Attachment 2

GREEN SPRING GARDENS

MASTER PLAN REVISION

FEBRUARY 2016

DRAFT

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TABLE OF CONTENTS

INTRODUCTION 1

PURPOSE AND PLAN DESCRIPTION 1

PLANNING PROCESS AND PUBLIC INVOLVEMENT 2

PARK BACKGROUND 5

LOCATION AND GENERAL DESCRIPTION 5

PROPERTY HISTORY 7

ADMINISTRATIVE HISTORY 10

PARK CLASSIFICATION 13

PLANNING CONTEXT 14

EXISTING CONDITIONS 17

PARK CONTEXT 17

ADJACENT DEVELOPMENT 17

PARK NETWORK INFLUENCE 18

MASTER GARDENER PROGRAM 19

FARMERS MARKETS 19

GARDEN PLOT PROGRAM 20

JOHN C. AND MARGARET K. WHITE GARDENS 20

EXISTING SITE CONDITIONS 21

NATURAL RESOURCES 21

HYDROLOGY 21

TOPOGRAPHY 25

SOILS 26

VEGETATION 28
HORTICULTURAL COLLECTIONS 28
STREAM VALLEY LANDSCAPE 34
WITCH HAZEL COLLECTION 37
NON-NATIVE INVASIVE PLANTS 38
WILDLIFE 39
RARE SPECIES 41
CULTURAL RESOURCES 41
HISTORIC HOUSE 42
BEATRIX FARRAND LANDSCAPE DESIGN 42
SPRINGHOUSE 44
FERMENTATION TANK 44
CEMETERY 45
POTENTIAL FEATURES 45
EXISTING INFRASTRUCTURE 46
UTILITIES 46
VEHICULAR ACCESS AND CIRCULATION 47
PEDESTRIAN ACCESS AND TRAILS 47
EXISTING USES & OPERATIONS 49
HORTICULTURAL COLLECTIONS 49
HORTICULTURE CENTER/GLASSHOUSE COMPLEX 50
CENTRAL LAWN 52
GAZEBOS 52
PINECREST GOLF COURSE MAINTENANCE FACILITY 53
MATERIALS STORAGE 53
TRAILS 53
PARKING 54
PROGRAMMING 54
FROGS 55
VOLUNTEERS 55
PARK ASPIRATIONS 57
PARK PURPOSE 57
DESIRED VISITOR EXPERIENCE 57
MANAGEMENT OBJECTIVES 57
RESOURCE AND SITE MANAGEMENT 58

NATURAL RESOURCE MANAGEMENT 58
CULTURAL RESOURCE MANAGEMENT 59
HORTICULTURAL RESOURCE MANAGEMENT 59
SITE CONSIDERATIONS 60

CONCEPTUAL DEVELOPMENT PLAN 61

INTRODUCTION 61
PLAN ELEMENTS 62
ENTRY ZONE 62
ARRIVAL ZONE AND PARKING 63
HISTORIC AREA 64
VIEWSHED PROTECTION 65
HISTORIC HOUSE ENTRANCE DRIVE 67
SPRINGHOUSE AND FERMENTATION TANK 68
HORTICULTURE CENTER / BUILDING EXPANSION AREA 68
CENTRAL LAWN 69
DEMONSTRATION AREAS 69
HORTICULTURAL DEMONSTRATION AREAS 69
NATIVE PLANT DEMONSTRATION AREAS 70
POND DEMONSTRATION AREA 70
WOODLAND DEMONSTRATION AREA 70
ECOLOGICAL RESTORATION AREAS 71
MAINTENANCE AND SUPPORT AREAS 71
OUTDOOR CLASSROOM 72
PEDESTRIAN CONNECTIVITY 73
INTERPRETATION 73
WAYFINDING AND SIGNAGE 73
RECOMMENDATIONS AND DESIGN CONCERNS 74
INCLUSION OF PUBLIC ART 74
PROVISION OF ADA ACCESS 74
PARKING ALTERNATIVES 74
PEDESTRIAN ENHANCEMENTS 75
BICYCLE ACCOMMODATIONS 75
LOW IMPACT DEVELOPMENT 75

FISCAL SUSTAINABILITY 75
COORDINATION WITH CULTURAL RESOURCE MANAGEMENT STAFF76
PROTECTION OF THE FERMENTATION TANK FOUNDATION 76
DEVELOPMENT WITHIN THE HISTORIC AREA 76
HISTORIC OVERLAY DISTRICT 76
RANGE OF DEVELOPMENT OPTIONS 77
APPENDIX A 79

LIST OF IMAGES

FIGURE 1: PROJECT WEBPAGE FOR MASTER PLAN 2
FIGURE 2: MAP OF COUNTY SUPERVISORY DISTRICTS 5
FIGURE 3: GREEN SPRING GARDENS VICINITY MAP 6
FIGURE 4: HISTORIC HOUSE CIRCA 1885 8
FIGURE 5: HISTORIC HOUSE CIRCA 1934 9
FIGURE 6: HISTORIC HOUSE CIRCA 1961 9
FIGURE 7 : CHRONOLOGY OF OWNERSHIP 10
FIGURE 8: 1977 CONCEPTUAL DEVELOPMENT PLAN 11
FIGURE 9: 1992 CONCEPTUAL DEVELOPMENT PLAN 12
FIGURE 10: ACQUISITION HISTORY 13
FIGURE 11: LINCOLNIA PLANNING DISTRICT 14
FIGURE 12: L1 - PINECREST COMMUNITY PLANNING SECTOR 14
FIGURE 13: ZONING MAP 18
FIGURE 14: MASTER GARDENERS' ADVICE TABLE AT GREEN SPRING GARDENS EVENT . 19
FIGURE 15: FARMERS MARKET PRODUCE 19
FIGURE 16: GARDEN PLOTS 20
FIGURE 17: FAIRFAX COUNTY PARKS WITH GARDEN PLOT PROGRAMS 20
FIGURE 18: IMAGES FROM WHITE GARDENS 21
FIGURE 19: CAMERON RUN WATERSHED 22
FIGURE 20: CAMERON RUN SUBWATERSHEDS 23
FIGURE 21: TURKEYCOCK RUN AT GREEN SPRING GARDENS 24
FIGURE 22: GREEN SPRING GARDENS' WESTERN POND 24
FIGURE 23: TOPOGRAPHIC MAP 25
FIGURE 24: FEMA IDENTIFIED FLOOD ZONE AND COUNTY MAPPED FLOODPLAIN 26
FIGURE 25 : CHESAPEAKE BAY ORDINANCE RESOURCE PROTECTION AREA 26
FIGURE 26: SOILS MAP 27
FIGURE 27: WOODED SLOPE IN THE STREAM VALLEY 35
FIGURE 28: WITCH HAZEL BUSH AND BLOOM 37
FIGURE 29: AMERICAN GOLDFINCH (MALE), RUBY-THROATED HUMMINGBIRD (FEMALE), AMERICAN BULLFROG (MALE) 39
FIGURE 30: EDUCATIONAL PROGRAM AT GREEN SPRING GARDENS 40
FIGURE 31: DEER AT GREEN SPRING GARDENS 40
FIGURE 32: CANADIAN GOOSE FAMILY AT GREEN SPRING GARDENS 41
FIGURE 33: CULTURAL RESOURCE FEATURES AT GREEN SPRING GARDENS 41
FIGURE 34: HISTORIC HOUSE, 2014 42

FIGURE 35: MEMBERS OF THE STRAIGHT FAMILY ENJOYING THE REAR LAWN 42
FIGURE 36: BEATRIX FARRAND LANDSCAPE DESIGN..... 43
FIGURE 37: SPRINGHOUSE..... 44
FIGURE 38: FOUNDATION OF FERMENTATION TANK 44
FIGURE 39: BEATTIE ERA IMAGE OF THE FERMENTATION TANK..... 44
FIGURE 40 : BARNS AND CABIN DURING THE STRAIGHT OWNERSHIP 45
FIGURE 41: EXISTING UTILITIES AND EASEMENTS..... 46
FIGURE 42: BRICK WALKWAY AROUND CENTRAL LAWN 47
FIGURE 43: AERIAL IMAGE OF GREEN SPRING GARDENS..... 48
FIGURE 44 : FRUIT TREE IN THE EDIBLE GARDEN 49
FIGURE 45 : CHILDREN'S GARDEN 49
FIGURE 46: SITE STAFF MAINTAINING THE PARK 51
FIGURE 47: MAINTENANCE GARAGE 51
FIGURE 48: IMAGE OF THE HISTORIC HOUSE FROM THE CENTRAL LAWN 51
FIGURE 49 : MAIN GAZEBO ON THE CENTRAL LAWN..... 52
FIGURE 50: PARK VISITORS ENJOYING A WALK IN THE PARK..... 53
FIGURE 51: CONCEPTUAL DEVELOPMENT PLAN 62
FIGURE 52 : ENTRANCE DRIVE TO HISTORIC HOUSE, CIRCA 1885 64
FIGURE 53: STRAIGHT-ERA AERIAL PHOTOGRAPH SHOWING ENTRANCE DRIVE 67

INTRODUCTION

PURPOSE AND PLAN DESCRIPTION

Fairfax County is a thriving community that is home to more than one million residents and the base for over two hundred million square feet of commercial, industrial and retail space. The county's residents and work force all uniquely benefit from the more than 23,000 acres of parkland and the myriad of recreational opportunities provided throughout the county. In 1950, the Fairfax County Park Authority was established with the charge of developing and maintaining the viability and sustainability of this expansive system of parkland and facilities. Through the provision of quality facilities and services as well as the protection of the county's cultural and natural resources, the Park Authority seeks to improve the quality of life for the county's residents today and well into the future.

To achieve its long-range goals and objectives, the Park Authority has established a process for the planning of park property and facilities, framed to be consistent and equitable. A key part of this process includes development of park master plans, specific to each park and intended to establish a long-range vision towards future park uses and site development. During the planning process, the site is evaluated to assess its context within the surrounding neighborhood as well as within the framework of the entire Fairfax County Park Authority park system. Potential and desired uses are considered with regard to the ability to establish them sensitively and sustainably on the subject property with public input as a key component in the decision-making process. When completed, the individual park master plan will serve as a long-term, decision making tool to guide all aspects of development related to planning, design, construction, resource management, and programming within that given park. To maintain the viability of the park master plan as an effective tool, periodic updates may occur so that the plan accurately reflects the park and its surroundings, addressing changes that occur over time. Physical site development ultimately

will require additional study and detailed engineering that exceeds the scope of the park master plan; however, it is the framework established through the park master plan process that assures cohesive, efficient and balanced development and usage of Park Authority assets.

PLANNING PROCESS AND PUBLIC INVOLVEMENT

Hearing the voice of the public is a key element in the Park Authority's approach to developing a park master plan. For this purpose, a public meeting was held January 29, 2015 at Parklawn Elementary School in Alexandria, Virginia. More than 50 people attended the meeting and many shared their vision for the future of Green Spring Gardens and expressed great fondness for the site. Several spoke appreciatively of the staff and programming at Green Spring Gardens. Suggestions were offered with regard to usage of the newly acquired property including keeping it in its current, undeveloped state, creating a bird sanctuary, or utilizing the area for additional program space. Within the broader context of Green Spring Gardens, several spoke to the need for additional facility space for programming, staff office space, and a space that could accommodate large meetings and programs yet could also be subdivided to suit smaller programs. Insufficient parking was a concern voiced by many. Several stressed the importance of considering financial sustainability and revenue generation in development of the plan.

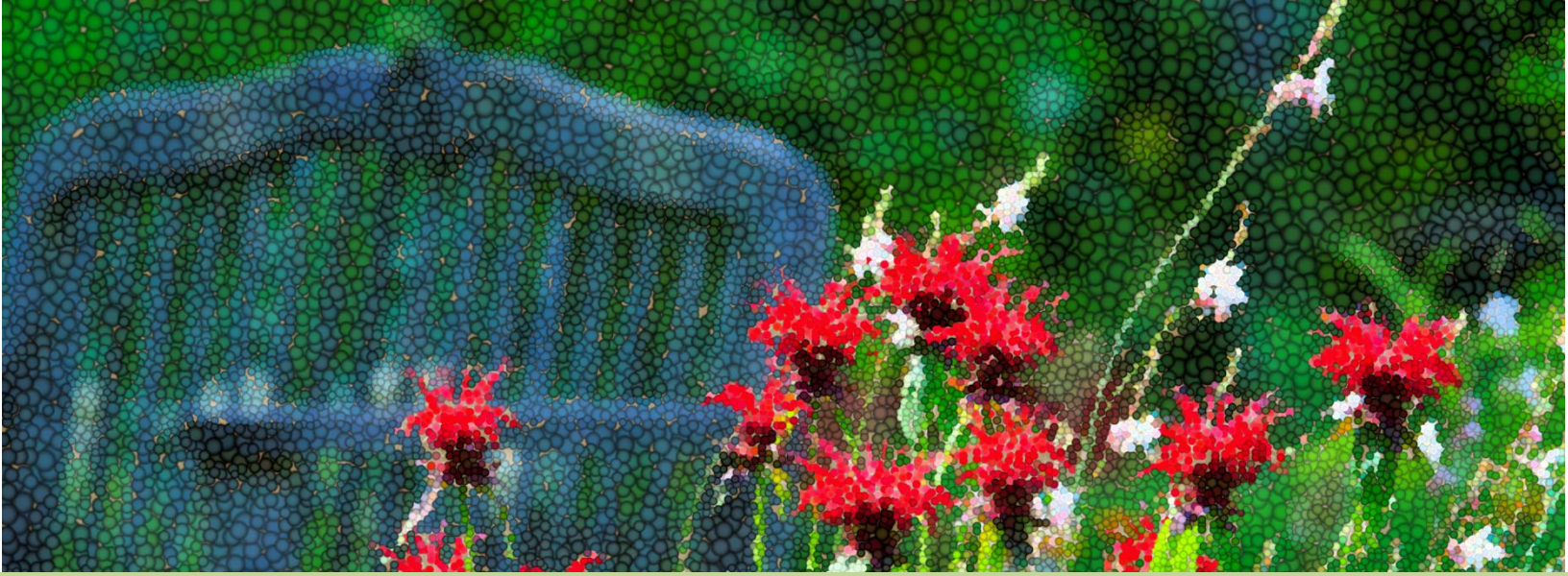
Figure 1: Project Webpage for Master Plan

In addition to the public meeting forum, a project web page was established to communicate the process and progress for the master plan revision of Green Spring Gardens. Project information and a copy of the presentations from the public meetings were posted to help inform those who were unable to attend the meeting. A series of questions and response boxes allowed visitors of the web page to quickly share their input regarding what they thought works well at Green Spring Gardens and what areas could use some improvement as well as offer suggestions for how best to utilize the newly acquired land. Over fifty individual commenters offered their suggestions through the web interface. The number of respondents equaled the attendance at the first public meeting, significantly adding to an understanding of the community's perspective. Some of the recurrent themes evidenced by the web site responses include a desire for emphasis on native plantings, an outdoor classroom, expanded programming and the

space to accommodate it, the need for additional parking, as well as great appreciation for the garden and its staff.

Once a draft concept plan was prepared, it was shared with members of the Friends of Green Spring Gardens (FROGS) board for their initial reaction. Their input was incorporated into the draft master plan revision that was then published on the project web page and shared with the community as a whole. A public meeting was held on December 2, 2015 to present the draft plan and listen to the community's response. Overall, the plan was well-received with several mentioning that they felt their suggestions and requests had been addressed. As a group, the Friends of Green Spring Garden (FROGS), representing a large number of Green Spring Gardens supporters and volunteers, offered some suggested modifications to the report text to expand on the discussion of management objectives and the described usage of the northern property addition. Several spoke of the broader need to enhance pedestrian and cyclist access to Green Spring Gardens and across the county to support non-motoized access to park facilities.

Subsequent to the December 2015 public meeting, modifications were made to the master plan report to better clarify the usage of the northern parcels. The Conceptual Development Plan graphic was edited to adjust potential trail locations and add the designations of Wooded Demonstration Area and Restoration Area. The plan was presented to the Park Authority Board for approval on March 23, 2016.



PARK BACKGROUND

LOCATION AND GENERAL DESCRIPTION

Green Spring Gardens, as a public garden, is a distinctive asset within the Fairfax County Park Authority network of parks. Located at 4603 Green Spring Road in Alexandria, Virginia, Green Spring Gardens serves Fairfax County residents and visitors by connecting the community to natural and cultural resources through horticulture, education, and stewardship. The garden's 31 acres offer a multitude of settings, features, and programs to inspire and educate gardeners, provide a place for quiet contemplation, and to open a window into the county's cultural past. Within the garden, the horticulture center houses a library of gardening resources, a glasshouse, classrooms, and office space for staff who cultivate an extensive array of programs to encourage generations of gardeners. A late 18th century historic house, along with an adjacent springhouse and fermentation tank, help to portray the lives and agricultural trends in Fairfax County's history as well as meriting listing within the National Register of Historic Places.

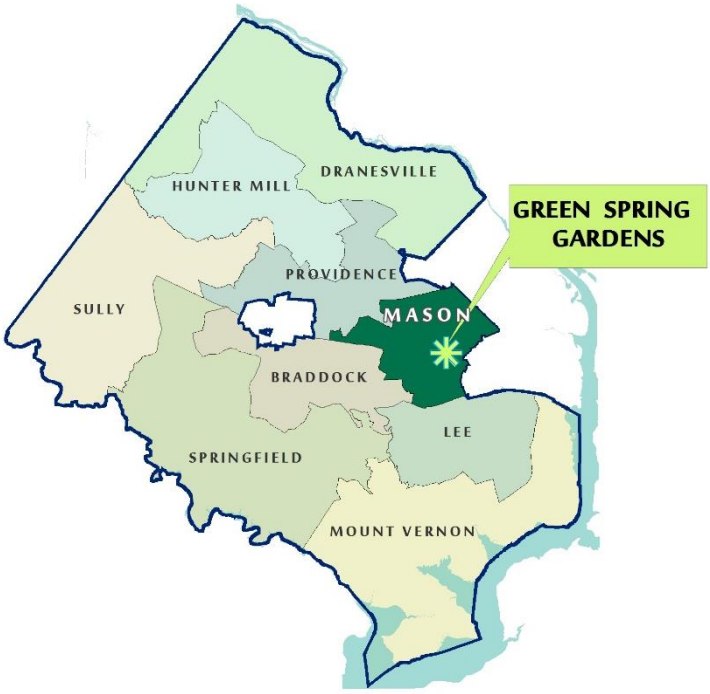


Figure 2: Map of County Supervisory Districts

Green Spring Gardens has been a thriving garden since the 1970s. The garden experienced a 10-fold increase in attendance from 20,000-30,000 in the early 1990s to an estimated 200,000-250,000 visitors in 2014. Green Spring Gardens has also been recognized for its efforts to improve the

environment in Fairfax County. In 2008, it received a Land Conservation Award for Tree Planting and in 2009 received the Community Appearance Alliance of Northern Virginia Honor Award for the Turkeycock Run Stream Bank Stabilization project. The dedicated staff that ensure that Green Spring Gardens is a welcoming venue for all who come to stroll the gardens or attend its programs was recognized as Fairfax County Park Authority Site of the Year in 2012.

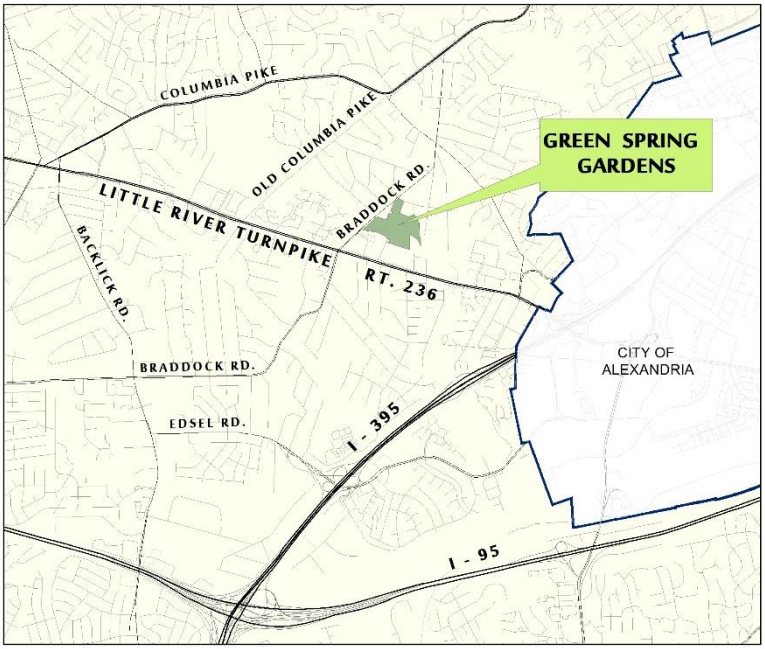


Figure 3: Green Spring Gardens Vicinity Map

The entrance to Green Spring Gardens is from Braddock Road on the western edge of the garden. The entrance drive, Witch Hazel Road, flanked with landscape beds and parking, also provides access to the maintenance shop for Pinecrest Golf Course, a Park Authority-owned golf facility on the opposite side of Braddock Road, as well as garden materials storage and overflow parking. The southern portion of the site is characterized by very gentle undulations in topography, allowing for easy pedestrian access among the numerous garden areas, the horticulture center, glasshouse, and the historic house. A central lawn is framed by a paved walkway, connecting these uses together. Outside of the central lawn, large stately trees frame garden beds and views.

From the main garden area, the topography slopes downward toward Turkeycock Run, which flows from west to east across the garden. Turkeycock Run lies within a 100-year floodplain and an associated Resource Protection Area, as defined by the Chesapeake Bay Preservation Act. There are two created ponds, recreational trails, and landscape beds near the ponds. A major portion of the garden remains wooded with supplemental planting to enhance native biodiversity.

