



City of Gaithersburg

SHARED USE PATH FEASIBILITY STUDY

PREPARED FOR THE CITY OF GAITHERSBURG BY



FUNDED BY THE METROPOLITAN WASHINGTON COUNCIL OF GOVERNMENTS
TRANSPORTATION LAND-USE CONNECTIONS PROGRAM

JUNE 2023



Metropolitan Washington
Council of Governments



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INTRODUCTION

The City of Gaithersburg applied for and received funding through MWCOG’s Transportation Land Use Connections (TLC) grant program for the purpose of studying the feasibility and impacts of a shared use path (SUP) which would connect the City’s dense and amenity-filled Downtown – including a MARC station – to the Town of Washington Grove, where it would link to another path (currently in design by Montgomery County) connecting to the Shady Grove Metro Station. When complete, this SUP will be a comfortable and safe connection for cyclists, walkers, and micromobility commuters, allowing residents of Gaithersburg’s Old Town core and surrounding neighborhoods to access WMATA’s metro system safely and efficiently by bike or by foot.

Project Need, Goals, And Objectives

The City of Gaithersburg is looking to extend its accessibility WMATA’s Metro system. At this time, Montgomery County is designing a SUP from the Shady Grove metro station to the eastern terminus of Brown Street in Washington Grove. Brown street is a short dead-end road at both its east and west termini, making it an easy and comfortable walking and biking extension of the County’s planned SUP. With this project, the City of Gaithersburg is looking to connect the west terminus of Brown Street to Diamond Ave and ultimately to the City’s downtown historic core. Diamond Ave provides a direct route between the downtown core and Brown Street in Washington Grove, but there are multiple alignments that connect the two areas. This feasibility study will explore those potential alignments and analyze the impacts and benefits of each.

Objective

The project objective is to connect the downtown core of Gaithersburg to the Shady Grove metro station via a wide shared use path buffered from any general-purpose vehicular travel lanes.

Goals

The primary goals for the proposed projects include:

- Increased recreational and commuting options to local destinations from residential neighborhoods.
- Reduced vehicle miles traveled.
- Increased awareness of access to and connectivity of the City’s downtown core to Shady Grove Metro Station.

PROJECT INFLUENCES AND PRIOR PLANNING EFFORTS

The feasibility of this alignment was evaluated a decade ago by City of Gaithersburg, with no general conclusion on a preferred path routing. At the beginning of this current study, direction was provided by City Staff to:

- Avoid having the bicycle facility adjacent to the CSX railroad tracks.
- Retain existing on-street parking along East Diamond Ave.
- Minimize, if not eliminate, any need for property takes or public easement needs.
- Explore all options that provide direct connections (i.e., via East Diamond Ave) and indirect options on parallel streets (i.e., Teachers Way).



Per Montgomery County’s low-stress bicycle map, Diamond Ave is considered “moderate high” stress, while Teachers Way is considered “low” stress¹. Factors that impact stress levels, are posted speed limit, lane widths, curbside parking, and available dedicated space for cycling.

Stakeholders

While the City of Gaithersburg is the project originator, other stakeholders include:

- Town of Washington Grove, Maryland
- Montgomery County Department of Transportation
- Gaithersburg Traffic and Transportation Committee
- Private property owners
- RideOn bus service
- City community
- Business owners

Stakeholder Feedback

City staff and engineering consultants met with the Transportation Committee on the afternoon of November 5th 2022 to conduct a walk-through of Diamond Ave and Teachers Way. Notes from the walk-through and ideas to explore during concept development are as follows:

- There are narrow sidewalks along Summit Ave between Diamond Ave and Teachers Way. Also, utility poles are found within the sidewalk.
- There is a private one-way northbound gated driveway with curbside parking along the west frontage of Gaithersburg Station Apartments that connects Diamond Ave to Teachers Way. This parking is fully utilized at night.
- Melvin street has mostly northbound volume but allows for two-way traffic. Existing sidewalk on the Gaithersburg Station side of the road. Morning school drop-off has heavy northbound queuing.
- The City Youth Center provides another opportunity for traversing between Teachers and Diamond Ave via sidewalk widening.
- New development is pending adjacent to MARC Station on south side of Diamond Ave.
- There is potential to remove/adjust planters on Diamond (in public ROW) in front of Gaithersburg Station Apartments.
- A pedestrian refuge island just east of MARC parking lot, on Diamond Ave, would making crossing easier.
- Narrowing of the Diamond Ave roadbed is possible.
- Design any pathway to avoid utility relocations where possible.
- Using a narrowed Diamond Ave corridor for a SUP seems the most conceivable routing.

Based on the information from this walk-through, additional site visits, a review of property lines, public right of way, and field dimensions, three high-level alignments were initially developed and discussed with City Staff. These three initial alignments were not detailed at this stage but rather consisted of preliminary routing ideas for further discussion, and included:

¹ <https://mcatlas.org/bikestress>



1. Adding a SUP along the north side of Diamond Ave
2. Adding a SUP along the south side of Diamond Ave
3. Adding a SUP along Girard St and then along the north side of Teachers Way and then south to Diamond Ave near the MARC station to bypass Diamond Ave segment between the MARC station and Girard St.

A fourth-level alternative was discussed with City staff but was dismissed due to considerable impacts to the community: converting Diamond Ave and Teachers way into two (2) one-way couplets, where eastbound traffic would traverse only on Diamond Ave and westbound traffic would be relegated to Teachers Way. This concept would free up a travel lane for conversion to a SUP but would direct a large amount of traffic volume to Teachers Way, which is currently a slower and calmer street than Diamond Ave and has several parks and schools. A summary of discussion points from City Staff for the remaining three options is included:

- For Option 1:
 - City/Gaithersburg Station Apartments has an MOU regarding planters in public right of way in front of apartment building. There is potential to update or revise the MOU.
- For Option 2:
 - There is a new site plan and potential ROW line changes at MARC development
 - The south side of Diamond Ave has large truck driveways/ industrial area concerns.
 - There is potential to reclaim some roadways (deceleration lanes / acceleration lanes / right turn lanes).
 - These lanes are vestiges of Diamond Ave being a former SHA road
 - Unnecessary to have deceleration lanes / acceleration lanes for a 30 mph road
- For Option 3:
 - Keep the private alley, west of Gaithersburg Station Apartments, as an option for bikes only between Teachers and Diamond.
- General Comments:
 - Review Diamond Ave at Railroad Street/Wash Grove Lane for overall intersection improvements
 - There is an existing bus stop along sidewalk, south of the post office in Washington Grove.
 - Evaluate the viability of typical section of 10-11' travel lanes to try to squeeze in an 8' wide SUP.
 - Alternatively, evaluate possibility to shift parking layout in commercial lot to maintain same number of spaces and relocate private property walls/structures.
 - Update background aerial imagery to 2023 for concepts that show any recent MDOT SHA improvements.
 - Evaluate the right turn radius for northbound right turn from Railroad Street; consider narrowing right turn to create additional sidewalk space.
 - Determine design vehicle; e.g., school bus; WB-40, etc.



Connecting to Washington Grove / Brown Street

Based on feedback from City Staff, three alternative concepts were developed. While the routing for each differed between the MARC station and Girard Street, the primary connection routing between Brown Street and the City’s eastern municipal limit would generally be the same – a SUP along the north side of Railroad Ave between Hickory Road and the Washington Grove / Diamond Ave intersection. Because this segment was within the Town of Washington Grove, the City hosted a virtual meeting with Town Staff and Council.

On January 25, 2023, the City of Gaithersburg conducted a virtual presentation with the Town of Washington Grove to discuss potential options for how a side path can be constructed. As shown in Figure 1 there are numerous constraints to implementing a SUP along the north side of Railroad St between Brown St and Washington Grove Lane. Specifically, there is limited public ROW for installing a SUP, given the total public ROW width of Railroad Street is about 33 feet for three lanes. Traffic observations in the peak commuting hours show that all three travel lanes are necessary for vehicle circulation. Further, both the north and south sides of Railroad Street between Brown Street and Washington Grove Lane have substantial obstacles to implementing a SUP.

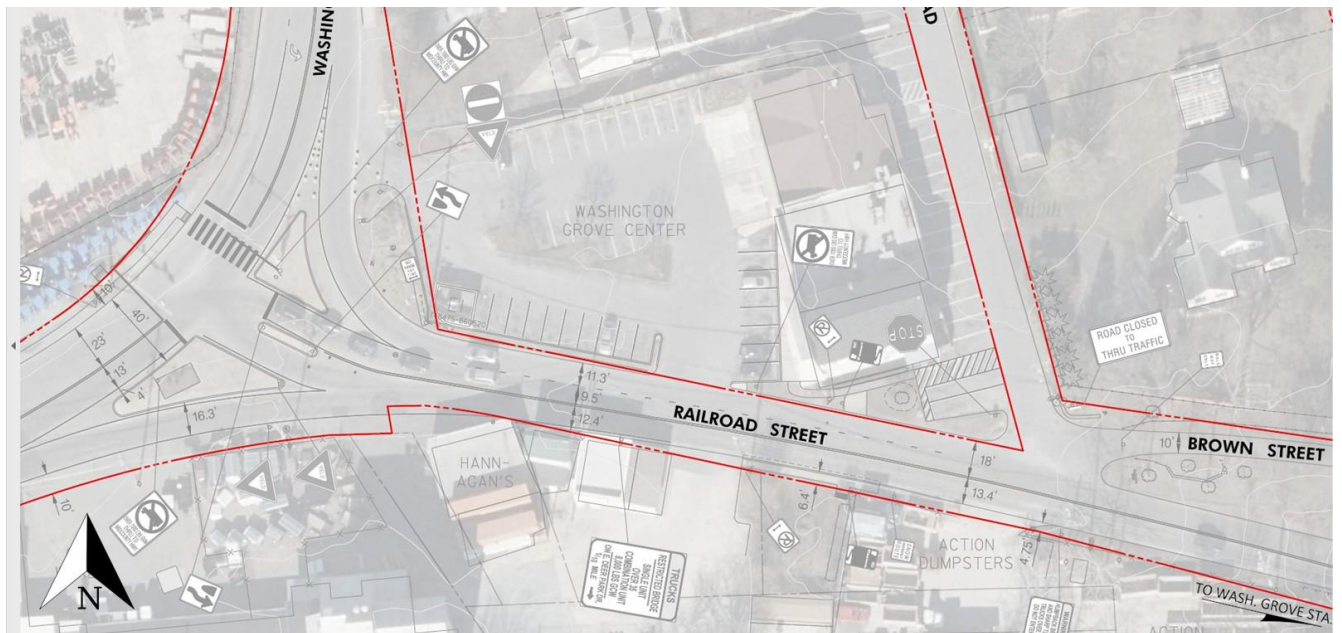


Figure 1: Existing aerial map of segment from Diamond Ave to Brown St

Given the number of obstructions on the south side of Railroad Street, and given the termination point of Brown Street, the north side of Railroad Street was determined to be the best option for attempting to design a SUP through this area. Three concept options were developed and shared with the Town of Washington Grove during the virtual meeting:

- An option with no physical changes to existing public street and private property would result in a reduced-width unbuffered asphalt path, while retaining existing lanes and private parking at Washington Grove Center (Figure 2). This path would have the following characteristics:
 - 5' wide path.
 - No buffer from Railroad St.
 - Utility pole in path.



- Path partially on private property.
- An option with moderate physical changes to private property would result in a reduced-width unbuffered asphalt path, while retaining existing lanes and private parking at Washington Grove Center (Figure 3). This path would have the following characteristics:
 - 8' path.
 - Provides buffer from Railroad St.
 - Relocated private dumpster.
 - 45° Angled private parking results in loss of 2 spaces.
 - Path partially on private property.
- An option for minimal changes to private property would result in a reduced-width unbuffered asphalt path retaining existing lanes and private parking at Washington Grove Center (Figure 4). This path would have the following characteristics:
 - 6.5' path, typically.
 - No buffer from Railroad St.
 - Relocated private dumpster.
 - 60° Angled parking – no loss of overall spaces.
 - Path partially on private property.

