



Loudoun County Transportation Program Development

Bicycle & Pedestrian Metrorail Access Study

SUMMARY REPORT

April 2016

Prepared for

Prepared by



Kimley»Horn



Washington Dulles International Airport

Loudoun County Transportation Program Development

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Introduction

Loudoun County is currently undergoing a period of rapid population and employment growth, especially in the county's eastern region. Some of this growth is occurring in anticipation of the Dulles Corridor Metrorail Extension Phase 2 (the Silver Line). The Loudoun County Board of Supervisors voted in 2012 to participate in the funding of the project, which will add three new Metrorail stations in the county. According to current estimates, revenue service on Phase 2 will begin sometime in 2020.

County leadership has taken the initiative to accelerate the development and delivery of roadway projects in these areas experiencing rapid growth. Per the 2010 Countywide Transportation Plan (CTP) guidelines, the construction of new urban roadways should include considerations for bicycle and pedestrian transportation in the form of on-street or off-street infrastructure. While this infrastructure is now required where feasible for newly constructed roadways, many of the roadways constructed prior to the publication of the updated CTP lack bicycle and pedestrian accommodations.



Abrupt existing shared-use path terminus along Ashburn Village Boulevard

This summary report studies missing links in the bicycle and pedestrian transportation network in the vicinity of the Loudoun Gateway and Ashburn Metrorail stations. These missing links have been recommended for analysis by previous studies and community outreach efforts. For each missing link, this report recommends one or more improvement projects and provides typical cross-sections, preliminary alignments, preliminary opinions of probable cost, and other supporting information about the project. A total of 12 missing links and 3 intersections were studied, and recommended improvements were developed for all but one of the study locations. These projects are summarized in the Project Summary Table on page 5. A map of all projects in this summary report is on page 7. Finally, typical cross-sections for the off-street infrastructure improvements proposed in this report are shown in **Sections A-A** through **J-J** on page 8.

Previous Efforts

In June 2014, Loudoun County published its first Pedestrian and Bicycle Station Access Study in anticipation of Metrorail's planned extension. The study focused on areas in the vicinity of the planned Loudoun Gateway and Ashburn Metrorail stations. Within these areas the study assessed existing pedestrian and bicycle infrastructure, identified deficiencies in the network, and presented a prioritized list of recommended projects to improve pedestrian and bicycle connectivity. Recommendations were limited to locations within 3 miles of at least one of the Metrorail stations. Improvements included both on-street and off-street infrastructure, with the vast majority of off-street recommendations taking the form of new trail construction on one or both sides of the roadway.

To further this effort, Department of Transportation and Capital Infrastructure (DTCI) staff prepared a board item that prioritized a subset of improvements identified in the June 2014 study that was presented to the Board of Supervisors at their January 2015 meeting. Ten of the eleven missing link projects recommended in this summary report, along with all three intersection improvement projects, were recommended for further study and initial project development in the January 2015 board action item which the Board of Supervisors approved. The item suggested that the network improvements and associated construction costs be incorporated into the Fiscal Year 2017-2022 Proposed Capital Improvement Program or another future funding program.

The final missing link project studied in this summary report was identified in a separate board item submitted by the Dulles district supervisor. This item was the result of the Dulles Community Outreach Project, where citizens participated in surveys, focus groups, crowdsourced mapping exercises, and community work sessions to develop recommendations for improving local connectivity, among other goals. The outreach effort identified 15 missing bicycle or pedestrian links in the study area. Two of these projects are located within 3 miles of the Ashburn Metrorail Station, however one of the two projects is currently under development as part of another project. The remaining project along Ryan Road was studied and developed further in this summary report.

Design Goals

While each improvement project required different infrastructure and considered a unique set of potential conflicts or barriers to construction, several themes guided the conceptual design of projects under study in this summary report. Wherever possible, infrastructure improvements were recommended with a consistent set of goals in mind:

- Recommended improvements should tie in to each other to improve connectivity between future Metrorail stations and the Washington and Old Dominion ("W&OD") Trail.
- Recommended improvements should connect to planned pedestrian and bicycle infrastructure to be constructed in future roadway extensions according to Loudoun County's 2010 CTP.
- Recommended improvements should fill gaps in the existing off-street network.
- Off-street pedestrian and bicycle infrastructure should be recommended where feasible.

Since most existing bicycle and pedestrian infrastructure within the project area occurs in the form of intermittent off-street paths or sidewalks, study recommendations also focused on off-street shared-use paths and sidewalks. Bike lanes alone cannot serve pedestrian needs, and these lanes often come at the expense of space in the remaining width of traveled roadway, either through a reduction in lane widths or in the number of lanes altogether. By contrast, off-street infrastructure such as a shared-use path can accommodate both bicyclists and pedestrians without impacting the existing on-road traveled way.

Recommendations sought to build upon existing off-street infrastructure (where feasible) to remove any mid-block gaps in the network and to limit the number of street crossings required by pedestrians or bicyclists traveling along the path corridors. Some areas may benefit from on-street bicycle infrastructure in addition to the provision of sidewalks or shared-use paths. Any planning for this infrastructure will benefit from further study of the regional on-street and off-street bicycle infrastructure network, along with analysis of existing vehicular traffic conditions along the study roadways.

The W&OD Trail, a major regional shared-use trail, runs less than 3 miles north of the future Metrorail stations in Loudoun County. The segments identified for evaluation in this report to the northeast of the planned Metrorail corridor represent potential access ways between the transit corridor and shared-use trail. The study recommendations recognize this goal for regional connectivity by providing seamless access between individual projects and existing infrastructure to make it easier to travel by foot or bicycle between these two transportation corridors.



The Washington & Old Dominion Trail spans across Loudoun County from the county's eastern border to the Town of Purcellville



The recommended improvements contained in this report will also connect with pedestrian and bicycle off-street infrastructure that will be constructed as a part of planned roadway projects in the 2010 CTP. Road extensions are planned for Shellhorn Road, Prentice Drive, Claude Moore Avenue, Moorefield Boulevard, and Crosron Lane. Widening along existing sections of Smith Switch Road and Crosron Lane are also planned. These all are roads that contain some proposed off-street infrastructure improvements along an existing section of roadway as a part of this study effort. Extensions are also planned for other nearby roads, including Sterling Boulevard, Metro Center Drive, Lockridge Road West, and Moorefield Boulevard. As these roads are extended or widened, CTP guidelines require that the portions of new roadway include considerations for bicycles and pedestrians in the form of sidewalks, shared-use paths, or both. The recommendations in this report are made with consideration of this planned infrastructure that will be constructed as a result of future roadway extensions. Once these extensions are completed, the resulting pedestrian and bicycle infrastructure network will allow for unimpeded travel between the Loudoun Gateway and Ashburn Metrorail stations and many of their surrounding trip generators.

Existing Conditions

Field visits were completed for each project to document existing conditions. Several recurring constructability challenges and constraints were identified. These items included:

- Improvements to existing curb ramps, pedestrian signal infrastructure, and ramp approaches that currently do not comply with accessibility guidelines laid forth by the Americans with Disabilities Act (ADA)
- Overhead utility poles obstructing the desired infrastructure right-of-way
- Manholes, hand holes, cabinets, and junction boxes associated with underground utilities within the desired infrastructure right-of-way
- Existing private property fencing within close proximity to the roadway curb, specifically at data center and corporate campus sites
- Existing drainage infrastructure, such as ditches that may require relocation or culverts that may require extension
- Existing guardrail that will likely need to be relocated to the outside of any proposed off-street pedestrian or bicycle infrastructure
- Grading challenges, including berms and ditches running parallel to the roadway and slopes at approaches to curb ramps at intersections

Planned Development

In addition to considerations for existing infrastructure and development, the recommendations take into account submitted documentation of planned property developments from the Loudoun Online Land Application System (“LOLA”). Several developments are planned within the report study area that impacted this report’s recommendations. These developments are:

- Broadlands South
- The Lakes at Belle Terra
- Moorefield Station
- Intergate Ashburn Data Center
- Morley Corner
- Ragingwire Data Center
- West Dulles Station



Utility features and other conflicts, such as those shown above, represent challenges in the study area that impact overall project costs

Development continues at a rapid pace within the eastern portions of Loudoun County, and intense development is anticipated in areas near Loudoun Gateway and Ashburn Metrorail stations prior to and following the opening of Phase 2 of the Dulles Corridor Metrorail Extension. Recommended improvements may require reevaluation as proffered bicycle and pedestrian infrastructure improvements are included within the scope of private development plans.

