorail stations, the Forest Glen Metrorail station, and the Montgomery Hills commercial center, with residential uses in between.

Phase 1 recommendations:

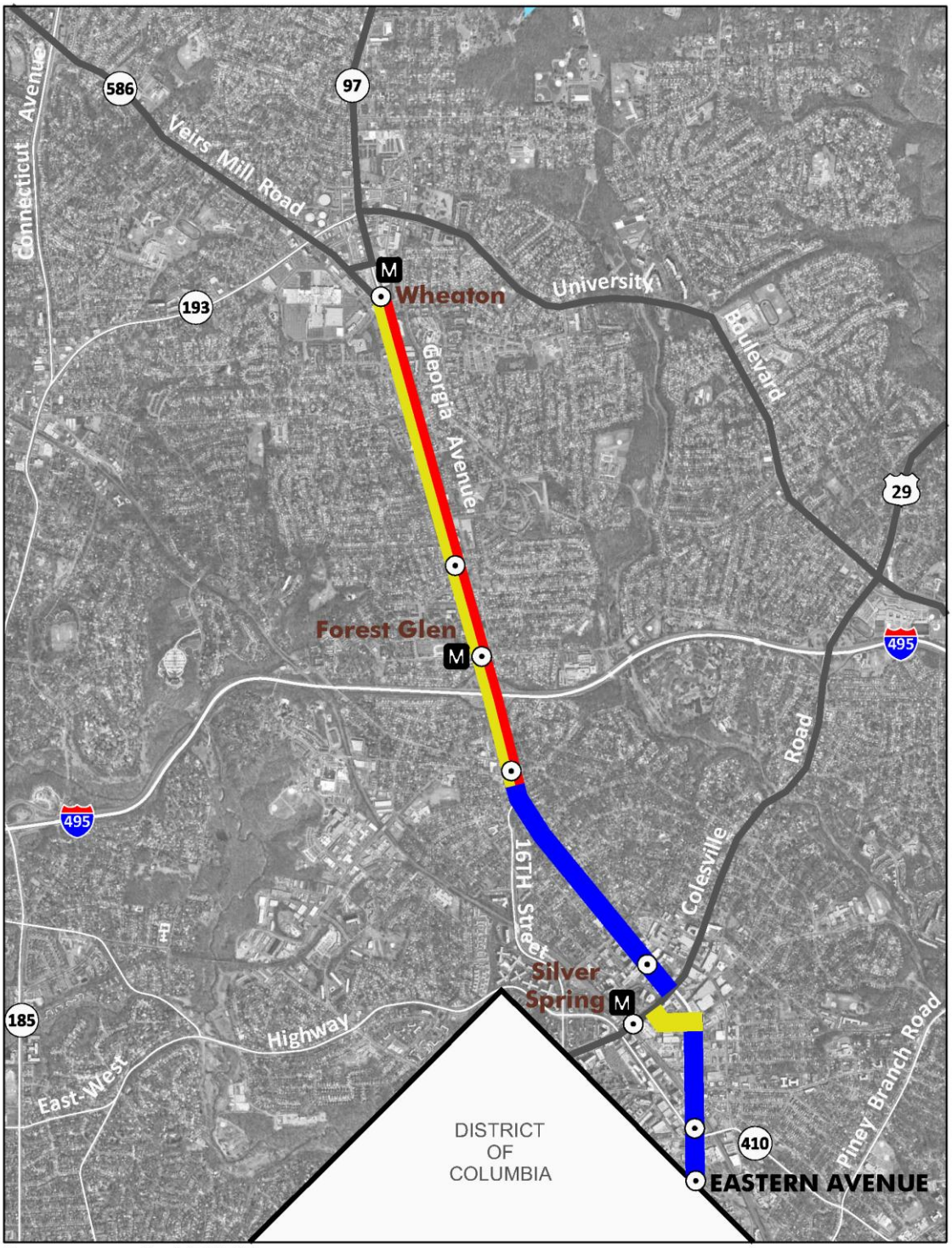
- Along Georgia Avenue from Veirs Mill Road to 16th Street, a mixed traffic transitway.
- Along Georgia Avenue from 16th Street to Colesville Road, dedicated curbs lanes.
- Along Wayne Avenue from Georgia Avenue to Colesville Road, a mixed traffic transitway.
- Along Georgia Avenue from Wayne Avenue to the DC line, a two-lane median transitway. This transitway could accommodate BRT and/or an extension of the DC streetcar line planned for Georgia Avenue.

Phase 2 recommendation:

- Upgrade Georgia Avenue from Veirs Mill Road to 16th Street to a two-way median transitway.

Station Locations
Wheaton Metro Station
MD 97 and Dexter Avenue
Forest Glen Metro Station
MD 97 and Seminary Road
MD 97 and Cameron Street
Silver Spring Transit Center
MD 97 and East West Highway
MD 97 and Eastern Avenue

Map 5 Georgia Avenue South Corridor



Recommended BRT Treatment

- County Line
- Curb Lanes
- Mixed Traffic
- Phase 1: Mixed Traffic
  Phase 2: Two-Lane Median
- Other BRT Corridors
- BRT Station
- Metro Station

0 2500 ft

Table 5: Corridor Recommendations, Georgia Avenue South

Road	From	To	Existing # of Lanes	Existing Master Plan		Phase 1			Phase 2		
				ROW	Lanes	Treatment	ROW	Lanes	Treatment	ROW	Lanes
Georgia Avenue	Veirs Mill Rd	Windham Ln	6	120	6	Mixed Traffic	120	6	Two-Lane Median	163	6 + 2 bus
Georgia Avenue	Windham Ln	Dennis Ave	6	120	6		120	6		161	6 + 2 bus
Georgia Avenue	Dennis Ave	Forest Glen Rd	6	110	6		110	6		161	6 + 2 bus
Georgia Avenue	Forest Glen Rd	I-495	6	110	6		110	6		161	6 + 2 bus
Georgia Avenue	I-495	Flora Ln	7	120	6		120	6		161	6 + 2 bus
Georgia Avenue	Flora Ln	16th St	7	120	7		120	7		163	6 + 2 bus
Georgia Avenue	16th St	Spring St	6	120	6	Curb Lanes	122	4 + 2 bus			
Georgia Avenue	Spring St	Colesville Rd	6	126	6		126	4 + 2 bus			
Wayne Avenue	Colesville Rd	Georgia Ave	2	120	4	Mixed Traffic	120	4			
Georgia Avenue	Wayne Ave	Blair Mill Rd	6	120-140	6	Curb Lanes	125-140	4 + 2 bus			
Georgia Avenue	Blair Mill Rd	DC Line	6	125	6		125	4 + 2 bus			

Corridor 3: MD 355 North

MD 355 North is an activity center corridor planned for a high level of development that will support all-day travel throughout the corridor. The corridor has several major existing and planned activity nodes, including Rockville and Gaithersburg. It is also characterized by heavy congestion and high transit ridership potential.

Phase 1 recommendations:

- Along Seneca Meadows Parkway from the Corridor Cities Transitway to Observation Drive, a two-way median transitway
- Along Shakespeare Boulevard from Observation Drive to MD 355, a two-way median transitway.

Phase 1 recommendations, transitway treatments along MD 355:

- From Shakespeare Boulevard to Game Preserve Road, a two-lane median transitway.
- From Game Preserve Road to just south of O'Neil Drive in the City of Gaithersburg, a mixed traffic transitway.
- From just south of O'Neil Drive to 1,250 feet south of Shady Grove Road, a two-lane median transitway.
- From 1,250 feet south of Shady Grove Road to 1,000 feet south of Indianola Road in the City of Rockville, a mixed traffic transitway.
- From 1,000 feet south of Indianola Road to 270 ft north of North Campus Drive, a two-lane median transitway.
- From North Campus Drive to Church Street to 270 ft north in the City of Rockville, a mixed traffic transitway.

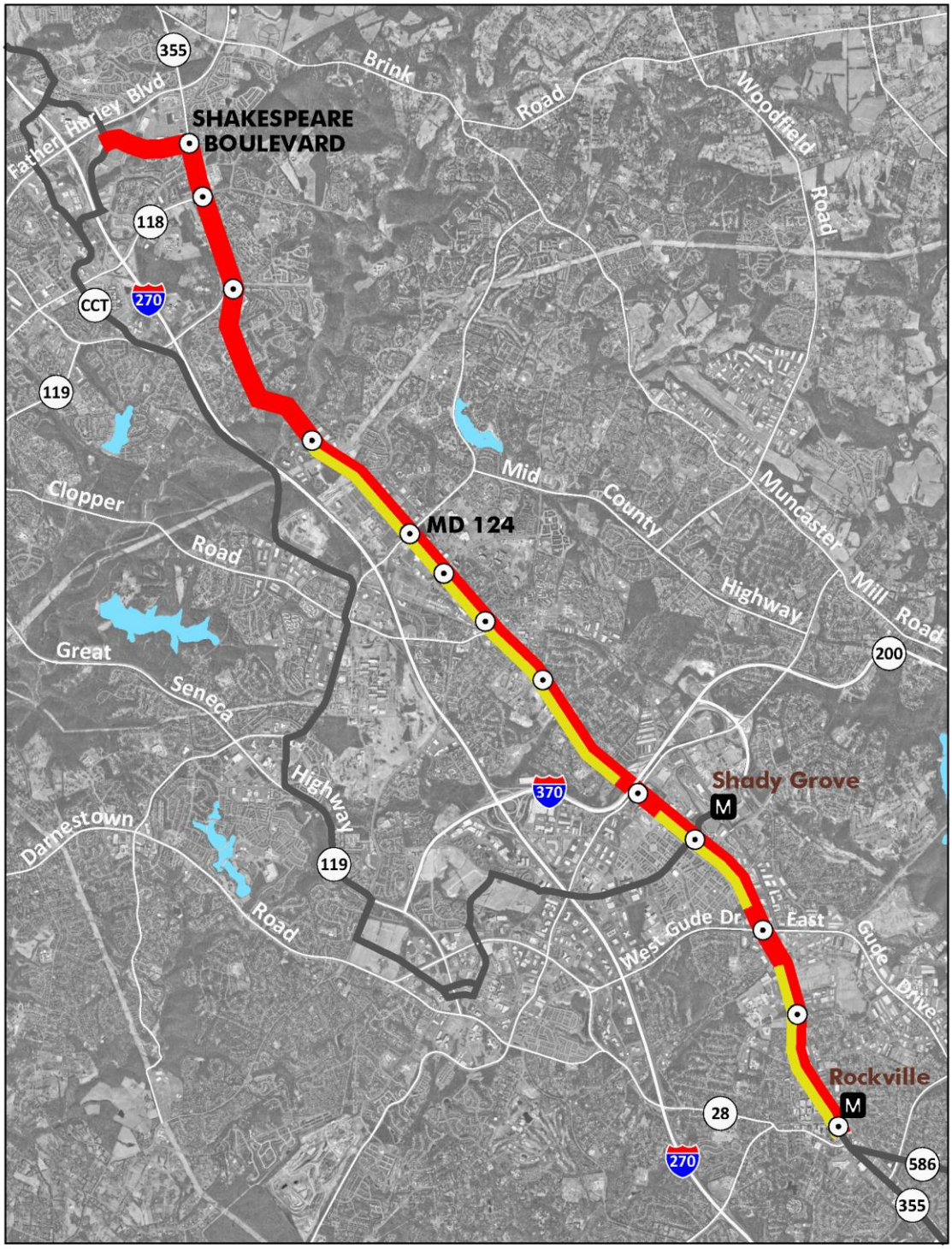
Phase 2 recommendation:

- Two-way median transitways on MD 355 in the City of Rockville and the City of Gaithersburg.

Station Locations

MD 355 and Shakespeare Boulevard
MD 355 and MD 118
MD 355 and Middlebrook Road
MD 355 and Professional Drive
MD 355 and MD 124
MD 355 and Odendhal Avenue
MD 355 and Brookes Avenue
MD 355 and Education Boulevard
MD 355 and Shady Grove Road
MD 355 and King Farm Boulevard
MD 355 and Gude Drive
MD 355 and Mannakee Street
Rockville Metro Station

Map 6 MD 355 North Corridor



Recommended BRT Treatment

- Two-Lane Median
- Phase 1: Mixed Traffic
  Phase 2: Two-Lane Median
- Other BRT Corridors
- BRT Station
- M Metro Station

0 5000 ft

Table 6: Corridor Recommendations, MD 355 North

Road	From	To	Existing # of Lanes	Existing Master Plan		Phase 1			Phase 2		
				ROW	Lanes	Treatment	ROW	Lanes	Treatment	ROW	Lanes
Seneca Meadows Parkway	Corridor Cities Transitway	Observation Dr	4	130	4	Two-Lane Median	130	4 + 2 bus			
Shakespeare Boulevard	Observation Dr	MD 355	4	100	4		123	4 + 2 bus			
MD 355	Shakespeare Blvd	Game Preserve Rd	6	250	6		250	4 + 2 bus	Two-Lane Median	250	6 + 2 bus
MD 355	Game Preserve Rd	Just south of O'Neil Dr	6	Gaithersburg		Mixed Traffic				163	6 + 2 bus
MD 355	just south of O'Neil Dr	1,250 ft south of Shady Grove Rd	6	150	6	Two-Lane Median	150	4 + 2 bus		161	6 + 2 bus
MD 355	1,250 ft south of Shady Grove Rd	Ridgemont Ave	6	Rockville		Mixed Traffic	Rockville			163	6 + 2 bus
MD 355	Ridgemont Ave	Indianola Rd	6							163	6 + 2 bus
MD 355	Indianola Rd	1,000 ft south of Indianola Rd	6							163	6 + 2 bus
MD 355	1,000 ft south of Indianola Rd	270 ft north of N. Campus Dr	6	150	6	Two-Lane Median	150	4 + 2 bus		161	6 + 2 bus
MD 355	270 ft north of N. Campus Dr	Church St	6	Rockville		Mixed Traffic				163	6 + 2 bus

Corridor 4: MD 355 South

MD 355 South is an activity center corridor planned for a high level of development that will support all-day travel throughout the corridor. It is characterized by shorter trips representing a wide variety of travel purposes (shopping and recreation, in addition to commuting). The corridor has several planned or existing activity nodes, including Rockville, Twinbrook, White Flint, NIH/WRNMMC, Bethesda CBD, and Friendship Heights CBD. It is also characterized by very heavy congestion and high transit ridership potential.

Phase 1 recommendations:

- From Church Street to just south of Hubbard Drive in the City of Rockville, a mixed traffic transitway.
- From just south of Hubbard Drive to Bradley Boulevard, a two-way median transitway.
- From Bradley Boulevard to Western Avenue, a curb lane transitway.

Phase 2 recommendations, transitway treatments:

- From Church Street to just south of Hubbard Drive in the City of Rockville, a two-way median transitway.
- From Bradley Boulevard to Western Avenue, a two-way median transitway.

Station Locations
Rockville Metro Station
MD 355 and Edmonston Drive
MD 355 and Halpine Road
MD 355 and Hubbard Drive
White Flint Metro Station
MD 355 and Security Lane
Grosvenor Metro Station
MD 355 and Pooks Hill Road
MD 355 and Cedar Lane
Medical Center Metro Station
MD 355 and Cordell Avenue
Bethesda Metro Station
Bradley Boulevard and MD 355
Friendship Heights Metro

Map 7 MD 355 South Corridor

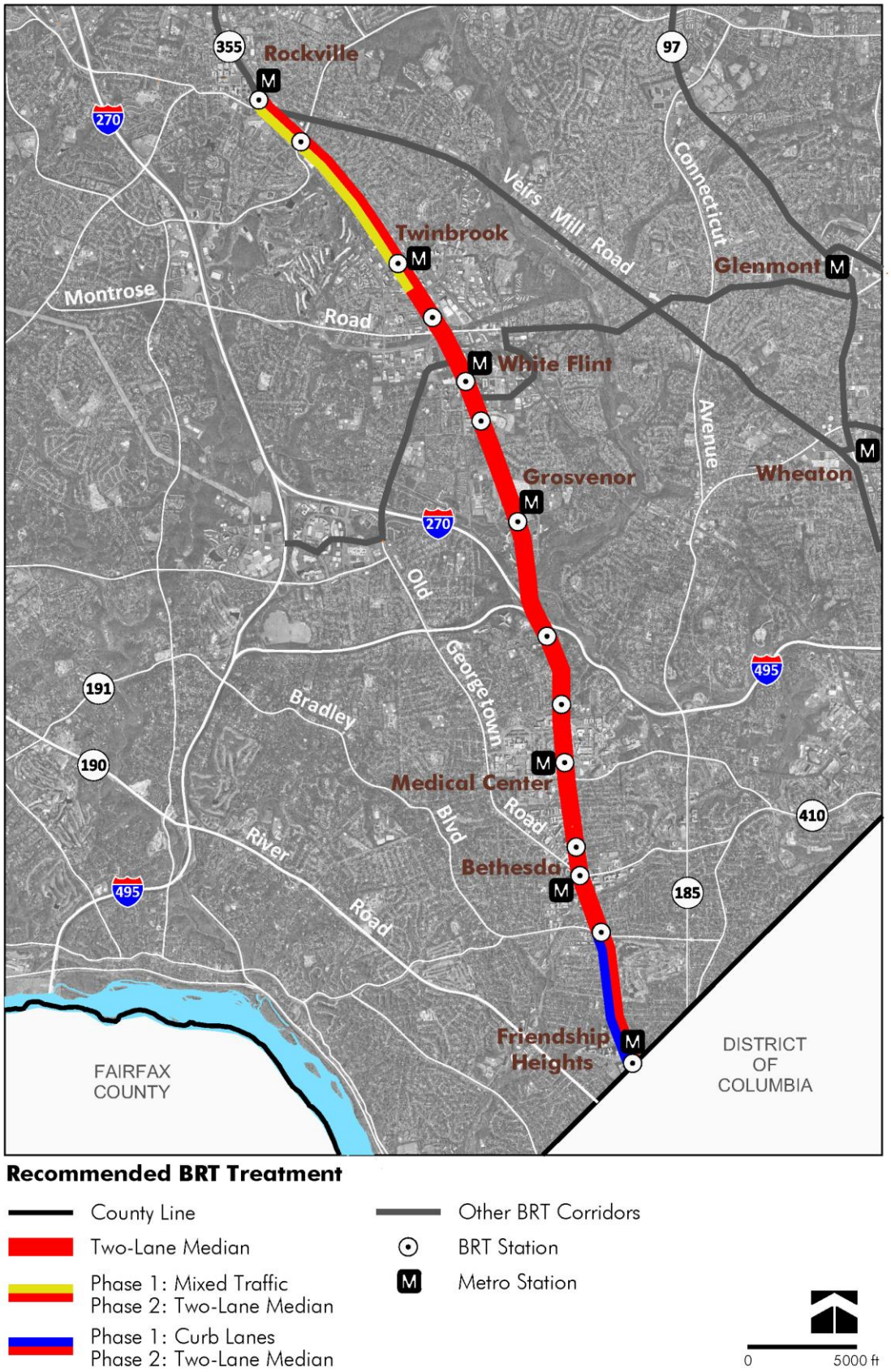


Table 7: Corridor Recommendations, MD 355 South

Road	To	From	Existing # of Lanes	Existing Master Plan		Phase 1			Phase 2		
				ROW	Lanes	Treatment	ROW	Lanes	Treatment	ROW	Lanes
MD 355	Church Street	Halpine Rd	6	Rockville		Mixed Traffic	Rockville		Two-Lane Median	163	6 + 2 bus
MD 355	Halpine Rd	Twinbrook Pkwy	6							163	6 + 2 bus
MD 355	Twinbrook Pkwy	Bou Ave	6	134	6		134	6		163	6 + 2 bus
MD 355	Bou Ave	Just south of Hubbard Dr	6	134	6		134	6		163	6 + 2 bus
MD 355	Just south of Hubbard Dr	Edson Ln	6	150 (162)*	6 + 2 bus	Two-Lane Median	150 (162)*	6 + 2 bus			
MD 355	Edson Ln	Hillery Wy	6	150 (162)*	6 + 2 bus		150 (162)*	6 + 2 bus			
MD 355	Hillery Wy	600 ft north of Tuckerman Ln (north)	6	150	6		150	6 + 2 bus			
MD 355	600 ft north of Tuckerman Ln (north)	Tuckerman Ln (south)	6	150	6		150	6 + 2 bus			
MD 355	Tuckerman Ln (south)	Grosvenor Ln	6	150	6		150	6 + 2 bus			
MD 355	Grosvenor Ln	I-495	6	200	6		200	6 + 2 bus			
MD 355	I-495	Cedar Ln	6	120	6		120	4 + 2 bus			
MD 355	Cedar Ln	Woodmont Ave	6	120	6		123	4 + 2 bus			
MD 355	Woodmont Avenue	Chestnut St	6	120	6		120	4 + 2 bus			
MD 355	Chestnut Street	Bradley Blvd	6	120	6		122	4 + 2 bus			
MD 355	Bradley Blvd	Nottingham Dr	6	120	6	Curb Lanes	122	4 + 2 bus	Two-Lane Median	122	4 + 2 bus
MD 355	Nottingham Dr	Drummond Ave	6	120	6		120	4 + 2 bus		120	4 + 2 bus
MD 355	Drummond Ave	Oliver St	6	120	6		120	4 + 2 bus		120	4 + 2 bus
MD 355	Oliver St	Somerset Tar	6	120	6		122	4 + 2 bus		122	4 + 2 bus
MD 355	Somerset Ter	Western Ave	6	120	6		122	4 + 2 bus		122	4 + 2 bus

* The Rockville Pike 150-foot right-of-way can be expanded to 162 feet (additional feet to be obtained through reservation).

Corridor 5: New Hampshire Avenue

New Hampshire Avenue is a commuter corridor, with most traffic flowing southbound in the morning and northbound in the evening. Activity centers are located at Takoma / Langley Crossroads and the emerging mixed-use center at White Oak.

