ADVANCING THE PIKE DISTRICT

STREETSCAPE GUIDELINES

November 2021

Montgomery Planning
MONTGOMERYPLANNING.ORG

ABSTRACT:

The Pike District Streetscape Guidelines will be used to guide the transformation within the White Flint Special Taxing District by providing recommendations for the design of all public and private streets. The guidelines are based on an existing conditions analysis, stakeholder feedback and current best practices for creating safe and attractive streets with multimodal connectivity. Streetscape guidelines help provide information about how the various components of streets such as travel lanes, sidewalks, street trees, bicycle and transit facilities should be organized. They provide overall guidance as well as context-based recommendations for specific streets. Design guidelines are approved by the Montgomery County Planning Board for use by public entities and developers in preparing design proposals, and planners and the Board in reviewing them. These guidelines may need to be reviewed and updated by the Planning Board as best practices and conditions evolve over time.

SOURCE OF COPIES:

The Maryland-National Capital Park and Planning Commission
2425 Reedie Drive, Wheaton, MD 20902
The ***White Flint Urban Design Guidelines*** are available online at:
https://montgomeryplanning.org/wp-content/uploads/2019/03/WF2RSDG_Master_Plan_Book_ApprovedAdopted_2019-07-18_web.pdf
The 2010 ***White Flint Sector Plan*** is available online at:
http://www.montgomeryplanning.org/community/whiteflint/documents/WhiteFlintSectorPlanApprovedandAdopted_web.pdf/
The 2018 ***White Flint 2 Sector Plan*** is available online at:
https://montgomeryplanning.org/wp-content/uploads/2018/10/2018-White-Flint-2-Sector-Plan-Final-Document_WEB-compressed.pdf

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CHAPTER 1:
INTRODUCTION

A symbiotic relationship exists between land use and street vibrancy. Engaging land uses bring people to a street, and well-designed streets entice people into the adjacent restaurants, shops, offices, and housing. A great street is a place where people want to live, work, visit with friends, shop, and spend time. It is equal parts transportation infrastructure and an active public space. Throughout the world, walkable and bikeable streets serve as economic engines for successful communities. The Pike District Streetscape Guidelines are prescribed to ensure that streets in the Pike District are developed in a manner that adequately accommodates all modes and users–pedestrians, cyclists, public transit, and motorists–in a safe and attractive environment. The Pike District is an emerging, mixed-use district that has experienced significant private investment since the adoption of the ***White Flint Sector Plan*** in 2010. This investment has prompted an increase in the number of residents, workers, and visitors in the area. Newer developments such as Pike & Rose and NoBe Market serve as established benchmarks, demonstrating how successful streetscapes can be developed. The goal of these Guidelines is to complement these existing high-quality streetscape environments by providing direction for future development and ensure the creation of one unified and distinct place. The Guidelines are organized under the following overarching objectives:

- Create a walkable and bikeable urban environment to support economic development
- Implement Vision Zero in the Pike District for the safety of all road users
- Provide clear guidance for public infrastructure and private development projects
- Enhance the identity of the Pike District through placemaking and interim streetscape improvements

APPLICABILITY

The Guidelines apply to the geographic area contained within the White Flint Special Taxing District, which includes the entire 2010 ***White Flint Sector Plan*** area and several properties from the 2018 ***White Flint 2 Sector Plan*** area, located west of Old Georgetown Road and Towne Road. Presently, no streetscape guidelines or standards direct the design and implementation of streets in the Pike District. Several developments utilized and incorporated design guidance from streetscape plans in downtown Bethesda, including the Bethesda Streetscape Plan Standards for the Metro Core District (adopted in 1992), and the 2017 Bethesda Design Guidelines. Updated streetscape standards were approved for Bethesda in 2020, in coordination with the adoption of the Bethesda Downtown Plan. Other developments have used a combination of standard Montgomery County Department of Transportation specifications and design exceptions on a case-by-case basis.

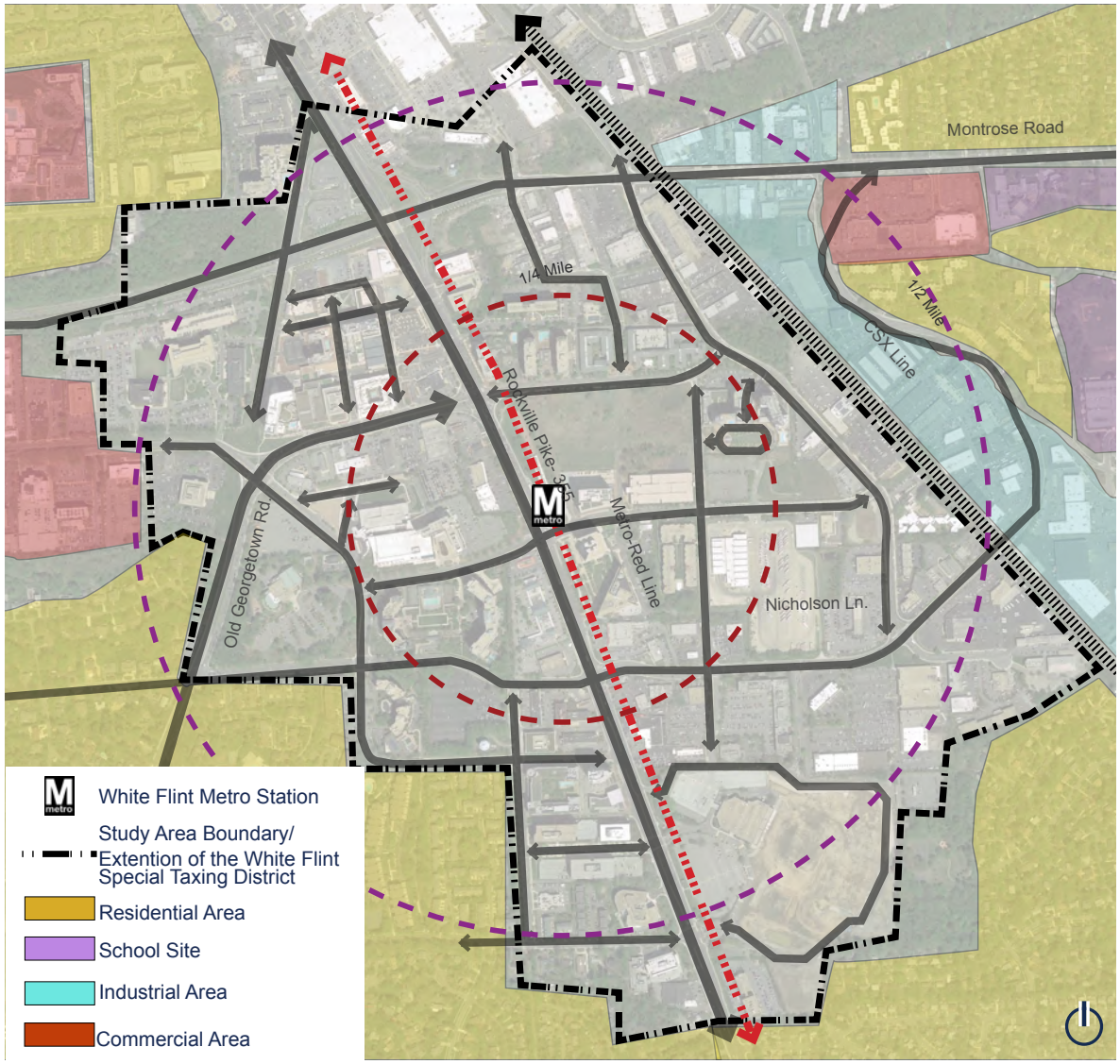


Figure 1: Map of the Advancing the Pike District study area, which mirrors the extent of the White Flint Special Taxing District.

COMPATIBILITY WITH EXISTING PLANS

These Guidelines incorporate recommendations from the 2010 ***White Flint Sector Plan***, 2018 ***Bicycle Master Plan***, and the 2021 Complete Streets Design Guide (CSDG). The CSDG develops a new approach to designing county roads, providing roadways that are created and operated to provide safe, accessible, and healthy travel for all users of the roadway system, including pedestrians, bicyclists, transit riders, and motorists. Street classifications reflect the updated terminology introduced by the CSDG, which was approved by the Planning Board in the fall of 2021 and is expected to lead to an overhaul of the County's roadway design standards.

These Guidelines provide a range of strategies to appropriately meet the intent of recommendations of the underlying plans. The Guidelines are not rigid requirements but are intended to clearly establish streetscape expectations for applicants and provide Montgomery Planning staff and the Planning Board with a framework to direct future development in the Pike District. Design proposals and alternative solutions will be evaluated during the development review process based on the surrounding context, site conditions, and ways in which the projects address applicable plan goals and the intent of the streetscape guidelines.

STRUCTURE AND APPLICATION

The Pike District Streetscape Guidelines document is organized into the following chapters:

Existing Conditions

Summarizes the general characteristics of existing sidewalks, paving, street tree plantings, street furnishings and transit facilities. Consult this chapter for overarching objectives for street design and to identify the applicable street typology. Ensure the recommended right-of-way per the applicable Sector Plan exists or is dedicated for the street.

Streetscape Concept

This chapter defines the overarching objectives and describes the concept of “Simply Sustainable” streetscapes.

Streetscape Elements

This chapter provides detailed recommendations for assembling the various components of street design. New developments and capital improvement projects in the Pike District are recommended to apply the palette of streetscape elements outlined within this chapter.

Street Sections

The street sections detailed in this chapter illustrate how the various recommendations from applicable documents and the desired elements of street design can be accommodated within the prescribed rights-of-ways for public and private streets.

PROCESS AND SCHEDULE

The Montgomery County Planning Department undertook an inclusive outreach process to develop these Guidelines. Following an existing conditions analysis, site visits, and a walking tour with stakeholders, the Planning Department hosted virtual meetings and presentations with property owners and developers, representatives of community organizations (Friends of White Flint and the Randolph Civic Association), and applicable County and State agencies to receive ideas, comments, and feedback on these Guidelines. Additionally, the project team conducted a virtual open house for community members to review and comment on these Guidelines in the fall of 2021.

Stakeholders expressed a broad consensus that a safer and more attractive pedestrian environment is a critical missing piece for the success of the Pike District. Residents desire enhanced pedestrian crossings and sidewalks, especially crossing Rockville Pike (MD 355). Wide support also exists for the continued addition of separated and protected bicycle lanes, to allow for bicycle access between major destinations in the Pike District.

Property owners greatly value the need for attractive and functional pedestrian facilities that connect various developments and boost the attraction of the area for potential investors.

Community members and stakeholders support integrating elements and components of street design to create safe and attractive walking environment and to convert the District into an interconnected urban destination. As such, streets should be considered a livable public space where people are encouraged to gather, dine, play, and linger. Above all, they must be accessible to everyone, accommodate multimodal transportation, embrace technology, and support a robust economy and diverse ecology.

Figure 2: Community members were consulted regularly throughout the planning process, including virtual meetings in partnership with the Friends of White Flint.

Figure 3: Staff and stakeholders conducted a walking tour of the Pike District in 2020.

DISTRICT-WIDE DEVELOPMENT

The 2010 ***White Flint Sector Plan*** spurred creation of multiple high-density, mixed-used developments, such as Pike & Rose, North Bethesda Town Center, and NoBe Market.

Sketch Plans have been approved for multiple large, underutilized sites in the last two years, including VOB-Grand Park and Rose Village.

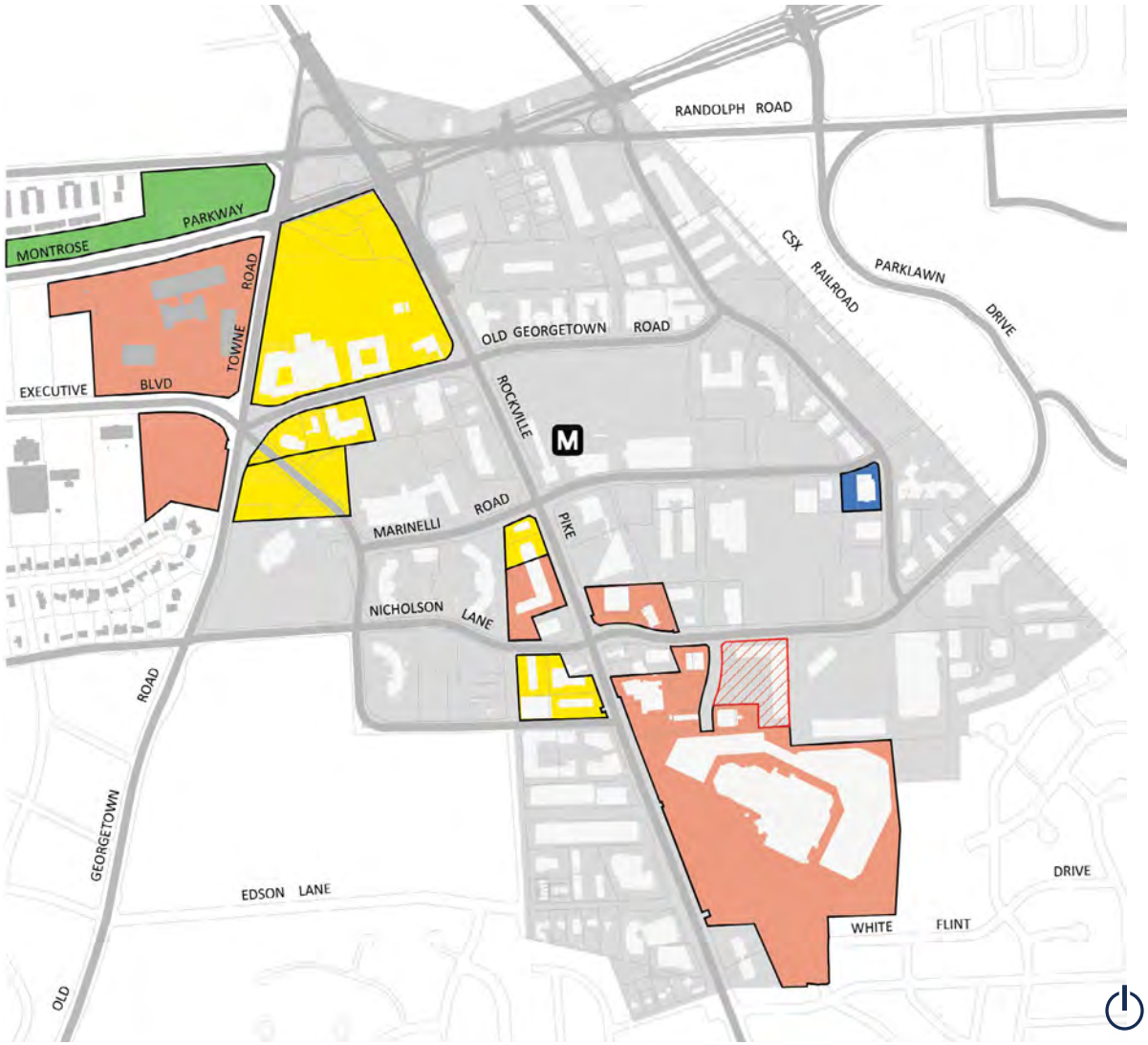


Figure 4: Map illustrating developments in the Pike District being constructed or with active development approvals, as of November 2021.

Figure 5: Pike & Rose, North Bethesda Town Center, and NoBe Market have resulted in the creation of high-quality and active streetscapes, but no consistent set of guidelines or standards exists for the Pike District.

CHAPTER 2:
EXISTING CONDITIONS

Despite incremental development over the last decade, the Pike District lacks a unifying streetscape character, as well as a general lack of street trees, site furnishings, and streetscape activation. These guidelines will provide recommendations as to how the public realm can contribute to the overall safety, vibrancy, and economic vitality of the Pike District, and establish a defined vision for how the District's streetscape character will evolve as development intensifies. This process started with a review of the existing conditions.

Several new developments in the District, such as Pike & Rose and NoBe Market, feature high-quality, active streetscape environments. Several 10+ acre sites remain vacant or underdeveloped, which affords an opportunity to improve the pedestrian realm within the District through redevelopment. As these sites redevelop, the adjacent streetscapes will be enhanced, resulting in greater connectivity between mixed-use hubs and major destinations.

The existing and future street network encompasses a variety of conditions including varying roadway rights-of-ways, configurations, and adjacent land uses. Several key corridors, such as Rockville Pike and Old Georgetown Road are owned by the Maryland Department of Transportation State Highway Administration (SHA). As a result, planning and operations on these corridors requires close coordination with SHA. Lastly, the future bus rapid transit (BRT) route along Rockville Pike will change the function and aesthetic of this critical north-south corridor. These guidelines recognize the opportunity to evolve Rockville Pike into a "place" that is attractive for a wide range of users, and to spur additional economic development by improved multimodal access. The following chapter summarizes the existing streetscape conditions in the Pike District.