Project Prioritization

Projects were categorized by implementation priority as High Priority, Medium Priority, or Low Priority. Several factors were considered when determining project implementation priority:

- Higher priority was assigned to projects nearest either the Ashburn or Loudoun Gateway Metrorail Station.
- Higher priority was assigned to projects that were part of a connection between planned Metrorail Stations and the Washington & Old Dominion Trail.
- All High Priority projects and certain Medium Priority projects were identified as a package that collectively would form continuous bicycle and pedestrian infrastructure networks in their respective locations.
- Lower priority was given to projects that may be impacted by future roadway enhancements as documented in the Loudoun County Transportation Plan, but are not programmed in the Capital Improvement Program.

- Higher priority was given to projects that are not dependent upon the completion of infrastructure by others to achieve a continuous bicycle or pedestrian network within the project area.
- Higher priority was given to projects with lower opinions of probable cost and fewer impacts to existing features.

The priority level of each project is listed in the Project Summary Table that begins on page 5.

Additional Considerations

Other considerations and project planning activities outside the scope of this report should be considered in planning for pedestrian and bicycle infrastructure improvements. This summary report does not include developed project schedules for each proposed infrastructure improvement. Additionally, the report briefly identifies potential funding sources where applicable and describes a basic implementation process for each project. These aspects of project planning are important to project development and warrant further study.

The Loudoun County Board of Supervisors also recommended including provisions for bicycle parking at both the Loudoun Gateway and Ashburn Metrorail stations. Existing plans for the park-and-ride developments at each station provide for bicycle parking facilities. These proposed quantities are summarized below:

Park-and-Ride	Number of Bike Racks	Number of Bike Lockers
Loudoun Gateway Station	13	10
Ashburn Station (North Side)	13	10
Ashburn Station (South Side)	12	10

In addition to these provisions, the Ashburn Station North Garage will contain a bicycle storage room. The exact size of the room and planned capacity has not been determined at this time. Elsewhere along the Metrorail Corridor, the planned Herndon-Monroe and Route 28 Metrorail stations include plans for bicycle rooms with capacity for 80-100 bicycles at each station. The existing bike storage room at the Wiehle-Reston East Metrorail station has capacity for over 200 bicycles.



Storage for over 200 bicycles is available in the parking garage adjacent to the Wiehle-Reston East Metrorail station



Project Summary Table

Project Number	Roadway	Project Limits	Implementation Priority	Description of Improvements	Length/Quantities	Conflicts and Considerations	Alternate Project Provided?	Opinion of Probable Cost
1	Shellhorn Road ¹	From Path South of Devin Shafron Drive to Ryan Center Way	High	Installation of a shared-use path segment and a sidewalk segment to complete network along southwest side of roadway	<ul style="list-style-type: none"> 0.15 miles of shared-use path 0.35 miles of sidewalk 	<ul style="list-style-type: none"> ADA noncompliant ramps Underground utilities and associated hand holes Undesirable slope at approach to curb ramp Property fences limit available ROW 	No	\$490,000
2	Wynridge Drive/Claude Moore Avenue ¹	From Claiborne Parkway to Old Ryan Road	Medium	Installation of two shared-use path segments to complete network along south side of roadway Installation of sidewalk along north side of roadway at east end of project corridor	<ul style="list-style-type: none"> 0.55 miles of shared-use path 0.20 miles of sidewalk 	<ul style="list-style-type: none"> Underground utilities and associated hand holes Regrading and potential culvert modifications Greenery in proposed path ROW Property fences limit available right-of-way 	No	\$780,000
3	Ashburn Village Boulevard ¹	From Shellhorn Road to Waxpool Road	High	Installation of a shared-use path along northwest side of roadway	<ul style="list-style-type: none"> 0.40 miles of shared-use path 	<ul style="list-style-type: none"> Underground utilities and associated hand holes Greenery in proposed path ROW Regrading of roadside berm necessary Limited ROW between turn bay and parking lot 	No	\$390,000
4	Ashburn Village Boulevard ¹	From Red Rum Drive to Farmwell Road	Low	Installation of a shared-use path along west side of roadway at north end of project corridor	<ul style="list-style-type: none"> 0.15 miles of shared-use path 	<ul style="list-style-type: none"> Underground utilities and associated hand holes Excavation work in progress along ROW Electric meter in proposed path ROW 	Yes	\$230,000 <i>(Alternate Cost: \$330,000)</i>
5	Waxpool Road ¹	From Future Lockridge Road West to Farmwell Road	High	Installation of a shared-use path along northwest side of roadway	<ul style="list-style-type: none"> 0.55 miles of shared-use path 	<ul style="list-style-type: none"> Underground utilities and associated hand holes Future property fences on site under development limit available ROW Drainage ditch encroaches available ROW 	No	\$530,000
6	Smith Switch Road ¹	From Waxpool Road to North of Saint Germain Court	Low	Installation of a mid-block crossing and connections to existing paths at north end of project corridor	<ul style="list-style-type: none"> 100 feet of shared-use path, plus one mid-block crossing 	<ul style="list-style-type: none"> None identified 	Yes	\$100,000 <i>(Alternate Cost: \$520,000)</i>
7	Croson Lane ¹	From Claiborne Parkway to Old Ryan Road	Low	Installation of a shared-use path along south side of roadway to complete network at west end of corridor Installation of a sidewalk along the north side of the roadway to complete network at east end of corridor	<ul style="list-style-type: none"> 0.45 miles of shared-use path 0.20 miles of sidewalk 	<ul style="list-style-type: none"> Underground utilities and associated hand holes Regrading and potential culvert modifications Existing drainage ditch lies within available ROW Existing guardrail and roadside ditch lie within available ROW 	No	\$540,000
8	Old Ox Road ¹	From Horsepen Run to Moran Road	N/A	Connectivity options are currently being investigated in another effort	N/A	N/A	N/A	N/A

¹ Project identified as a priority in the January 2015 Board of Supervisors Action Item, "Recommendations for Bicycle & Pedestrian Facilities around Future Metrorail Stations"

² Project identified as a priority by the Dulles Community Outreach Project Effort and associated October 2015 Board of Supervisors Action Item



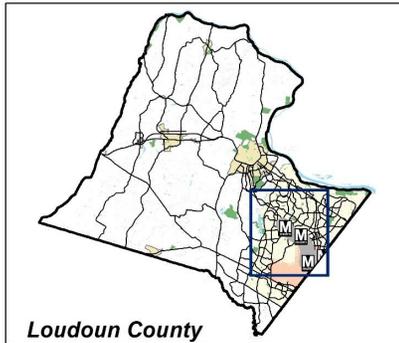
Project Number	Roadway	Project Limits	Implementation Priority	Description of Improvements	Length/Quantities	Conflicts and Considerations	Alternate Project Provided?	Opinion of Probable Cost
9	Lockridge Road ¹	From Future Loudoun Gateway Metro Garage Entrance to Prentice Drive	Medium	Installation of a curb ramp and connector at south end of project corridor to connect with path by others Installation of a shared-use path along east side of roadway at north end of project corridor	0.25 miles of shared-use path	<ul style="list-style-type: none"> Overhead telecommunication utility lines and poles Underground utilities cross perpendicular to proposed ROW 	No	\$270,000
10	Moran Road ¹	East of Lockridge Road	N/A	No improvements recommended at this time	N/A	<ul style="list-style-type: none"> Major planned roadway reconstruction at east end of project corridor Existing berms and drop-offs along both sides of roadway Underground utilities and associated handholes 	N/A	N/A
11	Prentice Drive ¹	From Lockridge Road to Pacific Boulevard	Medium	Installation of a shared-use path along north side of roadway Installation of a sidewalk along south side of roadway to complete network	<ul style="list-style-type: none"> 0.65 miles of shared-use path 0.50 miles of sidewalk 	<ul style="list-style-type: none"> Existing guardrail lies within available ROW Regrading and potential culvert modifications Underground utilities and associated hand holes and hydrants ADA noncompliant ramps 	No	\$1,130,000
12	Pacific Boulevard ¹	From Prentice Drive to Waxpool Road	Medium	Installation of a shared-use path along northwest side of roadway	<ul style="list-style-type: none"> 0.30 miles of shared-use path 	<ul style="list-style-type: none"> ADA noncompliant ramps Utility manholes and hand holes Some sidewalk removal and replacement required 	No	\$360,000
D-14	Northstar Boulevard / Ryan Road ²	Near Northstar Boulevard / Ryan Road Intersection	N/A	Curb access improvements currently under development in another signal construction effort No further improvements recommended	N/A	N/A	N/A	N/A
D-15	Ryan Road ²	From West of Claiborne Parkway to Airmont Hunt Drive	Low	Installation of a shared-use path connector along south side of roadway	<ul style="list-style-type: none"> 170 feet of shared-use path 	<ul style="list-style-type: none"> Path will cross existing creek and pipe culvert Utility hand holes, manholes, and storm inlets Existing drainage ditch in available ROW 	Yes	\$100,000 <i>(Alternate Cost: \$480,000)</i>
Intersection A	Ashburn Village Boulevard and Shellhorn Road ¹	Intersection vicinity	High	Installation of upgraded pedestrian push buttons and ADA compliant curb ramps where necessary Installation of path connector at northwest corner of intersection	<ul style="list-style-type: none"> 3 ADA ramps 2 push button upgrades 105 feet of shared-use path 	<ul style="list-style-type: none"> Underground utilities and associated handholes Existing lamp post in proposed path ROW 	No	\$90,000
Intersection B	Ashburn Village Boulevard and Farmwell Road ¹	Intersection vicinity	Low	Relocation of pedestrian push buttons and installation of ADA compliant curb ramps where necessary Installation of path connector at southeast corner of intersection	<ul style="list-style-type: none"> 2 ADA ramps 3 push button relocations 60 feet of shared-use path 	<ul style="list-style-type: none"> None identified 	No	\$40,000
Intersection C	Waxpool Road and Farmwell Road/Smith Switch Road ¹	Intersection vicinity	High	Installation of pedestrian push buttons, countdown pedestrian timer signal heads, and ADA compliant curb ramps where necessary Installation of curb ramp, curb and gutter section, and path connector at northwestern corner of intersection	<ul style="list-style-type: none"> 2 ADA ramp upgrades 1 ADA ramp installation 4 push button installations 4 ped head installations 1 curb and gutter installation 70 feet of shared-use path 	<ul style="list-style-type: none"> Regrading of slope required at northwestern corner of intersection 	No	\$50,000