Phase 1 recommendations, BRT runningway treatments on New Hampshire Avenue:

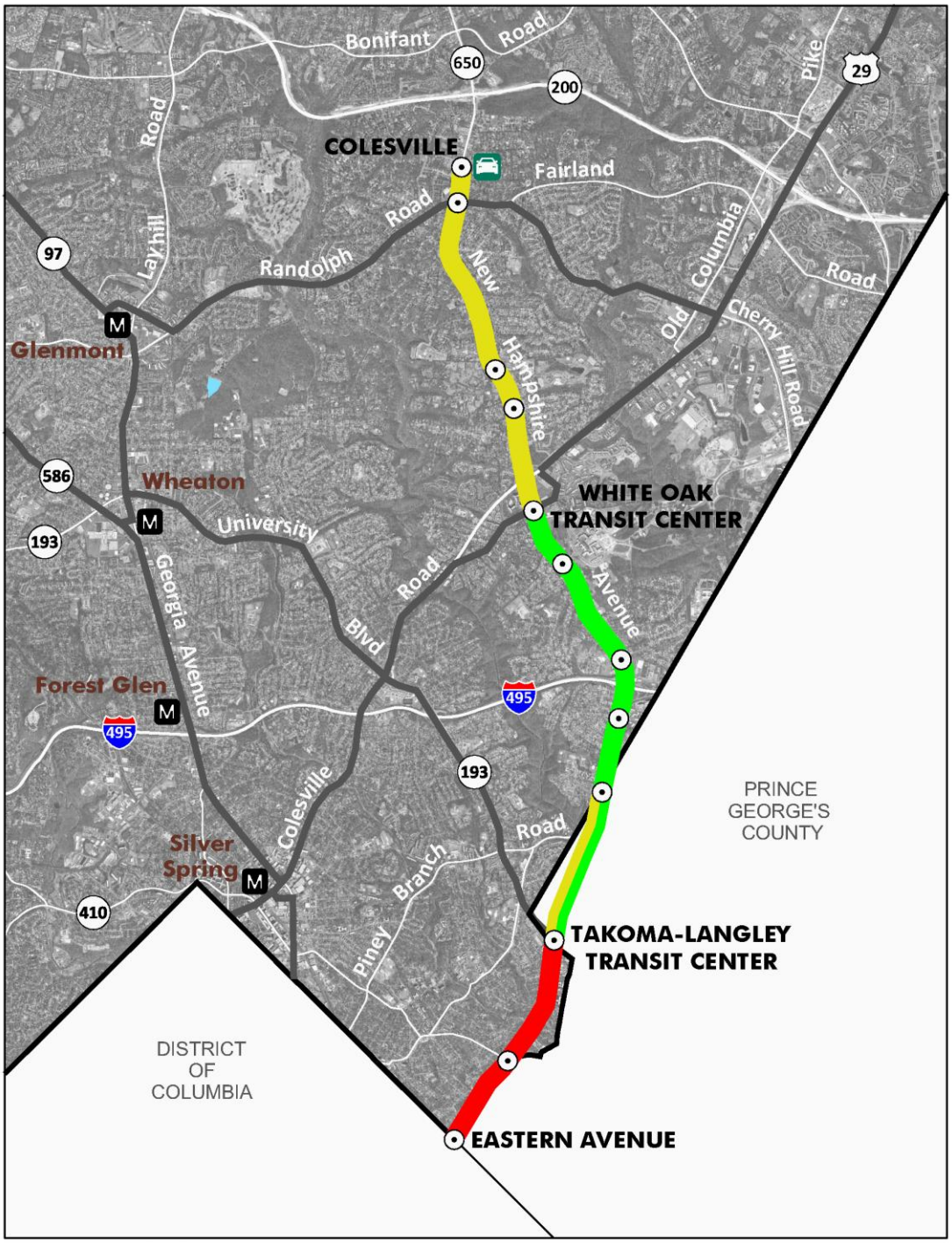
- From Colesville park-and-ride to Lockwood Drive, a mixed traffic transitway.
- From Lockwood Drive to Northampton Drive, a reversible one-lane median transitway.
- From University Boulevard to the District line, a two-lane median transitway.

Phase 2 recommendation:

- A reversible one-lane median on New Hampshire Avenue between University Boulevard and Northampton Drive in Prince George's County.

Station Locations
Colesville park-and-ride
MD 650 and Randolph Road
MD 650 and Valleybrook Drive
MD 650 and Jackson Road
White Oak Transit Center
FDA White Oak Campus
MD 650 and Powder Mill Road
MD 650 and Oakview Drive
MD 650 and Northampton Drive
Takoma/Langley Park Transit Center
MD 650 and MD 410
MD 650 and Eastern Avenue

Map 8 New Hampshire Avenue Corridor



Recommended BRT Treatment

- County Line
- Two-Lane Median
- One-Lane Median
- Mixed Traffic
- Phase 1: Mixed Traffic
  Phase 2: One-Lane Median
- Other BRT Corridors
- BRT Station
- Metro Station
- Park-and-Ride Station

0 5000 ft

Table 8: Corridor Recommendations, New Hampshire Avenue

Road	From	To	Existing # of Lanes	Existing Master Plan		Phase 1			Phase 2		
				ROW	Lanes	Treatment	ROW	Lanes	Treatment	ROW	Lanes
New Hampshire Ave	Colesville park-and-ride	Randolph Rd	6	120	6	Mixed Traffic	120	6			
New Hampshire Ave	Randolph Rd	Lockwood Dr	6	120	6		120	6			
New Hampshire Ave	Lockwood Dr	I-495	6	120	6	Reversible One-Lane Median	130	6 + 1 bus			
New Hampshire Ave	I-495	Northampton Dr	6	150	6-8		150	6 + 1 bus			
New Hampshire Ave	Northampton Dr	University Blvd	6	Prince George's County		Mixed Traffic			Reversible One-Lane Median	141	6 + 1 bus
New Hampshire Ave	University Blvd	D.C. Line	6	150	6-8	Two-Lane Median	150	4 to 6, + 2 bus			

Corridor 6: North Bethesda Transitway

The North Bethesda Transitway was originally conceived of as a spur from the Metrorail Red Line to the Rock Spring office park area and to Montgomery Mall in the 1992 North Bethesda / Garrett Park Master Plan. At its eastern end, the transitway terminates at the Grosvenor Metrorail station. At its western end, it terminates at a planned transit center at Montgomery Mall. Much of the right-of-way along Rock Spring Drive, Fernwood Road, and Tuckerman Lane is currently available through easements and dedications provided in the development review process.

The transfer point to the Red Line at the Grosvenor Metrorail station is in many ways similar to the Fort Totten Metrorail Station. It creates a major transfer at a rail station with relatively little land use and little opportunity for growth. Since the alignment of the transitway was originally identified, much has changed on the MD 355 corridor. White Flint has emerged as a major planned mixed use center, and to serve the travel demand emanating from this activity center and points to the north, the alignment of the North Bethesda Transitway should terminate at the White Flint Metrorail station instead of the Grosvenor Metrorail station.

Phase 1 recommendations:

- Along Old Georgetown Road between Rockville Pike and Executive Boulevard, a mixed traffic transitway.
- Along Old Georgetown Road between Executive Boulevard and Rock Spring Drive, a reversible one-lane median transitway.
- Along Rock Spring Drive, Fernwood Road, and Westlake Terrace, between Old Georgetown Road and I-270, a two-lane side running transitway.

While previous attempts at providing a transit service between the I-270 corridor and Tysons Corner were unsuccessful, a freeway-based BRT corridor now appears more feasible due to the changing land use in Tysons Corner and the opening of the High Occupancy Toll (HOT) lanes on I-495 in northern Virginia. The North Bethesda Transitway could become part of a significant transit link between Tysons Corner and White Flint. This link should be studied as part of any new HOV or HOT lane project on I-270 and I-495 in Maryland.

Station Locations
Montgomery Mall Transit Center
Rock Spring Drive and Fernwood Road
Rockledge Drive and Rock Spring Drive
Rock Spring Drive and MD 187
MD 187 and Tuckerman Lane
MD 187 and Edson Lane/Poindexter Lane
White Flint Metro Station

Map 9 North Bethesda Transitway

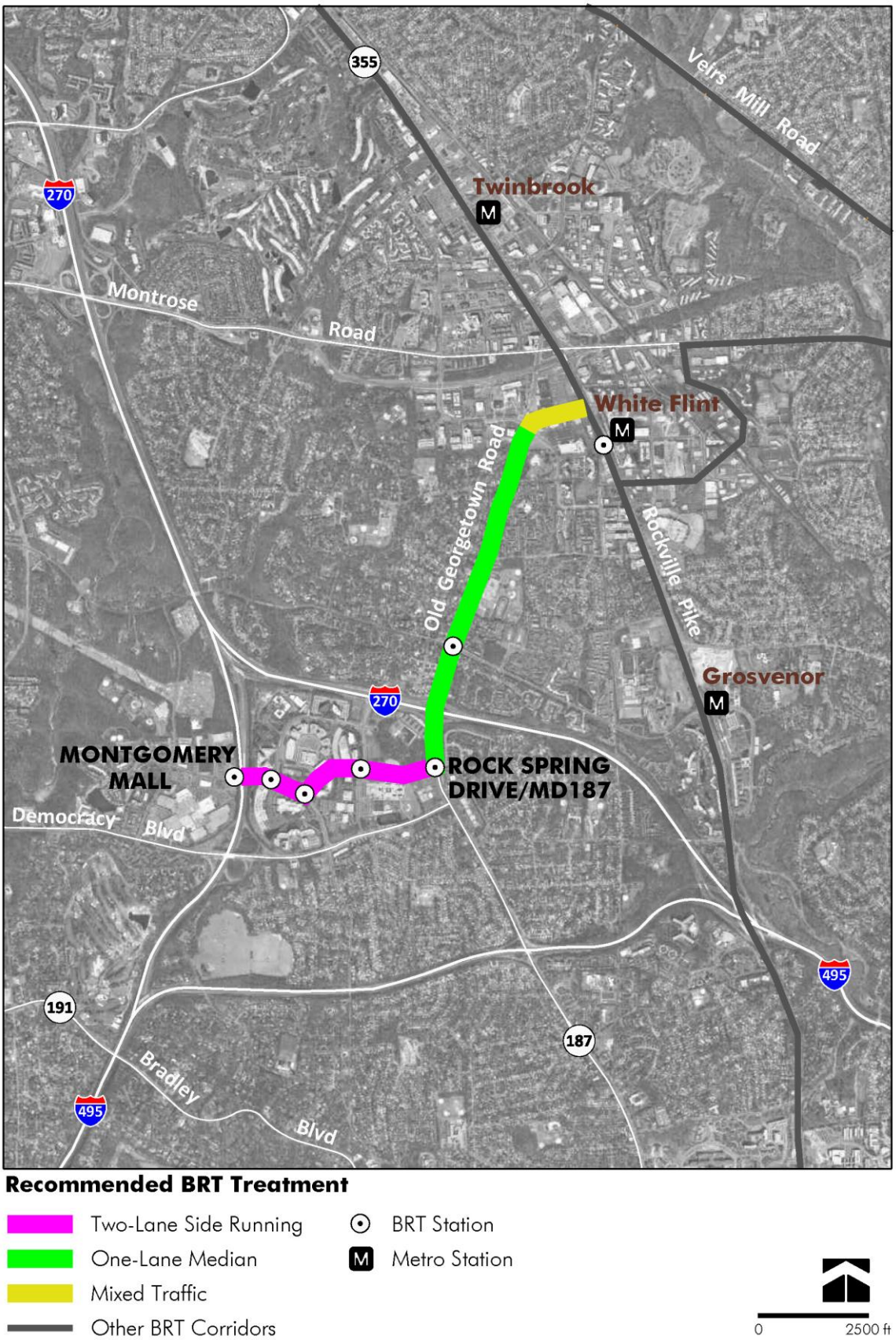


Table 9: Corridor Recommendations, North Bethesda Transitway

Road	From	To	Existing # of Lanes	Existing Master Plan		Phase 1		
				ROW	Lanes	Treatment	ROW	Lanes
Old Georgetown Road	Rockville Pike	Executive Blvd	6	120	4	Mixed Traffic	120	4
Old Georgetown Road	Executive Blvd	Nicholson Ln	6	150	6	Reversible One-Lane Median	150	6 + 1 bus
Old Georgetown Road	Nicholson Ln	Tuckerman Ln	6	120	6		126	6 + 1 bus
Old Georgetown Road	Tuckerman Ln	I-270	6	120	6		130	6 + 1 bus
Old Georgetown Road	I-270	Rock Spring Dr	6	120	6		126	6 + 1 bus
Rock Spring Drive	Old Georgetown Rd	Fernwood Rd	4	80*	4 + 2 bus	Two-Lane Side Running	80*	4 + 2 bus
Fernwood Road	Rock Spring Dr	Rockledge Dr	4	80*	4 + 2 bus		80*	4 + 2 bus
Westlake Terrace	Rockledge Dr	I-270	4	80*	4 + 2 bus		80*	4 + 2 bus

* Plus additional 40-foot-wide easement for side-running transitway

Corridor 7: Randolph Road

Randolph Road is a commuter corridor with traffic and congestion in the westbound direction in the morning and the eastbound direction in the evening. Major activity centers include White Flint, Glenmont, and the emerging mixed-use center at White Oak. Residential uses fill in the gaps between these areas.

While ridership forecasts are low for the corridor, it does provide important linkages to other BRT corridors. Therefore, because this corridor is important for the integrity of the BRT network, the ridership potential is limited, and the potential impacts to residential properties are high, Phase 1 of this Plan recommends a mixed traffic transitway.

The westernmost corridor segment would serve the planning White Flint MARC commuter rail station in addition to the Metrorail station. During project planning, and alternative alignment along Nebel Street rather than Parklawn Drive should be considered if the at-grade Randolph Road crossing of the CSX tracks is retained.

This corridor has greater ridership potential if land use intensity at Glenmont and White Oak increases.

Phase 2 recommendations:

- Along Randolph Road from US 29 to Glenallen Avenue, a reversible one-lane median transitway.
- Along Randolph Road from Georgia Avenue to Parklawn Drive, a reversible one-lane median transitway.

Station Locations
White Flint Metro Station
Randolph Road and Lauderdale Drive
Randolph Road and MD 586
Randolph Road and MD 185
Randolph Rd and Bluhill Road
Randolph Road MD 97
Randolph Road Glenallan Avenue
Randolph Road and MD 650
Randolph Road and Fairland Road
US 29 and Tech Road

Map 10 Randolph Road Corridor

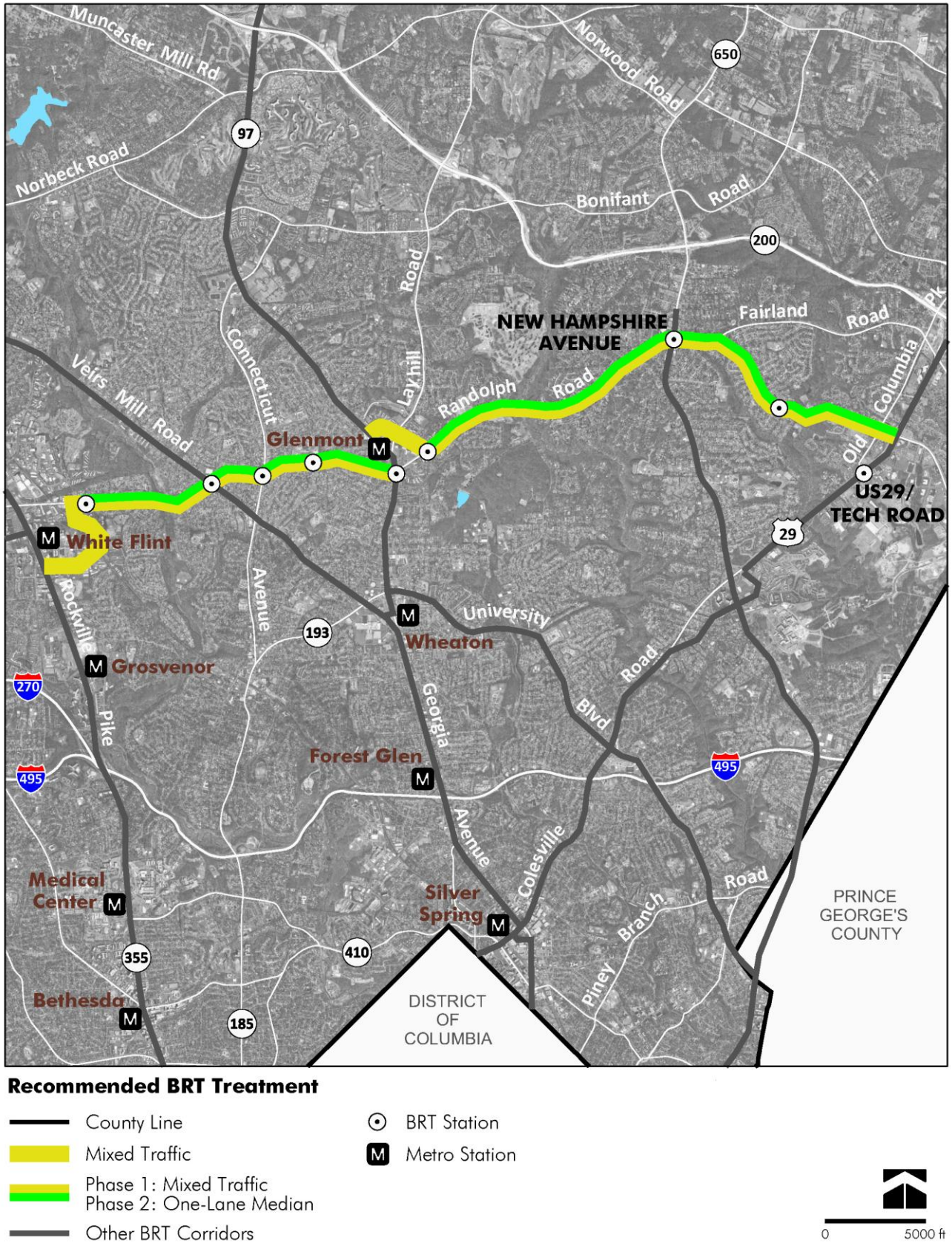


Table 10: Corridor Recommendations, Randolph Road

Road	From	To	Existing # of Lanes	Existing Master Plan		Phase 1			Phase 2		
				ROW	Lanes	Treatment	ROW	Lanes	Treatment	ROW	Lanes
Randolph Road	US 29	Paint Branch	4 / 5	80	4-5	Mixed Traffic	80	4-5	Reversible One-Lane Median	100	4 + 1 bus
Randolph Road	Paint Branch	Fairland Rd	4 / 5	80	4-5		80	4-5		100	4 + 1 bus
Randolph Road	Fairland Rd	Glenallen Ave	6	120	6		120	6		141	6 + 1 bus
Glenallen Avenue	Randolph Rd	Layhill Rd	2	80	2		80	2			
Glenallen Avenue	Layhill Rd	Georgia Ave	4	90	2		90	2			
Randolph Road	Georgia Ave	Judson Rd	6	140	6		140	6	Reversible One-Lane Median	143	6 + 1 bus
Randolph Road	Judson Rd	Lindell St	6	120	6		120	6		143	6 + 1 bus
Randolph Road	Lindell St	Veirs Mill Rd	6	120	6		120	6		141	6 + 1 bus
Randolph Road	Veirs Mill Rd	Dewey Rd	5 / 6	120	6		120	6		141	6 + 1 bus
Randolph Road	Dewey Rd	Parklawn Dr	4 / 5	100	4		100	4		119	4 + 1 bus
Parklawn Drive	Randolph Rd	Nebel St	4 / 5	80	4		80	4			
Nicholson Lane	Nebel Str	MD 355	4	90	4		90	4			

Corridor 8: University Boulevard

University Boulevard is a commuter corridor, with traffic flowing westbound in the morning and eastbound in the evening. It has activity centers in Wheaton, Four Corners, Long Branch, and Takoma/ Langley Crossroads.

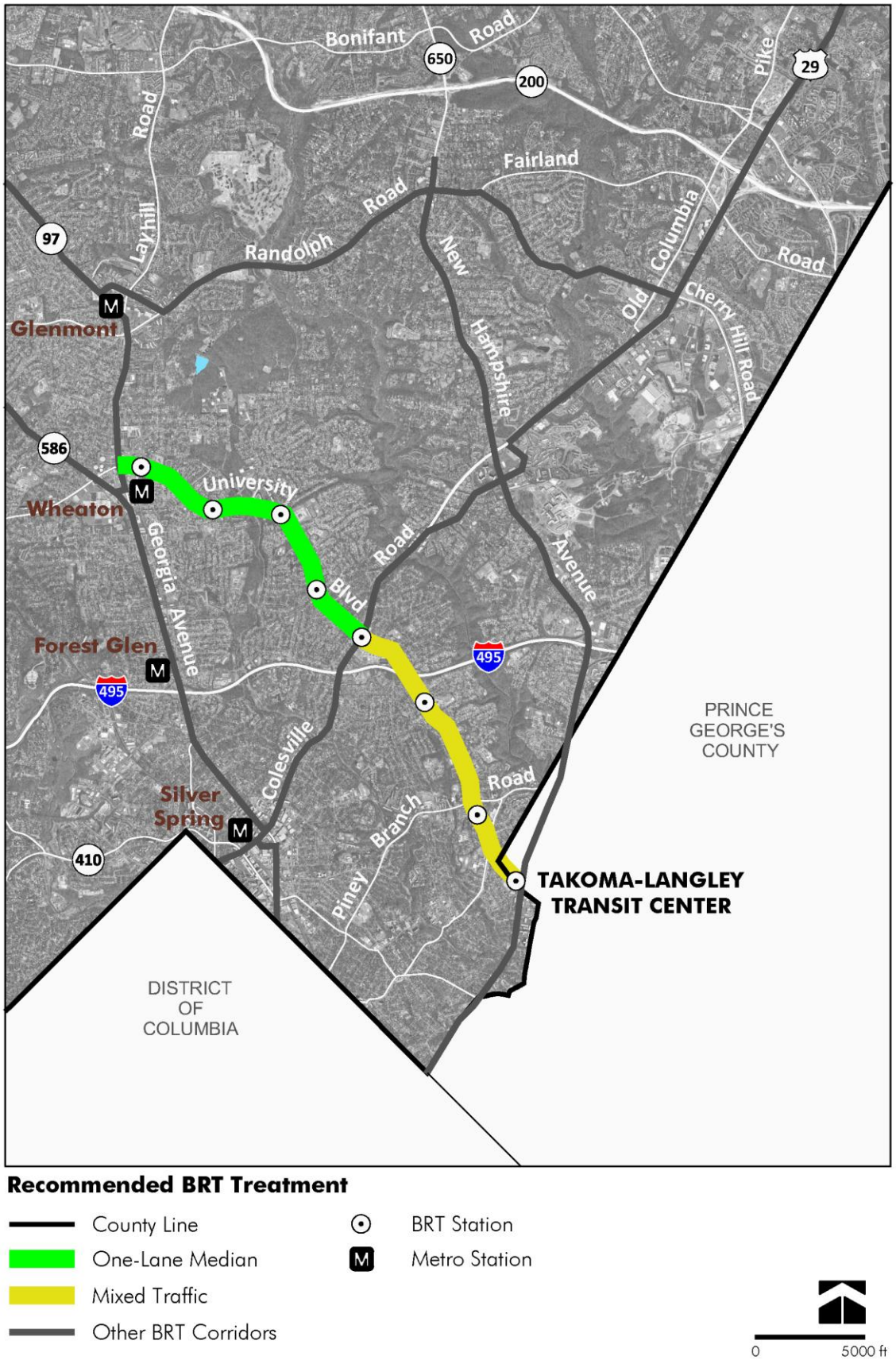
While University Boulevard does not have a very strong ridership, this corridor provides east-west connectivity that is important to the integrity of a network that has many corridors converging in Wheaton. Its duplication with the Purple Line between Piney Branch Road and New Hampshire Avenue is reasonable given the connection to a New Hampshire Avenue transitway and the location of the Takoma/Langley Transit Center at the intersection of New Hampshire Avenue and University Boulevard. Buses will likely not be permitted to share the Purple Line transitway since the benefits for the relatively low ridership on this corridor would likely not outweigh the adverse operational impacts on the Purple Line.

Phase 1 recommendations:

- Along University Boulevard from Georgia Avenue to Colesville Road, a one-lane median reversible transitway.
- Along University Boulevard from Colesville Road to New Hampshire Avenue, a mixed traffic transitway.

