

CRABBS BRANCH WAY EXTENSION AND WASHINGTON GROVE CONNECTOR TRAIL – STUDY UPDATE

Description

In response to a request from the Planning Board in 2021, the Montgomery County Department of Transportation (MCDOT) will provide a briefing on findings from the Washington Grove Connector and Crabbs Branch Way Extension – Facility Planning Phase 1 Report. In addition, MCDOT will provide an update on the status of the Washington Grove Connector project.

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LOCATION:

Crabbs Branch Way to Amity Drive
Piedmont Crossing Local Park

MASTER PLAN

Shady Grove Sector Plan, Shady Grove Minor
Master Plan Amendment, Bicycle Master Plan

PROJECT SPONSOR

Montgomery County Department of
Transportation

REVIEW BASIS

Follow-up progress update to Planning Board
on the Crabbs Branch Way Extension Study

Summary

- Briefing by Montgomery County Department of Transportation on two projects in the Shady Grove area: 1) findings from the Crabbs Branch Way Extension project study, 2) status of the Washington Grove Connector project.
- Planning staff recommends the transmittal of comments to the Montgomery County Department of Transportation.

CONTENTS

Section 1 – Recommendations Summary	3
Section 2 – Introduction and Project Description.....	3
Project Description	3
Planning Board Briefing – April 2021.....	7
Purpose of Today’s Briefing.....	7
Section 3 – Crabbs Branch Way Extension Project Findings	8
Road Typical Cross Section.....	8
Traffic Analysis	8
Section 4 – Conclusion.....	11
Section 5 – Attachment.....	11

SECTION 1 – RECOMMENDATIONS SUMMARY

Staff recommends the transmittal of the following comments to the Montgomery County Department of Transportation:

1. The traffic analysis conducted for the Crabbs Branch Way Extension project supports the master planned road extension.
2. Prioritize construction of the Brown Street Connector portion of the Washington Grove Connector project, as this segment of the overall project has substantial public support, including from the Town of Washington Grove, is far along in the design process, and has a relatively low cost.
3. Continue to advance development of a trail through Piedmont Crossing Local Park to Amity Drive. If the Council decides to fund construction of Crabbs Branch Road Extension, this trail should be constructed adjacent to the roadway. Any trail alignments pursued are required to proceed through Montgomery Parks Concept Review process and receive Park Construction Permit Review and Approval prior to any construction.

SECTION 2 – INTRODUCTION AND PROJECT DESCRIPTION

Project Description

The Montgomery County Department of Transportation (MCDOT) is conducting a facility planning study for two related projects in the Shady Grove/Washington Grove area: 1) the Washington Grove Connector, a trail connecting Crabbs Branch Way to the Town of Washington Grove and also providing an interim trail connection through Piedmont Crossing Local Park to Amity Drive, and 2) the Crabbs Branch Way Extension project, which would improve connectivity to the Shady Grove Metrorail Station by linking Crabbs Branch Way to Amity Drive.

The project location is depicted in Figure 1. Planning and design for the Washington Grove Connector project is funded through the Bikeway Program Minor Projects program (P507596). Depending on the cost of the project, this program may also fund construction. It is anticipated to be fully constructed in FY24. The Crabbs Branch Way Extension project is funded through the Facility Planning-Transportation program (P509337), and this project is only funded through facility planning. The Crabbs Branch Way Extension project was delayed largely due to COVID-19, as the drop in automobile travel meant that accurate traffic counts could not be collected in 2020.