¹ Project identified as a priority in the January 2015 Board of Supervisors Action Item, "Recommendations for Bicycle & Pedestrian Facilities around Future Metrorail Stations"

² Project identified as a priority by the Dulles Community Outreach Project Effort and associated October 2015 Board of Supervisors Action Item



Project Area Map



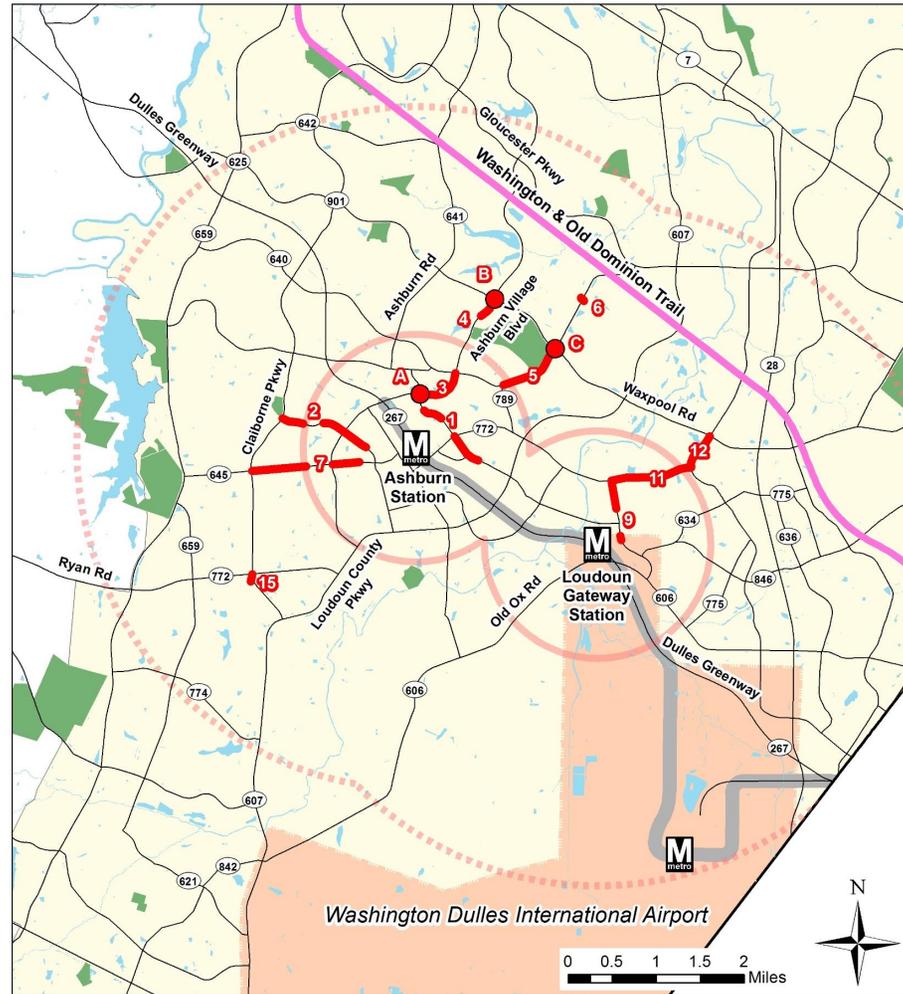
Legend

	Silver Line Metrorail Station		W&OD Trail
	Silver Line Metrorail	Distance from Metro	
	Loudoun County Border		1 Mile (Walking Distance)
	Loudoun Suburban Policy Area		3 Miles (Biking Distance)
	Dulles Airport	Bicycle/Pedestrian Improvements	
	Parks		Recommended Multi-Use Trail
	Water		Recommended Intersection Improvement

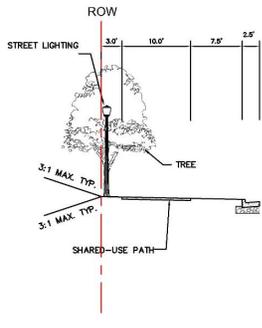
Bicycle and Pedestrian Improvement Projects

1. Shellhorn Road from Path South of Devin Shafron Drive to Ryan Center Way
2. Wynridge Drive/Claude Moore Avenue from Claiborne Parkway to Old Ryan Road
3. Ashburn Village Boulevard from Shellhorn Road to Waxpool Road
4. Ashburn Village Boulevard from Red Rum Drive to Farmwell Road
5. Waxpool Road from Future Lockridge Road West to Farmwell Road
6. Smith Switch Road from Waxpool Road to North of Saint Germain Court
7. Croson Lane from Claiborne Parkway to Old Ryan Road
9. Lockridge Road from Future Loudoun Gateway Metro Garage Entrance to Prentice Drive
11. Prentice Drive from Lockridge Road to Pacific Boulevard
12. Pacific Boulevard from Prentice Drive to Waxpool Road
- D-15. Ryan Road from West of Claiborne Parkway to Airmont Hunt Drive
- A. Ashburn Village Boulevard and Shellhorn Road (Intersection)
- B. Ashburn Village Boulevard and Farmwell Road (Intersection)
- C. Waxpool Road and Farmwell Road/Smith Switch Road (Intersection)

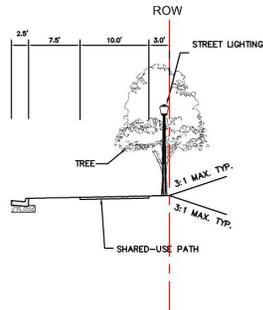
* Projects 8, 13, and D-14: Improvements are currently under development in other efforts. Project 10: No improvements recommended at this time.



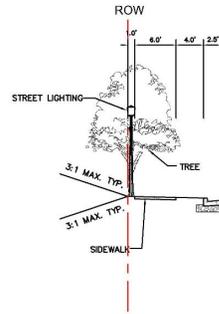
Typical Cross Sections



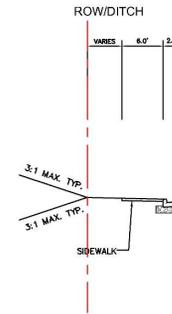
Section A-A
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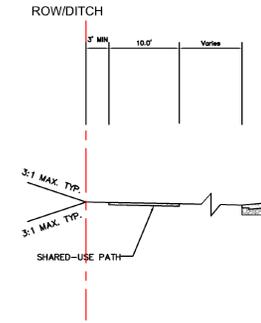
Section B-B
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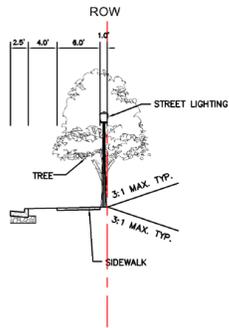
Section C-C
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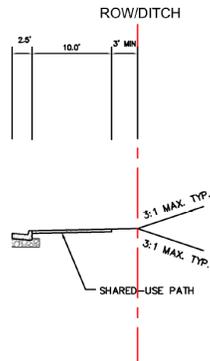
Section D-D
Found in projects 2, 7



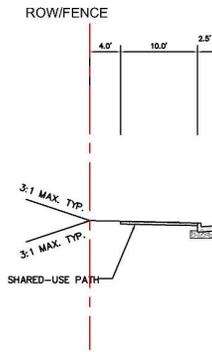
Section E-E
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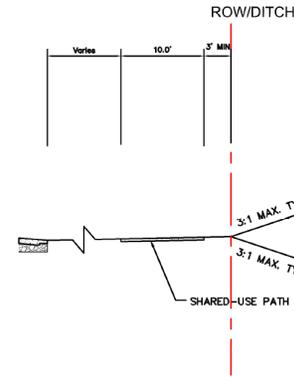
Section F-F
Found in project 11