Station Locations
Wheaton Metro Station
MD 193 and Amherst Avenue
MD 193 and Inwood Avenue
MD 193 and Arcola Avenue
MD 193 and Dennis Avenue
MD 193 and US 29
MD 193 and E Franklin Avenue
MD 193 and Gilbert Street
Takoma/Langley Park Transit Center

Map 11 University Boulevard Corridor



Recommended BRT Treatment

- County Line
- One-Lane Median
- Mixed Traffic
- Other BRT Corridors
- BRT Station
- Metro Station

0 5000 ft

Table 11: Corridor Recommendations, University Boulevard

Road	From	To	Existing # of Lanes	Existing Master Plan		Phase 1		
				ROW	Lanes	Treatment	ROW	Lanes
University Boulevard	Georgia Ave	Amherst Ave	6	120	6	Reversible One-Lane Median	129	6 + 1 bus
University Boulevard	Amherst Ave	Dayton St	6	150	6		150	6 + 1 bus
University Boulevard	Dayton St	Easecrest Dr	6	120	6		124	6 + 1 bus
University Boulevard	Easecrest Dr	US 29	6	120	6		124	6 + 1 bus
University Boulevard	US 29	Piney Branch Rd	6	120	6	Mixed Traffic	120	6
University Boulevard	Piney Branch Rd	New Hampshire Ave	6	125-140	6 + 2 LRT		125-140	6 + 2 LRT

Corridor 9: US 29

The US 29 corridor is an express corridor north of New Hampshire Avenue and a commuter corridor south of New Hampshire Avenue, with most traffic flowing southbound in the morning and northbound in the evening. Much of the traffic is long distance trips, passing through the corridor on the way to other places. For many people it is an alternative to I-95, drawing people from northern Montgomery County and Howard County to jobs in the I-270 corridor, the District of Columbia, and Northern Virginia.

US 29 north of the New Hampshire Avenue interchange is classified as a controlled major highway, with interchanges ultimately replacing all existing at-grade intersections. It has a wide median that can accommodate a busway, and the three interchanges —at Randolph Road/Cherry Hill Road, Briggs Chaney Road, and Spencerville Road (MD198)—can all accommodate a median busway. Activity centers in this corridor segment are located in Burtonsville and White Oak.

South of New Hampshire Avenue, US 29 is classified as a major highway and has a very different character, passing through very congested areas in Four Corners and the Silver Spring CBD with very limited opportunities to expand the right-of-way.

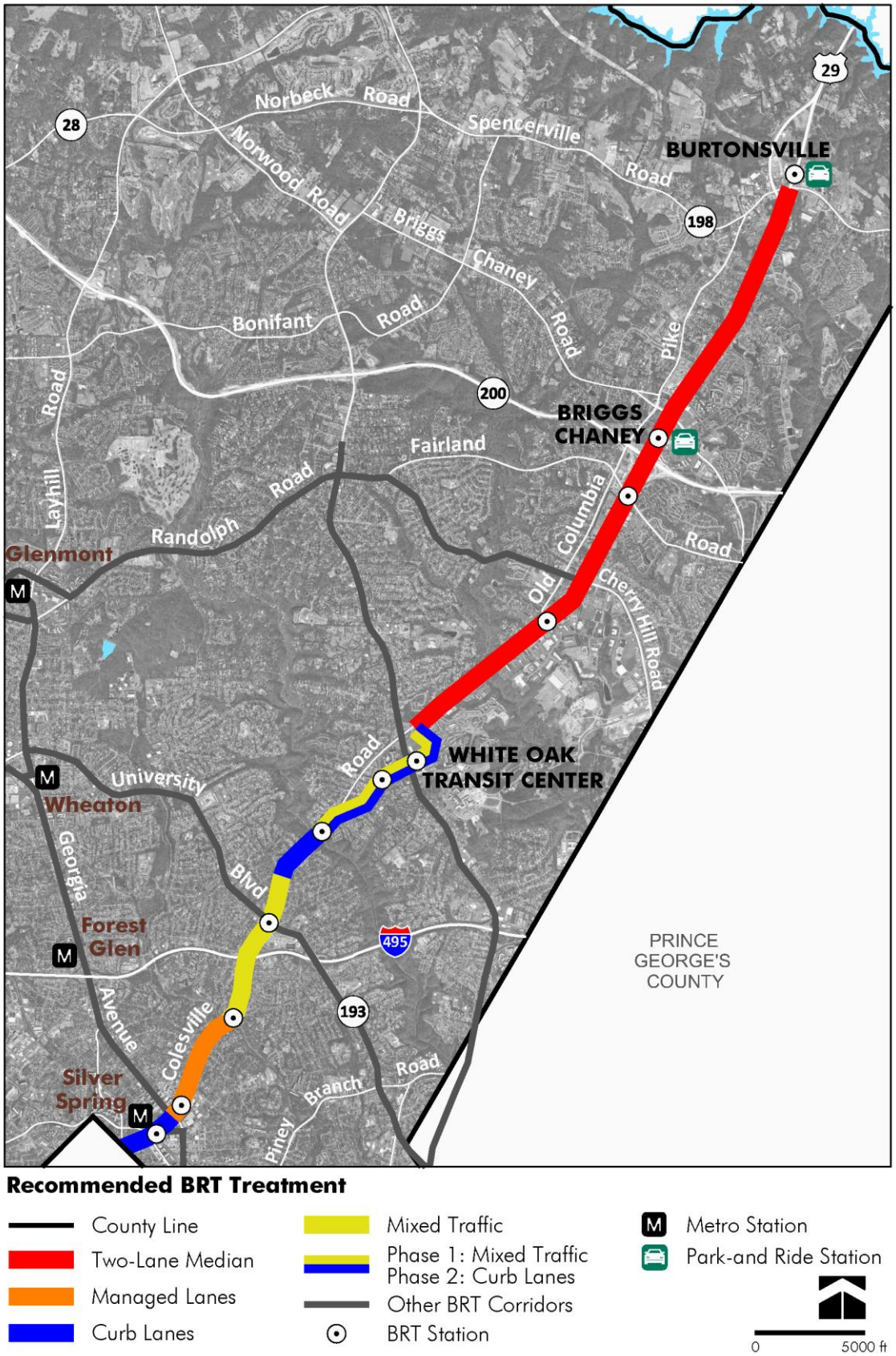
Phase 1 recommendations:

- Along US 29 from MD198 to Stewart Lane, a two-lane median busway.
- Along Stewart Lane and Lockwood Drive, a mixed traffic operation (A mixed traffic operation is recommended along Stewart Lane and Lockwood Drive, but a continuous alignment along US29 should be considered during facility planning.).
- Along US 29 from Lockwood Drive to Southwood Avenue, curb lanes via lane-repurposing (A mixed traffic operation is recommended along US29 from Lockwood Drive to Southwood Avenue because of potential operational problems with curb bus lanes in the vicinity of the I-495 interchange, however the extension of dedicated lanes through this segment should be considered during facility planning.).
- Along US 29 from Southwood Avenue to Sligo Creek Parkway, a mixed traffic operation.
- Along US 29 from Sligo Creek Parkway to Georgia Avenue, managed lanes via lane-repurposing in the peak-hour peak-direction.
- Along US 29 from Georgia Avenue to Sixteenth Street, curb lanes via lane-repurposing.

Station Locations

Burtonsville park-and-ride
Briggs Chaney park-and-ride
US 29 and Fairland Road
US 29 and Tech Road
White Oak Transit Center
Lockwood Drive and Oak Leaf Drive
US 29 and Hillwood Drive
US 29 and MD 193
US 29 and Franklin Avenue
US 29 and Fenton Street
Silver Spring Transit Center

Map 12 US 29 Corridor



Recommended BRT Treatment

- County Line
- Two-Lane Median
- Managed Lanes
- Curb Lanes
- Mixed Traffic
- Phase 1: Mixed Traffic
  Phase 2: Curb Lanes
- Other BRT Corridors
- BRT Station
- Metro Station
- Park-and Ride Station

0 5000 ft

Table 12: Corridor Recommendations, US 29

Road	From	To	Existing # of Lanes	Existing Master Plan		Phase 1			Phase 2		
				r.o.w.	Lanes	Treatment	ROW	Lanes	Treatment	r.o.w.	Lanes
US 29	MD 198	Stewart Ln	6	100-200	6	Two-Lane Median	161-200	6 + 2 bus			
Stewart Lane	US 29	Lockwood Drive	2	80	2	Mixed Traffic	80	2	Curb Lanes	89	2 + 2 bus
Lockwood Drive	Stewart Ln	New Hampshire Ave	2	80	2		80	2		89	2 + 2 bus
Lockwood Drive	New Hampshire Ave	US 29	2	80	2		80	2		89	2 + 2 bus
US 29	Lockwood Dr	Southwood Ave	6	120	6	Curb Lanes	122	4 + 2 bus			
US 29	Southwood Ave	University Blvd	6	120	6	Mixed Traffic	120	6			
US 29	University Blvd (westbound)	University Blvd (eastbound)	6	120	6		120	6			
US 29	University Boulevard (eastbound)	I-495	6	120	6		120	6			
US 29	I-495	Sligo Creek Pkwy	6	120	6		120	6			
US 29	Sligo Creek Pkwy	Spring St	6	120	6	Managed Lanes	120	2 off-peak + 3 peak + 1 bus			
US 29	Spring St	Fenton St	6	120	6		120	2 off-peak + 3 peak + 1 bus			
US 29	Fenton St	Georgia Ave	6	100	6		100	2 off-peak + 3 peak + 1 bus			
Colesville Road	Georgia Ave	East West Hwy	6	124	6	Curb Lanes	125	4 + 2 bus			
Colesville Road	East West Hwy	16th St	6	125	6		125	4 + 2 bus			

* Dedicated lanes are desirable in these segments and the potential for lane-repurposing to achieve curb lanes should be considered during facility planning.

**The six existing general purpose lanes in these segments currently operate during peak hours as four in the peak direction and two in the off-peak direction; in off-peak hours, they operate as three lanes in each direction. This Plan recommends that the operation in peak hours be changed to one dedicated bus lane in the peak direction, three general purpose lanes in the peak direction, and two general purpose lanes in the off-peak direction.

Corridor 10: Veirs Mill Road

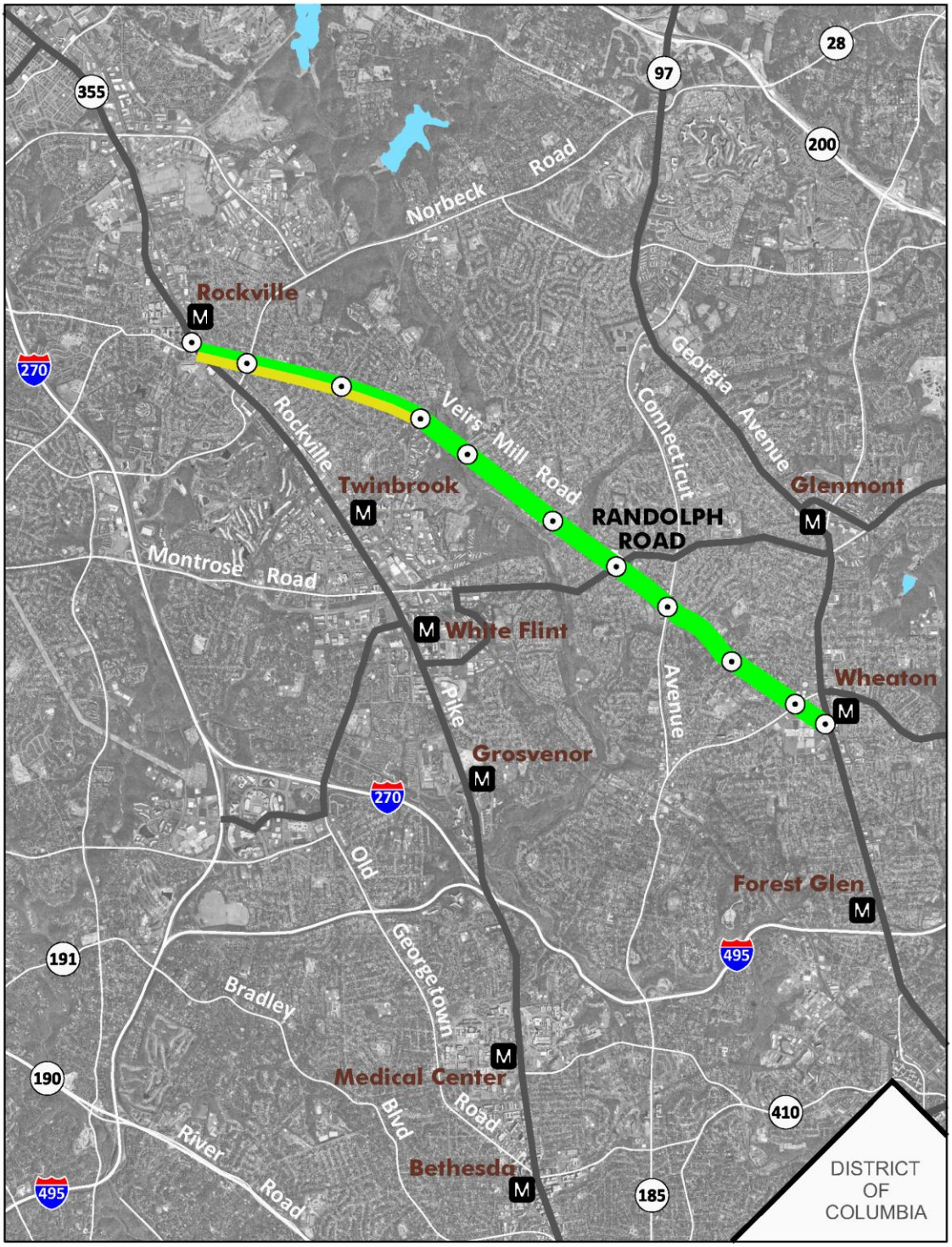
Veirs Mill Road is a commuter corridor, with the flow of traffic largely balanced in the eastbound and westbound directions between the two, large central business districts, Wheaton and Rockville. Smaller commercial districts exist at Randolph Road and just west of Twinbrook Parkway. Residential uses fill in much of the rest of the corridor. Service roads that provide access to residential properties exist along many sections of the roadway, consuming a significant part of the right-of-way.

The Veirs Mill Road corridor experiences some of the highest existing transit volumes in Montgomery County and for that reason has long been considered for bus enhancements. However, opportunities to increase ridership are limited because development outside of the CBDs is constrained.

To accommodate a balanced flow of traffic in a constrained right-of-way, this Plan recommends a bi-directional one-lane median transitway. This recommended treatment is unique to this corridor, anticipating that bus travel will be accommodated in both directions in a single lane at the same time. Operational strategies must be determined by the implementing agency, but this plan envisions expanding to a two-way median transitway at stations and/or other designated areas where vehicles operating in opposite directions would be able to pass each other.

Station Locations
Rockville Metro Station
MD 586 and Norbeck Road
MD 586 and Broadwood Drive
MD 586 and Twinbrook Parkway
MD 586 and Aspen Hill Road
MD 586 and Parkland Drive
MD 586 and Randolph Road
MD 586 and MD 185
MD 586 and Newport Mill Road
MD 586 and MD 193
Wheaton Metro Station

Map 13 Veirs Mill Road Corridor



Recommended BRT Treatment

- County Line
- One-Lane Median
- Phase 1: Mixed Traffic
  Phase 2: One-Lane Median
- Other BRT Corridors
- BRT Station
- Metro Station

0 5000 ft

Table 13: Corridor Recommendations, Veirs Mill Road

Road	From	To	Existing # of Lanes	Existing Master Plan		Phase 1			Phase 2		
				ROW	Lanes	Treatment	ROW	Lanes	Treatment	ROW	Lanes
Veirs Mill Road	MD 355	Meadow Hall Dr		Rockville		Mixed Traffic			Reversible One-Lane Median	129	6 + 1 bus
Veirs Mill Road	Meadow Hall Drive	Twinbrook Pkwy	5	150	4 to 6	Bi-directional One-Lane Median	150	4 to 6, + 1 bus			
Veirs Mill Road	Twinbrook Pkwy	Parkland Dr	4	150	4 to 6		150	4 to 6, + 1 bus			
Veirs Mill Road	Parkland Dr	Turkey Branch	5	150	4 to 6		150	4 to 6, + 1 bus			
Veirs Mill Road	Turkey Branch	Gridley Rd	5	120	4 to 6		120	4 to 6, + 1 bus			
Veirs Mill Road	Gridley Rd	Randolph Rd	6	120	4 to 6		120	4 to 6, + 1 bus			
Veirs Mill Road	Randolph Rd	Ferrara Ave	5	120	4 to 6		120	4 to 6, + 1 bus			
Veirs Mill Road	Ferrara Ave	Connecticut Ave	6	120	4 to 6		120	4 to 6, + 1 bus			
Veirs Mill Road	Connecticut Ave	Newport Mill Rd	5 + 1 bus	120	4 to 6		120	4 to 6, + 1 bus			
Veirs Mill Road	Newport Mill Rd	Galt Ave	4 + 1 bus	120	4 to 6		120	4 to 6, + 1 bus			
Veirs Mill Road	Galt Ave	Ennalls Ave	5 + 1 bus	120	6		129	4 to 6, + 1 bus			
Veirs Mill Road	Ennalls Ave	Wheaton Metro Station	4	120	6		129	4 to 6, + 1 bus			

Setting Implementation Priorities for Transit Corridor Improvements

This Plan does not change any recommended land uses and therefore does not include a staging amendment to set priorities for the public facilities needed to support them. Instead, this Plan recommends the following approach for prioritizing transit corridor improvements, as well as coordinating land use in future area master plans.

Existing bus ridership will provide the base for at least the initial phases of BRT service and is an important consideration in addition to future forecast ridership, achieving the mode share goals in area master plans and the availability of right-of-way. Therefore, the highest priority for implementation in the near-term should be given to corridors with the highest existing bus ridership, particularly those where lane repurposing is recommended and corridor improvements can be constructed most quickly. These corridors are generally within the Urban Ring and their high ridership will provide the greatest immediate benefit to existing transit riders and accommodate latent demand, thereby providing support for future improvements and extensions. The southern segments of US 29 and New Hampshire Avenue best meet these criteria and are included in WMATA's Priority Corridor Network, which is a good indicator of the near-term viability of future BRT service and should guide the implementation prioritization of the corridors recommended in the Plan. The recent start of their MetroExtra service on New Hampshire Avenue is a precursor to BRT service along this corridor.

The other high priority transit corridor is MD 355, which has a high level of planned development and which, along with the Corridor Cities Transitway, serves the other major growth area defined by the General Plan, the I-270 Corridor. The MD 355 corridor has the highest 2040 forecast peak-hour BRT ridership and also has the highest potential for all-day BRT service. Where additional bus lanes are recommended along MD 355, more extensive facility planning should begin as soon as possible to define detailed right-of-way needs and facilitate coordination with the affected property owners. The MD 355 corridor has the greatest long-term potential for the County's BRT network.

Where area master and sector plans are updated along the recommended transit corridors, consideration should be given to increasing the level of development density around station areas where employees and residents can most benefit from the BRT system and transit ridership. Close coordination between transit facilities and planned development will significantly reduce the transit subsidies needed to achieve high-quality transit service.

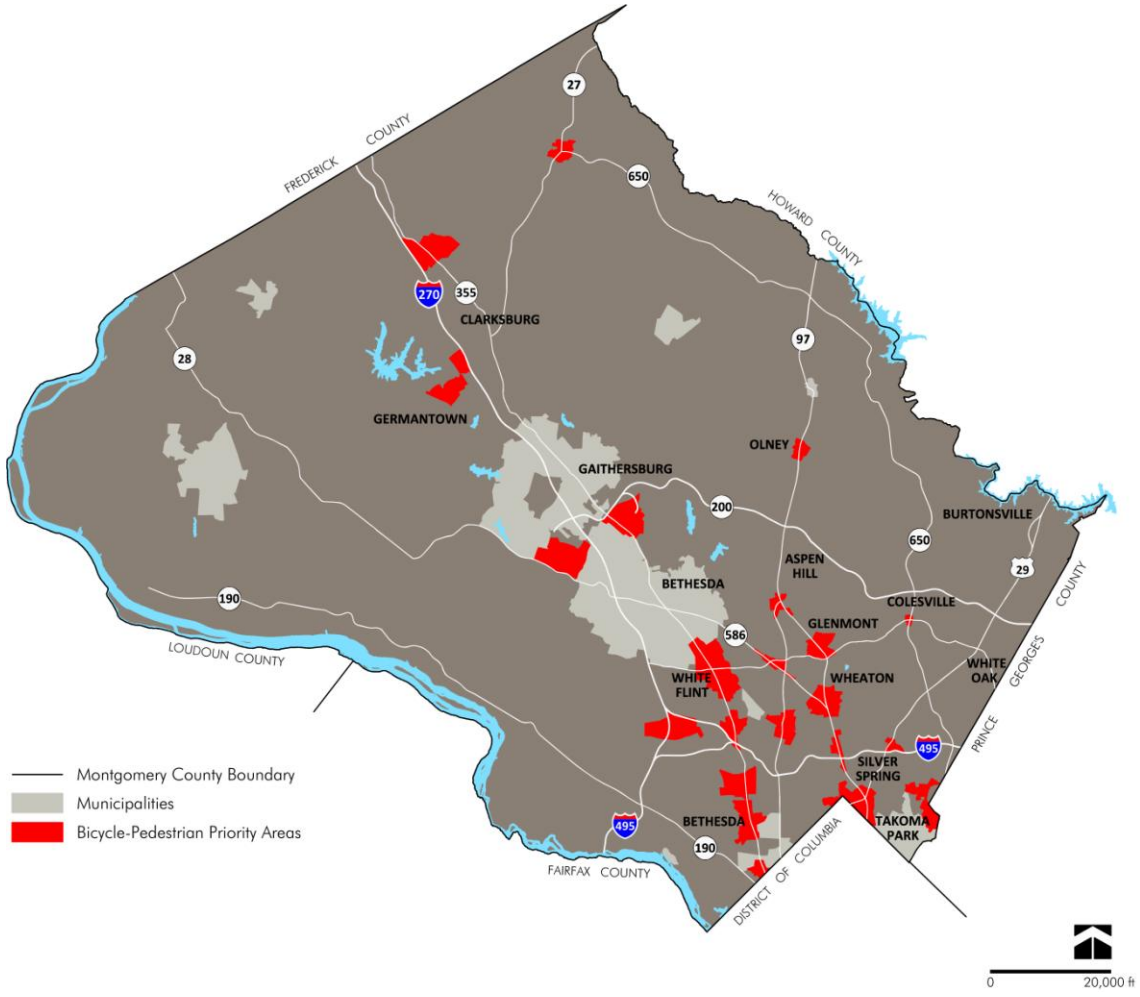
Bicycle Pedestrian Priority Areas

Good bicycle and pedestrian access is needed to all BRT stations. The highest level of accommodation for pedestrians and bicyclists is needed in the areas where pedestrians are most prevalent, such as transit-oriented development areas, established or developing activity centers, areas around Metro stations, and transfer points between BRT routes. This plan recommends designating new Bicycle-Pedestrian Priority Areas (BPPAs) to enhance the access to BRT.

Section 2-604 of the Annotated Code of Maryland allows the designation of Bicycle-Pedestrian Priority Areas (BPPAs) in the State's *Bicycle-Pedestrian Master Plan*, if jointly agreed to by the State and local jurisdiction. BPPAs are defined in Section 8-101(d): "Bicycle and pedestrian priority area" means a geographical area where the enhancement of bicycle and pedestrian traffic is a priority.

The legislation is intended to promote better pedestrian and bicyclist accommodation in these priority areas. Appendix 6 details what accommodation should be provided in BPPAs. The White Flint and Wheaton CBD Sector Plan areas have been designated in the Plans as BPPAs and White Flint has been confirmed by the State.

Map 14 Bicycle-Pedestrian Priority Areas



This Functional Plan designates all current Road Code-defined Urban areas as additional BPPAs:

- Silver Spring CBD Sector Plan area
- Twinbrook Sector Plan area
- Bethesda CBD Sector Plan area
- Friendship Heights Sector Plan area
- Glenmont Metro Station Policy area
- Grosvenor Metro Station Policy area
- Shady Grove Metro Station Policy area
- Olney Town Center
- Clarksburg Town Center
- Germantown Town Center
- Damascus Town Center
- Montgomery Hills
- Flower/Piney Branch
- Cloverleaf District
- LSC Central, LSC West, LSC North, and Belward Districts in the Great Seneca Science Corridor.

