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PARK MASTER PLAN

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PARK MASTER PLAN

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The Arlington County Board voted unanimously to adopt the Four Mile Run Valley Park Master Plan on September 22, 2018.

INTRODUCTION

The Four Mile Run Valley (4MRV) is recognized by South Arlington residents and its many visitors for its unique industrial character, cultural and recreational heritage, and natural qualities. At the heart of the valley are three parks that provide public access to these qualities: Jennie Dean Park, Shirlington Park, and Shirlington Dog Park.

Through the combined efforts of the County-Board appointed 4MRV Working Group (WG), County staff, neighbors, and park users, a Park Master Plan (PMP) was crafted that seeks to build upon these qualities to meet the growing demand for active recreation, casual use areas and cultural and natural resource preservation.

The three parks are seen as the heart of this vibrant community and also provide public access to Four Mile Run – a stream and natural habitat that traverses through Arlington County to the Potomac River.

The PMP provides a blueprint for transforming the well-loved but aging parks into an exciting place designed to celebrate the area's industrial past, cultural and recreational heritage, while increasing access to recreation and nearby nature. The PMP relocates and updates:

- A greatly increased amount of safe and comfortable access to casual use areas
- An expanded playground to a more visible and accessible location
- Renovated picnic shelters and restrooms to reflect the industrial character of the valley and orient the largest shelter towards casual use areas along Four Mile Run
- Reorients the diamond fields to increase player safety and lights those fields with the newest technologies focusing light on the fields and not the neighborhoods
- Athletic courts to create a cluster of park and recreation activity areas in the heart of the park

More than just realigning and updating important existing park and recreation features, the PMP preserves and enhances the riparian corridor along Four Mile Run (FMR) by restoring natural areas and guiding access along soft pathways to the best places to experience its beauty. More than just nature, the PMP assures that interpretive measures will continue to play an important role in the establishment of place and identity associated with the design of the park features, and site furnishings.

The PMP is organized to illustrate how each of the program elements can be designed to work together to establish the three parks as the heart of the 4MRV.

4MRV WORKING GROUP CHARGE

Adopted 4.19.16; Amended 7.19.16

The Working Group is charged by the County Board to collaborate with staff to provide commission, business, civic, and advocate perspectives on a draft Area Plan and PMP, including policy recommendations, and to ensure consistency with other County policies. Additionally, the Working Group will:

- Serve as the central forum for community engagement
- Provide advice and input on staff and consultant analyses and proposals, including goals and objectives, vision and concept plans, planning policies and specific plan implementation strategies for the Area Plan and the PMP
- Act as liaisons to inform representative groups of ongoing discussions and to seek feedback to share with the full working group
- Provide strategic guidance to resolve matters of community process during the study
- Review and provide comments on draft and final documents and plans developed by staff
- Provide its comments and recommendations on those documents and plans to the County Board as an integral part of staff reports or through a companion letter or memo

4MRV WORKING GROUP GUIDING PRINCIPLES

Adopted 9.18.17

1. Create a cohesive plan for the entire study area.
2. In general, maintain existing zoning and types of uses.
3. Balance county-wide and neighborhood needs, accommodating current and anticipated future demand.
4. To the greatest extent possible, maintain capacity of existing county facilities, in the study area or elsewhere.
5. Consider affordable, creative, and functional solutions that can be implemented incrementally.
6. Enhance the area's accessibility, with attention to safety and pedestrian and bicycle connections.
7. Consider the impact of planning options on locally-owned and operated businesses and organizations.
8. Preserve, protect, and rehabilitate the natural environment and biodiversity of the study area to the greatest extent possible.
9. Maximize green, casual-use space in Jennie Dean Park and in other parks along Four Mile Run.
10. Promote new arts and recreational opportunities for users of all ages and abilities.
11. Improve water quality by implementing best stormwater management practices.
12. Buffer noise-generating uses with trees, landscaping, or other elements.
13. Celebrate the area's history and culture, especially the community's African-American heritage and the history of Jennie Dean Park.

Park Master Plan (PMP) Study Area

The 4MRV PMP area is bounded by South Four Mile Run Drive between South Nelson Street¹ and Shirlington Road on the north, Shirlington Road on the east, South Arlington Mill Drive on the south and South Walter Reed Drive on the west. The study area includes three (3) parks: Jennie Dean Park, Shirlington Park, and Shirlington Dog Park. FMR traverses the PMP area from west to east.

- **Jennie Dean Park** (3630 27th Street South): the approximately 12-acre park currently includes two (2) lighted diamond fields for baseball and softball, a lighted basketball court, two (2) lighted tennis courts, a restroom/picnic shelter building with covered space for three (3) picnic tables. The park also includes an open grassy area and a playground and picnic area among the mature trees adjacent to FMR.
- **Shirlington Park** (2601 South Arlington Mill Drive): the approximately 11-acre total park area (Shirlington Park, Shirlington Dog Park and the stretch of FMR bisecting both areas) includes a stretch of FMR stream that bisects the park into two sections: the Shirlington Dog Park to the north and Shirlington Park to the south. Of the 11 acres, 2.3 acres is the total land area associated with Shirlington Park, which includes a shared use path (Four Mile Run Trail) and open space along the southern boundary of FMR. The path accommodates both pedestrians and bicyclists. The site features fitness stations, bicycle racks, benches, and a Capital Bikeshare Station.

¹The Arlington County Board reduced the size of the PMP Study Area and directed staff to consider the two block area between South Oakland Street and South Nelson Street for consideration as an Arts and Entertainment District.



Figure 1 PMP Study Area

- **Shirlington Dog Park** (2710 South Oakland Street): the approximately 2.5-acre dog park is adjacent to the northern bank of FMR and stretches from South Oakland Street on the east to beyond South Oxford Street. This area consists of a large fenced area where dogs can exercise and wander off leash. A separately fenced small dog area is located near the main entrance. Amenities include dog water fountains, dog waste bag dispensers provided by the volunteer sponsor group, benches, shade trees, and an information kiosk.

Background Key Issues

Jennie Dean Park, which was named after Jennie Serepta Dean, who was raised in slavery and later became an educator, founding the Manassas Industrial School, has been an important part of the Nauck community for almost 70 years. Nearby, the Shirlington neighborhood has undergone significant redevelopment over the past 15 years, bringing many new residents and businesses to an area that previously had a much smaller population. This has considerably increased the demand for open space and recreational opportunities in this area.

Currently the park contains a significant inventory of aging facilities that are at or beyond their useful life. Mindful of the increasing number of park users, the County strategically increased the park space at Jennie Dean Park through the assemblage of new properties. Given the growing park and recreational demand and the park's need for new facilities and modernization, the County Board initiated a park master planning process as part of the overall 4MRV effort. Two nearby parks, Shirlington Park and the Shirlington Dog Park, are incorporated into this effort, providing an opportunity for a cohesive parks and open space system throughout the Four Mile Run Valley. Throughout the planning process, key issues were identified that shaped the development of planning alternatives and the examination of trade-offs that need to be made in developing the PMP. Key issues included, but were not limited to the following:

Four Mile Run Stream

- The relationship between recreational uses and the Resource Protection Area (RPA) generally located within 100' feet of the top of bank (Figure 26 on page 17)
- The role that associated riparian areas play in addressing needs for casual use space and the need to help park visitors understand the relationships between natural resources and environmental quality associated with FMR
- Management of invasive species
- Water quality and suitability for recreational use (especially in summer months)

Four Mile Run Trail (FMRT)/Shirlington Park

- Conflict between casual trail users and higher speed commuters using the trail
- Role of Shirlington Park as a link between Shirlington Village and Jennie Dean Park



Figure 2 Shirlington Park and the FMRT



Figure 3 Shirlington Dog Park



Figure 4 Jennie Dean Park

Four Mile Run Valley Area Plan VISION STATEMENT

The Vision Statement expresses the community's interest in retaining the industrial character of the area and fostering the growth of arts uses in the future, and highlights the strategic enhancements that are desired in the future.

The vision for the Four Mile Run Valley is to enhance the area's unique strengths over time, addressing natural areas while guiding public realm improvements, including open space and recreational development, and encouraging new investment that contributes to the valley's arts-oriented, industrial character.

The Four Mile Run Valley will be safer, healthier, more accessible, and more responsive to the natural environment by restoring and better connecting to Four Mile Run; reducing stormwater impacts and flooding; expanding transportation options and increasing safety; addressing parking needs; integrating aesthetic improvements to streetscapes; expanding open space and recreational resources, incorporating public art; and preserving existing land uses while providing flexibility for new arts and cultural uses.

Four Mile Run Valley Parks DESIGN VISION

The Four Mile Run Valley Parks will:

- Respect natural environment of Four Mile Run
- Respond to community park and recreation needs
- Reflect industrial and recreational context

Shirlington Dog Park

- Rooftop drainage washing across the dog park causes erosion of the surface
- Streambank erosion (approximately eight feet in the last 20 years)
- Visibility from South Four Mile Run Drive towards the dog park – limited visibility to the dog park through buildings on South Oakland and South Oxford Streets
- The size of the dog park, the water quality impact from bare soil and dog waste, as well as its heavy use in relation to potential water quality solutions (filtering and buffering taking up usable space)

Jennie Dean Park

- Jennie Dean Park implementation and phasing contingent upon additional land acquisition including the Greater Washington Educational Telecommunications Association (WETA) property at 3620 27th Street South, as well as smaller properties on South Four Mile Run Drive
- Expanding recreational opportunities for changing usage patterns and needs
- Fencing/netting and use restrictions associated with diamond fields
- Defining specific areas to meet expanding casual use space needs

Common Themes

Throughout the 4MRV process, several Common Themes were expressed and were generally supported by the Working Group. These ideas influenced the draft Concept Plans included in both the Area Plan and the PMP.

- Celebrate the area's industrial character, cultural and recreational heritage, and natural qualities
- Provide for improved and expanded programmed and casual use space opportunities
- Increase safety and comfort for park users by incorporating various design techniques
- Improve pedestrian and bicycle connectivity and safety throughout the study area
- Increase opportunities for riparian restoration, stormwater management, and tree canopy coverage
- Mitigate water quality issues as necessary
- Remove and manage invasive plant species
- Preserve existing tree canopy and other park amenities as much as possible
- Increase wayfinding and placemaking opportunities within the PMP area

Recommendations

As part of the PMP process, several alternatives were formulated to address the siting of park elements for Jennie Dean Park and Shirlington Park. After extensive community feedback and discussions with the Working Group (WG), which began in 2016 and continued through the summer of 2017, three (3) alternatives were developed for Jennie Dean Park. Four (4) alternative approaches were also developed for Shirlington Park. The alternatives for Jennie Dean Park and Shirlington Park addressed issues and trade-offs for consideration to move forward with



Figure 5 Rendering of proposed entrance to Jennie Dean Park at South Nelson Street

a preferred alternative. County Board direction to maintain the size, location, and character of the Shirlington Dog Park led to the formation of a subcommittee to address enhancements that could be accomplished through maintenance and management activities.

Recommended Alternative for Jennie Dean Park

Based upon the further discussion and expressed WG member preferences, the original three Jennie Dean Park alternatives were refined to two that were both carried forward to the Planning Commission and County Board as part of the overall Four Mile Run Valley Draft Policy Framework. As a recommendation by the WG chair, another WG subcommittee was formed (similar to the approach used to address Dog Park issues) to evaluate and if necessary, further refine the remaining two draft policy framework alternatives for Jennie Dean Park. Through the work of the subcommittee, two final alternatives were forwarded to the WG, leading to a recommended alternative to be included with the Policy Framework with the following features (as illustrated in Figure 7 on page 7):

- Two (2) lighted diamond fields – one (1) youth baseball diamond and one (1) adult softball diamond – located along South Nelson Street with the adult softball diamond designed to accommodate a youth scaled rectangular practice area
- Playground and restrooms - located within a large casual use space area along Four Mile Run Drive
- A lighted basketball court and lighted tennis court will be added to the area just south of the WETA parcel during Phase I construction and then a third athletic court area added upon acquisition of the WETA Parcel (relocating the lighted basketball court to the WETA parcel and reconfiguring the Phase I courts as two (2) lighted tennis courts)

- Lighting technologies designed to minimize effects from light spillover and glare to surrounding neighborhoods will be used for the park's athletic fields and courts
- A continuous and wide band of casual use space surrounds the programmed park areas along South Four Mile Run Drive and FMR
- Except for the existing surface parking lot off Shirlington Road, all other park elements will be incorporated north of the RPA for FMR with a soft path created along the north bank to increase access to this valuable amenity
- A small surface parking lot on the east side of the park will be retained, with expanded and modified on-street parking on South Four Mile Run Drive and South Nelson Street
- The County will continue to build upon and celebrate the neighborhood's African American history and cultural heritage beyond the existing interpretive markers currently located in Jennie Dean Park

Recommended Alternative for Shirlington Park

As part of the PMP process, four (4) alternatives were developed for Shirlington Park to address the issues associated with the mix of uses and users along FMRT and to develop the idea of Shirlington Park as a gateway and transition between Shirlington Village and the

arts and recreation oriented uses north of FMR stream. All proposed alternatives included vegetation and stormwater management, riparian restoration, incorporation of gateways, as well as opportunities for improved wayfinding and placemaking. The concept alternatives included:

1. Baseline Concept – the common elements noted above and with placemaking elements at specific focal points
2. A concept with increased emphasis on access to nature – with overlooks providing educational and interpretive opportunities focused on telling the story of FMR's urbanization and renewal
3. A concept with opportunities for public art at defined gateways and overlooks
4. A concept with a combination of art and nature – this concept would integrate public art with the interpretation of nature (combining the elements of the previous two concepts)

The concept emphasizing a combination of art and nature was the preferred alternative by consensus of the WG and supported by the community.



Figure 6 Rendering of prototypical overlook along FMR in Shirlington Park



Figure 7 Final Illustrative Concept Plan



Figure 9 View across South Four Mile Run Drive. The roadway is a major barrier for connectivity between the adjoining neighborhood and the park areas



Figure 8 Fence installed to prevent erosion and limit access to steep bank in the Shirlington Dog Park

EXISTING PARK CONDITIONS

This section of the master plan report outlines the existing physical conditions of the 4MRV PMP study area focusing on the context of the park areas including the park area location, its history, features, adjacent land uses, and its natural and cultural resources.

Context and Location

Though there are several access points into the parks, many are difficult to spot due to their placement and lack of wayfinding signage. In fact, many locals may not be aware of Jennie Dean Park due to the lack of visibility into the park. The Shirlington Dog Park attracts visitors from all over the region. Many visitors have difficulty finding it, as it is well hidden behind the existing industrial buildings without clear sight lines from the street into the park. The pedestrian bridge over FMR is probably the most prominent entry into the parks though it is not aligned with a street crossing. Many of the other access points are hidden or located off of minor streets such as 27th Street South. The park is well serviced by six bus routes.

Once found, it can be even more of a challenge to find a place to park. Three public parking lots serve the park areas: one located at the ends of South Oakland and South Nelson Streets adjacent to the dog park; and two lots that are accessible from 27th Street South serving Jennie Dean Park.

Getting to the park by foot or bicycle is made more difficult by having to cross the wide roadways surrounding the parks on all four sides (South Four Mile Run Drive, Shirlington Road, South Arlington Mill Road and South Walter Reed Drive). Signalized pedestrian crossings are only provided at Shirlington Road and South Walter Reed Drive leaving residents from adjoining neighborhoods or users from the

Washington & Old Dominion (W&OD) Trail few choices but to cross busy South Four Mile Run Drive. Crossing South Arlington Mill Road is relatively easier with additional pedestrian crosswalks and a landscaped median, reducing the crossing distance to two lanes at any one time.

There are four specific edge condition issues associated with the 4MRV parks that affect both the quality of the existing user experience and opportunities for future improvements to that experience:

- **Visibility into and out of the park areas** on the north side of the study area make it difficult to see and even know that the existing park areas exist. Vistas down South Oxford and South Oakland Streets present an opportunity for visibility into the Shirlington Dog Park from the north side.
- **Four Mile Run** creates a barrier with limited physical access along its shoreline areas. On the north side of the stream, adjacent to Jennie Dean Park and Shirlington Dog Park, a chain link fence runs along its entirety. It is evident from footpaths found along the water bank that many desire to be close to the stream and find a way in despite the enclosure.
- **Adjacent light industrial buildings** border Shirlington Dog Park on the north and are used for both industrial and service commercial land uses. In many locations, the building faces that abut the edge of the dog park offer possible spaces for public art and provide an acoustic barrier for barking.
- **Chain link fencing** can be found throughout other areas in the 4MRV parks, not only separating individual properties but also amenities within the park. Both sports fields in Jennie Dean Park are permit-takes-priority fields. When fields are not scheduled by permit holders, community unorganized use of the fields is encouraged for groups of 10 or less. This change occurred in Spring 2018.

Site History and Past Improvements

The 4MRV PMP study area and surrounding South Arlington neighborhoods have a rich history. In the 1930s, as the automobile gained prominence, roadways began to shape the landscape that was once dominated by rail and trolley lines. The region experienced significant growth and demand for housing during the era of World War II as federal and military personnel inhabited the area. As the population increased rapidly, so did the demand for public services which eventually led to the creation of Arlington County's first master plan in the 1960s (Arlington Historical Society). The creation of interstate 395 which lies just east of the study area brought industrial and commercial services to adjacent roads such as South Four Mile Run Drive, a development pattern which largely remains today (Arlington County Department of Community Planning, 2016).

The Nauck neighborhood was home to numerous black families who were freed after the Civil War. By the 1930s, Peyton Field (the ball fields at Green Valley) was located at present-day Jennie Dean Park. Owned by Nauck residents James Barney Peyton (1883-1955) and Nettie Payton (1894-1954), the ball park featured amateur African American baseball games. Local newspapers referenced a number of baseball teams playing at the ball park, including the Green Valley Quick Steps, Arlington Athletics, Virginia White Sox, Washington Black Sox, and



Figure 10 Arlington County Government, "Opening of Jennie Dean Field," Nauck/Green Valley Heritage Project, accessed August 24, 2016, <http://nauck.omeka.net/items/show/162>



Figure 11 Arlington County Government, "'ABC' boys baseball team," Nauck/Green Valley Heritage Project, accessed August 24, 2016, <http://nauck.omeka.net/items/show/154>

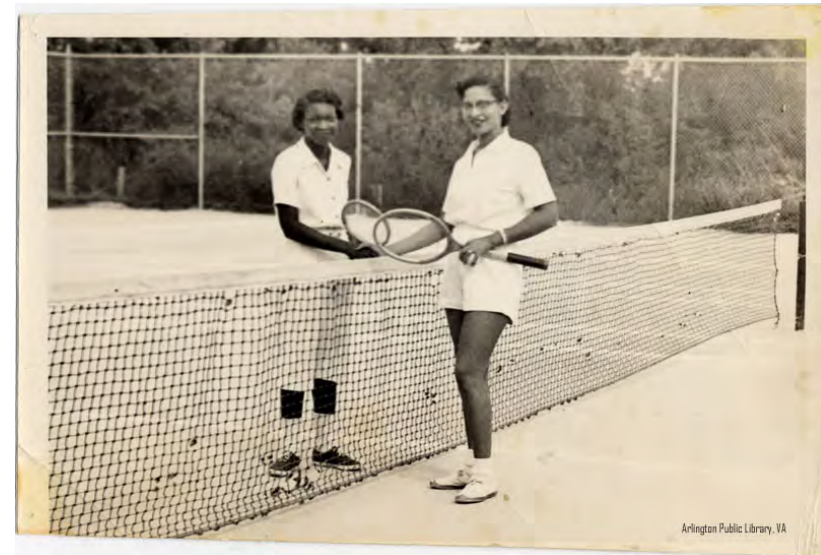
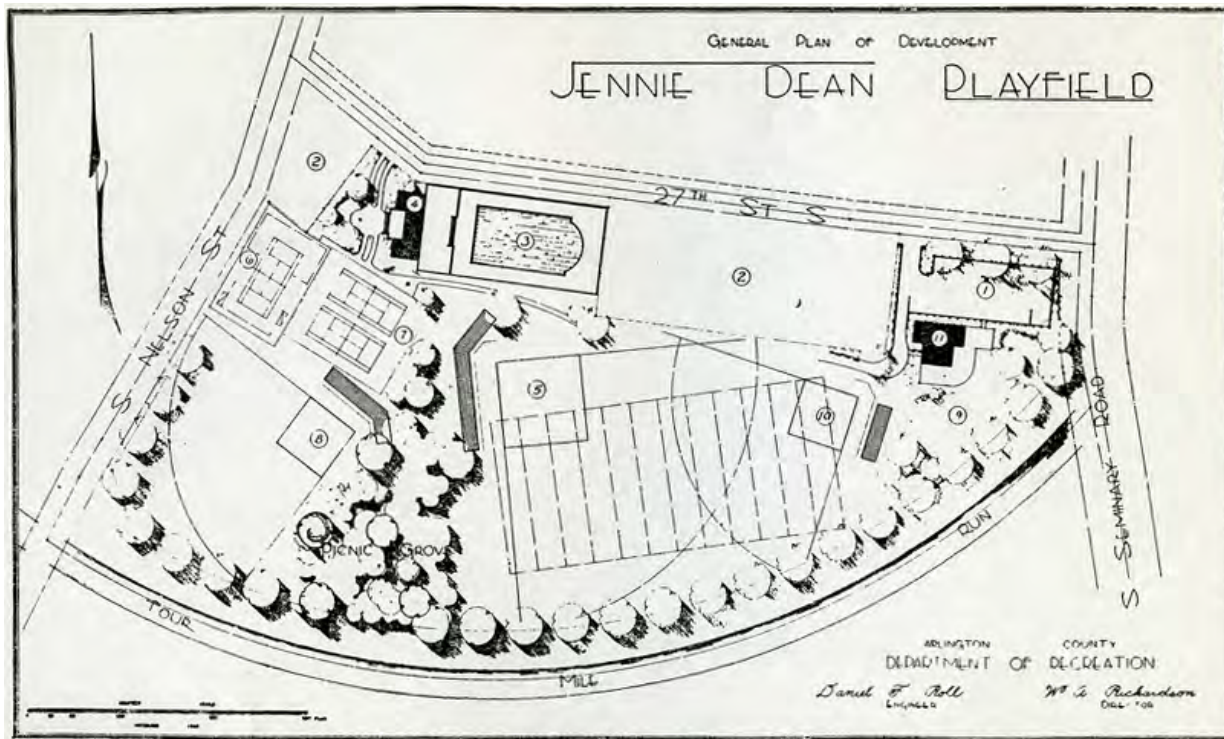


Figure 12 Arlington County Government, "Two women shaking hands over tennis net," Nauck/Green Valley Heritage Project, accessed August 24, 2016, <http://nauck.omeka.net/items/show/160>



JENNIE DEAN PLAYFIELD—This is the layout which the Arlington Recreation Department hopes to develop for the county's presently sole recreation area for colored citizens. As indicated on the sketch, the figures show: (1) Parking area; (2) adjacent private property; (3) swimming pool (4) bath house and rest rooms; (5) baseball diamond and stands; (6) universal game court; (7) two tennis courts; (8) softball diamond and stands; (9) small children's play area to be furnished with playground equipment; (10) junior softball diamond; (11) standard field house.

Figure 13 Arlington County Department of Recreation, "Plan for Jennie Dean Park," Nauck/Green Valley Heritage Project, accessed August 24, 2016, <http://nauck.omeka.net/items/show/226>

Washington Aztecs (A Guide to the African American Heritage of Arlington County, Virginia, 2016). In addition to baseball games, other recreational and entertainment opportunities were enjoyed at this site, which included (but were not limited to): football, motorcycle races, and a dance hall.

James Peyton worked as a foreman for the Bureau of Printing and Engraving and lived in Arlington County for over 62 years. Oral histories state that the family opened their property (including the baseball field) south of South Four Mile Run Drive to recreational uses by the community. In 1944, Arlington County purchased the 8.7-acre parcel as part of a \$150,000 program to establish recreational parks. The playground site was named "Jennie Dean Park" in honor of Jennie Serepta Dean, who was raised in slavery and later became an educator and chartered the Manassas Industrial School for Colored Youth in 1893. By 1948, Jennie Dean Park had expanded to approximately 10 acres. The park was later noted as being the "sole recreation area for colored citizens" within Arlington County. By 1950, the park featured a softball diamond, baseball diamond, three grandstand sections, a basketball court, two horseshoe courts, outdoor fireplace, two picnic tables, and a drinking fountain. Later additions in the 1950s included tennis courts and flood lights for the baseball field (A Guide to the African American Heritage of Arlington County, Virginia, 2016). The park has been an important part of the Nauck community for almost 70 years.



Figure 14 Portrait of Jennie Dean (Van Zelm & the Dictionary of Virginia Biography, 2013)

Related Plans & Publications

The 4MRV PMP is proposing modifications that are consistent with Arlington County policies related to natural resources, cultural resources and historic preservation, environmental resource protection, and transportation, among others. The County's Comprehensive Plan is a guiding document for planning and development within the County. Begun in the 1960s, and typically renewed every five years, Arlington County's Comprehensive Plan includes 11 thematic elements and focuses heavily on citizen participation and sustainable practices (Executive Summary, 2014). Of particular relevance to the 4MRV PMP are the following:

- **General Land Use Plan** - providing a generalized framework for future land use as a guide toward understanding who will be utilizing the park spaces in the future (updated through June 2015)
- **Public Spaces Master Plan** - currently being updated to "assess various aspects of Arlington's public space system and provide strategies for the future for the full breadth of public spaces, including all of the parks, natural resource and recreational needs that make up that system" (see <https://projects.arlingtonva.us/public-spaces-master-plan-psmp-update/>)
- **Master Transportation Plan** - provides policy guidance on existing and planned transportation infrastructure that has relevance to meeting the transportation needs of future park visitors (including expanded facilities and programming)
- **Natural Resources Management Plan** - provides policy guidance for the role that the 4MRV parks play in serving the Natural Resource needs of the County's citizens and the Four Mile Run Valley overall
- **Urban Forest Master Plan** - provides guidance on the role of the 4MRV parks tree canopy and how that tree canopy can be managed



Figure 15 General Land Use Plan (2015)

- **Stormwater Master Plan (2014)** and related **Chesapeake Bay Preservation Plan and Ordinances** - provides guidance on how surface runoff can be managed to benefit floodplain management in FMR and improving water quality by treating runoff from contributing roof drains, storm sewers and surface flow across and through the 4MRV parks
- **Historic Preservation Master Plan** - provides guidance on addressing the historic resources of the 4MRV parks, especially the historic significance of Jennie Dean Park as a part of Arlington County's African-American heritage
- **Four Mile Run Restoration Master Plan** - ongoing implementation efforts provide a vision for transforming FMR corridor into a model for urban ecological restoration downstream

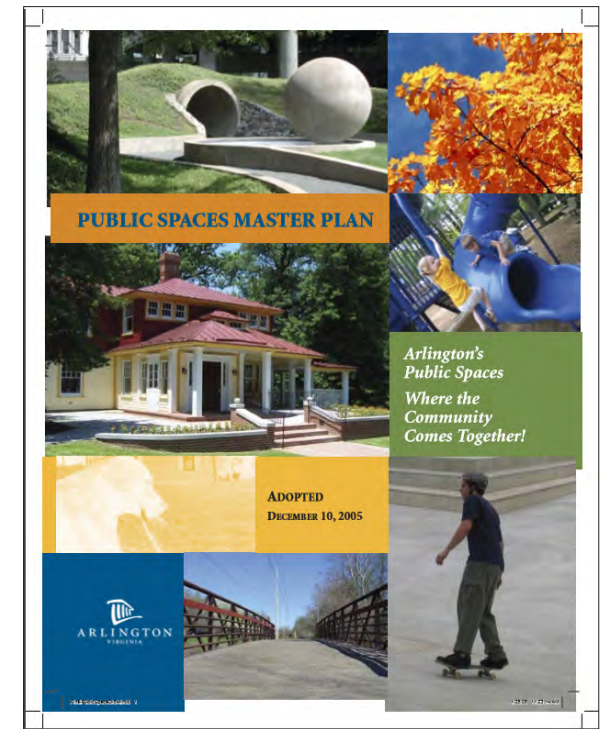


Figure 16 Public Spaces Master Plan (2005, currently being updated)



Figure 17 Four Mile Run Restoration Master Plan (2006)



Figure 18 Existing Park Conditions

Site Features

Jennie Dean Park contains many amenities that are heavily used by the public. The core of the park includes a basketball court, two tennis courts, a restroom building with covered space for three picnic tables, and diamonds for baseball and softball. Adjacent to the courts is the shelter/restroom building with multiple picnic tables.

The small and large diamond ballfields take up the largest amount of space in Jennie Dean Park. Primarily used by adult softball and youth league play, they are used in the evenings and weekends when in season.

The playground is located at the end of the asphalt path south from the shelter. Located in the shadiest part of the park, it is surrounded by mature trees near the stream. The picnic/grill area is also located in this area, with approximately eight picnic tables that can be moved around. A small open space lies just west of the playground. Since it receives overhead light from the nearby ballfields, it is often used for pregame practice or impromptu sports matches in the evenings.

Shirlington Park located south of Jennie Dean Park, stretches from Shirlington Road to South Walter Reed Drive. Shirlington Park primarily includes a shared used path (FMRT) and open space along the southern boundary of FMR. The path accommodates both pedestrians and cyclists, and shade trees are found along the path and along the roadway edge. Site features such as parcourse fitness stations, bike racks, benches, and a Capital Bikeshare Station are found along the trail. Where the area between the stream and the path narrows, decorative fencing or guardrails are provided. In other areas, the space is open and allows for viewing of the stream.

Shirlington Dog Park is a unique, heavily used facility and is considered both a local and regional attraction.

Its popularity largely stems from its access to water where dogs frequently enjoy splashing in FMR. Linear in nature (approximately 1,200' long x 90' wide), the park is characterized by a wide asphalt path which runs its length. The entire area is fenced so that dogs are allowed to wander off leash. A small, separately fenced small dog area is provided near the main entrance, where a decorative fence announces entry into the park. Park amenities include two dog water fountains, dog waste bag dispensers provided by the volunteer sponsor group, a storage shed, benches, shade trees, and a small memorial tree. Two gates along the chain link fence provide access to the stream, with warning signs related to water quality and other dangers. Dog-related service businesses are located at the terminus of South Oxford Street and can be accessed through the middle dog park entry gate.



Figure 20 The playground and picnic area at Jennie Dean Park is located in a shady area along the stream



Figure 19 Aerial view of Jennie Dean Park (Google Earth)

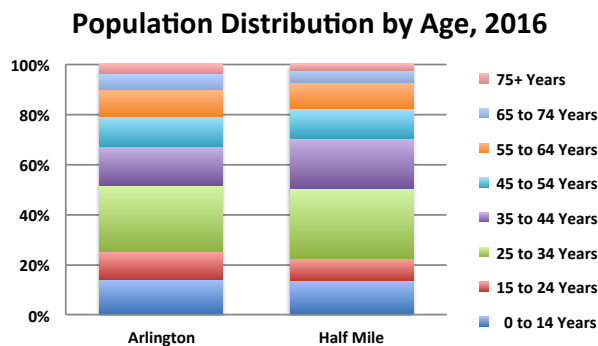


Figure 22 Age distribution for half-mile service area as compared to Arlington County

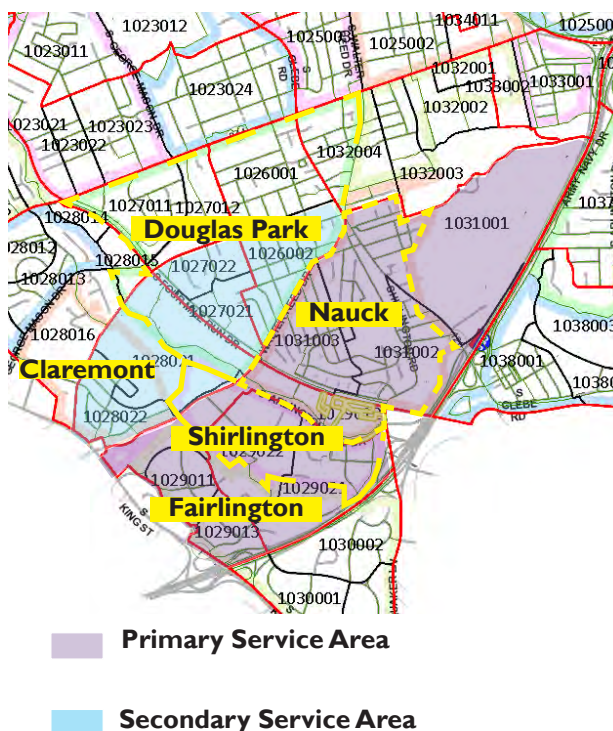


Figure 21 4MRV Parks Service Areas and Civic Associations

Neighborhood Context and Recreation Needs

Attitudes toward recreation for South Arlington, in general, and Nauck, Douglas Park, and Shirlington neighborhoods, in particular, reflect a need for additional casual use space and suggest deficiencies in other park programming and recreation. However, due to both the narrow configuration of the existing and usable land parcels owned by the County east of South Nelson Street and the direction provided by the County Board to remove the County owned parcels west of South Nelson Street from the Parks Study Area Boundary, it is not possible to meet any additional programmed park and recreation needs other than replacing the two lighted diamond fields, two lighted tennis courts, lighted basketball court, picnic shelters and playground.

It is possible to use the additional lands to increase the amount of casual use areas and design them to serve the needs of adjoining neighborhoods that do not have access to outdoor spaces in their apartments or town houses or condominiums.

This assessment is based upon the demographic profile of the adjoining neighborhoods and input from the preliminary results of the concurrent update for the Public Spaces Master Plan (PSMP) also referred to as the “Plan for Our Places and Spaces (POPS)”

The demographic assessment was derived from census data reflecting a primary and secondary service area. The immediate primary area, shown in “Figure 21 4MRV Parks Service Areas and Civic Associations” includes three Census tracts¹ extending from King Street on the south, South Walter Reed Drive to the west, Army Navy Country Club to the north and Interstate 395 (I-

¹ Primary area includes Census Tracts 1029.01, 1029.02 and 1031.

395) on the east. The primary service area is the area from which most casual park users (as distinguished from programmed or league play) are likely to come. A secondary area, which also contributes park users, extends into Douglas Park and Barcroft with the western boundary along South Chesterfield Road and 16th Street South, King Street to the south, South Walter Reed Drive to the east, and South Glebe Road to the north. The secondary area includes five block groups.²

A demographic profile and assessment of supply and demand was prepared as part of the master plan and is included as part of the full Site Analysis Report and summarized below.

Recreational Assets

Table 1 on page 15 describes the recreational assets within the 4MRV Parks Primary and Secondary Service Areas incorporating areas within one-half and one mile from the 4MRV PMP study area.

Estimated Usage

Current estimates of usage for Shirlington Park, Shirlington Dog Park, Jennie Dean Park and nearby

² Secondary area includes Block Groups 26.002, 27.021, 27.022, 28.021 and 28.022. NOTE: Both the primary and the secondary service areas use boundaries created by the US Census for purposes of gathering socio-economic and demographic data. The 2010 Census American Communities Survey statistics uses periodic survey data with a high margin of error based on the variability of the survey sample size. While a degree of uncertainty remains inherent in survey data, the amount of uncertainty is higher for the smaller areas used for data samples. For this reason, block group data (as used for the secondary service area) demographics report higher margins of error than larger Census Tract areas (used for the primary service area).

bike paths and trails include informal, sports league, reserved special activities and dog owners. These groups include several subsets of regular visitors from the primary and secondary service areas as well as drawing others from Arlington County and beyond.

There is no accurate measure of informal park usage. Shirlington Dog Park, which is open to the public, experiences heavy use, averaging 4,000 to 5,000 dogs per week including a large number from elsewhere in the County and the region. Table 2 provides information about reservations from Arlington County.

Table 1 Inventory of Public and Private Recreational Assets, 2016				
	Half-Mile Area		One-Mile Area	
	Number	Percent	Number	Percent
Public Assets				
Field Sports Facilities	5	16%	15	23%
Court Sports Facilities	8	25%	15	22%
Picnic & Playground Facilities	10	31%	21	32%
Other Facilities	6	19%	6	9%
Outdoor Water-based Facilities	1	3%	1	2%
Indoor Fields	-	0%	1	2%
Indoor Courts	1	3%	2	3%
Indoor Fitness	-	0%	2	3%
Indoor Pools	-	0%	-	0%
Indoor Other	1	3%	3	5%
Subtotal	32		66	
Private Assets				
Field Sports Facilities	-	0%	-	0%
Court Sports Facilities	-	0%	-	0%
Picnic & Playground Facilities	7	41%	16	41%
Other Facilities	-	0%	1	3%
Outdoor Water-based Facilities	1	6%	-	0%
Indoor Fields	-	0%	-	0%
Indoor Courts	-	0%	-	0%
Indoor Fitness	7	41%	17	44%
Indoor Pools	2	12%	5	13%
Indoor Other	1	6%	2	5%
Subtotal	17		39	

Note: Primary service area includes Census Tracts: 1029.01, 1029.02 and 1031. Secondary service area includes Block Groups 26.002, 27.021, 27.022, 28.021 and 28.022.

Source: ESRI, Community Profile, 2016; Partners for Economic Solutions, 2016.

Demand Trends

The demographic section of the 4MRV Parks Site Analysis report highlights the nature of the primary and secondary service areas' residents and households as well as projected growth. Many of the demographic factors reviewed under this section of the report impact estimates of participation for the 4MRV PMP Area.

