



TECHNICAL UPDATE TO THE MASTER PLAN OF

HIGHWAYS & TRANSITWAYS

WORKING DRAFT | DECEMBER 2017

Summary

Master Plan of Highways and Transitways

The Technical Update to the Master Plan of Highways and Transitways (MPOHT) is being conducted to:

- Update the Master Plan to conform with the Montgomery County Code Chapter 49 for both the 2008 Context-Sensitive Design Standards and the 2014 Complete Streets Policy and Guidelines updates.
- Address technical inconsistencies that have accumulated over time and address them comprehensively.
- Enhance the presentation, format and master plan tools to facilitate public understanding and use of the MPOHT.
- Enable continuous and more frequent updates on the Montgomery Planning website to keep MPOHT documents current and reflective of recently adopted master plans.

This document includes the following major work efforts:

1. Reclassification of 101 road segments to correct inconsistencies.
2. Addition of 25 mph target speeds in all Urban Road Code areas on county roads to conform to the 2014 Road Code Complete Street Policy and Guidelines – 88.5 road miles identified in 277 segments.
3. Expansion of some existing Urban Road Code areas slightly and creation of five new Urban Road Code areas for Burtonsville, Kensington, Chevy Chase Lakes, Langley Crossroads, and Cabin Branch. Revised Bicycle-Pedestrian Priority Area Mapbook, shown with public transit facilities, including master-planned transitways, Metro stations and MARC rail stations instead of the Master Plan of Highways road network.
4. Revised Master Plan of Highways and Transitways Mapbook and Classification Table.

Source of Copies

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Introduction

This update to Montgomery County’s Master Plan of Highways and Transitways provides a comprehensive summary of all significant existing and planned highway and transitway facilities within the county. The new master plan provides a “road map” for making transportation investments within the context of a long-range vision. It ensures the future network of transportation facilities will serve residents, businesses, visitors and people passing through the county. A new functional master plan for bicycles, completed in 2017, is independent from this document.

Historical Context for Plan

The first bi-county Master Plan of Highways for Montgomery County and Prince George’s County was approved and adopted in 1931, shortly after the creation of the Maryland-National Capital Park and Planning Commission in 1927. The last comprehensive update to the Master Plan of Highways was approved and adopted in 1955. The 1955 plan covered only the eastern one-third of Montgomery County within the Maryland-Washington Regional District as it existed at the time - roughly the area east of Georgia Avenue, east and south of the City of Rockville and the Potomac area southeast of Glen Road (Figure 1).

In 1956, the M-NCPPC planning area within Montgomery County was expanded to include all of the county (except for municipalities with independent planning authority). A draft Master Plan of Highways for the entire area of both Montgomery and Prince George’s Counties was proposed in 1967, but the process was never completed. Since then, the master planning functions for each county have been separated. The amended plan currently is referred to as the *Master Plan of Highways and Transitways within Montgomery County*.

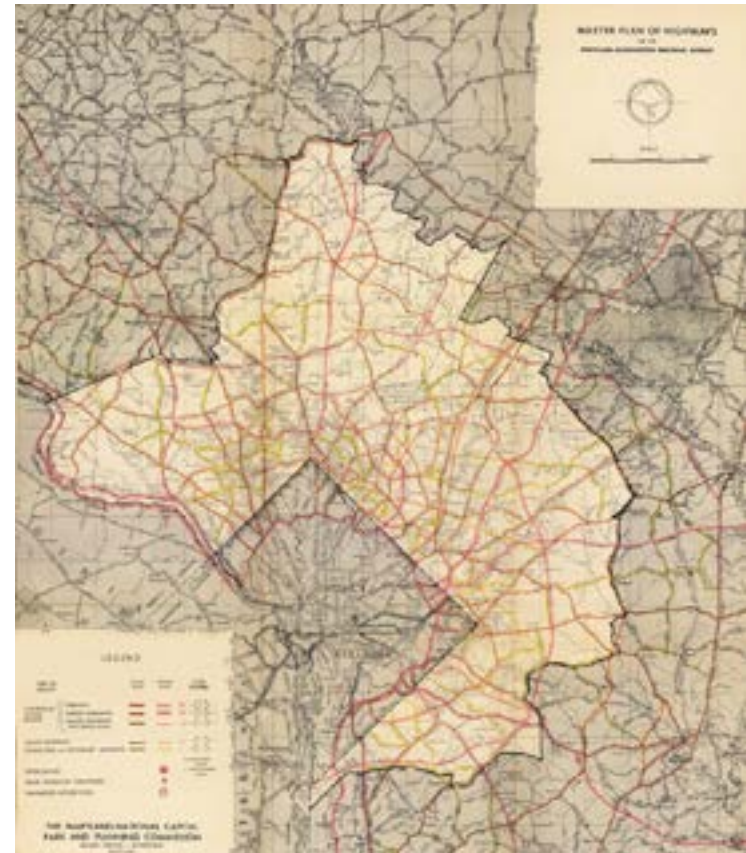


Figure 1: 1955 M-NCPPC Master Plan of Highways

The need and authority for the creation and adoption of a Master Plan of Highways was affirmed in Volume 642, Section 67 of the Laws of Maryland, 1959 (page 1255). The purpose of the Master Plan of Highways is to give the Maryland-National Capital Park and Planning Commission the responsibility to master plan the region's major roadways regarding location, character, grade and extent. For Montgomery County, this planning effort includes the roadway classification and design standards generally consistent with the Montgomery County Road Code, including the planned number of travel lanes, target speeds, divided/undivided designation, transit and high occupancy vehicle (HOV) accommodations, pedestrian and bicycle accommodations, and right-of-way widths.

The area master plans and sector plans that have been approved and adopted by the Montgomery County Council since 1955 have been amended to the Master Plan of Highways, as have the many limited functional master plans and Master Plan of Highways Amendments. Maps of the Master Plan of Highways for the whole county were published in 1986, 1992, 2005 and 2010 as reference documents derived from all previously approved plans and amendments, rather than as stand-alone approved and adopted plans.

Master Plan Vision

The Master Plan of Highways and Transitways is a functional master plan providing guidance and tools for transportation investments. The master plan encapsulates all existing and planned transportation facilities, and preserves planned rights-of-way to accommodate future transportation systems, including highways, transitways and pedestrian and bicycle facilities. Its vision is based on the continuing development of the county and supporting transportation infrastructure in accordance with the General Plan. Its vision is the development of a fundamentally sound, balanced and flexible future transportation system that helps to build and maintain livable communities within Montgomery County. Transportation, when planned well, can be an asset to the quality of life in a community. This plan is a multimodal plan and, ultimately, a plan focused on serving people, not just vehicle trips.

What is a Functional Master Plan?

A functional master plan, following approval by the County Council and adoption by the Maryland-National Capital Park and Planning Commission, constitutes an amendment to the General Plan for Montgomery County. As such, it provides a set of comprehensive recommendations and guidelines for the use of publicly and privately-owned land within its planning area.

Countywide functional master plans are intended to provide a benchmark point of reference regarding public policy for a specific system. These plans cover such functions as overall circulation systems, parks and recreation facilities, environmental systems, agricultural preservation and public services, such as fire and police stations and libraries. A functional master plan reflects a vision of future development for these systems that is balanced with the principal development objectives of the entire county. A functional master plan amends the General Plan, but does not make land use or zoning recommendations.

Together with relevant master plans, a functional master plan should be referred to by public officials and private individuals when decisions are made that affect the facilities within the plan. It should be noted that functional master plan recommendations and guidelines are not intended to be specifically binding on subsequent actions, except in certain instances where documents such as the Zoning Ordinance or Subdivision Regulations require a specific condition to exist.

Functional master plans generally look ahead to a time horizon when the adopted area master plans will be fully developed. It is recognized that the original circumstances at the time of adoption of a functional master plan will change, and that the specifics of a plan may be viewed differently as time goes on.

Any sketches in an adopted functional master plan are for illustrative purposes only and intended to convey a general sense of desirable future character rather than any specific commitment to a detailed design.

Living Document with Improved Public Accessibility

The Master Plan of Highways and Transitways (MPHOT) has evolved through the continuing planning process in Montgomery County. The MPOHT is amended every time an area, sector or functional master plan is adopted by the Montgomery County Council. In late 2017, for example, several master plans were adopted (including the Rock Spring Master Plan, the White Flint 2 Sector Plan and the Grosvenor-Strathmore Metro Area Minor Master Plan) and the transportation recommendations from these plans were amended into the Master Plan of Highways and Transitways, effectively modifying the MPOHT. This process repeats with every plan adoption, thus requiring frequent updates to the MPOHT. These revisions pose a challenge to keep documentation current and responsive, often requiring multiple changes every year.

The intent of this Master Plan of Highways and Transitways is to provide the first comprehensive update to this functional master plan in 63 years, be more technically up-to-date with current planning practices, facilitate more frequent transportation recommendation updates as the plan is amended and improve the ease of access and use of the plan for the public.

Public accessibility and use is very important to this plan update and the production of improved maps, guidance documents, web applications and public feedback mechanisms are a priority. We specifically seek to:

- Consolidate all existing and planned transportation improvements into one document.
- Improve the mapping capabilities of the MPOHT for public use.
- Provide information on county road classifications, their associated standards and use within the MPOHT.
- Facilitate the receipt of continuous public feedback on the MPOHT using digital applications.
- Develop a documentation process to ensure that the publicly-available MPOHT maps are revised more frequently and kept up to date.

Master Plan Technical Elements

This Master Plan of Highways and Transitways update reflects current county policies as stated in the Montgomery County Code, including context-sensitive and complete streets design standards. This functional master plan will improve the county's ability to ensure the preservation of future rights-of-way for highway and transit investments are consistent with the County Code. It will help the county improve road function and design through the Road Code standards; select appropriate target speeds to provide slower, safer travel consistent with both the road classification and the development characteristics of the area (urban, suburban, rural); and more effectively accommodate vehicular, pedestrian and bicycle facilities within these rights-of-way.

Better Alignment with the Road Code

With significant changes to the Montgomery County Road Code made in 2008 and 2014, the Master Plan of Highways and Transitways needed to be consistent with these revisions, specifically Section 49.28.01 Context-Sensitive Road Design Standards and Section 49.25 Complete Streets Policy and Standards. These regulations:

1. Established new road classifications, including Controlled Major Highways, Minor Arterials and Parkways.
2. Set acceptable target speeds based on road classification and road code area type (urban, suburban and rural).
3. Specified road design and target speed standards for county roads within urban areas requiring that these roads “must be designed so that the safety and convenience of all users of the roadway system – including pedestrians, bicyclists, transit users, automobile drivers, commercial vehicles and freight haulers, and emergency service vehicles – are accommodated.”

Address Inconsistencies Across Master Plan Boundaries

In addition, periodically, updates to the plan need to be made where inconsistencies occur on roads that cross multiple master plan boundaries to reflect current long-range plans. Inconsistencies need to be examined in the context of the entire transportation network with adjustments to right-of-way, roadway classification, future travel lanes and target speed made where needed.

Improved Descriptive and Supporting Information

A final effort of this technical update to the Master Plan of Highways and Transitways is to provide additional information that is relevant to the county road code standards and to long-range transportation planning in general, including the following:

- Area types (urban, suburban, rural) per Road Code Section 4.1.
- Location of Bicycle-Pedestrian Priority Areas within Montgomery County.
- Descriptive roadway information where specified in master plans to identify restricted uses, including truck restrictions, bus facilities and high occupancy vehicle (HOV) facilities.

Master Plan Development

The existing Master Plan of Highways and Transitways is currently an assemblage of master plans, each containing transportation recommendations for its plan area. When combined, these recommendations form the basis for the Master Plan of Highways and Transitways Functional Master Plan. Therefore, a review of all active master plans was conducted to ensure that all committed master plan transportation decisions are documented in the new plan for highways and transitways. This survey includes currently active approved area master and sector plans, functional master plans and any master plan amendments that have been incorporated by the County Council into the Master Plan of Highways and Transitways.

Current Master Plans, Functional Master Plans and Master Plan Amendments

Table 1 lists the functional master plans now in effect within Montgomery County that have modified the Master Plan of Highways (and Transitways) with the date when the master plan was approved and adopted by the Montgomery County Council.

Table 1: Functional Master Plans Amended to the Master Plan of Highways and Transitways

Master Plans Including Amendments	Date Adopted by County Council
Bicycle Master Plan	TBD
Countywide Transit Corridors Functional Master Plan	November 2013
Purple Line Functional Plan and the Capital Crescent Trail	March 2009
Intercounty Connector Limited Functional Master Plan Amendment – Bikeways and Interchanges	March 2009
Countywide Bikeways Functional Master Plan	February 2005
Capital Beltway HOV Lane Project and Interchange at the Intersection of Randolph Road and Veirs Mill Road	April 2004
Montrose Road Limited Amendment to Revise the Number of Lanes and Evaluate Truck Traffic on the Montrose Parkway	March 2000
Rustic Roads Functional Master Plan	December 1996
Preservation of Agricultural and Rural Open Space Functional Master Plan	September 1980

Table 2 provides a list of all current area/sector plans in effect within Montgomery County that have been formally amended into the Master Plan of Highways (and Transitways) with the date when the plan was approved and adopted by the Montgomery County Council.

Table 2: Active Area/Sector Plans Amended to the Master Plan of Highways and Transitways

Master Plans including Amendments	Date Approved and Adopted
Veirs Mill Corridor Master Plan	TBD
MARC Rail Communities Plan	TBD
Grosvenor/Strathmore Metro Area Minor Master Plan	December 2017
White Flint 2 Sector Plan	December 2017
Rock Spring Master Plan	November 2017
Bethesda Downtown Sector Plan	May 2017
Greater Lyttonsville Sector Plan	February 2017
Montgomery Village Master Plan	March 2016
Westbard Sector Plan	May 2016
Sandy Spring Rural Village Plan	February 2015
Ten Mile Creek Ltd Amendment to the Clarksburg Master Plan	July 2014
White Oak Science Gateway Master Plan	July 2014
Bethesda Purple Line Station Plan Minor Master Plan Amendment	March 2014
Glenmont Sector Plan	November 2013
Chevy Chase Lake Sector Plan	October 2013
Long Branch Sector Plan	December 2013
Burtonsville Commercial Crossroads Neighborhood Plan	December 2012
Takoma/Langley Crossroads Sector Plan	June 2012
Kensington Sector Plan	March 2012
Wheaton Central Business District and Vicinity Sector Plan	January 2012
Great Seneca Science Corridor Master Plan	June 2010
White Flint Sector Plan	April 2010

Master Plans including Amendments	Date Approved and Adopted
Germantown Employment Area Sector Plan	October 2009
Twinbrook Sector Plan	January 2009
Damascus Master Plan	June 2006
Shady Grove Sector Plan	January 2006
Olney Master Plan	April 2005
Upper Rock Creek Master Plan	April 2004
Potomac Subregion Master Plan	April 2002
Takoma Park Master Plan	January 2001
Kemp Mill Master Plan	December 2001
Silver Spring East Master Plan	December 2000
North and West Silver Spring Master Plan	September 2000
Silver Spring CBD Sector Plan	March 2000
West and North Silver Spring Master Plan	September 2000
Master Plan (1998): Sandy Spring/Ashton	July 1998
Cloverly Master Plan	July 1997
White Oak Master Plan	February 1997
Four Corners Master Plan	December 1996
Clarksburg Master Plan and Hyattstown Special Study Area	June 1994
Aspen Hill Master Plan	April 1994
North Bethesda Garrett Park Master Plan	December 1992
Bethesda Chevy Chase Master Plan	April 1990
Germantown Master Plan	July 1989
Kensington-Wheaton Master Plan	May 1989
Damascus Master Plan	July 1985
Boyds Master Plan	February 1985
Gaithersburg and Vicinity Master Plan	January 1985
Capital View and Vicinity Sector Plan	July 1982

In addition, there have been some master plan amendments that have been approved for multiple master plan/sector plans. These amendments tend to be related to changes in the transportation network that affect more than one single master plan area. Table 3 provides a lists of the current master plan amendments that were created in this manner with the date of amendment adoption and a list of the master plans amended.

