TECHNICAL UPDATE TO THE MASTER PLAN OF

HIGHWAYS & TRANSITWAYS

APPROVED & ADOPTED | DECEMBER 2018

MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION

THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION
6611 Kenilworth Avenue • Riverdale, Maryland 20737

MCPB NO. 18-113
M-NCPPC NO. 18-33

RESOLUTION

WHEREAS, The Maryland-National Capital Park and Planning Commission, by virtue of the Land Use Article of the Annotated Code of Maryland, is authorized and empowered, from time to time, to make and adopt, amend, extend and add to The General Plan (On Wedges and Corridors) for the Physical Development of the Maryland-Washington Regional District Within Montgomery and Prince George's Counties; and

WHEREAS, the Montgomery County Planning Board of The Maryland-National Capital Park and Planning Commission, pursuant to procedures set forth in the Montgomery County Code, Chapter 33A, held a duly advertised public hearing on February 15, 2018 on the Public Hearing Draft Technical Update to the Master Plan of Highways and Transitways, being also an amendment The General Plan (On Wedges and Corridors) for the Physical Development of the Maryland-Washington Regional District Within Montgomery and Prince George's Counties, as amended; the Rustic Roads Functional Master Plan, as amended; the Preservation of Agricultural and Rural Open Space Functional Master Plan; the Aspen Hill Master Plan; the Bethesda Downtown Sector Plan; the Bethesda-Chevy Chase Master Plan; the Boyds Master Plan; the Burtonsville Commercial Crossroads Neighborhood Plan; the Capitol View and Vicinity Sector Plan; the Chevy Chase Lake Sector Plan; the Clarksburg Master Plan and Hyattstown Special Study Area, as amended; the Cloverly Master Plan; the Damascus Master Plan; the East Silver Spring Master Plan; the Fairland Master Plan; the Forest Glen Sector Plan; the Four Corners Master Plan; the Friendship Heights Sector Plan; the Gaithersburg and Vicinity Master Plan; the Germantown Employment Area Sector Plan; the Germantown Master Plan; the Glenmont Sector Plan; the Great Seneca Science Corridor Master Plan; the Greater Lyttonsville Sector Plan; the Grosvenor Sector Plan; the Grosvenor/Strathmore Metro Area Minor Master Plan; the Kemp Mill Master Plan; the Kensington Sector Plan; the Town of Kensington and Vicinity Sector Plan; the Kensington/Wheaton Master Plan; the Long Branch Sector Plan; the Montgomery Village Master Plan; the North and West Silver Spring Master Plan; the North Bethesda/Garrett Park Master Plan; the Olney Master Plan; the Potomac Subregion Master Plan; the Rock Spring Master Plan; the Sandy Spring/Ashton Master Plan; the Sandy Spring Rural Village Plan; the Shady Grove Sector Plan; the Silver Spring CBD Sector Plan; the Takoma/Langley Crossroads Sector Plan; the Takoma Park Master Plan; the Twinbrook Sector Plan; the Upper Rock Creek Master Plan; the Westbard Sector Plan; the Wheaton CBD Sector Plan; the White Flint Sector Plan; the White Flint 2 Sector Plan; the White Oak Master Plan; and the White Oak Science Gateway Master Plan; and

APPROVED AS TO LEGAL SUFFICIENCY
M-NCPPC LEGAL DEPARTMENT

WHEREAS, the Montgomery County Planning Board, after said public hearing and due deliberation and consideration, on May 3, 2018, approved the Planning Board Draft Technical Update to the Master Plan of Highways and Transitways, recommended that it be approved by the District Council, and forwarded it to the County Executive for recommendations and analysis; and

WHEREAS, the Montgomery County Council, sitting as the District Council for the portion of the Maryland-Washington Regional District lying within Montgomery County, held a public hearing on July 10, 2018, wherein testimony was received concerning the Planning Board Draft Technical Update to the Master Plan of Highways and Transitways; and

WHEREAS, the Montgomery County Executive reviewed and made recommendations on the Technical Update to the Master Plan of Highways and Transitways and forwarded those recommendations and an analysis to the District Council on July 23, 2018; and

WHEREAS, the District Council, on July 24, 2018 approved the Planning Board Draft Technical Update to the Master Plan of Highways and Transitways subject to the modifications and revisions set forth in Resolution No. 18-1215; and

WHEREAS, the Montgomery County Planning Board, on December 6, 2018, recommended that The Maryland-National Capital Park and Planning Commission adopt the Technical Update to the Master Plan of Highways and Transitways as approved by the District Council.

NOW, THEREFORE BE IT RESOLVED, that, in accordance with Section 21-103 of the Maryland Land Use Article, The Maryland-National Capital Park and Planning Commission does hereby adopt the said Technical Update to the Master Plan of Highways and Transitways, together with the General Plan for the Physical Development of the Maryland-Washington Regional District within Montgomery and Prince George's Counties, as amended; the Rustic Roads Functional Master Plan, as amended; the Preservation of Agricultural and Rural Open Space Functional Master Plan, as amended; the Aspen Hill Master Plan, as amended; the Bethesda Downtown Sector Plan, as amended; the Bethesda-Chevy Chase Master Plan, as amended; the Boyds Master Plan, as amended; the Burtonsville Commercial Crossroads Neighborhood Plan, as amended; the Capitol View and Vicinity Sector Plan, as amended; the Chevy Chase Lake Sector Plan, as amended; the Clarksburg Master Plan and Hyattstown Special Study Area, as amended; the Cloverly Master Plan, as amended; the Damascus Master Plan, as amended; the East Silver Spring Master Plan, as amended; the Fairland Master Plan, as amended; the Forest Glen Sector Plan, as amended; the Four Corners Master Plan, as amended; the Friendship Heights Sector Plan, as amended; the Gaithersburg and Vicinity Master Plan, as amended; the Germantown Employment Area Sector Plan, as amended; the Germantown Master Plan, as amended; the Glenmont Sector Plan, as amended; the Great Seneca Science Corridor Master Plan, as amended; the Greater Lyttonsville Sector Plan, as amended; the Grosvenor Sector Plan, as amended; the Grosvenor/Strathmore Metro Area Minor Master Plan, as amended; the Kemp Mill Master Plan, as amended; the Kensington Sector Plan, as amended; the Town of Kensington and Vicinity Sector Plan, as amended; the Kensington/Wheaton Master Plan, as amended; the Long Branch Sector Plan, as amended; the Montgomery Village Master Plan, as amended; the North and West Silver Spring Master Plan, as amended; the North Bethesda/Garrett Park Master Plan, as amended; the Olney Master Plan, as amended; the Potomac Subregion Master Plan, as amended; the Rock Spring Master Plan, as amended; the Sandy Spring/Ashton Master Plan, as amended; the

Sandy Spring Rural Village Plan, as amended; the Shady Grove Sector Plan, as amended: the Silver Spring CBD Sector Plan, as amended; the Takoma/Langley Crossroads Sector Plan, as amended; the Takoma Park Master Plan, as amended; the Twinbrook Sector Plan, as amended; the Upper Rock Creek Master Plan, as amended; the Westbard Sector Plan, as amended; the Wheaton CBD Sector Plan, as amended; the White Flint Sector Plan, as amended; the White Flint 2 Sector Plan, as amended; the White Oak Master Plan, as amended; and the White Oak Science Gateway Master Plan, as amended; and as approved by the District Council in the attached Resolution No. 18-1215; and

BE IT FURTHER RESOLVED, that copies of said Amendment must be certified by The Maryland-National Capital Park and Planning Commission and filed with the Clerk of the Circuit Court of each of Montgomery and Prince George's Counties, as required by law.

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CERTIFICATION

This is to certify that the foregoing is a true and correct copy of Resolution 18-113 adopted by the Montgomery County Planning Board of the Maryland-National Capital Park and Planning Commission on motion of Commissioner Cichy, seconded by Commissioner Fani-González, with Chair Anderson and Commissioners Fani-González and Cichy voting in favor, and Vice Chair Dreyfuss and Commissioner Patterson absent at its regular meeting held on Thursday, December 6, 2018, in Silver Spring, Maryland.

Casey Anderson, Chair
Montgomery County Planning Board

CERTIFICATION

This is to certify that the foregoing is a true and correct copy of Resolution No. 18-33 adopted by the Maryland-National Capital Park and Planning Commission on motion of Commissioner Cichy, seconded by Commissioner Fani-Gonzalez, with Chair Anderson, Vice-Chair Hewlett, Commissioners Bailey, Cichy, Dreyfuss, Doerner, Fani-Gonzalez, Geraldo and Patterson voting in favor of the motion, with Commissioner Washington being absent, at the meeting held on Wednesday, December 19, 2018 at the Montgomery Regional Office Auditorium in Silver Spring, Maryland.

Anju A. Bennett
Acting Executive Director

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 136 road segments to correct inconsistencies.
2. Addition of 25 mph target speeds in all Urban Road Code/Bicycle Pedestrian Priority areas on county roads to conform to the 2014 Road Code Complete Street Policy and Guidelines – 49.3 road miles identified in 180 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.
4. Revised Master Plan of Highways and Transitways Mapbook and Classification Table.
5. New Transitways/Bicycle-Pedestrian Priority Areas Mapbook, and Transitways and Transit Stations Tables

Source of Copies

Montgomery County Planning Department (M-NCPPC)
8787 Georgia Avenue
Silver Spring, MD 20910

Contents

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 2018, 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 prepared 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.*

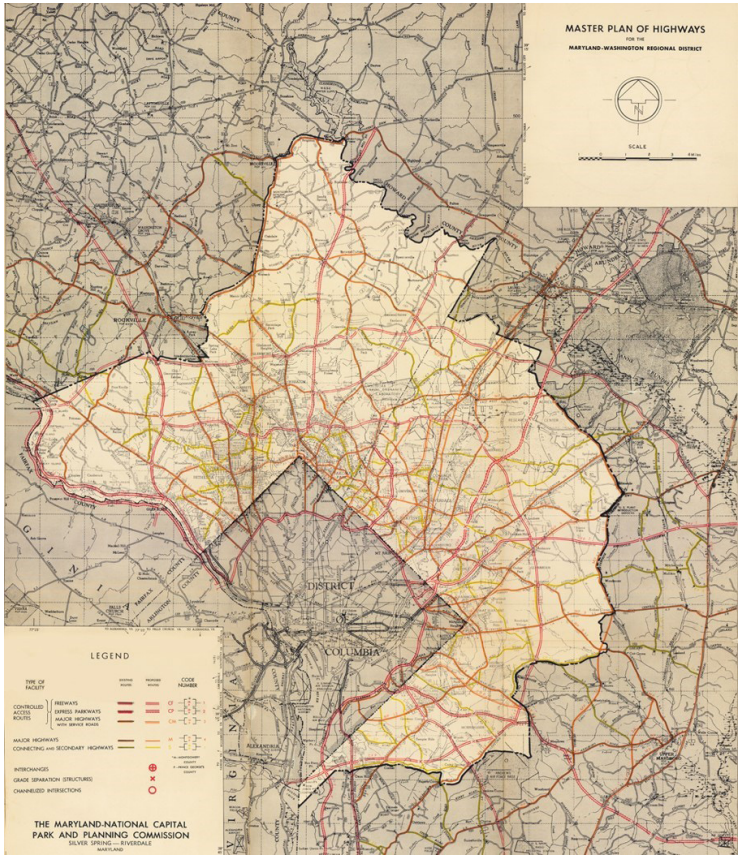

Figure 1: 1955 M-NCPPC Master Plan of Highways

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 (MPOHT) 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 and the Maryland-National Capital Park and Planning Commission (M-NCPPC).

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

Master Plans Including Amendments	Date Approved and Adopted
Bicycle Master Plan	December 2018
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	March 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
Georgetown Branch Master Plan	January 1991
Preservation of Agricultural and Rural Open Space Functional Master Plan	September 1980
Master Plan of Bikeways Functional Master Plan	May 1978

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 and the Maryland-National Capital Park and Planning Commission (M-NCPPC).

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

Master Plans including Amendments	Date Approved and Adopted
Grosvenor/Strathmore Metro Area Minor Master Plan	January 2018
White Flint 2 Sector Plan	January 2018
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
Germantown Employment Area Sector Plan	October 2009

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
Fairland Master Plan	March 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
Town of Kensington and Vicinity Sector Plan	May 1978

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 Residential 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)
- Master Plan 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)
- Master Planned Interchanges

Master Plan Right-of-Way

All Master Plan Rights-of-Way identified and amended to the MPOHT as defined are the minimum Rights-of-Way identified for the road section indicated. This is based on minimum cross-section design requirements in Chapter 49 of the Montgomery County Code and COMCOR §49.28.01 – Context Sensitive Design Standards. This minimum Right-of-Way does not include intersection Right-of-Way needs which will likely be in addition to this minimum. Also, this minimum standard may be subject to changes based on any future changes to Montgomery County Department of Transportation's design standards.

Target Speeds

Per COMCOR §49.28.01 Standard 020.01, "Target speeds serve as an important factor for determining design speeds, influencing operating speeds, and serving as a reference for establishing speed limits." It is defined in this regulation as "the speed at which vehicles should operate on a thoroughfare in a specific context, consistent with the level of multimodal activity generated by adjacent land uses, to provide mobility for motor vehicles and a safe environment for pedestrians and bicyclists. The target speed is usually the posted speed limit." Target speed is the goal or desired ultimate outcome of the road when all of the factors that influence operating speed are in place. Target speeds are not synonymous with posted speeds, but are the speeds toward which planning, engineering, enforcement, and education should be seeking to move toward. A change in speed limit signing is not in itself a method of reducing speeds, but is only one part of a wider approach to comprehensively reducing operating speeds.

In some cases, the level of effort needed may not occur until well beyond the lifetime of an area or sector master plan, particularly along streets expressly planned and designed for arterial purposes which are unlikely to change in design and/or purpose. In many cases, the land development patterns are not urban in nature and may not be so for a long time (zoning may even prevent them from developing in patterns conducive toward 25 MPH streets), and reconstructing a street's design may necessitate substantial funding that may not be realized for a long time.

As part of the commitment to the Complete Streets design philosophy, it is important to move away from traditional traffic engineering paradigms, such as an over-reliance of the use of 85th percentile speeds in setting speed limits, and the consideration of more innovative and context-sensitive speed/design philosophies such as that espoused by the National Association of City Transportation Officials (NACTO)[1] that promote a more proactive urban street design paradigm (Target Speed = Design Speed = Posted Speed).

Master Planned Interchanges

The MPOHT includes interchanges as recommended in previous master plans and adopted by the County Council. Some of these interchanges have since been constructed (e.g., MD355 at Montrose Parkway), some are currently under or scheduled for construction (e.g., Georgia Avenue at Randolph Road and I-270 at Watkins Mill Road), some have been recommended and studied but remain unbuilt (e.g., I-270 at Little Seneca Parkway, US Route 29 at Industrial Parkway), and some are older recommendations that may be uncertain as to future purpose and need (e.g., MD 355 at Cedar Lane, US Route 29 at Musgrove Lane).