The Takoma/Langley Crossroads and Kensington Sector Plan areas are defined in their respective plans.

This Plan also designates proposed BRT station areas as BPPAs where there is sufficient planned density to generate significant pedestrian and bicyclist activity (see Maps 15 through 23):

- Montgomery Mall/Rock Spring
- Piney Branch/University Boulevard Purple Line Station area
- Medical Center Metro Station area, including the NIH and NNMC campuses
- Veirs Mill Road/Randolph Road
- Aspen Hill (Georgia Avenue/Connecticut Avenue)
- Colesville (Randolph/New Hampshire)
- Forest Glen Metro Station area (contiguous with Montgomery Hills)
- Silver Spring CBD West (west of 16th Street to Rosemary Hills Drive, plus Spring Center)
- Four Corners.

The designation of additional BPPAs should be considered as part of future master and sector plan updates.

Ensuring Pedestrian Safety and Accessibility

The typical sections used to determine recommended rights-of-way:

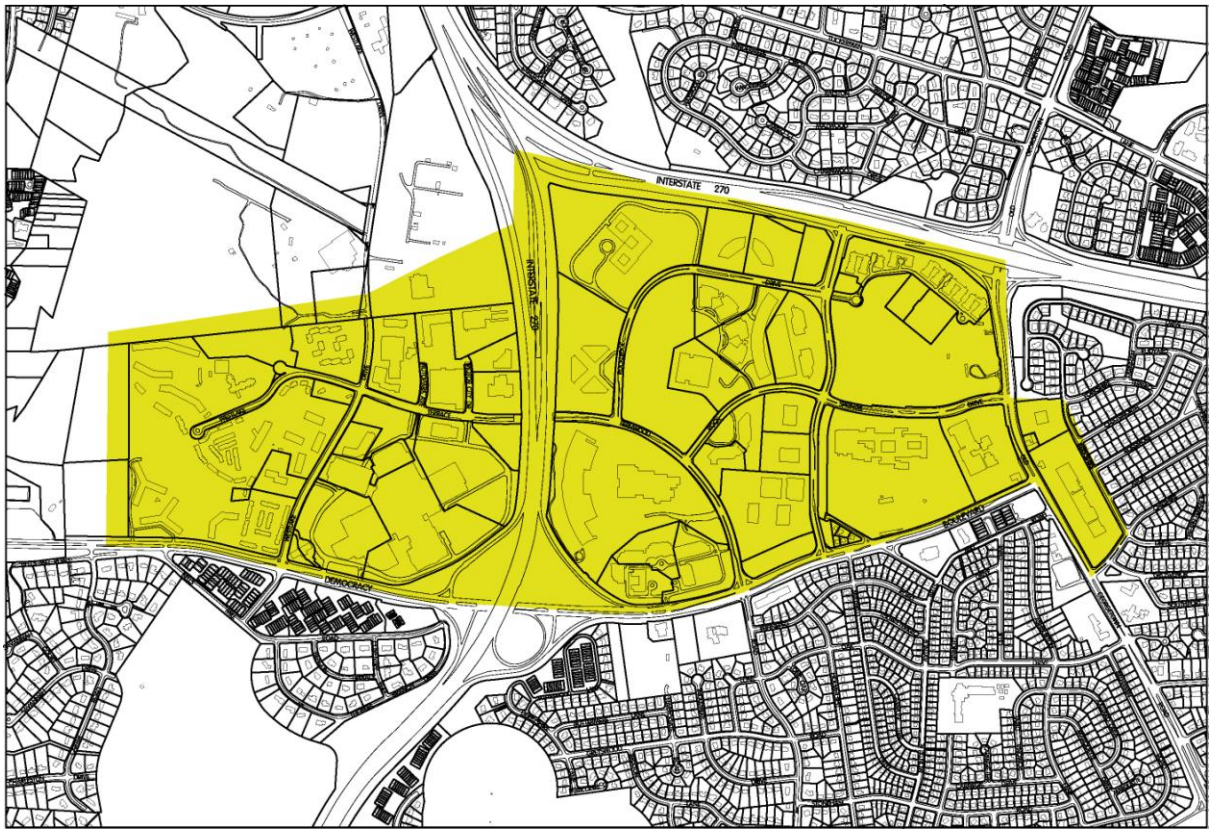
- include six-foot-wide minimum sidewalks to ensure good pedestrian accommodation to and from all stops along transit corridors
- include a six-foot-wide median to accommodate a pedestrian refuge to ensure that transit patrons can safely cross the roadway to and from transit stops and that the general public can safely cross the roadway at all intersections
- include landscape buffers of a sufficient width to achieve sidewalks and handicap ramps that can meet ADA Best Practices.

Bike Accommodation

This Plan supports the provision of on-road accommodation for bicyclists on all the recommended transit corridors, but right-of-way constraints limit the ability to achieve this goal on some corridor segments (see Appendix 5).

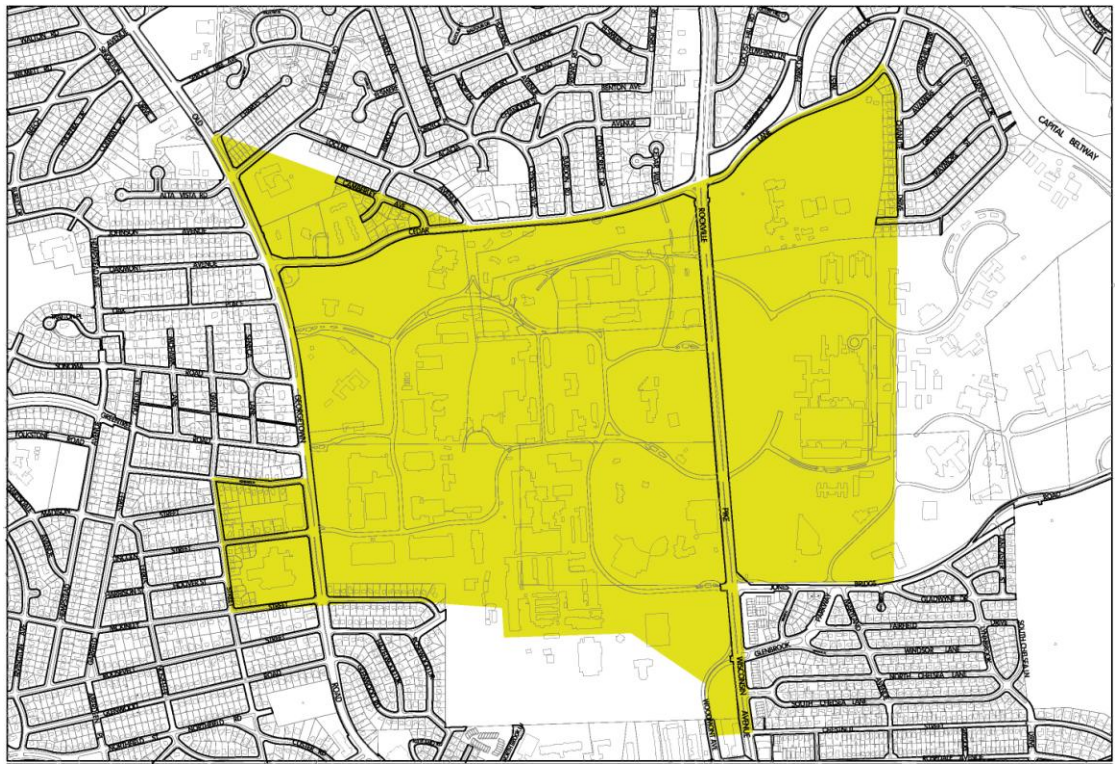
- Where a facility for bicyclists is already recommended in a master plan, the appropriate space is included in the recommended right-of-way recommendations.
- Where on-road bicyclists can reasonably be accommodated on additional corridors, this Plan includes the appropriate space in the recommended right-of-way.
- Where constraints limit the ability to achieve the on-road bike accommodation beyond what is recommended in current master plans, this Plan identifies the alternative recommended bike accommodation for each corridor segment.

Map 15 Montgomery Mall/Rock Spring BPPA

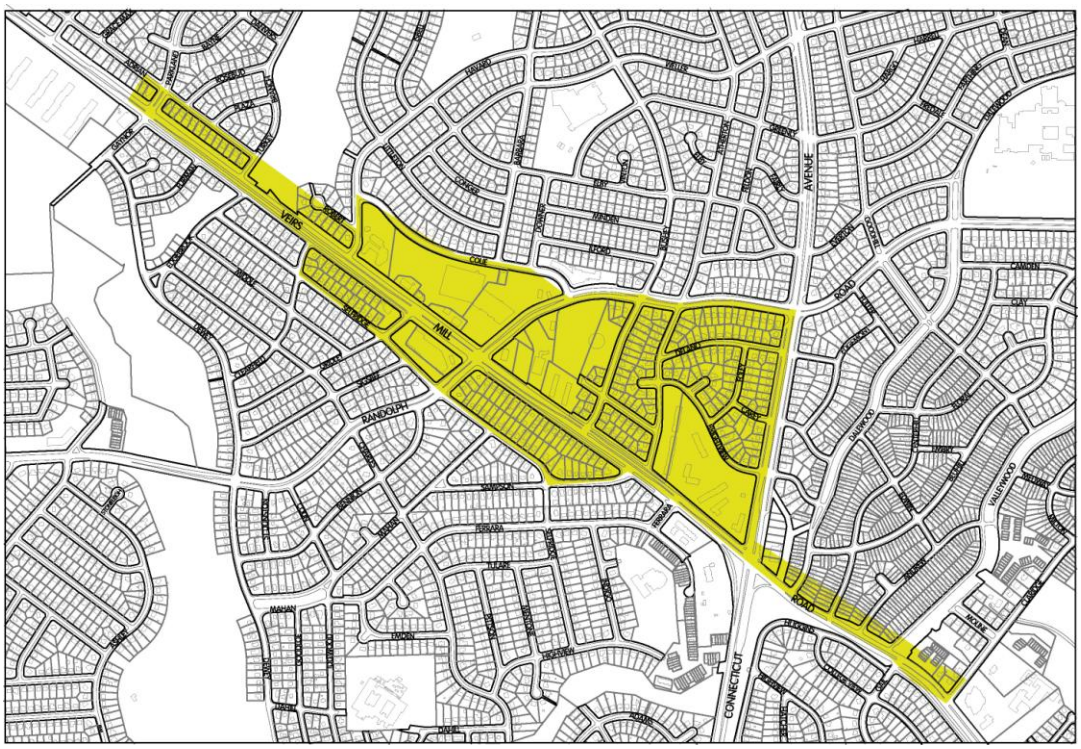


Map 16 Piney Branch/University Boulevard Purple Line Station Area BPPA

Map 17 Medical Center Metro Station Area BPPA
(includes NIH and NNMC campuses)

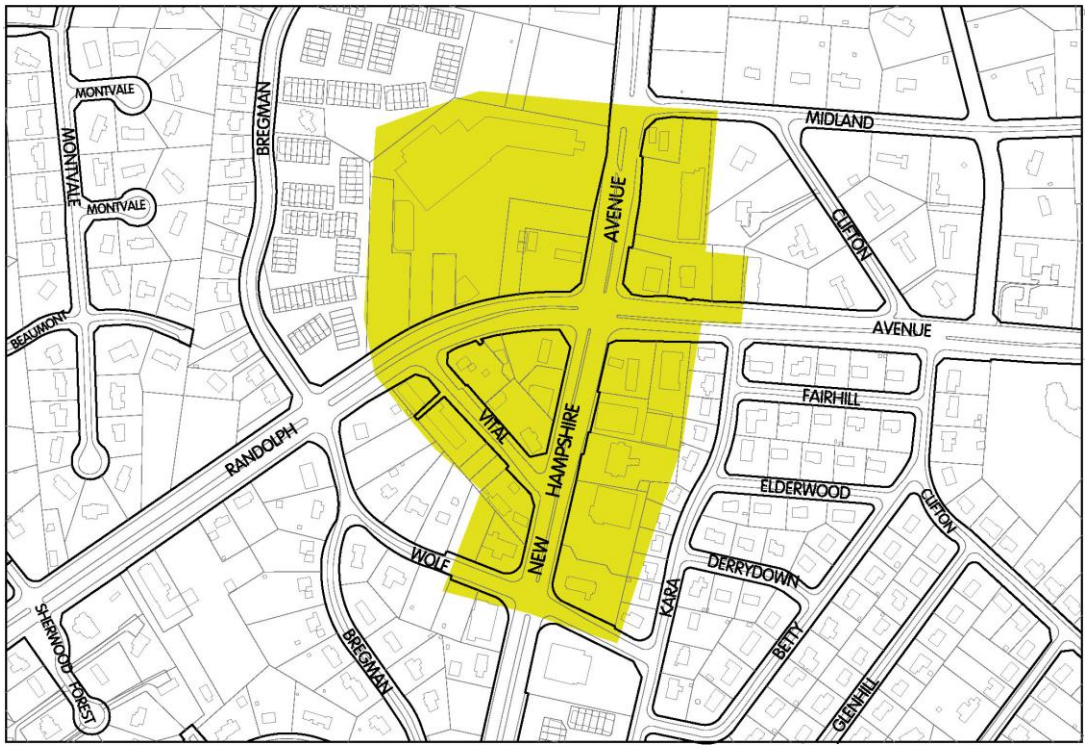

CAPITAL BELTWAY
ROCKVILLE
PIKE
ALTA VISTA RD
WOODMONT AVE
WOODMONT AVE
WISCONSIN AVENUE
GARRICK
WINDSOR PARK
TAKOMA
PARK
GARRICK
GARRICK
GARRIC

Map 18 Veirs Mill Road/Randolph Road BPPA

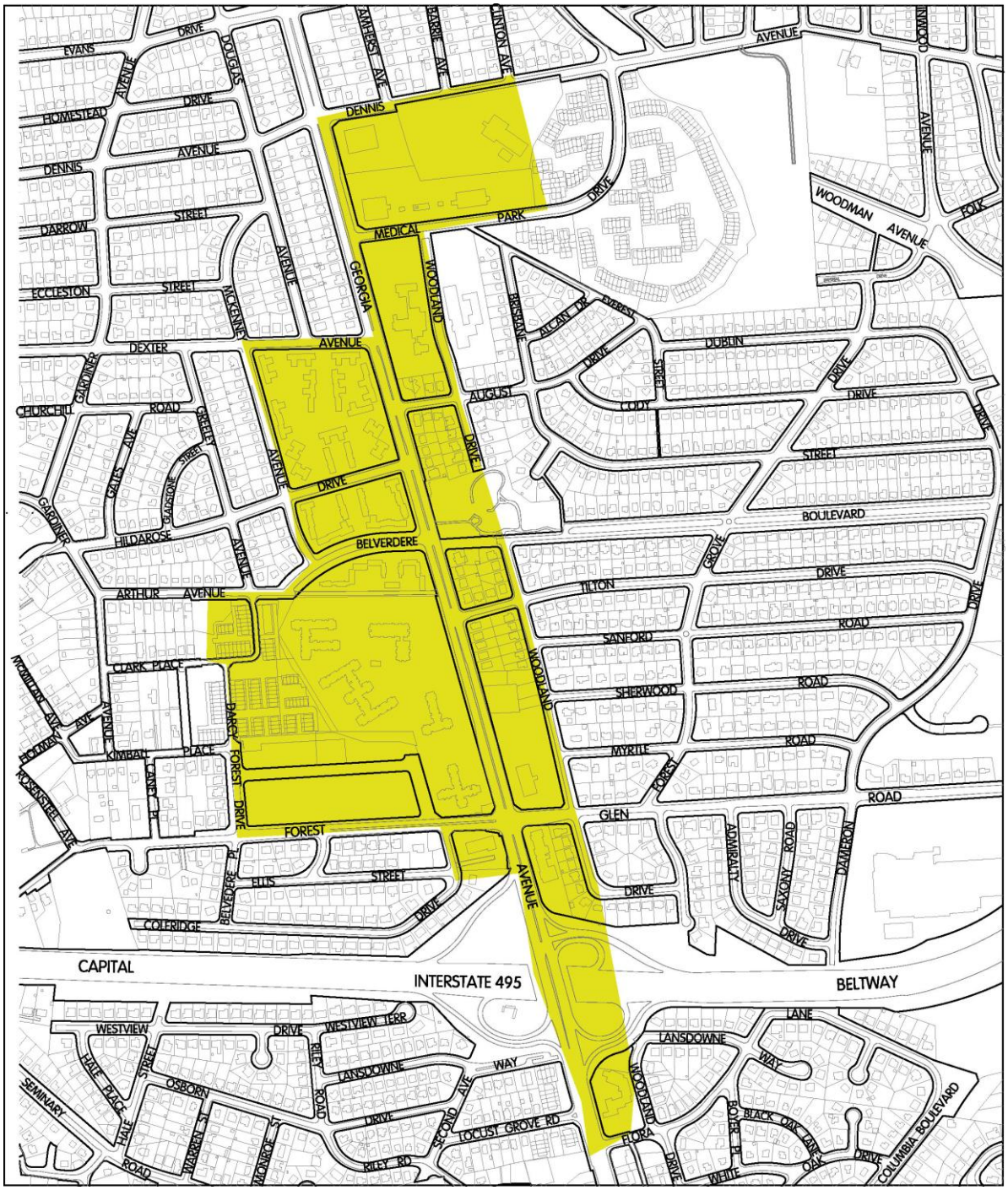


Map 19 Aspen Hill BPPA

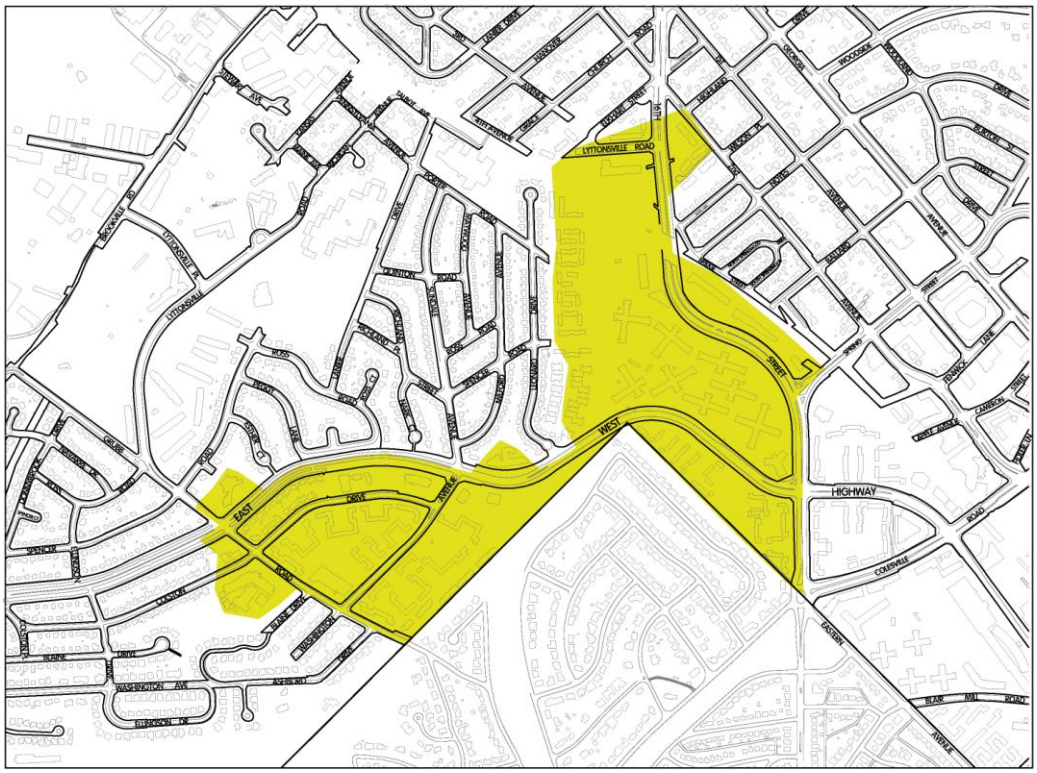
Map 20 Colesville BPPA



Map 21 Forest Glen Metro Station Area BPPA



Map 22 Silver Spring CBD West BPPA



Map 23 Four Corners BPPA

MARC Brunswick Line Expansion

MARC commuter rail's Brunswick Line serves the broadest regional transportation function of the County's transit network, performing a similar function as that of an interstate highway in the roadway network. It has 7,000 daily passengers and serves eleven stations in Montgomery County while connecting West Virginia and Frederick County, MD with Washington, D.C. The Brunswick Line also connects to five of the transit corridors recommended in this Plan—MD 355, Veirs Mill Road, Randolph Road, Georgia Avenue, and US29/Colesville Road—as well as to the Corridor Cities Transitway, Purple Line, and Metrorail Red Line.

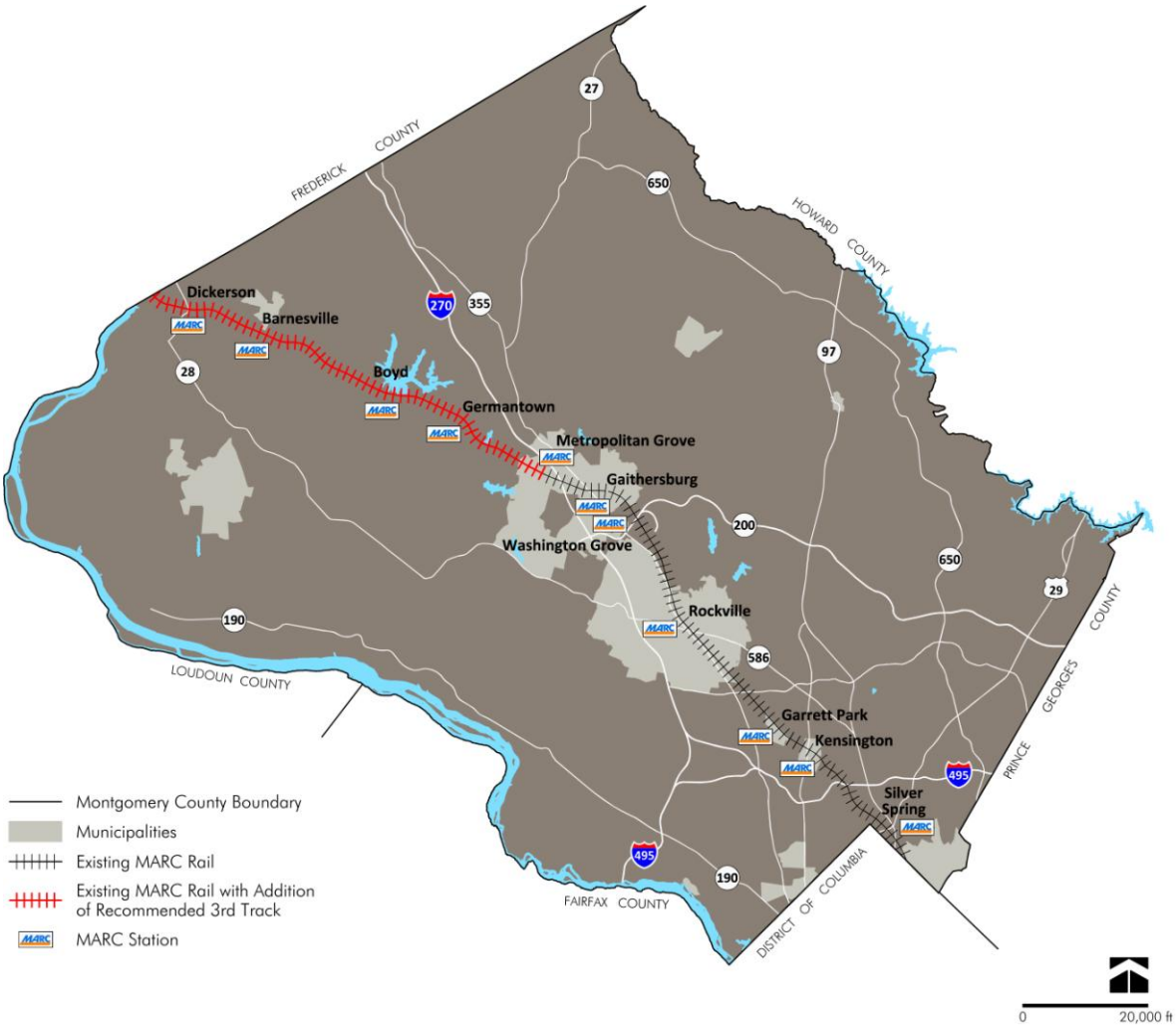
This Plan recommends that a third track be constructed on the Brunswick Line between the Frederick County line the Metropolitan Grove station to reduce conflicts with freight service and enabling the expansion of MARC service. This additional capacity would accommodate a tripling of ridership and include:

- more frequent service
- all-day service
- weekend service
- one-seat rides to Northern Virginia
- service to planned MARC stations at Shady Grove and White Flint.