Table 3: Amendments Affecting Multiple Master Plans/Sector Plans

Master Plans including Amendments	Date Adopted by County Council	Master Plans Amended
Rustic Roads – Johnson Drive, Long Corner Road, Mountain View Road, Purdum Road, Warfield Road	February 2004	Master Plan of Highways Rustic Roads Functional Master Plan Clarksburg Master Plan and Special Study Area, Boyds Master Plan Gaithersburg Vicinity Master Plan
Muncaster Road and Muncaster Mill Road Highway Classification and Alignment Master Plan Amendment	November 1995	Master Plan of Highways Gaithersburg Vicinity Master Plan Upper Rock Creek Master Plan Olney Master Plan Aspen Hill Master Plan

Components of the Master Plan of Highways and Transitways

The MPOHT includes all existing and proposed master planned roads and transitways within Montgomery County. The MPOHT road network does not include all roads, as its purpose is to guide the master planning process for major transportation investments. For this reason, the MPOHT has the following highway and public transit components:

Highway Components

Road Classifications Included in the MPOHT	Road Classifications Not Included in the MPOHT
Freeways	Principal Secondary Streets
Controlled Major Highways	Secondary Residential Streets
Parkways	Tertiary Residential Streets
Major Highways	Private Roads
Arterial Streets	Park Roads Owned by the M-NCPPC
Minor Arterial Streets	Alleys
Primary Residential Streets	Unclassified Roads
Business Streets	Streets Located within Municipalities with Independent Planning Authority
Industrial Streets	
Country Roads	
Country Arterials	
Rustic Roads and Exceptional Rustic Roads	

The roadway classifications used are consistent with the Montgomery County Road Code, Section 4.2. Classifications added with the 2008 Road Code revision include Controlled Major Highways, Minor Arterial Streets and Parkways. Information provided for each classified roadway includes the following:

- Segment length (feet or miles)
- Right-of-way width (feet)
- Road Code road type classification
- Target speed (miles per hour)
- Existing number of through travel lanes
- Future (ultimate) number of through travel lanes
- Divided or undivided road
- Presence of a transitway (none, existing or future)

Public Transit Components

- Existing and proposed transitways
- Existing and proposed transit mode (bus rapid transit and light rail transit)
- Location of transitway within a right-of-way or in relation to road (i.e., median, curbside, elevated, exclusive/separate right-of-way)
- Locations of all Metrorail and MARC rail stations (shown for reference only)
- Location of Bicycle-Pedestrian Policy Areas (as approved by the Montgomery County Council).

The current Master Plan of Highways and Transitways surveys a total of 1,148 miles of existing and planned infrastructure throughout Montgomery County, as summarized in Table 4. Transitways are included in the above subtotal with the exception of 19.6 miles where transitways are located on their own right-of-way (i.e., Purple Line light rail transit) or bus rapid transit (BRT) routes planned to pass through other jurisdictions (i.e., Prince George's County, Rockville and Gaithersburg). It is interesting to note that transitways are planned on 116 miles or approximately 10 percent of the total MPOHT mileage inventory.

Table 4: MPOHT Functional Classification by Mileage

Functional Classification	Existing	Planned	Total	Percent
Arterial	260.1	9.8	269.9	23.51%
Business	43.4	19.3	63.0	5.46%
Controlled Major Highway	23.0	0.0	23.0	2.00%
Country Arterial	48.6	0.4	49.0	4.27%
Country Road	28.7	0.0	28.7	2.50%
Exceptional Rustic Road	40.3	0.0	40.3	3.51%
Freeway	57.2	0.0	57.2	4.98%
Industrial	7.2	0.0	7.2	0.62%
Major Highway	194.2	9.8	204.0	17.77%
Minor Arterial	4.8	0.8	5.6	0.48%
Park Road	5.4	0.0	5.4	0.47%
Parkway	6.4	0.0	6.4	0.56%
Primary Residential	233.1	3.3	236.3	20.58%
Principal Secondary	1.9	0.0	1.9	0.17%
Rustic Road	150.4	0.0	150.4	13.10%
Total	1104.8	43.3	1148.4	100.00%

Transitway Type	Total
Dedicated Transit ROW or Non MPOHT Road	
Dedicated Bus Rapid Transit (BRT)	14.7
Light Rail	4.9
Grand Total	19.6
MPOHT Right of Way	
Dedicated BRT	70.8
Dedicated BRT and Light Rail	1.1
BRT in Mixed Traffic	42.1
Light Rail	1.8
Grand Total	115.8

Montgomery County Road Code and Relationship to MPOHT

The 2008 Road Code update designated urban, suburban and rural area types throughout Montgomery County. Figure 2 below displays the urban, suburban and rural areas within the county. In general, urban areas include central business districts, town centers, transit nodes or centers, or Metro Station Policy Areas (MSPA) with high density commercial and residential development. Rural areas are generally undeveloped or sparsely settled with development at low densities along a small number of roadways or clustered in small villages. Large portions of the county's rural areas are in the Agricultural Reserve. All other areas within the county (not considered urban or rural) are classified as suburban areas.

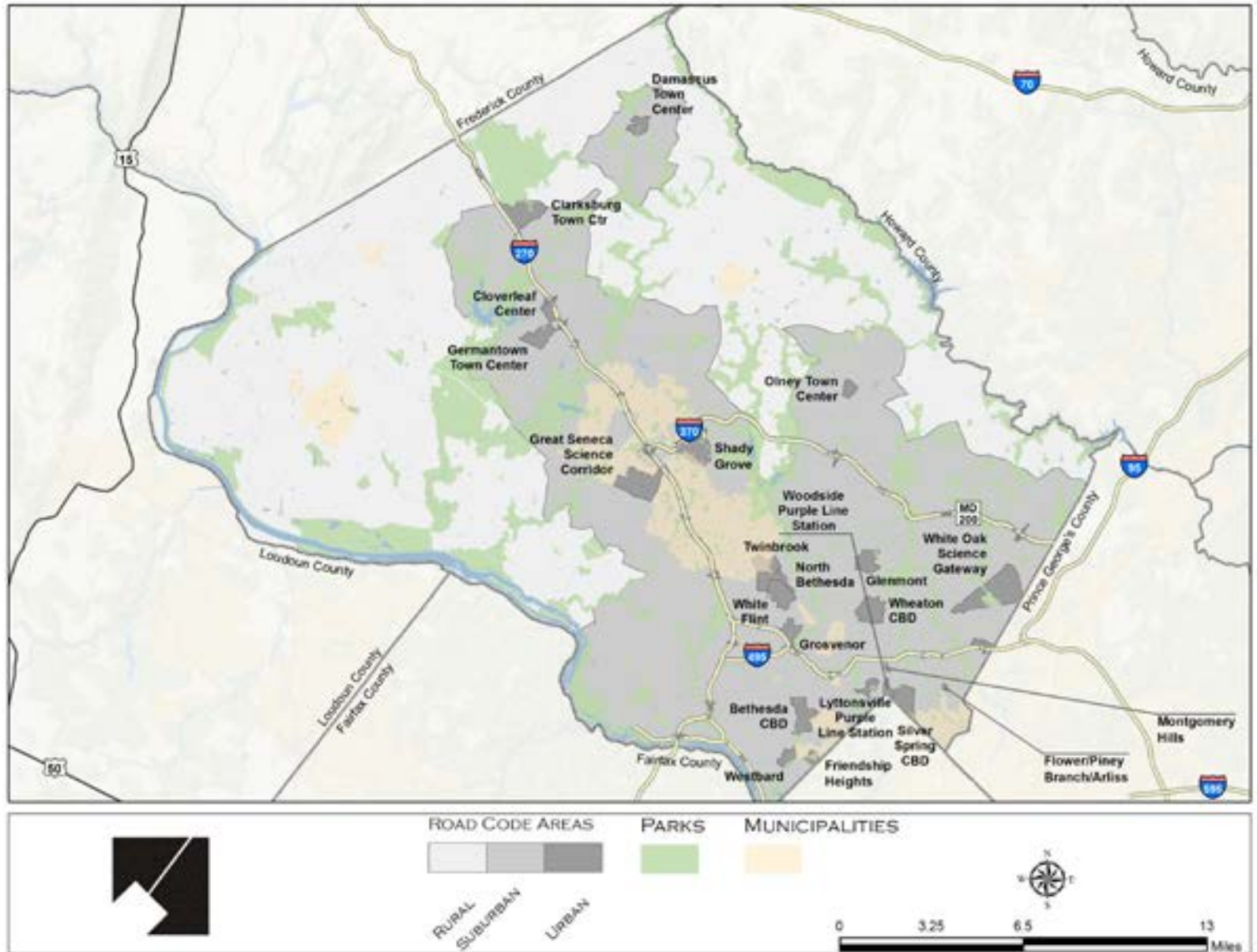


Figure 2: Road Code Areas

The designated urban areas are as follows:

Urban Areas	Master Plan Area
Arliss/Flower/Piney Branch	East Silver Spring Master Plan
Bethesda Central Business District	Bethesda Downtown Sector Plan
Clarksburg Town Center	Clarksburg Master Plan
Cloverleaf Center	Germantown Employment Area Sector Plan
Damascus	Damascus Master Plan
Friendship Heights MSPA	Bethesda/Chevy Chase Master Plan
Germantown Town Center	Germantown Employment Area Sector Plan
Glenmont MSPA	Glenmont Sector Plan
Great Seneca Science Corridor	Great Seneca Science Corridor Master Plan
Grosvenor	North Bethesda Garrett Park Master Plan
Lyttonsville Station	Greater Lyttonsville Sector Plan
Montgomery Hills Parking Lot District	North and West Silver Spring Master Plan
Olney Town Center	Olney Master Plan
Shady Grove MSPA	Shady Grove Sector Plan
Silver Spring CBD	Silver Spring CBD Master Plan
Twinbrook/North Bethesda/White Flint	Twinbrook, North Bethesda Garrett Park, White Flint and White Flint 2 Sector Plans
Wheaton CBD	Wheaton Sector Plan
White Oak Science Gateway	White Oak Science Gateway Master Plan
Woodside Station	Greater Lyttonsville Sector Plan

Functional Road Classification and Access/Mobility Curve

Functional classification is the process by which streets and highways are grouped into types or systems according to the character of traffic service that they are intended to provide¹. Roads or highways are functionally classified in order to help plan appropriate design components for each type of facility. A well-designed roadway system has a mix of roadway types.

Each roadway type is designated based on its need or priority for access or mobility. Roads with high mobility, such as freeways, have high speeds and limited access. Roads with high accessibility have lower speeds and very few restrictions on access. Some roads, such as freeways, are designed with mobility as their primary function, while on the opposite end of the spectrum, local streets are designed to provide access to adjacent land uses. Figure 3 displays how different road types function in relationship to mobility and access.

¹ Flexibility in Highway Design, US Department of Transportation, Federal Highway Administration, page 3-1.



Figure 3: Road Classification - Mobility/Access

Road classifications used in the Master Plan of Highways and Transitways are described on page 23 through page 28 as specified in the Montgomery County Road Code.

Freeway - A Freeway is a road meant exclusively for through movement of vehicles at a high speed. Access must be limited to grade-separated interchanges. Interstate 495, the Capital Beltway, and I-270 are two examples of this road classification.



Controlled Major Highway - A Controlled Major Highway is a road meant exclusively for through movement of vehicles at a lower speed than a Freeway. Access must be limited to grade-separated interchanges or at-grade intersections with public roads. US Route 29 north of New Hampshire Avenue (MD 650) is an example of this road classification.





Major Highway - A Major Highway is a road meant nearly exclusively for through movement of vehicles at a moderate speed. Access must be primarily from grade-separated interchanges and at-grade intersections with public roads, although driveway access is acceptable in urban and denser suburban settings. Rockville Pike and Georgia Avenue are two examples of this road classification.



Parkway - A Parkway is a road meant exclusively for through movement of vehicles at a moderate speed. Access must be limited to grade-separated interchanges and at-grade intersections. Any truck with more than four wheels must not use a Parkway, except in an emergency or if the truck is engaged in Parkway maintenance. The Clara Barton Parkway is an example of this road classification.

Arterial - An Arterial is a road meant primarily for through movement of vehicles at a moderate speed, although some access to abutting property is expected. Old Frederick Road (north of Little Seneca Parkway) and Bradley Boulevard are two examples of this road classification.



Country Arterial - A Country Arterial is typically found in rural areas, such as Montgomery County's Agricultural Reserve. This road is meant primarily for through movement of vehicles at a moderate speed, although some access to abutting property is expected. Sundown Road (east of Laytonsville) and Darnestown Road (north of Whites Ferry Road) are two examples of this road classification.





Minor Arterial - A Minor Arterial is a two-lane arterial meant nearly equally for through movement of vehicles and access to abutting property. Stewartown Road and Flower Avenue (North of Carroll Avenue) are two examples of this road classification.

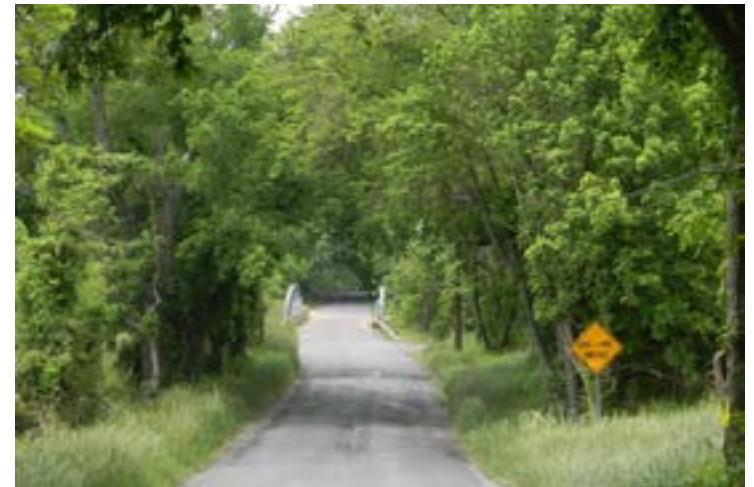


Primary Residential Street - A Primary Residential Street is a road meant primarily for circulation in residential neighborhoods, although some through traffic is expected. Whittier Boulevard and Good Hope Road are two examples of this road classification.

Country Road - A Country Road is a road that functions like a Primary Residential Street, typically found in the county's Agricultural Reserve. This road is meant primarily for circulation in residential zones, although some through traffic is expected. Shiloh Church Road and Griffith Road are two examples of this road classification.



Rustic and Exceptional Rustic Roads - Rustic and Exceptional Rustic Roads are roads classified under Section 49-78 of the Montgomery County Code. The designation seeks to preserve the historic character of these roads by retaining certain physical features and right-of-way maintenance procedures. Barnesville Road is an example of a Rustic Road and Martinsburg Road is an example of an Exceptional Rustic Road.





Business District Street - A Business District Street is a road meant for circulation in commercial and mixed-use zones. Century Boulevard and Howard Avenue are two examples of this road classification.



Industrial Street - An Industrial Street is a road meant for circulation in industrial zones. Linden Avenue and Automobile Boulevard are two examples of this road classification.

Each road classification has specific design standards based on its classification and its road code type (urban, suburban, and rural). These standards cover the following design considerations:

- Master plan right-of-way required (as specified in the Montgomery County Code), based on typical sections developed by the Montgomery County Department of Transportation (MCDOT) design standards, or as specified in master plans.
- Level of access control.
- Curbed (closed section) versus shoulders (open section).
- Intersection spacing (per Chapter 50, Subdivision of Land in the Montgomery County Code).
- Maximum target speed.
- Traffic calming and spacing standards (MCDOT Guidelines).
- Through traffic restrictions (MCDOT Guidelines).
- Provision of pedestrian facilities.
- Provision of bicycle facilities.

Functional Classification Comparison

One way to understand the differences between the road classification categories is to compare how their operational characteristics differ. Table 5 provides a summary comparison of some key geometric and operational characteristics of the county's road system. The number of travel lanes, whether the road is divided and how access is provided along a road are some key factors that are influenced or directly controlled by a road's classification.

Table 5: Road Functional Classification - Comparison of Geometric and Operational Characteristics

Functional Hierarchy	No. Lanes	Minimum Right of Way (feet)	Control of Access	Divided Roadway?	Percent Through Traffic	Through Traffic Restrictions Considered? ³	Traffic Calming Considered? ³	Heavy Truck Restrictions Considered? ⁴
Freeway (per AASHTO)	4 - 12	250 - 300	Interchanges Only	Always	50%+	Not Required	Not Required	No
Controlled Major Highway	6 - 8	150 ¹	Interchanges and Public Road Intersections	Always	50%+	Not Required	Not Required	No
Parkway	4	120 ¹	Interchanges and Public Road Intersections	Always	50%+	Not Required	Not Required	No
Major Highway	4 - 6	120 - 150 ¹	Driveway access acceptable in denser suburban and urban areas	Always	50%+	Not Required	Not Required	No
Arterial	2 - 4	80 - 120 ¹	Some access to abutting property is expected	Typical	50%+	Not Required	Not Required	No
Minor Arterial	2 - 3	70	Access to abutting property is expected	No	50%+	Not Required	Yes (Type 3)	MCDOT decision
Primary Residential Street	2	70 (100) ²	Access to abutting property is expected	Allowed	<50%	Yes	Yes (Type 2)	Yes
Secondary Streets (not in MPOHT)	2	60	Access to abutting property is expected	No	Limited	Yes	Yes (Type 1)	Yes
Tertiary Streets (not in MPOHT)	2	21 - 50	Access to abutting property is expected	No	0%	Yes	Yes (Type 1)	Yes

County Code Reference

LMC §49-32d

LMC §49-31

LMC §49-30

LMC §49-30

Notes:

1. COMCOR §49.28.01 - Context Sensitive Design Standards.
2. Measurements provided for undivided and (divided or dual) roads.
3. Traffic calming governed by Montgomery County Code, Chapter 49, Sec. 49-30.
4. MCDOT Memorandum –Policy Regarding the Installation of “No Through Trucks over 3/4 Ton” Regulations on County Roads, dated 1/12/81.