There are two planned interchanges that are proposed for HOV/transit access only. One is I-270 at Dorsey Mill Road in Germantown, and the second is I-270 Western Spur at Fernwood Road.

Current Master Plan of Highways and Transitways Mapbook and Classification Tables

The current MPOHT Mapbook, and Classification and Interchange Tables are provided in Appendix A. This is up-to-date effective December 5, 2017 with the inclusion of changes from the Rock Spring Sector Plan, the Grosvenor-Strathmore Minor Area Master Plan, and the White Flint 2 Sector Plan. Transit-related information is shown in this Mapbook.

Public Transit Components

- Existing and proposed transitways
- Existing and proposed transit mode (bus rapid transit and light rail transit)
- 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 1,150 miles of existing and planned infrastructure throughout Montgomery County, as summarized in Tables 4 and 5. Transitways are included in the above subtotal with the exception of 19.7 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.

[1] National Association of City Transportation Officials, Urban Street Design Guide, 2013.

Table 4: MPOHT Highway Functional Classification by Mileage

Classification	Existing	Planned	Total	Percent
Arterial	256.5	10.4	266.9	23.2%
Business	48.5	19.3	67.8	5.9%
Controlled Major Highway	23.1	0.0	23.1	2.0%
Country Arterial	48.6	0.4	49.0	4.3%
Country Road	28.7	0.0	28.7	2.5%
Exceptional Rustic Road	40.3	0.0	40.3	3.5%
Freeway	57.2	0.0	57.2	5.0%
Industrial	7.2	0.0	7.2	0.6%
Major Highway	194.1	9.9	204.0	17.7%
Minor Arterial	6.6	0.8	7.4	0.6%
Park Road	5.4	0.0	5.4	0.5%
Parkway	6.4	0.0	6.4	0.6%
Primary Residential	231.2	3.3	234.5	20.4%
Principal Secondary	1.9	0.0	1.9	0.2%
Rustic Road	150.4	0.0	150.4	13.1%
Total	**1106.3**	**44.1**	**1150.4**	**100.0%**

Table 5: MPOHT-Transit Mode by Mileage

Transitway Type	Total
Dedicated Transit ROW or Non MPOHT Road	
Dedicated Bus Rapid Transit (BRT)	14.8
Light Rail	4.9
Total	19.7
MPOHT Right of Way	
Dedicated BRT	71.4
Dedicated BRT and Light Rail	1.1
BRT in Mixed Traffic	42.1
Light Rail	1.8
Total	116.4
Grand Total	**136.1**

A summary of the transit components of the MPOHT is provided in Figure 2. It should be noted that this includes a heavy rail recommendation for third tracking of the MARC Brunswick Line between the Frederick County line and Metropolitan Grove (adopted in the 2013 Countywide Transit Corridors Functional Master Plan). In addition, a Transitway and Bicycle-Pedestrian Priority Areas Mapbook, and transitways and transit stations tables are provided in Technical Appendix B. This Mapbook shows all adopted transitways, transit stations and BPPAs in one Mapbook. The Transitways table provides more detailed information on each Master Planned transit line, and the Transit Stations table provides more detail information on each Master Planned transit station. Technical details and components of Master Plan recommendations are contained in the adopted Master Plans indicated in these two tables and each element is presented in sequential order (typically in the inbound direction – outer suburbs toward the urban core). For each Table, details are provided on the transit mode (BRT or LRT), the Master Plan where the transit element was amended to the MPOHT, and identification of alternate routes and stations for some transitways. The transitway elements are also contained within the highway table Mapbook in Appendix A.

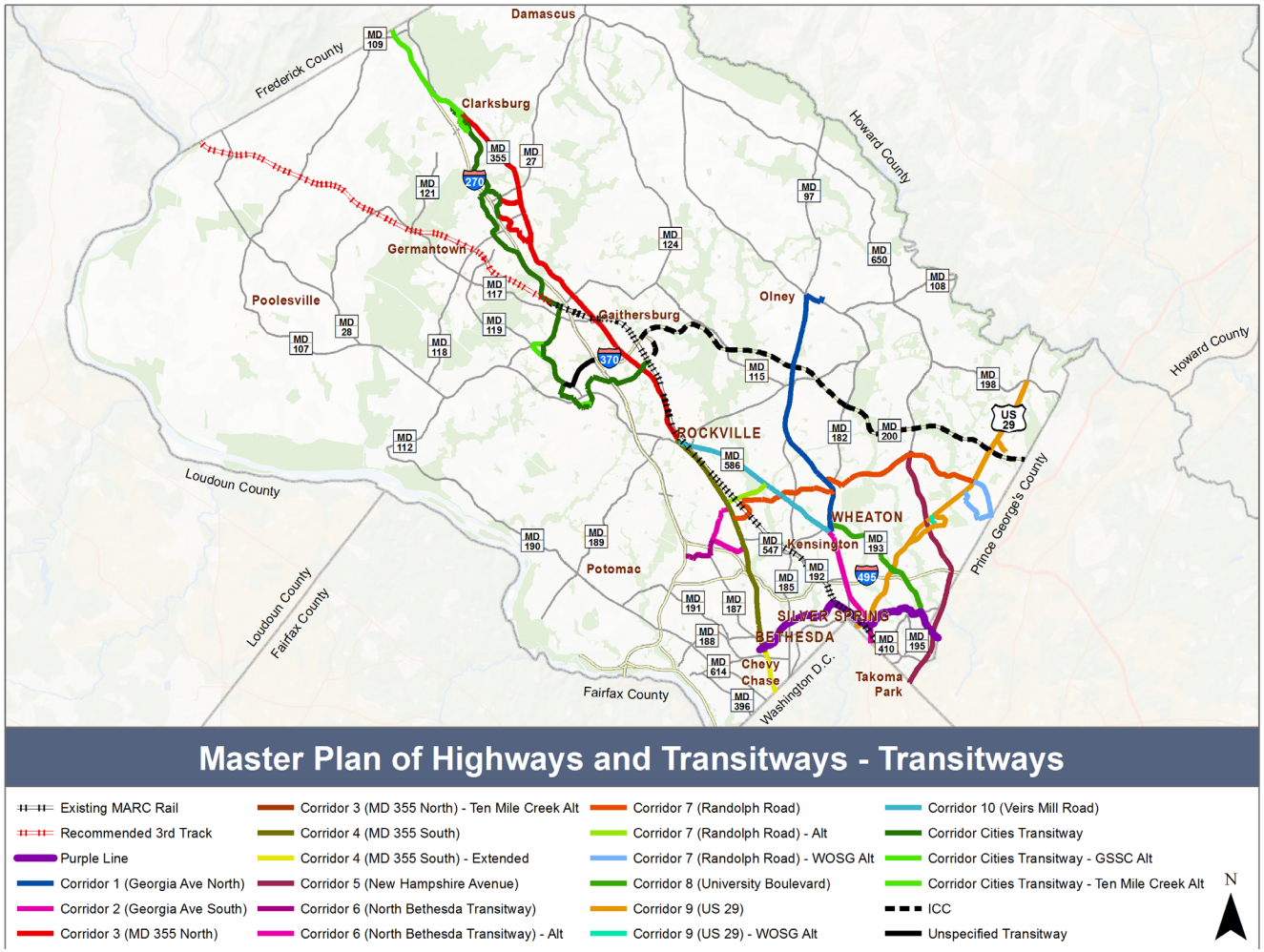

Figure 2: Map of Adopted Planned Transitways

Montgomery County Road Code and Relationship to the MPOHT

The 2008 Road Code update designated urban, suburban and rural area types throughout Montgomery County. Figure 3 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.

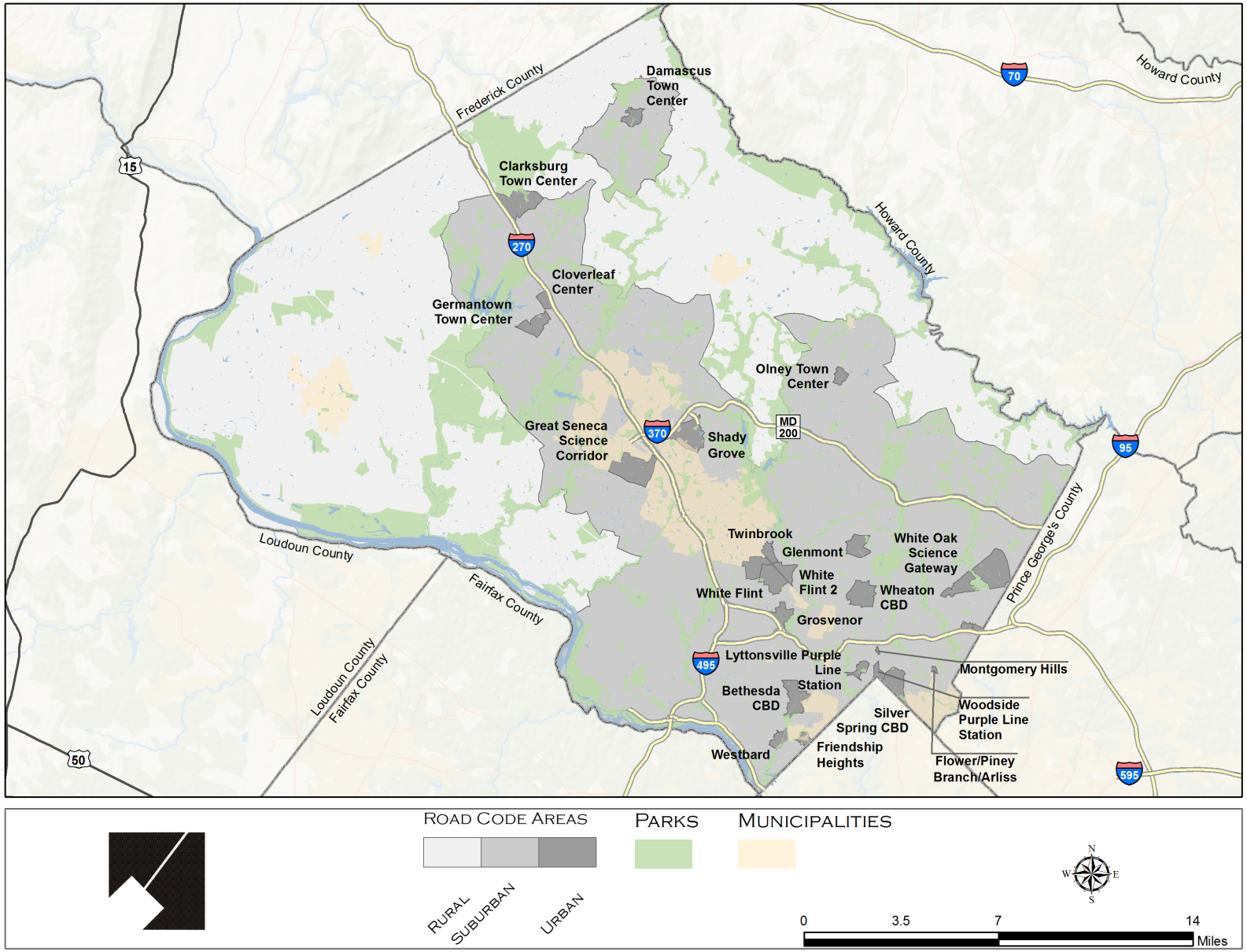

Figure 3: Road Code Areas

The designated urban areas are as follows:

Urban Areas	Master Plan Area
Arliss/Flower/Piney Branch	East Silver Spring Master Plan
Bethesda CBD	Bethesda Downtown Sector Plan
Clarksburg Town Center	Clarksburg Master Plan
Cloverleaf Center	Germantown Employment Area Sector Plan
Damascus	Damascus Master Plan
Friendship Heights	Bethesda/Chevy Chase Master Plan
Germantown Town Center	Germantown Employment Area Sector Plan
Glenmont	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	North and West Silver Spring Master Plan
Olney Town Center	Olney Master Plan
Shady Grove	Shady Grove Sector Plan
Silver Spring CBD	Silver Spring CBD Master Plan
Twinbrook/White Flint/White Flint 2	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 provide[2]. 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 4 displays how different road types function in relationship to mobility and access.

