



**CORRIDOR FORWARD**  
I-270 Transit Plan

Public Hearing Draft

Fall 2021

## **Abstract**

Corridor Forward: The I-270 Transit Plan contains an examination of and recommendations for a transit network, which includes both a near-term network of dedicated bus lanes and an ambitious long-term recommendation for an extension of Metrorail's Red Line. The near-term network of dedicated bus lanes builds on existing master planned projects, including the MD 355 and Veirs Mill Road Bus Rapid Transit (BRT) projects to create a transit network that serves communities and employment centers along the I-270 corridor. Corridor Forward re-envisioned the master planned Corridor Cities Transitway as a network of dedicated bus lanes, which connect the I-270 corridor communities to the county's existing and planned rapid transit network.

This Functional Master Plan is an amendment to the 2013 *Countywide Transit Corridors Functional Master Plan* and the 2018 *Master Plan of Highways and Transitways*. It also amends *The General Plan (On Wedges and Corridors) for the Physical Development of the Maryland-Washington Regional District in Montgomery and Prince George's Counties*, as amended, the 1989 *Germantown Master Plan*; 1994 *Clarksburg Master Plan and Hyattstown Special Study Area*, as amended; 2009 *Germantown Employment Area Sector Plan*; 2010 *Great Seneca Science Corridor Master Plan*, as amended; 2014 *10 Mile Creek Area Limited Amendment Clarksburg Master Plan and Hyattstown Special Study Area*; 2016 *Montgomery Village Master Plan*; 2019 *MARC Rail Communities Plan*; and 2021 *Shady Grove Sector Plan Minor Master Plan Amendment*.

## **Source of Copies**

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Online at [montgomeryplanning.org/corridorforward](http://montgomeryplanning.org/corridorforward)

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The Commission is charged with preparing, adopting, and amending or extending *The General Plan (On Wedges and Corridors) for the Physical Development of the Maryland-Washington Regional District in Montgomery and Prince George's Counties*. The Commission operates in each county through Planning Boards appointed by those county governments. The Planning Boards are responsible for all local plans, zoning amendments, subdivision regulations and administration of parks.

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# CORRIDOR FORWARD

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# FRONT MATTER

## ABOUT THE PLAN

Corridor Forward: The I-270 Transit Plan was added to Montgomery Planning’s work program at the request of the County Council in spring 2019. The purpose of the Plan is to understand which of the numerous corridor-serving transit options in the public sphere—including those that are master planned, studied by others, or frequently requested—warrant pursuit when funding opportunities become available. Which corridor-serving transit options support equitable access and sustainable growth as well as further the county’s economic competitiveness? And which complement each other, creating an efficient, achievable, and appropriately scaled transit network? Some options offer complementary benefits, while others offer redundancy. Some options offer significant up-front costs in return for significant benefits, while others offer both modest gains and modest costs. Which should move forward?

Today, the large list of corridor-serving transit options continues to grow, creating a challenge for implementation. The county has master plans that recommend beneficial projects, which each remain at various stages of study or design. As the public waits for these projects to advance, advocates have requested, suggested, and innovated new potential transit options to fill existing gaps. While these new options add to the richness of dialogue about what the I-270 corridor’s transit-oriented future could be, they also make it more challenging to understand where focus and resources should be directed. Corridor Forward aims to advance transit beyond the realm of rich dialogue and into the realm of construction by developing a lasting, achievable transit vision for the I-270 corridor. The Plan employs a **scenario-planning** approach to help decisionmakers understand the different purposes, benefits, constraints and costs of various transit options, how components of different options can fit together to create a complementary transit network, and the potential order of implementation for the recommended network.

## CORRIDOR FORWARD IN CONTEXT

Corridor Forward was added to Montgomery Planning’s work program against the backdrop of the State of Maryland’s Managed Lanes highway expansion efforts and increasing development demand for **life sciences** uses in the county’s midcounty region. In spring 2019, the Maryland Department of Transportation’s State Highway Administration (MDOT SHA) had yet to release its Draft Environmental Impact Statement (**DEIS**) for its I-270 and I-495 Managed Lanes **NEPA** Study, which evaluated the potential to add additional high-occupancy toll lanes on portions of I-495 and I-270 through a **public-private partnership (P3)**. At the time, regional stakeholders wondered if and how transit could be supported by the proposed **P3** given that the state had already eliminated various transit options, including heavy rail, light rail, bus rapid transit (BRT), and bus-only managed lanes, from its **Alternatives Analysis (AA)**.

Separately, the **staging provisions** in the 2010 *Great Seneca Science Corridor Master Plan (GSSC Master Plan)* were restricting property owners interested in constructing **life sciences** uses from moving projects forward. The largest staging hurdle in the 2010 *GSSC Master Plan*—construction funding for phase one of the **Corridor Cities Transitway (CCT)**—had no funding in the state’s FY 2020 **Consolidated Transportation Program (CTP)**, suggesting the state would provide no further financial support for the transit project. The Montgomery County Council reacted by requesting an amendment to the Plan’s **staging provisions**, which resulted in the *Great Seneca Science Corridor Minor Master Plan Amendment*. Decisions about the CCT, however, were to be informed by Council’s review of Corridor Forward, necessitating a comprehensive plan amendment of the GSSC area after Corridor Forward’s approval and adoption.

Montgomery Planning initiated Corridor Forward in spring 2020, just as the COVID-19 pandemic emerged. The COVID-19 pandemic and increased financial support for the bio-technology industry stimulated already strong interest in **life sciences** development. Development pressure for **life sciences** uses increased as bio-technology operations large and small worked to advance pandemic-related ventures. Transit use in the midst of the pandemic, however, declined. Many transit-riding employees were either required or chose to work from home, resulting in reduced ridership and, in turn, service cuts. Reports about individuals impacted by transit service cuts permeated local and national media streams, increasing the public’s awareness of just how many individuals—including essential workers—depend on transit.

At the time of this writing, transit operators have begun restoring service, riders are returning, and the state has indicated that the Managed Lanes project will provide financial support for transit. While reestablishing normalcy may take time, many acknowledge that a return to **business as usual** may not be sufficient for the county based on its goals for economic health, community equity and environmental resilience. Providing high-quality transit along the I-270 corridor—if paired with the appropriate policies—will better position the I-270 corridor and larger county to achieve these goals.

The development of Corridor Forward coincided with an update to the county’s general plan, known as *Thrive Montgomery 2050*, which provides broad policy guidance and a framework for decisions about land use, transportation, and related issues under local government influence. The policies and practices in the Planning Board Draft of *Thrive Montgomery 2050* seek to achieve three overarching objectives: economic competitiveness, racial and social equity, and environmental resilience. The policy guidance and overarching objectives of the Planning Board Draft of *Thrive Montgomery 2050* informed the development of Corridor Forward.

## **HOW TO READ THIS TEXT**

Items shown in **bold blue typeface** are defined in the Plan’s glossary.

# CHAPTER 1 – EXECUTIVE SUMMARY

In 1961, the Washington National Pike, now known as Interstate 270, was envisioned as a transit corridor – a vision further embraced by Montgomery County’s 1964 General Plan and reaffirmed through decades of master plans. While many corridor residents and employees utilize and enjoy existing transit services along the corridor today, a vision to serve the I-270 corridor with transit requires recommitment. Key midcounty and upcounty transit connections need to be established to link the corridor cities of Gaithersburg, Germantown, and Clarksburg to the county’s high-quality transit network, and transit access to neighboring Frederick and Fairfax counties could also be improved to be more frequent, direct, and competitive.

Policymakers, decisionmakers, and the general public have offered numerous transit options that could satisfy these needs, but with so many options to consider, there is no shared perspective about which potential transit projects have the most merit and where to focus resources. Planned concepts, like the Corridor Cities Transitway (CCT), have partially advanced without full investment by stakeholders and funding partners, inviting the opportunity for numerous adjustments, revisions, and delays. Additionally, the county’s historical growth policies, which prioritized automobile travel, have ensured convenience for drivers, while at the same time these policies have overshadowed the implementation of high-quality transit. While most stakeholders agree that serving the I-270 corridor with transit is a priority, it is unclear what this means or how it will be achieved, which has resulted in unclear commitment.

In response, Corridor Forward: The I-270 Transit Plan offers a refocused vision for the corridor. It proposes a transit network, which includes both a near-term network of dedicated bus lanes and an ambitious long-term recommendation for an extension of Metrorail’s Red Line. The near-term network of **dedicated bus lanes**, known as the Corridor Connectors, builds on existing master planned projects, including the MD 355 and Veirs Mill Road Bus Rapid Transit (BRT) projects, to create a transit network that serves communities and employment centers along the I-270 corridor. This Plan re-envisioned the master planned CCT as the Corridor Connectors, a network of more buildable dedicated bus lanes, which connect I-270 corridor communities to the county’s existing and planned rapid transit network.

The proposed transit network was determined through an iterative planning process, which began with the identification of general stakeholder values and priorities pertaining to transit, as well as an inventory and initial evaluation of potential transit options. Next, metrics were developed to consider the cumulative benefits, costs, and risks of six compelling transit options retained for detailed analysis. Based on performance, implementation, and policy considerations, components of three of the six transit options were combined and subsequently evaluated to develop the proposed transit network.

## THE PROPOSED NETWORK

### NEAR-TERM DEDICATED BUS LANES

This Plan recommends the MD 355 and Veirs Mill Road BRT services as the most crucial first step in improving transit accessibility along the I-270 corridor. Following implementation of these services, the Plan recommends new dedicated bus lanes, known as the Corridor Connectors, to connect key centers of activity and employment centers to the county’s primary north-south rapid transit lines, as well as existing high-quality services including Metrorail and the MARC Rail Brunswick Line. These Connectors would include the following components:

- The Germantown Connector

- The Manekin West Connector
- The Milestone / COMSAT East Clarksburg Connector
- The Life Sciences Connector
- The Great Seneca Connector
- The Lakeforest and Montgomery Village Connector

The complete proposed transit network, with additional dedicated bus lanes beyond the MD 355 and Veirs Mill Road BRT services, is shown in Figure 1. This network augments the planned BRT routes in midcounty and upcounty to maximize connectivity, reduce implementation obstacles, and unlock multiple community-serving **service patterns**. The proposed transit network’s dedicated bus lanes have both independent utility as individual dedicated bus lanes (if implemented in a piecemeal fashion following the MD 355 and Veirs Mill Road BRTs) and as a network, providing significantly improved connectivity once fully constructed. Corridor Forward shifts the focus from single branded services, like the CCT, to a flexible network of dedicated bus lanes that can support multiple routing patterns. Dedicated bus lanes do not need to be restricted to a single purpose or route, and the county does not need to wait to fund the full system to advance components of the transit network.

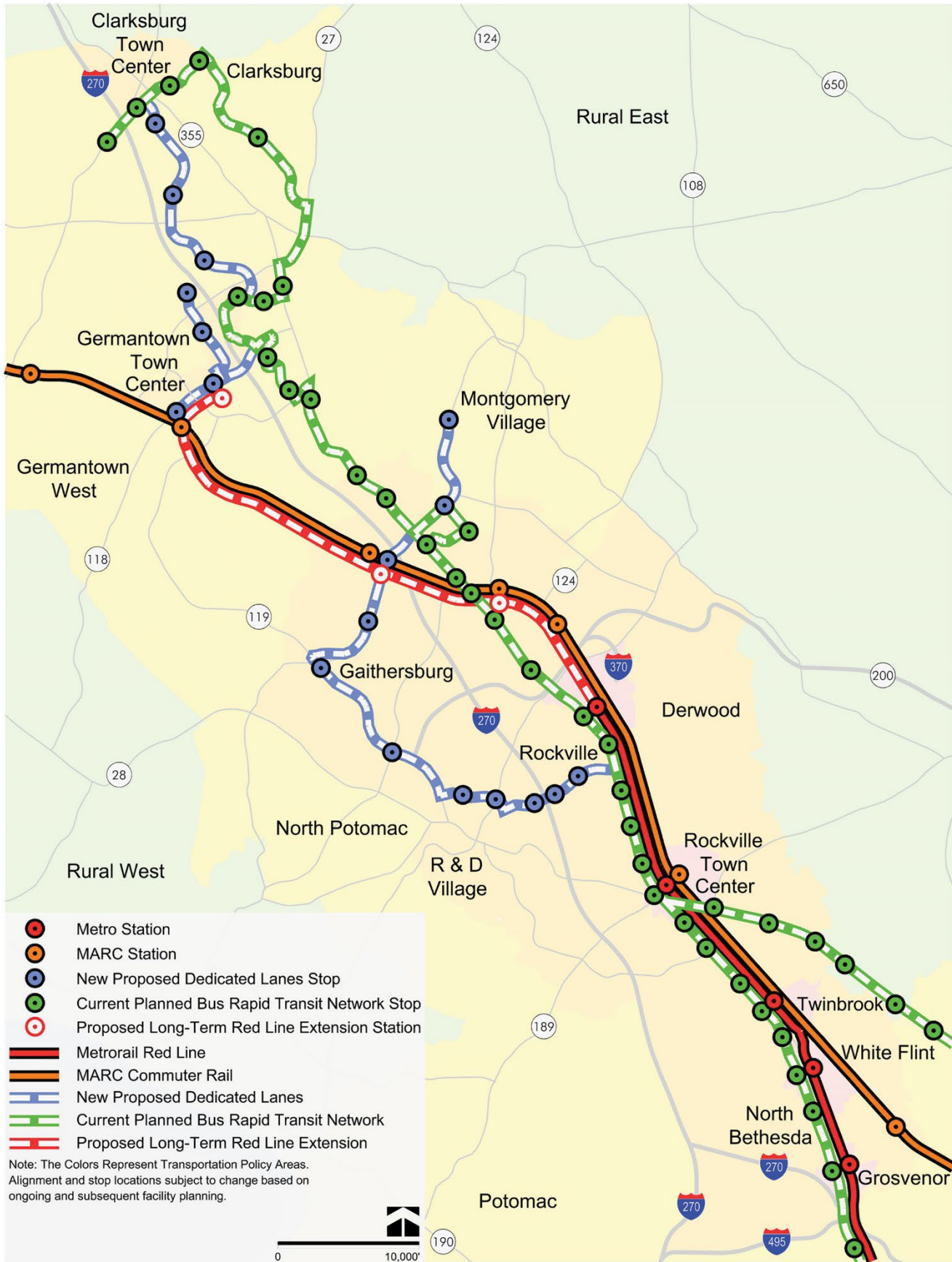
The Plan’s ultimate success is demonstrated through implementation of the proposed transit network. As the network requires incremental implementation, Corridor Forward suggest priorities for the order of implementation, as well as strategies to advance implementation. The Plan’s highest priority for implementation is the MD 355 and Veirs Mill Road BRT services, followed by the Corridor Connectors in the following order:

- The Germantown and Life Sciences Connectors
- The Lakeforest and Montgomery Village Connector
- The Great Seneca Connector
- The Manekin West Connector
- The Milestone / COMSAT East Clarksburg Connector

## **AMBITIOUS LONG-TERM EXTENSION OF THE RED LINE**

In addition to the Corridor Connectors, the proposed transit network also includes an ambitious recommendation for a long-term extension of the Washington Metropolitan Area Transit Authority’s (WMATA) Metrorail Red Line to Germantown Town Center. This long-term extension is ambitious due to the additional detailed analysis required, magnitude of coordination, and work that must be done within the core of the existing Metrorail system, all which must be addressed prior to advancing the recommendation. This Plan identifies a number of factors that require coordination for the ambitious long-term extension to advance.