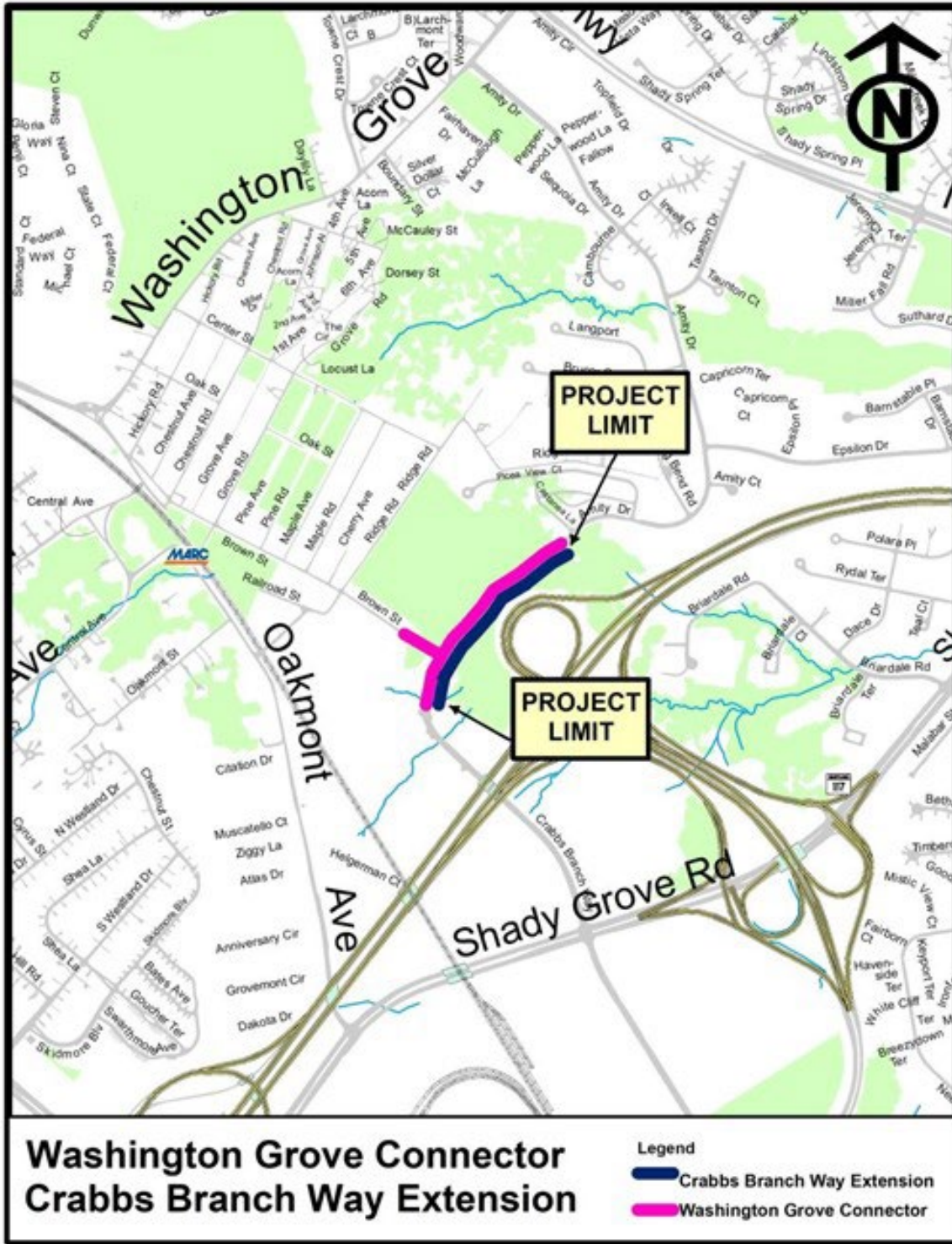


Figure 1 Washington Grove Connector and Crabbs Branch Way Extension Project Map

STUDY AREA/SITE VICINITY

The project is located on the north side of Interstate 370 as shown in Figure 2. The Town of Washington Grove is located to the north of the project area (shown with grey shading). The area highlighted in green is parkland with the Washington Grove Meadow Conservation Park to the north (owned by the Town of Washington Grove), and the Piedmont Crossing Local Park and the Amity Drive Neighborhood Park (both owned by M-NCPPC) in the section between Amity Drive and Crabbs Branch Way. The Shady Grove Metro Station is located approximately 1.2 miles to the south along Crabbs Branch Way.