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

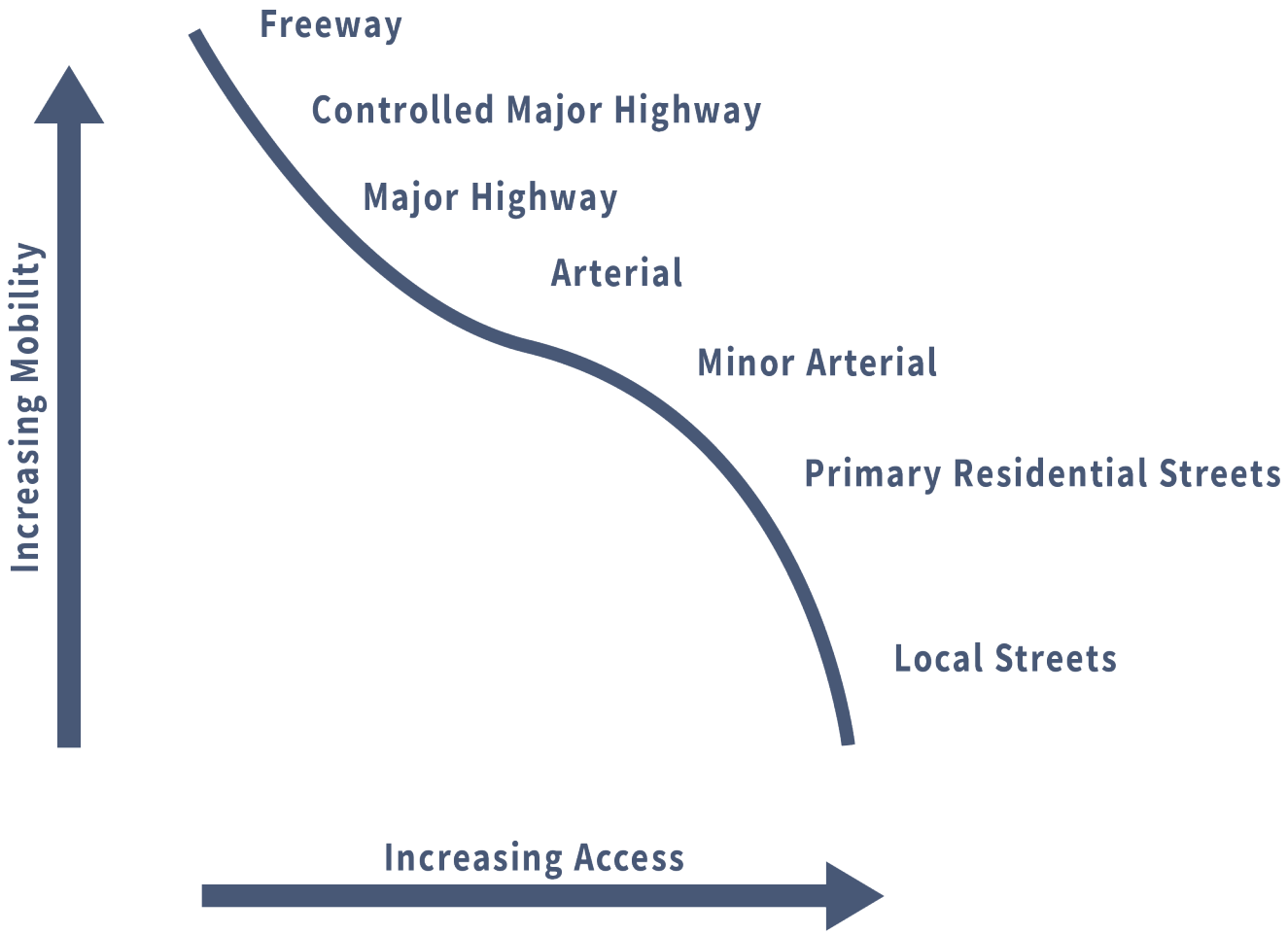

Figure 4: Road Classification - Mobility/Access

Road classifications used in the Master Plan of Highways and Transitways are described on page 25 through page 30 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 classification was added with the adoption of the 1996 Rustic Roads Functional Master Plan. 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 classification was added with the adoption of the 1996 Rustic Roads Functional Master Plan. 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 6 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 6: 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%+	No	No	No
Controlled Major Highway	6 - 8	150 [1]	Interchanges and Public Road Intersections	Always	50%+	No	No	No
Parkway	4	120 - 150 [1]	Interchanges and Public Road Intersections	Always	50%+	No	No	Required
Major Highway	4 - 6	120 - 150 [1]	Driveway access acceptable in denser suburban and urban areas	Always	50%+	No	No	No
Arterial	2 - 4	80 - 120 [1]	Some access to abutting property is expected	Typical	50%+	No	No	No
Minor Arterial	2 - 3	70-80	Access to abutting property is expected	No	50%+	No	Yes	MCDOT decision
Primary Residential Street	2	70 (100) [2]	Access to abutting property is expected	Allowed	≤ 50%	Yes	Yes	Yes
Secondary Streets (not in MPOHT)	2	60 - 78	Access to abutting property is expected	No	Limited	Yes	Yes	Yes
Tertiary Streets (not in MPOHT)	2	44 - 50	Access to abutting property is expected	No	0%	Yes	Yes	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.

Functional Hierarchy	No. Lanes	Minimum Right of Way (feet)	Control of Access	Divided Road-way?	Percent Through Traffic	Through Traffic Re-strictions Consid-ered?	Traffic Calming Consid-ered?	Heavy Truck Re-strictions Consid-ered?
Industrial	2 - 4	60-100	Access to abutting property is expected	No	NA[5]	No	No	No
Business District Street	2 - 4	60-112	Access to abutting property is expected	Allowed	NA	No	No	No
Country Arterial	2	70	Access to abutting property is expected	No	50%+	No	No	No
County Road	2	62	Access to abutting property is expected	No	≤50%	Yes	Yes	Yes
County Code Reference		LMC §49-32d	LMC §49-31			LMC §49-30	LMC §49-30	

Notes: 5. NA = Not Applicable

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 nine 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 nine technical changes are:

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

A total of 136 road or transitway segments have been identified for re-classification or modification. Table 7 summarizes the 136 changes by technical category. Appendix C provide more detailed maps of the proposed classification changes.

Table 7: Changes to MPOHT, by Reason

Classification Change Description	Count
Arterial To Minor Arterial (Down-Classification)	24
Primary Residential to Minor Arterial (Up-Classification)	20
New Primary Residential Streets	25
Master Plan Inconsistencies	30
Rural Rode Code Boundary Issues	11
Changes To Major Highways	10
Change Resulting From Existing Or Planned Development	10
Segments To Be Removed From MPOHT	6
TOTAL	**136**

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 and Montrose Parkway between Chapman Avenue and Parklawn Drive are the only roads classified as a Parkway in the MPOHT.

Two existing 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). The second existing road is Montrose Parkway between Montrose Road and Towne Road.

A planned road is also being proposed to be added to this category – the Montrose Parkway Extension from the west of Parklawn Drive to Veirs Mill Road. This planned road is currently classified as a Planned Arterial with potential 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 with planned BRT.

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: Comparison of Three Highway Classifications

Characteristic	Arterials	Minor Arterials	Primary Residential Streets
Number of Though-Travel Lanes	2 to 4	2 to 3*	2
Percent Through traffic	>50%	>50%	≤50%
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 lane	No, turn pockets or center two-way left turn lane	Yes, but not typical
Target Speeds	25 mph Urban; 30 mph or higher in Suburban and Rural Areas	25 mph Urban; Typically lower than Arterials in Suburban and Rural Areas	25 mph Urban; 25-30 mph in Suburban and Rural 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.

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 44 Minor Arterial streets have been identified. Tables 9 and 10 on the following page presents the proposed Minor Arterial streets. These classification changes are displayed on Figures 5 through 7.

Table 9: Minor Arterials (Down-Classification)

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

ID	Name	From Location	To Location	Classification	Proposed Classification	Master Plan	Existing Lanes	Planned Lanes	Proposed Planned Lanes	Master Plan ROW Feet
123	Hines Rd	Georgia Ave	Cashell Rd	Arterial	Minor Arterial	Olney	2	2	2	80
124	Lockwood Dr	Columbia Pike (US 29)	400 Feet West of New Hampshire Avenue (MD 650)	Arterial with planned BRT	Minor Arterial with planned BRT	White Oak Science Gateway	2	2	2	80
125	Lockwood Dr	400 ft West of New Hampshire Ave (MD 650)	West Side of White Oak Shopping Center	Arterial with planned BRT	Minor Arterial with planned BRT	White Oak Science Gateway	2	2	2	90
86	Musgrove Rd	Old Columbia Pike	Fairland Rd	Arterial	Minor Arterial	Fairland	2	2	2	80
92	Plyers Mill Road	Connecticut Ave	Metropolitan Avenue	Arterial	Minor Arterial	MPOHT	2	2	2	80
93	Plyers Mill Road	Kensington Town Limit	Georgia Avenue	Arterial	Minor Arterial	MPOHT	2	2	2	80
94	Plyers Mill Road	Metropolitan Avenue	Kensington Town Limit	Arterial	Minor Arterial	MPOHT	2	2	2	80
106	Sligo Ave	Woodbury Dr	Piney Branch Rd	Arterial	Minor Arterial	East Silver Spring	2	2	2	50

ID	Name	From Location	To Location	Classification	Proposed Classification	Master Plan	Existing Lanes	Planned Lanes	Proposed Planned Lanes	Master Plan ROW Feet
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
70	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
79	Musgrove Rd	Old Columbia Pike	Fairland Rd	Arterial	Minor Arterial	Fairland	2	2	2	80
84	Plyers Mill Rd	Kensington Town Limit (230' West of Drumm Ave)	Georgia Ave	Arterial	Minor Arterial	Kensington-Wheaton	2	2	2	80
85	Plyers Mill Rd	Metropolitan Ave	Kensington Town Limit	Arterial	Minor Arterial	Kensington Sector Plan	2	2	2	80
86	Plyers Mill Rd	Connecticut Ave	Metropolitan Ave	Arterial	Minor Arterial	Kensington Sector Plan	2D	2D	2D	100
126	Prince Phillip Dr	Georgia Ave	Olney-Sandy Spring Rd	Arterial	Minor Arterial	Olney	2	2	2	80
127	Prince Phillip Dr	Olney-Sandy Spring Rd	Brooke Farm Rd	Arterial with planned BRT	Minor Arterial with planned BRT	Countywide Transit Corridors	2	2	2	80

ID	Name	From Location	To Location	Classification	Proposed Classification	Master Plan	Existing Lanes	Planned Lanes	Proposed Planned Lanes	Master Plan ROW Feet
128	Prince Phillip Dr	Brooke Farm Rd	Georgia Ave	Arterial	Minor Arterial	Olney	2	2	2	80
98	Sligo Ave	Approx. 149' east of Fenton St	Piney Branch Rd	Arterial	Minor Arterial	East Silver Spring	2	2	2	50
102	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
108	Valley Park Dr	Ridge Rd	Woodfield Rd	Arterial	Minor Arterial	Damascus	2	2	2	80-120
88	Old Columbia Pike	Briggs Chaney Rd	Spencerville Rd	Primary Residential	Minor Arterial	Fairland	2	2	2	70
89	Old Columbia Pike	East Randolph Rd	Briggs Chaney Rd	Primary Residential	Minor Arterial	Fairland	2	2	2	80
91	Piney Meetinghouse Rd	Cavanaugh Dr/ Shady Grove Rd Extended	Travilah Rd	Primary Residential	Minor Arterial	Potomac	2	2	2	70
95	Queen Elizabeth Dr	Olney Laytonsville Road	Georgia Ave	Primary Residential	Minor Arterial	Olney	2	2	2	70