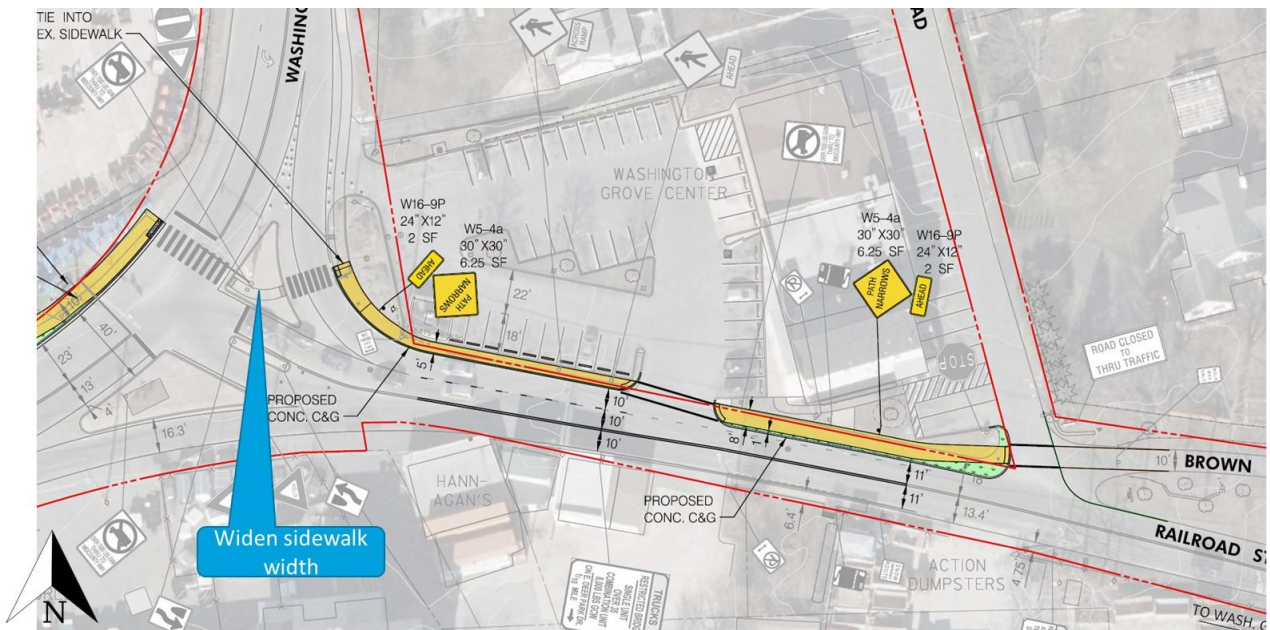


Figure 2: Option 1 for SUP through Washington Grove

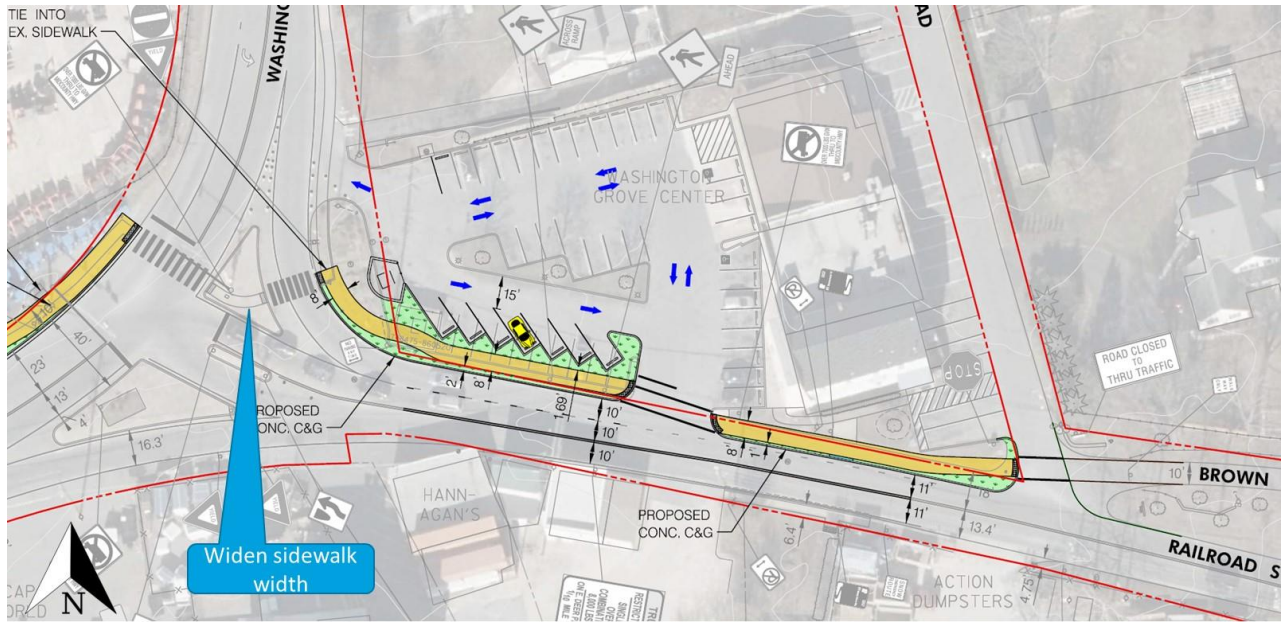


Figure 3: Option 2 for SUP through Washington Grove

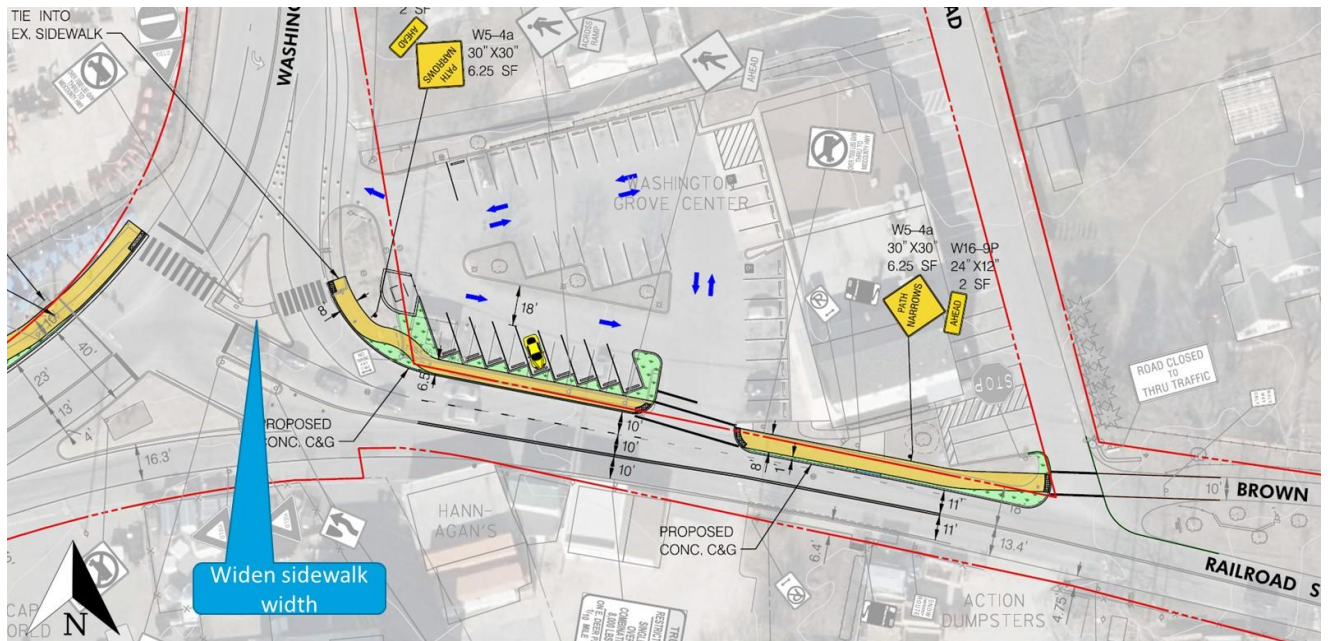


Figure 4: Option 3 for SUP through Washington Grove



Figure 5 shows a rendering of what a potential SUP alignment along Railroad Street could look like.



OLDE TOWNE TO WASHINGTON GROVE

EAST DIAMOND AVE / RAILROAD ST INTERSECTION - PLACEMAKING CONCEPT

FLOURA TEETER
landscape architects
APRIL, 2023

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Figure 5: Rendering of potential SUP improvements to Washington Grove Center

Feedback from the meeting included:

- Washington Grove Center commissioned a Bird Sculpture near the bus stop on Railroad Street. The sculpture can be relocated if it lies within the proposed path.
- Washington Grove Center dumpster is being relocated and/or removed due to sight visibility and lack of need (used to be 7/11 store). Negotiations are ongoing with County/Owner
- Left turns into the shopping center from eastbound Railroad Road will be dangerous for pedestrians/cyclists on new path particularly since the traffic will block sight distance visibility.
 - Needs some additional mitigation (e.g., “Don’t block the box,” more markings, more signage, narrower driveway to reduce exposure).
- Request for evaluating options for making the slip lane onto Washington Grove Lane safer for future path users.
 - For example, tighter turn radius, added markings, better sight lines, etc.
- No delivery trucks go into shopping center (this is for determining the design vehicle in the next design stage).
- Washington Grove has its own Planning Commission and will conduct separate negotiations with shopping center owner.
- SUP should be behind a standard curb along Railroad Street.
- Evaluate eliminating slip lane to Washington Grove Ln.



- Design around or relocate fire hydrant near slip lane.
- Montgomery County will need to be involved during the end of the feasibility study.

Based on these comments and others by City staff, alignments were refined into three distinct concepts.

THREE SUP CONCEPTS

Design Process & Study Methodology

Developing alternative concepts based on the three SUP alignments began with an extensive field review and CAD base mapping effort for the Diamond Ave and Teachers Way corridors. County-level GIS data was supplemented with onsite data collection and preliminary site plans (with survey lines) for several properties. The field survey allowed for verification of existing mapping libraries and to note any recent construction projects. It also allowed for determining potential construction impacts that can be significant cost drivers – such as utility pole relocation, inlet relocation, need for retaining structure, etc. The base mapping included all existing sidewalk, curb and gutter, utility poles, driveways, large trees, and two-foot contour lines. To this, all public right of way information and lot lines were added, in addition to pavement markings, street signs and dimensions.

The following three concepts present alignment options for a SUP that minimizes right-of-way acquisition and construction costs, while retaining a wide and buffered multimodal facility. Concept designs were developed using the following design standards and guidelines:

- AASHTO
- NACTO
- PROWAG
- MUTCD
- ADAAG
- MDOT SHA
- Montgomery County DOT Standards

Options & Recommendations

The following section describes each of the three potential concepts and provides an analysis of impacts and overall construction feasibility. Impact analysis generally relates to cost, permitting needs, right of way acquisition, and utility relocations, as well as deviations of the ideal SUP typical section of 10 feet width and a 2-foot minimum buffer from the roadway. A conceptual design plan for each project is presented in **Appendix A**. An overview map of the three concepts is shown in Figure 6:

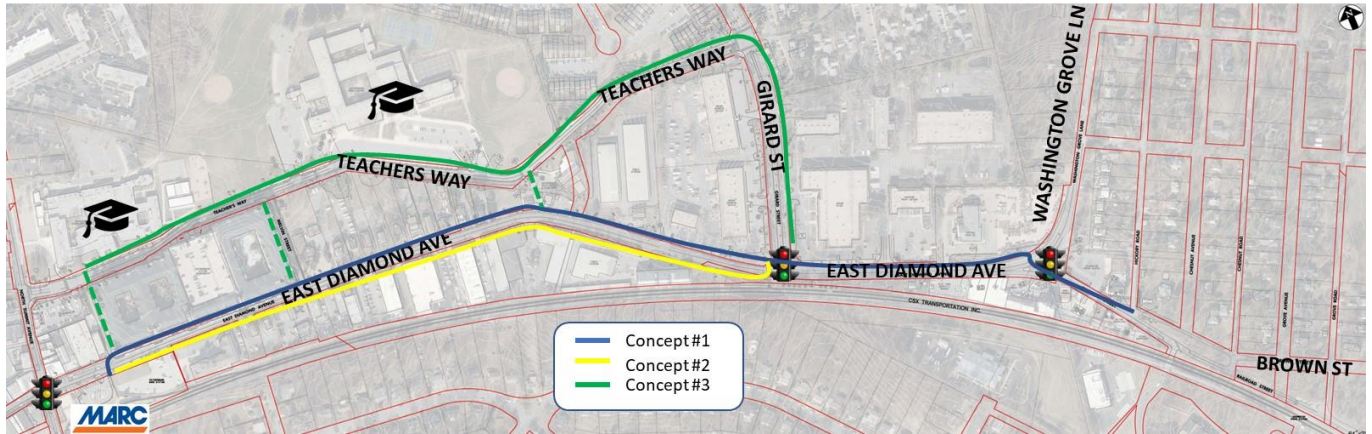


Figure 6: Potential SUP alignments

The three routing alignments to link the Gaithersburg MARC station to Brown St in Washington Grove include:

1. Concept 1: North Side of Diamond Ave
2. Concept 2: South Side of Diamond Ave
3. Concept 3: Girard Street to Teachers Way and then to Diamond Ave

Note that all three options are the same between Brown Street and Girard St (utilizing the north side of Diamond Ave), as this is the most direct and constructable option. Generally, Concept 1 begins at the MARC station surface lot, crosses north to the north side of Diamond Ave and then proceeds along the north side to Railroad Street where it continues to the Brown Street terminus in Washington Grove. Concept 2 begins at the MARC station surface lot and stays along the south side of Diamond Ave until it reaches Girard Street, where it crosses to the north side of Diamond Ave toward Brown Street. For Concept 3, the primary alignment for the SUP is along Teachers Way between the MARC station and Girard Street, with multiple options for connecting south to the MARC station – e.g., through the Youth Center property, via privately-held Melvin St, or via the gated one-way alley just west of the Gaithersburg Station apartments.

The remainder of this section provides detailed layouts of each of the three concepts.

Concept 1: North-side Diamond Ave SUP

As shown in Figure 7, a median refuge is proposed to assist in the crossing of Diamond Ave from the south side, where the MARC station is located, to the north side. Heading east, the SUP traverses along the existing wide sidewalk in front of Gaithersburg Station apartments, where the sidewalk width is up to ten feet (width varies from 12 feet to 6 feet due to planters in public right of way). Of note, there are several decorative planters along the frontage of the Gaithersburg Station apartments that prevent the ideal SUP typical section from progressing along this segment of Diamond Ave. Additionally, there are parked cars along this segment; accordingly, any SUP should have a minimum of two-foot offset from the back of curb to account for opening vehicle doors.

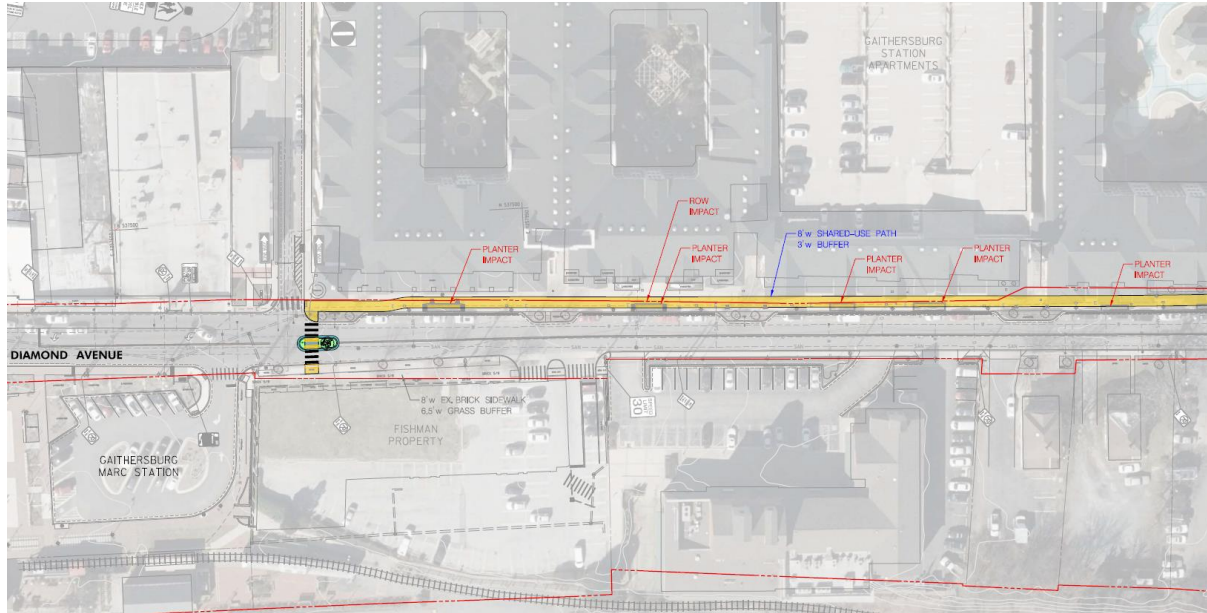


Figure 7: Western terminus of proposed concept 1, north side of Diamond Ave

Figure 8 shows a rendering of how this SUP segment would look like.



OLDE TOWNE TO WASHINGTON GROVE

EAST DIAMOND AVE CROSSWALK AT GAITHERSBURG TRAIN STATION

FLORA TEETER
landscape architects
APRIL, 2023

Figure 8: Rendering of Concept 1, looking east toward Gaithersburg Station apartments.

Heading eastward, east of Melvin Street, there are several utilities and limited public right of way that constrain the ability to construct a buffered SUP along the north side of Diamond Ave. For this section, proposed in Concept 1 is a narrowing of the roadway from an existing 30-foot curb-to-curb width down to 24 feet (two 12' travel lanes separated by a double yellow line).

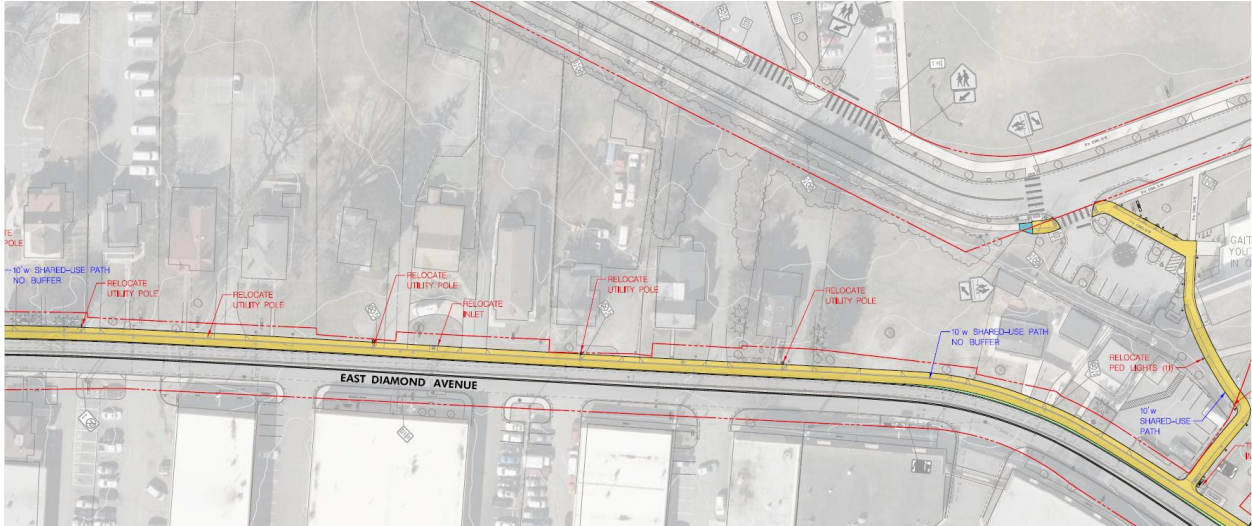


Figure 9: Proposed concept 1, near the Youth Center

By narrowing the road from 30 feet to 24 feet, additional right of way is made available to construct a SUP, while also remaining outside of private property. Additionally, the increased available right of way allows for more design options when constructing the SUP, such as modifying buffer widths and trail widths at spot locations to avoid expensive utility pole relocations (see Figure 10).



Figure 10: View of the north side of Diamond Ave east of Melvin Street

Also, as shown in Figure 9, there is a proposed widened connection between the SUP on Diamond Ave to the 8-foot wide existing concrete sidewalk along Teachers Way. As Concept 1 approaches Girard



Street, the existing road width allows for a proposed buffered side path to be constructed entirely in existing public right of way using the westbound acceleration and deceleration lanes for the driveways that are used to access the Girard Business Center. These lanes are atypical of a downtown area with a speed limit of 30 mph or less and likely a vestige from when Diamond Ave was a State-owned roadway with a higher posted speed limit.

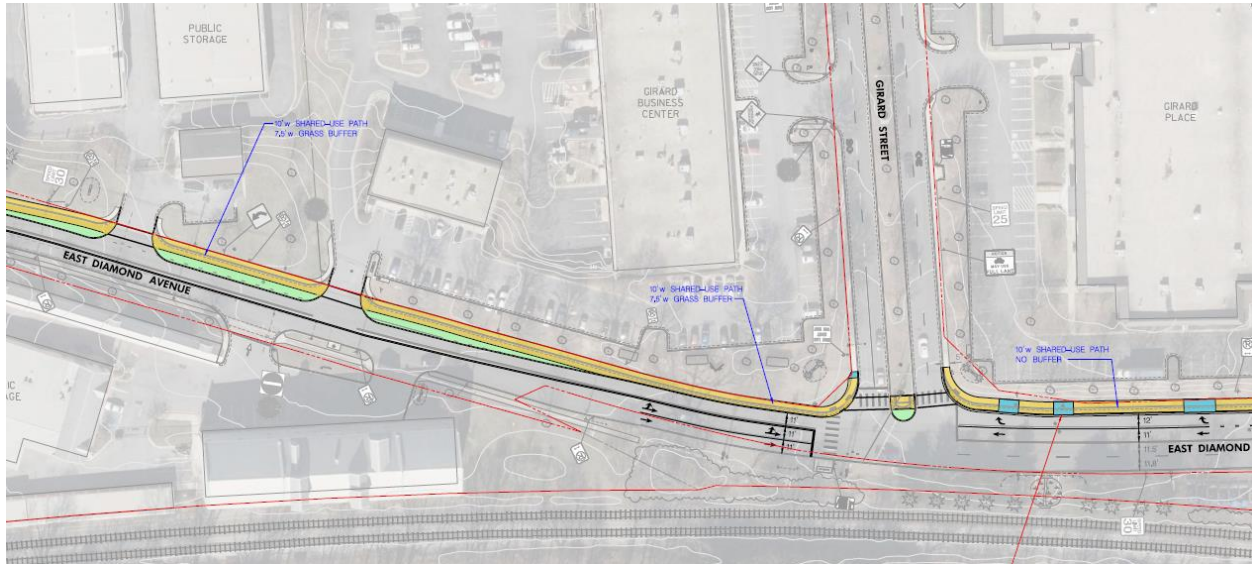


Figure 11: Concept 1, east and west of Girard Street

As shown in Figure 11, the buffer is of variable width, but the path is 10-foot wide throughout and is entirely in public right of way. East of Girard Street, an unbuffered 10-foot wide SUP is proposed within the existing public right of way. This area has a moderate lateral slope behind the curb. In order to fit in the SUP, the westbound right turn is recommended to be narrowed to a width of 12 feet. By extending the curb south into the wide right turn lane, enough new space is created for a 10 foot side path with only minor re-grading of the existing grass slope and no retaining walls needed. Two inlets (shown in blue in Figure 11) will have to be relocated along with the new curb line. The existing bus stop can remain where it is.