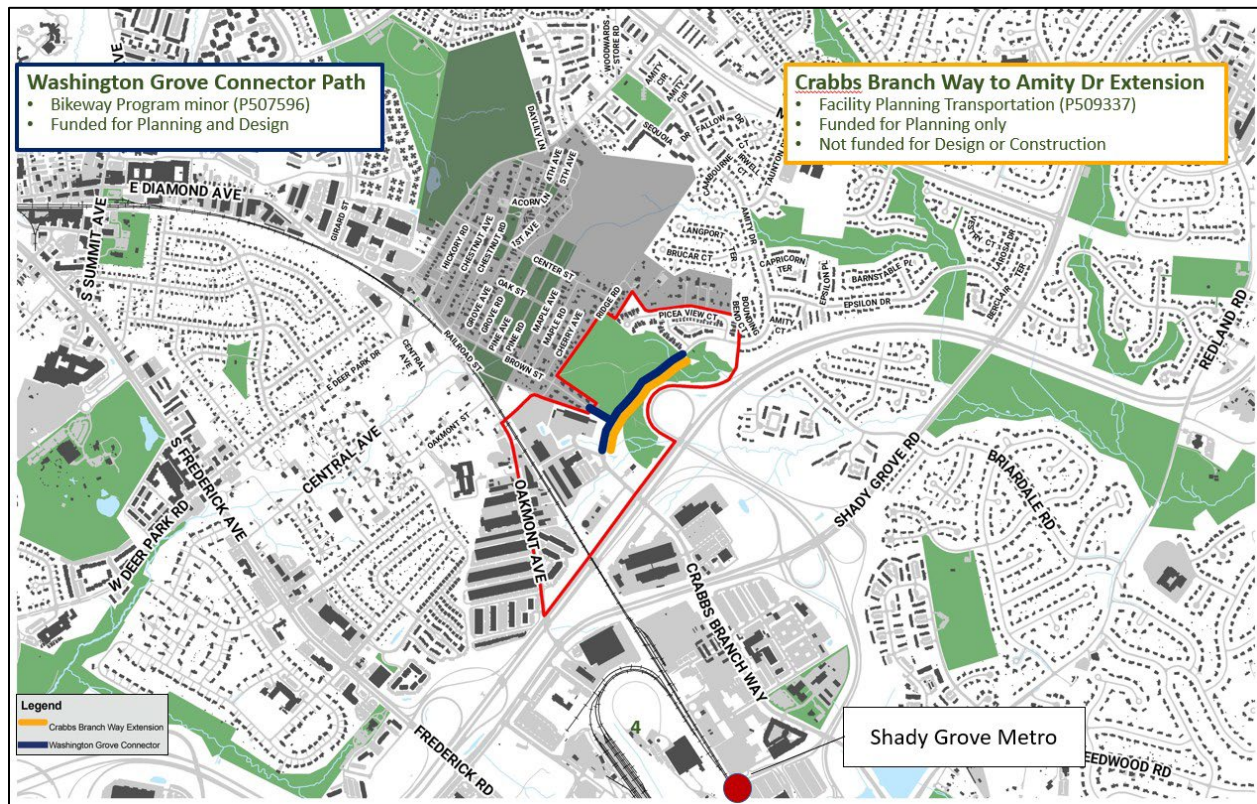


Figure 2: Project Area and Site Vicinity

MASTER PLAN CONSISTENCY

Both projects are recommended in the 2006 *Shady Grove Sector Plan*, the 2018 *Bicycle Master Plan*, the 2021 *Shady Grove Minor Master Plan Amendment*, and are consistent with transportation and connectivity objectives in *Thrive Montgomery 2050*. The 2006 *Shady Grove Sector Plan* (page 80) states that the purpose of Crabbs Branch Way Extension is to “improve local connections.”

Figure 3 below shows the County’s approved bicycle network with the Washington Grove Connector trails shown as dashed green lines (proposed trails).