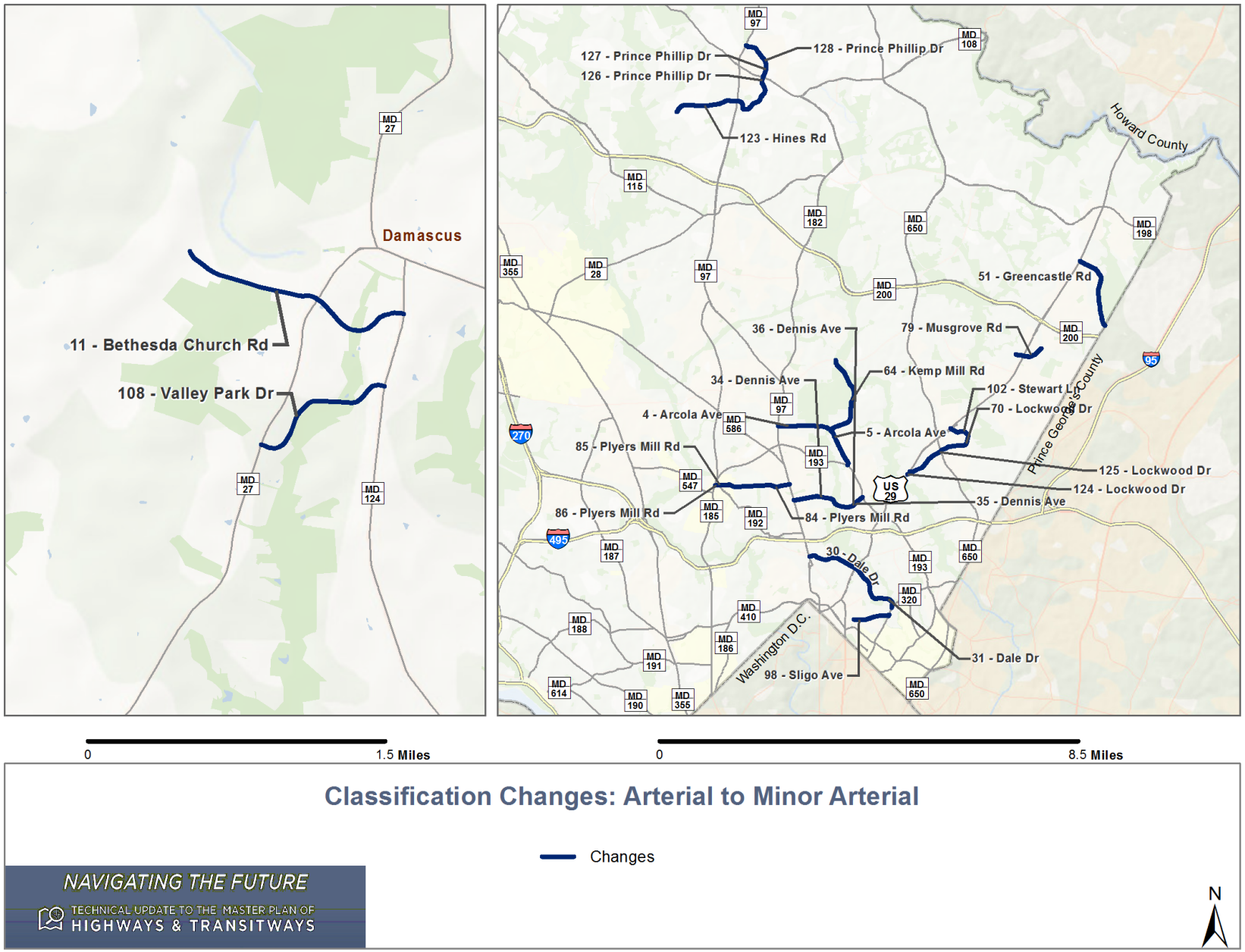

Figure 5: Classification Changes – Arterial to Minor Arterial

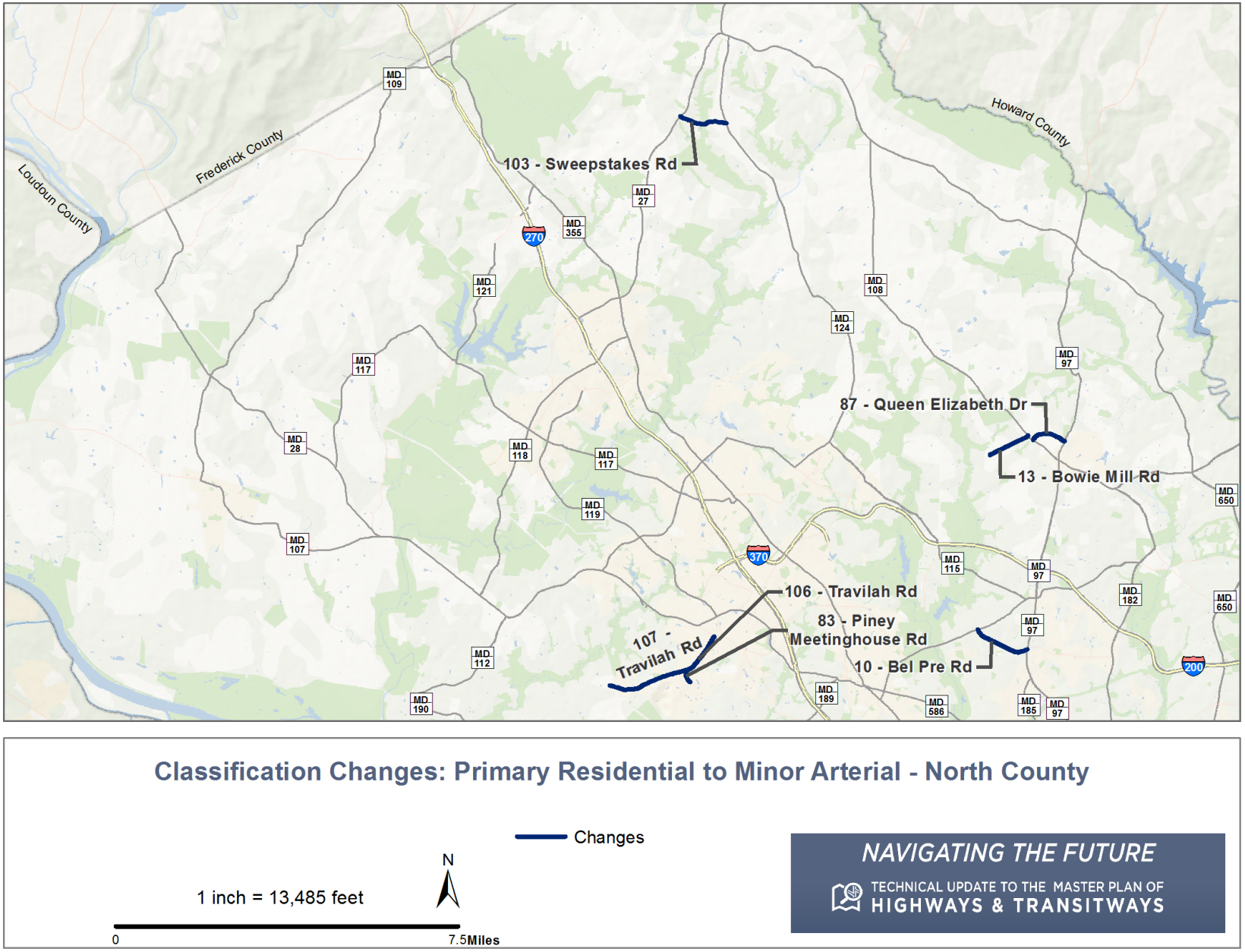

Figure 6: Classification Changes – Primary Residential to Minor Arterial – North County

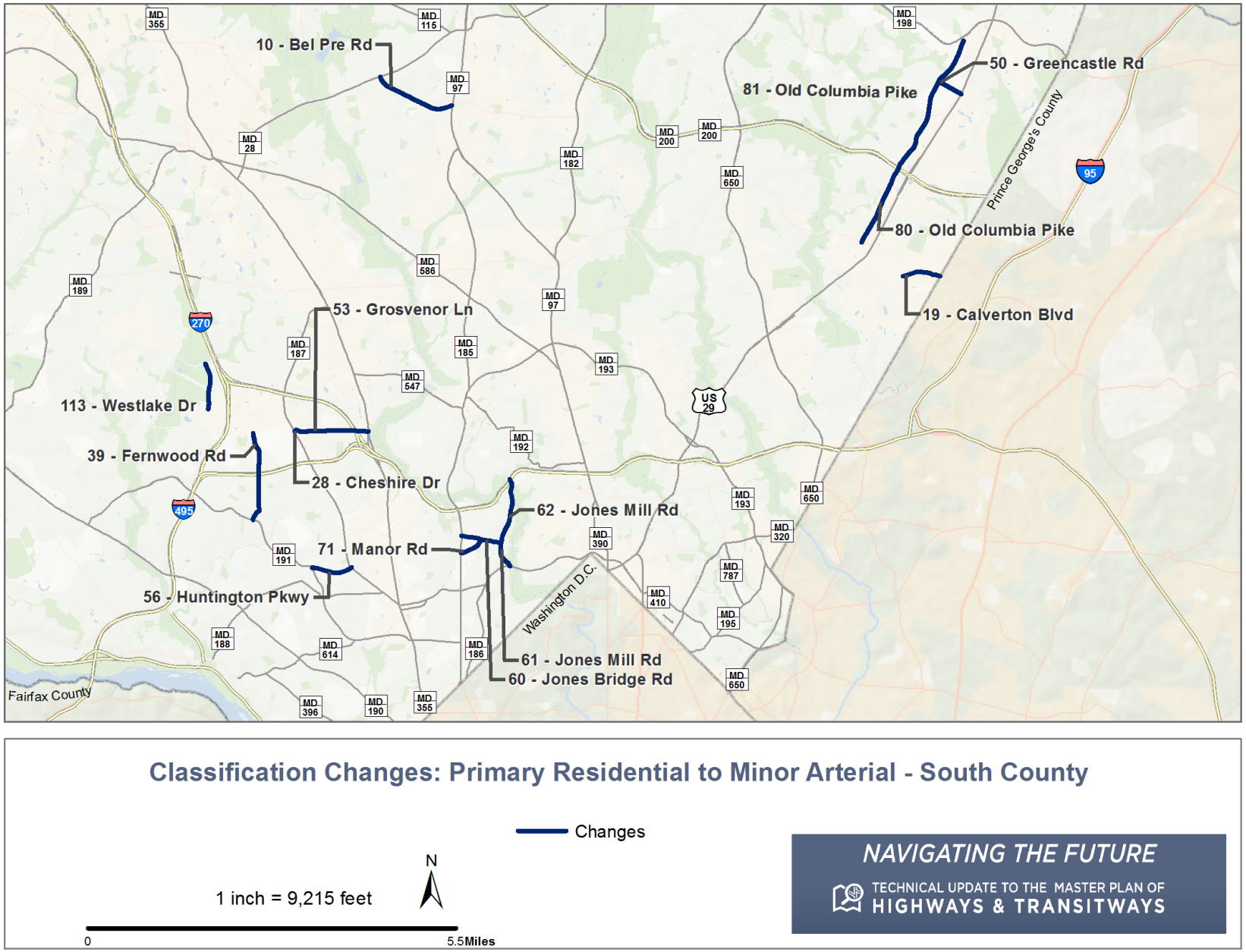

Figure 7: Classification Changes - Primary Residential to Minor Arterial - South County

Table 10: Minor Arterials (Up-Classification)

ID	Name	From Location	To Location	Classification	Proposed Classification	Master Plan	Existing Lanes	Planned Lanes	Proposed Planned Lanes	Master Plan ROW Feet
10	Bel Pre Rd	Norbeck Rd	Georgia Ave	Primary Residential	Minor Arterial	Aspen Hill	2	2	2	80
13	Bowie Mill Rd	Cashell Rd	Olney-Laytonsville Rd	Primary Residential	Minor Arterial	Olney	2	2	2	80
19	Calverton Blvd	Cherry Hill Rd	Prince George's County Line	Primary Residential	Minor Arterial	Fairland	2-4	2-4	2-4	80
28	Cheshire Dr	Old Georgetown Rd	Grosvenor Ln	Primary Residential	Minor Arterial	North Bethesda/Garrett Park	2	2	2	70
39	Fernwood Rd	Bradley Blvd	Democracy Blvd	Primary Residential	Minor Arterial	Bethesda-Chevy Chase / North Bethesda-Garrett Park	2	2	2	70
50	Greencastle Rd	Old Columbia Pike	Columbia Pike	Primary Residential	Minor Arterial	Fairland	2	2	2	70
53	Grosvenor Ln	Cheshire Dr	Rockville Pike	Primary Residential	Minor Arterial	North Bethesda/ Garrett Park	2	2	2	70
56	Huntington Pkwy	Old Georgetown Rd	Bradley Blvd	Primary Residential	Minor Arterial	Bethesda-Chevy Chase	2D	2D	2D	100

ID	Name	From Location	To Location	Classification	Proposed Classification	Master Plan	Existing Lanes	Planned Lanes	Proposed Planned Lanes	Master Plan ROW Feet
60	Jones Bridge Rd	Connecticut Ave	Jones Mill Rd	Primary Residential	Minor Arterial	Chevy Chase Lake Sector Plan	2	2	2	70
61	Jones Mill Rd	Jones Bridge Rd	East West Hwy (MD 410)	Primary Residential	Minor Arterial	Chevy Chase Lake Sector Plan	2	2	2	70
62	Jones Mill Rd	Capital Beltway	Jones Bridge Rd	Primary Residential	Minor Arterial	Bethesda-Chevy Chase	2	2	2	70
71	Manor Rd	Connecticut Ave	Jones Bridge Rd	Primary Residential	Minor Arterial	Chevy Chase Lake Sector Plan	2	2	2	70
80	Old Columbia Pike	East Randolph Rd	Briggs Chaney Rd	Primary Residential	Minor Arterial	Fairland	2	2	2	80
81	Old Columbia Pike	Briggs Chaney Rd	Spencerville Rd	Primary Residential	Minor Arterial	Fairland	2	2	2	70
83	Piney Meetinghouse Rd	Cavanaugh Dr/ Shady Grove Rd Extended	Travilah Rd	Primary Residential	Minor Arterial	Potomac	2	2	2	70
87	Queen Elizabeth Dr	Olney Laytonsville Road	Georgia Ave	Primary Residential	Minor Arterial	Olney	2	2	2	70
103	Sweepstakes Rd	Ridge Rd	Woodfield Rd	Primary Residential	Minor Arterial	Damascus	2	2	2	70

ID	Name	From Location	To Location	Classification	Proposed Classification	Master Plan	Existing Lanes	Planned Lanes	Proposed Planned Lanes	Master Plan ROW Feet
106	Travilah Rd	Unicorn Way	Darnestown Rd	Primary Residential	Minor Arterial	Great Seneca Science Corridor	2	2	2	70
107	Travilah Rd	Unicorn Way	Dufief Mill Rd	Primary Residential	Minor Arterial	Potomac	2	2	2	70
113	Westlake Dr	Westlake Terr	Tuckerman Ln	Primary Residential	Minor Arterial	Potomac	2	4	4	70

New Recommended Primary Residential Streets

During the technical update to the Master Plan of Highways and Transitways, 25 Primary Residential Streets were identified. These new residential streets are displayed in Table 11 and Figures 8 and 9. 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

ID	Name	From Location	To Location	Classification	Proposed Classification	Master Plan	Existing Lanes	Planned Lanes	Proposed Planned Lanes	Master Plan ROW Feet
1	Alderton Rd	Alderton Rd	Alderton Rd	N/A	Primary Residential (Planned)	MPOHT	2	2	2	70
2	Alderton Rd	Alderton Rd (Proposed)	Popular Run Dr	N/A	Primary Residential	MPOHT	2	2	2	70
7	Ballinger Drive	Wexhall Dr	Robey Rd	N/A	Primary Residential	MPOHT	2	2	2	70
8	Battery Ln	Glenbrook Rd	Old Georgetown Rd	N/A	Primary Residential	MPOHT	2	2	2	80
16	Broadmore Rd	Cannon Rd	Tamarack Rd	N/A	Primary Residential	MPOHT	2	2	2	70
17	Burdette Rd	Bradley Blvd (MD 191)	River Rd	Principal Secondary	Primary Residential	MPOHT	2	2	2	70
42	Flower Hill Way	Woodfield Rd	Snouffer School Rd	N/A	Primary Residential	MPOHT	2	2	2	70
47	Glenbrook Rd	Fairfax Rd/Little Falls Pkwy	Old Georgetown Rd	N/A	Primary Residential	MPOHT	2	2	2	70
52	Greentree Rd	Burdette Rd	I-495 Bridge	N/A	Primary Residential	MPOHT	2	2	2	70
63	Kara Ln	Wolf Dr	Cannon Rd	N/A	Primary Residential	MPOHT	2	2	2	70

ID	Name	From Location	To Location	Classification	Proposed Classification	Master Plan	Existing Lanes	Planned Lanes	Proposed Planned Lanes	Master Plan ROW Feet
67	Liberty Mill Rd	Dawson Farm Rd	Clopper Rd	N/A	Primary Residential	MPOHT	2	2	2	70
68	Lindell St	Mason St	Georgia Ave	N/A	Primary Residential	MPOHT	2	2	2	70
72	McComas Ave	Douglas Ave	Saint Paul St	N/A	Primary Residential	MPOHT	2	2	2	70
82	Olney Mill Rd	Olney-Laytonsville Rd	Wickham Road	N/A	Primary Residential	MPOHT	2	2	2	70
95	Saint Paul St	Plyers Mill Rd	University Blvd	N/A	Primary Residential	MPOHT	2	2	2	70
96	Seven Locks Rd	MacArthur Blvd	I-495	Principal Secondary	Primary Residential	MPOHT	2	2	2	60
97	Shaw Ave	New Hampshire Ave (MD 650)	Springloch Rd	N/A	Primary Residential	MPOHT	2	2	2	70
100	Springloch Rd	Shaw Ave	Springtree Dr	N/A	Primary Residential	MPOHT	2	2	2	70
101	Springtree Dr	Randolph Rd	Springloch Rd	N/A	Primary Residential	MPOHT	2	2	2	70
104	Tamarack Rd	East Randolph Rd	Broadmore Rd	N/A	Primary Residential	MPOHT	2	2	2	70

ID	Name	From Location	To Location	Classification	Proposed Classification	Master Plan	Existing Lanes	Planned Lanes	Proposed Planned Lanes	Master Plan ROW Feet
114	Wexhall Dr	Ballinger Drive	Greencastle Road	N/A	Primary Residential	MPOHT	2	2	2	70
115	Wexhall Dr	Valiant Way	Greencastle Rd	N/A	Primary Residential	MPOHT	2	2	2	70
118	Whittier Blvd	Wilson Ln	Woodhaven Blvd	N/A	Primary Residential	MPOHT	2	2	2	70
119	Wolf Dr	New Hampshire Ave (MD 650)	Kara Ln	N/A	Primary Residential	MPOHT	2	2	2	70
121	Woodhaven Blvd	Whittier Blvd	Bradley Blvd	N/A	Primary Residential	MPOHT	2	2	2	70