This MARC expansion to full-time service will improve east-west connectivity across the County, connecting with the rest of the transit network recommended by this Plan and increasing its utility for County residents and commuters.

This Plan includes the third track as a Phase 1 recommendation, but the right-of-way necessary to accommodate this expansion should be determined during project planning and confirmed in future area master plan updates as a Phase 2 recommendation.

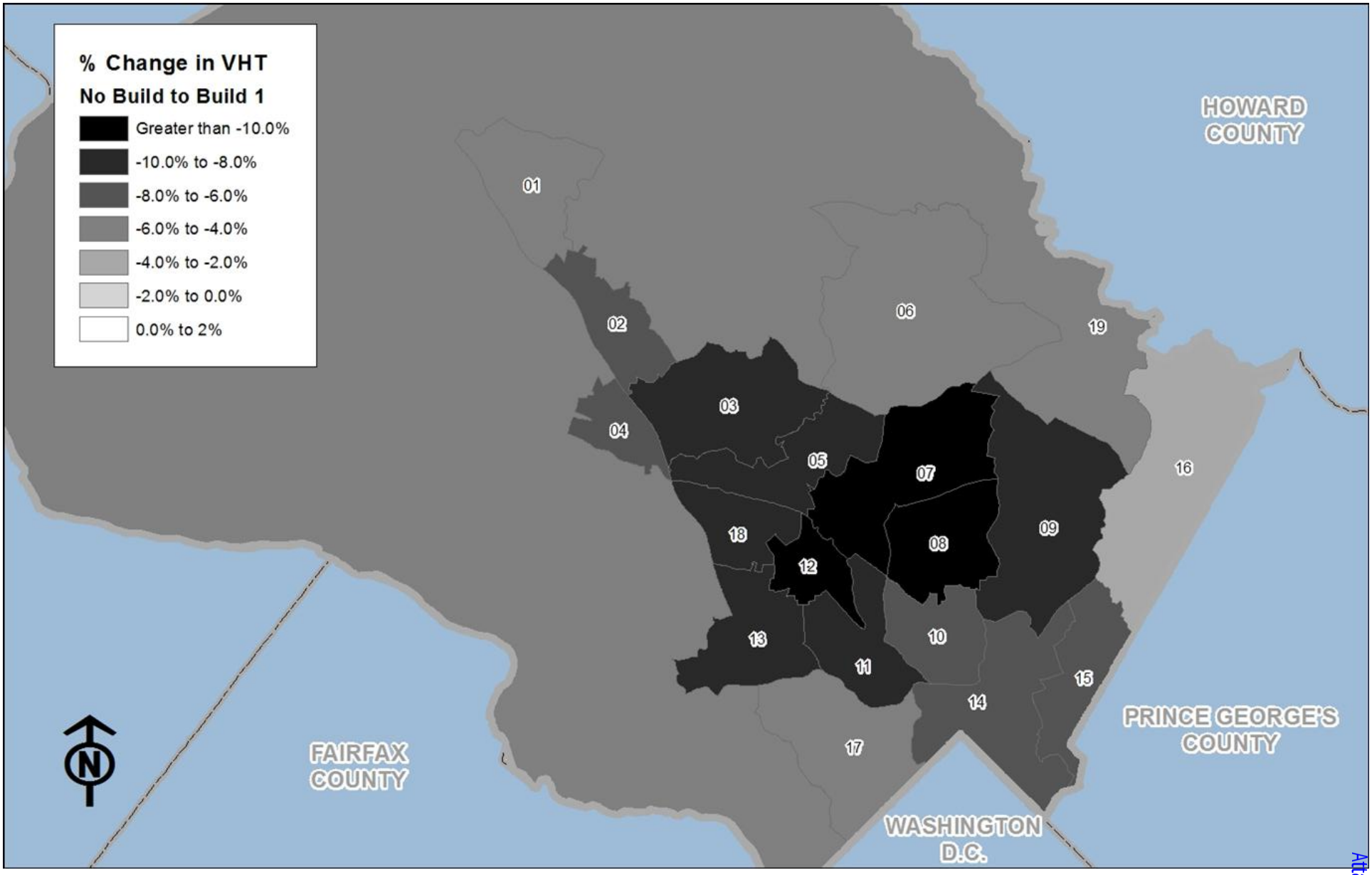
Map 24 MARC Brunswick Line Expansion



PLAN APPENDIX

Appendix A

Impacts on Vehicle-Miles-Traveled and Vehicle-Hours-Traveled: Modeling results for Build alternatives analyzed. The transit corridor network recommended by this Plan is expected to have impacts that are between the Build 2 and Build 2A results.



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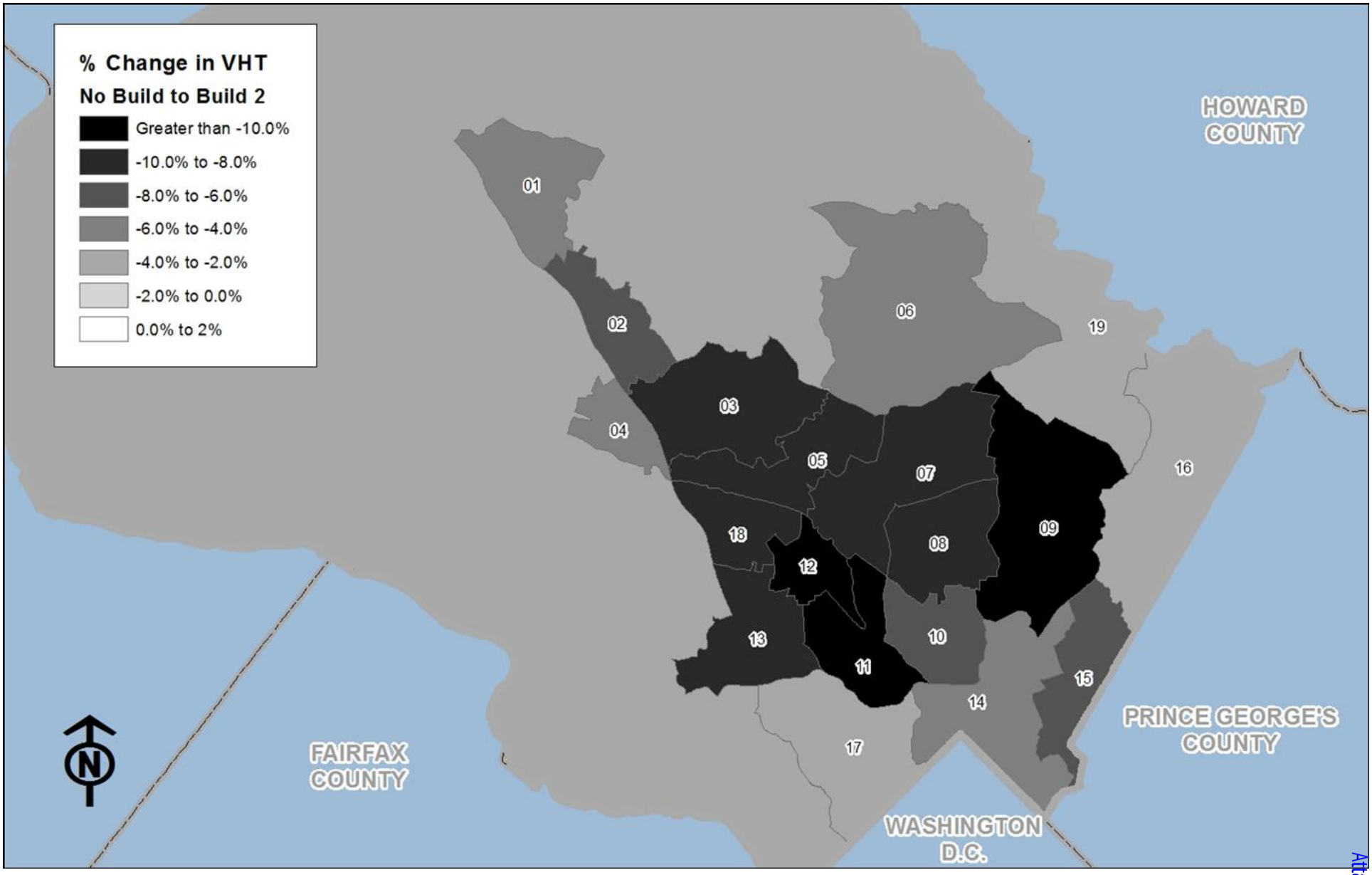

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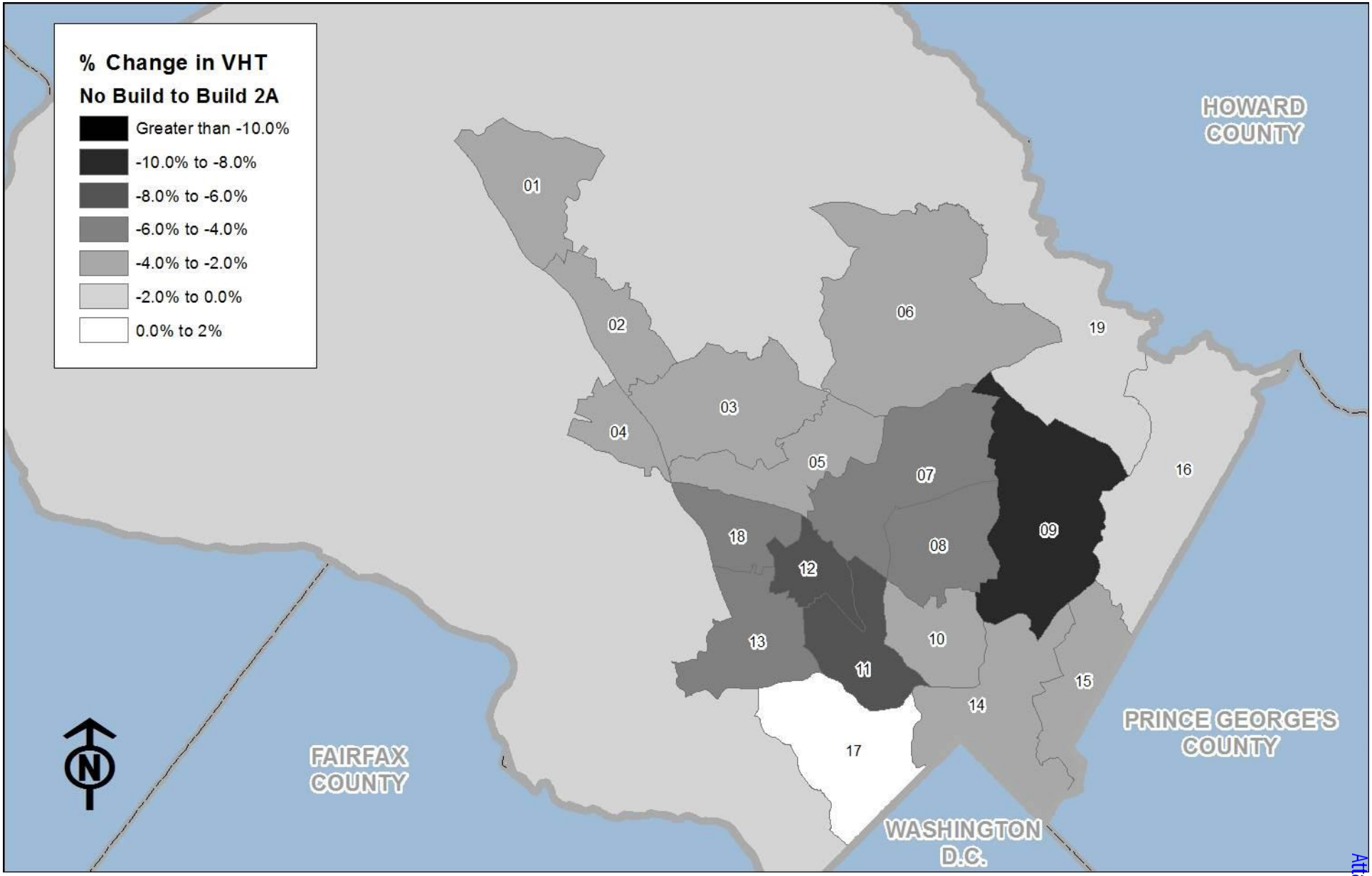

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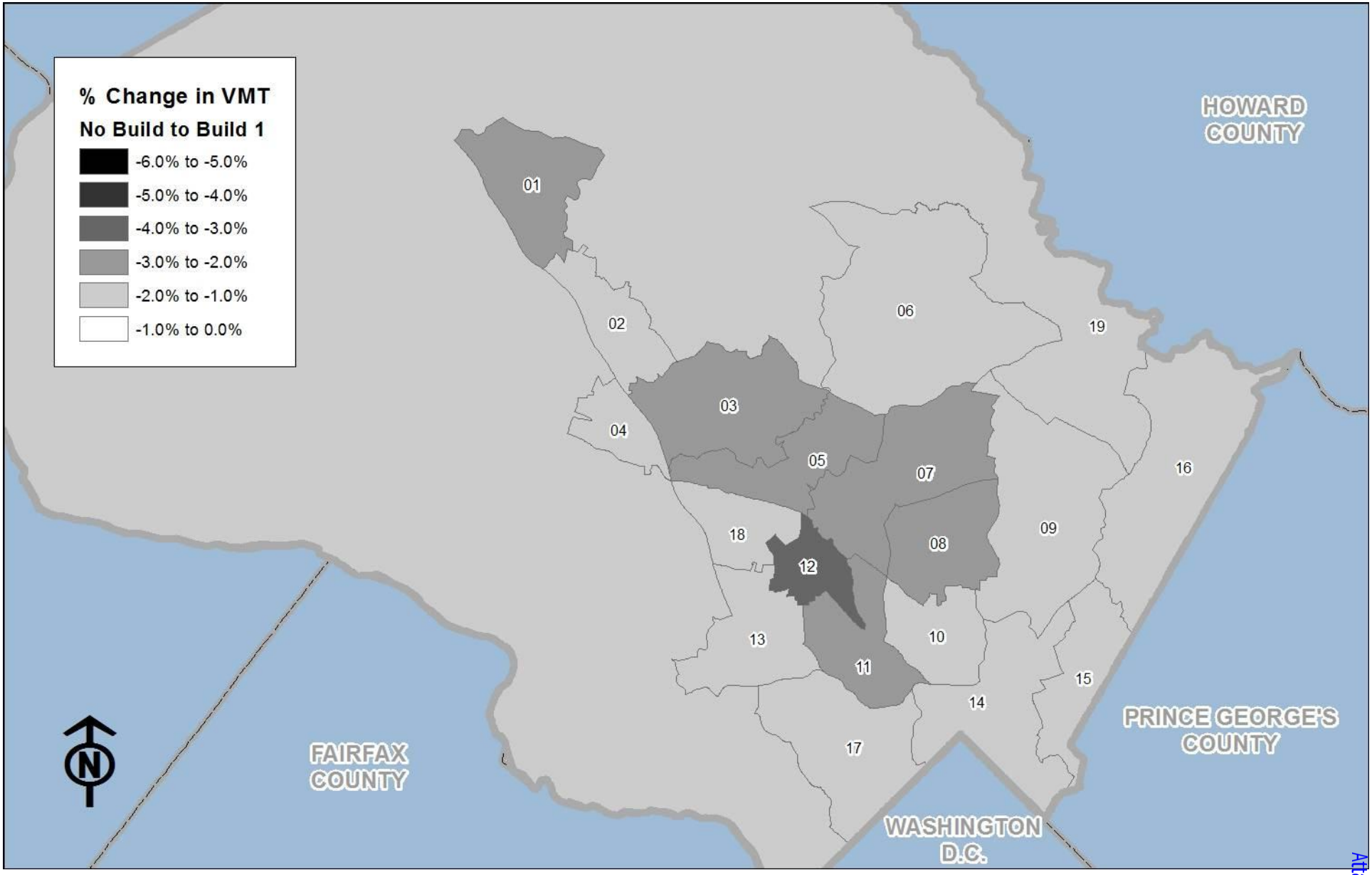

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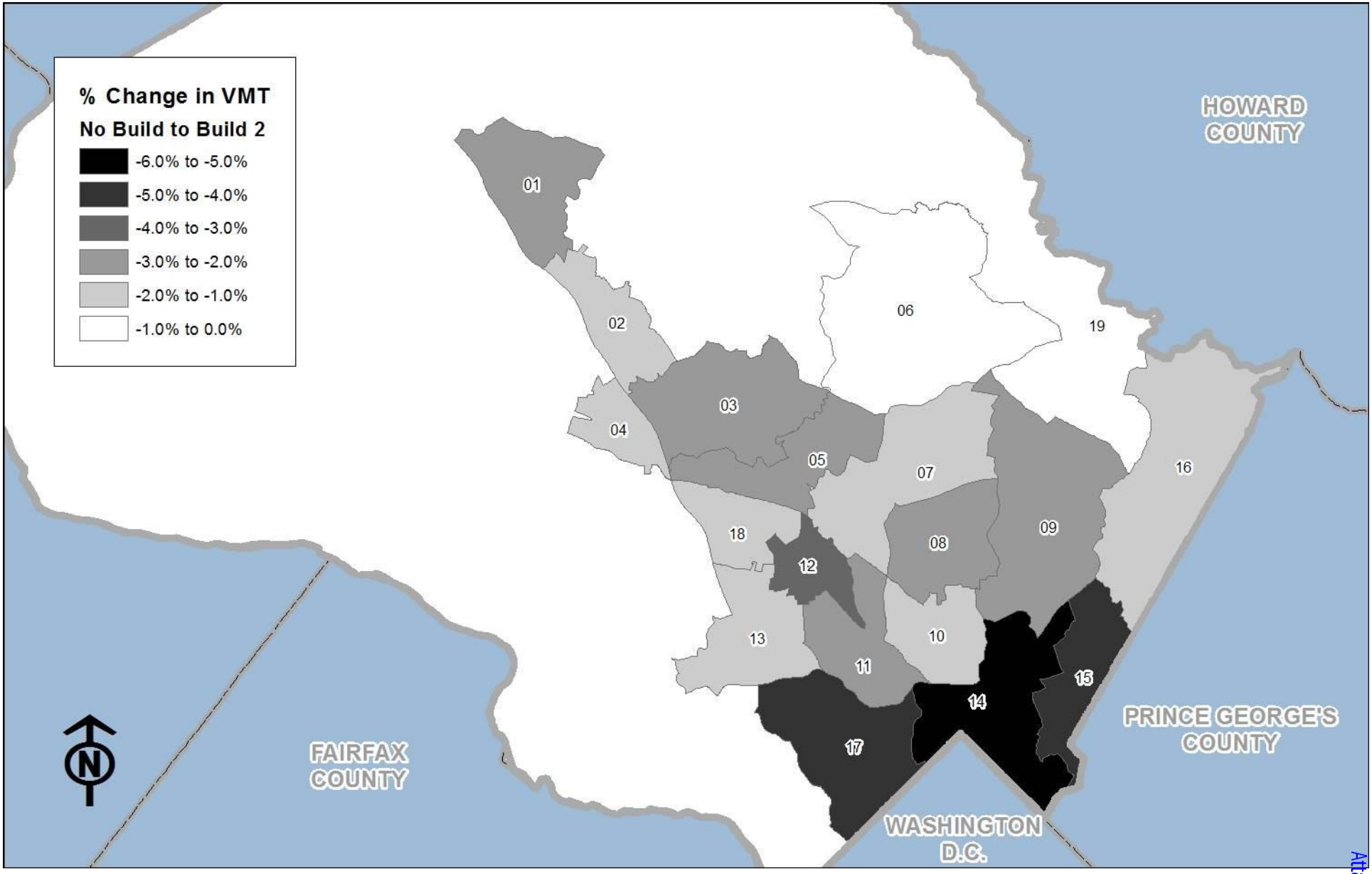

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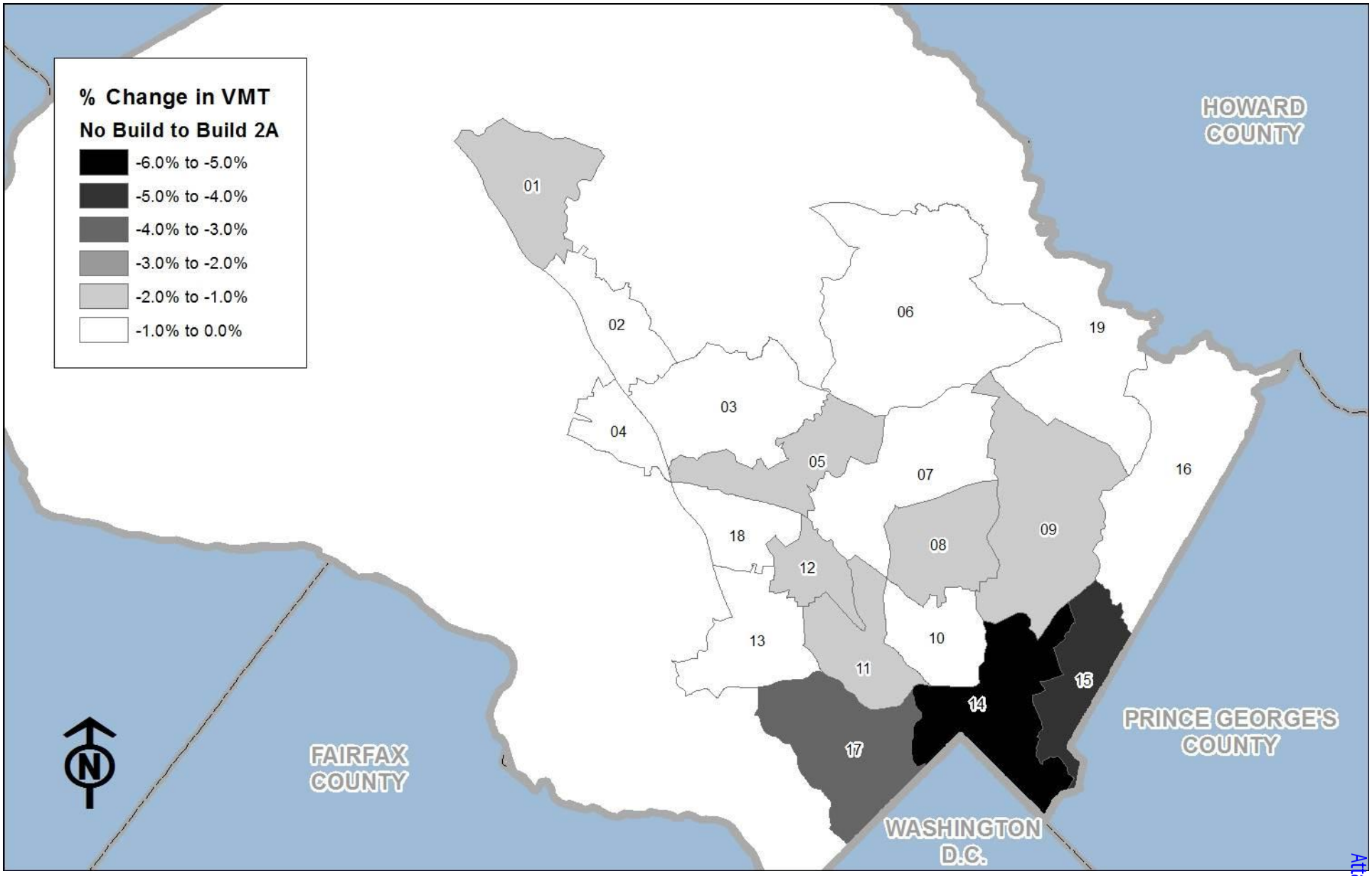


Attachment A

Appendix B

The following provides detailed descriptions of the specific conditions in each corridor and the rationale behind the treatment recommended, as well as the recommended changes from existing master plans.