In between Girard Street and Washington Grove (Figure 12), Concept 1 traverses the north side of Diamond Ave by expanding the existing sidewalk toward the roadway to create a 10-foot SUP with a variable width buffer from the travel lanes. Note that the back of the sidewalk aligns with the back of the proposed SUP, such that no additional right of way encroachment is needed. As shown in Figure 12, the SUP retains the existing westbound travel lane of Diamond Ave as is, but there is additional opportunity to narrow the travel lane from 14.6 feet down to 12' to add a grass buffer and additional curb and gutter (see Figure 13).

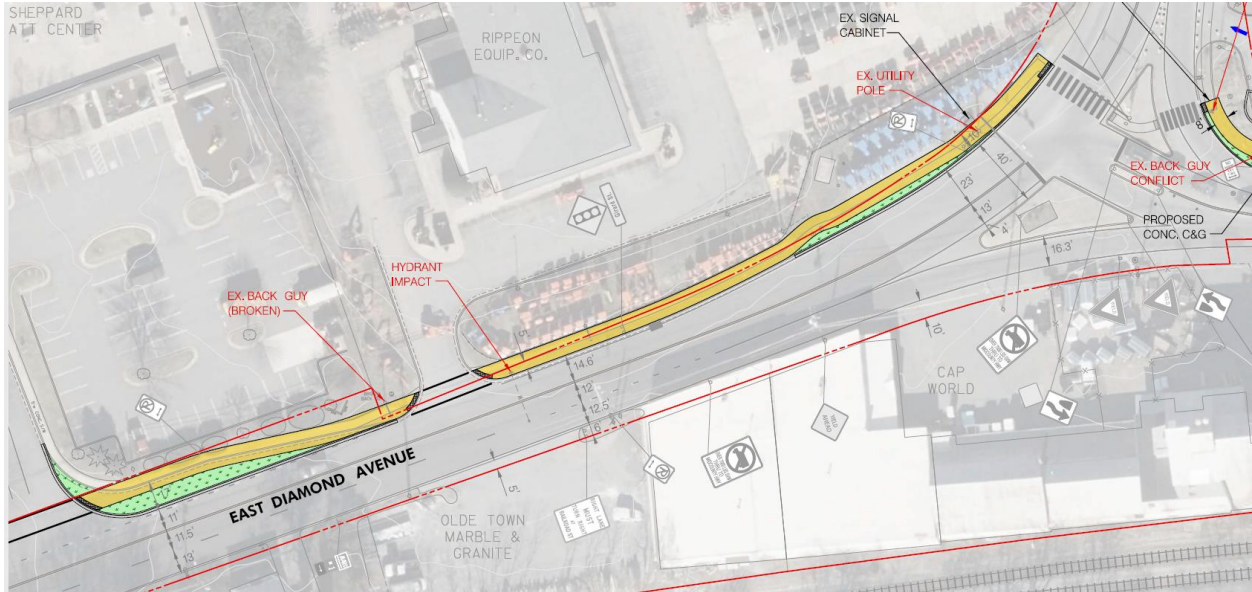


Figure 12: Concept 1 between Girard Street and Washington Grove



Figure 13: North side of Diamond Ave looking toward Washington Grove

The proposed eastern terminus of the Concept 1 SUP is shown in Figure 14. This concept retains all of the travel lanes along eastbound and westbound Railroad Street but narrows them down to 10 feet wide between centerline and edge line at their narrowest near Washington Grove Center access driveway; outside of this spot, the travel lanes are generally proposed to be 11 feet wide. To be able to construct a SUP along the north side of Railroad Street, several design modifications were needed – particularly to the privately held Washington Grove Center. Specifically, as shown in Figure 14:

- The existing dumpster is relocated to the west, but remains on site.²

² Relocating the dumpster is currently being coordinated with the Town of Washington Grove



- The parking lot drive aisle parallel to Railroad Street was converted to one-way and the parking spaces were oriented at 45 degrees.
- Between the dumpster relocation and proposed angled parking, two (2) parking spaces were removed.
- The SUP was narrowed to 8-feet in width – generally considered to be the minimum width standard for new paths – with a 2-foot buffer. Given the large amount of traffic along this segment of Railroad Street and the narrow proposed lane width, having a buffer from the road was considered to be more desirable than having a ten-foot wide path without a buffer.
- This proposed configuration allows for the side path to meander around utilities near the intersection of Washington Grove Lane at Diamond Ave, instead of proposing expensive utility relocations. Note, there is a fire hydrant shown in the path; it is expected that the path can be redesigned to avoid relocating the hydrant.

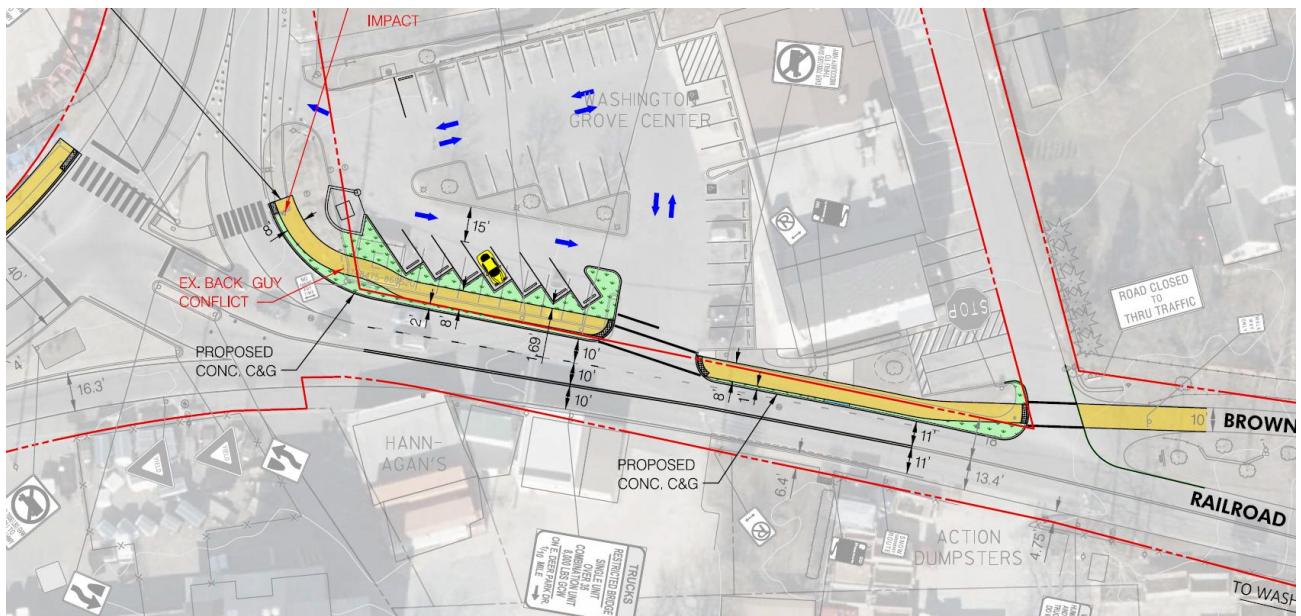


Figure 14: Eastern terminus of Concept 1 at Brown Street

Additional options, not shown in Figure 14, to consider during the next design stage include:

- Widening the walkway through the channelized right turn island
- Narrowing the turning radius of the right turn slip lane, such that right turn movements occur at a slower speed. The County will be involved in determining the design vehicle for this intersection, which will ultimately dictate the proper sizing of the channelized right turn.
- Consideration for high-visibility ladder style crosswalks for Hickory Road and for the entrance to the shopping center. Additional consideration for “don’t block the box” signage and markings for the driveway access to the shopping center.

Concept 2: South-side Diamond Ave SUP

As shown in Figure 15, the median refuge from Concept 1 was retained for Concept 2 because there are limited crossings along Diamond Ave, and it provides a safer crossing to the MARC station for residents of the Gaithersburg Station Apartments and from points north. Heading east, the SUP is proposed along the south side of Diamond Ave, replacing the existing unbuffered wide sidewalk. Of note, while this



proposed SUP does not impact the multiple parking lots abutting eastbound Diamond Ave, there are multiple utilities along this alignment that would have to be relocated and trees that would have to be removed to make the SUP practical as a shared-use facility. Additionally, the public right of way is limited in this segment of Diamond Ave, requiring multiple public easement or fee-simple purchases of partial lots. Finally, while the path would be constructed at ten feet wide, it would not have a buffer (unless additional right of way were purchased); this would seem impractical, as it would limit the ability to relocate utility poles and require removing parking spaces from commercial properties.

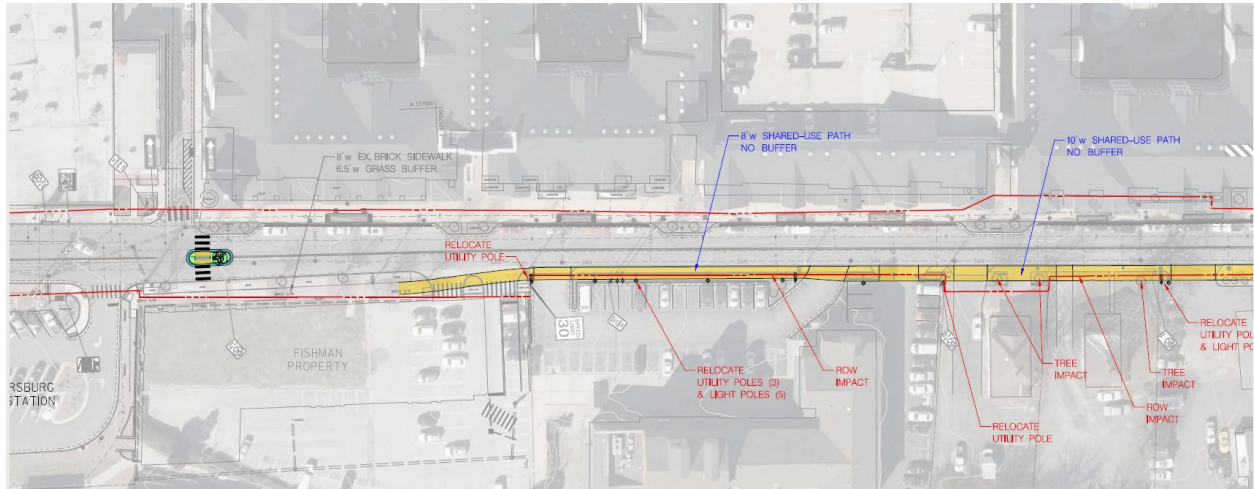


Figure 15: Western Terminus of Concept 2, south side of Diamond Ave

East of Melvin Street, the proximity of structures and buildings close to Diamond Ave, as well as several utilities and limited public right of way, limit the ability to construct a buffered SUP along the south side of Diamond Ave. Accordingly, for this section, Concept 2 proposed narrowing the roadway from an existing 30-foot curb-to-curb width down to 24 feet (two 12' travel lanes separated by a double yellow line) – similar to this segment of Concept 1. As shown in Figure 16, the south side curb lane is moved northward six feet to allow for the installation of a 10-foot wide SUP with variable width buffer. Moving the curb avoids costly and time-consuming utility relocations, while also ensuring the SUP is entirely in public right of way.

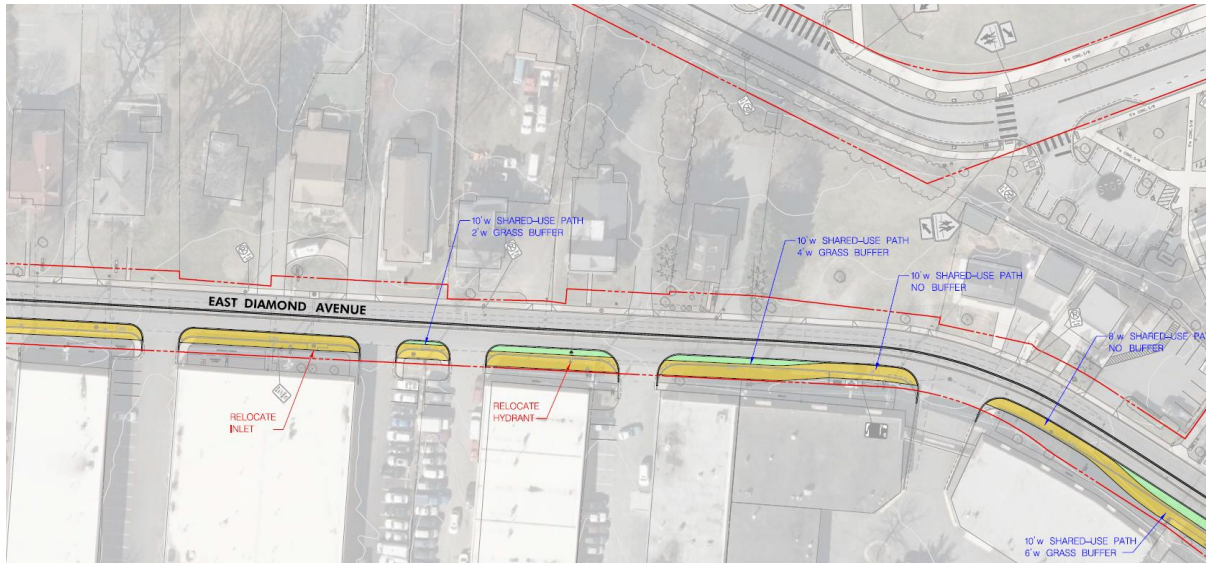


Figure 16: Concept 2, east of Melvin Street

Not shown in this concept, is the widened SUP connection the Youth Center property between Teachers Way and Diamond Ave. This connection would be suitable if an additional crosswalk across Diamond Ave were also installed to connect this SUP to the one proposed in Concept 2.

As the Concept 2 SUP approaches Girard Street from the west, its alignment stays along the south side of Diamond Ave. The existing curb line is moved northward (which removes the westbound right turn lanes, as in Concept 1) and the roadway segment is re-striped for two (2) 12-foot travel lanes, as shown in Figure 17. The narrowed roadway allows for a 10-foot SUP and variable width buffer, without impacting private property or utilities. Additionally, the SUP provides direct access to the existing bus stop at the intersection of Girard Street at Diamond Ave.

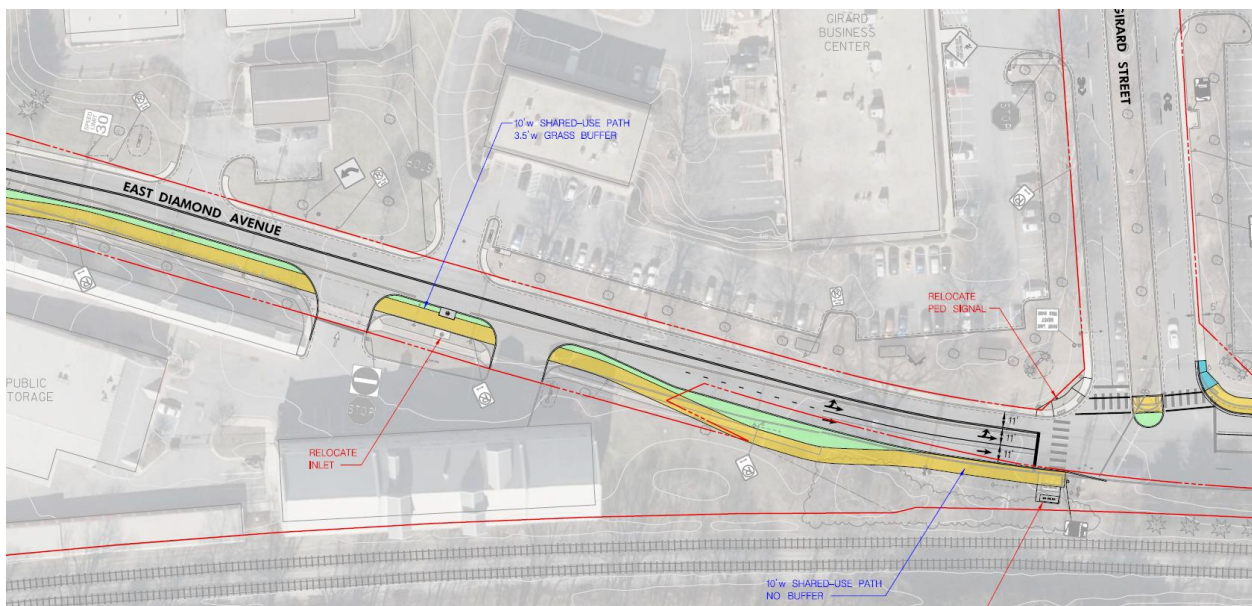


Figure 17: Concept 2 SUP approaching Girard Street



As shown in Figure 17, the SUP transitions from the south side to the north side of Diamond Ave at Girard Street. The remainder of the proposed SUP is identical to that shown in Concept 1.