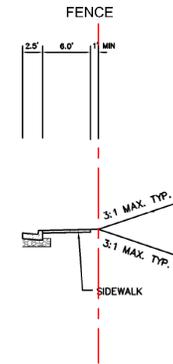
Section G-G
Found in project 2



Section H-H
Found in projects 5, 11



Section I-I
Found in projects 7, 9, 15



Section J-J
Found in projects 1, 11



Project 1 – Shellhorn Road

From Path South of Devin Shafron Drive to Ryan Center Way

Project Description

This project consists of the construction of a shared-use path along the southwest side of Shellhorn Road between Ryan Center Way and Loudoun Station Drive and a sidewalk between Metro Center Drive and an existing shared-use path terminus south of Devin Shafron Drive. The proposed shared-use path totals 0.15 miles in length, while the proposed sidewalk totals 0.35 miles in length. The infrastructure will fill in gaps of the existing path and sidewalk network, allowing for connectivity between Ashburn Village Boulevard and Loudoun County Parkway with Metrorail access to the planned Ashburn Station via Loudoun Station Drive. The project was identified for study in the June 2014 Loudoun County Pedestrian and Bicycle Station Access Study.

Project Elements

Path segments

This project consists of the following path segments:

(See Draft Conceptual Plan Sheets 1-1 and 1-2 for illustration of proposed improvement)

- From Greenway Corporate Drive to Loudoun Station Drive: An 8-10' shared-use path will be constructed.
- From Metro Center Drive to existing shared-use path south of Devin Shafron Drive: A 5' sidewalk will be constructed

Cross sections

The typical sections for the infrastructure in this project will include the following:

Typical Cross Section B-B:

- 10' shared-use path
- 7.5' of clearance between path and back of curb
- 3' of clearance between path and edge of ROW

Typical Cross Section J-J:

- 6' curbside sidewalk
- Little to no clearance between sidewalk and edge of ROW

Planned Developments by Others

Planned infrastructure development by others within the project limits include:

- Prentice Drive, a planned urban four-lane road with median in the Countywide Transportation Plan, will intersect Shellhorn Road to form the fourth leg of the Metro Center Drive intersection. Per plan guidelines, this road corridor will include one 10' shared-use path and one 6' sidewalk.

Impacts on Existing Features

Following a study of existing plans and field reconnaissance, construction of the proposed shared-use path will need to consider the following existing features and associated potential conflicts:

- ADA noncompliant ramps exist within the project area at Ryan Center Way, Greenway Corporate Drive, the Home Depot Driveway, and Devin Shafron Drive. These ramps should be upgraded to meet ADA standards.
- Telecommunication and water utility lines run along the proposed path right-of-way between Ryan Center Way and Loudoun Station Drive.
- The northern proposed path approach to Loudoun Station Drive may require regrading to achieve a desirable curb ramp approach slope.
- Ten handholes are located in path right-of-way immediately south of Metro Center Drive. More handholes and telecommunications lines run southward for remainder of the proposed path length. A proposed water line is also staked out within the proposed path right-of-way.
- Fences of data centers adjacent to path right-of-way are located 10' from the Shellhorn Road back-of-curb. Because of this constraint, a 10' shared-use path is not feasible south of Metro Center Drive.

Connectivity

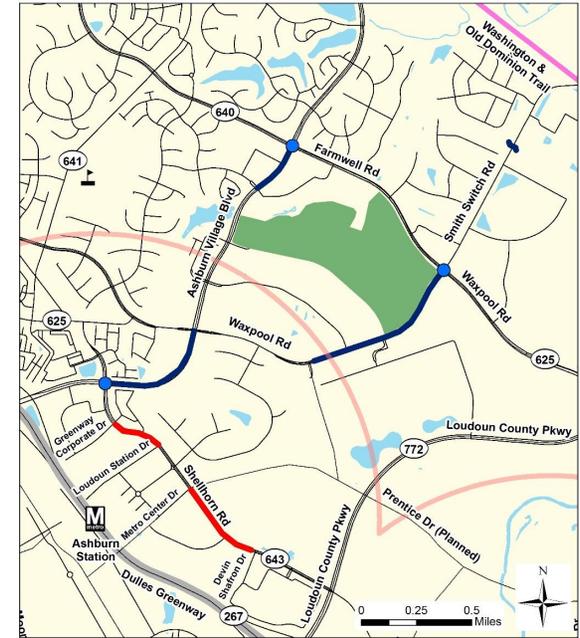
Surrounding path/sidewalk network

Existing paths and sidewalks along the southwest side of Shellhorn Road between Ashburn Village Boulevard and Ryan Center Way and between Loudoun Station Drive and Metro Center Drive will not be impacted. This project will connect to Project 3 along Ashburn Village Boulevard between Shellhorn Road and Waxpool Road and will also connect to a proposed improvement project at the intersection of Ashburn Village Boulevard and Shellhorn Road. Currently the only sidewalk that exists on the opposite side of Shellhorn Road from this project is located between Loudoun Station Drive and Hartley Place. A well-developed sidewalk and shared-use path network already exists to the north and to the west of the Ashburn Village Boulevard and Shellhorn Road intersection.

Surrounding trip generators

Several likely trip generators are located in the immediate vicinity of the proposed shared-use path. These include:

- The Shoppes at Ryan Park shopping center
- The Regency residential community
- The Hearthside at Flynn's Crossing residential community
- The Loudoun Station mixed-use development, including residences, shops, a cinema, an existing park-and-ride facility, and a proposed short-term parking area for the planned Metrorail Station
- Hillside Park and Eagle Ridge Middle Schools and Broad Run High School are located to the north and west within a mile of the project area
- Future Ashburn Metrorail Station



Planning-Level Opinion of Probable Cost

A planning-level opinion of probable cost was generated for this project. These values are based on preliminary layouts and field review of the project area and are subject to change. Further cost break down is provided in **Attachment A**.

Base Construction Costs	\$266,000
Utilities and Right-of-Way	\$168,000
Preliminary Engineering	\$47,000
Additional Construction Items	\$5,000
Total	\$490,000

Project Status

This project was identified as a priority in the June 2014 Loudoun County Pedestrian and Bicycle Station Access Study and recommended for study by the Loudoun County Board of Supervisors. This project is currently in the planning phase. The segments identified for improvement in this project were included as part of a Fiscal Year 2016-2017 VDOT Highway Safety Improvement Program application for Bike and Pedestrian Safety Improvement projects. This program represents one potential source of funding for the proposed infrastructure improvements.

Project Implementation

This project has been identified by Loudoun County and is currently in the planning stage. The next major implementation steps are as follows:

- Identify and secure project funding
- Finalize project scope
- Initiate design of project
- Construct bicycle/pedestrian infrastructure project