Traffic calming device design types referenced previously are based on type and width of speed hump, spacing between adjacent speed humps and spacing between speed hump and adjacent intersections, as shown below in Table 6.

Table 6: Traffic Calming Standards – County Roads

Speed Hump Type	Width of Speed Hump (feet)	Min. Spacing between speed humps (feet)	Min. Spacing between speed hump and intersection (feet)
Type 1	Parabolic 12' wide	500'	200'
Type 2	Flat Top 12' wide	500'	200'
Type 3	Flat Top 22' wide	750'	300'

Note: Standards obtained from LMC §49-30 and COMCOR 49.30.01.

Operationally, through traffic percentage, along with daily traffic volumes and peak hour capacity (not presented in this table) are important, but just as important are Montgomery County Department of Transportation guidelines or policies that control how a particular roadway classification is managed, including traffic calming, through traffic and heavy truck traffic. Right-of-way (ROW) widths can vary based on site conditions and specified ROW widths in adopted master plans.

MPOHT Technical Evaluation

A total of eight technical changes are being proposed within the MPOHT to provide a more up-to-date master plan document that is consistent with Montgomery County Code. The eight technical changes are:

- Arterial to Minor Arterial
- New Primary Residential Streets
- Master Plan Inconsistencies
- Rural Road Code Boundary Issues
- Changes to Major Highways and Controlled Major Highways
- Numbering/Identification of unnumbered streets from older plans
- Change resulting from existing or planned development
- Segments to be removed from MPOHT

Within these eight categories, a total of 101 road or transitway segments have been identified for re-classification. Table 7 summarizes the 101 changes by technical category.

Table 7: Proposed Re-Classification Candidates by Reason

Classification Change Description	Count
Arterial To Minor Arterial (Down-Classification)	18
New Primary Residential Streets	20
Master Plan Inconsistencies	23
Rural Rode Code Boundary Issues	11
Changes To Major Highways And Controlled Major Highways	14
Change Resulting From Existing Or Planned Development	9
Segments To Be Removed From MPOHT	6
TOTAL	101

New Road Classification Changes

With the 2008 Context-Sensitive Road Code changes, three new road classification standards were introduced: Controlled Major Highways, Minor Arterials and Parkways. Master plans conducted prior to 2008, therefore, did not include these road classifications so the primary focus of this effort is to review those older plans to update them. The definitions of each new road classification from the Montgomery County Code (Section 49-31) are provided below:

Controlled Major Highway – A road meant exclusively for through movement of vehicles at a lower speed than a Freeway. Access must be limited to grade-separated interchanges or at-grade intersections with public roads. Controlled major highways have no driveway access (controlled access). Examples in Montgomery County of a controlled major highway include US Route 29 north of New Hampshire Avenue, Key West Avenue and the southern portion of Great Seneca Highway. There are no new Controlled Major Highway segments to be added within this MPOHT update.

Parkway - A road meant exclusively for through movement of vehicles at a moderate speed. Access must be limited to grade-separated interchanges and at-grade intersections. Any truck with more than four wheels must not use a Parkway, except in an emergency or if the truck is engaged in Parkway maintenance. Clara Barton Parkway is currently the only road classified as a Parkway in the MPOHT.

Two roads have been identified to be added to this category. The first is the existing Cabin John Parkway, a road owned by the Maryland State Highway Administration (SHA) and designated as Route I-495X. This road is restricted to trucks and provides a direct connection between the Clara Barton Parkway and the Capital Beltway (I-495).

A planned road is also being proposed to be added to this category – the Montrose Parkway Extension from the west of Maple Avenue/Chapman Avenue to Veirs Mill Road. This planned road is currently classified as a Planned Arterial with planned Bus Rapid Transit (BRT) service. The proposed right-of-way width is 300 feet and the new road will provide two lanes in each direction. The new classification would be Planned Parkway.

In 2015, the Montgomery County Department of Transportation conducted a BRT feasibility study² and selected the Randolph Road to Nebel Street to Marinelli Drive route for the Randolph Road BRT instead of the Montrose Parkway alternative BRT route (as presented in the Countywide Transit Corridors Functional Master Plan). Therefore, the transitway designation is proposed to be removed from Montrose Parkway between Chapman Avenue and Veirs Mill Road. This is needed, as design plans are complete or nearing completion for Montrose Parkway and these plans do not include either the designated transitway or the master-planned BRT station stop on Montrose Parkway at Parklawn Drive.

² Montrose Parkway Bus Rapid Transit Study, August 2015, prepared by STV Incorporated for the Montgomery Department of Transportation.

Minor Arterial - A minor arterial is defined in the 2008 Road Code as “a two-lane arterial meant equally for through movement of vehicles and access to abutting property.” Examples in Montgomery County include Leland Street and Battery Lane in Bethesda, Flower Avenue in Silver Spring and Stewartown Road in Montgomery Village.

While the type is a significant new addition to the Road Code, this change does not mean that all two lane arterials fit into this classification. It is important to remember that road function AND road geometry must be considered together to determine the appropriate functional road classification.

Minor Arterials are differentiated from Arterials and Primary Residential Streets in several ways. Table 9 below shows a comparison between Arterials, Minor Arterials and Primary Residential Streets. The key functional difference is the number of lanes (two) and the percentage through traffic. Each of these three road classifications have different road design standards, particularly regarding the permitting of traffic calming devices and implementation of through traffic restrictions.

Table 8: Traffic Calming Standards – County Roads

Speed Hump Type	Arterials	Minor Arterials	Primary Residential Streets
Number of Lanes	2 to 4	2 to 3*	2
Percent Through traffic	>50%	>50%	<=50%
Max Daily Traffic Flow (vehicles per day)	35,000 to 50,000	18,000 to 20,000	15,000
Speed Humps Allowed? Per LMC §49-30, ER 32-08	No	Yes	Yes
Traffic Calming Considered per Road Code?	No	Yes	Yes
Medians? (Referred to as Dual Road Section in Road Code)	Yes, but can be undivided with turn pockets or center two-way left turn (“suicide”) lane	No, turn pockets or center two-way left turn (“suicide”) lane	Yes, but not typical
Target Speeds	Varies by Area Type	Varies by Area Type, typically lower than arterials	25 mph Urban, 30 mph Other Areas
Volume Restriction Measures Considered?	No	No	Yes

* A three-lane cross section is an undivided roadway with one travel lane in each direction with a center two-way left turn lane (commonly referred to as a “suicide lane.”)

For master plans completed before the adoption of the 2008 Road Code, roads that might have been considered a Minor Arterial would have been classified as Arterials or Primary Residential Streets. Therefore, candidate road sections were investigated for this Master Plan of Highways and Transitways, primarily in areas with existing master plans predating the adoption of the 2008 Road Code standards.

Recommended Minor Arterial Streets

For this MPOHT update, a total of 46 potential additional Minor Arterial candidates have been identified. Of the 46 road sections evaluated, this plan is recommending the re-classification of 18 Arterial streets to the Minor Arterial classification.

The remaining 28 road sections are not recommended for re-classification at this time. While the potential re-classification of these 28 road sections currently classified as Primary Residential Streets was considered, it was determined that these potential up-classifications deserve a more detailed future transportation effort including a more robust, focused public outreach element. They are, therefore, not recommended for re-classification within this master plan.

Table 9 on the following page presents the proposed Minor Arterial candidates. These proposed classification changes are displayed on Figure 4.

Table 10 and Figures 5 and 6 present Minor Arterial candidates that were considered but that are not included as recommendations in this technical update. These road sections are currently Primary Residential Streets, which clearly serve an “arterial” function within the county’s road network.

Table 9: Proposed Minor Arterial Candidates (Down-Classification)

ID	Name	From Location	To Location	Classification	Proposed Classification	Master Plan	Existing Lanes	Planned Lanes	Proposed Planned Lanes	Existing ROW Feet	Proposed ROW Feet
4	Arcola Ave	Georgia Ave	Kemp Mill Rd	Arterial	Minor Arterial	Kensington-Wheaton	2	2	2	80	70
5	Arcola Ave	Kemp Mill Rd	University Blvd	Arterial	Minor Arterial	Kemp Mill	2	2	2	80	70
11	Bethesda Church Rd	Kings Valley Rd	Woodfield Rd	Arterial	Minor Arterial	Damascus	2	2	2	80	80
30	Dale Dr	Georgia Ave	Wayne Ave	Arterial	Minor Arterial	North and West Silver Spring	2	2	2	80	70
31	Dale Dr	Wayne Ave	Piney Branch Rd	Arterial	Minor Arterial	East Silver Spring	2	2	2	70	70
34	Dennis Ave	Georgia Ave	Sligo Creek Pkwy	Arterial	Minor Arterial	Kensington-Wheaton	2	2	2	80	80
35	Dennis Ave	Proctor St	University Blvd (MD 193)	Arterial	Minor Arterial	Four Corners	2	2	2	80	80
36	Dennis Ave	Sligo Creek Pkwy	Proctor St	Arterial	Minor Arterial	Kemp Mill	2	2	2	80	80
56	Greencastle Rd	Columbia Pike	Prince George's County Line	Arterial	Minor Arterial	Fairland	2	4	2	80	70
73	Kemp Mill Rd	Randolph Rd	Arcola Ave	Arterial	Minor Arterial	Kemp Mill	2	2	2	80	80

ID	Name	From Location	To Location	Classification	Proposed Classification	Master Plan	Existing Lanes	Planned Lanes	Proposed Planned Lanes	Existing ROW Feet	Proposed ROW Feet
79	Lockwood Dr	West Side of White Oak Shopping Center	Stewart Ln	Arterial with planned BRT	Minor Arterial with planned BRT	White Oak Science Gateway	2	2	2	90	90
86	Musgrove Rd	Old Columbia Pike	Fairland Rd	Arterial	Minor Arterial	Fairland	2	2	2	80	70
92	Plyers Mill Road	Connecticut Ave	Metropolitan Avenue	Arterial	Minor Arterial	MPOHT (Pending)	2	2	2	80	80
93	Plyers Mill Road	Kensington Town Limit	Georgia Avenue	Arterial	Minor Arterial	MPOHT (Pending)	2	2	2	80	70
94	Plyers Mill Road	Metropolitan Avenue	Kensington Town Limit	Arterial	Minor Arterial	MPOHT (Pending)	2	2	2	80	70
106	Sligo Ave	Woodbury Dr	Piney Branch Rd	Arterial	Minor Arterial	East Silver Spring	2	2	2	50	50
108	Stewart Ln	Lockwood Dr	Columbia Pike (US 29)	Arterial with planned BRT	Minor Arterial with planned BRT	White Oak Science Gateway	2	2	2	90	90
113	Valley Park Dr	Ridge Rd	Woodfield Rd	Arterial	Minor Arterial	Damascus	2	2	2	80-120	80

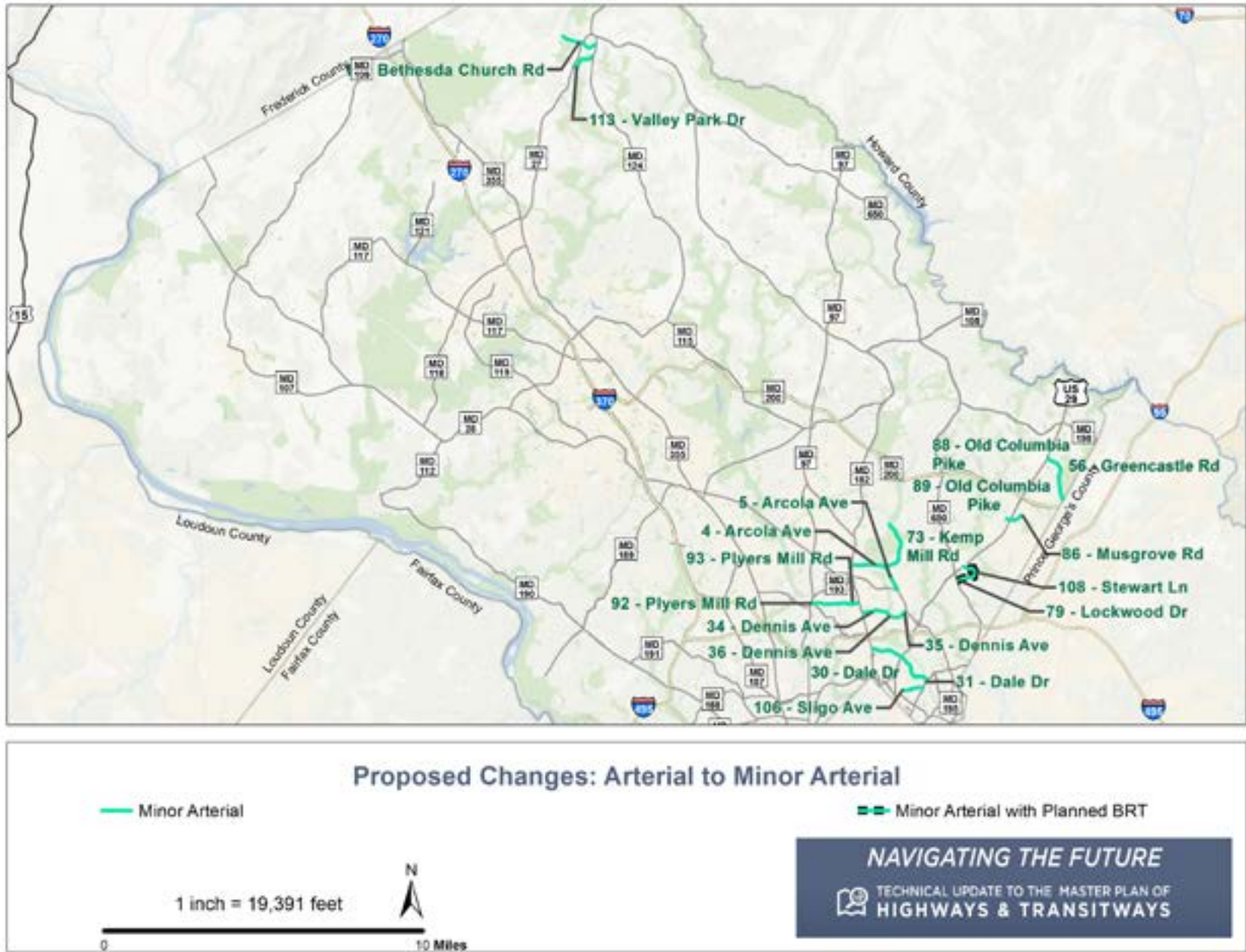


Figure 4: Proposed Classification Changes – Arterial to Minor Arterial

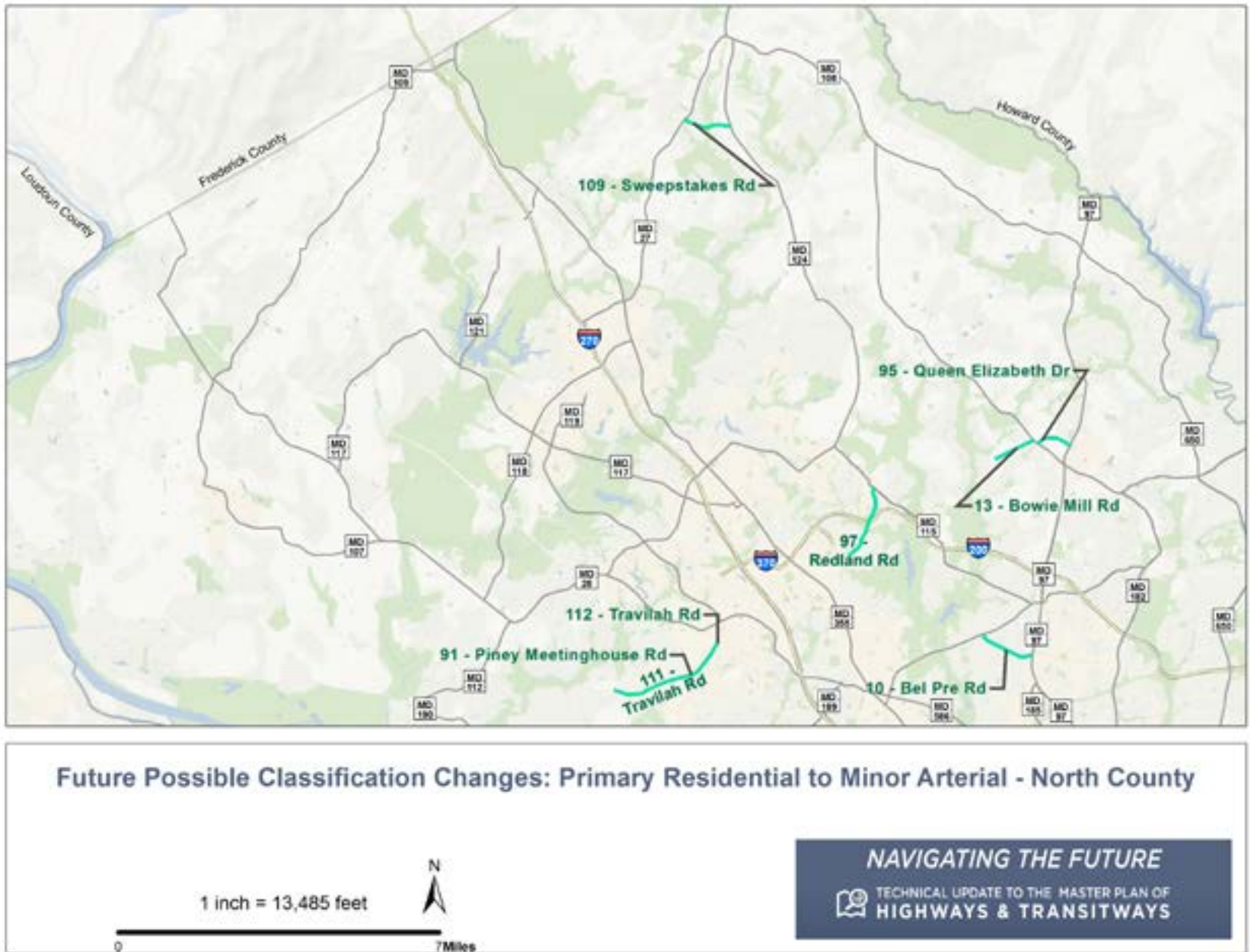


Figure 5: Future Possible Classification Changes – Primary Residential to Minor Arterial – North County