Concept 3: Teachers Way to Girard Street

Both Concept 1 and 2 rely on Diamond Ave as a means for constructing an SUP. This is primarily due to it being the most direct and efficient routing to get between the MARC station and Washington Grove. However, directly to the north of Diamond Ave, Teachers Way provides a parallel route to Diamond that is less direct but doesn't require right of way takes, or curb relocations along Diamond Ave. As shown in Figure 18, the proposed SUP starts along the north side of Diamond Ave (similar to Concept 1) but then traverses northward along Melvin Street to Teachers Way, avoiding the need to move curb lines and potentially utilities along Diamond Ave. Of note, Figure 18 shows privately-held Melvin Street as a narrowed roadway, where the east curb line is moved into the street to create space for an east-side SUP; this roadway narrowing would result in Melvin Street being one-way only³. Alternatively, instead of creating a SUP by moving curb lines, Melvin Street can be converted to a calmed shared-street, with low overall speeds (<20mph) suitable for on-road biking, as there is already sidewalk along one side of the street. Potential means for creating a calmed street could be resurfacing the roadway with a stamped asphalt pattern that mimics cobblestone or by employing a series of speed tables.

Additionally, Figure 18 shows that the private alley along the west side of Gaithersburg Station Apartments would provide a more direct route to Teachers Way from the MARC station and would avoid Diamond Ave altogether, there are severe limitation to its use currently and accordingly it was not shown in this concept. Specifically, the alley is gated on both sides and is only one travel lane wide – with the remaining space dedicated to resident parking (which is fully-occupied in the evening). Additionally, since the alley is only one-way, it cannot be converted into a shared two-way biking/driving facility like Melvin Street could.

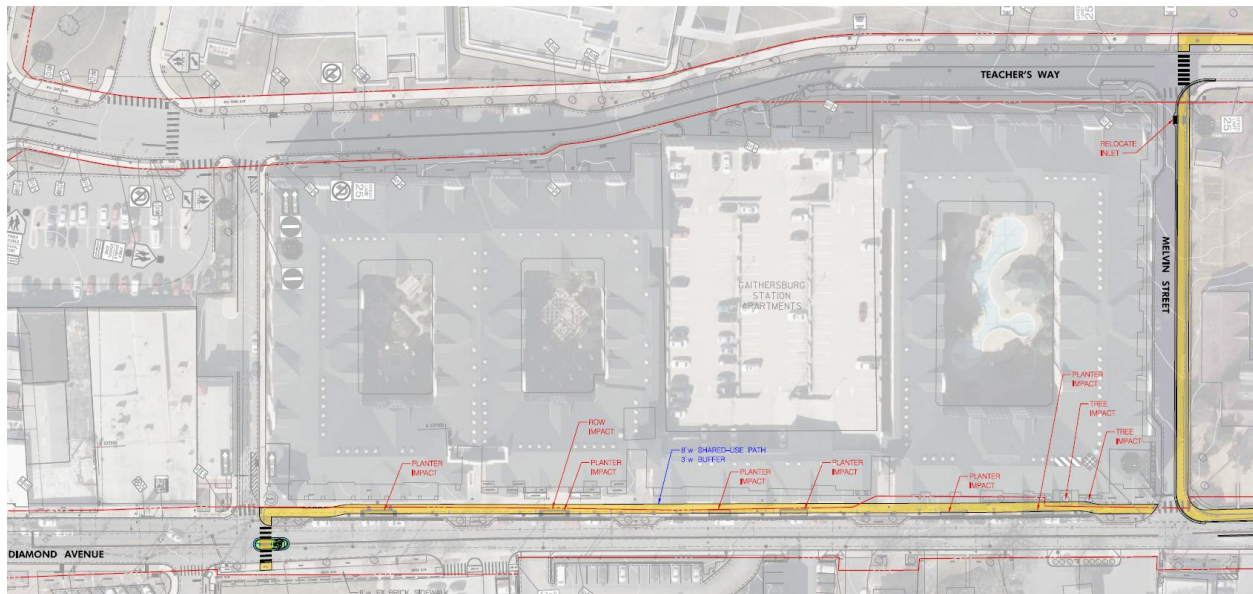


Figure 18: Concept 3, Teachers Way via Melvin Street

³ Based on school drop-off patterns, Melvin Street would work best as a one-way *northbound* roadway.



In between Melvin Street and Girard Street, there is an existing 8-foot wide sidewalk. The back of this sidewalk aligns with the public right of way limit. This segment of Teachers Way also has a tree-lined buffer between the roadway and sidewalk, as shown in Figure 19. The proposed SUP along this segment would require widening into the existing buffer and removing/replanting several trees. Note that no utilities would be impacted, and no curb lines would be relocated along Teachers Way.

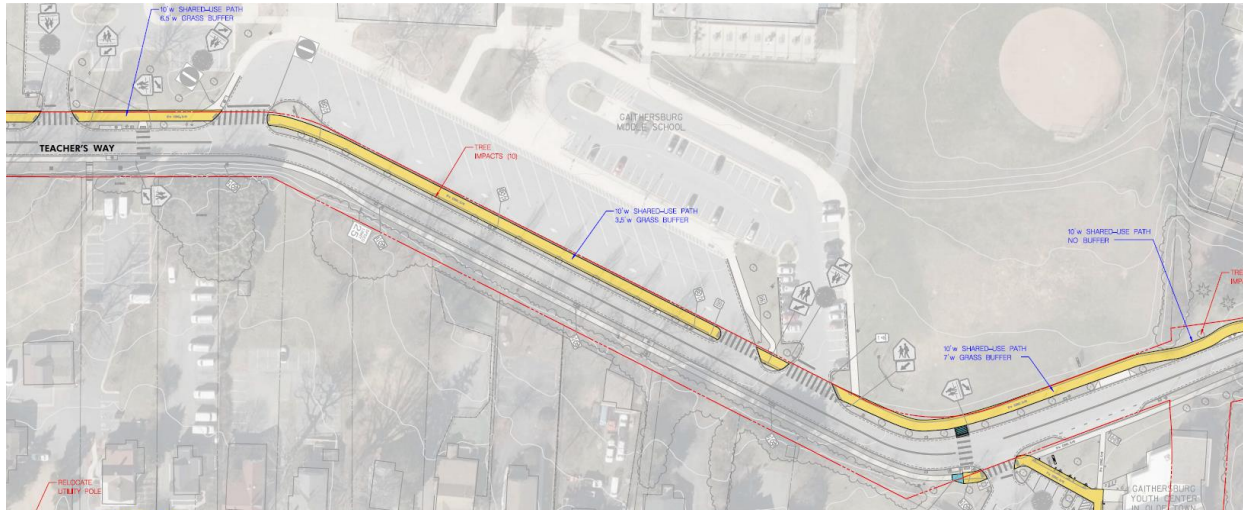


Figure 19: Concept 3, Teachers Way between Melvin St and Girard St

As shown in Figure 20, as the proposed Teachers Way SUP traverses eastward to Girard Street, several more trees would be impacted by the widening of the existing sidewalk. For the SUP to realign with Diamond Ave, Concept 3 proposes removing a northbound lane of Girard Street and constructing a buffered SUP in its place, as shown in Figure 20. Girard Street has an average daily traffic volume of about 12,000 cars per day and can accommodate that loss of a northbound receiving lane with no impact to traffic; Girard Street is uncontrolled at its intersection with Teachers Way, and therefore northbound traffic does not have to stop at the intersection for other vehicle traffic. Additionally, the northbound left turn lane on Girard Street is retained in this concept. The proposed Girard Street SUP would cross to the north side of its intersection with Teachers Way.

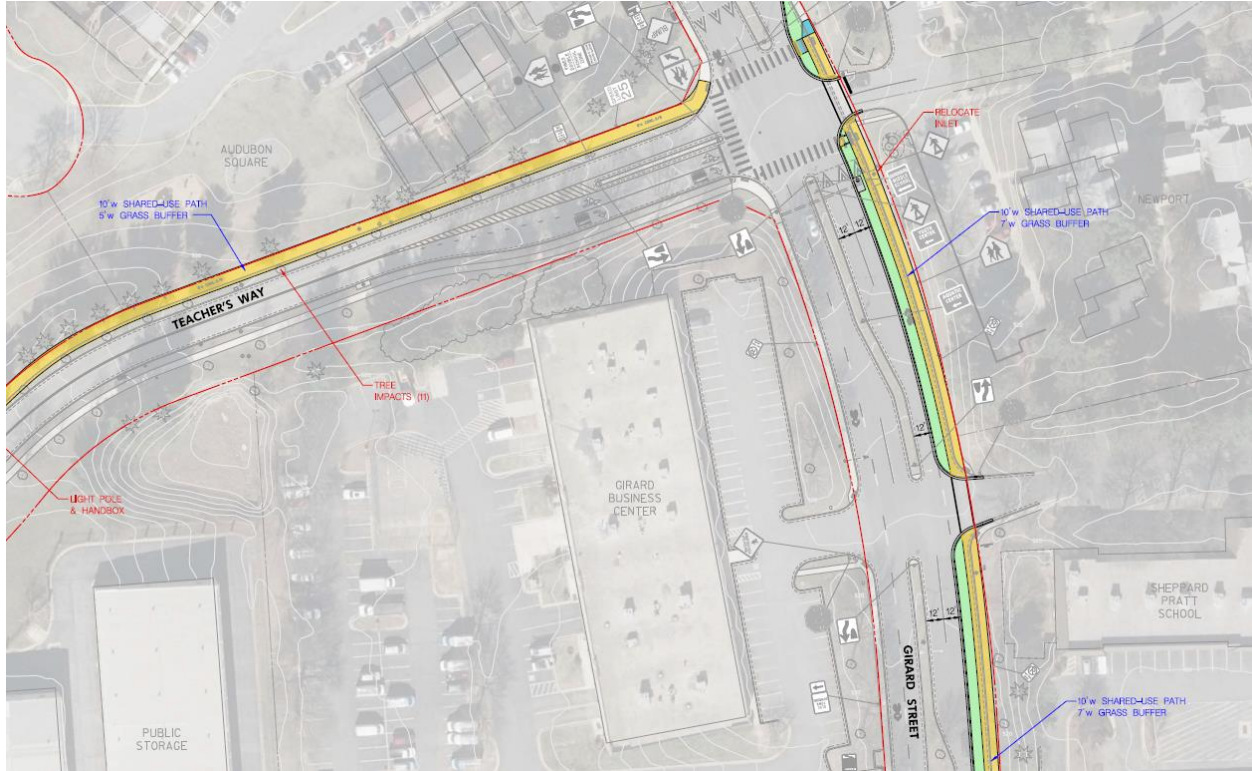


Figure 20: Concept 3, Teachers Way to Girard Street SUP

At the intersection of Girard Street and Diamond Ave, the SUP would continue along the north side of Diamond Ave toward Washington Grove, identical to both Concepts 1 and 2.

Planning Staff Comments

City Planning Staff reviewed the set of conceptual plans for each concept. Planning staff provided comments on these plans. Those comments focused primarily on addressing and quantifying the impacts of each concept on utilities, trees and other obstacles.

IMPACTS ANALYSIS

Table 1 shows the estimated impacts as well as construction quantities for each of the three concepts. As shown in the table below, the overall limits of disturbance for Concepts 1 and 2 are similar, but substantially higher for Concept 3. This will have a larger impact, accordingly, on stormwater mitigation needs. Of note, all three concepts have a *negative* net impervious surface impact, due largely to the fact that the asphalt SUP is replacing either existing sidewalk or existing roadbed.

Concept 3 has a higher impact on existing tree removal due to the need to widen the existing sidewalk into the tree-lined buffer along Teachers Way. Additionally, because Concept 3 is a more circuitous route, it requires more asphalt path construction than Concepts 1 and 2.



Table 1: Estimated SUP Impacts and Quantities.

Metric	Unit	Concept 1	Concept 2	Concept 3	Notes on Quantifying Impacts
Limits of Disturbance (LOD)	Sq Feet	71,300	67,600	115,000	LOD includes saw cuts plus additional disturbance for estimated grading.
Right of Way Takes	Sq Feet	7,000	4,500	11,600	Most of these "takes" already have existing sidewalk along them, and the expanded paths would not encroach into further private property.
Additional ROW Takes if Path not narrowed	Sq Feet	170	130	280	Presumes that all utility poles are relocated and accordingly all pathway widths remain consistent without pinchpoints.
Utility poles relocated	each	7	8	7	Can be designed around.
Guy wire crossing to be relocated	each	3	3	3	Guy wires can be redesigned for adequate clearance without relocating poles.
Light poles relocated	each	0	4	1	
Youth Center Ped lights relocated	each	11	11	11	Optional only if Youth Center pathway widening is constructed.
Ped signal relocated	each	0	1	0	
Trees removed	each	4	3	26	
Inlets relocated	each	4	5	6	
Fire hydrants relocated	each	2	3	2	Can potentially be designed around.
Net change in impervious surface	Sq Feet	-2,600	-1,200	-1,800	this is because most of SUP replaces existing sidewalk or existing roadway, while some the proposed pavement removal is replaced with grass buffer.
New asphalt	Sq Feet	38,100	32,800	61,000	
Asphalt removal	Sq Feet	22,200	21,600	30,100	
New ADA Pedestrian Ramps	each	27	32	35	
D/W aprons reconstructed	Sq Feet	2,500	3,000	2,500	
New Curb and gutter	Lin. Feet	3,500	3,600	4,200	
Curb & gutter removal	Lin. Feet	2,600	2,500	3,400	
Sidewalk removal	Sq Feet	19,000	12,100	37,000	

Planning Level Construction Cost

Based on the estimated quantities for each concept, the planning level construction cost is:

- Concept 1, north Side of Diamond Ave: \$2,100,000
- Concept 2, south Side of Diamond Ave: \$2,200,000
- Concept 3, Teachers Way to Girard Street: \$2,700,000
 - Option for leaving 8-foot sidewalk as is along Teachers Way: \$2,200,000

These estimates include: design fees, costs for stormwater permitting and construction, landscaping, maintenance of traffic, 10% contingency costs, and are adjusted for 3% inflation for the next five years. Primary drivers for the costs related to curb relocations (for lane narrowing to create trail space), inlet relocations, utility pole relocations, and driveway apron reconstruction – in addition to the cost of the trail itself. As with any project, there are opportunities to value engineer the construction cost lower. An example of this is deviating from the ideal trail width or buffer width for short segments in order to avoid utility relocation.

These estimates presume a nominal cost for Right of Way acquisition, given that no *new* right of way is being taken, but rather existing sidewalk along private parcels is being replaced in kind with a SUP that



doesn't further encroach upon private property⁴. Note that this is not the case for acquiring part of Melvin Street, per Concept 3. Additionally, there are options for reducing cost in the next design stage where limiting utility pole relocations can be a significant cost saver. In addition to the utility pole relocations, primary cost drivers are the new curb and gutter, inlet relocations, and new asphalt for the SUP itself.

Options 1 and 2 provide a more direct access between the MARC Station and the Shady Grove Metro Station. Because they offer a more direct route for accessing transit amenities as well as existing (and future) retail options, Options 1 and 2 are preferable over options 3. While Option 3 has a segment that offers lower bicycle stress than Diamond Ave, both options 1 and 2 (along Diamond Ave) would have similar stress levels to Teachers Way, once constructed with an off-road side path.

DESIGN CONSIDERATIONS AND NEXT STEPS

Design Considerations

Generally speaking, design considerations for each concept included:

- Maintaining vertical and horizontal separation of the SUP from vehicle traffic. By providing a wide-enough SUP, cyclists and walkers could mix with obstructing each other.
- Where feasible, a minimum two-foot buffer between the SUP and the roadway is desirable to provide a degree of comfort for users of the proposed path.
- Emphasizing at-grade SUP crossings across intersections and driveway through high-visibility ladder-style crosswalk and proper signage.
- Creating a facility that is usable for all ages of cyclists. Because of the numerous spatial constraints, a facility that is a single SUP for walkers and bikers must be created. Repurposing travel lanes into protected bike lanes adjacent to sidewalks was not feasible due to the limited available width along all corridors.
- Minimizing mature tree removal.
- Minimizing expensive utility relocations, such as above ground utility poles, by meandering a SUP or narrowing at spot locations.
- Designing for ease of continuing maintenance.
- Review of the bus stop locations is needed with Montgomery County RideOn prior to advancement of the next design stage.
- A lighting analysis is required to ascertain if sufficient trail lighting is available along the selected alternative. There is existing lighting along utility poles along all three alignments (Teachers Way has pedestrian-scale lighting fixtures), but the lighting spacing may be insufficient for trail design which requires higher vertical and horizontal illumination levels than roadway lighting.