Figure 1 - Complete Proposed Network





## ADDITIONAL RECOMMENDATIONS

Beyond the proposed network, Corridor Forward offers additional recommendations that support the proposed transit network and strengthen the potential to advance regional transit connectivity. County actions and justification accompany each of these recommendations, which are organized by priority and champion—meaning which jurisdiction(s) would likely take the lead on advancing a recommendation given the benefits offered. Table 1 explains how recommendations are organized. Table 2 provides the complete set of recommendations that strengthen the proposed network and support regional connectivity. Each recommendation includes a county action or actions that align with the intent of the recommendation.

Advancing the I-270 corridor’s transit future is possible. Renewing the county’s commitment to transit will require embracing policy trade-offs that ensure our transit investments result in efficient and competitive service. If the county intends to achieve its economic, equity and climate goals, priorities must be clear and intentional.

Table 1 – Recommendation Structure


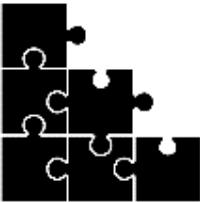
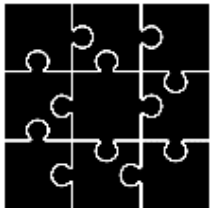































Priority		
Primary Recommendation	Supporting Recommendation	Future Need or Consideration
		
Primary recommendations are the Plan’s foundational recommendations. These recommendations represent the Plan’s ultimate vision for Corridor accessibility.	Supporting recommendations strengthen the advancement and quality of the Plan’s primary recommendations.	Future needs or considerations are recommendations that, while lower in priority, support long-term regional connectivity.
Champion		
Montgomery County	Shared by County and Others	Primarily Others
		
Montgomery County government is the lead agency responsible for advancing a recommendation, and the county’s constituents stand the most to gain from a recommendation’s advancement.	Multiple parties within the region, including Montgomery County government, are necessary to advance a recommendation. Benefits are relatively distributed across various regional stakeholders.	Montgomery County government can cooperate and support the advancement of a recommendation, but the lead stakeholder is not Montgomery County government. Montgomery County’s constituents stand to gain from the recommendation, but benefits may be greater for other parties.

Table 2 – Summary of Recommendations

Recommendation	Priority	Champion
<p>1. Implement the network of dedicated bus lanes in the midcounty and upcounty, beginning with the MD 355 and Veirs Mill Road BRT, and continuing with the Corridor Connectors.</p> <p>In the long-term, work with local, state, and regional partners to advance the ambitious recommendation for a Red Line extension to Germantown Town Center. <i>(Refer to Chapter 5.)</i></p>		
<p>2. Following the review and outcomes of traffic studies, convert existing general-purpose travel lanes to dedicated transit lanes on targeted streets, including—but not limited to—the streets detailed in the right-of-way table, Table 11. <i>(Refer to Chapter 6.)</i></p>		
<p>3. Develop a new multimodal transit hub near the intersection of MD 124 and the CSX tracks. <i>(Refer to Chapter 5.)</i></p>		
<p>4. Limit the addition of non-transit travel lanes, as shown in the right-of-way table (Table 11). Use the remaining space in the master planned right-of-way for transit, walking, bicycling, and other micromobility modes. <i>(Refer to Chapter 6.)</i></p>		
<p>5. Ensure safe and efficient access to planned transit stops for pedestrians, bicyclists, and other micromobility modes. <i>(Refer to Chapter 5.)</i></p>		
<p>6. Update relevant land use plans and guidelines to support master planned transit facilities. <i>(Refer to Chapter 5.)</i></p>		
<p>7. Maximize the travel potential of dedicated bus lanes. <i>(Refer to Chapter 6.)</i></p>		
<p>8. Where beneficial and/or necessary, support the incremental implementation of dedicated bus lanes. <i>(Refer to Chapter 6.)</i></p>		

Recommendation	Priority	Champion
9. Support the North Bethesda Transitway alignment as master planned. <i>(Refer to Chapter 5.)</i>		
10. Study extensions of the Purple Line to understand if and where extension(s) of the county's light rail service may be warranted. <i>(Refer to Chapter 4.)</i>		
11. Obtain right-of-way, through dedication or acquisition, to support the long-term potential of the Maryland Transit Administration MARC Rail Brunswick Line. <i>(Refer to Chapter 4.)</i>		
12. Promote strategic and equitable MARC Rail access by supporting new stations. <i>(Refer to Chapter 4.)</i>		
13. Design and construct the American Legion Bridge to support rail transit. <i>(Refer to Chapter 4.)</i>		
14. Explore a direct transit connection between the recommended WMATA Red Line terminus and Frederick County. <i>(Refer to Chapter 4.)</i>		

# CHAPTER 2 - PREMISE

## YESTERDAY'S TRANSIT VISION STUCK IN TODAY'S GRIDLOCK

In 1961, the National Capital Planning Commission and the National Capital Regional Planning Commission jointly released *A Policies Plan for the Year 2000*. To avoid urban sprawl, the document proposed a “concert of policies” for the capital region that focused growth along radial corridors extending from Washington, DC. In support of this vision, the document offered two specific transportation policies:

- Limit expansions of the freeway system beyond what [was] planned; and
- Promote greater reliance on transit.

Montgomery County embraced the vision of the 1961 *A Policies Plan for the Year 2000* and adopted the 1964 General Plan, known as the *Wedges and Corridors Plan*, to establish development policies which aligned with the regional planning framework, specifically focusing growth within new corridor cities, supported by rapid transit, along the I-270 corridor. The vision for corridor-focused, transit-oriented development has endured in subsequently adopted master plans, sector plans, and functional plans, and was reaffirmed in the Planning Board Draft of *Thrive Montgomery 2050*. These plans were successful in directing growth and development to the corridor cities, including Gaithersburg, Germantown, and Clarksburg, but the transit vision of these plans has not been fully achieved—yet.

Today, corridor residents and employees traveling between various points of demand in Frederick County, Northern Virginia, and the District of Columbia enjoy access to the WMATA Metrorail system, which is one of the nation’s premier urban transportation systems, as well as the MARC Brunswick Line, which leverages private infrastructure to improve public accessibility for the region during the rush hour. Residents and employees also enjoy access to established regional and local bus services provided by WMATA, Maryland Transit Administration (MTA), and Montgomery County’s Ride On.

While constructing and operating these services is no small feat, the *Wedges and Corridors Plan* recommended connecting its planned corridor cities to a larger high-frequency rapid transit network separated from traffic. But today, the MARC Brunswick Line provides only limited rush hour service to Gaithersburg and Germantown, and high-frequency, premium transit service provided by WMATA’s Metrorail terminates midcounty at Shady Grove. While rapid transit connections to Clarksburg are planned, they are not yet implemented. Regional transit connectivity to neighboring jurisdictions is limited and inefficient.

The long-planned transit vision for the I-270 corridor remains relevant, but it is stuck in gridlock. The I-270 corridor experiences more than twice as many automobile commuters every morning compared to transit riders, and traffic congestion on our roadway network has—and continues to—intensify. Jobs located within the I-270 corridor’s **activity centers** are, on average, 80 percent more accessible by car than by transit assuming a 45-minute commute.

There is no single reason that the county’s transit infrastructure did not keep pace with its physical growth, but stakeholder and public coordination during the development of Corridor Forward illuminated three key themes, addressed in various chapters and recommendations of the Plan:

- There are many corridor-serving transit options in the public sphere, but to date, there is no consensus about which combination of options have the greatest merit, making it challenging to effectively focus resources and planning. This topic is addressed in Chapters 3 and 4.

- Planned concepts are often advanced without strategic or flexible implementation strategies, inviting opportunities for perpetual tweaks and re-envisioning. This topic is addressed in the narrative of Chapter 5 and recommendations of Chapter 6.
- Historically, the county’s policies supported convenient automobile travel, without a comparable emphasis on implementing high-quality transit. Commitment is required to not only implement transit but ensure that it is successful and competitive with driving. This topic is addressed throughout the Plan’s recommendations, but significant focus is provided on this issue in the recommendations in Chapter 6.

## THE PURPOSE AND PROCESS OF CORRIDOR FORWARD

Corridor Forward addresses these themes by:

- Inventorying various corridor-serving transit options circulating in the public sphere;
- Narrowing the larger menu of options to six transit options retained for detailed analysis;
- Comparing the combined benefits, challenges, and risks of the retained transit options;
- Recommending a transit network based on strategic, financial, economic and implementation performance as well as policy considerations;
- Supporting an ambitious recommendation for a new long-term transit option with significant merit; and
- Developing strategies for implementation that prioritize components of the transit network.

Corridor Forward also offers recommendations that support the transit network and strengthen the potential for future cooperation with neighboring jurisdictions.

## ALL ABOARD...BUT TO AND FROM WHERE?

Spanning from Frederick County to Fairfax County, the I-270 corridor serves a range of trips. While approximately 61 percent of Montgomery County residents work within Montgomery County itself, many Montgomery County residents travel to the District of Columbia and other locations across the region, such as Prince George’s County, Fairfax County and Arlington County.

People traveling along the corridor typically do not travel directly from end to end. In fact, only four percent of commuters from Frederick County commute to Fairfax County, and less than one percent of commuters from Fairfax County commute to Frederick County.

Simply put, there is not significant **travel demand** for trips between the perceived “ends” of the corridor. Most travelers are moving to and from corridor communities and employment centers that are less distant. For example, a greater number of afternoon **peak hour trips** are made between Frederick County and Germantown (approximately 4,000) than Frederick County and Bethesda/Chevy Chase (approximately 1,000). For this reason, the Plan identifies key potential service areas where corridor communities could be better integrated into, and supported by, the county’s planned and existing high-quality transit network:

1. Upcounty and points north, including Germantown, Clarksburg, and Frederick County.
2. The heart of midcounty, including Montgomery Village, Great Seneca, and Gaithersburg.
3. Northern Virginia, including Tysons.

Chapter 3 inventories local and regionally-oriented transit options that serve these three areas—which have different geographic spans, characteristics, and needs. Chapter 3 also justifies why a comparative analysis is appropriate despite these areas’ differing characteristics and needs.

## TRANSIT VALUES AND METRICS

An initial step in the Corridor Forward planning process was to identify stakeholders’ values and priorities pertaining to transit, which were used to develop metrics that highlight the benefits and drawbacks associated with different transit options. Corridor Forward solicited feedback on values and priorities from various agencies, jurisdictions, stakeholders, and the community through meetings and a *Transit Values Questionnaire*, which was widely advertised and promoted (more information provided in the Plan Appendix). This feedback, paired with values identified through the outreach and engagement process for *Thrive Montgomery 2050* resulted in a single Plan goal, which reaffirms the values of the county’s general plan update effort:

Table 3 – Corridor Forward Goal and Values

<b>Corridor Forward Goal:</b> Advance a transit network that:	
<b>Strategic Connections</b>	Serves high-demand origin and destination pairs, balancing the costs of implementation with projected benefits.
<b>Economic Health</b>	Enables existing development and master planned communities to realize their potential as livable and economically vibrant places.
<b>Community Equity</b>	Aligns with the county’s social equity goals and principles.
<b>Environmental Resilience</b>	Operates sustainably and reduces negative environmental impacts.

Beyond the values encompassed by the Plan’s broad goal, implementation and practical costs were reoccurring themes among stakeholders and the public. With consultant support, Montgomery Planning developed a series of metrics to capture both strategic values-based benefits and practical considerations. The complete list of comparative metrics depicts a holistic picture of planning-level costs, benefits, and risks across four dimensions:

- **Strategic Dimension:** How does an option or network scenario broadly support county and regional policies and goals, including the values addressed in Corridor Forward’s goal? *Example metrics: increase in job access for [Equity Focus Area](#) communities; reduction in greenhouse gas emissions; new systemwide transit trips.*
- **Financial Dimension:** What are the financial impacts of each corridor option and network scenario? *Example metrics: capital and operating costs based on national benchmarks; planning level land acquisition costs.*
- **Economic Dimension:** What is the societal value of each option and network scenario? *Example metrics: monetized value of reduced collisions and improved health.*
- **Implementation Dimension:** What risks are associated with the delivery and operations of each option and network scenario? *Example metrics: operating model risks and potential historic and environmental impact risks.*

# CHAPTER 3 – OPTIONS INVENTORY

## WHEN EVERYTHING IS A PRIORITY...

Several corridor-serving transit options have emerged over the years, each with their own merit, spanning various geographic extents and fulfilling different needs. For example, enhanced MARC Brunswick Line service supports several communities between Frederick and the District of Columbia, while the Corridor Cities Transitway (CCT) serves more targeted midcounty and upcounty geographies. Because there is no single planned service that can meet all existing and future needs, it is important to consider the benefits, costs, and risks of each option to inform county priorities.

Some may suggest that evaluating transit options serving different markets is an exercise with little value, as doing so does not yield a direct comparison. It is simply comparing apples and oranges, after all. But there are occasions when one peers into the fruit basket only to be greeted by apples and oranges, each vying for attention. And while one could certainly consume some or all of both, a choice needs to be made about where to take the first bite.

Also, if each transit option can significantly improve corridor access and livability, why not simply recommend them all? This approach is not advisable for several reasons. First, it is not financially realistic to expect that the public sector can construct and operate every option inventoried. Recommendations in county functional plans also have the weight of strong intent. Recommending transit options that would garner minimal implementation interest following Plan approval could degrade public faith in long-range planning. Next, some options include overlapping service areas. While some redundancy can be beneficial for reliability purposes, too much redundancy is an inefficient use of limited resources. Finally—and perhaps most importantly—the overall benefits of some options may exceed others. Prioritizing and recommending the best options helps focus limited time, energy, and resources.

Montgomery Planning developed an initial menu of transit options in the public sphere and performed a preliminary **off-model** assessment of these options to identify candidates that warranted more detailed analyses. A description of that assessment can be found under the *Curated Menu of Transit Options for Study* header. The Plan's initial menu of options is summarized in

Table 4 and described in greater detail in the Plan's Appendix. The Plan's Appendix also contains supplementary information about the characteristics of associated transit **modes**.

## **INITIAL MENU – TRANSIT OPTIONS INVENTORY**



Table 4 summarizes the options inventoried by Corridor Forward. For additional context on these options, please refer to the Plan's Appendix.