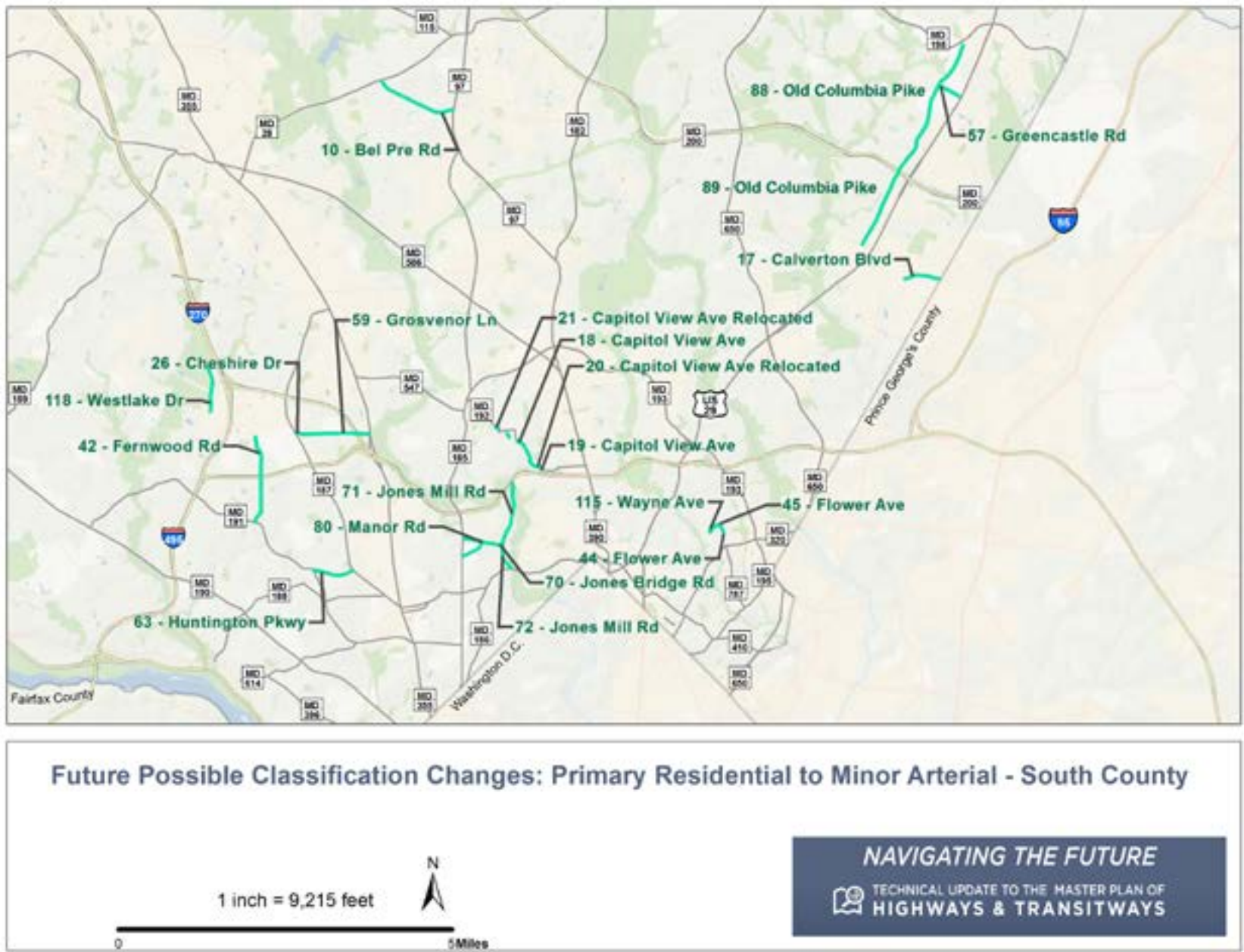


Figure 6: Future Possible Classification Changes - Primary Residential to Minor Arterial - South County

Table 10: Future Possible Minor Arterial Candidates (Up-Classification)

ID	Name	From Location	To Location	Classification	Master Plan	Existing Lanes	Planned Lanes	Existing ROW Feet
10	Bel Pre Rd	Norbeck Rd	Georgia Ave	Primary Residential	Aspen Hill	2	2	80
13	Bowie Mill Rd	Cashell Rd	Olney-Laytons-ville Rd	Primary Residential	Olney	2	2	80
17	Calverton Blvd	Cherry Hill Rd	Prince George's County Line	Primary Residential	Fairland	2-4	2-4	80
18	Capitol View Ave	Approximately 300' south of Beech-bank Rd	Stoney-brook Dr	Primary Residential	Kensing-ton-Wheaton	2	2	70
19	Capitol View Ave	Forest Glen Rd	Approximately 100' north of Forest Glen Rd	Primary Residential	Capital View	2	2	70
20	Capitol View Ave Relocated	Approximately 100' north of Forest Glen Rd	Approximately 300' south of Beech-bank Rd	Primary Residential (Planned)	Kensing-ton-Wheaton	N/A	2	70

ID	Name	From Location	To Location	Classification	Master Plan	Existing Lanes	Planned Lanes	Existing ROW Feet
21	Capitol View Ave Relocated	Stoneybrook Dr	Approximately 170' south of Edgewood Rd	Primary Residential (Planned)	Kensington-Wheaton	N/A	2	70
26	Cheshire Dr	Old Georgetown Rd	Grosvenor Ln	Primary Residential	North Bethesda/Garrett Park	2	2	70
42	Fernwood Rd	Bradley Blvd	Democracy Blvd	Primary Residential	Bethesda-Chevy Chase	2	2	70
44	Flower Ave	Arliss St	Plymouth St	Primary Residential	Long Branch Sector Plan	2	2	70
45	Flower Ave	Wayne Ave	Plymouth St	Primary Residential	East Silver Spring	2	2	70
57	Greencastle Rd	Old Columbia Pike	Columbia Pike	Primary Residential	Fairland	2	2	70
59	Grosvenor Ln	Cheshire Dr	Rockville Pike	Primary Residential	North Bethesda/Garrett Park	2	2	70
63	Huntington Pkwy	Old Georgetown Rd	Bradley Blvd	Primary Residential	Bethesda-Chevy Chase	2D	2D	100
70	Jones Bridge Rd	Connecticut Ave	Jones Mill Rd	Primary Residential	Chevy Chase Lake Sector Plan	2	2	70
71	Jones Mill Rd	Capital Beltway	Jones Bridge Rd	Primary Residential	Bethesda-Chevy Chase	2	2	70

ID	Name	From Location	To Location	Classification	Master Plan	Existing Lanes	Planned Lanes	Existing ROW Feet
72	Jones Mill Rd	Jones Bridge Rd	East West Hwy (MD 410)	Primary Residential	Chevy Chase Lake Sector Plan	2	2	70
80	Manor Rd	Connecticut Ave	Jones Bridge Rd	Primary Residential	Chevy Chase Lake Sector Plan	2	2	70
88	Old Columbia Pike	Briggs Chaney Rd	Spencerville Rd	Primary Residential	Fairland	2	2	70
89	Old Columbia Pike	East Randolph Rd	Briggs Chaney Rd	Primary Residential	Fairland	2	2	80
91	Piney Meeting-house Rd	Cavanaugh Dr/ Shady Grove Rd Extended	Travilah Rd	Primary Residential	Potomac	2	2	70
95	Queen Elizabeth Dr	Olney Laytonsville Road	Georgia Ave	Primary Residential	Olney	2	2	70
97	Redland Rd	Muncaster Mill Rd	Needwood Rd	Primary Residential	Shady Grove	2	2	70
109	Sweepstakes Rd	Ridge Rd	Woodfield Rd	Primary Residential	Damascus	2	2	70
111	Travilah Rd	Dar-nestown Rd	Dufief Mill Rd	Primary Residential	Potomac	2	2	70
112	Travilah Rd	Unicorn Way	Dar-nestown Rd	Primary Residential	Great Seneca Science Corridor	2	2	70

ID	Name	From Location	To Location	Classification	Master Plan	Existing Lanes	Planned Lanes	Existing ROW Feet
115	Wayne Ave	Manchester Place Station - Purple Line	Flower Ave	Primary Residential	East Silver Spring	2	2	70
118	Westlake Dr	Westlake Terr	Tuckerman Ln	Primary Residential	Potomac	2	4	70

New Recommended Primary Residential Streets

During the technical update to the Master Plan of Highways and Transitways, 20 potential Primary Residential Street candidates were identified. These proposed new residential streets are displayed in Table 11 and Figures 7 and 8. Primary Residential Streets play a critical role in serving as the major collector street within a residential neighborhood. They are designed to a higher standard than secondary residential streets with minimum rights of way of 70 feet for a two-lane road and 100 feet for a two-lane dual road (median/central island). Primary Residential Streets are more likely to service greater pedestrian, bicycle and vehicular needs than secondary streets.

In most cases, the recommendation is being made to reflect the current roadway function and use of the street in question. Two of the candidates in the Bethesda-Chevy Chase Master Plan are currently principal secondary streets, Burdette Road between Bradley Avenue and River Road and Seven Locks Road between McArthur Boulevard and I-495. The recommendations for Alderton Road in the Kensington-Wheaton Master Plan area would require a connection of this road across the Matthew Henson Trail.

Table 11: Primary Residential Candidates

ID	Name	From Location	To Location	Classification	Proposed Classification	Master Plan	Existing Lanes	Planned Lanes	Proposed Planned Lanes	Existing ROW Feet	Proposed ROW Feet
1	Alderton Rd	Alderton Rd	Alderton Rd	N/A	Primary Residential (Planned)	MPOHT (Pending)	2	2	2	NA	70
2	Alderton Rd	Alderton Rd (Proposed)	Popular Run Dr	N/A	Primary Residential	MPOHT (Pending)	2	2	2	NA	70
7	Ballinger Drive	Wexhall Dr	Robey Rd	N/A	Primary Residential	MPOHT (Pending)	2	2	2	70	70
8	Battery Ln	Glenbrook Rd	Old Georgetown Rd	N/A	Primary Residential	MPOHT (Pending)	2	2	2	80	70
16	Burdette Rd	Bradley Blvd (MD 191)	River Rd	Principal Secondary	Primary Residential	Bethesda-Chevy Chase	2	2		70	70
37	Dorset Ave	River Rd	Wisconsin Ave	N/A	Primary Residential	MPOHT (Pending)	2	2	2	NA	70
46	Flower Hill Way	Woodfield Rd	Snouffer School Rd	N/A	Primary Residential	MPOHT (Pending)	2	2	2	NA	70
51	Glenbrook Rd	Fairfax Rd/Little Falls Pkwy	Old Georgetown Rd	N/A	Primary Residential	MPOHT (Pending)	2	2	2	NA	70
58	Greentree Rd	Burdette Rd	I-495 Bridge	N/A	Primary Residential	MPOHT (Pending)	2	2	2	NA	70

ID	Name	From Location	To Location	Classification	Proposed Classification	Master Plan	Existing Lanes	Planned Lanes	Proposed Planned Lanes	Existing ROW Feet	Proposed ROW Feet
60	Gue Rd	5000' east of Ridge Rd	Howard Chapel Dr	Country Road	Primary Residential	Damascus	2	2	2	70	70
76	Liberty Mill Rd	CSX Tracks	Clopper Rd	N/A	Primary Residential	MPOHT (Pending)	2	2	2	70	70
77	Lindell St	Mason St	Georgia Ave	N/A	Primary Residential	MPOHT (Pending)	2	2	2	70	70
81	McComas Ave	Douglas Ave	Saint Paul St	N/A	Primary Residential	MPOHT (Pending)	2	2	2	70	70
90	Olney Mill Rd	Olney-Laytonsville Rd	Wickham Road	N/A	Primary Residential	MPOHT (Pending)	2	2	2	NA	70
103	Saint Paul St	Plyers Mill Rd	University Blvd	N/A	Primary Residential	MPOHT (Pending)	2	2	2	70	70
105	Seven Locks Rd	MacArthur Blvd	I-495	Principal Secondary	Primary Residential	Bethesda-Chevy Chase	2	2	2	60	70
119	Wexhall Dr	Ballinger Drive	Greencastle Road	N/A	Primary Residential	MPOHT (Pending)	2	2	2	70	70
120	Wexhall Dr	Valiant Way	Greencastle Rd	N/A	Primary Residential	MPOHT (Pending)	2	2	2	70	70
123	Whittier Blvd	Wilson Ln	Woodhaven Blvd	N/A	Primary Residential	MPOHT (Pending)	2	2	2	NA	70

ID	Name	From Location	To Location	Classification	Proposed Classification	Master Plan	Existing Lanes	Planned Lanes	Proposed Planned Lanes	Existing ROW Feet	Proposed ROW Feet
125	Woodhaven Blvd	Whittier Blvd	Bradley Blvd	N/A	Primary Residential	MPOHT (Pending)	2	2	2	NA	70