STREETS

A hierarchical street network in the Pike District accommodates local and thru circulation. The ***White Flint Sector Plan*** categorizes existing and future streets into four classifications: major highway, arterial, business, local. Major highways and arterials such as Rockville Pike and Nicholson Lane convey higher levels of thru traffic: in 2019, the annual average daily traffic (AADT) was 55,191 on Rockville Pike and 20,002 on Nicholson Lane. Narrower streets such as Citadel Avenue and Woodglen Drive serve primarily as links between local developments and destinations. Several streets feature inadequate pedestrian facilities, with narrow sidewalks, limited or no street buffers, adjacent to fast-moving vehicular traffic. Uncomfortable pedestrian environments, coupled with a lack of amenities such as landscaping, seating and public art, provide few incentives for people to walk or spend time outside their cars, limiting the patronage of local businesses.

The ***White Flint Sector Plan*** recognizes that urban corridors should be treated as important extensions of the public realm and not only as conduits for vehicles. Rockville Pike is a major north-south gateway corridor that is planned to be transformed into a major transit, bike, and pedestrian-oriented corridor. Nicholson Lane and Montrose Parkway are major east-west connectors that tie the district to adjacent residential neighborhoods and provide regional access into the Pike District. The Sector Plan also establishes a framework for the evolution of a robust street network in the Pike District. An interconnected network of business and local streets is planned, many of which will be designed and built as new development occurs. Several secondary streets have been constructed since the Sector Plan's adoption, including Chapman Avenue, Grand Park Avenue, and Banneker Avenue. Additionally, the Sector Plan provides recommendations for the expansion of existing roadway rights-of-ways and reconfiguration of streetscape zones.

These guidelines incorporate standards provided by the 2021 Complete Streets Design Guide (CSDG). Complete streets are roadways that are designed and operated to provide safe, accessible, and healthy travel for all users of the roadway system, including pedestrians, bicyclists, transit riders, and motorists.

The CSDG was produced by Montgomery Planning and MCDOT and provides policy and design guidance on the planning, design, and operation of county roadways and will be used in the following situations:

- When designing future streets or reconstructing streets in an area experiencing redevelopment
- When implementing a capital improvement project, such as the construction or reconstruction of a street, intersection, or bridge, and
- When resurfacing a street or conducting major work in the street, which may create an opportunity to reconsider some aspects of the street's design.

Figure 6: Separated bike lanes on Nebel Street provide a safe north/south connection for people biking and slows vehicular traffic.

Legend:

- Existing Highway
- Existing Arterial
- Existing Business
- Existing Local Street
- Proposed Business
- Proposed Local Street

Figure 7: The White Flint Sector Plan proposed an enhanced grid network to diffuse congestion on arterial streets. The recommended street network includes business district streets and a finer grained system of local connections, including private streets within large mixed-use developments to provide for more direct vehicular and pedestrian circulation.

STREETSCAPE AND PUBLIC REALM CHARACTER

Overall, the public realm in the Pike District is eclectic and includes character-defining elements such as trees, lighting, public art, and a mix of adjacent land uses. Beyond the immediate pedestrian realm, existing buildings provide important "street walls" creating a rhythm of storefronts and open spaces. This is particularly evident at newer developments such as Pike & Rose, NoBe Market, and North Bethesda Town Center, which serve as important nodes within the district.

The Pike District's lack of unifying streetscape elements represents the neighborhood's gradual evolution over the last few decades. The incremental delivery of infrastructure has resulted in piecemeal upgrades to pedestrian connections, with older segments often being obstructed by utility poles, signage, furnishings, and bus stops located within the pedestrian zone. This makes walking unsafe and unpleasant, particularly for mobility impaired individuals. Numerous curb cuts along highways and arterials within the District increase potential conflicts between pedestrians, bicyclists, and vehicles. In some areas of the District, street lighting is poor, which leads to perceived unsafe environment at night. Existing overhead utility poles and wires introduce visual clutter and are safety hazards during fire emergencies or severe weather. Outdated and unattractive furnishings such as old benches, trash receptacles, light fixtures, and transit shelters are uninviting to patrons and detract from the overall quality of place.

Figure 8: Streetscapes for NoBe Market and North Bethesda Town Center are based upon the outdated Bethesda Streetscape Standard.

Figure 9: Pike & Rose features an organically designed streetscape, with artistic elements incorporated in paving, public open spaces, and building murals.

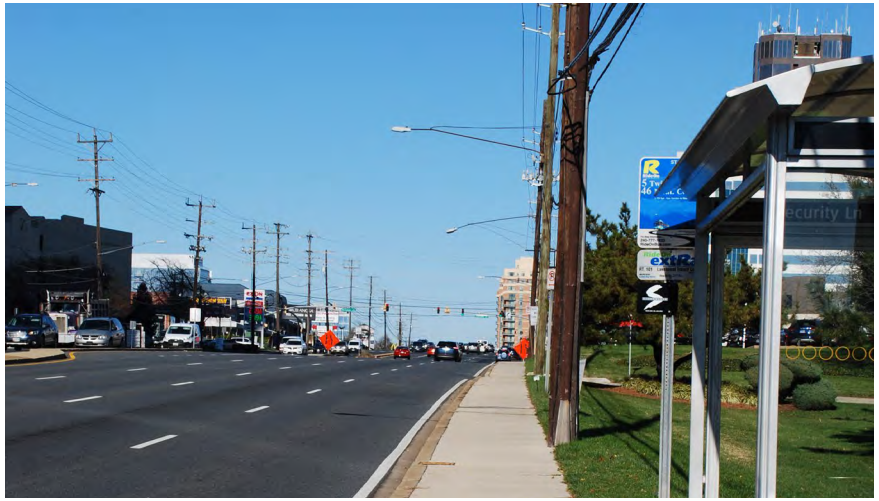


Figure 10: Rockville Pike (Highway)

Figure 11: Marinelli Road (Business)

Figure 12: Nicholson Lane (Arterial)

Figure 13: Trade Street (Local)

PAVING CHARACTER

Pavement materials and characteristics vary widely within the Pike District, which reflects the lack of a guiding document to regulate the development of the pedestrian realm. Streetscapes in developments constructed since the adoption of the Sector Plan in 2010 are high-quality but vary in design and application. Pike & Rose features a unique streetscape environment that includes a mix of paving patterns and types, a continuous canopy of street trees, beautifying understory plantings, activating street furnishings, and public art, which provides visual interest and orientation.

In addition, NoBe Market and the North Bethesda Town Center also feature high-quality streetscape environments utilizing older streetscape standard from downtown Bethesda which include red brick sidewalks, cobblestone accents, traditional light fixtures, and street furnishings. In between these developments, the paving materials and designs are more standard in character, typically defined by poured-in-place concrete sidewalks, lighting, and sporadic street trees.

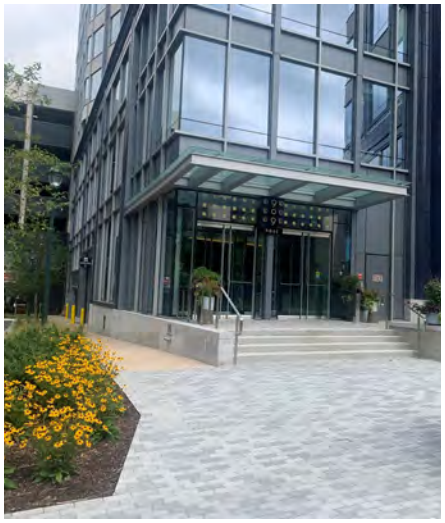


Figure 14: Recent mixed-use developments in the Pike District utilize a broad palette of paving materials and styles.

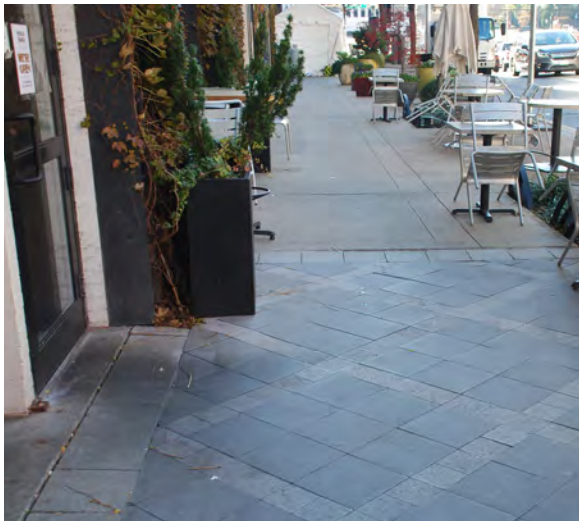


Figure 15: Paving at Pike & Rose clearly demarcates transitions between the street and frontage zone.

Figure 16: North Bethesda Town Center features brick pavers, which was a hallmark of the older Bethesda Streetscape Standards.

Figure 17: MCDOT prefers poured concrete sidewalks given their low cost and maintenance.

STREET TREES AND LANDSCAPING

Street trees are a major character-defining element, contribute to pedestrian comfort and the overall sense of place, and reduce the heat island effect. Throughout the district, street trees are planted in a variety of conditions that feature elements such as understory plantings, tree grates, and even cobblestones within tree pit openings. Understory vegetation often includes sod, ornamental grasses, perennials, and shrubs. In several instances, tree pits have been stripped of their understory plantings and replaced with mulch or gravel.

Trees also provide rhythm and vertical form. Where continuous plantings of street trees exist, they are often planted 30'-50' on-center which allows for a continuous canopy of shade along sidewalks. The Sector Plan sets a goal of increasing the tree canopy for the area from 10.5% to 20%, primarily through streetscaping and tree plantings in public open space.

Figure 18: Regularly spaced street trees with understory plantings contribute significantly to pedestrian safety and comfort.

Figure 19: Open Continuous Planting Area (Pike & Rose, Rose Avenue)

Figure 20: Planting Area with Cobblestone (Old Georgetown Road)

Figure 21: Lawn Verge, Single Row (Executive Boulevard)

Figure 22: Tree Grate with Continuous Planting Area (Market Street)

Figure 23: Allee, Double Row (Rockville Pike)

Figure 24: Tree Grate in Hardscape (Prose Street)

MOBILITY AND CIRCULATION

The 2010 ***White Flint Sector Plan*** places a strong emphasis on establishing an interconnected street network and converting Rockville Pike into a multimodal boulevard. An interconnected street grid will allow for better traffic flow and improve pedestrian and bicycle access, enabling local trips to be made without relying on a personal vehicle.

The White Flint Metro Station is a key destination in the Pike District. Sidewalk improvements are being implemented in 2021-2022, to enhance pedestrian connections to the Metro Station; sidewalks north of the station on Rockville Pike are being widened, landscaped buffers are being added to provide separation from vehicles, and four channelized right-turns at the intersection of Old Georgetown Road and Rockville Pike are being removed, which will shorten pedestrian crossing distances. Additionally, bus rapid transit (BRT) is planned on Rockville Pike, connecting downtown Bethesda to Clarksburg.

Several other transit options exist within the District. The White Flint Metro Station, on WMATA's Red Line, averaged 2,790 daily boardings in 2019. Average daily boardings at the Metro Station have gradually decreased since 2011, when the station averaged 3,327 daily boardings. A 2019 analysis conducted by WMATA determined that 61% of passengers access the Metro station by walking and that 14% drive alone and park at the WMATA garage on Marinelli Road. The WMATA garage contains 1,270 parking spaces and featured a weekday utilization rate of approximately 80% in 2019.

The same analysis indicated that most Park & Ride customers live within three miles of the Metro station. Pedestrian and bicycle infrastructure improvements that enhance access to the Metro station could increase the walkshed and lead to a higher percentage of passengers accessing the site by walking or biking.

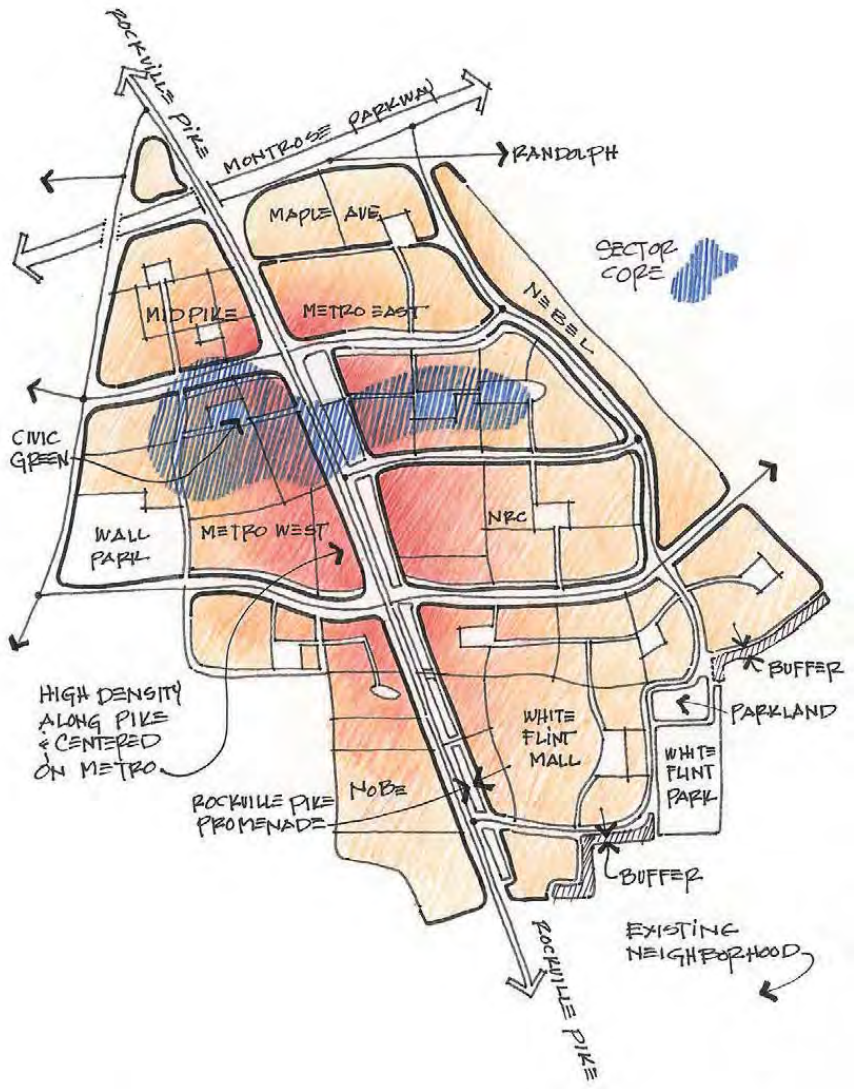


Figure 25: Concept Sketch from the ***2010 While Flint Sector Plan***

Both Metrobus and Ride On operate bus routes connecting to destinations within the County and the region, such as the University of Maryland-College Park. Additionally, Capital Bikeshare operates five bikeshare stations in the Pike District, with a total of 77 docks. The highest ridership dock is at the Metro Station, which averaged 241 monthly trips in 2019. Ridership trends are strongly correlated with seasonal weather: monthly trips peaked at 336 in April and dropped to an average of 164 trips in December.

Figure 26: Capitol Bikeshare station at Woodglen Drive.

Figure 27: Signed Ride On bus stops.

Figure 28: Existing Ride On bus shelters.

PEDESTRIAN LEVEL OF COMFORT ANALYSIS

Montgomery Planning created the pedestrian level of comfort (PLOC) analysis in 2018 to quantify how comfortable people feel walking in certain traffic conditions, to identify locations that are uncomfortable due to inadequate or incomplete sidewalks and crossings, and to quantify how potential investments will increase pedestrian connectivity. This analysis was applied to the Pike District, with all segments of the pedestrian network rated from "Undesirable" at the low end to "Very Comfortable" at the high end. The scoring accounts for different aspects of the pedestrian experience, including pathway width, the width of buffers between pedestrian pathways and roads, posted speed limit, and presence of on-street parking or separated bike lanes.

In the Pike District, the PLOC analyzed 17.34 miles of pathways, defined as sidewalks, shared use paths, trails, and on-street segments where sidewalks are not present. Overall, 35% of pathways in the Pike District (6.04 miles) but just 12% of crossing miles are rated as "Very Comfortable." Streets classified as Arterials and Major Highways account for 35% of total pathway miles in the Pike District, including Nicholson Lane and Rockville Pike. However, 67% of Arterial and 62% of Major Highway sidewalk miles are rated as "Undesirable," which can deter pedestrians from making shorter trips and limits access to the White Flint Metro Station.