Table 4 – Initial Menu of Transit Options

Option Name	Mode	Primary/General Corridor Alignment	Service Type	From (North)	To (South)	Notes
MD 355 BRT	Bus Rapid Transit	MD 355, with Snowden Farm alignment north of Germantown	Local	Clarksburg	Bethesda	Assumed as constructed in all Plan technical work
Veirs Mill Road BRT	Bus Rapid Transit	Veirs Mill Road	Local	Rockville Town Center	Wheaton	Assumed as constructed in all Plan technical work
North Bethesda Transitway	Bus Rapid Transit	MD 187 or Tuckerman Lane/Rock Spring Drive	Local	White Flint or Grosvenor	Rock Spring	Planned, but not assumed as constructed in any Plan technical work <sup>1</sup>
Tysons-Rock Spring North Bethesda Transitway Extension	Bus Rapid Transit	Old Georgetown Road & I-495 /American Legion Bridge	Local-Regional Hybrid	Rock Spring	Tysons	Could potentially operate as a service leg of the North Bethesda Transitway
Corridor Cities Transitway Phase 1 & 2	Bus Rapid Transit	Great Seneca/ Germantown/ Clarksburg Roadways	Local	Clarksburg	Shady Grove	Included as designed in the MTA 2017 Environmental Assessment (EA)
Enhanced MARC Rail	Commuter Rail	CSX Rail Corridor	Regional	Frederick/ Martinsburg	Union Station	15-minute headways during rush hour and additional stop locations at White Flint and Shady Grove
Red Line Extension	Metrorail	CSX Rail Corridor	Limited Stop Local Service	Germantown Town Center	Shady Grove	Service frequencies assumed to match existing levels
Purple Line Extension	Light Rail Transit	Capital Crescent Trail/River Road/I-495/ American Legion Bridge	Regional	Bethesda Station	Tysons	Service frequencies assumed to match planned levels
I-270 Corridor Light Rail	Light Rail Transit	I-270	Regional	Gaithersburg	Bethesda	Could potentially connect to Purple Line infrastructure
Frederick-Shady Grove Rail Connection	Monorail/ Light Rail	I-270	Regional	Downtown Frederick Vicinity	Shady Grove	Retained MDOT Monorail Feasibility Study alignment
Managed Lanes Enhanced Commuter Bus	Enhanced Commuter Bus	I-270 & I-495	Regional	Downtown Frederick Vicinity	Silver Spring; Downtown Bethesda; or, Tysons	Includes three variants with different southern termini

<sup>1</sup>Similar to the Corridor Cities Transitway, the North Bethesda Transitway is in the state’s Constrained Long-Range Plan, but it was not included as background in any Plan technical work because it was under consideration for isolated detailed analysis. Ultimately, the option was not retained for detailed analysis.

## OTHER MODES

During the Plan’s development, stakeholders requested an examination of maglev and Personal Rapid Transit (PRT) technologies. Maglev trains use magnetic force for propulsion. These trains can run as monorails or can run on two rails. Currently, the top speed of an operating maglev train is approximately 270 miles per hour. The high speeds and costs associated with maglev suggest it is most appropriate for a limited stop service between locations with significant housing and employment density. As of this writing, there are no maglev trains operating in the United States; however, the Federal Railroad Administration (FRA) has paused its review of a proposal to connect the District of Columbia and Baltimore by maglev with one intermediary stop at Baltimore-Washington International Airport.

PRT cars, sometimes referred to as pods, are driverless vehicles that run on a series of dedicated guideways—either rail beams, rail tracks, or separated roadways. Existing systems typically seat between three and six passengers per vehicle, although the oldest—and only—PRT system in the United States located in Morgantown, WV, can seat up to twenty passengers per car. While PRT systems feature defined stations like other forms of transit, they generally offer point-to-point services without intermediary stops.

Should these two modes be of interest to future Planning Boards and Councils, specialized and third-party expertise will be needed to assess the viability of these systems, their benefits, their costs, and their typical applications. As stated, the premise of Corridor Forward is to inventory and prioritize *existing* options in the public sphere, including modes that exist in county approved plans, modes considered in ongoing work by Montgomery County and the State of Maryland, and modes that have been widely and successfully implemented in transit systems across the nation.

## CURATED MENU OF TRANSIT OPTIONS FOR STUDY

Corridor Forward employed a **pre-screening** analysis to identify and advance six options from the initial menu for more detailed analysis. The pre-screening method posed five questions that could be answered with **off-model** tools and data to assess, at a preliminary level, each option’s potential:

- Are anticipated travel times between key destinations served by the option competitive with driving and other transit modes?
- How many people will have walking, transit, or driving access to the option’s conceptual station locations?
- How many jobs are located within walking distance or transfer transit trip from the option’s preliminary stations?
- Does the option serve planned growth?
- Are the option’s proposed stations accessible by walking, transit, or driving access to communities in the county with recognized equity needs?

Generally, the rail options performed better in the pre-screening analysis at providing competitive travel times. The two “Bethesda to Tysons” options performed poorly regarding serving communities with a greater need for equitable access to transit and jobs. To account for differences in geographic span, the pre-screening analysis identified top performing options across varying degrees of quality and geographic coverage to provide a refined menu. The top performing options advanced for further analysis were:

- Enhanced MARC Rail Service
- Red Line Extension to Germantown Town Center

- Corridor Cities Transitway
- Purple Line Extension to Tysons
- Frederick-Shady Grove Rail Connection
- Managed Lanes Enhanced Commuter Bus - Tysons Terminus

Corridor Forward recognizes that the MD 355 and Veirs Mill Road BRT are high priority projects and recommends that these projects should be implemented as soon as possible. For this reason, Corridor Forward assumes both projects are constructed and existing in the Plan's detailed analysis.

Two services were eliminated from the initial menu: a Rock Spring to Tysons BRT Connection and I-270 Light Rail. The latter option included segments that overlap both existing WMATA Metrorail Red Line and MARC service and performed poorly in pre-screening due to these redundancies. The Rock Spring to Tysons BRT option was outperformed slightly by the Purple Line Extension and significantly by the highway-running Managed Lanes Enhanced Commuter Bus option, which serves more communities. As such, it did not advance.

# CHAPTER 4 – INITIAL EVALUATION

## THE APPROACH

Montgomery Planning evaluated the six retained transit options using a series of strategic, financial, economic, and implementation performance metrics to help stakeholders understand each option’s potential. Modeling tools tested the options’ performance in both 2015 and 2045 and tested how the options may or may not impact planned land use growth. Several strategic dimension performance metrics—transit trips, vehicle miles traveled (VMT), employment access, and population access—feed the calculations of other metrics, including emissions. Table 5 provides definitions and compares each option’s performance, and the remainder of the chapter discusses these options and their performance in greater detail. Raw data values, supplemental metrics, and the methodological approaches used to obtain values can be found in the Plan’s Appendix.

The initial evaluation of the retained options suggests that the Purple Line Extension, Enhanced MARC Rail, and Frederick Rail Connection options have merit, but offer benefits that are comparably less attractive as viewed through the lens of this Plan’s goal. The descriptive summaries that follow offer recommendations intended to strengthen regional connectivity that are relevant to the long-term merits of these options. The relative performance of the CCT, Managed Lanes Enhanced Commuter Bus, and Red Line Extension options resulted in the inclusion of components of these options within the Plan’s proposed transit network, discussed in Chapter 5.

Table 5 – Initial Evaluation

2045 Forecast Year Key Metrics	Purple Line Extension	Enhanced MARC Rail	Frederick Rail Connection	Corridor Cities Transitway (CCT)	Managed Lanes Enhanced Commuter Bus	Red Line Extension
Increase in Regional Transit Trips						
Increase in Montgomery County Transit Trips						
Increase in Regional Transit Mode Share						
Increase in County Transit Mode Share						
Decrease in Daily Regional Vehicle Miles Traveled						
Total Jobs Accessible within 45 Minutes by Transit						
Total Jobs Accessible within 45 Minutes by Transit from Equity Focus Areas						
Change in Jobs Filled Adjacent to the Evaluated Transit Service						
Change in Population Adjacent to the Evaluated Transit Service						

Poor Relative Performance	Somewhat Poor Relative Performance	Neutral Relative Performance	Somewhat Strong Relative Performance	Strong Relative Performance

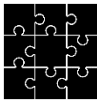

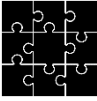

## PURPLE LINE EXTENSION

The Plan’s studied Purple Line extension alignment connects Bethesda and Tysons, VA with intermediary stops at Westbard, River Road and MD 188 (Wilson Lane), and the McLean Metrorail Station. The alignment offers a 22-minute ride between Bethesda and the proposed Tysons termini yielding a more competitive ride than WMATA’s Metrorail system, which offers connectivity via the District of Columbia at the cost of a 70-minute ride. While the option is forecast to add approximately 5,500 new daily regional transit trips, just under 28 percent of this forecasted growth is allocated to Montgomery County.

The evaluated extension’s alignment reduces anticipated 2045 vehicle miles traveled by approximately 31,000 daily vehicle miles (.02 percent of regional travel) and neither traverses nor serves any of the county’s **Equity Focus Areas**—rendering its overall benefits—as defined by the Plan’s values—less attractive. Access between Tysons and Prince George’s County is provided, in some cases more directly, by WMATA’s Metrorail system.

Other alignments—for example, one that travels along Old Georgetown Road to Rock Spring via the National Institutes of Health, Suburban Hospital, and Montgomery Mall—might yield greater benefits. While this Plan does not prioritize the studied alignment, it recommends that the county consider and maintain options for a future Purple Line Extension, including potential alignments that extend into Northern Virginia, in the future. The Plan makes the following recommendations to support this consideration:

Table 6 – Purple Line Extension Recommendations

To Strengthen Regional Transit Connections, Corridor Forward Recommends:	County Actions	Priority	Champion
Study extensions of the Purple Line to understand if and where extension(s) of the county’s light rail service may be warranted.	<ul style="list-style-type: none"> <li>A. Add an initial study to Montgomery Planning’s work program to assess travel demand between locations along the under-construction Purple Line and potential points of demand, including but not limited to the National Institutes of Health, Rock Spring, Tysons, Georgetown/Rosslyn, and Arlington.</li> <li>B. Coordinate with jurisdictions, as relevant and if warranted following the initial study, to scope further technical feasibility analyses that explore potential extension alignments, their costs, and their benefits.</li> </ul>		
Design and construct the American Legion Bridge to support rail transit.	<ul style="list-style-type: none"> <li>A. Advocate for an American Legion Bridge design that can structurally accommodate the rail transit needs of the future.</li> </ul>		

## ENHANCED MARC RAIL

Today, the MARC Brunswick Line functions as an important transit service extending through the corridor to its District of Columbia terminus at Union Station. The service provides 21-minute **peak hour headways** on average, but only provides service during rush hour during most of the week and only in the peak direction of commuting. In other words, passengers cannot take the train in a northbound direction during mornings, and they cannot take the train in a southbound direction during the evening. MARC provides limited midday service in the northbound direction on Fridays, but otherwise, there are no trains that run beyond typical commute hours.

The Enhanced MARC Rail Service option studied through Corridor Forward illustrates the increased potential of the line, reducing headways to 15 minutes, implementing reverse commute service, and adding midday service. The option is forecast to increase the number of regional transit trips by approximately 3,100 daily trips in 2045. About 52 percent of these new transit trips occur within Montgomery County. The studied enhancements attract riders in Frederick County primarily near Point of Rocks and Brunswick, but the service is less successful at attracting riders in the City of Frederick, likely due to the line's indirect alignment. Travelers from the City of Frederick must travel west to Point of Rocks, only to travel east again to reach southern points in the corridor, including Germantown, Gaithersburg, Rockville, and the District of Columbia.

Enhancing MARC service would impact other modes. Because the Brunswick Line offers some redundancy with segments of the Red Line, Metro service could lose as many as 7,600 trips in 2045 if MARC was to be improved without concurrent transit enhancements to other modes. On the other hand, if the county and/or state were to pursue the studied Red Line Extension, Frederick Rail Connection, or Enhanced Managed Lanes Commuter bus options, the existing MARC service would potentially lose riders, with the more direct Frederick Rail Connection receiving the greatest number of current MARC riders.

Corridor Forward studied a scenario that implements master planned MARC Rail stations at Shady Grove and White Flint. Assuming these stations provide service for local and express MARC **service patterns**, they are anticipated to significantly outperform nearby stations in areas that will remain lower in density. Additionally, county land use plans call for densification around these stations. To the north, stations in the county's Agricultural Reserve are anticipated to have only modest ridership growth. The lower comparative ridership performance of northern stations within the county's Agricultural Reserve points to a trade-off between the county's intent to maintain modest densities proximate to existing rail infrastructure within the areas maintained for farming and a rural pattern of development. Locations with other forms of transit service—Shady Grove, Rockville, Silver Spring, and Union Station—yield the largest projected increase in daily boardings, while modest increases are forecast for Germantown, Metropolitan Grove, and Gaithersburg.





Compared with other options, Enhanced MARC Rail increases access to the smallest number of corridor jobs, both generally and for **Equity Focus Area** communities and is less successful than the direct Frederick Rail Connection option at reducing vehicle miles traveled and carbon emissions.

Necessary infrastructure improvements to enhance MARC Rail are both costly and challenging. Even before accounting for the line's anticipated 78 grade crossings (which includes overpasses, underpasses, and pedestrian facilities), the Plan estimates substantial capital and renewal costs for the option. Given that the railroad has been operational for over a century, several sites and districts along the corridor have been designated as historic, and the additional main line track could potentially impact over 40 locations with some form of existing or planned historic designation.

Most importantly, CSX Transportation owns the rail tracks used by the MARC Rail Brunswick Line (excluding the Frederick Branch) adding complexity into the implementation outlook for proposed enhancements. Infrastructure improvements would require discussions and negotiations with CSX, which would certainly require limitations to—and mitigations for—any freight service disruption.

At the time of this writing, the potential of the state's commuter rail services has been a topic of significant state and local policymaking interest. Within the county, forecasted gains are modest for communities that are not well-connected to the county's high-quality transit network. While enhancements to the MARC Rail Brunswick Line are not a priority within the Plan's recommended transit network, Corridor Forward recommends maintaining the existing service and supports the long-term potential of the MARC Rail Brunswick Line. The Plan cautions the need to maintain realistic expectations for future enhancements based on constraints.

Table 7 – Enhanced MARC Rail Recommendations

To Strengthen Regional Transit Connections, Corridor Forward Recommends:	County Actions	Priority	Champion
Obtain right-of-way, through dedication or acquisition, to support the long-term potential of the Maryland Transit Administration MARC Rail Brunswick Line.	A. Continue to advance the long-term potential of the Brunswick Line by obtaining 25-foot wide land dedications adjacent to the northbound tracks of the Brunswick Line right-of-way along the segments identified in the 2018 MARC Cornerstone Plan.		
Promote strategic and equitable MARC Rail access by supporting new stations.	<p>A. Support the 2010 White Flint Sector Plan recommendation to construct an additional MARC-Station within the vicinity of White Flint and the 2021 Shady Grove Sector Plan recommendation for an additional MARC Station at Shady Grove. Prioritize the White Flint station.</p> <p>B. If CSX maintains its current policy that no new station can be added without the removal of an existing station or provision of additional main line track, develop a plan or strategy to support the elimination of service at underutilized stations in order to advance new stations projected to have greater network value.</p>		

## FREDERICK RAIL CONNECTION

As discussed above, the MARC Brunswick Line offers Frederick County and the City of Frederick connections to Montgomery County, the District of Columbia, and WMATA’s Metrorail Red Line; however, its alignment is inefficient. Corridor Forward explores a more direct rail connection —either monorail or light rail—between Shady Grove and the City of Frederick via Urbana, Clarksburg, Germantown, and Metropolitan Grove. The Plan integrates the Maryland Department of Transportation’s **Monorail Feasibility Study** alignment and modeling assumptions into its technical work.

