








**Corridor Forward: The I-270 Transit Plan – Planning Board Briefing**

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**SUMMARY**

Work on Corridor Forward: The I-270 Transit Plan (Corridor Forward) has progressed since the February 2021 briefing in which staff summarized conceptual transit options, presented an overview of the Plan’s pre-screening process, and recommended six transit options to advance for detailed study. Over the last several months, staff has refined the six transit options and completed preliminary analysis of those options, including an evaluation of their strategic merits, an initial assessment of their economic and financial outlook, and a review of each option’s potential implementation challenges and risks.

**CONTENTS**

Summary .....	1
Purpose of the Briefing .....	2
Plan Schedule .....	2
Corridor Forward – Purpose .....	2
Six Transit Options Advanced for Detailed Evaluation .....	2
Option A: Enhanced MARC Rail .....	4
Option B: Red Line Extension .....	4
Option C: Corridor Cities Transitway .....	4
Option D: Purple Line Extension.....	4
Option E: New Rail Connection to Frederick .....	4
Option F: I-270 Corridor Bus Rapid Transit.....	5
Evaluation Metrics and Considerations .....	5
Strategic Dimension .....	5
New Daily Transit Trips .....	5
VMT Reduction .....	6
Role of Land Use .....	6
Access to Jobs .....	7
Financial & Economic Dimensions.....	8
Implementation Dimension.....	9
Project Outreach .....	11
“Share your Transit Story” Campaign.....	11
Next Steps – Refined and Packaged Options .....	12
Conclusion.....	12

## **PURPOSE OF THE BRIEFING**

The purpose of the July 29 briefing is to:

1. Receive a detailed overview of the six options advanced for detailed study;
2. Confirm removal of the Purple Line Extension from the prioritization process;
3. Receive a detailed overview of the Plan's metrics;
4. Review and provide feedback and questions on the evaluation's preliminary findings; and
5. Initiate discussions on potential combinations of the six transit options for additional evaluation.

## **PLAN SCHEDULE**

The Plan continues to advance in relative alignment with the schedule detailed in the [April 30, 2020 scope of work](#). Upcoming milestones and their anticipated timeframe follow below:

- Fall: Preliminary Recommendations and Working Draft
- Winter: Planning Board Public Hearing and Planning Board Work Sessions

As a next step, staff will complete additional analysis to refine, optimize, and combine options to demonstrate how an expanded network can be formed to address both local and regional connections. This analysis will inform the preliminary recommendations, which include a list of prioritized transit projects. The preliminary recommendations will not include the Plan's implementation plan. Staff will include this element of the Plan in the Working Draft after direction from the Planning Board is received on the most desirable package(s) of transit options.

## **CORRIDOR FORWARD – PURPOSE**

Corridor Forward acknowledges that there are many master-planned and speculative transit options that could improve accessibility along the I-270 corridor, but also acknowledges that it is not realistic to advance each option within the typical lifespan of a functional master plan (approximately 25 years). The purpose of Corridor Forward is to determine which transit options are the most advantageous. This will allow resources to be directed efficiently when funding opportunities for corridor-serving transit become available.