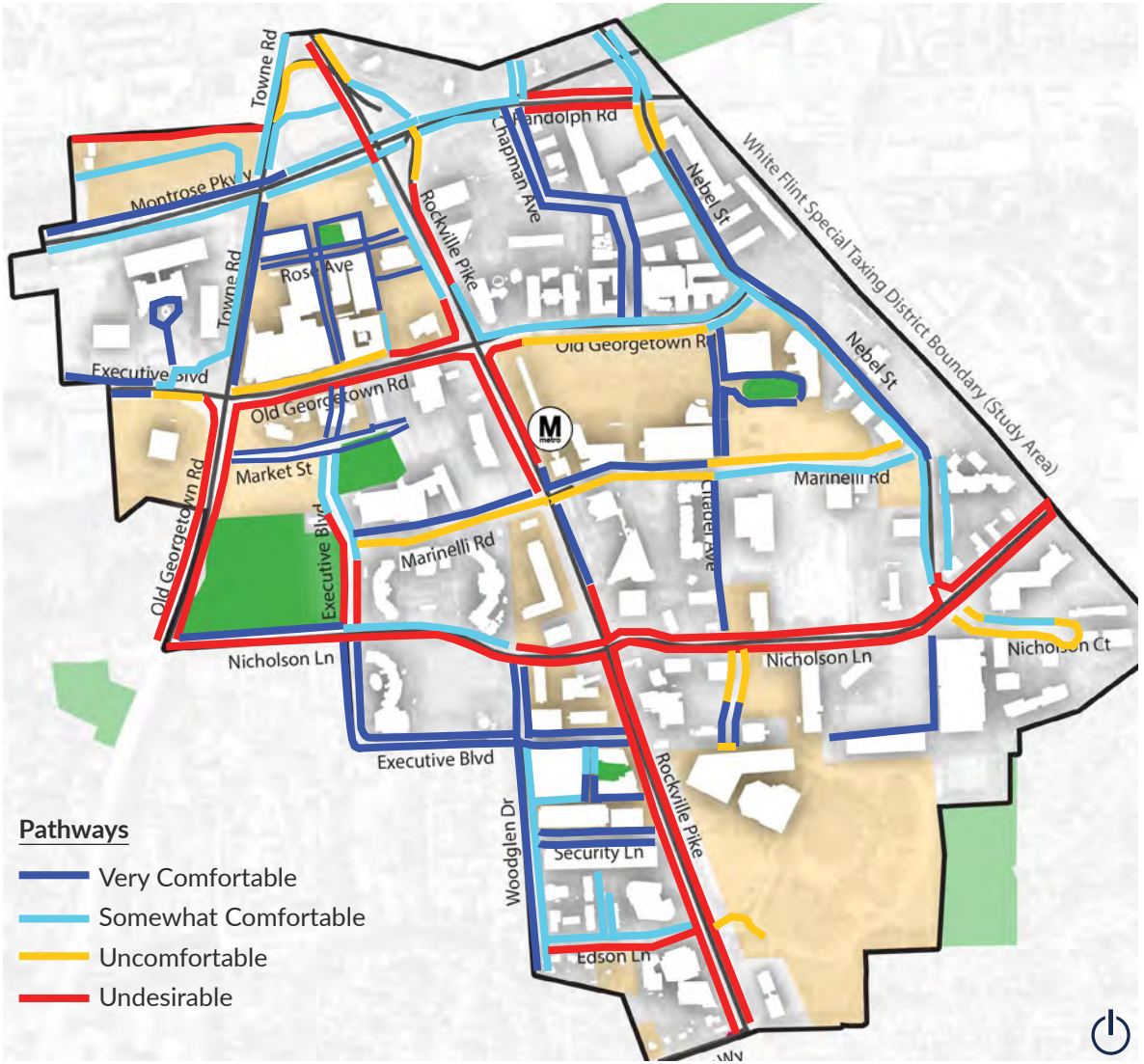


Figure 29: Map showing the pedestrian level of comfort analysis in the Pike District.

Business District streets account for 44% of all pathway miles in the Pike District. These streets tend to feature lower speeds, on-street parking, and landscaped buffers separating pedestrians from vehicles. As a result, the PLOC rates 74% of Business District street pathway miles as "Somewhat Comfortable" or "Very Comfortable." Chapman Avenue, Nebel Street, and Woodglen Drive are examples of Business District Streets in the Pike District that are rated "Very Comfortable" by the PLOC.

The PLOC also analyzes pedestrian crossings: 54% of crossing miles in the Pike District are considered "Uncomfortable" or "Undesirable", which supports anecdotal experiences and feedback from community members, property owners, and stakeholders that walking in the Pike District is not pleasant or safe.

Pathways Table

Level of Comfort	Total (miles)	Percent
Very Comfortable	6.04	35%
Somewhat Comfortable	4.59	26%
Uncomfortable	2.27	13%
Undesireable	4.44	26%
Total	17.34	100%

Pedestrian Crossing Table

Level of Comfort	Percent of Total Mileage
Very Comfortable	12%
Somewhat Comfortable	34%
Uncomfortable	16%
Undesireable	38%

Figure 30: Example of a Very Comfortable PLOC score on Chapman Avenue, including wide sidewalks, landscaped buffers, on-street parking, and slow posted speed limits.

Figure 31: Example of a Somewhat Comfortable PLOC score on Nicholson Lane.

Figure 32: Example of an Uncomfortable PLOC score on Marinelli Road.

Figure 33: Example of an Undesirable PLOC score on Rockville Pike, with narrow sidewalks, no buffer from travel lanes and heavy traffic volumes.

CHAPTER 3:
STREETSCAPE CONCEPT

This overall streetscape concept named “Simply Sustainable” is guided by the following objectives:

- Create a safe, comfortable, and vibrant public realm to maximize activity and walkability along all streets.
- Relocate utility infrastructure underground via Capital Improvements Program (CIP) projects and private development over the next two decades.
- Provide identifiable and functional public spaces along streets for Pike District residents.
- Integrate elements of environmental sustainability and stewardship into existing and future streetscapes.

The concept organizes the streets within the District into a hierarchy of types that serve distinct purposes but together form an interconnected network of walkable blocks. It identifies key elements for pedestrian friendly streetscapes and provides recommendations for each element in detail. It provides street sections for all public and private streets that illustrate how the various elements can be assembled within allocated rights-of-ways and identifies intersections and opportunities for artistic expression and placemaking.

SIMPLY SUSTAINABLE CONCEPT

The streetscape recommendations are crafted to ensure all streets further the goals of the 2010 ***White Flint Sector Plan*** while leaving adequate room for flexibility and creativity in design and implementation. Rockville Pike is recommended to incorporate the most uniform streetscape application, appropriate for an urban boulevard, while recommendations for private streets are most flexible to encourage variety and innovation.

Streetscape Prescription Spectrum

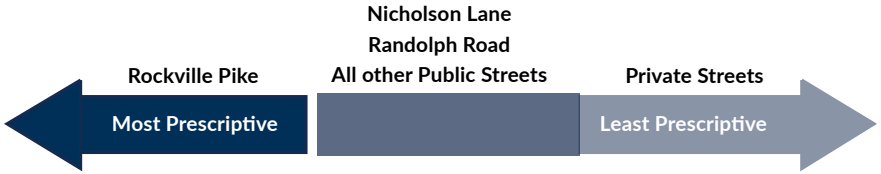


Figure 34: Creating flush, shared streets within mixed-use developments grants equal access for all users and modes.

Figure 35: Landscaping and seating provides definition between sidewalks and separated bike lanes.

Legend:

- Rockville Pike Placemaking Corridor
- Nicholson Lane and Randolph Road
- Montrose Parkway
- Public Streets
- Private Streets
- Placemaking Intersections
- District Gateways
- Priority Access Improvements

Figure 36: The Simply Sustainable concept organizes streets into a hierarchy and identifies placemaking and gateway intersections

CHAPTER 4:
STREETSCAPE ELEMENTS

The following are key streetscape elements of the "Simply Sustainable" approach. All streets within the District are organized into a hierarchy of types, each containing recommendations for specific streetscape elements:

- Paving materials are recommended for each street type throughout the District with maximum flexibility reserved at building entrances, gateways, private streets and special places such as parks.
- A preferred menu of street tree types and planting patterns are provided for public streets. More flexibility is provided for placement and tree variety along private streets.
- A range of furnishing families are suggested and performance standards for character and location are provided.
- Lighting standards are suggested for public and private streets. Public streets should follow current County standards while private streets can incorporate a broader palette of fixtures and design as long as they meet performance standards provided within this document.
- Key intersections and opportunities for artistic expression and placemaking are highlighted.

The Pike District is located within a Metro Station Policy Area and streets must be designed according to Urban Road Code standards. These standards specify maximum lane widths, curb radii, target speeds on urban roads, and define pedestrian improvements.

PAVING

Paving is a major character defining element of the streetscape environment. The Pike District will be defined by distinguished, high quality streetscapes. The proposed paving palettes have been developed to create a unified sense of place while providing opportunities for variety and special moments. All pavers need to meet the following standards: ADA, MC-111.02 and CR 16-931. The following are four types of paving material palettes included in the guidelines:

Type A: Hanover London Paver

London Pavers have been a standard streetscape paving staple throughout the region for nearly two decades, and have proven to be a safe, durable, and timeless paving product. London Pavers will largely define the Rockville Pike corridor sidewalks. These larger, rectilinear pavers provide a contemporary appearance while reducing the number of joints and maintenance. The proposed pavers will be neutral and will highlight visual contrasts with vertical elements such as street furnishings, plantings, signage, and public art.

Type B: Hanover Pervious/Impervious Paver

The guidelines contained herein recommend the development of ecologically sustainable streetscapes. Keeping with this approach, permeable pavers are recommended along public streets where feasible. These pavers are neutral in color to match Type A pavers but smaller in size to provide a unique streetscape character.

Permeable paving requires an understanding of the prior use of a site. Site tests should be performed to determine soil conditions including percolation rate and infiltration capabilities; depth to seasonal high water table; depth to bedrock; and soil contamination. Impervious Hanover pavers are recommended where pervious pavers are not feasible.

Type A

Hanover “Prest” London Paver

Size: 24” x 36” x 3”
Color: “Natural" with “Tudor” finish
Pattern: Running bond, perpendicular to curb
Border: None

Type B

Hanover Paver (Permable & Impermeable)

Size: 12" x 18" x 3"
Color: "Natural" to match Type A paver
Pattern: Running bond, perpendicular to curb
Border: None

Type C: Flexibility in Paver Choice

This paving type allows for greater flexibility and creativity in paving design. Pavers within these areas may consist of precast concrete pavers, or other high-quality paving materials (other than asphalt or poured-in-place concrete) that meet County or ADA standards. Paving should be complementary to, and compatible with, the character of the adjacent development and not interrupt the unified character of the streetscape as a whole.

Changes in paving patterns are encouraged as a means of providing visual cues that signal changes in pedestrian patterns or land use. Special paving treatments are recommended to accentuate and demarcate building entrances or other zones of activity, such as outdoor seating areas.

Type D: Poured-In-Place Concrete & Asphalt

In select locations, poured-in-place concrete is recommended as a paving material for sidewalks due to its durability, and ability to achieve flat and smooth surfaces for maximum accessibility (including ADA ramps and driveway areas).

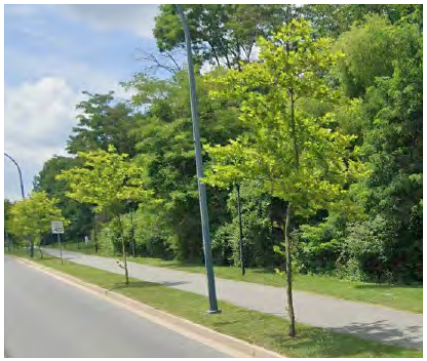
Asphalt pedestrian paving is recommended where it is already used along Montrose Parkway and along the future Rockville Pike cycle tracks. Asphalt paving shall be developed per County standards.

Type C

Flexible, any material other than poured-in-place concrete and asphalt.

Type D

Continue use of poured-in-place concrete and asphalt. Poured-in-place concrete should be installed with a 3-feet x 3-feet joint pattern and a brushed finish. If the sidewalk is less than 6-feet wide, the scoring pattern should be half the width of the sidewalk.



Legend:

Rockville Pike

- Type A: London Paver field
- Type B: Hanover Permeable Paver accent
- Type C: Flexible choice of paving (at building entrances, Placemaking Intersections and District Gateways only)

Public Streets

- Type B: Hanover Permeable Paver field
- Type C: Flexible choice of paving at building entrances, Placemaking Intersections and District Gateways

Montrose Parkway

- Type D: Continue use of Poured-In-Place concrete and asphalt paving along Montrose Parkway.
- Type C: Flexible choice of paving at Placemaking Intersections and District Gateways

Private Streets

- Type C: Flexible choice of paving, any material other than poured-in-place concrete and asphalt within the entire pedestrian zone

Placemaking Intersections

District Gateways

Figure 37: Paving materials vary depending on street classification and expected pedestrian volumes.

Rockville Pike - Paving Concept

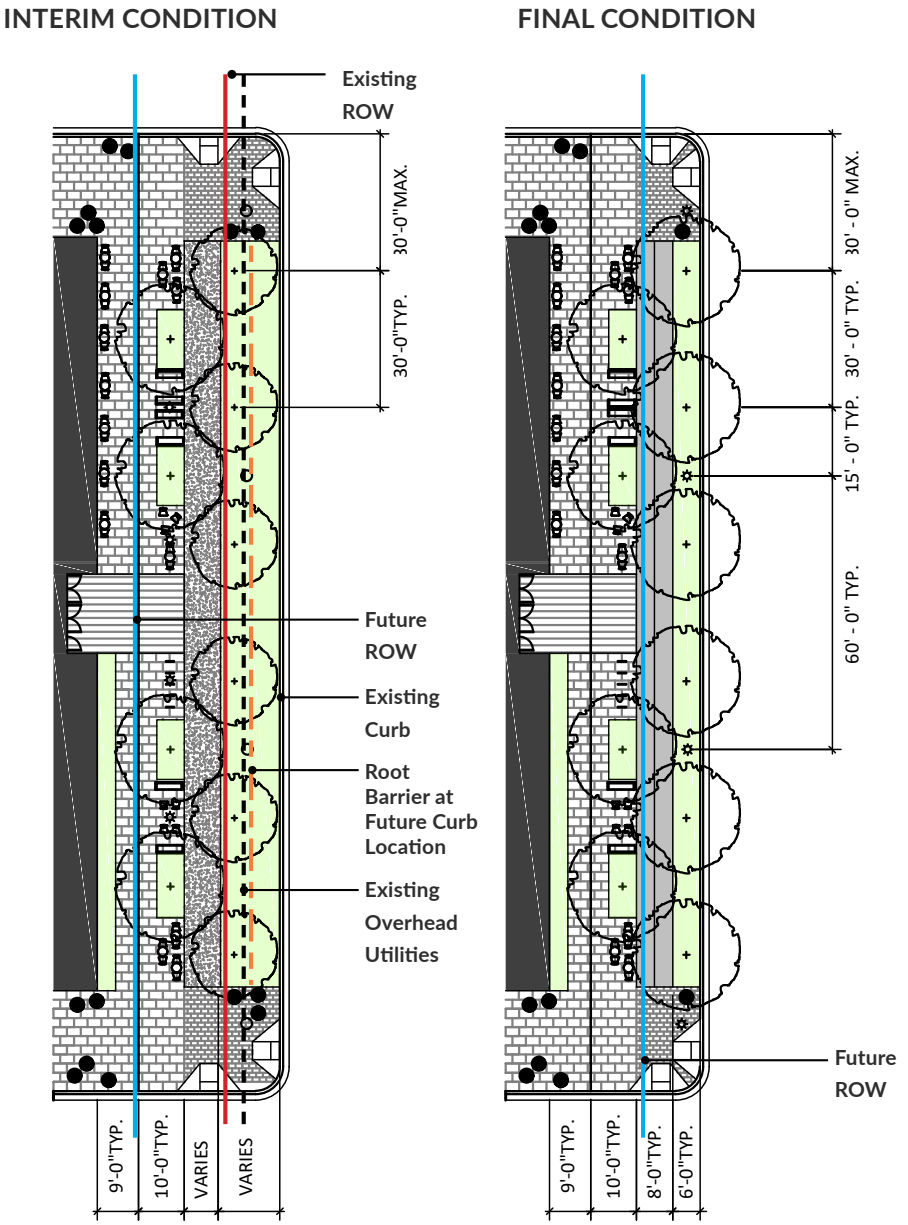
Type A
Hanover "Prest" London Paver

Type B
Hanover Permeable Paver

Type C
Flexible choice of paving, any material other than poured-in-place concrete and asphalt

Type D
Poured-in-Place Concrete

Figure 38: The recently constructed interim streetscape along Rockville Pike features poured concrete sidewalks.