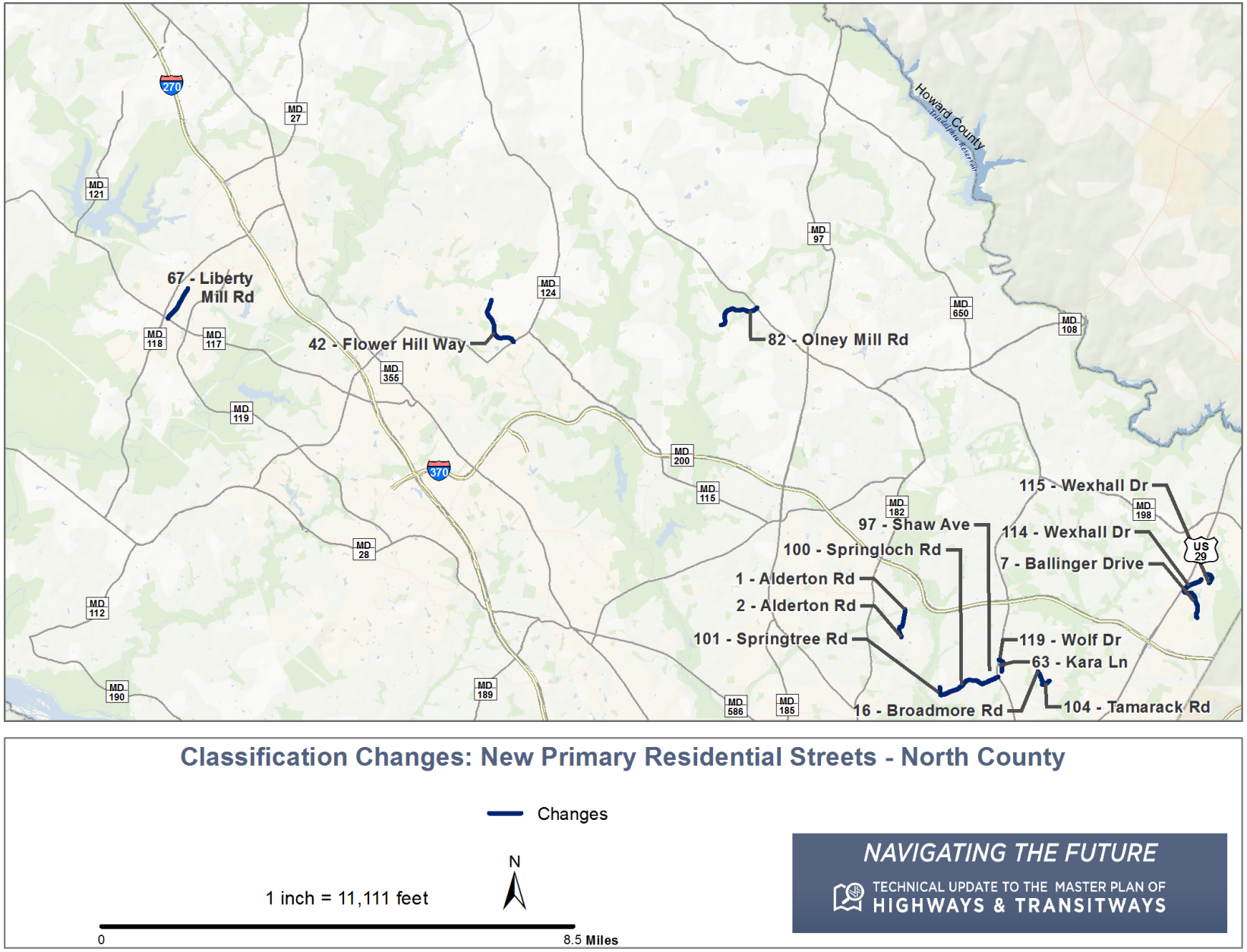

Figure 8: Classification Changes – New Primary Residential Streets – North County

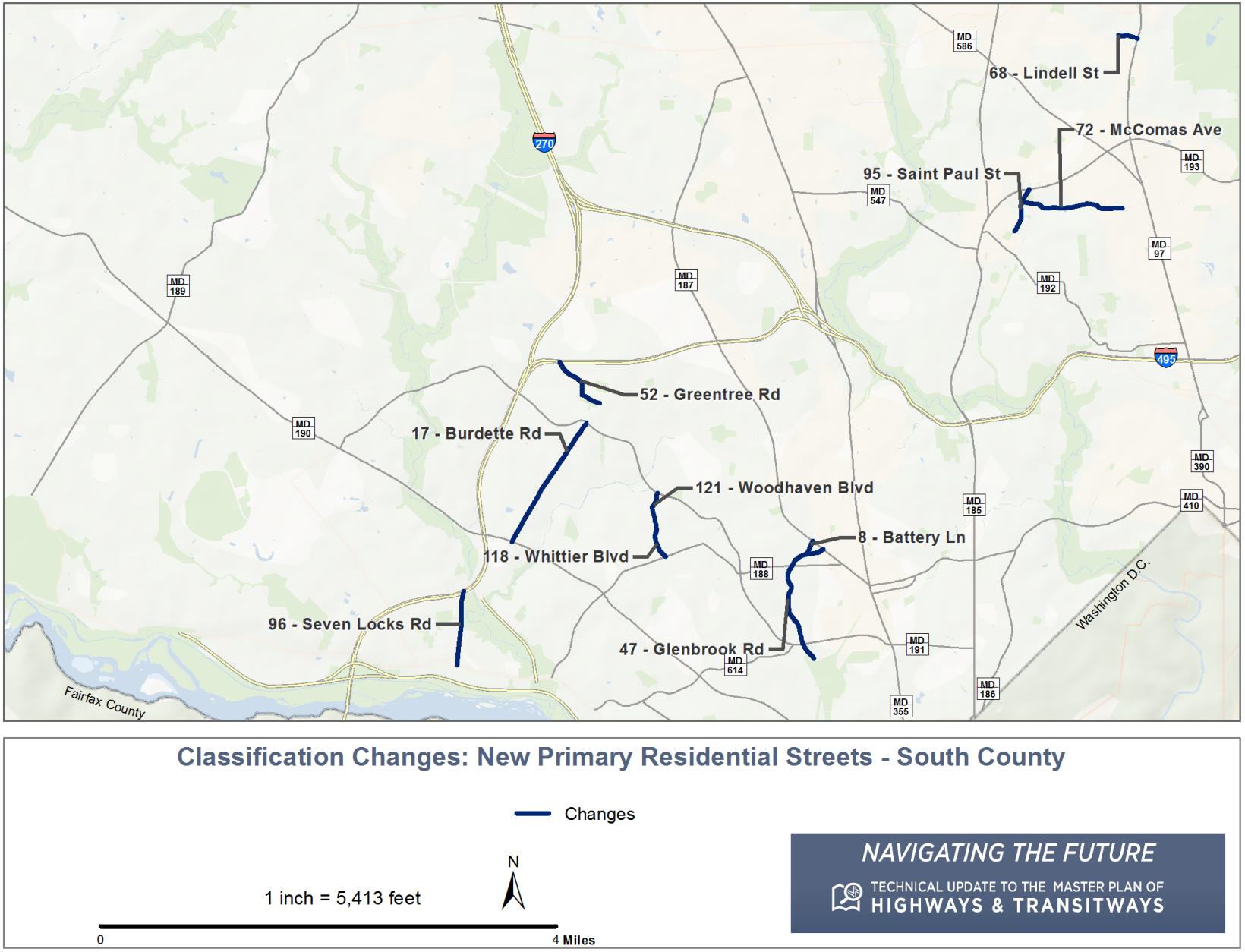

Figure 9: Classification Changes – New Primary Residential Streets – South County

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 road section and proposed resolution. Theses classification changes are displayed on Figure 10.

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 Randolph, East Randolph, and Cherry Hill Roads. Randolph Road is currently classified as a Major Highway from Rock Creek to Fairland Road, but it is currently classified as an Arterial further west between Rock Creek and White Flint and on East Randolph Road and Cherry Hill Road further east between Fairland Road and Prince George's County. However, these roads carry a consistent function between White Flint and Prince George's County. Reclassifying both Randolph Road from Rock Creek to Parklawn Drive and East Randolph Road/Cherry Hill Road from Fairland Road to Prince George's County from Arterial to Major Highway would correct this inconsistency.

The existing section of Montrose Parkway Between Montrose Road and Towne Road and the planned section between Parklawn Drive and Veirs Mill Road were 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.

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.

Table 12: Re-Classification to Correct Master Plan Inconsistencies

ID	Name	From Location	To Location	Classification	Proposed Classification	Master Plan	Existing Lanes	Planned Lanes	Proposed Planned Lanes	Master Plan ROW Feet
6	Avery Rd	Aspen Hill MP Boundary	Rockville City Limits	Primary Residential	Arterial	Aspen Hill	2	2	2	80
18	Cabin John Pkwy (I-495X)	Capital Beltway (I-495)	Clara Barton Pkwy	Freeway	Parkway	Bethesda-Chevy Chase	4D	4D	4D	Varies
24	Cashell Rd	Hines Rd	Emory Ln	Primary Residential	Minor Arterial	Olney	2	2	2	70
25	Cashell Rd	Bowie Mill Rd	Hines Rd	N/A	Minor Arterial	MPOHT (Pending)	2	2	2	70
26	Castle Blvd	Briggs Chaney Rd	Approx. 1115' north of Briggs Chaney Rd	Industrial	Business	Fairland	2	2	2	80
27	Castle Blvd	Approx. 1115' north of Briggs Chaney Rd	Castle Ridge Circle	Industrial	Primary Residential	Fairland	2	2	2	80
124	Cherry Hill Rd	Columbia Pike (US 29)	Prince George's County Line	Arterial with planned BRT	Major Highway with planned BRT	White Oak Science Gateway	4	4	4	80
130	East Randoplh Rd	Fairland Rd	Columbia Pike (US 29)	Arterial with planned BRT	Major Highway with planned BRT	Countywide Transit Corridors	5	4-5	4-5	80

ID	Name	From Location	To Location	Classification	Proposed Classification	Master Plan	Existing Lanes	Planned Lanes	Proposed Planned Lanes	Master Plan ROW Feet
38	East Village Ave	Goshen Rd	Woodfield Rd	Primary Residential	Arterial	Montgomery Village Master Plan	4	4	4	80
40	Flower Ave	Arliss St	Plymouth St	Primary Residential	Minor Arterial	Long Branch Sector Plan	2	2	2	70
41	Flower Ave	Plymouth St	Wayne Ave	Primary Residential	Minor Arterial	East Silver Spring	2	2	2	70
55	Heritage Hills Dr	Olney-Laytonsville Rd	Georgia Ave	Arterial	Primary Residential	Olney	2	2	2	80
57	Industrial Pkwy	Columbia Pike (US 29)	Tech Rd	Arterial	Business	White Oak Science Gateway	2	4D	4D	100
58	Industrial Pkwy	Tech Rd	Approx. 560' south of Tech Rd	Arterial with planned BRT	Business with planned BRT	White Oak Science Gateway	2	4D	4D	100
59	Industrial Pkwy Extended	Approx. 560' south of Tech Rd	FDA Blvd	Arterial (Planned) with planned BRT	Business (Planned) with planned BRT	White Oak Science Gateway	N/A	4D	4D	100
73	Montrose Pkwy	Montrose Rd	Approx. 780' west of East Jefferson St	Arterial	Parkway	North Bethesda/ Garrett Park	4D	4D	4D	300
74	Montrose Pkwy	East Jefferson St	Towne Rd (Hoya St)	Arterial	Parkway	White Flint 2 Sector Plan	4D	4D	4D	130

ID	Name	From Location	To Location	Classification	Proposed Classification	Master Plan	Existing Lanes	Planned Lanes	Proposed Planned Lanes	Master Plan ROW Feet
75	Montrose Pkwy	Approx. 780' west of East Jefferson St	East Jefferson St	Arterial	Parkway	White Flint 2 Sector Plan	4D	4D	4D	300
76	Montrose Pkwy (Proposed)	Parklawn Dr	Rock Creek Park	Arterial (Planned) with planned BRT	Parkway (Planned) with planned BRT	Countywide Transit Corridors	N/A	4D+1T	4D+1T	300
77	Montrose Pkwy (Proposed)	Rock Creek Park	Veirs Mill Rd	Arterial (Planned) with planned BRT	Parkway (Planned) with planned BRT	Countywide Transit Corridors	N/A	4D+1T	4D+1T	300
131	Randolph Rd	Parklawn Dr	Rocking Horse Rd	Arterial with planned BRT	Major Highway with planned BRT	White Flint 2 Sector Plan	4	4	4	100
132	Randolph Rd	Rocking Horse Rd	Dewey Rd	Arterial with planned BRT	Major Highway with planned BRT	Countywide Transit Corridors	4	4	4	100
89	Redland Rd	Muncaster Mill Rd	Needwood Rd	Primary Residential	Minor Arterial	Shady Grove	2	2	2	70
90	Redland Rd	Needwood Rd	Crabbs Branch Way	Primary Residential	Minor Arterial	Shady Grove	2	4	2	70

ID	Name	From Location	To Location	Classification	Proposed Classification	Master Plan	Existing Lanes	Planned Lanes	Proposed Planned Lanes	Master Plan ROW Feet
91	Riffle Ford Rd	700' north of Woodsboro Dr	220' east of Hallman Ct	N/A	Arterial	MPOHT (Pending)	2	4	4	80
105	Tech Rd	Old Columbia Pike	Columbia Pike	Business	Arterial	Fairland	4	4	4	80
111	Wayne Ave	Sligo Creek Pkwy	Manchester Place Station - Purple Line	Primary Residential with planned light rail	Minor Arterial with planned LRT	Purple Line Functional Plan	2	2 + 2T	2 + 2T	70
120	Woodfield Rd	Fieldcrest Rd	Warfield Rd	Major Highway	Arterial	Montgomery Village Master Plan	2-6	6	4	120
122	Leland Street	Bradley Blvd (MD 191)	Woodmont	Minor Arterial	Minor Arterial	Bethesda Downtown Plan	2	2	2	70