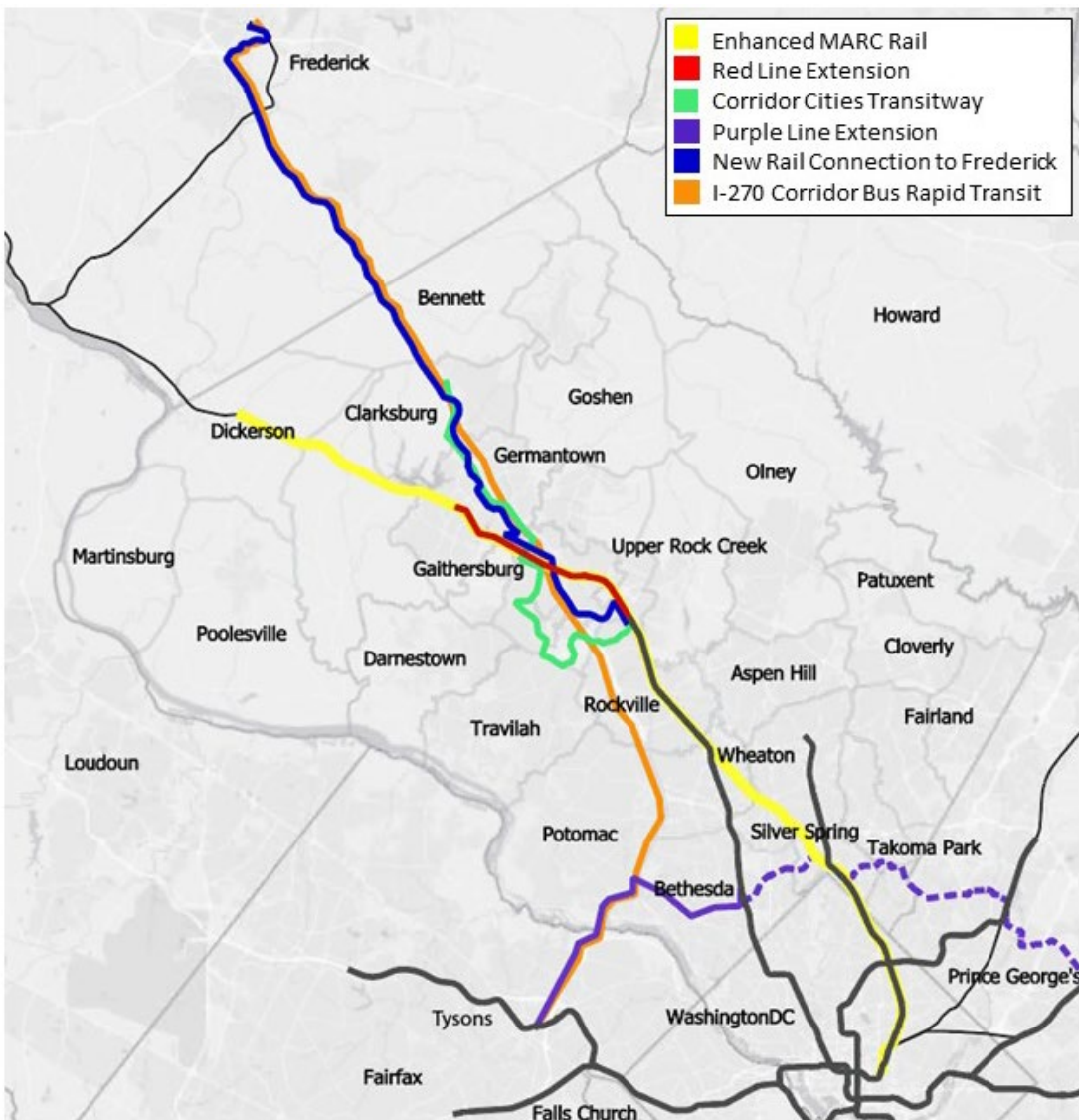
## **SIX TRANSIT OPTIONS ADVANCED FOR DETAILED EVALUATION**

After analyzing the 13 conceptual transit options in earlier phases of the planning process, six options were retained for detailed analysis based on their mobility, economic, environmental, and equity benefits. These six options are summarized in Table 1, shown in Figure 1, and discussed in greater detail below. Each option assumes that the MD 355 Bus Rapid Transit (BRT) will be constructed and operational prior to implementation of the transit options prioritized through Corridor Forward.

Consistent with the county's other functional plans that recommend transit, detailed facility planning and design, including the exact alignments, station locations, and service patterns would occur in subsequent capital planning efforts or National Environmental Policy Act (NEPA) alternatives analyses. These processes would be undertaken by a project's implementing agency, such as the Maryland Transit Administration or the Montgomery County Department of Transportation.

**Table 1 –Options Retained for Detailed Analysis**

Option	Option Name	Mode	General Corridor Alignment	To	From
A	Enhanced MARC Rail	Commuter Rail	CSX Rail Corridor	Frederick	Union Station
B	Red Line Extension	Metrorail	CSX Rail Corridor	Shady Grove	Germantown
C	Corridor Cities Transitway	Bus Rapid Transit	Great Seneca Science Corridor	Shady Grove	Clarksburg
D	Purple Line Extension	Light Rail Transit	I-495	Bethesda Station	Tysons Corner (VA)
E	New Rail Connection to Frederick	Monorail or Light Rail Transit	I-270	Downtown Frederick	Shady Grove
F	I-270 Corridor Bus Rapid Transit	Bus Rapid Transit	I-270 & I-495	Downtown Frederick	Tysons Corner (VA)



**Figure 1. Options Retained for Detailed Study**

### **Option A: Enhanced MARC Rail**

This option would expand existing MARC rail service on the Brunswick Line, adding two new stations at the Shady Grove and White Flint Metrorail stations and increasing peak period and midday service through additional track. The proposed MARC infrastructure enhancements are based on the Maryland Transit Administration's *MARC Cornerstone Plan*, which would open the potential for additional and more frequent service. The recommendations for additional stations are included in the 2021 *Shady Grove Sector Plan Minor Master Plan Amendment* and 2010 *White Flint Sector Plan*.