Demographic trends show growth in age cohorts under the age of five with a gain of 0.7 percent over the last six years. In Arlington County, those aged 25 to 34 increase from representing one-quarter of the population in 2010 to 27.1 percent in 2016.

These young children and Millennials both represent strong age cohorts of future recreation space demand.³ Within the primary and secondary service areas, these same age cohorts will increase in size.

Arlington County completed a 2016 Parks and Recreation Needs Assessment Survey (2016 Survey) as part of the current 2016 POPS Update. The survey reflects one measure of Arlington residents' recreation interests. The survey highlights the needs throughout the entire county for more natural areas, wildlife habitats and hiking trails. Respondents also suggested higher demand for additional playgrounds and or informal open space for children.

Half-Mile Park Market Area Households by Size, 2010

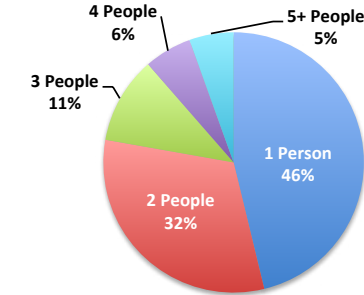


Figure 23 Household distribution by size for half-mile service area

Table 2 Estimated Reservation Usage, 2016			
	Annual Reserved Hours	Estimated Hourly Participants	Total Annual Person Usage Hours
Softball (regular season / tournaments)	700	30	21,000
Grass Practice Area	550	12	6,600
Picnic Shelter	100	20	2,000
Tennis Courts	30	3	90
Basketball Courts	2	5	10
Subtotal			29,700
	Participant Hours per Week	Weeks in Use	Total Annual Person Usage Hours
Youth Baseball (regular seasons)	408	23	9,380
Youth Baseball (playoffs)	190	3	570
Subtotal			9,950
Total			39,650

Source: Arlington County Department of Parks and Recreation, 2016; Partners for Economic Solutions, 2016.

Natural Resources

Historically, the FMR corridor is home to a diverse plant and wildlife community. Although the stream and adjacent floodplain has been radically transformed from its natural state, the PMP study area still provides a wide variety of habitats. Urbanization has led to the propagation of invasive species, infill grading of the floodplain and the re-alignment of the stream. Human development throughout the area has altered the landscape in an irreversible way.

The natural resource values associated with the 4MRV PMP study area are the semi-natural state of the park lands themselves, used for both organized recreation activities and casual use. Although degraded, the terrace escarpment and floodplain associated with FMR is one of the few urban places in Arlington County where there is public access to a stream corridor of any kind. Mature trees and riparian plant communities are still found along the corridor; including a County “Champion” Eastern Cottonwood tree (see Figure 18 on page 12). The tree canopy (Arlington County GIS-derived data) is referenced in the Final Illustrative Concept Plan (Figure 7 on page 7).

Habitat

As FMR descends through the PMP study area in an easterly direction, the underlying physiography shifts between the Northern Piedmont and Northern Coastal Plain physiographic provinces. The stream changes from non-tidal to tidal below the study area, about one mile downstream at Mt. Vernon Ave. This underlying shift in soils and hydrology changes the type of vegetation and plant communities that have historically occurred in this valley, in general, and in these parks, in particular.

The plant communities that result from the modifications still have value – whether they are

the riparian plant communities (Figure 24) along the bottom land and escarpment of FMR or the savannah like tree canopy (Figure 25) on the stream terrace within the parks.

The wetlands in and adjacent to FMR are identified by their Cowardin classification as an upper perennial riverine system with an unconsolidated bottom and permanently flooded water regime. The riverine system includes wetlands and deepwater habitats within the channel. The upper perennial subsystem is characterized by a high gradient. There is no tidal influence, and base flow is present throughout the year, except during years of extreme drought. The channel substrate consists of rock, cobbles, or gravel with occasional patches of sand. The fauna is characteristic of running water.

Resource Protection Areas

RPAs are sensitive lands adjacent to streams, where water quality is more likely to be negatively impacted due to development. In Arlington County, RPAs include a 100-foot buffer along both sides of the channel. RPAs are shown on Figure 26 on page 17. A revision to the mapped RPA was adopted by the County Board in 2017. The update complies with state law and the County’s Chesapeake Bay Preservation Ordinance, as well as incorporates new information from recent assessments. The pedestrian bridge crossings are an allowable use in the RPA. Stream restoration is exempt because it is considered conservation or preservation activity. Redevelopment within the RPA can occur only if there is no increase in the amount of impervious cover within the RPA and there is no further encroachment within the RPA.

Hydrology

FMR has been both intentionally and unintentionally altered by human activity. The existing channel has a reduced sinuosity and narrower floodplains compared



Figure 24 Riparian plant community associated with FMR



Figure 25 Park “savannah” plant community with mature tree canopy an underlying managed turf

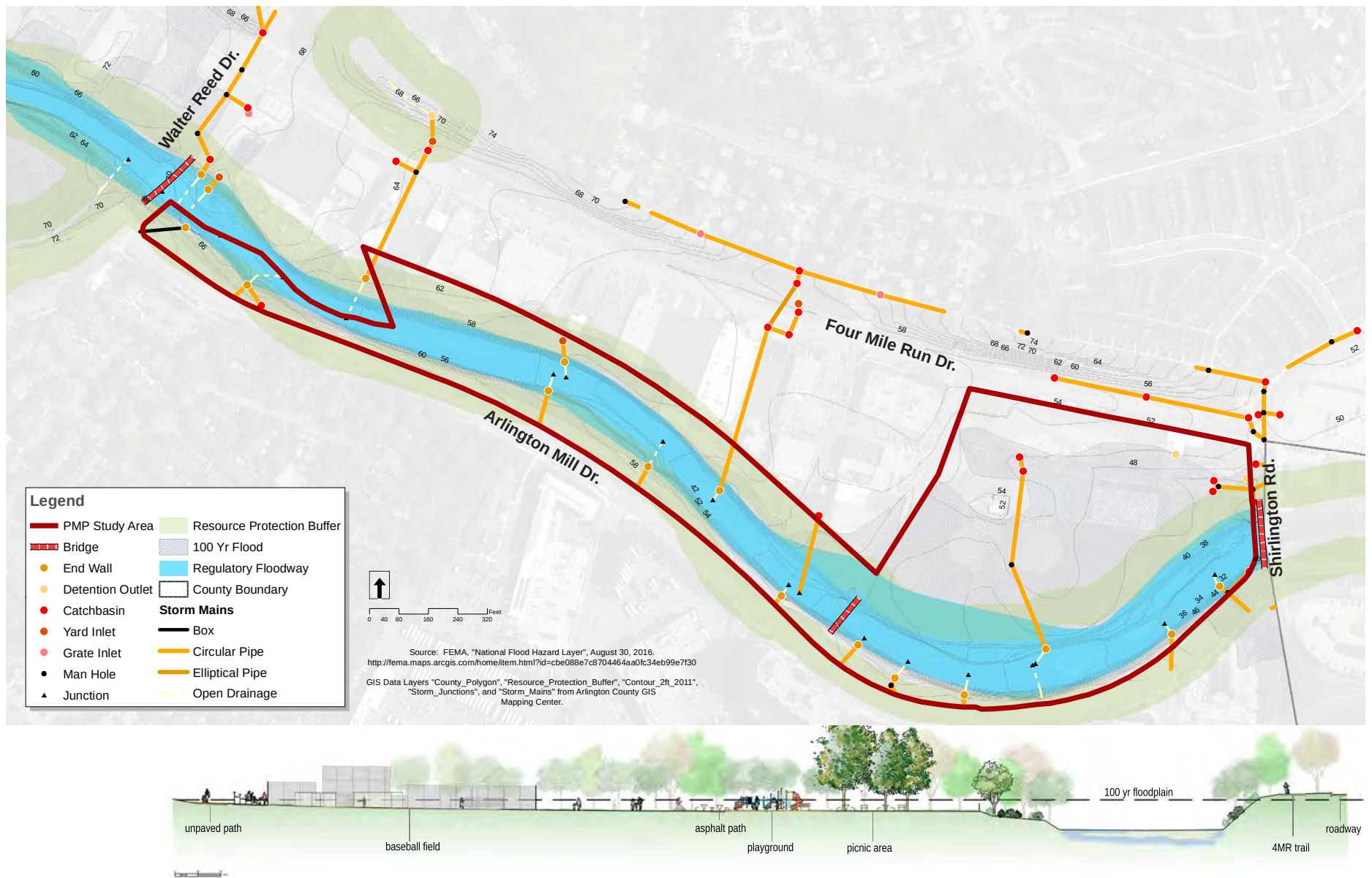


Figure 26 Floodplain and RPA

Jennie Dean Park - Playground and Picnic Area

(BFE elev. 51) FEMA, Flood Insurance Rate Maps. Available at: <https://msc.fema.gov/portal>. Accessed: 10/17/16.



Figure 27 Aerial of Study Area circa 1934



Figure 29 Aerial of Study Area circa 1974



Figure 28 Aerial of Study Area circa 1955



Figure 30 Aerial of Study Area circa 1989

to its historical state. Figure 27 through Figure 30 show the evolution of the stream over time. The low elevation of the park areas and their proximity to the FMR make them highly susceptible to flooding during periods of heavy rain, tropical storms or quick snow melts. The majority of the study area is within the 100-year floodplain. The floodplain is designated as Federal Emergency Management Agency (FEMA) Zone AE (detailed study) with a defined floodway.

Stream & Floodplain Impacts/ Limitations

Although the majority of the study area is within the floodplain, most of the park is modeled as an ineffective area, which theoretically does not actively convey flow. Because the area is considered ineffective, any grading or structures located in the floodplain will not impact its water surface elevations. Non-residential buildings in the floodplain must have a lowest floor elevation at least one foot above the 100-year water surface elevation or have alternative floodproofing measures. If pedestrian bridges are proposed, it is likely that piers or abutments will be located in the floodplain and/ or floodway. If the encroachment causes an increase in the 100-year water surface elevation, FEMA would require a Conditional Letter of Map Revision (CLOMR) prior to project commencement, as well as a Letter of Map Revision (LOMR) after completion of the project. It is possible that the rise in water surface elevation due to construction of the pedestrian bridges could be counteracted by the stream restoration; however, the CLOMR/LOMR process would still be required because the stream restoration is affecting the hydraulic characteristics of FMR.

Stormwater Management

Development within the study area occurred prior to the introduction of contemporary stormwater laws. The County GIS-level inventory of existing stormwater collection systems is shown on Figure 26 on page 17. There are three distinct areas in terms of runoff characteristics. The existing buildings and paved surfaces contribute the majority of the runoff from the site. The maintained turf is essentially flat and contributes considerably less to the overall site runoff than the impervious surfaces. Lastly, the vegetated stream buffers aid in reducing runoff and encourage pollutant uptake through floodplain plant communities.

Locating stormwater management facilities on the site is a challenge due to the location of the park relative to the floodplain and RPA. Stormwater management best management practices for filter strips and buffer areas will be the primary means of treating stormwater runoff within the RPA. Constructed measures such as underground detention of stormwater can be placed under basketball courts, tennis courts or other impervious surfaces. Permeable pavement, grassed swales, bioretention, rainwater harvesting, green roofs and impervious area disconnection will be considered as options to treat stormwater and reduce runoff volumes, where those facilities can be located outside the RPA or at the ends of existing streets. These types of stormwater management practices are consistent with County goals for sustainable communities and low impact development.



Figure 31 Diagram illustrating runoff conditions from adjacent roof drains and sheet flow (blue roof indicates runoff into down spouts daylighted across the surface of Shirlington Dog Park, Jennie Dean Park, South Oxford, South Oakland and South Nelson Streets)



Figure 32 Weenie Beenie - a local institution



Figure 33 Shirlington Dog Park gate detail

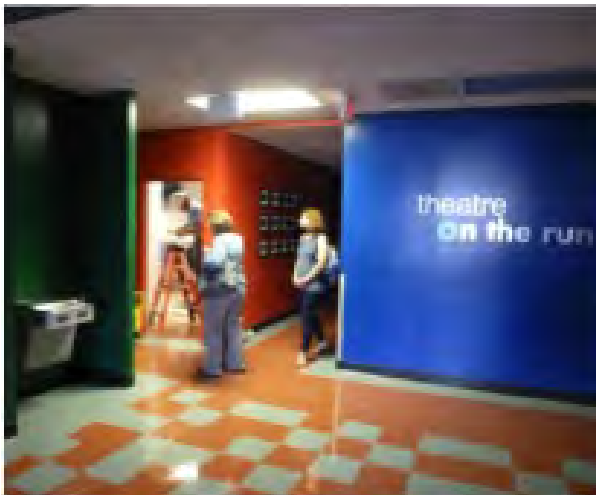


Figure 34 Theatre On The Run interior

Cultural Features

There are several cultural features both within and just outside of the study area that enhance the experience of using the parks. Some have historical value such as Jennie Dean Park itself; others are regional destinations such as Shirlington Dog Park.

Shirlington Dog Park is widely recognized for its shade, size, separation of big and small dogs, and nearby amenities.

There are several dog-related business that have appeared due to the popularity of the dog park. Though there is chain link fencing between the dog park and the street, a gate is provided to allow dog park users to access the businesses. Important features to note within the dog park include the entrance gate, the “Daphne” memorial tree and a colorful animal mural painted on the back of the Wag More Dog Boarding.

Several cultural features are found within or near the PMP study area. **Theatre on the Run**, located at 3700 South Four Mile Run Drive, offers an 85 seat black box theatre that is also available for rental. The **New District Brewery Company** located along South Oakland Street provides another attraction offering a tasting room. Nearby, food trucks support the area.

Perhaps the most notable cultural feature within the study area is the “**Weenie Beenie**”. Founded in 1950, it was once a part of a food chain. The location at 27th Street South is the only location remaining. The Weenie Beenie is a cultural landmark and is noted for its “half-smokes” (Arlington Public Library).

Historic Resources

The Nauck community and Jennie Dean Park played a significant part in both Arlington’s and greater Washington’s African American history.

As described in the section on “Site History and Past Improvements” on page 9, Nauck’s residents played sports at what was originally known as Peyton Field (the ball fields at Green Valley), since the 1930s.

Arlington County has designed two interpretive panels to tell the story of Jennie Dean Park and the Nauck neighborhood. The design of new park features will be responsive to the African American historical context of Nauck and the development of Jennie Dean Park and incorporate additional design and interpretive references that reflect this significant period in Arlington’s history.

Transportation and Circulation

The 4MRV parks are believed to draw from areas well beyond the watershed of Nauck, Douglas Park and Shirlington's mixed use district. Proximity to I-395 and a crossroads of the regional trail system make the parks highly accessible to the larger Washington, D.C. metropolitan region by motorists and bicyclists. Figure 36 highlights the following attributes of the study area's existing multimodal access and circulation.

- **Vehicular connectivity** is enhanced by close access to Interstate 395. South Four Mile Run Drive and South Arlington Mill Drive are east-west arterials forming the northern and southern boundary of the park areas. People who drive can currently access Jennie Dean Park from 27th Street South, just off Shirlington Road, and South Nelson Street off of South Four Mile Run Drive.
- **Pedestrian and bicycle connectivity** is provided by two regional trails connecting the park areas to the regional trail network. The W&OD Trail has its eastern trail head just north of the park, while FMRT runs along the southern boundary of the park.
- **Approximately 10,000 households are within a half-mile radius from the park**, with access provided by several local neighborhood streets to the north and south connecting to South Four Mile Run Drive, Shirlington Road, and South Arlington Mill Drive. Pedestrians and bicyclists on FMRT and South Arlington Mill Drive can also access the park areas by utilizing a pedestrian bridge joining FMRT and South Arlington Mill Drive at the intersection of South Nelson Street/South Oakland Street. Bicyclists using Capital Bikeshare can drop off bikes at stations located at the W&OD trail head and along FMRT close to the pedestrian bridge.
- **Transit connectivity** is provided by six (6) ART bus routes. Bus route 75 runs on South Four Mile Run

Drive, bus route 87 runs on Shirlington Road, and bus route 77 plus Metrobus routes 7C, 22A, 22C run on South Arlington Mill Drive.



Figure 35 Capital Bike Share near pedestrian bridge

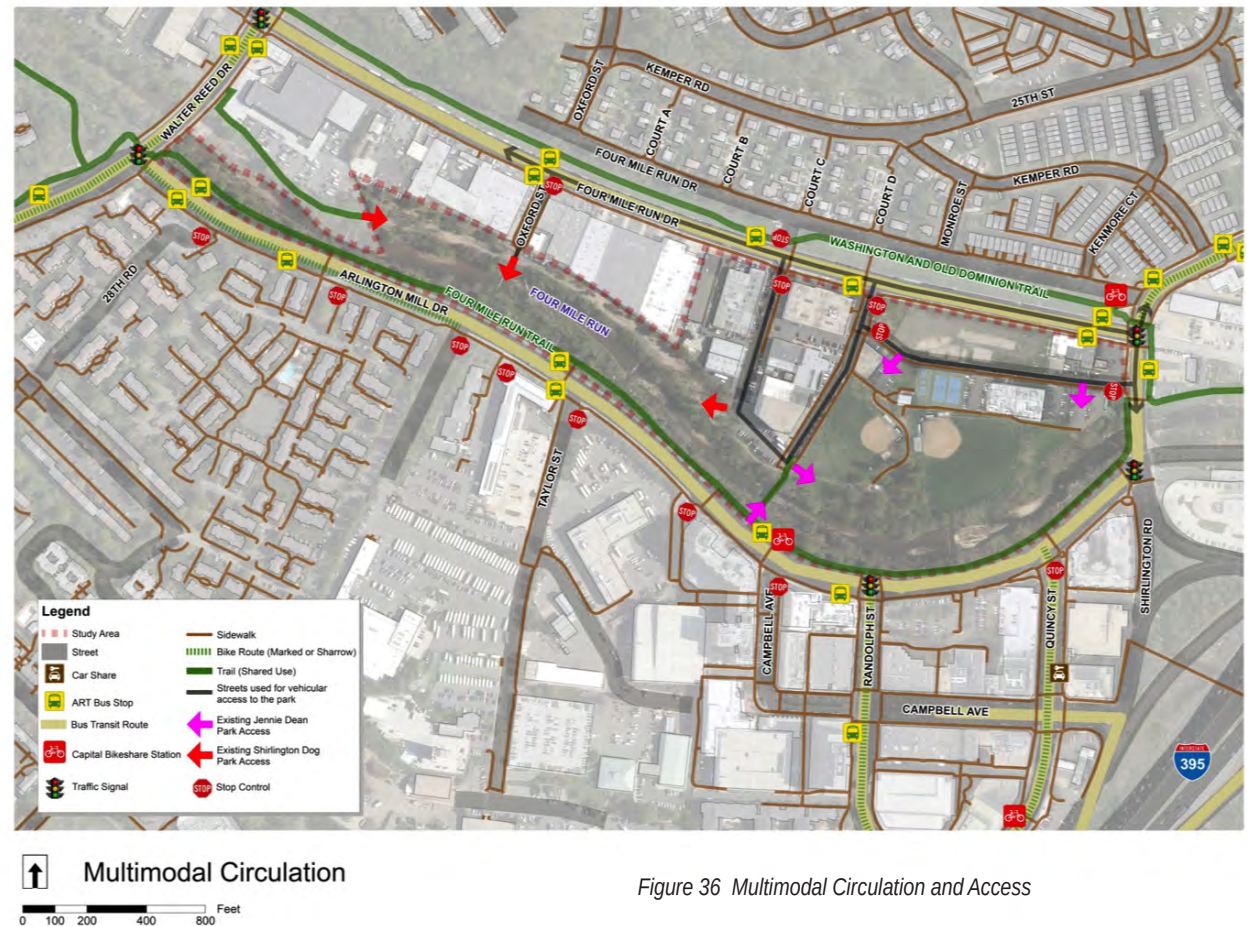


Figure 36 Multimodal Circulation and Access



Figure 37 Existing Parking Areas within the 4MRV parks study area

Parking Supply

4MRV parks visitors arriving by private vehicle use existing on-site parking lots as well as on-street and off-site parking lots and garages. Understanding the complete picture of public parking demand and supply will be the result of a joint coordinated effort with concurrent planning for the surrounding area underway. This analysis provides supply and use detail related only to parking available immediately adjacent or within the park study area.

Additional analysis of off-site and on-street parking supply from the Four Mile Run Valley Area Plan has been undertaken and recommendations for the configuration of South Four Mile Run Drive have been incorporated into the master plan recommendations. (See page 66 for the existing and proposed parking supply table.)

Based upon parking counts and field observations (as detailed in the Site Analysis Report), the weekday trends between the peak hours of 4:00 and 7:00 p.m. show availability at each parking location and at almost every time period. In Location 1, a growing trend in the number of spaces occupied appears between 4:00 and 7:00 p.m. Locations 2, 3, 5, and 6 all show steady parking availability throughout these hours.

Compared to the weekday trends, the weekend trends are slightly different. More spots are occupied in general on the weekend, and more overflow periods occur (specifically in Location 2). No open parking spaces were observed for Location 2 during the weekend data collection period. In addition to the cars parked in permitted meter spaces and four-hour spaces, cars were parked in unmarked spots as well along South Oakland Street. Aside from Location 2, Location 1 had the smallest percentage of available parking during the weekend peak period. With its proximity to the dog park, most spaces were filled, with the exception of ADA spots. Locations 3, 4, and 5 experienced trends of increasing and decreasing parking occupancy. Location 4 had more available parking spots at 1:30 p.m. than any other time period, likely because of little league activities slowing down. Locations 1, 2, and 6 have steadier trends in terms of parking occupancy.

Table 3 Parking Areas Within the 4MRV Park Master Plan Study Area

Parking Area	Description	Restrictions/Permissions	Cost	Hours of Operation
Location 1	Surface lot adjacent to dog park and Shirlington Self Storage Facility	- No Parking from Midnight to 6:00 AM - Two-Hour Parking after 3 PM Monday to Friday - Two-Hour Parking after 7 AM Saturday and Sunday	None	6AM to Midnight, All Days
Location 2	Parallel Parking on S Oakland Street from the dog park (Location 1) to S Four Mile Run Drive	- Pay Meter Parking - Four-Hour Parking 8 AM to 6 PM Monday to Saturday	\$1.25/ Hour	All Hours, All Days
Location 3	Parallel Parking on S Nelson Street between Four Mile Run and S Four Mile Run Drive	- Two-Hour Parking 8 AM to 6 PM Monday to Friday - Two-Hour Parking 8 AM to 6 PM Monday to Saturday - Two-Hour Parking after 3 PM Monday to Friday - No Parking Midnight to 6 AM - One-Hour Parking 8 AM to 3 PM Tuesday and Thursday; Three-Hour Parking 8 AM to 6 PM Monday, Wednesday, and Friday - Two-Hour Pay Parking	\$1.25/ Hour	6 AM to Midnight, All Days
Location 4	Surface lot on 27 th Street adjacent to pavilion, tennis courts, and Jennie Dean baseball field	Two-Hour Parking after 3 PM Monday to Friday	None	
Location 5a	Parallel parking on 27 th Street between Location 4 and Shirlington Road	- No Commercial Vehicles Parking 15-Minute Parking at All Times	None	
Location 6	Surface lot on 27 th Street adjacent to east WETA Television Studios parking lot entrance	No marked parking spots/regulations	None	

POLICY FRAMEWORK

The 4MRV initiative is a public process where an Area Plan and a PMP are being developed together in a coordinated manner. Bringing together the two processes has allowed for community discussion of a long-term vision for the Four Mile Run Valley area. This includes (but is not limited to) retention of industrial buildings and uses, opportunities for arts-related uses, identification of concept level park, recreation and open space improvements through a master planning process, and balancing goals for improved parks, recreation, open spaces and community facilities with goals for private ownership and development.

By conducting the PMP concurrently with the Area Plan for the Four Mile Run Valley, PMP concepts and alternatives were coordinated with the development of area wide recommendations for access and connectivity, wayfinding and placemaking as well as continued riparian restoration. Through the combined efforts, PMP concept plans were developed to reflect the community's support, as outlined in the Area Plan, for celebrating and augmenting the area's industrial character, recreational heritage, and natural qualities and in fulfillment of the County Board charge for this process (which called for the replacement of existing park facilities with the new master plans).

The following discussion provides an overview of the development of alternative approaches and the resulting PMP recommendations for replacing existing facilities and enhancing park uses and programming for the three park areas: Jennie Dean Park, Shirlington Park, and Shirlington Dog Park.

Public Outreach

From the outset of the process, and in coordination with the WG's leadership, a community engagement strategy was initiated and implemented that included twice-monthly meetings with the County Board appointed citizen 4MRV WG, and meetings with the broader community including a Community Forum, a Community Open House, and check-ins/review sessions with the three nearby Civic Associations.

Working Group

Over two years, the 4MRV WG, consisting of representatives from the three neighboring Civic Associations, property/business owners, area non-profits, and advisory boards and commissions, met over 30 times to review and comment on staff and consultant analysis, preliminary concepts, draft design guidelines and the draft Policy Framework leading to the development of the PMP and Design Guidelines.

Two (2) WG subcommittees were formed to resolve issues in more detail and seek consensus on master plan options:

- **Shirlington Dog Park Subcommittee** - was formed by the County Board in May 2017 to explore possible future planning guidelines for the Shirlington Dog Park that retain its functionality and appeal while meeting environmental regulatory requirements
- **Jennie Dean Park Subcommittee** - was formed by the County Board in February 2018 to review and evaluate existing alternative concept plans for Jennie Dean Park to provide more green space along Four Mile Run Drive, move the playground closer to Four Mile Run Drive, as well as other issues raised by the WG and community-at-large



Figure 38 Visioning Workshop (December 2016)



Figure 39 Community Open House (July 2017)

SUMMARY OF PUBLIC ENGAGEMENT

Public Outreach

- Working Group Meetings – generally held twice per month since June 2016
- Individual and Small Group meetings throughout
- E-mail Contact List – 1200 subscribers
- September 2016 – Community Forum
- December 2016 – Community Visioning Workshop
- April 2017 – Business Forum
- July 2017 – Community Open House

Civic Association Meetings on Policy Framework

- March 2018 – Shirlington Civic Association
- March 2018 – Nauck Civic Association
- March 2018 – Douglas Park Civic Association

Commission Meetings on Policy Framework

- February 2018 – Joint Meeting of Parks and Recreation and Sports Commissions
- February 2018 – Arts Commission
- March 2018 – Transportation Commission
- March 2018 – Long Range Planning Committee of the Planning Commission
- March 2018 – Economic Development Commission
- March 2018 – Urban Forestry Commission
- March 2018 – Environment and Energy Conservation Commission
- April 2018 – Planning Commission

Public Hearings

- May 2018 – Planning Commission
- May 2018 – County Board

Community Meetings

Two specific community wide meetings on the combined Area Plan and PMP were conducted, in addition to an open forum conducted by the WG:

- **Visioning Workshop** - was held in December 2016 to provide an opportunity to share ideas about the future of the Four Mile Run Valley including land use and urban design; parks, playgrounds, recreational programming and open spaces; the dog park; street design and transportation; stream restoration and environmental improvements; historic and cultural resources among other topics
- **Open House** - to review options for Jennie Dean and Shirlington Parks (as part of and in addition to Area Plan concepts)

Throughout the planning process, staff and consultants met with individuals, small groups, and others with a specific interest in the PMP on topics such as the playground, the dog park, and FMR, among others. Public comment was also heard at the end of each WG meeting.

Comments throughout the process from all of the above noted sources provided direct guidance in the development and evaluation of alternative parks concepts and in the eventual selection of the recommended master plan.

County Board Work Sessions:

A County Board work session was held in May 2017 to review progress and to provide an opportunity for the County Board to address specific questions on topics related to potential future County open space acquisition goals adjacent to Jennie Dean Park, approaches to meeting public and private parking needs, and the potential scope of changes/improvements that should be considered for Shirlington Dog Park.

A second County Board work session was held in February 2018. The County Board again reviewed progress in the community process and offered guidance on a number of topics, including staff's recommended PMP concepts, how County-owned properties should be addressed in the Policy Framework, whether privately owned parcels adjacent to Jennie Dean Park should be included in the PMP area, and whether there was continued support for lane reconfiguration to improve pedestrian access and increase the supply of on-street parking instead of creating off-street public parking garages.

Policy Framework Review Process

As part of the review process for the draft Policy Framework itself, staff met with the 4MRV WG on two occasions and scheduled approximately 12 review sessions with civic associations and advisory boards and commissions in February and March of 2018 to receive comments. In addition, the draft Policy Framework was posted online where over 200 comments on the document were received.

Public hearings were held by the Planning Commission and County Board and the County Board approved the 4MRV Policy Framework at its May 19, 2018 meeting.

4MRV PARK MASTER PLAN RECOMMENDATIONS

The Arlington County Board voted unanimously to adopt the 4MRV Policy Framework on May 19, 2018. The framework highlights the overall vision and conceptual plans for the area, and identifies the policy-related actions needed to realize the vision. The framework serves as the guiding document for the development of the 4MRV PMP recommendations and associated Design Guidelines for Jennie Dean, Shirlington Park and Shirlington Dog Park.

These recommendations will help guide public and private investment, including long term County operations, along with the preservation and enhancement of natural resources, open spaces, and future development in a manner compatible with the surrounding area and consistent with the County's overall policies.

In approving "Concept I," the Board recognized the challenges in addressing the uncertainty surrounding the timing of the future purchase of the WETA property and the need to achieve as much of the overall **comprehensive replacement and realignment of existing park features** as possible without being dependent upon the purchase of the WETA property. The Board acknowledged it will acquire the WETA property, and has signaled their intent by signing a non-binding Letter of Intent that lays out the "significant terms and conditions for future agreements between the County and WETA" for two options, moving forward.

The County Board also provided direction as part of two work sessions that are reflected in the PMP:

- Maintain the general size, configuration and location of the Shirlington Dog Park and consider the

recommendations of the Shirlington Dog Park Committee as part of the PMP

- Remove the two block area west of South Nelson Street from the PMP study area, including recently acquired parcels, for future consideration as an Arts District as part of the Area Plan

Program

As stipulated in the County Board's charge to the WG, the PMP includes the overall replacement of existing park features. These include:

- Two lighted diamond fields (adult softball and youth baseball)
- Two lighted tennis courts
- One lighted basketball court
- Playground (multi-age)
- Restrooms
- Picnic shelters (one large and one small) and picnic areas
- Exercise stations (Shirlington Park)
- Casual use spaces (throughout all parks)
- Riparian areas associated with FMR
- Dog park (similar size and character as directed by the County Board)

Based upon community and WG input, the large majority of lands acquired by the County east of South Nelson Street will be utilized for establishing a continuous band of casual use space around the perimeter of Jennie Dean Park. In addition, the acquired parcels allow for a more optimal field layout without having to use lands within the RPA (removing existing encroachments from the RPA and floodway).

Concept Plans

The comprehensive concept plan for the three parks—Jennie Dean Park, Shirlington Park and Shirlington Dog Park—reflects the overall vision and guiding principles set out by the WGA and adopted by the County Board (Figure 7 on page 7).

Jennie Dean Park

In evaluating the various concept alternatives for Jennie Dean Park, the general trade-offs included:

- Having casual use space near the stream or near South Four Mile Run Drive
- Locating the diamond fields closer to the roads or closer to the stream
- Having the playground and shelter in a more natural, private area or closer to South Four Mile Run Drive
- Accommodating program elements within the land the County currently controls or waiting to construct key program elements until the property can be obtained

The concept plan (Figure 42 on page 27) illustrates the fully implemented program including future acquisition of the WETA Property and private parcels east of the acquired LaPorte tract.

Establishes a ring of casual use space around three sides of the Park

- Along South Four Mile Run Drive on the north
- Along Four Mile Run on the south incorporating the RPA and floodway associated with FMR
- As the primary use for future acquisitions of the private parcels east of the former LaPorte tract

Establishes major and minor gateways at entrances to the park areas

- Major gateways are located at the South Nelson Street entrance at South Four Mile Run Drive and at the pedestrian bridge entrance from South Arlington Mill

Drive

- Major gateways should have a distinct identity and include lighting, a visitor information kiosk, and informal social spaces with seating, trash receptacles and water
- Minor gateways include landscaped park entrance signs and wayfinding to direct park users to specific and nearby features
- Integrate public art as appropriate

Realigns the diamond fields parallel to South Nelson Street

- Improves the orientation of the small diamond field (from SW to NE) thereby improving the safety of the field while maintaining the SE orientation of the large diamond field (whose adult users play mostly in the evenings)
- Converts the outfield area of the former large diamond field to casual use space, adding more filtering capacity to treat stormwater runoff as it flows toward FMR
- Converts aging overhead field and court lighting to current systems with limited light trespass, energy savings, and greater control over light quality and quantity
- Expands off-season use for the outfield areas including an overlay for a youth rectangular field practice area

Relocates the athletic courts to the former large diamond infield area (south of WETA) with one tennis court and one basketball court in Phase I and a second tennis court in Phase II added once WETA is acquired

- Includes a small shade structure, seating and water
- Provides fencing and lighting

Provides a new playground and a centrally located restroom closer to South Four Mile Run Drive

- Relocates the playground out of the floodprone areas of the park and into a more visually prominent location
- Includes shade structures until such time as nearby newly planted canopy trees can begin to produce shade

Creates a small picnic shelter north of the small diamond



Figure 40 View of casual use space along South Four Mile Run Drive (looking northeast from South Nelson Street)



Figure 41 View from South Four Mile Run Drive towards the small diamond field (looking southwest)

Legend

	Casual Use Space
	Proposed Trees
	Existing Tree to Remain
	Athletic Courts
	Restroom
	Small Shelter
	Large Picnic Shelter
	Playground
	Promenade/ Primary Paths
	Secondary Paths
	Riparian Paths
	Vehicular
	RPA Boundary
	Regulatory Floodway
	Stream



Figure 42 Final Illustrative Concept Plan

and a large shelter south of WETA oriented towards the casual use space along FMR

- The small shelter will serve families, especially those with youth baseball participants
- The large shelter will serve groups (sized for up to 150 people) with access and parking from the existing parking area east of WETA

Establishes a more coherent system of ADA accessible pedestrian paths to make it easy to access the park's amenities from adjoining neighborhoods

- Connects park entrances to park features along desire lines with wide and accessible pathways
- Establishes a system of connected pathways to serve those walking for exercise and pleasure
- Maintains and enhances the existing sidewalks along South Nelson Street from the pedestrian bridge toward the park areas

Increases access to FMR by providing a system of parallel pathways looping in toward an overlook (and extending across the pedestrian bridge to connect with similar overlooks)

- Secondary pathways provide access to casual use space around the perimeter to help define maintained grass and protect adjoining wooded areas that filter stormwater runoff
- Overlooks provide visual access to FMR and serve to protect riparian areas by directing access to the most suitable locations

Increases efficiency of existing on-street and surface parking areas around the perimeter of the park, preserving park land for park uses rather than for automobiles

- Maintains and then expands parking at the existing lot east of WETA (once the relocation of the Shirlington Employment and Education Center (SEEC) day labor site is completed). It is anticipated that the County will identify an alternate location for the pick-up/drop-off function for SEEC prior to initiating construction for Jennie Dean Park
- Provides increased parking along the south side of South Four Mile Run Drive (using diagonal parking as recommended in the

Area Plan)

- Maintains existing on-street parking on South Nelson Street

Builds upon and celebrates the neighborhood's African American history and cultural heritage (as well as its industrial and natural characteristics) beyond the existing interpretive markers currently located in Jennie Dean Park. This may include the incorporation of public art and placemaking within the park

- Incorporate design features that help to communicate the stories associated with the history of Jennie Dean Park and the Nauck community including public art and interpretive media used as part of the major gateway areas, optional colonnade, and ball field plaza

Incorporates stormwater management into the design of the athletic fields and courts utilizing best management practices and technology

- Outside of the RPA, use infiltration practices as part of any streetscape and plaza design incorporating soil cells with storage capacity as part of continuous tree pits under plaza and hard surface areas
- Within the RPA, use filter strips and buffer areas along FMR to address both water quality and quantity

Shirlington Park

As part of the overall concept emphasizing a combination of art and nature themes, Shirlington Park provides an opportunity to educate visitors about the nature of FMR. It considers the use of historical and environmental interpretation and public art as a means of telling its story. It extends the interpretation and public art concepts from the lower reaches of FMR, now constructed.

The primary elements of the Shirlington Park Concept Plan also serve to increase safety for visitors to Shirlington Park who enjoy its casual use and social spaces but are concerned about the through bicycle travel along FMRT.



Figure 43 Final Illustrative Concept Plan for Shirlington Park

Currently, Shirlington Park serves as a gateway to the arts and recreational uses between Shirlington Village and South Four Mile Run Drive (including the Shirlington Dog Park, the facilities at 3700 South Four Mile Run Drive and Jennie Dean Park). It serves as a link to destinations within the 4MRV parks system and the surrounding neighborhoods. It also responds to the needs of the park visitors who use the active shared use path.

Riparian access paths and overlooks are included to reduce crowding along the shared use path and to offer respite spaces for natural resource education or interpretation linking to overlooks.



Figure 44 Example of public art used to call attention to water quality and underground tributaries along the tidal section of FMR

- The overlooks create a low impact solution for park users to have visual access to the water
- The looped access paths create attractive social spaces for casual users out of the way of through travelers
- Wayfinding and directional signage is used to direct through trail travelers to the W&OD trail and alert them to the fact that they are proceeding through a highly used pedestrian area

Existing vegetation will be managed to address issues of invasive species, stormwater management and visual quality.

- Predominantly located within the RPA, invasive species management and riparian restoration is proposed along the bank of FMR which would add value to the existing habitat over time and assist in filtering stormwater runoff
- Design recommendations emphasize landscape plantings to reinforce visual gateways into the park and help define casual use spaces
- The mix of ornamentals and natives that have been planted or grown along the streambank over time will gradually be converted to native species while retaining the landscape values of non natives (shade and stormwater management) until such time as they can be replaced
- Riparian restoration will be accomplished gradually

over time by:

- Preserving existing vegetative communities
- Introducing new native vegetative communities
- Implementing an invasive species management plan
- Potential soil amendments
- Zoned plantings with a diversity of species and density

Establish minor gateways at each end and a major gateway at the pedestrian bridge (see Jennie Dean Park)

Incorporate placemaking and amenities at each of the focal points (termini of intersecting streets) to transform the park from a corridor to a place or series of places through a coordinated design aesthetic applied to the various design elements within the park (as noted in the design guidelines)

- Seating
- Trash receptacles
- Dog waste stations
- Lighting
- Drinking fountains
- Railings
- Bike racks
- Fitness stations

Increased pedestrian and bicycle safety along FMRT

- Incorporate “traffic calming” for bicycles by considering future pavement surface changes, signage, and planting areas to increase the “visual friction” along the trail and increase awareness that trail users are entering a heavily used pedestrian area
- Separate pedestrian areas from through trail users with landscape elements
- Address the pedestrian and bicycle safety concern at the intersection of 4MRT and Shirlington Road as part of a minor gateway to Shirlington Park and in coordination with Area Plan recommendations for Shirlington Road as they develop



Figure 45 Shirlington Dog Park Committee Report

Shirlington Dog Park

After extensive community and WG discussion which culminated with a County Board work session in May 2017, a new committee of the WG was created (the Shirlington Dog Park Committee) to discuss the challenges of having a dog park located within an environmentally sensitive area near FMR. The Committee provided short and mid-term recommendations that can be made for improving the dog park, while still preserving its existing area. The Policy Framework recommendation for the PMP is to not provide a redevelopment concept for the Shirlington Dog Park, which is consistent with the guidance received at the work session.

SHIRLINGTON DOG PARK COMMITTEE

KEY RECOMMENDATIONS

The committee recommended a range of short-term and mid-term steps that would be implemented through ongoing maintenance and management oriented activities rather than any kind of capital construction involving land disturbances greater than 2,500 square feet. These would begin to address both park management needs and environmental issues in positive but small and incremental ways. The full report is included as Appendix A.

- Block access to informal path outside the dog park fence to minimize soil compaction
- Discontinue mowing along fence edge to increase vegetative buffers
- Increase plantings along the stream bank, where soil conditions permit
- Add park 'snags' such as large stumps or rocks at entrances to encourage dogs to pee on them when they enter the park, instead of urinating on trees
- Create barriers to protect existing trees
- Increase availability of trash containers and bags on both sides of the stream (including in Shirlington Park) to more effectively collect dog waste
- Improve signage and public education regarding pollution, stream warnings, environmental issues and dog park rules
- Limit access to the stream to designated entry points to reduce stream bank erosion
- Explore reclaiming county-owned land at South Oxford Street, widen the dog park at its narrowest point and reconfigure entrance gates (this choke point is often the site of dog fights due to the lack of space)
- Add parking meters and enforce a maximum two-hour parking limit to better distribute usage of existing parking

DESIGN GUIDELINES

The Four Mile Run Valley Park Design Guidelines (Guidelines) are intended to supplement and further define the general concepts laid out in the 4MRV PMP, incorporating all County owned land within the parks planning study area that includes Jennie Dean Park, Shirlington Park, and Shirlington Dog Park as outlined in the map below. The Guidelines describe the qualitative characteristics of elements of the Master Plan and provide direction for achieving its vision for the comprehensive replacement and realignment of existing park features (exclusively for park purposes) and the addition of new park amenities to meet the growing demand for active and casual use, cultural resources and natural resource preservation.

The Guidelines are intended to provide enough detail to establish the desired design character and document the assumptions that go in to budgeting for the CIP process. As projects are implemented over time, the Guidelines will serve as a decision-making framework for implementing the master plan recommendations in a consistent manner through several phases of development. At the broadest level, the Guidelines articulate a design language for each park to promote commonalities among forms and materials and compatibility of styles. Some of the included guidelines also establish general performance criteria to help achieve the community's recreational and environmental goals. The level of detail outlined in the Guidelines are not intended to be rigid and formulaic, but instead are intended to encourage future planners, architects, landscape architects, engineers, designers and artists to use their creativity and problem solving capabilities to achieve the master planning vision over time.



Figure 46 PMP Study Area



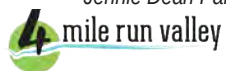
Figure 48 Jennie Dean Park



Figure 49 Shirlington Park and the FMRT



Figure 50 Pedestrian bridge connecting Shirlington Park and Jennie Dean Park



Basis For Park Design Guidelines

The Guidelines were developed as part of the iterative master planning process as described starting on page 23. The Guidelines reflect the range of ideas and suggestions from many different sources of stakeholder outreach and the resulting guiding vision for the Area Plan and PMP study area (page 32).

The guidelines reflect the guidance from existing policies and regulations that shape the use of County parks.

- A Plan for Our Places and Spaces (POPS) (Public Spaces Master Plan Update)
- Natural Resource Management Plan
- Public Art Master Plan (2004 and update in progress)
- Arlington County Stormwater Master Plan
- Four Mile Run Restoration Master Plan and Four Mile Run Design Guidelines



Figure 47 Shirlington Dog Park

Application

While many of the design guidelines will apply to the larger context (the entire parks study area including Jennie Dean Park, Shirlington Park, and Shirlington Dog Park), some guidelines will be applied only to individual parks. For example, Design Character establishes the desired character of the entire Parks study area, lending a cohesiveness to the area. At the same time, specific “placemaking” is recommended for Jennie Dean Park in particular, enhancing those attributes which makes Jennie Dean Park a unique destination within a larger system such as its gateways and entrance areas.

Guidelines are focused on the PMP study area while also being mindful of the larger 4MRV Area Plan and FMR stream system context.



Figure 51. View from diamond field at Jennie Dean Park looking toward South Nelson Street



Figure 52 Existing gateway sign for Shirlington Park at South Walter Reed Drive



Figure 53 Shirlington Dog Park entry gate

Structure of the Design Guidelines

The Guidelines are organized into two distinct parts:

Unifying Parks-wide Design Concepts - apply throughout the parks study area

- Design Character Associated With Past Industrial And Recreational Uses Along FMR
- Universal Design
- User Safety and Comfort
- Stormwater Management
- Tree Canopy and Shade Improvement
- Riparian Restoration (Coordinated w/Area Plan)
- Access and Connectivity (Coordinated w/Area Plan)
- Wayfinding (Coordinated w/Area Plan)
- Design Catalog Of Common Design Elements Used Throughout PMP Area
 - Seating
 - Lighting
 - Bicycle storage
 - Bollards for traffic control and security
 - Sign hardware
 - Fencing/railing
 - Trash/recycling/dog waste receptacles
 - Drinking fountains
- Public Art and Cultural Programming

Unique Design Elements - distinctive design features or elements that apply to each specific park

- Placemaking
- Entry and Visual Gateways
- Casual Use Spaces
- Structures
- Diamond Fields
- Athletic Courts
- Edges and Boundaries
- Parking and Circulation
- Overlooks



Figure 54 Final Illustrative Concept Plan

UNIFYING PARKS-WIDE DESIGN CONCEPTS

Design Character

The 4MRV is one of the last industrial areas left in Arlington County. Jennie Dean Park, originally known as Peyton Field (the ball fields at Green Valley), is significant as one of the first group of parks developed by the Department of Recreation when it was formed in 1948. It was Arlington's "sole recreation area for colored citizens" until 1964 when Arlington ended segregation of recreational facilities. The Potomac River and FMR comprises Arlington's riverfront public access.

The result is a rare combination of industrial, recreational and natural characteristics and features. Through material and form, the renovation of the park areas should celebrate the industrial past of the 4MRV, the recreational heritage of Arlington County Parks and Recreation, and the natural qualities of the adjacent river system.

Guidelines

- For built elements, select materials and forms that are prevalent throughout the 4MRV by emphasizing the use of concrete and steel (rusting and stainless) highlighted with vivid color or trim
- Consider incorporating some of the original design characteristics of Jennie Dean Park (e.g. stone walls, concrete block, sheet metal) for structures and surfaces throughout
- For natural elements, use materials and forms that are associated with the riparian areas along the FMR (wood, granular stone dust, riparian plant communities)
- Incorporate industrial forms and materials in the built environment along paths and overlooks as a way to blend nature and culture into a cohesive image for the FMR

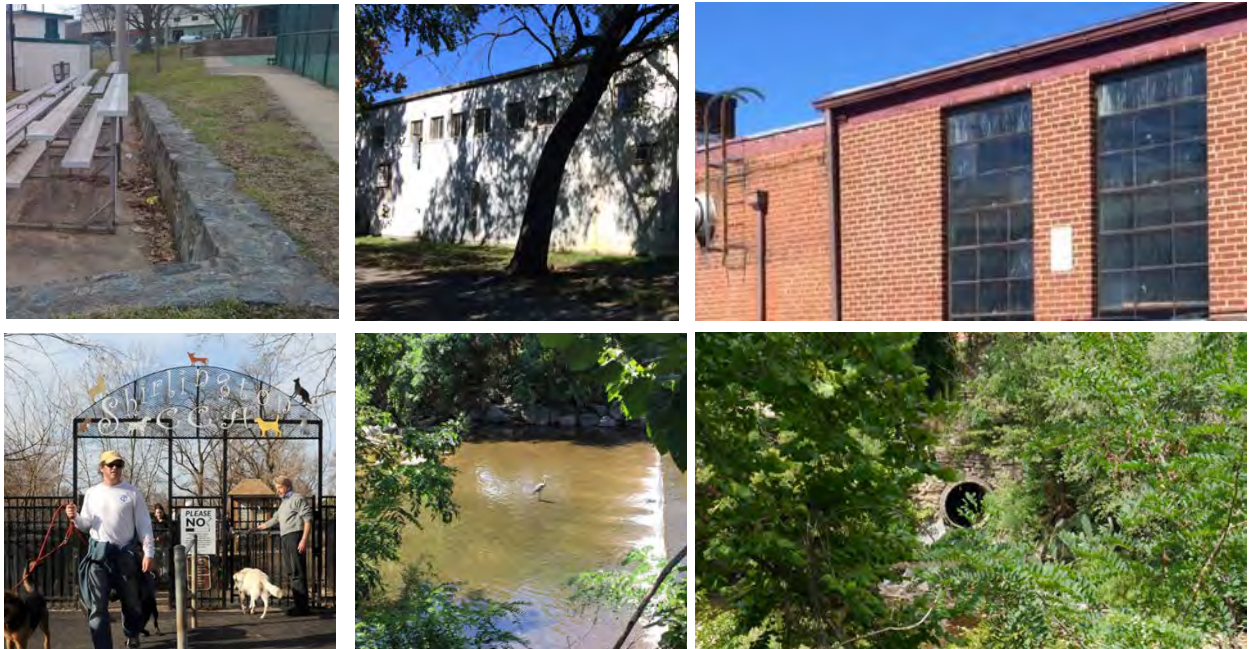
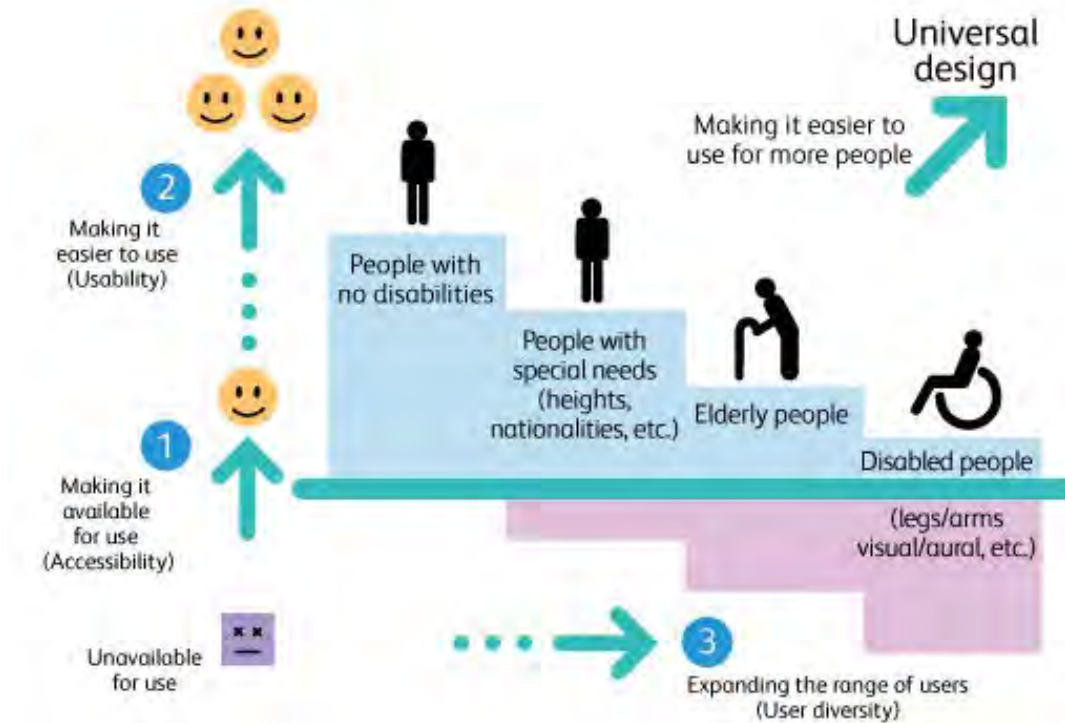


Figure 55 Characteristic features found within the PMP study area



Figure 56 Precedent images showing how the use of wood, steel and concrete can help to define the future character of the 4MRV parks



a

Figure 57 a. Universal Design Diagram
b. Two-person lat-pull exercise station

Universal Design

The park will provide access to all persons, regardless of abilities, in compliance with the Americans with Disabilities Act (ADA) and County policies. Universal Design principles make the park area easier to get to and easier to use for the broadest range of users and abilities.

Applies to:

- Casual Use Space
- Athletic Courts
- Fields
- Overlooks
- Pathways and Trails
- Shelters and Restrooms
- Site Amenities
- Exercise Stations



b

Guidelines

- Establish a smooth and continuous grade for all primary pathways (promenades) to provide universal access to all features associated with the 4MRV parks
- Each program element or park experience should be accessible to all users regardless of age or ability
- For park playground and exercise stations, ensure that 20% of recreational equipment pieces are accessible to all users
- Establish a continuous secondary pathway system that is accessible to all users providing access to casual use spaces

Safety And Comfort

Crime prevention through environmental design (CPTED) has evolved from early work in the 1960s and 70s by planning luminaries such as Jane Jacobs (*Death and Life of Great American Cities*, 1961) and Oscar Newman (*Defensible Space: Crime Prevention through Urban Design*, 1972), among others. Today, CPTED generally reflects the following principles:

- **Natural Surveillance** is achieved through design and maintenance that allow people engaged in their normal activity to easily observe the space around them, as well as eliminating hiding places for people engaged in criminal activity
- **Territoriality** means providing clear designation between public, private, and semi-private areas through the use of see-through screening, low fencing, gates, signage, different pavement textures, or other landscape elements that visually show the transition between areas intended for different uses
- **Access control** is directed primarily at decreasing criminal accessibility, especially into areas where a person with criminal intent would not easily be seen by others

Guidelines

- Establish distinct and open visual corridors into and out of the park areas from surrounding streets
- Maintain open lawn areas in and around each primary use
- Use shade trees with an open understory along the perimeter areas to minimize potential hiding spaces
- Along pathways through wooded areas, maintain an open understory for at least 10-feet on both sides
- All pathway systems should be continuous (no dead ends)
- Where fencing is needed, maintain entrances and exits on all sides

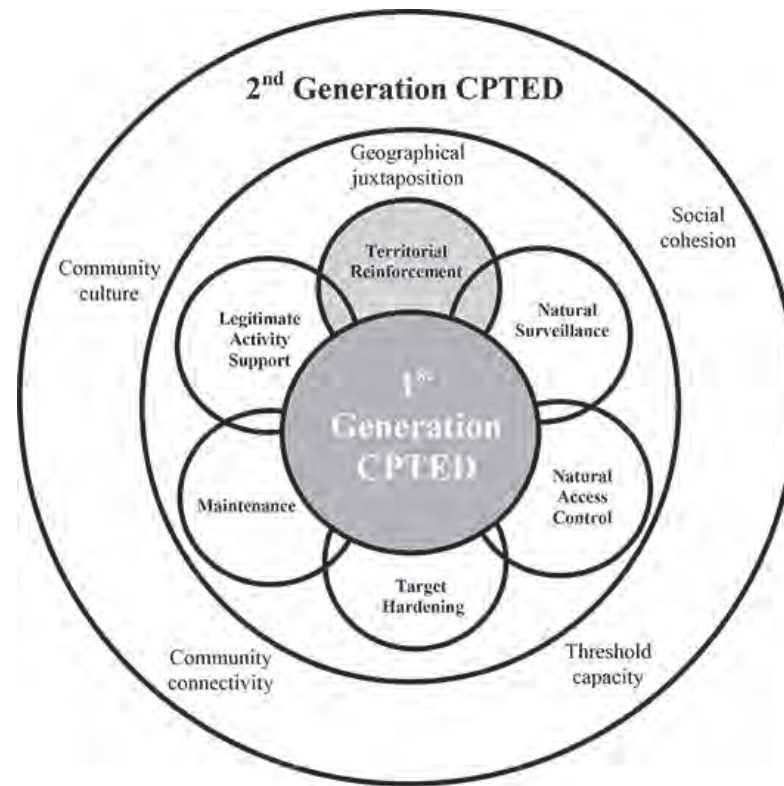


Figure 58 CPTED Diagram

.... there must be eyes upon the street, eyes belonging to those we might call the natural proprietors of the street.
Jane Jacobs

Stormwater Management

Stormwater management will be needed to address new park construction for treatment of both water quality and quantity. The 4MRV PMP recommends shifting all developed program out of the RPA associated with the FMR. Vegetated buffers and filters (top left) are the preferred approach. However, due to a demonstrated need to replace existing recreational uses in-kind (at a minimum), there may not be enough room to manage stormwater runoff without technical solutions that take up less ground area.

According to the Arlington County Chesapeake Bay Preservation Ordinance, flood control and stormwater management facilities that drain or treat water from multiple development projects may be allowed in RPAs, provided that:

- The Director of the Department of Environmental Services has conclusively established that location of the facility within the RPA is the optimum location
- The size of the facility is the minimum necessary to provide necessary flood control, stormwater treatment, or both
- The facility shall be consistent with a stormwater management program that has been approved by the Virginia Department of Environmental Quality

Guidelines

- Design to decrease the amount of impervious surfaces and increase the amount of infiltration within the parks
- Use buffer areas and filter strips approved for use by the Commonwealth of Virginia to treat stormwater (quantity and quality)
- Where necessary, use technology oriented solutions such as rain gardens at locations that have already been disturbed (e.g. ends of streets)



Figure 59 a. 35' filter strips (green highlight) along the banks of FMR
 b. Structural cell system which uses soil cells to treat stormwater runoff for both quality and quantity
 (NOTE: a soil cell application was approved for use by Virginia DEQ as a manufactured treatment device)
 c. Permeable pavers and infiltration between rows of parking utilized for managing stormwater (City of Lynchburg, Riverside Park)

Tree Canopy And Shade Improvement

The PMP study area's tree canopy is valued for its shade and cooling benefits within the urban environment that surround it as well as its benefits for urban wildlife.

Guidelines

- New plantings should be selected from species native to riparian areas and associated river terraces in the Virginia Coastal Plain (see sidebar, next page)



Figure 60 Aerial of Study Area circa 1934 (top) compared to 1955 when Jennie Dean Park was initially constructed showing the original extent of riparian areas along FMR



RED MAPLE



BLACK GUM



SWAMP WHITE OAK



REDBUD



RIVER BIRCH



CINNAMON FERN



PAW-PAW

Figure 61 Examples of canopy, shade trees and understory species native to stream valleys and river terraces between the Coastal Plain and Piedmont physiographic provinces

SUGGESTED PLANT SELECTION RESOURCES

- “Native Plants for Wildlife Habitat and Conservation Landscaping”, US Fish and Wildlife Service, <https://www.fws.gov/chesapeakebay/pdf/>
- “Four Mile Run Design Guidelines”, Arlington County and City of Alexandria, August 2009, <http://novaregion.org/DocumentCenter/View/11001>
- “Guide to Arlington County Landscape Standards”, Arlington County, <https://arlingtonva.s3.dualstack.us-east-1.amazonaws.com/wp-content/uploads/sites/38/2017/10/Landscape-Standards-OCT-2017.pdf>
- “Recommended Tree List”, Arlington County, <https://environment.arlingtonva.us/trees/plant-trees/recommended-trees/>
- “Arlington Invasive Plants List 2015”, Arlington County, <https://arlingtonva.s3.dualstack.us-east-1.amazonaws.com/wp-content/uploads/sites/13/2013/10/Invasive-Plant-List-2-19-15.pdf>
- “Design Standards and Details (DPR)”, Arlington County, <https://parks.arlingtonva.us/design-standards/>
- “Design Standards and Details (DES)”, Arlington County, <https://topics.arlingtonva.us/building/infrastructure-design-standards/>

Figure 62 Examples of suggested species for riparian restoration



SWAMP MILKWEED



BLACK HAW



WINTERBERRY



SOFT RUSH



CUTLEAF CONEFLOWER

Riparian Restoration

The riparian and shoreline plants shown are adaptable to both wet and dry conditions and suitable for use on the banks of the FMR and similar conditions found within riparian areas of the parks. With the appropriate species and plant densities (mass plantings), riparian restoration will promote runoff filtration, increase biodiversity and wildlife habitat, reduce soil erosion, and result in numerous other environmental benefits.

Riparian plantings may serve the dual purpose of creating an interpretive theme, where people can learn about restoration techniques as they walk along riparian access paths or at the overlook locations. The plant palette may be used for demonstration, where people will see the plants in the park and want to plant them at their homes in similar situations.

Guidelines

- See “Suggested Plant Selection Resources” on this page

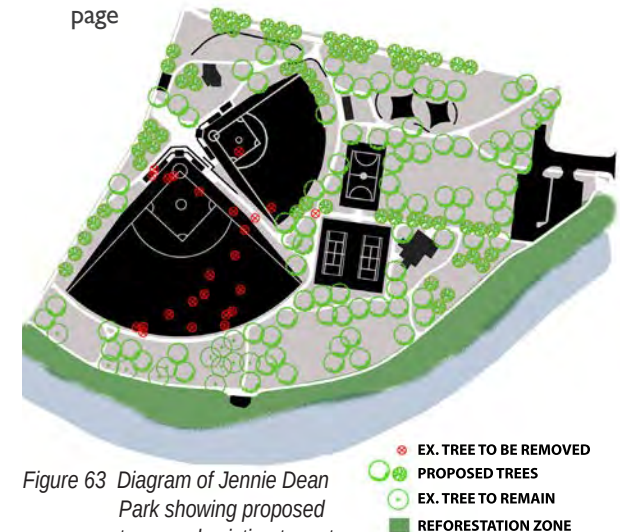


Figure 63 Diagram of Jennie Dean Park showing proposed trees and existing trees to remain

Access And Connectivity

Shirlington Park, Jennie Dean Park and the Shirlington Dog Park all provide outdoor space for residents of homes, condominiums and apartments - many without access to yard space for casual recreation. Shirlington Park is located just to the north of Shirlington Village while Jennie Dean Park is located just to the south of Nauck's residential area. Shirlington Dog Park serves both neighborhoods as well as others nearby.

Access to the parks are from major and minor gateways. Major gateways (yellow tinted circles) are located at the entrance to Jennie Dean Park at the intersection of South Nelson Street and South Four Mile Run Drive and at the existing pedestrian bridge. Two minor gateways are located at Shirlington Road (for FMRT as it enters Shirlington Park and the 27th Street South entrance to Jennie Dean Park.) Each of the streets that feed into the park planning area serve as focal points (orange arrows on the map at right) located at all existing cross streets with crosswalks. (See Figure 87 on page 57 for “visual gateways”.)



Figure 64 Focal points and desire lines for access

Guidelines

- Create major and minor gateways to increase the visual perception of the park areas
- Design major gateways to include park entrance signs and visitor information kiosks designed to function as a focal point
- Ensure that major and minor gateways have wayfinding signage and smaller park orientation signs
- Connect major and minor gateways to park features with pedestrian circulation
- Ensure that bicycle circulation leads to park destinations and provides bicycle storage at identified major and minor gateways
- Direct through bicycle circulation (commuters) to the W&OD Trail
- Where space exists, create pedestrian gathering spaces that are incorporated as focal points along FMRT



Figure 65 View from the W&OD Trail into Jennie Dean Park at South Nelson Street, a major focal and access point



Figure 66 A minor focal/access point is depicted above, where a crosswalk located just west of the pedestrian bridge connects Shirlington to Shirlington Park



Wayfinding

An overall wayfinding system is envisioned to occur throughout the entire planning area. Park wayfinding needs should be coordinated with the overall wayfinding system.

For the park planning area, wayfinding signs should be placed at park gateways to direct visitors to park destinations:

- Jennie Dean Park
- Shirlington Dog Park
- Barcroft Recreation Center
- Nauck Town Square

Guidelines

- Design wayfinding signage to include the following three parts:
 - District Name - as defined by the Area Plan (placeholder shown as a blue bar)
 - Primary Destinations - no specific businesses or sites should be included on any wayfinding sign (difficult to manage due to the issue of fairness)
 - Map - a location map can be used to identify area addresses/buildings and the sign should be designed to have an easily replaceable map
- Incorporate the gateway name by referencing the street intersecting the park entrance into the wayfinding system (shows an example of incorporating the gateway name into the side panel)
- Consider a collaboration between artist and designer as part of the design of the wayfinding system (see Figure 76 on page 46 for examples) to encourage creativity and uniqueness

Figure 67 PMP area wayfinding concept (note that diagrams show recommended wayfinding elements but the actual graphic system should be designed for the entire 4MRV)

4MRV Parks Design Catalog

The design of park furnishings—seating, waste receptacles, water fountains, light fixtures, bicycle storage, bollards for traffic control and security, fencing, sign hardware (among others)—when designed with similar characteristics (style, color, amount of detail) define the visual character of the overall park environment.

Guidelines

- Select furnishings that reflect the industrial character associated with the past uses of the area—simple and functional in design with honest materials (steel, wood and concrete)
- Use stainless steel for high touch elements (drinking fountains, waste receptacles, handrails)
- Encourage collaboration between artists and designers in the development of a catalog of furnishings as a method of developing a distinct and identifiable design character for the park areas
- Consider providing seating along all promenades and/or at the intersections of pathways with promenades
- Orient seating towards attractive views or towards gathering spaces and provide shade
- Ensure that bicycle storage and seating is simple in design and located near major and minor gateways to reduce conflicts between bicyclists and pedestrians
- Place waste receptacles and water fountains in relation to active recreational uses, preferably at pathway intersections
- Ensure that pathway lighting is dark sky certified and emphasize lighting of surfaces rather than areas (athletic fields and athletic courts are addressed separately)
- Employ safety lighting that focuses on eliminating shadows and hiding places
- Ensure that light standards, bollards, security features and sign hardware are from the same family of materials and color (powder coating or color galvanized)
- Carefully coordinate the number of signs to eliminate redundancy and minimize unnecessary intrusions (without sacrificing safety)



SEATING



SIGNAGE



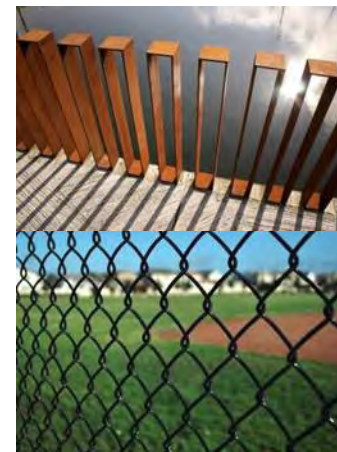
BIKE RACKS



WATER & WASTE



LIGHTING & BOLLARDS



FENCING/GUARDRAILS

Figure 68 Examples of park furnishings



Figure 69 "Ripple" by Tejo Remy and Rene Veenhuizen; photo by Yassine El Mansouri (Arlington, VA)



Figure 70 "Cyclorama" by Joe O'Connell and Blessing Hancock (Orlando, FL)



Figure 71 "Points Smart Sign" by Zolty, BREAKFAST, and Mattias Gunneras (New York, NY)

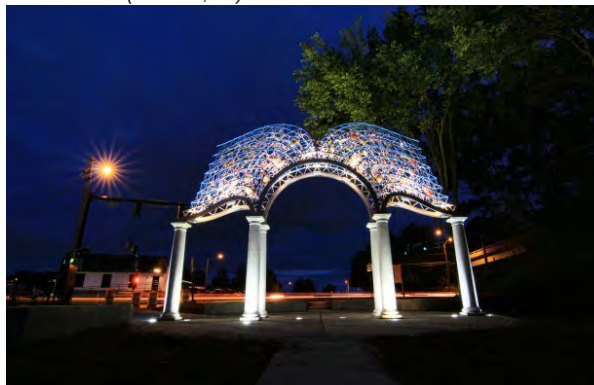


Figure 72 "Gateway of the Open Book" by Mid-Ocean Studio (Greensboro, NC)



Figure 73 "Alphabet" by Alastair Noble (Hobro, Denmark)



Figure 74 "The Path Untraveled" by Joshua Wiener (Richmond, VA)

Public Art

Goals (from Public Arts Master Plan Update):

- Support the County's multiple goals for the FMR corridor, including storm and wastewater management, open space and recreation
- Enhance the design of infrastructure (such as wastewater management and floodways)
- Enhance the public understanding of infrastructure (such as wastewater management and floodways) and natural systems (such as tributaries and riparian habitat)

COMMON DESIGN ELEMENTS

Jennie Dean Park and Shirlington Park

While there are many design concepts that will help unify the 4MRV PMP study area and ensure that it is perceived as a cohesive system, there are elements within each individual park (Jennie Dean Park, Shirlington Park, and Shirlington Dog Park) that can be designed to reinforce each park's distinct identity.

Of the four park areas, Jennie Dean Park and Shirlington Park are the most similar in character and may benefit from having certain design elements in common. These elements might include:

- Wayfinding - directional signs
- Seating
- Lighting
- Fencing/railing
- Trash/recycling/dog waste receptacles
- Drinking fountains
- Bicycle storage
- Bollards and security
- Sign hardware

Cohesive elements that will apply to Shirlington Dog Park are more limited due to the unique requirements of the dog park use (such as fencing, waste receptacles, drinking fountains and seating, which would each have their own dog park adaptations). However, wayfinding, lighting, bicycle storage, bollards and sign hardware should be consistent extending into the dog park.



Figure 75 Examples of railing designs that could be applied to both Jennie Dean Park and Shirlington Park, reflecting both natural and industrial origins



Figure 76 Examples of wayfinding signs that would reinforce the natural attributes of Jennie Dean Park and Shirlington Park. A wayfinding system developed for Frank City by *fwdesign* allows nature to be integrated into the sign. The sign has both wayfinding and educational components and serves as a birdfeeder.

UNIQUE DESIGN ELEMENTS: JENNIE DEAN PARK

Legend

-  Casual Use Space
-  Proposed Trees
-  Existing Tree to Remain
-  Athletic Courts
-  Restroom
-  Small Shelter
-  Large Picnic Shelter
-  Playground
-  Promenade/ Primary Paths
-  Secondary Paths
-  Riparian Paths
-  Vehicular
-  RPA Boundary
-  Regulatory Floodway
-  Stream

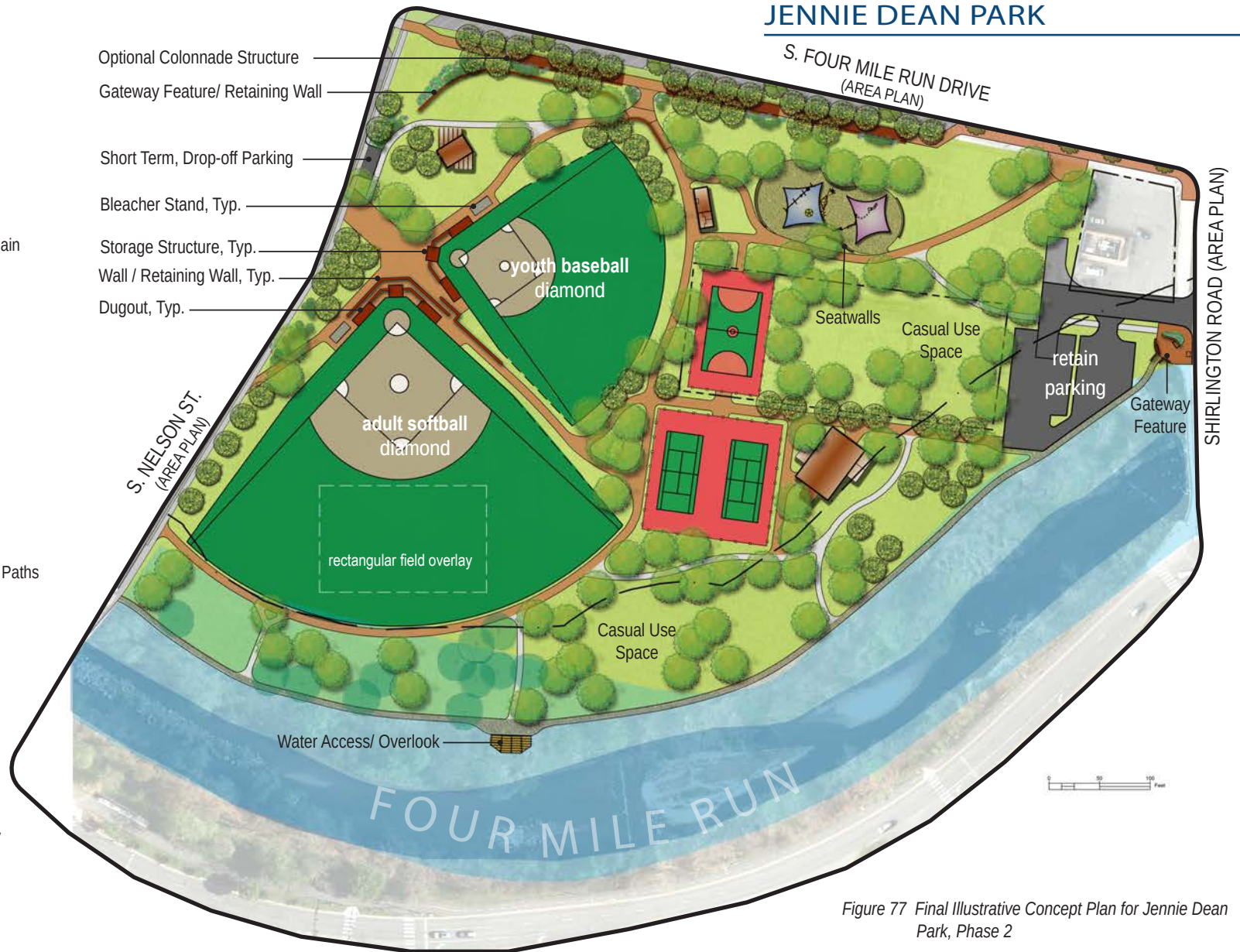


Figure 77 Final Illustrative Concept Plan for Jennie Dean Park, Phase 2

Jennie Dean Park Entry and Visual Gateways

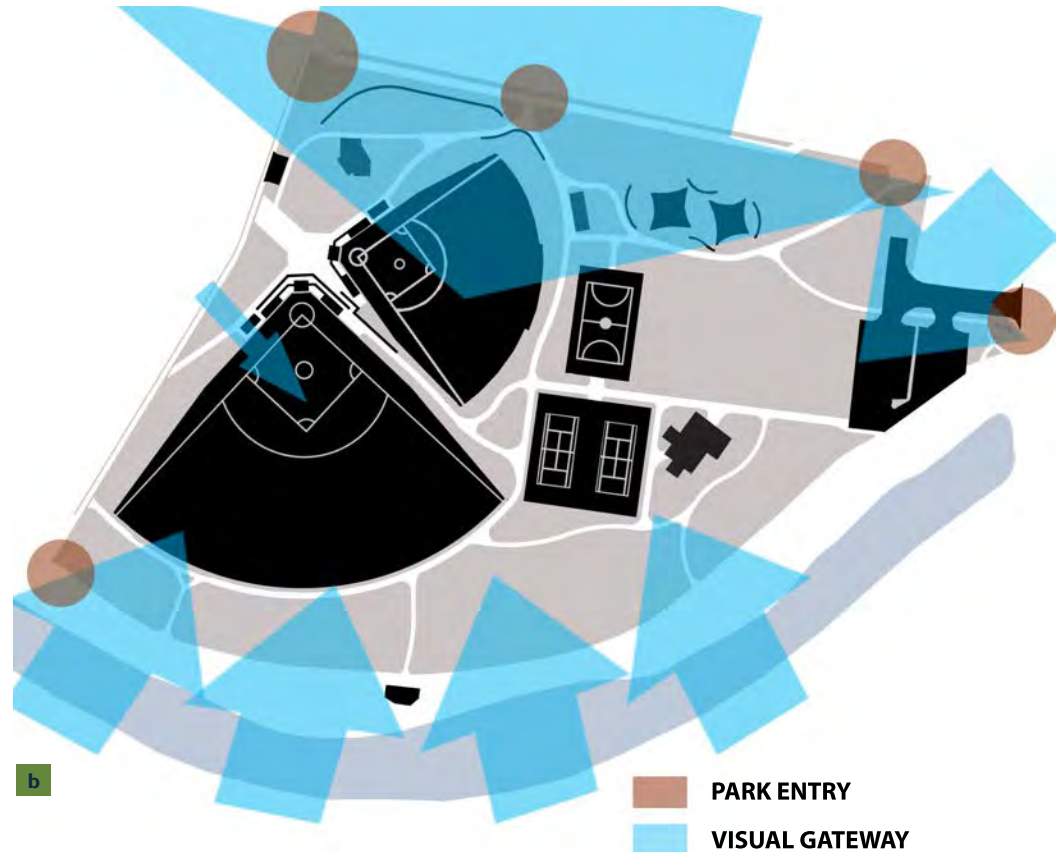
Guidelines

Park Entries

- Are accessible to all modes of travel from South Four Mile Run Drive at South Nelson Street (and continuing to South Oakland Street) and from Shirlington Road at 27th Street South
- Are accessible to pedestrians and bicyclists only at the South Nelson Street pedestrian bridge, along the FMRT and along South Four Mile Run Drive at the former LaPorte tract
- Allow for views into the park
- Have clearly defined signage/gateway that announces entry into the park
- Have entry signage that is creative, non-obtrusive, and in keeping with the selected design catalog of materials
- May contain public art
- May introduce the history of Jennie Dean Park through interpretive waysides, at park gateways or through various other park elements



Figure 78 a. Jennie Dean Park interpretive exhibit panel
b. Concept for Jennie Dean Park showing entries and visual gateways
c. Example entry signs using integral color
d. Example of artist/designer collaboration on pedestrian bridge as entry to park



Visual Gateways

- Frame views into the park through the careful selection and placing of plant materials and/or other design elements (lighting, optional colonnade, path orientation)
- Are accessible (visually) to all forms of transportation

Jennie Dean Park Casual Use Spaces

Guidelines

- Ensure that casual use spaces are a mix of open grassy areas or meadows enclosed by tree groupings or woodland patches
- Size open areas to allow for pickup group activities (e.g. kickball, touch football game, whiffle ball, frisbee) but be too small to be useful for organized team practice areas
- Create soft pathways (natural surface) that define the perimeters of the open areas and wind along the edge of wooded areas, except where ADA or other best practices may require otherwise
- Design soft pathways to be well graded and smooth, meeting accessibility goals and requirements
- Do not provide lighting for soft pathways through casual use space areas (except at intersections with promenades)



Figure 79 a. Diagram of casual use space in Jennie Dean Park
b. Photos of casual use spaces with understory of flowering shrubs for interest
c. Grass and tree canopy

Jennie Dean Park Structures

Park structures include one combined picnic shelter/restroom, dugouts and related storage areas associated with the fields and an optional colonnade along the South Four Mile Run Drive park border. Also included as unique elements for Jennie Dean Park are the playground structures, seat walls, retaining walls, and overlooks.

Guidelines

- Select materials for all three structures that are simple and authentic (steel, wood and concrete)
- Utilize a major highlight color (highly visible) throughout all three structural elements to establish a distinct identity and character visible throughout the park (as shown in illustration b's green highlight or illustration d's red highlight)
- Incorporate public art and interpretive media into the design of the optional colonnade to help tell the stories associated with the history of Jennie Dean Park and the Nauck community

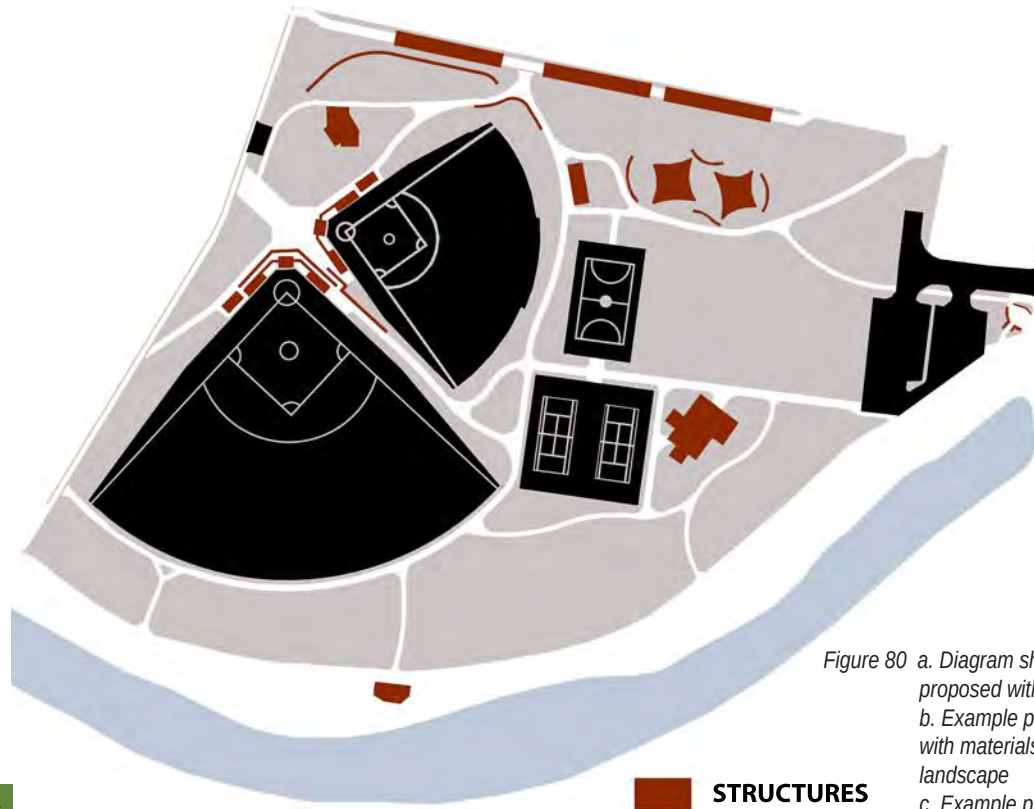


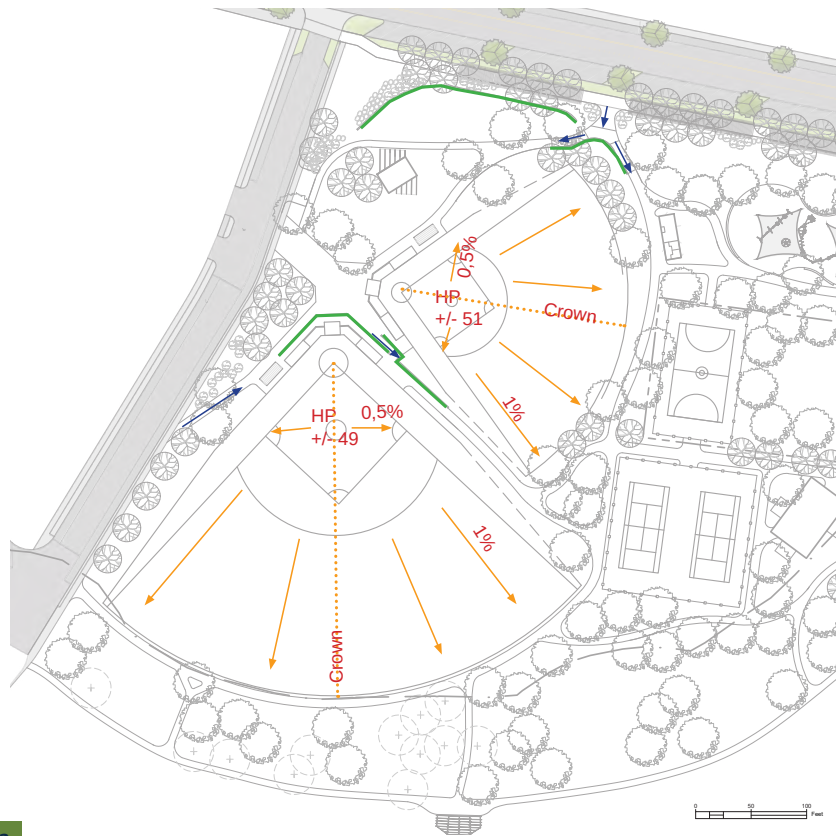
Figure 80 a. Diagram showing structures proposed within Jennie Dean Park
b. Example photo of small shelter with materials that blend into the landscape
c. Example photo of shelter that allows for flexible use
d. Example image of optional colonnade within the streetscape buffer along South Four Mile Run Drive with a red accent color



Jennie Dean Park Diamond Fields

Guidelines

- Youth diamond field should be set back approximately 75 feet from South Four Mile Run Drive
- Ensure that fields are drained with a crown from home base to center field and radiate outward from the pitchers mound (high point)
- The surface is proposed to be natural grass
- Provide for athletic field lighting that utilizes the latest technology to minimize glare and reduce light trespass
- Ensure that permanent chain link fencing and gates are constructed per Arlington County standard specifications (Section 323113) and are black in color in accordance with DPR standards to bring diamond fields up to current play, safety, and accessibility standards
- Design fencing to maintain an open space feel and off-season access for casual use by lowering the outfield fence height to four feet and introducing openings along outfield baselines while still meeting safety and accessibility standards
- Develop a plaza between the two fields that provides seating, shade, a stable walking surface that visually ties the two fields together as a single complex and may contain interpretive media that tells the story of Jennie Dean Park and its relationship to Nauck and Peyton Field (the ball fields at Green Valley)



- a**
- ADA Ramps
 - Retaining Walls



b



c



d

Figure 81 a. Diagram of desired drainage across the diamond fields and low retaining/site wall locations needed to meet ADA requirements for pathways and access
b. Example of sports field lighting designed to minimize light trespass
c. Low scale fencing recently constructed at Bluemont Park
d. Protective netting designed for maximum visibility with least number of pole structures

Jennie Dean Park Athletic Courts

Guidelines

- Adhere to Arlington County standard specifications for court surfacing (Section 321217) and court equipment (Section 116833)
- Construct chain link fencing and gates per Arlington County standard specifications (Section 323113) and ensure they are black in color in accordance with DPR standards
- Incorporate a windscreen into the design of the fencing to increase privacy, reduce the effects of wind, and increase the visibility of balls
- Ensure that court placement and setback design are in accordance with the Arlington County Zoning Ordinance
- Provide for athletic court lighting that minimizes glare while reducing light trespass
- Direct stormwater from athletic court surfaces to best management practice (BMP) outside of RPA area (see page 39)
- Provide some seating within the fenced area of the athletic courts for player use
- Provide a drinking fountain and waste receptacle within 10 feet of the athletic courts facility
- Provide shade structure between basketball and tennis courts (Phase 2)

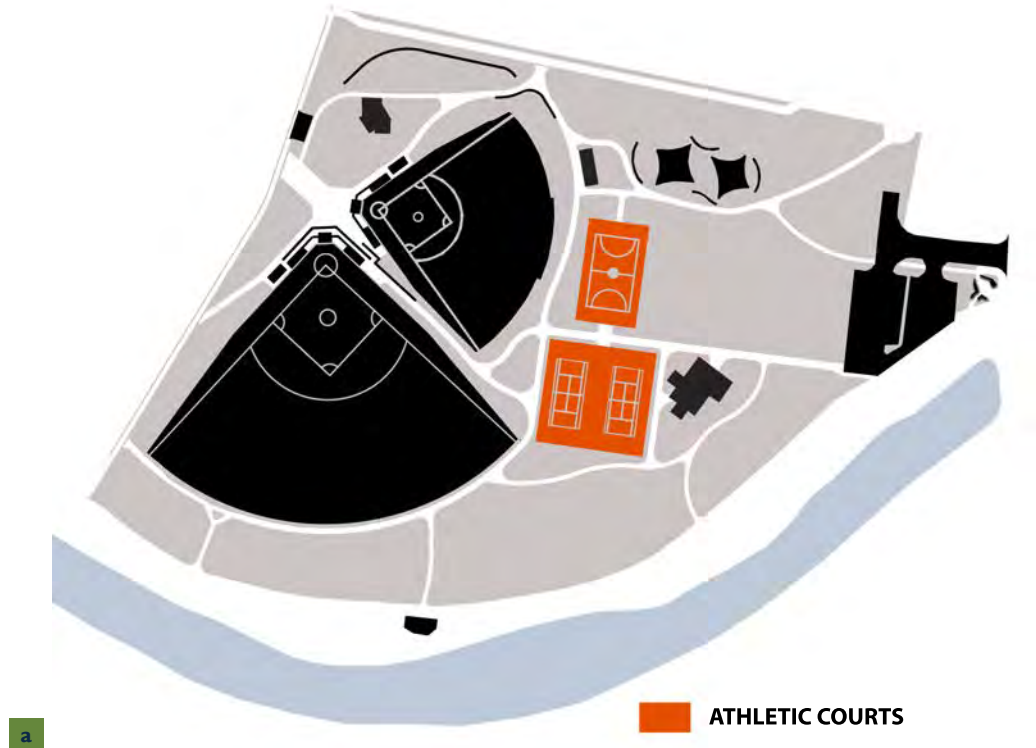


Figure 82 a. Diagram showing court location
b. Shade structure at Virginia Highlands Park
c. Athletic court with windscreen



Jennie Dean Park Edges and Boundaries

Jennie Dark Park is bounded by South Four Mile Run Drive on the north, South Nelson Street on the west, and Shirlington Road on the east. The southern boundary is formed by the FMR Stream and the adjacent riparian area. The edge treatments for Jennie Dean Park should reflect the adjacent land use and may be more permeable or impermeable, depending on park program and uses.

Guidelines

- Install a double row of trees and optional colonnade along South Four Mile Run Drive to serve as an attractive buffer from both the adjacent road (for park users) and for Nauck neighbors
- Allow for views of the FMR along the forested, soft riparian edge formed by a soft path which runs along the top of the bank
- Design the western edge along South Nelson Street to include a mix of large canopy trees with understory plantings framing views of fields and into park
- Accentuate the northeastern edge of the park by incorporating the features of the existing building (Weenie Beenie) into both gateway and edge design
- Maintain a minimum 10 foot landscape setback along South Nelson Street
- Set the diamond fields and structures a minimum of 10 feet from the back of sidewalk along South Nelson Street and a minimum of 75 feet from the right-of-way (ROW) along South Four Mile Run Drive

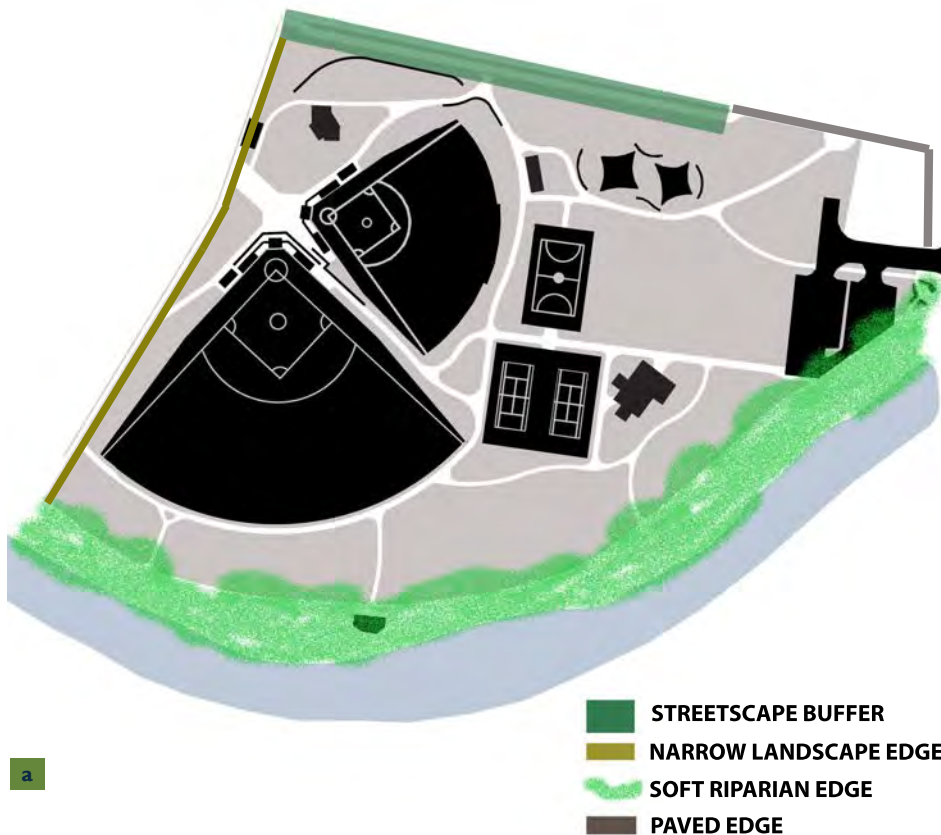
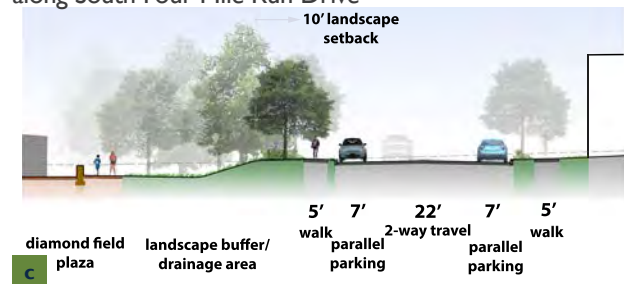
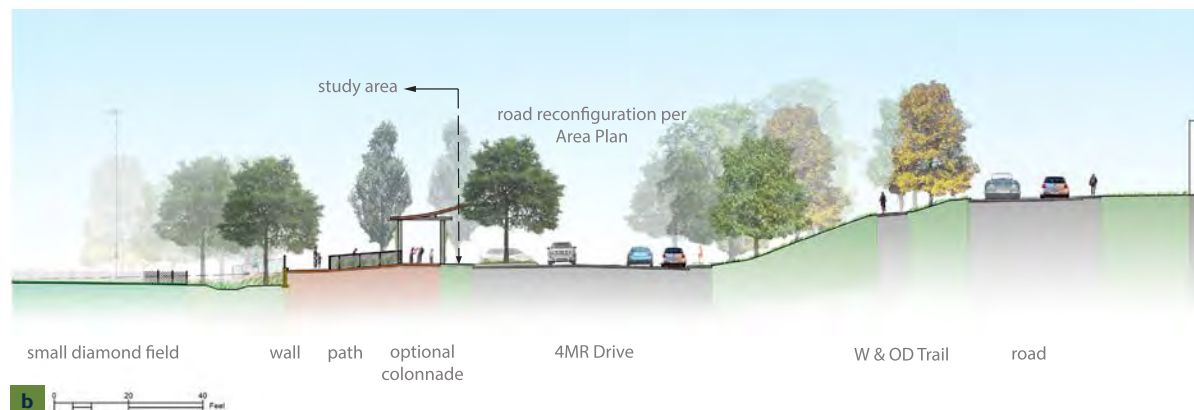


Figure 83 a. Diagram showing boundaries and edges around Jennie Dean Park
b. Section view along South Four Mile Run Drive showing example of the buffer between the road and park areas
c. Section view along South Nelson Street

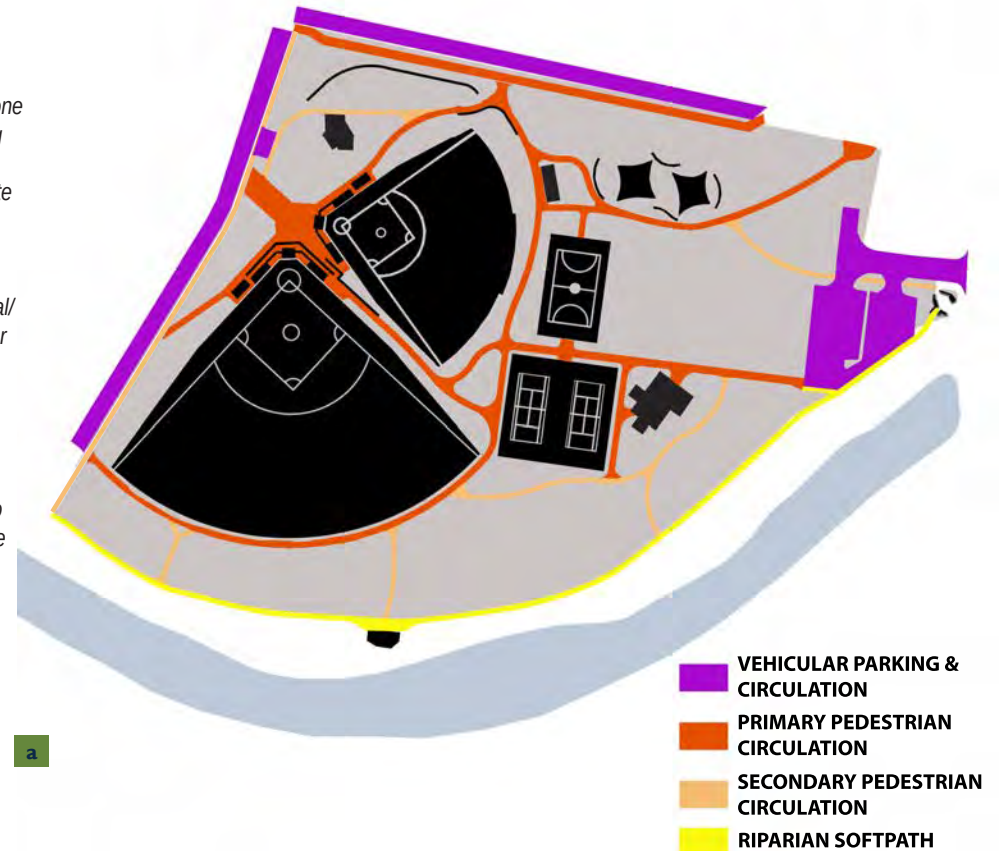


Jennie Dean Park Parking and Circulation

Guidelines

- Maximize parking along the South Four Mile Run Drive park frontage area and South Nelson Street to serve park and recreation needs (see Area Plan) in lieu of surface lots within park (retain existing 27th Street South lot east of WETA)
- Create streets that are multi-use and integrate stormwater management into the street design and aesthetics
- Install infiltration areas/rain gardens at the ends of South Oakland and South Nelson Street to address stormwater management requirements
- Preserve existing trees and rehabilitate the surface parking lot on at 27th Street South and Shirlington Road (SEEC day labor lot)
- Provide a turnaround at the 27th Street South lot for emergency access vehicles
- Design the primary pedestrian circulation to be eight to ten feet wide and be constructed with scored concrete, and paving stone edging
- Design the secondary circulation to be five to six feet wide
- Design the riparian soft path to be six feet wide with the material being stone dust or a similar permeable material, with steel edging

Figure 84 a. Diagram showing parking and circulation concept
b. Example of a bluestone path with cobble edging for drainage
c. Example of steel grate that could be applied to overlooks to maintain permeability and that is consistent with industrial/natural design character
d. Rusting steel and timber edging detail for secondary pedestrian circulation along a soft pathway at the Presidio is an example of how to address a shallow slope on a soft path



a



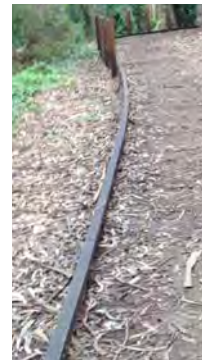
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UNIQUE DESIGN ELEMENTS: SHIRLINGTON PARK

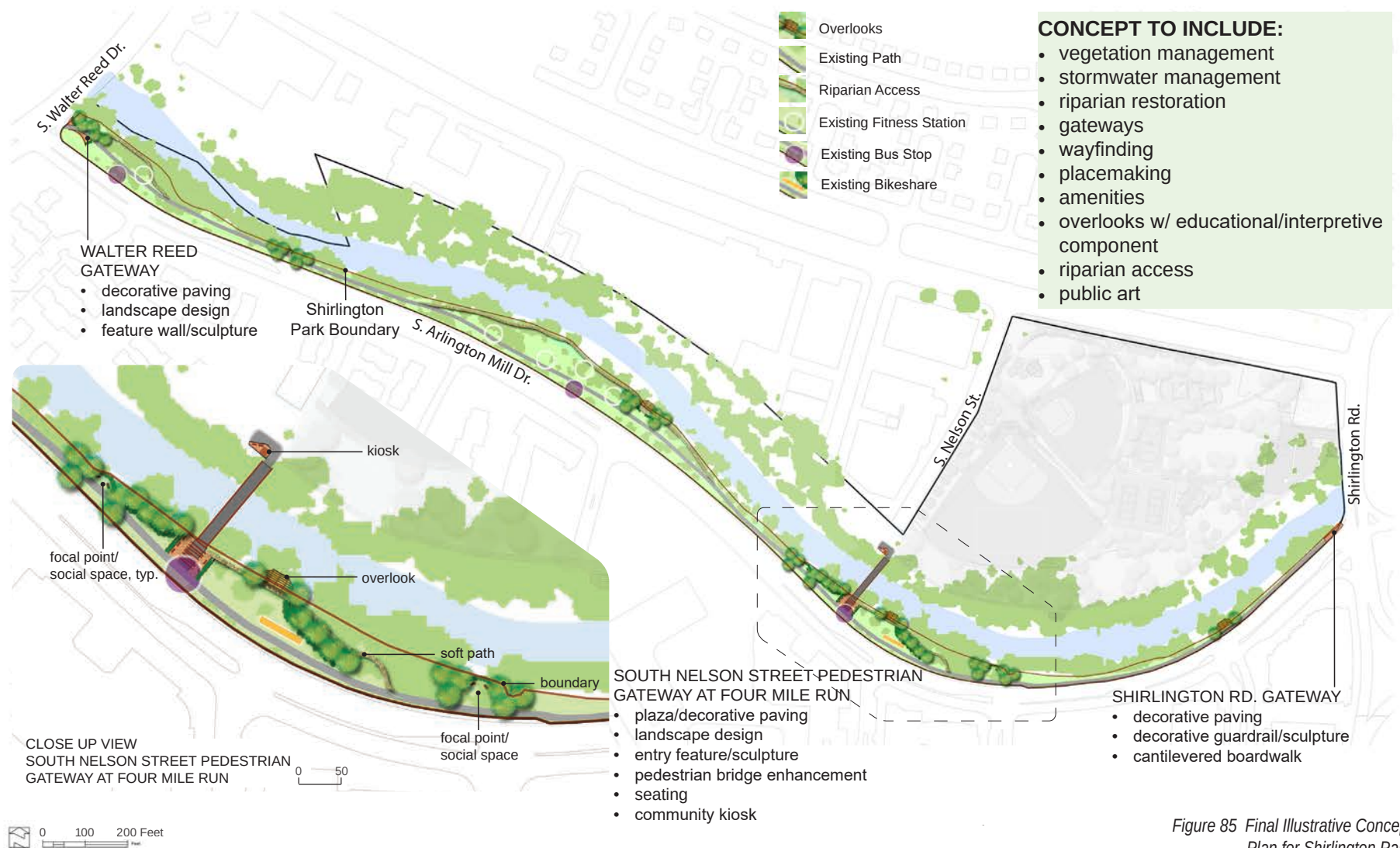


Figure 85 Final Illustrative Concept Plan for Shirlington Park

Shirlington Park Entrances and Gateways

Shirlington Park, located along South Arlington Mill Drive, is visually accessible from any point along the roadway and from the neighboring residential and commercial buildings of the Village at Shirlington to the south. From the north side of FMR, Shirlington Park can be viewed at some points along Jennie Dean Park and the dog park, but the view is predominantly blocked by trees and other riparian vegetation. The park may be entered at many points from the south side with multiple crosswalk locations along South Arlington Mill Rd., west from South Walter Reed Drive and east from Shirlington Road. The park may be accessed from the north at its western and eastern boundary and also at the pedestrian bridge from Jennie Dean Park.

Guidelines

- Ensure that park entries are also focal points that draw views toward the park and highlight the points of entry
- Create gateways into the park at the primary park entries (South Walter Reed Drive, Shirlington Road, and pedestrian bridge) that include wayfinding/placemaking signs or markers, decorative paving, landscape design, seating, public art and interpretive components
- Provide for the safety and comfort of all park users at the park entries and gateways
- Use advanced lighting technology to focus pedestrian lighting on walking surfaces and minimize light trespass to adjoining areas

Figure 86 a. Gateway locations (yellow circles)
b. Examples of vertical gateway features
c. Examples of gateway features incorporating light
d. Example of color galvanized steel and abstraction of nature



Using Planting Design to Reinforce Visual Gateways and Define Casual Use Spaces

Guidelines

- Restore riparian woodlands through an invasive species management program and the planting of new overstory
- Reintroduce native species along streambanks and at overlooks as interpretive and educational features (herb, shrub and canopy layers)
- Use planting design to frame views into the park areas and to add variety and interest at focal points and gateways
- Use planting design to define spaces used for both casual use (social spaces and seating areas) and active recreation (parcourse/exercise stations)
- Use massing of understory plants at the edges of existing riparian woodlands to increase visual interest and establish a distinct image that frames focal views and social spaces



Figure 89 Native flowering shrubs and ferns as mass plantings to define woodland edges, establishing a distinct visual image at focal points, and to define social spaces

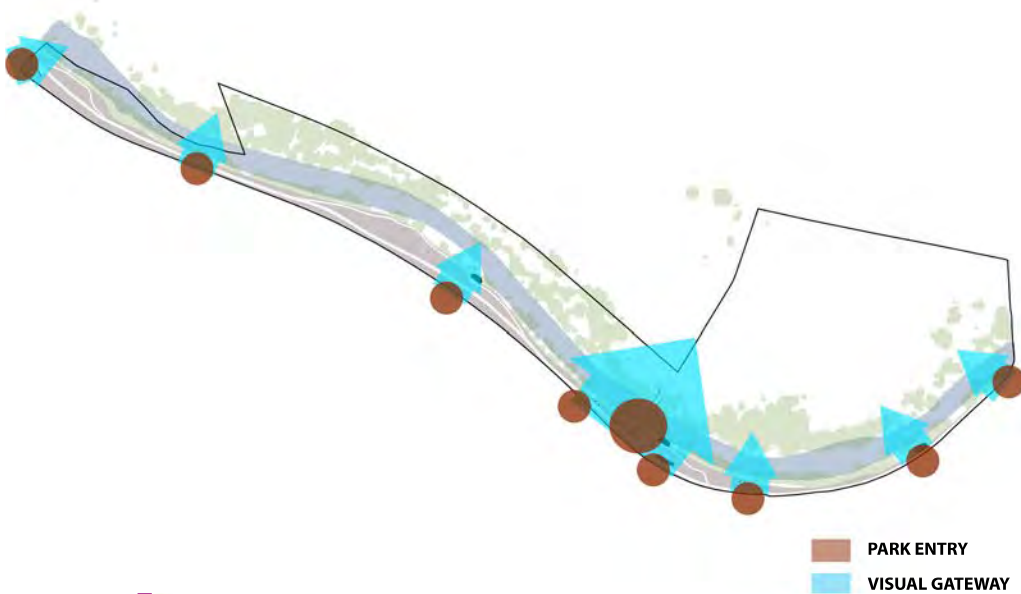
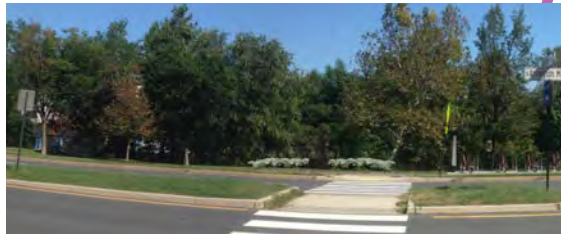


Figure 87 Visual gateways and focal points at intersecting streets



Figure 88 Casual use space in Shirlington Park



Shirlington Park Structures - Overlooks

Existing structures to remain within Shirlington Park include the parcourse facilities which may remain as is or be enhanced over time. New structures proposed in Shirlington Park include overlooks at three locations, made accessible by a riparian access path.

Guidelines

- Construct overlooks with materials in keeping with the design character of Shirlington Park and the larger PMP study area
- Locate overlooks for minimal impact on the landscape, supported by a concrete footing outside of the regulatory floodway, cantilevered out over the stream and supported by timber piles
- Locate overlooks near crosswalks/focal/access points
- Ensure that overlooks provide a space suitable for casual use and views of the FMR
- Consider providing an interpretive component at overlooks, celebrating FMR or other natural features

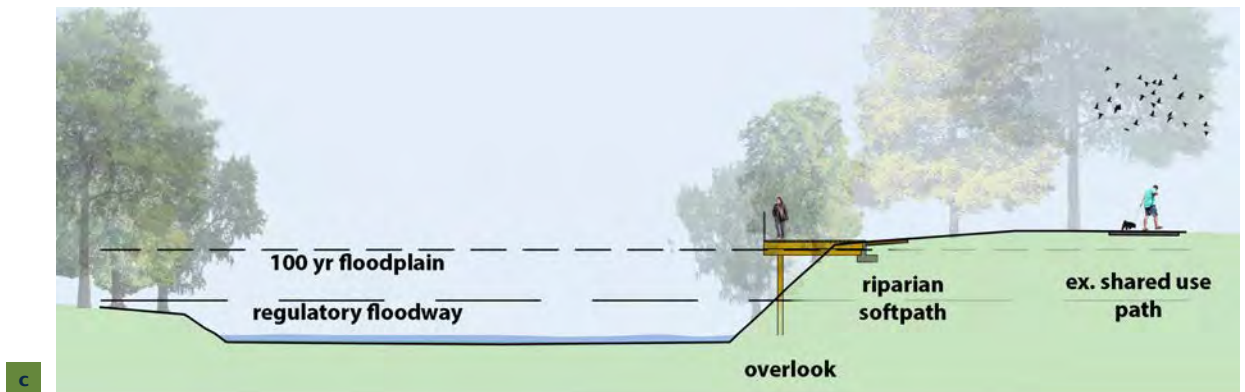
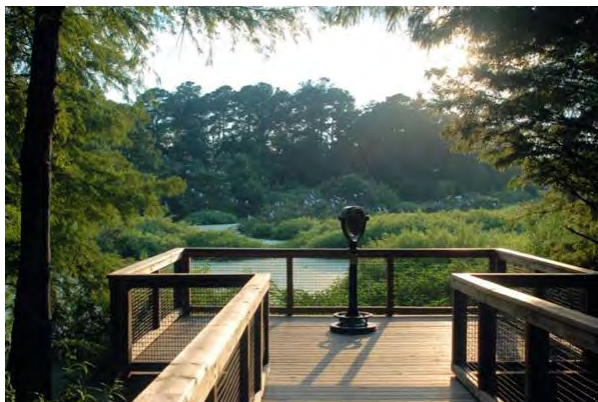
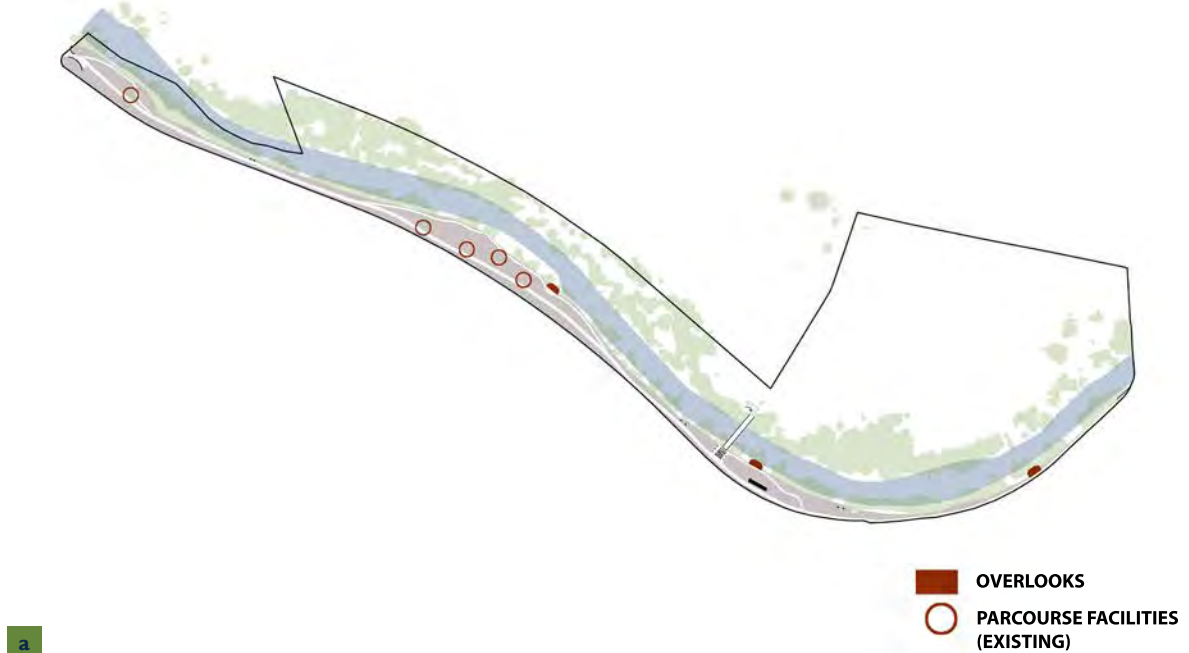


Figure 90 a. Proposed overlook locations
 b. Example of overlook nestled into adjoining vegetation
 c. Section illustrating how overlook is sited in relation to streambank to minimize construction impacts

Shirlington Park Circulation

Guidelines

- Retain the existing shared use path in place with the potential for improvements over time to mitigate conflicts between bicyclists and pedestrians
- Provide signage to encourage bicyclists who wish to travel at higher speeds to use the W&OD Trail to the north
- Provide a six foot wide soft riparian access path (stone dust or similar) at key locations within the park to offer social and casual use spaces away from wheeled vehicles with closer proximity to FMR
- Locate the riparian access path a minimum of two feet from the top of bank with guardrails (cable rail) provided at steep slope locations
- Ensure that future transportation improvements at South Walter Reed Drive and Shirlington Road strive to reduce conflicts between pedestrians, bicyclists, and automobiles at access points to Shirlington Park
- Widen the pedestrian bridge (if feasible) to allow for easier circulation of bicyclists and pedestrians and provide a more prominent gateway feature

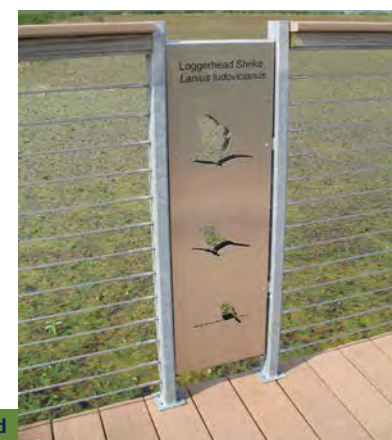


Figure 91 a. Diagram showing locations of access loops for overlooks in relation to FMR
 b. Example of stone dust trail
 c. Illustration of overlook integrated into natural setting of streambank
 d. Example of cable railing with simple interpretive features integrated within design

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PHASING AND IMPLEMENTATION

Implementation of the master plan is envisioned to be accomplished through several phases and differing sources of funding.

Phase I Capital Improvement

Construction of the improvements to Jennie Park as shown in Figure 92 will move forward into the design phase with funding provided as part of the current Arlington County Capital Improvement Program (14.4 million dollars allocated in the 2016-2026 CIP).

Technical Investigations

There are several unknown conditions that will need to be investigated prior to confirming the overall budget for the Phase I improvements to Jennie Dean Park:

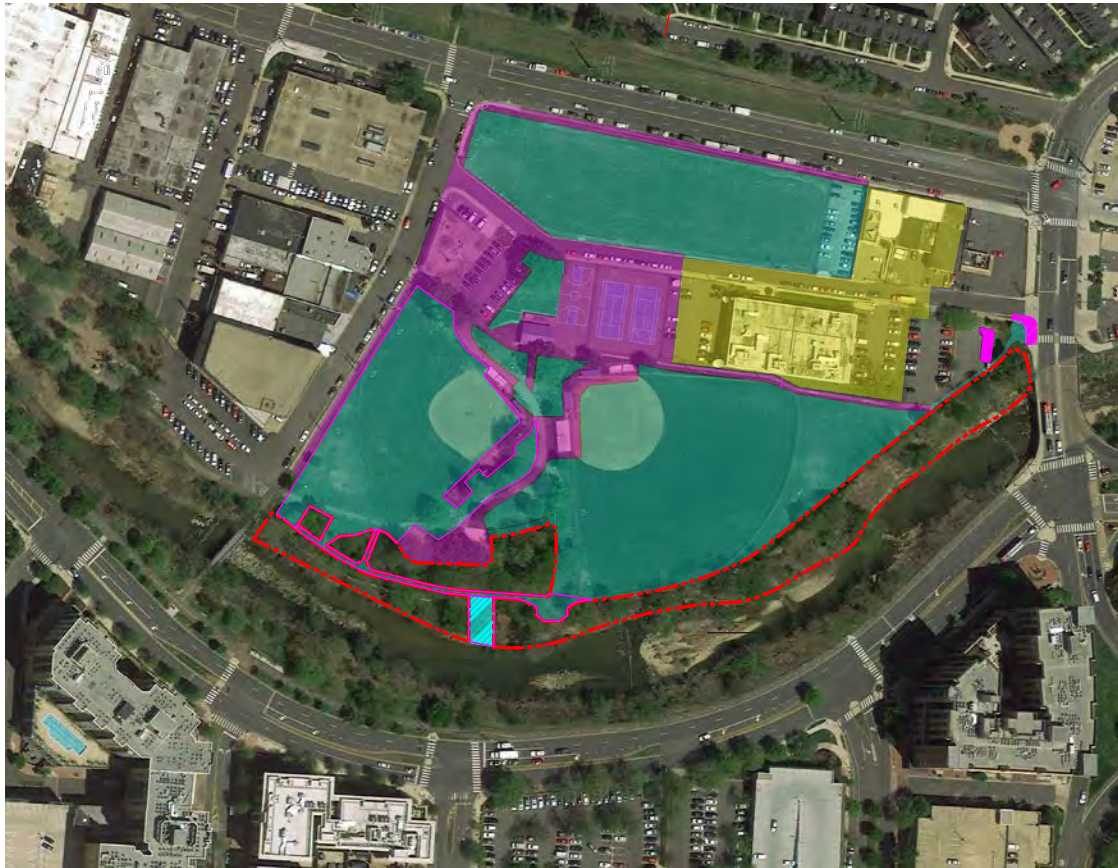
- Topographic, Property and Subsurface Utility Mapping
 - will be needed to confirm boundaries of the WETA parcel and adjoining private lands, and to provide more detailed topographic and planimetric information (including the location of trees and tree preservation areas) to complete the final design
- Floodplain study - a more detailed floodplain study will need to be developed to determine both the extent of the floodway and 100-year floodplain, and the potential affect that the grading, retaining walls and structures will have on the floodplain and floodway elevations
- Subsurface investigations - fill construction was utilized for the existing park facilities. Balanced cut and fill (or primarily cut with retaining walls) will be required to create playable fields with positive drainage. Infiltration is under consideration for stormwater



management. Prior to developing final design drawings, subsurface investigations will be needed to determine the extent of the fill, its suitability for supporting foundations (retaining wall, small structures), and the potential for using infiltration for stormwater management.

- Wetland delineation - will be required along FMR
- Lighting Study - will be needed to determine the appropriate design for field and court lighting with minimal light spillage and acceptable playability
- Stormwater Management Concept - an overall concept plan is needed for the management of stormwater throughout the park areas

Figure 92 Final Illustrative Concept Plan with Phase 1 improvements for Jennie Dean Park



HARDSCAPE DEMO (BUILDINGS, PAVEMENT)

PHASE 1- 167,174 SQ. FT. (3.84 AC)

PHASE 2- 67,496 SQ. FT. (1.55 AC)

SOFTSCAPE DEMO (BALLFIELDS, GRASS)

SOFTSCAPE DEMO - 270,976 SF (6.22 AC)

TREE PRESERVATION AREA = 80,920 SQ.FT. (1.86 AC)

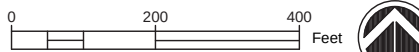


Figure 93 Demolition areas and phasing

Demolition

Figure 93 identifies the areas for demolition and tree preservation needed to construct Phase I.

- SEEC building and restroom/pavilion building
- Roadway pavement, parking lots, curbs, sidewalks, and asphalt paths
- Selective demolition of the day labor pavilion, basketball and tennis equipment, playground equipment, diamond field structures (dugouts and shelter), chain link fences, stone-faced wall along South Nelson Street
- Minor site demolition of tennis and basketball court surfaces, diamond field surface
- Minor grading and excavation required near FMR for grading and drainage work

Underground Utilities

Given the past history and use, extensive relocation of subsurface utilities is likely to be required along 27th Street South. Water, sewer, gas, and stormwater management utilities will need to be relocated, capped, or adjusted to accommodate the construction of the diamond fields. Service to WETA will also need to be maintained during Phase I, further complicating the needed utility work.

Underground Placement of Overhead Utilities

Figure 94 on page 63 illustrates the location of existing overhead electric utility lines:

- 27th Street South— lines are intricately tied to WETA building and would involve significant costs that would be borne by WETA to reconnect to the distribution line when placed underground
- South Nelson Street - line only feeds these businesses, and possibly the lights in Jennie Dean Park – placing underground requires each business (and Jennie Dean

Park) to reconnect to the distribution line once placed underground

- South Four Mile Run Drive – the line on the park side is a distribution line – similarly all businesses would have to reconnect to the distribution line once placed underground

Given the presence of WETA and the other industrial users nearby, these lines are likely to be distribution lines carrying power between a substation and neighborhoods or high consumption users. The power poles are also likely to include other overhead lines like cable or telephone as well as the street lighting system.

Two options require further study to determine cost and implementation feasibility.

- Option 1 - Assume underground of the whole system
- Option 2 - Assume the minimum adjustment needed to locate the utilities between the two fields underground between the WETA parcel and South Nelson Street, leaving the poles on South Nelson Street in place. In phase two, adjustment along the remainder of 27th Street South.

Stormwater Management

In general, there is likely to be a net reduction in impermeable surfaces associated with the conversion of former buildings, parking lots and streets to casual use (converted to tree canopy and grass). The outfield areas of the former diamond fields located within the RPA will be converted to qualified buffer and filter strips which have been approved for use by the Commonwealth of Virginia to treat stormwater (quantity and quality) with new fencing and pathway railings utilized to protect qualified buffer and filter-areas from compaction.

Stormwater management will need to address grading/drainage work for built park features, including paths, fields, structures, as well as any required swales around



Figure 94 Overhead electric utilities (yellow pins with red lines) within Jennie Dean Park

ballfields draining towards the buffer areas and filter strips parallel to FMR.

Public Art

Phase I construction budget assumes an allocation for public art that is equivalent to up to \$150,000 of the capital improvement program, budget. This allocation assures that public art will continue to play an important role in the establishment of place and identity associated with the design of the park features, interpretative elements, and site furnishings. Additional sources of funding for public art should be pursued from private sources as well as public/private partnerships as negotiated through site plans.

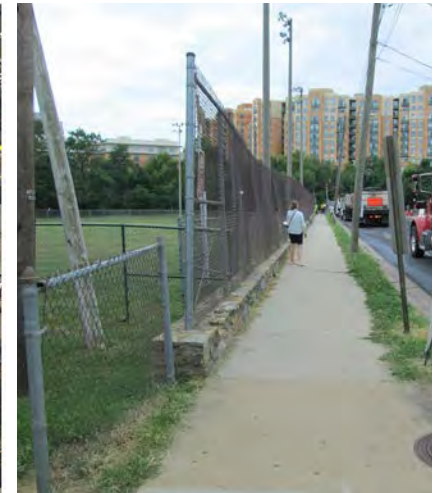


Figure 95 South Nelson Street (top) South Four Mile Run Drive (middle) and 27th Street South (bottom)

Playground

The Phase I construction budget for the playground assumes that the play features will accommodate a large range of age groups. Play components would include:

- Imaginative play features/materials, such as ropes, boulders, Robinia (or other appropriate materials)
- Use CPSI age ranges of toddlers (6-23 mos.) preschool age (2-5 years) and school age (5-12 years). This playground would be separated into preschool-age and school-age.
- Should include shade elements- trees or shade structure(s)
- Low decorative fencing around perimeter
- Seat walls along the perimeter with shade trees and shrub border
- Shade structure

The playground will require grading and excavation as needed for a suitable safety surface.

Shelters

The Phase I construction budget for the shelters assumes:

- Construction to be out of simple and authentic materials (steel, wood and concrete)
- Concrete floor, metal roof, timber or steel structural system and a major highlight color throughout all structural elements to establish a distinct identity and character visible throughout the park
- The large picnic shelter should be designed to be a flexible space with a capacity of approximately 150 people
- The small shelter should be provided with one to two tables and accommodate approximately 35 people
- Site amenities nearby such as grills, drinking fountains, picnic tables, trash/recycling receptacles
- Electric utilities should be included for the large picnic

shelter allowing for hookup of catering facilities

- The small shelter would not have any utilities

Restrooms

Similar to the shelters in construction, restrooms, in addition to the use of simple and authentic materials (steel, wood and concrete), should be designed to incorporate natural ventilation and natural daylighting from above.

- Restroom - four stalls each for men and women (+/- 475 sq. ft.) requiring utility adjustments and connections from existing service along South Nelson Street or as adjusted along 27th Street South

Athletic Courts

During Phase I, one basketball court and one tennis court will be constructed. During Phase II, the basketball court will be relocated to the western side of the WETA parcel and a second tennis court to replace the basketball court.

- Safety fencing would be installed around perimeter of courts - chain link fencing and gates per Arlington County standard specifications
- Incorporate a windscreen into the design of the fencing to increase privacy, reduce the effects of wind, and increase the visibility of balls
- Courts to be lighted
- Provide some seating within the fenced area of the athletic courts for player use
- Provide a drinking fountain and waste receptacle within 10 feet of the athletic courts facility

Diamond Fields

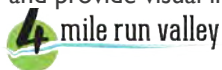
Diamond fields are assumed to be irrigated turf with under drainage with LED lighting (or other updated lighting technology) designed for minimal light trespass and high level of control over timing, and light levels

- The large diamonds will accommodate adult softball
- The outfield fences will be designed with gaps for multi-purpose uses during off season and constructed per Arlington County standard specifications
- Protective netting will be required along the first and third baselines of both fields
- Accessory structures will be replaced in kind to include dugouts, backstop, field fencing, and bleacher seating
- Low retaining walls are needed to accommodate grade changes between South Four Mile Run Drive and the field level and between the two fields (retaining walls to be designed at seat wall height were feasible)
- Plaza between the two fields will include seating, shade, a stable walking surface that visually ties the two fields together as a single complex and could include interpretive media, telling the story of Jennie Dean Park and its relationship to Nauck and Peyton Field (the ball fields at Green Valley)

Streetscape

Streetscape elements are required to serve as buffer between park high-intensity uses (ballfields, courts) and the Nauck neighborhoods across South Four Mile Run Drive and include the following elements:

- Twelve-foot-wide pedestrian promenade with optional colonnade structure overhead. The final design phase for Jennie Dean Park will provide opportunities to further assess the design of the optional colonnade, which may include keeping this feature or removing it from the final park build out.
- Walking surface to be constructed out of scored concrete with stone/cobble edging
- Streetscape elements will require a reconstructed curb and gutter (may be incorporated as part of transportation related improvements rather than park related improvements)
- An allee of trees on both sides of path combined with hedges and groundcover to control circulation and provide visual interest



- It could include public art incorporated into the optional colonnade structure, seating, interpretation, lighting or other design element

Pedestrian Circulation

Three types of pathways are included in Phase I construction:

- Primary circulation (eight to ten feet) - constructed with scored and lightly tinted concrete, with paving stone edging, and includes pedestrian lighting, shade trees (and supported with seating and trash receptacles at the pathway intersections)
- Secondary circulation (five to six feet) - constructed with scored and lightly tinted concrete (no lighting)
- Riparian pathway - a soft surface pathway constructed out of stone dust with steel edging
- All pathways could include public art as appropriate

Overlook

Overlooks would be constructed out of black locust decking or other sustainably sourced material and incorporate interpretive components celebrating the FMR or other natural features (educational component).

- Continuous footing along high side
- Timber piles and timber beam on low side with 3x12 stringers connecting
- Tension cable railing with stainless steel posts and black locust railing

Casual Use Spaces

Casual use spaces are a mix of open grassy areas or meadows enclosed by tree groupings or woodland patches.

- Assume the replacement of existing picnic and grilling areas are included
- Landscaped areas would include tree/shrub groupings with planting beds

Great Urban Parks Campaign Grant Opportunity

The National Recreation and Park Association (NRPA) is supporting the implementation of green stormwater infrastructure projects in parks to positively affect environmental and social change in underserved communities, and to empower residents to be actively engaged in projects that address community needs and meet local stormwater management goals. This grant opportunity will fund innovative strategies that improve environmental quality, increase access to high quality park and recreation spaces, and meaningfully engage community members. The last application deadline was August 2018. NRPA offers grants on a regular basis, but they are funder dependent. Some funding opportunities happen quickly so they recommend signing up for their newsletter at <<https://www.nrpa.org/our-work/Three-Pillars/conservation/>>. In addition, NRPA lists funding opportunities (both internal and external) at <<https://www.nrpa.org/our-work/Grant-Fundraising-Resources/>>.

- Open mowed grass areas are non-irrigated but maintained as usable turf surface for informal activities (including aeration and other regular turf maintenance activities)
- Open mowed grass areas are defined along the edges by pedestrian pathways with landscape planting beds on the outside and some shade trees planted within the grassed areas as shown on the concept plan

Gateways

Gateways into the park are the primary park entries and include wayfinding/placemaking signs or markers, decorative paving, landscape design, seating, public art and interpretive components.

- Minor gateways include a standard County park sign with base and associated planting beds

Vehicular Parking and Access

The easternmost lot along 27th Street South will be resurfaced and reconfigured during Phase I to accommodate between 20 and 30 parking spaces (depending upon status of SEEC day labor site).

- Preserve existing trees
- Integrate stormwater management into the parking lot design
- Provide a turnaround at the 27th Street South lot for emergency access vehicles (permeable pavers)
- During Phase I, a turnaround is included at the closed end of 27th Street South to serve WETA and the ballfield/restroom areas
- 27th Street South would be converted to a promenade designed to accommodate service vehicles to provide future access

The proposed concept for the PMP study area plans to remove 43 parking spaces from the current supply of 136 spaces and add 10 additional spaces within Jennie Dean Park. In addition, the realignment of parking from parallel to back-in angle parking along South Four Mile Run Drive would net an additional 10 parking spaces for use by Jennie Dean Park (see table 4).

Table 4 Existing and Proposed Parking Supply Within the 4MRV Park Master Plan Study Area

Location	Current Number of Spaces	Proposed Number of Spaces Removed	Proposed Number of Spaces Added	Proposed Number of Spaces
Location 1 – Public Parking near Dog Park	38	0	0	38
Location 2 – On-Street Parking on Oakland Street	5	0	0	5
Location 3 – On-Street Parking on Nelson Street	30	0	0	30
Location 4 – Public Parking in Jennie Dean Park (west)	23	23	0	0
Location 5 – On-Street Parking on 27 th Street	20	20	0	0
Location 6 – Public Parking in Jennie Dean Park (east)	20	0	10	30
Current Study Area Total	136	43	10	103
South side of Four Mile Run Drive between Shirlington Road and Nelson Street	0*	0	10	10
Total	136	43	20	113

*Existing parking along S. Four Mile Run Drive was not included as part of the existing parking supply for Jennie Dean Park

Phase II

Program elements for Jennie Dean Park that are dependent upon acquisition of additional parcels are included within Phase II.

Demolition

Purchase of the WETA property as well as the parcels between Weenie Beanie and the former LaPorte tract will acquire additional demolition and site preparation to ready the site for park development.

Utilities

Removal and or relocation of water, sanitary, gas, and electric utilities will be required. Actual design and engineering required for this effort is an unknown cost until more detailed subsurface and utility investigations can be undertaken.

Site Preparation

Removal of construction debris and replacement with embankment fill and topsoil will be required to make the site usable. Additional soil preparation work will also be needed for planting areas.

27th Street South Restoration

After WETA has relocated, 27th Street South will need to be repurposed into a landscaped promenade with related tree plantings. The surface of the promenade should be designed for accommodating service vehicles to the restrooms.

Athletic Courts Expansion

Construction of the third court with fencing and lighting is needed (basketball) along with resurfacing the Phase I basketball court for tennis.

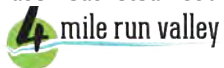


Figure 96 Final Illustrative Concept Plan with phase 2 improvements for Jennie Dean Park

South Four Mile Run Drive Pedestrian Gateway

The gateway connecting the Nauck Neighborhood to the playground will need to be relocated after acquisition of the South Four Mile Run parcels. A new minor gateway should be included in Phase II.

Riparian Plant Community Restoration

Ongoing work restoring the riparian plant community along FMR can take place on an annual basis through

maintenance and stewardship activities already initiated. Some of this work could be coordinated with the riparian trail project in Phase I as well as stormwater management and/or mitigation in relation to Phase I projects.

Five Star and Urban Waters Restoration Grant Program

Seeks to develop nation-wide-community stewardship of local natural resources, preserving these resources for future generations and enhancing habitat for local wildlife. Projects seek to address water quality issues in priority watersheds, such as erosion due to unstable streambanks, pollution from stormwater runoff, and degraded shorelines caused by development.

Funding priorities for this program include:

- On-the-ground wetland, riparian, in-stream and/or coastal habitat restoration;
- Meaningful education and training activities, either through community outreach, participation and/or integration with K-12 environmental curriculum
- Measurable ecological, educational and community benefits;
- Partnerships: Five Star projects should engage a diverse group of community partners to achieve ecological and educational outcomes.

The most recent funding period closed in April of 2018 with awards announced in August 2018. More information about the program can be found at <http://www.nfwf.org/fivestar/Pages/home.aspx>.

Shirlington Park Implementation

Shirlington Park improvements can be implemented over time utilizing:

- Ongoing maintenance and an invasive species management program
- Through public art programming
- Bicycle and pedestrian trail programs
- Stormwater management and flood reduction measures associated with the FMR corridor

Maintenance and Invasive Species Management

Regular maintenance activities can be utilized to gradually modify lawn and planting beds over time. Focusing general maintenance and management efforts on focal points, coupled with new planting within the managed areas could provide the desired results if landscape design plans can be created for each focal point with that in mind.

Ongoing aeration of lawn areas is also a wise investment to encourage more water to infiltrate and rooting zones to expand in highly trafficked areas.

The Arlington County Invasive Plant Program is responsible for programs and policies to manage and remove invasive species, including active projects along FMR within the study area.

Arlington County has had success with outside funding in support of invasive species management. The County has received such funding through the US Fish and Wildlife Service for the Magnolia Bog Restoration Project and for its involvement in a partnership that secured a \$140,000 grant through the National Fish and Wildlife Foundation's "Pulling Together Initiative" to

identify and remove invasive plants along the 45-mile W&OD Trail.

Much of this work can be implemented by coordinating the active management of invasive species with the desire to establish distinct focal points through planting design (see "Using Planting Design to Reinforce Visual Gateways and Define Casual Use Spaces" on page 57) and incorporating educational and interpretive materials at overlooks focused on riparian habitat restoration along FMR. A similar partnership effort will be needed to advance the current work along FMR by creating (or updating an existing) five year management plan for the riparian areas associated with Shirlington Park, Jennie Dean Park and Shirlington Dog Park (and upstream in later phases).

Using the Magnolia Bog Restoration effort as a model, the riparian areas along FMR can be restored over time by continuing the partnership efforts with volunteer groups such as Arlington Regional Master Naturalists, Earth Sangha, Virginia Native Plant Society and others along with continued support from DPR's Invasive Plant Management Program. This would establish a high quality riparian environment with trails and overlooks to increase access for interpretation and education along FMR for the Shirlington and Nauck communities.

Public Art

The Public Art Master Plan specifically called for Public Art's involvement in projects and activities along FMR. This priority was successfully implemented in the tidal sections of FMR in partnership with the City of Alexandria. These initial efforts can serve as the model for future upstream efforts

Bicycle and Pedestrian Trail Programs

Safety measures needed for the FMRT (signing, traffic calming for bicycles, construction of pedestrian sidepath loops and social spaces away from the trail) can be funded with small grants such as VDOT's Bicycle and Pedestrian Safety Program (BPSP) with the goal of reducing the risk of and exposure to crashes. The users of FMRT and Shirlington Park have an accommodation issue that can be solved with small scale improvements along the trail without involving utility relocations, right-of-way or extensive environmental mitigation.

Four Mile Run Corridor

Extending the ongoing downstream implementation efforts for transforming FMR into a model for urban ecological restoration to its upstream sections would be the most effective way to implement riparian restoration efforts for Shirlington Park (along with Shirlington Dog Park and Jennie Dean Park).

Stormwater Management in Shirlington Park

Stormwater management requirements for the soft trails and overlooks may require waivers from County requirements if the disturbance is greater than 2,500 square feet.

Overlooks, interpretation (possibly through graphic interpretive media) and areas for seating provide for reasonable, controlled and safe access to riparian natural areas with minimal impact to the environment. The trail should help teach park users about the nature and culture of the 4MRV. The pathway in the riparian area should be a soft path maintained through the wooded areas and not paved. Adjacent wooded buffers through which the trail will pass can almost always handle stormwater management requirements for these types of facilities. Boardwalks and overlooks can be constructed to lay lightly in the landscape and designed in such a way that water infiltrates through the decking to the ground below. These types of facilities are expressly identified as allowable development within an RPA, both by the Commonwealth of Virginia and by Arlington County.



Figure 97 Active invasive species management project in Shirlington Park (2017)

Community Foundation of Northern Virginia Environment Fund

The mission of the Environment Fund is to protect, restore and improve the natural environment of Northern Virginia, thereby enhancing the health and quality of life of its citizens and the economy of the region. Fund Goals:

- Support and encourage collaboration among nonprofits, businesses, governments, educational institutions and private philanthropic donors to promote actions that will have a beneficial effect on the health of the natural environment and local economy.
- Support public awareness and public education about protecting the natural environment and the impact of public and private actions on the natural environment.
- Support the efforts of citizen engagement that helps improve and protect the natural environment.

Although the first round of grants from this fund (established in 2018) were by invitation only, future opportunities should be monitored at <<https://www.cfnova.org/for-grant-seekers/environment-fund>> (send an email to be added to the mailing list).

The Baseball Tomorrow Fund

The Baseball Tomorrow Fund (BTF) is a joint initiative between Major League Baseball (MLB) and the Major League Baseball Players Association (MLBPA). The fund awards grants to non-profit and tax-exempt organizations involved in the operation of youth baseball and/or softball programs and facilities.

- Grants are intended to provide funding for incremental programming and facilities for youth baseball and softball programs, not for normal operating expenses or as a substitute for existing funding or fundraising activities.
- The funds may be used to finance a new program, expand or improve an existing program, undertake a new collaborative effort, or obtain facilities or equipment necessary for youth baseball or softball programs.
- Grants are designed to be flexible to enable applicants to address needs unique to their communities.

For more information and funding schedule see <<https://www.mlb.com/baseball-tomorrow-fund/how-to-apply>>.

The Dominion Energy Charitable Foundation

Annually awards up to \$1 million through a competitive environmental education and stewardship grants program. The Dominion Energy Charitable Foundation considers grant requests up to \$25,000 that focus on specific, short-term projects that promise measurable results to improve the environment, and K-12 requests up to \$5,000. The projects should support one or more of the following priorities:

- Educating K-12 students and the public about environmental stewardship.
- Protecting and preserving natural habitats.
- Improving open spaces and making nature accessible.

The January 2019 grant cycle announcement is anticipated with due dates in late February. For more information see <<https://www.dominionenergy.com/community/dominion-energy-charitable-foundation/environmental-stewardship-grants>>.

IMAGE CREDITS

Figure 56

Concrete and steel bench – Industrial bench by Urbia. Digital image. Lumens Light and Living, n.d. Web. 7 Sept. 2018. <https://www.lumens.com/industrial-bench-by-urbia-URAY1454125622.html?utm_term=>>.

Rusted metal guardrail – Guardrail. Digital image. Quirijn Park. Landezine, n.d. Web. 2 Feb. 2018. <<http://www.landezine.com/index.php/2012/07/quirijn-park-by-karres-en-brands-landscape-architecture/>>>.

Wood path – Nature Path. Digital image. Landworks Studio, Inc. N.p., n.d. Web. 2 Feb. 2018. <<http://www.landworks-studio.com/theater-group-retreat>>>.

Wooded View – Lawson, Elizabeth Winpenny. *Black Locust Grove on a Bright Morning*. Digital image. *The “Locust-Tree of Virginia”: May- June, Ithaca, New York*. Wordpress.com, 4 June 2013. Web. 8 Feb. 2018. <https://elizabethwinpennylawson.files.wordpress.com/2013/06/img_3522.jpg>>.

Custom Bike Racks – Custom Bike Racks. Digital image. The G Brand: Genuine Branded Environments. G Brand, n.d. Web. 2 Feb. 2018.

Figure 57 a

Universal Design – <http://www.fujixerox.com/eng/company/technology/design/universal.html> (web.archive.org)

Figure 57 b

Two Person Lat-pull – Greenfield Outdoor Fitness. <http://gfoutdoorfitness.com/accessible-lat-pull/> accessed 26 June 2018

Figure 59 b

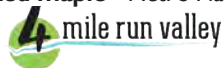
Arborflow diagram. Digital image. GreenBlue Urban. N.p., n.d. Web. 02 Feb. 2018.

Figure 60

Historic Aerials. Digital image. GIS Photo and Map Viewer. Arlington County, n.d. Web. 2 Feb. 2018. <<http://gis.arlingtonva.us/gallery/map.html?webmap=28ea281c8a6a4a5a8050df04c7fbb478>>>.

Figure 61

Red maple – NetPS Plantfinder. Red Maple. Digital image.



Hicks Nurseries. N.p., n.d. Web. 2 Feb. 2018. <http://plants.hicksnurseries.com/12170001/Plant/20/Red_Maple>>.

Black gum – Grandmont, Jean Paul. *Nyssa Sylvatica*. Digital image. Wikimedia Commons, 2007. Web. 2 Feb. 2018.

Swamp white oak – Marlin, Bruce. *Quercus Bicolor*. Digital image. Wikimedia Commons. N.p., n.d. Web. 2 Feb. 2018.

River birch – River Birch. Digital image. Fast Growing Trees, n.d. Web. 8 Feb. 2018. <<https://www.fast-growing-trees.com/Heritage-River-Birch.htm>>>.

Cinnamon Fern – *Osmunda Cinnamomea*. Digital image. *Chesapeake Bay Native Plant Center*. N.p., n.d. Web. 8 Feb. 2018. <<http://www.nativeplantcenter.net/plants/osmunda-cinnamomea/>>>.

Paw-Paw – Mohlenbrock, Robert H. Paw-paw. Digital image. *The PLANTS Database*. USDA NRCS, n.d. Web. 8 Feb. 2018. <<https://www.plants.usda.gov/core/profile?symbol=ASTR>>>.

Figure 62

Swamp Milkweed – Teune. Swamp Milkweed Monarch. Digital image. Wikimedia Commons. N.p., n.d. Web. 5 Feb. 2018.

Black Haw – Zavadil, Vojtěch. 1552-Viburnum Prunifolium-DZ-8. Digital image. Wikimedia Commons. N.p., n.d. Web. 5 Feb. 2018.

Winterberry – SB_Johnny. *Ilex Verticillata* Fruits and Foliage. Digital image. Wikimedia Commons. N.p., n.d. Web. 5 Feb. 2018.

Soft Rush – Fischer, Christian. *Juncus Effusus*. Digital image. Wikimedia Commons. N.p., n.d. Web. 5 Feb. 2018.

Cutleaf Coneflower – Fritzflohrreynolds. *Rudbeckia Laciniata* - Cutleaf Coneflower. Digital image. Wikimedia Commons. N.p., n.d. Web. 5 Feb. 2018.

Figure 68

Seating, Custom metal -Arlington County Public Art. Corten benches, North Dakota Museum of Art. Digital image. N.p., n.d. Web.

Seating, standard bench – Bench. Digital image. Pollera. org, n.d. Web. 7 Feb. 2018.

Interpretive or Wayfinding Signage, Custom metal - Lump Sculpture Studio. Samford Village Heritage Trail Sign. Digital image. Urban Art. Pinterest, n.d. Web. 5 Feb. 2018. <<https://www.pinterest.com/pin/234327986840721438/>>>.

Custom Bike racks – Custom Bike Racks. Digital image. The G Brand: Genuine Branded Environments. G Brand, n.d. Web. 2 Feb. 2018.

Tall Pedestrian Lighting – PMF Stalen Masten. Corten Light. Digital image. PMF Stalen Masten. N.p., n.d. Web. 5 Feb. 2018. <<http://www.stalenmasten.nl/straatverlichting/a017/>>>.

Metal Pedestrian Lighting –

Safety bollards – McKay, Stephen. City Road Bollards - Geograph.org.uk - 1758261. Digital image. Wikimedia Commons. N.p., n.d. Web. 5 Feb. 2018.

Custom chain link fencing – Demakersvan. Custom chainlink fencing. Digital image. If It's Hip It's Here. Blogspot, n.d. Web. 5 Feb. 2018. <<https://ifitshipitshere.blogspot.com/2012/06/turning-chain-link-fencing-into-art.html>>>.

Rusted metal guardrail – Demakersvan. Custom chainlink fencing. Digital image. If It's Hip It's Here. Blogspot, n.d. Web. 5 Feb. 2018. <<https://ifitshipitshere.blogspot.com/2012/06/turning-chain-link-fencing-into-art.html>>>.

Chain link fence – Kirissatull. Chainlink fencing at baseball field. Digital image. Kirissatull. Wordpress.com, n.d. Web. 5 Feb. 2018. <<https://kirissatull.wordpress.com/projects/depth-of-fieldshutter-speed/>>>.

Drinking fountain – Kirissatull. Chainlink fencing at baseball field. Digital image. Kirissatull. Wordpress.com, n.d. Web. 5 Feb. 2018. <<https://kirissatull.wordpress.com/projects/depth-of-fieldshutter-speed/>>>.

Waste receptacle – La Citta Vita. Trash receptacle. Digital image. Flickr. N.p., n.d. Web. 5 Feb. 2018.

Figure 69

Remy, Tejo and Rene Veenhuizen. Ripple. Digital image by Yassine El Mansouri (Arlington, VA)

Figure 70

O'Connell, Joe and Blessing Hancock. Cyclorama. Digital image. CODAworx. N.p., n.d.Web. 5 Feb. 2018.

Figure 71

BREAKFAST, Points Smart Sign. Digital image. CODAworx. N.p., n.d.Web. 5 Feb. 2018.

Figure 72

Mid-Ocean Studio, Gateway of the Open Book. Digital image. CODAworx. N.p., n.d.Web. 5 Feb. 2018.

Figure 73

Noble, Alastair, alphabet. Digital image. CODAworx. N.p., n.d. Web. 5 Feb. 2018.

Figure 74

Wiener, Joshua, The Path Untraveled. Digital image. CODAworx. N.p., n.d.Web. 5 Feb. 2018.

Figure 75

Custom iron railing - Kouprianov, Alexei. Demidov Bridge St Petersburg Fence. Digital image. Wikimedia Commons. N.p., n.d. Web. 5 Feb. 2018.

Prefabricated steel railing – Weathering steel bridge. Digital image. *Cameron Bridge Works*. N.p., n.d.Web. 8 Feb. 2018. <<http://www.cameronbridgeworks.com/gallery/weathering-steel/>>.

Figure 76

Narrow metal wayfinding sign - Pfp, Disseny. Wayfinding sign. Digital image. Pfp, Disseny. N.p., n.d.Web. 5 Feb. 2018. <<http://www.pfpdisseny.com/portfolio/punts-dinteres-historic/>>.

Wayfinding sign/birdfeeder - Fwdesign. Frank city bird feeder. Digital image. Pinterest. N.p., n.d.Web. 5 Feb. 2018. <<https://www.pinterest.com/pin/174866398010161255/>>.

Large metal wayfinding sign – Central Signs. Munmorah State Conservation Area - Totem Signs. Digital image. Central Signs. N.p., n.d. Web. 5 Feb. 2018. <<http://centralsigns.com.au/my-product/munmorah-state-conservation-area/>>.

Figure 77 c

Park entry sign - Catapult Strategic Design. Park entry sign.

Digital image. Catapult Strategic Design. N.p., n.d.Web. 5 Feb. 2018. <<http://catapultu.com/portfolio/city-of-scottsdale/>>.

Figure 77 d

Gateway sculpture - RDG Dahlquist Art Studio. High Trestle Trail Bridge. Digital image. Iowaarchitecture.org. N.p., n.d. Web. 5 Feb. 2018. <<http://www.iowaarchitecture.org/ci/tour/view?id=970b8ea4a829264>>.

Figure 79 b

Casual use space with path - Path in park. Digital image. Goodfon.com. N.p., n.d.Web. 5 Feb. 2018. <<https://www.goodfon.com/wallpaper/nature-spring-forest-park-6452.html>>.

Figure 80 b

Green pavilion – GFF Architects. Pecan Grove Park Pavilion, Dallas, TX. Digital image. *Gff Architects*. N.p., n.d.Web. 8 Feb. 2018.

Figure 80 c

Flexible use pavilion – Godsall, Sean. Park Pavilion, Melbourne, Australia. Digital image. *Coote & Company*. N.p., n.d. Web. 8 Feb. 2018. <http://cooteandco.com.au/wp-content/uploads/2015/05/24bfce009c8911e4ad9cdb62f8a2c608_content_medium.jpg>.

Figure 81 b

Field lighting - MUSCO Lighting. Light-Structure System. Digital image. MUSCO Lighting. N.p., n.d.Web. 5 Feb. 2018. <<http://www.musco.com/au/outdoor/lightstructuregreen.html>>.

Figure 81 c

Low scale fencing - Teale, Chris, Arlington Now, “Bluemont Park Baseball Field Reopens After Renovation.” Accessed 26 June 2018.

Figure 81 d

Netting System - <https://beaconathletics.com/store/facilities/beacon-engineered-net-backstop-systems/> accessed 26 June 2018.

Figure 82 b

Shade structure - ARLnow.com; Virginia Highlands Park Ribbon Cutting Scheduled for Sunday, 10 March, 2016 accessed 26 June 2018.

Figure 82 c

Tennis court - Georgia, Tennis Court. Digital image. Pixabay. N.p., n.d.Web. 5 Feb. 2018. <<https://pixabay.com/en/georgia-tennis-court-court-racket-68640/>>.

Figure 86 b

Vertical gateways - Angel-Chumbley, Joell. Camp Washington Gateway. Digital image. Environmental Graphic Design. COROFLOT, n.d.Web. 5 Feb. 2018. <<http://www.coroflot.com/joellangel-chumbley/environmental-graphic-design>>.

Flower sculpture - Genzken, Isa. Two Orchids. Digital image. Public Art Fund. N.p., n.d.Web. 5 Feb. 2018.

Figure 86 c

Illuminated bridge – *Connections Pioneer Pedestrian Bridge*. Digital image. *Eos Lightmedia*. N.p., n.d.Web. 8 Feb. 2018.

Figure 86 d

Cloud sculpture - Bruening, Olaf. Clouds. Digital image. Public Art Fund. N.p., n.d.Web. 5 Feb. 2018.

Figure 89

Azalea – Smith, W. Gary. Winterthur Garden Restoration. Digital image. W. Gary Smith Design. N.p., n.d.Web. 5 Feb. 2018.

Ferns - Native Maidenhair Fern, Adiantum Pedatum. Digital image. Carolyn's Shade Gardens. Wordpress.com, n.d.Web. 5 Feb. 2018.

Figure 90 b

Cyprus Wetlands Overlook - Richmond Ave. Digital image. Historic Port Royal Foundation. N.p., n.d.Web. 5 Feb. 2018. <<http://portroyalhistory.org/historic-walking-tour/>>.

All other images: Lardner/Klein Landscape Architects, PC
NOTE: Images are for illustrative and explanatory purposes only and are not intended to be an endorsement of a product or vendor.

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4 mile run valley



Shirlington Dog Park Committee

Final Report to the Four Mile Run Valley Working Group

15 September 2017



Shirlington Dog Park Committee Final Report to the Four Mile Run Valley Working Group

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Overview

The 4MRV Working Group's Shirlington Dog Park Committee held five meetings and three field trips to the Shirlington Dog Park from July 11 through September 14, 2017.

The committee reviewed prior Working Group presentations as well as the County Board's guidance on this issue from the May 30, 2017 Work Session. Considerable information and other data was gathered and reviewed, beyond that provided to the 4MRVWG (see report and attached appendices). The committee members tried to be imaginative and collaborative and to listen to the range of views.

The committee appreciates the support Arlington County staff provided for its meetings. Staff was especially responsive in providing timely responses to our multiple inquiries. A public comment period was provided at the beginning and end of each meeting and an array of members of the public shared information and opinions. Committee members brought a diverse range of expertise to our deliberations, including in-depth knowledge of the dog park and the work of its volunteers with county staff, parks planning, and environmental and urban forestry issues.

Thank you for the opportunity to do this work and for the consideration of our observations and recommendations.

Caroline Haynes, Chair
Keith Fred
Adam Henderson
Nora Palmatier
Edie Wilson



I. Committee Charge

Explore possible future planning guidelines for the Shirlington Dog Park that retain its functionality and appeal while meeting environmental regulatory requirements.

In its deliberations, the committee may consider:

- Information and data gathered by the 4MRVWG to date
- Relevant regulatory and policy requirements, plans, and guidelines (federal, state, and county)
- Actions in the short-term that may address environmental, operational, and aesthetic conditions in the dog park and its immediate adjacent bank of Four Mile Run. Other issues, as appropriate



[Shirlington Dog Park] is one of the most heavily used parks in the county, and often noted as one of the most popular dog parks in the country.

A final report from the committee is due on September 15, 2017. The findings and recommendations from the committee will be presented to the full 4MRVWG in September 2017 and posted at <http://4mrv.com>.



II. Aerial Overview



III. Executive Summary

Key Issues

Popularity of Dog Park

The committee recognizes the tremendous economic, social, and placemaking value of the Shirlington Dog Park to the community. It is one of the most heavily used parks in the county, and often noted as one of the most popular dog parks in the country.

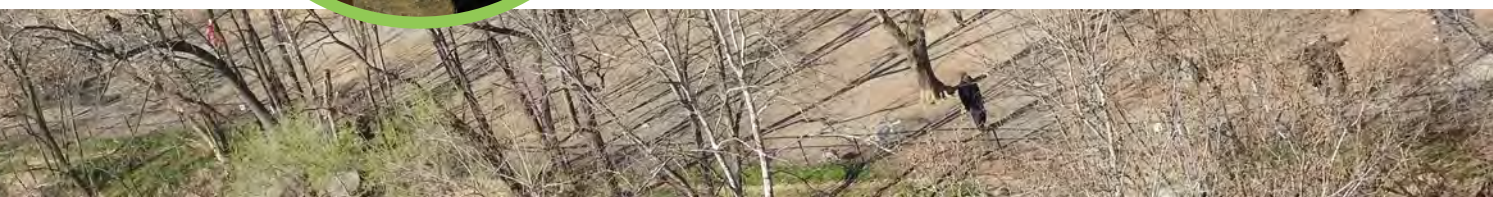
Regulatory Framework, Long-term Sustainability and Environmental Stewardship

Given the array of regulatory and policy issues related to the location of the dog park in a resource protection area [RPA], the committee recognizes that just maintaining or leaving the dog park 'as is' is not a sustainable option over the long term. Many of the issues discussed in the report apply to the area even without the presence of off-leash dogs.

In the view of the committee, the overall, long-term objective for the county's management of this park area over the next thirty-plus years must include being exemplary stewards of the stream corridor and working to establish best practices. This must be the goal even while recognizing the unique constraints of the existing conditions and what can be achieved without triggering the 2,500 square feet of ground disturbance and consequent stormwater requirements.

Volunteer Support

Passionate volunteers working many hours have been key to the success of the Shirlington Dog Park. The committee discussed ways to enhance this work. Such active volunteerism will be critical to the sustainability of these recreational areas. This in turn requires improved two-way communication between county staff and park users. Keeping all our dog parks up to date and functioning well requires healthy, effective partnership between the county and the required volunteer support groups.



III. Executive Summary

Key Issues (cont'd)

Existing conditions

One of the fundamental problems of Shirlington Dog Park has nothing to do with dogs. It is the condition of its 'soil'. The site has previously been used as a railroad line and a trash dump and is covered with a combination of rock dust and other industrial residue. It has very little actual soil to sustain new trees and plantings. Adding new soil and plantings, without first amending the underlying material, is unlikely to be successful and would be a waste of scarce resources.

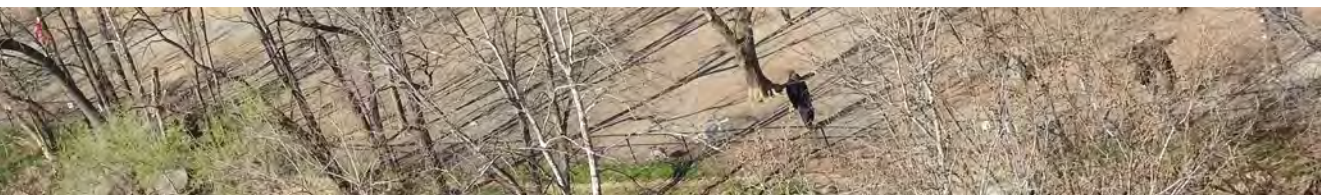
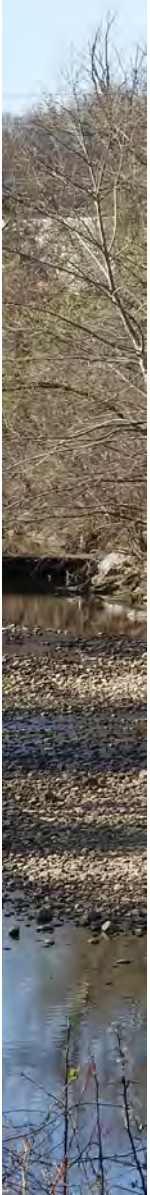
Long-term sustainability of the dog park, both to prevent erosion and to enhance its environmental conditions, is also tied to the current lack of stormwater management for the over 100,000 square feet of rooftops on 1950's-era properties adjacent to it. Even in relatively small storm events, large amounts of stormwater runoff from these buildings sheet across the park, contributing to erosion and adding pollutants to Four Mile Run.

Implications of Retaining Current Zoning

If, as seems likely, the 4MRV Master Plan leaves in place current M-1 light industrial zoning for the buildings along Four Mile Run Drive, there will be no economic incentive for redevelopment. It will be unlikely, then, that existing businesses will of their own initiative seek to mitigate the impact of stormwater coming off their buildings. There is no requirement for them to do so under existing use.

Costs v Benefits

Given that we are in the master planning phase, there are no engineering or design studies and no testing for surface and sub-surface contamination to serve as the basis for estimating costs of compliance with regulatory requirements. Indeed, those regulatory requirements will continue to evolve. Based on recent experience, however, rehabilitating the ¼-mile long, 110,000 sq ft Shirlington Dog Park would likely be extremely costly. Any county investment initiated here must be made with great care given competing demands on county resources.



III. Executive Summary

Key Issues (cont'd)

The Catch-22

The committee explored a wide array of policy and regulatory issues and was left with this conclusion: **leaving the park in its current condition is not a viable long-term solution, but efforts to mitigate the environmental issues would trigger significant, costly and undesirable changes to the park.**

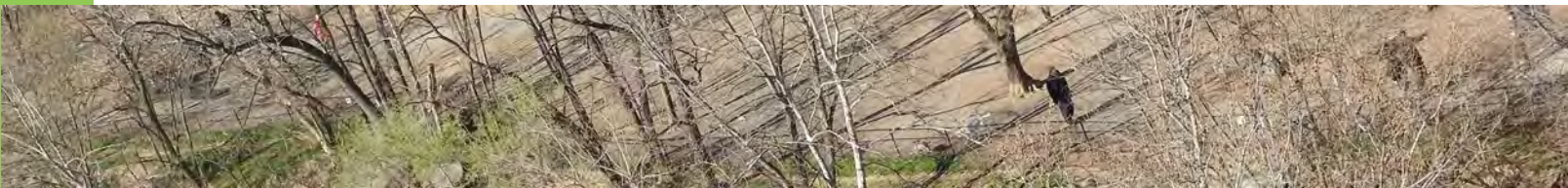
The committee ultimately focused on the following questions:

- How can we improve the environmental sustainability in the short and medium term without triggering regulatory requirements?
- How can we plan for future changes should a triggering event occur?

Timelines

The committee worked under the assumption that any large-scale improvements and stormwater mitigation to the Shirlington Dog Park is unlikely to be initiated for at least ten years, in part for county budgetary reasons. A major storm event could change this timeline, but unless and until that happens, the dog park will remain largely unchanged. The committee recommends a range of affordable short-term and mid-term steps to improve some of the environmental and park conditions, in addition to a key land-use recommendation and better stewardship of county-owned properties. These would begin to address park area needs and mitigate environmental impacts to some degree, but would not satisfy regulatory requirements.

...leaving the park in its current condition is not a viable long-term solution, but efforts to mitigate the environmental issues would trigger significant, costly and undesirable changes...



III. Executive Summary

Recommendations

Better Management of Stormwater on County Properties and Developing Flexible Use Park on County-Owned Parcel

The county should demonstrate leadership by taking steps to minimize storm water runoff from nearby county-owned property. Specifically, the committee recommends taking down the warehouse buildings (2704-2706 South Oakland Street), and removing the asphalt adjacent to the dog park and amending and/or remediating the soil to provide a permeable surface that will absorb stormwater runoff, support new plantings of trees and vegetation and retain this as a green, casual use area. In addition to addressing some adjacent stormwater issues, this would serve an array of complementary objectives such as integrating this new park area and the dog park with the arts district, provide a flexible-use area for festivals and arts events, provide swing space for recreational functions as Jennie Dean Park is developed, and improve connectivity and open up the line of sight from South Four Mile Drive into the park.

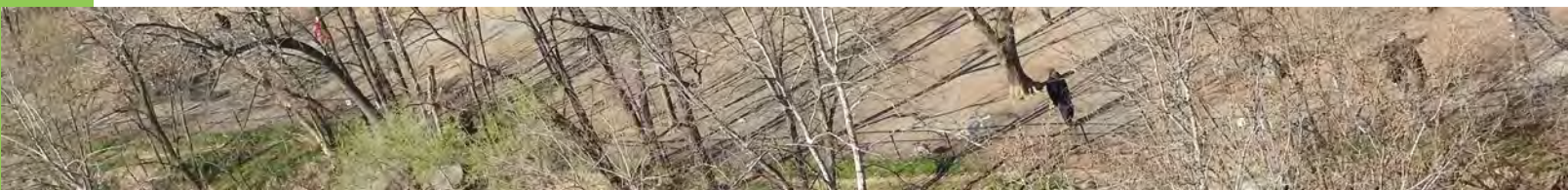
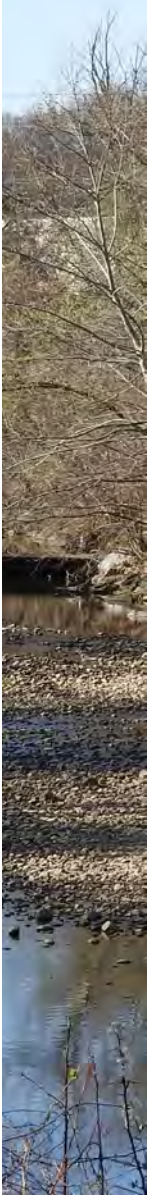


III. Executive Summary

Recommendations (cont'd)

Short-term

- Block access to informal path outside the dog park fence to minimize soil compaction
- Discontinue mowing along fence edge to increase vegetative buffers
- Increase plantings along the stream bank, where soil conditions permit
- Add park 'snags' such as large stumps or rocks at entrances to encourage dogs to pee on them when they enter the park, instead of urinating on trees
- Create barriers to protect existing trees
- Increase availability of trash containers and bags on both sides of the stream (including in Shirlington Park) to more effectively collect dog waste
- Improve signage and public education regarding pollution, stream warnings, environmental issues and dog park rules
- Limit access to the stream to designated entry points to reduce stream bank erosion
- Reclaim county-owned land at Oxford Street and widen the dog park at its narrowest point and reconfigure entrance gates (this choke point is often the site of dog fights due to the lack of space)
- Add parking meters and enforce a maximum two-hour parking limit to better distribute usage of existing parking



III. Executive Summary

Recommendations (cont'd)

Medium-term

- Develop a pilot program using economic incentives similar to facade improvement grants for existing businesses to capture stormwater run off from rooftops for preventing erosion, watering trees and dispersing stormwater more slowly into the ground to improve water quality
- Enhance the existing Shirlington Dog Park sponsoring group by recruiting and training additional volunteers to assist in managing the dog park with specific emphasis on erosion and pollution prevention, tree protection, public education about environmental conditions, invasive species removal, and minimizing use of informal trails
- Explore alternatives for managing expected growth in dog park usage by considering best practices in other jurisdictions



III. Executive Summary

Recommendations (cont'd)

Boundaries and Longer-term Considerations

The committee also recommends that for the purposes of the master plan and any future mitigation, remediation and stormwater regulatory compliance, the 'dog park area' boundaries should be recognized as including both the Nelson/Oakland parking area (required by county ordinance for any park) and the pathway at the eastern main gate to the pedestrian bridge as well as the western path from the dog park gate to Walter Reed Drive. This could provide additional areas for reconfiguration, drainage, filtration, planting and buffering.

Longer term considerations should a triggering event occur:

- Amend and/or remediate existing hard pack ground to provide soil, improve permeability and better support vegetation and trees
- Reconfigure existing walkway from the pedestrian bridge
 - Work with owners of adjacent properties to reconfigure the existing walkway from Walter Reed Drive, much of which is already on county-owned land
 - Reconfigure existing parking (assuming a long-term parking solution has been developed elsewhere in the planning area) and incorporate existing parking area while retaining ADA parking access directly adjacent to the dog park
 - Replace existing asphalt with permeable pavers



IV. Information and Data on Shirlington Dog Park

Attributes

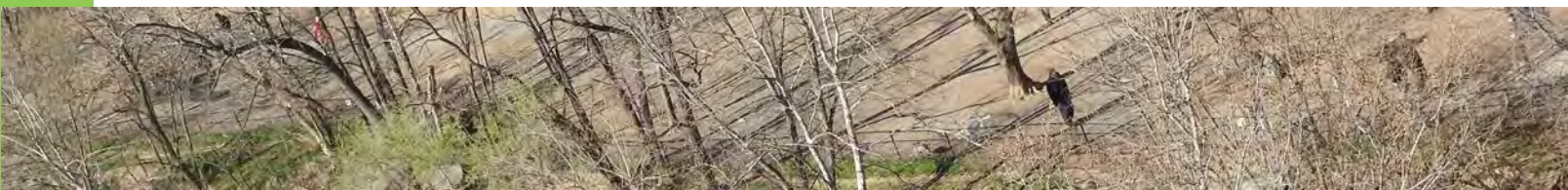
- Well-loved; the most heavily-used dog park, and one of the most used parks overall, in Arlington
- Elongated shape, large size; continuous long stretch for dog running/people strolling
- Trees, shade, naturalized setting
- Acoustic 'shell' shields barking and noise from community
- Divided but adjacent areas for big and small dogs
- Separated from other park users and most small children
- Proximity and access to Four Mile Run
- Only ADA-accessible dog park—easy parking next to entrance and ADA path

Economic Role

- Has helped make Shirlington a brand and destination for the Metro area
- Listed on Yelp and other social media and in Arlington Magazine, as the top dog park in Northern Virginia and featured in New York Times as #1 dog park in country
- Contributes to the real estate and rental market in area
- 200,000 visits per year per Arlington County statistics
- Contributes to formal and informal economy of area; visitors become consumers—coffee, meals, and shop in Village of Shirlington
- Has spawned multiple dog-related businesses (some requiring industrial zoning)

Existing Environmental Conditions

- Minimal riparian buffer
- Lack of 'soil', primarily stone dust and industrial residue
- Exposed 'soil' and extensive compaction
- Upper bank erosion in places
- High pollutant load potential (bacteria and nutrients; sediment, possible industrial pollutants in soil from prior and current adjacent uses of the land)
- Significant stormwater runoff from adjacent impermeable rooftops and paved areas—petroleum, metals, sediment, and other pollutants that sheet across park



IV. Information and Data on Shirlington Dog Park

Existing Trees In and Near Dog Park

- Over 140 trees now inside the dog park, ranging in size from mature trees to recently-planted saplings
- Biggest risk to trees is compacted soil that prevents tree roots from accessing water and oxygen
- Large amounts of canine urine accumulates nutrients and salts in soil that stress and kill trees
- Trees also being choked by non-native invasive vines
- Saplings closest to an entrance or heavily-used path (e.g. at the end of the pedestrian bridge) could be protected by a continuous soil panel, similar to those used for street trees along busy streets
- Saplings in dog park do not currently have any fencing or protection from dogs
- Young trees must be watered regularly (watering bags are typically used at least for the first two years)



V. Relevant Regulatory and Policy Framework

Implementation of the following regulatory requirements is initiated by land disturbance (clearing, grading, and/or excavation) of 2,500 square feet or more. Examples include planned park improvements as well as large storm events that cause flooding and/or erosion that would necessitate park repairs and improvements.

- Resource Protection Areas and Water Quality Impact Assessment (Commonwealth of Virginia and Arlington County)
- Stormwater Management Ordinance (Commonwealth of Virginia and Arlington County)
- Adopted County Plans
- Watershed Management Plan (2001)
- Chesapeake Bay Preservation Plan (2001, an element of the Comprehensive Plan)
- Natural Resources Management Plan (2010)
- Stormwater Master Plan (2014, an element of the Comprehensive Plan)

Resource Protection Area

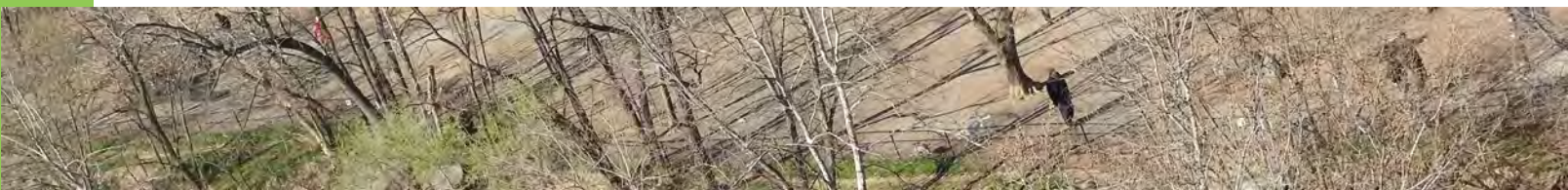
- Entire dog park is located within a Resource Protection Area (RPA)
- Any future redevelopment and/or re-configuration requires compliance with state and county regulations pertaining to stormwater management and RPAs

Background on Resource Protection Areas

- Established under Chesapeake Bay Preservation Ordinance (Chapter 61)
- Environmentally sensitive 'buffer' areas that provide critical ecosystem functions and protect the health of adjacent streams and wetlands from upland land uses
- Minimum width is 100 feet from the streambank edge, expanded to include steep slopes 25% or greater. Desired condition is forest with mix of trees and shrubs, as well as an herbaceous layer.

Why are RPAs protected?

- Filter and absorb upland runoff
- Stabilize soil and streambanks
- Provide wildlife habitat
- Provide shading for streams



V. Relevant Regulatory and Policy Framework

RPAs in Arlington

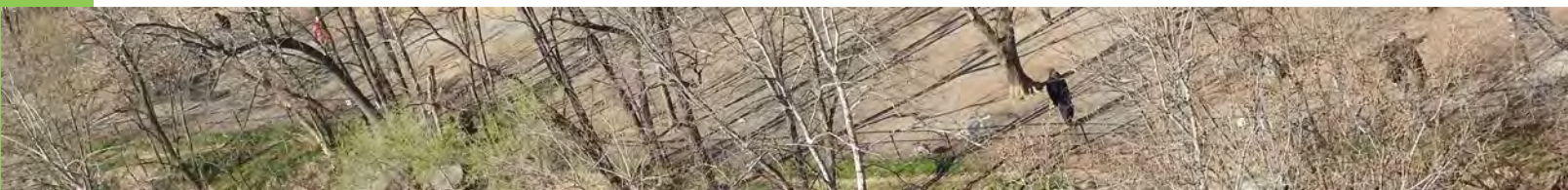
- Condition of RPAs varies widely throughout Arlington, ranging from areas with 100 feet or more of natural buffer to many locations with impacts from existing private and public development and activities that pre-date the ordinance
- Long-term objective is RPA improvement through redevelopment and restoration

Reviewing Development Activity in RPAs

- Same rules apply to private and governmental projects
- Very site-specific; currently no mechanism for transferring mitigation from one site to another
- Balance continuing existing uses with net buffer improvement concept – trade-offs
- Higher intensity use/impact leads to more mitigation
- Stormwater compliance is intertwined with RPA requirements. Requests to expand or change existing nonconforming uses within an RPA footprint requires exception through Chesapeake Bay Ordinance Review Committee (CBORC)
- Water quality impact assessment is required for proposed modification or encroachment into the RPA buffer and reviewed by the Director of DES or CBORC

Stormwater Management Ordinance

- Triggered by land disturbance of 2,500 square feet or more
- Runoff from impervious (pavement and rooftops) and other surfaces (e.g., grass, dirt, mulch) must be managed
- State provides a menu of Storm Water Management (SWM) facilities that can be used
- Generally, 10% to 20% net pollutant reduction required relative to existing conditions
- Compliance must be considered at beginning of design. Like RPA management, long-term objective is incremental and cumulative water quality and flood protection improvements through redevelopment process



V. Relevant Regulatory and Policy Framework

Stormwater Master Plan

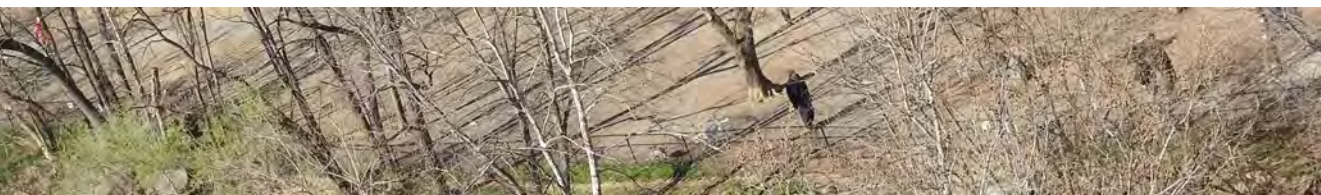
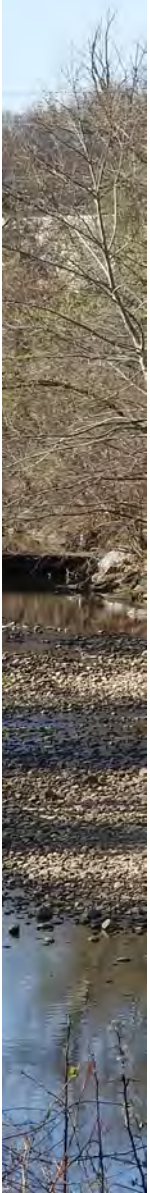
- Adopted by County Board in September 2014
- Incorporates three technical needs assessment studies that identified priorities and led to current CIP project proposals:
- Stream inventory
- Watershed retrofit plans
- Storm sewer capacity analysis
- Provides comprehensive framework for managing stormwater, streams, and watersheds for an approximately 20-year planning horizon.

Stream Inventory and Shirlington Dog Park

- Stream inventory prioritizes severe erosion as well as infrastructure damage
- Regulatory credits for stormwater permit require active erosion and comprehensive stream restoration
- Four Mile Run along Park study area: Floodplain and adjacent uses limit comprehensive stream restoration, and partially hardened condition of the bank makes it a lower priority than other streams
- Given existing constraints, dog park area is not identified as a priority in Stormwater Master Plan

Addressing RPA and Stormwater Management Requirements Together

- A context-sensitive approach is taken
- SWM facilities can only be located in areas of existing impact
- Strategies that mimic purpose and function of natural buffers are prioritized
- Less compatible strategies require extensive grading and drainage piping that can conflict with protection and enhancement of riparian buffer because these types of facilities impede the successful growth of root systems in trees and other plantings
- Net buffer improvement also achieved
- Substantial riparian buffer areas with trees, shrubs and grasses provide the most benefits by holding and slowly absorbing water into the soil; stormwater sheets off roots of individual trees and is not easily absorbed



VI. Considerations and Range of Options

What we heard from County Board Work Session

- Develop more options that retain functionality while meeting environmental requirements
- Seek to maintain attributes of existing park
- Seek to retain quality, understanding that sacrificing some square footage may be necessary (but should be more limited than in renderings to date)

Considerations

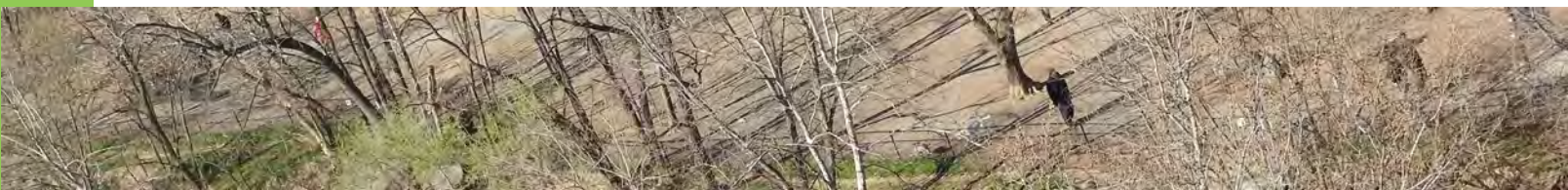
- Maintain general location and proximity to Four Mile Run
- Provide a quality dog park user experience for both humans and canines
- Provide for an environmentally healthy and operationally sustainable dog park
- Provide good stewardship of Four Mile Run
- Recognize cost constraints of various alternatives

Range of Options

- Maintain the park in current configuration
- Make improvements that do not impact more than 2,500 square feet
- Develop guidelines to direct any future master planning/design
- Recommend improvements that may trigger regulatory requirements
- Combination of above options that provide for phased changes as necessary
- Reassess relevant park boundary - encompass the entire stream area in the 4MRV planning process

Additional Considerations

- Constraints on developing detailed design options at master planning phase: soil testing, engineering studies and detailed designs not part of master planning process; time and expenses now would be hypothetical; would have to be redone in future design process
- Regulatory requirements may change between now and ultimate design process.



VII. Other Issues

Boundary Issues

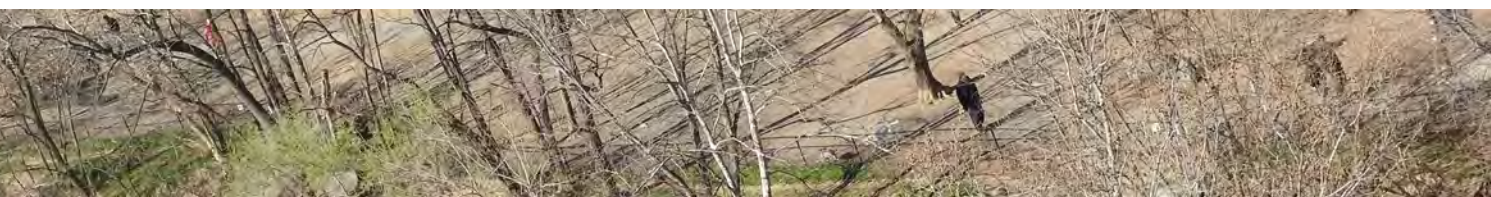
- Integrate county-owned parcel at 2704-2706 South Oakland Street as green, flexible, casual-use space, to improve county stormwater management, provide linkage from dog park to arts district, provide opportunities for festivals and events and provide swing space for development of Jennie Dean Park
- Reclaim county land at South Oxford Street entrance that is being used by auto repair shop
- Explore use of existing parking for possible future reconfiguration

Environmental Issues

- No changes in zoning result in lack of financial incentives for storm-water management
- See *Additional Environmental Questions and Staff Responses*, Appendix A
- See *Riparian Buffer Zones: Functions and Recommended Widths*, Appendix B

What Steps Can Be Taken to Improve the Viability of Existing and Newly-Planted Trees?

- Trees in urban, heavily used areas under tremendous stress
- Most tree roots in top 12" to 18" of soil
- Compacted soil prevents oxygen and water from getting to roots
- Need to remediate and protect from soil compaction
- Critical root zone (goes beyond drip line)
- Need protection from dog urine
- Need engagement of dog park users to develop strategies to protect trees
- See *Tree Issues*, Appendix C



VII. Other Issues

How Have Other Communities Faced Similar Issues Between Regulatory Requirements and Dog Parks?

- New dog parks not permitted in RPAs, or generally next to bodies of water
- Seattle example: Magnuson Beach Area—acknowledge environmental issues, policy of no new off-leash areas adjacent to water, but grandfather in existing park due to popularity
- Regulatory focus more on citizen support groups, model dog park ordinances to minimize human conflicts, licensing/registration of dogs, and paid memberships to provide ongoing funding for maintenance
- See *Additional Resources*, Appendix D

What Are the Rules Regarding the Donation of Amenities for Parks?

- Donation policy recently revised to permit acceptance of donations up to \$50,000; must be in accordance with County plans and objectives

Public Engagement, Education and Cooperation

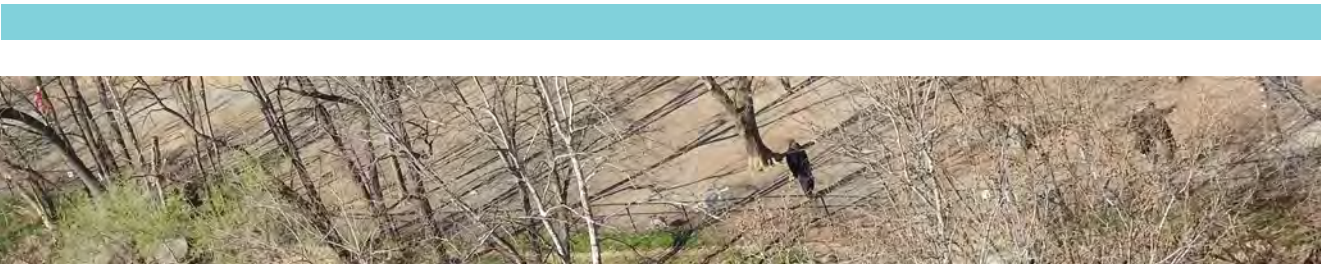
- How do we engage the park users to understand and protect the stream area and prevent pollution?
- How can we improve the messaging and signage in and around the dog park, including opportunities for environmental education/interpretation?
- See *Public Engagement, Education and Cooperation*, Appendix E

What Investments Have Been Made in Shirlington Dog Park Over the Past 15 Years?

- See *Improvements to Shirlington Dog Park Since 2005*, Appendix F

Dog Park Sponsor Groups

- Arlington County policy requires sponsor group for each dog park
- County-wide Arlington Dogs defunct since 2010
- Many other Arlington dog park sponsor groups are now inactive or non-existent
- Institute best management practices county-wide
- Standardize operations and coordination with county staff



VIII. Recommendations

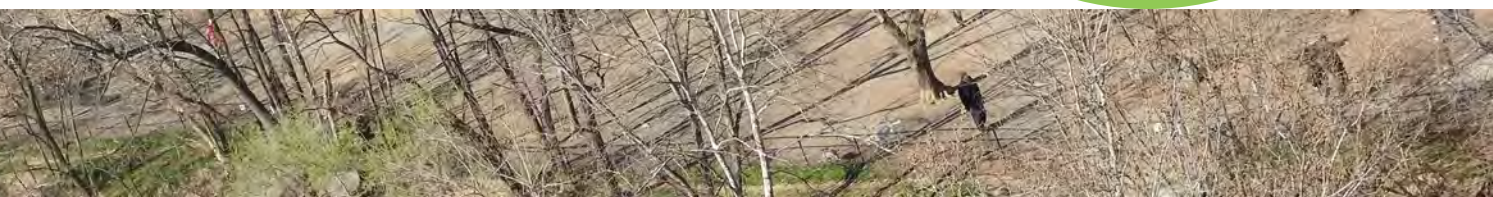
Actions in the short-term that may address environmental, operational, and aesthetic conditions in the dog park and the immediately adjacent north bank of Four Mile Run.

Better Management of Stormwater on County Properties and Developing Flexible Use Park on County-Owned Parcel

The county should demonstrate leadership by taking steps to minimize storm water runoff from nearby county-owned property. Specifically, the committee recommends taking down the warehouse buildings (2704-2706 South Oakland Street), and removing the asphalt adjacent to the dog park and amending and/or remediating the soil to provide a permeable surface that will absorb stormwater runoff, support new plantings of trees and vegetation and retain this as a green, casual use area. In addition to addressing some adjacent stormwater issues, this would serve an array of complementary objectives such as integrating this new park area and the dog park with the arts district, provide a flexible-use area for festivals and arts events, provide swing space for recreational functions as Jennie Dean Park is developed, and improve connectivity and open up the line of sight from South Four Mile Drive into the park.

Short-term

- Block access to informal path outside the dog park fence to minimize soil compaction
- Discontinue mowing along fence edge to increase vegetative buffers
- Increase plantings along the stream bank, where soil conditions permit
- Add park 'snags' such as large stumps or rocks at entrances to encourage dogs to pee on them when they enter the park, instead of urinating on trees
- Create barriers to protect existing trees
- Increase availability of trash containers and bags on both sides of the stream (including in Shirlington Park) to more effectively collect dog waste



VIII. Recommendations

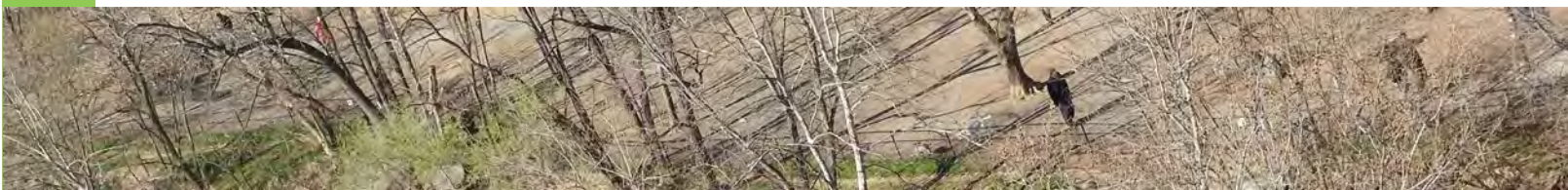
Short Term (cont'd)

- Improve signage and public education regarding pollution, stream warnings, environmental issues and dog park rules
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- Add parking meters and enforce a maximum two-hour parking limit to better distribute usage of existing parking



Medium-term

- Develop a pilot program using economic incentives similar to facade improvement grants for existing businesses to capture stormwater run off from roof-tops for preventing erosion, watering trees and dispersing stormwater more slowly into the ground to improve water quality
- Enhance the existing Shirlington Dog Park sponsoring group by recruiting and training additional volunteers to assist in managing the dog park with specific emphasis on erosion and pollution prevention, tree protection, public education about environmental conditions, invasive species removal, and minimizing use of informal trails
- Explore alternatives for managing expected growth in dog park usage by considering best practices in other jurisdictions



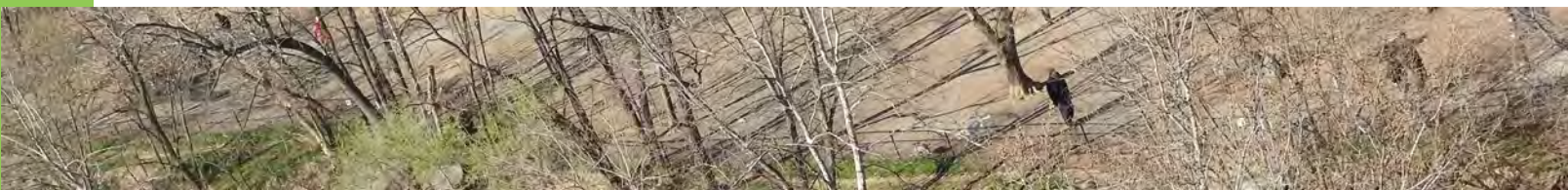
VIII. Recommendations

Boundaries and Longer-term Considerations

The committee also recommends that for the purposes of the master plan and any future mitigation, remediation and stormwater regulatory compliance, the 'dog park area' boundaries should be recognized as including both the Nelson/Oakland parking area (required by county ordinance for any park) and the pathway at the eastern main gate to the pedestrian bridge as well as the western path from the dog park gate to Walter Reed Drive. This could provide additional areas for reconfiguration, drainage, filtration, planting and buffering.

Longer term considerations should a triggering event occur:

- Amend and/or remediate existing hard pack ground to provide soil, improve permeability and better support vegetation and trees
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- Reconfigure existing parking (assuming a long-term parking solution has been developed elsewhere in the planning area) and incorporate existing parking area while retaining ADA parking access directly adjacent to the dog park
- Replace existing asphalt with permeable pavers



Appendix A: Additional Environmental Questions and Staff Responses

18 July 2017

Q. Regarding Section 61-14-B of the Chesapeake Bay Ordinance, would an act of nature (such as a major storm event) not preclude rebuilding the dog park as it was before the storm event as long as there was no increase in impervious area and as long as reconstruction takes place within two years of the damage? Does the dog park fall under this definition of a ‘non-conforming structure’?

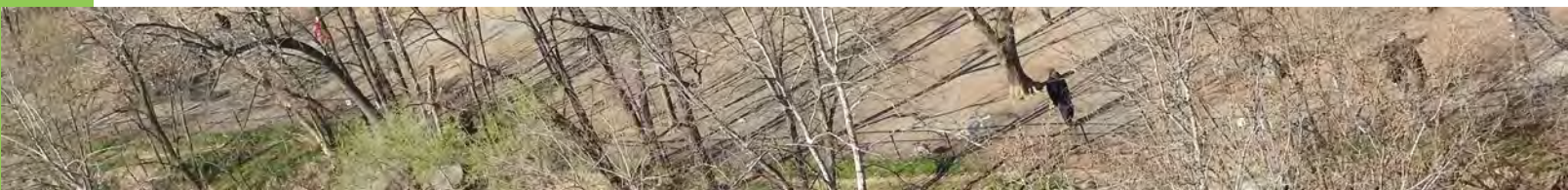
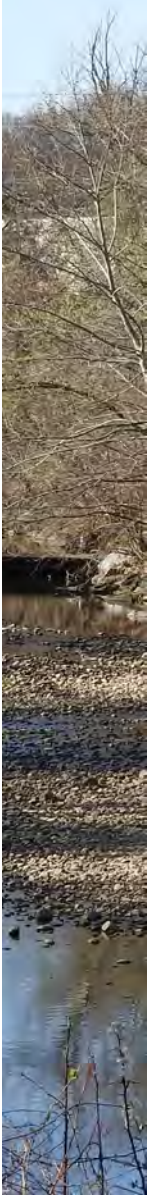
Staff response: First, the dog park is not a ‘structure’ but rather a ‘use,’ so this provision of the Chesapeake Bay Ordinance is not applicable. Second, the ordinance does allow for redevelopment within RPAs, as long as water quality impacts/buffer conditions are addressed. Third, the SWM Ordinance requirements would apply in any case once the 2,500 square feet of disturbance threshold is exceeded—that code does not have a similar provision.

Q. What is the rationale behind the 35 foot buffer as a remediation tool? Presumably this is based on the science of how much of a forested area is needed to hold water so that it can be absorbed into the soil and we would like to understand the research behind this.

Staff response: The menu of State options for SWM compliance includes a vegetated filter strip – which has a minimum 35’ width—http://www.vwrrc.vt.edu/swc/april_22_2010_update/DCR_BMP_Spec_No_2_SHEET_FLOW_Final_Draft_v1-8_04132010.htm. This is based on the State’s interpretation of literature/science.

Staff’s literature review found that the recommended width varies with the desired function and varies among sites depending on soil type, slope, and land use. Buffers that are structurally diverse (contain a mix of trees, shrubs and grasses) are more effectively at pollutant capture than buffer that are solely trees or grass. Key widths related to function are identified below based on a Yale University literature review.

- Erosion control: 30 – 98 feet
- Water quality
 - ◊ Nitrogen/Phosphorus: 16-164 feet; 50 feet effective in most cases. Phosphorous removal is less effective and additional source control is recommended.
 - ◊ Pesticides: 49-328 feet



Appendix A:

Additional Environmental Questions and Staff Responses

◇ Fecal coliform/biological contaminants: 30 feet or greater. However, buffers may not be able to adequately remove these pollutants, so source reduction is recommended.

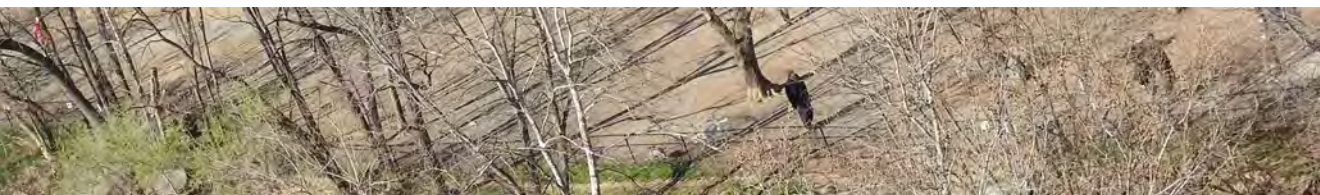
- Aquatic wildlife habitat – 33-164 feet
- Stream debris/leaf litter – 10-328 feet
- Stream temperature – 30 feet, but up to 230 feet to completely control stream temperature.
- Terrestrial wildlife habitat – varies among species; can be > 330 feet

Minimum recommended width varies from 15 to 60 feet. A general conclusion is that approximately 30 feet is the minimum recommended width to achieve water quality functions. This is consistent with the State established 35-foot minimum for SWM compliance purposes. Ultimately, the State requirements govern.

Q. What responsibility does the county have to manage storm water that pours off the storage building and across the county-owned parking lot before it reaches the stream?

Staff response: Stormwater and water quality impacts from existing buildings and roadways—constructed before modern stormwater requirements took effect—are significant County-wide. This, in a nutshell, is the primary challenge facing the County's stormwater management program. Under the County's MS4 permit and the Chesapeake Bay TMDL, the County is responsible for significant reductions in stormwater pollution from existing lands. These requirements ramp up over a 15-year period that began in 2013. Through implementation of stormwater retrofit and stream restoration projects, as well as regulating redevelopment activity, the County is keeping pace with these reduction requirements.

So, that is the backdrop. The County, through its Stormwater Program CIP, has an ambitious and high-workload program to address impacts from existing development, with prioritization of projects based on cost-benefit as well as opportunity. This is ultimately a multi-generational effort, given how extensive the impacts are in our highly urban jurisdiction. At the same time, the County also implements a stringent regulatory program for redevelopment activity so that improvements are made when properties turn over. These regulatory requirements also apply to County-owned land when it redevelops. In short, we are working very hard on dealing with stormwater impacts across the County.



Appendix A:

Additional Environmental Questions and Staff Responses

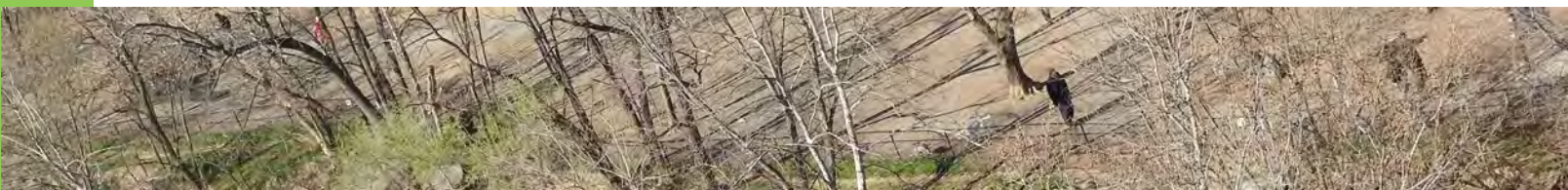
Staff views the situation in and around the dog park as follows:

- The dog park has high potential to deliver nutrients, bacteria, and sediment to Four Mile Run. These impacts need to be addressed independent from efforts to address impacts from surrounding buildings and roads. Ultimately, both have impacts and both need mitigation.
- Staff can offer to meet with building owners to look at what might be done to address runoff impacts from those buildings to the dog park. It is difficult and costly to make significant improvements, however, when such efforts are not part of the overall redevelopment of the parcel.

Q. What actions can the county take within the riparian zone with respect to additional plantings or hardening the access points to the water, before triggering permits from the Corps of Engineers and/or FEMA?

Staff response: Plantings along the top of the streambank would not trigger COE or FEMA requirements. Any work to reconfigure the streambank itself – including planting - would potentially trigger COE 404 permitting as well as FEMA, depending on the nature of the work and the effects on channel conveyance capacity.

Also, hardening the access points (such as boardwalks, trails, and pathways) within the 100 year floodplain (majority of the park) may trigger approval from FEMA, depending on the scope and the extent of grading changes.



Appendix A:

Additional Environmental Questions and Staff Responses

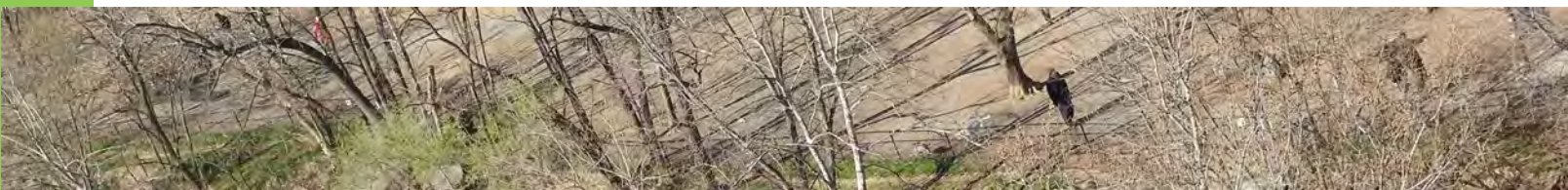
Q. Clarify access to 4MRV

Staff response: Regarding hardening access points to the water, the Chesapeake Bay Ordinance allows for passive recreation facilities/amenities in the RPA including boardwalks, trails, and pathways, where “[s]ufficient and reasonable proof is submitted that the intended use will not deteriorate water quality.” Any public access point would need to be evaluated with this lens. A guiding principle here is strategically-located, small footprint pathways – intended to allow public connection to the stream without significant buffer, bank, or stream impacts. Consultations with DEQ make it clear that dog parks and access points specifically or in part for canine use are not allowable water dependent uses under the Chesapeake Bay Preservation Ordinance.

Q. Related to the above question, would it be possible, and how much value would there be, to building up a berm and creating a swale along parts of the edge of the dog park to capture stormwater, using less than a 35’ buffer?

Staff response: This is a design and engineering consideration and exercise — beginning with the question of where does the swale convey runoff to? An underground filtering system? An above-ground filtering system? Is this an idea for the near-term, with an intention to stay below the 2,500 SF of disturbance threshold but do something to reduce stormwater runoff pollution from the dog park? Or, a question related to future dog park redevelopment SWM compliance options? Or both?

Staff has emphasized that the vegetated filter strip is the most RPA-compatible SWM compliance tool. Other, more engineered systems will require grading, excavation, and piping that can conflict with the planting of trees and other vegetation — which are the RPA buffer enhancement objectives and requirements of the Chesapeake Bay Ordinance. Ultimately, evaluation of alternative SWM compliance options for future dog park redevelopment requires a level of site information, analysis, and design that is beyond the conceptual master planning phase. There may be other options—but they will come with potentially significant monetary costs and also at the expense of reduced RPA buffer enhancement.



Appendix B:

Riparian Buffer Zones: Functions and Recommended Widths

Riparian Buffer Zones: Functions and Recommended Widths



Prepared by

**Ellen Hawes and Markelle Smith
Yale School of Forestry and Environmental Studies**

For the

Eightmile River Wild and Scenic Study Committee

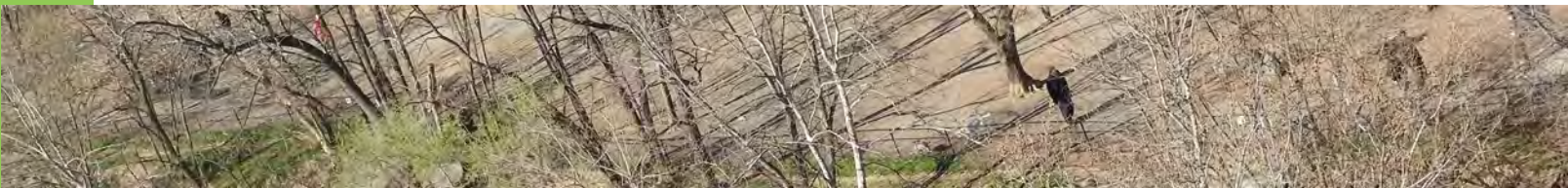
April 2005

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Riparian Buffer Zones: Functions and Recommended Widths

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1. Functions of Riparian Buffers

Riparian buffers are vital elements of watersheds, primarily due to their protection of surface and ground water quality from impacts related to human land use. These vegetated buffers are complex ecosystems that provide food and habitat for unique plant and animal species, and are essential to the mitigation and control of nonpoint source pollution. In fact, the removal of streamside vegetation, primarily for development purposes, has resulted in degraded water resources and diminished value for human consumption, recreation, and industrial use.¹

In the Eightmile River watershed, maintenance of riparian buffers in their natural condition has been identified as one of the most effective means of protecting multiple outstanding resource values (ORVs), including water quality, hydrology, unique species and natural communities, and watershed ecosystem function.

Sedimentation increases turbidity and contributes to rapid siltation of waterbodies, negatively impacting water quality. Increased sediment loads also narrow channel widths and provide substrate for colonization of invasive aquatic plant species. Intact riparian buffers ameliorate these negative impacts by stabilizing streambanks. Roots of riparian vegetation deflect wave action and hold bank soil together. The buffer vegetation also decreases erosional impacts during flood events and prevents undercutting of streambanks.

Excess nitrogen and phosphorous from fertilizers and animal waste, as well as other pollutants originating from pesticides and herbicides, often bond to soil particles. The nutrient-loaded sediment contained in surface runoff then flows to the nearest waterbody and is deposited. This process is the primary cause of accelerated eutrophication of lakes and rivers². Streamside forests function as filters, transformers, and sinks for harmful nutrients and pollutants³. Buffer plants slow sediment-laden runoff and depending upon their width and vegetational complexity, may deposit or absorb 50 to 100% of sediments as well as the nutrients and pollutants attached to them⁴. When surface water runoff is filtered by the riparian buffer approximately 80 to 85% of phosphorous is captured⁵. Nitrogen and other pollutants can be transformed by chemical and biological soil activity into less harmful substances. In addition, riparian plants act as sinks, absorbing and storing excess water, nutrients, and pollutants that would otherwise flow into the river, reducing water quality.

One of the most important functions of riparian buffers is enhanced infiltration of surface runoff⁶. Riparian vegetation in the buffer surrounding a waterbody increases surface roughness and slows overland flows. Water is more easily absorbed and allows for groundwater recharge. These slower flows also regulate the volume of water entering rivers and streams, thereby minimizing flood events and scouring of the streambed.

¹ Welsch 1991

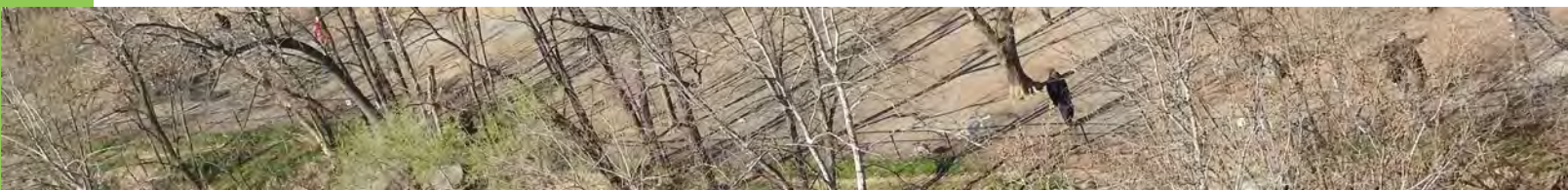
² Jontos 2004

³ Welsch 1991

⁴ Connecticut River Joint Commission 2005

⁵ Connecticut River Joint Commission 2005

⁶ Dillaha et al. 1989



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Many plant and animal species depend on the distinctive habitat of riparian buffers, which include elements of both terrestrial and aquatic ecosystems. Forested buffers improve habitat quality by providing shade that cools water temperatures, thereby elevating the dissolved oxygen content that is necessary for many species of fish and aquatic insects. Woody debris from shrubs and trees within the vegetated buffer provides food and cover for a multitude of aquatic species. If large enough, buffers also provide corridors essential for terrestrial wildlife movement.

Vegetated buffers may serve as screens along waterways, protecting the privacy of riverfront landowners and blocking views of any unsightly development. Hiking and camping opportunities are also facilitated by forested buffers, which if large enough, allow outdoor enthusiasts to enjoy the proximity of the water. The diversity of plant species provides visual interest and increases aesthetic appeal.

2. Recommended buffer widths

The width of a buffer depends greatly on what resource you are trying to protect. Scientific studies have shown that efficient buffer widths range from 10 feet for bank stabilization and stream shading, to over 300 feet for wildlife habitat. Furthermore, the necessary width for an individual site may be less or more than the average recommendations, depending on soil type, slope, land use and other factors. The ranges cited below come from four literature reviews by The U.S. Army Corps of Engineers New England Division, the University of Georgia's Institute of Ecology, the U.S. Army Engineer Research and Development Center, and researchers from the UK Forestry Commission.⁷ Results from studies done in New England fall within the ranges cited below, and no evidence was found in the literature to suggest that buffers should be, on average, either wider or narrower.

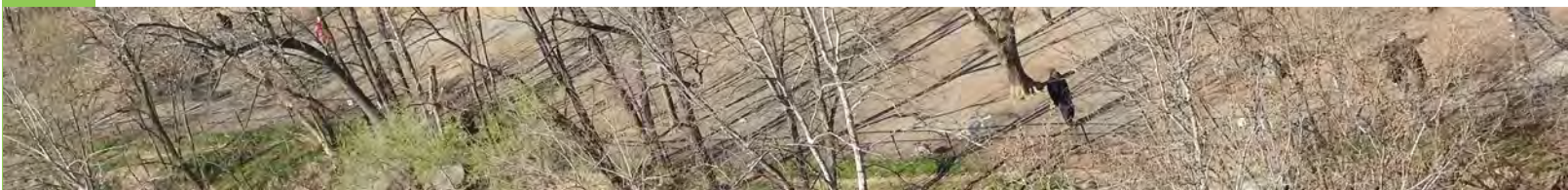
a. Erosion control

Erodibility of soil type is a key factor when assessing adequate buffer widths. Widths for effective sediment removal vary from only a few feet in relatively well drained flat areas to as much as several hundred feet in steeper areas with more impermeable soils. In order to prevent most erosion, vegetated buffers of 30 feet to 98 feet have been shown to be effective.

b. Water quality

Nutrients - Nitrogen and phosphorous can be retained in buffers that range from 16 to 164 feet. The wider buffers will be able to provide longer-term storage. Nitrogen is more effectively removed than phosphorous. In 1995, a study conducted in Maine found that the effectiveness of buffers at removing phosphorous is variable but in most cases, a 49-foot natural, undisturbed buffer was effective at removing a majority of the nutrient from surface runoff. However, the U.S. Army Corps of Engineers concluded in their 1991 study that there was insufficient evidence

⁷ U.S. Army Corps of Engineers 1991, Wenger 1999, Fischer and Fischenich 2000, Broadmeadow and Nisbet 2004, respectively.



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to determine a necessary buffer width for phosphorous retention. It is important, therefore, to combine buffer zones with strategies to reduce phosphorous at its source.

Pesticides – Buffer widths for pesticide removal range from 49 feet to 328 feet. Pesticides that are applied manually require less of a buffer area than aerially-sprayed pesticides.

Biocontaminants – Buffer widths for biocontaminants, such as fecal coliform, were not reviewed in this study. The University of Georgia found that, in general, buffers should be 30 ft. or greater. However, buffers may not be able to adequately filter biocontaminants and it is also important to reduce these pollutants at the source.

c. Aquatic habitat

Wildlife – The minimum width of riparian buffers to protect aquatic wildlife, including trout and invertebrates, range from 33 feet to 164 feet.

Litter and debris input – Recommendations for buffer widths to provide an adequate amount of debris for stream habitat range from 10 feet to 328 feet, although most fall within 50 feet to 100 feet.

Stream temperature. Adequate shading can be provided by a 30-foot buffer, but buffers may need to be up to 230 feet to completely control stream temperature. The amount of shade required is related to the size of the channel. The type of vegetation in the buffer regulates the amount of sunlight reaching the stream channel. Generally, a buffer that maintains 50% of direct sunlight and the rest in dapple shade is considered preferable⁸

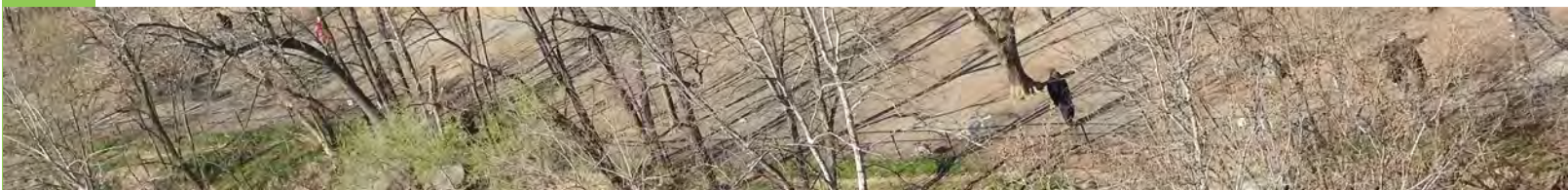
d. Terrestrial habitat

The Eightmile River watershed contains a large number of roadless, undeveloped forest blocks and is more than 80% forested in total. Furthermore, the riparian corridor within 300 ft. of the river and its tributaries has remained mostly intact, supporting a high level of biodiversity as well as protecting water quality. The Eightmile River is host to a number of important species, including native brook trout, freshwater mussels, blue back herring, bobcats, great horned owls and cerulean warblers.

The habitat requirements for birds, mammals, reptiles, amphibians and fish vary widely, and the necessary buffer width to protect each species varies widely as well. While trout and salmon can benefit greatly from the shading, habitat, food, and water quality protection that a 150-foot buffer provides, mammals such as the red fox and the bobcat require riparian corridors of approximately 330 feet. Furthermore, birds such as the cerulean warbler, which requires large areas of forest, may need a buffer that is much greater than 330 ft.⁹ For this reason, we do not believe that it is feasible to capture all of the habitat needs of all species with a uniform buffer. More careful targeting of potential riparian habitat, work with landowners to create conservation

⁸ Broadmeadow and Nisbet 2004

⁹ Chase et al. 1995



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easements, as well as the creation of protected areas by the town will aid in more specific approaches to habitat preservation for these species.

For a more detailed look at the range of recommended buffer widths, see Appendix 1.

3. Factors influencing buffer width

There are many factors that influence the effectiveness buffers. These include slope, rainfall, the rate at which water can be absorbed into the soil, type of vegetation in the buffer, the amount of impervious surfaces, and other characteristics specific to the site.

a. Slope

As slope increases, the speed at which water flows over and through the buffer increases. Therefore, the steeper the land within the buffer, the wider it needs to be to have time to slow the flow of water and absorb the pollutants and sediments within it. Many researchers suggest that especially steep slopes serve little value as a buffer, and recommend excluding areas of steep slope when calculating buffer width. The definition of “steep” varies from over 10% to over 40% slope¹⁰.

b. Soil type

The type of soil affects how quickly water can be absorbed. Soils that are high in clay are less permeable and may have greater runoff. On the other hand, soils that are largely made up of sand may drain water so rapidly into the groundwater that roots are not able to effectively trap pollutants. Furthermore, soils that are moister and more acidic have a better capacity to take up nitrogen from the soil and release it to the atmosphere (through denitrification).

c. Vegetation mix

Structurally diverse riparian buffers, i.e. those that contain a mix of trees, shrubs and grasses, are much more effective at capturing a wide range of pollutants than a riparian buffer that is solely trees or grass. Removal efficiencies range from 61% of the nitrate, 72% of the total phosphorous and 44% of the orthophosphates from grass buffers to 92% of the nitrate 93% of the total phosphorous and 85% of the orthophosphates from combined grass and woody buffers.¹¹

¹⁰ Wenger 1999

¹¹ Jontos 2004

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Table 1: Estimated reduction of nutrient loads from implementation of riparian buffers¹²

Buffer Type	Nitrogen	Phosphorus	Sediment
Forested	48-74%	36-70%	70-90%
Vegetated Filter Strips	4-70%	24-85%	53-97%
Forested and Vegetated Filter Strips	75-95%	73-79%	92-96%

Source: Delaware Department of Natural Resources and Environmental Control

Generally, the grass filter strip works best for sediment removal, while the forested buffer is better for nitrate removal from subsurface flows¹³. Grasses have a shallower and denser root mat that is more effective in slowing runoff and trapping sediments from the surface flow. Trees have a deeper root system that can trap and uptake nutrients from the groundwater, stabilize banks, and regulate the flow of water to the stream.

Forests provide certain functions that grasses cannot. Trees shade the river and provide an input of leaf litter and branches that are necessary for many aquatic species. In addition, a forested buffer provides important habitat for terrestrial wildlife. Native plants species are preferred to ornamentals or exotics due to the habitat advantage they provide for wildlife. Old trees are especially valuable for providing inputs of coarse woody debris.

The most effective riparian buffers should include a mix of trees, shrubs and herbaceous plants native to the region and appropriate to the environment in which they are to be planted. When planting buffers, it is best to use adjacent reference riparian buffers as the basis for selecting floral composition¹⁴.

Table 2: Plant type vs. removal efficiency

Function	Grass	Shrubs	Trees
Sediment trapping	High	Medium	Low
Filtration of Sediment born Nutrients, Microbe and Pesticides	High	Low	Low
Soluble forms of Nutrients and Pesticides	Medium	Low	Medium
Flood Conveyance	High	Low	Low
Reduce Stream Bank Erosion	Medium	High	High

Source: Jontos 2004 (modified after Fisher and Fischenich 2000)

¹² (Palace, 1998; Lowrance et al., 1995; Franti, T.G., (1997); Parsons et al. (1994); Gilliam et al. (1997); Osmond et al., (2000)

¹³ Triangle J. Council of Governments 1999

¹⁴ Jontos 2004

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4. Buffer types

a. Variable Width

Several models have been created to consider individual site factors in determining buffer width. These range from the complex to the relatively simple. The more complex models take into account multiple factors, such as slope, erodibility and infiltration rates¹⁵. Examples of such models include:

Brown et al. (1987):

$$\text{Buffer width} = (\text{average slope/erodibility factor})^{1/2}$$

Cook College Department of Environmental Resources:

$$\text{Buffer width} = 2.5 (\text{time of travel of overland flow}) * (\text{slope})^{0.5}$$

More simple models only take into account slope. A common formula is to set a fixed buffer width and apply 2 feet per percent slope. Many of these models recommend *not* including impervious surfaces or areas of steep slope in the buffer width (**Figure 1**). Cook College recommends excluding anything greater than 15% slope, while Wenger (1999) recommends excluding all slopes over 25%.

b. Fixed Width

A fixed buffer width is the easiest to administer. However, care must be taken to select the appropriate width for the resources you are targeting. Studies unanimously support the conclusion that buffer efficiency at filtering out pollutants increases with width. However, this does not increase infinitely, and the goal is to find the most efficient width. For example, a study in the Mid-Atlantic¹⁶ found that 90% of sediments were removed by a 62 ft. riparian buffer, but only 94% were removed by more than doubling the buffer width to 164 ft

If a fixed buffer width is chosen, it should be on the conservative side to provide leeway for slope and soil type. Data for the Eightmile River watershed show that significant areas of the land bordering the river have slopes that are above 15%. Therefore, we believe it is necessary to make a fixed buffer width wider than the average minimum recommendation of 100 ft.

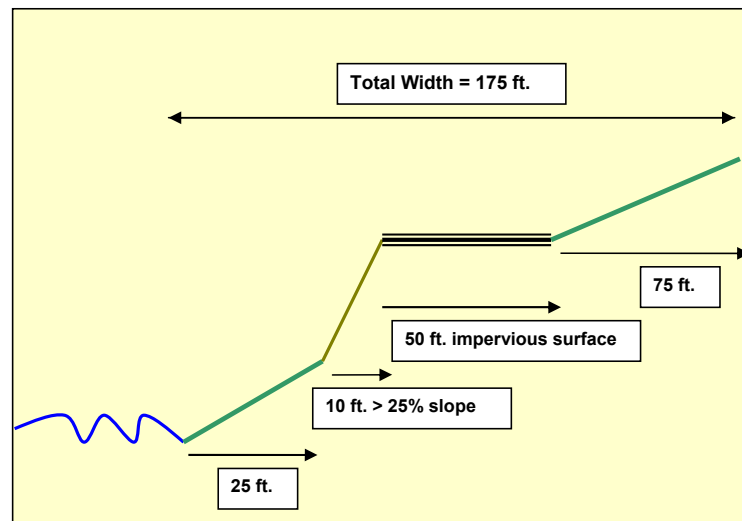
¹⁵ Described in the US Army Corps of Engineers (1991) literature review.

¹⁶ Peterjohn and Corell 1994.

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Fig.1: Variable buffer width adjusted from 100 feet to 175 feet to account for effects of slope and impervious surface.



c. Three Zone

The Three Zone system was originally developed as part of an initiative to protect the Chesapeake Bay. The combination of vegetation types (trees, grass and shrubs) helps maximize the efficiency and diversity of benefits that the buffer provides (Figure 2).

Zone 1

Minimum Width: 15 ft.

Composition: Native trees and shrubs

Function: Bank stabilization, habitat, shade, flood prevention

Management: None allowed except bank stabilization and removal of problem vegetation.

Zone 2

Minimum Width: 60 ft.

Composition: Native trees and shrubs.

Function: Removal of nutrient, sediments and pollutants from surface and groundwater, habitat

Management: Some removal of trees to maintain vigorous growth.

Zone 3

Minimum Width: 30 ft.

Composition: Grasses and herbaceous plants

Function: Slow surface runoff, trap sediments and pesticides

Management: Mowing

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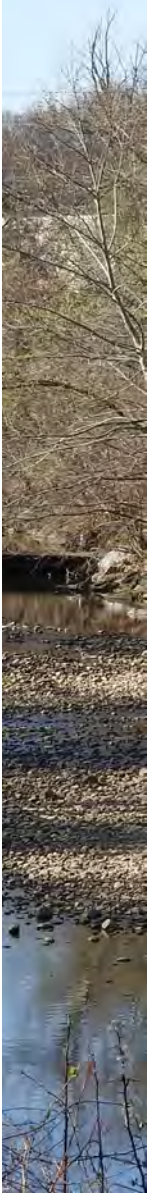
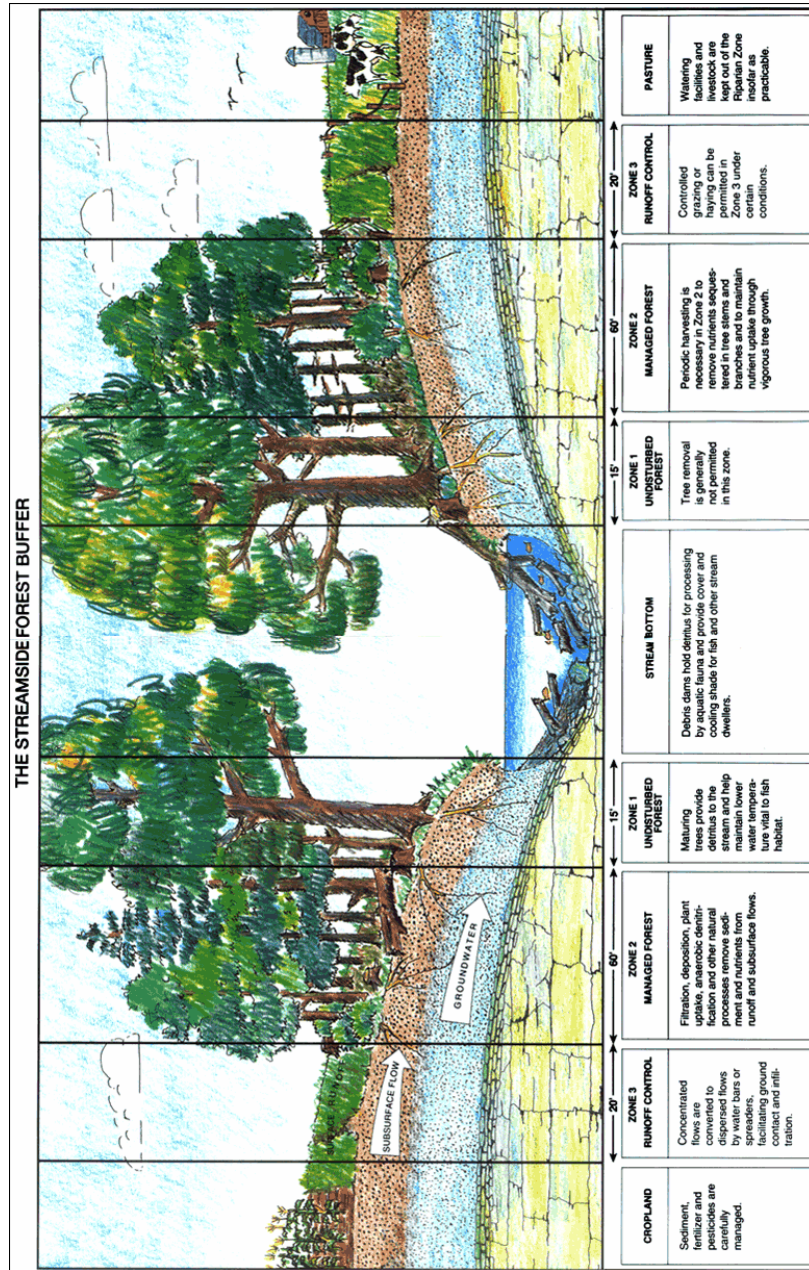


Fig. 2: Three-Zone System



Source: Welsch 1991. Riparian Forest Buffers: Function and Design For Protection and Enhancement of Water Resources.

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5. What order streams to protect

Buffers are most effective when they are contiguous. Guidelines for buffer widths recommend that long, continuous buffer strips should often be a higher priority than fragmented strips of greater width.¹⁷ Small gaps in vegetation along the bank can channelize runoff into the river and effectively negate the effect of surrounding buffers. For this reason, landowners who currently have lawns that run to the edge of the river should be encouraged to replant trees and shrubs along the bank. In addition, footpaths cleared for river access should be winding, rather than straight, and as narrow as possible to minimize sedimentation.

Failure to extend protection to the smaller headwater streams in the river basin also ignores important sources of sedimentation and pollution. To preserve water quality in the Eightmile River, it is essential to protect all of its tributaries. In fact, smaller order streams often account for the greatest miles of watercourse in a basin. Buffering low order streams (1st, 2nd and 3rd) has greater positive influence on water quality than wider buffers on portions of larger order streams already carrying polluted water. While it may be politically infeasible to set wide buffer zones around intermittent and ephemeral streams, this omission is not justified by the science. A University of Georgia study of riparian buffers warns, “Governments that do not apply buffers to certain classes of streams should be aware that such exemptions reduce benefits substantially.”¹⁸ A review of buffers by the U.S. Army also notes that “even the best buffer strips along larger rivers and streams cannot significantly improve water that has been degraded by improper buffer practices higher in the watershed”.¹⁹

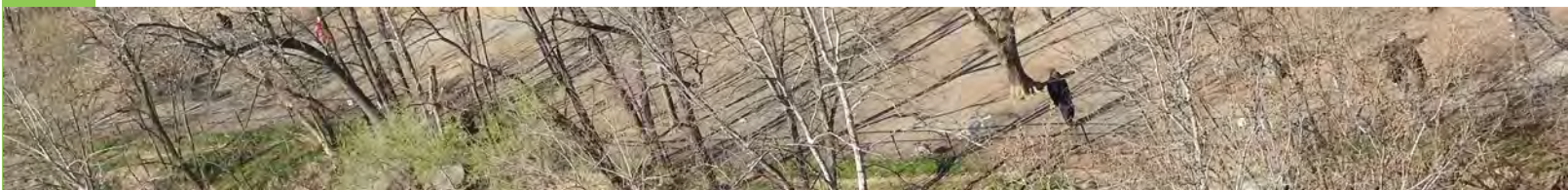
Smaller headwater streams have the greatest area of land-water interaction, and have the greatest potential to accept and transport sediment. Ephemeral streams, which only exist during periods of high rain, can serve as important sources of sediment and pollutants to the river. It is important that they are maintained in a vegetated condition in order to help trap and slow the flow of pollutants. Furthermore, removing riparian vegetation from the banks of small, heavily shaded streams will have a much greater impact on stream temperature and aquatic habitat throughout the watershed than removing vegetation from larger rivers, where only a fraction of the water is shaded. Rather than ignoring these streams completely, a compromise would be to create a smaller setback. Clinnick et al (1985) advocate a minimum of a 20 m wide buffer for ephemeral streams, and where that is not possible, at least leaving the banks vegetated²⁰.

¹⁷ Fisher and Fischenich 2000

¹⁸ Wenger 1999

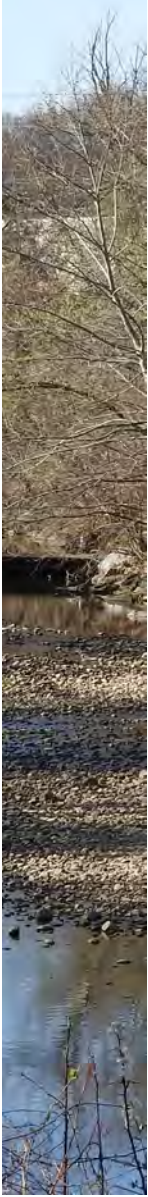
¹⁹ Fisher and Fischenich 2000

²⁰ Wenger 1999



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Appendix 1–Summary of Effective Buffer Widths from Literature Review

Author	Effective Width of Buffer (in feet)							Pesticide Retention
	Aquatic Wildlife	Terrestrial Wildlife	Stream Temperature	Litter/Debris input	Nutrient Retention	Sediment Control	Bank Stabilization	
Wenger 1999	98 ft.	220-574 ft.	33 – 98 ft.	50 ft.	50 – 100 ft.	82 – 328 ft.	–	> 49 ft.
Army Corps 1991		30 – 656 ft.	33 – 66 ft.	66-102 ft.	52 – 164 ft.	33 – 148 ft.	49 – 98 ft.	49 – 328 ft.
Fisher and Fischel 2000	> 98 ft.	98-1,640 ft.	–	10 – 33 ft.	16.4-98 ft.	30-200 ft.	30 –66 ft.	–
Broadmeadow and Nisbet 2004	33 –164 ft.	–	49 – 230 ft.	82 – 328 ft.	16.4-98 ft.	49 – 213 ft.	–	–

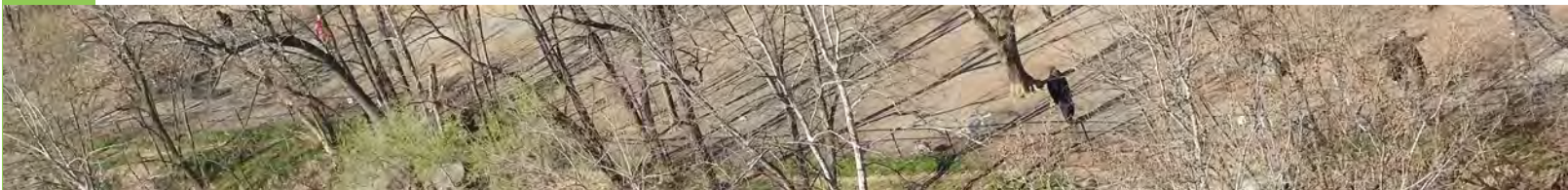
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Appendix 2 - General Recommended Widths of Buffer Zones
Source: Jontos 2004 (modified after Fisher and Fischenich 2000)

<i>Function</i>		Recommended Width
Water Quality Protection	Buffers, especially dense grassy or herbaceous buffers on gradual slopes, intercept overland runoff, trap sediments, remove pollutants, and promote ground water recharge. For low to moderate slopes, most filtering occurs within the first 10 m, but greater widths are necessary for steeper slopes, buffers comprised of mainly shrubs and trees, where soils have low permeability, or where NPS loads are particularly high.	5 to 30 m
Stream Stabilization	Buffers, particularly diverse stands of shrubs and trees, provide food and shelter for a wide variety of riparian and aquatic wildlife	10 to 20 m
Riparian Habitat	Riparian vegetation moderates soil moisture conditions in stream banks, and roots provide tensile strength to the soil matrix, enhancing bank stability. Good erosion control may only require that the width of the bank be protected, unless there is active bank erosion, which will require a wider buffer. Excessive bank erosion may require additional bioengineering techniques.	30 to 500 m +
Flood Attenuation	Riparian buffers promote floodplain storage due to backwater effects, they intercept overland flow and increase travel time, resulting in reduced flood peaks.	20 to 150 m
Detrital Input	Leaves, twigs and branches that fall from riparian forest canopies into the stream are an important source of nutrients and habitat.	3 to 10 m



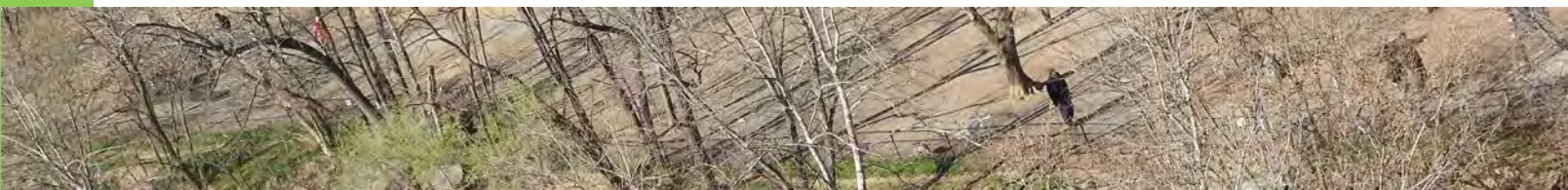
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Appendix 3

References

- Broadmeadow, S. and Nisbet, T.R. 2004. The effects of riparian forest management on the freshwater environment: a literature review of best management practice. *Hydrology and Earth System Sciences*, 8(3), 286-305.
- Chase, V., Deming, L., and Latawiec, F. 1995. Buffers for wetlands and surface waters: a guidebook for New Hampshire municipalities. Audubon Society of New Hampshire.
- Connecticut River Joint Commission. 2005. Introduction to riparian buffers. *From: Riparian Buffers for the Connecticut River Valley*, no.1. Available online at <http://www.crjc.org/riparianbuffers.htm>. Last accessed April 27, 2005.
- Dillaha, T.A., J.H. Sherrard, and D. Lee. 1989. Long-term effectiveness of vegetative filter strips. *Water Environ. Soc.* 1:419-421.
- Fischer, R.A. and Fischenich, J.C. 2000. Design recommendations for riparian corridors and vegetated buffer strips. U.S. Army Engineer Research and Development Center, Environmental Laboratory. Vicksburg, MS.
- Jontos, R. 2004. Vegetative buffers for water quality protection: an introduction and guidance document. Connecticut Association of Wetland Scientists White Paper on Vegetative Buffers. Draft version 1.0. 22pp.
- Krumine, M. 2004. Riparian buffers de-mystified! *Tributary Times*, 3(5). Delaware Department of Natural Resources and Environmental Control, Division of Water Resources. http://www.dnrec.state.de.us/water2000/Sections/Watershed/ws/trib_times_current.htm
- Triangle J. Council of Governments. 1999. An introduction to riparian buffers. TJCOG Technical Memo: Riparian Buffer Series, No.1. January 1999.
- U.S. Army Corps of Engineers. 1991. Buffer strips for riparian zone management. Waltham, MA.
- Welsch, D.J. 1991. Riparian forest buffers: function and design for protection and enhancement of water resources. USDA Forest Service, Northeastern Area, Radnor, PA. NA-PR-07-91.
- Wenger, S. 1999. A review of the scientific literature of riparian buffer width, extent and vegetation. Institute of Ecology, University of Georgia. Athens, GA



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Appendix 4 - Web Resources

Chesapeake Bay Committee. Chesapeake Bay Riparian Handbook: A guide for establishing and maintaining riparian forest buffers.

<http://www.chesapeakebay.net/pubs/subcommittee/nsc/forest/handbook.htm>

Connecticut Association of Wetland Scientists. Jontos, R. 2004. Vegetative buffers for water quality protection: an introduction and guidance document.

<http://www.ctwetlands.org/Draft%20Buffer%20Paper%20Version%201.0.doc>

Connecticut River Joint Commission. 2005. Introduction to riparian buffers. *From: Riparian Buffers for the Connecticut River Valley*, no.1. <http://www.crjc.org/riparianbuffers.htm>.

Environmental Defense. 2003. Riparian buffers: common sense protection of North Carolina's waters. http://www.environmentaldefense.org/documents/2758_NCbuffers.pdf

Klapproth, J.C. and Johnson, J.E. 2000. Understanding the science behind riparian forest buffers: effects on water quality. Publication Number 420-151. <http://www.ext.vt.edu/pubs/forestry/420-151/420-151.html>

Krumine, M. 2004. Riparian buffers de-mystified! *Tributary Times*, 3(5). Delaware Department of Natural Resources and Environmental Control, Division of Water Resources.

http://www.dnrec.state.de.us/water2000/Sections/Watershed/ws/trib_times_current.htm

Maryland Department of Natural Resources Forest Service. Riparian forest buffers: function and design for protection and enhancement of water resources.

<http://www.dnr.state.md.us/forests/publications/buffers.html>

National Agroforestry Center. Riparian forest buffers.

<http://www.unl.edu/nac/riparian.html>

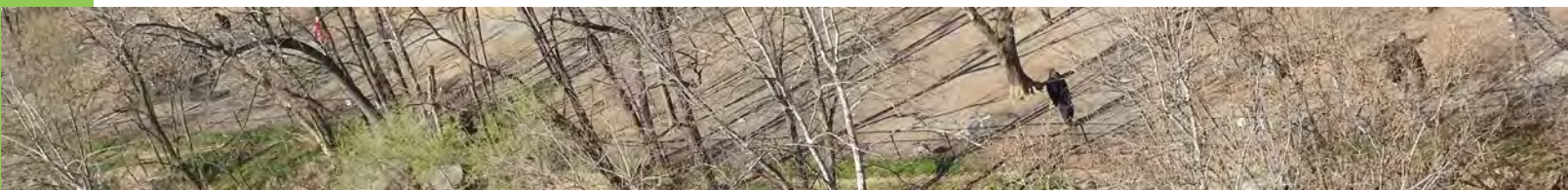
USDA Natural Resources Conservation Service. Buffers for conservation in New Hampshire:

http://www.nh.nrcs.usda.gov/features/Buffers/what_buffers.html

Welsch, D.J. 1991. Riparian forest buffers: function and design for protection and enhancement of water resources. USDA Forest Service, NA-PR-07-91.

http://www.na.fs.fed.us/spfo/pubs/n_resource/buffer/cover.htm

Wenger, S. 1999. A review of the scientific literature of riparian buffer width, extent and vegetation: http://outreach.ecology.uga.edu/tools/buffers/lit_review.pdf



Appendix C:

Tree Issues

Tree Issues walk, Thursday 3 August 2017, 1800–1830

Nora Palmatier, Urban Forestry Commission representative and Tree Steward volunteer

Sharing what Tree Stewards have learned as volunteers:

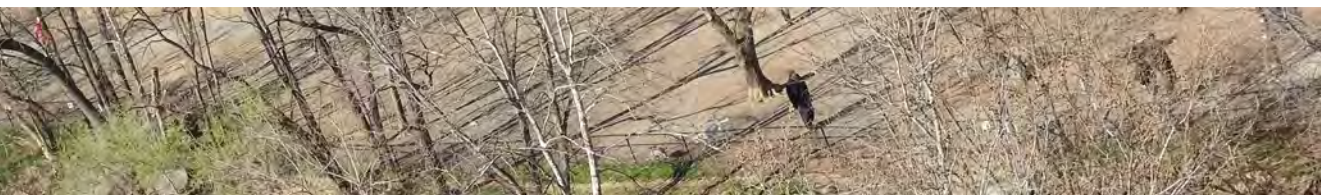
- **Always be identified as a volunteer with t-shirt, safety vest, or large button.** Volunteers are among most respected authorities. Putting on the logo also makes the individual volunteer more likely to say something if he or she sees something.
- The easily-identified volunteer should always have material on the subject to hand out—a Tree Stewart business card, tree care pamphlet, resource list

Trees are *living, breathing beings*—think of them as pets with needs similar to dogs. (We'll talk later about strategies to make them noticeable as pets—like naming them with signs and dog collars) They require air, water, and nutrients—if they don't get this, they get stressed out and are susceptible to diseases—like people and dogs.

- All urban trees are stressed already due to environmental issues such as air pollution, horticultural droughts interspersed with too much rain, winters with extreme freezing and thawing times that prevent their going dormant long enough to withstand cold, global warming with high CO², nasty diseases and insects that no longer die off during winters—life isn't easy in the city for a tree.
- Dogs evolved in a pack situation, trees evolved in forests—both are happiest when surrounded by friends. A tree alone in a yard, on a street, or in a dog park is not in its natural environment.
- Understanding tree physiology is necessary to help trees survive.

Leafy, shady canopy is what we humans notice in trees. Look at the trees around us. Do you see spaces among the leaves with dead branches? Leaves of various colors or that are dried up? Broken branches? These are all signs that a tree is under stress and we'll talk about that more when we get to roots.

- Leaves do the photosynthesis we all learned about in school which converts sunlight into the nutrients needed by the tree. They also collect rain water.



Appendix C:

Tree Issues

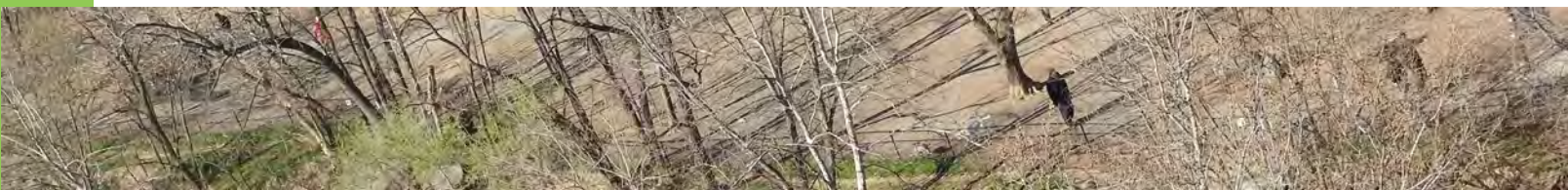
- There is a pathway under the tree's bark through which water and nutrients travel throughout the entire tree. Just like the human or dog body, all the parts are connected and damaging one hurts all.

Trunks are probably what the dogs notice most—smelling, not seeing. Tree trunks are community announcement boards for dogs—*Fluffy was here this morning, Duke is feeling stressed, a new dog was here*, etc. But dog urine is bad for trees—especially when hundreds of dogs have decided this tree is the community calling-card. (See 'Resources' at end the end of this appendix)

- Mitigating dog urine marking on trees—Shirlington Dog volunteers, local dog trainers can brainstorm this. Is it possible to have one of those fire hydrants put in like at some veterinarians' parking lot? Post 10 feet in that one should reach before losing dogs? Some barrier between tree trunk and dogs leg? Signs on trees like "My name is Reddy and acidic urine hurts my bark. Please use the fire hydrant instead."
- Health-care behavior change research shows that the most effective way to create the desired behavior is to make it easier to accomplish than the current behavior. Dog park users can strategize better techniques than non-users.

Roots are vital to a tree, but since we don't see them we unwittingly harm them.

- Roots pull in air, water, and nutrients by interacting with microbes in the soil. Research shows that tree roots communicate with other nearby trees to share nutrients and information on dangers. Remember, trees evolved in forest situations.
- If the soil is compacted by foot and dog traffic, the roots have difficulty doing any of the above. A screwdriver can show this— if can't get a screwdriver in, the tree can't get what it needs from soil.
- **The Critical Root Zone (CRZ).** Roots can travel an incredibly long distance. Once we talked about going out to 'drip line', but we now know that roots extend far beyond this. The CRZ is typically at *least* 1 foot for every 1 inch diameter at breast height (DBH). So for a tree that is 10-inch DBH (31.4" circumference), a minimum 10-foot radius from the trunk should be protected. Use tape to show on a tree. In Arlington County to get credit for protecting specimen trees during land disturbance it is required to use 1½ feet per inch DBH for the CRZ.



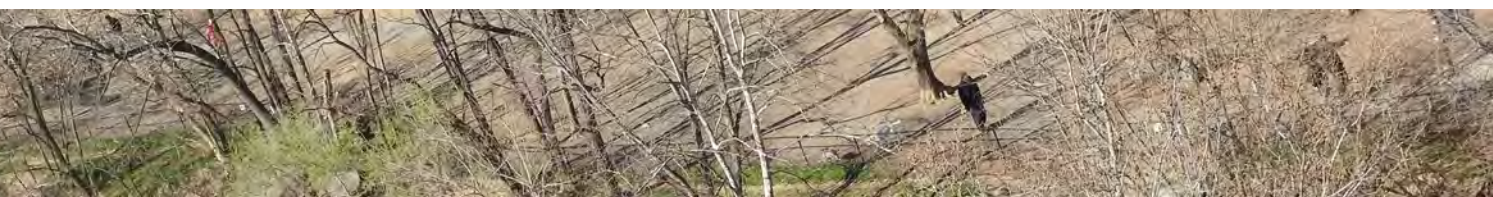
Appendix C:

Tree Issues

- Trees in the dog park are stressed since roots are not protected and soil is compacted. Techniques used elsewhere are not appropriate here. In a median or street side, one would put down layer of mulch along line of younger trees in the middle with low decorative fence, but that wouldn't deter dogs – and urine in mulch is a no-no.
- Could five feet from each side of trunk be protected somehow with fencing? Piling up branches and downed trees to create a barrier? Growing greenbriar all around the trees? Benches close to the tree trunk would probably increase root damage although it might decrease urine, or create smelly benches.

Ultimately any techniques will have to come from the Shirlington Dogs volunteers to be acceptable. My recommendations based on experience as a tree steward are to concentrate on:

- Identifying the trees as important pets within the dog park and making dog walkers aware of their needs. Whether this involves signs on each one to personalize them, whimsical collars, education signs on stakes in front of them, whatever....
- Strategize ways to reduce dogs urinating on trees. Where can dogs mark instead of trees? How to make this more likely?
- Strategize ways to protect the roots of trees. Could five-foot circles be created around trees? With what material?
- Your innovative mitigations can be presented to Arlington County Parks. Our tree stewards' experience is that if we show a project will be carried out by volunteers and won't cost Parks money or damage the trees, we get permission. Generally, tree stewards cover the costs and do the actual work after getting Parks' permission. We get our funds from annual member fees and donations.



Appendix C: Tree Issues

Resources

<https://environment.arlingtonva.us/trees/> The place to start when researching tree care, current regulations, Arlington tree canopy, and who to call

<https://environment.arlingtonva.us/2015/03/scoop-poop/> I think this first-person dog-lover article is much more effective than others and it is very local. Arlington County staffer Jen McDonald coordinates the volunteer stream programs and with her dog Annie explains the issues.

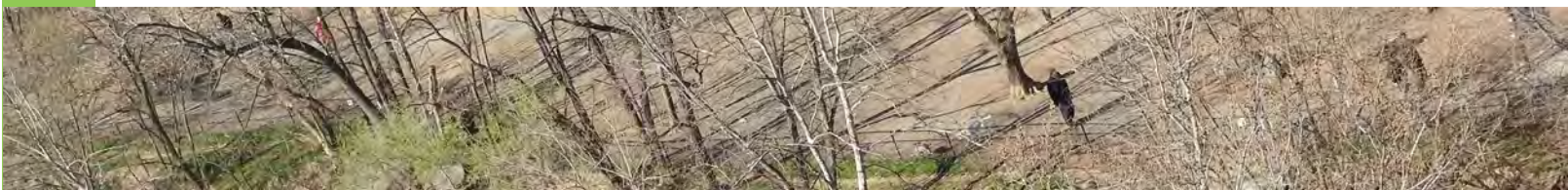
<https://www.citylab.com/environment/2012/08/why-you-shouldnt-let-your-dog-pee-trees/3117/> A good discussion of the biology of trees so one understands the problem plus gets into discussion of strategies to minimize problem—but no solutions.

<http://www.keepitcleanpartnership.org/pollution-prevention/scoop-the-poop/> Check out the posters for really cute dogs like the one shown.

Tree Stewards Arlington and Alexandria are volunteers who take the lead within their communities to enhance a sustainable urban forest through volunteer activities and public education programs. Our volunteer activities include planting, pruning, mulching, and watering of street, park and school trees as well as:

- Staffing informational booths at farmers' markets and local festivals, in conjunction with Virginia Cooperative Extension
- Leading neighborhood Tree Walks and speaking at community gatherings
- Advocating for trees wherever and whenever needed

For more information, contact info@treestewards.org, <http://www.treestewards.org>, or our [Facebook page](#).



Appendix D: Additional Resources

Environmental Issues

Designing Effective Outreach Programs to Reduce Pet Waste:

http://chesapeakestormwater.net/wp-content/uploads/dlm_uploads/2017/08/Pet-Waste-Report_network-review-draft.pdf?utm_content=Caroline&utm_source=VerticalResponse&utm_medium=Email&utm_term=Check%20out%20the%20report%21&utm_campaign=Help%20CSN%20Help%20You%21

Dog Urine and Trees:

<https://www.citylab.com/environment/2012/08/why-you-shouldnt-let-your-dog-pee-trees/3117/>

Impact of Dogs on Wildlife

<http://www.oregonmetro.gov/sites/default/files/impacts-of-dogs-on-wildlife-water-quality-science-review.pdf>

Designing a Model Dog Park Law, Michigan State University College of Law

<https://www.animallaw.info/article/designing-model-dog-park-law>

Dog Park Memberships and Managing Usage: Novi, Michigan dog park membership

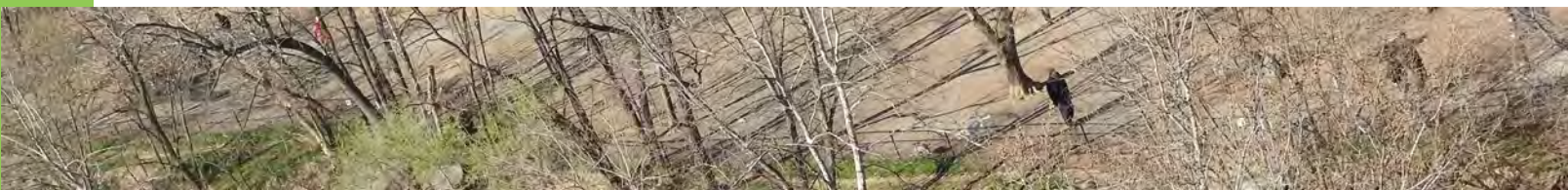
<http://www.cityofnovi.org/Government/City-Services/Parks,-Recreation-and-Cultural-Services/Parks-and-Recreation-Facilities/Novi-Dog-Park/Novi-Dog-Park-Membership-Application.aspx>

Chicago, Illinois Permit Requirements for DFA (Dog Friendly Areas)

<http://www.chicagoparkdistrict.com/facilities/dog-friendly-areas/#kfq1mls43g>

Ann Arbor, Michigan Permit Requirements

<https://www.a2gov.org/departments/Parks-Recreation/play/pages/dog-parks.aspx>



Appendix D: Additional Resources

Dog Park Master Plans

Alexandria, Virginia

https://www.alexandriava.gov/uploadedFiles/recreation/parks/Dog%20Park%20Booklet_For%20Web02712.pdf

Seattle, Washington

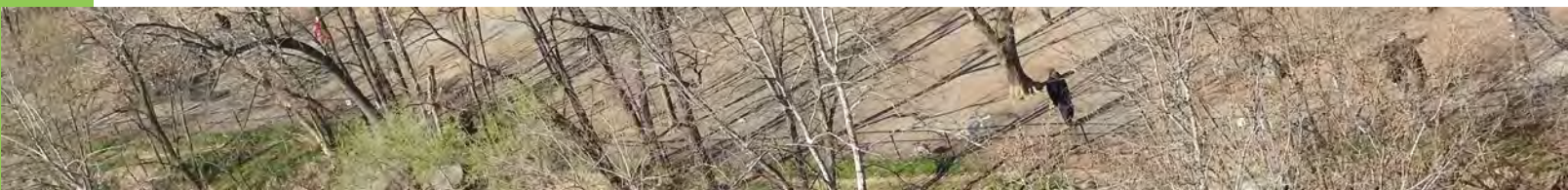
<https://www.seattle.gov/parks/about-us/policies-and-plans/people-dogs-and-parks-strategic-plan>

‘Because it is long-established and heavily used, the Off-Leash Area at Magnuson Park Beach should stay open but Seattle Parks and Recreation does not recommend creating any more OLAs with beach access.’

[http://www.seattle.gov/Documents/Departments/ParksAndRecreation/PoliciesPlanning/Plans/Response_to_SLI_69-1-B-1_\(Dog_Off-Leash_Areas\).pdf](http://www.seattle.gov/Documents/Departments/ParksAndRecreation/PoliciesPlanning/Plans/Response_to_SLI_69-1-B-1_(Dog_Off-Leash_Areas).pdf)

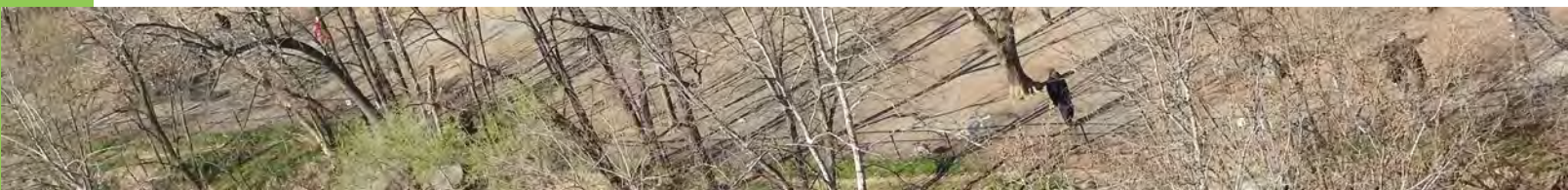
Description of Dog Park Systems and Issues (from the Seattle draft report [above] of 26 June 2016, pp 24-25:

- Portland, Oregon has 33 OLAS [off-leash areas], nine of them fenced, and 24 designated off-leash areas called Seasonal Hours at Reserved Sites (SHARED sites). The SHARED sites are designated areas in parks where dogs can run off-leash during seasonal hours in the early morning and in the early evening (exact times vary depending on daylight available in the summer and winter seasons). According to Portland, unless the boundaries are very clear, off-leash dogs are found using the entire park. Wear and tear on grassy areas is still higher than on regular turf areas. Various sets of hours and seasons are confusing for users. Portland is looking to fence more areas to reduce user conflicts and will not approve any new unfenced OLAs.



Appendix D: Additional Resources

- New York City, New York has four different designations of parkland: no dogs allowed, dogs on leash at all times, dog runs (fenced dog parks), and designated off-leash areas (certain areas allow off-leash from park opening until 9 a.m. and from 9 p.m. until park closing). New York City has 400 enforcement staff who work exclusively in parks to help make these designations function. People using the spaces have further activated the area and have helped cut down on crime.
- San Francisco, California has 17 off-leash sites and the size of the area dictates the use and type of barriers. The San Francisco Dog Owners Group is a very organized and active group supporting off-leash areas and dog owner education. Concerns about environmental degradation and impact on wildlife have led the City and County of San Francisco to consider changes in OLA management. The National Park Service is evaluating off-leash dogs in the Golden Gate National Recreation Area.
- Vancouver, British Columbia has 31 parks with off-leash locations. Use times and descriptions vary. There is a strong education and training program on responsible dog ownership. Like Portland, Vancouver is looking to fence more areas to reduce user conflicts.
- Denver, Colorado has nine dog park facilities and has developed strong design criteria, including a minimum size of one-acre with preference given to two or three-acre sites. Denver has two Animal Control Officers and two Park Rangers and has experienced many complaints related to enforcement of rules and regulations. They project a need for one more Animal Control Officer and two more Park Rangers.



Appendix E:

Public Engagement, Education, and Cooperation

- How do we engage the park users to understand and protect the stream area and prevent pollution and erosion?
- How can we improve the messaging and signage in and around the dog park, including opportunities for environmental education/interpretation?

Planning and designing public engagement should be integrated into future planning guidelines.

<https://www.communityplanningtoolkit.org/sites/default/files/Engagement.pdf>

The dog park community is intimately connected to this space. It fulfills all the elements of successful ‘placemaking’. The community has a responsibility to plan a strategic public engagement program that educates and invites cooperation.

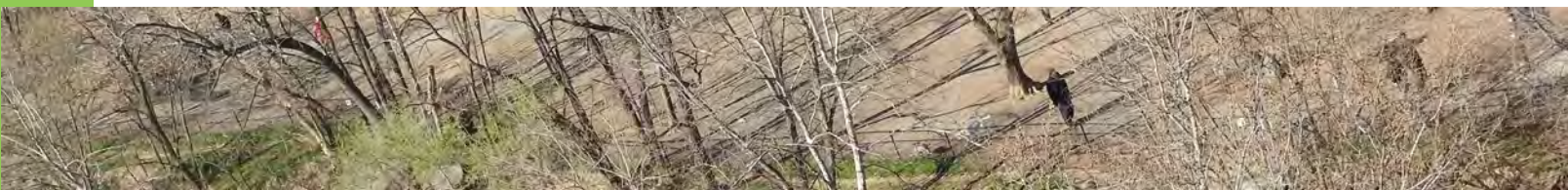
‘When people of all ages, abilities, and socio-economic backgrounds can not only access and enjoy a place, but also play a key role in its identity, creation, and maintenance, that is when we see genuine placemaking in action.’ (Project for Public Spaces, https://www.pps.org/reference/what_is_placemaking/)

<http://civiccommons.us/success/#civic-engagement>

‘Civic engagement is at the heart of Arlington.’ The [PLACE initiative](#) — Participation, Leadership, and Civic Engagement — launched in 2012 and focused on updating the “Arlington Way” by expanding the ways in which our residents engage with each other and our government to enrich Arlington.’

As we endeavor to keep pace with federal and state environmental policy, it is important to consider public initiatives to sustain them. There exists an urgency outside the 4MRVWG planning process that requires the county to be more responsive to the current environmental concerns of this dog park. Leveraging civic engagement is necessary to sustain the dog park now and in the future; it should be included in every phase of the process. Current policy is not adequate.

While the community is committed to maintaining this dog park in its current configuration, it will not ignore its responsibility to environmental policy and best practice.



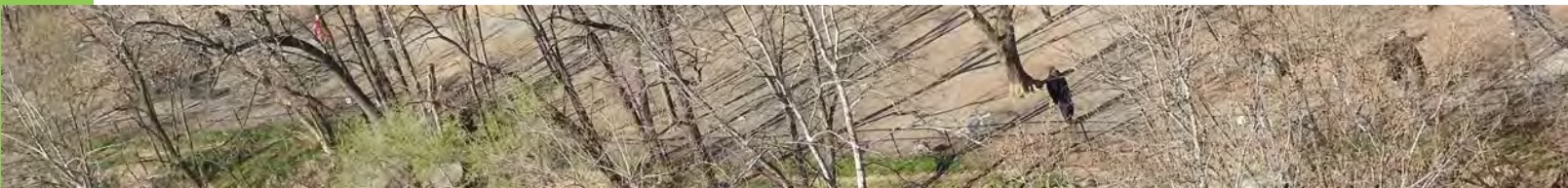
Appendix E:

Public Engagement, Education, and Cooperation

Mutual trust and respect is the foundation of a successful partnership. It is necessary for partners to give thoughtful consideration to the present and changing dynamics of this location as it relates to urban trends elsewhere.

Considerations for creating successful community engagement:

- Planning and designing community engagement works best where it is an ongoing cumulative process enabling relationships and trust to build and strengthen over time.
- Clarify scope and purpose.
- Shirlington Dog Park is a civic asset. Understanding its specific value and attributes in relation to the models of placemaking adds value to the planning process. The county cannot ignore the communities' serendipitous connection for this space while considering future planning. The success of this valued asset has evolved organically and the consequence of ignoring its importance in the community jeopardizes the economic vitality of the area.
- Update and expand current practice to include relevant and current data to better inform policy decisions, i. e., by using a variety of nationally recognized (Association of American Veterinary Medical Colleges) sources paired with accepted sources to not only better approximate the Arlington canine population but understand national standards and trends in community canine amenities, owner/household behaviors, etc.
- Recognize local trends in relation to national standards. There is increasing evidence that dog parks lead growth in urban parks, according to the data collected by the The Trust for Public Land in April 2016:
 - ◊ "Off-leash dog parks led the pack in new urban parks, growing by 4 percent in 2015 and 89 percent since 2007, according to The Trust for Public Land's most recent data on the nation's 100 biggest city park systems across the country."
- Recognize the responsibilities in sustaining this valued public space so that it may become an exemplar of stewardship of a stream corridor.
- Recognize the limitations of partners (i. e., County, civic sponsoring organizations) and adjust expectations to realistically sustain this amenity.



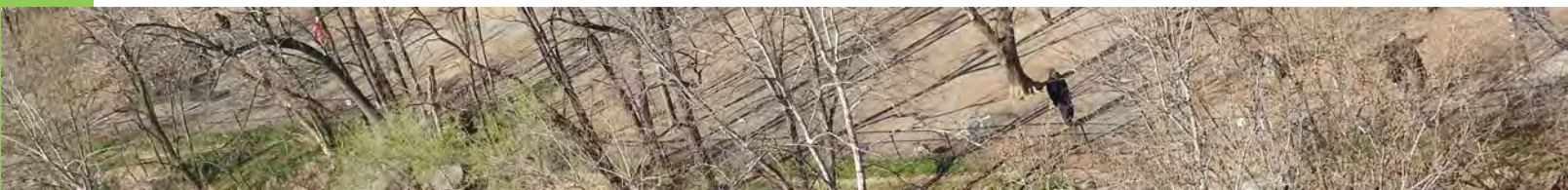
Appendix E:

Public Engagement, Education, and Cooperation

- Identify stakeholders and define roles.
- Define and include open common spaces for educational activities, informational kiosks, etc.
- Consider the capital investment required to maintain ongoing activities and programming for engagement, education and cooperation.
- Leverage public-private partnerships to maximize county resources and initiatives with community resources to serve and meet environmental regulatory requirements, public education and cooperation.
 - ◊ The county can develop existing relationships with community organizations such as Arlington dog park associations; civic associations; Arlington-based animal and canine service-related businesses and the Animal Welfare League of Arlington (AWLA); The Four Mile Run Business Association; BID's and other economic-development-focused associations (e. g., the Columbia Pike Revitalization Organization or CPRO); local universities (Virginia Tech, GMU, Marymount, NoVA); federal and national resources (e. g., AARP); etc., in tandem with current environmental initiatives through Arlington DPR and DES.
- Explore funding opportunities to accomplish goals.
 - ◊ A community planning effort in Milwaukee, WI is an example with a similar theme. [The Granville Park Master Plan](#), developed in January 2013, sets out a vision for the 26-acre off leash dog park on the Menomonee River:

R. A. Smith National worked with the River Revitalization Foundation (RRF); Milwaukee County; and a local Friends group, Residents for Off Leash Milwaukee Parks (ROMP) to create a site restoration plan for Granville Park, a 26-acre off-leash dog park in Milwaukee. The park is located upstream of Lake Michigan along the Upper Menomonee River.

The project partners worked together to develop solutions to the park's severe erosion issues; educate park users on the value of riparian buffers; and improve a dog's experience.



Appendix E:

Public Engagement, Education, and Cooperation

Each area of the park was analyzed and discussed during several public stakeholder meetings. Input from these meetings coupled with the team's water resource, ecological and park planning expertise were useful in developing a site restoration plan. The plan depicted a simplified, connected trail network that leads users to a controlled access point along the river, essentially a 'dog beach'. Dog-friendly, rubberized erosion control matting was proposed in this area to provide soil stabilization and prevent erosion. Where feasible, native shrub and tree plantings were integrated throughout the protected area to help restore the native riparian habitat."

- A recent partnership with Virginia Tech demonstrates how Arlington can embrace creative partnerships to reach policy goals. These relationships can be deepened to serve other goals in our community.
 - ◊ Arlington Economic Development and Virginia Tech College of Architecture and Urban Design: [Graduate Students Document Legacy Businesses for Arlington County; June 2017](#)
 - ◊ The Virginia Tech School of Architecture also hosts the [Community Design Assistance Center](#), whose mission is to assist communities, civic groups and nonprofit organizations in improving their natural and built environments through research, community engagement and interdisciplinary design.
- Arlington can leverage recent and ongoing recognition in their outreach efforts to national organizations.
 - ◊ [AARP's Staying Sharp Initiative](#); improving the quality of life with canine companions featured the Shirlington Dog Park in their 2016 video article '[Your Brain on Pets](#)'.