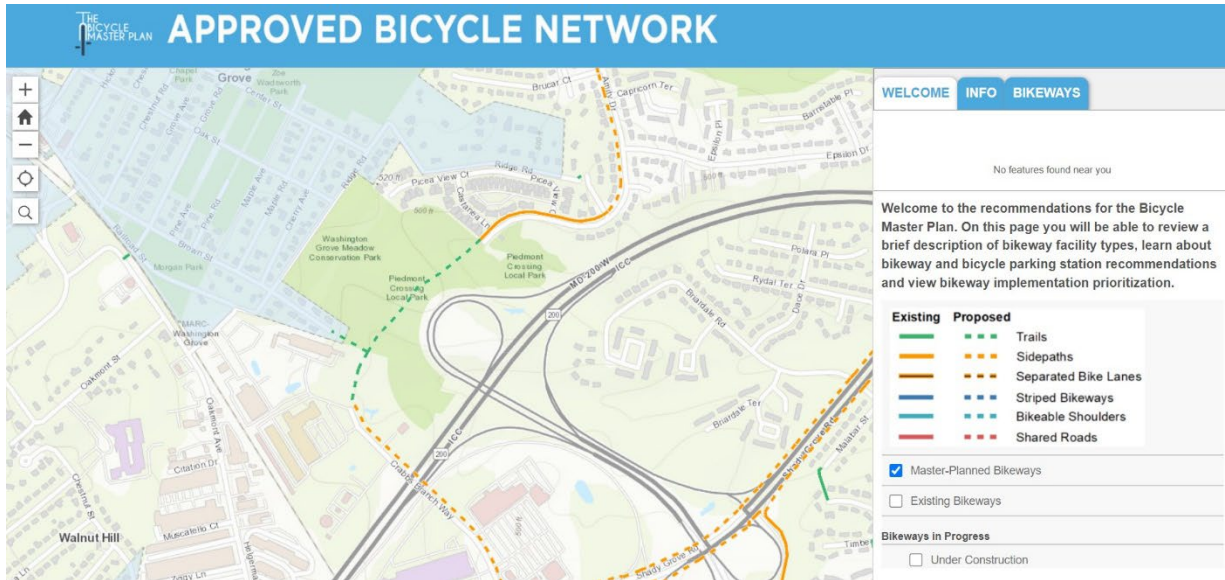


Figure 3: Bicycle Master Plan Network

The Crabbs Branch Way Extension between Crabbs Branch Way and Amity Drive is master planned as a Neighborhood Connector in the Master Plan of Highways and Transitways as shown below in Figure 4.