### **Option B: Red Line Extension**

This concept extends the Washington Metropolitan Area Transit Authority's (WMATA's) Metrorail Red Line from the Shady Grove Metrorail Station to Germantown Town Center along the existing rail corridor used by MARC trains. In Germantown, the Red Line extension would divert from the existing rail corridor to serve Germantown Town Center. New stations studied include Old Town Gaithersburg, MD 124 / Montgomery County Fairgrounds and Germantown Town Center. Service frequencies are assumed to reflect existing conditions.

### **Option C: Corridor Cities Transitway**

The master-planned Corridor Cities Transitway is a BRT route connecting the Shady Grove Metrorail Station to Clarksburg via the Life Sciences Center, with 17 planned stations that provide connections to the Metrorail Red Line, MARC Brunswick Line, and planned MD 355 BRT. This option, which would run in dedicated transit lanes, is a central element of the 2010 *Great Seneca Science Corridor Master Plan* and the 2013 *Countywide Transit Corridors Functional Master Plan*. The alignment and service frequencies for this option match the service studied by the Maryland Transit Administration's 2017 *Environmental Assessment for the Corridor Cities Transitway*.

### **Option D: Purple Line Extension**

This option would extend the Purple Line light rail line, currently under construction between New Carrollton and Bethesda to Northern Virginia, terminating in the Tysons area of Fairfax County. Initial evaluation of potential Purple Line alignments reveals that additional study – beyond the scope of Corridor Forward – is required to determine the appropriate alignment.

As a result, staff recommends the following steps:

1. Removing the Purple Line extension (Option D) from the prioritization process and providing any preliminary analysis for informational purposes only.
2. Including a recommendation in the Corridor Forward Plan to pursue a future study for a potential Purple Line extension west of Bethesda.

### **Option E: New Rail Connection to Frederick**

This concept includes a rail connection – either light rail or monorail – between the Shady Grove Metrorail Station and Downtown Frederick, with stations at the Shady Grove Metrorail Station, Metropolitan Grove MARC Rail station, Germantown Town Center, COMSAT, Urbana Park & Ride, and Downtown Frederick. The alignment and service assumptions are based on the Maryland Department of Transportation's *I-270 Monorail Feasibility Study*, which assessed the feasibility of a monorail line proposed by the non-profit High Road Foundation.

### **Option F: I-270 Corridor Bus Rapid Transit**

This alternative would provide BRT service along I-270 from Frederick County, Maryland to Fairfax County, Virginia. The buses would primarily travel along I-270, though the option would divert into neighboring communities, such as Montgomery Village and Germantown, primarily via dedicated bus lanes. The option includes four service patterns, which include a mixture of local and express routes to balance access and speed, as well as high-frequency stations at the Metropolitan Grove MARC Rail Station, the Shady Grove Metrorail Station, the Montgomery Mall Transit Center (Westfield Montgomery), a MD 190 / River Road Park & Ride, and the Tysons Metrorail Station. The option also includes dedicated bus lanes on MD 118 / Germantown Road, MD 124, and Gude Drive for use by both the BRT and local bus routes.

### **EVALUATION METRICS AND CONSIDERATIONS**

Staff is evaluating the six transit options with a consistent set of metrics such as change in transit ridership, travel time, vehicle miles traveled, and jobs accessible within a 45-minute transit ride. These metrics are being considered across four dimensions of performance including:

- **Strategic Dimension:** Fulfillment of Plan and broader public policy goals.
- **Economic Dimension:** Monetized value of the benefits of each option.
- **Financial Dimension:** Capital and operating costs of each option.
- **Implementation Dimension:** Regulatory and technical requirements to deliver the option and potential risks requiring mitigation.

#### **Strategic Dimension**

The strategic dimension of the plan reviews the transit options through the lens of values put forth in the Planning Board Draft of *Thrive Montgomery 2050*:

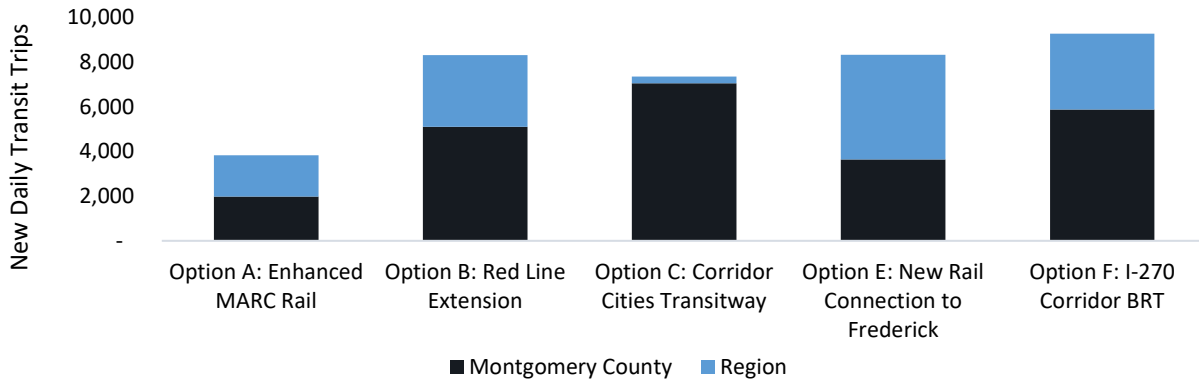
- **Strategic Connections:** Serve high-demand origin and destination pairs, balancing costs of implementation with projected benefits.
- **Economic Health:** Enable existing development and master-planned communities to realize their potential as livable and economically vibrant places.
- **Community Equity:** Align with the county's social equity goals and principles.
- **Environmental Resilience:** Operate sustainably and reduce negative environmental impacts.

The following section summarizes the preliminary results for the strategic dimension. Results for additional metrics within the strategic dimension are anticipated to be available with the Plan's preliminary recommendations.

#### *New Daily Transit Trips*

Each option is anticipated to increase transit trips regionwide, as depicted in Figure 2. The Red Line extension (Option B), new rail connection to Frederick (Option E), and the I-270 corridor BRT (Option F) result in the highest increase in transit trips, each with over 8,000 new daily trips in 2045 relative to the 2045 baseline. Enhanced MARC rail (Option A) results in the lowest new daily transit trips.

For most options, most trips would start and end in Montgomery County. This is most pronounced for the Corridor Cities Transitway (Option C). In contrast, the new rail connection to Frederick (Option E) would result in more intercounty trips between Frederick and Montgomery County than intra-county trips.

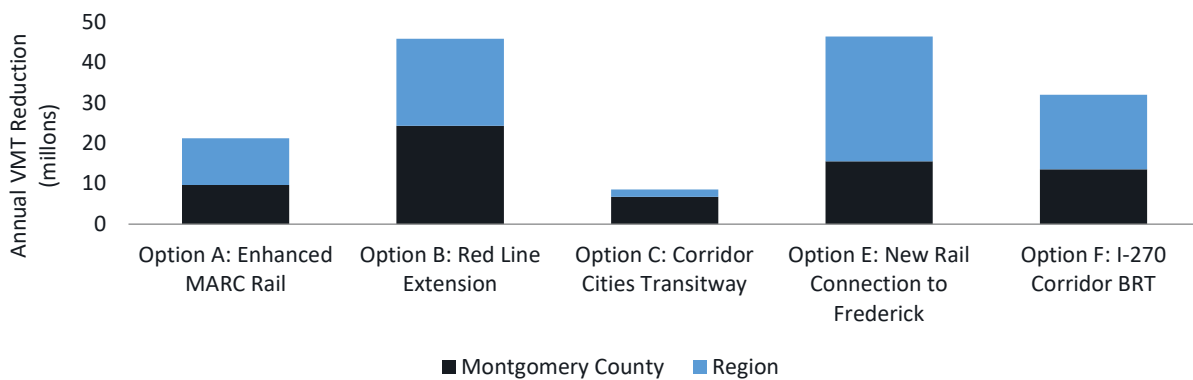


**Figure 2. Daily New Transit Trips (2045)**

*VMT Reduction*

It is important to review the change in daily transit trips in relationship to the change in vehicle miles traveled (VMT). The VMT reductions vary across the options, with the lowest VMT reductions for the enhanced MARC rail (Option A) and the Corridor Cities Transitway (Option C). Given that the Corridor Cities Transitway had relatively high ridership, the low VMT reduction suggests that this option would replace shorter vehicle trips than other options.

The analysis reveals the greatest potential for VMT reduction among the Red Line extension (Option B) and the new rail connection to Frederick (Option E). Figure 3 similarly provides a comparison between the regional and county impacts; while the Red Line extension (Option B) would split the VMT reduction between the county and region, the new rail connection to Frederick (Option E) would primarily reduce VMT outside of the county (presumably in Frederick County).