Design Options and Phasing

While each concept is technically feasible and constructable, there are logistical and design hurdles to each, as well as design compromises needed during the next design stage. A primary example of a design compromise would be the need to relocate large utility poles when perhaps a spot-narrowing of the SUP from 10 feet to 8 feet would be acceptable. A major logistical hurdle involves concepts that

⁴ The exception to this is Washington Grove Center for all three concepts; and for Concept 2 there are 5 separate parcels along the south side of Diamond Ave that would require small takes of land that is primarily used as buffer space behind existing sidewalk.



require right of way easements or takes – particularly concepts that require takes from multiple adjacent property owners. Additionally, concepts that involve public space in front of Gaithersburg Station Apartments will require an adjustment to the City’s current MOU allowing planters in the public right of way. Generally, the largest design hurdle for all concepts relates to roadway narrowing – particularly Diamond Ave. While technically feasible, relocating curb lines requires relocating inlet at a minimum and potential relocation of the manholes as well.

In terms of design/construction phasing, the common design element across all concepts is a SUP along the north side of Diamond Ave from Girard Street to Washington Grove (Brown Street). Accordingly, this segment should be prioritized in the design process. Also, part of this segment represents the only gap in the pedestrian network preventing a complete connection from Downtown Gaithersburg to the Shady Grove Metro Station (once Montgomery County completes the construction of the SUP from the metro station to Brown Street). Finally, the SUP for this segment would be entirely in public right of way and can be constructed without infringing on MCDOT roadway standards regarding minimum lane widths.⁵

Placemaking Options

The SUP traverses multiple municipalities, neighborhoods, and schools and links to different transit modes. One way to create cohesiveness, raise awareness, and encourage use of this community asset is to integrate placemaking elements. Placemaking refers to the idea of transforming public spaces to strengthen the connections between people and place. In the context of this project, placemaking is applicable to create inviting access points to the trail network that functions as waypoints at trail crossroads or transit stations. An example of placemaking is shown in the rendering in Figure 21. Opportunities for placemaking should be explored in the next design phase.

⁵ A portion of Diamond Ave, just west of Washington Grove, is County-owned public right of way.



OLDE TOWNE TO WASHINGTON GROVE

YOUTH CENTER CONNECTION - PLACEMAKING CONCEPT

FLOURA TEETER
landscape architects
APRIL 2023

Figure 21: Example of Place making elements on Diamond Ave by the Youth Center

Wayfinding Signage

Wayfinding refers to information systems that guide people through a physical environment and enhances their understanding of and experience in the space. Wayfinding design systems should be an aid to the user in orienting themselves in a space and in navigating to specific destinations. The proposed SUP, while under a mile in length, joins two municipalities, two schools, a youth center, dense-residential, two retail districts, a MARC station, and ultimately a Metro Station. These activity centers are all destinations that can be signed for with distance markers in a cohesive wayfinding signage system.

Presentation to the Mayor and City Council

On June 12, 2023, the concepts were presented to the Mayor & City Council at a Council Work Session, held at City Hall. After the presentation, the Mayor & City Council asked questions and provided comments on the plans. Specifically:

- A question was raised about the ability to provide pedestrian island refuge on Diamond Ave, given the roadway constraints and adjacent parking spaces.
 - *Response: because there is no southbound left turn from the private alley, there is sufficient room for a pedestrian median refuge island, that is at least 6 feet wide and is long enough to have a protected area as wide as the proposed crosswalk.*
- A question was raised about not utilizing right of way within the existing CSX railroad corridor.
 - *Response: this corridor was evaluated in the past, with maintenance, permitting, and ownership issues being the primary reasons for dismissing it.*
- A question was raised about the primary of drivers of construction cost.
 - *Response: curb moving and inlet relocations drive up construction costs*



- A question was raised about saving parking spaces.
 - *Response: all spaces remain*
- There was a comment that no solution presented was ideal, but that there is clearly a critical gap in the pedestrian/bike network.
 - *Response: Noted*
- A question was raised about providing pedestrian lighting or beacons in the proposed median refuge island on Diamond Ave
 - *Response: This will be evaluated in the next design phase*

Next Steps in the Design Process

The next step in the design process is for the feasibility concept to be further refined in a concept level study to determine next steps with a recommendation. After which, City Staff should recommend a selected concept for advancement into 30% design and then secure funding for 30% design. This design stage should include a topographic survey and a boundary survey to locate exact lot lines and public right of way limits, as well as any existing easements. This stage should also evaluate options for stormwater mitigation and identify any additional permits required for construction. 30% design also entails a more accurate construction cost estimate. Additionally, once an alignment is chosen, all public and private stakeholders should be identified and notified of the design process.

During the 30% design phase, the process of securing funding for 65% Design and Final Design with Specifications should begin. For this design phase, all necessary permits are obtained including SWM approval by City of Gaithersburg and Montgomery County Department of Permitting Services. The final step is to secure funding for and begin construction. Note that construction (and even design) can occur in phases, as this project has the potential to be both costly and require a significant amount of time for utility relocation and/or right of way purchase.

After construction of the shared use path, an increase in pedestrian and cycling activity along Diamond Ave is expected. Accordingly, the City of Gaithersburg should consider a speed study, once the trail is constructed, to determine if the average and 85th percentile speeds are slow enough for the type of multimodal facility the City desires for Downtown. If the speeds are too high, then a speed limit reduction from 30 mph to 25 mph and additional traffic calming (e.g., new high-visibility crosswalks) along Diamond Ave is recommended.

FUNDING OPPORTUNITIES

Funding for projects can often be an obstacle to implementation. In addition to using local funds, there are several state/federal grant programs that offer monetary support for implementing the recommended bicycle facilities in this study. The following funding sources have been identified as applicable and potential grant programs.

Transportation Alternatives Program (TAP). This program is administered and supported by the Maryland State Highway Administration, with reimbursement from the Federal Highway Administration, for the purpose of funding projects that enhance the cultural, aesthetic, historic, and environmental aspects of the State's intermodal transportation system. The program is set up to sub-allocate fifty percent of the funding directly to local Metropolitan Planning Organizations who are the responsible reviewers of proposed projects within their jurisdiction. Recommendations under this study would be eligible as they meet the requirements of 1) relating to surface transportation; and 2) meeting at least one of the ten



qualifying TAP categories such as New Walking and Biking Connections and Facilities, Safe Routes to School (SRTS), or related environmental mitigation. Project sponsors are responsible for design, management, construction, implementation, and permits as well as a minimum of 20% of all project costs. MDOT recently updated their tap manual at: https://roads.maryland.gov/OPPEN/TAP_Manual_2022.pdf.

Maryland Bikeways Program. Supported and administered by the Maryland Department of Transportation, the goal of the program is to fill in the gaps in Maryland’s bike network to support biking and bikeshare programs. An eligible project meets one of the following criteria: 1) located substantially within the Priority Funding Area (PFA) and/or located within three miles of a rail transit station or major bus transit hub, 2) provide or enhance bicycle access along any gap identified in the Statewide Trails Plan “A Greener Way to Go”, and/or 3) identified as a transportation priority in a County’s most recent annual priority letter submitted to MDOT. Note that all projects in this report are within a PFA (either State or Municipal PFA) and all projects are within three miles of rail transit. The local match requirements are a) zero percent for priority minor retrofit, b) twenty percent for other priority projects, and c) fifty percent for non-priority projects. The match may include cash or in-kind services contributing to the project such as expenditures up to twenty-four months prior to a Bikeways project award.

Recreational Trails Program. Administered by the State Highway Administration and supported by an 80/20 federal to local match, this program funds community based, motorized and non-motorized recreational trail projects. The trails can be for pedestrian and bicycling paths as well as for specific uses such as in-line skating, cross-country skiing, equestrian use, and four-wheel driving. The program funds not only new construction of trails but also maintenance and restoration of existing trails, purchase or lease of trail construction equipment, acquisition of easements or property for trails, and implementation of interpretive/education programs to promote intrinsic qualities, safety, and environmental protection. The matching funds must be committed in the local jurisdiction’s budget and awards may not exceed \$40,000 for new construction and \$30,000 for other projects. Preferred programs to be funded include the following characteristics: connect communities with natural/cultural areas or tourism areas (e.g., Scenic Byways, Heritage Areas, Canal Towns); have broad-based community support; complete a missing link in the State Trails Plan; or link or complete existing trails. The latest RTP manual can be found here: https://roads.maryland.gov/OPPEN/RTP_2022_manual_for_website_page_98_OPPE.pdf

Safe Routes to Schools. Administered by the State Highway Administration and supported by an 80/20 federal to local match, this program funds infrastructure and non-infrastructure projects that support safe and sustainable routes for K-8 aged children to walk, roll, or bicycle to school. Projects categorized as safe routes to school must be requested through the larger Transportation Alternatives Program. Eligible project types that overlap with the recommendations under this study include traffic calming and speed reduction improvements, bike/pedestrian crossing improvements, and bicycle parking. This program would be applicable, as there are multiple schools located close to the project – Gaithersburg Middle and Elementary schools – allowing the City or County to qualify for Safe Routes to School funding.

MWCOG Transportation Land Use Connections (TLC) Grants. As members of MWCOG, Gaithersburg and Montgomery County can apply for Planning and Design grants to fund studies or designs for planned projects. The TLC Program will provide consultant assistance, valued between \$30,000 - \$60,000 for planning projects and up to \$80,000 for design or preliminary engineering projects, for projects that promote mixed-use, walkable communities and support a variety of transportation alternatives. These are annual grants and are competitive among the jurisdictional members.



MWCOG Transit Within Reach Program (TWR) Grants. The Transit Within Reach Program provides funding for design and preliminary engineering (up to 30% design) for projects that improve biking and walking connections to existing high-capacity transit stations, including Metrorail, commuter rail, light rail, streetcar, bus rapid transit, and multimodal stations. Project categories may include (but are not limited to): Cost estimates of improvements; engineering systems description and analysis; preliminary or schematic drawings with site plans and elevations; renderings of site massing, elevation, or facility interior/exterior spaces; site surveys. Grants are currently offered on a biennial cycle between FY 2021 and FY 2026. Approximately \$80,000 will be available per grant.

SUMMARY

The following summary is based on the development, refinement, and analysis of three proposed concepts for providing a SUP between Gaithersburg MARC station and Washington Grove:

- Three constructable concepts were developed for creating a shared-use path between Gaithersburg MARC station and Brown Street in Washington Grove, with two of the concepts being along the north and south sides of Diamond Ave, respectively, and the third concept utilizing Teachers Way and Girard Street to circumnavigate some of the challenges along Diamond Ave.
- By utilizing only Diamond Ave, Concepts 1 and 2 provide a more direct and intuitive route between Downtown Gaithersburg and Washington Grove. However, this directness comes at the cost of: 1) narrowing the street width to create a new usable public space; and 2) right of way takes in the case of Concept 2 and MOU modifications (with Gaithersburg Station Apartments) in the case of Concept 1 in order to provide sufficient space for walkers and cyclists.
 - A benefit to narrowing Diamond Ave is that it will have a traffic calming effect – particularly during off-peak hours.
- Concept 3 uses a more circuitous routing – via Teachers Way and Girard Street – to avoid some of the requisite roadway narrowing of Diamond Ave in concepts 1 and 2. However, getting from the MARC station to Teachers Way requires constructing a SUP or shared biking/driving facility entirely on a privately-owned roadway.
- Coordination with Montgomery County DOT, as well as authorization from the County, will be necessary during the next development stage (30% Design) as DOT owns the signal and approaches at the intersection of Diamond Ave/Railroad Street/Washington Grove Lane. Additionally, coordination with Washington Grove will be required prior to any further design effort, as a critical segment of each concept traverse property within the Town of Washington Grove.
- A primary constraint to continuing the SUP from the Gaithersburg municipal limits to Brown Street in Washington Grove is the property owned by the Washington Grove Commercial Center that abuts Railroad Street. There is narrow public right-of-way at this location of Railroad Street, resulting in the need to acquire an easement on the private property to construct the SUP between Brown Street and Diamond Avenue.
 - Coordination and cooperation between the Town of Washington Grove and the property owner is a critical path to constructing the SUP, regardless of which concept is chosen.



- Concepts 1 and 2 are expected to have a similar cost, around \$2 million, with concept 3 expected to cost around \$2.7 million due its longer alignment.
 - For each concept, there are opportunities to compromise on the ideal typical section of the buffered path that will reduce the overall cost.
- Wayfinding signage and destination markers are recommended.
- Placemaking elements are recommended.
- **Recommendation:** Based on the review of the study, it is determined that further design study is needed for Concept 1 and 2 for further advancement to determine next steps in the design phase.

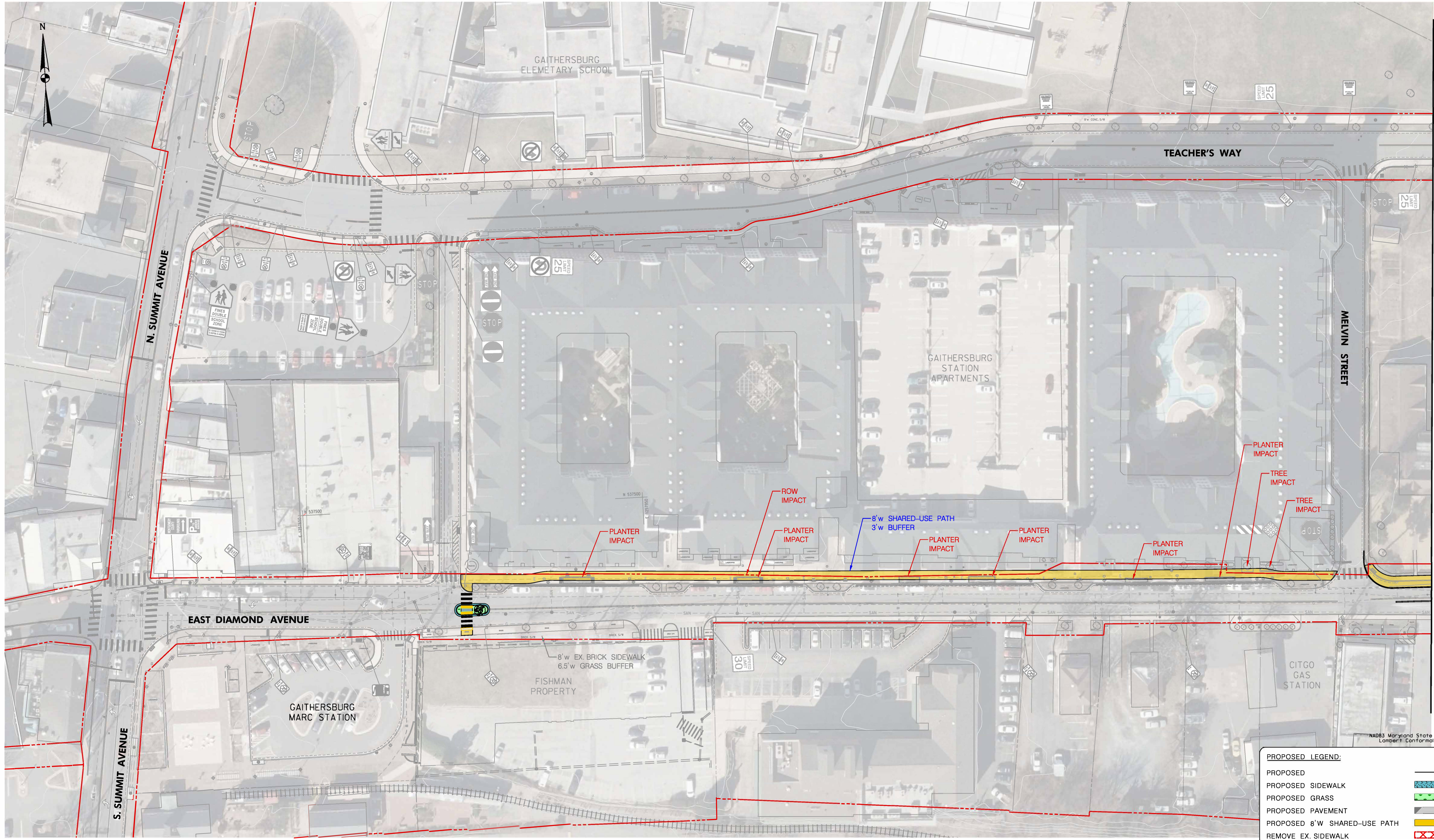


APPENDIX A – CONCEPT PLAN SET

*Gaithersburg MARC Station to Washington Grove Station
Bicycle Facility*

Concept 1

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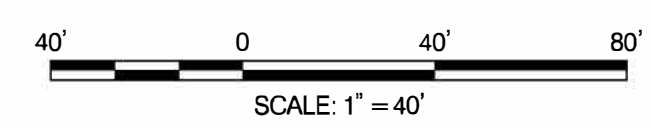


PROPOSED LEGEND:

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PROPOSED GRASS	
PROPOSED PAVEMENT	
PROPOSED 8'W SHARED-USE PATH	
REMOVE EX. SIDEWALK	