Georgia Avenue North

The Georgia Avenue North corridor extends from the Wheaton Metrorail Station to Olney. It includes the Georgia Avenue Busway, a master planned BRT facility between Glenmont and Olney, which is currently undergoing an extensive multi-year alternatives analysis under a partnership between Montgomery County and the State of Maryland.

Even under the most ambitious scenario (Build 1 and Build 2), much of the corridor is below the 1,000 pphpd threshold, though if additional land use is recommended in the ongoing Glenmont Sector Plan, the links south of Glenmont would likely see a slight increase in ridership. Ridership drops substantially with the Build 2A scenario because the portion of the corridor between Glenmont and Wheaton was tested with mixed traffic, and because other connecting corridors were also evaluated with runningway treatments that have the lower speeds associated with more curb lane and mixed traffic operations.

Therefore, because this corridor has relatively good existing bus ridership and because it links to three other corridors that will be recommended for enhanced treatments beyond those evaluated in the Build 2A scenario, this Plan recommends including Georgia Avenue North in the transit corridor network.

Table 4-1: Link Ridership Forecast by Peak Hour/Peak Direction (2040) for Georgia Avenue North Corridor

From	To	Build 1	Build 2	Build 2A
Montgomery General Hospital	MD 108 and MD 97	0	0	0
MD 108 and MD 97	MD 97 and Hines Rd	150	150	75
MD 97 and Hines Rd	ICC Park and Ride	300	275	175
ICC Park and Ride	Park and Ride Lot - MD28 and MD 97	550	525	200
Park and Ride Lot - MD28 and MD 97	MD 97 and Rossmoor Blvd	700	650	225
MD 97 and Rossmoor Blvd	MD 97 and Bel Pre Rd	1,050	1,025	500
MD 97 and Bel Pre Rd	MD 97 and MD 185	1,050	925	525
MD 97 and MD 185	MD 97 and Hewitt Ave	975	925	525
MD 97 and Hewitt Ave	Glenmont Metro Station	1,200	1,150	725
Glenmont Metro Station	MD 97 and Randolph Rd	800	725	300
MD 97 and Randolph Rd	MD 97 and Arcola Ave	875	850	350
MD 97 and Arcola Ave	Wheaton Metro Station	900	875	350

Red = two-way median busway speeds Blue = curb lane speeds Yellow = mixed traffic speeds

The Countywide Transit Corridors Functional Master Plan recommends retaining this corridor in Phase 1 as a median busway because the right-of-way is available in the median for most of the corridor between Olney and Glenmont and because some of the connecting corridors are recommended for enhanced treatments that will increase their speeds over the Build 2A assumptions.

Several changes to existing master plan recommendations are recommended:

1. Extend the Georgia Avenue Busway with a one-lane median reversible busway between Glenmont and Wheaton to tie into the Veirs Mill Road and University Blvd corridors and to reflect the highly directional travel patterns in this corridor. Despite the duplication of Metrorail Red Line service in this segment, it is important from a network integrity standpoint to extend high-quality BRT service to the Wheaton Metro Station so that only a single transfer is needed to the other three transit corridors recommended in this Plan.
2. Change the current master plan recommendation from a two-lane median busway to a one-lane median busway between Spartan Road and Norbeck Road in the Olney Master Plan, to reflect travel patterns that are largely southbound in the morning and northbound in the evening.
3. Extend the Georgia Avenue Busway from Spartan Road to the planned transit center at Montgomery General Hospital. The section from Spartan Road to MD 108 would be a one-lane median busway, while the section on MD 108 and Prince Phillip Drive would operate in mixed traffic.

Table 4-2: Corridor Recommendations for Georgia Avenue North

Road	From	To	Existing # of Lanes	Existing Master Plan		Phase 1			Change from Existing Master Plan	
				ROW	Lanes	Treatment	ROW	Lanes	ROW	Lanes
Prince Phillip Dr	Brooke Farm Drive	MD 108	2	80	4	Mixed Traffic	80	4	0	0
Olney Sandy Spring Road	Prince Phillip Drive	Spartan Road	4	150	4		150	4	0	0
Olney Sandy Spring Road	Spartan Road	Georgia Avenue	4	150	4		150	4	0	0
Georgia Ave	MD 108	Spartan Road	4	120	4	Reversible One-Lane Median	121	4 + 1 bus	+1	+1 bus
Georgia Ave	Spartan Road	200 ft south of Queen Mary Dr	4	150	4 + 2 bus		150	4 + 1 bus	0	-1 bus
Georgia Ave	200 ft south of Queen Mary Dr	Old Baltimore Road	4	150	4 + 2 bus	Reversible One-Lane Median	150	4 + 1 bus	0	-1 bus
Georgia Ave	Old Baltimore Road	Emory Lane	4 - 5	150	4 + 2 bus		150	4 + 1 bus	0	-1 bus
Georgia Ave	Emory Lane	MD 28	5 - 6	150	6 + 2 bus		150	6 + 1 bus	0	-1 bus
Georgia Ave	MD 28	Matthew Henson State Park	6	150	6 + 1 bus		150	6 + 1 bus	0	0
Georgia Ave	Matthew Henson State Park	Weller Road	6	120	6		130	6 + 1 bus	+10	+1 bus
Georgia Ave	Weller Road	Denley Road	6	135	6 + 1 bus		135	6 + 1 bus	0	0
Georgia Ave	Denley Road	Layhill Road	6	145	6 + 1 bus		145	6 + 1 bus	0	0
Georgia Ave	Layhill Road	Randolph Road	6	170	6 bus		170	6 + bus1	0	+1 bus
Georgia Ave	Randolph Road	500 ft south of Randolph Road	6	170	6		170	6 + 1 bus	0	+1 bus
Georgia Ave	500 ft south of Randolph Road	Mason Street	6	120	6		124	6 + 1 bus	+4	+1 bus
Georgia Ave	Mason Street	400 ft north of Blueridge Ave	6	120	6		120	6 + 1 bus	0	+1 bus
Georgia Ave	400 ft north of Blueridge Ave	Reedie Road	6	120	6		129	6 + 1 bus	+9	+1 bus
Reedie Road	Georgia Avenue	Veirs Mill Road	2	70	2	Mixed Traffic	70	2	0	0

Georgia Avenue South

In the Build 1 scenario, the Georgia Avenue South corridor was evaluated as a two-lane median busway for its entire alignment between Wheaton and the DC line. The link between Wheaton and the Silver Spring Transit Center generally resulted in ridership levels that exceed the 1,000 pphpd threshold. South of the transit center, ridership levels were generally well below this threshold.

Providing additional lanes for median BRT between Spring Street and the DC Line is infeasible due to right-of-way constraints and the existence of large buildings. Since there is additional capacity on 16th Street, which runs parallel to Georgia Avenue, the Build 2 scenario converted two existing general purpose lanes to bus curb lanes between 16th Street and the DC Line. This resulted in ridership that was slightly less than the Build 1 scenario. Initial evaluations show that while Georgia Avenue between Plyers Mill Road and Philadelphia Avenue will be heavily congested in 2040, the impacts associated with "lane repurposing" are minimal (see Appendix 3).

In the Build 2A scenario, the Georgia Avenue South corridor was evaluated with curb lanes for its entire length. Coupled with the removal of several BRT corridors in the proposed 150-mile network and a reduction in the speed assumptions for some portions of the corridors that were retained, the ridership on this corridor dropped substantially in the Build 2A scenario.

The corridor north of the Silver Spring Transit Center partially duplicates Metrorail Red Line service but retention of this segment in the network is important to maintain its integrity.

Table 4-3: Link Ridership Forecast by Peak Hour/Peak Direction (2040) for Georgia Avenue South Corridor

From	To	Build 1	Build 2	Build 2A
Wheaton Metro Station	MD 97 and Dexter Ave	1,275	1,250	450
MD 97 and Dexter Ave	Forest Glen Metro Station	1,300	1,250	475
Forest Glen Metro Station	MD 97 and Seminary Rd	1,350	1,325	600
MD 97 and Seminary Rd	MD 97 and Cameron St	1,300	1,275	550
MD 97 and Cameron St	Silver Spring Transit Center	800	775	325
Silver Spring Transit Center	MD 97 and East-West Hwy	450	400	100
MD 97 and East-West Hwy	MD 97 and Eastern Ave	425	375	75

Red = two-way median busway speeds Blue = curb lane speeds Yellow = mixed traffic speeds

Therefore, since the ridership on the Georgia Avenue South corridor will likely be somewhere between the Build 2 and Build 2A corridors, Phase 1 of the *Countywide Transit Corridors Functional Master Plan* recommends the following:

- Wheaton Station and 16th Street: Mixed Traffic (Phase 1); Two-Lane Median (Phase 2) While there is good ridership forecast for this segment, the very high traffic volumes make it difficult to meet the lane-repurposing test. And the roadside development makes it difficult to expand the roadway without removing the off-street parking for many of the single-family homes in this segment. Given

the additional consideration of duplication of Metrorail service, we believe that it would be best to consider a median busway as part of an area master plan update.

- 16th Street and Colesville Road: Curb lanes achieved by repurposing existing lanes because:
  - Capacity of Traffic Lane: The lane capacity in this section is estimated to be 800 vehicles per hour.
  - Forecast Transit Ridership: The ridership is likely to be somewhere between the Build 2 and Build 2A ridership, especially when the Phase 2 recommendation between Wheaton Station and 16th Street is included. In addition, if this segment is implemented as a curb lane busway, then the local bus ridership would further increase ridership in the bus lanes.
  - Parallel Corridor: There is excess capacity on 16th Street for through traffic displaced from Georgia Avenue.
- Wayne Avenue and the DC line: This corridor segment currently accommodates MetroExtra express bus service to downtown Washington DC; dedicated bus lanes would facilitate that service in the near- to mid- term in either the median or on the curb lanes. In the long term, the District of Columbia is planning streetcar service on Georgia Avenue. Their current plan is for the line to turn at Butternut Street at the entrance to the former Walter Reed hospital and serve the Takoma Metro Station. Their consultant has recommended that the line be extended instead up to the Silver Spring Transit Center, as the Montgomery County Council has requested. Should the streetcar line be extended to Silver Spring, the repurposed travel lanes recommended by this plan could be used to facilitate that service.

There are a number of issues along the portion of the corridor between Forest Glen Road and Wheaton that need to be resolved, including pedestrian safety issues, aesthetics, poor sidewalk and bikeway facilities. This link of the corridor is included as a two-lane median busway in Phase 2 of the *Countywide Transit Corridors Functional Master Plan*.

Table 4-4: Corridor Recommendations for Georgia Avenue South

Road	From	To	Existing # of Lanes	Existing Master Plan		Phase 1			Phase 2			Change from Existing Master Plan Phase 1 (Phase 2)		Repurposing Existing Lanes?
				ROW	Lanes	Treatment	ROW	Lanes	Treatment	ROW	Lanes	ROW	Lanes	Y/N
Georgia Avenue	Veirs Mill Road	Windham Lane	6	120	6	Mixed Traffic	120	6	Two-Lane Median	163	6 + 2 bus	0 (+43)	0 (+2 bus)	N
Georgia Avenue	Windham Lane	Dennis Avenue	6	120	6		120	6		161	6 + 2 bus	0 (+41)	0 (+2 bus)	N
Georgia Avenue	Dennis Avenue	Forest Glen Rd	6	110	6		110	6		161	6 + 2 bus	0 (+51)	0 (+2 bus)	N
Georgia Avenue	Forest Glen Rd	I-495	6	110	6		110	6		161	6 + 2 bus	0 (+51)	0 (+2 bus)	N
Georgia Avenue	I-495	Flora Lane	7	120	6		120	6		161	6 + 2 bus	0 (+41)	0 (+2 bus)	N
Georgia Avenue	Flora Lane	16th Street	7	120	7		120	7		163	6 + 2 bus	0 (+43)	0 (+2 bus)	N
Georgia Avenue	16th Street	Spring Street	6	120	6	Curb Lanes	122	4 + 2 bus				2	-2 general +2 bus	Y
Georgia Avenue	Spring Street	Colesville Road	6	126	6		126	4 + 2 bus				0	-2 general +2 bus	Y
Wayne Avenue	Colesville Road	Georgia Avenue	2	120	4	Mixed Traffic	120	4				0	0	N
Georgia Avenue	Wayne Avenue	Blair Mill Road	6	120-140	6	Curb Lanes	125-140	4 + 2 bus				5 max.	-2 general +2 bus	Y
Georgia Avenue	Blair Mill Road	DC Line	6	125	6		125	4 + 2 bus				0	-2 general +2 bus	Y

MD 355 North

The MD 355 North corridor is the second highest daily ridership corridor evaluated in this Plan. For the Build 1 scenario, it was evaluated as two-lane median busway, and resulted in a corridor-wide daily ridership of 34,000 riders, with ridership for most of the corridor above 1,000 pphpd, and over 2,000 pphpd south of Gaithersburg. Ridership drops slightly in the Build 2 scenario, which evaluated portions of the corridor between Ridge Road and Middlebrook Road as curb lanes.

For the Build 2A scenario, the portion of the corridor north of Shakespeare Blvd was dropped because of low forecast ridership. Tying instead into the Corridor Cities Transitway (CCT) should increase the need for Phase 3 of the CCT up to Clarksburg Town Center. Under this scenario daily ridership dropped to 21,500, and the link volumes also dropped, but to levels that still warrants BRT service for most of the corridor.

Table 4-5: Link Ridership Forecast by Peak Hour/Peak Direction (2040) for MD 355 North Corridor

From	To	Build 1	Build 2	Build 2A
Snowden Farm Pkwy and Stringtown Rd	Snowden Farm Pkwy and Foreman Blvd	175	175	Not Tested
Snowden Farm Pkwy and Foreman Blvd	Midcounty Highway and Ridge Rd	500	475	
Midcounty Highway and Ridge Rd	MD 355 and Shakespeare Blvd	675	650	
MD 355 and Shakespeare Blvd	MD 355 and MD 118	1,325	1,250	625
MD 355 and MD 118	MD 355 and Middlebrook Rd	1,500	1,375	675
MD 355 and Middlebrook Rd	MD 355 and Professional Dr	1,825	1,700	875
MD 355 and Professional Dr	MD 355 and MD 124	2,000	1,875	925
MD 355 and MD 124	MD 355 and Odendhal Ave	2,075	1,925	1,000
MD 355 and Odendhal Ave	MD 355 and Brookes Ave	2,275	2,125	1,075
MD 355 and Brookes Ave	MD 355 and Education Blvd	2,125	1,975	1,200
MD 355 and Education Blvd	MD 355 and Shady Grove Rd	2,500	2,325	1,500
MD 355 and Shady Grove Rd	MD 355 and King Farm Blvd	2,450	2,275	1,450
MD 355 and King Farm Blvd	MD 355 and Gude Dr	2,275	2,100	1,200
MD 355 and Gude Dr	MD 355 and Mannakee St	2,250	2,075	1,175
MD 355 and Mannakee St	Rockville Metro Station (west entrance)	2,325	2,150	1,250
Average Daily Ridership (entire corridor)		**34,100**	**32,475**	**21,550**

Red = two-way median busway speeds Blue = curb lane speeds Yellow = mixed traffic speeds

The recommended treatments will increase intended bus speeds to achieve ridership levels closer to the Build 2 scenario than the Build 2A scenario by recommending a two-lane median busway. While

ridership will increase, it will not reach Build 2 because the incentive to take transit was reduced for many potential passengers when other corridors were dropped from the network.

The Countywide Transit Corridors Functional Master Plan recommends including this corridor in Phase 1 as a two-way median busway in Montgomery County because of the high ridership potential. Phase 1 recommends lane repurposing in two segments:

- Game Preserve Road to the Corridor Cities Transitway—lane repurposing is recommended because BRT is anticipated to provide greater person-throughput.
- 1,000 feet south of Indianola Road to 270 feet north of North Campus Drive—lane repurposing is recommended because traffic congestion will still be within an acceptable range.
- Just south of O'Neill Drive to 1,250 feet south of Shady Grove Road—lane repurposing is recommended because BRT is anticipated to provide greater person-throughput.

In Phase 2 of this plan the entire corridor is recommended to be a two-way median busway. This includes the segments in Rockville and Gaithersburg that are shown as mixed traffic in Phase 1.

Table 4-6: Corridor Recommendations for MD 355 North

Road	From	To	Existing # of Lanes	Existing Master Plan		Phase 1			Phase 2			Change from Existing Master Plan Phase 1 (Phase 2)		Repurposing Existing Lanes? Phase 1 (Phase 2)
				ROW	Lanes	Treatment	ROW	Lanes	Treatment	ROW	Lanes	ROW	Lanes	Y/N
Seneca Meadows Pkwy	Corridor Cities Transitway	Observation Drive	4	130	4	Two-Lane Median	130	4 + 2 bus				0	+2 bus	N
Shakespeare Boulevard	Observation Drive	MD 355	4	100	4		123	4 + 2 bus				0	+2 bus	N
MD 355	Shakespeare Boulevard	Game Preserve Road	6	250	6		250	4 + 2 bus	Two-Lane Median	250	6 + 2	0	+2 bus	Y (N)
MD 355	Game Preserve Road	Just south of O'Neil Drive	6	Gaithersburg		Mixed Traffic				163	6 + 2	Gaithersburg		N
MD 355	Just south of O'Neil Drive	1250 ft south of Shady Grove Rd	6	150	6	Two-Lane Median	150	4 + 2 bus		161	6 + 2	0 (+11)	- 2 general +2 bus (+2 bus)	Y (N)
MD 355	1250 ft south of Shady Grove Rd	Ridgemont Avenue	6	Rockville		Mixed Traffic				163	6 + 2	Rockville		N
MD 355	Ridgemont Avenue	Indianola Road	6	120	6		123	4+2 bus		163	6 + 2	+3 (+43)	- 2 general +2 bus (+2 bus)	Y (N)
MD 355	Indianola Road	1000 ft south of Indianola Road	6	Rockville						163	6 + 2	Rockville		N
MD 355	1000 ft south of Indianola Road	270 ft north of N. Campus Dr	6	150	6	Two-Lane Median	150	4 + 2 bus		161	6 + 2	0 (+11)	- 2 general +2 bus (+2 bus)	Y (N)
MD 355	270 ft north of N. Campus Dr	Church Street	6	Rockville		Mixed Traffic				163	6 + 2	Rockville		N

MD 355 South

The MD 355 South corridor has the highest daily ridership forecast for any corridor evaluated in this Plan. For the Build 1 scenario it was evaluated as two-lane median busway, and resulted in a corridor-wide daily ridership of 49,000 riders, with ridership above 1,500 pphpd throughout, and over 2,000 pphpd between the Rockville and Medical Center Metrorail stations. Ridership drops slightly in the Build 2 scenario, which evaluated the corridor south of Cedar Lane as curb lanes to reflect right-of-way impacts.

For the Build 2A scenario, the portion of the corridor south of the Grosvenor Metrorail station was evaluated as curb lanes. Overall, the corridor's ridership forecast was only slightly impacted, perhaps because some of riders switched to the MD 355 South corridor when the Old Georgetown Road South corridor was removed in the Build 2A scenario. This remains the highest performing corridor.

Table 4-7: Link Ridership Forecast by Peak Hour/Peak Direction (2040) for MD 355 South Corridor

From	To	Build 1	Build 2	Build 2A
Rockville Metro Station (west entrance)	MD 355 and Edmonston Dr	1,975	1,800	1,425
MD 355 and Edmonston Dr	MD 355 and Halpine Rd	2,100	1,825	1,450
MD 355 and Halpine Rd	MD 355 and Hubbard Dr	2,375	2,075	1,725
MD 355 and Hubbard Dr	White Flint Metro Station	2,200	1,925	1,550
White Flint Metro Station	MD 355 and Security Ln	2,275	2,100	2,225
MD 355 and Security Ln	Grosvenor Metro Station	2,050	1,875	2,100
Grosvenor Metro Station	MD 355 and Pooks Hill Rd	2,125	1,950	2,000
MD 355 and Pooks Hill Rd	MD 355 and Cedar Ln	2,075	1,925	1,975
MD 355 and Cedar Ln	Medical Center Metro Station	2,000	1,825	1,900
Medical Center Metro Station	MD 355 and Cordell Ave	1,875	1,750	1,775
MD 355 and Cordell Ave	Bethesda Metro Station	1,825	1,700	1,775
Bethesda Metro Station	Bradley Blvd and MD 355	1,675	1,400	1,125
Bradley Blvd and MD 355	Friendship Heights Metro	1,550	1,450	1,175
Average Daily Ridership (entire corridor)		**48,750**	**46,025**	**43,875**

Red = two-way median busway speeds Blue = curb lane speeds Yellow = mixed traffic speeds

Much of this corridor duplicates existing Metrorail service on the Red Line, but we believe that this corridor retains importance for several reasons:

1. Impact on the Red Line: While the Red Line ridership drops by between 14,000 and 23,000 riders, this only represents between 25% and 32% of BRT ridership on the Georgia Avenue and MD 355 South corridors. The ridership on these corridors is overwhelmingly new transit patrons.
2. Additional Stations: There are potential stations areas in between Red Line stations, including White Flint Mall, Pooks Hill, Cedar Lane, Woodmont Triangle, and Bradley Boulevard.
3. Connectivity: BRT to Bethesda provides a direct connection to the Purple Line, eliminating one transfer.