Numerous utility hand holes lie within proposed path corridor



Existing path terminus at south end of corridor



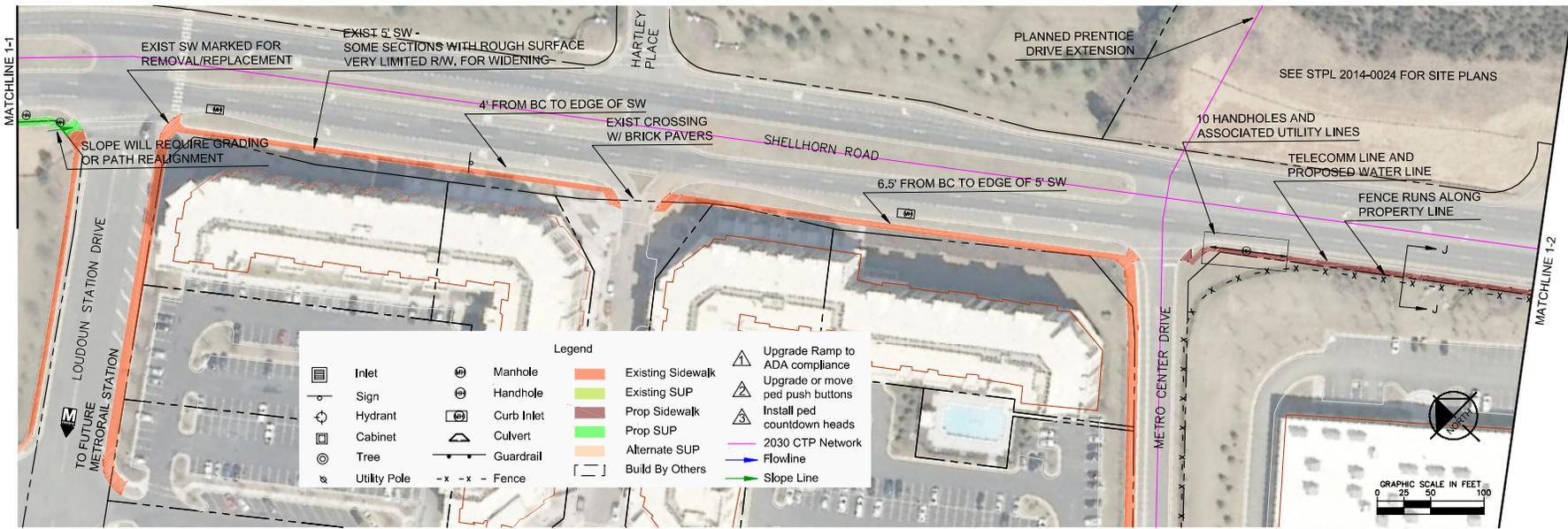
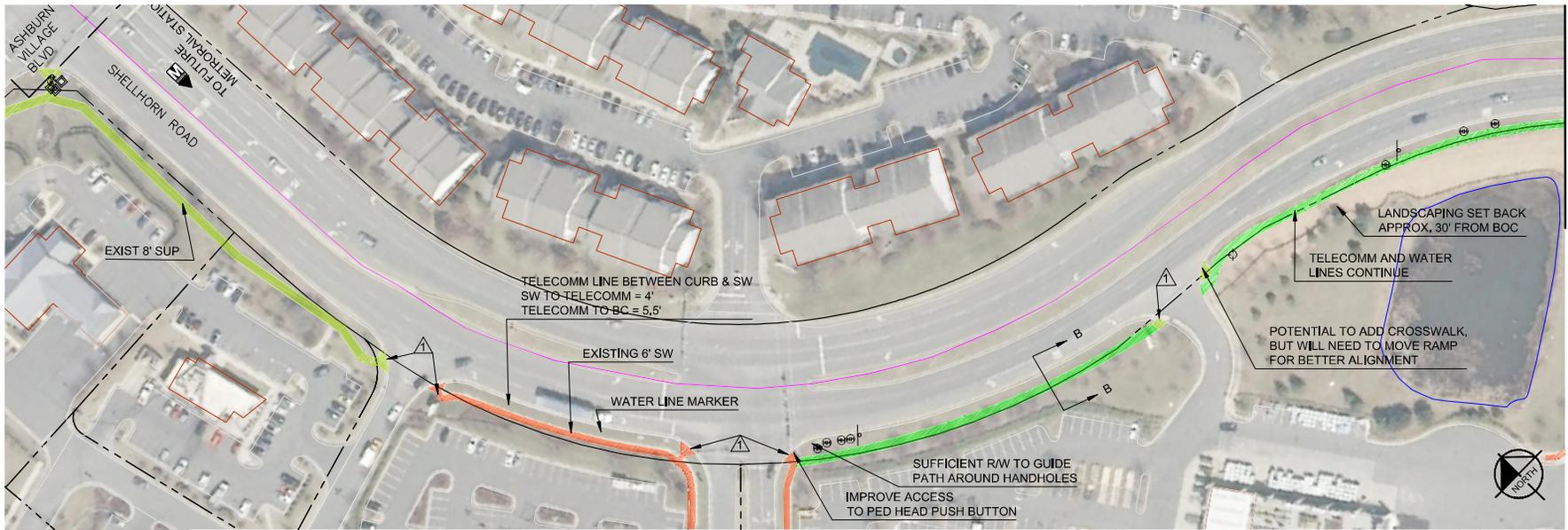
Drainage features and property fencing constrain ROW for portions of the corridor



The existing southbound approach to Loudoun Station Drive may require regrading to achieve an acceptable slope



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Legend	
	Inlet
	Sign
	Hydrant
	Cabinet
	Tree
	Utility Pole
	Manhole
	Handhole
	Curb Inlet
	Culvert
	Guardrail
	Fence
	Existing Sidewalk
	Existing SUP
	Prop Sidewalk
	Prop SUP
	Alternate SUP
	Build By Others
	Upgrade Ramp to ADA compliance
	Upgrade or move ped push buttons
	Install ped countdown heads
	2030 CTP Network
	Flowline
	Slope Line



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DRAFT CONCEPTUAL IMPROVEMENTS

LOUDOUN COUNTY
DTCI

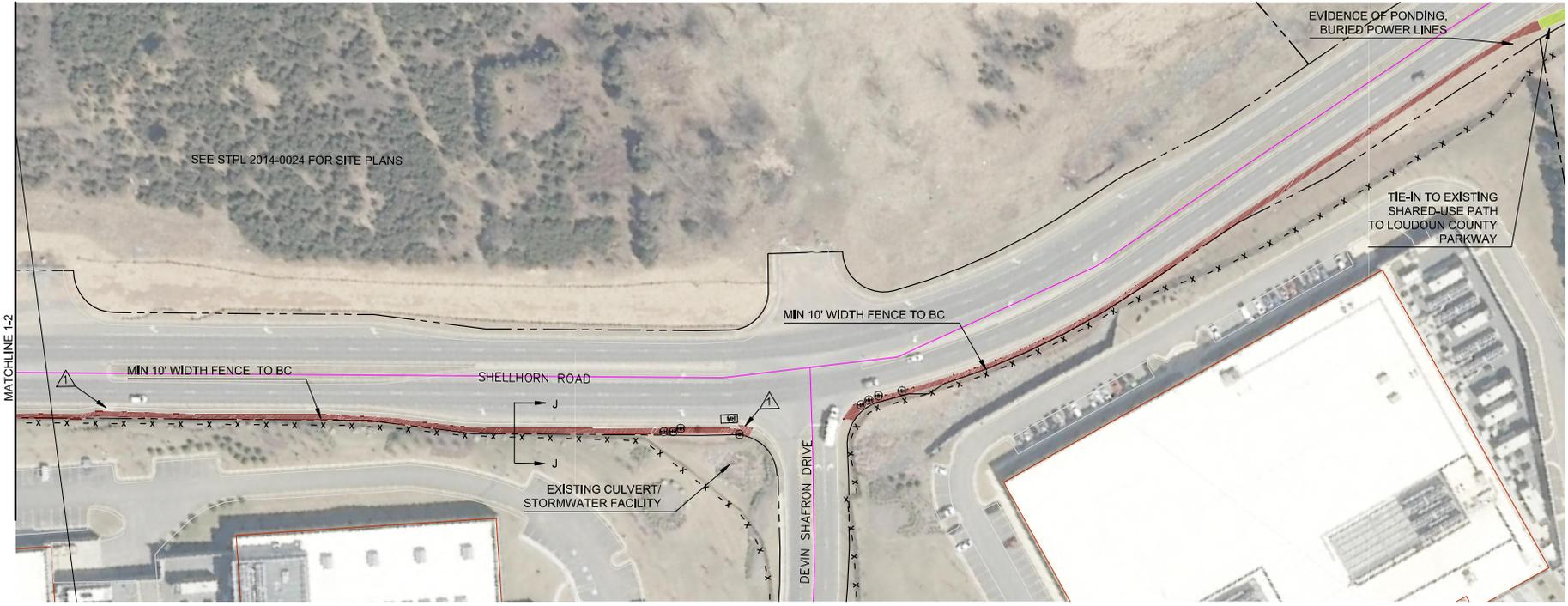
SHEET NUMBER
1-1

PROJECT 1

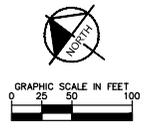
VIRGINIA

LOUDOUN CO.

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Legend					
	Inlet		Existing Sidewalk		Upgrade Ramp to ADA compliance
	Sign		Existing SUP		Upgrade or move ped push buttons
	Hydrant		Prop Sidewalk		Install ped countdown heads
	Cabinet		Prop SUP		Install ped countdown heads
	Tree		Alternate SUP		2030 CTP Network
	Utility Pole		Build By Others		Flowline
	- x - x - Fence				Slope Line



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STATIONS BICYCLE AND
PEDESTRIAN ACCESS STUDY
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PROJECT 1

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SHEET NUMBER
1-2

Project 2 – Wynridge Drive/Claude Moore Avenue

Project Description

This project consists of the construction of a shared-use path along the south side of Wynridge Drive between Claiborne Parkway and the end of an existing shared-use path west of Sunderland Terrace, and again between the end of an existing shared-use path east of Millwick Terrace and Mooreview Parkway. Along Claude Moore Avenue, the proposed improvements include a sidewalk along the north side of the road and a shared-use path along the south side of the road between Mooreview Parkway and Old Ryan Road. The proposed shared-use path totals 0.55 miles in length, while the proposed sidewalk totals 0.20 miles in length. The segments will fill in gaps of the existing path and sidewalk network, allowing for connectivity between Claiborne Parkway and proposed infrastructure east of Old Ryan Road that will provide access to the future Ashburn Metrorail Station. The project was identified for study in the June 2014 Loudoun County Pedestrian and Bicycle Station Access Study.

Project Elements

Path segments

This project consists of the following path segments:

(See Draft Conceptual Plan Sheets 2-1 and 2-2 for illustration of proposed improvement)

- From Claiborne Parkway to existing shared-use path west of Sunderland Terrace: A 10' shared-use path will be constructed.
- From existing shared-use path east of Millwick Terrace to Mooreview Parkway: A 10' shared-use path will be constructed.
- From Mooreview Parkway to Old Ryan Road: A 10' shared-use path will be constructed on the south side of the road and a 6' sidewalk will be constructed on the north side of the road.

Cross sections

The typical sections for the infrastructure in this project will include the following:

Typical Cross Section B-B:

- 10' shared-use path
- 7.5' of clearance between path and back of curb
- 3' of clearance between path and edge of ROW

Typical Cross Section D-D:

- 6' curbside sidewalk
- Varying width of clearance between sidewalk and edge of ROW

Typical Cross Section G-G:

- 10' curbside shared-use path
- Little to no clearance between sidewalk and edge of ROW

Planned Developments by Others

Planned infrastructure development by others within the project limits include:

- Claude Moore Avenue will be extended eastward from Old Ryan Road and will intersect the planned extension of Croson Lane as an urban three-lane roadway according to Loudoun County's 2010 Countywide Transportation Plan. Per plan guidelines, this Claude Moore Drive extension will include at a minimum 6' sidewalks on both sides of the road and on-street bicycle accommodations, or a 10' shared-use path instead of one of the 6' sidewalks.

Impacts on Existing Features

Following a study of existing plans and field reconnaissance, construction of the proposed shared-use path will need to consider the following existing features and associated potential conflicts:

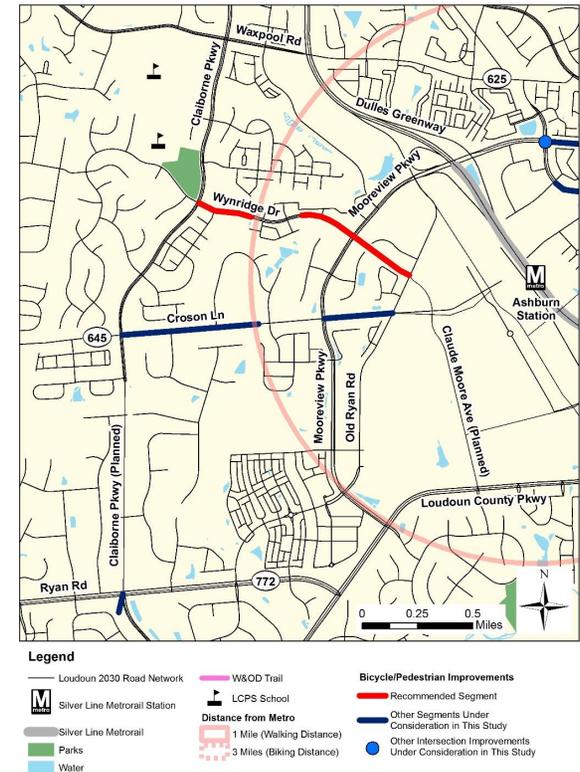
- Existing underground utilities crossing Wynridge Drive east of Claiborne Parkway may conflict with the proposed path.
- Existing trees and other landscaping occupy the right-of-way for the entire proposed path right-of-way south of both Wynridge Drive and Claude Moore Avenue. These trees will require removal or relocation.
- Existing pipe culverts west of Sunderland Terrace will need to be taken into account when constructing the path. Some regrading will be necessary in this area due to existing elevation drop-offs toward the culverts.
- Existing property fencing to the north of Claude Moore Avenue leaves a minimum of 7.5' of right-of-way for sidewalk in certain locations.

Connectivity

Surrounding path/sidewalk network

The existing path along the south side of Wynridge Drive between and near Sunderland Terrace and Millwick Terrace will not be impacted. No existing sidewalks in the project corridor will be impacted. A shared-use path exists along the east side of Claiborne Parkway, and the proposed path will connect to this existing infrastructure. Similarly, ADA-compliant ramps exist for all approaches at all major intersections in the project corridor, and the proposed improvements will tie into these existing features. Along Claude Moore Avenue, the shared-use path to the south of the road will transition into a sidewalk at the Old Ryan Road intersection and will tie into the existing sidewalk to the south of the project corridor. Sidewalks will also spur at midblock on both sides of the road from the Claude Moore Avenue proposed infrastructure to tie in with existing sidewalks along Vantage Point Place and Winter Lake Court.

From Claiborne Parkway to Old Ryan Road



Surrounding trip generators

Several likely trip generators are located in the immediate vicinity of the proposed bicycle and pedestrian infrastructure. These include:

- The Broadlands shopping center
- The Villages at Broadlands residential community
- The Broadlands South residential community
- The Vantage Pointe residential community
- The Denton Terrace residential community
- Hillside Park and Elementary School, Mill Run Elementary School, Moorefield Station Elementary School, and Eagle Ridge Middle School are located within a mile of the project area
- Future Ashburn Metrorail Station

Planning-Level Opinion of Probable Cost

A planning-level opinion of probable cost was generated for this project. These values are based on preliminary layouts and field review of the project area and are subject to change. Further cost break down is provided in **Attachment A**.

Base Construction Costs	\$363,000
Utilities and Right-of-Way	\$281,000
Preliminary Engineering	\$65,000
Additional Construction Items	\$67,000
Total	\$780,000

Project Status

This project was identified as a priority in the June 2014 Loudoun County Pedestrian and Bicycle Station Access Study and recommended for study by the Loudoun County Board of Supervisors. This project is currently in the planning phase. The sidewalk along Claude Moore Avenue identified for construction in this project was included as part of a Fiscal Year 2016-2017 VDOT Highway Safety Improvement Program application for Bike and Pedestrian Safety Improvement projects. This program may represent one potential source of funding for the proposed infrastructure improvements.

Project Implementation

This project has been identified by Loudoun County and is currently in the planning stage. The next major implementation steps are as follows:

- Identify and secure project funding
- Finalize project scope
- Initiate design of project
- Construct bicycle/pedestrian infrastructure project



Trees currently in the proposed path corridor



Wetlands and ditch along east side of project corridor



Sidewalk to connect to proposed shared-use path.



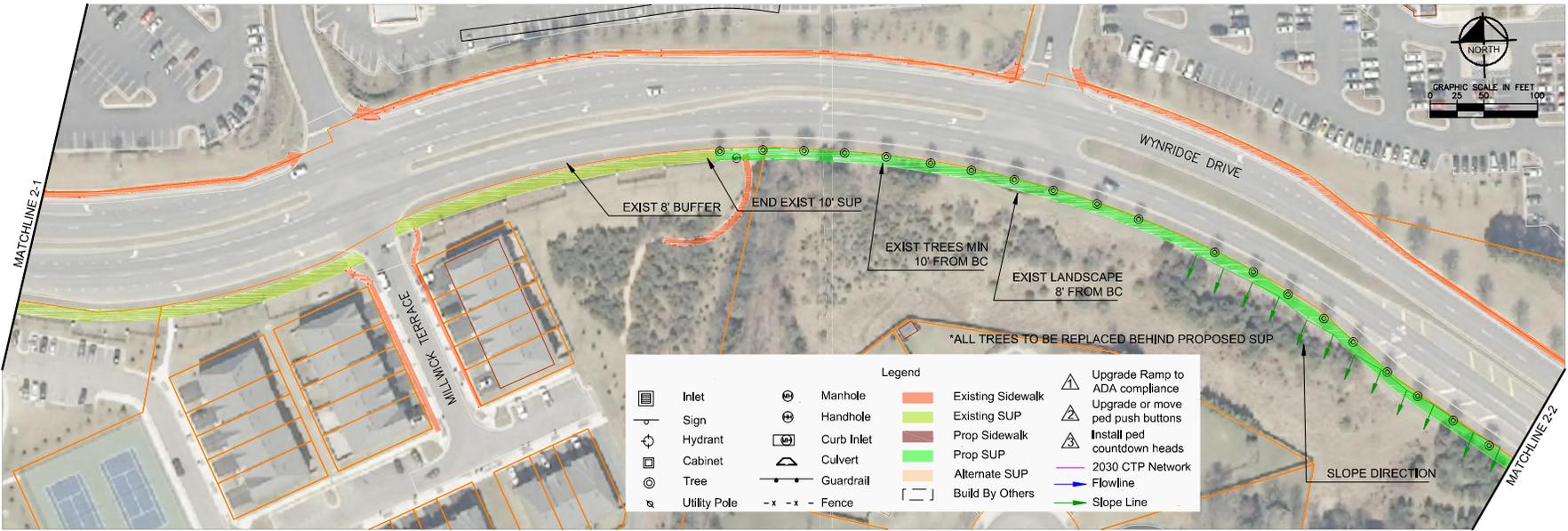
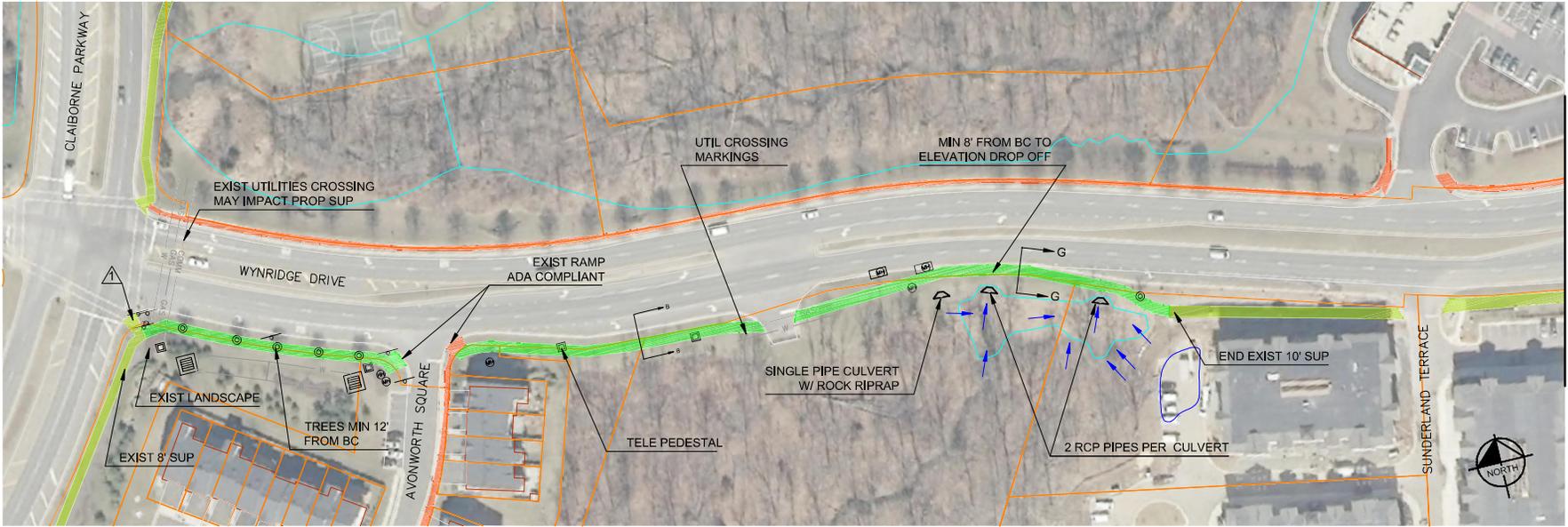
A culvert and slope away from the roadway present challenges to path construction along the west side of the corridor



An existing shared-use path along the west side of the project corridor ends in front of a culvert



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Legend					
	Inlet		Existing Sidewalk		Upgrade Ramp to ADA compliance
	Sign		Existing SUP		Upgrade or move ped push buttons
	Hydrant		Prop Sidewalk		Install ped countdown heads
	Cabinet		Prop SUP		2030 CTP Network
	Tree		Alternate SUP		Flowline
	Utility Pole		Build By Others		Slope Line
	Manhole				
	Handhole				
	Curb Inlet				
	Culvert				
	Guardrail				
	Fence				



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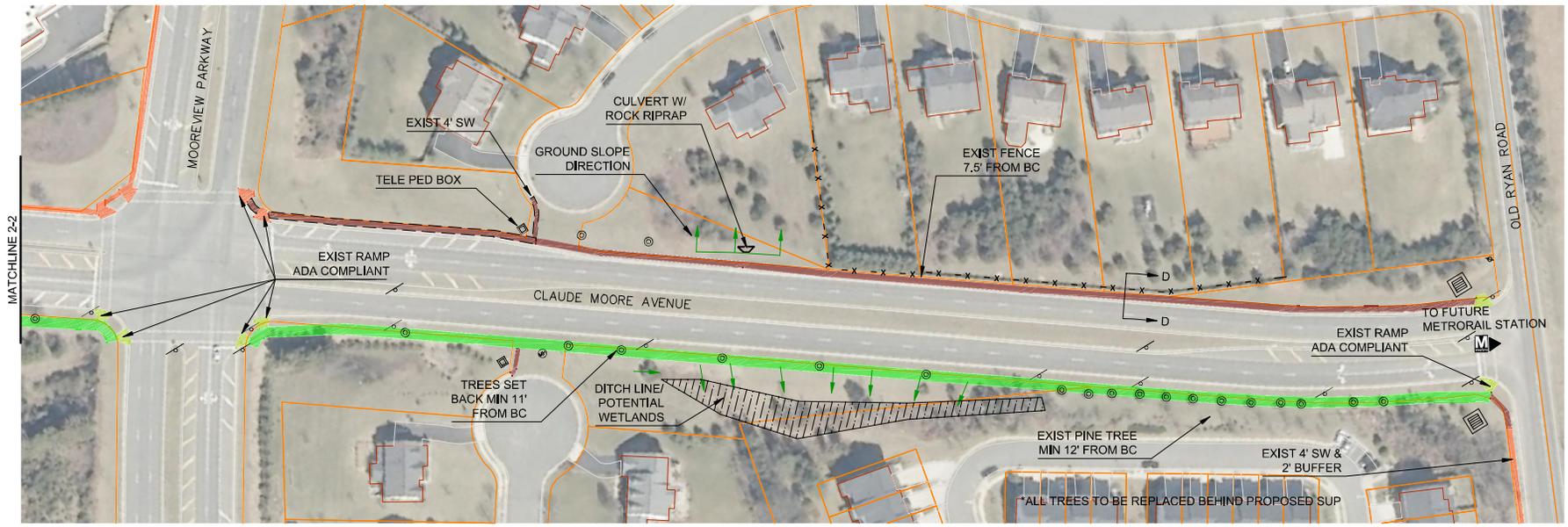
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Legend			



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Project 3 – Ashburn Village Boulevard

Project Description

This project consists of the construction of a shared-use path along the northwest side of Ashburn Village Boulevard between Shellhorn Road and Waxpool Road. The proposed path segment totals a length of approximately 0.40 miles. The path will provide access to bicyclists and pedestrians along a road that currently has no such infrastructure, allowing for connectivity between points north of Waxpool Road and the Ashburn Metrorail Station via Shellhorn Road and Loudoun County Drive. The project was identified for study in the June 2014 Loudoun County Pedestrian and Bicycle Station Access Study.

Project Elements

Path segments

This project consists of the following path segment:

(See Draft Conceptual Plan Sheet 3-1 for illustration of proposed improvement)

- From Shellhorn Road to Waxpool Road: A 10' shared-use path will be constructed.

Cross sections

The typical sections for the infrastructure in this project will include the following:

Typical Cross Section A-A:

- 10' shared-use path
- 7.5' of clearance between path and back of curb
- 3' of clearance between path and edge of ROW

Planned Developments by Others

Planned infrastructure development by others within the project limits include:

- The Waxpool Road/Ashburn Village Boulevard intersection will undergo an intersection widening and restriping. As a result of this project, crosswalks will be striped across all legs of the intersection, connecting the curb ramps already in place there.
- To the north of Waxpool Road along the west side of Ashburn Village Boulevard, development of Netway Center at Ashburn is currently underway. A 10' shared-use path will be constructed along the frontage of this development beside Waxpool Road and Ashburn Village Boulevard. This path will tie into the existing curb ramp at the northwest corner of the intersection.

Impacts on Existing Features

Following a study of existing plans and field reconnaissance, construction of the proposed shared-use path will need to consider the following existing features and associated potential conflicts:

- Fiber optic cable runs underground along the length of the project corridor.
- Slopes that encroach the existing curb line may require regrading to make path construction possible.
- Numerous utility hand holes and trees may require relocation near the Shellhorn Road intersection.
- An existing right turn lane bay and parking lot constrict the available ROW for path construction at the approach to Shellhorn Road.

Connectivity

Surrounding path/sidewalk network

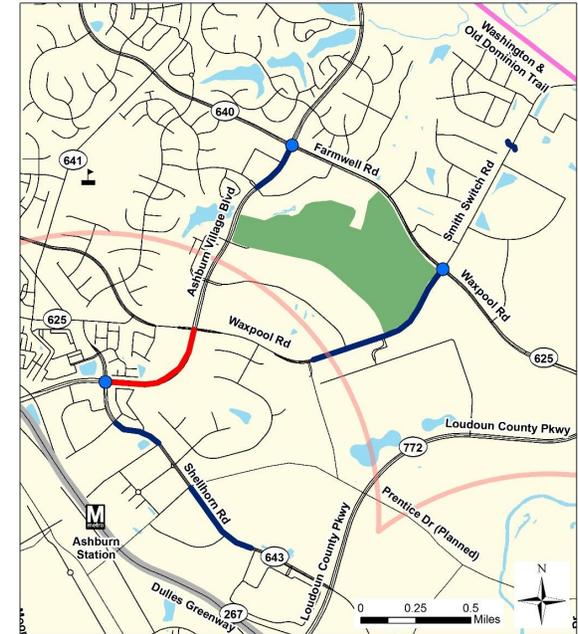
This project will connect to Project 1 along Shellhorn Road and will also connect to a proposed improvement project at the intersection of Ashburn Village Boulevard and Shellhorn Road. The project will also connect to Project 4 along Ashburn Village Boulevard to the north via a proposed shared-use path to be constructed by a developer. The proposed shared-use path will tie into existing sidewalks and curb ramps along Waxpool Road and Shellhorn Road. Once intersection improvements are complete within the project corridor, the proposed shared-use path will connect to existing shared-use path and sidewalk infrastructure via crosswalk on Waxpool Road east of Ashburn Village Boulevard and on Ashburn Village Boulevard west of Shellhorn Road.

Surrounding trip generators

Several likely trip generators are located in the immediate vicinity of the proposed shared-use path. These include:

- The Hearthside at Flynn's Crossing residential community
- The Ryan Park Center residential community
- Hillside Park and Elementary School, Eagle Ridge Middle School, and Broad Run High School are located to the north and west within a mile of the project area
- Future Ashburn Metrorail Station via Shellhorn Road (Project 1)

From Shellhorn Road to Waxpool Road



Planning-Level Opinion of Probable Cost

A planning-level opinion of probable cost was generated for this project. These values are based on preliminary layouts and field review of the project area and are subject to change. Further cost break down is provided in **Attachment A**.

Base Construction Costs	\$192,000
Utilities and Right-of-Way	\$162,000
Preliminary Engineering	\$34,000
Additional Construction Items	\$0
Total	\$390,000

Project Status

This project was identified as a priority in the June 2014 Loudoun County Pedestrian and Bicycle Station Access Study and recommended for study by the Loudoun County Board of Supervisors. This project is currently in the planning phase. The segment of Ashburn Village Boulevard identified for improvement was the location for a project which was submitted as part of a Fiscal Year 2016-2017 VDOT Highway Safety Improvement Program application for Bike and Pedestrian Safety Improvement projects. Although the project submitted for this program was located on the opposite side of the street from the improvement proposed in Project 3, this program still represents one potential source of funding for the proposed infrastructure improvements.

Project Implementation

This project has been identified by Loudoun County and is currently in the planning stage. The next major implementation steps are as follows:

- Identify and secure project funding
- Finalize project scope
- Initiate design of project
- Construct bicycle/pedestrian infrastructure project



Fiber optic cables run along the length of the corridor



The proposed path travels along undeveloped land



Existing trees and slope create a pinch point near Shellhorn Road



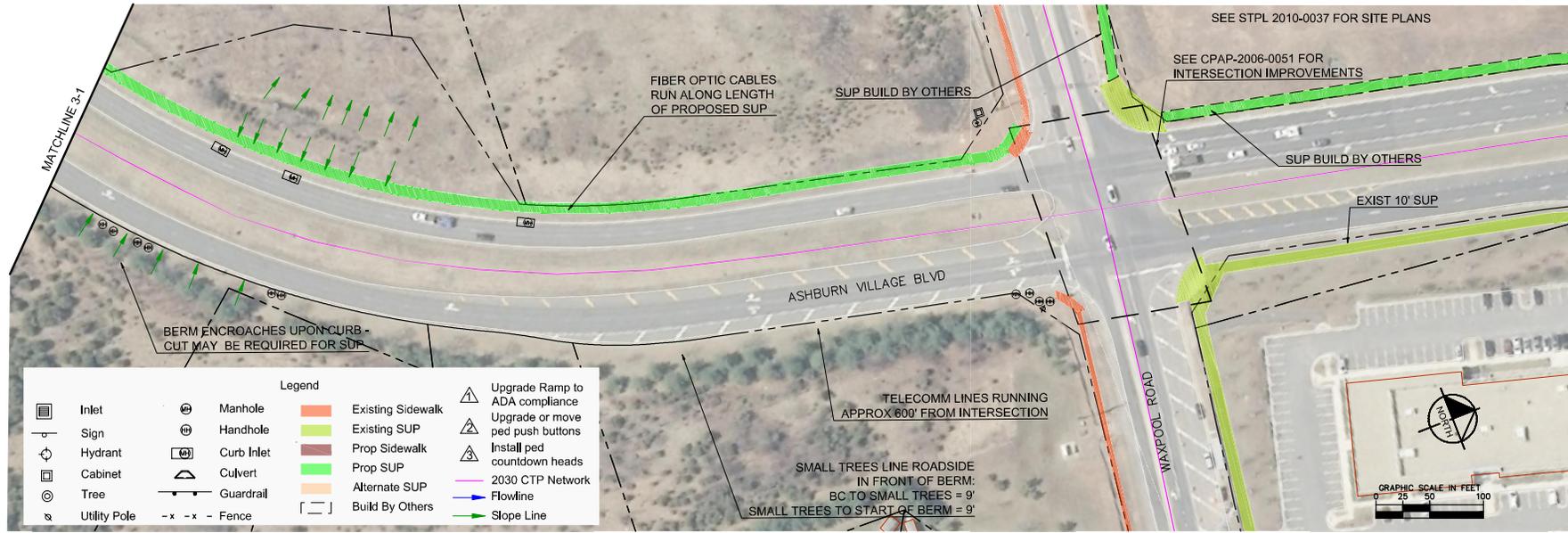
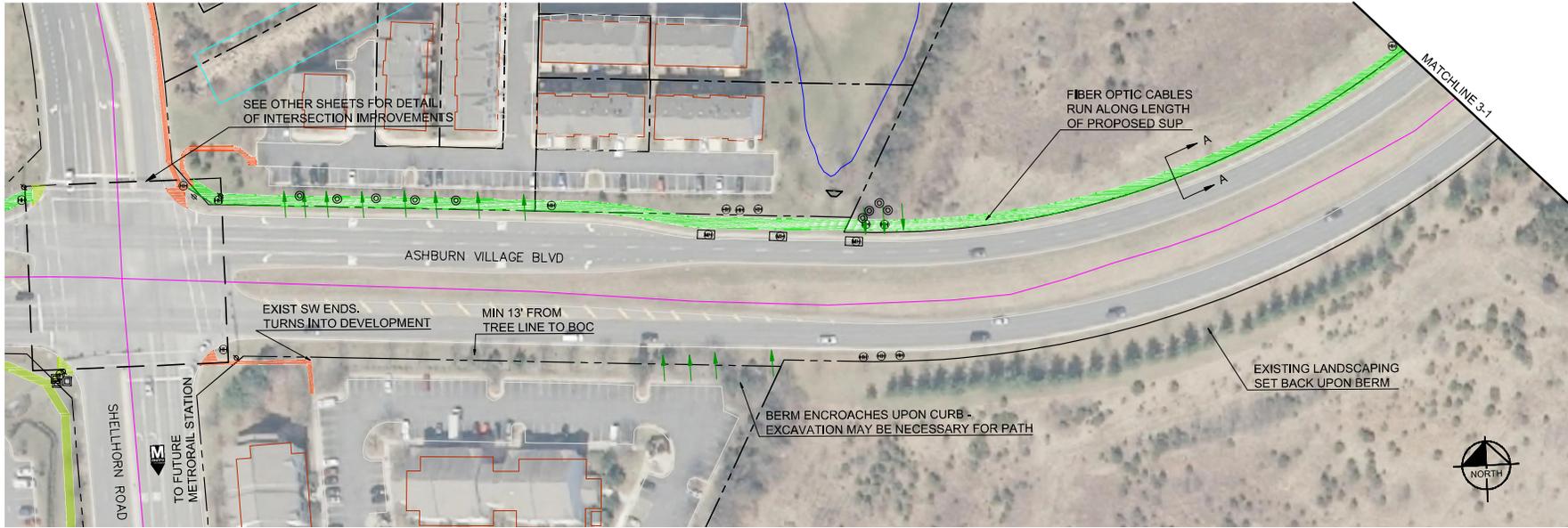
Handholes and a right turn lane limit available right-of-way for off-street improvements



A lightpole and utilities along the proposed path near the intersection of Ashburn Village Boulevard and Shellhorn Road



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