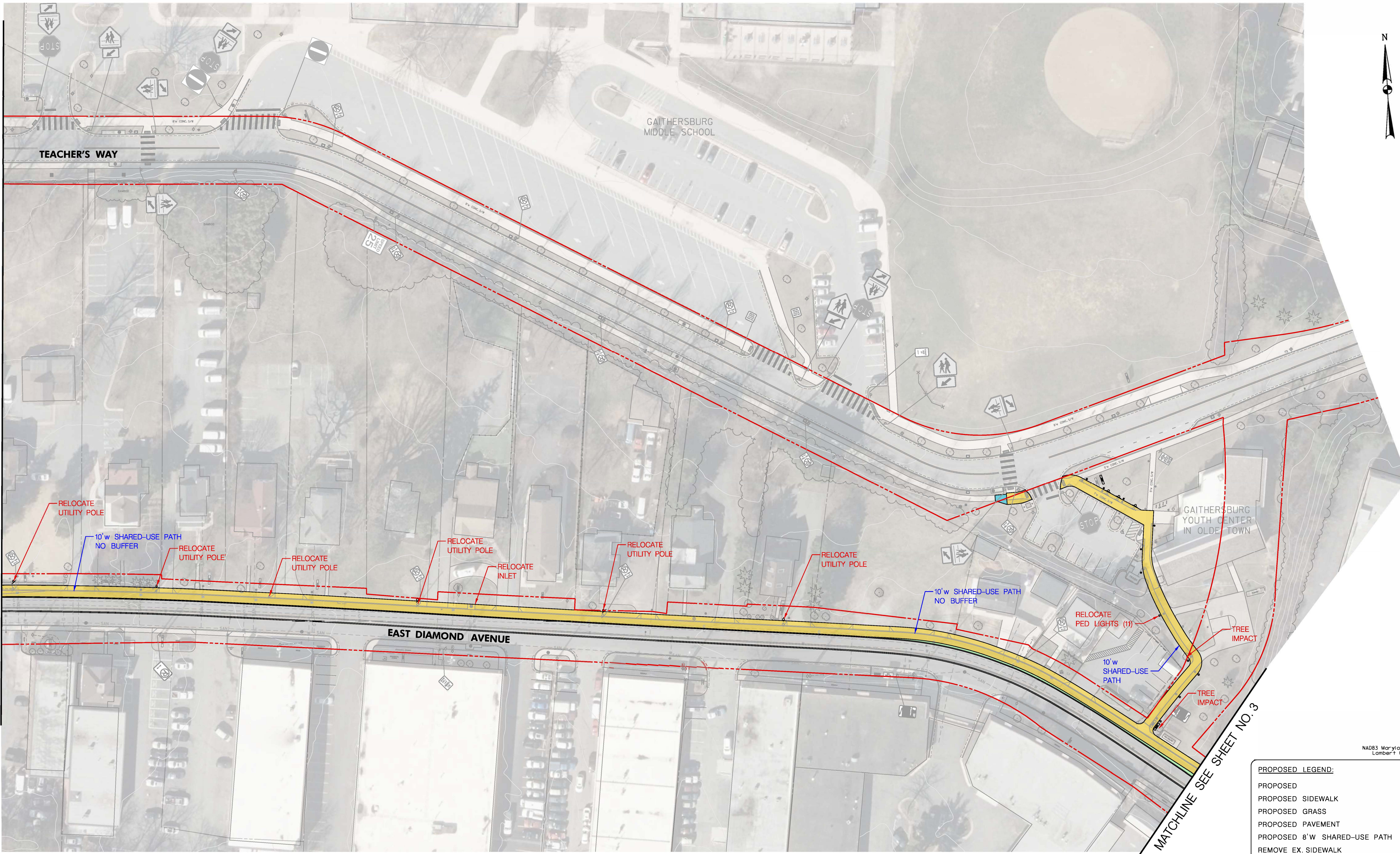
Gaithersburg MARC Station to Washington Grove Station Bicycle Facility – Concept 1



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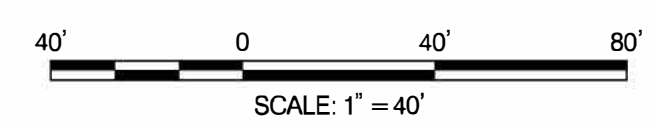
MATCHLINE SEE SHEET NO.1



NAD83 Maryland State Plane
Lambert Conformal Conic

PROPOSED LEGEND:

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PROPOSED PAVEMENT	
PROPOSED 8'W SHARED-USE PATH	
REMOVE EX. SIDEWALK	

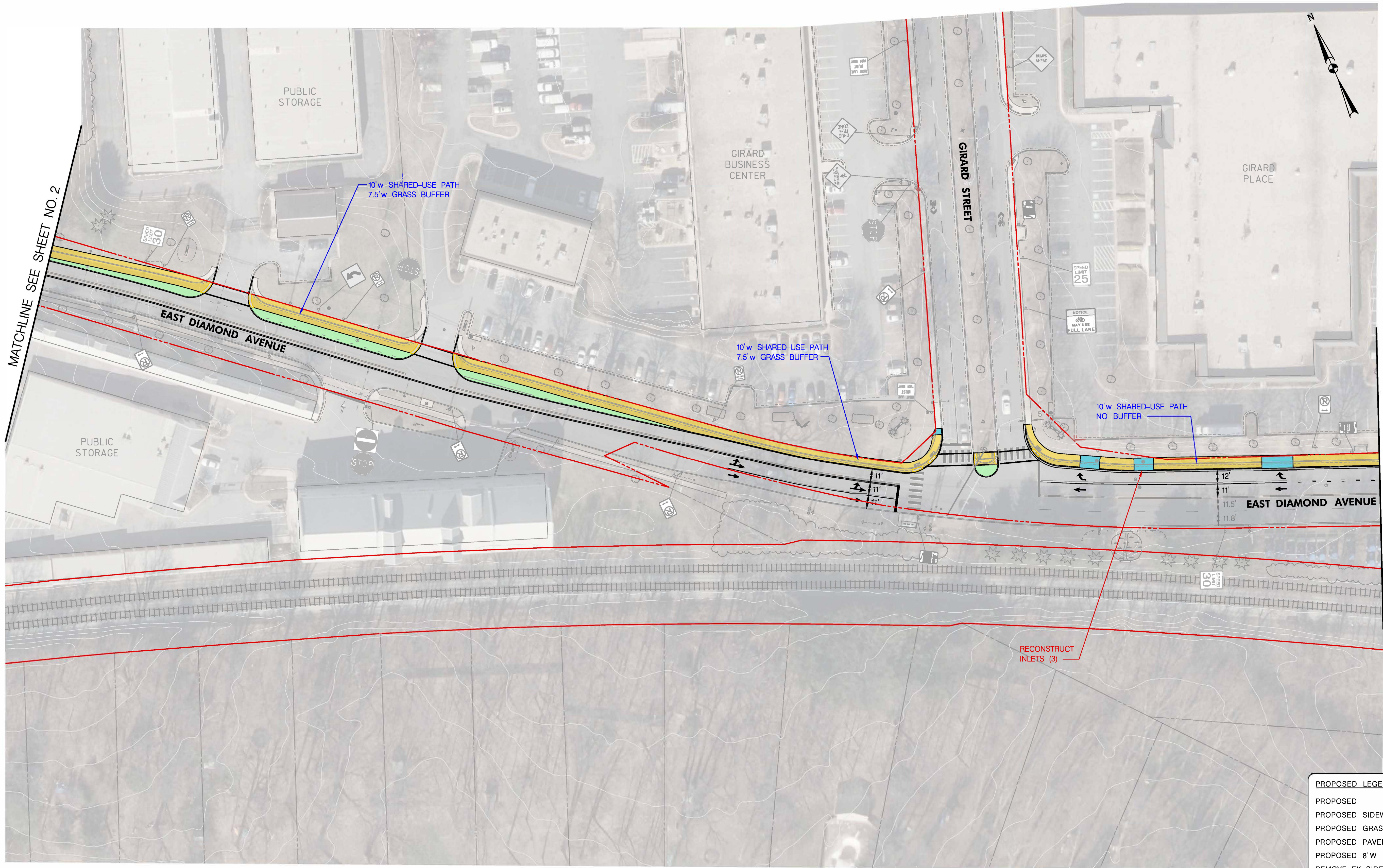


Sheet No. 2 of 4

Gaithersburg MARC Station to Washington Grove Station Bicycle Facility – Concept 1



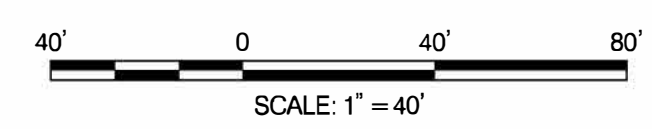
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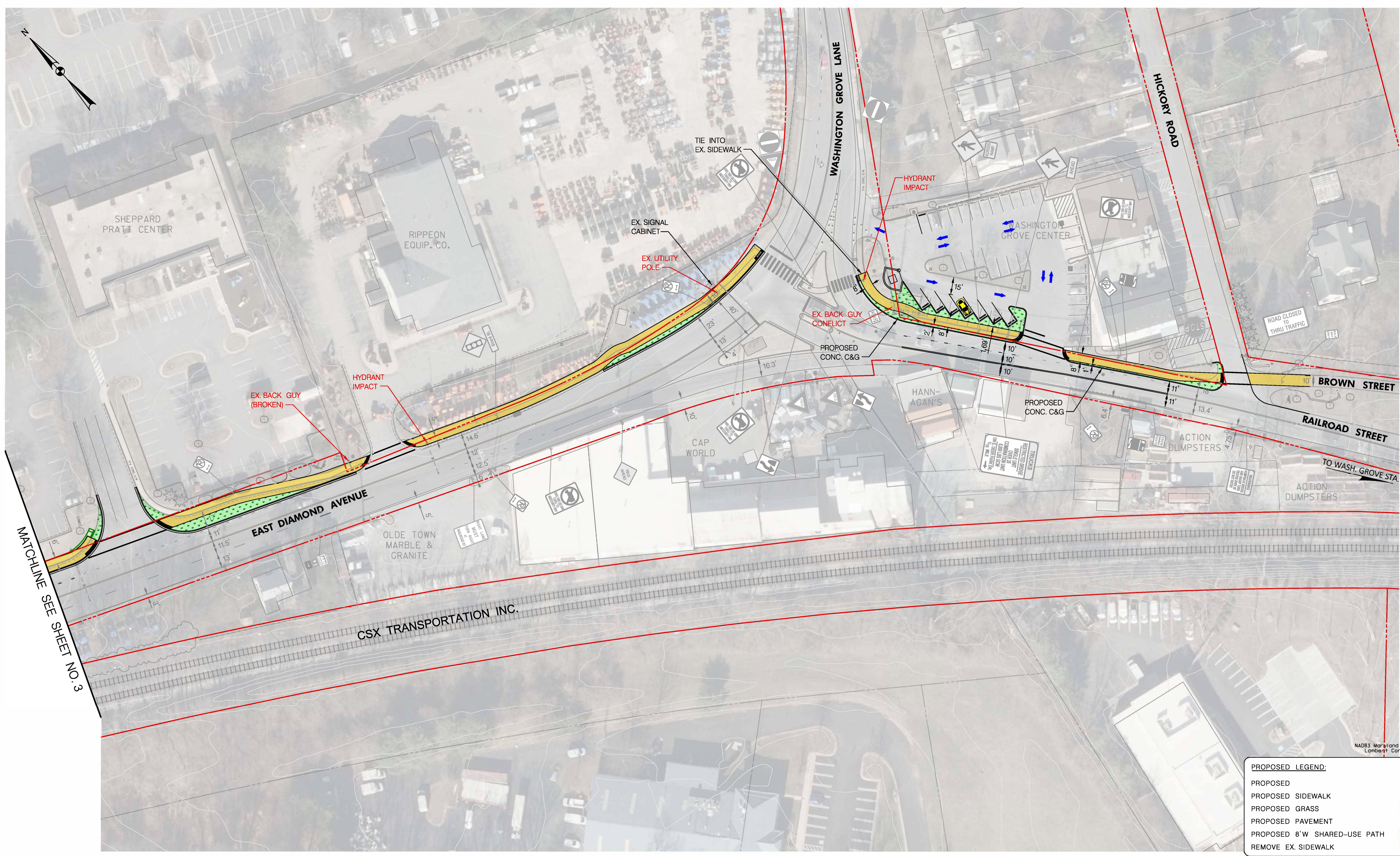
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Gaithersburg MARC Station to Washington Grove Station Bicycle Facility – Concept 1



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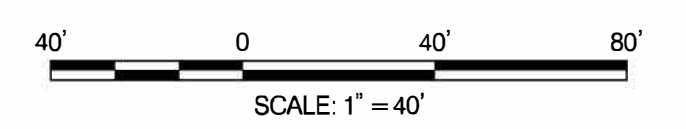
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NAD83 Maryland State Plane
 Lambert Conformal Conic

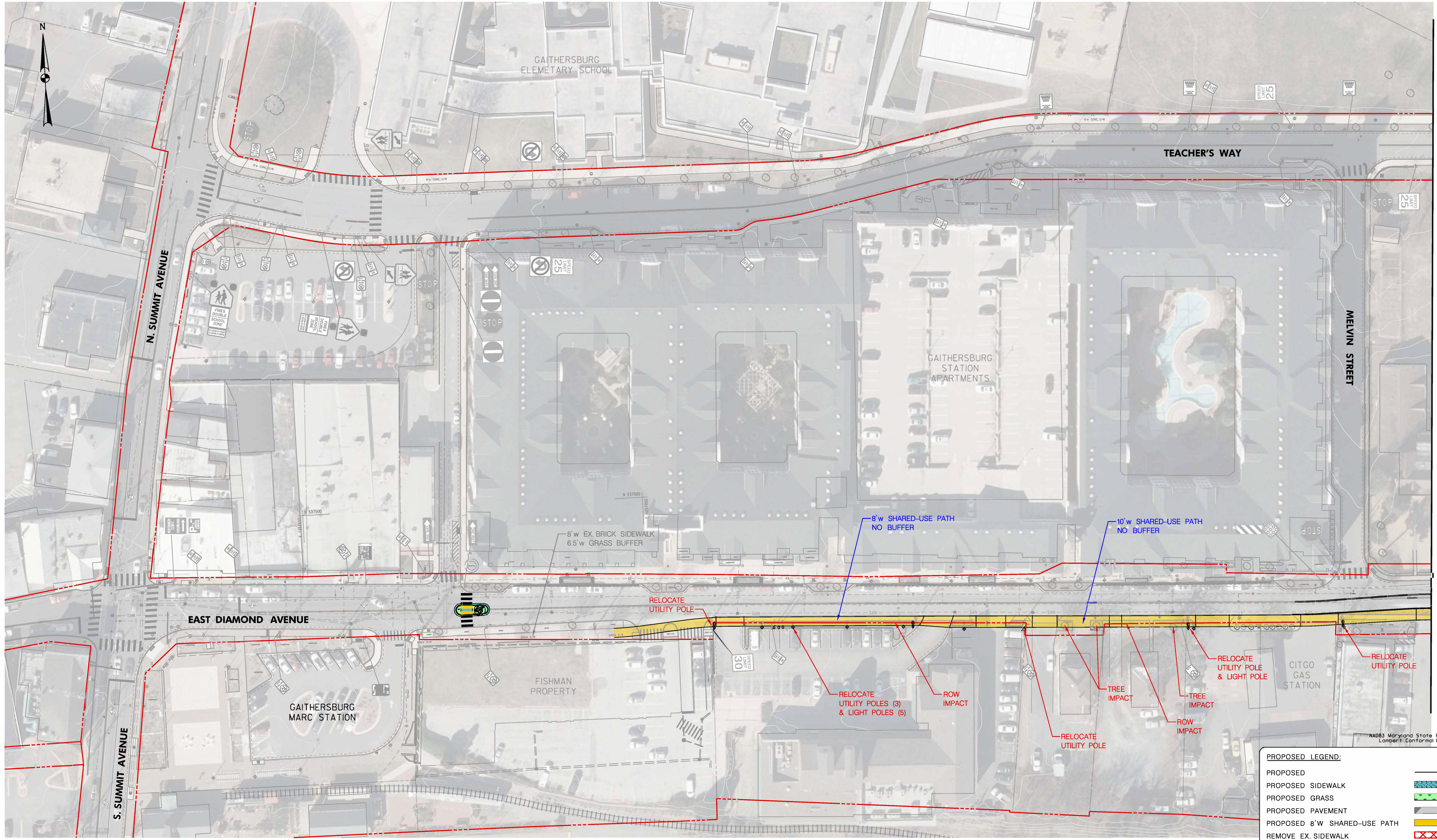


Gaithersburg MARC Station to Washington Grove Station Bicycle Facility – Concept 1