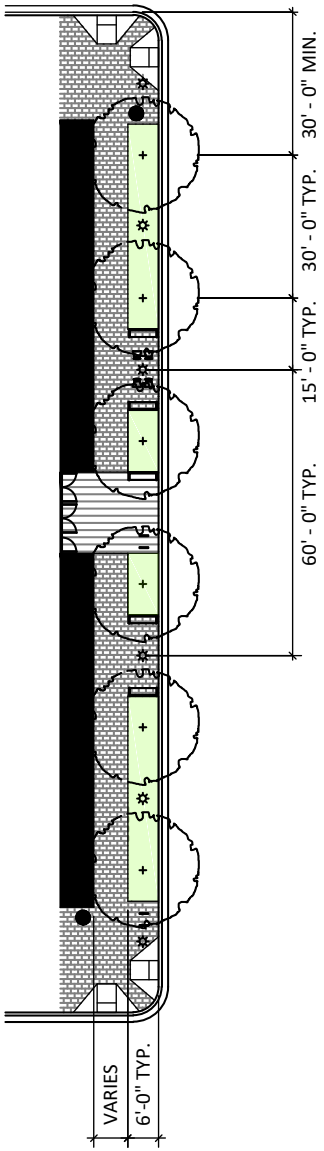
Public Streets - Paving Concept

Type B
Hanover Permeable Paver

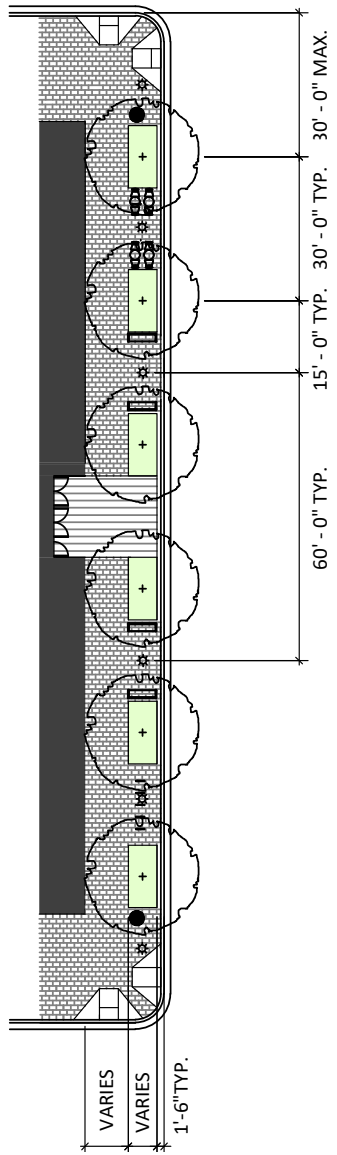
Type C
Flexible choice of paving, any material other than poured-in-place concrete and asphalt

Figure 39: Example of a paved sidewalk, with street trees interspersed along the frontage zone.

NICHOLSON LANE & RANDOLPH ROAD



OTHER PUBLIC STREETS



Maintenance Considerations

Concrete Unit Pavers

- Concrete unit pavers allow for quick removal and replacement to access utilities and other underground services.
- The proposed concrete unit pavers are off-the-shelf products that do not require special production.
- Uneven, broken or damaged pavement will need to be removed and replaced overtime.

Permeable Pavers

- The proposed permeable concrete unit pavers are off-the-shelf products that do not require special production.
- Requires periodic maintenance to retain its infiltration capacity.
- Permeable pavement should be vacuumed once or twice annually. Vacuuming has been found to be most effective when sediments are dry. If routine cleaning does not restore infiltration rates, then partial or full reconstruction of the pervious surface may be required. Once a year, the paving should be tested to determine if it is clogged.
- Uneven, broken or damaged pavement will need to be removed and replaced overtime.

Poured-In-Place Concrete & Asphalt

- Overall, long lasting paving materials.
- Do not allow for ease of removal and replacement compared to concrete unit pavers.
- Poured-in-Place concrete and asphalt may become unattractive overtime due to patching to access underground utilities.
- Uneven, broken or damaged pavement will need to be removed and replaced overtime.

Figure 40: Example of concrete unit pavers, commonly featured in urbanized commercial districts.

Curb Treatments and Access Design

The curb zone is a mixing zone between pedestrians, cyclists, public transit, and personal vehicles. The following treatments are proven, cost-effective strategies to create a safer environment for pedestrians and will help the County reach its Vision Zero goals. New streets should incorporate the following curb treatments.

Curb Extensions

Curb extensions are created by extending the sidewalk or curb line into the street at an intersection or mid-block crossing location to shorten the crossing distance and improve visibility for pedestrians. By physically and visually narrowing the street, curb extensions have a traffic calming effect and require vehicles to reduce speeds while turning.

Curb extensions are strongly recommended on all streets that have on-street parking and can be used selectively in other locations. Curb extension installation on both sides of a crossing is preferred, but where curb extension installation on one side is infeasible or inappropriate (i.e., no parking lane), this should not preclude installation on the opposite side.

Curb extensions may be planted, function as bioretention for stormwater, or be hardscape. Planting within curb extensions should not impact sight distance.

Bus Bulbs

Bus bulbs are elongated curb extensions that may be located mid-block or near intersections to provide direct access for people utilizing public transit. Bus bulbs may include bus shelters and benches; neither element should obstruct access for passengers boarding and alighting.

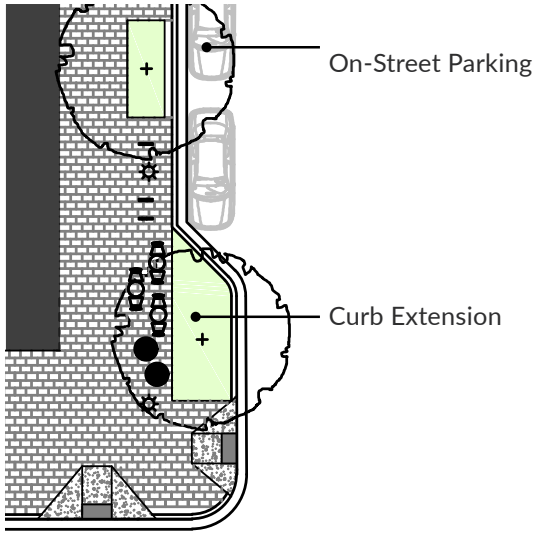


Figure 41: Example of the desired final condition streetscape.

Figure 42: Example of a bus bulb located near an intersection to provide direct access for people utilizing public transit.

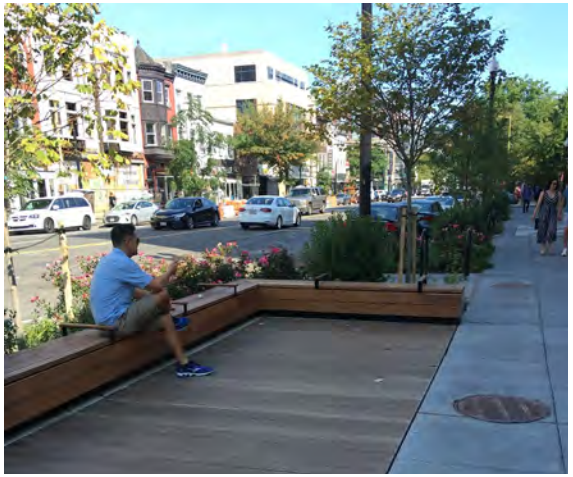


Figure 43: Example of a curb extension near an intersection to accommodate a parklet for outdoor seating.

Driveways

Driveways help regulate vehicular access but frequently create conflicts between modes. All curb cuts and driveways must meet current Americans with Disabilities Act (ADA) standards. To ensure pedestrian safety, all driveways in the Pike District should incorporate the following treatments:

- Driveway ramps should be contained within the Street Buffer Zone to avoid a cross slope on the sidewalk.
- Driveways should always remain at sidewalk level when crossing a sidewalk or bike lanes.
- Per Urban Road Code standards, the curb radius at the corner of each intersection of two urban roads must not exceed 15 feet, which slows turning vehicles and shortens pedestrian crossing distances.
- The frequency of driveways should be minimized. Setback distance and corner clearances must conform with MCDOT and SHA policies regarding setback and corner clearance from nearby driveways or intersections.
- Prohibit new driveways within the functional area of intersections and seek driveway consolidations redevelopment of public streets. The functional area typically includes the space required for turn lane storage, deceleration, and queuing storage.

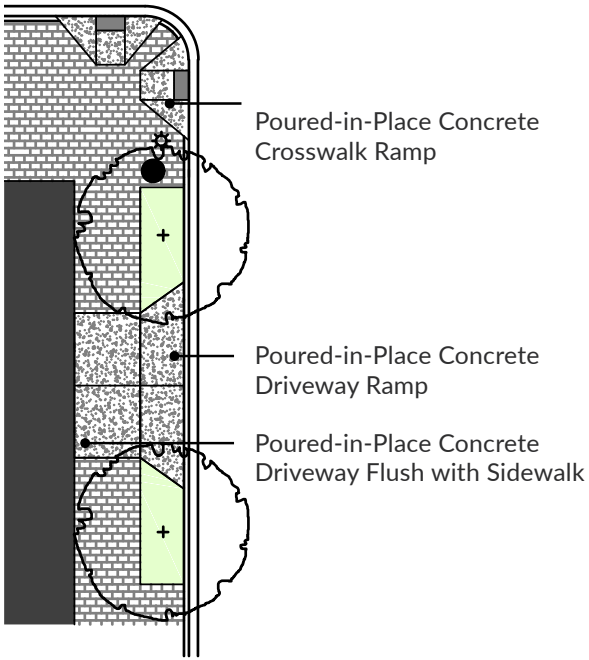


Figure 44: Illustration demonstrating best practices for driveway and curb ramp design.

Figure 45: Garage/loading ramps should be flush with the sidewalk level.

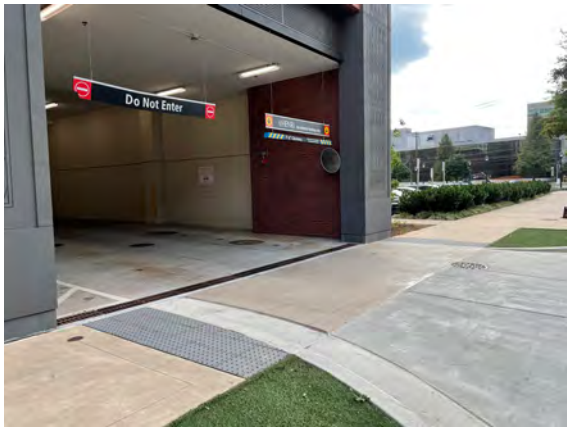


Figure 46: ADA detectable warnings should be provided at garage/loading ramps to alert visually impaired individuals of entering and exiting vehicles.

Curb Ramps

Curb ramps should provide a safe and functional transition for pedestrians between the sidewalk zone and crosswalks. All curb ramps must be compliant with the United States Access Board Public Right-of-Way Accessibility Guidelines:

- The placement of curb ramps may be affected by the location of streetscape elements and utilities. However, the placement of fixed objects, such as utility poles and signal cabinets, should not impede access for pedestrians and bicyclists using sidewalks and curb ramps.
- Curb ramps and crosswalks should be designed to drain water away from curb ramps and the street to reduce risk of pooling (and icing) across pedestrian access points.
- The Montgomery County preferred standard is two perpendicular curb ramps per corner, aligning directly with crosswalks.
- At a minimum, the distance between the crosswalk/stop bar and either the upstream or downstream ends of the functional area should be equal to or greater than stopping sight distance at the road's design speed.

Figure 47: Curb ramps at Pike & Rose demarcate the transition between the sidewalk zone and the crosswalk with decorative pavers.

Figure 48: Midblock crosswalks should be raised or constructed with specialized pavers to alert motorists that pedestrians may be crossing.

STREET TREES

A street tree planting approach has been created that will diversify the Pike District's tree canopy without detracting from the visual clarity of the streetscape. As the District continues to evolve, providing opportunities for increasing the tree canopy will increase pedestrian comfort and help to create an identifiable sense of place. The 2010 ***White Flint Sector Plan*** calls for the tree canopy to be doubled in the district which would positively enhance the area's character and improve pedestrian comfort. The following are key elements of the street tree planting approach:

- Monocultures are vulnerable to disease and a diversity of the tree species is recommended.
- Several corridors include existing, healthy street trees. These street trees should be retained and protected. The street tree guidelines contained in this document will serve as a guide for future replacement, if needed, of these trees.
- Ensure adequate soil volume to support the growth of healthy mature street trees and vibrant understory plantings.
- All new tree plantings must be a minimum of 2-inch caliper in size.
- The replacement of street trees that die or are unhealthy should be a priority to maintain tree canopy.
- Street trees should be planted approximately 35' on-center where on-street parking is not located in the same space as a street tree planting zone. Street trees should be planted 50' on-center (every two parking spaces) along corridors that accommodate on-street parking in the same space as the street tree planting zone.
- It is assumed that all overhead utilities will be placed underground as part of on-going street reconstruction/repairs and private development projects. Large trees should not be planted under overhead utilities.

Rockville Pike

Rockville Pike is the primary gateway corridor into the District. The corridor is envisioned to become an urban boulevard consisting of large trees placed approximately 35' on-center. The trees will create a unified streetscape character that provides a consistent canopy, a sense of enclosure, and a memorable character along Rockville Pike. The rhythmic form of the trees will also serve to visually reduce the scale of the wide corridor.

Nicholson Lane and Randolph Road

These are east-west urban boulevards that create important gateways into the district from surrounding neighborhoods. These corridors will be emphasized by a mix of large trees that emphasize biodiversity to create a distinctive landscape while providing adequate shade to adjacent pedestrian zones. No more than five trees of the same tree species are to be planted consecutively, approximately 35' on-center.

Other Public Streets

These streets will emphasize a diversity of tree species of varying, compatible sizes and maximize tree canopy coverage to create bio-diverse green corridors. It is encouraged that the street tree plantings provide a mix of distinctively shaped trees aim to intermix tree species evenly along each block. No more than five trees of the same species are planted consecutively, approximately 35' on-center, except where on-street parking is provided in the same zone as the street trees.

Private Streets

Include any selection from Montgomery County's list of "major" approved street trees, planted approximately 35' on-center. Additional informal groupings of "minor" trees are encouraged to help define internal spaces and to maximize unique programming opportunities that further activate the streetscape environment. Tree planting should emphasize a diversity of native species and maximize tree canopy coverage to provide adequate shade along sidewalks.

Recommended Street Tree Palette:

Rockville Pike
- Swamp White Oaks
- Overcup Oaks
- Jefferson American Elm
- Zelkova

Nicholson Lane & Randolph Road
- White Oaks
- Zelkova
- Princeton American Elm
- Valley Forge American Elm

Public Streets
- Zelkova
- Dura Heat River Birch
- Thornless Honeylocust
- Persian Ironwood

Private Streets
- Flexible; select street trees from Montgomery County's list of "major" approved species

Montrose Parkway
- No action. Continue existing street tree planting character and species

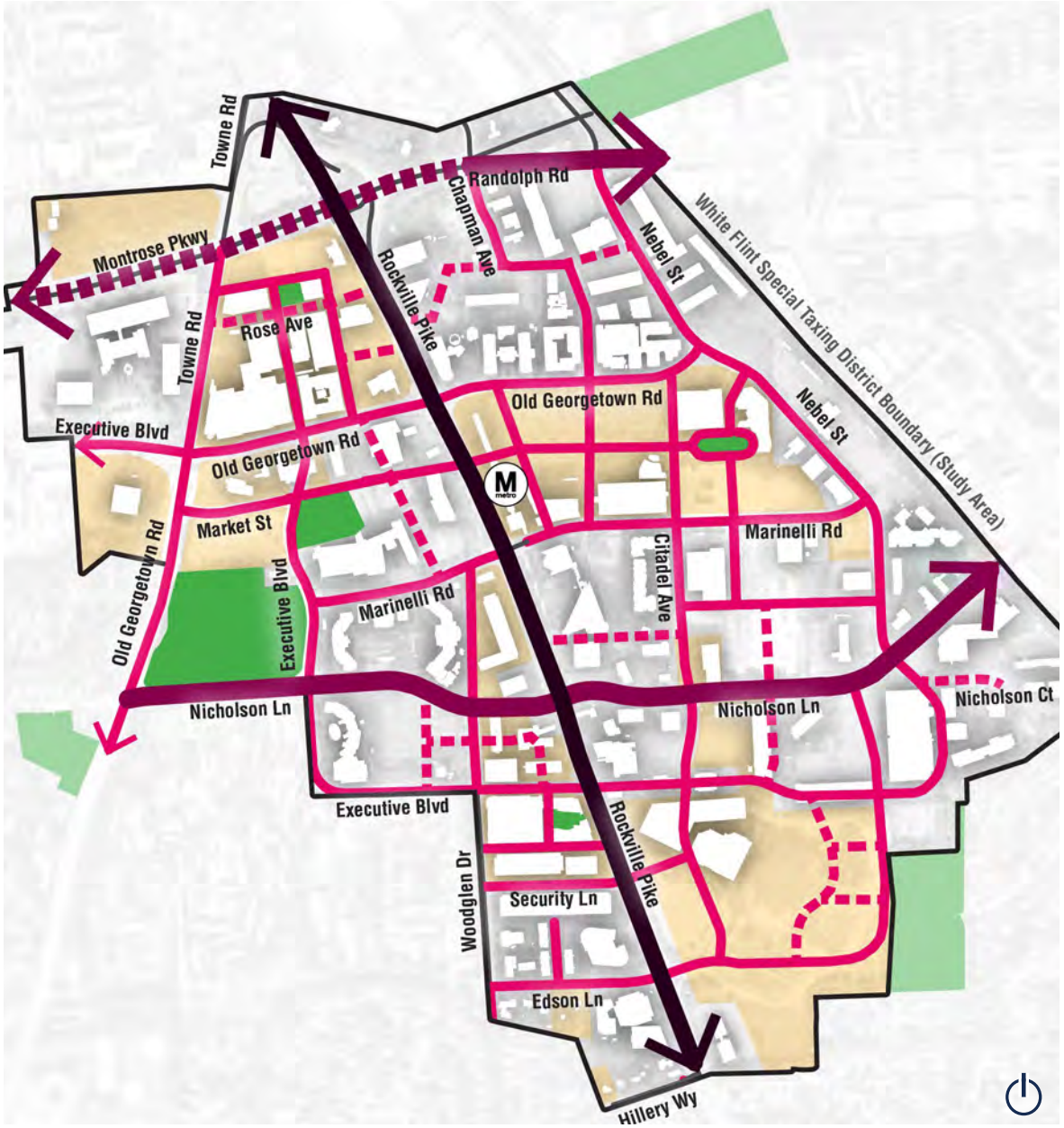
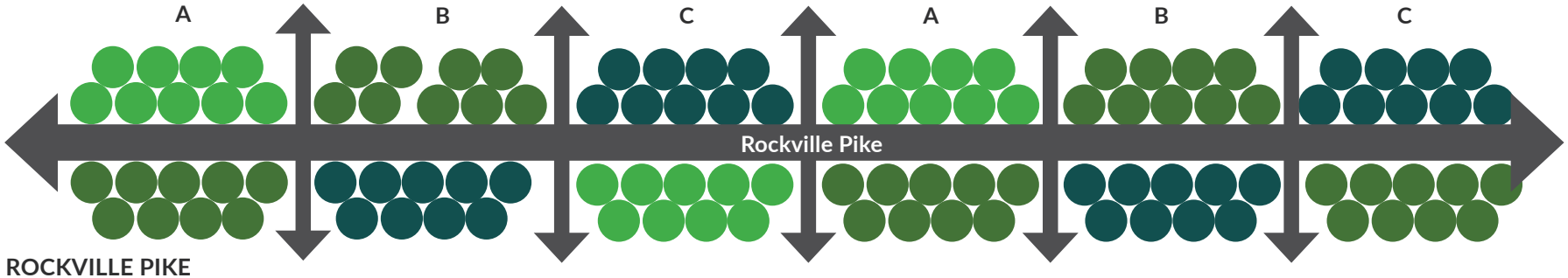


Figure 49: A variety of indigenous street trees are recommended in the Pike District to avoid a monoculture effect.