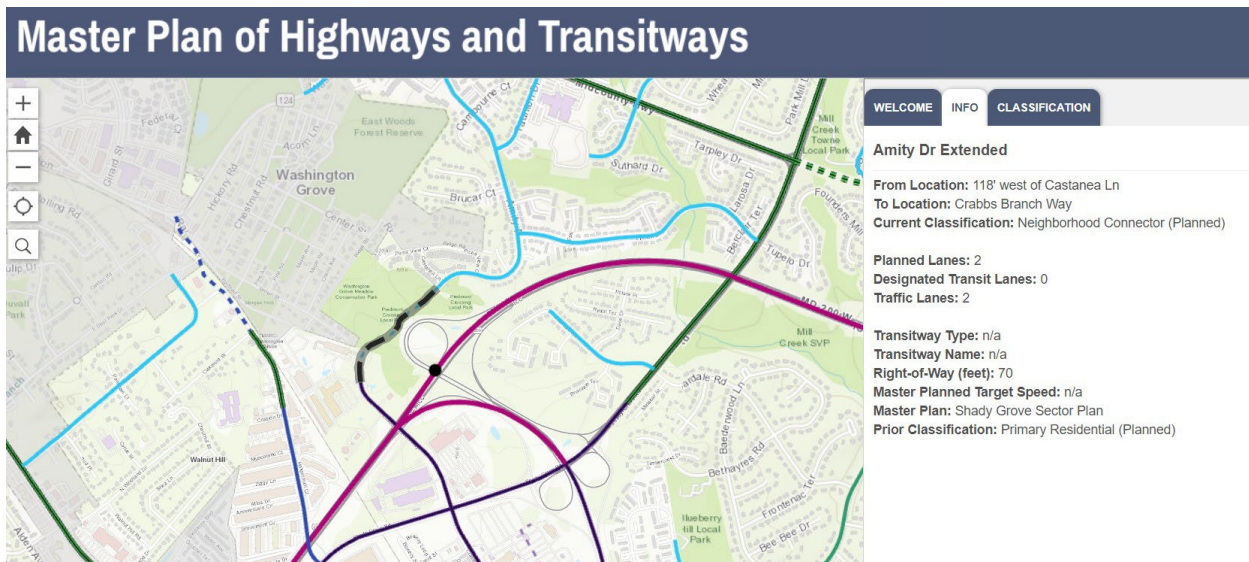


Figure 4: Master Plan of Highways and Transitways Network

Thrive Montgomery 2050, the county’s recently approved General Plan, recommends expanding the street grid, especially around Downtowns, Town Centers and transit corridors. The Transportation and Communication Networks Chapter (page 112):

- Policy: Develop a Safe, comfortable and appealing network for walking, biking, and rolling.
- Practice: Expand the street grid in downtowns, town centers, transit corridors, and suburban centers of activity to create shorter blocks.

The plan also states (page 117): “A more connected street grid is perhaps the single most important step to make our streets safer, more attractive for walking, biking and rolling, and to reconnect communities divided by

highways. An interconnected grid system will increase choice of modes, provide multiple routes for travel, and be better equipped to manage extreme weather and other disruptions. For this reason, the addition of local street connections should be a top priority in both capital budgets and development review.”

This planned street connection would provide access to an adjacent Town Center (Shady Grove) and increase connectivity for vehicles, bicycles and pedestrians.

Planning Board Briefing – April 2021

The Planning Board received a presentation from MCDOT on the two projects on April 29, 2021 and was requested to provide comments on the study progress and to identify a preferred alternative for the Washington Grove Connector project. The Planning Board provided the following comments:

1. Washington Grove Connector Alternative #3 (Brown Street) should be advanced as the preferred trail alignment. This trail should be designed to county typical standards, including a trail width of ten feet with 2-foot wide unpaved, graded shoulders, and with no obstructions within two feet of the trail edge. We concur with Alternative #3 as the most cost-effective and therefore practicable and desirable alignment in the near term, and we support connectivity through the Meadow. We also concur with the planned inclusion of the Picea Court Connector as an additional bicycle/ pedestrian improvement, either as part of this project or as a separate project.
2. A paved trail connection between Amity Drive and Crabbs Branch Way should be built in the interim (until the Crabbs Branch Way Extension project is constructed) along the planned Crabbs Branch way Extension alignment.
3. The cross section used to design the Crabbs Branch Way Extension should use the Neighborhood Connector street type presented in the Complete Streets Design Guidelines.
4. MCDOT should come back for a second briefing for the Crabbs Branch Way Extension project once significant study and conclusions are reached for this facility planning study.
5. Any trail or roadway alignments pursued are required to proceed through Montgomery Parks Concept Review process and Park Construction Permit Review and Approval prior to any construction.

See Attachment A for a copy of the Planning Board comment letter and Attachment B for the April 29, 2021 staff report.

Purpose of Today’s Briefing

The Montgomery County Department of Transportation has completed the Washington Grove Connector and Crabbs Branch Way Extension – Facility Planning Phase 1 Report. The report includes a detailed analysis of the transportation impacts of the proposed road extension, including costs, environmental features, archaeological resources, land use, utilities, and traffic evaluation. This report is included as Attachment C. MCDOT officials will provide a limited presentation to the Planning Board on key findings from the Crabbs Branch Way Extension portion of the project, as requested by the Planning Board in 2021.