North of the ponds, the topography gently regains elevation as the property extends towards the intersection of Braddock Road and Vale Street. The northernmost parcels feature mature trees around the periphery of the site with two, central cleared spaces where residential structures had previously existed on the property.

PROPERTY HISTORY

Little is known about the specific prehistory of the property that is now Green Spring Gardens; but, much can be inferred through an understanding of the archaeological evidence in the vicinity. Tukeycock Run would have played an important role in the lives of the area's prehistoric Native Americans, an idea supported by the discovery of several prehistoric lithic scatter sites along Turkeycock Run up and downstream of the garden. The elevated plateau of the southern portion of the site, adjacent to a ready source of water, would likely have attracted early Native Americans for much the same reason as it did more contemporary land owners. Historic usage of the land may have masked any visible signs of prehistoric occupation; however, there is a moderate to high likelihood that such occurred, with populations responding to changing climatic trends and shifts from a hunter-gather lifestyle to early forms of agriculture.

The property's more recent history begins after the establishment of the first permanent English settlement in Virginia in 1607. Then, the general area was an untapped wilderness dotted with Native American communities. The fledgling Virginia colony was divided into eight counties, the land area encompassing Green Spring Gardens being in Northumberland County. Northumberland was subdivided various times as the area slowly populated. Settlements expanded and became permanent as agriculture, particularly tobacco farming, fed the economy.

Prior to the establishment of Fairfax County in 1742, the Right Honorable Lord Fairfax leased 201 acres of land to John Summers in 1731 when the property was within the boundary of what was then Prince William County. John Summers grew wheat on the land and further expanded his property holdings. He divided the property between his two sons, Francis and Daniel, in 1761. Daniel Summers acquired the portion of his father's property that included the area of what is now Green Spring Gardens.

John Moss purchased the property from Daniel Summers in 1777 in addition to several adjacent properties, expanding the Moss estate to 450 acres and leasing an additional 7,000 acres. John Moss built the historic brick house, which remains in the garden today, in 1784, as confirmed through a dendrochronological study in 2007. Little River Turnpike was constructed through the Moss property around 1802, aiding in the transport of tobacco to the port of Alexandria for sale. Over the years, however, the region's primary crop changed from tobacco to grains. Similar to John Summers, John Moss divided his property between his two sons, William and Thomas, in the early 1800s. Thomas Moss ultimately remained on the property, maintaining working orchards and producing hay on the land, until his death. Land records of the era indicate numerous structures on the property including the brick house and a springhouse.

In 1838, Thomas Sherriff purchased approximately 336 acres that had been owned by Thomas Moss, ultimately passing the land to his son James Sherriff after his death. It was during the ownership of James Sherriff that the property was first referred to by the name "Green Springs". James sold the property to his brother William in 1853 who then

advertised the farm for sale just a few years later in 1855. The advertisement noted that the property was located a short distance from the future depot of Alexandria and Manassas Gap Railroad, which never came to fruition.

Figure 4: Historic House Circa 1885

William Sherriff sold the property to Hannah O'Brien in 1855. During O'Brien's ownership, the property produced many fruits, clover, timothy, and hay and had a young orchard. From this point forward, the property was referred to as Green Spring, dropping the "s" after "Spring". Hannah owned the property through the years of the Civil War. There were no major battles on the property; but, troops moved back and forth across the land several times. There may well have been Civil War encampments at Green Spring during the war, although there has not been any confirmation through archaeological sites on the property. Having managed to maintain her ownership through the Civil War, Hannah O'Brien ultimately forfeited ownership due to accumulated debt.

Subsequent to Hannah O'Brien's ownership and financial troubles, the property was sold to Fountain Beattie in 1878. Beattie managed a dairy farm and apple orchard on the property, producing milk, butter, apple jack, and apple brandy. The archaeological remains of the fermentation tank from Beattie's era remain on the park property. During his ownership, Beattie finished the attic space, which included the addition of dormer windows on the attic level, to provide more living area in the house for his wife and twelve children. A front porch is believed to have been added during this period. In the latter years of his life, Beattie lived in Annandale, Virginia while leasing the Green Spring property to others.

The period of 1917 to 1924 was characterized by two short ownerships – George and Marjorie Sims from 1917 to 1922 and James and Mary Duncan from 1922 to 1924.

In 1924, the Duncans entered an agreement with Carroll Pierce to subdivide the estate into smaller tracts. Frederick Segesserman purchased the tract containing the brick house which fell into disrepair after it remained unoccupied for several years. Although

Segesserman never restored the house, he recovered original pieces of the home that had been vandalized over the years and stored them for use by some future owner who would restore the home.

In the years that followed Segesserman's ownership and in the midst of the Great Depression, Minnie Whitesell bought the property in 1931. A 1932 article in *American Motorist* magazine described the work she was doing to restore the home to some of its former beauty, the article bearing a tone of understated appreciation at seeing this landmark restored. Among the improvements made during Whitesell's ownership were the addition of a side kitchen and a garage. A widowed mother of two, Whitesell remained in the home until her death in 1938.

Figure 5: Historic House Circa 1934

Figure 6: Historic House Circa 1961

Michael and Belinda Straight purchased the Green Spring property from Minnie Whitesell's children in 1942 and continued the restoration efforts begun by Minnie Whitesell. Shortly after acquiring the property, the Straights hired the renowned restoration architect Walter Macomber to help guide the restoration of the home. Mr. Macomber, who was the architect for the Colonial Williamsburg restoration, was considered to be a premier Colonial Revival architect. Macomber's plans removed the side kitchen and garage added by Minnie Whitesell and added symmetrical brick wings on either side of the home as well as an enclosed sun porch. At the same time, noted landscape architect and Straight family friend Beatrix Farrand developed a design for the grounds, establishing the crescent hedge that defines the rear yard. The Straights lived in the springhouse during the reconstruction of the home. Michael Straight also developed a keen interest in developing the more naturalized landscape around the home, creating the two ponds north of the house and extensively landscaping around them and the connecting slopes between. Having raised their children on the property and being displeased with

encroaching development, the Straights elected to donate their property to Fairfax County Park Authority in 1970.

Property Owner	Dates of Ownership
Summers Family	1730 to 1777
Moss Family	1777 to 1840
Sheriff Family	1840 to 1855
Hannah O'Brien	1855 to 1878
Fountain Beattie	1878 to 1917
George and Marjorie Simms	1917 to 1922
James and Mary Duncan	1922 to 1924
Frederick Segesserman	1924 to 1931
Minnie Whitesell and heirs	1931 to 1942
Michael and Belinda Straight	1942 to 1970
Fairfax County Park Authority	1970 to present

Figure 7 : Chronology of Ownership

ADMINISTRATIVE HISTORY

The initial acquisition for Green Spring Gardens by the Park Authority occurred in October 1970 when 18.34 acres were deeded to the Park Authority by Michael and Belinda Straight. The 1970 deed included a provision that the property conveyed to the Park Authority "shall be used solely and exclusively for public park purposes, and for no other purpose." This property, which remains the core of the park today, contains the historic house, initially constructed circa 1784, a springhouse, constructed in the early 19th century, two ponds, and the landscape designed by renowned landscape architect Beatrix Farrand surrounding the house. Initial access to the garden was via Green Spring Road from Little River Turnpike, the location of which had historically served as the entrance drive to the brick house.

Approximately one month after the Straight acquisition, in November 1970, the Park Authority acquired an additional 5.55 acres from Edwin Lynch. This property is immediately adjacent to the Straight parcel and provides street frontage on Braddock

Road. In September 1976, the Park Authority acquired another 4.53 acres to the east end of the garden from Merritt and Rose Sanborn, expanding on the portion of stream valley associated with the park.

In 1975, after acquiring such a sizeable and notable property consolidation, the Park Authority initiated the master plan process, meeting with the community to collectively envision the future of Green Spring Gardens, then referred to as Green Spring Farm. Meetings in June 1975 and January 1976 identified a strong desire of the community that Green Spring Farm be developed as a cultural, horticultural, and historic center. With this community focus in mind, the Park Authority developed the first master plan for Green Spring Farm which was approved by the Park Authority Board in December 1977.

Figure 8: 1977 Conceptual Development Plan

Much of the development within Green Spring Gardens occurred during the 1980s based on the 1977 master plan. Supported through bond funding, Phase 1 of the horticulture center, demonstration gardens, and irrigation were added. Significant repairs were made to the historic house in 1994. The brick walkway was added around the central lawn in 1990 while the gardens and plantings have continued to expand and evolve over time.

By the early 1990s, much of the garden had been developed in conformance with the original master plan. Changes in the connection of Green Spring Road, which originally bisected the garden, and a planned expansion to the horticulture center impacted the overall design of the garden. Additionally, by the early 1990s, there had been significant progress made to developing a management philosophy for the garden. The master plan for Green Spring Gardens was updated and approved by the Park Authority Board in December 1992 to capture the strategy for continued stewardship of this site as well as modifications to site design. The 1992 plan included a Conceptual Development Plan and a General Management Plan, coalescing the management philosophy into one

statement, defining the mission and objectives of the garden to protect cultural, natural, and horticultural resources.

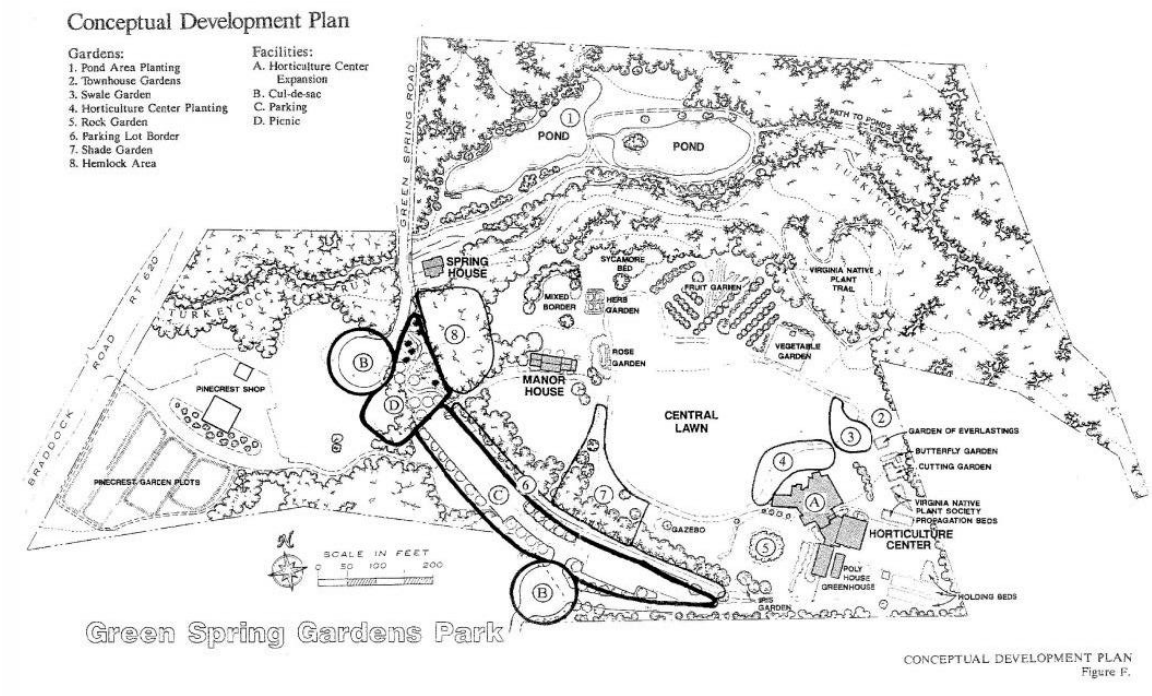


Figure 9: 1992 Conceptual Development Plan

Subsequent to the approval of the 1992 master plan, the Park Authority acquired three additional properties along the northern boundary of the site. Approximately one acre was acquired from Anny DeBoeck in June 2008. A few months later in November 2008, approximately one half acre was dedicated to the Park Authority as a proffered condition for development of the adjacent Magnolia Manor Subdivision. An additional 1.48 acres was acquired from Judith Holt in 2009. With these most recent additions and minor reductions for right-of-way dedication, the total acreage of Green Spring Gardens has grown to 30.9 acres. As a result of 2008 and 2009 acquisitions, the Green Spring Gardens Master Plan Revision was added to the 2014 Work Plan to determine how best to incorporate the new acreage into the overall plan for the garden. By engaging in a revision to the approved master plan, the opportunity was also available to reexamine the overall plan for Green Spring Gardens with the help of the community, setting the stage for the next planning horizon.

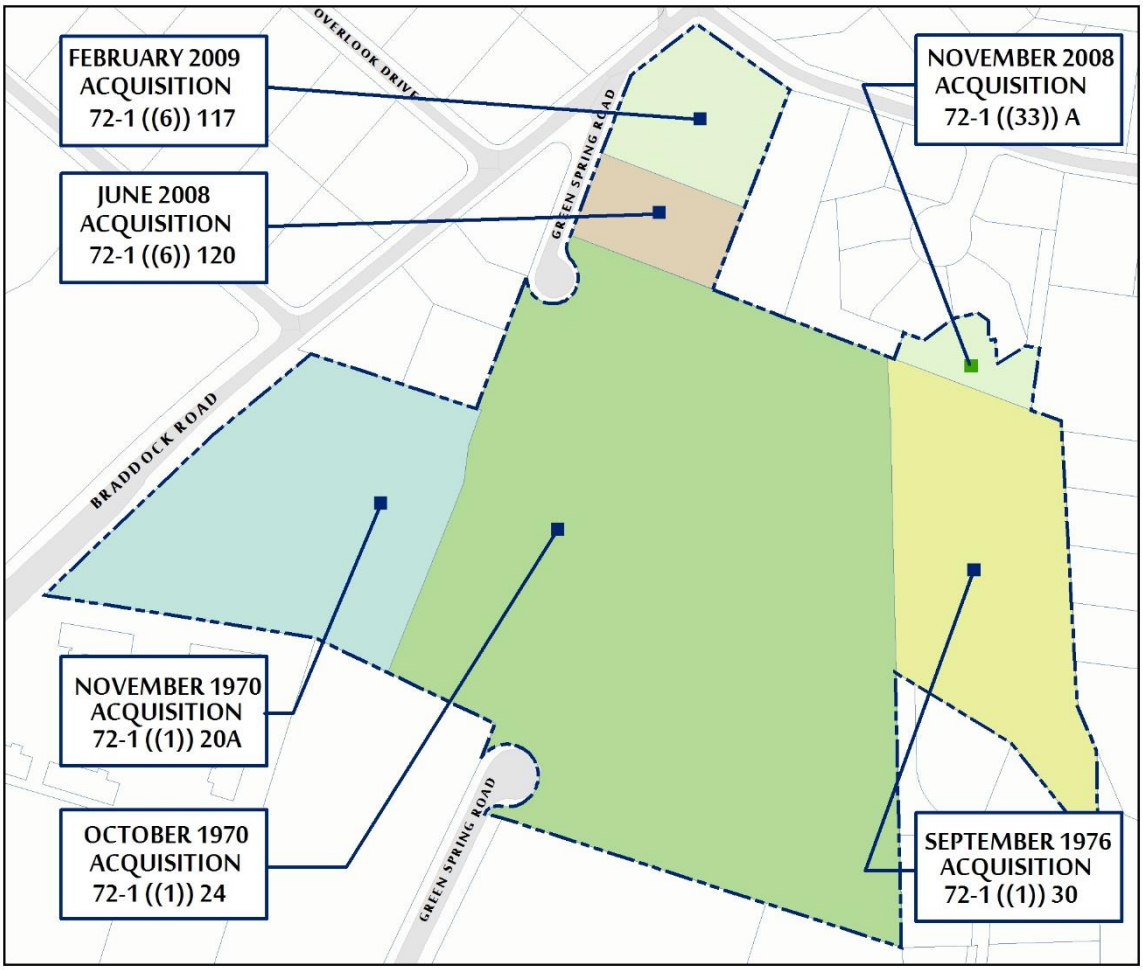


Figure 10: Acquisition History

PARK CLASSIFICATION

The Fairfax County Comprehensive Plan establishes a framework intended to guide long-term planning for the county, with respect to both the built and natural environments. As a component of the Comprehensive Plan, the Policy Plan addresses goals and objectives for various planning elements, including parks and recreation, and establishes a Park Classification System to guide the planning of open space and facilities.

Within the Park Classification System Green Spring Gardens is a countywide park. With Green Spring Garden's focus on horticulture, unique within the Fairfax County park system, this garden serves as a resource to residents across the county. Access to countywide parks should, ideally, be provided by major arterials, supported by pedestrian and bicycle facilities, and connected to transit when possible. Whereas countywide parks tend to be large, 150 acres or more, the unique focus around horticulture places Green Spring Gardens in this classification, despite its limited size of 31 acres. Countywide parks offer a variety of experiences and activities and can serve an individual's needs as well as

that of a large group, frequently hosting events that draw large numbers of visitors. The variety of facilities and experiences can support visitors for a full day.

PLANNING CONTEXT

Green Spring Gardens is located within the L1 Pinecrest Community Planning Sector of the Lincolnia Planning District as identified in the Fairfax County Comprehensive Plan. The Pinecrest Community Planning Sector is largely characterized by older, stable single-family neighborhoods, as is typified by development to the north and east of Green Spring Gardens. Commercial uses, like those south of Green Spring Gardens, are oriented towards Little River Turnpike. Very little change is planned for this sector of the county, with residential densities to remain generally at one to two dwelling units per acre. One noted exception is the cluster of properties just east of the horticulture center. Seven properties located at the end of Merritt Road, north of the Autumn Glen townhouse development, could be considered for redevelopment at five dwelling units per acre with parcel consolidation. The Comprehensive Plan Map shows public park use for the

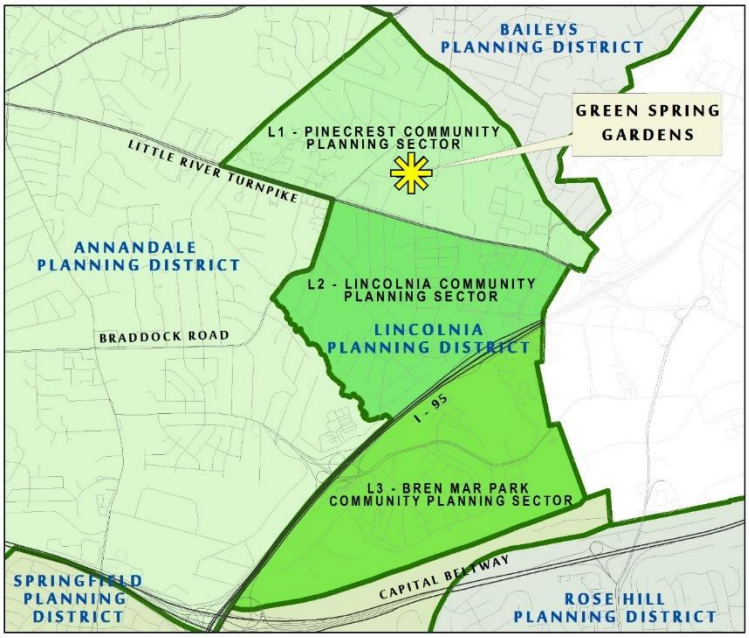


Figure 11 : Lincolnia Planning District

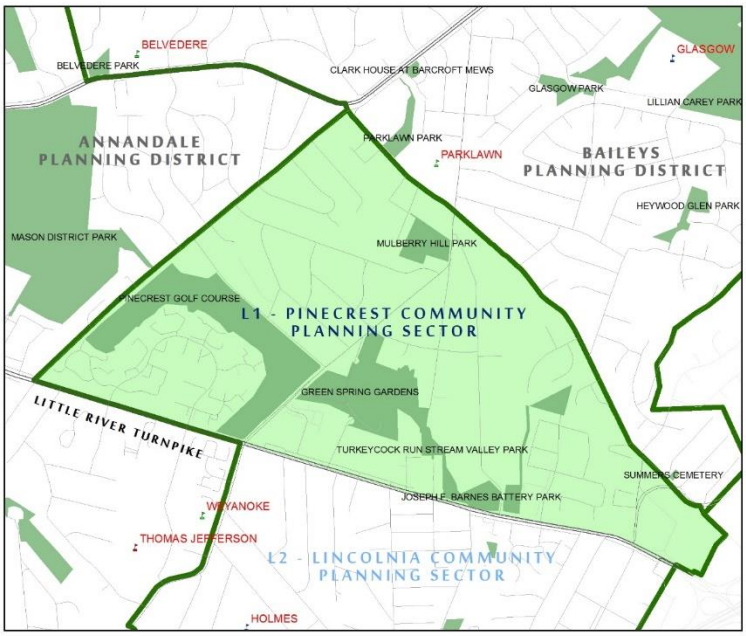


Figure 12 : L1 - Pinecrest Community Planning Sector

area of Green Spring Gardens. Other than the potential for redevelopment at the end of Merritt Road, the uses adjacent to Green Spring Gardens today can be expected to continue in the future for the foreseeable planning horizon.

Green Spring Gardens is zoned R-2, residential district at two dwelling units per acre. Public uses such as parks are a permitted use within this zoning district. The southern portion of Green Spring Gardens lies within a Highway Corridor Overlay District. This distinction places restrictions on property adjacent to several primary roadways within the county with the goal of reducing traffic congestion and improving safety. As the restrictions apply to certain automobile-oriented, quick turn over uses, such as drive-in banks and fast food restaurants, development at Green Spring Gardens should not be impacted by the presence of the overlay district.

EXISTING CONDITIONS

PARK CONTEXT

In addition to assessing area-wide needs, park planning efforts must also evaluate proposed park development within the context of the existing community. An understanding of the surrounding neighborhood helps provide a framework to visualize potential development within the park.