A wide variety of street trees are recommended for the various public and private streets within the study area.



ROCKVILLE PIKE

Mix of trees that vary by block and planted approximately 35' on-center. Coordinate tree planting patterns as part of the Rockville Pike BRT corridor design. Trees should also be planted in the BRT median on both sides in coordination with bus lane and station layouts.

NICHOLSON LANE & RANDOLPH ROAD

Mix of street tree species planted approximately 35' on-center. No more than five trees of the same species are planted consecutively.

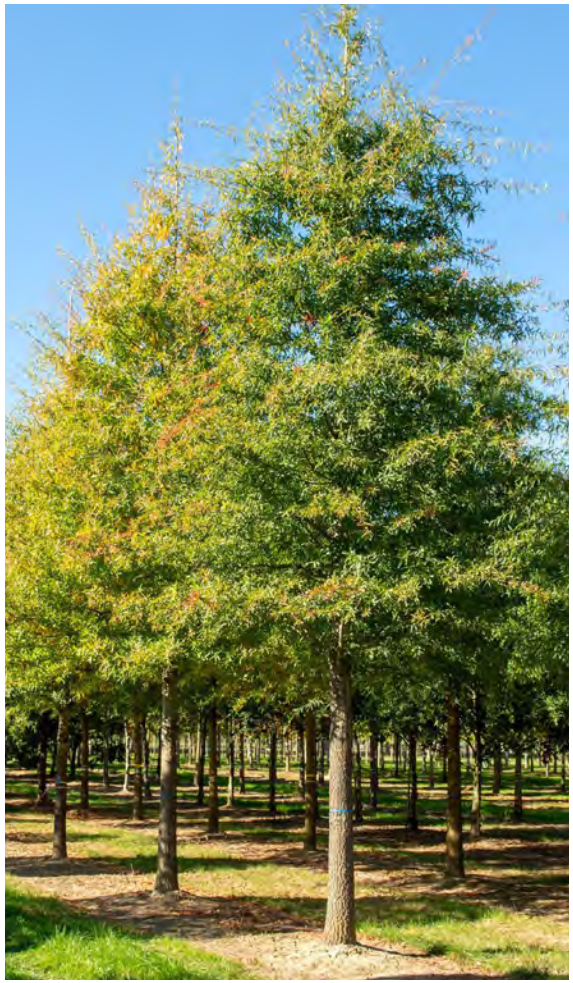
TYPICAL PUBLIC STREETS

Mix of three to five DOT approved "major" tree species planted approximately 35' on-center. No more than five trees of the same species are planted consecutively.

PRIVATE STREETS

Include any selection from Montgomery County's list of "major" approved street trees, planted approximately 35' on-center. Additional informal groupings of "minor" trees are encouraged to help define internal spaces and to maximize unique programming opportunities.

For a completes list of trees approved along public streets by MCDOT, please visit: https://www.montgomerycountymd.gov/DOT-Highway/Tree/TreePlant.html



High tower Willow Oak

Figure 50: Street trees for Rockville Pike include multiple varieties of Oak.

Valley Forge American Elm

Figure 51: Street trees for Nicholson Lane and Randolph Road include multiple Elm varieties.

October Glory Red Maple

Persian Ironwood

Dura Heat River Birch

Figure 52: Street trees for Public Streets include a mix of 3-5 DOT approved species.

GROUND COVERS, PERENNIALS & SHRUBS

Tree Planter and Median Plantings

Planting beds within streetscape environments should be planted to create a lush, full effect. Plants need to be tolerant of a wide range of soil and moisture conditions and should be selected for foliage and textural contrasts. Plants should also be native, non-invasive, and low-maintenance varieties and species. It is recommended that planting beds include both ornamental grasses and shrubs. Perennial plants may be used instead of or to supplement ornamental grasses. All planting must adhere to Road Code requirements. Each street tree should have access to at least 600 cubic feet of soil volume, as is required in Urban Districts.

Movable Planters

Movable above-ground planters may be located within the streetscape such that do not block the clear zone. They add greenery to the streetscape without permanently eliminating paved space for pedestrians. When space allows, planters work well to protect and buffer pedestrians from moving vehicles and further define the district's sense of place. All planters added to the sidewalk must be regularly maintained and are the responsibility of the organization, property owner or business owner who installs them.

Movable planters may include annual and perennial plants to provide visual interest. Plantings should not block pedestrian views or intersection lines of sight. Thorned and heavily littering plants are discouraged for pedestrian safety.

Planted Medians

A median is the portion of the roadway separating opposing directions of the roadway. Design and landscaping of medians should emphasize continuity along corridors. Landscaping, lighting and street furnishings should maintain a similar look and feel in medians along the entire length of a corridor. Median trees may include small flowering or medium-sized trees as defined in the County's list of approved street trees.

Figure 53: Explore a diversity of planting types in medians that vary in color, texture and form.

Figure 54: Consider night illumination of planted medians to create visual interest.

Understory plantings should be native, non-invasive, low-maintenance, and not block lines of sight. Understory planting should include vibrant, hearty and colorful plantings. Layering of textures and colors should be considered to add variety and character to the streetscape.

The following diagram and images show a successful example of understory planting in a tree pit using a combination of shrubs and ornamental grasses.

Type 1: Shrub Examples

Figure 55: Compact Inkberry Holly

Figure 56: Compact Winterberry Holly

Type 2: Ornamental Grass Examples

Figure 57: Pennsylvania Sedge

Figure 58: Liriope

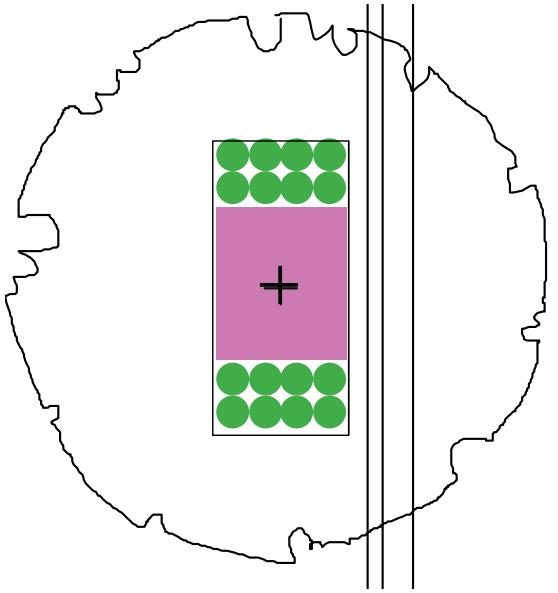


Figure 59: Conceptual layout for understory planting showing a mix of shrubs and ornamental grasses.

FURNISHINGS

The Pike District's streetscape should provide gathering spaces for pedestrians to stop, rest, orient and interact. These spaces could contain benches, plantings, and trash/recycling receptacles.

Overall, there is great flexibility provided for the selection of site furnishings throughout the district. Site furniture should reflect the contemporary architectural forms of the district and should be low maintenance and durable.

Additional criteria for site furnishings include:

- Coordinate color and style of furniture elements throughout a project site.
- Select site furnishings that incorporate a high percentage of recycled and/or renewable materials.
- Locate furniture so that it does not impede pedestrian traffic or line of sight at intersections.
- Furnishings such as benches and trash receptacles should be clustered near street intersections within the Amenity Zone as a minimum standard. If a block is more than 500-feet in length, an additional cluster of furnishings should be located in or near the mid-block portion of the streetscape.

Fixed Seating

- Providing areas for seating along sidewalks is important to make streets inviting for patrons. There are a number of seating types that are recommended including freestanding benches-both backless and with backs and also seat walls which can become signature features of the district.
- Seating should be affixed in such a way that it is not easily damaged or removed (unless it is movable by design).
- Care should be exercised to ensure that seating does not interfere with entrances to buildings, heavily used loading zones, parked vehicles, fire escape routes, and other potential conflicts.
- Seating should be located to enable pedestrians to view street/sidewalk activity while being outside of the immediate flow of pedestrian traffic.
- Public seating should be buffered from noise and vehicle exhaust where feasible.
- Seating at bus stops, whether there is a bus shelter or not, should face the street or face approaching buses.

Figure 60: Seating helps activate public open spaces and invites people to linger.

Movable Cafe Seating

- Cafés may be placed in the Frontage, Building Setback Zone, or the Street Buffer Zone as long as the required Clear Zone widths are maintained. They may be acceptable in curb extensions as long as they do not inhibit sight lines or accessibility for pedestrians and bicyclists.
- A sidewalk café in the Street Buffer Zone or Curbside Zone should not interfere with the loading and unloading of transit vehicles, designated accessible parking, or bicycle operations.
- All sidewalk cafés must comply with Americans with Disabilities Act (ADA) requirements.
- The preferred minimum width for a sidewalk café is 6 feet.
- A sidewalk café must be enclosed in a clearly delineated area.

Trash and Recycling Receptacles

- To ensure the Clear Zone is maintained, receptacles for trash and recycling should be placed in the Street Buffer Zone. Where a Street Buffer Zone is not present, placement of receptacles should ensure that a minimum 5-foot clear zone for pedestrians is maintained.
- Consider placing trash receptacles near high-pedestrian volume locations.
- Reinforce environmental stewardship in the district by considering solar-powered trash compactors (such as 'Big Belly' receptacles) to reduce bulk waste.

Figure 61: Movable seating creates flexibility for public open spaces. Trash and recycling receptacles should be placed at regular intervals and can incorporate artistic and branding elements.

Bikes

- The standard bicycle rack is an inverted-U rack/staple but artistic and alternative designs that provide the same level of safety and maintenance are encouraged.

- A bicycle parking facility is prohibited from obstructing pedestrian traffic or interfering with the use of the pedestrian area. Bicycle racks should be installed in convenient, well-lit areas where people on the sidewalk or visiting a nearby building can see them.

Planting Containers

- The use of planting containers is encouraged in the streetscape environment. Planting containers should ideally be located near building entrances, and seating areas to add color and vibrancy to street intersections.

Examples of furnishings families are illustrated on the following pages, but these are not mandatory. Instead, these example furnishings families may serve as inspiration of how amenity packages may be composed.

Figure 62: Planter boxes add to the visual aesthetic and can help manage stormwater.

Figure 63: Bike parking should be simple to use and ubiquitous, to encourage people to make shorter trips by biking.

Furnishings Family 1: Contemporary Wood and Metal






Furnishings Family 2: Modern Style Wood and Metal







Furnishings Family 3: Sculptural Metal and Other Materials






LIGHTING

Lighting is a critical element to provide a sense of safety, illuminate pedestrians and cyclists from vehicles, and is a necessity for mobility impaired individuals. The following recommendations direct the installation of new light fixtures in the Pike District:

- Utilize the Teardrop luminaire along the Rockville Pike corridor to emphasize it's character as an important gateway boulevard. The Teardrop luminaire should include both vehicular and pedestrian scale lighting.
- Continue use of the Washington Globe fixture along all other public streets within the District (except use the existing fixture type along Montrose Parkway).
- All lighting should conform to Montgomery County standards.
- Lighting along private streets may vary from the Washington Globe fixture. When selecting the appropriate style and location of lighting, it is important to consider all the users of the street, including people driving, walking, biking, and accessing/waiting for transit.
- Light Emitting Diode (LED) lighting is strongly encouraged, as it is more energy efficient.
- Lighting should be located in the Street Buffer Zone. Lighting should be oriented towards both the roadway and the sidewalk, and ensure adequate lighting at intersections and crossings, meaning that both are illuminated.
- Critical locations such as access ramps, crosswalks, transit stops, and seating areas that are used at night must be visible and lit.
- Alternate the placement of streetlights and trees so that trees do not block the illumination. Place streetlights approximately 35' on-center.
- Pedestrian lighting can be used alone or in combination with roadway scale lighting in high activity areas to encourage pedestrian activity at night.
- Locate pedestrian lighting on the same pole as roadway lighting to reduce the number of poles along the street.
- Median separated streets may require additional lighting in the median to meet County roadway illumination standards.

Figure 64: Example of recommend street lighting on Citadel Avenue, at North Bethesda Town Center.

Figure 65: Teardrop Luminaire (Type 1)

Figure 66: Washington Globe (Type 2)

Legend:

Street Light Type 1

Fixture: Teardrop Luminaire
Pole: King Luminaire: Silver Spring Dual Combination Tear Drop Post
Color: Green

Street Light Type 2

Fixture: Washington Globe (Silver Spring Standard)
Pole: King Luminaire (Silver Spring Standard)
Color: Green

Street Light Type 3

Flexible choice, must meet illumination standards and material quality per County guidelines

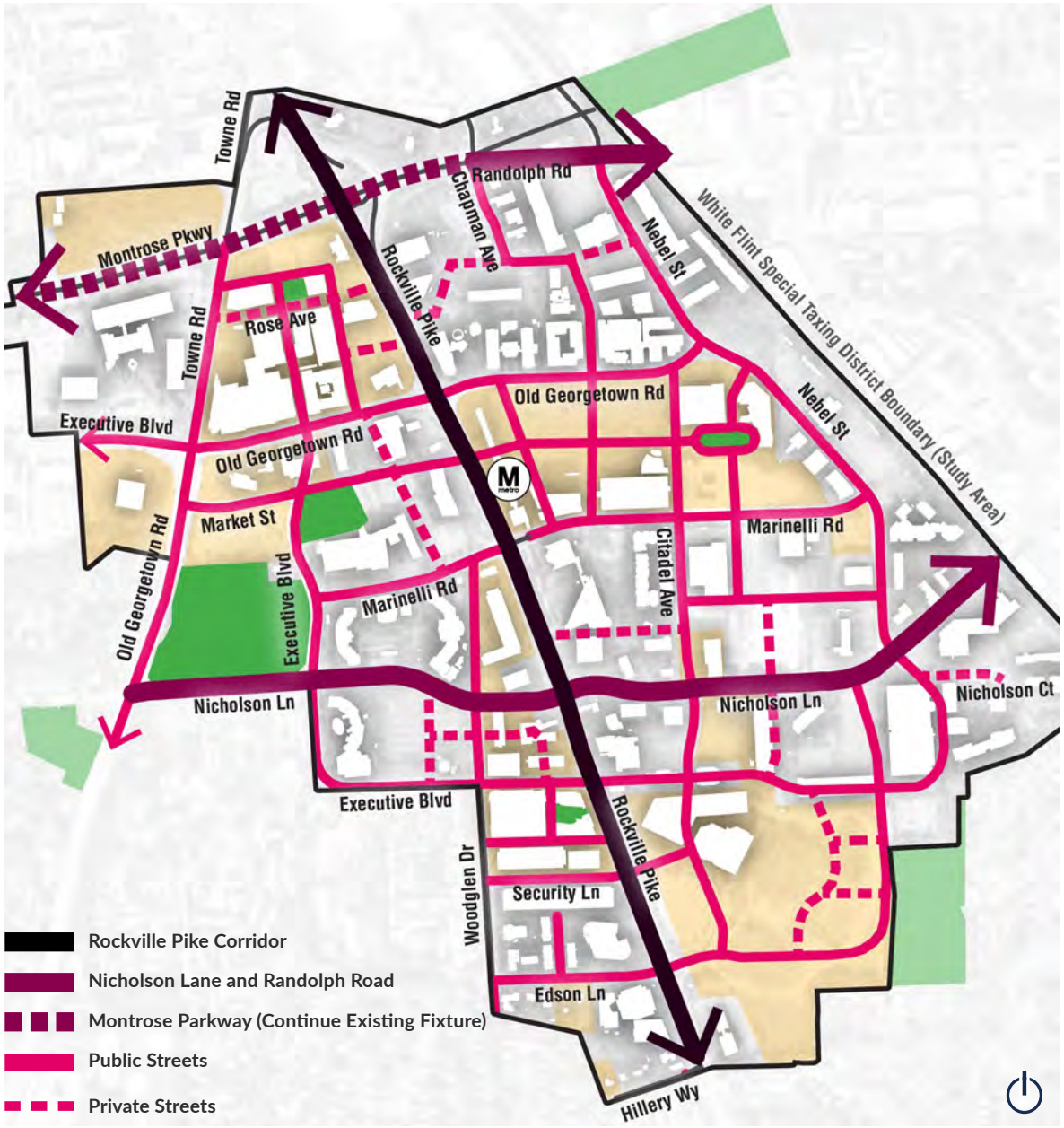


Figure 67: Street lights should be placed at regular intervals throughout the Pike District to provide a safe and well-lit environment for people walking and biking.