SECTION 3 – CRABBS BRANCH WAY EXTENSION PROJECT FINDINGS

The Montgomery County Department of Transportation engaged a consultant to prepare the Washington Grove Connector and Crabbs Branch Way Extension – Facility Planning Phase 1 Report. This report, completed in October 2022, contains design information on both projects, which includes traffic data and traffic analysis results that were not available during the Planning Board briefing in 2021.

Road Typical Cross Section

Crabbs Branch Way Extension would be designed as a Neighborhood Connector, consistent with its current street classification in the Master Plan of Highways and Transitways and consistent with design guidelines provided in the Complete Streets Design Guide. A typical cross section of this planned road is shown below in Figure 5.

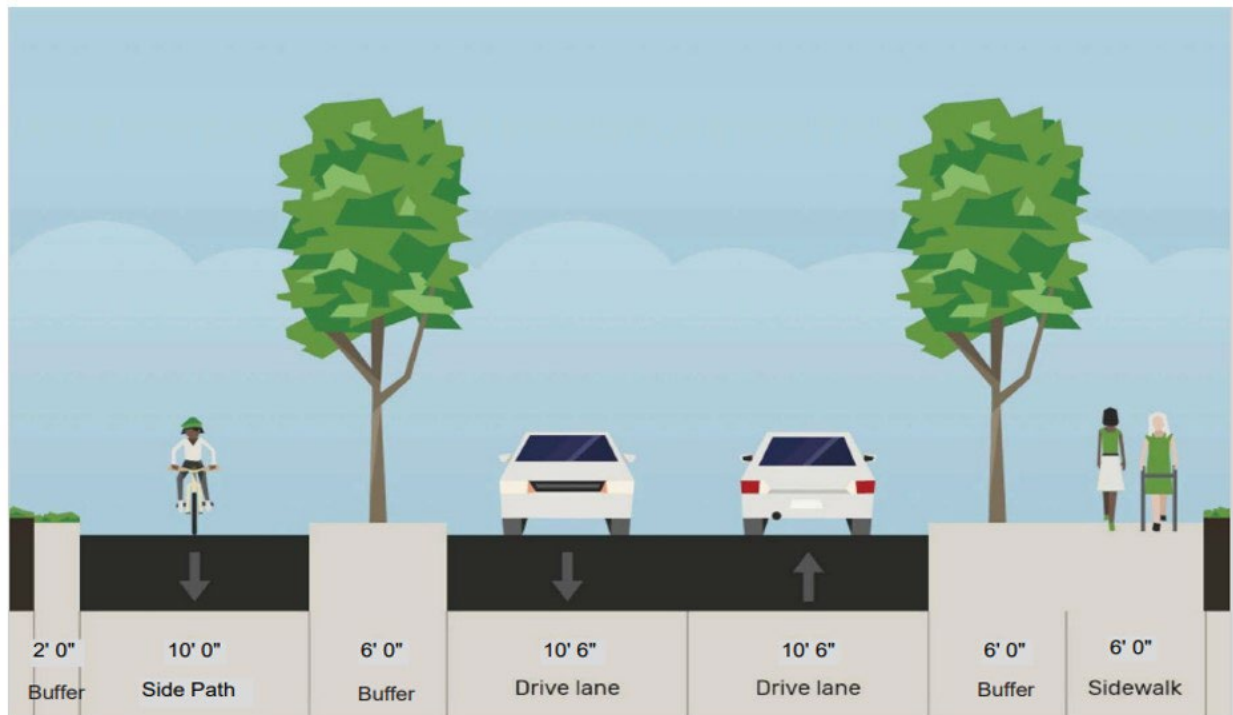


Figure 5: Typical Cross Section for Crabbs Branch Way Extension

Traffic Analysis

While the primary purpose of Crabbs Branch Way Extension, as defined by the 2006 *Shady Grove Sector Plan*, is to improve local connections, transportation projects typically evaluate impacts on traffic in the surrounding area, among other things. As noted previously, the Crabbs Branch Way Extension project was delayed so that MCDOT could collect traffic counts once travel patterns returned to pre-pandemic volumes, however, MCDOT ultimately decided to use pre-pandemic counts from 2018, as counts conducted in 2021 were lower than 2018 traffic counts. The consultant studied morning and evening peak hour traffic volumes and conditions at the following eight intersections (see Figure 6):

1. Midcounty Highway and Shady Grove Road
2. Shady Grove Road and Tupelo Drive
3. Shady Grove Road and Crabbs Branch Way
4. Shady Grove Road and Oakmont Avenue
5. Amity Drive and Epsilon Drive
6. Midcounty Highway and Washington Grove Lane
7. Amity Drive and Washington Grove Lane
8. Washington Grove Lane and Railroad Street

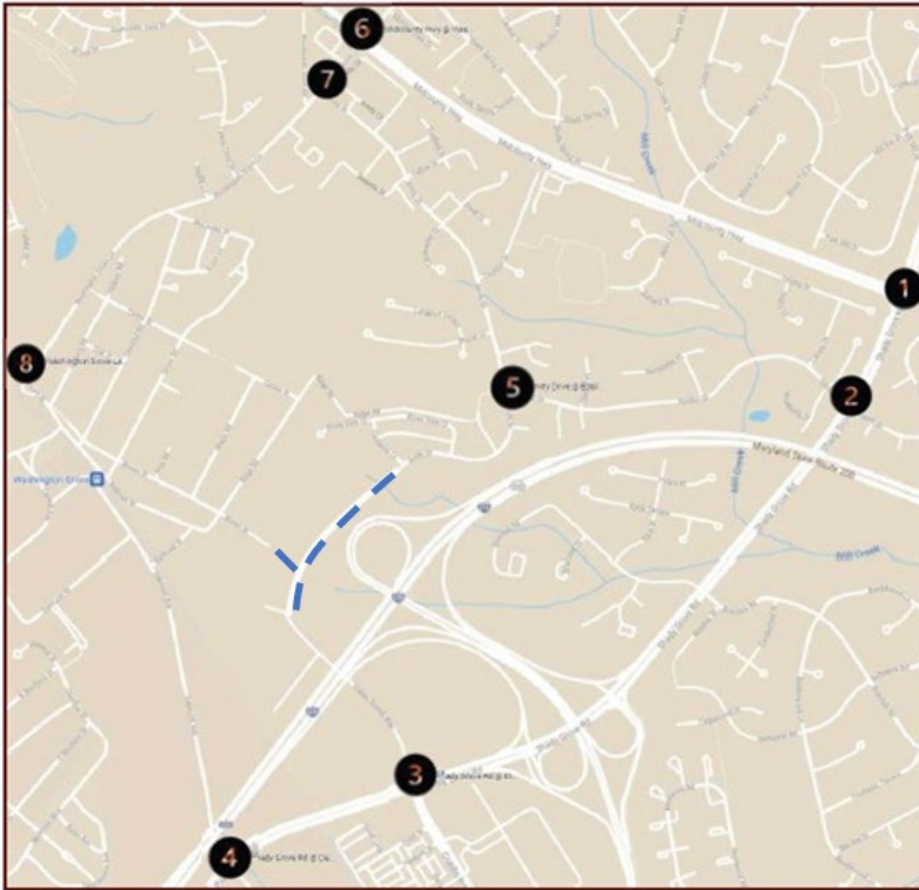


Figure 6: Study Area Intersections

One way that project planners evaluate congestion is based on the Level of Service (LOS) methodology, which estimates the amount of delay at an intersection. A grade of “A” represents free-flow conditions whereas a grade of “E” represents unstable traffic flow with short stoppages. LOS “F” is often considered to be unacceptable, although Montgomery County will accept LOS F conditions in areas well served by public transportation. To evaluate the impact of projects in a future year, project planners compare the “No Build” scenario, which represents conditions without the project, to the “Build” scenario, which represents conditions with the completion of the project. A project’s impact is the difference between the two scenarios.