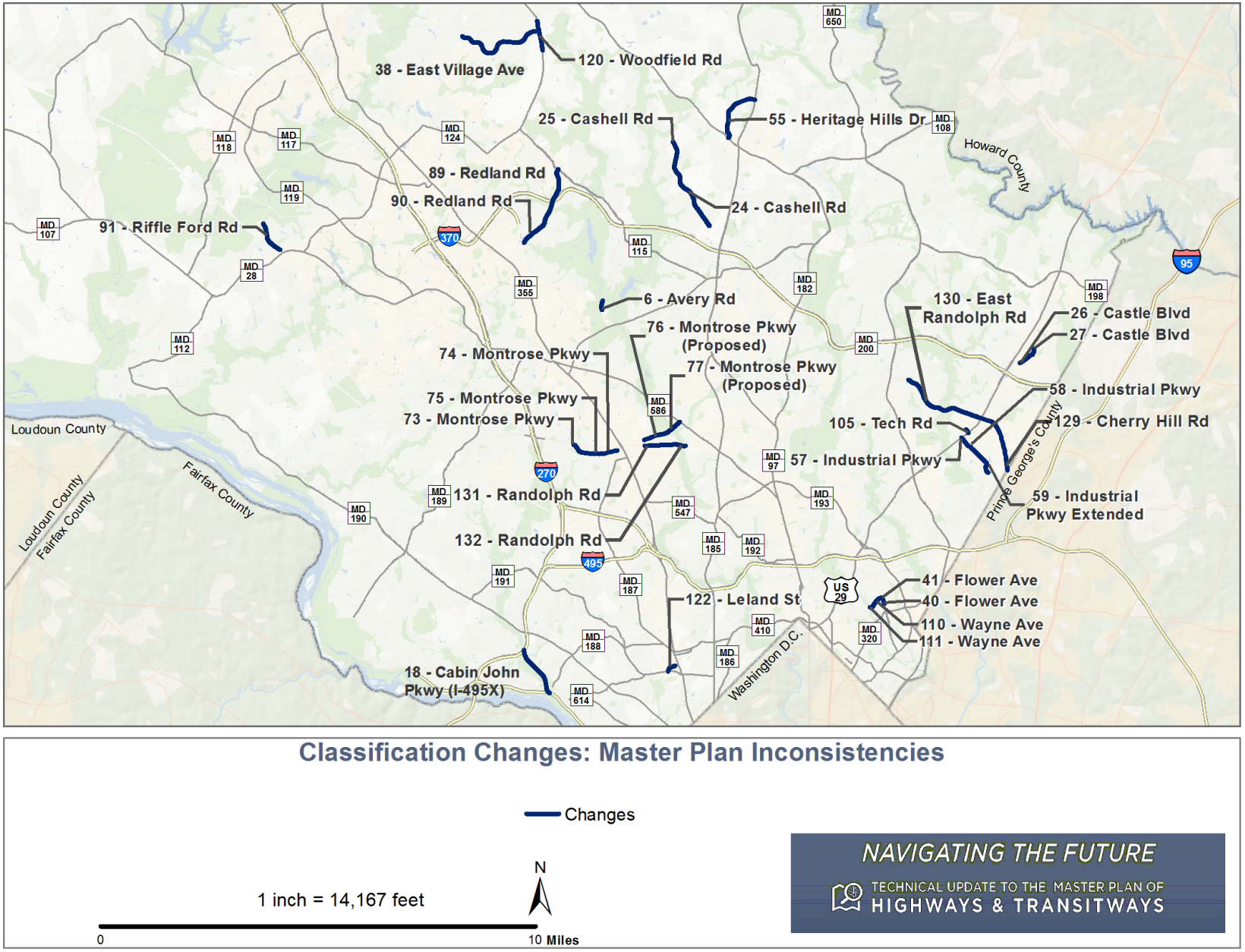

Figure 10: Classification Changes – Master Plan Inconsistencies

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 summarized in Table 12 and displayed in Figure 11.

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 Germantown 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 for safety reasons or consistent with the character of the road and the Country Arterial classification. While not identified as a safety concern by the Maryland Department of Transportation - State Highway Administration, this existing curve will continue to be a substandard condition. Efforts to improve the safety of this location should be considered in the future to improve visibility for all users.

Table 13: Re-Classification – Rural Boundary Modifications

ID	Name	From Location	To Location	Classification	Proposed Classification	Master Plan	Existing Lanes	Planned Lanes	Proposed Planned Lanes	Master Plan ROW Feet
12	Bordly Dr	Georgia Ave	Brighton Dam Rd	Primary Residential	Country Road	Olney	2	2	2	70
14	Brink Rd	Goshen Rd	Town of Laytonsville	Arterial	Country Arterial	Agriculture and Open Space	2	2	2	80
15	Brink Rd	Wightman Rd	Goshen Rd Extended	N/A	Country Arterial	MPOHT	2	2	2	80
29	Clopper Rd	Little Seneca Creek	Germantown Rds	Major Highway	Arterial	Boyds / Germantown	2	6	4	150

ID	Name	From Location	To Location	Classification	Proposed Classification	Master Plan	Existing Lanes	Planned Lanes	Proposed Planned Lanes	Master Plan ROW Feet
37	Dorsey Rd	Warfield Rd	Olney-Laytonsville Rd	Primary Residential	Country Road	Upper Rock Creek	2	2	2	70
48	Goshen Rd	Warfield Rd	Brink Rd	Arterial	Country Arterial	Agriculture and Open Space	2	2	2	80
49	Goshen Rd Extended	Goshen Mill Court	Brink Rd	Arterial (Planned)	Country Arterial (Planned)	Agriculture and Open Space	N/A	2	2	80
54	Hawkins Creamery Rd	Woodfield School Rd	Laytonsville Rd	Primary Residential	Country Road	Damascus	2	2	2	70
109	Warfield Rd	Woodfield Rd	Olney-Laytonsville Rd	Primary Residential	Country Arterial	Gaithersburg Vicinity / Upper Rock Creek	2	2	2	70
116	Whites Ferry Rd	Poolesville eastern boundary	Approx. 2000' east of Poolesville eastern boundary	N/A	Country Arterial	MPOHT	2	2	2	120
117	Whites Ferry Rd Relocated	Approx 2000' E of Poolesville boundary	Partnership Rd	Country Arterial (Planned)	To be removed from MPOHT	Agriculture and Open Space	N/A	2	2	120

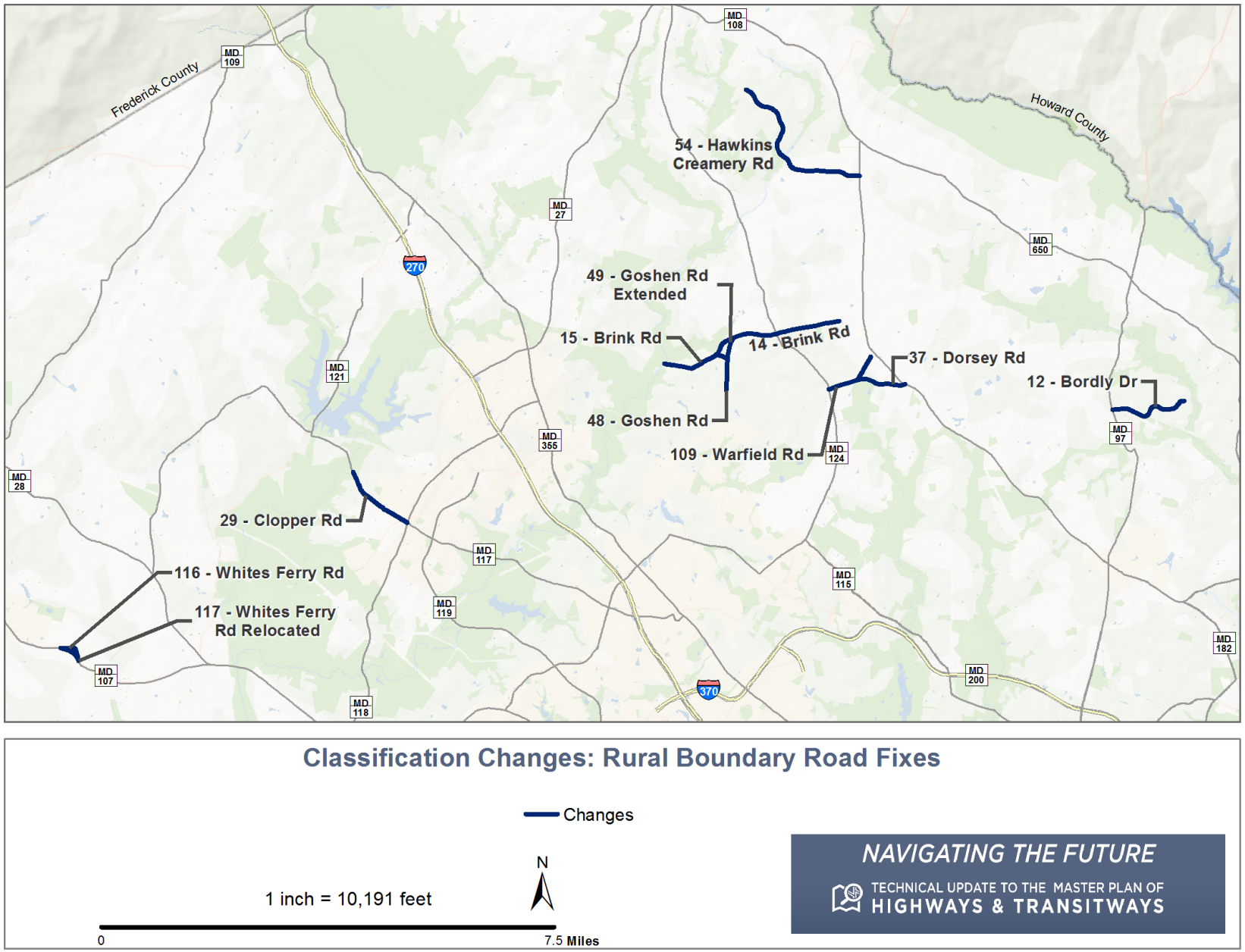

Figure 11: Classification Changes – Rural Boundary Modifications

Classification Changes on Major Highways

There are 10 classification changes on roads that are currently classified as a 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 classification changes. These changes are displayed in Figure 12.

Table 14: Re-Classification – Major Highways

ID	Name	From Location	To Location	Classification	Proposed Classification	Master Plan	Existing Lanes	Planned Lanes	Proposed Planned Lanes	Master Plan ROW Feet
32	Damascus Rd	Laytonsville Rd (MD 108)	2800' east of Woodfield Rd	Major Highway	Arterial	Damascus	2	2	2	120
33	Darnestown Rd	Whites Ferry Rd	Riffle Ford Rd	Major Highway	Arterial	Agriculture and Open Space	2	2	2	120
43	Germantown Rd	Great Seneca Creek (Southern Branch)	Great Seneca Creek (Northern Branch)	Major Highway	Arterial	Agriculture and Open Space	2	2-4	2-4	120
44	Germantown Rd	Darnestown Rd	Great Seneca Creek (Southern Branch)	Major Highway	Arterial	Potomac	2	2-4	2-4	120
45	Germantown Rd	Riffle Ford Rd	Richter Farm Rd	Major Highway	Arterial	Germantown (1989)	2	6D	4D	120
46	Germantown Rd	Great Seneca Creek (Northern Branch)	Riffle Ford Rd	Major Highway	Arterial	Germantown (1989)	2D	2-4	2-4	120

ID	Name	From Location	To Location	Classification	Proposed Classification	Master Plan	Existing Lanes	Planned Lanes	Proposed Planned Lanes	Master Plan ROW Feet
66	Laytonsville Rd	Damascus Rd	Rocky Rd	Major Highway	Arterial	Damascus	2	2	2	120
92	River Rd	Esworthy Rd	Riverwood Dr	Major Highway	Arterial	Potomac	2	2	2	150
93	River Rd	River Oaks Ln	Falls Rd	Major Highway	Arterial	Potomac	2	2	2	150
94	River Rd Relocated	Riverwood Dr	River Oaks Ln	Major Highway (Planned)	Arterial (Planned)	Potomac	N/A	2	2	150

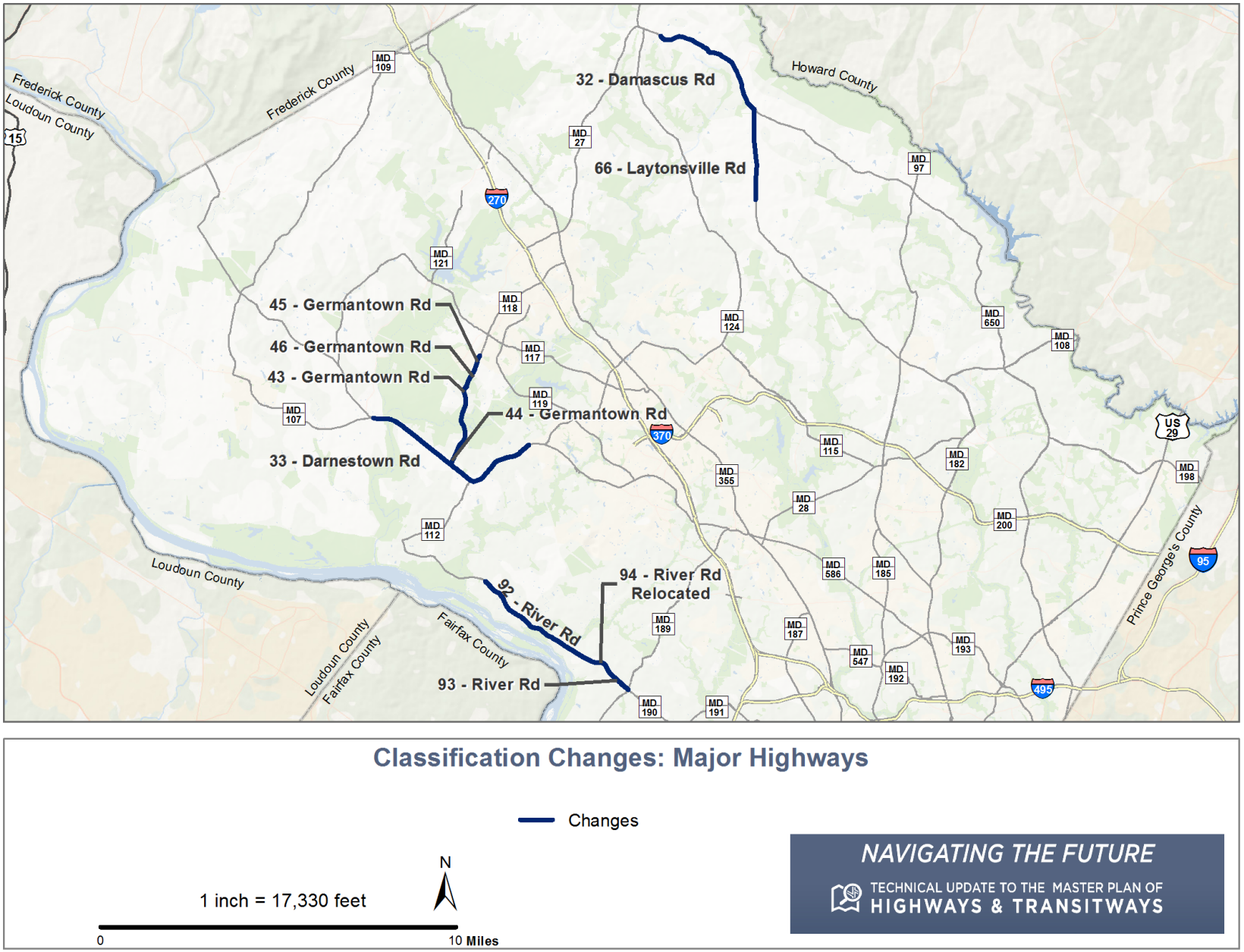

Figure 12: Classification Changes – Major and Controlled Major Highways

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 D 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.

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.

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.

Table 15 on the following page lists classification changes for master-planned streets within the Cabin Branch development. These changes are displayed in Figure 14.

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).