UTILITIES

Utility infrastructure such as utility poles, power distribution lines, and transformers are fundamental elements of the streetscape. However, utility poles placed in the frontage zone can obstruct pedestrian movements, while distribution lines are potential safety hazards during fire emergencies or severe weather. When properties in the Pike District are redeveloped, above-ground utilities should be relocated underground. Dry utilities should be located in the public utility easement unless they are located in zero setback area. The following guidelines direct the installation of utility infrastructure in the Pike District:

Undergrounding of Utilities

- All new Optional Method development projects are generally expected to place all utilities within and along their property frontages underground. The consideration of whether a development project is responsible for the undergrounding of existing above-ground utilities should be evaluated in coordination with the utility provider at the appropriate stage of the development approval process on a case-by-case basis. Final decision should be based on context-specific factors including, but not limited to, proportionality, cost, and the extent of the improvements funded by the White Flint Special Taxing District or through a Capital Improvements Program (CIP) project.

Timing and Coordination

- Utilities should be installed during full or partial sidewalk improvement construction, rather than a separate, utility-focused project, whenever possible.

- Utilities should be considered at the earliest possible stage of design. Utility plans should be submitted with the initial development application so that utilities can be located and coordinated to minimize conflicts with other streetscape elements.

Utility Location and Consolidation

- Utility lines should be located to minimize disturbance of the existing streetscape elements. In no circumstance should utilities of any kind diminish the accessibility of the pedestrian through zone. Utilities that run parallel to the street should be located outside of the planting/furnishing zone, where feasible. Utilities that run perpendicular to the street should be grouped together to minimize conflict with street trees or other BMPs/ESDs. Dry utility conduits and laterals should be aligned, arranged or stacked to minimize the extent of utility zones.

- Above-ground streetscape utilities, such as streetlights, fire hydrants, signs, and parking meters, should be located at the midpoint between street trees within the planting/furnishing zone.

Utility Vaults

- Where feasible, utility vaults should be located on private property. If a vault can only be placed in the public ROW, it is best located in the pedestrian through zone to minimize conflicts with street trees or other ESDs in the planting/furnishing zone. Vaults located in the pedestrian through zone should have a solid cover flush with the adjacent sidewalk surface and should match the adjacent paving material.

- Vaults must be constructed in compliance with American Disabilities Act standards for walking surfaces within an accessible route. A minimum 6-foot-wide continuous free and clear path must be provided during maintenance work.

Figure 68: Utility vaults can feature wayfinding elements, such as this map in New Haven, CT.

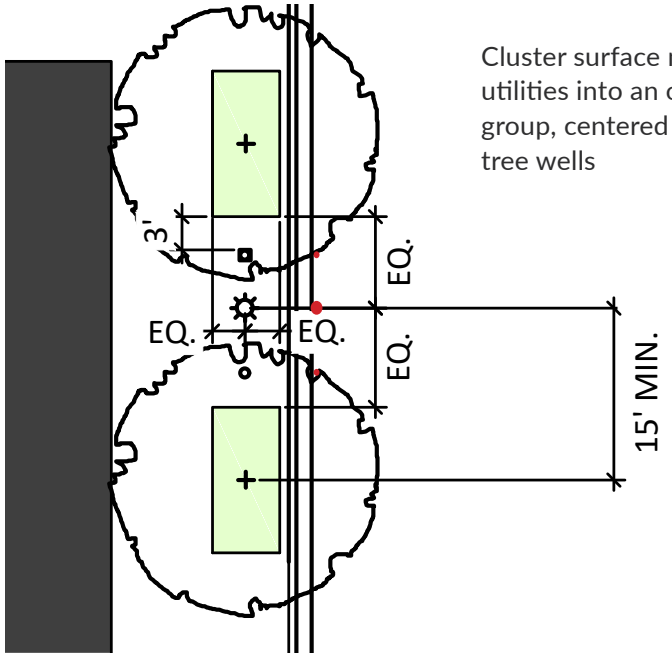


Figure 69: Diagram illustrating best practices for locating surface mounted utilities.

Figure 70: Utility vaults can be improved with artwork or wayfinding elements.

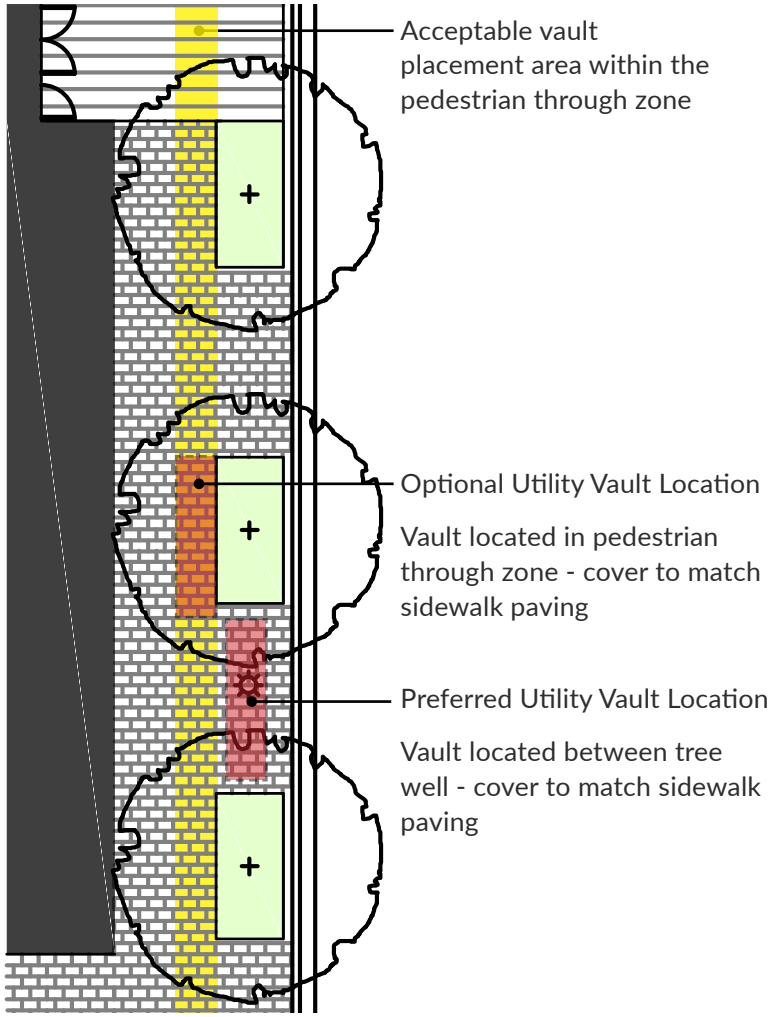


Figure 71: Preferred/acceptable utility vault locations.

DISTRICT GATEWAYS & PLACEMAKING

District gateways and placemaking intersections help establish a sense of place and communicate the Pike District's values. District gateways are intersections that provide entry into the Pike District and should be enhanced with wayfinding and branding elements consistent with the Pike District rebranding efforts. Prominent gateways include Rockville Pike, Nicholson Lane, and Randolph Road.

Six placemaking intersections are also identified, with artistic and cultural elements recommended. Additionally, these guidelines identify three priority access improvements:

- Pedestrian improvements to the intersection of Old Georgetown Road and Nicholson Lane, to provide safer access for visitors to the Josiah Henson Museum & Park.
- Pedestrian/bike bridge connecting Nicholson Court to Wyaconda Road, as recommended in the ***Bicycle Master Plan***.
- A pedestrian/bike trail through White Flint Neighborhood Park, connecting Rokeby Avenue to the former White Flint Mall, as recommended in the ***Bicycle Master Plan***.

Figure 72: Existing gateway signage in the Pike District.

Figure 73: Example of public street art in Boston.

Figure 74: Example of a gateway sculpture in Washington, D.C.

In addition to these long-term placemaking recommendations interim activations are suggested to enhance pedestrian and bicycle access throughout the Pike District. An example of this in practice is the Pike District Connector, which was installed in September 2021 and established a one-mile link between the Bethesda Trolley Trail and the Montrose Parkway Trail. The Connector focused on wayfinding, activations and public art, and promoting local destinations, including temporary pavement stickers and signage, a pollinator garden and temporary seating at Wall Local Park, and sidewalk murals installed by local artists.

Legend:

- Rockville Pike
- Public Streets
- Montrose Parkway
- Private Streets
- Placemaking Intersections
- District Gateways

Figure 75: Map showing the suggested Placemaking Intersections and District Gateways.

GREEN INFRASTRUCTURE

The development of new streetscape environments within the Pike District provide an opportunity to incorporate environmental stewardship through design. A number of Low Impact Development (LID) opportunities have been identified. These opportunities include:

- Curb Extensions/Bioretention Planters
- Tree Box Bioretention Planters
- Permeable Paving
- Rain Gardens
- Tree Infill
- Impervious Surface Reduction

Reduction of impervious surfaces and stormwater management practices must be designed per Maryland Department of the Environment and Montgomery County Department of Permitting Services requirements.

Irrigation

Installation of permanent sidewalk planting irrigation systems is not generally preferred in the public right-of-way (ROW); however, the practice is acceptable if well-maintained and used sustainably. The use of temporary watering bags and/or regular tree watering for at least the first six months after the initial tree plantings is strongly encouraged.

Figure 76: Examples of bioretention and stormwater management planters.

TOOLS	APPLICABILITY	CONCEPT IMAGE
1 CURB EXTENSIONS / BIORETENTION PLANTERS	Curb extensions/bioretention planters are good tools in areas where right-of-way space is limited. They fit well at four-way intersections, reduce the walking distance a pedestrian has to cross, and they collect storm water off gutters.	
2 TREE BOX BIORETENTION PLANTERS	Tree box bioretention planters fit well along sidewalks with enough width (best if planters are at least 5' wide) and those that lack mature canopy trees. Planters can be long or short, depending upon available space and utility constraints.	
3 PERMEABLE PAVING	Permeable paving is a highly adaptable technique that can be used almost anywhere hardscape is used.	
4 RAIN GARDENS	Rain gardens are planted depressions that allow rainwater to infiltrate into the soil. They fit well in any unpaved right-of-way spaces such as open spaces, reservations, and areas behind sidewalks.	
5 TREE INFILL	Urban trees play an important role in intercepting and slowing down stormwater and cooling high temperatures. A fully leafed tree can intercept up to 60% of a .25" storm. Tree infill is appropriate along planting strips in sidewalks where trees are missing and utilities do not pose a conflict.	
6 IMPERVIOUS SURFACE REDUCTION	One of the simplest techniques for increasing permeable surfaces is to remove impervious surfaces. This technique is appropriate in sidewalk zones along the corridor where more paving exists than is necessary for pedestrian movement.	

MICROMOBILITY

Bikeshare

Bikeshare stations can vary in size and configuration. Montgomery County's bicycle stations typically provide 15 bicycle docking spaces, with a standard footprint of about 6 feet by 45 feet. Higher capacity stations with a larger footprint are appropriate for locations that generate a significant number of trips. Station locations should:

- Not infringe on the sidewalk Clear Zone
- Receive enough sunlight for solar apparatus.
- Provide at least 6 feet of clearance from the back of a docked bicycle to provide room for pedestrian movement.
- Be placed at least 18 inches from the curb where on-street parking is present in order to allow access to vehicles.
- Be at least 2 feet from curb cuts or crosswalks and at least 5 feet from fire hydrants.
- Be placed in visible, well-lit locations, to make them easy to find, discourage vandalism, and maximize safety for people getting or returning bikes.

Dockless Mobility

- Locate dockless parking zones in the Street Buffer Zone and ensure that they do not overlap with the Clear Zone, loading zones, or bus stop loading/landing areas.
- The size of dockless parking zones may vary depending on the anticipated volume of users, but a minimum size of 6 feet by 10 feet is recommended since this will accommodate at least 10 shared mobility devices.
- Where feasible, dockless parking zones should be co-located with a Capital Bikeshare station to increase the number of transportation options available within one location.
- Dockless parking zones should be easy to recognize and demarcated with pavement markings. Sidewalk dockless parking zones should be designed with white corner outlines to demarcate the space, and bike and scooter symbols should be placed within the zone. Optionally, they may also be marked with vertical white lines to designate the preferred orientation of the devices. All markings should be made from durable, slip-resistant paint.

Figure 77: Capitol Bikeshare station on Woodglen Drive.

Figure 78: Example of a designated dockless scooter parking zone close to a bikeshare station.

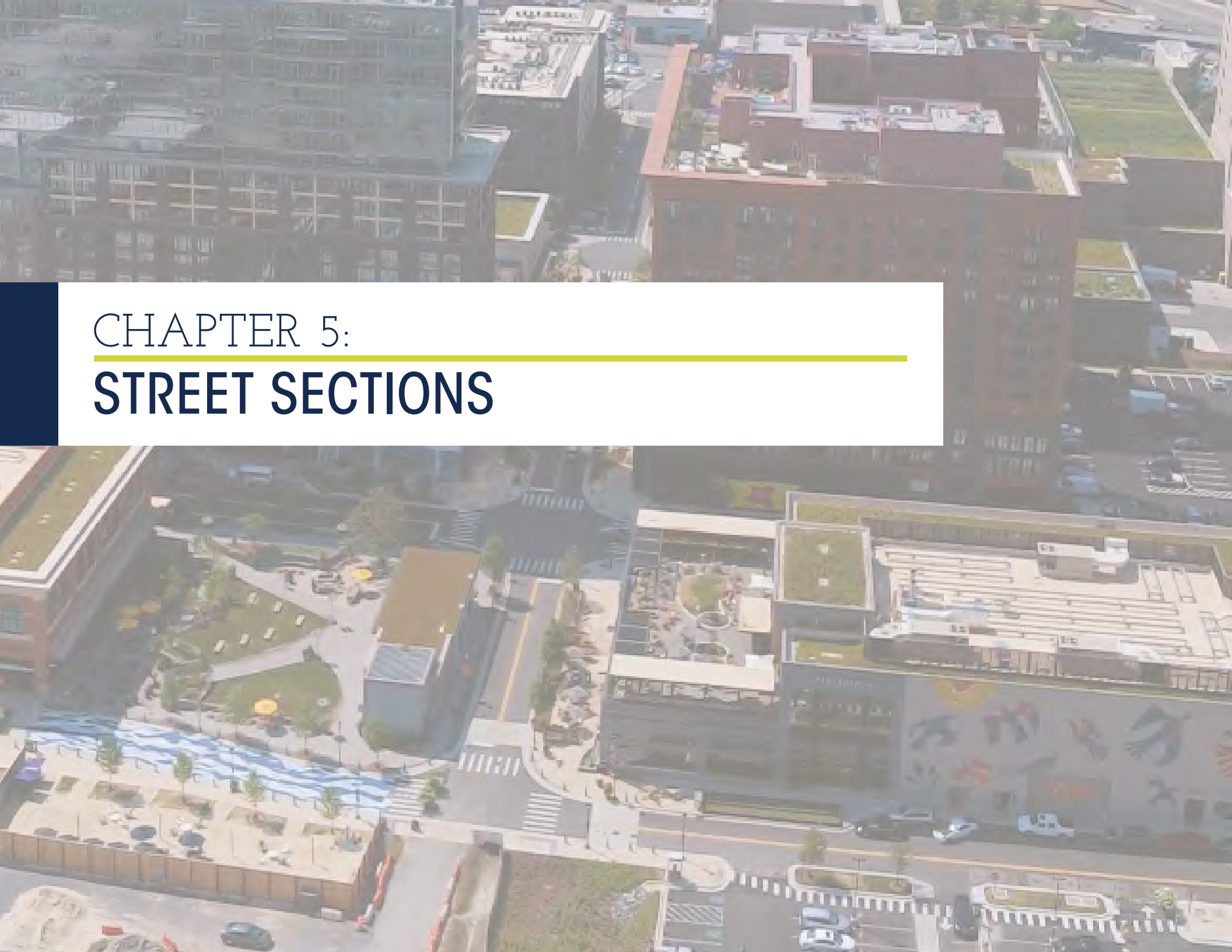
BUS STOPS AND SHELTERS

- Bus shelters shall include Montgomery County stardard facilities and the placement shall be coordinated with Washington Metropolitan Area Transit Authority (WMATA).
- The location of transit shelters should minimize obstruction of sight lines and should be near protected crossings for pedestrians.
- Shelters should be located to facilitate maintenance (e.g., glass and other elements of the shelter should be easy to replace as necessary).
- Shelters should provide their own light source. Where lighting is not provided in the shelter, shelters should be located where street lighting is abundant.
- Consider needs for passenger amenities such as additional seating, local area information, wayfinding, real-time traveler information, and heating or cooling capabilities at bus stops.
- Reinforce environmental stewardship through the use of solar panels for power needs. When considering solar power, special consideration should be made for the shelter's orientation that maximizes sun exposure and minimizes conflicts with trees.
- Green roofs may be considered where feasible. Special consideration should be made for long-term maintenance of such features.

Figure 80: Space should be clearly designated for pedestrians, bicyclists, and transit users at high-volume bus stops.

Figure 79: FLASH station amenities.

Figure 81: Montgomery County's FLASH bus rapid transit system began operating on the US 29 corridor in 2020.



CHAPTER 5:
STREET SECTIONS

The following cross-sections were developed by Montgomery Planning and Montgomery County Department of Transportation (MCDOT) staff, along with support from consultants. Cross-sections for each street were developed based on the following:

- A thorough review of the 2010 ***White Flint Sector Plan***, taking into consideration anticipated future land uses and development along each existing and planned street.
- A review of the ***Bicycle Master Plan***, the ***Master Plan of Highways and Transitways***, the ***Countywide Transit Corridors Functional Master Plan***, and the Complete Streets Design Guide, which informed where future pedestrian, bicycle and/or dedicated transit facilities are anticipated.
- A review of existing street conditions and facilities, including number of travel lanes and estimated curb-to-curb dimensions (proposed dimensions are approximate).

For those streets where cross-sections were provided in the applicable sector plan, that section was used as a starting point for the streetscape guidelines. In some cases, further evaluation led to changes in the sections compared to those in the sector plan. In those instances, the streetscape guidelines are more current and supersede the cross sections in the sector plan.

The proposed cross sections were vetted and revised through a series of workshops with staff from Montgomery Planning and MCDOT. The goal for each cross section was to implement the vision for the street from the applicable sector plan, Bicycle Master Plan, Master Plan of Highways and Transitways, and the Complete Streets Design Guide while working within the existing right-of-way dimensions wherever possible. Other critical objectives of this effort included improving safety for all travel modes (consistent with Montgomery County's Vision Zero goals), maximizing pavement permeability and tree canopy, accommodating goods movement and vehicle circulation, and maximizing opportunities for stormwater management.

In some cases, achieving the vision for the street within the existing curb-to-curb dimensions was not possible and the implementation of the future cross sections will require relocation and reconstruction of the curbs. Street sections shown within this document are illustrative. Implementation of street design will be finalized during regulatory review or capital improvement projects.

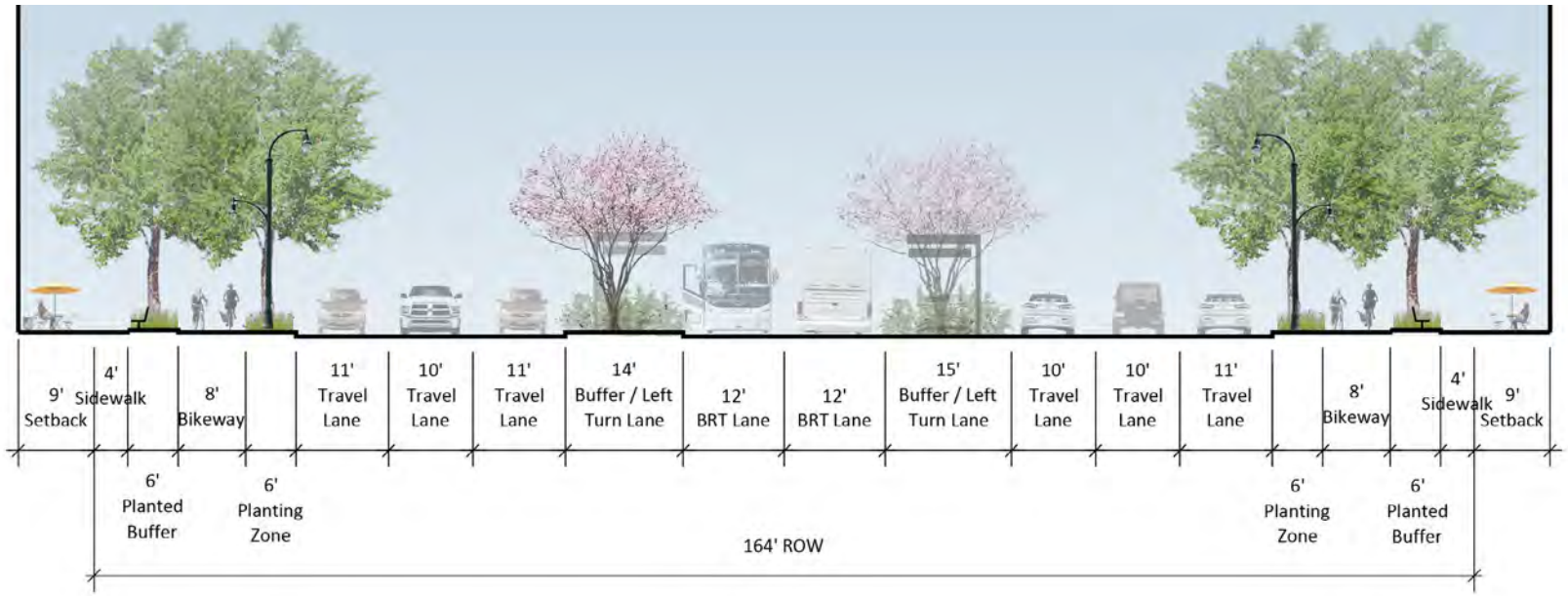
ROCKVILLE PIKE

This cross-section for Rockville Pike was determined in the 2010 ***White Flint Sector Plan*** and was refined by the 2019 Urban Design Guidelines for Rock Spring & White Flint 2 Sector Plans.

The ***2010 White Flint Sector Plan*** recommends a six-lane urban boulevard, a 164-foot right-of-way (ROW), and bus rapid transit (BRT) operating in dedicated median bus lanes. Per the 2018 Bicycle Master Plan, the separated bike lanes on the west side are part of the Bicycle Breezeway Network and must provide approved Breezeway branding and must be constructed to public road standards.

Guidance:

- The setback zone will be provided by adjacent property owners and will function as an extension of the sidewalk zone; the design of the additional setback will be determined during the development review process.
- On-street, off-peak parking is supported by M-NCPPC and MCDOT but requires approval from MDOT SHA.
- Street trees in the sidewalk zone should be placed in 6-foot wide tree pits, planted approximately 35-feet on-center.
- The planting/amenity zone should function as a continuous landscape panel, with trees planted approximately 35-feet on-center.

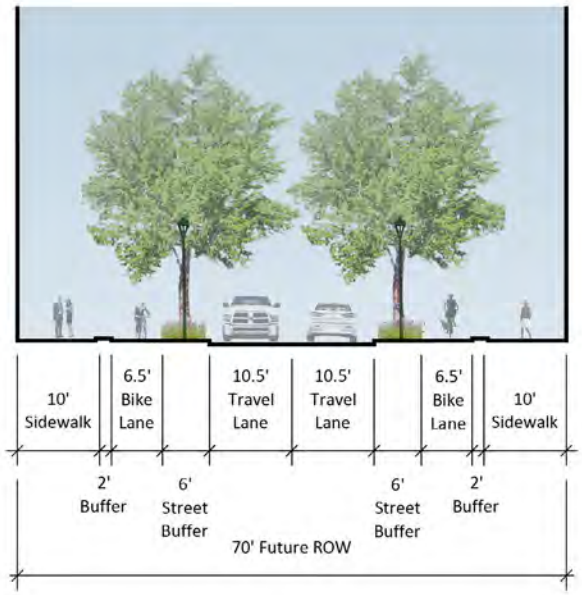


PUBLIC STREETS

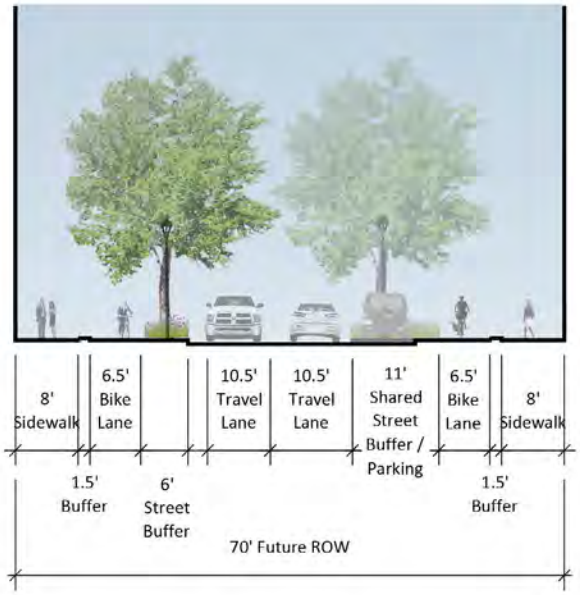
Most public streets in the County are owned and maintained by the Montgomery County Department of Transportation and are typically defined by the Complete Streets Design Guide as Downtown/Town Center Boulevards, Downtown/Town Center Streets, or Neighborhood Connectors.

These guidelines establish three configurations for public streets that minimize ROW dedicated to travel lanes, maximize flexibility for on-street parking, and provide separated bike lanes. Street trees should be planted approximately 35-feet on-center unless the same zone also accommodates on-street parking, in which case street tree spacing may be increased up to 50-feet on-center.

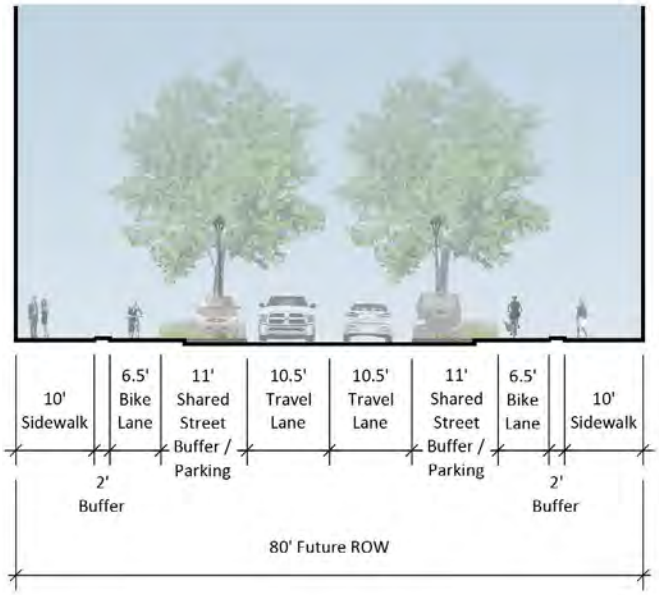
Option 1: No Parking



Option 2: One Parking Lane



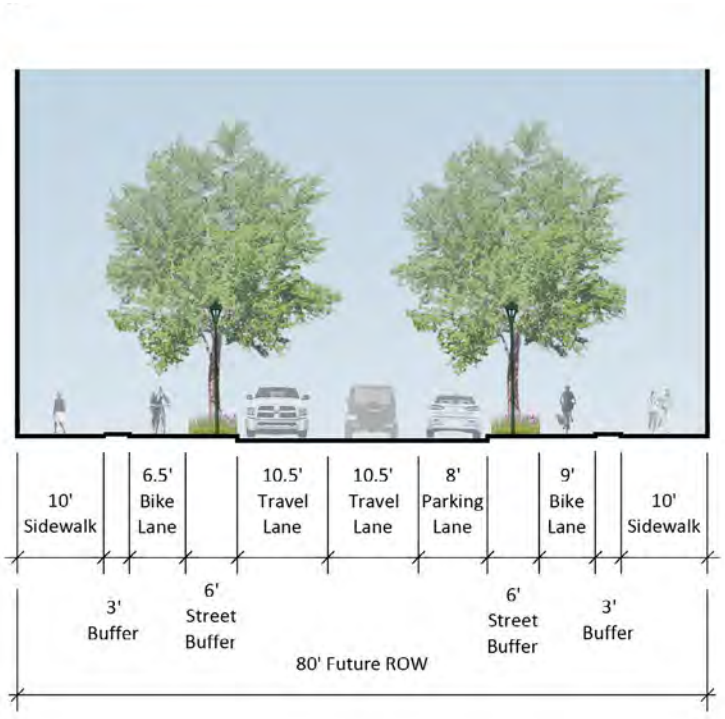
Option 3: Two Parking Lanes



PUBLIC STREETS

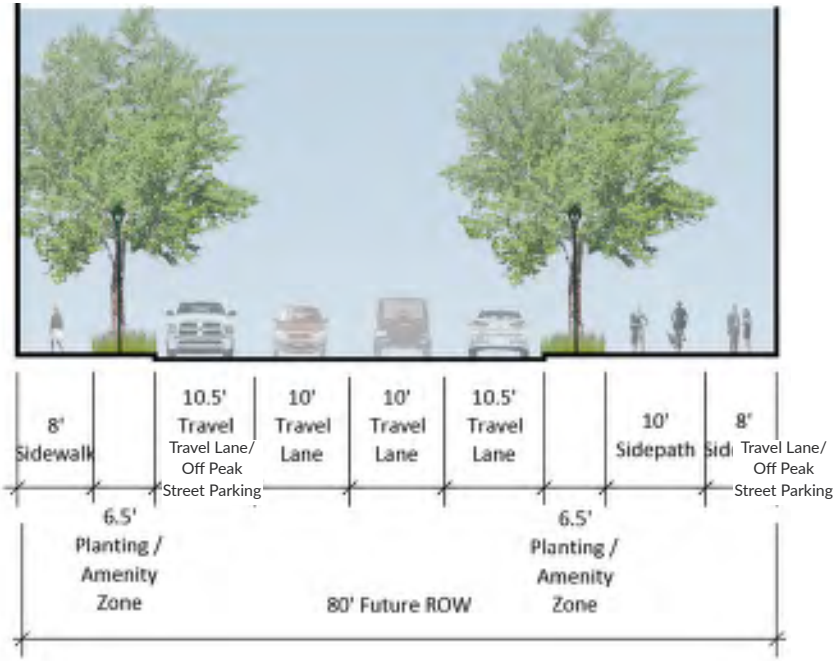
Nebel Street (South of Randolph Road)

The ultimate ROW for this segment is 80-feet. This cross-section should include on-street parking (one side) and separated bike lanes in each direction, as recommended by the 2018 ***Bicycle Master Plan***. Street trees should be added approximately 35-feet on-center to provide a buffer between the travel/parking lanes and bike lanes.



Nebel Street/Bou Avenue

Curb realignment is recommended for this segment north of Randolph Road to provide off- peak on-street parking and shift travel lanes to provide for a sidewalk adjacent to the sidepath on the east side of Nebel Street/Bou Avenue. Street trees should be planted approximately 35-feet on-center to provide a buffer between the travel/parking lanes and sidewalk / sidepath.