In 2045, about 56 percent of new transit trips generated by the option originate in Frederick. From a pure ridership perspective, the higher performance of Montgomery County’s stations is attributable to the combination of trips that originate in Frederick and travel to Montgomery with trips made solely within Montgomery County. The studied Germantown station performs well and is forecast to provide service to 3,500 riders, suggesting Germantown generates both origin and destination travel demand.

A new rail connection to Frederick shifts riders from other transit services. In 2045, modeling results suggest that 9,600 forecast transit trips that would have otherwise used the MARC Brunswick Line, a bus service, or a combination of Metrorail and a bus service, will instead use the new rail connection. The option generates 8,300 new Metrorail trips—and only about 3,600 of these trips have initial origins in the county, meaning the option enjoys success if its primary purpose involves improving network connectivity for communities north of Montgomery County.

Both the new Frederick Rail Connection and an extension of the Red Line (discussed below) reduce 2045 vehicle miles traveled by approximately 160,000 miles, positioning these two services as the best candidates to reduce roadway travel; however, while over 80 percent of the Red Line’s vehicle miles traveled reduction would occur in Montgomery County, the Frederick Rail Connection would have about half of its vehicle miles traveled reduction outside the county, primarily in Frederick County. When modeled using today’s development and roadway network under





present day conditions, the Red Line Extension does a better job of reducing vehicle miles traveled than the Frederick Rail Connection.

The Plan’s technical analysis suggests that a more direct connection between Montgomery and Frederick Counties has the potential for minor reallocation of population from Montgomery to Frederick and some jobs from Frederick to Montgomery. In other words, an enhanced rail connection potentially could progress the suburbanization and growth of Frederick—particularly Frederick City—as a bedroom community to Montgomery County.

Anticipated capital costs for either a monorail or light rail connection were higher than the other evaluated transit options. The option is the most expensive project for engineering and construction. Operational costs over a 60-year timeframe for either monorail or light rail make the option the second most expensive option to operate. When costs are normalized based on net new systemwide transit riders, the option is the least attractive of the six studied options.

In sum, a Frederick Rail Connection successfully reduces vehicle miles traveled, but it is very expensive with the highest capital cost per new rider. While a monorail option may be easier to implement from a right-of-way acquisition perspective, advancing the option would still require substantial financial support, perhaps as a public-private partnership, which would render implementation more complex. Potential minor job reallocation to upcounty locations do not justify significant financial support from the county given that the option provides greater mobility benefits to Frederick; however, if others champion advancing this option, this Plan recommends county cooperation and support for their efforts.

Table 8 – Frederick Rail Connection Recommendation

<b>To Strengthen Regional Transit Connections, Corridor Forward Recommends:</b>	<b>County Actions</b>	<b>Priority</b>	<b>Champion</b>
Explore a direct transit connection between the WMATA Red Line Terminus and Frederick County.	<p>A. If Frederick County includes this new, direct transit connection in an update to their Transit Development Plan, support others’ efforts by recommending alignments and stations for any portion of a direct service that falls within Montgomery County.</p> <p>B. Participate as a cooperative stakeholder in others’ study and design efforts.</p>		

## **CORRIDOR CITIES TRANSITWAY (CCT)**

The master planned CCT connects the communities of Clarksburg, Germantown, and Gaithersburg into the WMATA Metrorail system at Shady Grove via the Life Sciences Center (LSC). Over the years, the route has been adjusted to service and support growth in the Life Sciences Center. Corridor Forward modeled transit options in both the forecasted growth year of 2045 and on today’s transportation network with existing land use conditions. There is a significant divergence in how the provision of the CCT impacts network-wide transit trip production. When modeled on today’s existing transportation network with current development levels, the CCT is forecast to result in 3,900 additional new transit trips. When modeled on the 2045 network, the CCT is forecast to result in 7,400 new transit trips. The increase stems from forecasted land use growth, which the Plan’s land use analysis deems generally reasonable.

More than any other option, the region’s transit trip gains are mainly located within the county, with Montgomery County accounting for 96 percent of the new transit trips generated in 2045. Because the CCT trips are shorter and

more localized when compared to other studied options, the reduction in vehicle miles traveled in 2045 are less significant for this option.

The CCT is less expensive than other studied options and offers the second-best capital and renewal costs per new 2045 net new systemwide transit rider. In terms of operating expenses, the CCT is the third best project per new 2045 regional transit rider. While some right-of-way has been provided to support the CCT, some land acquisition costs remain. The original CCT includes two expensive grade separated interchanges, which will require additional detailed design work.

Refinements to the CCT are warranted for three reasons. First, the CCT generates the greatest number of forecasted 2045 county-oriented transit trips across all options, suggesting that there is demand for transit service in this area of the county. The concentration of new transit trips in the county has the greatest impact in shifting travelers from single-occupancy vehicles to other modes in the 2045 forecast year. Next, the service has been planned for decades and is highly anticipated by CCT-served communities who are quick to point out that some of the service's preliminary design work is complete, and some of the service's right-of-way has been provided or accounted for through easement or reservation of space. Performance of the CCT, as suggested by the technical analysis, rests upon the county achieving its land use vision in communities served by the transitway, suggesting that the demand for transit service and mode shift may not be achieved if growth is less than anticipated. The Plan retains the intent to serve the CCT communities, but further explores how capital costs can be better scaled through a series of targeted revisions of the master planned service (see Chapter 5).

## MANAGED LANES ENHANCED COMMUTER BUS

The Managed Lanes Enhanced Commuter Bus option represents an attempt to serve CCT communities differently, integrating these communities with the larger regional corridor. This option travels along the interstate, serving 19 different county stops, four Frederick stops, and three stops in Tysons across four different **service patterns**. Rather than position stops along the interstate, the bus diverts in select locations to serve communities. Dedicated bus lanes support quick reliable access to points of demand in Germantown, Montgomery Village, and in the Life Sciences Center. Separate from the commuter bus service, the option also contemplates service extensions of the Veirs Mill Road BRT into the Life Sciences Center and an additional terminal service leg of the MD 355 BRT on Observation Drive to support the development of communities initially planned for CCT service.

Throughout the years, studies and **NEPA** work for the I-270 corridor have considered the potential for dedicated bus service on the interstate. While Corridor Forward assumes that a corridor-running commuter bus service will use managed lanes if implemented, results demonstrate the potential of service in dedicated lanes more generally. The Managed Lanes Enhanced Commuter Bus option is forecasted to generate 9,300 new transit trips in 2045, and over 63 percent of these trips are forecasted to occur within Montgomery County.

The option's additional service extension of the Veirs Mill Road BRT into the Life Sciences Center increases the line's riders by 5,300; however, the additional service leg of the MD 355 BRT on Observation Drive is not forecasted to add a significant number of riders to the BRT system.

Similar to the Frederick Rail Connection option, the Plan's land use model suggests that the option may spur more housing development in Frederick and may make employment development in the midcounty and upcounty region more attractive, although reallocations of growth were minor for this—and all—options. The projected population increases in Frederick are partially attributable to travel time benefits.

The option has lower capital costs, assuming the costs of dedicated bus lanes are born by others (via construction of the I-270 managed lanes). On the other hand, the option's operational costs far exceed that of other options and

represent the second highest anticipated cost per new transit rider. Because the service is regional, it is unclear who would bear the option's operating costs. Additionally, the interjurisdictional nature of the project introduces some complexity into planning and implementation.

Performance of the option suggests that enhanced commuter service may play a key role in supporting regional mobility; however, the county plays only a very limited role in service planning for regional commuter bus. Montgomery Planning's role in transportation planning focuses on ensuring infrastructure needs are supported, and that conversely, infrastructure supports and drives land use development. While results suggest an enhanced commuter bus option has merit, the option is unlikely to support the compact, transit-oriented development recommended in the county's plans and policies.

While the Managed Lanes Enhanced Commuter Bus is not included in Corridor Forward's proposed transit network, this Plan supports operational efforts to have commuter bus service utilize any future managed lanes on I-270. Corridor Forward also supports enhanced commuter bus service by maximizing the potential of local off-highway dedicated bus lanes, as discussed in Chapter 5, to support both local and regional corridor accessibility.

## RED LINE EXTENSION

The Plan's Red Line Extension option contemplates additional WMATA Metrorail service primarily along the CSX corridor to Germantown Town Center, with stops at Old Town Gaithersburg and MD 124/Fairgrounds. Corridor Forward's technical analysis suggests that this connection reduces daily vehicle miles traveled by 160,000 miles. In the technical analysis, this 160,000 daily mile reduction was the greatest among the six transit options retained for detailed analysis, and includes drivers accessing the new stations from points in Frederick County, suggesting that the option has regional benefits. The Red Line Extension would increase systemwide transit use by 8,000 daily trips and would provide a more efficient transit trip for 9,100 current transit users.

While capital and land acquisition costs associated with the Red Line Extension are resource intensive, operating costs are anticipated to be less than other options explored. Consideration of how the state's operating transit resources are allocated may be warranted as increasing support for WMATA may be more financially prudent and beneficial than supporting operations for a Maryland-only bus line.

Compared to other studied options, the Red Line Extension's one-seat ride to the District of Columbia offers the greatest potential to increase job accessibility, both generally and for communities residing in **Equity Focus Areas**. The extension reduces transit travel times between key county destinations; specifically, trips from Germantown and Gaithersburg to Bethesda would be reduced by 13 and 9 minutes, respectively.

The Red Line Extension is not without challenge, and the benefits of this recommendation can only be realized through intentional, long-term planning and significant interagency and inter-jurisdictional coordination across various levels of government. Support would also be necessary from private stakeholder CSX, which runs adjacent to the proposed extension. The project's up-front capital costs are significant, and there are also numerous engineering, operational, and political challenges that would need to be addressed in order for the recommendation to advance. Today, WMATA is focused on bringing the system's core into a state of good repair and is reluctant to consider extensions without a clear understanding of financial implications and downstream passenger capacity. While the equity case and growth justification may be clear from the county's perspective, the county will need to compile resources, land, and partners over time to realize this recommendation. Additionally, other Metrorail safety and capacity needs would likely need to be addressed before the recommendation could advance.

Regarding right-of-way, Corridor Forward assumes that the Red Line extension would require approximately 62 feet of additional space measured from the outermost southbound track per the WMATA specifications for Metro adjacent to

rail corridors. While this figure is more conservative than the tight spacing where WMATA and CSX operate adjacent to one another in Silver Spring and the District of Columbia, new safety regulations necessitate the additional space. In total, Corridor Forward estimates that the Extension would require approximately 20 acres of additional right-of-way, and that approximately 42 structures would be impacted.

In addition, this Plan estimates that approximately 70 acres of land would be required to support the extension with an operations and maintenance facility, and there are only a few properties in Germantown with that amount of space. The existing federally owned Department of Energy site may be the most realistic candidate for the location of an operations and maintenance facility. As a project of this magnitude would require federal funding, reconstruction of the facility could be considered to create a new transit-oriented General Services Administration (GSA) owned site; however, long-term collaboration with the federal government would be required. Beyond costs studied in this effort, the alignment would have to account for traversing at least 16 different features that would require grade separation.

However, the overall performance of the Red Line extension demonstrates that this option merits further exploration to further the county's equity goals and to serve existing corridor communities with the highest-quality transit. As discussed in greater detail in Chapter 5, this Plan's recommended transit network includes an ambitious vision for a long-term extension of the Red Line to Germantown Town Center, and acknowledges that significant coordination with communities along the proposed extension is essential to minimize impacts in future planning and design.

## **PERFORMANCE OUTCOMES**

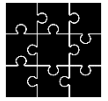

The Plan's transit options evaluation demonstrates the comparative benefits and costs of studied options. The Managed Lanes Enhanced Commuter Bus and Red Line Extension options offer benefits to both the county and region, while the CCT improves local access. Based on benefits derived for the county, the Plan retained these options for further evaluation, which informed the development of the proposed transit network.

# CHAPTER 5 – PROPOSED TRANSIT NETWORK

Corridor Forward establishes a proposed transit network, which includes both a near-term network of dedicated bus lanes, known as the Corridor Connectors, and an ambitious long-term recommendation for an extension of Metrorail’s Red Line. The near-term network of dedicated bus lanes builds on existing master planned projects, including the MD 355 BRT and the Veirs Mill Road BRT, to create a transit network that serves communities and employment centers along the I-270 corridor.

To develop the proposed transit network, the Plan considered how the services provided by the CCT, Managed Lanes Enhanced Commuter Bus, and Red Line Extension options could complement one another against the backdrop of the county’s existing and master planned rapid transit network, including the MD 355 and Veirs Mill Road BRTs. Because an extension of the North Bethesda Transitway was not substantially studied, the proposed network’s geographic scope focuses on the heart of midcounty and upcounty; however, the Plan supports advancement of the North Bethesda Transitway alignment as currently master planned.

Table 9 – North Bethesda Transitway Recommendation

To Support the Recommended Transit Network, this Plan Recommends:	County Actions	Priority	Champion
Support the North Bethesda Transitway alignment as master planned.	A. Maintain the recommendation from the 2013 <i>Countywide Transit Corridors Functional Master Plan</i> for the North Bethesda Transitway, prioritizing service to White Flint based on the county’s land use goals.		

## TRANSIT NETWORK – NEAR-TERM DEDICATED BUS LANES

The proposed transit network builds upon the work of previous plans and studies associated with the county’s planned BRT network, including the 2013 *Countywide Transit Corridors Functional Master Plan*. The transit network envisions a system of dedicated bus lanes that, once implemented in full, can support a series of different **service patterns**, to be determined by operating partners at county, state, or other inter-jurisdictional levels. The proposed transit network includes the already planned MD 355 and Veirs Mill Road BRT and focuses on maximizing the potential of these services by providing branches of additional dedicated bus lanes that feed into the two services. These dedicated bus lanes may be used to support BRT and commuter bus service. In other words, if dedicated lanes are available and proximate to the highway, commuter buses can divert into these dedicated bus lanes to access communities and activity centers more quickly and efficiently.

To develop the proposed transit network, Corridor Forward inventoried locations that warrant service, based on their existing densities, equity considerations, or previous inclusion in other planned services—mainly the CCT. Despite early design work for the southern portion of the CCT, known as Phase One, the service has neither advanced into construction nor received full funding. During evaluation, the CCT’s intended purposes and key implementation barriers were identified to address these needs and challenges. These are described in Table 10.