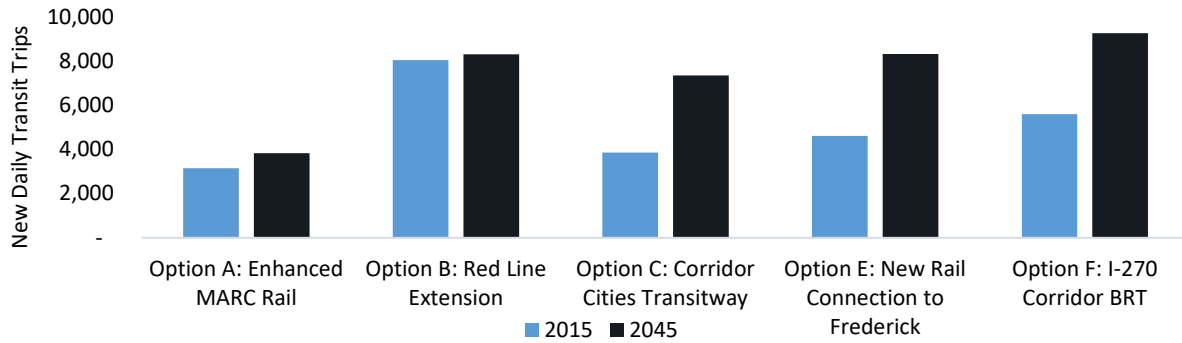


**Figure 3. Annual VMT Reduction (2045)**

*Role of Land Use*

Figure 2 depicted the change in new daily transit trips for 2045, accounting for the anticipated changes to the region’s land use and transportation network. To better understand how dependent this change in transit ridership is on changes in land use, or household and employment growth, the 2045 transit trips are compared to 2015 in Figure 4. This chart indicates that the enhanced MARC rail (Option A) and

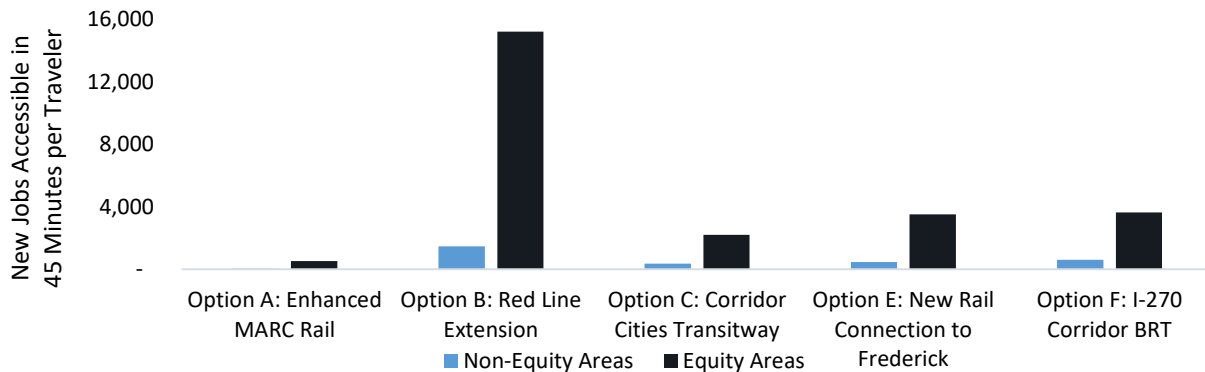
Red Line extension (Option B) are not dependent on additional growth in the county, while the other options would be significantly less impactful if the model’s land use assumptions (built on master planned land use assumptions) do not come to fruition.



**Figure 4. Daily New Transit Trips in 2015 and 2045**

*Access to Jobs*

The analysis simulates how many new trips could be generated with the implementation of the options, but it is also useful to understand trip accessibility – the potential for trips to occur, even if they are not ultimately modeled as occurring. Figure 5 shows how many more jobs would be accessible within a reasonable commute distance (45 minutes) with implementation of each option. This measure captures the average increase in job access for any household in an equity area vs. any household in a non-equity area. The marginal benefit of these options is greater for residents in Equity Focus Areas, as the transit options better serve many of the county’s Equity Focus Areas. The greatest job accessibility benefit is for the Red Line extension (Option B), as the dense job centers within Washington, DC would now be accessible within a 45-minute transit commute.



**Figure 5. Average Additional Jobs Accessible within 45 Minutes (2045)**

### Financial & Economic Dimensions

The financial dimension captures, at a planning-level, the costs associated with each option on both the operating and capital sides. Sources of information for operating costs include the National Transit Database, maintained by the Federal Transit Administration (FTA), as well as local sources. On the capital side, costs are sourced using the ENO Center for Transportation’s new Capital Construction Database, which includes costs for various types of transit investment. The economic dimension monetizes the social benefits of each option, allowing for the calculation of benefit to cost ratios.

At the time of this writing, review of costing assumptions and outputs is ongoing; however, initial performance of each option is shown in Figures 6 and 7, which depict the emerging (but not final) assessment of how options perform relative to one another. Final assumptions and values will be provided in the Plan’s transportation appendix.