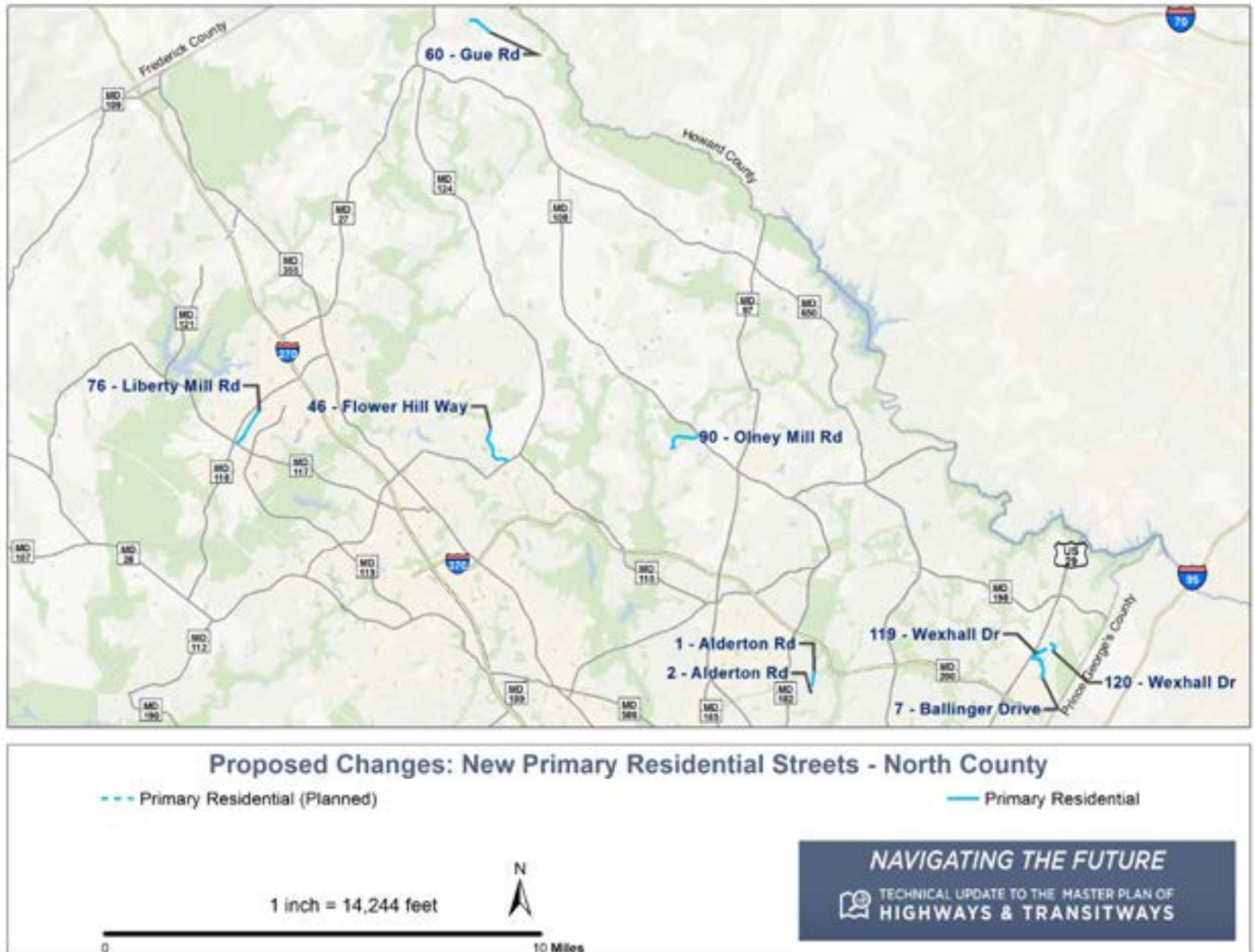
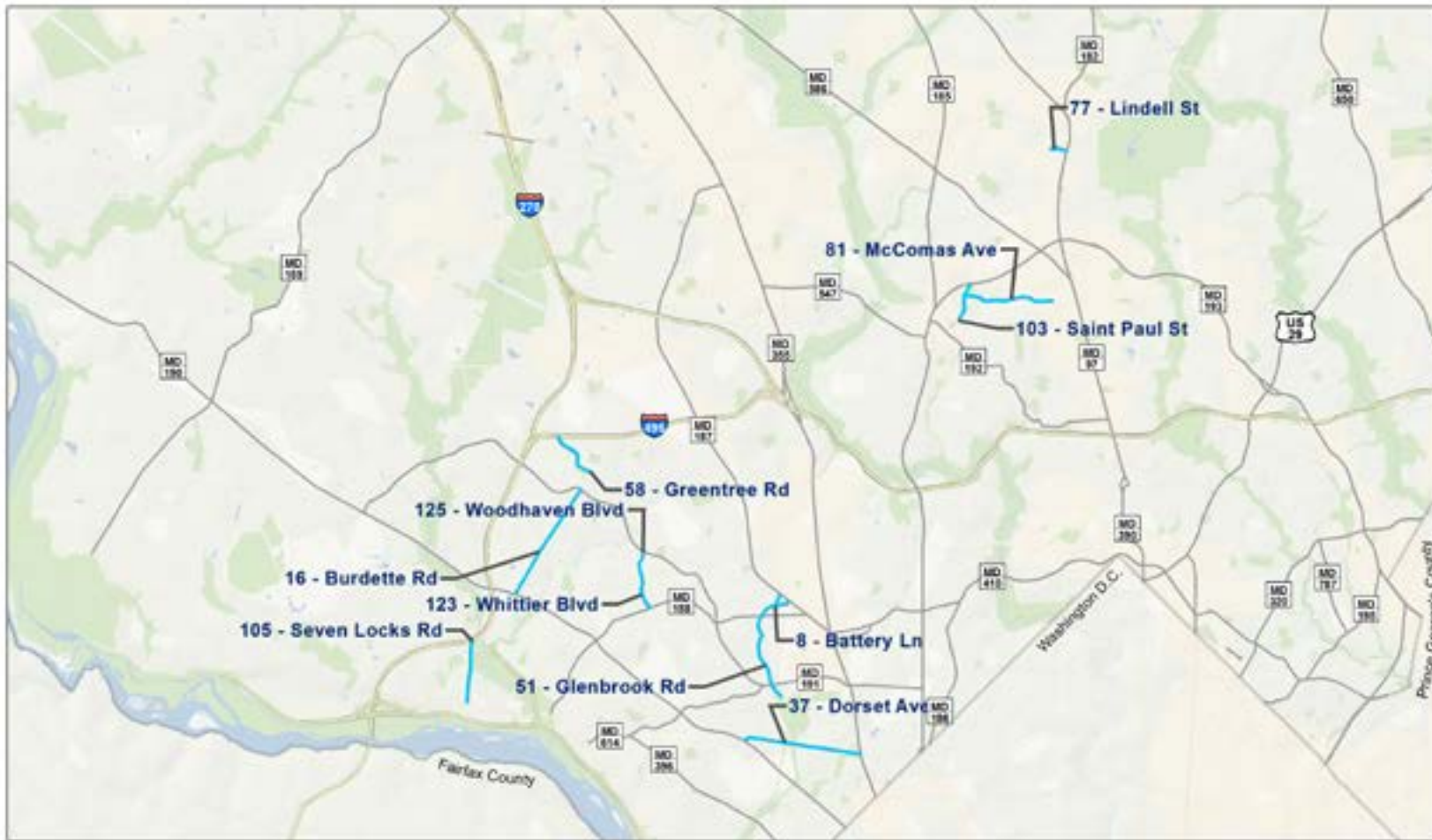
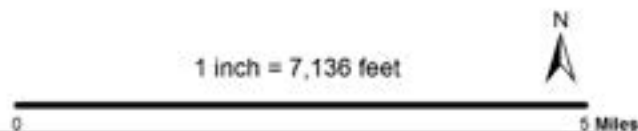


Figure 7: Proposed Classification Changes – New Primary Residential Streets – North County



Proposed Changes: New Primary Residential Streets - South County



NAVIGATING THE FUTURE
 TECHNICAL UPDATE TO THE MASTER PLAN OF
HIGHWAYS & TRANSITWAYS

Figure 8: Proposed Classification Changes – New Primary Residential Streets – South County

Correction of Road Classification Inconsistencies

Master planning is conducted for specified geographic areas within Montgomery County. These plans are updated as needed. As a result, new plans are completed every year, whether for a sector plan, a master plan, a functional master plan or a master plan amendment. As our planning process evolves and the Montgomery County Code is modified, our transportation tools change as well. A solution envisioned in the 1970s or 1980s may no longer be appropriate, and there may be a need to re-evaluate transportation recommendations to ensure that the Master Plan of Highways and Transitways can provide a coordinated vision for the county.

Inconsistencies typically occur on roadways that bisect plan boundaries. An example is a road where the road classification changes at a plan boundary, however, the road characteristics or transportation function do not change at all. This effort re-evaluates these inconsistencies, which in some cases might be appropriate as currently coded, and in other cases, recommends a road classification change to improve consistency. Table 12 lists road classification inconsistencies, listing the road name and limits, plans affected, current classification in the two adjacent road sections and proposed resolution. These proposed changes are displayed on Figure 9.

An unspecified transitway was included on the Inter-County Connector (MD200) in the Aspen Hill, Olney and Upper Rock Creek Master Plans, and the Shady Grove Sector Plan. This transitway was identified during the design of the ICC as a possible component of the future road. However, no transitway is envisioned on this roadway in the future. A Metrorail access road transitway was also identified in the Shady Grove Sector Plan and this use, too, is no longer anticipated.

There is a classification inconsistency on Avery Road where it crosses the Aspen Hill and Upper Rock Creek Master Plan boundary. A very short section of Avery Road in the Aspen Hill Master Plan is currently classified as a Primary Residential Street. Avery Road in the adjacent Upper Rock Creek Master Plan is classified as an Arterial. Reclassifying this short section of road between the Rockville city limit and the Upper Rock Creek Master Plan boundary from Primary Residential to Arterial would correct this inconsistency.

There is a classification inconsistency on Great Seneca Highway where it crosses the Germantown Master Plan and Germantown Employment Area Sector Plan boundary. The section of Great Seneca Highway between the CSX tracks and Middlebrook Road is proposed to be down-classified from Controlled Major Highway to Major Highway. This recommendation is consistent with what is being proposed in the ongoing MARC Rail Communities Plan.

The planned section of Montrose Parkway between Chapman Avenue and Veirs Mill Road was originally approved with the clear intent that this road was to be a Parkway, restricted to heavy trucks. The Parkway classification is therefore the appropriate classification for this planned road, not an Arterial.

As mentioned previously, the transitway designation for Montrose Parkway is proposed for removal based on the decision to not use this alternate corridor for the Randolph Road Bus Rapid Transit (BRT) route.

Classification inconsistencies were found in other parts of the county, including Cashell Road in Olney, Castle Boulevard in the Fairland area and East Village Avenue in Montgomery Village.

Rural Road Code Boundary Issues

Road classification inconsistencies were noted on many roads that border the Rural/Suburban Road Code boundary. While this transition from suburban to rural land use can be abrupt, it is critical that the roads facilitate this transition seamlessly. A total of 10 classification changes and one road segment elimination are proposed as summarized in Table 13 and displayed in Figure 10.

Notable recommendations include the classification consistency along Brink Road between Wightman Road and the Town of Laytonsville line to classify this road as a Country Arterial. This stretch of road is located within the Agricultural Reserve. The section of Brink Road between Goshen Road and Wightman Road is currently unclassified in the MPOHT and the section between Goshen Road and the Town of Laytonsville line is classified as an Arterial.

Modifications to the classification on Clopper Road are being proposed to ensure consistency with the recommendations from the MARC Rail Communities Plan by transitioning Clopper Road between Little Seneca Creek and German-town Road from a Major Highway into an Arterial. The Whites Ferry Road recommendations are being made to remove a planned road relocation. This relocation is not viewed as necessary or consistent with the character of the road and the Country Arterial classification.

Table 12: Re-Classification Candidates to Correct Master Plan Inconsistencies

ID	Name	From Location	To Location	Classification	Proposed Classification	Master Plan	Existing Lanes	Planned Lanes	Proposed Planned Lanes	Existing ROW Feet	Proposed ROW Feet
6	Avery Rd	Aspen Hill MP Boundary	Rockville City Limits	Primary Residential	Arterial	Aspen Hill	2	2	2	70	80
22	Cashell Rd	Bowie Mill Rd	Hines Rd	N/A	Arterial	MPOHT (Pending)	2	2	2	NA	70
23	Cashell Rd	Hines Rd	Emory Ln	Primary Residential	Arterial	Olney	2	2	2	70	70
24	Castle Blvd	Briggs Chaney Rd	Woodvale Apartments	Industrial	Primary Residential	Fairland	2	2	2	80	70
25	Castle Blvd	Woodvale Apartments	Castle Ridge Circle	Industrial	Primary Residential	Fairland	2	2	2	80	70
39	East Village Ave	Goshen Rd	Woodfield Rd	Primary Residential	Arterial	Montgomery Village Master Plan	4	4	4	70	80
54	Great Seneca Hwy	Muddy Branch Rd	Sam Eig Hwy (Gaithersburg City Limits)	Controlled Major Highway with planned BRT	Controlled Major Highway (remove BRT)	City of Gaithersburg	6	6 + 2 T	6D	150	150
62	Heritage Hills Dr	Olney-Laytonsville Rd	Georgia Ave	Arterial	Primary Residential	Olney	2	2	2	80	70

ID	Name	From Location	To Location	Classification	Proposed Classification	Master Plan	Existing Lanes	Planned Lanes	Proposed Planned Lanes	Existing ROW Feet	Proposed ROW Feet
64	Inter-county Connector	I-370	Redland Rd	Freeway with planned BRT	Freeway (remove BRT)	Shady Grove Sector Plan	6	6D + T	6D	300	300
65	Inter-county Connector	Redland Rd	North Branch of Rock Creek	Freeway with planned BRT	Freeway (remove BRT)	Upper Rock Creek	6	6D + T	6D	300	300
66	Inter-county Connector	North Branch of Rock Creek	Norbeck Rd (MD 28)	Freeway with planned BRT	Freeway (remove BRT)	Olney Master Plan	6	6D + T	6D	300	300
67	Inter-county Connector	Layhill Rd (MD 28)	Aspen Hill Master Plan Eastern Boundary Line	Freeway with planned BRT	Freeway (remove BRT)	Aspen Hill	6	6D + T	6D	300	300
82	Metro Access Rd	Shady Grove Rd	Crabbs Branch Way	Major Highway	Major Highway (remove transitway)	Shady Grove	4D	4D + T	4D	150	150
83	Montrose Pkwy (Proposed)	Chapman Ave (Maple Ave)	Parklawn Avenue	Arterial (Planned) with planned BRT	Parkway (Planned)	Countywide Transit Corridors	4D	4D + T	4D	300	300
84	Montrose Pkwy (Proposed)	Parklawn Avenue	Rock Creek Park	Arterial (Planned) with planned BRT	Parkway (Planned)	Countywide Transit Corridors	N/A	4D + T	4D	300	300

ID	Name	From Location	To Location	Classification	Proposed Classification	Master Plan	Existing Lanes	Planned Lanes	Proposed Planned Lanes	Existing ROW Feet	Proposed ROW Feet
85	Montrose Pkwy (Proposed)	Rock Creek Park	Veirs Mill Rd	Arterial (Planned) with planned BRT	Parkway (Planned) with planned BRT	Countywide Transit Corridors	N/A	3-4D + T	4D + 0T	80	300
98	Redland Rd	Needwood Rd	Crabbs Branch Way	Primary Residential	Arterial	Shady Grove	2	4	4	70	80
99	Riffle Ford Rd	700' north of Woodsboro Dr	220' east of Hallman Ct	N/A	Arterial	MPOHT (Pending)	2	4	4	80	80
104	Sam Eig Hwy	Great Seneca Hwy (MD 119)	I-270	Controlled Major Highway with planned BRT	Controlled Major Highway (remove BRT)	Great Seneca Science Corridor	6	6 + T	6	250	250
110	Tech Rd	Old Columbia Pike	Columbia Pike	Business	Arterial	Fairland	4	4	4	80	80
116	Wayne Ave	Sligo Creek Pkwy	Manchester Place Station - Purple Line	Primary Residential with planned light rail	Arterial with planned LRT	Purple Line Functional Plan	2	2 + 2 T	2 + 2 T	70	70
124	Woodfield Rd	Fieldcrest Rd	Warfield Rd	Major Highway	Arterial	Montgomery Village Master Plan	2-6	6	4	120	100
126	Cabin John Parkway	Clara Barton Parkway	I-495	Freeway	Parkway	Bethesda-Chevy Chase	4	4	4	Varies	Varies

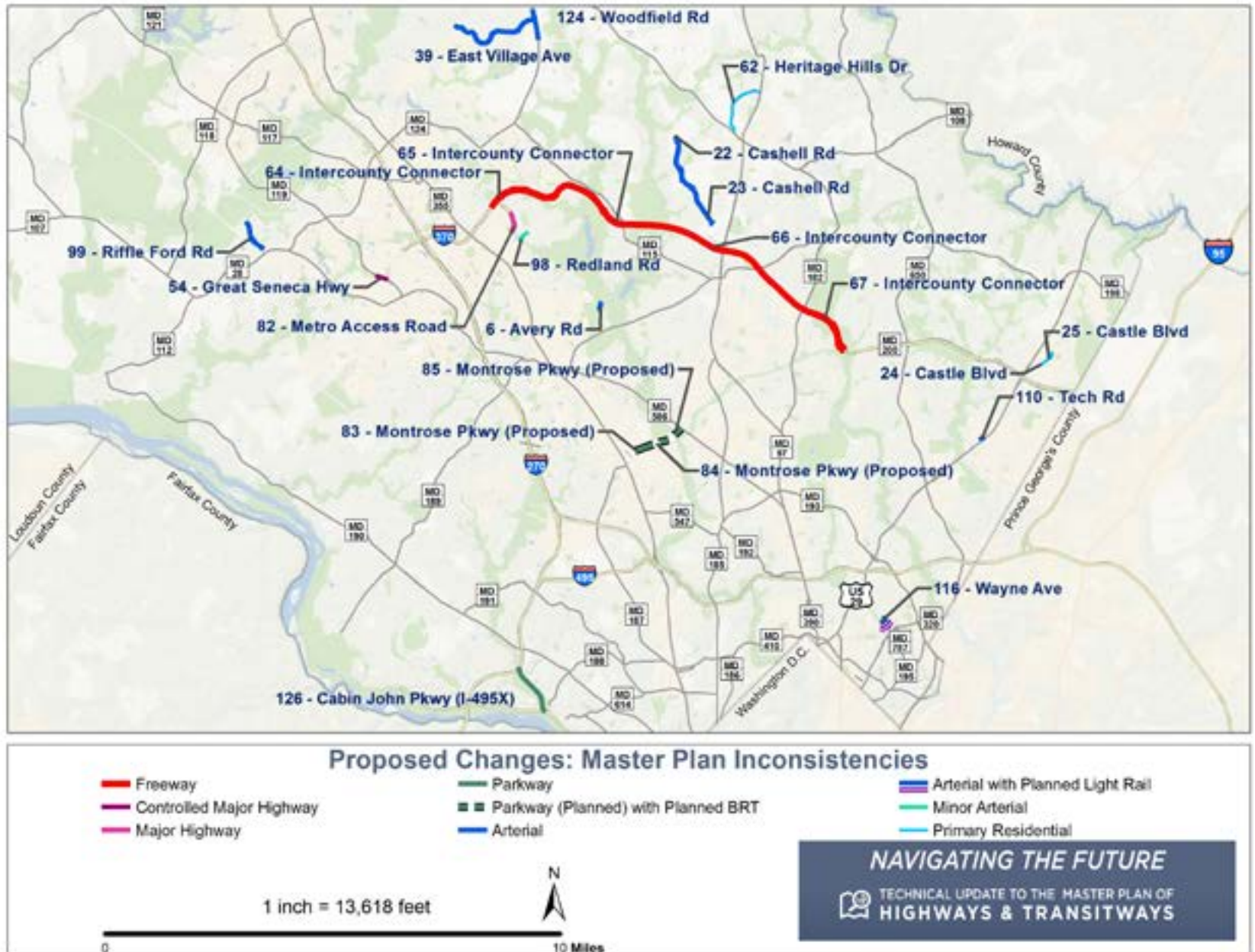


Figure 9: Proposed Classification Changes – Master Plan Inconsistencies

Table 13: Re-Classification Candidates – Rural Boundary Modifications

ID	Name	From Location	To Location	Classification	Proposed Classification	Master Plan	Existing Lanes	Planned Lanes	Proposed Planned Lanes	Existing ROW Feet	Proposed ROW Feet
12	Bordly Dr	Georgia Ave	Brighton Dam Rd	Primary Residential	Country Road	Olney	2	2	2	70	70
14	Brink Rd	Goshen Rd	Town of Laytonsville	Arterial	Country Arterial	Agriculture and Open Space	2	2	2	80	70
15	Brink Rd	Wightman Rd	Goshen Rd Extended	N/A	Country Arterial	MPOHT (Pending)	2	2	2	80	70
28	Clopper Rd	Little Seneca Creek	German-town Rds	Major Highway	Arterial	Boys / German-town	2	6	4	150	80
38	Dorsey Rd	Warfield Rd	Ol-ney-Lay-tonsville Rd	Primary Residential	Country Road	Upper Rock Creek	2	2	2	70	70
52	Goshen Rd	Warfield Rd	Brink Rd	Arterial	Country Arterial	Agriculture and Open Space	2	2	2	80	70
53	Goshen Rd Extended	Goshen Mill Court	Brink Rd	Arterial (Planned)	Country Arterial (Planned)	Agriculture and Open Space	N/A	2	2	80	70
61	Hawkins Creamery Rd	Wood-field School Rd	Wood-field Rd	Primary Residential	Country Road	Damascus	2	2	2	70	70
114	Warfield Rd	Wood-field Rd	Ol-ney-Lay-tonsville Rd	Primary Residential	Country Road	Gaithersburg Vicinity / Upper Rock Creek	2	2	2	70	70