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. 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. 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. In the future, MCDOT should consider extending Whelan Lane to provide a more direct connection between Whelan Lane and Clarksburg Road.

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

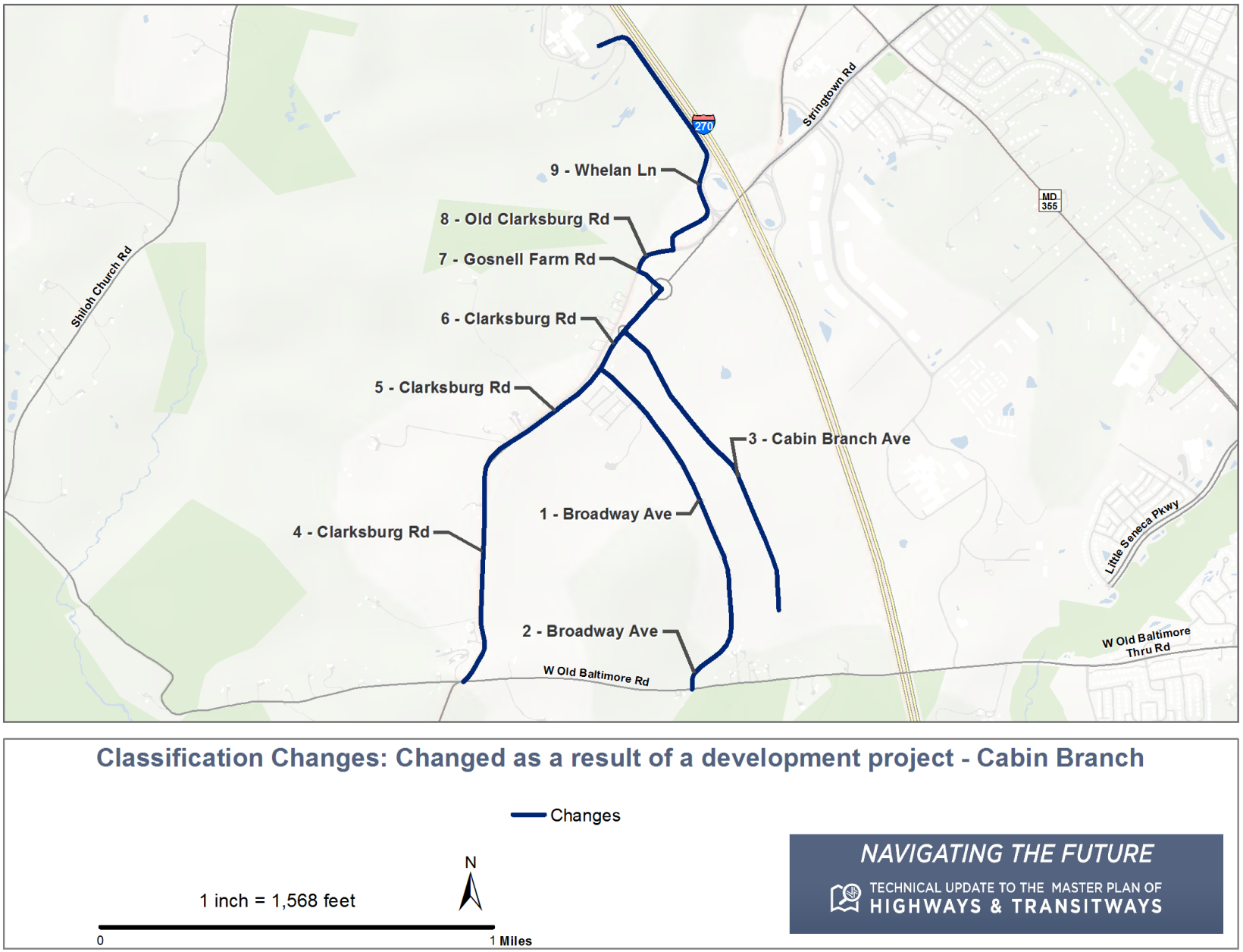

Figure 14: Cabin Branch Development – Master Plan Roads Modified

Highway Segments Removed 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.

Highway segments removed from the MPOHT are described below, summarized in Table 16 and displayed in Figure 15.

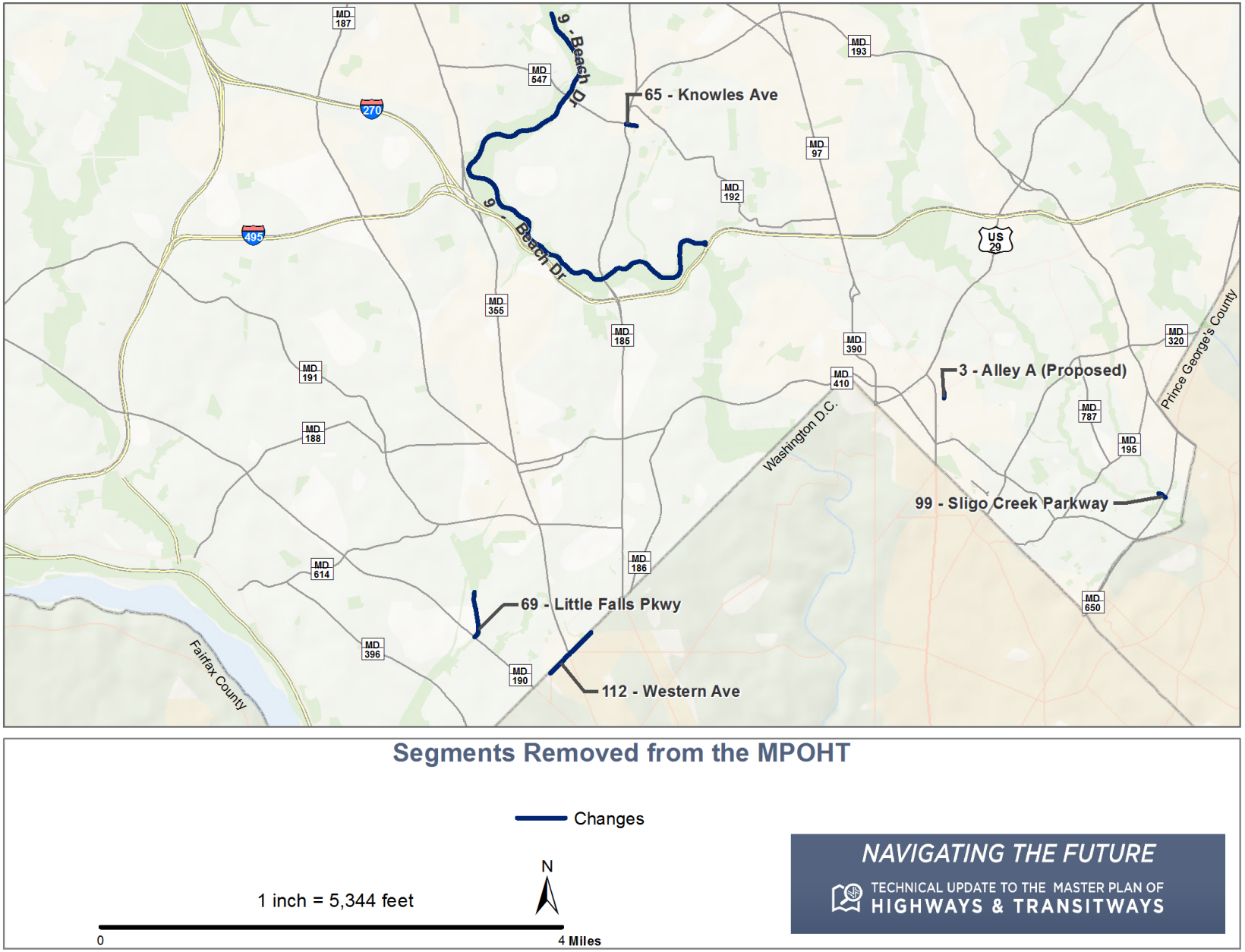

Figure 15: Segments Removed from the MPOHT

Table 16: Highway Segments Removed from the MPOHT

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

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 will 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 (see Appendix A for Interchange Table).

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	Pro-posed 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	Middlebrook Rd	Freeway with HOV Lanes	Germantown Employment Area Sector Plan (2009)	6D	12D	300	1 NB	2
I-270	Middlebrook Rd	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 Belt-way (I-495)	Freeway with HOV Lanes	North Bethesda-Garret Park/Potomac	6D	6D	300	2	2
I-270 Spur	I-270	Capital Belt-way (I-495)	Freeway with HOV Lanes	North Bethesda-Garrett Park/Potomac	6D	6D	300	2	2

Urban Road Code Boundaries and Bicycle-Pedestrian Priority Area Boundaries

New and Expanded Urban Road Code Areas and Bicycle-Pedestrian Priority Areas

The Master Plan of Highways and Transitways is an appropriate place for modifying Urban Road Code and Bicycle-Pedestrian Priority Area boundaries. In preparing the plan, a review of existing areas was conducted and potential modifications were identified for consideration with this technical update. These locations are summarized in Table 18 and displayed in Figures 16 through 19. The intent of any change was to make these boundaries consistent with existing or planned urban character, including zoning.

Table 18: Changes to Urban Road Code (URC) and Bicycle-Pedestrian Priority Area (BPPA) Boundaries

New or Revised Area	Master Plan	Change
Burtonsville	Burtonsville Crossroads	New Area
Kensington	Kensington Sector Plan	New URC Area and Expanded BPPA Area
Langley Crossroads	Takoma Langley Crossroads	New Area
Cabin Branch	Clarksburg/Ten-Mile Creek	New Area
Chevy Chase Lake	Chevy Chase Lake	New 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 Universities at Shady Grove campus