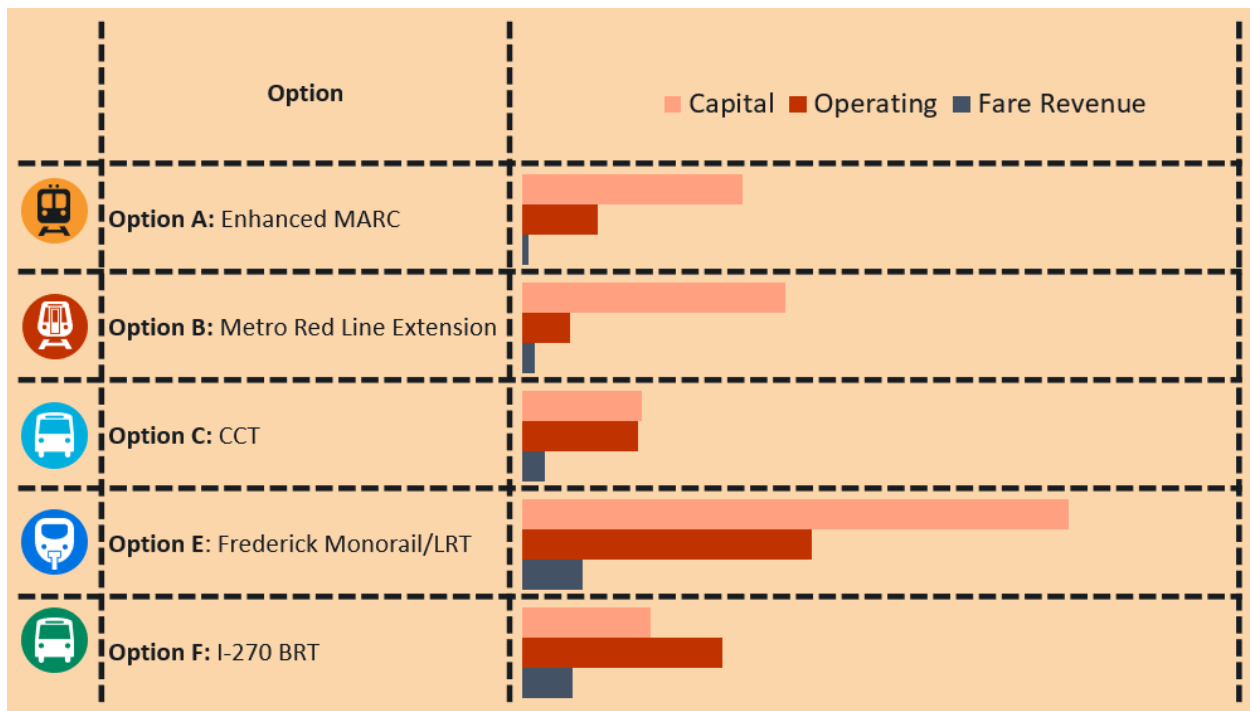
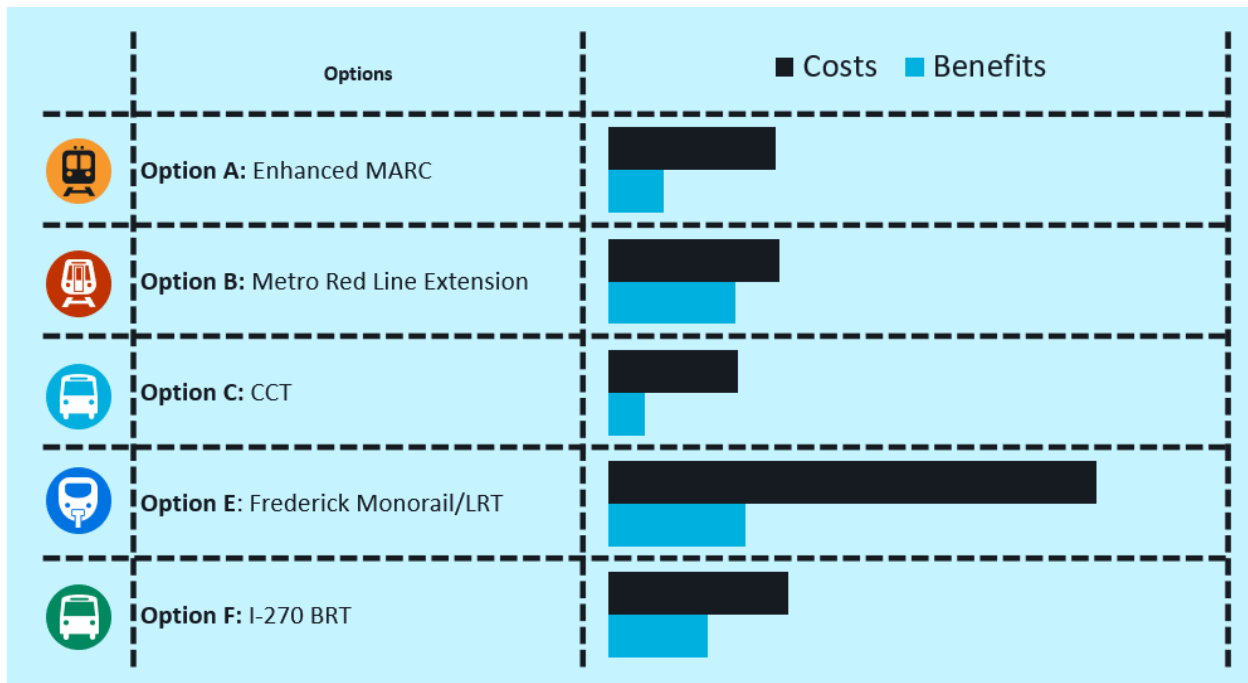