ID	Name	From Location	To Location	Classification	Proposed Classification	Master Plan	Existing Lanes	Planned Lanes	Proposed Planned Lanes	Existing ROW Feet	Proposed ROW Feet
121	Whites Ferry Rd	Pool-essville eastern boundary	Approx. 2000' east of Pool-essville boundary	N/A	Country Arterial	MPOHT (Pending)	2	2	2	80	70
122	Whites Ferry Rd Relocated	Approx 2000' E of Pool-essville boundary	Partnership Rd	Country Arterial (Planned)	To be removed from MPOH	Agriculture and Open Space	N/A	2	2	80	NA

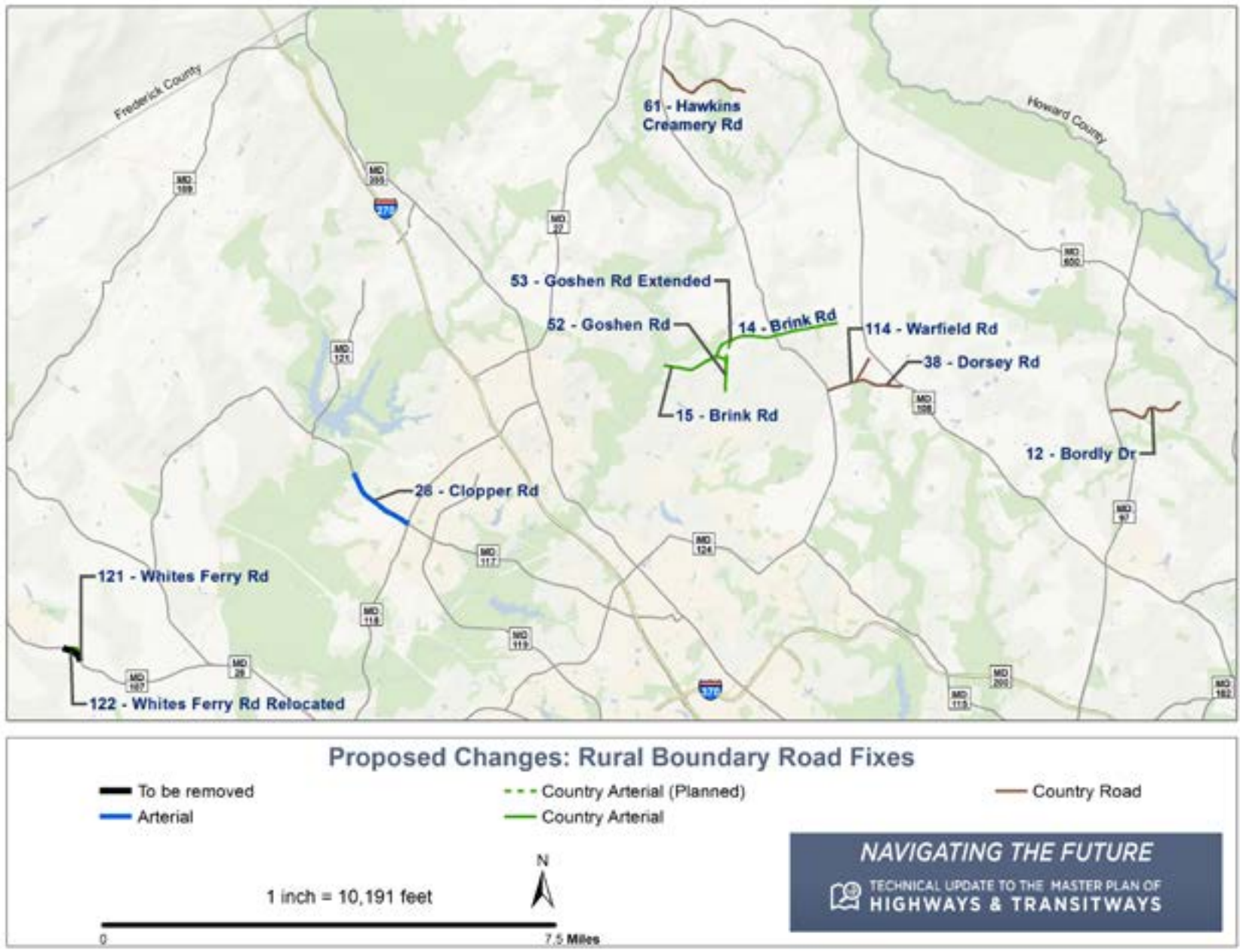


Figure 10: Proposed Classification Changes – Rural Boundary Modifications

Proposed Classification Changes on Major and Controlled Major Highways

There are 14 proposed classification changes on roads that are currently classified as either a Major Highway or a Controlled Major Highway. Most of these changes are to provide consistency between adjacent road sections or to provide a smoother, more logical transition between road classification types. Table 14 provides the listing of the proposed classification changes. These changes are displayed in Figure 11.

Numbering/Identification of Unnumbered Streets From Older Plans

Several older plans were completed without clearly identifying technical details for all master-planned streets. The typical detail includes a road classification type, street identification number (i.e., B-# for a Business District Street, A-# for an Arterial Street, etc.), right-of-way width, target speed, existing number of travel lanes, future planned number of travel lanes and, in some cases, a planned cross section.

A total of 75 Primary Residential or Business District Streets have been identified in the MPOHT that are currently missing street identification numbers. These unnumbered streets are found in the following master plans or sector plans:

- Friendship Heights Sector Plan (seven Business District Streets)
- Germantown Master Plan (16 Primary Residential streets)
- Kensington-Wheaton Master Plan (13 Primary Residential streets)
- Silver Spring Central Business District Sector Plan (35 Business District streets)
- Purple Line Functional Master Plan (one Business District street)
- Takoma/Langley Crossroads Sector Plan (three Business District streets)

Appendix A contains a table listing these unnumbered streets and adds appropriate information to assign a classification identification number to each. This identification is simply a bookkeeping procedure to ensure that all roads included in the MPOHT have sufficient, consistent information. New road designations for Primary Residential and Business District streets added to this plan are generally numbered in a north-to-south, west-to-east direction.

Table 14: Proposed Classification Changes – Major and Controlled Major Highways

ID	Name	From Location	To Location	Classification	Proposed Classification	Master Plan	Existing Lanes	Planned Lanes	Proposed Planned Lanes	Existing ROW Feet	Proposed ROW Feet
27	Clopper Rd	Clarksburg Rd	Little Seneca Creek	Major Highway	Country Arterial	Boyds / Germantown	2	6	2	150	80
32	Damascus Rd	Laytonsville Rd (MD 108)	2800' east of Woodfield Rd	Major Highway	Arterial	Damascus	2	2	2	120	80
33	Dar-nestown Rd	Whites Ferry Rd	Riffle Ford Rd	Major Highway	Arterial	Agriculture and Open Space	2	2	2	120	80
40	Father Hurley Blvd	Crystal Rock Dr	CSX Tracks	Controlled Major Highway	Major Highway	Germantown Employment Area Sector Plan (2009)	4D	6D	6D	120	120
47	German-town Rd	Dar-nestown Rd	Great Seneca Creek (Southern Branch)	Major Highway	Arterial	Potomac	2	2-4D	2	120	80
48	German-town Rd	Great Seneca Creek (Northern Branch)	Riffle Ford Rd	Major Highway	Arterial	Germantown (1989)	2D	2-4	2	120	80
49	German-town Rd	Great Seneca Creek (Southern Branch)	Great Seneca Creek (Northern Branch)	Major Highway	Arterial	Agriculture and Open Space	2	2-4	2	120	80
50	German-town Rd	Riffle Ford Rd	Richter Farm Rd	Major Highway	Arterial	Germantown (1989)	2D	6D	4	120	80

ID	Name	From Location	To Location	Classification	Proposed Classification	Master Plan	Existing Lanes	Planned Lanes	Proposed Planned Lanes	Existing ROW Feet	Proposed ROW Feet
55	Great Seneca Hwy (MD 119)	Middlebrook Rd	CSX Railroad Bridge	Controlled Major Highway	Major Highway	Germantown Employment Area Sector Plan (2009)	4D	6D	4D	150	120
75	Laytonsville Rd	Damascus Rd	Rocky Rd	Major Highway	Arterial	Damascus	2	2	2	120	100
96	Randolph Rd	Dewey Rd	Veirs Mill Rd	Major Highway with planned BRT	Arterial with planned BRT	Countywide Transit Corridors	6D	6D	6D	120	120
100	River Rd	Esworthy Rd	Riverwood Dr	Major Highway	Arterial	Potomac	2	2	2	150	150
101	River Rd	River Oaks Ln	Falls Rd	Major Highway	Arterial	Potomac	2	2	2	150	150
102	River Rd Relocated	Riverwood Dr	River Oaks Ln	Major Highway (Planned)	Arterial (Planned)	Potomac	N/A	2	2	150	150

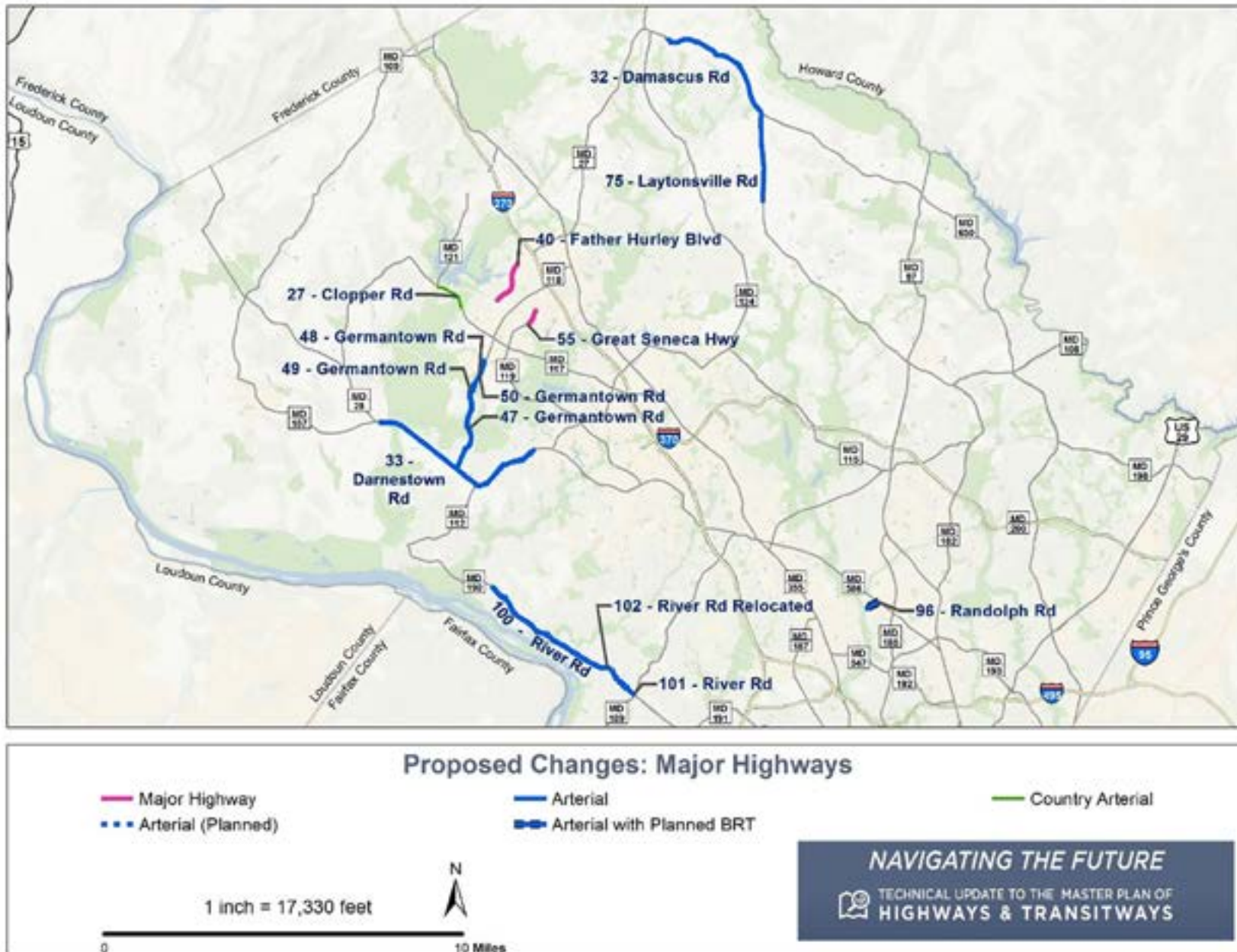


Figure 11: Proposed Classification Changes – Major and Controlled Major Highways

Changes From Existing or Planned Development

Development can sometimes alter components of a master plan, based on Planning Board approvals, including planned streets that are no longer possible to implement or were significantly changed due to private and public sector projects. For example, the Cabin Branch development in Clarksburg was approved by the Planning Board and it impacted master planned roads. A second development, the Montgomery College Germantown Campus, has a planned road that was modified during the development process.

The intent of the Master Plan of Highways and Transitways is to delete such unrealized streets or make appropriate corrections in the plan based on the modifications to the streets. Table 15 on the following page lists the master-planned streets that should be modified for the Cabin Branch development. These changes are displayed in Figure 12.

Major changes that resulted from the Cabin Branch development include the re-alignment and widening of Clarksburg Road between I-270 and West Old Baltimore Road. In addition, a planned four-lane north-south divided arterial with a 120-foot wide, master-planned right-of-way through the Cabin Branch development (A-304) from the Clarksburg Master Plan was replaced with two parallel two-lane business district streets (Broadway Avenue and Cabin Branch Avenue) each with 80-foot wide master-planned rights of way.

Whelan Lane, now classified as a four-lane arterial (A-304), is proposed as part of this MPOHT update to be re-classified as a two-lane Industrial Street with a 60-foot wide master-planned right of way. The relocation of Clarksburg Road also requires the designation of a 550-foot long section of Old Clarksburg Road to connect to Whelan Lane. This road should be designated as a two-lane Industrial Street with a 60-foot master-planned right-of-way. Finally, a one-block section of Gosnell Farm Road, which connects Clarksburg Road with Old Clarksburg Road should be designated as a Business District Street with an 80-foot wide master-planned right-of-way.

Observation Drive Connector (or Extension) is a small road connection between Observation Drive and Goldenrod Lane. This extension was necessitated by a deviation for the Germantown Master Plan in Observation Drive improvements through the Montgomery College Germantown Campus. Observation Drive was originally planned to use the alignment of what is now Goldenrod Lane. The connection proposed would re-connect Observation Drive, as shown in Figure 13 from the Montgomery College Master Plan, with a two-lane business district street connector road near an existing surface parking lot. This street should provide two planned travel lanes and a 25 miles per hour target speed within an 80-foot right-of-way.



Figure 13: Observation Drive Extension shown in Montgomery College Master Plan
Source: Montgomery College Facilities Masterplan for the Germantown Campus, page GT-58, 2016.