Table 4-8: Red Line Ridership Reduction as Percent of MD 355 and Georgia Ave BRT Ridership

Corridor	Build 1	Build 2	Build 2A
MD 355 South	24,300	23,700	12,300
Georgia Ave North / South	48,700	46,000	43,900
Red Line Reduction	23,100	21,700	13,900
Red Line Reduction as % of BRT	32%	31%	25%

Therefore, because of the high ridership potential for this corridor, the moderate impact on the Red Line, connectivity to the Purple Line, and the potential for new stations, Phase 1 of the *Countywide Transit Corridors Functional Master Plan* includes the MD 355 South corridor as follows:

1. Two-lane median busway from Church Street to Bradley Blvd to accommodate the large ridership forecasts.
    a. The portion of the corridor between Church Street and just south of Hubbard Street is in the City of Rockville and will need to be included in Rockville's ongoing master plan update. We envision retaining a typical section consistent with the White Flint I Sector Plan.
    b. The portion of the corridor between just south of Hubbard Street and Bou Avenue will be the subject of the White Flint 2 Sector Plan and the two-way median busway should be incorporated into this functional plan through the sector plan. We envision retaining a typical section consistent with the White Flint Sector Plan.
    c. From Bou Avenue to Hillery Way: Retain the White Flint Sector Plan typical section.
    d. From Hillery Way to I-495: Implement a two-way median busway.
    e. Two-lane median busway from I-495 to Bradley Boulevard This portion of the corridor has constrained right-of-way and the busway should be implemented by repurposing two existing traffic lanes to the busway. Lane repurposing is justified because the forecast transit volumes between the Bethesda and Grosvenor Metrorail stations exceeds the lane capacity.
2. For the portion of the corridor south of Bradley Boulevard, implement curb bus lanes. This portion of the corridor had lower ridership than the rest, but if coordinated with District of Columbia traffic and bus operations, a two-way median busway could be feasible.

Phase 2 of the *Countywide Transit Corridors Functional Master Plan* would replace the curb lanes south of Bradley Blvd with a two-way median busway.

Table 4-9: Corridor Recommendations for MD 355 South

Road	To	From	Existing # of Lanes	Existing Master Plan		Phase 1			Phase 2			Change from Existing Master Plan Phase 1 (Phase 2)		Repurposing Existing Lanes? Phase 1 (Phase 2)
				ROW	Lanes	Treatment	ROW	Lanes	Treatment	ROW	Lanes	ROW	Lanes	Y/N
MD 355	Church Street	Halpine Road	6	Rockville		Mixed Traffic	Rockville		Two-Lane Median	163	6 + 2 bus	Rockville		N
MD 355	Halpine Road	Twinbrook Pkwy	6							163	6 + 2 bus			
MD 355	Twinbrook Pkwy	Bou Avenue	6	134	6		134	6		163	6 + 2 bus	0 (+29)	0 (+2 bus)	N
MD 355	Bou Avenue	Just south of Hubbard Drive	6	134	6		134	6		163	6 + 2 bus	0 (+29)	0 (+2 bus)	N
MD 355	Just south of Hubbard Drive	Edson Lane	6	150 (162)*	6 + 2 bus	Two-Lane Median	150 (162)*	6 + 2 bus				0	+2 bus	N
MD 355	Edson Lane	Hillery Way	6	150 (162)*	6 + 2 bus		150 (162)*	6 + 2 bus				0	+2 bus	N
MD 355	Hillery Way	600 ft north of Tuckerman Ln (n)	6	150	6		150	6 + 2 bus				0	+2 bus	N
MD 355	600 ft north of Tuckerman Ln (n)	Tuckerman Lane (s)	6	150	6		150	6 + 2 bus				0	+2 bus	N
MD 355	Tuckerman Lane (s)	Grosvenor Lane	6	150	6		150	6 + 2 bus				0	+2 bus	N
MD 355	Grosvenor Lane	I-495	6	200	6		200	6 + 2 bus				0	+2 bus	N
MD 355	I-495	Cedar Lane	6	120	6		120	4 + 2 bus				0	-2 general +2 bus	Y
MD 355	Cedar Lane	Woodmont Avenue	6	120	6		123	4 + 2 bus				+3	-2 general +2 bus	Y
MD 355	Woodmont Avenue	Chestnut Street	6	120	6		120	4 + 2 bus				0	-2 general +2 bus	Y
MD 355	Chestnut Street	Bradley Boulevard	6	120	6		122	4 + 2 bus				+2	-2 general +2 bus	Y
MD 355	Bradley Boulevard	Nottingham Drive	6	120	6	Curb Lanes	122	4 + 2 bus	Two-Lane Median	122	4 + 2	+2	-2 general +2 bus	Y
MD 355	Nottingham Drive	Drummond Avenue	6	120	6		120	4 + 2 bus		120	4 + 2	0	-2 general +2 bus	Y
MD 355	Drummond Avenue	Oliver Street	6	120	6		120	4 + 2 bus		120	4 + 2	0	-2 general +2 bus	Y
MD 355	Oliver Street	Somerset Terrace	6	120	6		122	4 + 2 bus		122	4 + 2	+2	-2 general +2 bus	Y
MD 355	Somerset Terrace	Western Avenue	6	120	6		122	4 + 2 bus		122	4 + 2	+2	-2 general +2 bus	Y

* The Rockville Pike 150-foot right-of-way can be expanded to 162 feet (additional feet to be obtained through reservation).

New Hampshire Avenue

The Build 1 scenario evaluated a two-lane median busway on the entire alignment of New Hampshire Avenue. Its daily ridership is forecast to be about 22,000 passengers. Link ridership between the Fort Totten Metro station and the Takoma/Langley Transit Center exceeded 1,600 pphpd, from the transit center to Northampton Drive it exceeds the 1,000 pphpd threshold, and generally trails off below the pphpd threshold to the north.

Because the large forecast ridership south of the transit center exceeded the traffic lane capacity of the road (1,450 people), the Build 2 scenario evaluated converting two existing general purpose lanes to bus curb lanes. This resulted in ridership that was slightly less than the Build 1 scenario though still high enough to justify lane repurposing. Initial evaluations show that lane repurposing actually improves traffic along portions of this link, but that finding will need to be confirmed with more detailed analysis. The Build 2 scenario had a daily ridership of about 21,000 passengers, with the links to the south of Northampton Drive experiencing the highest link volumes.

Build 2A evaluated busway recommendations specifically based on the Build 2 ridership results. Links with ridership above 1,000 pphpd were tested as curb lanes, while links below 1,000 pphpd were tested in mixed traffic. The link to the north of US 29 was not retained due to its exceeding low (below 300 pphpd) ridership. The resulting analysis showed that these changes made what was previously a very good corridor into a marginal corridor. Therefore, the final recommendations seek to increase the speed along the corridor and add back the portion north of the White Oak Transit Center as a mixed traffic segment.

Table 4-10: Link Ridership Forecast by Peak Hour/Peak Direction (2040) for New Hampshire Ave Corridor

From	To	Build 1	Build 2	Build 2A
Colesville Park and Ride Lot	MD 650 and Randolph Rd	75	50	Not Tested
MD 650 and Randolph Rd	MD 650 and Valleybrook Dr	275	300	
MD 650 and Valleybrook Dr	MD 650 and Jackson Rd	350	275	
MD 650 and Jackson Rd	White Oak Transit Center	375	300	
White Oak Transit Center	FDA White Oak Campus	650	550	50
FDA White Oak Campus	MD 650 and Powder Mill Rd	775	650	25
MD 650 and Powder Mill Rd	MD 650 and Oakview Dr	825	725	150
MD 650 and Oakview Dr	MD 650 and Northampton Dr	875	750	175
MD 650 and Northampton Dr	Takoma/Langley Park Transit Center	1,125	1,025	400
Takoma/Langley Park Transit Center	MD 650 and MD 410	1,600	1,475	700
MD 650 and MD 410	MD 650 and Eastern Ave	1,750	1,600	875
MD 650 and Eastern Ave	Ft. Totten Metro station	1,625	1,475	875
Average Daily Ridership (entire corridor)		**21,975**	**20,825**	**9,925**

Red = two-way median busway speeds Blue = curb lane speeds Yellow = mixed traffic speeds

Therefore, because this corridor has the potential to reach high ridership levels, especially between DC and Northampton Drive, and because the segment north of US 29 provides an important source of ridership for the corridor, Phase 1 of the Countywide Transit Corridors Functional Master Plan makes recommendations for the New Hampshire Avenue corridor as follows:

1. Provide a two-lane median busway from the DC line to the Takoma/Langley Transit Center at University Blvd with lane repurposing. Lane repurposing is justified because the recommended treatments are likely to lead to ridership levels that exceed the traffic lane capacity of 1,200 persons, and to match the four lane configuration on the DC side of New Hampshire Avenue.
2. Provide a one-lane median reversible busway from Northampton Drive to the White Oak Transit Center at Lockwood Drive to reflect the highly directional travel patterns in the corridor.
3. Retain the link from the Colesville park-and-ride to the White Oak Transit Center in the corridor as mixed traffic. While the ridership forecast on this link would not warrant BRT if it was a stand-alone corridor, it is important to retain because it will improve the corridor-wide ridership by as much as 300 pphpd, while resulting in only minimal changes to the right-of-way.

Additionally, the ongoing White Oak Science Gateway Master Plan is considering substantially more land use in the vicinity of the White Oak Shopping Center and the Burnt Mills Shopping Center/Labor College site. An evaluation of the potential land use changes show that it would have a positive, though moderate impact on the ridership on the New Hampshire Avenue corridor. Combined with the

extension of BRT to the Colesville park-and-ride, the resulting ridership is likely to be closer to the Build 2 scenario then the Build 2A scenario.

Table 4-11: Corridor Recommendations for New Hampshire Avenue

Road	From	To	Existing # of Lanes	Existing Master Plan		Phase 1			Phase 2			Change from Existing Master Plan Phase 1 (Phase 2)		Repurposing Existing Lanes? Phase 1 (Phase 2)
				ROW	Lanes	Treatment	ROW	Lanes	Treatment	ROW	Lanes	ROW	Lanes	Y/N
New Hampshire Ave	Colesville Park & Ride	Randolph Road	6	120	6	Mixed Traffic	120	6				0	0	N
New Hampshire Ave	Randolph Road	Lockwood Drive	6	120	6		120	6				0	0	N
New Hampshire Ave	Lockwood Drive	I-495	6	120	6	Reversible One-Lane Median	130	6 + 1 bus				0	+1 bus	N
New Hampshire Ave	I-495	Northampton Drive	6	150	6-8		150	6 + 1 bus				0	+1 bus	N
New Hampshire Ave	Northampton Drive	University Boulevard	6	Prince George's County		Mixed Traffic			Reversible One-Lane Median	141	6 + 1	Prince George's County		N
New Hampshire Ave	University Boulevard	DC Line	6	150	6-8	Two-Lane Median	150	4 + 2 bus				0	-2 general +2 bus	Y

North Bethesda Transitway

The North Bethesda Transitway has been conceived of as a spur from the Metrorail Red Line to the Rock Spring area at least as far back as 1992, when it was recommended in the North Bethesda / Garrett Park Master Plan. A study in the 1990s recommended implementing the transitway as a monorail. Starting at Montgomery Mall, it would pass through the Rock Spring area via Westlake Terrace, Fernwood Road and Rock Spring Drive, then head north on Old Georgetown Road. It heads east via the I-270 right-of-way, and emerges onto Tuckerman Lane near the North Bethesda Trail (Bethesda Trolley Trail). With the exception of Old Georgetown Road, much of the right-of-way is currently available through easements and dedications. There is a capital project to construct a transit center at the terminus of the transitway in Montgomery Mall.

Initial ridership forecasts in the Build 1 and Build 2 scenarios found low ridership, even though the corridor was evaluated with the speeds of a two-way median transitway. The ridership potential of the corridor appeared to be negatively affected by the two Old Georgetown Road corridors, which overlap with portions of the North Bethesda Transitway. In Build 2A, staff therefore removed the two Old Georgetown Road corridors, which had marginal ridership potential, and which have challenges in regards to right-of-way. The result was a doubling of ridership on the North Bethesda Transitway.

Table 4-12: Link Ridership Forecast by Peak Hour/Peak Direction (2040) for North Bethesda Transitway

From	To	Build 1	Build 2	Build 2A
Montgomery Mall Transit Center	Rockledge Dr and Rock Spring Dr	175	175	300
Rockledge Dr and Rock Spring Dr	Rock Spring Dr and MD 187	475	475	1,025
Rock Spring Dr and MD 187	MD 187 and Tuckerman Ln	475	475	1,050
MD 187 and Tuckerman Ln	Tuckerman Ln and Sugarbush Ln	450	450	1,075
Tuckerman Ln and Sugarbush Ln	Grosvenor Metro Station	550	525	1,150
Average Daily Ridership (entire corridor)		**3,850**	**3,825**	**10,150**

Red = two-way median busway speeds Blue = curb lane speeds Yellow = mixed traffic speeds

The North Bethesda Transitway creates a connection between the Metrorail Red Line and Rock Spring, and positions the transitway so that it could be expanded to Tysons Corner and the Silver Line via the I-270 spur and I-495. Since the alignment of the transitway was identified before White Flint was envisioned as a major mixed use center, it is important to revisit the assumptions behind the transitway. The transfer point to the Red Line at the Grosvenor Metrorail Station in many ways is similar to the Fort Totten Metrorail Station. It would be a major transfer station at a rail station with relatively little land use. After the results of the Build 2A scenario were received, staff considered the merits of shifting the transfer station to one of the two Red Line stations at the end of Old Georgetown Road: White Flint or Bethesda.

A connection to White Flint was preferred because:

- The distance between the Montgomery Mall Transit Center and the proposed White Flint Metro station is about 2.7 miles whereas the distance to the Bethesda Metro station is about 4.5 miles.
- When the two Old Georgetown Road corridors were evaluated in Scenario 2, the Old Georgetown North corridor had the highest consistent ridership along Old Georgetown Road. (The Old Georgetown South corridor did show good ridership between Bethesda and NIH / Suburban Hospital, but the travel demand to the Rock Spring area was about half that of the Old Georgetown North corridor).
- If ultimately implemented as a connection to Tysons Corner, there is greater ridership potential from areas north of Grosvenor than to the south.

Once White Flint was selected as a potential new terminus of the North Bethesda Transitway it was necessary to evaluate it against the existing alignment along Tuckerman Road to the Grosvenor station. While the distance between the two Metro stations and the Rock Spring area is the same (about 2.7 miles) there are other advantages and disadvantages of shifting the alignment to White Flint.

Alignment to Grosvenor Metrorail Station:

- most of the right-of-way along Tuckerman Lane is currently set aside in a transitway easement.
- closer to Bethesda
- monorail may not be a viable technology, due to its high cost and the inefficiencies of a proprietary technology. If planned as a BRT route, travel along the I-270 corridor may no longer be feasible, and would likely need to be routed along a greater portion of Tuckerman Lane.

Alignment to White Flint Metrorail Station:

- While there is only limited potential for a station along Tuckerman Road, a station at the intersection of Old Georgetown Road and Executive Blvd could support greater land use.
- Greater ridership potential to White Flint: when both the Old Georgetown North corridor and the original North Bethesda Transitway corridor were evaluated together, the Old Georgetown North corridor had ridership ranging from 800-900 passengers on each link in Scenario 2. When the Old Georgetown North corridor was removed in Scenario 2A, the North Bethesda Transitway corridor link ridership captured 600 additional riders, increasing to 1,000 to 1,200. If the Old Georgetown North corridor was evaluated with the North Bethesda Transitway, its ridership would need to increase by only 200 to 300 riders to match the ridership of the North Bethesda Transitway in Scenario 2A. This ridership would likely come from the North Bethesda Transitway and the Old Georgetown Road South corridor.
- If the corridor is ultimately implemented as a connection to Tysons Corner, there is greater ridership potential from areas north of Grosvenor than to the south.
- A reversible one-lane median transitway could be implemented in a 120-foot section, the amount of right-of-way currently master-planned for Old Georgetown Road.

Therefore, Phase 1 of the *Countywide Transit Corridors Functional Plan* recommends realigning the existing North Bethesda Transitway to follow the alignment of the Old Georgetown North corridor.

- The segment along Old Georgetown Road between Rockville Pike and Executive Boulevard should be implemented as a mixed traffic transitway to preserve the vision in the *White Flint Sector Plan*.

- The segment along Old Georgetown Road between Executive Boulevard and Rock Spring Drive should be implemented as a one-lane reversible transitway to reflect the highly directional travel patterns in this corridor.
- The segment between Old Georgetown Road and the Montgomery Mall should be included as a two-way transitway because the right-of-way is largely available through easements.

Table 4-13: Corridor Recommendations for North Bethesda Transitway

Road	From	To	Existing # of Lanes	Existing Master Plan		Phase 1			Change from Existing Master Plan	
				ROW	Lanes	Treatment	ROW	Lanes	ROW	Lanes
Old Georgetown Rd	Rockville Pike	Executive Boulevard	6	120	4	Mixed Traffic	120	4	0	0
Old Georgetown Rd	Executive Boulevard	Nicholson Lane	6	150	6	Reversible One-Lane Median	150	6 + 1 bus	0	+1 bus
Old Georgetown Rd	Nicholson Lane	Tuckerman Lane	6	120	6		126	6 + 1 bus	+6	+1 bus
Old Georgetown Rd	Tuckerman Lane	I-270	6	120	6		130	6 + 1 bus	+10	+1 bus
Old Georgetown Rd	I-270	Rock Spring Drive	6	120	6		126	6 + 1 bus	+6	+1 bus
Rock Spring Drive	Old Georgetown Road	Fernwood Road	4	80*	4 + 2 bus	Two-Lane Side Running	80*	4 + 2 bus	0	0
Fernwood Road	Rock Spring Drive	Rockledge Drive	4	80*	4 + 2 bus		80*	4 + 2 bus	0	0
Westlake Terrace	Rockledge Drive	I-270	4	80*	4 + 2 bus		80*	4 + 2 bus	0	0

* Plus additional 40-foot-wide easement for side-running transitway

Randolph Road

The Randolph Road corridor was evaluated as a two-way median busway in the Build 1 and Build 2 scenarios. Ridership forecasts show a corridor with about 16,000 riders per day, but with link ridership that hovers around the 1,000 pphpd threshold. The links between Glenmont and New Hampshire Ave had the highest ridership and the links between New Hampshire Avenue and US 29 having the lowest ridership.

A test was performed to evaluate the potential ridership impacts of the ongoing *White Oak Science Gateway Master Plan* and the *Glenmont Sector Plan* on this corridor. The result was a substantial increase in ridership between US 29 and Glenmont (about 500 riders per link) and a moderate increase in ridership between Glenmont and White Flint (about 250 riders per link). The daily ridership increased to about 22,000 riders.

Due to limited right-of-way on Randolph Road and the large impacts to residential property if additional bus lanes were included in the master plan, Build 2A evaluated most of the corridor with the speeds of curb lanes. Along the local roads at the ends of the corridor, mixed traffic speeds were used to reflect the likelihood that additional lanes for BRT would not be provided. The results show significantly diminished ridership potential.

Table 4-14: Link Ridership Forecast by Peak Hour / Peak Direction (2040) for Randolph Road Corridor

From	To	Build 1	Build 2	Build 2A
White Flint Metro Station	Randolph Rd and Lauderdale Dr	925	900	550
Randolph Rd and Lauderdale Dr	MD 586 and Randolph Rd	925	925	550
MD 586 and Randolph Rd	MD 185 and Randolph Rd	725	725	375
MD 185 and Randolph Rd	Randolph Rd and Bluhill Rd	800	800	350
Randolph Rd and Bluhill Rd	MD 97 and Randolph Rd	750	750	300
MD 97 and Randolph Rd	Glenmont Metro Station	675	725	250
Glenmont Metro Station	Glenallan Ave and Randolph Rd	1,075	1,125	650
Glenallan Ave and Randolph Rd	MD 650 and Randolph Rd	1,025	1,075	625
MD 650 and Randolph Rd	MD 650 and Fairland Rd	675	700	550
MD 650 and Fairland Rd	US 29 and Tech Rd	575	600	400
US 29 and Tech Rd	Industrial Pkwy and Tech Rd	25	25	0
Industrial Pkwy and Tech Rd	Industrial Pkwy and Water Tower	0	0	0
Average Daily Ridership (entire corridor)		**15,750**	**15,975**	**11,025**

Red = two-way median busway speeds Blue = curb lane speeds Yellow = mixed traffic speeds

Phase 1 of the Countywide Transit Corridors Functional Master Plan recommends including the Randolph Road corridor in mixed traffic for the following reasons:

- There would be substantial impacts from providing dedicated transit lanes, but this corridor has marginal ridership without a median busway.
- Eliminating the corridor altogether will negatively impact other connecting corridors, such as Georgia Ave South.

The westernmost corridor segment would serve the planned White Flint MARC commuter rail station in addition to the Metrorail station. During Facility Planning, an alternative alignment along Nebel Street rather than Parklawn Drive should be considered if the at-grade Randolph Road crossing of the CSX tracks is retained. Land use decisions that are made during the White Flint II Sector Plan may also affect the desirability of one alignment over the other.

Phase 2 of the Countywide Transit Corridors Functional Master Plan recommends that the corridor be included as a reversible one-lane median busway:

- The corridor shows ridership potential if implemented with a dedicated busway.
- Travel patterns are highly directional.
- If the densities currently envisioned in the White Oak Master Plan and the Glenmont Sector Plan are approved, the ridership will increase substantially.

Table 4-15: Corridor Recommendations for Randolph Road

Road	From	To	Existing # of Lanes	Existing Master Plan		Phase 1			Phase 2			Change from Existing Master Plan Phase 1 (Phase 2)	
				ROW	Lanes	Treatment	ROW	Lanes	Treatment	ROW	Lanes	ROW	Lanes
Randolph Rd	US 29	Paint Branch	4 / 5	80	4-5	Mixed Traffic	80	4-5	Reversible One-Lane Median	100	4 + 1 bus	0 (+20)	0 (+1 bus)
Randolph Rd	Paint Branch	Fairland Road	4 / 5	80	4-5		80	4-5		100	4 + 1 bus	0 (+20)	0 (+1 bus)
Randolph Rd	Fairland Road	Glenallen Avenue	6	120	6		120	6		141	6 + 1 bus	0 (+21)	0 (+1 bus)
Glenallen Ave	Randolph Road	Layhill Road	2	80	2		80	2				0	0
Glenallen Ave	Layhill Road	Georgia Avenue	4	90	2		90	2				0	0
Randolph Rd	Georgia Avenue	Judson Road	6	140	6		140	6	Reversible One-Lane Median	143	6 + 1 bus	0 (+3)	0 (+1 bus)
Randolph Rd	Judson Road	Lindell Street	6	120	6		120	6		143	6 + 1 bus	0 (+23)	0 (+1 bus)
Randolph Rd	Lindell Street	Veirs Mill Road	6	120	6		120	6		141	6 + 1 bus	0 (+21)	0 (+1 bus)
Randolph Rd	Veirs Mill Road	Dewey Road	5 / 6	120	6		120	6		141	6 + 1 bus	0 (+21)	0 (+1 bus)
Randolph Rd	Dewey Road	Parklawn Drive	4 / 5	100	4		100	4		119	4 + 1 bus	0 (+19)	0 (+1 bus)
Parklawn Drive	Randolph Road	Nebel Street	4 / 5	80	4		80	4				0	0
Nicholson Lane	Nebel Street	MD 355	4	90	4		90	4				0	0

University Boulevard

In the Build 1 and Build 2 scenarios, the Georgia Avenue South corridor was evaluated as a two-lane median busway for its entire alignment. The link between Wheaton and US 29 resulted in ridership levels that exceed the 1,000 pphpd threshold. East of the US29 corridor, the forecast ridership drops. In the Build 2A scenario the segment east of Arcola Avenue was evaluated in mixed traffic and the portion to the west was evaluated as curb lanes. As a result, the ridership dropped by between 400 and 600 riders per link along the entire corridor.