Figure 6. Initial Relative Performance in Cost Dimension





**Figure 7. Initial Relative Performance in Economic Dimension**

Taken together, the capital costs vary by mode and geographic span. On the operations side, the fixed rail options tend to prove less costly over time as compared to bus counterparts. Emerging results from the economic dimension suggest that initial Benefit-Cost Ratios (BCRs) are below 1; however, options can be optimized to improve their BCRs.

### Implementation Dimension






The implementation dimension provides a qualitative assessment of the project’s overall risk. A risk profile was prepared for each transit option factoring in several domains:

- Roles and Responsibilities:** This domain accounts for how many stakeholders would be involved in advancing the transit option, their roles, and their necessary actions. Options that included a greater number of stakeholders were generally more complex and rated as higher risk. Options that included non-public stakeholders, such as CSX Transportation, were also rated as higher risk.
- Decision-Making:** This domain assesses who would be involved in the approval and funding processes for each option, as well as the ease of the path for funding and approval. Options that require coordination with other jurisdictions across state lines or required multiple levels of political approval were rated as higher risk.
- Feasibility Assessment:** This domain evaluates the infrastructure necessary to achieve the option for the purposes of assessing constructability. Right-of-way needs, bridges, and grade crossings (either above or below), and operation and maintenance yard needs are included. Options with a large footprint, a significant number of grade crossings, and elevated or below-grade alignments were rated as higher risk. Because buses allow for more flexibility in locating

operations and maintenance facilities and run at grade, these options tended to be rated lower risk.

- **Operating Model:** This domain accounts for how an option could potentially be operated, and who would be the primary party responsible for operation. Projects that are assumed to have more complex operating models involving private parties tended to score as higher risk than options where more standard contracting or public operation would occur.
- **Historic and Environmental Impacts:** This option accounts for, at a high-level, the number of potential impacts within a 250-foot geography of an option, including burial sites, historic districts and sites, historic Black sites (including cemeteries, churches, schools, and benevolent societies), large water utilities infrastructure, and environmental resources like wetlands, threatened or endangered species, champion trees, special protection areas, etc. Options with a greater number of impacts tended to be rated higher risk.

The implementation dimension evaluation was not “normalized” by geographic span. In other words, the analysis does not account for the fact that the level of risk associated with longer options that have a greater geographic span will naturally have a higher degree of impact and construction issues. The results of the analysis are depicted in Figure 8 below.

Option Delivery Risks	Overall Assessment	Roles & Resp.	Decision-Making	Feasibility Assessment	Operating Model	Historic & Environmental Impacts
 Enhanced MARC Rail	MODERATE-HIGH RISK	HIGH RISK	HIGH RISK	MODERATE RISK	LOW RISK	HIGH RISK
 Red Line Extension	MODERATE-HIGH RISK	HIGH RISK	HIGH RISK	HIGH RISK	LOW RISK	LOW-MODERATE RISK
 Corridor Cities Transitway	LOW-MODERATE RISK	LOW-MODERATE RISK	MODERATE RISK	MODERATE RISK	LOW RISK	LOW-MODERATE RISK
 New Rail Connection to Frederick	MODERATE RISK	MODERATE RISK	MODERATE RISK	MODERATE-HIGH RISK	MODERATE RISK	LOW-MODERATE RISK
 I-270 Corridor Bus Rapid Transit	LOW-MODERATE RISK	MODERATE RISK	LOW-MODERATE RISK	MODERATE RISK	LOW RISK	LOW RISK

**Figure 8. Implementation Evaluation**

MARC Rail Enhancements and the Red Line Extension were rated as the highest risk projects. Both of these options follow the CSX right-of-way, introducing complexity into the implementation picture. The MARC Rail footprint is smaller than that of the Red Line and would require slightly less ROW; however, the extent of the expansion would be for a much greater span.

