

Oxon Run Trail Rehabilitation Project

CONCEPT PLAN

ACKNOWLEDGMENTS

This Plan was prepared under the guidance of the District Department of Transportation.

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District Agencies

Many District agencies contributed to the development of this plan, including but not limited to:

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District Department of Transportation – Infrastructure Project Management Administration
District Department of the Environment
District Department of Parks and Recreation
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1 PROJECT OVERVIEW

PROJECT SCOPE

The Oxon Run Trail Rehabilitation Project concept plan has been developed by the Transportation Planning, Policy and Sustainability Administration of the District Department of Transportation to improve bicycle and pedestrian transportation and recreational park access. Its purpose is to be used as a guide to improve the trail network system in Oxon Run Park, and to provide direction for improvements regarding a.) trail segments that need to be rehabilitated b.) trail segments necessary to complete a trail network and c.) related park access, traffic safety, and landscape improvements. This concept plan provides guidance on the areas/trail segments to be rehabilitated and new proposed trail alignments, as well as a phased implementation approach for all improvements.

Throughout the concept planning process, many stakeholder and community outreach sessions were held. Input from a diverse set of constituencies was gathered and incorporated in to all stages of developing the proposed alignments presented in this plan. Outreach efforts have included citizen meetings in the park with members of the Oxon Run Citizen Association (ORCA), residents, and youth groups, as well as youth bike rides, and several meetings with Ward 8 staff to present project updates and concept plans to citizens for feedback at community meetings. Additionally, the planning process included meetings with various public agencies and citizen groups including, National Park Service, Department of Homeland Security, District Department of the Environment, District Department of Parks & Recreation, Maryland National Capital Park and Planning Commission – Prince George’s County (M-NCPPC), Town of Forest Heights, and Washington Parks + People.

A brief listing of the various public involvement meetings are included in Appendix H: Community Input Meeting List.

PROJECT LOCATION

The existing Oxon Run Trail is a 2.5 -mile multi-use trail system, which extends through Oxon Run Park in Ward 8 of the District of Columbia. As shown in Figure 1, the existing trail network extends from South Capitol Street to the northeast, through Oxon Run Park to National Park Service (NPS) land at 13th Street, SE. A separate and discontinuous section of the trail system is located south of South Capitol Street to the southeast in Prince George’s County, and links the Town of Forest Heights, MD with the Oxon Cove Park/ Oxon Hill Farm (NPS) located on the shore of the Potomac River.

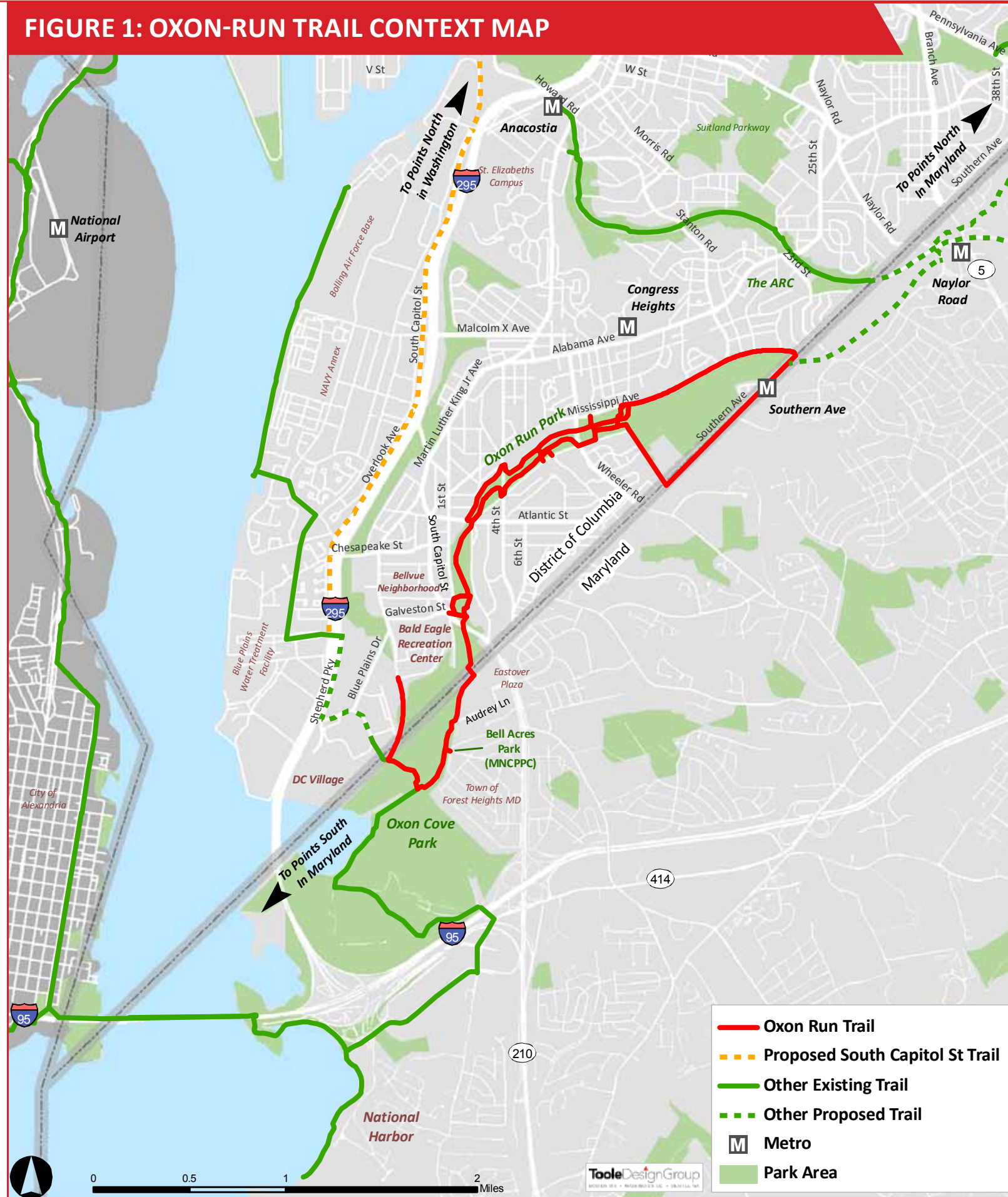
The Oxon Run Trail lies within Oxon Run Park among adjacent neighborhoods and along Oxon Run. The park physically and visually connects many of the adjacent neighborhoods, as well as extends to the D.C./Maryland border, NPS lands, and Maryland Park areas. As the spine running through the community, Oxon Run Park acts as the link between neighborhoods situated on both sides of the stream valley.

PROJECT PURPOSE

The purpose of this project is to improve access within Oxon Run Park and the non-motorized network connections to surrounding destinations by rehabilitation the existing trails, as well as extending the trail network. The park is a central open space area within Southeast D.C. with miles of disconnected existing trails in degraded condition. The trail will be an important non-motorized

transportation route providing direct access from Southeast D.C. neighborhoods near the Southern Avenue metro station to the Bald Eagle Recreational Center in the Bellevue neighborhood, and Oxon Cove Park/Oxon Hill Farm, which connects to National Harbor in Maryland. The trail network will eventually connect to the D.C. Village development area, S. Capitol Street, neighborhoods adjacent to the Anacostia River, and downtown Washington D.C.

FIGURE 1: OXON-RUN TRAIL CONTEXT MAP



2 CONCEPT PLAN

CONNECTING COMMUNITIES AND NEIGHBORHOODS

The Trail will connect a number of communities and neighborhoods by improving gaps in the existing trail system.

Generally describing the trail corridor from southwest to northeast, the trail begins at the Bald Eagle Recreational Facility in the Bellevue neighborhood of Southeast D.C. The proposed trail extends south along a new alignment to D.C. Village through NPS lands. From D.C. Village, a rehabilitated existing trail extends through NPS lands to the existing Oxon Run Bridge at Oxon Cove Park. With views of Oxon Run and the Oxon Cove mudflats. The trail extends east upstream across a small tributary to Oxon Run within NPS lands. North of the unnamed tributary to Oxon Run crossing, the trail extends adjacent to the Bell Acres Park and playground of the Town of Forest Heights, Maryland, and to an additional crossing of an unnamed tributary to Oxon Run at Audrey Lane/Oxon Run Drive in Prince George's County, Maryland.

At Audrey Lane/Oxon Run Drive options include continuing along a proposed trail segment to South Capitol Street or along an on-road shared lane towards the Eastover Shopping Center.

At South Capitol Street two trails extend along both sides of Oxon Run, improving park access on either side of the stream and creating a series of trail loops in the park. The parallel trails extend through Oxon Run Park across Atlantic Street, 4th Street, and Wheeler Road to the intersections of 13th Street and Mississippi Avenue on the west-side, and 13th Street and Valley Avenue on the east-side. Several community centers, schools, commercial areas, and neighborhoods surrounding the park, are interconnected through the community by trails

bisecting the park and stream corridor. Current user patterns have identified additional desire lines within the park area, and primarily within the main park areas, trail connections are realigned to reconnect the trail network with user desire routes. From the 13th Street and Mississippi Avenue intersection, the trail continues along Mississippi Avenue to Southern Avenue, passing NPS forested areas and The Town Hall Education Arts & Recreation Campus (theARC). On the southeast side of the park, from the 13th Street and Valley Avenue intersection, the trail extends parallel to 13th Street uphill to Southern Avenue. Along Southern Avenue options include utilizing a widened sidewalk on the north side or on-street bike lanes to connect to the Southern Avenue metro station.

TRAIL USERS AND TRIP TYPES

Given the population densities of surrounding neighborhoods and the lack of trails and greenways in southeastern D.C., it is expected that the trail will be used by a wide range of people and for a variety of trip purposes. Users expected include:

- Bicyclists of various skill levels including children, novices, and experienced riders using standard, tandems, recumbents, bicycle trailers and "trail-a-bikes."
- Pedestrians including children, the elderly, disabled persons in wheelchairs or electric scooters, people pushing strollers, dog walkers and others
- Runners and joggers
- In-line skaters, push scooters, skateboards, etc.

Common trip purposes will include transportation to and from work and school, running errands, shopping, visiting friends, attending events, and gaining access to entertainment venues. Intermodal trips will be generated by the trail's access to the Southern Avenue metro station and many metro bus routes/ stops. Other benefits of the trail include greater network connectivity to the National Harbor and the Woodrow Wilson Bridge providing connections to Virginia destinations to the south, Downtown D.C., historic Anacostia, military sites, the St. Elizabeth's site and the Anacostia Trail system along the Anacostia River to the north. Cross park traffic from neighborhoods to the various schools, and destinations opposite the park neighborhoods as well as recreational trips, including use by children and youth, fitness and exercise routines, trips to parks and recreation centers, access to the regional trail system, and trips to natural, cultural and historic sites will initially generate the largest levels of trail use.

TRAIL SEGMENT COMPONENTS

The primary trail consists of proposed and rehabilitated segments of trails throughout the Oxon Run Park area, which are augmented by a variety of other sidewalks, bike lanes, and shared-use path connections. As an urban trail, design details and characteristics are critical during final design. Recommended design criteria are provided in Appendix I: Trail Design Criteria. Each of the facility types are described below.

SHARED-USE TRAIL

The proposed trails will consist of a 8 to 10 foot wide hard surface, composed primarily of asphalt. The primary spine trail will consist of a 10 foot wide standard asphalt surface with 2 foot stone dust shoulders for jogging, while secondary connecting trails will consist of a 8 foot wide surface composed of aesthetically appropriate surface materials (asphalt, brick or concrete pavers).



Source: TDG Library

NATURE TRAIL

Three areas within the park are proposed to include a nature trail composed of mulch or granular material such as stone dust. All of these trail segments are intended for minimal-environmental impact/context sensitive applications.

Location 1: Adjacent to South Capitol Street at 1st Street: Trail connection is intended to formalize the worn path through the park to S. Capitol Street. This path is intended to be 3 to 4 feet wide and composed of mulch or stone dust.



Source: TDG Library

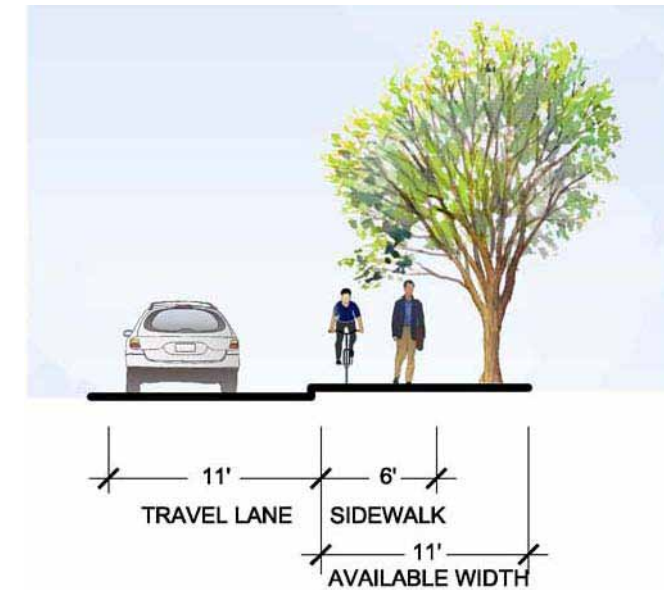
Location 2: Into wooded National Park Service property from Valley Avenue and 13th Street intersection: This trail segment is contingent upon NPS review and approval. The trail is intended to provide access into the natural areas. The width of the trail is planned to be a maximum of 3 feet, field located with NPS staff, and implemented with minimal disturbance to existing vegetation.

Location 3: Into NPS lands adjacent to the D.C. Village impoundment lot between the Oxon Run Trail Bridge and D.C. Village. The trail will extend to the shoreline of Oxon Cove.

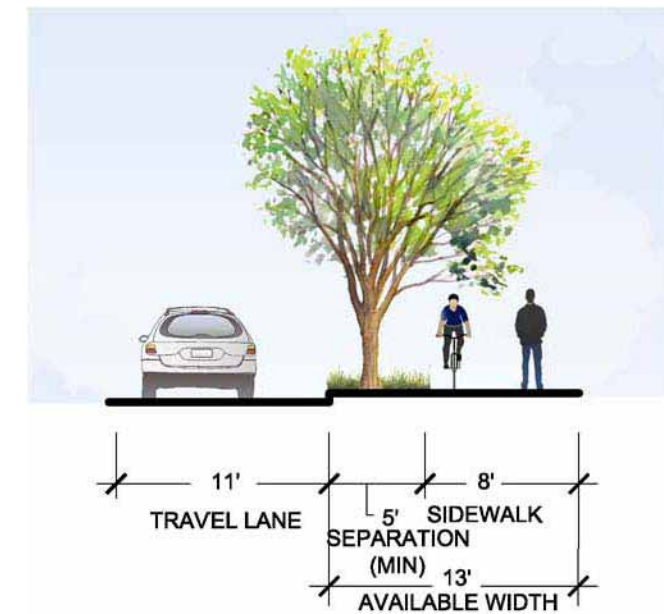
SIDEWALKS

The sidewalk portion of the project will consist of widening existing sidewalks, and establishing new sidewalks to and alongside Oxon Run Park. All proposed or rehabilitated sidewalks are to meet DDOT standards which require a minimum 4 foot tree box (6 foot preferred) and 6 foot wide sidewalk. A wider tree box allows for larger planting strip adjacent to the park area. Ten foot wide sidewalks are proposed in locations where sidewalks and segments of the shared-use trail overlap. All sidewalks should be in compliance with current ADA guidelines and include curb-ramps with detectable warning strips. Four sidewalk types have been proposed as illustrated in the attached sections.

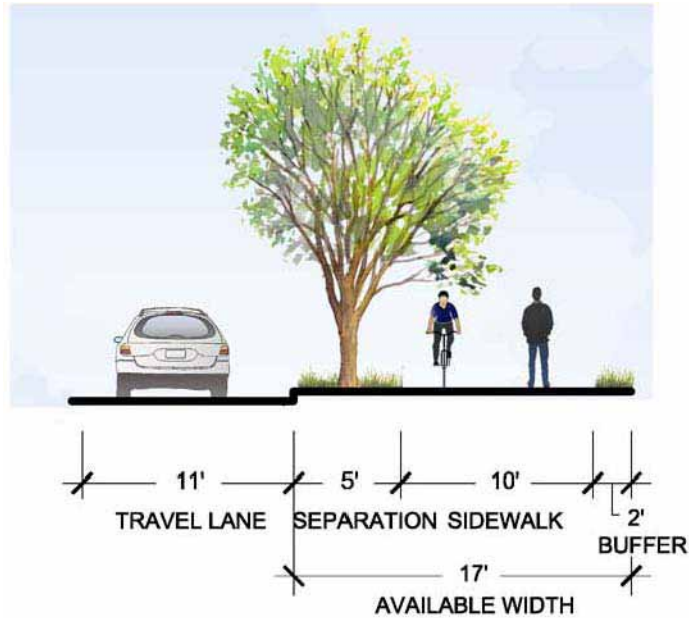
Sidewalk Type A: 6 foot wide sidewalk with 5 foot wide planting buffer on the farside of the curb. This sidewalk type is proposed along the perimeter of park lands where adjacent slopes or forested areas restrict sidewalk improvements with a standard tree box adjacent to the roadway.



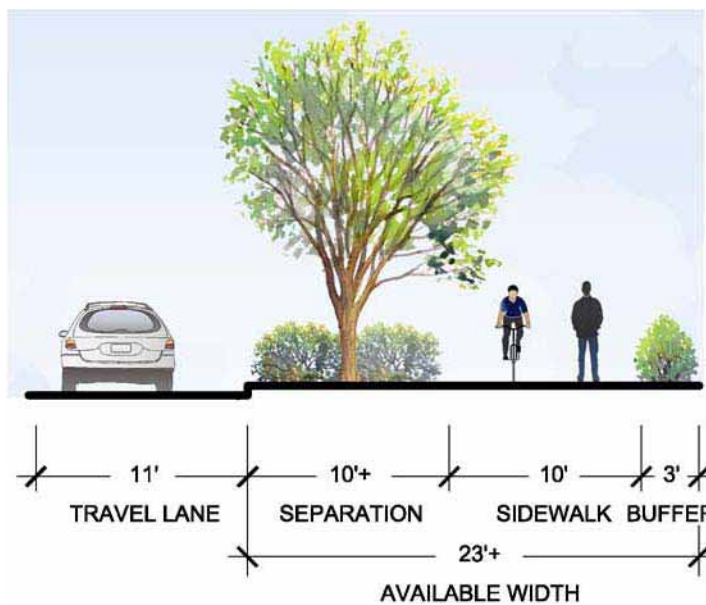
Sidewalk Type B: 6 foot wide sidewalk with 4 to 6 foot wide tree/box planting strip. This sidewalk type is proposed along adjacent streets and around the perimeter of Oxon Run Park where sufficient space exists to provide for a tree box adjacent to the roadway.



Sidewalk Type C: 10 foot wide sidewalk/sidepath with 4 to 6 foot wide tree/box planting strip. This sidewalk type is proposed along adjacent streets and around the perimeter of Oxon Run Park where the proposed trail segment overlaps sidewalk locations along the adjacent roadways, and where sufficient space exists to provide for a tree box adjacent to the roadway.



Sidewalk Type D: 10 foot wide sidewalk/sidepath with 10 foot wide tree/box planting strip. This sidewalk type is proposed along adjacent streets and around the perimeter of Oxon Run Park where the proposed trail segment overlaps sidewalk locations along the adjacent roadways, and where sufficient space exists to provide for a widened tree box for LID measures adjacent to the roadway.



TRAIL/ROAD CROSSINGS



Source: TDG Library

Best practice design for crossings at each of the crossroads of the park, as well as adjoining roadways, is key to ensuring that trail and park users are able to utilize the space as safely and comfortably as possible. In general, these intersections should be improved utilizing the trail/roadway crossing detail in the D.C. Bicycle Design Guide. General improvement recommendations including curb ramps, crosswalk markings, street signage, crossing signals, and curb extensions are the types of features recommended at many of the proposed intersections to address site specific issues. Site specific concept designs are illustrated in Appendix D: Focal Areas.

SIGNAGE

Signs should be implemented through the entire trail especially the appropriate warning and regulatory signs recommended for trail/roadway intersections. Signs should provide important safety information including intersection warning, wayfinding, trail and user restrictions and other right of way information.



Source: TDG Library

Typical signs should consist of:

- Stop
- Yield
- Bikes Use Ped Signal
- Bikes Keep Left, Peds Right
- Bikes Yield to Peds
- Yield Here to Trail Users
- In-street Crosswalk Bollard
- Intersection Ahead
- Path Narrows
- Share the Trail
- Street/Facility Identification
- Wayfinding
- Interpretation/ Information
- Trail Identity Signs
- Turning Traffic Yield to Bikes and Peds

INTERPRETATION/INFORMATION KIOSKS



Source: Bernheim Arboretum & Research Forest

Interpretative signage provides users with objective information about trails, such as trail symbols, length, direction, rules, surface type and accessibility. In cases where more extensive trail information is provided such as maps, the history of the area, or environmental information, a profile of the trail's grade and surface should also be included so accessible trail segments can be identified. Signage design should be chosen based on long-term maintenance needs and have a design theme consistent with other trail amenities and signs. When choosing materials and design, graffiti removal and vandalism control should be a key consideration. Like directional signs, informational signage must meet the most current ADA guidelines including a 42-inch minimum space between other protruding objects. Potential locations for interpretation and information kiosks include near proposed low-impact development measures and park features, including the proposed gateway/community gardens at 1st Street and Chesapeake Street, the low-impact development measures along Livingston Road, the proposed gateway entry area at Yuma Street, and the proposed reforestation areas adjacent to Valley Avenue.



Source: TDG Library

GATEWAYS AND WAYSIDES



Source: TDG Library

At key access points to the trails, gateways should serve to mark trail access or landmarks with informational kiosks and aesthetically pleasing nodes of interest by incorporating art or landscape elements. At focal areas along the trail, waysides should be created to provide occasional areas along the trail for users to pull-off

and enjoy the areas of interest around the trail or simply have a resting zone within the park. Both gateways and waysides could also include signage, informational kiosks with trail orientation mapping, landscape and hardscape treatments, as well as benches, bicycle racks, or shade structures. Gateway and wayside locations include: South Capitol Street and 1st Street, 4th Street and Valley Avenue, Wayne Place and 4th Street, and the trail crossings of Wheeler Road.

SURFACES / PAVING MATERIALS

A variety of surface material options are appropriate for various segments of the trail and amenity areas.

PAVEMENT



Source: TDG Library

Standard asphalt is recommended for the primary trail and circulation routes along the alignment. An asphalt surface (6-inches deep) with an aggregate base (6-inches deep) is suggested depending on local geotechnical conditions. Along segments of the trail where the existing asphalt surface is planned to be rehabilitated or resurfaced, to the greatest extent possible, milled materials should be reused or recycled within the project to minimize waste.

PAVERS

Within gateways, waysides and connecting trails, a variety of concrete or brick pavers may be utilized in different patterns to create unique areas of interest. However, similar use of surface material is recommended for consistency and user familiarity when using the trail.



Source: Mansfield Brick & Supply



Source: Oclandscape.com

PERMEABLE SURFACES

Similar to locations acceptable to the use of pavers, permeable material surfaces allow water to penetrate through the surface directly to the subsoil by using specialized paving materials such as paving blocks, pervious concrete or asphalt, turf block, decomposed granite, crushed rock, gravel, or soil pavement. Most materials are available in a variety of colors, shapes, and forms and may be arranged in various patterns or stamped to create a unique aesthetic appearance. However, where trail segments, wayside, or gateway areas are frequently flooded, the use of permeable surfaces is not recommended, due to the increased chances of clogging of the porous spaces.



Source: Buildinggreentv.com



Source: Ecofriend.org

LANDSCAPING, LOW-IMPACT DEVELOPMENT & GRADING

LANDSCAPING



Source: NC Cooperative Extension

Planting areas should be complementary to the general park setting of the trail and should vary in function, form, and scale to frame positive views, as well as guide circulation, screen negative views, provide habitat, shade, and relief from the sun. In general low bushes and limbed up trees are recommended to improve visibility within the park, and

improve surveillance visibility. The landscaping character should embrace the gateways and waysides in particular. Landscape improvement areas include gateway areas and low-impact development measure areas.

LOW IMPACT DEVELOPMENT & GRADING

Low impact development (LID) is the treatment of stormwater through the use of biofiltration techniques such as bioswales, raingardens, permeable surfaces, and tree box filters to improve water quality and reduce stormwater runoff and pressures on existing storm water infrastructure systems.



Source: City of Berkeley - Dept. of Public

Bioswales – Bioswales are vegetated drainage channels that convey, infiltrate, and treat stormwater runoff water through the use of vegetation and natural biological processes. These systems can be designed into areas that receive run-off from paved areas where runoff may be laden with oil and other waste washed from roadways or as overflow conveyance systems for other bioretention facilities.



Source: Urban Resources & Borderland Alliance Network

Rain Gardens – Rain gardens are shallow depressions that infiltrate and treat stormwater through the use of deep-rooted native plants and grasses. These systems are located near a runoff source with drainage areas up to 5 acres in size. These features provide an aesthetically interesting garden area while treating stormwater, compatible to a park setting or educational interpretative area.

Tree Box Filters – Tree box filters consist of a container filled with an engineered soil mixture, under-drain system, and a tree or various plantings located along a roadway or impervious surface area. These systems typically replace or provide pre-treatment upstream of traditional stormwater drain inlets and treat stormwater runoff through infiltration, and natural biological processes by the plant materials present in the tree boxes.



Source: Vox



Source: Just Smart Design



Source: Neighborhood Design Center - Maryland



Source: Neighborhood Design Center - Maryland

significant opportunities to create a cohesive theme for Oxon Run Park and the surrounding neighborhoods. Where possible it is recommended that the art integration be coordinated with local community centers, schools, and citizen groups to encourage a greater “sense of ownership” of these features. Citizen, particularly youth, involvement into the public art and civic design process increases citizen awareness of the park, encourages citizen investment into the maintenance and upkeep of the park, as well as illustrates local talent within the park.

Public art areas are recommended at the gateway and wayside areas, where feasible.



Source: Neighborhood Design Center - Maryland

SITE FURNITURE

Site furniture is recommended along the trail corridor, particularly at gateways, waysides and other areas of interest for trail and park users. All furnishings should be made of durable materials and painted black for ease of maintenance and to resist vandalism. Metal rather than wood furnishings are recommended because they can't be burned nor provide splinters, and where possible recycled materials should be used. In general, when placing site furniture along the trail, benches, tables, trash and recycling receptacles, bike racks and other furnishings

should be placed at least 3 feet away from the trail. Conceptual amenities palettes presented to the community during concept designs are provided in Appendix A: Concept Design Boards.

BENCHES



Source: Pilot Rock

Benches should accommodate all users and include back and arm rests to keep people from sleeping. The bench seat should be between 16 and 18 inches above the ground, with handrails at the end between 6 and 12 inches above the seat. The depth of the seat should range between 18 to 20 inches with a width varying between 24 to 30 inches allotted

per person. There should be a clear level space where a person using a wheelchair can rest adjacent to seated people. This area must be at least 30 by 48 inches and should be located adjacent to the benches. Benches should be positioned on an accessible surface with an accessible walk to the seating area. Benches should be located at each of the waysides along the trail, as well as the gateways at South Capitol Street and 1st Street, 1st Street and Chesapeake Street, Valley Avenue and 9th Street gateways, and the waysides adjacent to Wheeler Road between Mississippi Avenue and Valley Avenue.

TABLES



Source: Victor Stanley

Tables should be provided at waysides, and general picnicking areas within the park along the main trail route. Tables should be made of durable materials, such as vinyl coated, expanded metal which require minimal maintenance, and should be secured to a paved, accessible surface so they are universally accessible. The height of the bench should be about 18 to 20 inches high with the table top at 30 inches high. The paved surface below the table should not have a slope greater than 2 percent in any direction and have an accessible path to the trail. Tables should be located at the Yuma Street cul-de-sac, and at the seating area near the existing horseshoe pit between Mississippi and Valley Avenues.



Source: The Wall

Permeable Surfaces – As noted in the surfaces and paving materials section, permeable surfaces would be used to provide additional areas for water infiltration into the underlying soil, reducing stormwater runoff.

Low-impact Development areas are recommended along the trail at the gateway and wayside areas, where feasible.

Grading to provide a seamless connection between the proposed improvements and existing landscape is important to provide a smooth transition within the park. During final design, the limits of grading and construction will need to be delineated and should provide a trail in the context of a park setting and streetscape character where appropriate. Trail geometry will be used to maintain sheet flow and avoid the use of ditches, inlets, and culverts.

PUBLIC ART

Throughout the park area, public art and civic design elements are recommended for integration into the trail infrastructure and landscape as a part of phased design and construction. Waysides, gateways, and similar locations provide



Source: Jobsite Supply

BIKE RACKS



Source: City of Denver

Bike racks should be located at trail gateways, waysides, schools, community centers, and as close as possible to destinations without interfering with traffic flow; this includes the space needed for a locked bicycle. Stationary U-shaped and post racks are the most common and the most affordable option. These devices allow cyclists to lock both the wheels and the frame as well as move bicycles into and out of the racks with minimal effort and damage. The location of a rack should be well lit and visible to prevent theft, and be protected from the elements with a roof if possible. Bike racks should be located at Patricia Roberts Harris Educational Center, Simon Elementary School, Hart Junior High School, Southeast Tennis Center and theARC.

TRASH AND RECYCLING RECEPTACLES



Source: Victor Stanley

Trash and recycling receptacles should be located throughout the trail corridor. Receptacles should be of similar character as other proposed site furniture, and also be ADA accessible. Receptacles require a 30 to 48 inch clear space with an opening height of 15 to 36 inches. Lids must be hinged, tamper resistant, and any removable tops should be lockable. Trash and recycling receptacles should be located at each of the gateways and waysides as well as near high population areas including the existing horseshoe pits, playgrounds adjacent to Wayne Place, the Amphitheater adjacent to Mississippi Avenue, and the basketball courts along Valley Avenue.

LIGHTING

Lighting elements of the trail serve a decorative function, accenting landscaping concepts, landmarks, artwork, etc., as well as providing for functional illumination and security of the trail during the evening and dusk hours. Through the use of appropriate lighting concepts, the trail can be a focal point that is integrated into the existing neighborhoods and streetscapes, providing an interesting transition for users from the surrounding streetscape onto the trail. By maximizing the use of energy efficient and self-sufficient lighting systems, lighting elements become an integral part of the landscape concept, adding to the users overall trail experience.



Source: TDG Library

The design and material of lighting should be consistent with the design of other site amenities, and be scaled for pedestrian trail users. Lighting levels should comply with local ordinances and should have cut-offs to shield lighting from adjacent properties. LED and solar-powered lighting is a good option that is ultimately less expensive to operate, and should be explored further during final design. As with other site amenities, lighting should be tamper resistant and made to withstand vandalism.

Existing lighting systems can be found on several of the proposed trail segments along existing roadways. In many instances these systems will remain and must be incorporated/re-utilized in the design, as well as complemented by any proposed lighting systems. In areas where the trail is proposed adjacent to existing roadways, illumination requirements for the roadways must also be kept in mind to improve safety and security for all uses. Transitions between existing streetscape lighting and proposed trail lighting will be critical in creating an inviting feel for the user.

The lighting scheme for this trail system consists of post-top fixtures primarily with bollard scale fixtures, supplementing individual segments of the trail alignment.

PRIMARY LIGHTING - POST-TOP LUMINARIES

Lighting along the trail alignment is proposed with Hadco #R54 Acorn (Washington Globe) post-top luminaries with a wide body refractory globe and 150-watt High Pressure Sodium (HPS) lamp on a cast iron fluted 12 foot pole at 70 foot on-center spacing on one side of the trail. This light fixture is a typical District of Columbia Department of Transportation (DDOT) fixture which would enable ease of maintenance and replacement by DDOT forces.

Alternate LED, solar powered luminaries and aluminum or composite poles should be explored during final design. Each of these options could provide the traditional street pole appearance while providing a more cost effective solution.

SECONDARY LIGHTING - BOLLARD LUMINARIES



Source: Antique Street Lamps

Secondary pathways to areas of interest are illuminated with low level bollards at approximately 41 inches in height, and spaced at approximately 10 foot on-center spacing on one side of the trail.

STRUCTURES: BRIDGES & BOARDWALKS



Source: TDG Library

Bridges and boardwalks provide physical connections over waterways and low land areas. Various bridge alternatives and design characteristics are possible and each specific crossing location should have its own design character. During final design, hydraulics and hydrology and scour analyses should be performed at each of the proposed structures.

There are four proposed structures spanning Oxon Run, Barnaby Run and two unnamed tributaries to Oxon Run. Each location is discussed below with additional conceptual engineering analysis provided in Appendix G: Structural Concept Design Report.

STREAM CROSSING AT OXON RUN/OXON COVE TRAIL INTERFACE

The proposed structural feature at this location consists of a new 120 foot three-span weathering steel stringer pedestrian bridge structure with a steel frame and concrete deck crossing the unnamed tributary to Oxon Run adjacent to the existing Oxon Cove Connector Trail pedestrian bridge on NPS lands. With a soffit elevation of 10 feet, this elevation would roughly clear the 25- and 50-year flood events. The proposed structure replaces a previous trail bridge over this tributary that has been washed out by high water. Railing and decking materials should accommodate a lightweight maintenance or security vehicle.

A proprietary pre-fabricated tubular through truss structure would be an alternative to this bridge. Either bridge detailing and deck surface treatment should be made consistent with the multiple crossings for continuity of bridge appearance. This bridge is proposed on NPS lands and would require the appropriate reviews and approvals prior to installation.

AUDREY LANE STREAM CROSSING

The proposed structural feature at this location consists of a new 30 foot single span pedestrian bridge crossing over the unnamed stream at Audrey Lane, approximately 60 feet upstream from an existing reinforced concrete weir structure on NPS lands. A proprietary prefabricated tubular through truss structure is recommended for this location. This type of structure, with minimally obstructing railings, is anticipated to create negligible obstruction to flood flows.

The approach grade should be kept low so as to result in no further obstruction of overflow bank. This bridge is proposed on NPS lands and would require the appropriate reviews and approvals prior to installation.



Source: The Granville Press

The proposed structure alignment is anticipated to be approximately perpendicular to stream flow direction in order to minimize the required length. Railing and decking options for the structure should accommodate a lightweight maintenance or security vehicle. Decking design options could range from concrete to wood or composite with wood appearance. The structure will

be located near the Barnaby Run crossing and consideration should be given to matching or blending the chosen structure type and barrier/rail treatment at that location. For the tubular through truss structure, corrosion protection of the steel members can be achieved using either galvanized finish or weathering steel finish.

BARNABY RUN CROSSING

The proposed structural feature at this location consists of a new three-span, 145 foot pedestrian bridge crossing over Barnaby Run on NPS lands. Several locations were considered for this structure, with crossing locations ranging from a point 100 feet from the confluence of Oxon Run and Barnaby Run to a point approximately 700 feet upstream. For the proposed crossing closest to the waterway confluence (western alignment), the southern approach would traverse the existing open terrain west of Oxon Run Drive, cross the stream on a perpendicular alignment and proceed directly to higher ground along a defined and stable ridgeline centered between the two waterways (NPS land). The upstream crossing (eastern alignment) would require the southern approach to run adjacent to Oxon Run Drive, then turn perpendicular to cross Barnaby Run and turn again once the ridgeline is reached.

The western option was chosen as the preferred alternate due to its much more direct horizontal alignment. For this option, the east bank of Barnaby Run is fairly stable, but the west side is less defined and subject to flooding in high water situations. According to data gathered from FEMA published Flood Insurance study reports, a 10-year flood at approximate elevation 19.5 feet would fill a significant portion of this west side. As such, the proposed crossing at this location involves spanning both the defined steam channel and adjacent floodplain. A three-span structure on tangent alignment is proposed with an approximate structure soffit elevation of 21.0 feet. This soffit elevation would roughly allow clearance of 25- and 50-year flood events per FEMA published data.

Superstructure options for this proposed crossing can range from traditional steel stringers to a proprietary prefabricated through truss. Use of either galvanized or weathering steel is preferred. The through truss option would allow this structure to blend with the structure recommended at the nearby Audrey Lane stream crossing and possibly at the Oxon Cove Trail interface location. The use of the steel stringer option would allow some greater flexibility in horizontal alignment and a horizontally curved alignment is possible should this be desired aesthetically. This alignment would be noticeable from the proposed trail wayside overlook area near the east bridge abutment.

Railing and decking options for the structure will vary depending on the need to accommodate a lightweight maintenance or security vehicle. Decking options could range from concrete to wood (or composite with wood appearance). Since this pedestrian bridge proceeds through dense woodlands, consideration for a more rustic finish, possibly using timber railings, may be more appropriate to complement the surrounding environment. This bridge is proposed on NPS lands and would require the appropriate reviews and approvals prior to installation.

OXON RUN CROSSING AT SOUTH CAPITOL STREET

The existing Oxon Run waterway at the existing South Capitol Street vehicular bridge is controlled by a concrete channel section that begins approximately 30 feet downstream from the vehicular bridge and continues upstream for an extended length. For a short distance, the Oxon Run channel is controlled by large diameter rip rap and then continually is adjusting both vertically and laterally within the stream valley. In this channel section, there is extensive bank erosion and concrete debris. Numerous utilities exist in the vicinity of the proposed crossing including an existing storm drain outfall, a 24-inch sewer pipe, and a 12-inch diameter water main.



Source: The University of York

The proposed structural feature at this location consists of a new single-span pedestrian bridge over Oxon Run on an alignment parallel to and downstream (south) of the existing single span South Capitol Street vehicular bridge. Due to the deteriorated condition of the channel beyond the controlled section, a crossing approximately 5.5 feet offset from the existing vehicular bridge appears to be beneficial in order to take advantage of the existing stabilized condition for the proposed bridge abutments. This “tight” alignment conflicts with an existing storm drain and outfall, and special design measures would be needed to address this interface.

The new west pedestrian bridge abutment would have to be designed with foundations adjacent to the outfall in order to maintain the outfall in its current location and not compromise its structural integrity. Superstructure options for this proposed crossing can range from traditional steel stringers to a proprietary prefabricated through truss (including a bowstring truss option which has been identified as a preferred alternate). A lightweight maintenance vehicle should not be required for this pedestrian bridge location due to the adjacent vehicular crossing and, as such, a simple pedestrian railing would suffice. Decking options could range from concrete to wood (or composite with wood appearance).

An alternative explored for this location was the potential widening of the existing vehicular bridge by 9 feet 3 inches to allow for accommodation of the shared use trail on the existing bridge structure.

The bridge widening would be accommodated by removing the entire existing sidewalk and the bridge deck to the centerline of the existing fascia girder. Two new beams would be erected on widened abutments to accommodate a new 14 feet wide shared use sidewalk. It is assumed that rail standards for the bridge would be in accordance with DDOT Standards. Similar to the stand-alone pedestrian bridge option, the existing storm drain outfall conflicts with the proposed widening. It is proposed that the sidewalk width in the constrained zone be reduced slightly to simplify the construction in this area.

This bridge location is on District property or right-of-way, however due to the various utilities in the area, during final design potential impacts to adjacent properties should be assessed.

BOARDWALK

As an alternative to the proposed bridge systems, a boardwalk system may be possible. These systems are typically made of wood or possibly structural recycled materials and are designed to span across low lying areas that may be inundated. A boardwalk system may also be appropriate in hilly areas where extensive grading would traditionally be utilized to bridge areas with significant grade changes. Potential boardwalk systems should be constructed with “non-

slip” decking materials, railings and kick railings with openings no greater than 4 inches in diameter and a minimum height of 42 inches. Any proposed boardwalk or bridge system should consider potential environmental impacts, maintenance requirements, vehicle loading/access requirements, and alignment possibilities when considering each structure type.



Source: Nature Bridges



Source: Nature Bridges

GENERAL CONSIDERATIONS

PROPERTY OWNERSHIP

Within the trail corridor, a majority of the trail is proposed within District right-of-way or on District owned property, and as a result no additional right-of-way or land purchases are anticipated. Agreements with the NPS, MNCPPC, and the Town of Forest Heights may be required for potential easements or maintenance agreements once construction is complete.

UTILITIES

Throughout the trail corridor the proposed trail crosses numerous subsurface utilities, and as a result, the impacts and potential modifications of these structures will have to be addressed during final design.

TRAFFIC/INTERSECTIONS

Along the proposed trail corridor vehicular traffic at each of the trail/roadway intersection should be reviewed and designed to provide safe crossings at each intersection. Refer to focal areas for details.

3 CONCEPT DEVELOPMENT NEXT STEPS

ANTICIPATED REVIEWS / APPROVALS

The following District agencies will review the various trail segments and provide input through the final design process:

District Department of Transportation - Transportation Policy, Planning & Sustainability

- Project oversight during final design.

District Department of Transportation - Infrastructure Project Management Administration (IPMA)

- Detailed design review ensuring compliance with DDOT's Engineering and Standards and Guidelines.
- Project management during construction.

District Department of Parks & Recreation (DPR) - Office of Planning and Capital Projects

- Project review during final design.

District Department of the Environment (DDOE) - Water Resources Protection

- Project review during final design to ensure all applicable laws are met for stormwater management, erosion & sediment control, and wildlife protection are maintained within the trail corridor.

- Project coordination of low impact development strategies in compliance with the watershed stormwater master plan.

District Department of Transportation - Urban Forestry Administration (UFA)

- Project review during final design to ensure compliance with UFA's recommended tree list.

District Office of Planning (OP) - Public Space Planning

- Project review during final design to ensure compliance with OP's public space program, which plans major public realm projects such as streetscapes, parks, and open space designs.

The following Federal agencies will review the various trail segments and provide input through the final design process:

US Army Corp of Engineers (USACE) - Baltimore District

- Review of wetland delineations and impacts to wetlands or Waters of the US in the trail corridor.

National Park Service (NPS) - Parks East Division

- Oversight of trail segments extending through NPS lands which must comply with NPS reviews and approvals in order to obtain the appropriate permits required for access, environmental protection and

NEPA coordination and compliance. Lighting, wayfinding signage, and amenity wayside locations will need to be coordinated with the NPS staff to provide a consistent trail experience.

National Capital Planning Commission & Commission of Fine Arts

- Due to impacts to federal lands, review and approval by the National Capital Planning Commission, and the Commission of Fine Arts may also be required.

The following additional agencies will review the trail segments within the State of Maryland and provide input through the final design process:

Maryland State Department of the Environment

Maryland-National Capital Park and Planning Commission - Prince George's County

**Prince George's County Department of Public Works and Transportation
Town of Forest Heights, Maryland- Citizens & Town Staff**

SPECIFIC AREAS REQUIRING NATIONAL PARK SERVICE REVIEW

In addition to the proposed trail segments on NPS lands, three specific areas which need to be reviewed with NPS staff prior to further development include:

1. Nature Trail Alignment at Valley Avenue & 13th Street Intersection:
The proposed nature trail alignment into the forested area adjacent to the Valley Avenue & 13th Street intersection as discussed with NPS staff is planned to be a low-impact mulch trail. It will be delineated in the field with NPS staff to minimize environmental disturbance. A 3 foot wide nature trail is proposed without any additional amenities or features.
2. Seep crossing along Mississippi Avenue east of 13th Street:
Along Mississippi Avenue, a seep area exists within DDOT right-of-way extending onto NPS property. In an effort to minimize disturbance to this feature, a proposed boardwalk span over the seep area is recommended and should be field located prior to final design to identify the extents of the seep feature.
3. Nature Trail Alignment into NPS parcel adjacent to D.C. Village impoundment lot:
The proposed nature trail alignment into the forested area adjacent to the impoundment lot in D.C. Village as discussed with NPS staff is planned to be a low-impact mulch trail. It will be delineated in the field with NPS staff to minimize environmental disturbance. A 3 foot wide nature trail is proposed without any additional amenities or features unless agreed upon by NPS staff.

MANAGEMENT AND MAINTENANCE OF TRAIL

Trail maintenance and management will involve a variety of activities. DDOT has already been administering some of these activities during trail development. However the future workload will entail some new and additional work.

Implementation

- Managing phased trail design and construction
- Coordinating design and installation of public art and/or heritage trail interpretive signs

Ongoing

- Coordinating with ORCA to provide maintenance and surveillance support, and ensuring on-going coordination and information exchange among city agencies, neighborhood groups.
- Developing promotional materials.
- Managing trail operations and addressing any user conflicts that may arise.
- Regular clearing of vegetation and overgrowth.
- Repairing failed sections of the trail.
- Trail sweeping and emptying trash receptacles.
- Regular inspection and cleaning of catch basins, culverts and other drainage facilities.
- Maintaining and replacing signs and pavement markings.
- Graffiti removal, if necessary.

POLICING AND PUBLIC SAFETY

Within District public right-of-way and property, the D.C. Metropolitan Police forces will be the lead agency responsible for public safety and security. Maryland National Capital Park Police and Prince George's County police will have jurisdiction on Maryland state lands, while U.S. Park Police will be responsible to patrol National Park Service lands.

User security can be augmented by citizen volunteers or through cooperative arrangements with other city programs. The key to effective trail policing will be coordination; among the government police forces as well as with the private security operations and civic groups.

Patrols - Different patrol methods (motor vehicle, bicycle, foot) will be required along different segments of the trail. Moreover, some agencies do not have the person power or equipment to participate in each method. In general, bicycle mounted patrols will be most effective along shared use path sections of the trail, while motor vehicle patrols will be effective along the street segments.

4 IMPLEMENTATION PHASES

OVERVIEW

The following is a brief implementation and phasing strategy. This strategy was developed through prioritizing segments of trail and those portions of the project which can be completed by complementary agencies or departments and other funding sources.

If possible, for cost and time savings, it is recommended that the project be implemented in one phase. However, a single phase typically is not possible due to funding constraints or the approval processes required for various sections of the project. As a result, if phasing is necessary, a framework of seven phases of implementation is recommended. Again, if it is determined that some of these phases can be combined it would result in more cost effective implementation.

The potential phases for implementation have been organized based on anticipated approvals, potential funding amounts, and complexity of the individual trail segments. While there are many variables that must figure into the decision to undertake design and construction of a trail phase at a particular time it is critical that segments be immediately usable with seamless and convenient access.

A majority of the trail is located on District property or within District right-of-way. The southern-most connection to the trail is located in Maryland on MNCPPC or NPS Property. As a result, the segment in Maryland has been separated as an individual phase.

The following is a summary of the primary segments of the project that should be implemented in each phase and a rationale for why they are recommended

for the particular time frame represented by the phase. Refer to Appendix for proposed phasing plan.

PHASE I - TRAIL IMPROVEMENTS - PRIORITY 1

Proposed and rehabilitated trail segments within Oxon Run Park on the west side of Oxon Run (Priority One). Improvements include:

- Trail Construction (New, Rehabilitation & Removal)
- Trail Gateways & Waysides
- Trail Lighting

PHASE II - TRAIL IMPROVEMENTS - PRIORITY 2

Proposed and rehabilitated trail segments primarily within Oxon Run Park on the east side of Oxon Run (Priority Two). Improvements include:

- Trail Construction (New, Rehabilitation & Removal)
- Trail Gateways & Waysides
- Trail Lighting
- Sidewalk Widening

PHASE III - TRAIL SEGMENT - OXON COVE PARK TO SOUTH CAPITOL STREET

This phase includes improvements connecting Oxon Cove Park in Maryland to D.C. Village and the Bald Eagle Recreational Center, as well as trail segments within Maryland to Eastover Plaza and South Capitol Street.

PHASE IV - SOUTH CAPITOL STREET IMPROVEMENTS

This phase includes all improvements along South Capitol Street to be combined with the proposed streetscape/lighting project by others. Improvements within this phase include sidewalk widening from Southern Avenue to 1st Street SW, along both the east and west sides of the road corridor and a bicycle/pedestrian bridge extending parallel to South Capitol Street.

PHASE V - SIDEWALK SEGMENTS (NON-TYPICAL) INCLUDES ADDITIONAL IMPROVEMENTS ADJACENT TO OXON RUN PARK

Locations included within this phase are sidewalk segments and supplemental improvements primarily along Livingston Road, Valley Ave and Wayne Place, including crosswalks, curb ramps, and additional improvements (ie. low-impact development features, lighting, and gateways). Sidewalk widths within this phase vary and should correspond to typical sidewalk width illustrated in the supplemental cross sections.

PHASE VI - SIDEWALK SEGMENTS (TYPICAL)

Locations included within this phase include stand-alone sidewalk segments primarily along Livingston Road, 4th Street, Atlantic Street, Wheeler Road, and Southern Avenue, supplemental improvements including crosswalks and curb-ramps. This phase does not include sidewalk segments which include additional improvements (ie. low-impact development features, lighting, and gateways). Sidewalk widths within this phase vary and should correspond to typical sidewalk widths as illustrated in the supplemental cross sections.

PHASE VII - BICYCLE LANES & SHARED LANE MARKINGS

As interim routes or permanent bicycle facilities, bicycle lanes or shared-lane markings are proposed as on-street facilities which would maximize connectivity of the adjacent trail segments or provide an additional facilities for more experience bicyclists. Within this phase on-street parking restrictions are recommended as well to provide sufficient area for proposed bicycle lanes.

ESTIMATED COSTS

Estimated costs to construct the proposed improvements, including Phases I - VII and potential interim trail elements, are summarized in the following tables. Construction cost estimates were developed by identifying pay items and establishing rough quantities. Unit costs are based on 2010 dollars and were assigned based on historical cost data from DDOT, other state departments of transportation and other sources. The costs are intended to be general and used for planning purposes. Construction costs will vary based on the ultimate project scope (ie. potential combination of projects, or use of DDOT forces), and economic conditions at the time of construction.

Preliminary costs are based on a phased implementation as discussed earlier in this chapter and detailed in Appendix F.