Table 10 – Master Planned CCT Purposes and Barriers

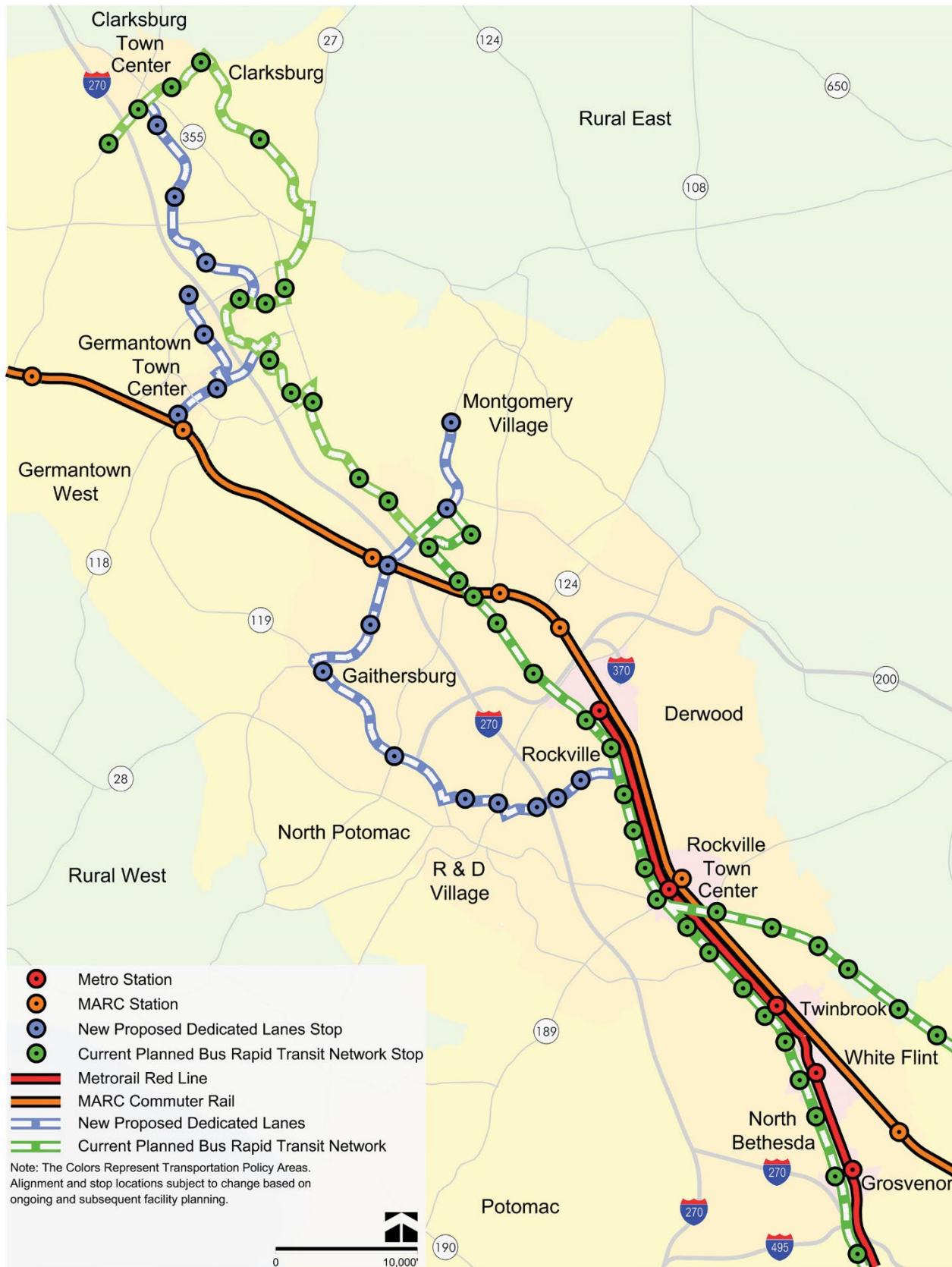
<b>Corridor Cities Transitway Purposes</b>	<b>Implementation Barriers</b>
A. Connect Clarksburg and Germantown to the Life Sciences Center	A. Perception by potential funding partners that the current planned route is inefficient to provide Clarksburg and Germantown Metrorail access.
B. Connect Clarksburg and Germantown to the WMATA Metrorail system	B. Perception by potential funding partners that the current planned route serves primarily local needs and offers limited regional benefits.
C. Connect the Life Sciences Center to the WMATA Metrorail system	C. Two costly grade separated interchanges.
D. Attract Growth in the Life Sciences Center	D. Costly segments of unbuilt dedicated bus lane roadways paralleling I-270 with no stops due to surrounding environmental assets.
	E. Perceived stakeholder concern regarding the service’s alignment.
	F. Perceived stakeholder skepticism of the service’s ability to stimulate economic development.

The proposed transit network of dedicated bus lanes, known as the Corridor Connectors, shown in Figure 2, addresses both the purposes and barriers of the master planned CCT by integrating communities previously planned for service into the currently planned MD 355 and Veirs Mill Road BRT network. The proposed dedicated bus lanes are described in the following sections, which highlight how the proposal addresses the CCT’s original purposes and implementation barriers detailed above. This Plan re-envisioned the master planned CCT as a network of dedicated bus lanes, which connect I-270 corridor communities to the county’s existing and planned rapid transit network.

The Corridor Connectors represent the network of dedicated bus lanes in Germantown, Clarksburg, Great Seneca, Lakeforest, and Montgomery Village, and include the following components:

- The Germantown Connector
- The Manekin West Connector
- The Milestone / COMSAT East Clarksburg Connector
- The Life Sciences Connector
- The Great Seneca Connector
- The Lakeforest and Montgomery Village Connector

Figure 2 - Proposed Dedicated Bus Lanes Network



## Germantown and Clarksburg Dedicated Bus Lanes

The Plan proposes three different dedicated bus lane components for the Clarksburg and Germantown vicinities, as shown in Figure 3 which tie into the planned MD 355 BRT service:

- The Germantown Connector
- The Manekin West Connector
- The Milestone/COMSAT East Clarksburg Branch

First, the Germantown Connector links main points of demand along MD 118, including Montgomery College (Germantown), Germantown Town Center, and the Germantown MARC Station. The proposed dedicated bus lanes on MD 118 allow the MD 355 service to travel to and from Germantown Town Center in dedicated lanes. The Germantown Connector supports not only local connectivity for rapid and local service alike (see Chapter 6), but potential commuter bus diversions from the interstate to points of demand in Germantown.

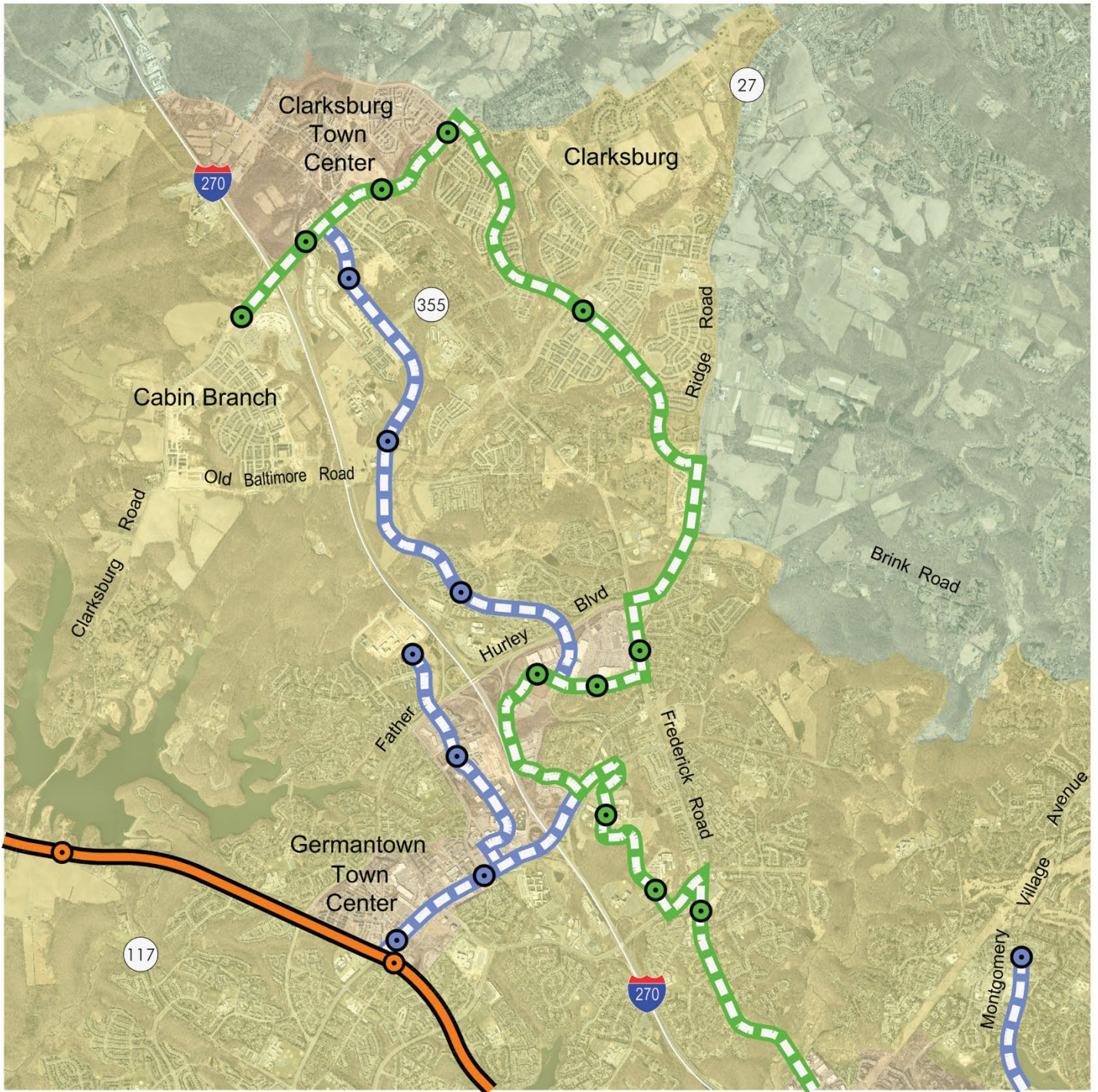
Dedicated bus lanes on Aircraft Drive and Century Boulevard comprise the Manekin West Connector, which unlock the potential to route some MD 355 BRT buses to communities originally envisioned for CCT service. In other words, following a diversion to Germantown Town Center, some MD 355 BRT buses can run and terminate at Manekin rather than the Clarksburg Outlets as currently planned.

A third branch of dedicated bus lanes—the Milestone/COMSAT East Clarksburg Branch—will allow the MD 355 BRT to connect to other master planned CCT communities and employment centers, including stops at Dorsey Mill, COMSAT, and Gateway Center via Observation Drive—or alternatively, Gateway Center Drive—before traveling to the Clarksburg Outlet terminus.

Including the MD 355 BRT's facility-planned Snowden Farm Parkway Clarksburg Branch, the Germantown and Clarksburg area's dedicated bus lane segments create three different northern routing possibilities for bus operating agencies. The proposed dedicated bus lanes in Germantown and Clarksburg integrates six previously master planned northern CCT stops into the MD 355 BRTs network. Because MD 355 provides connectivity to both the Shady Grove and Rockville Metrorail stations (as well as other points on the Red Line), one of the original intents of the CCT—connecting Germantown and Clarksburg to the WMATA Metrorail System—is satisfied in a more efficient and less costly manner. Additionally, the expensive grade-separated interchange planned for Dorsey Mill and Century Boulevard is no longer necessary, reducing implementation cost of rapid transit. While vehicular access is no longer necessary, this Plan recommends that pedestrian/bicycle connectivity over or under I-270 continue to be explored. Costs are further reduced through the elimination of the dedicated bus lanes paralleling the western side of I-270 that do not serve any planned communities as buses instead travel on the eastern side of I-270 in the MD 355 BRT lanes.



Figure 3 - Germantown and Clarksburg Dedicated Bus Lanes



-  MARC Station
-  New Proposed Dedicated Lanes Stop
-  Current Planned Bus Rapid Transit Network Stop
-  MARC Commuter Rail
-  New Proposed Dedicated Lanes
-  Current Planned Bus Rapid Transit Network

Note: The Colors Represent Transportation Policy Areas.  
 Alignment and stop locations subject to change based on ongoing and subsequent facility planning.



## Great Seneca Dedicated Bus Lanes

The Plan proposes two different dedicated bus lane components in the Great Seneca vicinity:

- The Life Sciences Connector, as shown in Figure 4
- The Great Seneca Connector, as shown in Figure 5

To the south, the Life Sciences Connector links the MD 355 BRT corridor and Great Seneca via Gude Drive and local roadways—or alternatively MD 28. This connector creates the opportunity for operators to develop Veirs Mill Road BRT service patterns that extend into the Life Sciences Center for a one-seat ride from points southeast like Rockville Town Center, Twinbrook, and Wheaton. If the state advances an interchange as a component of the Managed Lanes project (or some other future interstate project), commuter buses running on I-270 will be able to quickly and efficiently divert from the interstate to access the Life Sciences Center via the proposed dedicated bus lanes.

This Plan anticipates that links between the Life Sciences Center, the county seat in Rockville, and the significant labor pools residing in the Twinbrook and Wheaton areas may support access to and growth of the Life Sciences Center. Additionally, the proposed alignment is anticipated to be more amenable to some in Rockville who have advocated against CCT service on King Farm Boulevard. Rockville additionally benefits from stops proximate to Research Boulevard, an area the City of Rockville anticipates exploring in future land use planning efforts.