ADJACENT DEVELOPMENT

Green Spring Gardens is nestled into the Pinecrest neighborhood, developed largely in the 1940s and 1950s. The garden is bordered to the north and east by single family detached homes as well as a cluster of homes adjacent to the garden along Braddock Road.

To the west, the garden fronts on Braddock Road, opposite Pinecrest Golf Course which is owned and operated by Fairfax County Park Authority. Pinecrest Golf Course is a nine-hole executive course that wraps around the Pinecrest development of single-family, multi-family, and townhome residences.

To the south, Green Spring Gardens abuts commercial property operated as two car dealerships, a thrift store operated by the Salvation Army, and the Pinecrest Office Park condominiums. Although Green Spring Road previously provided access to the garden directly from Little River Turnpike, the closure of this road terminated any regular vehicular access between the commercial properties and Green Spring Gardens although regular pedestrian and bicycle access remain. During major events or temporary closure of Witch Hazel Road, however, the gate at this location may be opened to permit traffic flow.

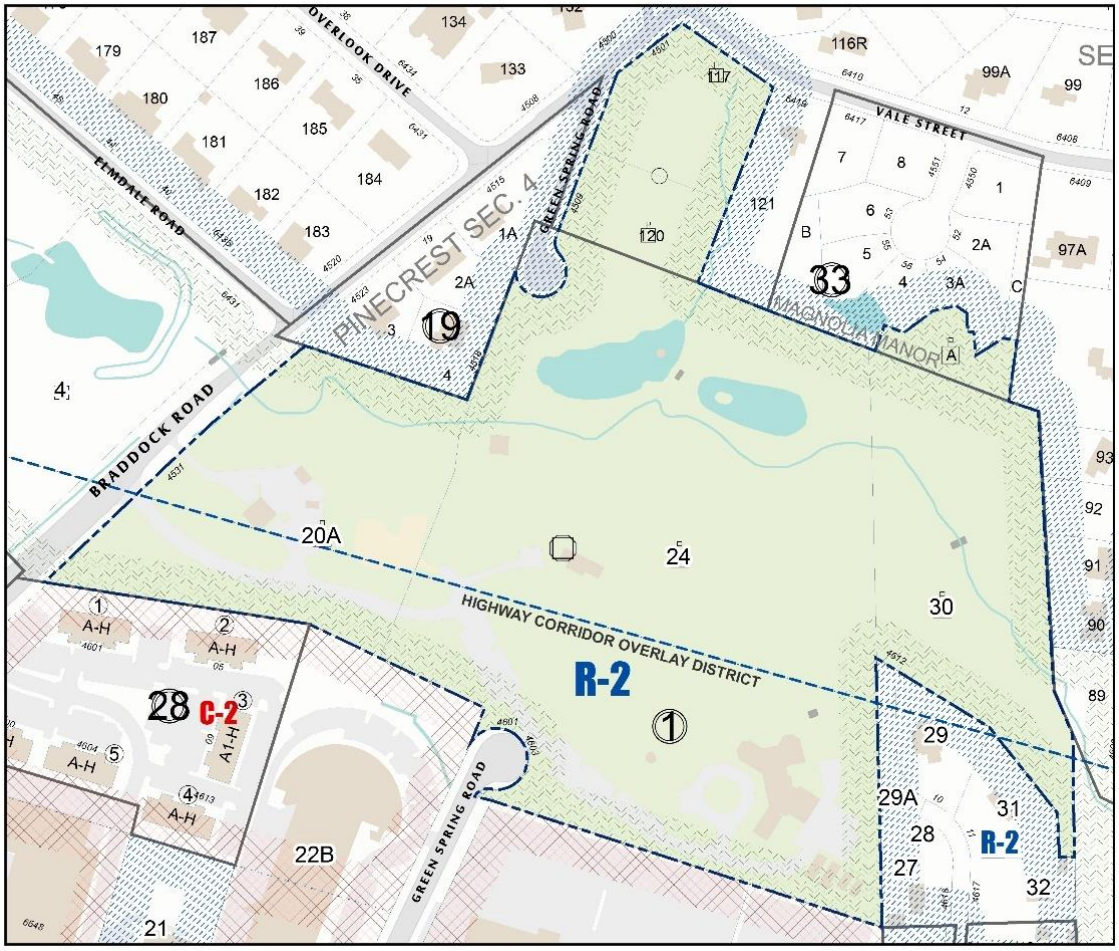


Figure 13: Zoning Map

PARK NETWORK INFLUENCE

Typical master plan analysis includes an evaluation of other parks in the vicinity of the park being planned. Any given individual park is not expected to provide all types of park services and facilities; but, rather, be evaluated as a component of the surrounding park network. Within five miles of Green Spring Gardens, over 130 Fairfax County parks help address the area demand for open space, athletic facilities, programming, natural and cultural resource protection and interpretation. Nearby Arlington County, the City of Alexandria, and the City of Falls Church also provide park experiences for area residents. However, the influence of Green Spring Gardens, can be observed across the region. The Community Horticultural Program, coordinated from Green Spring Gardens, expands the impact of the garden through the Green Spring Master Gardener Program, the Farmers Market Program, and the Garden Plot Program.

MASTER GARDENER PROGRAM

Operating under the auspices of the Virginia Cooperative Extension program, Green Spring Gardens established a Master Gardener Volunteer Training Program in 2001. After completing a 10 week training program which provides an overview of a wide range of horticultural topics, the Master Gardener interns contribute 50 hours of horticultural volunteer service to earn certification as a Master Gardener. In FY15, the Green Spring Master Gardeners, consisting of 139 volunteers, contributed 11,959 service hours delivering advice at the Green Spring Gardens help desk and farmers markets, creating displays for libraries, leading docent tours, and delivering educational presentations to community groups across the county.

Figure 14: Master Gardeners' Advice Table at Green Spring Gardens Event

FARMERS MARKETS

For those who seek the benefit of locally grown produce, Fairfax County farmers markets are available currently at eleven locations across the county. Managed through the Community Horticulture Office, a plethora of fruits, vegetables, flowers, bread, cheese, meats, and eggs are available from area vendors. All vendors are located within 125 miles of Fairfax County, insuring that produce is fresh and sales support local farmers.

Figure 15: Farmers Market Produce

Patrons of farmers markets are more keenly aware of the source of their food and inspired to make more health-conscious and environmentally-conscious food selections.

GARDEN PLOT PROGRAM

Through the garden plot program managed by Green Spring Gardens' staff, gardeners can also cultivate their own horticultural interests and skills by growing their own fresh produce. Consistently in high demand, over 650 garden plots are located within nine parks across the county.

Figure 16: Garden Plots

PARK NAME	SUPERVISORY DISTRICT	# OF PLOTS
Baron Cameron Park	Hunter Mill District	32
Broyhill Crest Park	Mason District	17
Eakin Community Park	Providence District	20
Franconia Park	Lee District	89
George Mason Park	Braddock District	47
Grist Mill Park	Mount Vernon District	46
Lewinsville Park	Dranesville District	143
Nottoway Park	Providence District	142
Pine Ridge Park	Mason District	159

Figure 17: Fairfax County Parks with Garden Plot Programs

JOHN C. AND MARGARET K. WHITE GARDENS

Acquired by the Park Authority in 1999, the John C. and Margaret K. White Gardens is another Park Authority site that closely aligns with the mission of Green Spring Gardens. Located near the intersection of Annandale Road and Kerns Road in Falls Church, the 13.6 acre property features the collection of azaleas, rhododendrons and camellias established by the Whites. The White's had acquired the property in 1938 and began making numerous improvements to the site including their home, a pond, and a network of trails. As a horticultural enthusiast, John White cultivated an array

of evergreens, boxwoods, and an extensive collection of rhododendrons and azaleas. Recent work on that property has identified 238 species and varieties of rhododendrons and azaleas established by the Whites within the park.

A deed restriction imposed on the sale of the White property states that the land is to be used as a horticultural park. Based on the out-of-the-way location of the park and research regarding visitor trends at Green Spring Gardens, it was determined that White Gardens would largely attract horticultural enthusiasts and local community members. White Gardens is an unstaffed park with maintenance and management of the horticultural collections directed through the offices at Green Spring Gardens.

Figure 18: Images from White Gardens

EXISTING SITE CONDITIONS

The Master Plan process includes an evaluation of the existing site conditions, seeking to identify both the opportunities and challenges for development within a park. Data gathered during site analysis helps define which uses might be best suited to the site. Such information is also beneficial in understanding how the desired uses might be most sustainably adapted to the site.

NATURAL RESOURCES

HYDROLOGY

Green Spring Gardens lies in the center of the 44 square mile Cameron Run watershed, with Turkeycock Run as a major water feature flowing through the center of the garden. Most of the land development in the area occurred by the early 1970s and only a small portion of the watershed's acreage remains undeveloped. Approximately 23% of the land area within the Cameron Run watershed is covered with impervious surface, a value which is anticipated to increase with further development as planned in the Fairfax County Comprehensive Plan. Land area with greater than 10% imperviousness, coupled with few stormwater management controls, will typically exhibit substantial physical consequences to streams such as

erosion, flooding, and channel alteration due to the increased volume and rate of stormwater runoff. This is true for the Turkeycock Run watershed which is in poor physical and biological condition due to inadequate buffers, eroded stream banks, and obstructions of stream flow, providing little in terms of habitat for aquatic vertebrates, invertebrates, and fish.

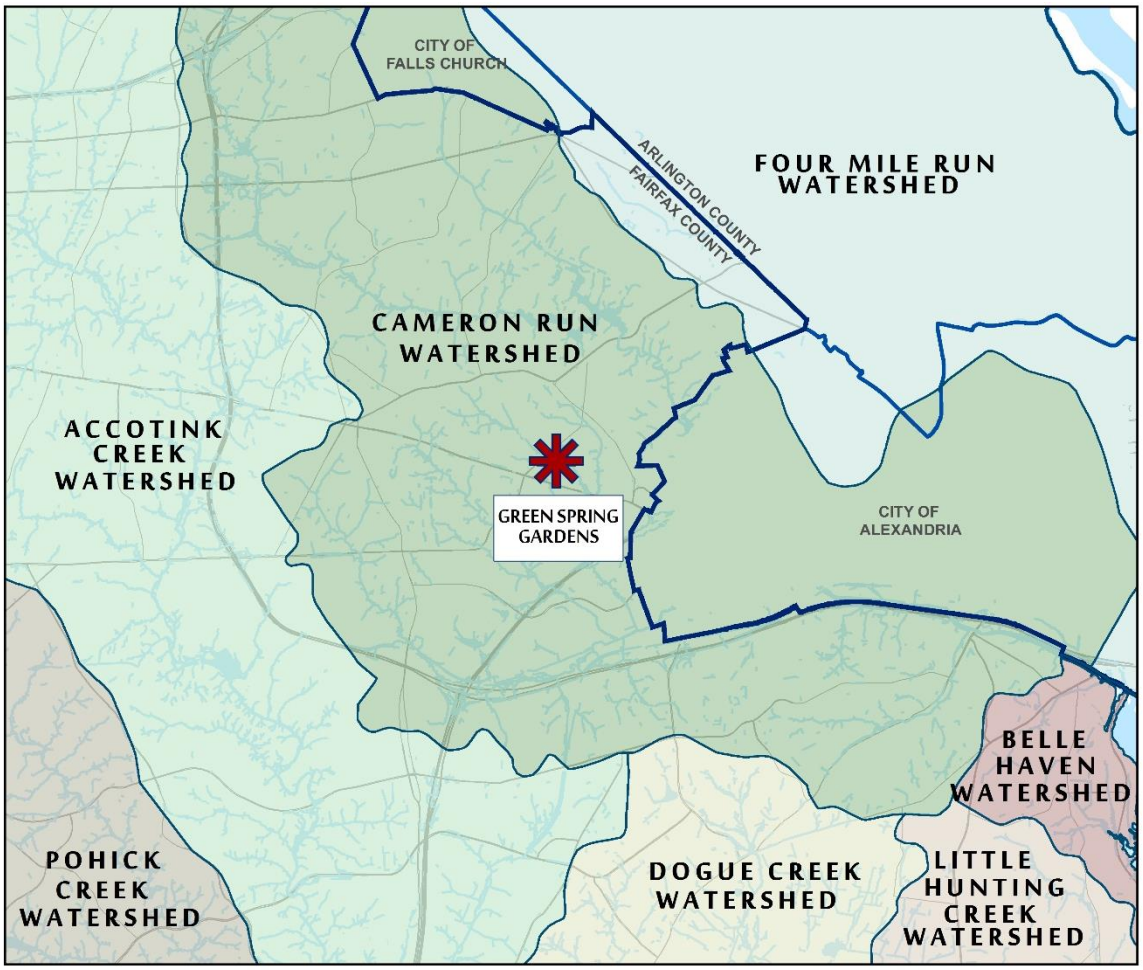


Figure 19: Cameron Run Watershed

To help address the increasing impacts to streams and water quality, the Fairfax County Stormwater Planning Division within the Department of Public Works and Environmental Services (DPWES) prepared a management plan for the Cameron Run watershed. The Cameron Run Watershed Plan (CRWP), completed in 2007, is a strategic plan to protect and improve the condition of water resources in the watershed with a time horizon of 25 years.

The CRWP provides analysis of the existing conditions within the watershed and recommends specific projects to improve the health and water quality of the included streams. Recommended projects seek to address four central goals:

- Goal A - reduce the effects of stormwater runoff and protect streams;

- Goal B - preserve, maintain and improve habitats that support native flora and fauna;
- Goal C - preserve, maintain, and improve water quality within the streams to benefit both human and aquatic life; and,
- Goal D - improve stream-based quality of life and environmentally-friendly recreational opportunities.

Included in the watershed plan recommendations, Project CA9868, "Green Spring Gardens LID" falls within the garden and recommends the installation of linear bioretention areas along the parking spaces and an infiltration trench in the traffic circle. A bioretention area was incorporated into the design of the entrance road when access to the garden was relocated to Braddock Road; however, to date, Project CA9868 has not been implemented by DPWES.

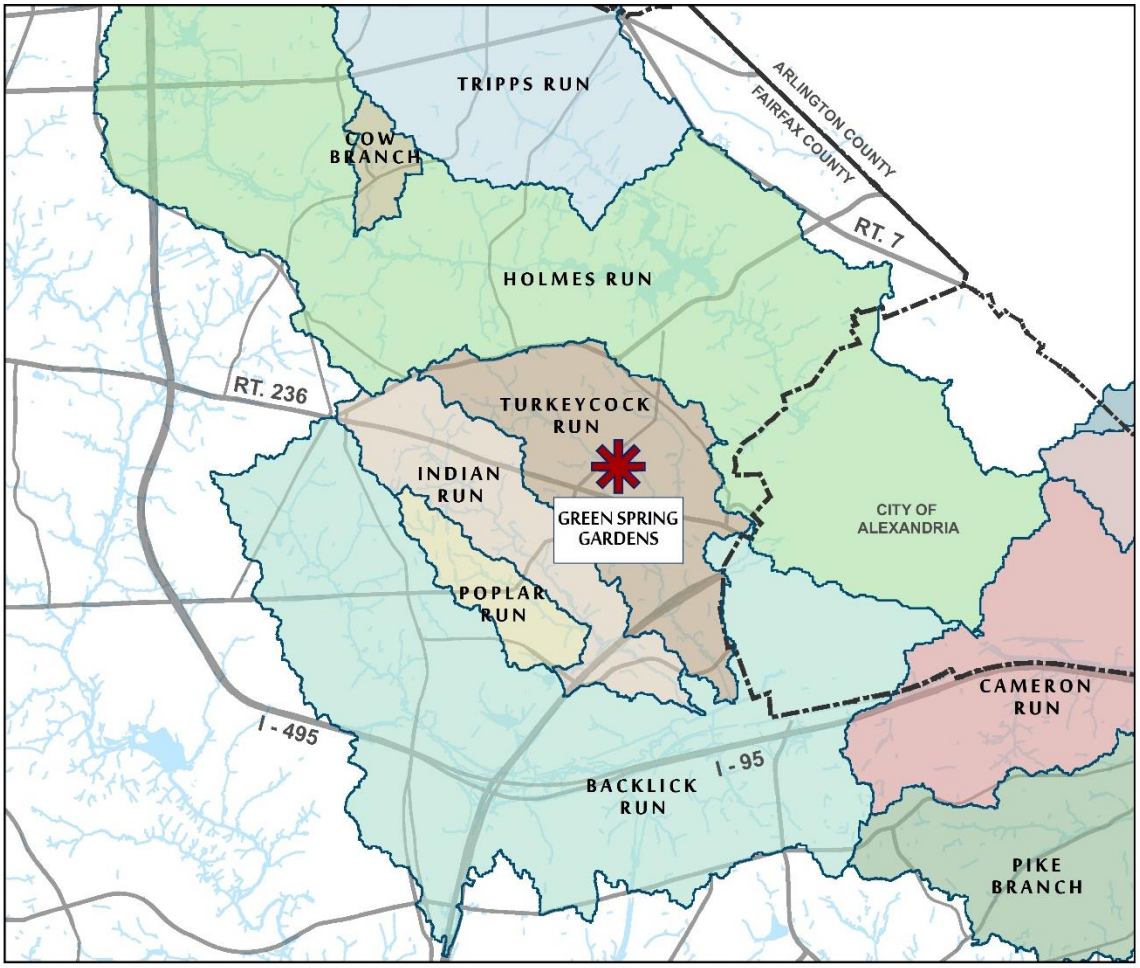


Figure 20: Cameron Run Subwatersheds

Within the garden, Turkeycock Run bisects the property, flowing west to east. Although not immediately visible upon entering the site, this watercourse is a significant component of the site and, likely, a considerable influence in the siting of the historic house.

Figure 21: Turkeycock Run at Green Spring Gardens

A second project in Green Spring Gardens, restoration of Turkeycock Run, was considered for the Watershed Management Plan priority list of projects but was deleted from the final version. This project did proceed with funds provided by the Park Authority (Capital Improvement) and a grant from the Water Quality Improvement Fund. In 2008-2009, approximately 1,000 feet of Turkeycock Run between the bridge at Green Spring Road and the bridge by the Virginia Native Plan Garden within Green Spring Gardens was restored, providing stability to the stream channel as well as an interpretive opportunity for visitors. In September 2011, Tropical Storm Lee caused significant damage to the recently restored stream as well as to upstream and downstream bridges. Repair work to the streambank downstream from the bridge at Green Spring Road and to the streambank downstream from the gabion basket was completed in 2014. The streambank around the bridge abutments by the Virginia Native Plant Garden was also severely impacted by this storm. This bridge will be replaced in fall 2015.

Within the floodplain just to the north of Turkeycock Run are two ponds, constructed by Michael Straight during his ownership and enhancement of the property. A small stream lies along the east side of the northernmost parcels that feeds the western pond. This stream channel is notably degraded due to runoff that has increased as the area north of the garden has become increasingly developed.

Figure 22: Green Spring Gardens' Western Pond

TOPOGRAPHY

The topography of Green Spring Gardens is varied, from high, flat plateaus to steep slopes to stream valley. The southern half of Green Spring Gardens sits on a plateau approximately 30 feet above the level of Turkeycock Run. The plateau has some gentle undulation, generally less than 2% slope, which allows for comfortable pedestrian access through the most developed portion of the site. North of the plateau, the topography drops to stream level, steeply in some locations. The steeper slopes limit the southern extent of the associated floodplain of Turkeycock Run. North of the stream, however, the elevation increases gently, climbing towards Braddock Road and Vale Street. The relative flatness of the slope in this area results in a much broader floodplain section north of Turkeycock Run.