The two bus projects, the Corridor Cities Transitway and I-270 Corridor BRT, were assessed as being lower-risk projects primarily due to less extensive infrastructure needs. The decision-making process for the I-270 Corridor BRT would be more complex as it would involve identifying opportunities to maintain free-flow speeds – either by managed or dedicated lanes - as well as coordination with multiple

jurisdictions; however, the project was assumed to be easier to advance than the Corridor Cities Transitway based on its regional appeal, which positions it better as a candidate for public funding.

## **PROJECT OUTREACH**

In earlier phases of the Plan, staff published an online *Transit Values Questionnaire*, to understand travelers' values and priorities for transit along the I-270 corridor. The questionnaire was promoted on social media, through the Plan's e-newsletter, on Ride On buses serving the I-270 corridor and through postcard mailers to 4,000 addresses within Equity Focus Areas along the corridor. In addition, staff met with key stakeholders—such as the county's Transportation Management District (TMD) Committees, the Gaithersburg-Germantown Chamber of Commerce, and the municipal planning groups—in order to encourage attendees to share the questionnaire with their networks.

As of July 19, 2021, the questionnaire received 285 unique responses from respondents throughout the county and region. The questionnaire is intended to inform consideration of the transit options and their respective performance. Results from the overall sample pool suggest that realizing some benefit for transit in the near term, serving existing centers, and serving existing equity needs are of the utmost importance. Respondents were less inclined to favor serving areas slated for growth. There was an overall desire to support options that advance a balance of environmental, economic, and equity benefits.

On the transit-planning side, respondents indicated that the main reasons they choose not to take transit today are because other options are more time-competitive and because stops are not convenient. Although improving transit travel time and reducing congestion are not mutually exclusive concepts, respondents cared more about making transit travel time competitive with automobile travel time than reducing congestion. This suggests that the ultimate package of options should prioritize transit that best serves transit riders rather than transit that serves automobile users.

The questionnaire results suggest that no single option can satisfy all preferences, and as such, staff proposes a package of options to serve the corridor. This package would:

- Advance high performing option(s) despite implementation challenges and acknowledge a long-term horizon;
- Prioritize service for existing centers of demand and marginalized communities and focus less on areas slated for growth;
- Balance local access with efficient travel; and,
- Focus more on improving transit travel times and less on reducing congestion.

Staff facilitated a community meeting on July 20, 2021 to review the questionnaire feedback, retained transit options, metrics, and initial performance and will provide the Planning Board with insight from this meeting during the briefing on July 29.

### **“Share your Transit Story” Campaign**

In addition to the questionnaire, staff is launching an engagement campaign to gain qualitative feedback and individual narratives about the role, benefits, and challenges of transit serving the I-270 corridor. Montgomery Planning will post a series of tweets to prompt responses about individuals' “transit

stories,” such as where and why they take transit and the challenges of the existing system. People who do not use social media may participate through a webpage on the Plan website.

In addition to the social media effort, staff has engaged several nonprofit and community organizations to identify members of the public to interview about how and why they use transit. Staff members also rode the Route 101 bus during the morning commute to speak directly with transit riders about their travel choices.

#### **NEXT STEPS – REFINED AND PACKAGED OPTIONS**

Staff proposes to complete additional analysis, through “packaged runs,” which will refine, optimize and combine the options to demonstrate how an expanded transit network can be formed to address both local and regional connections. Staff welcomes feedback from the Planning Board on refinements to and combinations of options to inform the forthcoming analysis, which will inform the prioritization process for preliminary recommendations.

#### **CONCLUSION**

Following Planning Board input on July 29, staff will undertake the following actions to support the development and finalization of preliminary recommendations:

1. Complete and evaluate the “packaged runs,” which are combinations of the six options, modified to optimize performance; and
2. Work with external stakeholders to refine and prioritize options based on the evaluation.

Following the Planning Board’s review of preliminary recommendations and direction, anticipated for this fall, staff will develop an “implementation plan” that will describe the milestones necessary to achieve the Plan’s highest priority project(s) and the ideal order in which these steps would occur. Staff anticipates including the Implementation Plan with the Plan’s Working Draft, scheduled for presentation to the Planning Board in the fall of 2021.