*Gaithersburg MARC Station to Washington Grove Station
Bicycle Facility*

Concept 2

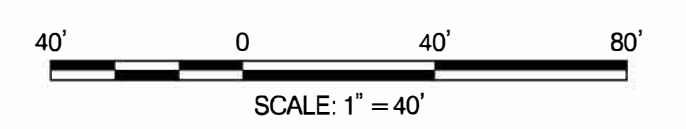


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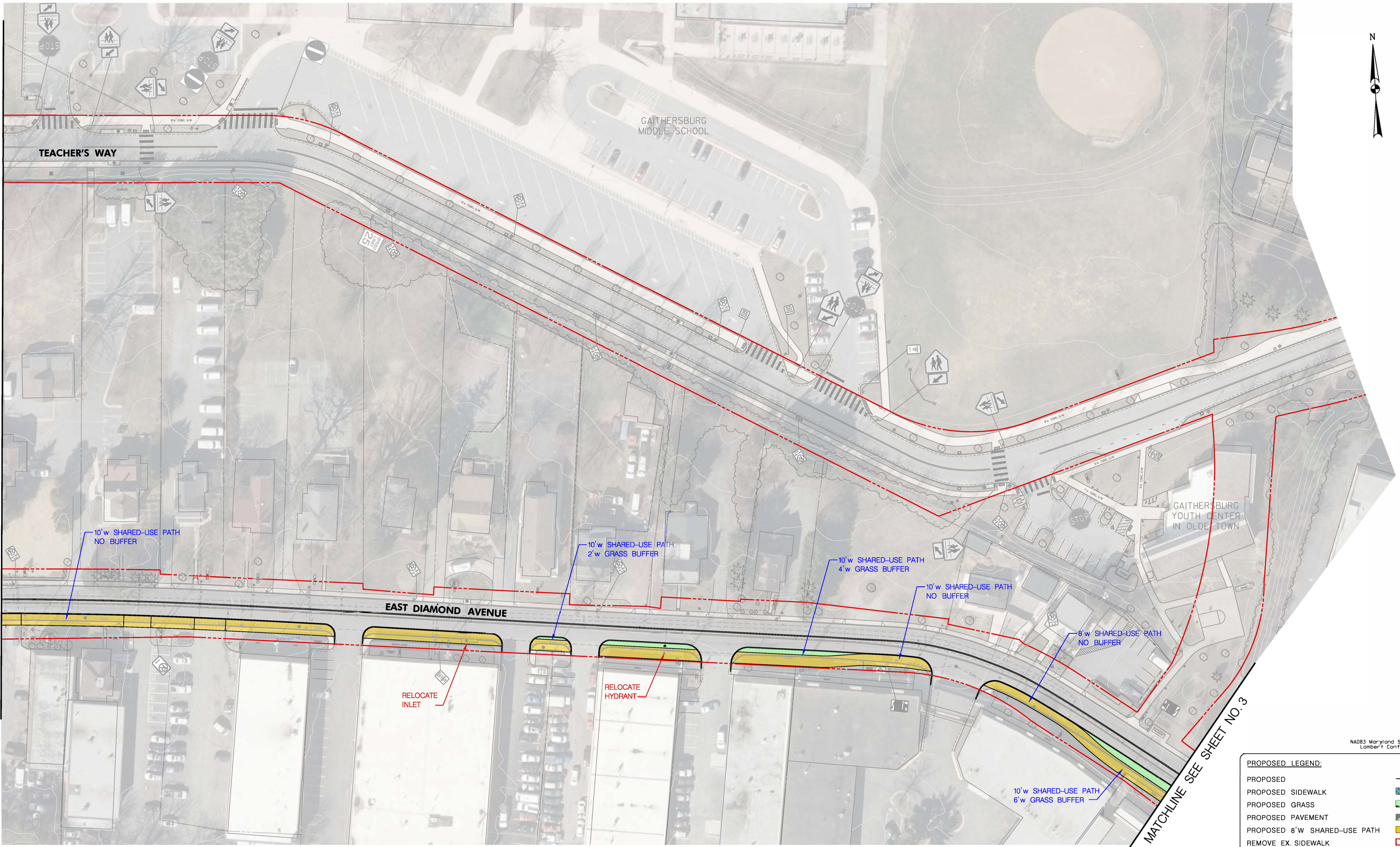
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PROPOSED GRASS	
PROPOSED PAVEMENT	
PROPOSED 8'W SHARED-USE PATH	
REMOVE EX. SIDEWALK	

Gaithersburg MARC Station to Washington Grove Station Bicycle Facility – Concept 2





MATCHLINE SEE SHEET NO.1



10'w SHARED-USE PATH
NO BUFFER

10'w SHARED-USE PATH
2'w GRASS BUFFER

10'w SHARED-USE PATH
4'w GRASS BUFFER

10'w SHARED-USE PATH
NO BUFFER

8'w SHARED-USE PATH
NO BUFFER

10'w SHARED-USE PATH
6'w GRASS BUFFER

RELOCATE
INLET

RELOCATE
HYDRANT

PROPOSED LEGEND:

PROPOSED	
PROPOSED SIDEWALK	
PROPOSED GRASS	
PROPOSED PAVEMENT	
PROPOSED 8'w SHARED-USE PATH	
REMOVE EX. SIDEWALK	

NAD83 Maryland State Plane
Lambert Conformal Conic



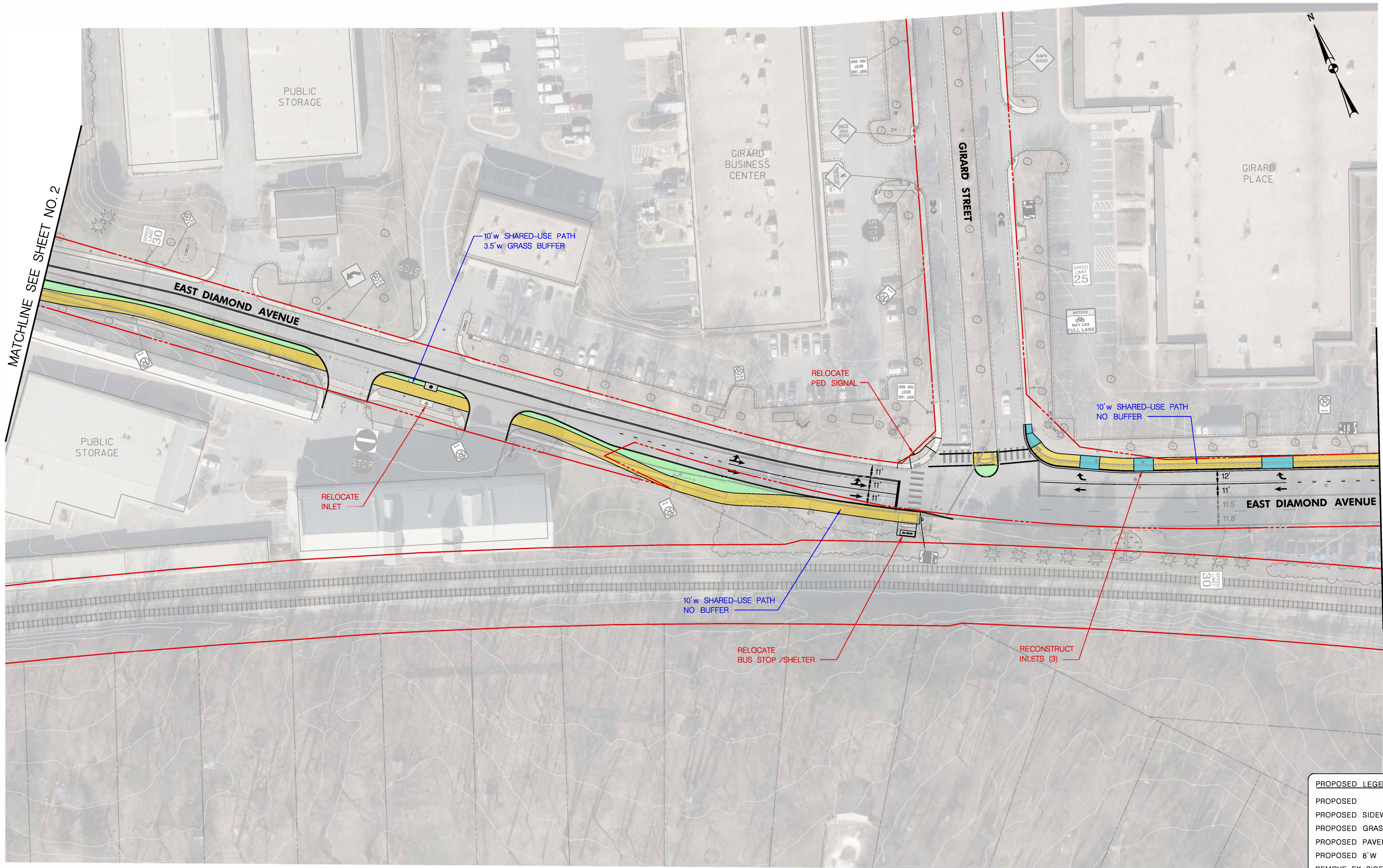
Sheet No. 2 of 4

Gaithersburg MARC Station to Washington Grove Station Bicycle Facility – Concept 2



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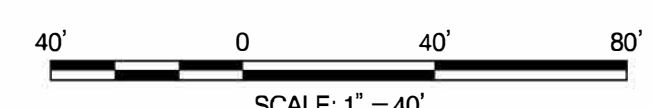
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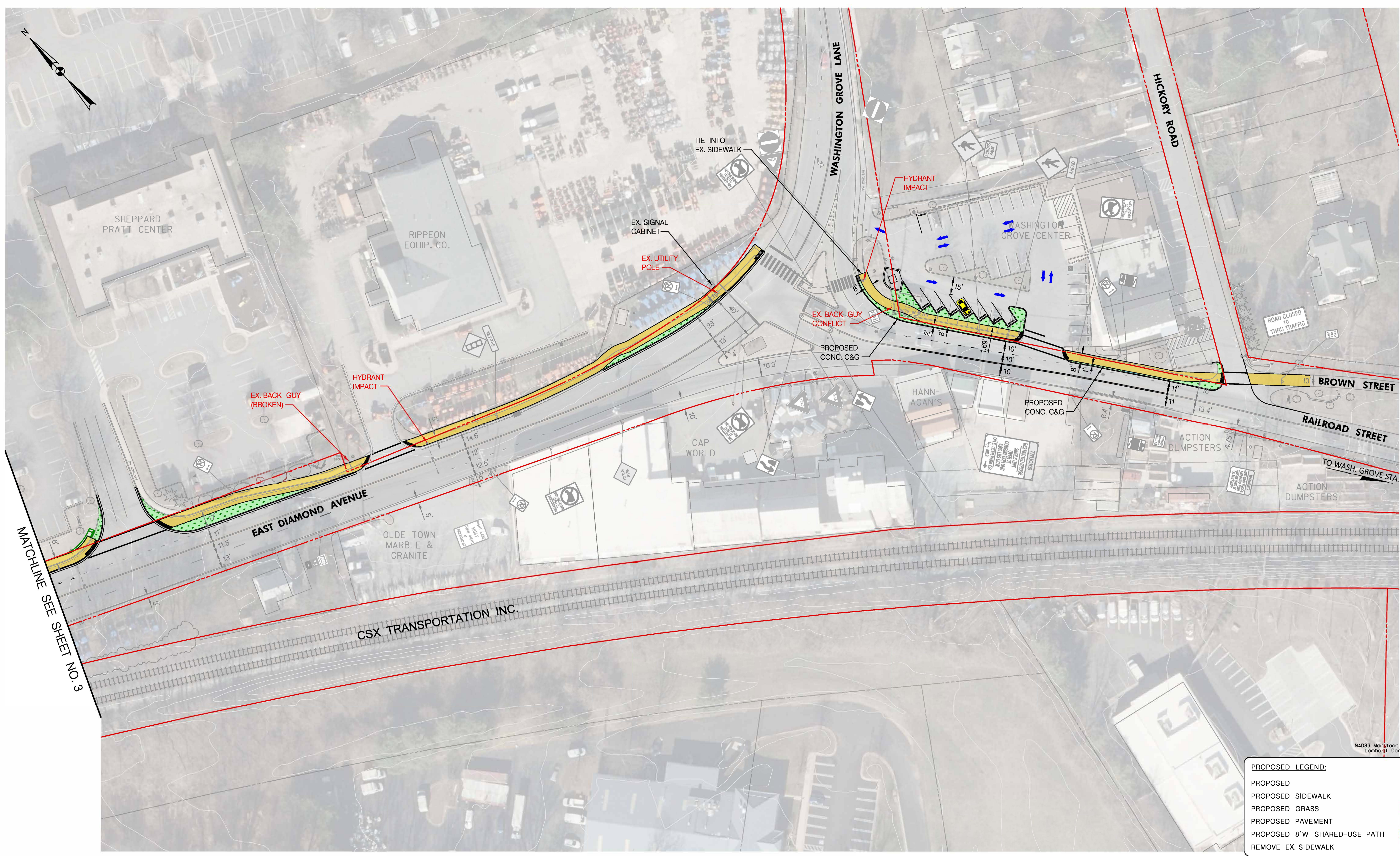
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PROPOSED PAVEMENT	
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Gaithersburg MARC Station to Washington Grove Station Bicycle Facility – Concept 2



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MATCHLINE SEE SHEET NO. 3

PROPOSED LEGEND:

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PROPOSED SIDEWALK	—
PROPOSED GRASS	—
PROPOSED PAVEMENT	—
PROPOSED 8'W SHARED-USE PATH	—
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Gaithersburg MARC Station to Washington Grove Station Bicycle Facility – Concept 2

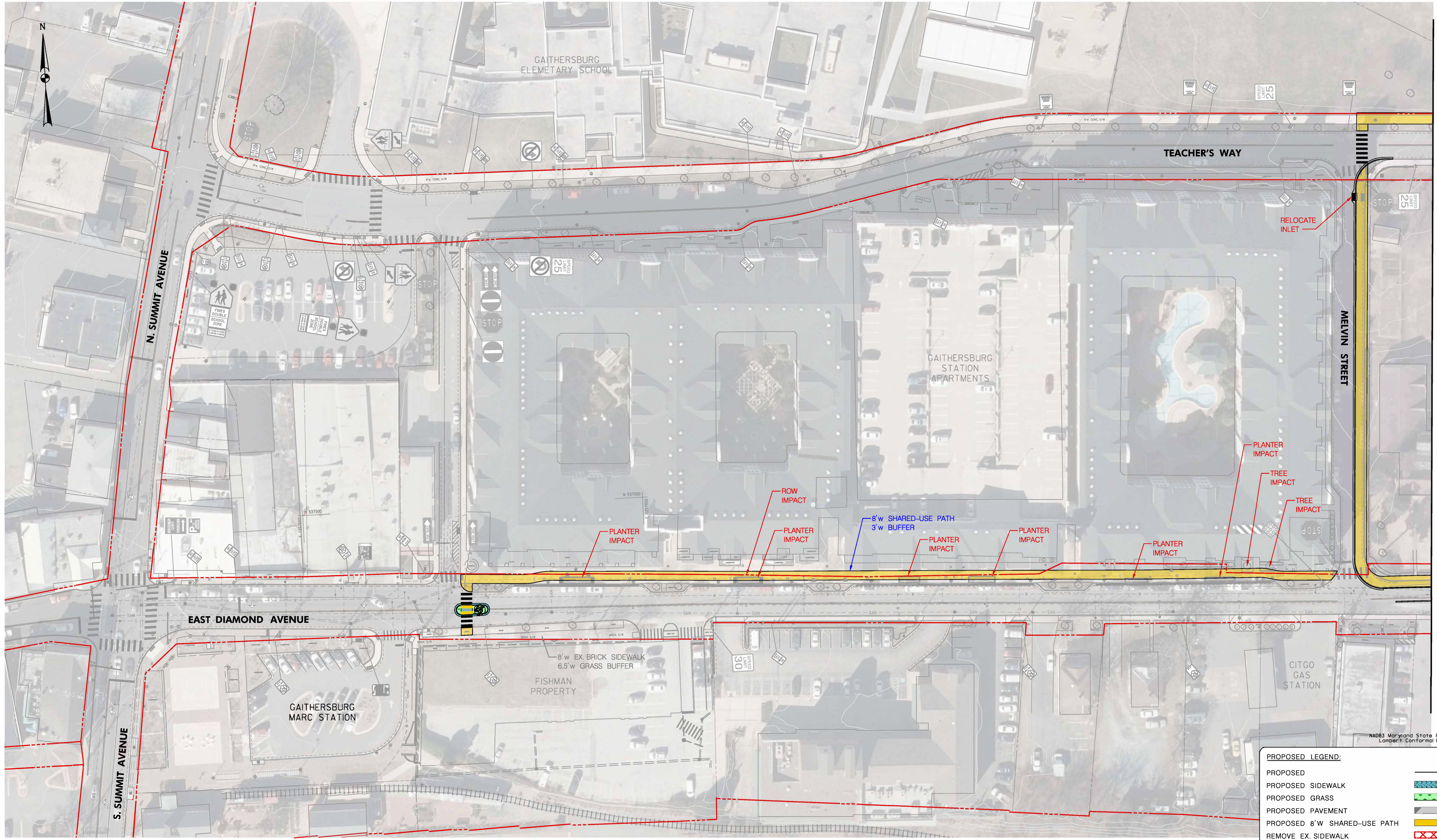
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SCALE: 1" = 40'



*Gaithersburg MARC Station to Washington Grove Station
Bicycle Facility*

Concept 3

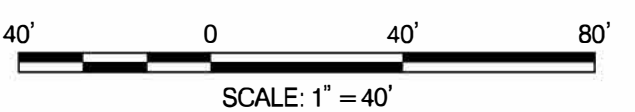
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PROPOSED LEGEND:

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REMOVE EX. SIDEWALK	

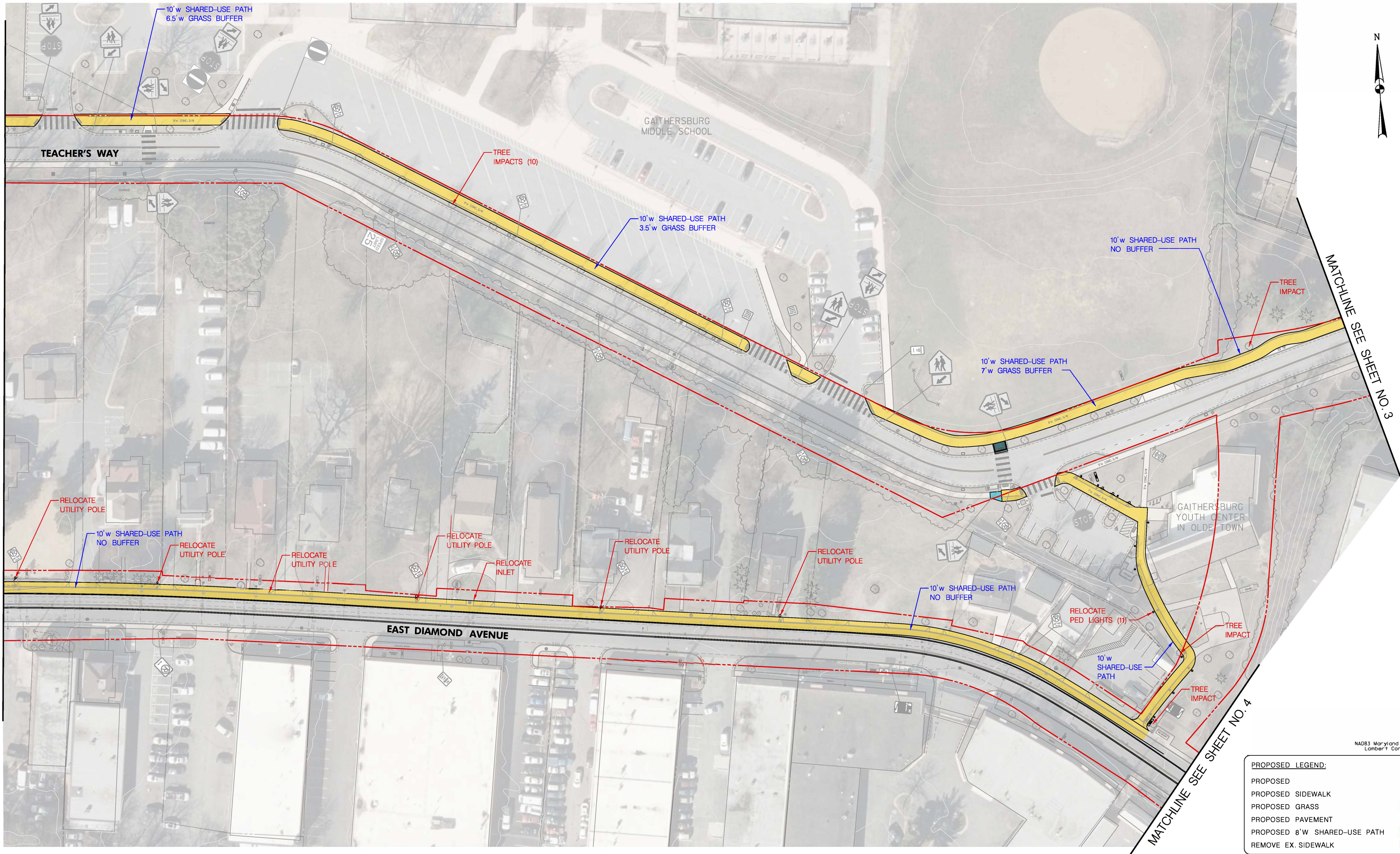
Gaithersburg MARC Station to Washington Grove Station Bicycle Facility – Concept 3



MATCHLINE SEE SHEET NO. 2



MATCHLINE SEE SHEET NO.1

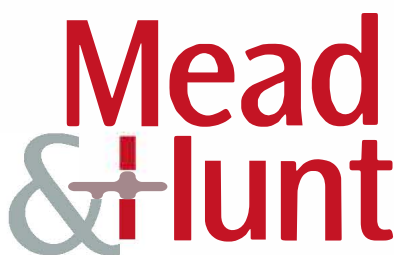
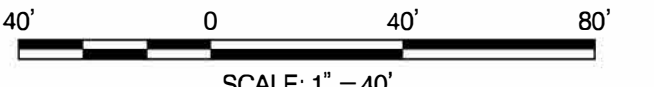


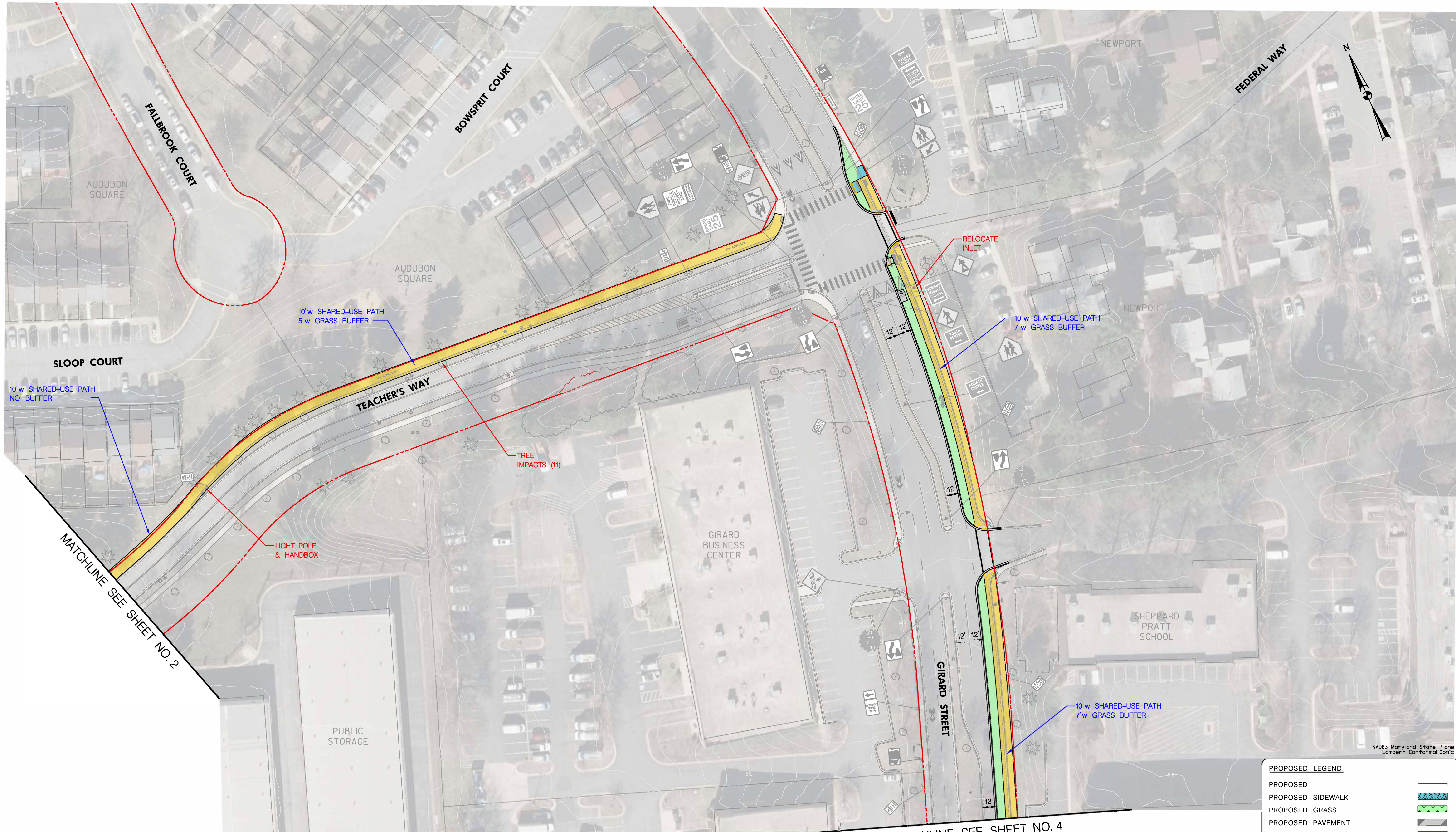
NAD83 Maryland State Plane
Lambert Conformal Conic

PROPOSED LEGEND:

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PROPOSED GRASS	
PROPOSED PAVEMENT	
PROPOSED 8'w SHARED-USE PATH	
REMOVE EX. SIDEWALK	

Gaithersburg MARC Station to Washington Grove Station Bicycle Facility – Concept 3

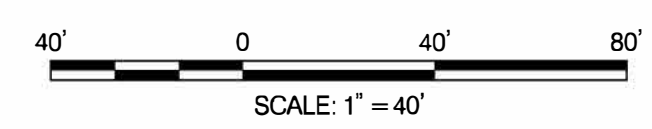




PROPOSED LEGEND:

PROPOSED	
PROPOSED SIDEWALK	
PROPOSED GRASS	
PROPOSED PAVEMENT	
PROPOSED 8'W SHARED-USE PATH	
REMOVE EX. SIDEWALK	

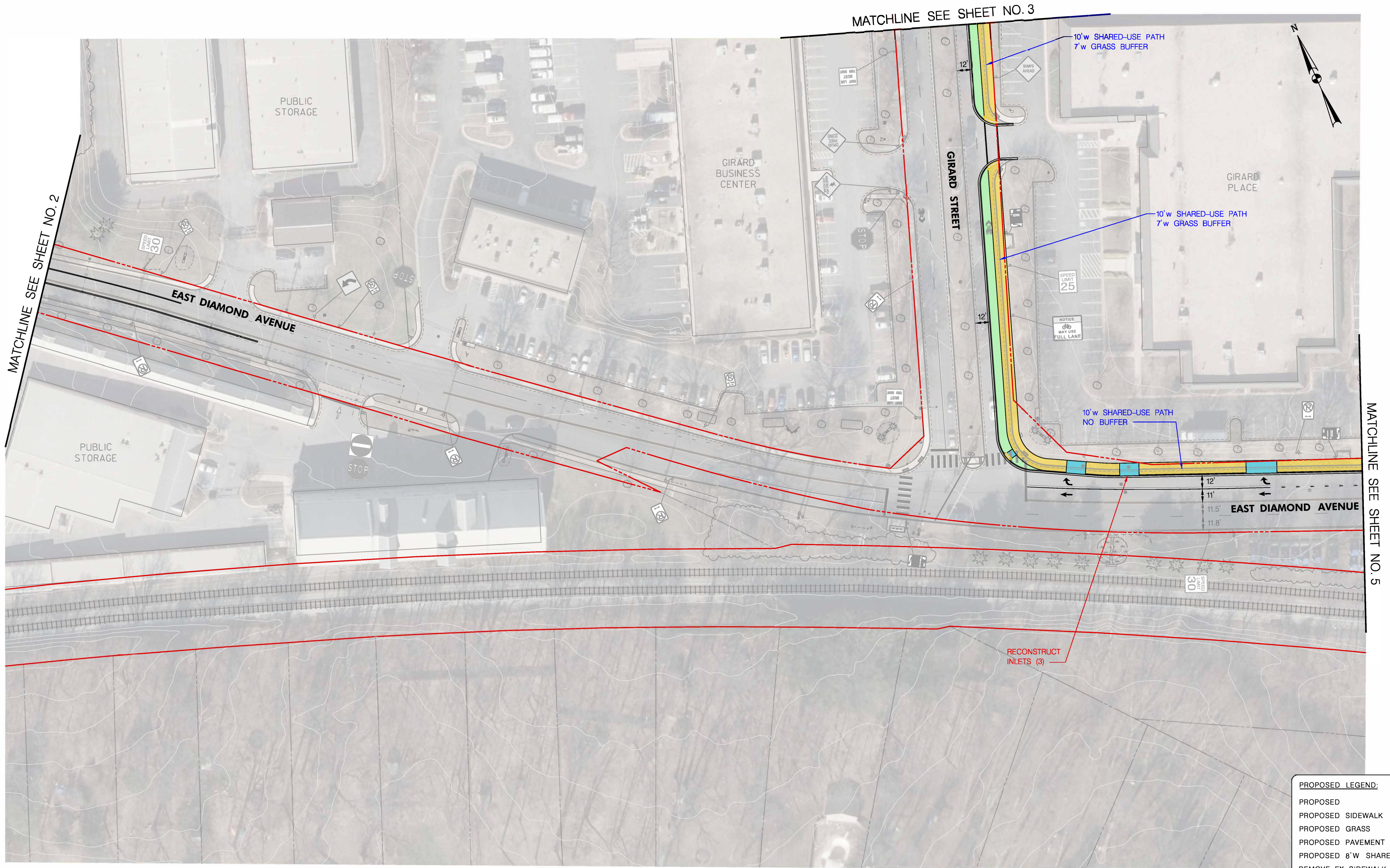
Gaithersburg MARC Station to Washington Grove Station Bicycle Facility – Concept 3



OPERATOR02430 - PLOTTED: 2/27/2023
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OPERATOR02430 - PLOTTED: 2/27/2023
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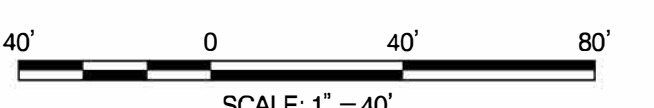


PROPOSED LEGEND:

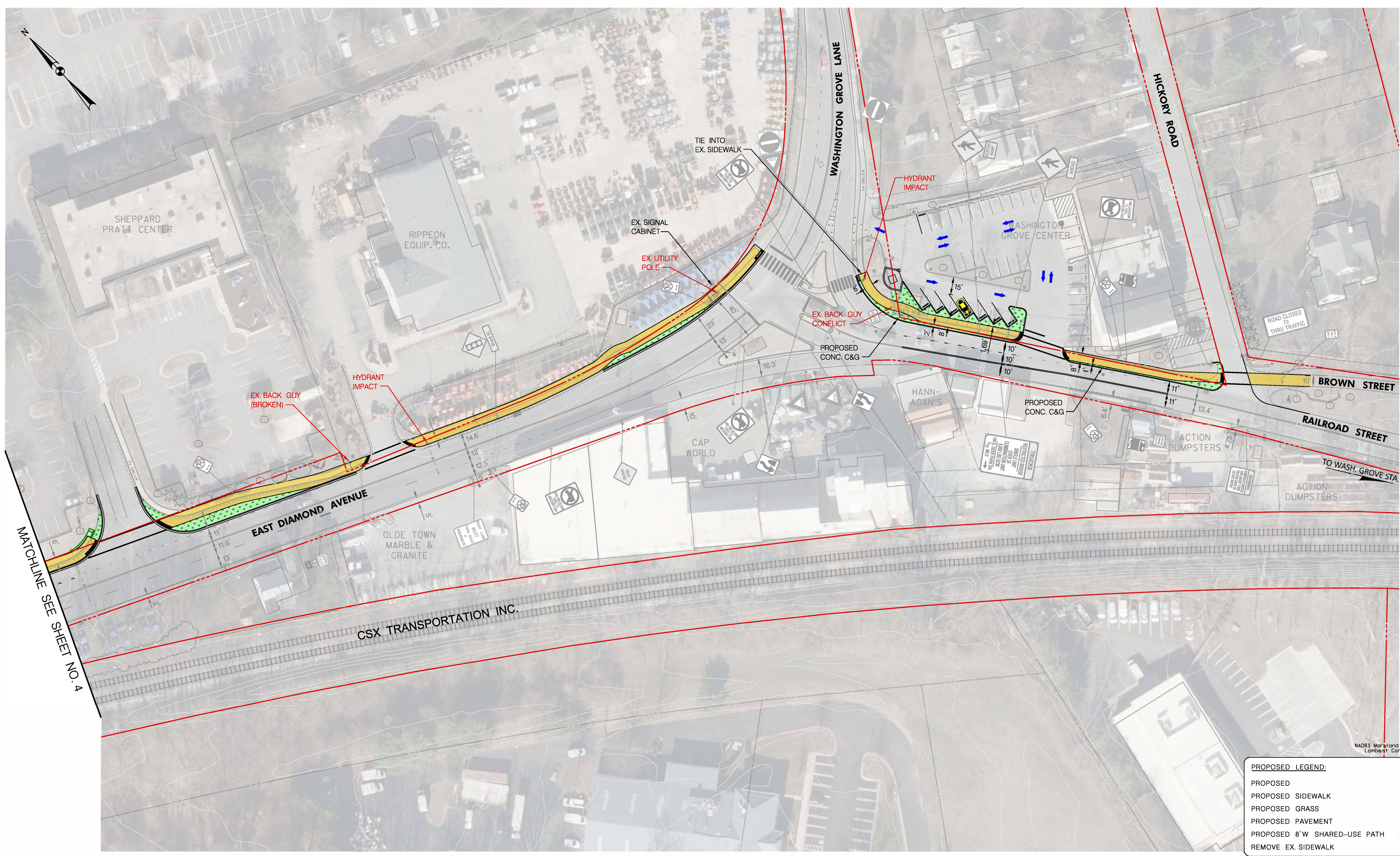
PROPOSED	—
PROPOSED SIDEWALK	▨
PROPOSED GRASS	▨
PROPOSED PAVEMENT	▨
PROPOSED 8'W SHARED-USE PATH	▨
REMOVE EX. SIDEWALK	▨

NAD83 Maryland State Plane
Lambert Conformal Conic

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OPERATOR02430 - PLOTTED: 2/27/2023
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MATCHLINE SEE SHEET NO. 4

PROPOSED LEGEND:	
PROPOSED	—
PROPOSED SIDEWALK	—
PROPOSED GRASS	—
PROPOSED PAVEMENT	—
PROPOSED 8'W SHARED-USE PATH	—
REMOVE EX. SIDEWALK	—

Gaithersburg MARC Station to Washington Grove Station Bicycle Facility – Concept 3