Figure 23: Topographic Map

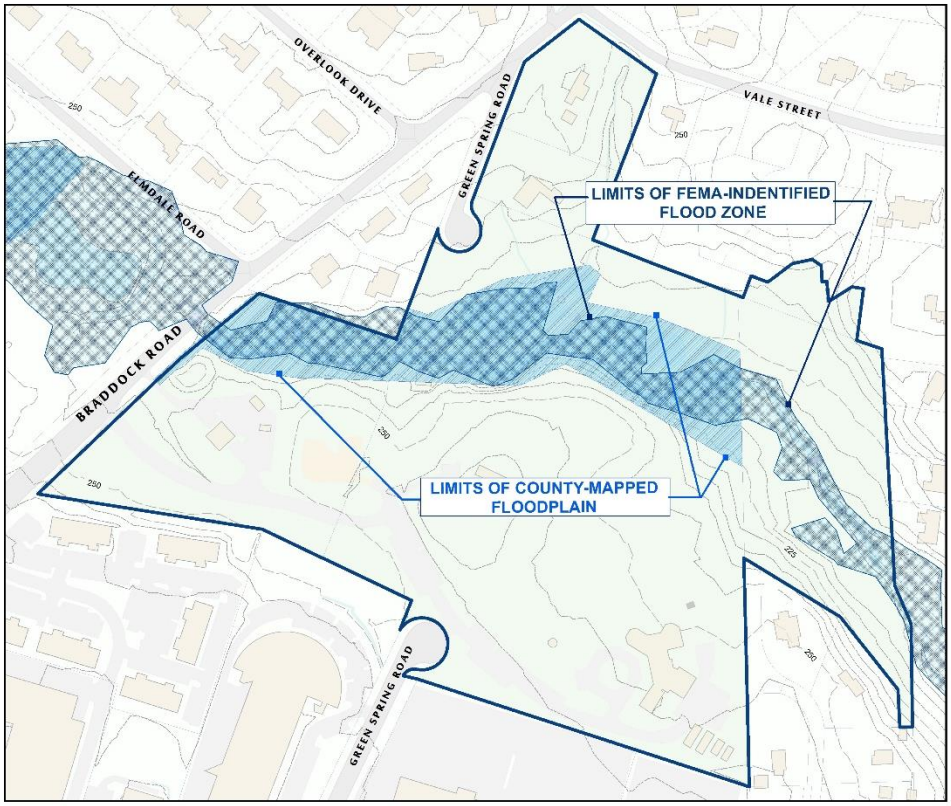


Figure 24: FEMA Identified Flood Zone and County Mapped Floodplain

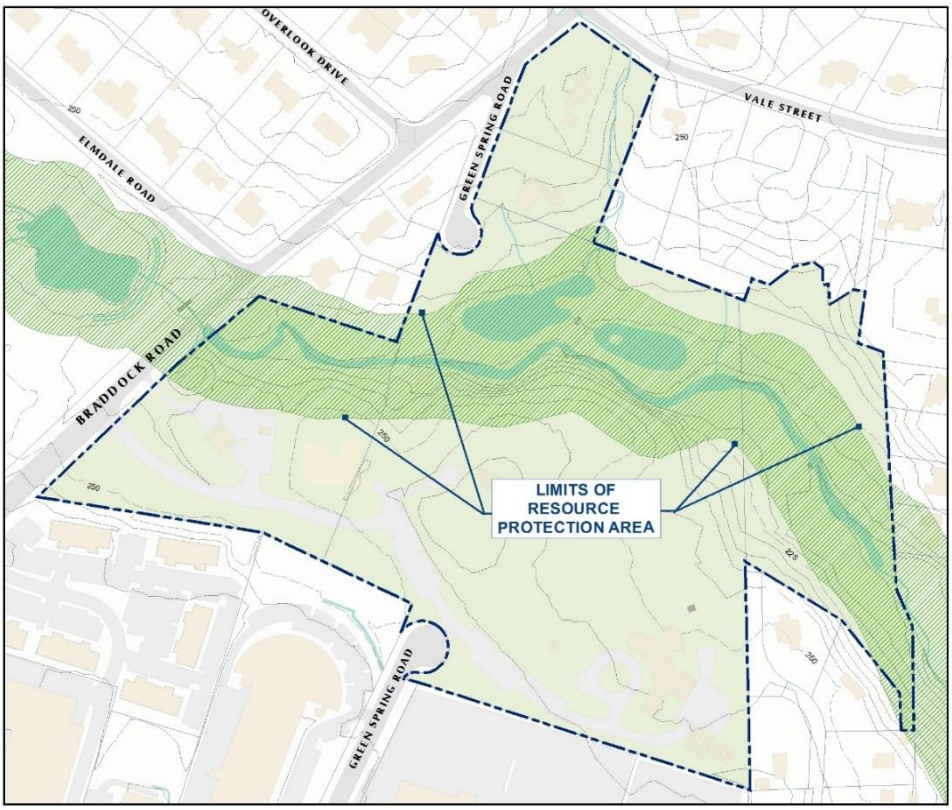


Figure 25: Chesapeake Bay Ordinance Resource Protection Area

SOILS

Eight different soil map units are identified in Green Spring Gardens as classified in the 2011 Fairfax County Soils Maps. Soil map units are represented by a numerical reference, identifying the soil type, and typically included an alphabetic reference, identifying the topographic slope in a particular location.

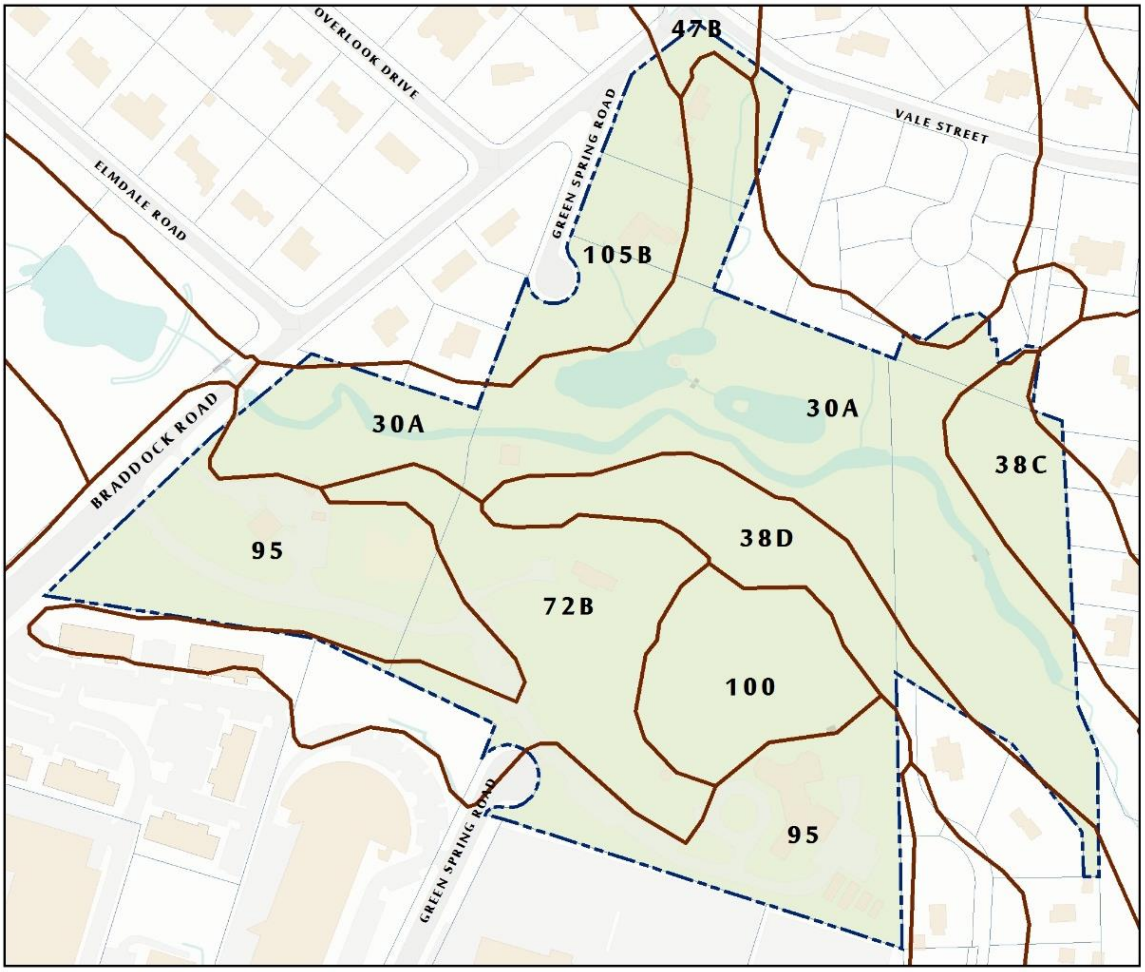


Figure 26: Soils Map

The soil map units identified within Green Spring Gardens include:

30A Codorus and Hatboro soils, 0 - 2 percent slope

38C Fairfax Loam, 7 - 15 percent slope

38D Fairfax Loam, 15 - 25 percent slope

47B Grist Mill-Woosdtown complex, 2 - 7 percent slope

72B Kingstowne-Sassafras-Neabsco complex, 2 - 7 percent slope

95 Urban Land

100 Urban Land-Wheaton complex

105B Wheaton-Glenelg complex, 2 - 7 percent slope

A description of each of the underlying soil map units is provided in Appendix A, as presented in the Description & Interpretive Guide to Soils in Fairfax County, dated April 2008 and revised August 2011.

VEGETATION

As a horticultural garden, the range of vegetation within Green Spring Gardens is broad and diverse, the beauty of which draws local, national and international visitors. Numerous landscape beds showcase an array of plant collections that range from those that are well adapted to the piedmont region of Virginia and the Washington, D. C. region weather to more exotic plant collections that add interest. In contrast to the carefully maintained collections, the adjacent wooded stream valley exists in a more natural condition with supplemental landscaping to provide emphasis and education about the value and variety of native plant material.

HORTICULTURAL COLLECTIONS

The areas of cultivated landscape have expanded significantly since the establishment of the garden. The focus of Green Spring Gardens is on the possibilities available to the home gardener in the mid-Atlantic region. Elements of plant selection and landscape design provide inspiration that visitors can transfer to their own homes. Landscape beds are organized to demonstrate multiple landscape conditions and landscape features. Gardens along the entrance road visually welcome visitors to the garden. Incorporated throughout the landscape are the more than 200 specimens of witch hazel (*Hamamelis* sp.) for which the garden is known. Other specialty areas include a water-wise garden, a rock garden, a shade garden, rose garden, herb garden, fruit garden, vegetable garden, native plant garden, and a swale garden. Additional spaces are intended to provide inspiration for landscaping in a townhouse backyard as well as a children's garden to encourage budding horticulturists. Individual plantings and garden emphasis may vary over time reflecting trends in interest and gardening knowledge.

Green Spring Gardens is accredited by the American Alliance for Museums for its woody plant collections. The woody plant collection is accessioned according to modern standards, and documented in an electronic database. Herbaceous and non-hardy plant material are inventoried annually and also recorded in the database. Records maintained by staff document more than 10,000 trees, shrubs, and herbaceous plants.

Glasshouse

Tender plants are showcased in this lush indoor garden that invites visitors to sit and stay awhile. A soothing water feature enhances this tropical oasis overflowing with exotic species of orchids, tropicals, cacti and succulents.

The Front Garden

This foundation garden of trees and shrubs frames the entrance to the horticulture center and wraps around the front of the building and the glasshouse. An ever-changing display of annuals, tender plants and tropicals are integrated into the garden to create new designs and color schemes, inspiring gardeners to experiment with their landscapes.

Rock Garden

This informal garden mimics – in miniature - the rugged terrain of alpine regions creating the natural look of rock strata in an open environment with free-draining soil. Hundreds of species and cultivars of dwarf perennials, shrubs, trees and bulbs are planted in the stone walls, screes, rocky outcrops and troughs.

Screening Garden

Groupings of deciduous and evergreen trees and shrubs make an effective and attractive screen to solve a common property border problem: difficult soil in an area with an unsightly view. Flowering shrubs add seasonal color along the parking lot.

Long Border Garden

Maximize the impact of foliage and bloom, leaf shape and texture, and hot and cool colors with hardy and tender perennials, tropical plants, and many of the new and unusual plants used at Green Spring Gardens each year. Innovative ideas for companion plantings fill the grand sweep of the long view with waves of color from spring to fall, while trees and shrubs provide the "bones" that sustain interest throughout the winter months.

Gazebo Garden

Old fashioned hydrangeas, clematis, hostas and bulbs for every season define this quiet hideaway amongst classic plants from the past. The Lush and serene plantings anchor the gazebo and gradually transition into a sunny, open screen of grasses, shrubs, conifers, and perennials that echoes the rock garden and frames the horticulture center.

Concentric Garden

Circular paths entice the visitor to this quiet space with a formal design and informal plantings. A wide range of sun and shade-loving shrubs, herbaceous plants and vines showcases a variety of plant forms. The zelkova and large scale perennials on the edge of the Great Lawn across from this garden add to the sense of seclusion.

Vista Garden

A stone wall designed by Beatrix Farrand provides the framework for a landscape design that enhances views of the House from the parking lot yet screens, the garden becomes the main view. The garden has both sunny and shaded areas, with the upper garden becoming shadier over time as trees mature. The bed in front of the historic stone wall features plantings that show homeowners what they can do in a narrow, sloped, dry area in full sun.

Entrance Garden

A graceful wooded glade greets visitors as they enter along Witch Hazel Road. Deciduous trees with diverse fruit, flowers, and foliage are complemented by an assortment of evergreens for year-long interest and screening. Two bio-retention areas and the rain garden illustrate how effective plantings turn these stormwater management strategies into garden enhancements.

Historic House Garden

The gardens surrounding the historic house create inviting front and rear entrances with effective foundation plantings that complement the architectural style. The variety of plants provides four-season interest in full sun and dappled shade.

Edible Garden

Intermingling fruits and vegetables with flowers and herbs permits ornamental arrangements to illustrate organic gardening techniques that promote a healthy environment and healthy nutrition in an attractive and productive use of space. All of the garden's edible plants thrive in the mid-Atlantic area, and are grown using low input gardening methods.

Water-Wise Garden

This array of drought tolerant plants offers gardeners options for dealing with a slope in full sun. Many of the species grown here are adapted to the climates of the Mediterranean and southwestern United States and require minimal supplemental watering once established.

The Swale Garden

An attractive arrangement of dry stones and rocks imitates the flowing look of a stream bed and offers beautiful and practical solution to areas that are intermittently wet and dry. Plants in the basin above the bridge must tolerate some standing water, while plants at the base of the swale can withstand periodic flooding.

Townhouse Gardens

Three demonstration gardens show how basic design principles work for tucking a lot of garden into a small space. These outdoor living areas combine functional and aesthetic hardscape features with plants that are appropriate in scale to the town home, including vines spilling over trellises and pergolas that take advantage of vertical space.

Wildlife Garden

This small, charming space incorporates the basic habitat elements of food, water, shelter and places to raise young extending an invitation to diverse creatures. An emphasis on designing with native plants, following organic maintenance guidelines and supporting biodiversity inspires visitors to transfer the experience to the home garden.

Children's Garden

The Master Gardeners of Green Spring have created a playful refuge for exploration. Plants with funny names, fuzzy textures and a rainbow of colors engage the senses. Have a seat on the reading rock and look for bees, bugs and butterflies among the flowers.

Children's Discovery Garden

The Children's Discovery Garden is a working garden for children to develop self-confidence and knowledge through observation and gardening. Families can see how a simple garden is easy to achieve.

Virginia Native Plant Garden

Explore the diversity of Virginia's native plants from ground covers to towering trees. Anchored by two rock walls, the plantings include a native perennial border, shrub border, mixed border with herbaceous and woody plants, and naturalistic sunny and woodland areas. Across the bridge over Turkeycock Run, the garden gives way to beautiful, mature woodland which contains a remnant of a Magnolia Bog, a rare wetland habitat now imperiled in this region and across the state.

Shrub Border

This tapestry of combinations provides plenty of inspiration for four season interest with a variety of shrubs. Bloom succession, foliage textures, and interesting bark harmonize with companion plants for high impact with less maintenance.

Arbor Garden

Modern shrub roses and old garden roses are the highlights of this sunny garden. Between rose bloom cycles, viburnums, hollies and a striking variety of herbaceous plants provide color, create textural contrasts, and give the landscape structure. Each of the selected roses grow well in Northern Virginia without spraying for diseases and pests.

Mixed Border

This colorful, richly textured border of hardy and tender perennials, annuals, bulbs, shrubs, and trees uses the semi-circular boxwood hedge as a strong backdrop. The hedge and stone wall were part of an original design by Beatrix Farrand, America's first female landscape architect. This garden reflects the plant palette Mrs. Farrand used in her other projects.

Springhouse Overlook

The informal area overlooking the Spring House draws the visitor to view witch hazels, camellias, and other trees. Pansies enliven the fall, winter, and spring display. Masses of bulbs that bloom in late winter and early spring add vibrancy and beautiful color contrasts in spring.

STREAM VALLEY LANDSCAPE

Green Spring Gardens also contains a naturalistic native plant garden that spills into the woodlands along the stream valley. Approximately half of the garden's acreage remains in a natural state, providing visitors with a peaceful woodland experience along Turkeycock Run. Five native plant communities have been documented in the natural areas of Green Spring Gardens.

The steep slopes that stretch from the upper landscaped gardens to the stream valley below are classified as Mesic Mixed Hardwood Forest. These dry, well-drained soils foster a tree canopy of American beech (*Fagus grandifolia*), white oak (*Quercus alba*), Northern red oak (*Quercus rubra*) and tulip poplar (*Liriodendron tulipifera*), with an understory of American holly (*Ilex americana*), flowering dogwood (*Cornus florida*), ironwood (*Carpinus carolinana*) and pinxterbloom azalea (*Rhododendron pericylmenoides*). This plant community is common throughout Northern Virginia, especially in the absence of natural wildfire. The Virginia Native Plant Garden falls within this community type, and highlights many herbaceous plants growing naturally in these woods such as Christmas fern (*Polystichum acrostichoides*), New York fern (*Thelypteris novaboracensis*), mayapple (*Podophyllum peltatum*), partridgeberry (*Mitchella repens*) and crane-fly orchid (*Tipularia discolor*).

Figure 27: Wooded Slope in the Stream Valley

Green Spring Gardens contains elements of three bottomland forest natural communities along the floodplain of Turkeycock Run. The property has had significant levels of human disturbance over time, so these communities have been altered and are likely much smaller in extent than they were originally. Additionally, stream restoration to stabilize the banks of Turkeycock Run added

supplemental rock and riparian buffer plantings to manage water flow and reduce erosion.

The majority of bottomland areas can be classified as Coastal Plain/Piedmont Small-Stream Floodplain Forest. This community is dominated by tulip poplar, red maple (*Acer rubrum*) and sycamore (*Plantanus occidentalis*), with spicebush (Lindera benzoin) forming the majority of the shrub layer. This community has been impacted by non-native invasive species such as Engligh ivy (*Hedera helix*) and porcelainberry (*Ampelopsis brevipedunculata*). Extensive damage has occurred to mature trees, and treatments have been made in recent years to reduce the cover of non-native species.

A small portion of the bottomland area near the boardwalk and mulched trails is identified as a Coastal Plain/Piedmont Floodplain Swamp. The soils in this area are poorly drained and foster red maple, green ash (*Fraxinus pennsylvanica*), black gum (*Nyssa sylvatica*) and ironwood. The shrub layer contains spicebush, winterberry holly (*Ilex verticillata*), smooth alder (*Alnus serrrulata*) and arrowwood viburnum (*Viburnum dentatum*). The herbaceous layer is indicative of the wetland conditions with lizard's tail (*Saururus cernuus*), false nettle (*Boehmeria cylindrica*), sweet woodreed (*Cinna arundinacea*), clearweed (*Pilea pumila*), jewelweed (*Impatiens capensis*) and regal fern (*Osmunda regalis*) present.

The final bottomland community, Northern Coastal Plain/Inner Piedmont Mixed Oak Floodplain Swamp, is limited to a small area near the Virginia Native Plan Garden on the north side of Turkeycock Run, and is dominated by willow oak, pin oak and red maple. This area sustained dense levels of non-native invasive plants that have been systematically cleared over time with great effort.

On the other side of Turkeycock Run, along the toe-slope of the northern boundary of the garden, are a series of groundwater seeps, located where the bedrock intersects the water table. These wetlands exhibit typical seepage bog hydrology including a gravelly or sandy substrate, a gently sloping toe-slope position, acidic or nutrient poor soil and occur at the heads of small streams which may be tributaries to nearby large streams. The wetland surface in the garden is gravelly and has little or no organic component other than sphagnum moss. Three wetlands are located along this slope, but classification is challenging due to the limited extent of the habitat and the various impacts to these areas over time. Like the other natural habitats within the garden, these wetlands were likely much more extensive prior to human development of the area. The best classification is a Coastal Plain / Outer Piedmont Acidic Seepage Swamp or Coastal Plain / Piedmont Seepage Bog. Representative species include sweetbay magnolia (*Magnolia virginiana*), black gum, poison sumac (*Toxicodendron vernix*), possumhaw (*Viburnum nudum*), highbush blueberry (*Vaccinium corymbosum*),

winterberry holly and greenbriar (*Smilax rotundifolia*). Herbaceous plants which survived in or near the seepage areas include cinnamon fern (*Osmunda cinnamomea*), Jack-in-the-pulpit (*Arisaema triphyllum*), sweet woodreed (*Cinna arundinacea*), skunk cabbage (*Symplocarpus foetidus*), and jewelweed. There is evidence that at least some of these swamps were once seepage bogs when they were far more open and only had scattered trees: red chokeberry (*Aronia arbutifolia*) survives in a shady area in this seep, and bristly dewberry (*Rubus hispidus*) is a small creeping shrub found in most magnolia bogs.

The properties north of the upper pond area, bordered by Green Spring Road and Braddock Road, contain springs and seeps, but they are highly impacted by non-native invasive plants such as bamboo, English ivy, porcelain berry, and sweet autumn clematis. As residential properties for over 70 years, it is likely that many native plants were cleared from the woods to accommodate active uses and home sites. There are several large trees that should be protected in this area, including a significant white oak that is likely 150 or more years old. There are some mature plantings of *Rhododendron* sp. and *Vaccinium* sp. in the former gardens of these properties.

WITCH HAZEL COLLECTION

Green Spring Gardens is home to a national witch hazel collection. Over 270 witch hazels planted throughout the gardens represent 142 unique taxa. After a 5-year review period, during which the collection and the garden's policies for the native, Asian, and hybrid species were evaluated, the collection was fully recognized by the American Public Gardens Association in 2006.

Figure 28: Witch Hazel Bush and Bloom

The original witch hazel collection began with a donation from the Chapel Square Garden Club to purchase witch hazels for the gardens. These original witch hazels form the core

of the collection, and introduced the idea that a "collection" can be distributed throughout the gardens and need not be confined to one location. With donations from other botanical gardens and an active acquisition program, the collection will continue to grow.

NON-NATIVE INVASIVE PLANTS

Non-native invasive plants once formed dense, extensive stands in the Virginia Native Plant Garden and throughout the site's woodlands. Eradication efforts have been conducted on an ongoing basis since 1989, and there still is a great deal of work to be done. Most of the invasive species at Green Spring Gardens are native to eastern Asia, having a similar climate to Northern Virginia. Many of these species were once cultivated in the gardens at Green Spring Farm when the Straight family owned the property and/or by owners of the northern properties purchased by the FCPA in 2008 and 2009. Invasive species include burning bush or winged euonymus (*Euonymus alatus*), tea viburnum (*Viburnum setigerum*), linden viburnum (*Viburnum dilatatum*), English ivy (*Hedera helix*), wintercreeper euonymus (*Euonymus fortunei)*, periwinkle (*Vinca minor*), privet (*Ligustrum* species), Oriental bittersweet *(Celastrus orbiculatus,)* Chinese wisteria or hybrids (*Wisteria sinensis*), sweet autumn clematis (*Clematis terniflora)* and bamboo (*Phyllostachys* sp.).

Some ornamental species intentionally planted in gardens or other nearby areas more recently, such as five leaf akebia (*Akebia quinata),* lesser celandine (*Ranunculus ficaria*), and callery pear (*Pyrus calleryana* including 'Bradford'), have reseeded extensively and are demonstrating characteristics of invasive plants.

Other plants, once considered to be valuable, have now become major pests: porcelainberry (*Ampelopsis brevipedunculata*), multiflora rose (*Rosa multiflora*), Japanese knotweed *(Fallopia japonica* or *Polygonum cuspidatum;*, Japanese honeysuckle (*Lonicera japonica*), Japanese bush honeysuckles (*Lonicera morrowii* and *L. maackii*), and white mulberry (*Morus alba*) Other species which were never were planted for wildlife or ornamental value but have invaded the garden nonetheless: Japanese stilt grass (*Microstegium vimineum*), mile-a-minute vine *(Polygonum perfoliatum* or *Persicaria perfoliata*), and garlic mustard (*Alliaria petiolata).*

New weeds that may have arrived on nursery stock have become major problems as well, including mulberry weed or hairy crabweed, (*Fatoua villosa*;) and a deep purple-flowered *Corydalis.* The garden receives aquatic invaders such as floating primrose-willow or creeping water primrose (*Ludwigia peploides*) which arrived during a flood event and remains present in the ponds and the stream.

For all of these species, the garden staff and volunteers have done an excellent job minimizing further invasion. With the benefit of funding from the Invasive

Management Area (IMA) program, an invasive plant contractor was engaged to treat many terrestrial areas of the garden in 2011 and 2012. In 2015, wooded portions of the garden were evaluated by the agency using the Non-Native Invasive Assessment Protocol and scored 14 of 16, indicating that the invasive plants in the garden are not overwhelming the native biodiversity and that treatment should continue to be a priority for the future. Treatments may involve manual removal or chemical removal depending on the species and level of infestation

WILDLIFE

The wildlife at Green Spring Gardens is represented by many common species that thrive and breed in suburban areas as well as more uncommon species visiting the garden at certain times during the year. Common breeding birds one might observe in the gardens and woodlands of the garden include Northern Cardinal, American Robin, Eastern Towhee, Tufted Titmouse, American Goldfinch, Eastern Bluebird, Carolina Wren, Northern Flicker, Downy Woodpecker, American and Fish Crow, Canada Goose and Blue Jay. During the fall and spring migration, the garden is also a stopover point for warblers and other neotropical migrant birds. 119 birds have been documented on a checklist for the garden including Sharp-shinned Hawk, Broad-Winged Hawk, Acadian Flycatcher, Tennessee Warbler, Nashville Warbler, Scarlet Tanager, Louisiana Waterthrush, and a very uncommon Rufous Hummingbird in November 2012 (eBird, Cornell Lab of Ornithology, 2015).

Numerous species of snakes, turtles and frogs are found in the floodplain section of Turkeycock Run, as well as in the two large ponds near the gazebo. Visitors might observe Red-Eared Slider, Snapping Turtle, Eastern Painted Turtle, Northern Watersnake, Eastern Ratsnake and Eastern Gartersnake, and hear the calls of American Toad, Cricket Frogs, Spring Peepers, and Gray Tree Frogs throughout the breeding season.

Figure 29: American Goldfinch (male), Ruby-Throated Hummingbird (female), American Bullfrog (male)

Several environmental education programs at Green Spring Gardens, as well as the gardening demonstration areas, focus on wildlife-friendly gardening and on attracting beneficial pollinators to the garden. Monarch tagging takes place at the garden each year and the center provides free milkweed seeds to visitors via the non-profit group "Save the Monarchs". The garden is full of attractive species for native butterflies and hummingbirds and it is a great place to learn about attracting a variety of insects and other beneficial wildlife using environmentally-friendly gardening strategies.

Figure 30: Educational Program at Green Spring Gardens

White-tailed deer are overabundant in Northern Virginia and take a tremendous toll on both the landscaped gardens as well as on the native flora within the natural areas of the garden. It is important to manage deer to maintain the health of the herd, to reduce deer-vehicle collisions, and to minimize the browse impacts on tree regeneration. The Fairfax County Deer Management Program operates on publicly-owned parkland and utilizes three lethal methods of deer control: sharpshooting, managed shotgun hunts, and archery. At Green Spring Gardens, sharpshooting is the only viable method of deer management given the location of the property and the high level of public visitation. Sharpshooting is scheduled during the winter and takes place after dark when the garden is closed. Public safety is ensured by the Fairfax County Police Department with tightly regulated hunt zones. Sharpshooting has been implemented at the garden during four of the past five winters and is planned to continue during future years as the need persists and resources allow.

Figure 31: Deer at Green Spring Gardens

Resident Canada Geese do not migrate like other North American waterfowl and present a nuisance to garden visitors, as well as add nutrients to the pond environment through excessive waste production. The U.S. Fish and Wildlife Service permits the destruction of resident Canada Goose eggs and nests by landowners. The Fairfax County Park Authority has adopted the "Geese Peace" method of egg oiling which minimizes stress to the adult geese but prevents the eggs from developing and hatching. Egg oiling (also called addling) is an important management tool to continue at the ponds at Green Spring Gardens.

Figure 32: Canadian Goose Family at Green Spring Gardens

RARE SPECIES

There are no threatened or endangered species known within Green Spring Gardens. The wetland communities described above contain plants that are unusual for the region due to the limited extent of these habitats, but they are not considered rare species.

CULTURAL RESOURCES

Connecting the community to the county's cultural resources is one of the core components to the mission of Green Spring Gardens. A number of key features exist on the site allowing for active interpretation. A brief description of these resources is provided below. Significantly greater detail can be found in the Green Spring Gardens Cultural Landscape Report prepared for the Park Authority in 2009 by Versar, Inc. and the Historic Structures Report prepared by SWSG, PC (Shaffer, Wilson, Sarver & Gray) in 2006.

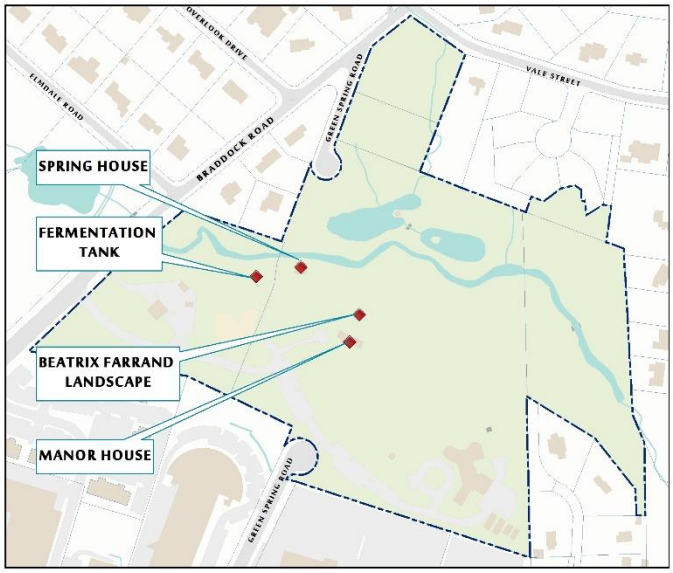


Figure 33: Cultural Resource Features at Green Spring Gardens

HISTORIC HOUSE

Figure 34: Historic House, 2014

One of the most prominent and visually iconic features of Green Spring Gardens is the historic house. Early research suggested the house was initially constructed circa 1761 or circa 1778, when the property was owned by Daniel Summers or John Moss, respectively. However, based on dendrochronology of various house timbers, the house could not have been constructed prior to 1783, the year the timbers used to build the house were harvested, and it therefore attributed to John Moss. The home has gone through the hands of numerous owners and multiple renovations over the years, with the various owners adapting the home to their particular needs or the style of the times. The original structure was approximately 33 feet by 27 feet, built on a stone foundation, two stories tall with an attic and cellar. A front porch was added and later removed. A kitchen addition was constructed and subsequently demolished. Significant modifications to the house were made during the Straight's ownership in consultation with restoration architect Walter Macomber in the early 1940s, including the addition of the brick wings on each side of the main home. Despite these changes, the home retains many of the structural elements from its original construction in the 1780s, reflecting the lives, resources, and ingenuity of the original owner.

BEATRIX FARRAND LANDSCAPE DESIGN

Figure 35: Members of the Straight Family Enjoying the Rear Lawn

Associated with the historic house is the design of its surrounding landscape. At the time the Straights hired Walter Macomber to restore the home, they retained noted landscape architect Beatrix Farrand to develop a plan for the landscape surrounding their home. At the time, Farrand was 21 years into a 30 year collaboration with Mildred and Robert Bliss for the design

Figure 36: Beatrix Farrand Landscape Design

of the grounds at Dumbarton Oaks. Located in Georgetown, Dumbarton Oaks was designed with an intricate weaving of formal, elegant garden spaces. Farrand's design for the Straights, however, was strikingly different in its simplicity and definition of space. In Farrand's plan, colorized by Arthur Bartenstein for the Cultural Landscape Report, the lines drawn in red across the landscape plan emphasize the clear orientation of house to lawn areas. Simple plant groupings define the spaces – flowering trees and shrubs added in the front and a simple crescent of boxwoods atop a stone wall in the rear. Shrubs on both sides of the home provide a transition between the public front lawn and the private rear yard and to the wooded areas beyond. Farrand supervised the project's installation herself, utilizing the same crews employed for the construction of the Dumbarton Oaks gardens. In 2003, "Green Spring" was added to the National Register of Historic Places, with the landscape designed by Beatrix Farrand noted as a major contributing element.

After 50 years, the crescent-shaped stone wall exhibited structural weaknesses. The Restoration Committee of the Garden Club of Virginia accepted the project to rebuild the stone retaining wall and renovated the adjacent Mixed Border Garden which was dedicated to Margaret Fahringer. Rebuilding the wall was completed in 2013, followed by renovation of the garden in 2014. The project was officially presented to the Park Authority in June 2015.

SPRINGHOUSE

Approximately 200 feet northwest of the historic house, a springhouse is located adjacent to Turkeycock Run. The specific date of construction is unknown but is estimated to date from the early 19th century. The springhouse is constructed of mortared cobblestone, most likely from the immediate vicinity of Green Spring Gardens. Walls are finished with stucco, both inside and out, and scored to resemble stone construction. Cooled by the flowing water of Turkeycock Run, the springhouse provided storage for farm produce. Sometime about 1935, the springhouse was renovated to be used as a residence. The springhouse then often served as home to the various site caretakers as well as Belinda and Michael Straight during the renovation to the historic house.

Figure 37: Springhouse

Figure 38: Foundation of Fermentation Tank

FERMENTATION TANK

In proximity to the springhouse, on the opposite side of Green Spring Road, is the foundation of a fermentation tank. Measuring approximately 13 ½ feet on all sides, the fermentation tank was utilized by Fountain Beattie during his ownership of the property from 1878 through 1917. Apple cider, apple jack, and apple brandy

Figure 39: Beattie Era Image of the Fermentation Tank

were produced from his orchards, located on either side of Little River Turnpike. Adaptively reused by subsequent land owners, only the archaeological remains of a crumbling foundation of this cobblestone and brick feature are present today.

CEMETERY

As was common during the 18th and 19th century, families often utilized a portion of their property as the final resting place for deceased family members. Land records indicate that the Moss family established a family plot at Green Spring during their ownership in the late 18th and early 19th centuries. A land survey prepared for the sale of the Moss property indicated the reservation of approximately one-quarter acre for a family cemetery. Less clearly documented is the burial in a rose garden of an infant born to George and Josephina McClanahan who leased the property from Fountain Beattie from 1911 to 1913.

Park Authority archaeologists conducted a survey to the northwest of the historic house in 2001 with hopes of identifying the location of the Moss family burial plot. Three shaft-like features were uncovered that were interpreted to be graves. These features remain preserved in place.

POTENTIAL FEATURES

Although there have been several archaeological studies conducted at Green Spring Gardens since its acquisition by the Park Authority, a comprehensive archaeological survey has not been undertaken. Rather, these studies have been limited in scope, typically done in advance of individual projects that would result in ground disturbance. The site's plateau adjacent to a water source would have been an attractive location to prehistoric and Native American inhabitants. The property has a high potential for the presence of archaeological resources related to the Native American use and occupation. Historical documentation indicates that a variety of uses occurred on the property. There are likely to be intact archaeological remains of

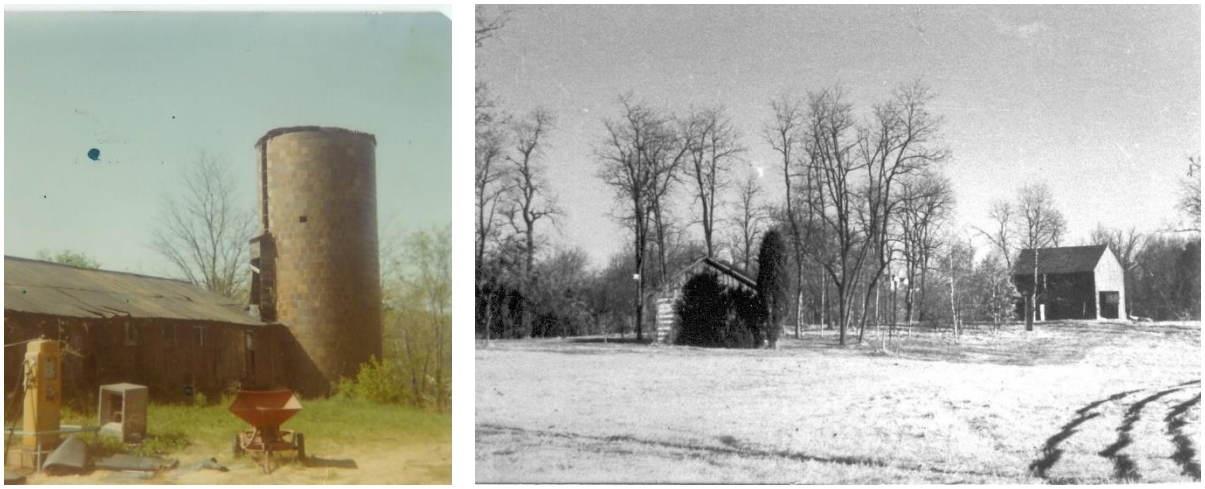


Figure 40 : Barns and Cabin during the Straight Ownership

features, including outbuildings and landscape features. A study of land records and maps associated with the property reference a litany of outbuildings and site features no longer visible. There is a moderate potential for the presence of Civil War-related archaeological resources as well. Documentary records indicate that federal troops camped adjacent to the house at Green Spring and may have buried fallen comrades there.

EXISTING INFRASTRUCTURE

UTILITIES

Historical residential use on the property as well as current garden operations have resulted in the extension of various utilities into and across Green Spring Gardens. Water service is provided via pubic water mains from Braddock Road and Green Spring Road. This water service provides for usage in the historic house, horticulture center and glasshouse, five production polyhouses, the Pinecrest Maintenance Shop, and irrigation throughout the garden. Several storm drainage pipes convey runoff from the southern edge of the property toward Turkeycock Run and from Magnolia

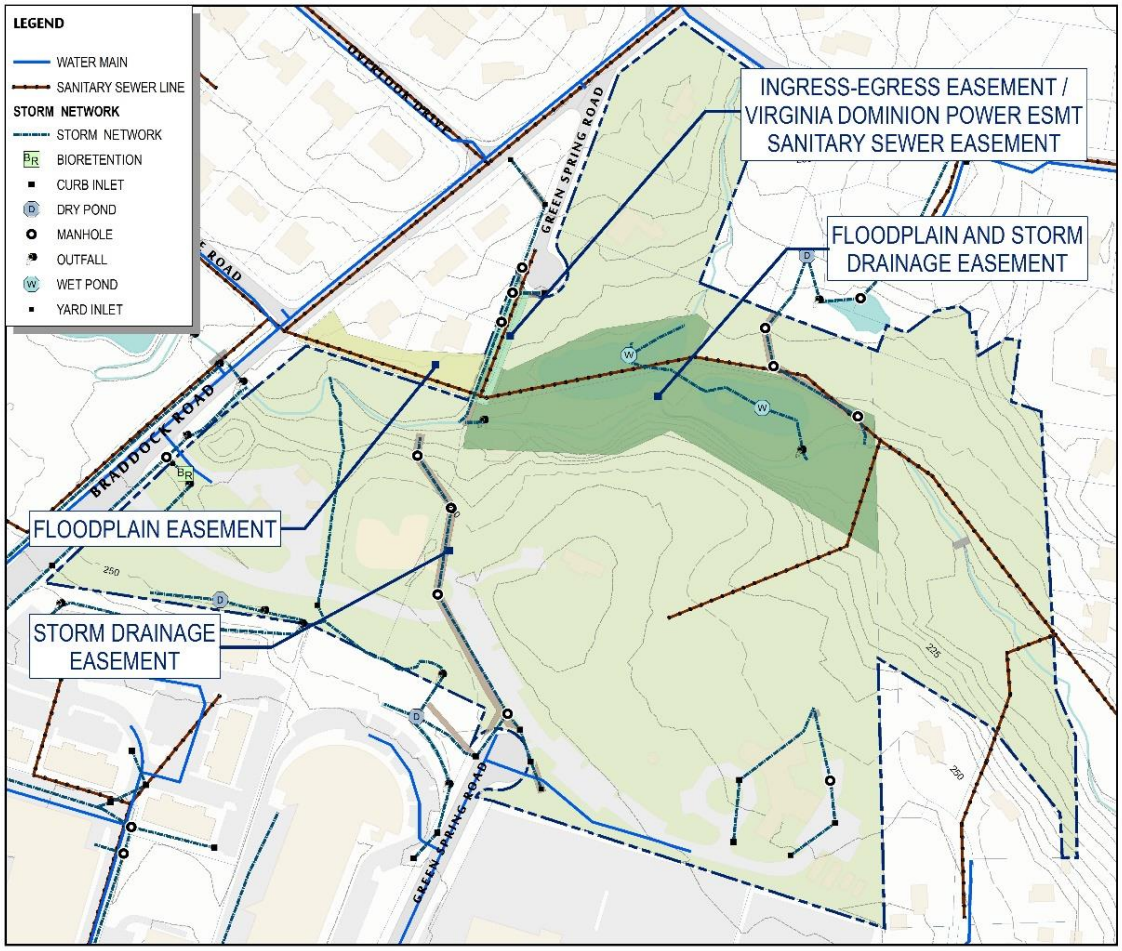


Figure 41: Existing Utilities and Easements

Manor Way to the north. A major sanitary sewer line runs parallel to Turkeycock Run. A floodplain and storm drainage easement is recorded over Turkeycock Run on parcel 72-1 ((1)) 24, the former Straight property. An ingress-egress easement, Virginia Dominion Power easement, and a sanitary sewer easement extend from the northern segment of Green Spring Road to serve parcels 72-1 ((1)) 2A and 4, the access to which is provided via a 35' outlet road across parkland.

VEHICULAR ACCESS AND CIRCULATION

Primary vehicular access to Green Spring Gardens is via Braddock Road, Route 620, to Witch Hazel Road. This access point was proposed with the 1977 master plan and reduced to a secondary entrance with the 1992 General Management Plan and Conceptual Development Plan. The current entrance, implemented in 2002, allowed for the closure of Green Spring Road to all through traffic.

Previous access along Green Spring Road via Little River Turnpike had aligned with the original entrance drive to the historic house and initially provided the access to the park. Increasing traffic volume along Little River Turnpike, Route 236, however, made accessing the garden in this location increasingly unsafe. Green Spring Road was terminated at the garden boundary, north and south, with the relocation of the garden's entrance to Braddock Road. Frontage on Braddock Road now provides access from a two-lane road, posted at 35 miles per hour, with both northbound and southbound turn lanes to safely access the garden.

The acquisition of DeBoeck and Holt properties provides additional street frontage along the northern remnant of Green Spring Road, Braddock Road, and Vale Street. The limited amount of frontage and the configuration of the intersections, however, would not support the establishment of a use on these properties that would generate a significant increase in vehicular trips. Some limited expansion of vehicular traffic to support garden efforts may be acceptable, though, such as the use of van transportation to shuttle program participants to this site or the occasional delivery of materials.

PEDESTRIAN ACCESS AND TRAILS

Numerous pedestrian routes through Green Spring Gardens connect the range of landscaped areas, the historic house, and the stream valley. Asphalt trails connect from the parking area to the horticulture center and the historic house. The central lawn is framed by a wide brick walkway, providing comfortable access

Figure 42: Brick Walkway around Central Lawn

between buildings as well as a connection to many of the individual planting beds. Remnants of the original Green Spring Road connection provide paved access to the springhouse, ponds, and northern parcels. Gravel and natural surface trails provide access to the stream valley area although topography is a limiting factor for universal access.

Crosswalks exist at the intersection of Little River Turnpike and Braddock Road and at the intersection of Witch Hazel Road with Braddock Road, allowing pedestrian connection between Green Spring Gardens and the existing paved trail on the opposite side of Braddock Road, along Pinecrest Golf Course. A sidewalk along the southeast side of Braddock Road provides connection from the Braddock Road/Little River Turnpike intersection to the park's main entrance. From the south, pedestrian access is available from Green Spring Road, despite the road's closure to regular vehicular traffic.

Fairfax Connector and WMATA Metrobus currently provide transit service in both directions along Little River Turnpike, with a covered bus shelters near the intersection of Little River Turnpike and Braddock Road. The northern bus shelter is located approximately 1500' from two entry points to the garden, either through the Braddock Road entrance or the pedestrian access from Green Spring Road.

Due to the nature of early subdivision development patterns near Green Spring Gardens, there is limited pedestrian connectivity between the garden to the surrounding neighborhoods.

Figure 43: Aerial Image of Green Spring Gardens

EXISTING USES & OPERATIONS

Visitation at Green Spring Gardens has increased to nearly a quarter million visitors annually. Numerous uses and facilities are currently in place to preserve and maintain the site's resources while simultaneously serving thousands of patrons.

HORTICULTURAL COLLECTIONS

Green Spring Gardens is best known for the beauty of the horticultural collections. With a focus on what a Fairfax County resident could grow in a mid-Atlantic region garden, the collections are grouped based on applicability of use – shade plantings, edible gardens, and plantings for wet conditions or small spaces. Activity at Green Spring Gardens is largely focused on developing, maintaining, expanding, and interpreting the plant collections.

Figure 44 : Fruit Tree in the Edible Garden

Figure 45 : Children's Garden

Green Spring Gardens has maintained Alliance of American Museums accreditation for its plant collection since 2002. As an accredited collection, specific activities are required. Detailed records for this curated collection are maintained and updated at least annually. The collection is guided by the FCPA Policy 207: Living Collections Management Policy and the Guidelines for Living Collections Management, a document that describes the purpose of the collection and the process for acquisition and accessioning, record keeping, and maintenance.

The accessioned portion of the collection includes the woody plants, tree, and shrubs purchased and planted for display in the gardens. Currently, 1,840 living accessions are represented in the collection, with records maintained in a database. These plants are distributed throughout the gardens. Within this collection of woody plants is a specially curated collection of witch hazels. This collection is nationally recognized by the Plant Collections Network (PCN), a project of the American Public Gardens Association. NAPCC is a network of botanical gardens and arboreta working to coordinate a continent-wide approach to plant germplasm preservation, and to promote high standards of plant collections management. PCN Collections may serve as reference collections for plant identification and cultivar registration. Collection holders make germplasm available for taxonomic studies, evaluation, breeding, and other research. Participating institutions compare holdings with others to identify duplications and gaps. This makes efficient use of available resources, strengthening collections through combined collaborative activities.

In addition to the woody plant accessions, plant records are maintained for each of the 22 display gardens. An estimated 6,000 different plants are documented with information such as scientific and common plant name, planting date, source, bloom time, etc. Within the next year a new plant records system will be implemented. The new system will permit mapping, online viewing of plant records and better reporting functions to obtain better information about parts of the collection or the collection as a whole.

For as many plants as possible, visitor-friendly, photometal labels are installed offering to the visitor the common and scientific names, whether the plant is a Virginia native plant, and other information that may be of interest to a visitor.

HORTICULTURE CENTER/GLASSHOUSE COMPLEX

The horticulture center serves as the hub of activity at Green Spring Gardens. Containing a horticultural library, gift shop, art exhibits, multi-purpose assembly rooms, a display glasshouse, and the Garden Gate Plant Shop, the horticulture center complements a visit to the gardens. The availability of restrooms allows for longer length of stay and involvement. The horticulture center also includes office space for staff and volunteers. Coordination of the horticultural collections is planned from here as well as the numerous and varied programs for which the garden is well known - many of which are conducted within the horticulture center. Adjoined to the

horticulture center is a glasshouse with displays of plants with more particular climate needs.

Figure 46: Site Staff Maintaining the Park

Figure 47: Maintenance Garage

The rear portion of the complex provides for many of the core physical maintenance needs of the garden. The garage area of the horticulture center offers space for planning and developing the collections, including propagation for the gardens and plant sales. A three-bay vehicle storage building, constructed in 2009 houses utility vehicles, tools, chemicals and equipment, and workspace for building and grounds maintenance. Surrounding the vehicle storage building are five Quonset style plastic covered green houses, often referred to as polyhouse, which are used for propagation and overwintering non-hardy plant material. A collection of four sheds allow for storage of gardening tools, hoses and sprinklers, potting media, pots and other equipment for use on the grounds. The slopes along the southern and eastern borders are used as a nursery area for adding to the gardens and Garden Gate Plant Shop. For more than 25 years, the Virginia Native Plant Society has maintained a propagation area along a portion of the northeast border.

Figure 48: Image of the Historic House from the Central Lawn

HISTORIC HOUSE

The historic house is another key interpretive location within

the garden. Not only does the house provide an iconic, visual backdrop to the landscaping, it is also a venue for interpreting the history of Fairfax County as it relates to the agriculture, horticulture, and social history of the area. Docent led tours, formal teas, and tasting programs are offered from the house.

CENTRAL LAWN

Located between the historic house and the horticulture center, the main horticultural areas at Green Spring Gardens are organized around a central lawn. Views across the green provide visual orientation to the site and a sense of scale, reflective of the open expanses of field and farmland associated with the history of the historic house. Framed by a brick walkway, the periphery of the central lawn provides connectivity between the historic house and the horticulture center as well as the landscape beds. The ¼ mile circuit around the green is a popular place to stroll, simply to enjoy the beauty of the gardens or to explore the vast array of plant collections. The solid surface of the walkway makes this an accessible route for many.

The central lawn also plays a key role in the programming at Green Spring Gardens. Spring and fall, the green accommodates large community plant sales. Widely attended, these events not only contribute to the financial sustainability of the garden but also foster a love of horticulture, an understanding of the value of native plants, and a sense of community. The central lawn also supports smaller programming events throughout the year such as school programs, camps, concerts, and specialty events.

GAZEBOS

Located between the central lawn and parking area is the gazebo. Dedicated in 1985, the gazebo provides a focal point along the central lawn, a stage for concerts in the garden, a backdrop to the gardens, a sought-after location for wedding photographs, and a visual welcome to the gardens. In 2013 and 2015, the Phase I and Phase II renovations to the gazebo and its patio were completed, replacing the roof and decking, repainting the structure, replacing the accessibility ramp, opening the gazebo to the central lawn, replacing the fencing, and replacing the brick patio with bluestone pavers. Renovations were made to the gazebo to enhance accessibility so that it can be more easily enjoyed by all.

Figure 49 : Main Gazebo on the Central Lawn

A second gazebo feature was added to the garden during renovations to the western pond. The pond gazebo provides a focal point in the backdrop of pond views as well as a favored spot to overlook the ponds. It has become a popular rental space for weddings.

PINECREST GOLF COURSE MAINTENANCE FACILITY

Separate from the function of Green Spring Gardens, the Pinecrest Golf Course maintenance facility is located near the entrance to the garden, adjacent to Braddock Road. Reflected on the 1992 master plan, this facility supports the maintenance of Pinecrest Golf Course located opposite Braddock Road. The golf course is owned and maintained by the Park Authority pursuant to land dedication from the 1983 approval of the Pinecrest rezoning, RZ 81-M-092. At the time the maintenance shop was built, it was located in a more remote area of Green Spring Gardens, while the main access to the garden was from Little River Turnpike via Green Spring Road. When the main entrance was relocated to Braddock Road, the maintenance shop remained in its current location.

The Pinecrest maintenance facility provides for the storage and repair of all equipment used to maintain the golf course. Pesticides and fertilizers are stored at this facility as well as topdressing material and trap sand.

MATERIALS STORAGE

At the far western end of the paved parking lot is an area that functions flexibly as a location for bulk materials storage, such as mulch, or overflow parking for volunteers, staff, or large events.

TRAILS

Numerous trails throughout the garden provide a venue for relaxation and enjoyment in addition to simply providing connection between landscapes. Nearby residents as well as visitors enjoy strolling through the gardens and stream valley. The brick walk around the central lawn, being relatively level, stable and with well-spaced bench seating, provides a wonderful location to walk for those with limited physical capabilities.

Figure 50: Park Visitors Enjoying a Walk in the Park

PARKING

A paved parking area currently serves the site with approximately 95 parking spaces. The incredible growth in popularity and programming at Green Spring Gardens often leads to a situation where the existing parking is insufficient to meet the demand. Programming schedules are carefully aligned so that combined demand does not overwhelm the ability to provide parking for those programs. The success of large events, such as the spring and fall plant sales, is dependent upon the cooperation of the adjacent Pinecrest Office Condominiums which allows the overflow to utilize their parking during weekend events. Inadequate parking was the most repeated concern expressed by garden patrons as well as site staff during the planning process.

PROGRAMMING

Programming offers the community tangible ways to connect to the natural and cultural resources through horticulture and education. Program options range from passive interpretation through plant labels, interpretive signage, brochures and publications, to active learning through classes, lectures, workshops and tours. Visitors are also engaged through mission related shopping opportunities, including two major plant sales with invited vendors, the horticulture center and historic house gift shops and the Garden Gate Plant Shop, that enable them to make purchases and apply what they have learned at their homes and with their family and friends.

Attendees of the programs span generations and skill levels. Children as young as three years of age engage with nature and the gardens in the Garden Sprout program. Families are attracted to a variety of hands on programs, often building a craft, a bird house or worm bin, to continue the education at home. Those with experience ranging from the beginning gardener through the professional horticulturist can select from hour-long lectures to full day symposia to out-of-town trips to build and enhance their knowledge.

Sustaining Green Spring Gardens financially is heavily dependent on successful programming. Over the past 10 years, revenue from programming alone has increased from $127,090 in FY06 to $205,028 in FY15, which represented 9,649 attendees at 337 programs. The number of staff and interns have also increased over the years to accommodate the growth in programming. The Green Spring Gardens volunteers and the Green Spring Master Gardener volunteers have also experienced notable growth over the past years.

Currently indoor facilities for programming include the multipurpose room, library, classroom within the horticulture center and two small rooms in the historic house. It is not uncommon for all of the spaces to be fully scheduled.

FROGS

Friends of Green Spring Gardens, commonly referred to by the acronym FROGS, was established in 1983 as a non-profit, membership organization devoted to the continued success of Green Spring Gardens. Through membership dues and fund-raising events, FROGS supports on-going horticultural efforts as well as expansion in programming and facilities. Highlights of the benefit of FROGS to Green Spring Gardens include accessibility updates to the gazebo and its patio, renovation of classroom and office spaces, purchase of two utility vehicles, support for Title I schools to attend programs, purchase of all plant material for the gardens, support for the horticultural library, and sponsorship of the Winter Lecture Series.

VOLUNTEERS

Volunteers are an integral part of the success of Green Spring Gardens. In FY15, 152 volunteers contributed 16,731 hours of their time and energy to assist with all aspects of the operations. These volunteers assist with weeding, watering, planting and propagating in the gardens under the supervision of the horticulture staff. Program, special event and visitor services volunteers deliver educational programs, serve tea, assist with planning and hosting special events and greet visitors at the horticulture center and the historic house. Dedicated volunteers also serve weekly at the Farmers Markets from May through December.

PARK ASPIRATIONS

PARK PURPOSE

Park purpose statements provide a framework for planning and decision-making. The purpose of Green Spring Gardens is to connect the community to natural and cultural resources through horticulture, education, and stewardship while protecting the resources on site.

DESIRED VISITOR EXPERIENCE

Visitors to Green Spring Gardens are invited to experience the garden in a variety of ways. Many enjoy the option to stroll freely about the garden at their own pace, learning from signage and interpretive elements or simply enjoying the beauty of the surroundings. Alternately, visitors may come to the garden for a specific program or event. The typical visit could last several hours to a full day. Visitors should be able to easily access the site and move freely between the primary spaces.

MANAGEMENT OBJECTIVES

To achieve the garden's purpose, the following objectives should guide the strategies and actions in addressing garden management issues:

- Provide public access to the horticultural, natural, and cultural resources for the enjoyment and education of the public;
- Preserve and protect the site's historic features – the historic house, Beatrix Farrand landscape design, springhouse, fermentation tank, and cemetery - that provide the basis for the site's listing on the National Register of Historic Places.
- Preserve, protect, and enhance the horticultural collection;
- Preserve, protect, and enhance natural resources;
- Preserve, protect, and enhance cultural resources:

- Minimize impacts to neighbors;
- Respect the deed restriction that stipulates that the Straight acquisition should be used solely and exclusively for public park purposes;

RESOURCE AND SITE MANAGEMENT

NATURAL RESOURCE MANAGEMENT

Setting aside spaces to protect and enhance the environment for the benefit of future generations is one of the key tenets of the Park Authority's mission. The Natural Resources policy within the Park Authority's Policy Plan provides the foundation to achieve the natural resource preservation mission of the Fairfax County Park Authority and requires the incorporation of resources management and protection measures into all Park Authority functions.

> *In accordance with its mission and values, the Fairfax County Park Authority works to ensure protection and stewardship of natural resources. Natural resources can also be addressed as natural capital: living organisms, non-living components to include air, water and soil, the ecosystems they make up and the services they provide. The framework for park natural resource protection and management is found in the Parks and Recreation section of the Fairfax County Comprehensive Plan.* (FCPA 2013:200.2)

Management of the natural resources of Green Spring Gardens Park should focus on several key areas:

1. Management of non-native and invasive plant species (described above).
2. Management of the white-tailed deer population (described above).
3. Management of the resident Canada Goose population (described above).
4. Protection and potential restoration of the wetland natural communities along the northern border of the park. Funding may be available from future park bonds to conduct a natural capital restoration of these wetlands as well as an educational outreach effort (Helping Our Land Heal).
5. Continued monitoring of the physical condition of Turkeycock Run and the associated restoration plantings to ensure the 1,000 feet of stream restoration efforts are successful.
6. Implementation of additional stormwater management projects throughout the garden.
7. Environmental sensitivity of future garden design and development initiatives.

CULTURAL RESOURCE MANAGEMENT

The protection of cultural resources is another key aspect of the Park Authority's core mission and a fundamental component of planning for Green Spring Gardens. Fairfax County Park Authority Policy 203 adopts the standard for cultural resource management established in the federal National Historic Preservation Act. Specifically, the policy states:

> *"In order to carry out its role as the primary steward of Fairfax County's cultural resources, it shall be the policy of the Park Authority to identify, evaluate, preserve, and interpret cultural resources located on parkland…, according to federal, state and local laws and regulations, Park Authority policy and regulations, the Cultural Resource Management Plan, and approved park plans."* (FCPA 2013:200.6)

The management of the cultural resources of Green Spring Gardens should be established to:

1. Identify, record, and preserve the park's cultural resources
2. Care for, document, preserve, and manage the historical collection according to best practices
3. Foster attitudes and practices that support good stewardship of historic objects

A Cultural Landscape Report and a Historic Structures report have been completed for Green Spring Gardens, however there has not been a comprehensive archaeological survey. The first step will be to prepare a site specific Cultural Resource Management Plan. The long term plan would be to conduct archaeological survey of the site.

HORTICULTURAL RESOURCE MANAGEMENT

As a public garden dedicated to serving the community's desire to visit a beautiful space and supporting the education needs of gardeners in the mid-Atlantic region, demonstration of excellence in horticultural design, installation and maintenance comprise key management elements for Green Spring Gardens. Prior to selecting plant material, whether for installation of a new garden or renovation of an existing garden, the purpose of the garden, its design elements, soil condition, moisture content, and light distribution must be evaluated, reflecting the concept of establishing "the right plant in the right place". Good horticultural practices, such as maintaining fertility, providing adequate water, pruning and pest management, ensure healthy plants are on display. When plant health issues arise, integrated pest management strategies should be implemented to avoid or to reduce the use of commercial fertilizers and pesticides. Native plant species, including cultivars of native species, are frequently, but not exclusively, considered when plants are selected to

fulfill a garden design. Plants known to be invasive in Virginia or known to possess invasive tendencies in the region should not considered for inclusion in the gardens.

Enhancing the value of the gardens is the maintenance of detailed plant records that include, at minimum, the scientific name, common name, date of planting, source, and location. Additional information related to its maintenance history, bloom time, size upon acquisition, etc., may also be kept. All woody plants are to be documented in the plant records database and tagged with a metal tag displaying its year of planting, accession number and scientific name. Herbaceous plant material is not tagged with an accession number, but detailed information may be kept in the plant records system. Visitor friendly interpretive plant labels indicating scientific name, common name, origin (especially if native to Virginia) and an interesting comment about the plant are to be installed as resources permit.

SITE CONSIDERATIONS

Green Spring Gardens is a staffed park providing daily attention and maintenance of the site. Aided by a sizeable volunteer component, site staff provide for the comprehensive maintenance and expansion of the horticultural collections as well as protection of the historic features. Site staff also provide periodic maintenance and repairs to garden facilities, such as periodic trail maintenance, pruning trees, tree removal, and other maintenance concerns identified by site staff or visitors.

CONCEPTUAL DEVELOPMENT PLAN

INTRODUCTION

The Conceptual Development Plan (CDP) provides recommendations for future garden uses and facilities. The CDP contains descriptions of the proposed plan elements and design concerns and is accompanied by a graphic that shows the general location of the planned elements. A CDP for Green Spring Gardens was approved with the 1977 master plan and updated with the 1992 master plan revision. This master plan again takes a comprehensive look at the garden in light of changing demographics, use patterns, and expectations, as well as its relationship to neighboring uses and how to best incorporate the property acquired in the late 2000s.

Development of the CDP is based on an assessment of area-wide needs and stakeholder preferences in balance with the existing site conditions and operational requirements. The scope of the master plan process does not include detailed site engineering; therefore, it should be understood that the CDP is conceptual in nature. Although reasonable engineering practices have contributed to the basis of the design, final facility location for the recommended elements will be determined through more detailed site analysis and engineering design that will be conducted when funding becomes available for the further development of this garden. Final design will be influenced by site conditions such as topography, natural resources, tree preservation efforts, and stormwater and drainage concerns as well as the requirement to adhere to all pertinent state and county codes and permitting requirements.

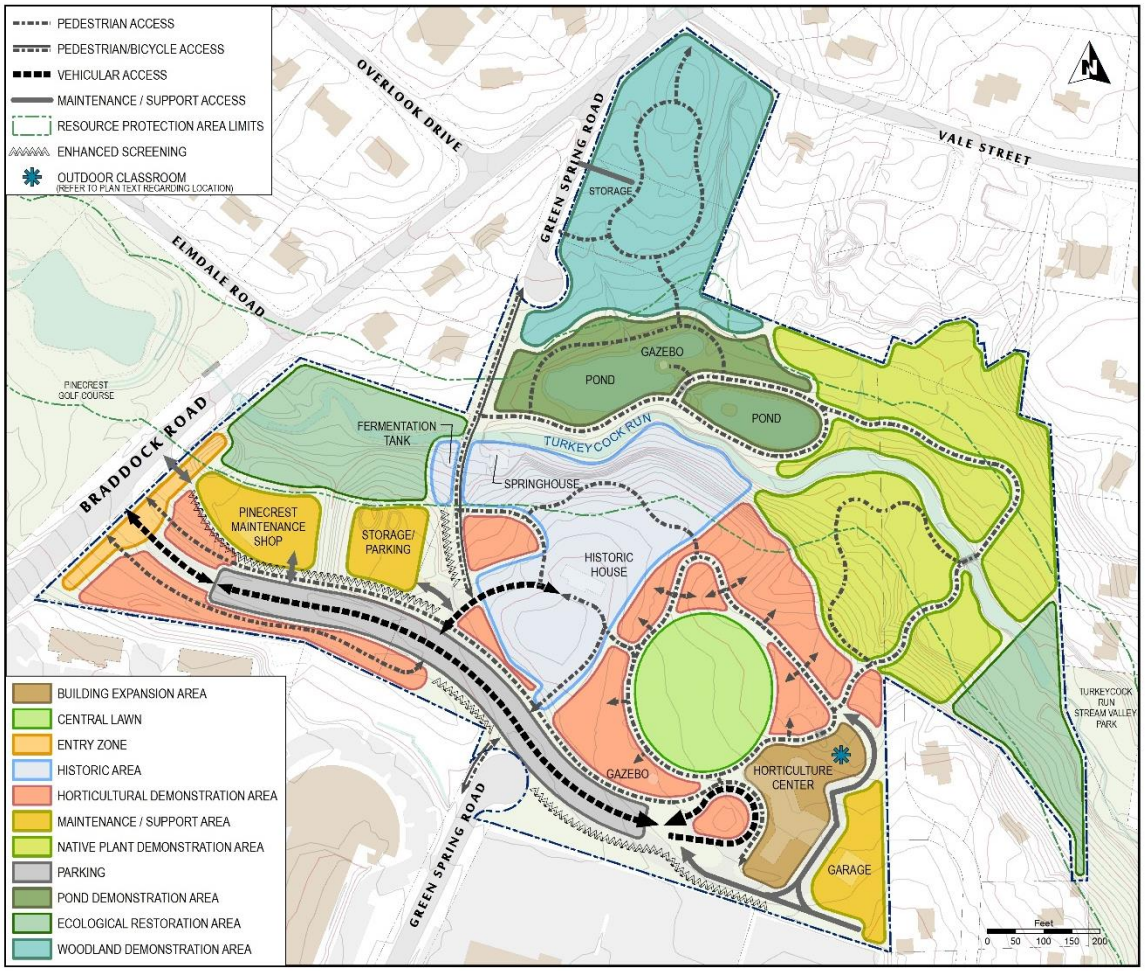


Figure 51: Conceptual Development Plan

PLAN ELEMENTS

ENTRY ZONE

Accessed from Braddock Road, the Entry Zone announces the garden to visitors and passersby. The entry feature and landscaping should clearly indicate not only the entrance but also the nature of the garden.

Although Green Spring Gardens is accessed directly from Braddock Road, the features and focus of the garden are not clearly discernable until driving further into the garden. In the master plan process, several people commented on the lack of a prominent presence on Braddock Road and how that limits the general recognition of the park. The construction of the existing stone signage wall was an initial step in enhancing the park's visibility and image from the Braddock Road entrance. Landscaping has been extended along the entrance drive and to a lesser extent along the Braddock Road frontage. The overall appearance is quite pleasant, however, within the context of Braddock Road, the entrance is quickly passed, providing only a hint at the horticultural resources that lie beyond.

Increased emphasis on visibility in the Entry Zone can elevate awareness of the park to passersby and the surrounding community while aiding in locating the site for the first time visitor. The Entry Zone should be developed from the perspective of a car passing by at 35 miles per hour. Utilization of the street frontage, rather than simply the intersection, will broaden the field to capture the attention. Extending the landscape beds along the Braddock Road frontage should be viewed as an opportunity to make the focus of Green Spring Gardens immediately apparent and eye-catching. Physical elements such as the extension of the existing stone walls, the addition of wall segments, or piers, can help to better define the extent of the park. The addition of vertical elements (e.g. a structure, public art, arbor, banners, or a strong line of trees) can extend visibility above the horizontal plane.

ARRIVAL ZONE AND PARKING

Upon entering the park, Witch Hazel Road conveys visitors to the heart of the park and provides parking for visitors, staff, and volunteers. Not contemplated with the 1992 master plan, the closing of vehicular access from Green Spring Road required relocation of the park's primary entrance to Braddock Road via the new Witch Hazel Road. Witch Hazel Road currently intersects with the parking area and continues to its terminus at a turnaround/drop-off in front of the horticulture center.

Relocation of the entrance benefited the park by providing visibility and direct frontage on a major roadway, rather than being obscured behind a commercial center. However, Witch Hazel Road was extended to meet the existing parking area at right angles, requiring a driver to make a right hand turn to continue on their path to parking and facilities at a location where there is no opportunity to turn left, creating a sense of ambiguity. The construction of Witch Hazel Road provided some additional parallel parking spaces but did not significantly increase the provision of on-site parking. As Green Spring Gardens is a countywide park, it is expected that a large percentage of its visitors must travel by car to get there. The existing parking is often insufficient to meet demand, noted repeatedly during the master plan process, and ultimately, limits the ability to further expand park programming. As the parking area extends towards the horticulture center, the flow of traffic is directed towards the service access behind the green house while the turnaround and horticulture center are obscured from view. This creates another ambiguous situation for visitors and does not capitalize on views of the horticulture center or across the central lawn.

Adjustments to Witch Hazel Road can help to clarify the entrance sequence into the park and expand on parking. Reconfiguration of the current alignment will allow a direct path from entrance to horticulture center, eliminating ambiguous turning movements. Adjustments at the eastern end of the parking area would directly align vehicles with the turnaround, taking advantage of views of the horticulture center and across the green. Visually, visitors would have a clear sense of arrival and orientation to the site. Opportunities to incorporate changes in paving materials can help to visually identify the drop off loop and points of pedestrian crossings, while aiding

enhancing traffic calming efforts. Providing perpendicular parking fully along the length of the entrance drive will most efficiently expand parking for visitors and staff, adding approximately 50 parking spaces.

For the general enhancement of the visitor experience, expanding on the existing efforts to significantly screen views of the Pinecrest Golf Course maintenance shop and the materials storage area from Witch Hazel Road and Braddock Road would greatly enhance the entry sequence. General screening along the southern edge of the park will help focus the visitor's attention to the beauty of the site rather than adjacent development.

HISTORIC AREA

As described throughout this document, stewardship and interpretation of the site's cultural resources is a core component of the Green Spring Gardens' mission. The historic core of the site is listed in the National Register of Historic Places, identified simply as Green Spring. The 2003 nomination lists the historic house, the Beatrix Farrand landscape, the naturalized landscape which was a focus of Michael Straight, the springhouse, the cemetery, and fermentation tank as contributing resources. As generally defined on the Conceptual Development Plan, the Historic Area encompasses all of these features. The Historic Area should be managed to maintain the integrity of the site's listing in the National Register of Historic Places and the elements interpreted individually and in relation to each other.

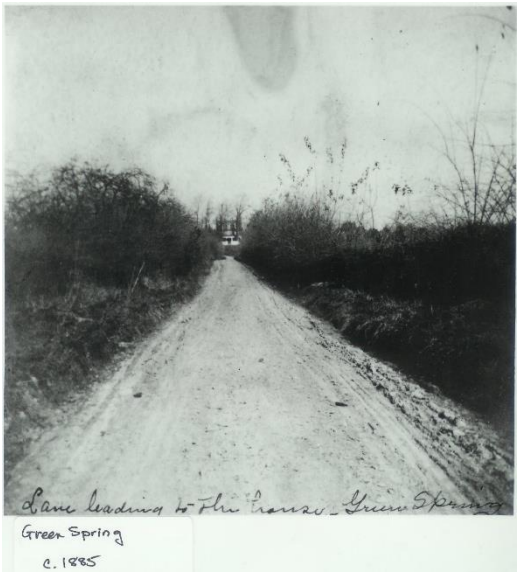


Figure 52 : Entrance Drive to Historic House, circa 1885

The *Green Spring Gardens Cultural Landscape Report*, finalized in 2009, provides an in-depth study of the history of the property and its owners. Its format is based on the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*, 1996. The level of documentation and guidance provided in this report were not available at the time of the previous master planning efforts. As a result, some earlier recommendations for the park, combined with encroaching development nearby, have impacted the integrity of several of the site's historic features to a degree. Recommendations for the Historic Area are based on the Cultural Landscape Report and seek to mitigate previous impacts, enhancing the ability to interpret the site.

VIEWSHED PROTECTION

On the broadest scale, protection of the views around the historic home will enhance the interpretation of the site. In the early 1800s, the home was set within several hundred acres of farmland and visible from Little River Turnpike. Encroaching development has intruded upon the views around the home. As a result, the ability to envision the historic house within its former agricultural setting has been diminished. Additionally, some development within the park has encroached on the viewshed of the historic house, including materials storage and period incorrect landscaping.

Whereas recovery of the rural agricultural views that would have been typically enjoyed by former residents is unattainable, effort can be made to screen the intruding elements as much as possible. Conscientious landscape design could be effective, over time, to screen views of commercial development and on-site materials storage without creating the sense of a wall of plants. Views from the house of on-site parking at the southern end of the Historic Area can be obscured by establishing the grade of the parking area lower than that of the front yard, in the fashion of a ha-ha. Protection of the primary viewshed to the rear of the house should encompass not only the Farrand crescent hedge but extend broadly towards Turkeycock Run, an area of intense landscape focus by Michael Straight. Topographic changes make it more difficult to screen residential development to the north; however, supporting the health of the existing forest stand would be of benefit. Horticultural Demonstration Areas should remain outside of the Historic Area. Any modification of the horticultural plantings within this zone should reflect the period of significance for the National Register of Historic Places listing.

BEATRIX FARRAND LANDSCAPE DESIGN

The design of the landscaping at Green Spring is credited to noted landscape architect Beatrix Farrand. There is a strong sense of symmetry across the site – the front yard framed by the drive and grove of trees, the rear yard formed by construction of a crescent wall with a simple boxwood hedge. Transitional gardens on either side of the house helps define the front yard from the rear, continues the formation of space connecting front and rear yards, and helps blend to the more natural surroundings beyond. What may at first appear to be a very simple design ultimately reveals a very distinct development of space complementary to the bucolic setting of the home.

The clean, simple lines of the plan, however, may also have been the cause for some alterations over the years. Subsequent management and perspectives have led to others seeking to supplementthe design, however, within in a more modern context. In the rear yard, the clean, simple arch of the crescent wall and hedge now includes a perennial border, dedicated to Mary Fahringer, a great patron of Green Spring Gardens and recipient of the Park Authority's Elly Doyle Park Service Award. A set of steps was incorporated into the crescent wall, attributed to Michael Straight, creating

a gap in the arch by the removal one boxwood, slightly off center. Differential settling of the soil caused damaged the stone wall and altered the grading of the rear yard. Restoration of the wall's structure was completed in 2015, funded through the efforts of The Garden Club of Virginia. The steps were retained in the process as a nod to the influence of Michael Straight on the property though the settled grading of the rear lawn continues to detract from the original concept. The existing boxwoods are those planted in the 1940s. Having overgrown the space and showing signs of age and wear, they no longer form the clean delineation of space envisioned with the design. The design of the front yard has been impacted by the aforementioned removal of the entrance drive and the loss of the hemlocks specified by Farrand to define the limits of the front lawn loss due to poor health. The transitional gardens are no longer in place and the location of accessible parking and air conditioning units adjacent to the house compromise the historic integrity of the setting.

Whereas the simplicity of the design may have led some to overlook its defining characteristics, this same simplicity enhances the possibility to effect its restoration. After re-establishment of the entrance drive, supplementing the front landscape border with hemlocks or other suitable conifer will recreate Farrand's vision and, eventually, help to screen some of the views to the south. Foundation plantings adjacent to the historic house should be kept to a minimum per Farrand's preference.

The crescent hedge should be refreshed, either by generating new shrubs from cuttings taken from the existing shrubs or replacement with a variety that is hardier, more disease-resistant, and retains the desired size characteristic. As recommended in the Cultural Landscape Report, a new boxwood was planted to fill the gap in the hedge created with the Straight-era addition of steps to the crescent wall. The Fahringer perennial border is not historically correct, as Farrand's design reflects only the boxwood hedge. When the brick edging was replaced and the entire garden renovated, plant material was chosen to reflect the palette of plants that Beatrix Farrand had used in other gardens she designed, enabling staff to better interpret Mrs. Farrand's work, even if the garden itself is not accurate for her original design. The alternative approach suggested in the Cultural Landscape Report to simplify the plan by creating a tight, clean edge to the border that does not distort the form of the Farrand crescent hedge was accomplished with The Garden Club of Virginia renovation, completed in 2015.

The transitional gardens can be recreated based on Farrand's design and Straight-era photographs. This will aid in the continuation of the landscape form as well as provide a transition with the horticultural portion of the park. Shifting the accessible parking slightly further west of the house will create space to reestablish the transitional garden to the west of the home and provide some visual separation from the historically-incongruous accessible parking.

HISTORIC HOUSE ENTRANCE DRIVE

An essential element associated with the house historically has been the entrance drive. Diverging from the original alignment of Green Spring Road, the entrance drive looped across the front of the home and back out to Green Spring Road. Creating a sense of arrival complementary to the home, the drive also established the form of the front yard and was a defining feature in the Farrand landscape design. Beatrix Farrand's design included stone piers, a stone wall, and wood fence to further define this space and identify the property.

As the park developed, the need for vehicular connection to the house was reduced. In fact, in deference to the pedestrian circulation through the site, the 1992 master plan recommended the removal of the eastern portion of the drive, which subsequently occurred. The demolition of this portion of the entrance drive, however, fractured an organizing element of the cultural landscape.

Figure 53: Straight-Era Aerial Photograph Showing Entrance Drive

As recommended in the Cultural Landscape Report, this feature of the historic landscape should be restored, reforming the visual relationship on the property. Construction should be visually distinct from the walkway in the horticultural gardens, helping to define the area of historic significance. The Cultural Landscape Report recommends an eight foot wide path, similar to the wheelbase of a vehicle, and constructed in porous concrete, mimicking the look of the gravel drive of the Straight era yet accessible and able to support small maintenance vehicles. Farrand's stone piers and wall that fronted on Green Spring Road remain but the wood fence that extended this feature has been removed. The stone features should continue to be protected and the wooden fence reinstated as elements of the cultural landscape.

SPRINGHOUSE AND FERMENTATION TANK

The springhouse and fermentation tank lie just a short distance northwest from the historic house and provide an opportunity to broaden the interpretation of the historical use of the property. The springhouse was likely constructed in the early 19th century, during the ownership of John Moss. By its construction and siting adjacent to Turkeycock Run, the springhouse allowed for cold storage of dairy products, fruits, and some vegetables prior to modern refrigeration. Various owners utilized the springhouse for this purpose during the site's agricultural past. With the Straight ownership, the springhouse was converted to serve as residence for property caretakers and guests by Walter Macomber, who is also responsible for the interior renovations of the historic house. Immediately across the old road bed of Green Spring Road is the remnant of a fermentation tank built by Fountain Beattie near the turn of the 20th century. Noted for having grown apples on both sides of Little River Turnpike, Beattie produced apple cider, applejack, and apple brandy on site.

The structure of the springhouse has stood for approximately 200 years, through many storms and floods. During the process to repair and stabilize the structure in 2008, funding was not available to implement ADA requirements for public access. It is currently used to store event equipment. Modifications to meet ADA standards would be costly and likely negatively impact the character of the building. Whereas the springhouse is currently used for much needed storage space, possibilities exist to utilize this structure for limited office space or for inclusion in the Resident Curator Program. Only remnants remain of the base of the fermentation tank, which is somewhat obscured from sight by the adjacent vegetation. The area around the fermentation tank should be cleaned up and the tank supported so it is visible and useful for interpretation. These features can be interpreted together through staff-led programming and signage to chronicle the changes in agricultural production through the county's history.

HORTICULTURE CENTER / BUILDING EXPANSION AREA

The horticulture center functions as the hub for all operations at Green Spring Gardens. Site staff have offices here. Visitors are greeted here. There is a litany of programs, community meetings, and events that take place here. The horticultural library provides resources and the gift shop provides mementos, gardening tools, gloves, and books. Maintenance and volunteer efforts are coordinated from the horticulture center and plants cultivated for site use and sales. The Garden Gate Plant Shop, a partner operation between the Park Authority and the Friends of Green Spring Gardens, is open April through early fall offering perennials for sale, many of which are propagated from the Green Spring Gardens plant collections, generating revenue for the park.

Previous master plans have chronicled the development of the horticulture center. The 1977 plan contemplated the need for such a feature. The 1992 plan reflected the

completed glasshouse and the first phase of the horticulture center and contemplated its expansion. This plan shows the completion of the second phase of the horticulture center. Dedicated site staff have contributed to the success of Green Spring Gardens. That success generates greater demand for resources – both in staffing needs and physical space. Despite the conversion of approximately 450 square feet of classroom space to office space in 2010, staff and volunteers juggle to find sufficient space to perform necessary tasks, limiting the efficiency of their efforts.

To begin addressing the need for additional building capacity, an area is defined on the CDP as Building Expansion Area, identifying the general area where the existing horticulture center might be expanded in the future. Integration of an expansion adjacent to the existing structure would likely reduce construction costs, as compared to a separate, free-standing structure, and maintain site operations within a common core. Additional study would be required to determine anticipated facility needs and space planning as well as architectural design to complement the existing structure and orientation on the site.

CENTRAL LAWN

The central lawn provides one of the primary organizing elements on the site. It provides visual orientation to the site and is itself a destination. The perimeter brick walkway provides a link between uses and access to the gardens.

The central lawn should remain a key defining space in Green Spring Gardens. Realigning the terminus of the entrance drive will more directly link the visual connection with the central lawn for visitors arriving at the horticulture center.

DEMONSTRATION AREAS

Arguably the element that most draws people to Green Spring Gardens is the Demonstration Areas. The desire for an emphasis on horticulture was spoken clearly in the process of developing the first master plan for this park and has grown over the years. Individual Demonstration Areas are broadly defined by the focus of the landscape efforts and maintenance approach. Specific garden types and plant material selections within a given Demonstration Area will be addressed as part of the interpretive plan for Green Spring Gardens, to allow flexibility to respond to changing trends and interests.

HORTICULTURAL DEMONSTRATION AREAS

The Horticultural Demonstration Areas are most concentrated around the central lawn and in proximity to the horticulture center. This places the preponderance of the plant collections where they are comfortably accessible to most park patrons and readily manageable by site staff and volunteers. Additional Horticultural Demonstration Areas extend along the entrance drive and the parking area.

Opportunities to expand on the Horticultural Demonstration Areas are limited – constrained by respecting the guidance for the Historic Area and by site topography that limits accessibility. A limited area of expansion might be considered at the periphery of the central lawn. As defined by the bordering brick walkway which bends and curves along its path, the central lawn is rather organic in its form. The informal nature of the design is a characteristic that many enjoy about the space. At the same time, the "bump outs" created by variations in the path provide one of the few opportunities to expand on the Horticultural Demonstration Areas without impacting the existing character of the space. Should programming of the gardens indicate the need, Horticultural Demonstration Areas could be established on the interior of the walkway while still maintaining the character and usage of the central lawn.

NATIVE PLANT DEMONSTRATION AREAS

Focused within the eastern portion of the stream valley, the Native Plant Demonstration Area is a complementary extension of the Horticultural Demonstration Areas. Emphasizing native plant material in a natural environment, opportunities exist to expand and grow this program within the stream valley.

The majority of the Native Plant Demonstration Area is established within the stream valley that, due to topography and flooding, has remained in a more naturalized state. The conditions that account for this location, though, are also conditions that present challenges to providing comfortably accessible routes. Construction of traditional accessible routes would entail unacceptable impacts to the natural environment. Alternatively, as project areas expand, prospects may develop that would enhance accessibility, even within limited sections of trail. These opportunities should be capitalized on when feasible.

POND DEMONSTRATION AREA

The Pond Demonstration Area generally encompasses an area that was one of Michael Straight's particular areas of landscape interest. Hand-drawn sketches reflect his plans for this space, considering vistas, plant material selections, access, and landscape features. The Pond Demonstration Area draws the interest of park visitors much as it did Michael Straight. Demonstration plantings within this area should emphasize the water-related environment including plant material which is appropriate for use within a Resource Protection Area.

WOODLAND DEMONSTRATION AREA

North of the Pond Demonstration Area, the most recently acquired property is designated as a Woodland Demonstration Area. This site provides landscape interpretation opportunities in a more naturalized setting in comparison to the Horticultural Demonstration Areas, while exhibiting more of an upland habitat in comparison to the Native Plant Demonstration Area. As a Demonstration Area, a variety of plantings suited to the local conditions, both native and non-native, may be

included while retaining a more naturalized setting among the trees. As the topography across most of this area is gently sloping, it would be accessible to most park visitors and may provide opportunities to expand interpretation of plant collections more adapted to the wooded upland setting.

Expanding demonstration plantings into this site should incorporate goals for both landscape interpretation and ecological restoration. Issues facing this site stem from impacts related to the previous residential land use. Residual features, such as concrete pads, and invasive species have reduced the site's habitat value for native insect and animal populations. Opportunities exist to enhance the site's natural capital which may include efforts to improve the quality of site runoff prior to entering Turkeycock Run and increasing the variety of sources for wildlife food and cover. Ecological restoration would not preclude future development of this property, subject to revision of this master plan through a public process. Any future development, though, should retain this focus on the continued improvement to the ecological health of this area.

Trail access is extended through the Woodland Demonstration Area to provide program access as well as pedestrian connectivity to the communities north of the park. Vehicular access is extremely limited as the existing road network does not support a significant increase to the number of vehicular trips to this portion of the park. Park programs that occur in this area would require pedestrian access from the core of the park or through the provision of shuttle vehicles serving the park.

Not to conflict with the overarching vision of the Woodland Demonstration Area, a portion of the site may be alternately utilized for materials storage.

ECOLOGICAL RESTORATION AREAS

Ecological Restoration Areas provide opportunities to improve the ecological health of the Turkeycock Run stream valley corridor. Typical of many "natural" areas in a suburban setting, the Ecological Restoration Areas have been impacted by the spread of invasive species and increased stormwater runoff. Invasive species often outcompete native plant species while providing a lower quality food source for native insects and birds. Other portions of the park, which are more publicly accessible and have been developed as a Demonstration Areas, receive attention to combat invasive species as part of the management program to maintain the plant collections. The less accessible portions of the stream valley offer opportunities to advance the ecological restoration goals for the park and may include efforts such as stream restoration, riparian buffer enhancement, and native understory plantings.

MAINTENANCE AND SUPPORT AREAS

Much less glamorous than the horticultural and cultural resources on the site, the availability of adequate space for maintenance equipment and operations remains critical to the ongoing success of operations at Green Spring Gardens. Primary, day-

to-day maintenance is conducted from the area east of the horticulture center. These back-of-house operations are highly constrained due to the positioning of the horticulture center so close to the corner of the property, making efficient usage of this space crucial. Currently, deliveries in tractor trailers struggle to navigate within this area. Specialty gardens, such as the children's garden and the townhouse demonstration gardens, are located adjacent to the access for maintenance vehicles, creating a safety concern. Two other maintenance/support areas are located along the entrance drive – the Pinecrest Maintenance Shop and the Material Storage Area. It is envisioned that the Pinecrest Maintenance Shop will continue to operate in its current location for the foreseeable future.

Organized usage of these spaces should seek to maximize efficiency. Increasing visitation of the park demands a premium be placed on every square foot of space. For back-of-house operations, holding beds and propagation beds should be arranged as compactly as possible while opening an access adjacent to the southern boundary to permit the necessary turning movements of delivery vehicles. Internal maintenance trips are shifted adjacent to the eastern boundary. This serves to separate conflicts with site visitors and maintenance vehicles in the current time frame as well as accommodate potential building expansion in the future.

Other than enhanced screening, no changes are anticipated to the area of the existing Pinecrest Maintenance Shop. Should the opportunity arise for this facility to be relocated, this area could be utilized to expand programming and enhance the entry into Green Spring Gardens. Immediately to the east of the maintenance shop is an area utilized for material storage and overflow parking. It is envisioned that this area will continue to function for these purposes. A previously approved site plan associated with the construction of Witch Hazel Road included consideration of formalizing the parking in this area. Although not necessary for the storage of materials, paving this area would enhance the ability to provide supplemental parking on high-demand days.

OUTDOOR CLASSROOM

The addition of an outdoor classroom space provides a programming transition between the horticulture center and the gardens. The opportunity to offer programs in the gardens, rather than a classroom, builds stronger connections with students through hands-on education.

The specific location of the Outdoor Classroom is not defined on the CDP and should be determined with stakeholder input when funding becomes available to advance this aspect of the plan. General considerations for site selection should include proximity to the horticulture center to facilitate transporting teaching materials, ease of access to park patrons, and relationship to the surrounding demonstration areas as well as the potential use of the space for rentals.

Design elements might include brick surfacing and seat walls to complement the adjacent walkway, protection from the sun and weather, and supplemental features such as a labyrinth within the paving design to provide a usage for the space when a class is not in progress.

PEDESTRIAN CONNECTIVITY

Pedestrian access to and through the park allows people to get to and enjoy the many elements of Green Spring Gardens. Trail connections to adjacent developments are provided where safe access is possible. Connections within the site are located to provide access to features while protecting resources.

Numerous trail connections exist within Green Spring Gardens and are highly utilized. A few additional connections are reflected on the CDP. As previously described in the discussion of the Woodland Demonstration Area, a trail through the northern parcels will provide access to the center of the parcel for programming uses as well as access to the park for communities to the north.

Just south of this trail, a formal trail is shown on the north side of the western pond in an area where many walk today.

INTERPRETATION

Beyond the beauty of the site, Green Spring Gardens abounds in opportunities for interpretation. It is not simply having these features available but connecting them to the community that is truly at the heart of the Green Spring Gardens mission. Interpretation is not an afterthought but actively pursued in the development of programming to reach a widening market. An interpretive plan for Green Spring Gardens was prepared in 1993 identifying major interpretive themes and methods of interpretation. In light of changing demographics and technology since 1993, an update to the interpretive plan is warranted. The 2009 Cultural Landscape Report also identifies relevant themes for interpretation and programming. Both of these resources should be consulted in advancing the interpretive program at Green Spring Gardens. Interpretation may be through signage, programming, events, print, internet, or a variety of other means.

WAYFINDING AND SIGNAGE

Development of a cohesive signage and wayfinding program provides an opportunity to greatly improve interpretation and the visitor experience. The breadth of sites, features and elements across Green Spring Gardens makes development of a wayfinding plan essential to providing a positive visitor experience. Individual site features might be separated by considerable distance and visually undiscernible from one location to another. Wayfinding will help clarify what is available to see, the easiest route to get there, and begin to identify relationships that support interpretation.

Incorporation of state-of-the-art technologies that can immediately link visitors to an expanded realm of information would greatly multiply opportunities to interpret site features for a range of subjects at age-appropriate levels. Advances in programmable signage technologies provide additional prospects to enhance overall site visibility of the park and broaden advertisement of park events. Interactive site features, such as those with hand-generated power, directly engage the viewer and add the possibility of an audio component that is beneficial to those with limited vision.

RECOMMENDATIONS AND DESIGN CONCERNS

INCLUSION OF PUBLIC ART

From the earliest visioning for Green Spring Gardens in the 1970s, it has been a mission of the park to preserve and promote the natural and historic resources and to be a cultural center. The arts are well represented in the park through displays, art exhibits, presentations, performances, and classes. Although not defined as a separate use or with a specific location on the CDP, it is understood that Green Spring Gardens is an appropriate location for inclusion of public art elements.

PROVISION OF ADA ACCESS

The Park Authority is committed to providing all citizens with equal access to the facilities and recreation features within its parks to the greatest extent possible. Sometimes, the ability to provide physical access to all locations within a park may be at odds with the simultaneous mission to protect the county's natural and cultural resources. With any development at Green Spring Gardens, it is a goal to provide the greatest extent of access feasible to all areas of the park. Should conditions, such as significant topographic change or protection of historical resources, preclude full physical access, interpretive opportunities should be pursued so that the value of the inaccessible locations may be made available to all.

PARKING ALTERNATIVES

As a destination park, the ability to provide and expand on programming and services at Green Spring Gardens is directly tied to the ability to provide sufficient parking and access. Significant expansion of on-site parking would have considerable impacts on the character of the park as well as to horticultural, cultural, and natural resources. Alternately, the option of providing expanded parking off-site should be considered and pursued where reasonable. Acquisition of land, lease agreements, or shared parking agreements are approaches that may enhance the provision of parking while minimizing impacts within the park.

Green Spring Garden also benefits from the proximity of public bus transportation. Increased emphasis on the availability of public transportation, noted on the park's web page and other means of advertisement, could help reduce the increasing demand for on-site parking.

PEDESTRIAN ENHANCEMENTS

Trail additions to this plan contemplate the ability to expand on pedestrian connectivity into the park from surrounding communities. Trail connections to the intersection of Braddock Road and Vale Street and the existing pedestrian connection at the park's entrance on Braddock Road should carefully contemplate the safety of encouraging pedestrian crossings of Braddock Road. Development plans should be coordinated with the Fairfax County Department of Transportation and the Virginia Department of Transportation to evaluate locations for safe crossings as well as elements to enhance pedestrian safety, e.g. crosswalks, pedestrian lighting/signalization.

Any adjustments or additions of trails within the park should be field located so as to provide the least amount of site disturbance and tree loss possible.

BICYCLE ACCOMMODATIONS

Several comments received during the planning process indicated a desire to encourage bicycle access to the park. By policy and action, the Park Authority seeks to enhance non-motorized access to parkland. The availability of secure bike storage as well as wayfinding signage directing cyclists to bike parking would be options that could be achieved within the context of Green Spring Gardens to promote bicycle access.

LOW IMPACT DEVELOPMENT

Final engineering design of this site will be required to adequately address runoff generated by further development within the park. Opportunities to address drainage and stormwater design through the use of Low Impact Development techniques should be considered wherever feasible. The inclusion of porous pavement should also be considered wherever underlying soils permit. Final material selection should ultimately balance the intended usage of the surfacing and maintenance requirements.

FISCAL SUSTAINABILITY

Economic realities require that funding for public parks be supplemented by revenue generated by park offerings, sponsorships, donations, and volunteerism. Fiscal sustainability, as outlined in the agency Fiscal Sustainability Plan, is essential to be incorporated into the implementation of the master plan. Successful implementation of the Fiscal Sustainability Plan and master plan will allow the agency to address community needs, as well as critical maintenance, operational and stewardship programs by providing latitude in funding options and decision making. Together these plans will serve the public, park partners and the Park Authority by providing a greater opportunity for fiscal sustainability while managing the inevitable needs for capitalized repairs and replacements.

COORDINATION WITH CULTURAL RESOURCE MANAGEMENT STAFF

Although the extent of archaeological survey to date has been limited, there is a high probability for undiscovered cultural resources to be present on site. Prior to any significant ground disturbing activities (e.g. realignment of parking, establishing new demonstration areas, trail construction), Cultural Resource Management and Protection staff should be consulted to determine the likelihood of archaeological deposits, the need for archaeological investigation, and how to minimize potential impacts on these resources.

PROTECTION OF THE FERMENTATION TANK FOUNDATION

This plan includes a recommendation to elevate the visibility and interpretation of the Beattie-era fermentation tank. The condition of structure, however, is fragile. Increased visibility also increases the possibility of further damage. The recommendations of the Cultural Resource Management and Protection staff should be consulted on the best method to enhance the interpretive value of the feature while protecting or reinforcing the existing structure.

DEVELOPMENT WITHIN THE HISTORIC AREA

The ability to utilize the 18th century historic house for interpretation provides a direct connection to the past. Making the home available, accessible, and usable within today's context has and will continue to require modifications to meet current code requirements for public occupancy as well as comfort. Some previous improvements have been sited in a manner that conflicts with the historic character of the property. The addition of air conditioning units and accessible parking are two examples. Any development within the Historic Area should be evaluated in light of protecting the cultural landscape of the setting. This is not to exclude the addition or modernization of features but, rather, that any additional development carefully consider how it is placed within the context of the Historic Area and to mitigate impacts to the greatest extent possible.

HISTORIC OVERLAY DISTRICT

A recommendation within the Cultural Landscape Report is to pursue the establishment of a Historic Overlay District that would provide further protection of the Green Spring Gardens historical resources. As defined in the Zoning Ordinance, Fairfax County currently identifies thirteen Historic Overlay Districts across the county. These districts, as approved by the Board of Supervisors, seek to provide an additional level of protection to sites and features that are of special architectural, historic, or archaeological value and to better preserve them for the enjoyment and education of future generations. Regulations, which vary by district, seek to minimize the destruction or encroachment upon such valued resources.

RANGE OF DEVELOPMENT OPTIONS

The preparation of this master plan contemplated a range of development options and opportunities for the park. The ability to generate revenue in a manner consistent with the mission of the park is a challenge for all Fairfax County parks in an era of limited funding. Some possibilities evaluated include establishment of a privately-owned restaurant, coffee shop, caterer, or bakery within the park, serving both the park and the surrounding community; expansion of program space separate from the existing horticulture center; addition of a dual purpose facility to expand programming space which could alternately be utilized as a rental facility, and necessary site modifications were Green Spring Gardens to adopt an entrance fee policy. Any of the more ambitious options would entail a considerable shift to the overall program and business model for Green Spring Gardens, requiring substantial physical construction, relocation of existing uses, and expansion into new service areas. Although there may be benefit to the consideration of these alternatives for the continued viability of Green Spring Gardens, meaningful and thorough feasibility studies must be conducted to support such a shift. The level of research necessary exceeds the resources available at the master plan review level. Continued interest in significant change to the Green Spring Gardens program would require designated funding to study space needs, market analysis, and development opportunities.

APPENDIX A
DESCRIPTION OF SOIL UNITS WITHIN GREEN SPRING GARDENS

Information derived from:
DESCRIPTION & INTERPRETIVE GUIDE TO SOILS IN FAIRFAX COUNTY
Prepared by the Department of Public Works and Environmental Services and the Northern Virginia Soil and Water Conservation District
Published April 2008, as revised through May 2013

(30) Codorus and Hatboro - This channel-dissected soil grouping occurs in floodplains and drainageways of the Piedmont and Coastal Plain, and is susceptible to flooding. Soil material is mainly silty and loamy, but stratified layers of sand and gravels are not uncommon. The seasonal high water table varies between 0 and 2 feet below the surface. Depth to hard bedrock ranges from 6 to 30 feet below the surface. Permeability is variable. Foundation support is poor because of soft soil, seasonal saturation and flooding. Septic drainfields and infiltration trenches are poorly suited because of wetness and flooding potential. Stream bank erosion within these soils may result in undercutting of embankments on adjacent properties. Hydric soils, which may include non-tidal wetlands, occur within this mapping unit.

(38) Fairfax - This Piedmont upland soil consists of a capping of silty old alluvium over silty and sandy soil materials weathered from the underlying bedrock. Bedrock is typically micaceous schist and phyllite. The alluvium capping materials ranges from ½ to 3 feet thick and contains rounded waterworn pebbles. The subsoil can be quite clayey, but the clays are only slightly plastic. The soil is well drained. Depth to hard bedrock is between 10 and 100 feet below the surface. Foundation support is typically good for small buildings (i.e., 3 stories or less). Suitability for septic drainfields is fair because the high clay content of the subsoil could cause slow permeability. Infiltration trenches are well suited for this soil. Because of a high mica content in the layers below the alluvium capping, the soil tends to "fluff" up when disturbed and is difficult to compact requiring engineering designs for use as structural fill. This soil is suitable for septic drainfield sand infiltration trenches.

(47) Grist Mill-Woodstown Complex - This complex is a mixture of the development disturbed Grist Mill soil and the natural Woodstown soil. The complex occurs in low elevation areas of the Coastal Plain that have been developed but retain a good portion of undisturbed soil. Grist Mill soil will be clustered around foundations, streets, sidewalks, playing fields and other graded areas. Woodstown soil will be found under older vegetation in ungraded back and front yards and common areas. For a description of the two soils that make up this map unit, please see (40) Grist Mill and (109) Woodstown.

(40) Grist Mill - This soil consists of sandy, silty and clayey sediments of the Coastal Plain that have been mixed, graded and compacted during development and construction. Characteristics of the soil can be quite variable depending on what materials were mixed in during construction. The subsoil is generally a clay loam, but can range from sandy loam to clay. The soil has been compacted, resulting in high strength and slow permeability. The soil is well drained and depth to bedrock is greater than 20 feet below the surface. In most cases, foundation support is suitable assuming that the soil is well compacted and contains few clays. Because of the slow permeability, suitability for septic drainfields is poor and for infiltration trenches is marginal. Grading and subsurface drains may be needed to eliminate wet yards caused by the slow permeability. This soil is found in low elevation developed areas of the Coastal Plain.

(109) Woodstown - This soil occurs in sandy sediments on nearly level landscapes in the lower Coastal Plain. Soil materials are primarily sandy loams to sandy clay loams. The seasonal high water table is between 1½ and 3½ feet below the surface. Depth to hard bedrock ranges from 50 to more than 300 feet. Permeability is moderately rapid in the surface and moderately slow in the subsurface. Foundation support may be marginal because of soft soil and seasonal saturation. Foundation drains and waterproofing are necessary to prevent wet basements and crawl spaces. Grading and subsurface drainage may be needed to eliminate wet yards. Suitability for septic drainfields and infiltration trenches is poor because of the seasonal water table.

(72) Kingstowne-Sassafras-Neabsco Complex - This complex is a mixture of the development-disturbed Kingstowne soil and the natural Sassafras and Neabsco soils. The complex occurs in higher elevation areas of the Coastal Plain that have been developed but retain a good portion of undisturbed soil. Kingstowne soil will be clustered around foundations, streets, sidewalks, playing fields and other graded areas. Sassafras and Neabsco soils will be found under older vegetation in ungraded back and front yards and common areas. For a description of the soils that make up this map unit, please see (66) Kingstowne and (92) Sassafras-Neabsco Complex.

(66) Kingstowne - This soil consists of sandy, silty and clayey sediments of the Coastal Plain that have been mixed, graded and compacted during development and construction. Characteristics of the soil can be quite variable depending on what materials were mixed in during construction. The subsoil is generally a clay loam but can range from sandy loam to clay. Waterworn pebbles may be found throughout the soil. The soil has been compacted, resulting in high strength and slow permeability. The soil is well drained and depth to bedrock is greater than 20 feet. In most cases, foundation support is suitable assuming that the soil is

well compacted and contains few clays. Because of the slow permeability, suitability for septic drainfields is poor and it is marginally suitability for infiltration trenches. Grading and subsurface drains may be needed to eliminate wet yards caused by the slow permeability. This soil is found in higher elevation developed areas of the Coastal Plain.

(91) Sassafras-Marumsco Complex – This soil complex occurs along steeper slopes separating the high elevation and low elevation areas of the Coastal Plain and along slopes bordering larger Coastal Plain streams. This complex was formerly referred to as Marine Clay. Dry, sandy and gravelly Sassafras material is stratified with layers of thick, highly plastic marine clays. Water perches on top of the clay layers and springs can form where the clay strata come to the surface. Depth to the perched water table is variable depending on the specific stratification. This soil is highly variable. Unstable slopes can lead to serious land slippage or landslides. Depth to bedrock is greater than 50 feet. Foundation support is poor because of the potential perched water table, unstable slopes and plastic clays. Intensive geotechnical analysis is needed before construction commences. Suitability for septic drainfields and infiltration trenches is poor because of the high water table, plastic clays and unstable slopes.

(95) Urban Land – This unit consists entirely of man-made surfaces such as pavement, concrete or rooftop. Urban land is impervious and will not infiltrate stormwater. All precipitation landing on Urban Land will be converted to runoff. Urban Land units lie atop development disturbed soils. Ratings for this unit are not provided.

(100) Urban Land-Kingstowne Complex - This complex is a mixture of impervious man-made materials that comprise Urban Land and the development disturbed Kingstowne soil. It occurs in very densely developed, high-elevation areas of the Coastal Plain. Most of the surface area is covered by impervious paving and rooftop, but significant areas of graded and compacted soils exist. The permeability of this complex is highly reduced by the impervious surfaces and the densely compacted Kingstowne soil. Most of the precipitation that falls on this complex will be converted to runoff. For a description of the soils that make up this map unit, please see (66)
Kingstowne and (95) Urban Land.

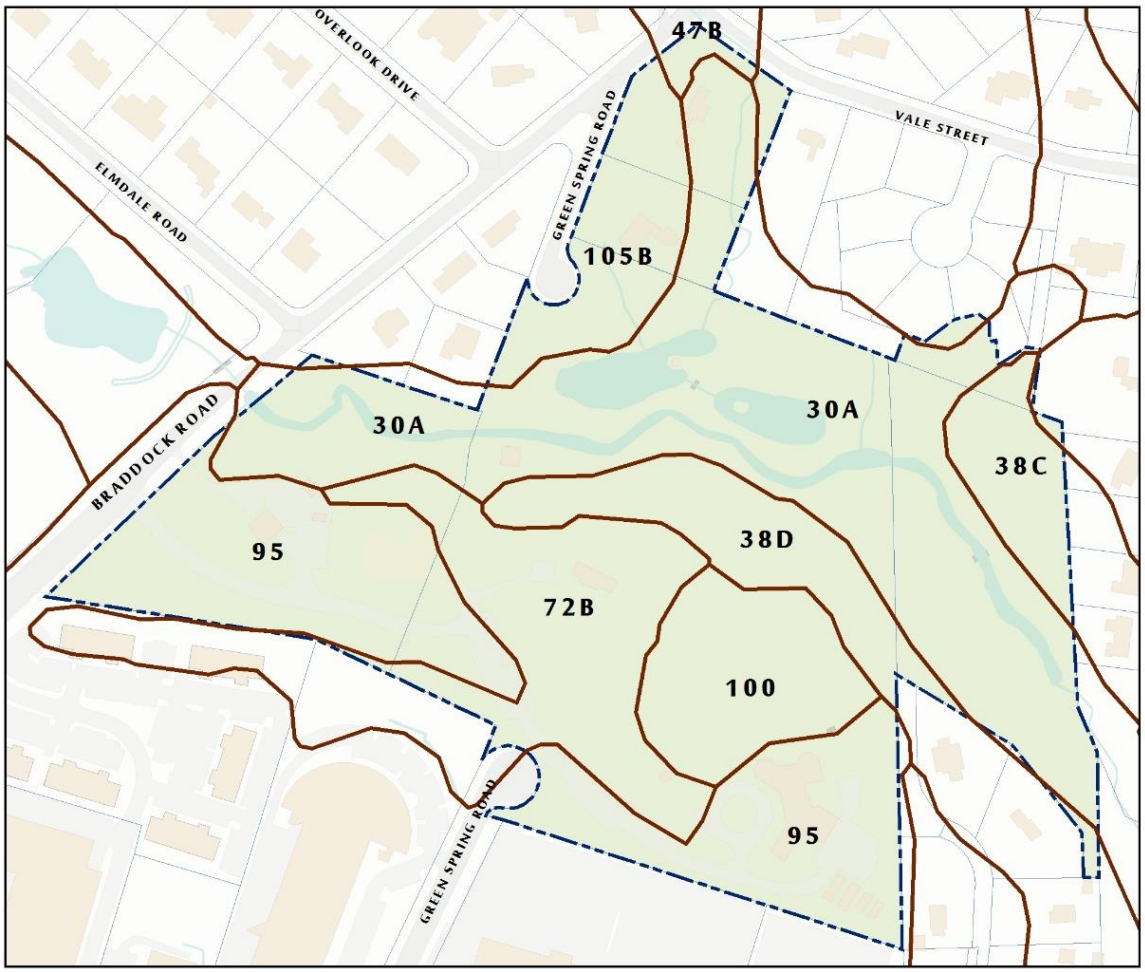
(66) Kingstowne - This soil consists of sandy, silty and clayey sediments of the Coastal Plain that have been mixed, graded and compacted during development and construction. Characteristics of the soil can be quite variable depending on what materials were mixed in during construction. The subsoil is generally a clay loam but can range from sandy loam to clay. Waterworn pebbles may be found throughout the soil. The soil has been compacted, resulting in high strength and slow permeability. The soil is well drained and depth to bedrock is greater than 20 feet. In most cases, foundation support is suitable assuming that the soil is

well compacted and contains few clays. Because of the slow permeability, suitability for septic drainfields is poor and it is marginally suitability for infiltration trenches. Grading and subsurface drains may be needed to eliminate wet yards caused by the slow permeability. This soil is found in higher elevation developed areas of the Coastal Plain.

(95) Urban Land – This unit consists entirely of man-made surfaces such as pavement, concrete or rooftop. Urban land is impervious and will not infiltrate stormwater. All precipitation landing on Urban Land will be converted to runoff. Urban Land units lie atop development disturbed soils. Ratings for this unit are not provided.

(105) Wheaton-Glenelg Complex - This complex is a mixture of the development-disturbed Wheaton soil and the natural Glenelg soil. The complex occurs in upland areas of the Piedmont with micaceous schist and phyllite bedrock that have been developed but retain a good portion of undisturbed soil. Wheaton soil will be clustered around foundations, streets, sidewalks, playing fields and other graded areas. Glenelg soil will be found under older vegetation in ungraded back and front yards and common areas. For a description of the two soils that make up this map unit, please see (102) Wheaton and (39) Glenelg.

(102) Wheaton - This loamy soil consists of sand, silt and clay weathered from granite bedrock that has been mixed, graded and compacted during development and construction. Characteristics of the soil can be quite variable depending on what materials were mixed in during construction. The subsoil is generally loam, but can range from sandy loam to clay loam. The soil has been compacted, resulting in high strength and slow permeability. The soil is well drained and the depth to bedrock is greater than 5 feet. In nearly all cases, foundation support is good assuming that the soil is well compacted and contains few clays. Because of the slow permeability, suitability for septic drainfields is poor and suitability for infiltration trenches is marginal. Grading and subsurface drains may be needed to eliminate wet yards caused by the slow permeability. This soil is found in developed areas of the Piedmont with micaceous schist and phyllite bedrock.

(39) Glenelg - This Piedmont soil occurs extensively on hilltops and sideslopes underlain by micaceous schist and phyllite. Silts and clays overlie silty and sandy decomposed rock. Depth to hard bedrock ranges between 5 and 100 feet below the surface. Permeability is generally adequate for all purposes. Foundation support for small buildings (i.e., 3 stories or less) is typically suitable. Because of a high mica content, the soil tends to "fluff" up when disturbed and is difficult to compact requiring engineering designs for use as structural fill. This soil is

suitable for septic drainfields and infiltration trenches. Glenelg is highly susceptible to erosion.