Table 4-16: Link Ridership Forecast by Peak Hour / Peak Direction (2040) for University Blvd Corridor

From	To	Build 1	Build 2	Build 2A
Takoma/Langley Park Transit Center	MD 193 and Gilbert St	575	550	125
MD 193 and Gilbert St	MD 193 and E Franklin Ave	850	850	150
MD 193 and E Franklin Ave	US 29 and MD 193	925	900	175
US 29 and MD 193	MD 193 and Dennis Ave	1,050	1,025	425
MD 193 and Dennis Ave	MD 193 and Arcola Ave	1,050	1,050	450
MD 193 and Arcola Ave	MD 193 and Inwood Ave	1,250	1,225	675
MD 193 and Inwood Ave	MD 193 and Amherst Ave	1,300	1,275	750
MD 193 and Amherst Ave	Wheaton Metro Station	1,225	1,200	850

While University Blvd is not an exceedingly strong corridor, it does provide important east-west connectivity that supports the ridership along several other corridors that converge in Wheaton. Removing this corridor would negatively impact the ridership of the Veirs Mill Road, Georgia Avenue North, and Georgia Avenue South corridors. Therefore, this corridor is recommended to be included in the functional plan with a one-lane median reversible transitway from Georgia Avenue to Piney Branch Road, and then in mixed traffic between Piney Branch Road and New Hampshire Avenue. Permitting buses to operate in the Purple Line corridor would improve BRT operations but likely have adverse operational impacts on the Purple Line that would not be justified by the relatively low ridership on this corridor.

Table 4-17: Corridor Recommendations for University Blvd

Road	From	To	Existing # of Lanes	Existing Master Plan		Phase 1			Change from Existing Master Plan		Repurposing Existing Lanes?
				ROW	Lanes	Treatment	ROW	Lanes	ROW	Lanes	Y/N
University Blvd	Georgia Ave	Amherst Ave	6	120	6	Reversible One-Lane Median	129	6 + 1 bus	+9	+1 bus	N
University Blvd	Amherst Ave	Dayton St	6	150	6		150	6 + 1 bus	0	+1 bus	N
University Blvd	Dayton St	Easecrest Dr	6	120	6		124	6 + 1 bus	+4	+1 bus	N
University Blvd	Easecrest Dr	US 29	6	120	6		124	6 + 1 bus	+4	+1 bus	N
University Blvd	US 29	Piney Branch Rd	6	120	6	Mixed Traffic	120	6	0	0	N
University Blvd	Piney Branch Rd	New Hampshire Ave	6	125-140	6 + 2 bus		125-140	6 + 2 bus	0	0	N

US 29

The Build 1 scenario was evaluated as a two-way median busway. Its daily ridership was forecast to be about 18,000 riders per day, with link volumes ranging between 1,100 and 1,500 riders per day. The Build 2 scenario evaluated the corridor with a two-way median busway north of the US 29/Lockwood Drive intersection. South of this intersection, it was evaluated with curb lane speeds and lane repurposing. This reduced daily ridership to about 16,500 riders per day, with link volumes between 900 and 1,300 pphpd. In Build 2A, Lockwood Drive was evaluated with mixed traffic, which further reduced ridership.

A test was performed to evaluate the potential ridership impacts of the ongoing *White Oak Science Gateway Master Plan* and the *Glenmont Sector Plan* on this corridor. The result was a moderate increase in ridership along the corridor (between 100 and 200 riders per link).

Table 4-18: Link Ridership Forecast by Peak Hour/Peak Direction (2040) for US 29 Corridor

From	To	Build 1	Build 2	Build 2A
Burtonsville Park and Ride	Briggs Chaney Park and Ride	425	350	225
Briggs Chaney Park and Ride	US 29 and Fairland Rd	1,075	925	700
US 29 and Fairland Rd	US 29 and Tech Rd	1,125	975	750
US 29 and Tech Rd	White Oak Transit Center	1,175	1,025	875
White Oak Transit Center	Lockwood Dr and Oak Leaf Dr	1,200	1,075	1,125
Lockwood Dr and Oak Leaf Dr	US 29 and Hillwood Dr	1,375	1,250	1,250
US 29 and Hillwood Dr	US 29 and MD 193	1,375	1,250	1,400
US 29 and MD 193	US 29 and Franklin Ave	1,400	1,275	1,425
US 29 and Franklin Ave	US 29 and Fenton St	1,450	1,325	1,475
US 29 and Fenton St	Silver Spring Transit Center	1,225	1,125	1,225
Average Daily Ridership (entire corridor)		**17,725**	**16,475**	**15,825**

Red = two-way median busway speeds Blue = curb lane speeds Yellow = mixed traffic speeds

Phase 1 of the *Countywide Transit Corridors Functional Master Plan* recommends including this corridor as follows:

- A two-way median busway north of Stewart Lane where the right-of-way is currently available.*
- Mixed traffic on Stewart Lane and Lockwood Drive because the existing roadway has only two lanes.**
- Curb lanes between Lockwood Drive and Southwood Drive with lane repurposing because forecast ridership exceeds lane capacity.
- Mixed traffic between Southwood Avenue and Sligo Creek Parkway – This area experiences high traffic volumes due to vehicles entering and exiting I-495. More detailed analysis is needed to determine whether dedicated bus lanes can fit into the right-of-way.

- Managed lanes between Sligo Creek Parkway and Georgia Avenue with lane repurposing: The six-lane roadway has lane controls to change the configuration according to the time of day: four lanes southbound and two lanes northbound during morning peak hours; two lanes southbound and four lanes northbound during evening peak hours; and three lanes in each direction during off-peak hours. Managed lanes would change this operation to have one dedicated lane in the peak direction during peak hours. Lane repurposing is justified because forecast ridership exceeds lane capacity. In addition, there is a lane drop north of Sligo Creek Parkway during peak hours in the peak direction.
- Curb lanes between Georgia Avenue and 16th Street with lane repurposing. Lane repurposing is justified because in this locations because the ridership forecast on this segment exceeds the lane capacity.

*During Facility Planning, the desirability of a spur connection to serve the development recommended in the White Oak Science Gateway Master Plan should be considered.
**During Facility Planning, the desirability of additional accommodation on US29 through the New Hampshire Avenue interchange should also be considered to accommodate express buses.

Phase 2 of the *Countywide Transit Corridors Functional Master Plan* recommends converting Lockwood Drive and Stewart Lane to curb lanes.

Table 4-19: Corridor Recommendations for US 29

Road	From	To	Existing # of Lanes	Existing Master Plan		Phase 1			Phase 2			Change from Existing Master Plan Phase 1 (Phase 2)		Repurposing Existing Lanes? Phase 1 (Phase 2)
				ROW	Lanes	Treatment	ROW	Lanes	Treatment	ROW	Lanes	ROW	Lanes	Y/N
US 29	MD 198	Stewart Lane	6	100-200	6	Two-Lane Median	161-200	6 + 2 bus				+61 max.	+2 bus	N
Stewart Lane	US 29	Lockwood Drive	2	80	2	Mixed Traffic	80	2	Curb Lanes	89	2 + 2	0 (+9)	+2 bus	N
Lockwood Drive	Stewart Lane	New Hampshire Avenue	2	80	2		80	2		89	2 + 2	0 (+9)	+2 bus	N
Lockwood Drive	New Hampshire Avenue	US 29	2	80	2		80	2		89	2 + 2	0 (+9)	+2 bus	N
US 29	Lockwood Drive	Southwood Avenue	6	120	6	Curb Lanes	122	4 + 2 bus				+2	+2 bus	Y
US 29	Southwood Avenue	University Boulevard	6	120	6	Mixed Traffic	120	6				0	0*	N*
US 29	University Boulevard (WB)	University Boulevard (EB)	6	120	6		120	6				0	0*	N*
US 29	University Boulevard (EB)	I-495	6	120	6		120	6				0	0*	N*
US 29	I-495	Sligo Creek Parkway	6	120	6		120	6				0	0*	N*
US 29	Sligo Creek Parkway	Spring Street	6	120	6	Managed Lanes	120	2 offpeak + 3 peak + 1 bus				0	0	Y**
US 29	Spring Street	Fenton Street	6	120	6		120	2 offpeak + 3 peak + 1 bus				0	0	Y**
US 29	Fenton Street	Georgia Avenue	6	100	6		100	2 offpeak + 3 peak + 1 bus				0	0	Y**
Colesville Road	Georgia Avenue	East-West Highway	6	124	6	Curb Lanes	125	4 + 2 bus				+1	-2 general +2 bus	Y
Colesville Road	East-West Highway	16th Street	6	125	6		125	4 + 2 bus				0	-2 general +2 bus	Y

* Dedicated lanes are desirable in these segments and the potential for lane-repurposing to achieve curb lanes should be considered during facility planning.

Veirs Mill Road

The Veirs Mill Road corridor is one of the corridors with the highest existing ridership in Montgomery County and has long been considered for bus enhancements. It is currently undergoing an extensive multi-year alternatives analysis under a partnership between Montgomery County and the State of Maryland that will recommend a BRT treatment. But because development along the corridor is low and ridership is not expected to grow significantly, this corridor does not rank among the top corridors that were evaluated. In the Build 1 and Build 2 scenarios, the corridor was evaluated as a median busway and that treatment was largely retained in Build 2A, except in the vicinity of Rockville, because of Veirs Mill Road's importance as an east-west connector even though forecast ridership falls below what normally would warrant dedicated lanes

Combined with University Boulevard corridor, the Veirs Mill Road corridor has an average ridership of 26,500 for Build 1 and Build 2, but this drops to about 18,000 for Build 2A. Even under the most ambitious scenario (Build 1 and Build 2) its 2040 link ridership forecasts were just below the 1,000 pphpd threshold considered necessary for inclusion in the functional plan. Under the Build 2A scenario, ridership dropped to less than half of the 1,000 pphpd threshold.

Table 4-20: Link Ridership Forecast by Peak Hour/Peak Direction (2040) for Veirs Mill Road Corridor

From	To	Build 1	Build 2	Build 2A
Wheaton Metro Station	MD 586 and MD 193	925	925	600
MD 586 and MD 193	MD 586 and Newport Mill Rd	875	900	575
MD 586 and Newport Mill Rd	MD 586 and MD 185	775	775	400
MD 586 and MD 185	MD 586 and Randolph Rd	750	775	400
MD 586 and Randolph Rd	MD 586 and Parkland Dr	800	825	425
MD 586 and Parkland Dr	MD 586 and Aspen Hill Rd	800	850	425
MD 586 and Aspen Hill Rd	MD 586 and Twinbrook Pkwy	725	775	350
MD 586 and Twinbrook Pkwy	MD 586 and Broadwood Dr	775	825	375
MD 586 and Broadwood Dr	MD 586 and Norbeck Rd	825	875	400
MD 586 and Norbeck Rd	Rockville Metro Station (west entrance)	825	850	400

Red = two-way median busway speeds Blue = curb lane speeds Yellow = mixed traffic speeds

Interestingly, the large reduction in ridership between Build 1/Build 2 and Build 2A comes even though the evaluated treatments did not change substantially. This indicates that the Veirs Mill Road corridor is highly susceptible to changes on other corridors in the proposed BRT network. If other connecting corridors can be enhanced beyond the treatments evaluated in the Build 2A scenario, then the Veirs Mill Road corridor ridership will benefit. But because Veirs Mill Road is one of the few east-west corridors evaluated in the network, its removal will have a negative effect on the other corridors.

Therefore, because this corridor is a link between many corridors, because it has strong existing ridership, and because some of the connecting corridors will be recommended for enhanced treatments

that will place them somewhere between the Build 2 and Build 2A ridership levels, it is recommended that this corridor be retained even though it may not be warranted as a stand-alone corridor.

The *Countywide Transit Corridors Functional Master Plan* recommends a bi-directional one-lane median busway in Phase 1, perhaps following the EmX model in Eugene, Oregon model, which relies on a single lane busway with dual lanes at stations to facilitate passing.

This recommendation is based on several considerations:

- Network Integrity: Even with low ridership, this corridor remains important because it connects the east and west sides of the county.
- Minimizing impacts to traffic and private property: Minimizing impacts is an important consideration for all corridors, but especially Veirs Mill Road, given its relatively low forecast increase in ridership over existing conditions. Therefore, a single bus lane rather than two lanes is desirable.
- No peak direction: While most corridors with low-density land use display existing travel patterns that are peak in one direction, this corridor is largely balanced in the eastbound and westbound directions. Therefore, the single median lane needs to be able to accommodate two-way travel.

More than any other corridor in the recommended network, more detailed study is needed to confirm the final desired treatment for this corridor. In addition to the considerations above, this corridor is also complicated by the following factors:

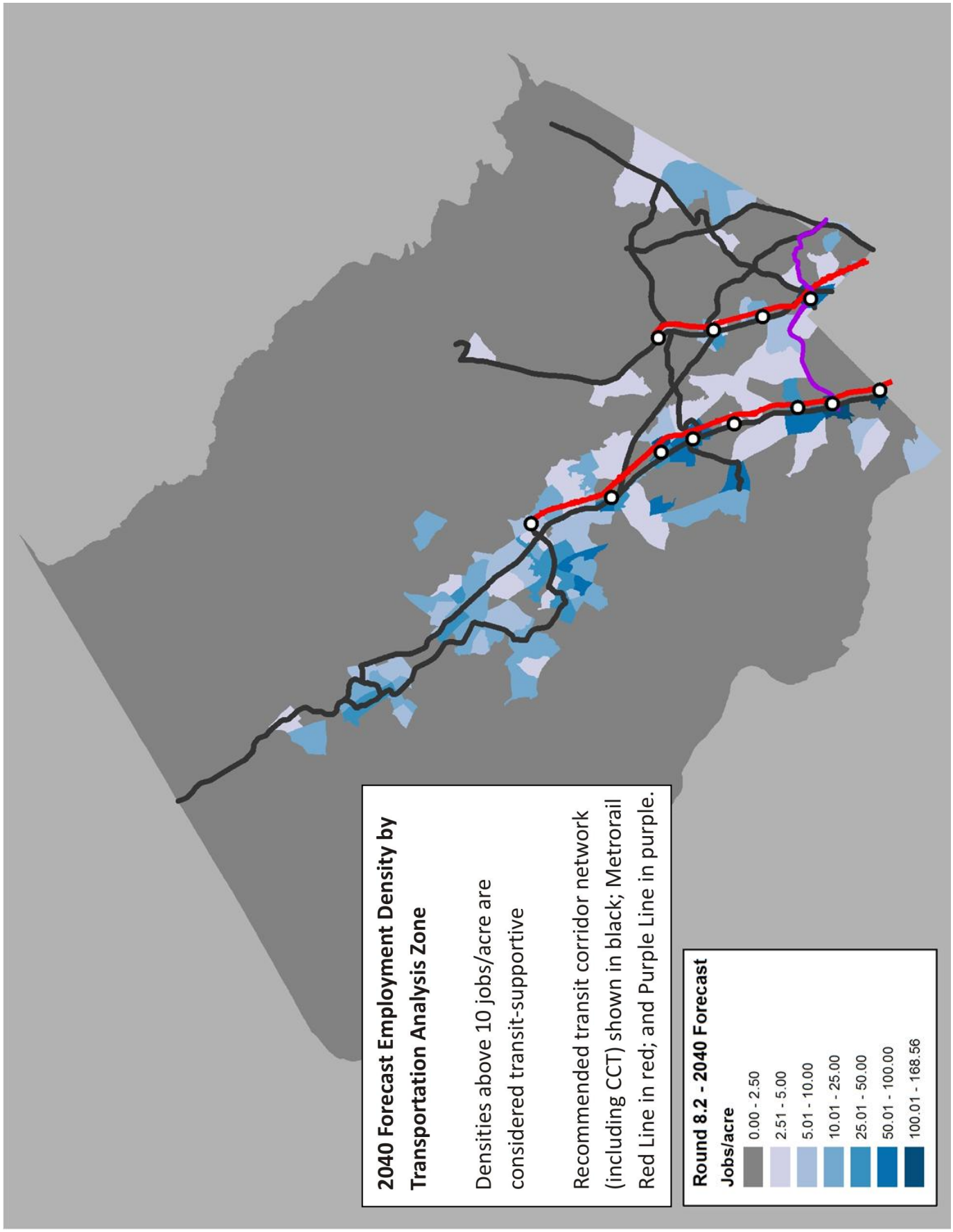
- The typical section is highly variable both in the number of travel lanes and in the presence of service roads on one both or neither side of Veirs Mill Road. These service roads provide parking for single-family homes, some of which have poor alternatives for off-street parking.
- The differences in vertical profile between the mainline of Veirs Mill Road and the service roads pose challenges to creating a consistent typical section that accommodates a median busway that requires roadway widening.
- The opening of Montrose Parkway East, whose construction is funded in the CIP, will greatly increase traffic demands on the segment of Veirs Mill Road between Randolph Road and Parkland Drive.
- The planned interchange at Randolph Road, which is directly adjacent to a commercial center and is the location of a BRT transfer station.

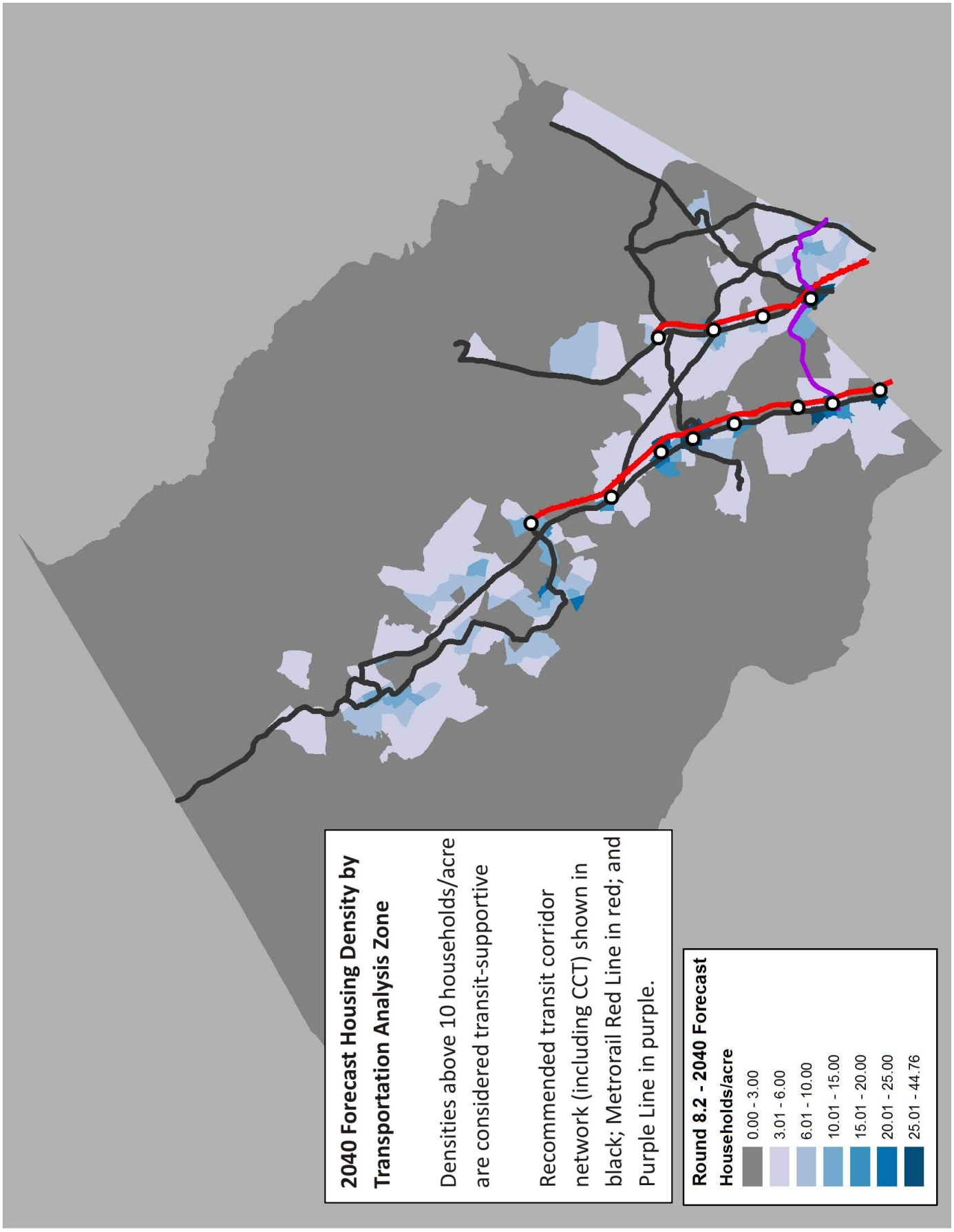
The County/State study currently underway will provide more detailed ridership forecasts and will recommend more detailed treatments. At the conclusion of that study it may be necessary to modify the recommendations in this functional plan.

Table 4-21: Corridor Recommendations for Veirs Mill Road

Road	From	To	Existing # of Lanes	Existing Master Plan		Phase 1			Phase 2			Change from Existing Master Plan Phase 1 (Phase 2)	
				ROW	Lanes	Treatment	ROW	Lanes	Treatment	ROW	Lanes	ROW	Lanes
Veirs Mill Rd	MD 355	Meadow Hall Drive		Rockville		Mixed Traffic			Reversible One-Lane Median	129	6 + 1 bus	Rockville	
Veirs Mill Rd	Meadow Hall Drive	Twinbrook Parkway	5	150	4-6	Bi-directional One-Lane Median	150	4 to 6, + 1 bus				0	+1 bus
Veirs Mill Rd	Twinbrook Parkway	Parkland Drive	4	150	4-6		150	4 to 6, + 1 bus				0	+1 bus
Veirs Mill Rd	Parkland Drive	Turkey Branch	5	150	4-6		150	4 to 6, + 1 bus				0	+1 bus
Veirs Mill Rd	Turkey Branch	Gridley Road	5	120	4-6		120	4 to 6, + 1 bus				0	+1 bus
Veirs Mill Rd	Gridley Road	Randolph Road	6	120	4-6		120	4 to 6, + 1 bus				0	+1 bus
Veirs Mill Rd	Randolph Road	Ferrara Avenue	5	120	4-6		120	4 to 6, + 1 bus				0	+1 bus
Veirs Mill Rd	Ferrara Avenue	Connecticut Avenue	6	120	4-6		120	4 to 6, + 1 bus				0	+1 bus
Veirs Mill Rd	Connecticut Avenue	Newport Mill Road	5 + 1	120	4-6		120	4 to 6, + 1 bus				0	+1 bus
Veirs Mill Rd	Newport Mill Road	Galt Avenue	4 + 1	120	4-6		120	4 to 6, + 1 bus				0	+1 bus
Veirs Mill Rd	Galt Avenue	Ennalls Avenue	5 + 1	120	6		129	6 + 1 bus				+9	+1 bus
Veirs Mill Rd	Ennalls Avenue	Wheaton Metro Station	4	120	6		129	6 + 1 bus				+9	+1 bus

Appendix C


2040 Forecast Employment Density by Transportation Analysis Zone
Densities above 10 jobs/acre are considered transit-supportive
Recommended transit corridor network (including CCT) shown in black; Metrorail Red Line in red; and Purple Line in purple.
Round 8.2 - 2040 Forecast
Jobs/acre
0.00 - 2.50
2.51 - 5.00
5.01 - 10.00
10.01 - 25.00
25.01 - 50.00
50.01 - 100.00
100.01 - 168.56


2040 Forecast Housing Density by Transportation Analysis Zone
Densities above 10 households/acre are considered transit-supportive
Recommended transit corridor network (including CCT) shown in black; Metrorail Red Line in red; and Purple Line in purple.
Round 8.2 - 2040 Forecast Households/acre
0.00 - 3.00
3.01 - 6.00
6.01 - 10.00
10.01 - 15.00
15.01 - 20.00
20.01 - 25.00
25.01 - 44.76

Attachment A

Proposed Public Hearing Draft

Countywide Transit Corridors Functional Master Plan

April 2013

Montgomery County Planning Department
M-NCPPC
MontgomeryPlanning.org

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