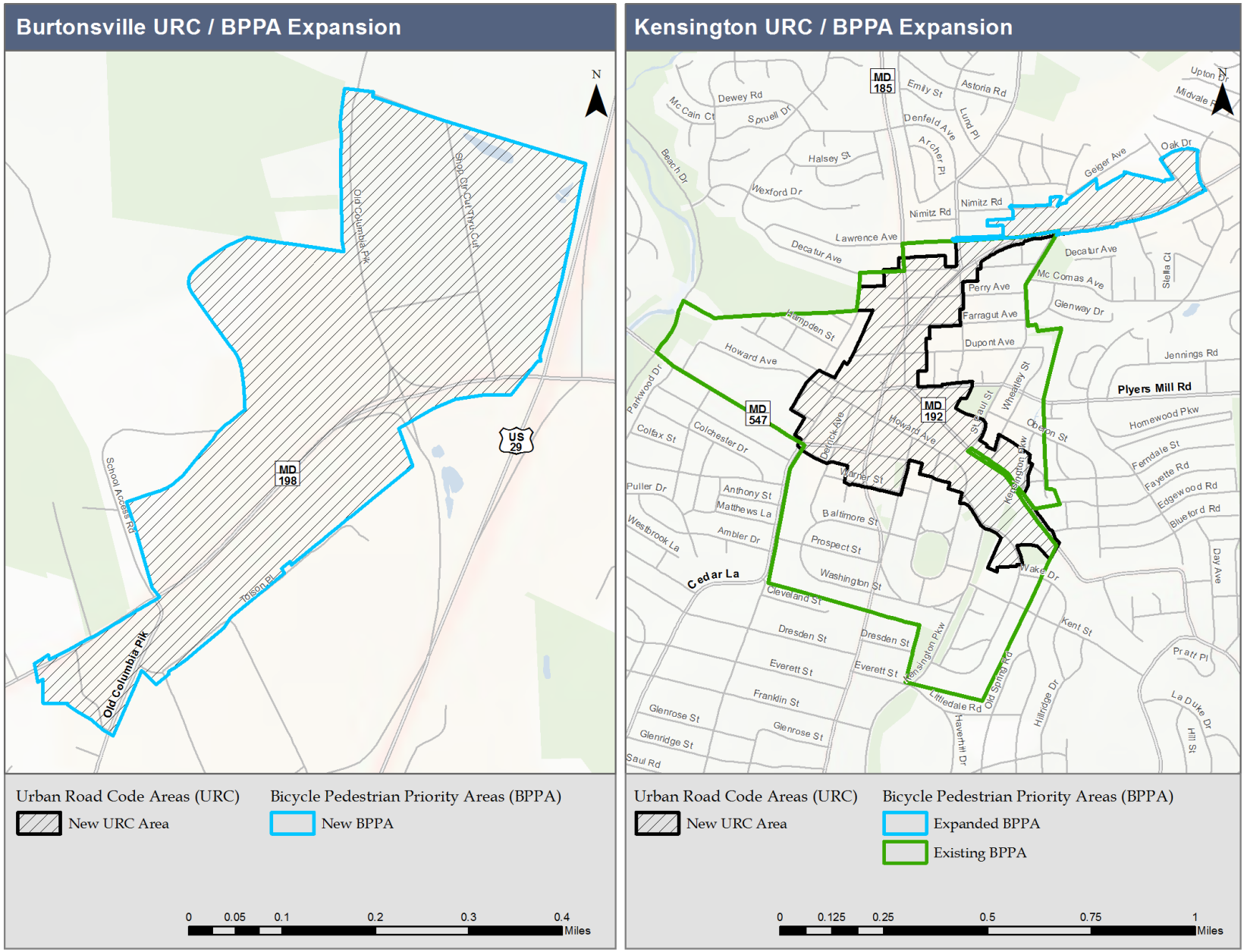

Figure 16: Burtonsville and Kensington URC/BPPA Expansions

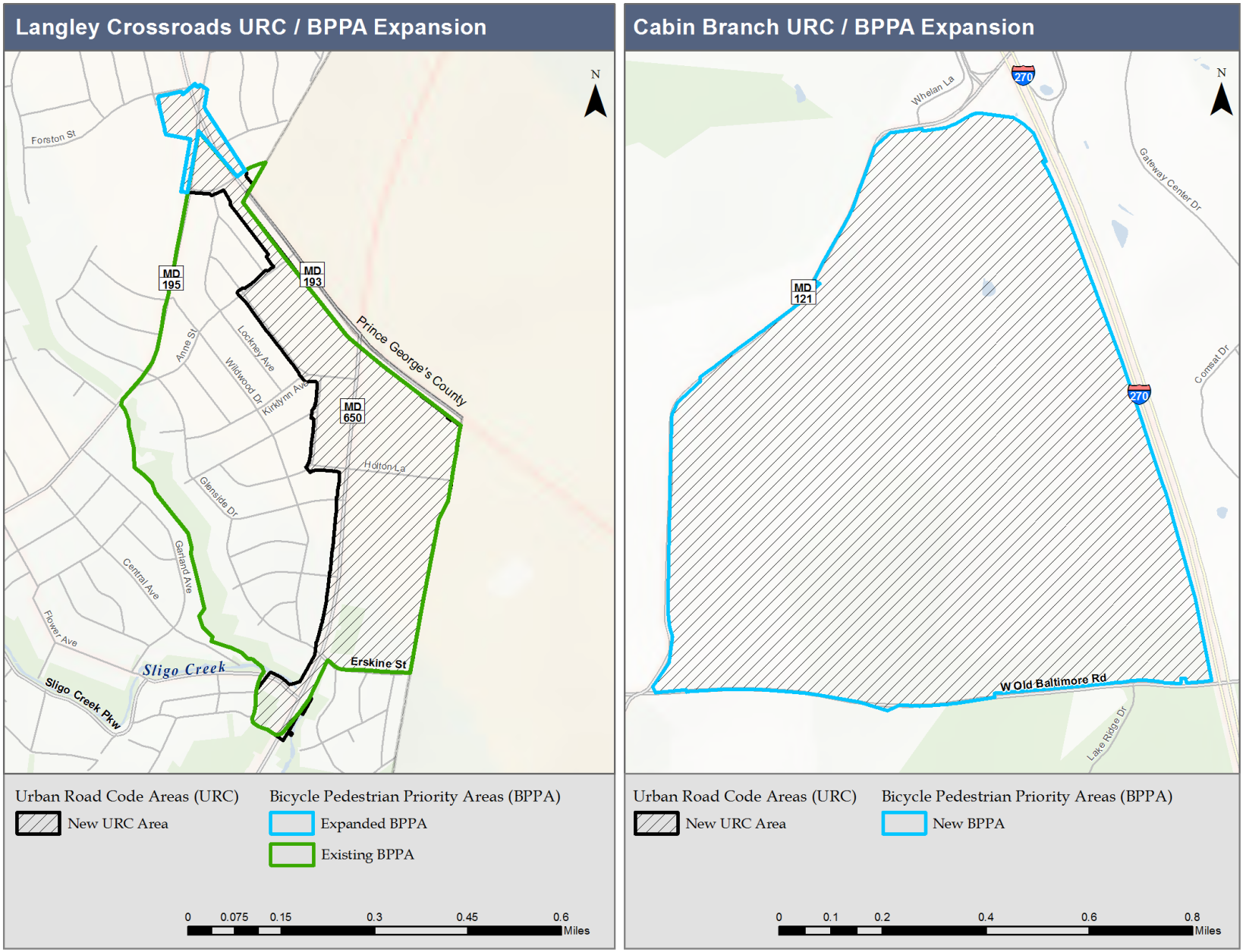

Figure 17: Langley Crossroads and Cabin Branch URC/BPPA Expansions

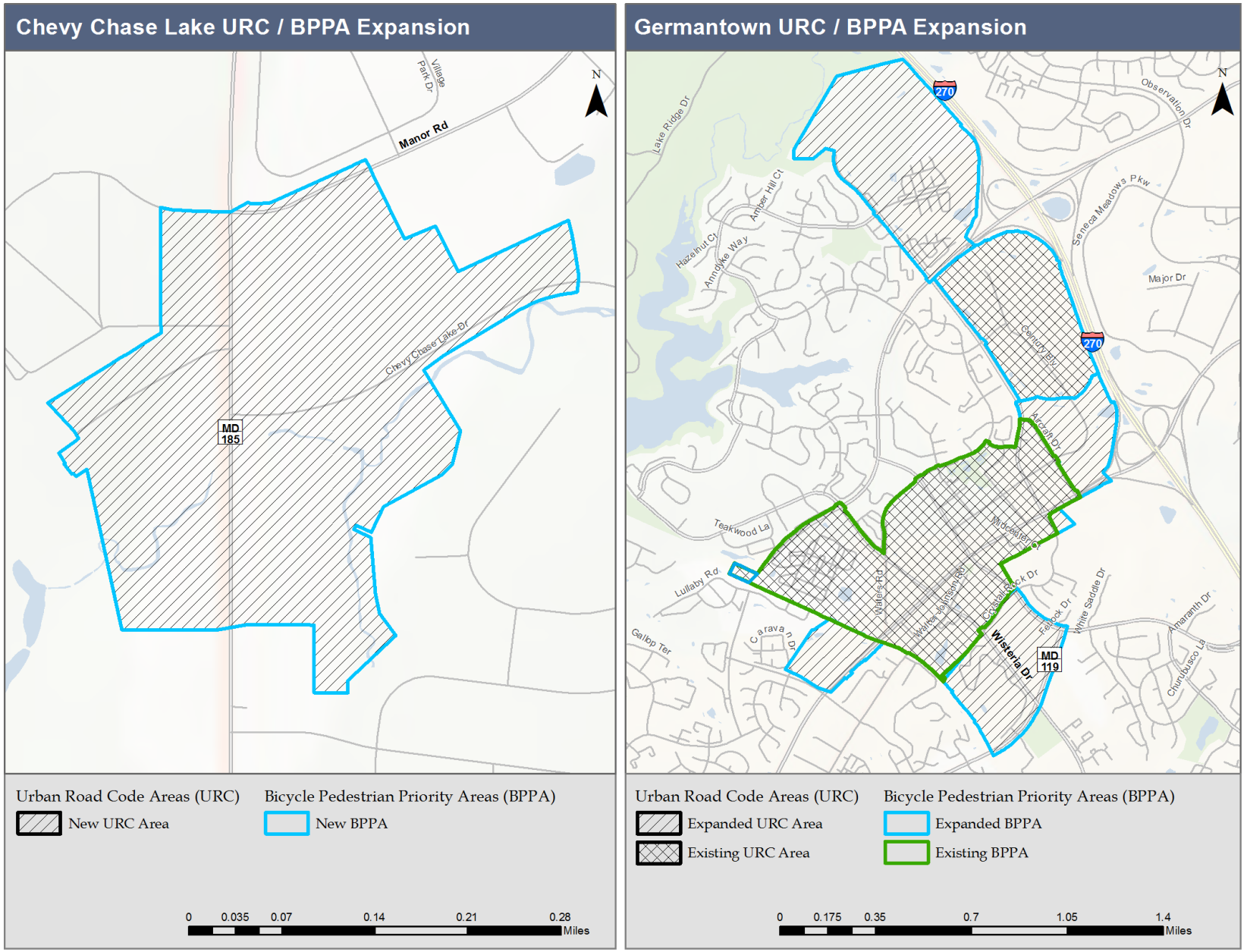

Figure 18: Chevy Chase Lake and Germantown URC/BPPA Expansions

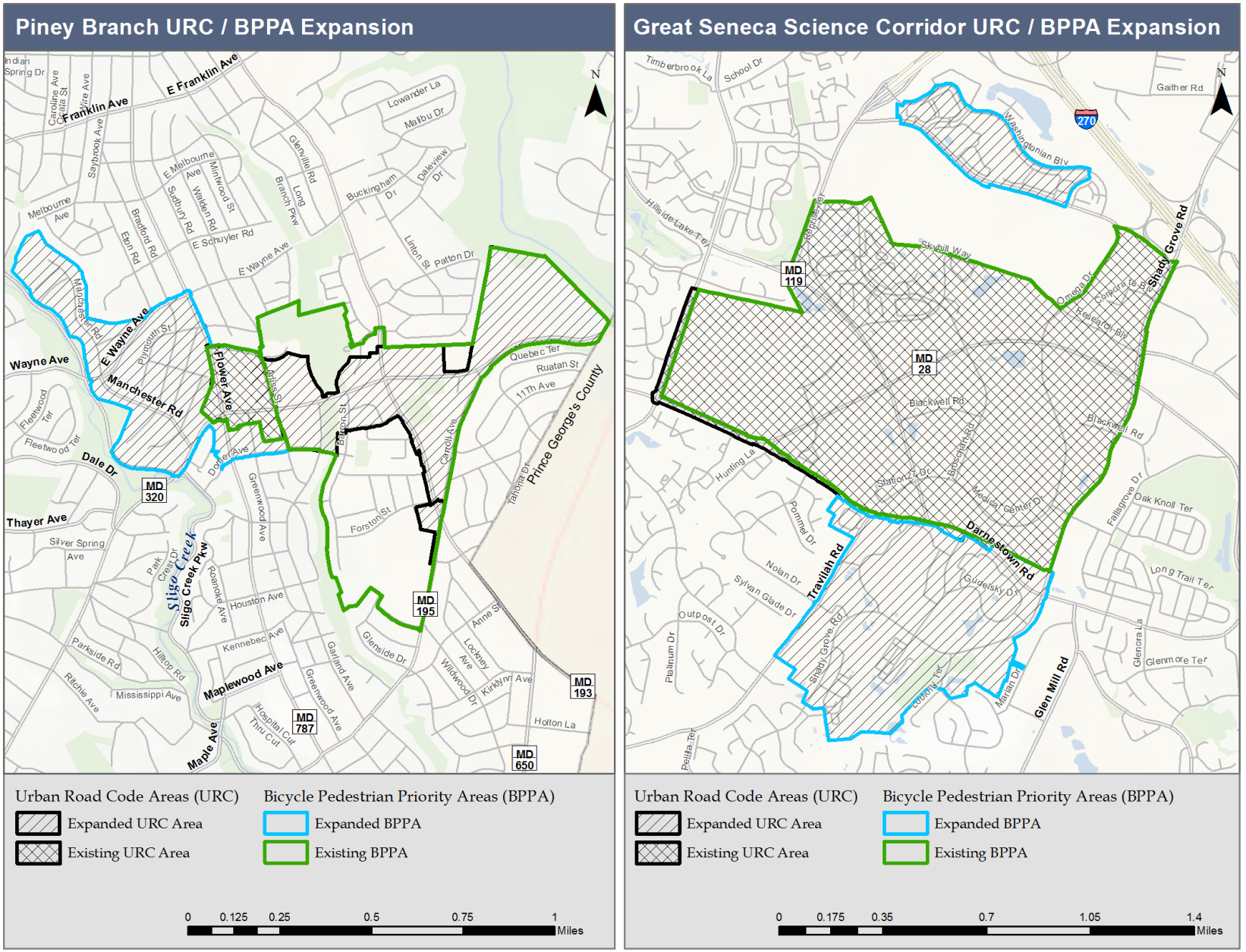

Figure 19: Piney Branch and Great Seneca Science Corridor URC/BPPA Expansions

Each 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 and expanded BPPA 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 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 and BPPA 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 and BPPA 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 and BPPAarea 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 and BPPAArea is quite small. With the construction of the Purple Line, the recommendation for this area is to expand boundaries significantly to the east and west.

Great Seneca Science Corridor - The boundaries of the existing Urban Road Code and BPPA should be expanded slightly by including the Universities at Shady Grove campus.

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 19 contains a summary of road mileage by classification where 25 mph target speeds will 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 180 road segments were identified with a combined mileage of 49.3 miles. These segments represent 4.2 percent of the total road mileage in the MPOHT. A detailed table and maps summarizing these locations is provided by Urban Road Code area in Appendix E.

Table 19: Urban Road Code- Designation of 25 mph Target Speed

Classification	Existing Urban Road Code Miles	Proposed Urban Road Code Miles	Total Miles
Arterial	11.6	2.7	14.3
Arterial (Planned)	1.6	0.3	1.9
Arterial (Planned) with planned BRT	1.0	0.0	1.0
Arterial with planned BRT	3.0	0.0	3.0
Business	14.2	0.0	14.2
Business (Planned)	5.8	0.0	5.8
Business with planned light rail	0.2	0.0	0.2
Major Highway	1.9	0.0	1.9
Major Highway with planned BRT	0.7	0.0	0.7
Primary Residential	3.8	0.6	4.4
Primary Residential (Planned)	0.4	0.0	0.4
MPOHT additions	0.4	1.0	1.4
Grand Total	**44.2**	**3.6**	**49.3**

Greenhouse Gas Emissions Analysis

Montgomery County enacted a law (Bill 32-07) in 2008 to require the formulation of a plan to stop increasing greenhouse gas (GHG) emissions by the year 2010 and reduce emissions to 20 percent of 2005 levels by the year 2050. A subsequent Montgomery County law (Bill 34-07) requires the Planning Board to estimate the carbon footprint of master plan recommendations and to make recommendations for carbon emissions reductions.

In June 2017, Montgomery County reaffirmed its commitment to meeting the goals of the 2016 Paris Climate Agreement. In addition, the county endorsed the goals of the Under2 Coalition MOU, a memorandum of understanding signed by 12 jurisdictions in 2015. The county's action aims to reduce greenhouse gas emissions 80 to 95 percent below 1990 levels or limit emissions to less than two metric tons per capita by 2050 (Montgomery County Council Resolution 18-846).

In December 2017, Montgomery County adopted Resolution 18-974 to accelerate the county's efforts to decrease greenhouse gas emissions by committing to a reduction of 80 percent by 2027 and reaching 100 percent elimination by 2035. The resolution initiates large-scale efforts to remove excess carbon from the atmosphere. The primary emission of interest is carbon dioxide.

The Montgomery County Planning Department uses a spreadsheet developed by King County, Washington and adapted for use in Montgomery County, Maryland to estimate the carbon footprint of recommendations in the County's master plans. To project total emissions for a master plan, the spreadsheet model considers embodied energy emissions, building energy emissions, and transportation emissions.

The model documentation defines embodied emissions as "emissions that are created through the extraction, processing, transportation, construction and disposal of building materials as well as emissions created through landscape disturbance" (by both soil disturbance and changes in above ground biomass). Building energy emissions are created in the normal operation of a building including lighting, heating cooling and ventilation, operation of computers and appliances, etc. Transportation emissions are released by the operation of cars, trucks, buses, motorcycles, etc. Vehicle Miles Traveled (VMT) is the primary factor driving changes in transportation emissions.

The spreadsheet model is run for existing conditions, then run again to get projected emissions that will result from the development proposed by the master plan. In the Technical Update to the Master Plan of Highways and Transitway, no new facilities are being proposed, so there will be no change in embodied emissions. The MPOHT deals with roadways and transitway, not buildings, so there is no emissions contribution from building energy. For determining transportation emissions, the methodology examines the vehicle miles traveled (VMT) reduction estimates generated from the long-range plan forecast. The VMT are then converted to gallons of gasoline burned and carbon dioxide equivalent amounts (CO2e) based on factors used in the King County, Washington Greenhouse Gas Emissions Worksheet version 1.7.

The MPOHT Technical Update was developed based on a composite of transportation recommendations from all active and adopted Master Plans within Montgomery County. The proposed technical changes, including re-classification of streets and designation of new Urban Road Code Areas, are not projected to create either increases or reductions in vehicle miles traveled. (VMT). Therefore, the total greenhouse gas (GHG) emissions change as a result of this technical update is negligible.

TECHNICAL UPDATE TO THE MASTER PLAN OF

HIGHWAYS & TRANSITWAYS

APPROVED & ADOPTED | DECEMBER 2018

MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION