Appendix 1

KITTELSON & ASSOCIATES

PALISADES TROLLEY TRAIL

TRAIL CONCEPT DESIGN PACKAGE

DECEMBER 2019

CONTENTS

TRAIL OVERVIEW

DESCRIPTION

Location

The Palisades Trolley Trail (PTT) currently exists as an informal trail following the Glen Echo Trolley ROW between Galena Place in Palisades at the north end and Foxhall Road in Foxhall at the south end.

Since Foxhall and Palisades are both located at higher elevations relative to the C&O Canal and Potomac River and as a result are somewhat isolated from parallel roadways and trail systems, the existing trail serves as a higher elevation connector spine through the neighborhoods.

The proposed PTT, as shown in Figure 1, follows the same general alignment of the existing informal trail west of Foxhall Road on District owned ROW. Wherever possible, the trail is located on the flattest portions of the ROW to minimize grading required to construct the trail. Gentle curves are incorporated into the alignment to maintain slower bicycle speeds.

Access Points

Access points along the trail provide opportunities to incorporate trail amenities such as trail signage and informational kiosks, seating, bike storage, shelter structures, and additional landscaping. Access points and at-grade trail crossings east of Foxhall Road are provided at the following locations:

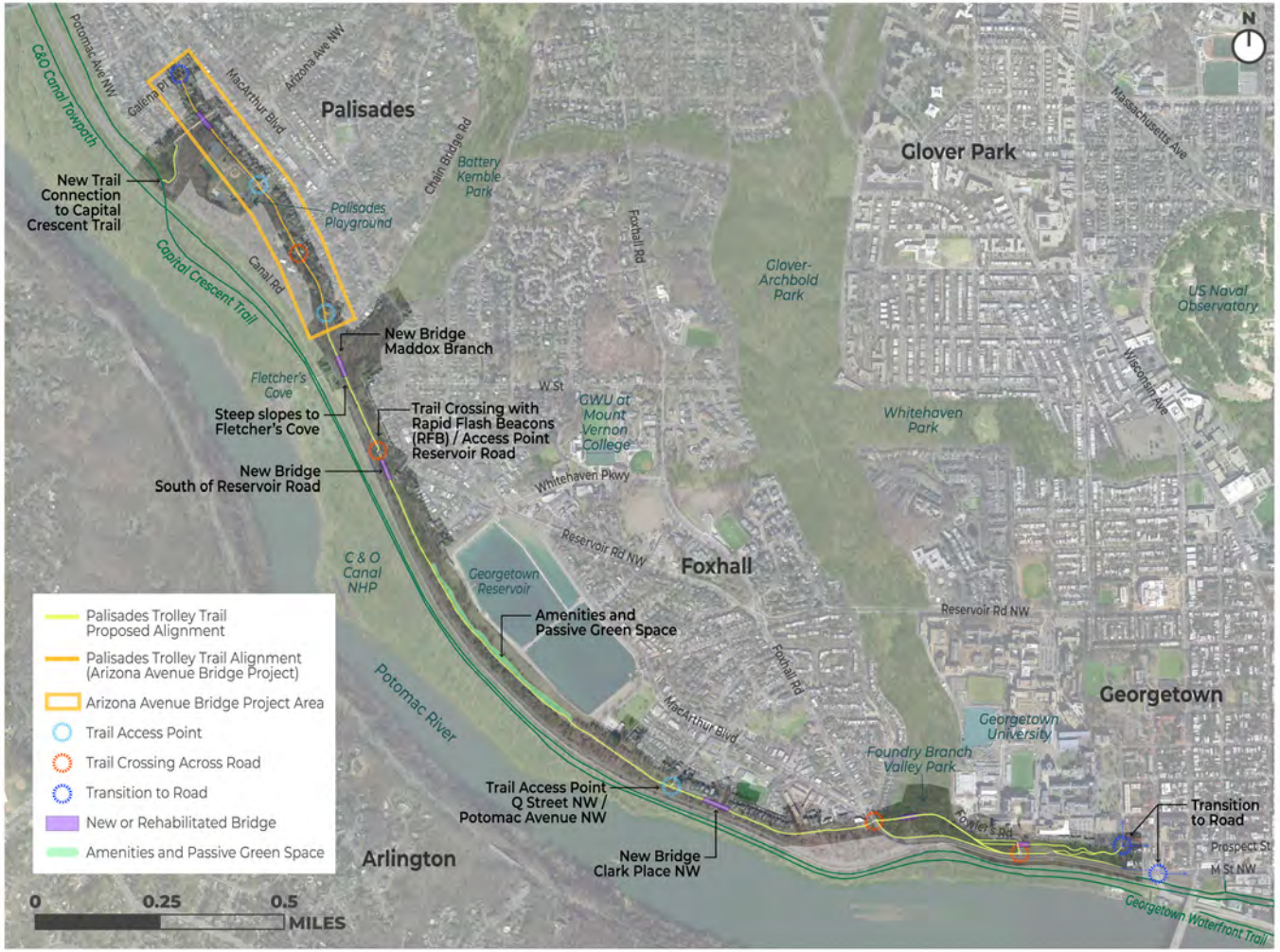

Figure 1: Overall Trail Map

1/ Galena Place at Sherier Place (western trail terminus)

2/ Arizona Avenue at Sherier Place

3/ Palisades Recreation Center at Edmunds Place

4/ Chain Bridge Road (at-grade road crossing)

5/ Sherier Place north of Nebraska Avenue

6/ Reservoir Road (at-grade road crossing)

7/ Potomac Avenue at Q Street

8/ Foxhall Road south of MacArthur Boulevard

The PTT moves through various contexts and the design intent adjusts to those contexts. Where the trail ROW is more constrained, particularly in areas adjacent to existing homes (Figure 2), there is minimal landscaping and the trail footprint is limited to a 15' wide section. Where there is sufficient ROW, stormwater management best management practices (BMPs) are located adjacent to the trail to managagemanage stormwater runoff. As depicted in Figure 3, the widest portion of the trail around the Georgetown Reservoir includes areas for passive recreation and space for an informal walking trail adjacent to the formalized trail.

Figure 2: Conceptual Rendering of the Palisades Trolley Trail south of Laverock Place NW

Figure 3: Conceptual Rendering of the Palisades Trolley Trail near the Georgetown Reservoir

TRAIL ALIGNMENT OPTIONS

Arizona Avenue Connection to Capital Crescent Trail (CCT)

A new multi-use trail connection (Figure 4) to the CCT is proposed from the PTT and Palisades neighborhood at Arizona Avenue and Sherier Place to the CCT bridge over Canal Road and the C&O Canal north of Arizona Avenue. From the base of the Arizona Avenue Bridge access ramp at Sherier Place, the proposed trail follows new sidewalks on the north side of Arizona Avenue to Carolina Place.

A new crosswalk across Arizona Avenue connects to a new multi-use trail on NPS property that parallels Arizona Avenue and gradually traverses the grade to connects to the CCT at its current grade approximately 15' above Arizona Avenue. Grading and retaining walls on NPS property will be required to maintain an ADA accessible trail through this area with a maximum 5% grade.

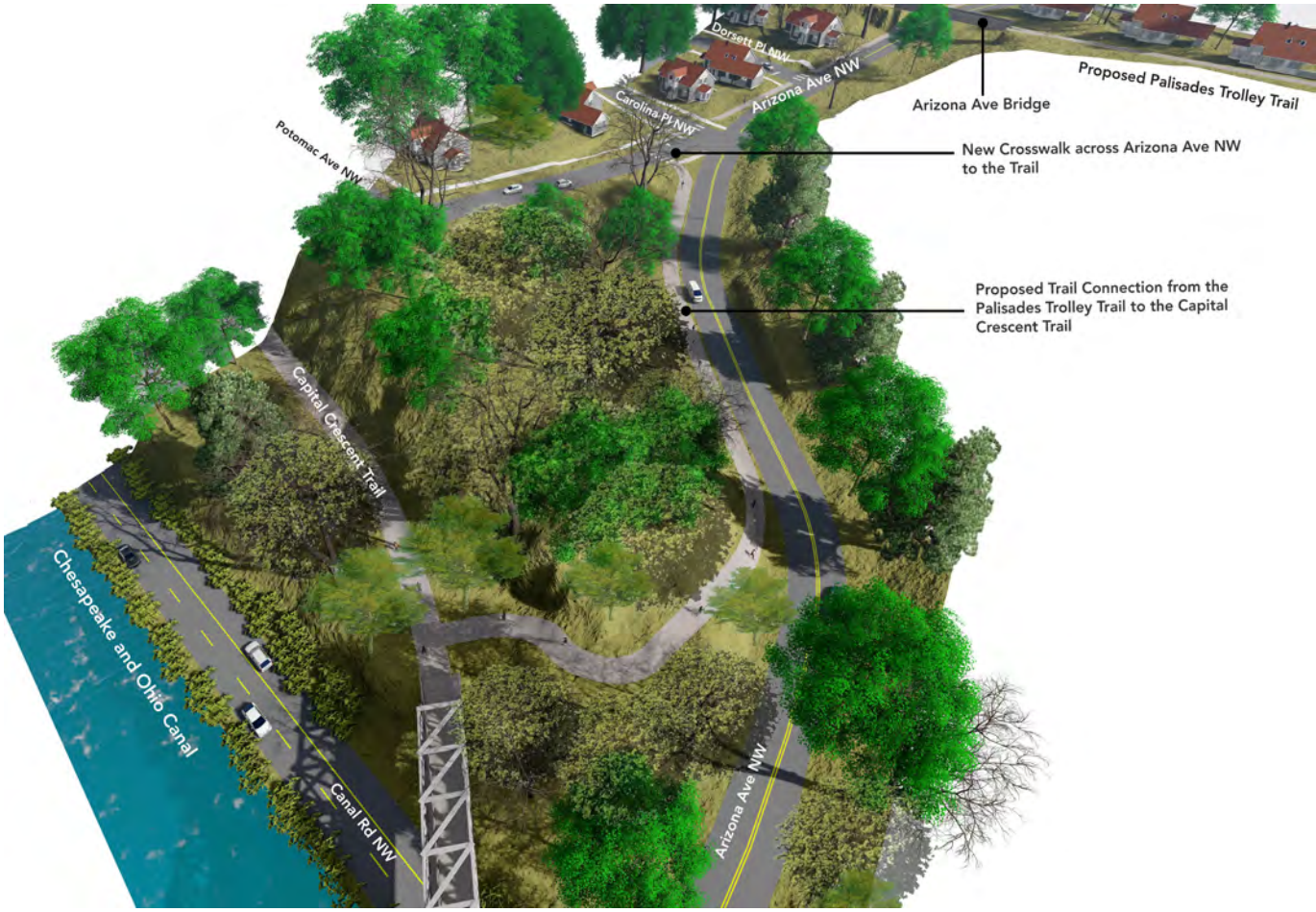

Figure 4: Proposed Multi-Use Connection between the Capital Crescent Trail and the Palisades Trolley Trail

East of Foxhall Road

Due to steep topography and complex property ownership east of the current trail terminus at Foxhall Road, there are five potential trail alignment options to connect the PTT to the Georgetown neighborhood. Those options are shown on the following pages.

Eastern Terminus

All of the options (with the exception of Option 2) use a rehabilitated Foundry Branch Trestle Bridge as part of the trail alignment. The eastern trail terminus for alignment options 1-3 is at Canal Road/M Street and Whitehurst Freeway (Figure 5). Options 4-5 have a trail terminus at Prospect Street and St. Mary's Place (Figure 6).

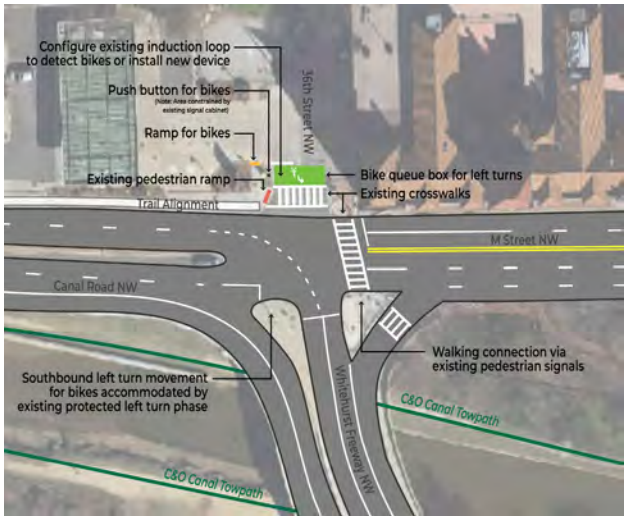

Figure 5: Eastern Terminus for Alignment Options 1, 2, & 3

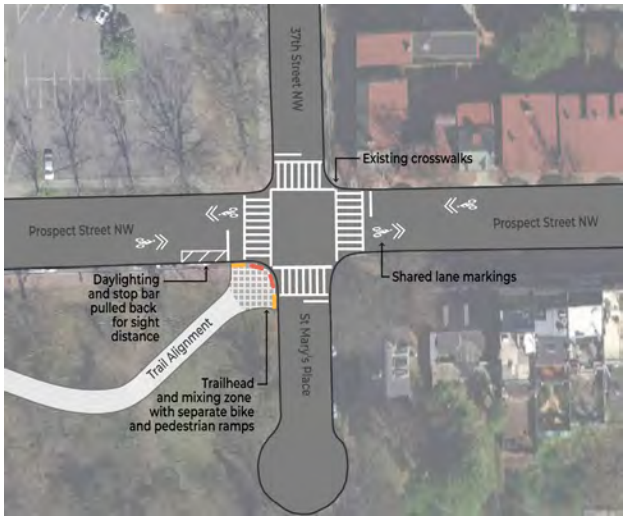

Figure 6: Eastern Terminus for Alignment Options 4 & 5

Option 1
Foundry Branch Trolley Trestle Bridge to Canal Road

The potential alignment (Figure 7) uses a new at-grade road crossing at Foxhall Road to a trail on NPS property that connects to the rehabilitated Foundry Branch Trolley Trestle Bridge. The trail traverses steep topography east of the Bridge on WMATA and NPS property to connect to the existing sidewalk on Canal Road just west of Fowler Road at the southern entrance to Georgetown University. The trail then parallels the north side of Canal Road on a widened sidewalk on NPS property until a pinch point with a stone wall and residential properties.

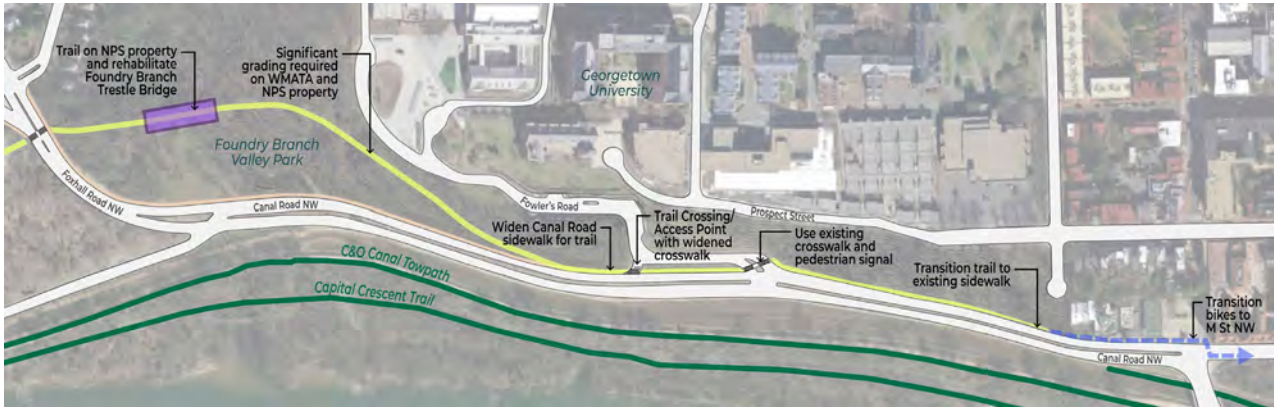

Figure 7: Option 1 - Foundry Branch Trolley Trestle Bridge to Canal Road

Option 2
Canal Road

The potential alignment (Figure 8) uses a new at-grade road crossing at Foxhall Road to the existing sidewalk on Canal Road. The trail then parallels the north side of Canal Road on a widened sidewalk on NPS property until a pinch point with a stone wall and residential properties. This portion of the trail utilizes two existing crossings of Fowler Road at the southern entrance to Georgetown University. It also provides a direct connection to the existing trail to the Foundry Branch Tunnel which goes under Canal Road and the C&O Canal and intersects with the C&O Canal Towpath and CCT.

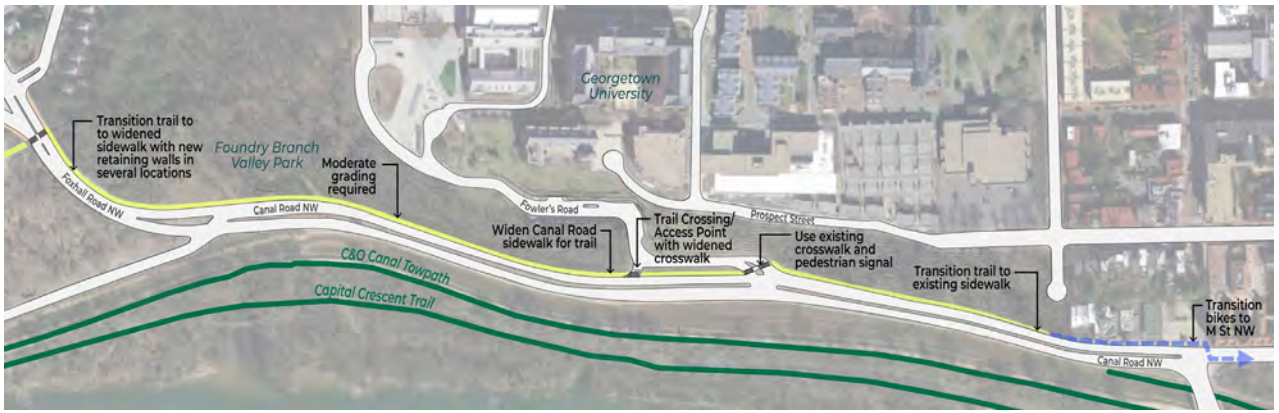

Figure 8: Option 2 - Canal Road

Option 3
Foundry Branch Trolley Trestle Bridge to Fowler Road to Canal Road

The potential alignment (Figure 9) uses a new at-grade road crossing at Foxhall Road to a trail on NPS property that connects to the rehabilitated Foundry Branch Trolley Trestle Bridge. The trail follows relatively flat land on WMATA property to the existing sidewalk on the south side of Fowler Road at the southern entrance to Georgetown University. The existing narrow sidewalk is widened along Fowler Road on Georgetown University and WMATA property by relocating the adjacent retaining wall connects to Canal Road at the terminus of the Driveway. The trail then parallels the north side of Canal Road on a widened sidewalk on NPS property until a pinch point with a stone wall and residential properties.

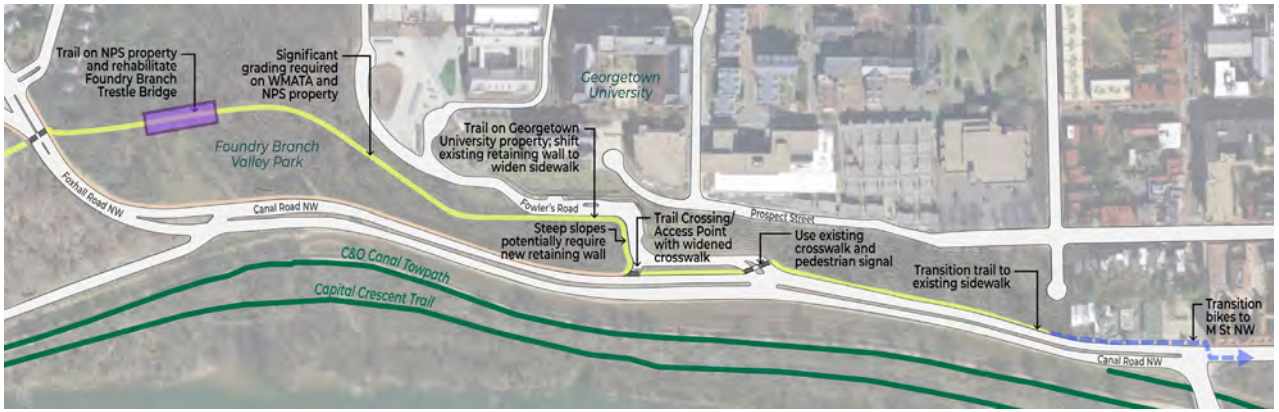

Figure 9: Option 3 - Foundry Branch Trolley Trestle Bridge to Fowler Road to Canal Road

Option 4
Foundry Branch Trolley Trestle Bridge to New Bridge to Prospect Street

The potential alignment (Figure 10) uses a new at-grade road crossing at Foxhall Road to a trail on NPS property that connects to the rehabilitated Foundry Branch Trolley Trestle Bridge. The trail follows relatively flat land on WMATA property to a new bridge over Fowler Road at the southern entrance to Georgetown University. The eastern landing of the bridge is on Georetown University property and then traverses steep topography on GU and NPS property to reach the eastern trail terminus at Prospect Street and St. Mary's Place. The new bridge over Fowler Road on Georgetown University's property provides an opportunity to create an iconic gateway into the University via a modern-style bridge. Clearance for all University vehicles, including buses and trucks would be maintained. An artistic rendering of the new bridge is shown in Figure 11.

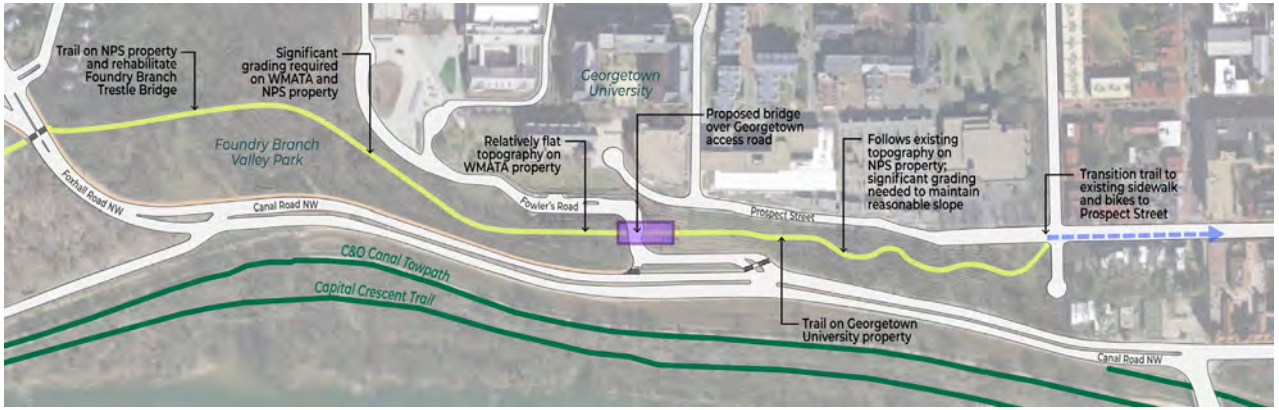

Figure 10: Option 4 - Foundry Branch Trolley Trestle Bridge to New Bridge to Prospect Street

Figure 11: Proposed Rendering of New Bridge over Fowler Road in Option 4

Option 5
Foundry Branch Trolley Trestle Bridge to Canal Road to Prospect Street

The potential alignment uses a new at-grade road crossing at Foxhall Road to a trail on NPS property that connects to the rehabilitated Foundry Branch Trolley Trestle Bridge. The trail traverses steep topography east of the Bridge on WMATA and NPS property to connect to the existing sidewalk on Canal Road just west of Fowler Road at the southern entrance to Georgetown University. The trail then parallels the north side of Canal Road on a widened sidewalk and utilizes two existing crossings of Fowler Road. After the 2nd crossing, the trail traverses steep topography on NPS property to reach the eastern trail terminus at Prospect Street and St. Mary's Place.

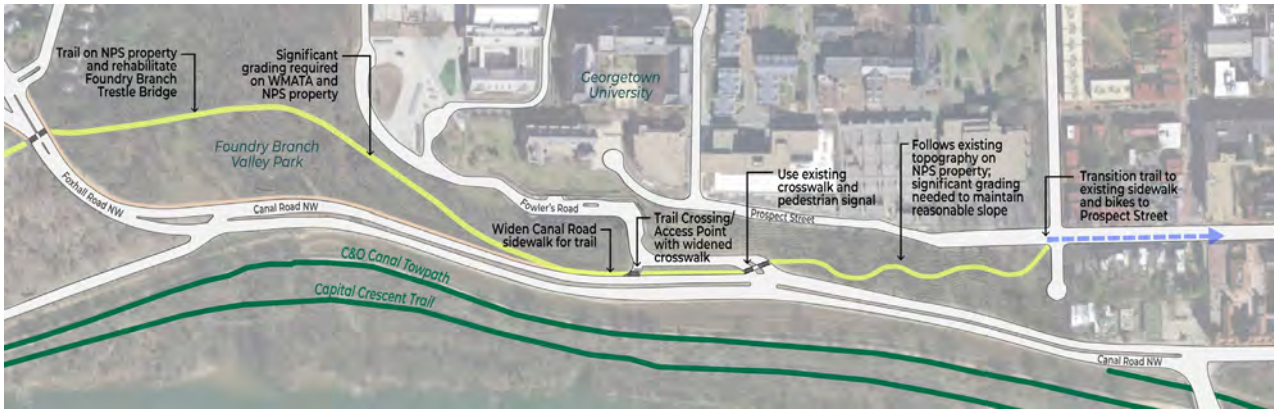

Figure 12: Option 5 - Foundry Branch Trolley Trestle Bridge to Canal Road to Prospect Street

TRAIL CONCEPT DESIGN

DESIGN INSPIRATION

History

The design inspiration for the PTT was drawn from the original Glen Echo Trolley (GET) in use along the trail corridor from 1896-1960. While the mode of transportation changes from trolley to bicycle, foot, roller skate, and others, one thing remains, the PTT still continues to provide access to entertainment, escape from the city, access to homes, and beautiful vistas.

Glen Echo Trolley

The GET ran from Georgetown to Glen Echo Park. The (Trolley) Car Barn at Georgetown University serves as a reminder of this early quintessential form of transportation.

Glen Echo Park & Recreation

The GET originally served Glen Echo Park, which people have flocked to for a respite from city life and a relaxed summer weekend. Fletcher's Boat Cove at the northern end of the trail project was also known for the recreation offered. Bicycle racing was popular at the end of the 19th Century, one race was along Conduit Road, later renamed MacArthur Boulevard. At one point there were plans to install a bicycle racetrack at Glen Echo Park, however it is unclear if was ever built.

Design Elements

The design elements for PTT reflect the relaxed, fun, and recreational feel that many people sought in Glen Echo Park and along the trolley path leading them to the Park. Some citizens have expressed a desire to maintain the trail in a 'natural' state; taking this into consideration, design elements could be made from wood, focused on native plants, or otherwise evoke a sense of the natural landscape.

The Montgomery County Story, 1974


Stewart, A.F. (2005), Images of America, The Palisades of Washington, D.C.


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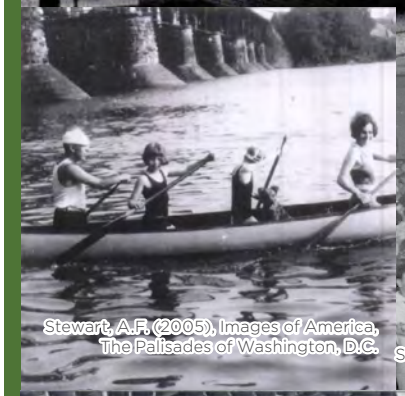

Stewart, A.F. (2005), Images of America, The Palisades of Washington, D.C.


Stewart, A.F. (2005), Images of America, The Palisades of Washington, D.C.


Car Barn at Georgetown University
https://i.pinimg.com/originals/ff/d3/20/ffd320d76087a9561f315e8da0f95683.jpg


Stewart, A.F. (2005), Images of America, The Palisades of Washington, D.C.


Stewart, A.F. (2005), Images of America, The Palisades of Washington, D.C.

DESIGN ISSUES & RESOLUTION

Issue	Design Resolution
Right-of-Way Ownership	• Trail alignment utilizes DDOT ROW wherever possible. • Impacts to non-DDOT property owners are minimized.
Utility Easements	• Design of new trail bridges complies with DC Water clearance requirements between the bridge abutments and the Crosstown Watermain. • Where possible, the trail alignment avoids DC Water appurtenances. • Where the trail intersects with DC Water appurtenances, access by DC Water is maintained. • The trail alignment avoids Pepco electric poles.
Trail Crossings at High-Speed Roadways	**Reservoir Road** • Increase visibility of the crossing and improve sight lines through a new raised crosswalk aligned perpendicular to Reservoir Road with Rectangular Rapid Response Beacons (RRFBs) and clearance of vegetation/new retaining wall on NE corner. **Foxhall Road** • New direct trail crossing separate from Foxhall Road/MacArthur Boulevard intersection with RRFBs.
Steep Topography and Complex Conditions East of Foxhall Road	• Retaining wall and regrading in multiple alignments to accommodate a maximum 5% trail. • Canal Road option to avoid steep topography changes between Foxhall Road and Fowler Road. • Several alignment options avoid impacts to Georgetown University property.
High Volume Roadways in Georgetown at Trail Terminus	**M Street Transition** • DDOT ROW at 36th Street redesigned to accommodate a bike queue box and a user-activated push button to cross M Street. **Prospect Street Transition** • Trailhead mixing zone with separate bike and pedestrian ramps to transition bikes onto 37th Street and Prospect Street. • Daylighting at SE corner to increase visibility crosswalk. • Bike sharrows on Prospect Street; potential to use lower stress network on 37th and N Street instead of Prospect Street.
Community Opposition to Formalized Trail	**Desire to Keep Trail Natural** • Potential to us stabilized decomposed granite surface or permeable asphalt to decrease impacts to natural setting. • Proposed trail alignment follows flattest areas of DDOT ROW to minimize earthwork and the removal of existing vegetation. • Additional landscaping proposed using native plantings. **Concerns with High-Speed Bicycle Traffic** • Gentle curves and chicanes incorporated into trail alignment to slow speeds. • Potential to us stabilized decomposed granite surface to create a slower speed facility.

Table 1: Design Issues and Resolutions

SECTION TYPES

Typical Sections

As the PTT moves through various contexts, the typical section changes to match the contexts (Figure 13). There are six (6) different typical sections:

1/ Adjacent to Homes in the Palisades Neighborhood

2/ Steep Side Slopes

3/ Narrow Right-of-Way (ROW)

4/ Wide Right-of-Way (ROW)

5/ Adjacent to Local Street

6/ Adjacent to Homes in the Foxhall Neighborhood

7/ Canal Road Trail Alternative Option 2

The sections are described in more detail on the following pages.

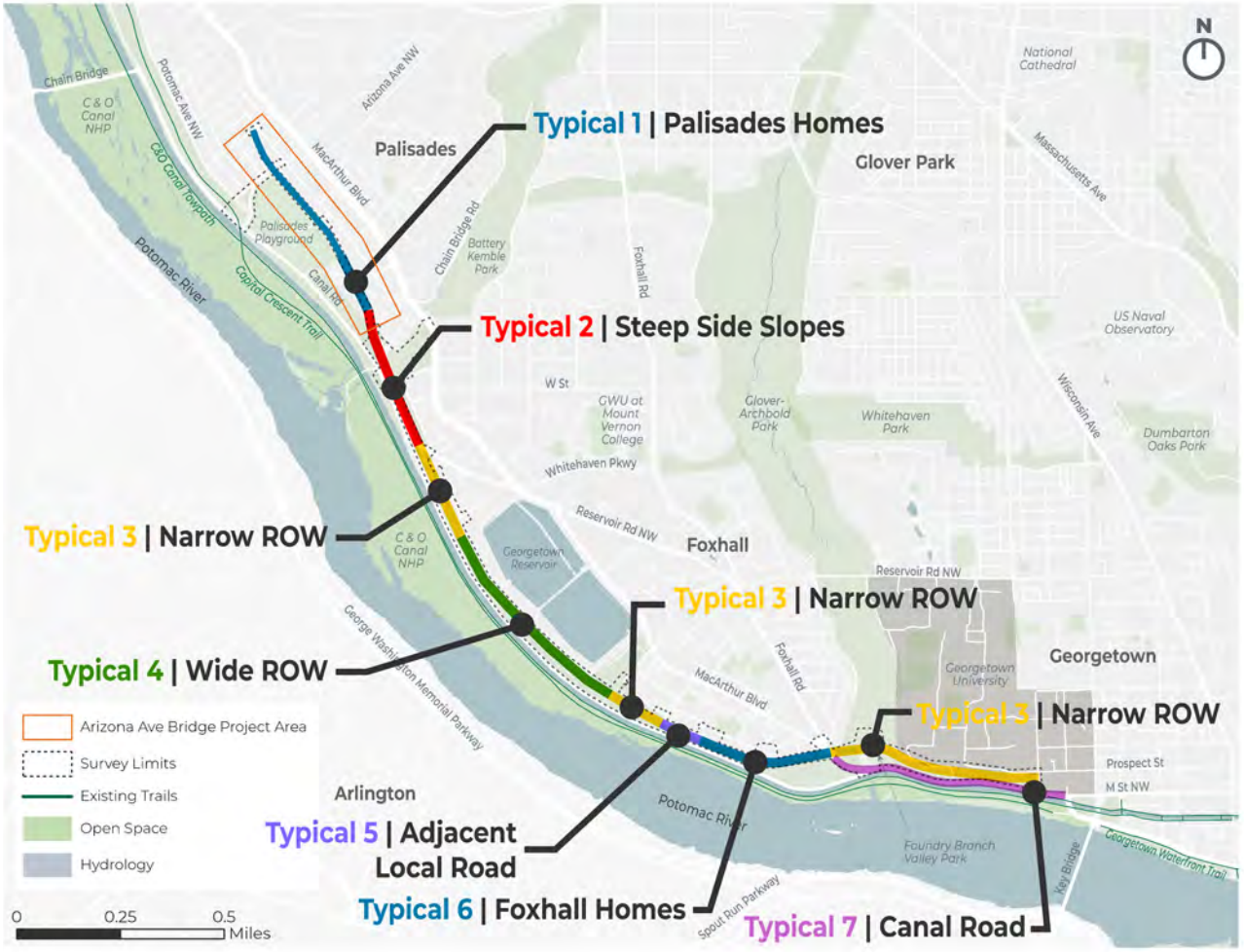


Figure 13: Typical Sections

Typical Section 1 Palisades Homes

This typical section (Figure 14) begins just south of the Palisades Playground and is characterized by private residential fences (typically 8’ in height) on either side of trail.

The trail is 11’ wide with 2’ buffer areas on each side. The proposed landscape varies within the remaining 7’-6” on each side. In some areas, native low shrubs and groundcovers can help to soften sounds coming from the trail. Other areas should remain as the existing landscape material to minimize impact to the existing sense of place.

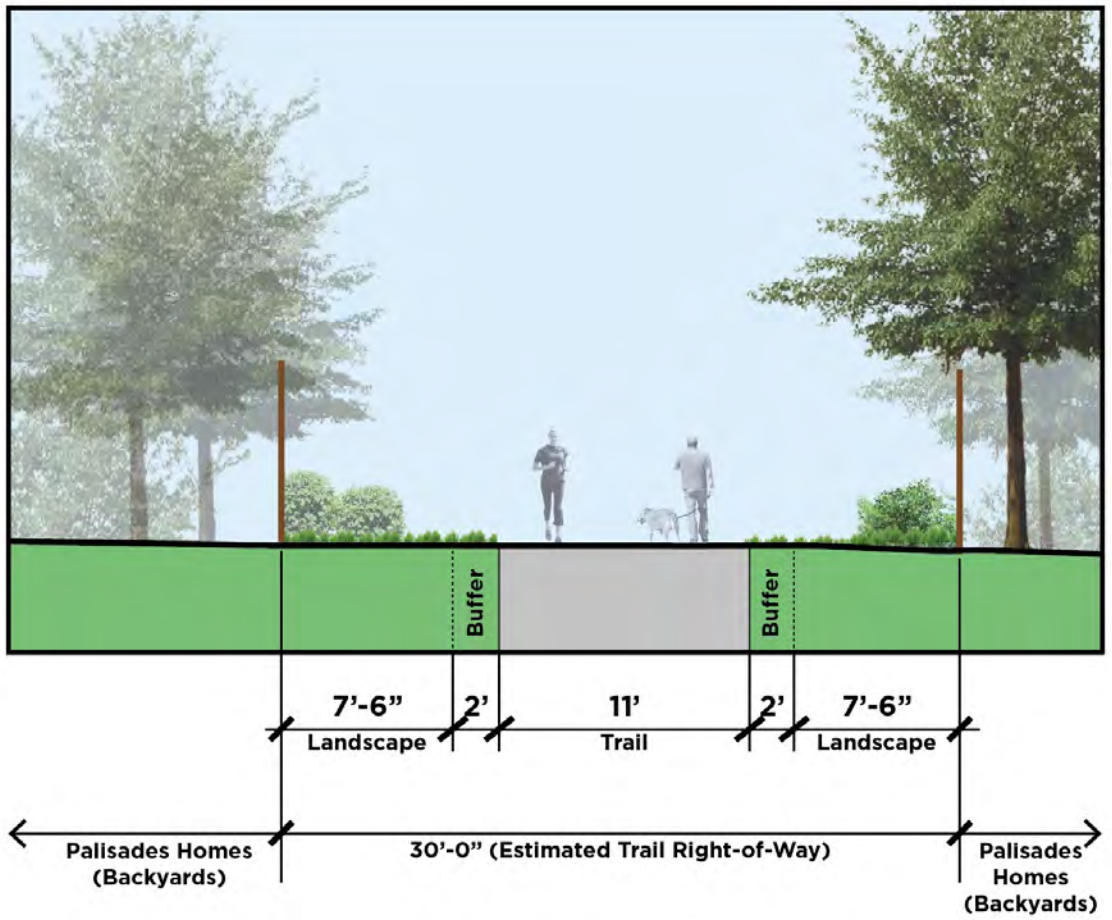


Figure 14: Typical Section 1 | Palisades Homes

Typical Section 2 Steep Slopes

This typical section (Figure 15) is characterized by steep slopes on both sides of the trail.

The trail is 11’ wide with 2’ buffer areas on each side. A bioswale, that varies in size (minimum 5’-0” wide), is proposed on the lower elevation of the trail to provide both stormwater management and interesting landscape material within the bioswales. The remaining trail right-of-way will remain as existing topography and landscape material.

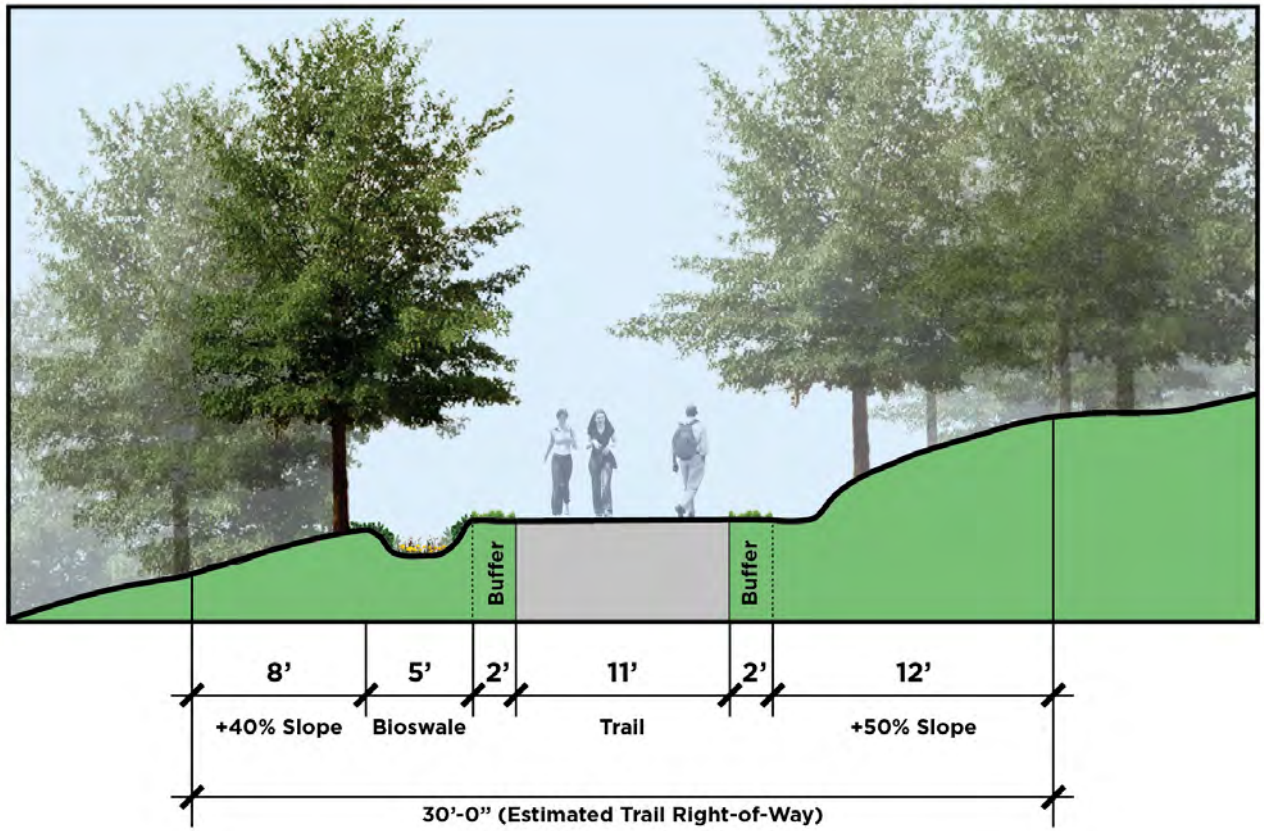


Figure 15: Typical Section 2 | Steep Slopes

Typical Section 3 Narrow Right-of-Way

A majority of the PTT travels through a narrow right-of-way (Figure 16) often no wider than 20’-0”.

In these areas, the trail is 11’ wide with 2’ buffer areas on each side. The trail is typically centered within the relatively flat portions of the remaining right-of-way to minimize overall impacts and constructability. As shown in the section, this remaining area can vary between 2’ and 3’.

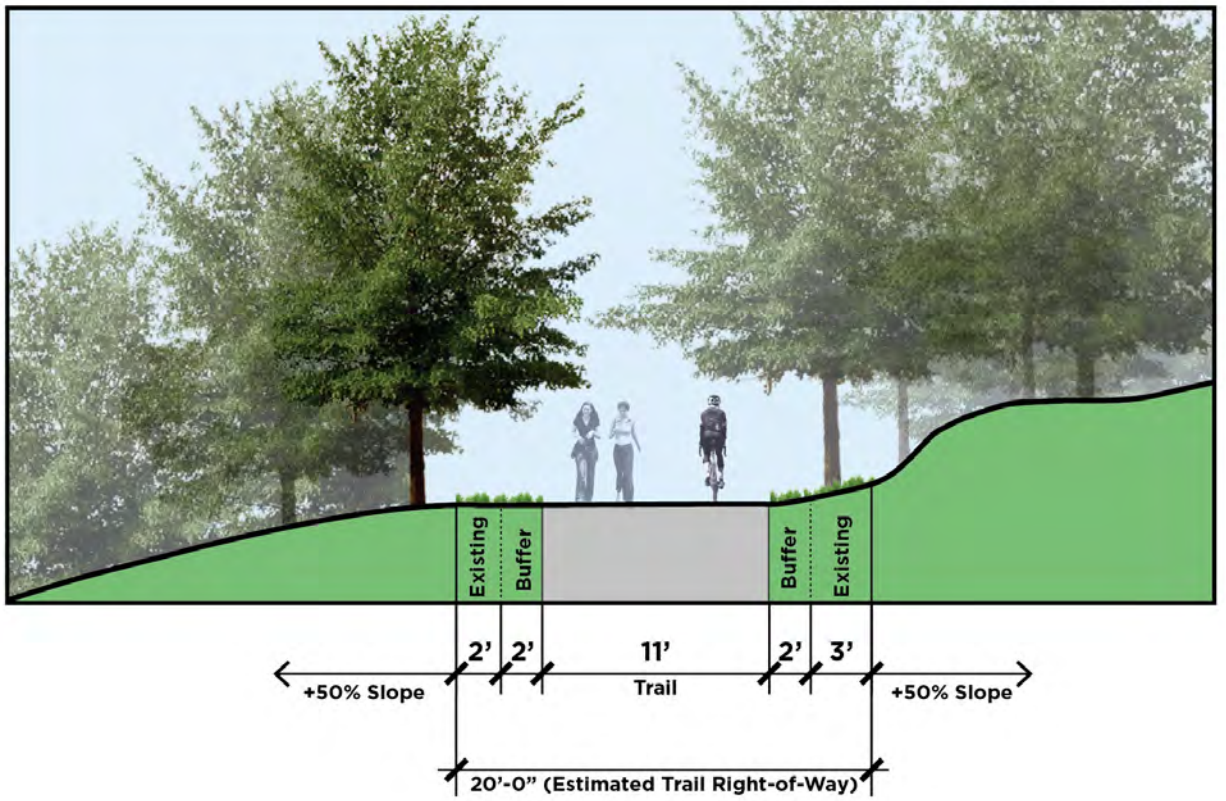


Figure 16: Typical Section 3 | Narrow Right-of-Way

Typical Section 4 Wide Right-of-Way

As depicted in Figure 17, the widest portion of the trail around the Georgetown Reservoir includes areas for passive recreation and space for an informal walking trail adjacent to the formalized trail. This area also includes west-facing lookout areas that provide views of the Potomac River

The trail is 11' wide with 2' buffer areas on each side. The trail is shifted towards the uphill side of the segment to provide the widest area for bioswales, rain gardens, and other amenity areas. More detail in plan view can be found on page 24-25.

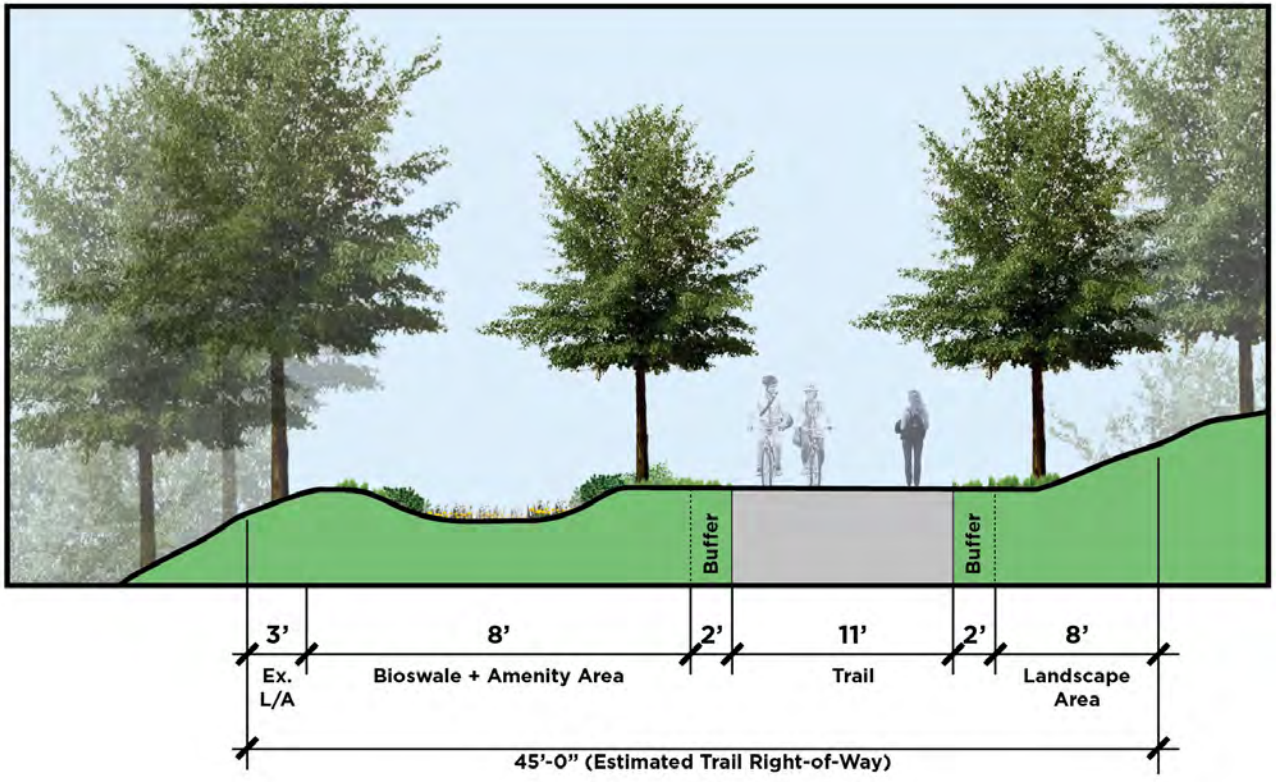


Figure 17: Typical Section 4 | Wide Right-of-Way

Typical Section 5 Adjacent Local Road

As depicted in Figure 18, the portion of the trail that passes through the Palisades neighborhood adjacent to a local road (Potomac Avenue) includes areas for trail furnishings and landscaping.

The trail is 11' wide with 2' buffer areas on each side. The trail is generally centered between the remaining right-of-way providing between 7'-8' on each side for additional tree plantings, seating areas, and other stormwater management options. Closer to the edge of the local road right-of-way, transitional plantings can be utilized to help buffer between the trail and the existing streetscape while balancing views of the river.

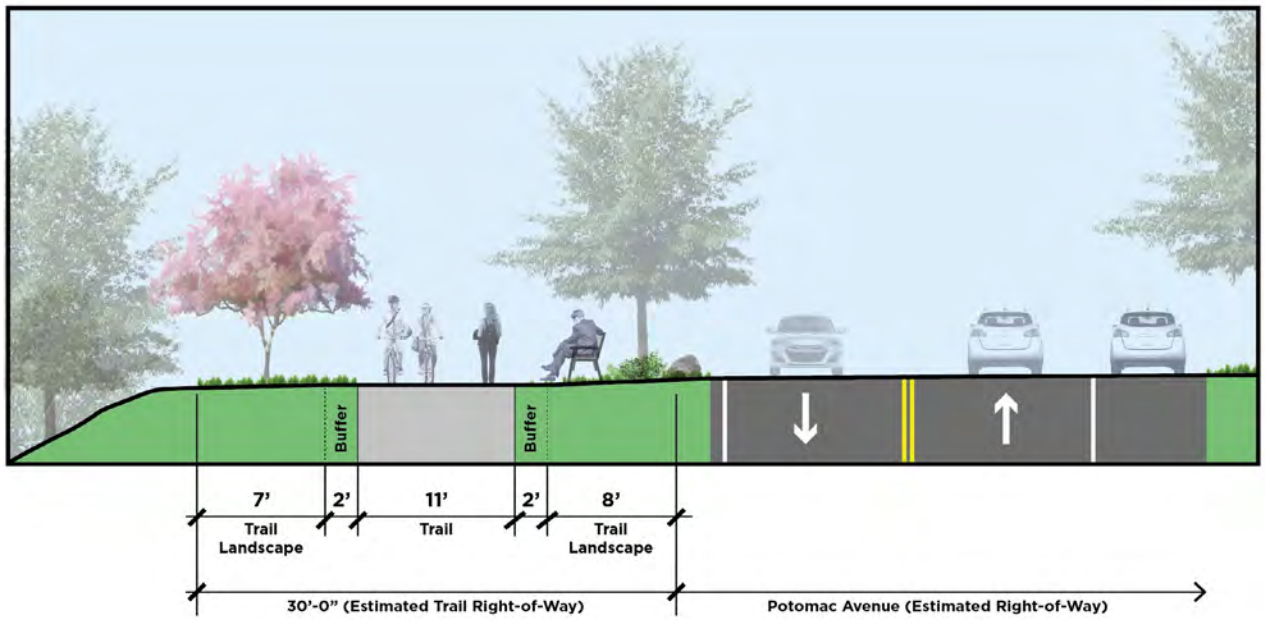


Figure 18: Typical Section 5 | Adjacent Local Road

Typical Section 6 Foxhall Homes

A portion of the PTT travels through a narrow right-of-way (Figure 19) often no wider than 20’-0” and adjacent to the backs of homes in the Foxhall Neighborhood. These homes are typically built higher on the hillside and often have a small fence outlining the backyards of the properties.

In these areas, the trail is 11’ wide with 2’ buffer areas on each side. The trail is typically centered within the relatively flat portions of the remaining right-of-way to minimize overall impacts and constructability. As shown in the section, this remaining area can vary between 2’ and 3’.

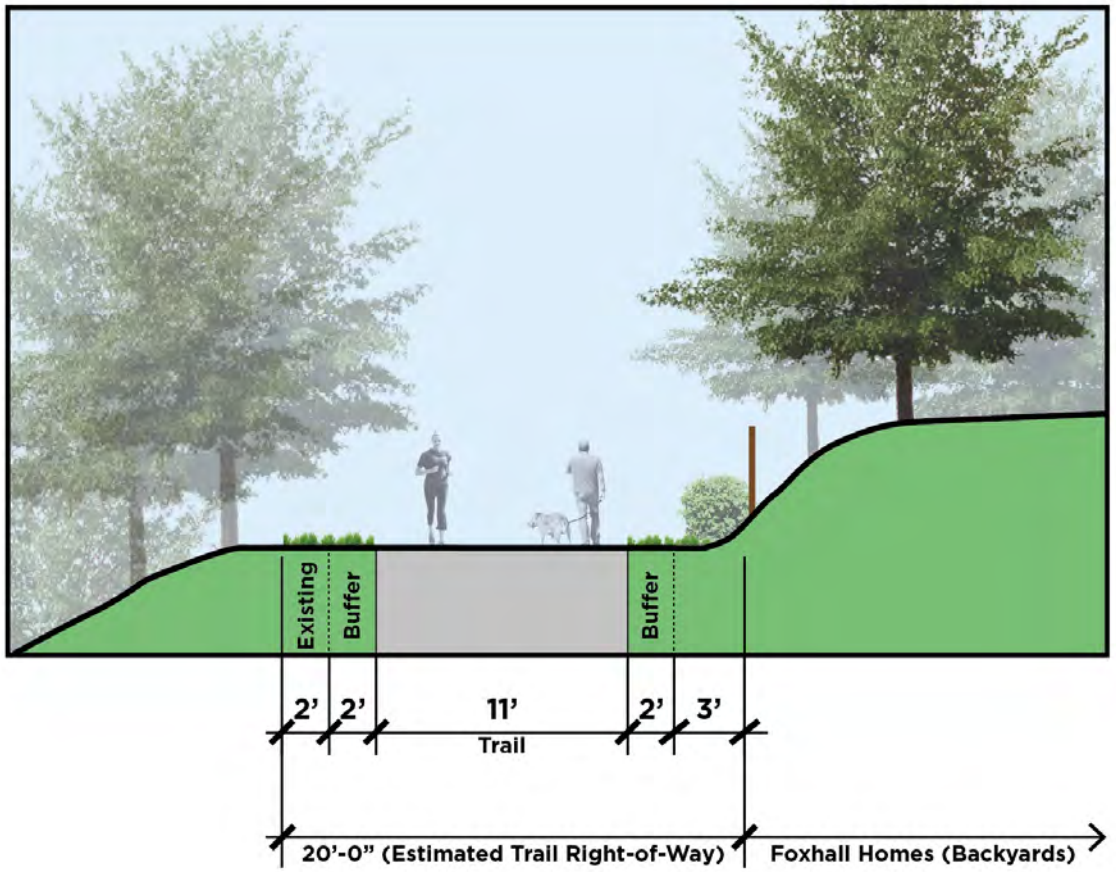


Figure 19: Typical Section 6 | Foxhall Homes

Typical Section 7 Canal Road

As depicted in Figure 20, the portion of the trail that follows Canal Road in Alignment Options 1,2, and 3 is proposed as a sidepath. The sidepath is 12' wide providing space for pedestrians and bicyclists to travel in both directions and pass safely. Because the sidepath will need to be widened an additional 5' from the existing sidewalk, a slight taller retaining wall will be required, but should not impact the existing vegetation. Sidepaths have several specific considerations summarized below and explained in more detail in the AASHTO Guide for the Development of Bicycle Facilities.

1/ Manage Conflict Points: Although there are few conflict points with the proposed sidepath, measures to increase user safety should be considered at each conflict point. Some considerations include eliminating permitted left turns, adding raised crosswalks, or adding passive RRFBs.

2/ Manage Transition to/from Sidepath: At the ends of the bidirectional sidepath, there should be a way to transition to the right side of the road.

3/ Install Signage for Drivers and Trail Users: Warning signs should be installed to alert drivers to the presence of bidirectional trail users. All signs for trail users should be posted so users in both directions can read them.

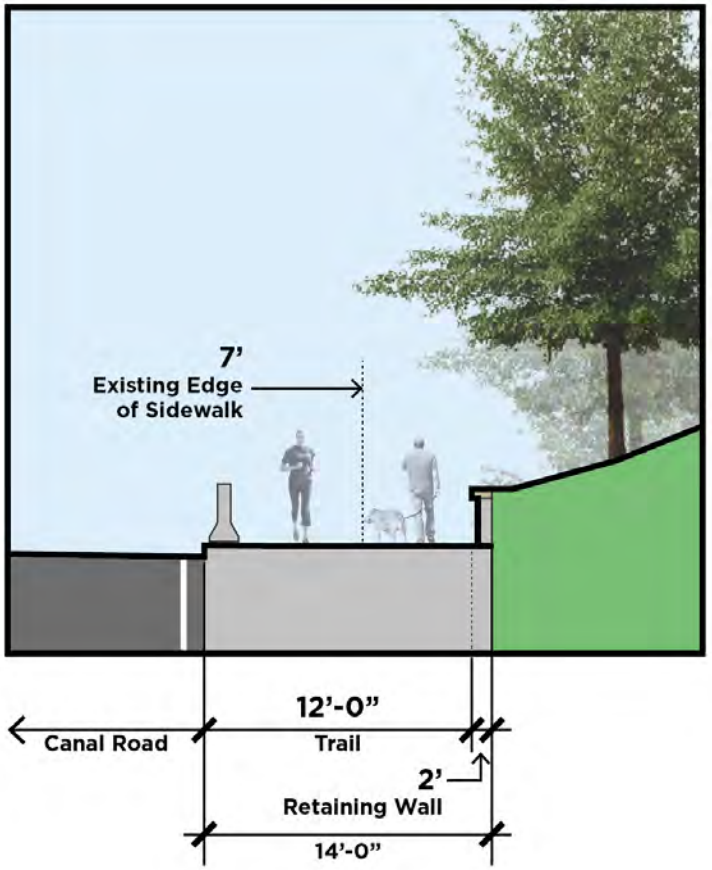


Figure 20: Typical Section 7 | Canal Road

PLAN TYPES

Georgetown Reservoir Amenity Area

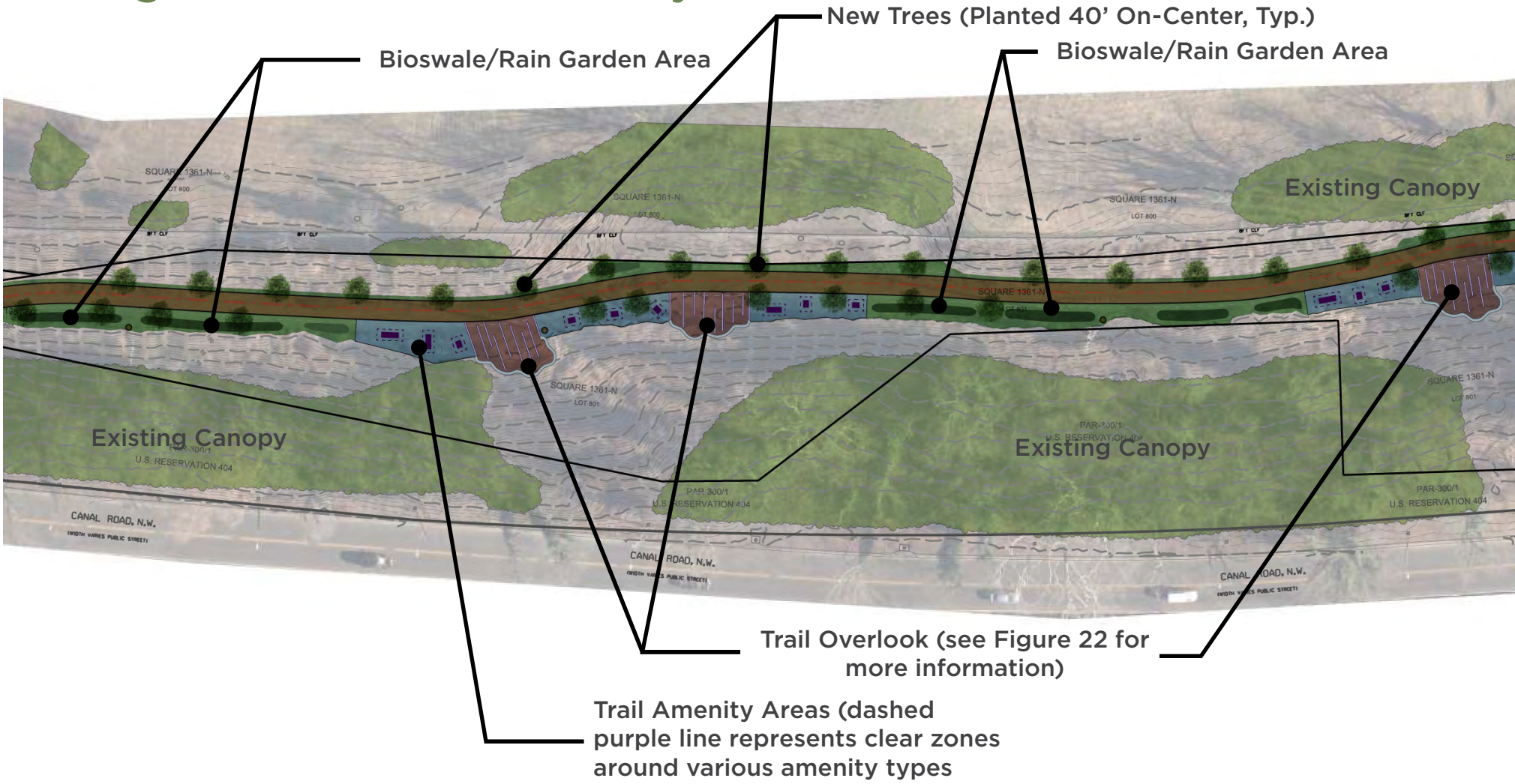


Figure 21: Plan View of Passive Recreation Area at Georgetown Reservoir

PTT Overlook Areas

The concept design for the PTT Overlook areas are inspired from the ornate Dentzel Carousel at Glen Echo Park. The undulating forms around the crown of the carousel form the retaining walls that create the 5'-8' Overlook Stone Wall (made from similar material to the existing stone walls found throughout the PTT. Embedded in the pavement at the overlook areas would be bluestone granite pieces representing the poles that carried excited users up and down as they moved around the carousel (Figure 22). These areas would also include benches, trash cans, and other typical site furnishings. This design element is intended to be consistently carried through the PTT.

Figure 22: PTT Overlook Concept Design Inspiration

Reservoir Road

The proposed trail crossing at at Reservoir Road is shown in Figure 22. The trail crossing is complicated by the skew at which the trail meets the roadway. Two primary considerations were made to improve the safety of trail users.

1/ Slow Speeds: Slow speeds increase the time for reacting and minimize the severity of crashes. The addition of a raised table at the trail crossing will reinforce the 25 MPH posted speed for vehicles. The sharp turns in the trail will encourage trail users to slow down prior to crossing Reservoir Road.

2/ Sight Lines: The trail is aligned to cross Reservoir Road at a 90° angle, minimizing crossing distance and providing the best sightlines for both directions of vehicle traffic. The crossing is located in the middle of the curve to minimally hide the crossing from the view of vehicles travelling in each direction.

Design Elements

The shaded blue area with brown stripes will implement a design that references the iconic Dentzel Carousel at Glen Echo Park. The scalloped walls mirror the decorative scallops on the carousel, while the stone stripes mirror the carousel poles. This design element can be consistently carried through the trail.

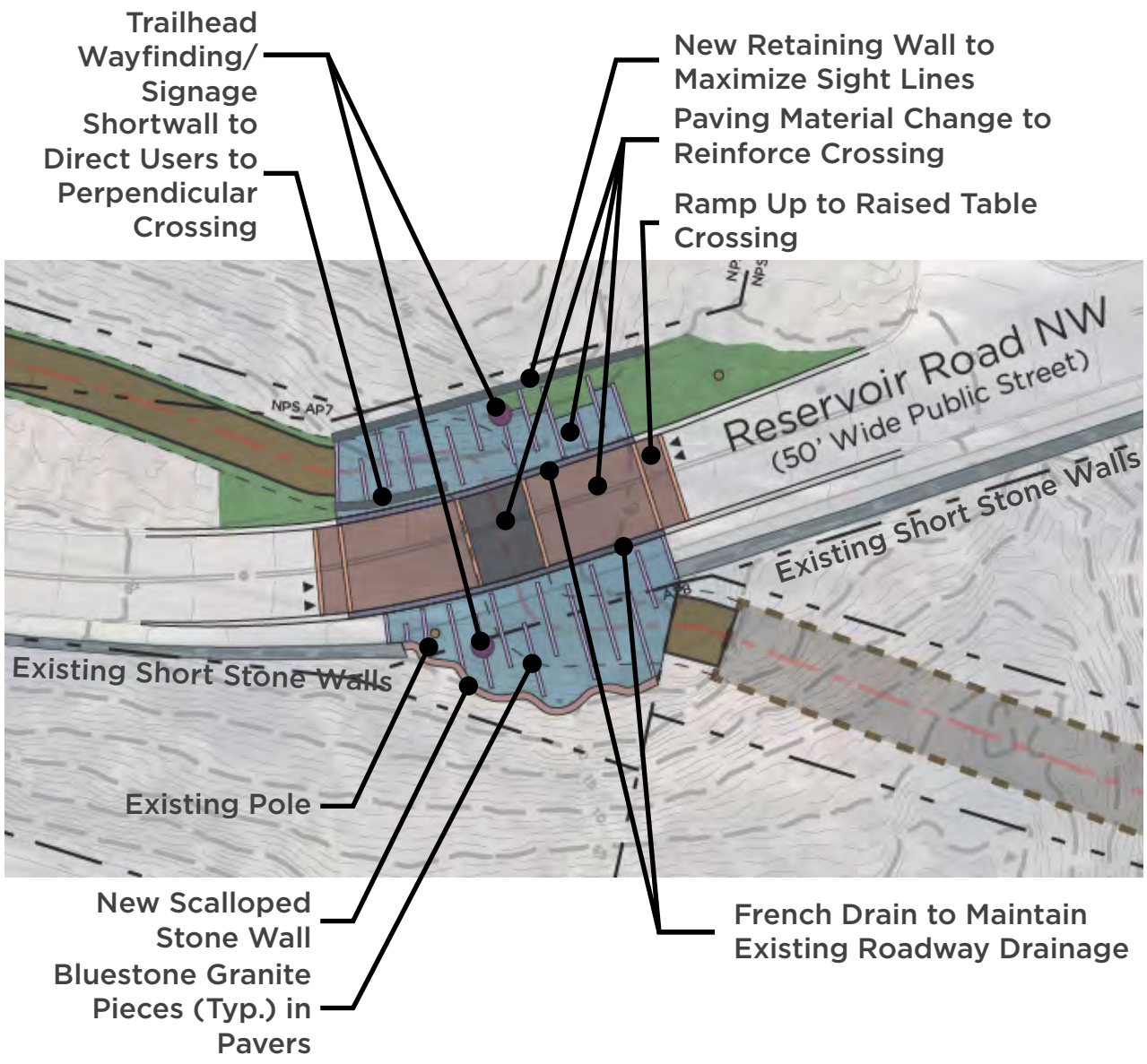


Figure 22: Plan View of Reservoir Road Trail Crossing

Foxhall Road

A proposed design for the trail crossing at Foxhall Road is shown in Figure 23. The crossing at Foxhall Road is complicated by the relatively high volume of Foxhall Road, which requires a different solution than that proposed for Reservoir Road. Therefore, a controlled crossing is proposed for Foxhall Road.

1/ Minimize Conflict through Control: Controlling the trail crossing in coordination with the signal at MacArthur Boulevard and Foxhall Road with passive RRFBs to offer opportunities to enhance the trail crossing.

2/ Slow Speeds: Curves in the trail apporaching the crossing indicate to trail users that a crossing is upcoming.

3/ Sight Lines: Curves in the trail approaching the crossing align trail users with the road and make it easier for trail users to see both directions of travel as they approach the crossing.

Design Elements

The areas adjacent to the crossing offer an opportunity to establish trailheads which could offer trail amenities and follow design principles similar to those previously discussed.

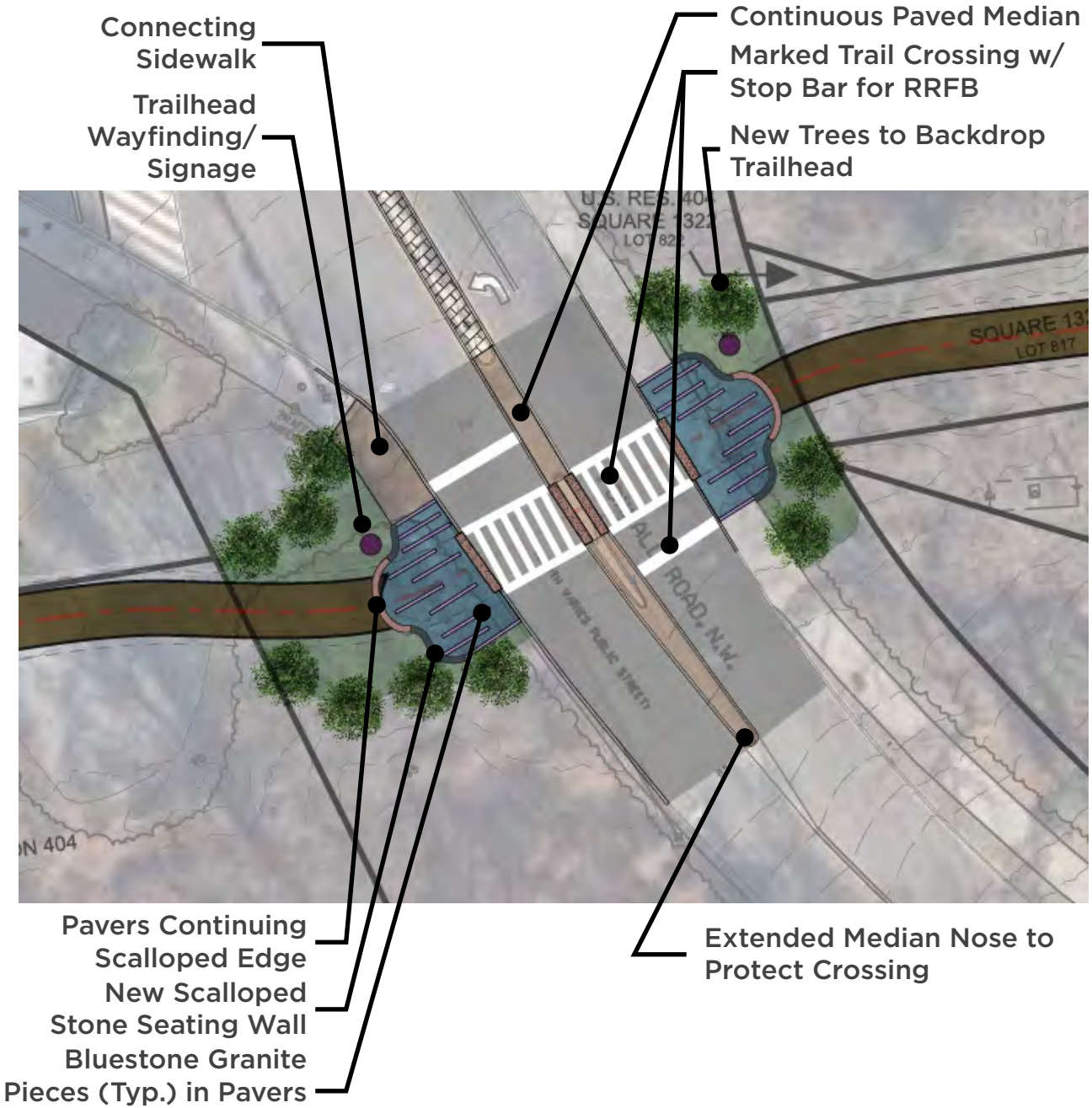


Figure 23: Plan View of Foxhall Road Trail Crossing

TRAIL SIGNAGE

Intersection Warning/ User Signage

Signage falls into three primary categories and is further described in the MUTCD and other resources such as the AASHTO Guide for the Development of Bicycle Facilities

1/ Regulatory: Notify users of location-specific regulations

2/ Warning: Notify road and path users of unexpected conditions

3/ Wayfinding: Give path users information that will help them on their way

Specifications

1/ Located 2' from the edge of the trail and at least 4' above the trail

2/ Markings (for paved surfaces only) shall be retroreflectorized

3/ Bollards should be a minimum height of 40" and diameter of 4"; be marked with retroreflective material; not restrict access for trail users; should be installed as an odd number; installed at least 30' from the road

Examples of regulatory, warning, and wayfinding signs (MUTCD & Richard C. Moeur)

Examples of Trail Markings and Signing (FHWA, FHWA University Couse on Bicycle and Pedestrian Transportation, 2006)

***Left**: Trail with bollards approaching a road crossing. Bollards can prevent unauthorized vehicles from accessing the path. If bollards are used they should conform to guidelines from AASHTO Guide*

***Right**: Trail with centerline approaching a parking lot trailhead. Trailhead signs establish an expectation for the side of the path bicyclists and pedestrians should use. Trailhead signs identify destinations to provide clarity of direction to trail users.*

Wayfinding

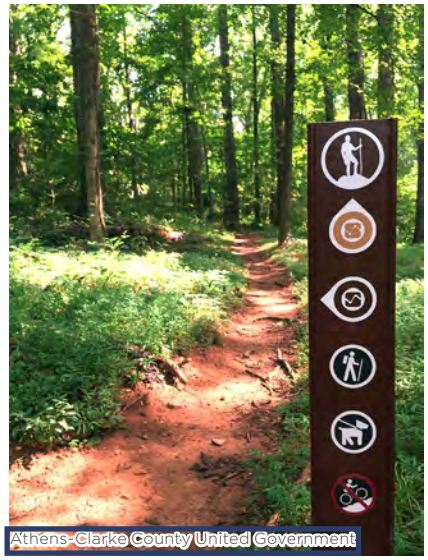
Wayfinding along the trail helps guide users and inform them about their location. Wayfinding signage can be used to reinforce design themes, or can seek to match the environment of the trail. A consistent wayfinding brand should be used along the trail.

Northwest Harris County

George and Elma Graphic Design Studio

Hunt Design

SKA Design


Athens-Clarke County United Government

SKA Design

Interpretation/ Information Kiosks

The rich history of the Palisades of Washington and the Palisades Trail can be communicated to visitors through interpretive signs and information kiosks. Information kiosks at trail heads may be especially opportune for theming in accordance with other trail design elements.

Interpretive elements along the trail can extend beyond the standard sign panels to include panels that are set into the ground or walls, replicas of historic equipment, or sensory experiences such as the listening trumpet.

Providing a trail map with explanation of design elemtns and the historic nature of the trail can help users find their location but also appreciate the historical nature of the trail. Maps can be provided physically, although consideration for restock maps should be made. Additional methods are to display maps on interpretive panels or provide them electronically.

Interpretive Wheel
Mazzarello, G. (UCSC)

Vista Point with Interpretive Panel
Screenmakers, Constructed Communications

Groundplate
Screenmakers, Constructed Communications

Covered Interpretive Station
Laird Signs

Stone Interpretive Sign
Hawaii Ahe

Train Car
Cheryl Hill

Listening Trumpet
Debbie Lusk

Trail Map with Callouts
(California Parks)

TRAIL ACCESS AREAS

Trail access areas are the fist experience on the trail that many users will have. They are therefore invaluable at setting the theme and environment that the user will experience on the trail.

Amenities

Various amenities and facilities can be included within the trail access area, most of which have been discussed previously. The trail access area provides a space for all of the amenities to come together synergistically.

1/ Interpretive/wayfinding signs

2/ Bicycle facilities

3/ Lighting

4/ Public artwork

5/ Restrooms

6/ Picnic tables and garbage

7/ Shelter

8/ Automatic pedestrian and bicycle counters

Picnic Tables and Information Kiosk MTB Project

Gateway Feature / Public Art Clark County, Nevada

Low Maintenance Toilet Desert Sun

The trailhead is a perfect place to include interpretive signage and a place to rest

GEORGETOWN RESERVOIR AMENITY AREA

Design Considerations

The amenity area should be designed in a manner reducing the need for future maintenance. The amenity area should serve trail users of all ages and abilities.

Play

The amenity area and sections of wide trail offer opportunities to install play equipment. Consistent with the natural setting of the trail, play equipment could rely heavily on natural materials, such as rough hewn logs. Play equipment may extend to also include outdoor exercise equipment, allowing family trail users to stop while children play on a seesaw and adults do sit-ups on a bench. Considering maintenance costs, installed equipment should be simple, allowing the imagination to turn the equipment into any scene.

Outdoor Gym Equipment

Robin Hood Outdoor Air Gym

Log See-Saw

Columbus Family Adventures

Rugged and Versatile Equipment

Natural Play Area

What Should We Do Today Columbus

SURFACE/ PAVING MATERIALS

Decomposed Granite

(trail west of Foundry Branch Bridge)

Decomposed granite offers a natural feel to the trail while maintaining a surface that is comfortable to walk, run, and bicycle along and can be ADA compliant. Trail maintenance, especially after heavy rains, freeze-thaw cycles, or flooding may need to be completed.

Asphalt (Option for Permeable)

(trail east of Foundry Branch Bridge)

Asphalt can be inexpensively installed and provides a smooth surface. The asphalt should be laid wider than the desired path, so cracking will not narrow the path beyond the desired width. Filling of cracks and resealing of the path will be required thorughout the lifetime of the trail.

Permeable asphalt offers an opportunity to reduce the effect of runoff.

Concrete

(new and rehabilitated bridges)

Concrete is the most expensive trail surface to install, however it offers a long lasting smooth surface and a low cost of maintenance.

Decomposed Granite

MountainBikeTx.com

Asphalt

Out on the Trails - Ithaca and Topkins County

Concrete

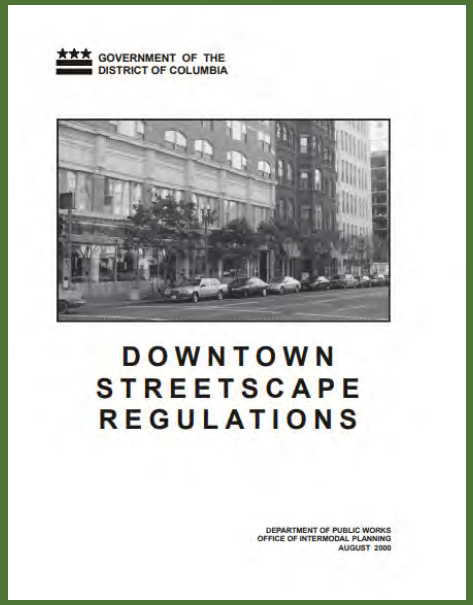
Rapid-Span

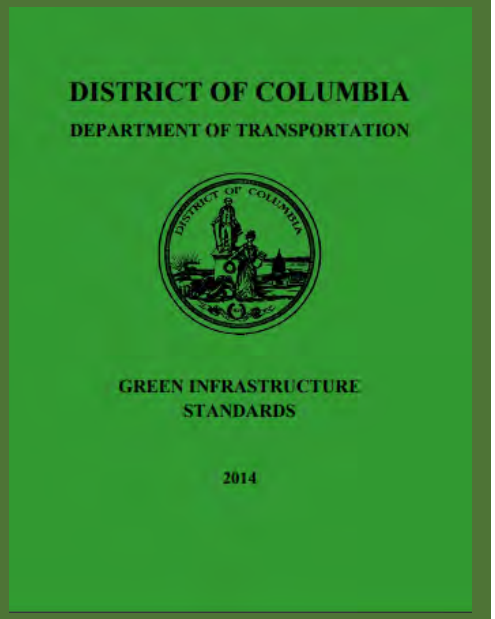
LANDSCAPE

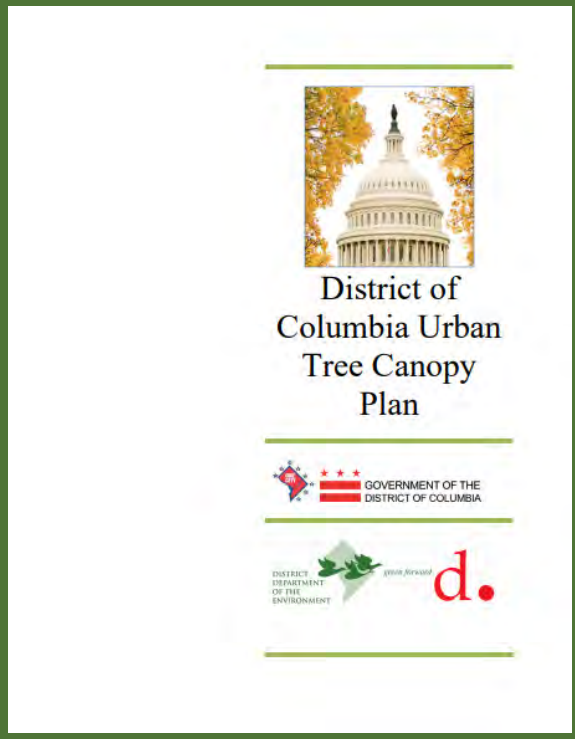
General Landscape Palette

The PTT runs through green spaces with a variety of vegetation types. Because of the natural topography there are several large natural areas covered by undeveloped forests with openings in the canopy that can provide the foundation for new community-based landscapes like neighborhood amenity areas, community gardens, low-impact development (LID) rain gardens, bioswales, and native plant gardens that provide habitat for local flora and fauna.

Where possible, the existing non-invasive landscape is intended to be preserved and maintained. When there are opportunities for new plantings, it is recommended that the general plant palette be aligned with local and native landscape as recommended by several guidelines and manuals per DDOT.







Rain Gardens/Bioswales

As defined by DDOT, “Green Infrastructure is the living network that connects landscape areas, natural areas, and waterways.” Additionally, the Sustainable DC Plan calls for increasing green infrastructure within the public right-of-way. Stormwater management is important is a critical aspect of Low Impact Development (LID). Because of the linear nature of the PTT, there are opportunities to offset any additional impervious or compacted surfaces through a network of rain gardens and bioswales.

Typically rain gardens are more effective on the downslope side of an impermeable surface, allowing water to flow off of the path into the rain garden. Rain gardens also offer an opportunity to use native plants that will have low maintenance and support the rest of the ecosystem. DDOTs Green Infrastructure Standards, published in 2014 provides an excellent overview and approriate applications for these types of green infrastructure.

Diagram of a Bioswale / Rain Garden

Neponset River Watershed Association

Example of a Bioswale / Rain Garden

Rodomsky-Bish,B. (The Nature Conservancy)

Example of a Bioswale / Rain Garden

West Michigan Environmental Action Council

TRAIL FURNISHINGS

Site Furnishings/Benches

Site furnishings such as benches, trash cans, and picnic tables can be used as areas of rest, places to display art, or methods of perpetuating a theme.

DDOT standards focus on selecting trail furniture that will be functional, low maintenance, and cost effective. Standards call for using wrought iron benches and trash cans, in a Victorian style.

To mesh with other elements of the trail, other design choices could be advanced. Benches that are similar to trolley benches, could further the theme of the Palisades Trolley. Advocates for a natural looking trail may support using felled trees with sawed and sealed surfaces for benches or play equipment. Benches also provide an avenue for public art, which was demonstrated through a bench building competition in Portland, Oregon*.

Bench as Public Art The Architect's Newspaper

Trolley Bench Chairish

Natural Bench HikeSpeak

Victorian Bench Skinner Auctioneers and Appraisers

Bicycle Furnishings

Bicycle furnishings including maintenance stations and bicycle racks allow cyclists to use the trail for portions of their trip or access the trail via bicycle and walk or run when they arrive.

Considering the design inspiration of the iconic Dentzel Carousel at Glen Echo Park, the bicycle racks could be shaped as carousel animals, similar to the pictured examples. Bicycle racks should conform the DDOT design principles and feature at least two points of contact for bicycles and the opportunity to use a U-lock to secure the frame and front wheel simultaneously. Standard inverted-U racks could also be used, or branded using stamped sheet metal.

Bicycle racks should be located at trail access points and may be located along the trail in amenity areas.

If stairs at any point in conjunction with the trail, a trough should be installed to allow bicycles to be wheeled down the stairs.

Sculptural Racks

Bungalower

Branded Inverted U-Racks

Dero

Stairs with Bike Trough

Bike Rumor

Bike Repair Facility

Car Less Ohio

PUBLIC ART

Incorporation of Public Art

As described through the previous sections, public art can be effectively incorporated into all design elements of the trail. Public art can also be installed specifically to create an 'art walk'. Art could reminisce on the history of the Palisades Trail, involve local artists, be interactive, or rotate over time.

Examples of 'art walks' include:

1/ Lake Eola, Orlando, Florida

2/ Public Art Walking Tour, Denver, Colorado

3/ DC Mural, Washington, DC


Murals DC Project


Carolyn's Online Magazine


Creating Your Own Path

TRAIL OVERLOOKS

Lookouts – Viewsheds

The Palisades Trolley was said to be the most scenic trolley ride in the country, due to the vista views of the Potomac River. The Palisades Trail offers an opportunity to reengage these beautiful views through the creation of scenic overlooks.

Scenic overlooks could be created along the trail, with some locations shown in the plan view on page 25.

Overlooks could be made to look like a trolley car offering visitors the opportunity to go back in time and look out the window of a trolley and take in the Potomac River.