The study projected traffic volumes to the year 2040 and assessed the traffic impacts of the road extension on these intersections. The signalized intersections were analyzed using the Highway Capacity Manual 2000 (HCM)

with Synchro 11 software package. This method defines LOS in terms of delay (average stopped delay per vehicle). The level of service thresholds used for this method are shown below in Table 1.

Table 1: Signalized Intersection Level of Service and Thresholds from 2000 Highway Capacity Manual

LOS	Control Delay per Vehicle (s/veh)
A	≤ 10
B	> 10–20
C	> 20–35
D	> 35–55
E	> 55–80
F	> 80

Unsignalized intersections were analyzed using the HCM 2000 unsignalized intersection methodology with the Synchro 11 software package. The LOS for a two-way stop controlled (TWSC) intersection is determined by the computed or measured control delay and is defined for each minor movement. Table 2 summarizes the level of service thresholds utilized for unsignalized intersection analysis.

Table 2: Unsignalized Intersection Level of Service and Thresholds from the 2000 Highway Capacity Manual

Level of Service	Average Control Delay (s/veh)
A	0–10
B	> 10–15
C	> 15–25
D	> 25–35
E	> 35–50
F	> 50

The project was found to have limited impacts to LOS at the study area intersections in 2040 as shown below in Table 3. During the morning peak hour, the Shady Grove Road and Crabbs Branch Way intersection is projected to slightly degrade from Level of Service C to D, and during the evening peak hour, the Shady Grove Road and Oakmont Avenue intersection also is projected to degrade from Level of Service C to D.

Table 3: 2040 Peak Hour Level of Service Summary

No.	Intersection	2040-No Build		2040-Build	
		AM	PM	AM	PM
1	Midcounty Hwy & Shady Grove Rd	D	C	D	C
2	Shady Grove Rd & Tupelo Dr	B	B	A	B
3	Shady Grove Rd & Crabbs Branch	C	E	D	E
4	Shady Grove Rd & Oakmont Ave	C	C	C	D
5	Amity Drive & Epsilon Drive	A	A	A	A
6	Midcounty Hwy & Washington Grove	D	D	D	D
7	Amity Drive & Washington Grove Lane	A	A	A	A
8	Washington Grove La & Railroad St	B	B	B	B

Key differences between the 2040 No Build and 2040 Build include the following:

- The Crabbs Branch Way Connection is projected to have a daily traffic flow in 2040 of 3,600 vehicles per day (which is consistent with a Neighborhood Connector street).
- Amity Drive without the Crabbs Branch connection will have a daily traffic flow of 540 vehicles per day, and with the connection open, this will increase to 3,200 vehicles per day (an increase of 2,660 vehicles).
- Morning and evening peak hour two-way volumes of 264 and 351 vehicles per hour, respectively, are projected along the Crabbs Branch Way Extension.
- At the main intersection of Shady Grove Road with Crabbs Branch Way, the southbound approach will receive significantly higher traffic volumes with the opening of the Crabbs Branch Way Extension; However, the overall traffic impact of the proposed project will be minimal at this intersection.

Based on the results of the traffic study, Planning staff concludes that the proposed Crabbs Branch Way Extension project would have acceptable impacts on traffic congestion.

SECTION 4 – CONCLUSION

Planning staff strongly supports the Crabbs Branch Way Extension project, as it is consistent with master plans and improves connectivity to the Shady Grove Metro Station and commercial areas. Based on information provided by the applicant, Planning staff recommends the transmittal of comments in this staff report to the Montgomery County Department of Transportation. The Applicant is requested to reply in writing to the Planning Board, addressing all comments.

SECTION 5 – ATTACHMENT

Attachment A: May 13, 2021 Planning Board Comment Letter

Attachment B: April 29, 2021 Staff Report

Attachment C: Washington Grove Connector and Crabbs Branch Way Extension – Facility Planning Phase 1 Report