PUBLIC STREETS

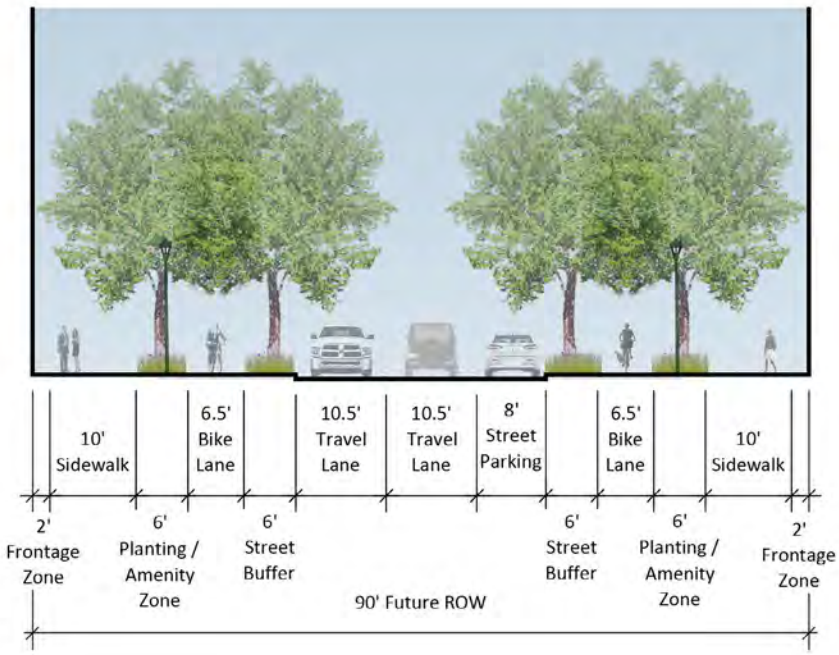
Marinelli Road

The future right-of-way for Marinelli Road is 90-feet. Option 1 is the preferred final cross-section to the east of Rockville Pike. Bikeway and sidewalk improvements planned by MCDOT for 2021-2022 east of Rockville Pike should be considered interim.

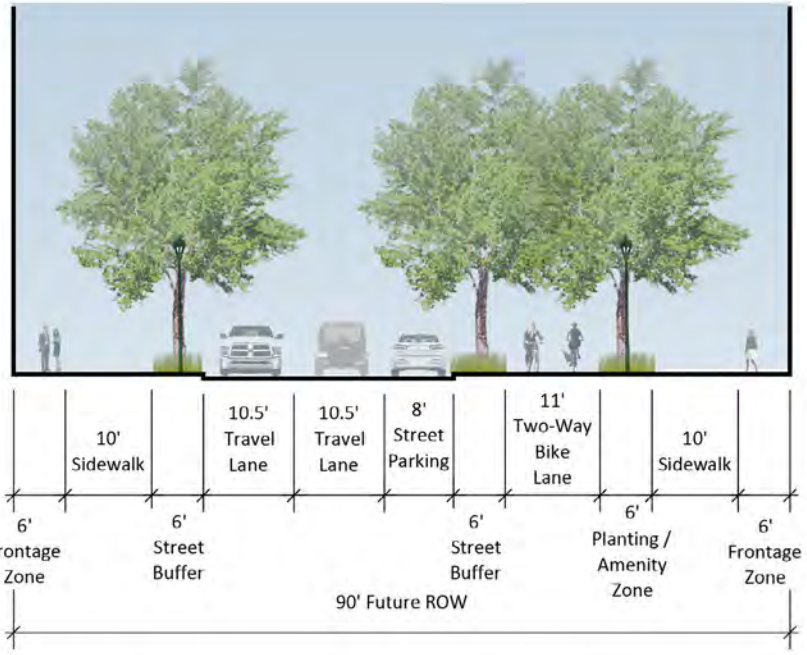
The streetscape design for the segment of Marinelli Road west of Rockville Pike depends on the ultimate placement of a future traffic signal, should Woodglen Drive eventually be extended between Nicholson Lane and Marinelli Road. Option 1 is the preferred recommendation if a traffic signal is located at Marinelli Road and Woodglen Drive; Option 2 is the preferred final recommendation if there is not a traffic signal placed at the intersection of Marinelli Road and Woodglen Drive.

Per the ***Bicycle Master Plan***, the separated bike lanes on Marinelli Road (west of Rockville Pike) are part of the Bicycle Breezeway Network and must provide approved Breezeway branding and must be constructed to public road standards. Street trees should be planted approximately 35-feet on-center to provide a buffer between the travel/parking lanes and pedestrians/cyclists.

Option 1: Two One-Way Bike Lanes



Option 2: Two-Way Bike Lane



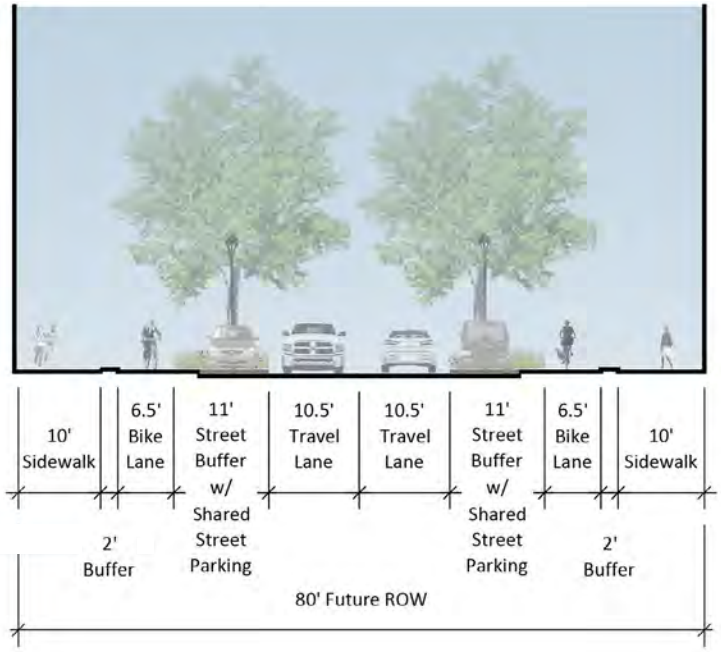
PUBLIC STREETS

Executive Boulevard (Nicholson Lane to Rockville Pike)

This configuration realigns portions of Executive Boulevard, based on the proposed extension across Rockville Pike included in the Sector Plan, and matches the existing cross-section for Executive Boulevard between Nicholson Lane and Woodglen Drive. The ***Bicycle Master Plan*** does not include bike recommendations on Executive Boulevard between Woodglen Drive and Rockville Pike. However, separated bike lanes should be extended from their current terminus (intersection of Woodglen Drive and Executive Boulevard).

Guidance:

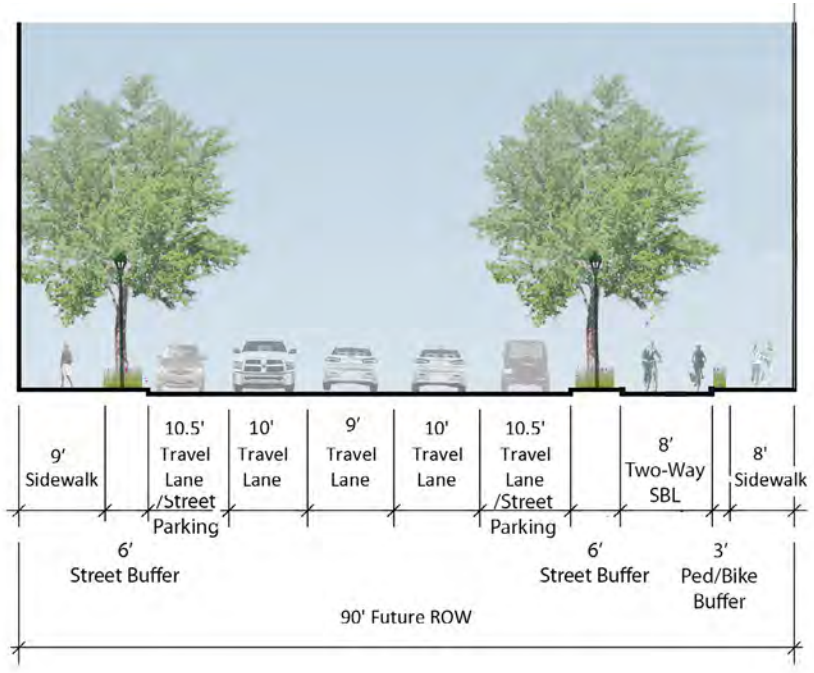
- Street buffer shared with street parking includes a three-foot door swing zone.
- Street trees should be provided between every two on-street parking spaces, which is approximately equivalent to 50-feet on-center.



PUBLIC STREETS

Old Georgetown Road (Rockville Pike to Nebel Street)

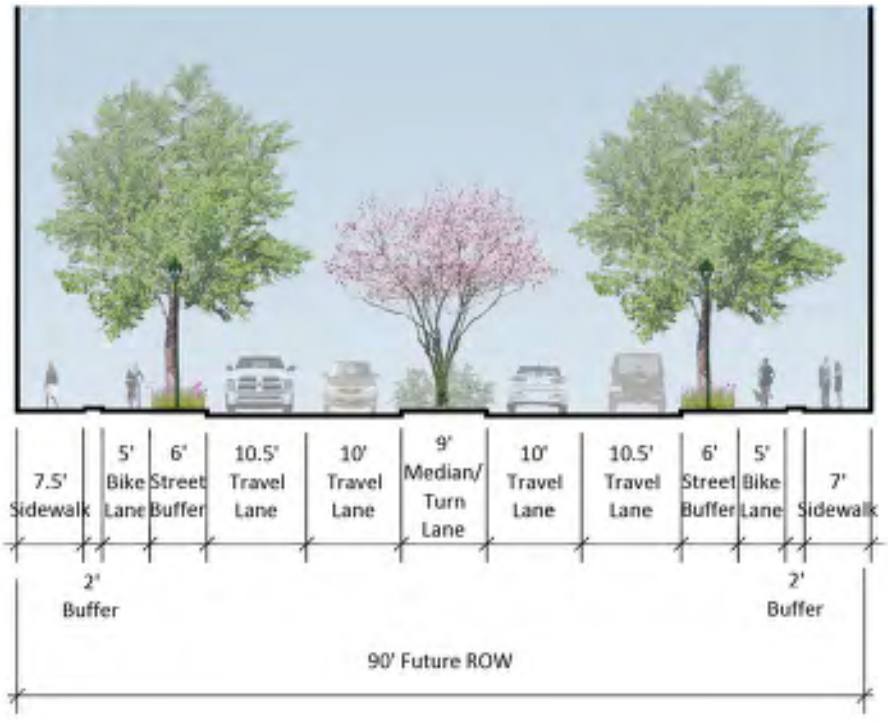
This configuration expands the right-of-way to 90-feet while maintaining the northern curb in its current location. This cross-section is designed to provide on-street parking during off-peak periods, provides two-way separated bike lanes on the south side as recommended by the 2018 ***Bicycle Master Plan***, and increases the street tree canopy. Street trees should be planted approximately 35-feet on-center to provide a buffer between the travel/parking lanes and pedestrians/cyclists.



PUBLIC STREETS

Nicholson Lane

The existing right-of-way on Nicholson Lane is 73-feet, with a Master Planned ROW of 90-feet. The ***Bicycle Master Plan*** recommends separated bike lanes in each direction. Street trees should be planted approximately 35-feet on-center to provide a buffer between the travel/parking lanes and pedestrians/cyclists. Trees with understory plantings should also be provided in the median.



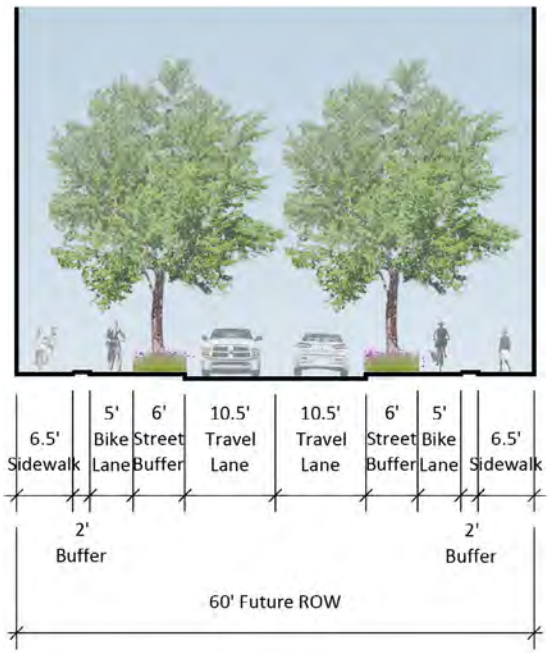
PRIVATE STREETS

Private streets can handle internal circulation within mixed-use developments. These three configurations for private streets are intended to provide greater flexibility for future developments while promoting the inclusion of separated bike lanes on more compact, internal streets with right-of-way between 60-70-feet.

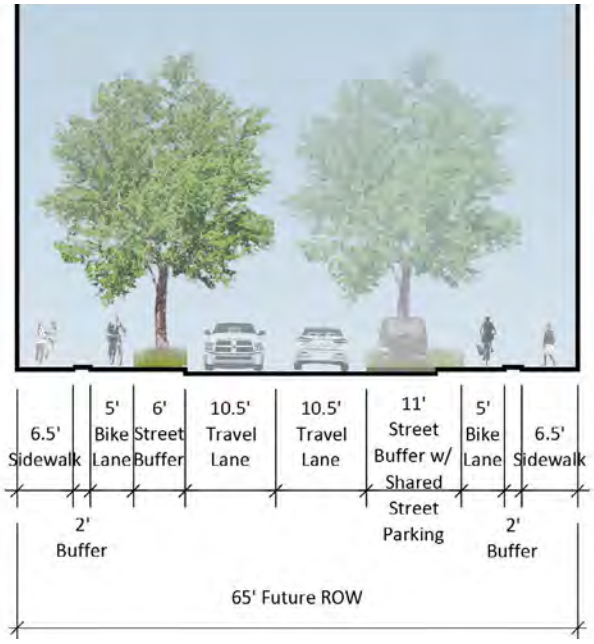
Street trees should generally be planted approximately 35-feet on-center to provide a buffer between the travel/parking lanes and pedestrians/cyclists. The Street Buffer with Shared Street Parking includes an eight-foot parking lane and a three-foot wide green panel, which functions as a door-swing zone for on-street parking. In this condition, street trees should be provided between every two on-street parking spaces, which is approximately equivalent to 50-feet on-center.

Private streets should be defined as either Downtown Streets or Shared Streets and follow dimensions/layouts defined in the CSDG.

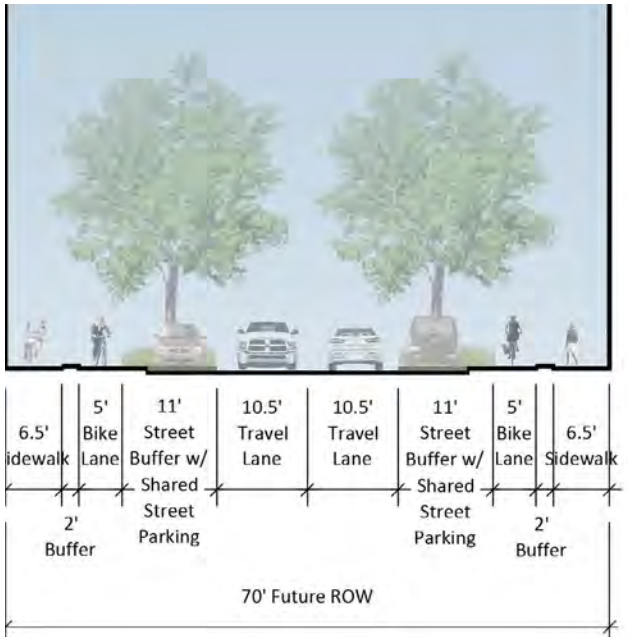
Option 1: No Parking



Option 2: One Parking Lane



Option 3: Two Parking Lanes



CONCLUSION

CREATING GREAT STREETS IN THE PIKE DISTRICT

As documented extensively by the Advancing the Pike District initiative, the 2010 ***White Flint Sector Plan*** has successfully generated dense pockets of mixed-use development in the Pike District in the last decade. Despite this progress, unified guidance is needed to ensure streetscapes in the Pike District are inviting, high-quality, and safe for all users.

These streetscape guidelines are produced in response to a common concern raised by community members, property owners, and County stakeholders during the course of the Advancing the Pike District initiative: streetscapes connecting the Pike District's existing destinations and along primary arterial streets remain unsafe and unpleasant to navigate on foot or by bike. Establishing a cohesive streetscape vision is a key step to transforming the Pike District from an auto-dependent, suburban environment to a walkable, mixed-use, vibrant neighborhood. These guidelines provide a detailed blueprint for both private developers and County agencies to follow as existing streetscapes are retrofitted and new streets are constructed in the Pike District.

These guidelines also further the objectives established by the Advancing the Pike District initiative. Promoting high-quality pedestrian and bicycle connections will deemphasize the need for personal vehicles and create a walkable District better positioned to attract future development. Providing guidance on access management will help the County reach its Vision Zero goals and lead to safer environments for people walking, biking, and rolling. Placemaking intersections and district gateways will create prominent entrances to the Pike District and encourage integration of artistic and branding elements into utility and transit infrastructure. Ultimately, these guidelines will establish distinctive streetscapes, lend character and importance to the pedestrian experience, and are fundamental to achieving the Sector Plan's economic and livability objectives.

ADVANCING THE PIKE DISTRICT

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Montgomery Planning