Table 15: Classification Adjustments Due to Cabin Branch Development

ID	Name	From Location	To Location	Classification	Proposed Classification	Master Plan	Existing Lanes	Planned Lanes	Proposed Planned Lanes	Existing ROW Feet	Proposed ROW Feet
1	Broadway Ave	Clarksburg Rd (MD 121)	West Old Baltimore Rd	Arterial	Business	Clarksburg	2D	4D	2D	120	80
2	Cabin Branch Ave	Clarksburg Rd (MD 121)	Little Seneca Pkwy	N/A	Business	MPOHT	2D	N/A	2D	N/A	80
3	Clarksburg Rd	Byrne Park Dr	Goldeneye Ave	Arterial	Arterial	Clarksburg	4D	6D	4D	150	120
4	Clarksburg Rd	Dunlin St	Byrne Park Dr	Arterial	Arterial	Clarksburg	2	4D	2	80	90
5	Clarksburg Rd	West Old Baltimore	Dunlin St	Arterial	Arterial	Clarksburg	2	2-4D	2	80	80
6	Gosnell Farm Rd	Clarksburg Rd (MD 121)	Old Clarksburg Rd	N/A	Business	MPOHT	4D	N/A	4D	N/A	80
7	Old Clarksburg Rd	Gosnell Farm Rd	Whelan Ln	N/A	Industrial	MPOHT	2	N/A	2	N/A	60
8	Whelan Ln	Old Clarksburg Rd	Clarksburg Correctional Facility	Arterial	Industrial	Clarksburg	2	4D	2	120	60

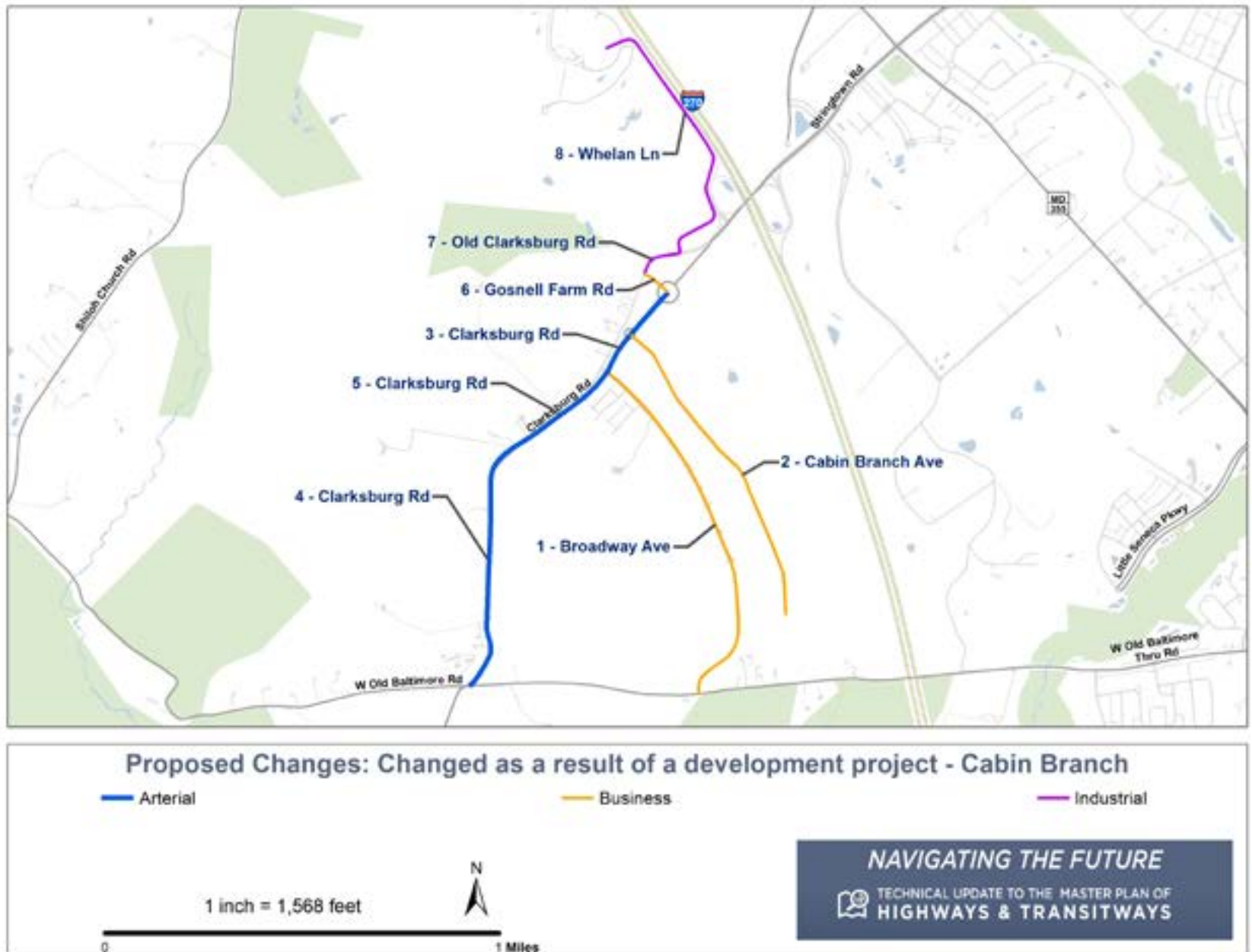


Figure 12: Cabin Branch Development – Master Plan Roads Modified

Highway Candidates for Removal from the MPOHT

This plan update also includes the proposed removal of some highway segments. These candidates include roads incorrectly added to the MPOHT based on their classification, roads that are outside the intent and jurisdiction of the MPOHT, and roads that do not seem to serve a useful functional purpose being in the MPOHT.

The M-NCPPC, through the Montgomery Department of Parks owns several roads that run through and service Montgomery Park properties within Montgomery County. These roads are restricted to heavy trucks and can be used for general purpose traffic; however, their primary function is to provide access for visitors of the parks. The roads have no long-term plans to be widened in the future and right-of-way preservation is ensured as the roads are contained within a county park. As such, these roads are treated differently from other state and county roads within Montgomery County. This effort proposes the removal of all Montgomery Parks roads from the MPOHT. Other candidates for removal include:

- A portion of Western Avenue was included in the Friendship Heights Sector Plan; however, this road is owned and maintained by the District of Columbia Department of Transportation (DDOT).
- Alley A in the Silver Spring Central Business District Sector Plan was incorrectly mapped as part of the MPOHT in a previous iteration of the plan; the MPOHT only includes primary roads.
- A one-block section of Knowles Avenue between Connecticut Avenue and Armory Avenue is master planned as an Arterial street; however, Arterials are only intended to connect between other Arterial or higher classification roads, and Armory Avenue is a secondary residential street.

Candidates for removal from the MPOHT are described below, summarized in Table 16 and displayed in Figure 14.

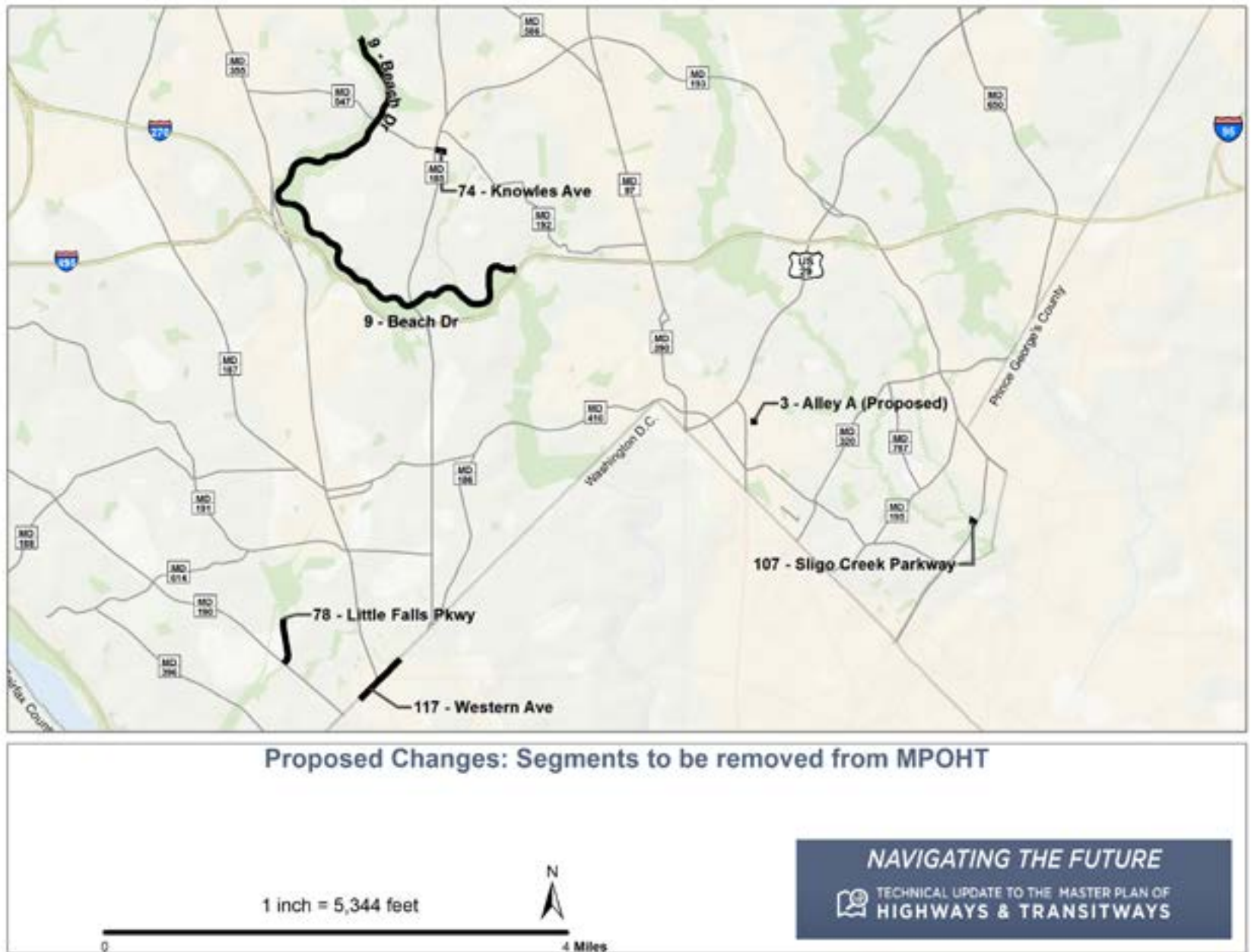


Figure 14: Road Segments Recommended to be Removed from the MPOHT

Table 16: Candidates Proposed for Removal from the MPOHT

ID	Name	From Location	To Location	Classification	Proposed Classification	Master Plan	Existing Lanes	Planned Lanes	Proposed Planned Lanes	Existing ROW Feet	Proposed ROW Feet
3	Alley A (Proposed)	Bonifant St	Thayer St	Business (Planned)	To be removed from MPOH	Silver Spring CBD	N/A	N/A	NA	20	NA
9	Beach Dr	Garrett Park Rd	Stoneybrook Dr	Park Road	To be removed from MPOH	Kensington-Wheaton	2	2	NA	70	NA
74	Knowles Ave	Armory Ave	Connecticut Ave	Arterial	To be removed from MPOH	Kensington Sector Plan	2	2	NA	80	NA
78	Little Falls Pkwy	Dorset Ave	Massachusetts Ave	Park Road	To be removed from MPOH	Westbard Sector Plan (2016)	2	2	NA	NA	NA
107	Sligo Creek Pkwy	Glengarry Pl	New Hampshire Ave	Minor Arterial	To be removed from MPOH	Takoma Langley Crossroads Sector Plan	2	2	NA	60	NA
117	Western Ave	Kirkside Dr	Cortland Rd	Major Highway	To be removed from MPOH	Friendship Heights (street owned by DDOT)	4	4	NA	120	NA

Inclusion of HOV Lanes

Proposed high occupancy vehicle (HOV) lanes were officially adopted into in the MPOHT in 2004 for I-495 between the I-270 West Spur and the American Legion Bridge. The existing I-270 HOV lanes have never been formally adopted into the MPOHT. These HOV lanes are an important component of our county's transportation system so the existing and planned HOV lanes are proposed to be added into the MPOHT through this technical update.

Previous MPOHT maps also did not display the planned I-495 HOV lanes. Table 17 displays the I-270 road segments that would be modified in the MPOHT to specify both existing and planned HOV lanes. With this update to the MPOHT, HOV lanes will be displayed clearly on the Mapbook and noted in the Classification Table. HOV access interchanges were also designated on I-270 at Dorsey Mill Road and at Fernwood Drive. These locations are noted as HOV Access Interchanges.

Addition of Target Speeds in Urban Road Code Areas

With the Complete Streets Road Code change in 2014, the maximum target speed for county roads in Urban Road Code areas was set at 25 miles per hour. Previously, the MPOHT only identified target speeds specifically identified in the relevant master plans. This practice has only rarely been included in master plans in the past. To be consistent with the Road Code, all Urban Road Code, county-owned roads should be assigned a target speed of 25 mph unless the following conditions apply:

- A target speed was identified in previous master plans.
- The road was designed with a target speed higher than 25 mph and it would not be feasible to attain a 25 mph through traditional engineering and enforcement methods. This exclusion appears to have been added to exempt design projects in process during or completed before the Road Code was modified. It is clear that the intent of future design projects within the Urban Road Code should be designed and implemented to achieve the 25 mph target speed on all county-owned roads.

Table 18 contains a summary of road mileage by classification where 25 mph target speeds are proposed to be added to the MPOHT. These roads are located in the Urban Road Code and do not currently have a target speed identified in an adopted master plan. A total of 277 road segments were identified with a combined mileage of 88.5 miles. These segments represent 7.7 percent of the total road mileage in the MPOHT. A detailed table summarizing these proposed locations is provided by Urban Road Code area in Appendix B.

Table 17: I-270 HOV Lane Segments

Road Name	From Location	To Location	Classification	Master Plan	Existing Lanes	Planned Lanes	Master Plan ROW	Existing HOV Lane	Proposed HOV Lanes
I-270	Clarksburg Rd	Little Seneca Creek	Freeway with HOV Lanes	Clarksburg	6D	8D	350	1 NB	2
I-270	Little Seneca Creek	Great Seneca Creek	Freeway with HOV Lanes	Germantown Employment Area Sector Plan (2009)	6D	12D	300	1 NB	2
I-270	Little Seneca Creek	Great Seneca Creek	Freeway with HOV Lanes	Germantown Employment Area Sector Plan (2009)	8D	12D	300	1 NB	2
I-270	Great Seneca Creek	Quince Orchard Rd/ Montgomery Village Ave	Freeway with HOV Lanes	Great Seneca Science Corridor	8D	12D	300	1 NB	2
I-270	Great Seneca Creek	W Diamond Ave	Freeway with HOV Lanes	Great Seneca Science Corridor	10D	12D	300	1 NB	2
I-270	Diamond Ave	I-370	Freeway with HOV Lanes	Great Seneca Science Corridor	10D	12D	300	2	2
I-270	I-370	Shady Grove Rd	Freeway with HOV Lanes	Great Seneca Science Corridor	12D	12D	300	2	2
I-270	Shady Grove Rd	W Gude Dr	Freeway with HOV Lanes	Agriculture and Open Space	12D	12D	300	2	2
I-270	W Gude Dr	I-270 Spur	Freeway with HOV Lanes	North Bethesda-Garrett Park/Potomac	12D	12D	Varies	2	2
I-270	I-270 Spur	Capital Beltway (I-495)	Freeway with HOV Lanes	North Bethesda-Garrett Park/Potomac	6D	6D	300	2	2
I-270 Spur	I-270	Capital Beltway (I-495)	Freeway with HOV Lanes	North Bethesda-Garrett Park/Potomac	6D	6D	300	2	2

Table 18: Urban Road Code – Designation of 25 mph Target Speed

Classification	Total Miles
Arterial	18.9
Arterial (Planned)	1.6
Arterial (Planned) with planned BRT	1.1
Arterial with planned BRT	5.2
Arterial with planned light rail	0.2
Business	30.6
Business (Planned)	11.6
Business with planned BRT	0.1
Business with planned light rail	0.5
Major Highway	3.2
Major Highway (Planned)	0.4
Major Highway with planned BRT	1.2
Minor Arterial	2.8
Primary Residential	10.6
Primary Residential (Planned)	0.5
Grand Total	88.5

Potential Expansion of Urban Road Code Boundaries

The Master Plan of Highways and Transitways is an appropriate place for modifying Urban Road Code boundaries. In preparing the plan, a review of existing Urban Road Code areas was conducted and potential modifications were identified for consideration with this technical update. These locations are summarized in Table 19. Graphics showing the proposed boundary changes are displayed in Appendix C. The intent of any change was to make the Urban Road Code boundaries consistent with existing or planned urban character, including zoning.

Table 19: Urban Road Code Boundaries – Proposed Changes

Proposed Urban Road Code Area	Master Plan	Proposed Change
Burtonsville	Burtonsville Crossroads	New Urban Area
Kensington	Kensington Sector Plan	New Urban Area
Langley Crossroads	Takoma Langley Crossroads	New Urban Area
Cabin Branch	Clarksburg/Ten-Mile Creek	New Urban Area
Chevy Chase Lake	Chevy Chase Lake	New Urban Area
Germantown	Germantown Employment Area Sector Plan	Expand Area and Merge Germantown Town Center and Cloverleaf Urban Areas
Piney Branch	East Silver Spring	Expand Boundaries
Great Seneca Science Corridor	Great Seneca Science Corridor	Expand Boundaries to include Montgomery College campus

Each proposed Urban Road Code boundary change is discussed below:

Burtonsville (New) – The Burtonsville Crossroads Sector Plan envisioned a village character and a divided boulevard with improved pedestrian and bicycle accommodations. Designating Burtonsville between Old Columbia Pike and Old US Route 29 as an Urban Road Code area would help to achieve this goal by requiring more complete streets design principles.

Kensington (New) – Downtown Kensington along the University Boulevard and Connecticut Avenue corridors is a dense suburban area with more urban characteristics than suburban. Travel speeds are low (30 mph or lower), curb cuts are frequent, traffic volumes are very high and pedestrian activity is moderate, with commercial development along the corridor. This community has a designated Bicycle-Pedestrian Priority Area, which makes it unique among the BPPAs, as most now overlap with Urban Road Code areas to a large degree. This Urban Road Code would connect exactly with the Wheaton Urban Road Code on University Boulevard at Drumm Avenue and extend to the south on Connecticut Avenue as far south as Warner Street. This Urban Road Code area will also extend along Metropolitan Avenue to just south of Edgewood Road.

Langley Crossroads (New) - The Langley Crossroads area currently functions as an urban area. The surrounding land uses, road geometry, curb cuts, posted speed limits, existing and planned transit service make this recommendation a high priority. The construction of the Purple Line, plus the existing Langley bus center, further emphasize this area's need for Urban Road Code design standards and practices.

Cabin Branch (New) - This large development region in Clarksburg was developed with an urban design philosophy. While suburban in density, Cabin Branch has narrow streets, road design elements and street-scale development that could be further reinforced with the designation of the region as an Urban Road Code area.

Chevy Chase Lake (New) - The area immediately surrounding the planned Connecticut Avenue Purple Line station stop is proposed as a new Urban Road Code area. This area will extend along Connecticut Avenue from Manor Road on the north to 450 feet to the north of Dunlop Street.

Germantown – Currently, there are two Urban Road Code area designations for Cloverleaf Center and Germantown Town Center. The recommendation is to consolidate these centers into one larger area by filling in the Century Boulevard corridor and extending the northern limits to the north of Dorsey Mill Road.

Piney Branch – The existing Piney Branch Urban Area is quite small. With the construction of the Purple Line, the recommendation for this area is to expand the Urban Road Code boundary significantly to the east and west.

Great Seneca Science Corridor - The boundaries of the existing Urban Road Code should be expanded slightly by including the Montgomery College campus.

Master Plan of Highways and Transitways Tools

To support the Master Plan of Highways and Transitways, tools were created to visually present the MPOHT in various media. These include:

- The official Mapbook and Classification Table present the amended MPOHT. These documents are provided on the MPOHT website and updated periodically as the MPOHT is amended. On each page of these products, an effective date is noted when changes are made to the plan.
- The MPOHT Functional Classification Story Map demonstrates the importance of functional classifications in the development of a well-balanced transportation network. The map can be used to display the entire MPOHT or each highway and transitway classification individually. This tool displays the amended MPOHT and is updated periodically in sync with the official Mapbook and Classification Table.
- The Bicycle-Pedestrian Priority Areas (BPPAs) Mapbook improves the graphical format of the county's designated BPPA maps. It follows the plan's Mapbook format and displays the BPPAs within the context of the existing and planned transit facilities (planned transitways and existing Metro and MARC rail stations).

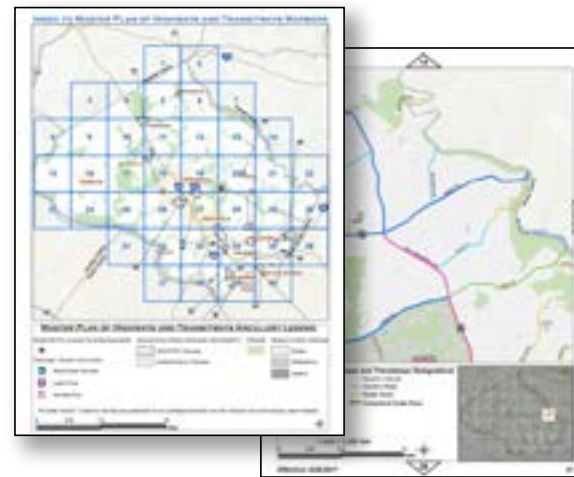
Mapbook and Classification Table

The mapping product used to summarize the Master Plan of Highways and Transitways is called the Mapbook and is continuously maintained by the Montgomery County Planning Department. This macro-activated pdf file, accessed online through the Department's website, displays the plan in a grid-based format and can be navigated by clicking on one of 56 pages. Sheets 1-40 contain the grid pages within Montgomery County, while sheets 41-56 contain urban area detailed maps.

From a Mapbook page, subsequent pages can be accessed by clicking on the triangular pointers or navigating back to the index page by clicking on the tinted inset map in the lower right. The pdf document also can be viewed in conventional fashion.

The Classification Table provides an alphabetical summary of all highways and transitways within the master plan. This table provides detailed information on road extents, classification, MPOHT numbering, existing lanes, planned lanes, target speed (mph), transitways accompanying roads and the transit mode.

The Mapbook and Classification Tables for the currently adopted MPOHT are provided in Appendix D.



Functional Classification Story Map

A Functional Classification Story Map (see Figure 15 below) was created to help describe the transportation network in the MPOHT. This tool, based on the ArcGIS Online platform, visually displays a map of the MPOHT highway and transitways network organized by functional classification, with descriptions and images of each classification type.

Users can interact with the map by choosing a functional classification and then reviewing a display of all street segments associated with that classification. They can also click on individual street segments within the map to obtain more information on specific link attributes. This Story Map can be accessed from the Master Plan of Highways and Transitways webpage or directly at mcatlas.org/mpoht.

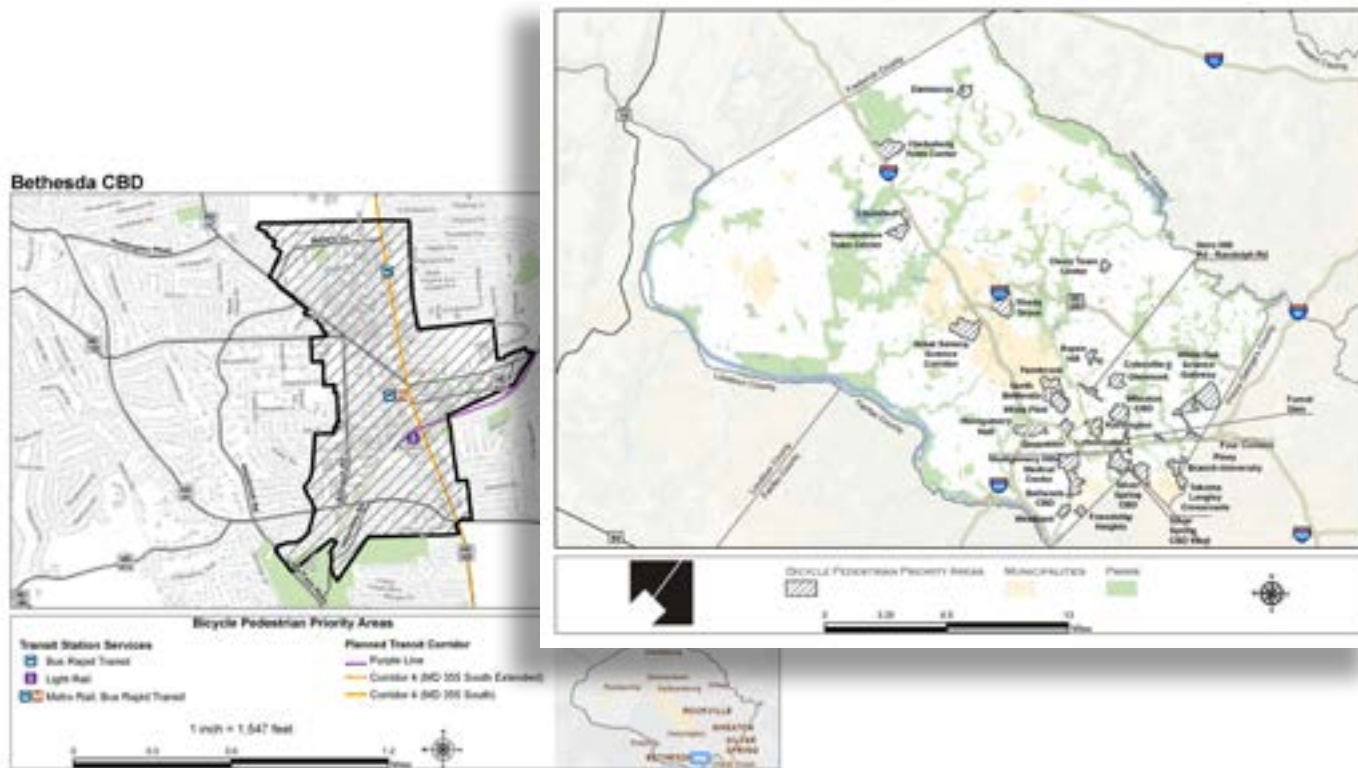


Figure 15: Functional Classification Story Map

Bicycle-Pedestrian Priority Area Mapbook

Bicycle-Pedestrian Priority Areas (BPPAs) are defined in the Maryland State Code as a geographical area where the enhancement of bicycle and pedestrian traffic is a priority. These locations overlap most of the existing Urban Road Code Urban areas, but also include many locations within suburban areas where there is proximity to existing and proposed public transit lines. BPPAs are adopted within Montgomery County by the County Council as part of the master planning process.

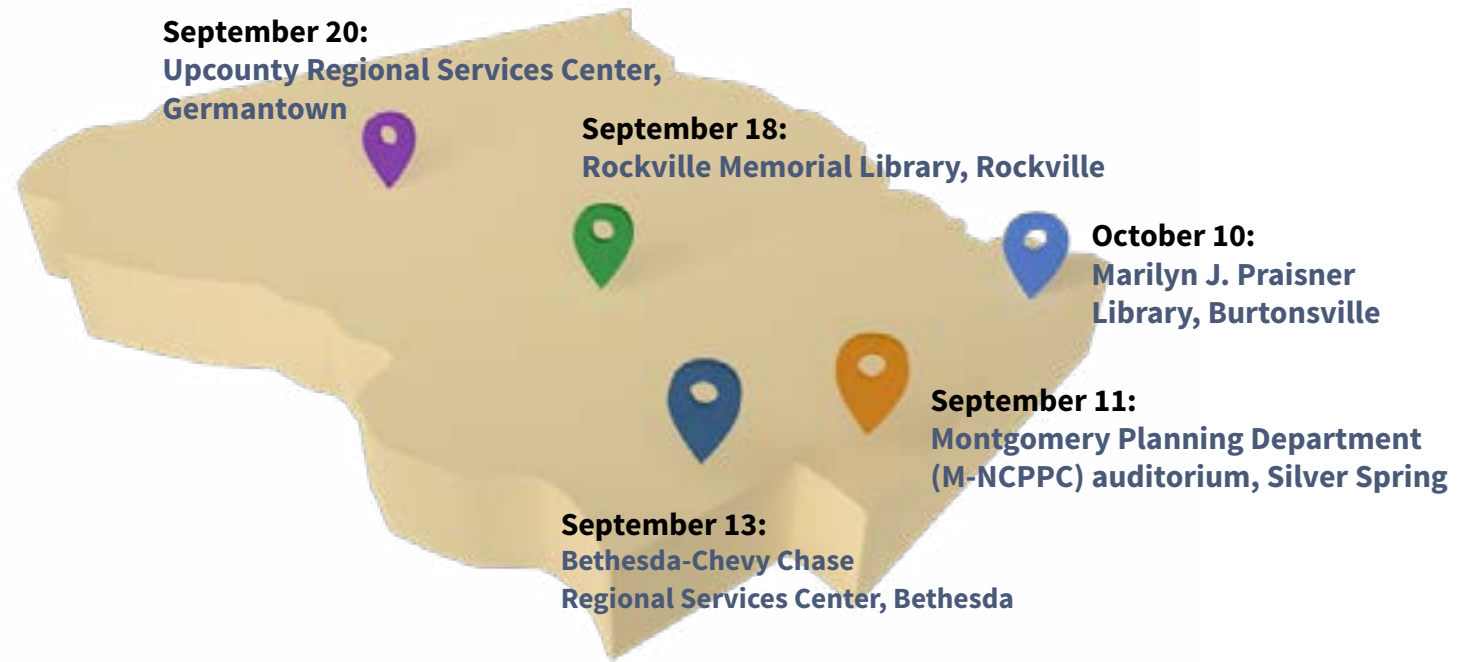
A Mapbook summarizing the adopted Bicycle-Pedestrian Priority Areas (BPPAs) is provided in Appendix E. No changes to BPPAs are being recommended in this master plan technical update. The format of the graphical presentation of BPPAs was modified to be more consistent with the MPOHT format.



Community Outreach

Public Meetings – Road Classification Changes

A total of five public outreach meetings were held around Montgomery County to discuss road classification changes on the following dates in 2017 and locations:



At each meeting, Planning Department staff presented the purpose and history of the Master Plan of Highways, an explanation of the functional classification system and a review of the changes proposed in the master plan update. Staff demonstrated the Mapbook, Functional Classification Story Map and MPOHT Feedback Map, and provided assistance to attendees using these tools to comment on the plan.

Online Outreach

A version of the presentation given at the five public outreach meetings was published online as the MPOHT Briefing Book. Through the Briefing Book and the other online tools made available, residents who were not able to attend the public outreach meetings could still learn and participate meaningfully at an equivalent level in the public planning process.

MPOHT Feedback Map

An online GIS-based feedback tool was developed for the MPOHT technical update to display proposed road classification changes and solicit public feedback on these changes. The MPOHT Feedback Map is provided on the Montgomery Planning website in the Master Plan of Highways and Transitways outreach section. Users simply click on a street segment on the map, optionally leave their name and email address, and submit their comments.

This tool allowed for the collection of comments countywide, at users' convenience. Feedback from residents helped to inform adjustments to staff recommendations. Once this technical update to the Master Plan of Highways and Transitways

is adopted by the County Council, this map will be maintained in the future to continuously obtain public feedback on the Master Plan of Highways and Transitways.



The MPOHT Feedback Map was most recently active from September 6 through October 27, 2017. A total of 341 comments were collected in this timeframe. While the focus of the feedback map was to obtain comments specifically focused on the proposed re-classification of approximately 129 locations, the map allowed users to provide feedback on any segment with the MPOHT network. Comments were categorized and responded to in the MPOHT Feedback Map. Table 20 provides a summary of the comments received by type.

View at

McAtlas.org/MPOHTComments

Table 20: MPOHT Outreach – Feedback Map Comments by Category

Comment Classification	Count
Agree with change in classification	20
Bicycle/Pedestrian Facilities	9
Change non-recommended road	65
Concern about speed/safety	4
Concern about traffic volume	8
Disagree with change - Change to different classification	7
Disagree with change - Keep current classification	191
Duplicate	1
Map/Attribute correction	17
Other Concern	16
Question	3
Grand Total	341

Table 21 summarizes some of the top commented roads obtained through the Feedback Map. Of these 341 comments, more than 50 percent of the comments were made regarding Brookville Road in Chevy Chase.

Table 21: MPOHT Outreach - Feedback Map Top Concerns

Roads within MPOHT Receiving Comments	Number of Comments Received
Brookville Rd (MD 186)	173
Old Columbia Pike	13
Briggs Chaney Rd	8
Mid County Hwy (Proposed)	8
I-270	7
Frederick Rd (MD 355)	6
Silver Spring Ave	5

Brookville Road (MD 186) was the road segment that received the most comments during the outreach process. This road between the District of Columbia border and East-West Highway (MD 410) is currently classified as a Primary Residential Street. The initial proposed change was to modify this road classification to the Minor Arterial category. This recommendation has since been dropped from this technical plan update.

Brookville Road is a narrow, two-lane road in a 50-foot wide right of way with homes located very close to the road edge. Concern was raised that a classification change would lead to increased traffic or major property impacts due to road widening in the future. There are no plans to widen this road, but there is considerable public concern about the use of this road as a through traffic cut-through route to bypass congestion on Connecticut Avenue and East-West Highway. The 173 comments about Brookville Road represent more than 90 percent of the comments received on the Feed-back Map opposing a classification change (191).

In addition to the online outreach, a total of 29 e-mails or letters were received by the Chair of the Montgomery County Planning Board. Of these, 28 comments were in opposition to the proposed re-classification of Brookville Road and one comment was in opposition to the Corridor Cities Transitway, a proposed bus rapid transit route.

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TECHNICAL UPDATE TO THE MASTER PLAN OF
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