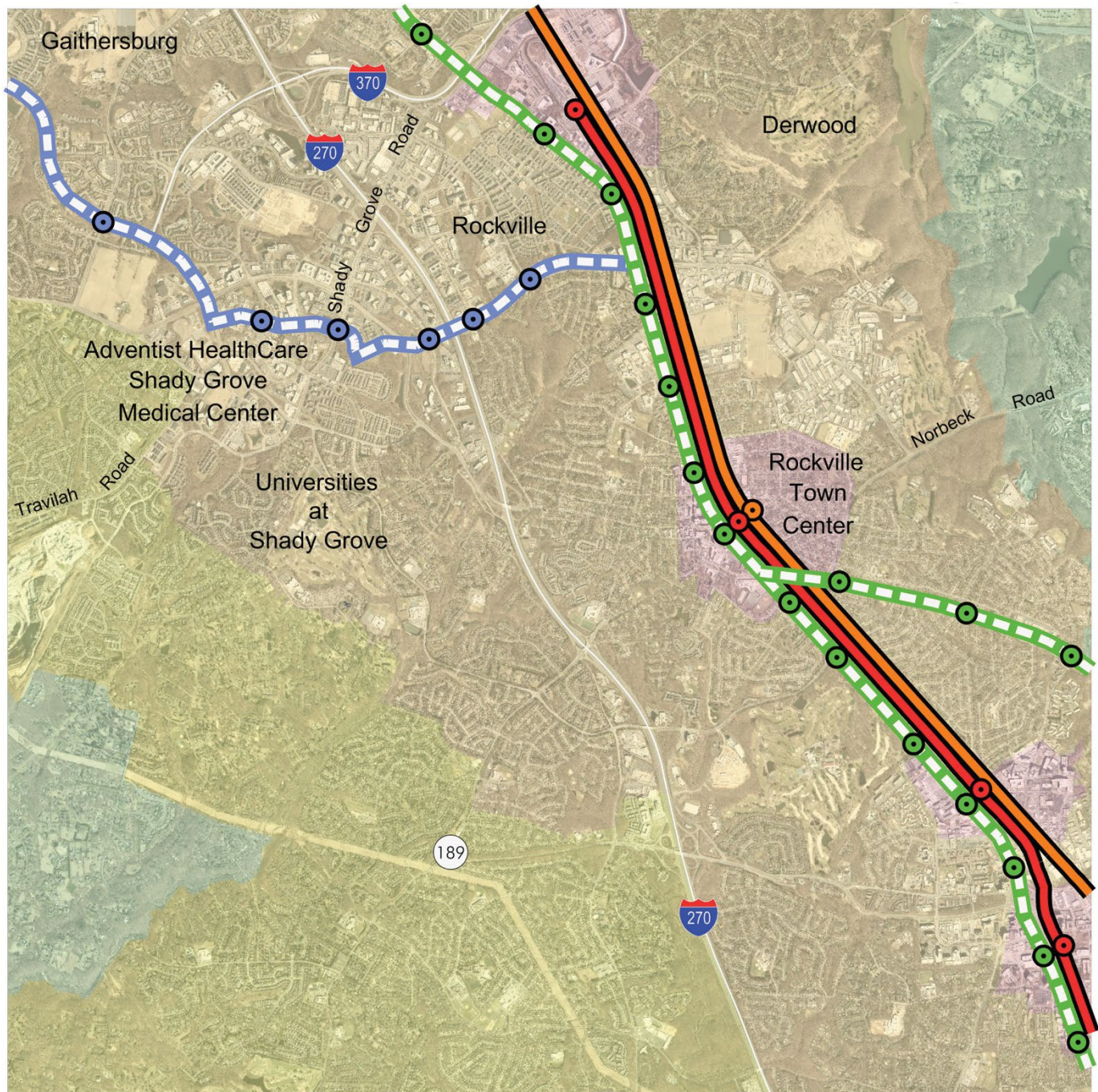
The Plan proposes study of two different alignments during facility planning. The first alignment serves the Life Sciences Center directly via local roads. In the westbound direction, buses on Gude Drive continue onto Fallsgrove Drive before turning onto master planned Blackwell Road. While dedicated bus lanes are strongly preferable, constraints on Blackwell Road and Fallsgrove Drive may require design or implementation flexibility. This alignment proposes the following preliminary stops:

- Gude Drive and Watkins Pond Boulevard or Gaither Road (evaluated as an infill station only)
- Gude Drive and Piccard Drive
- Gude Drive and Research Boulevard
- Blackwell Road and Shady Grove Road
- Blackwell Road at Johns Hopkins University Montgomery County

The second alignment for consideration during facility planning, which was not evaluated through this effort, contemplates use of MD 28 rather than local roads within the Life Sciences Center (LSC). This alignment could be implemented with limited new investment by repurposing existing capacity and serves the northern periphery of the LSC rather than its center, with proposed stops at:

- Gude Drive and Watkins Pond Boulevard or Gaither Road
- Gude Drive and Piccard Drive
- Gude Drive and Research Boulevard
- MD 28 and Shady Grove Road
- MD 28 and Medical Center Drive or Broschart Road

Figure 4 - Life Sciences Connector



- Metro Station
- MARC Station
- New Proposed Dedicated Lanes Stop
- Current Planned Bus Rapid Transit Network Stop
- Metrorail Red Line
- MARC Commuter Rail
- New Proposed Dedicated Lanes
- Current Planned Bus Rapid Transit Network

Note: The Colors Represent Transportation Policy Areas.

Alignment and stop locations subject to change based on ongoing and subsequent facility planning.



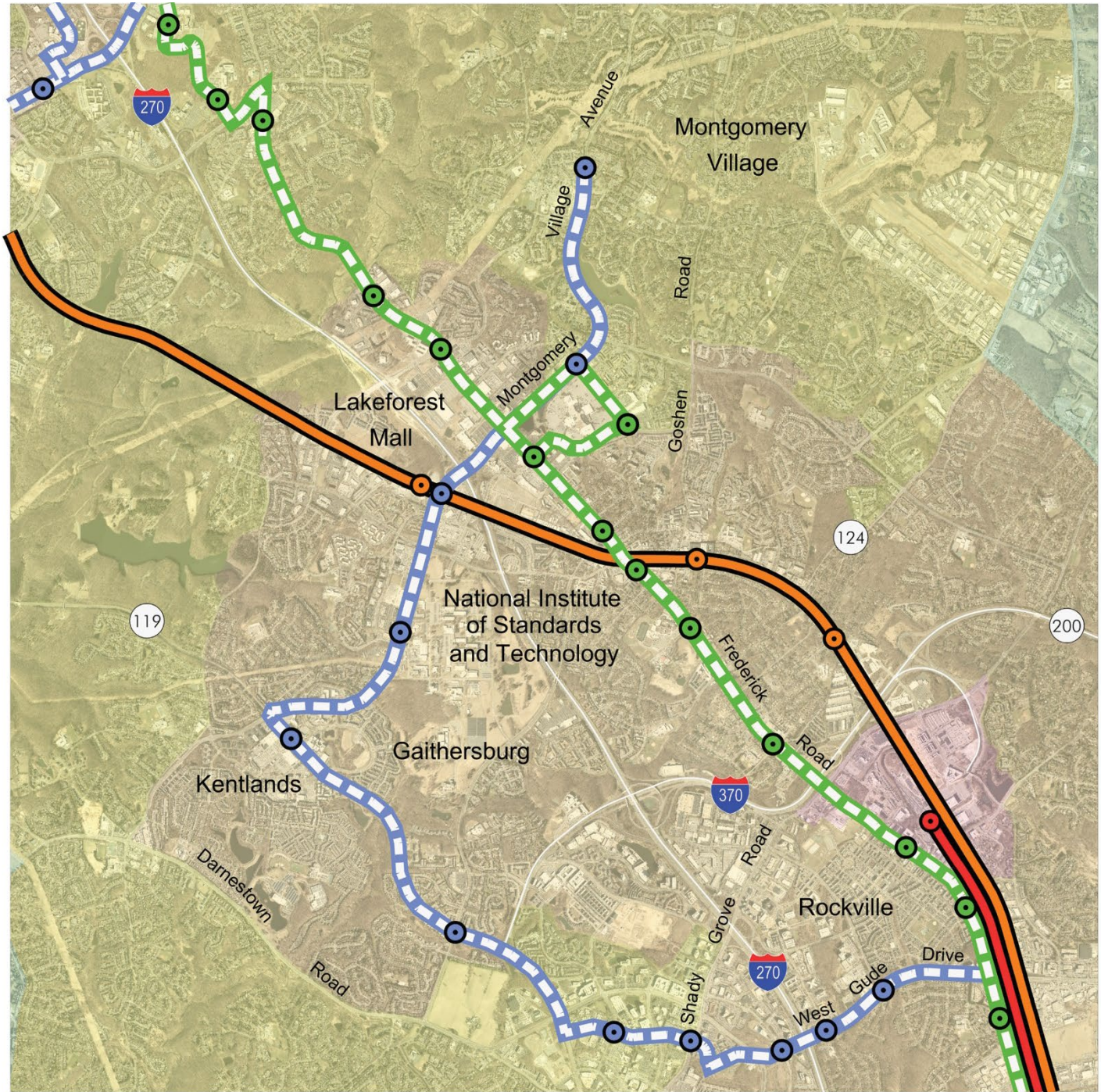
The Great Seneca Connector extends between the terminus of the Life Sciences Connector and the MD 124 Park and Ride, largely following the path of the master planned CCT with slight deviations. Service to the Belward Farm is provided in a proximate location at Muddy Branch Road and Great Seneca Highway and is contemplated as an infill station. Rather than route adjacent to the CSX tracks to reach Metropolitan Grove—where no roadway exists today—the Great Seneca Connector terminates at MD 124 in or near the current Park and Ride, a location envisioned for future Metrorail Red Line service (see Ambitious Long-Term Recommendation below). The CCT’s Firstfield stop is shifted to this location to consolidate transfer points; however, facility planning could consider interim service to other points based on roadway availability and demand.


Because the dedicated bus lanes network connects to Rockville’s Metrorail Station rather than Shady Grove’s Metrorail Station via Gude Drive and MD 355, the planned CCT overpass connecting King Farm Boulevard and Fields Road is no longer necessary, reducing implementation costs.

### **Lakeforest and Montgomery Village Dedicated Bus Lanes**

Gaithersburg’s Lakeforest Mall is currently planned to be served by the MD 355 BRT but could be further enhanced with an east-west link that connects to points of demand along MD 124. Further northeast, Montgomery Village, a relatively dense established community, and designated Equity Focus Area, is not well connected to premium transit. Providing service along MD 124 to integrate Montgomery Village in a direct and efficient manner to the MD 355 BRT, as well as points west and south, such as the National Institute of Standards and Technology, Kentlands, and the Life Sciences Center, will generally improve access for this underserved community. The proposed Montgomery Village Connector extends between the northern terminus of the Great Seneca Connector and the Village Center (Figure 5). The alignment proposes two stops: Montgomery Village Center and Lakeforest Mall; however, additional stops could be explored during the facility planning process as numerous dense subdivisions have access adjacent to Montgomery Village Avenue/MD 124. As I-270 highway access is provided at Montgomery Village Avenue/MD 124, commuter bus service operated by others could potentially use the recommended dedicated bus lanes to improve the community’s regional access.

Figure 5 - Great Seneca Connector and Montgomery Village Connector



-  Metro Station
-  MARC Station
-  New Proposed Dedicated Lanes Stop
-  Current Planned Bus Rapid Transit Network Stop
-  Metrorail Red Line
-  MARC Commuter Rail
-  New Proposed Dedicated Lanes
-  Current Planned Bus Rapid Transit Network

Note: The Colors Represent Transportation Policy Areas.  
 Alignment and stop locations subject to change based on ongoing and subsequent facility planning.



## THE REGIONAL BENEFITS OF PROPOSED CONNECTORS

The Germantown, Life Sciences, and Montgomery Village Connectors each offer utility for commuter bus service. Corridor Forward’s Managed Lanes Enhanced Commuter Bus option evaluation, as well as the Plan’s network evaluation, suggests that there is demand between Frederick and the Life Sciences Center and points spanning between Montgomery Village and Tysons.

The joint MTA and Virginia Department of Rail and Public Transportation’s 2021 *American Legion Bridge – Transit/TDM Study* illustrates various investment packages including commuter bus service. The report assumes highway access is available at Gude Drive, implying that the Life Sciences Connector would have a regional benefit. Additionally, the report shows access to Germantown Town Center via a portion of the Germantown Connector. Finally, the report shows a terminal alignment at the Lakeforest Mall, with an alignment that could be slightly re-envisioned to connect these communities with highway infrastructure via MD 124 rather than MD 355. Locations proposed for service in Gaithersburg could be served by the MTA/DRPT study’s proposed MD 355-Gude Drive service pattern. Regardless, the three connectors and their connecting service legs have regional value and may be stronger candidates for funding support as compared to the original CCT.

## ROADWAY AND TRANSITWAY RECOMMENDATIONS

Table 11 details the right-of-way needs for the Corridor Connectors.

Beyond the table, this Plan removes the “T” (transit) designation from all CCT roadways not explicitly included in Table 11. Subsequent county master plans will address the right-of-way widths for roadways previously master planned for CCT service. In locations where roadways planned for CCT service fall within municipalities, Gaithersburg and Rockville, as relevant, maintain the authority to consider and address transit and right-of-way widths at their discretion. These communities will be served by the proposed transit network, called the Corridor Connectors, as well as the Great Seneca Transit Network—a series of enhanced locally serving bus routes discussed in Chapter 6. As some of the proposed transit network’s widths fall within municipalities, this Plan recommends municipal consideration of the needs, as shown in Table 12.

Table 11 – Roadway and Transitway Recommendations

	Roadway	To	From	Designation	Minimum ROW <sup>1</sup>	Preferred Number of Dedicated Bus Lanes
<b>MD 355 BRT – Ultimate Segment 7</b>	Clarksburg Road	I-270	Clarksburg Premium Outlets Entry	Arterial, A-27	150'	2
	Stringtown Road (MD 121)	Snowden Farm Parkway	I-270	Arterial, A-260	120'-140'	2
	Snowden Farm Parkway	Ridge Road	Stringtown Road	Arterial, A-305	120'-140'	2

	Roadway	To	From	Designation	Minimum ROW <sup>1</sup>	Preferred Number of Dedicated Bus Lanes
	Ridge Road	Brink Road	Snowden Farm Parkway	Major Highway, M-27	150'	2
	Ridge Road	MD 355	Brink Road	Major Highway, M-27	150'	2
<b>Milestone/ COMSAT East Clarksburg Connector</b>	Observation Drive	Stringtown Road	Germantown Road (MD 118)	Arterial, A-19	150'	2
	Gateway Center Drive <sup>2</sup>	Stringtown Road	Shawnee Lane	Arterial, A-300	80'	2
	Gateway Center Drive Extended <sup>2</sup>	Shawnee Lane	West Baltimore Road	Arterial, A-300	100'	2
	Gateway Center Drive Extended <sup>2</sup>	West Baltimore Road	Current Observation Drive Terminus	Arterial, A-300	100'	2
<b>Manekin West Connector</b>	Century Boulevard	Crystal Rock Drive Northern Circle	Aircraft Drive	Business District Street, B-10	136'	2
	Century Boulevard	Aircraft Drive	Crystal Rock Drive	Business District Street, B-10	136'	2
	Crystal Rock Drive	Germantown Road (MD 118)	Century Boulevard	Business District Street, B-24	120'	2
	Aircraft Drive	Century Boulevard	Germantown Road (MD 118)	Business District Street, B-7	100'	2

	Roadway	To	From	Designation	Minimum ROW <sup>1</sup>	Preferred Number of Dedicated Bus Lanes
<b>Germantown Connector</b>	Germantown Road (MD 118)	Bowman Mill Drive (MARC access)	Frederick Road (MD 355)	Major Highway, M-61	150'	2
<b>Life Science Connector</b>	Blackwell Road	Great Seneca Highway	Shady Grove Road	Business District Street,	100'-115'	2
	Key West Avenue (MD 28) <sup>2</sup>	Gude Drive	Great Seneca Highway (MD 119)	Major Highway, M-13	150'	2
<b>Great Seneca Connector</b>	Great Seneca Highway (MD 119)	Sam Eig Highway	Key West Avenue (MD 28)	Controlled Major Highway CM-90	150'-200'	2
	Great Seneca Highway (MD 119)	Key West Avenue (MD 28)	Blackwell Road	Controlled Major Highway CM-90	150'	2
<b>Montgomery Village Connector</b>	Montgomery Village Avenue (MD 124)	Club House Road	Mid-County Highway	Arterial, A-295	115'	2
	Montgomery Village Avenue (MD 124)	Mid-County Highway	Gaithersburg City Limits (Lakeforest Entrance)	Major Highway, M-24	120'-140'	2

<sup>1</sup> Provision of transit lanes is required. Prioritize lower number of automobile lanes to allow transit, pedestrian, and bicycle capacity; ultimate number of lanes and right-of-way width to be determined by traffic study findings during facility planning and regulatory review.

<sup>2</sup> Alternate alignment option, to be considered during facility planning.



## Advisory Only – Municipal Roadways and Transitways

Table 12 – Advisory Only - Roadway and Transitway Recommendations within Municipal Bounds

	Roadway	From	To	Jurisdiction	Preferred Number of Dedicated Bus Lanes <sup>1</sup>
<b>Life Science Connector</b>	Blackwell Road <sup>2</sup>	Shady Grove Road	Fallsgrove Drive	City of Rockville	2 <sup>2</sup>
	Fallsgrove Drive <sup>2</sup>	Blackwell Road	Gude Drive	City of Rockville	2 <sup>2</sup>
	Gude Drive	Fallsgrove Drive	Frederick Road (MD 355)	City of Rockville	2
<b>Great Seneca Connector</b>	Montgomery Village Avenue/Quince Orchard Road (MD 124)	Frederick Road (MD 355)	West Diamond Avenue (MD 117)	City of Gaithersburg	2
	Quince Orchard Road (MD 124)	West Diamond Avenue (MD 117)	Twin Lakes Drive	City of Gaithersburg	2
	Quince Orchard Road (MD 124)	Twin Lakes Drive	Great Seneca Highway (MD 119)	City of Gaithersburg	2
	Great Seneca Highway (MD 119)	Quince Orchard Road	Sam Eig Highway	City of Gaithersburg	2
<b>Montgomery Village Connector</b>	Montgomery Village Avenue, MD 124	Gaithersburg City Limits (MD 355)	Gaithersburg City Limits (Lakeforest Entrance)	City of Gaithersburg	2

<sup>1</sup>Provision of transit lanes is strongly suggested for municipal consideration, including prioritization of dedicated bus lanes over automobile travel lanes pending the results of facility planning and/or engineering studies.

<sup>2</sup>While express or dedicated bus lanes are strongly preferred, section could allow off-peak parking or mixed-traffic transit operations, dependent on further facility planning studies.

### Roadway Design

While median-running transit offers the best opportunity to operate a bus without impact from traffic, in some locations curb-running transit may be preferable. Section needs vary significantly based on context, as utilities, mature trees, and adjacent connecting **active zone** facilities can impact the most desirable and/or practical design.

Engineered sections will be designed during the facility planning process or determined through the development review process for new development adjacent to the relevant roadway(s).

While Complete Streets classifications have not yet been officially applied to all county roadways by an amendment to the 2018 *Master Plan of Highways and Transitways*, illustrative sections are included in the Plan's Appendix that reference the county's Complete Streets Design Guide to inform development. Dedicated bus lanes are assumed to be 13 feet or 12 feet in constrained sections. Dedicated bus lane buffer widths may vary. Along wider roadways, buffers with six-foot wide medians are preferred to provide pedestrians ADA-compliant crossing refuges; however, in locations where it is preferable to maintain a tight cross-section to reduce crossing distances, two-foot wide buffers may be appropriate. In locations where left turn lanes are necessary, 16-18-foot wide center medians have the potential to support both turning needs and pedestrian refuges, while smaller 12-foot-wide medians do not support pedestrian safety. Consistent with the county's Vision Zero Policy and the intent of the Complete Streets Design Guide, prioritizing safety for a roadway's most vulnerable users is paramount. For this reason, ultimate section designs should account for adequate pedestrian refuges across wider roadway sections, as well as appropriate buffers from traffic that protect non-motorists, many of whom are walking, biking, or rolling to transit.

## PROPOSED TRANSIT NETWORK – AMBITIOUS LONG-TERM RECOMMENDATION

The proposed transit network includes an ambitious long-term recommendation to extend WMATA's Metrorail Red Line to Germantown Town Center, potentially including stops at Olde Towne Gaithersburg, MD 124/Fairgrounds, and Germantown Town Center (Figure 6). An extension of the Red Line to Germantown Town Center provides an opportunity to deliver the region's highest-quality transit service to areas of the county with significant, and growing, population densities. According to *Montgomery County Trends: A Look at People, Housing, and Jobs Since 1990*, the largest increases in population and population density over the last three decades have occurred in communities along the I-270 corridor, including the vicinities of Gaithersburg, Germantown and Clarksburg, consistent with the 1964 General Plan's vision for focused growth within corridor cities along I-270.

In addition to serving existing and growing population, an extension of the Red Line also performed the best among the studied options at increasing regional transit trips, decreasing vehicle miles traveled, connecting all populations, including *Equity Focus Areas*, to jobs, and, while slight, potentially influencing growth patterns.

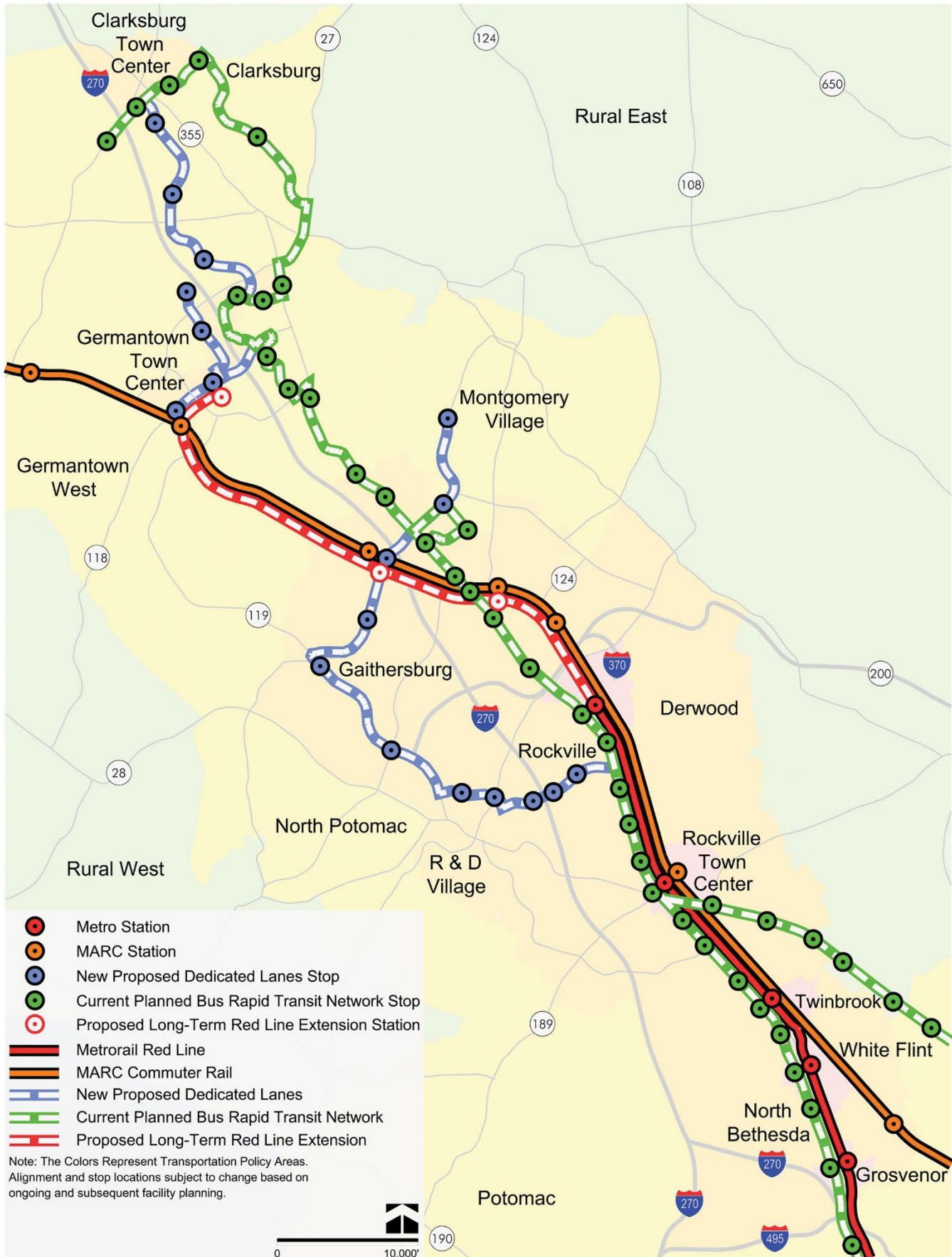
As discussed in Chapter 4, extending the Red Line is not an immediately realistic proposition for numerous reasons. WMATA has indicated that it will not support extensions until the safety and state of good repair needs of the Metrorail core are addressed. WMATA also has planning-level criteria that assess the viability of Metrorail extensions<sup>1</sup>, and today, the proposed extension does not satisfy these criteria. Improving walkability and densifying proposed station locations will help advance the cause to expand Metrorail at some future time. In support of these needs, this Plan recommends the county provide advanced support to its near- and long-term master planned stops and stations.

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<sup>1</sup> In 2015 WMATA developed low, medium, and high threshold targets for various services. For suburban Metrorail expansions, these include:

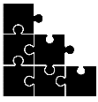

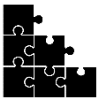



- Households per Acre: Low <12; Medium 12-18; High >18
- Employment per Acre: Low <19; Medium 19-26; High >26
- Ridership per Mile: Low <3,500; Medium 3,500-7,000; High >7,000
- WMATA Built Environment Walkshed Rating (similar to the Montgomery Planning's Pedestrian Level of Comfort Analysis): Low; 50% connected; Medium 50%-65% connected; High >65% connected

Figure 6 – Long-Term Vision



In addition, Corridor Forward supports intermodal connectivity. During the subsequent planning and design for the long-term vision of the Red Line’s extension, this Plan recommends the development of a multimodal station at MD 124/Fairgrounds that integrates MARC Rail, bus, and Metrorail modes. To better serve equity needs and promote pedestrian and bicycle access, the station should be sited in a manner that allows access from and through both sides of I-270.

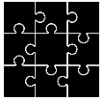

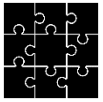

Table 13 – Recommendations to Support Transit Access and Connectivity

To Support the Recommended Transit Network, this Plan Recommends:	County Actions	Priority	Champion
<p>Ensure safe and efficient access to planned transit stops for pedestrians, bicyclists, and other micromobility modes.</p>	<ul style="list-style-type: none"> <li>A. As long-range planning and implementation planning (NEPA and facility planning) progress, explore opportunities to create new Bicycle and Pedestrian Priority Areas (BiPPAs) and red Metro Station Policy Areas (MSPAs) to support new premium services.</li> <li>B. Provide buffered sidewalks, protected crossings, bicycle facilities, and lighting to serve new master planned facilities’ stops and stations.</li> <li>C. Include bicycle and scooter parking facilities in the ultimate design of all new master planned stops and stations at the rate and size specified in the <i>Bicycle Master Plan</i> (Appendix G).</li> <li>D. Ensure access to all master planned transit stops is ADA accessible within a half-mile.</li> <li>E. Develop countywide pedestrian and bicycle delay standards to limit crossing delay for pedestrians, bicycles, and other micromobility users, to be applied within a half-mile of a master planned facility’s transit stop or station.</li> </ul>		
<p>Update relevant land use plans and guidelines to support master planned transit facilities.</p>	<ul style="list-style-type: none"> <li>A. Update master plans and sector plans, including but not limited to the Great Seneca Science Corridor Master Plan, the Germantown Sector Plan, and the MARC Rail Communities Plan, in support of incentivizing compact, transit-oriented development patterns.</li> <li>B. Identify and zone the locations of transit operations and maintenance facilities for the recommended transit network and integrate recommended locations for these needs into applicable plan’s land use vision.</li> <li>C. Create affordable housing and preserve small businesses in areas where new transit may increase rents. Increase affordable and diversity of housing types in areas already served by transit along the corridor.</li> <li>D. Update the Complete Streets Design Guide, adding a “transit” overlay or “transit street” typology addressing transit-specific design elements.</li> </ul>		
<p>Develop a new multimodal transit hub near the intersection of MD 124 and the CSX tracks.</p>	<ul style="list-style-type: none"> <li>A. Relocate the existing Metropolitan Grove MARC Rail Station, in coordination with MARC Rail and WMATA, for the purposes of integrating MARC service and Red Line service at the planned MD 124/Fairgrounds transit hub.</li> <li>B. Provide direct pedestrian, bicycle, and micromobility access to the new transit hub from both the east and west side of I-270 via a new above or below grade connection, potentially at Perry Parkway and an Extension of Bureau Drive.</li> </ul>		

# CHAPTER 6 – IMPLEMENTATION STRATEGIES



To support implementation of the recommended transit network, the Plan recommends a key shift in the approach to move projects forward. Segments of the transit network have independent utility and can support various service patterns and targeted local bus services. Rather than waiting to compete for large funding opportunities when they become available, segments of the ultimate network can and should be implemented incrementally as funds allow.



Table 14 – Recommendations for Efficient and Effective Implementation

To Support the Recommended Transit Network, this Plan Recommends:	County Actions	Priority	Champion
Where beneficial and/or necessary, support the incremental implementation of dedicated bus lanes.	<ul style="list-style-type: none"> <li>A. When and where necessary, break larger transit projects into more easily implemented components—when such components offer independent utility— in order to support the ultimate build-out of the proposed network.</li> <li>B. Embrace all funding opportunities—large and small—that support the ultimate build-out of the proposed network.</li> </ul>		
Maximize the travel potential of dedicated bus lanes.	<ul style="list-style-type: none"> <li>A. Develop policy guidelines on the use of dedicated bus lanes to allow local bus, shuttles, etc. in appropriate contexts and manners that do not degrade rapid services.</li> </ul>		

It may be challenging in some locations to acquire right-of-way for the county’s master planned dedicated bus lanes network due to the development potential of proximate land use. For example, it can be challenging to acquire new right-of-way in locations where existing townhouse communities or single-family homes are located. In some cases, it may be more feasible and cost-effective to reallocate right-of-way capacity to support the implementation of transit. Reallocating right-of-way often improves the competitiveness of transit, which can travel more rapidly and reliably when provided with its own infrastructure. As segments of the recommended network move into facility planning, traffic studies should be completed to determine the most appropriate roadway treatments based on context, prioritizing the need of transit riders.

Table 15 – Recommendations to Enhance Transit’s Competitiveness

To Support the Recommended Transit Network, this Plan Recommends:	County Actions	Priority	Champion
Following the review and outcomes of traffic studies, convert existing general-purpose travel lanes to dedicated transit lanes on targeted streets, including—but not limited to—the streets detailed in the right-of-way table (Table 11).	<ul style="list-style-type: none"> <li>A. Convert existing auto travel lanes to dedicated transit lanes to advance [the recommended transit network].</li> <li>B. Modify congestion standards to include a BRT station designation between that of Metrorail station areas (120 seconds) and local bus (80 seconds).</li> <li>C. Continue to explore and prioritize other locations in the corridor where local bus service can be enhanced through the provision of express bus lanes, queue-jumps, and other facilities.</li> </ul>		

To Support the Recommended Transit Network, this Plan Recommends:	County Actions	Priority	Champion
Limit the addition of non-transit travel lanes, as shown in the right-of-way table in Table 11. Use the remaining space in the master planned right-of-way for transit, walking, bicycling, and other micromobility modes.	<p>A. Within the corridor, eliminate capital improvement projects that support the addition of new travel lanes and turn lanes.</p> <p>B. Create a “Future I-270 Corridor Network” capital improvement project to absorb fee-in-lieu as alternate development mitigation when projects demonstrate impacts to the convenience of automobile travel relevant to the county’s most up-to-date Growth and Infrastructure Policy.</p>		

## PRIORITIZATION OF PROPOSED TRANSIT NETWORK – NEAR-TERM DEDICATED BUS LANES

The purpose of this Plan is to analyze the numerous corridor-serving transit options in the public sphere – including those that are master planned, studied by others, or frequently requested – and identify the options that warrant planning, design and implementation as funding opportunities become available. Through the iterative planning process described in the previous chapters, this Plan has inventoried and evaluated numerous transit options based on metrics which align with the Plan’s goal and developed a recommended transit network to improve strategic connections, economic health, community equity and environmental resilience along and within the corridor.

The Plan’s ultimate success is demonstrated through implementation of the recommended transit network. As the network requires incremental implementation, this Plan suggests priorities for the order of implementation, beginning with the implementation of the MD 355 and Veirs Mill Road BRT. The second, third and fourth priorities for implementation are necessary to serve existing employment and population centers, while the fifth and sixth priorities for implementation are necessary to support planned growth and development. This prioritization scheme is consistent with feedback received from the Plan’s *Transit Values Questionnaire*, where respondents substantially prioritized service for existing communities over stimulating growth. To advance the recommended transit network, this Plan recommends that the county pursue funding to advance facility planning, design, and construction in the prioritized order of implementation outlined below.

### Priority One – MD 355 and Veirs Mill Road BRT Networks

This Plan recommends the MD 355 and Veirs Mill Road BRT services as the most crucial first step in improving corridor accessibility. These two lines function as the county’s primary north-south rapid transit lines, offering connections to existing high-quality services like Metrorail and the MARC Rail Brunswick Line, as well as other planned BRT services. The dedicated bus lane components discussed below each connect to these services, creating a network with numerous **service pattern** opportunities. While current planning and design work for these two services does not envision bidirectional dedicated bus lanes on all planned segments, this Plan supports the implementation of interim conditions (peak hour dedicated bus lanes, queue jumps, some mixed-traffic segments, etc.) where necessary, but maintains and recommends ultimate visions for bidirectional dedicated bus lanes for these services as they become warranted.

### Priority Two – Germantown and Life Sciences Connectors

This Plan recommends the provision of the Germantown and Life Sciences Connectors as the Plan’s second highest near-term priorities. The Germantown Connector dedicated bus lanes connect points of demand east and west in Germantown into the MD 355 BRT line. Points of demand along the connector include the MARC Rail Station at Bowman Drive, Adventist Healthcare Hospital Germantown, Germantown Town Center, the Department of Energy,

and Montgomery College Germantown. Today, Ride On buses 61, 75, and 83 all use segments of MD 118 and could be supported by the dedicated lanes.

The Life Sciences Connector extends between MD 355 and the Life Sciences Center. Past Gude Drive, two potential alignments could be considered, which are discussed in more detail in Chapter 5. The MD 28 alignment provides access to large multifamily residential developments and older offices along the northern edge of the Life Sciences Center, and the Falls Grove Drive and Blackwell Road alignment serves the heart of the Life Sciences Center more directly. The Life Sciences Connector creates opportunities to program **service patterns** of the Veirs Mill Road BRT that directly connect the Life Sciences Center to Wheaton via Rockville Town Center, providing both eastern and western connections to the Red Line. Technical analysis demonstrates that a connection to the Life Sciences Center could add as many as 5,300 new daily riders to the Veirs Mill Road BRT, many of whom reside in **Equity Focus Areas** along Veirs Mill Road.

Both of the proposed connectors could be employed by MTA-run commuter bus service, which could use the dedicated bus lanes to quickly divert from the highway at MD 118 and Gude Drive, bringing commuter bus service to people rather than expecting people to travel to commuter bus service. While no Gude Drive interchange exists today, the state has proposed Gude Drive as a managed lanes access location.

### **Priority Three – Lakeforest and Montgomery Village Connector**

The Lakeforest and Montgomery Village Connector is the Plan’s third priority, with the Connector providing an important link to established communities and the Lakeforest Mall, a site in Gaithersburg with significant development potential. The Lakeforest and Montgomery Village Connector provides an opportunity to integrate Montgomery Village, an **Equity Focus Area**, into the MD 355 BRT network as well as to existing and planned centers of activity in the Kentlands and Life Sciences Center. As I-270 highway access is provided at Montgomery Village Avenue/MD 124, commuter bus service operated by others could potentially use the recommended dedicated bus lanes to improve the community’s regional access.

### **Priority Four – Great Seneca Connector**

The fourth priority, the Great Seneca Connector, provides a connection between the Life Sciences Center and the MD 124 Park and Ride, serving employment centers and communities within both the county and the City of Gaithersburg. This component of dedicated bus lanes connects communities and employment centers such as the National Institute of Standards and Technology (NIST) and the Kentlands into the county’s larger BRT network. When joined with the Life Sciences Connector, these communities receive direct access to the Life Sciences Center employment hub, as well as the Red Line in Rockville. Depending on the ultimate service patterns programmed by operational partners, completing the Link offers the potential to provide one-seat rides between Wheaton and NIST or Montgomery Village and the Life Sciences Center.

### **Priority Five – Manekin West Connector**

The Plan’s fifth priority, the Manekin West Connector, includes dedicated bus lanes on Aircraft Drive and Century Boulevard, and connects communities originally envisioned for CCT service to the MD 355 BRT, further maximizing the value of MD 355 infrastructure. This branch serves the developing Black Hill communities, as well as apartment complexes and office parks in the Cloverleaf vicinity.

### **Priority Six – Milestone/COMSAT East Clarksburg Connector**

The Plan’s sixth priority is the Milestone/COMSAT East Clarksburg Connector—which connects the MD 355 BRT to other master planned CCT communities and employment centers, including stops at Dorsey Mill, COMSAT, and Gateway Center via Observation Drive—or alternatively, Gateway Center Drive—before traveling to the Clarksburg Outlet terminus. Today, an extension of Observation Drive (or alternatively Gateway Center Drive) remains yet to be constructed between its existing termini. Montgomery Planning anticipates initiating master planning work for the

existing unoccupied COMSAT site, where a roadway connection is planned. Serving adjacent yet to-be-realized communities was a component of the original CCT; however, because 1) the middle segments of Observation Drive do not exist today; 2) the land use vision requires updating, and; 3) the eastern side of I-270 is served by the Snowden Farm Parkway alignment of the MD 355 BRT, the Milestone/COMSAT East Clarksburg Connector is the lowest priority segment of the proposed near-term network.

## **Additional Operational and Tactical Priorities – The Great Seneca Transit Network and Enhanced Commuter Bus Service**

MCDOT has proposed a network of targeted bus infrastructure within the vicinity of the Life Sciences Center, including new constructed dedicated lanes, painted express bus-only lanes, queue jumps, and transit signal priority. The network includes five lines connecting various points of demand in the Great Seneca and Gaithersburg vicinities with the Universities at Shady Grove. While Montgomery Planning does not master plan operational improvements and was not involved in the network’s technical analysis, this Plan supports the implementation of the proposed network, including repurposing travel lanes following technical review in facility planning, as consistent with this Plan’s recommendations.

At the time of this writing, MCDOT’s supporting material for the Great Seneca Transit Network suggests that the CCT’s status is “unknown,” but that it remains the “long-term vision.” This Plan proposes a near-term network that, when complemented by MCDOT’s Great Seneca Transit Network, serves most of the communities originally envisioned for CCT service, as well as additional communities. By itself, the Great Seneca Transit Network does not serve the entire geographic span of the CCT; however, the near-term dedicated bus lanes (the Corridor Connectors) and the Great Seneca Transit Network together support the original vision of the CCT. The dedicated lanes proposed in the near-term network could also potentially support the Great Seneca Transit Network’s cobalt line, which runs on Gude Drive and Fallsgrove Drive. This Plan’s proposed transit network, in combination with MCDOT’s Great Seneca Transit Network, fulfills the needs of the master planned CCT (detailed in Chapter 5). For this reason, this Plan re-envision the master planned CCT as a network of dedicated bus lanes, which connect I-270 corridor communities to the county’s existing and planning rapid transit network and supports MCDOT’s Great Seneca Transit Network.

Montgomery Planning’s functional plans typically do not address formal recommendations for service operations. Commuter bus service, either running in managed lanes or in mixed traffic, falls beyond the scope of Plan recommendations. However, this Plan’s technical analysis studied the potential of enhanced commuter bus service and recognizes that commuter bus service plays a large role in regional connectivity. This Plan’s dedicated bus lanes network supports others’ potential commuter bus services by providing dedicated bus lanes between the highway and key points of demand in the corridor.

## **ADVANCING THE NEAR-TERM DEDICATED BUS LANES**

The following steps must be taken in order to implement the proposed near-term network:

- A. Create a new capital project for Corridor Forward’s near-term dedicated bus lanes network so components of the project may be ranked in future priority letters and funds may be allocated. Secure financial support for the Veirs Mill Road BRT and northern portion of the MD 355 BRT; advance and construct these two key services.
- B. If the state advances the managed lanes project north of I-370, advocate for access points at Gude Drive, MD 124, and MD 118, or alternate locations that support access to the Life Sciences Center, Montgomery Village/Lakeforest, and Germantown Town Center.
- C. Study and demonstrate the regional value of the Life Sciences Connector and Germantown Connector to improve the viability of state financial support for these key dedicated bus lane components, which support both local rapid transit service and regional commuter bus service.



- D. Study and demonstrate the value of the Lakeforest and Montgomery Village Connector to improve viability of state financial support for this key dedicated bus lane component, which supports both local rapid transit service and regional commuter bus service.
- E. Initiate facility planning and design for the three connectors. Advance the three connectors into construction, prioritizing the Life Sciences and Germantown Connectors.
- F. Using portions of previous design work for the CCT, advance further design work for the Great Seneca Connector to bridge the gap between the Life Sciences and Lakeforest and Montgomery Village Connectors.
- G. Study the demand for the Manekin West and Milestone/COMSAT East Clarksburg Connectors. When warranted, advance facility planning for these two MD 355 BRT Connectors.

## **ADVANCING THE AMBITIOUS LONG-TERM VISION OF THE RECOMMENDED NETWORK**

The transit network includes an ambitious vision to explore an extension of the Washington Metropolitan Area Transit Authority’s (WMATA) Metrorail Red Line to Germantown Town Center. This Plan acknowledges the magnitude of coordination, stakeholder buy-in, and resources that will be necessary to advance this long-term vision. To advance this ambitious vision, this Plan recommends pursuing the following actions:

- A. In consultation with agency partners, evaluate the steps necessary to address capacity issues within the Metrorail system’s core and coordinate with WMATA to determine what regional resource commitments would need to be made to advance the recommendation.
- B. Determine what land use density and ridership targets would need to be met for WMATA to consider heavy rail service extensions to Germantown, factoring in regional draw for locations beyond the immediate vicinity of the station, including points in other jurisdictions. Update county master plans as warranted to support these targets.
- C. Coordinate with CSX to confirm right-of-way needs, understand the magnitude of costs for anticipated rail operation and property impacts, and determine any operational agreements that would need to be made or adjusted to support the parallel-running service.
- D. Conduct a detailed analysis of operational and maintenance facility needs and potential facility locations, to include parking needs as warranted. Coordinate with the Federal Government regarding the future of the Department of Energy site, which may be a viable location for combined government offices and operation and maintenance facilities.
- E. Determine a refined estimate of total project costs, operating expenses, and projected benefits.
- F. Based on the findings of A-E, initiate a widespread coordination process to generate buy-in and identify champions to help move any warranted recommendation forward.
- G. Dependent on the results of coordination, pursue inclusion of an extension in the region’s Constrained Long-Range Transportation Plan and initiate preliminary analysis for compliance with the National Environmental Policy Act and the National Historic Preservation Act.

An extension of the Red Line has been studied, generally in a cursory fashion, in various planning and NEPA efforts dating back to the 1970s. The rationale for not pursuing the option has varied across stakeholder groups and periods of study. Today, skeptics point to the magnitude of up-front capital costs, coordination with CSX, right-of-way impacts, and the core service resource hurdles that WMATA must address as significant constraints. This Plan agrees that these are real constraints. It acknowledges that the county should not turn a blind eye to costs, but it should also not turn a blind eye to opportunity costs. The Plan’s technical evaluation demonstrated the equity benefits, job access benefits, and climate benefits associated with an extension justify more serious consideration. Furthermore, the historical performance of land around WMATA’s heavy rail stations suggests that rail offers a highly reliable means of stimulating compact mixed-use growth.

The county has successfully worked with regional stakeholders to advance important transit facilities, like the existing Red Line and advancing Purple Line. While realizing these facilities was no simple task and took decades, the county is more livable today because of the work of previous regional transit champions. This Plan lays the groundwork for new champions to emerge.

# CHAPTER 7 – CONCLUSION

Corridor Forward offers answers to three questions:

1. From the perspective of the county, which transit options in the public sphere offer advantageous benefits and should be prioritized?
2. Which transit options complement each other, supporting both local and regional transit access?
3. What would need to be true for a transit-oriented vision to advance?

This Plan maintains and recommits to an ambitious vision for rapid transit in midcounty and upcounty. The Plan supports regional connectivity—particularly by demonstrating the regional benefit of an ambitious Red Line Extension—but also acknowledges the importance of a near-term locally-oriented network of dedicated bus lanes. Once implemented, the recommended transit network will serve existing corridor communities and connect them with areas planned for compact growth and further the goals set by *Thrive Montgomery 2050*.

Corridor Forward updates the corridor’s near-term transit vision by shifting the focus from single branded services, like the CCT, to a flexible network of dedicated bus lanes that can support multiple routing patterns. Dedicated bus lanes do not need to be restricted to a single purpose, and the county can incrementally advance components of the transit network. After the completion of the MD 355 and Veirs Mill Road BRT systems, the county can and should advance a few dedicated bus lane segments at a time to in order to achieve the Plan’s vision.

An extension of WMATA’s Metrorail Red Line to Germantown Town Center may take time to be realized as the county will need to lift its vision past several hurdles (as detailed in Chapter 6), but the ultimate benefits should encourage the county to face these challenges and further advance its transit commitment. Both near and long-term elements of Corridor Forward can be achieved with support, advocacy, commitment, and focus.