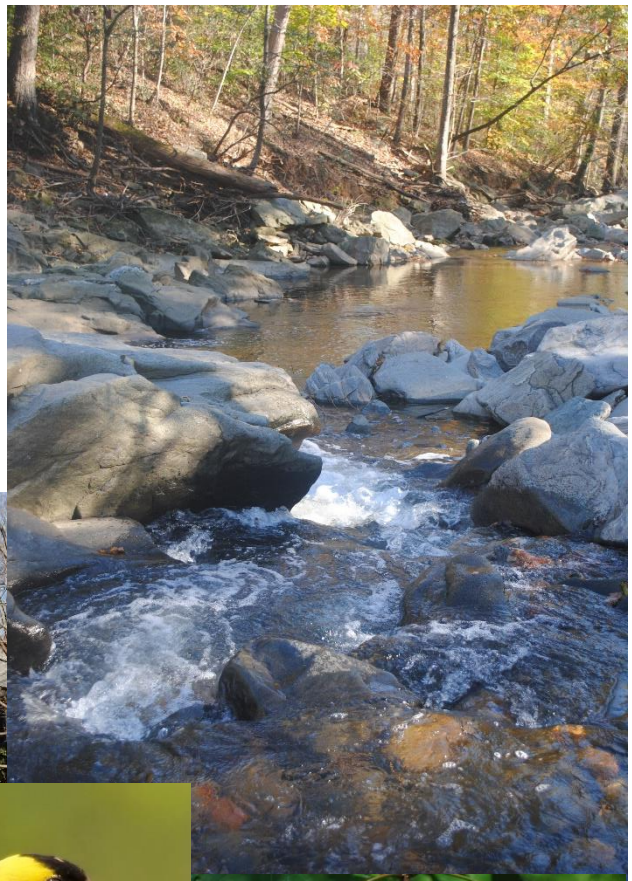
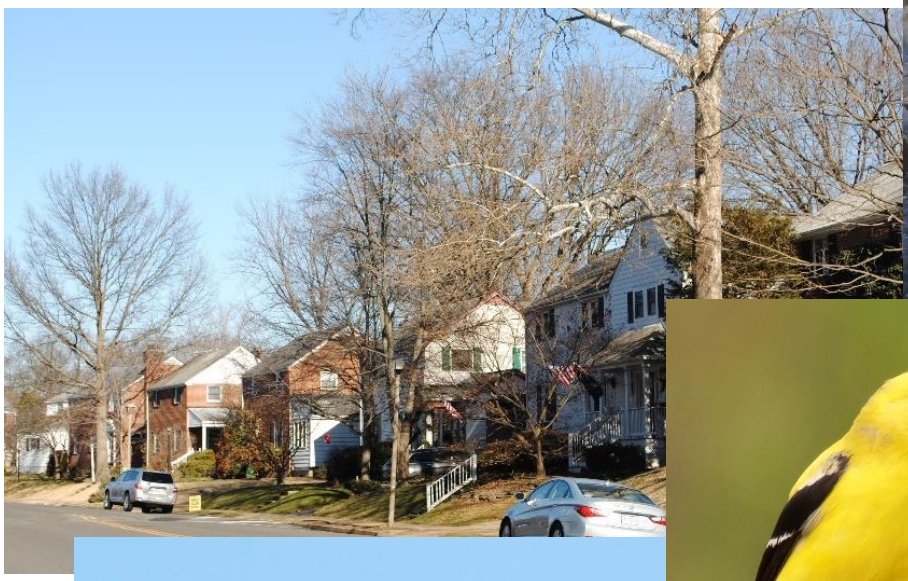
Arlington Forest Neighborhood Conservation Plan

March 9, 2022





PHOTOS (clockwise from upper left, with photo credits)

Street in Arlington Forest (Hutch Brown); Four Mile Run just below Huffman's Falls (Hutch Brown); northern red oak leaves in Lubber Run Park (Hutch Brown); monarch butterfly on common milkweed in Arlington Forest (David Howell); raccoon in Lubber Run Park (David Howell); Arlington Forest Shopping Center (Dan Brown); red-tailed hawk in Arlington Forest (David Howell); American goldfinch in Arlington Forest (David Howell).

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EXECUTIVE SUMMARY

Arlington Forest is a community of 852 single-family detached houses in west-central Arlington. Founded in 1939 on former farmland, the residences are on small lots of about 6,000 square feet each with R–6 zoning (One Family Dwelling District). The community includes a small shopping center and ample county parkland (mostly in Lubber Run, Bluemont, and Glencarlyn Parks), along with Barrett Elementary School, the Lubber Run Community Center, and the Lubber Run Amphitheater. Arlington Forest was added to the National Registry of Historic Places in 2005. Our community has an active citizens' association (the Arlington Forest Citizens Association, or AFCA), with meetings eight times a year and a newsletter delivered to every household before each meeting.

Respondents to a neighborhood survey in spring 2020 expressed their appreciation for the parklike residential atmosphere of this rare wooded island in an urban environment. Residents cherish the trees in our neighborhood and the ability to get out and enjoy them on walks. Almost all residents use our local parks, and we have a deep affection for the natural ecosystems in them.

Another element valued by residents is the sense of community in Arlington Forest, along with the quiet and walkability of our streets and the charm of our homes and gardens. Arlington Forest has a neighborhood vibrancy that neighbors want to sustain and reinforce. Residents prize the convenient commutes and the shops, restaurants, good schools, libraries, and public services of all kinds, along with opportunities for community volunteering and for enjoying culture and the arts, not least at the Lubber Run Amphitheater.

Maintenance of our neighborhood parks is a concern for our community in terms of both infrastructure and ecological integrity. Other concerns include traffic safety issues on some streets, the effects of stormwater runoff, and the loss of canopy trees, which threatens the beauty and integrity of our community. However, the single biggest threat to our neighborhood listed by respondents to the survey was the potential for upzoning and overdevelopment, which would adversely affect the quality of life in our neighborhood. The goal of this neighborhood conservation plan is to help preserve the qualities that make Arlington Forest a desirable place to live while welcoming new neighbors from every background to our community.

Painted lady butterfly in Arlington Forest. Photo: David Howell.

Based on our neighborhood goals, this updated plan outlines conditions in our neighborhood, including challenges and opportunities in a range of areas. We arrived at a community consensus that some opportunities should become recommendations for county and neighborhood action to help achieve our goals. Appendix A summarizes scores of recommendations by corresponding section of the plan, together with suggestions for carrying them out.

Arlington Forest strongly supports all existing land uses and zonings in our neighborhood, and we urge the county to keep them in place. AFCA is prepared to work with the county to help align the outcomes of the Missing Middle Housing Study with the 2020 General Land Use Plan and our own neighborhood goals for Arlington Forest. We urge the county to work with us to resolve safety issues with respect to street maintenance and traffic management in our neighborhood. We also want to work with the county to find long-term solutions to problems associated with park

infrastructure, tree canopy loss, and ecological degradation in our local parks, including stormwater runoff, invasive species, and deer overpopulation. We share the county's commitment to historical preservation, and we urge the county to take advantage of corresponding opportunities in our vicinity.

INTRODUCTION

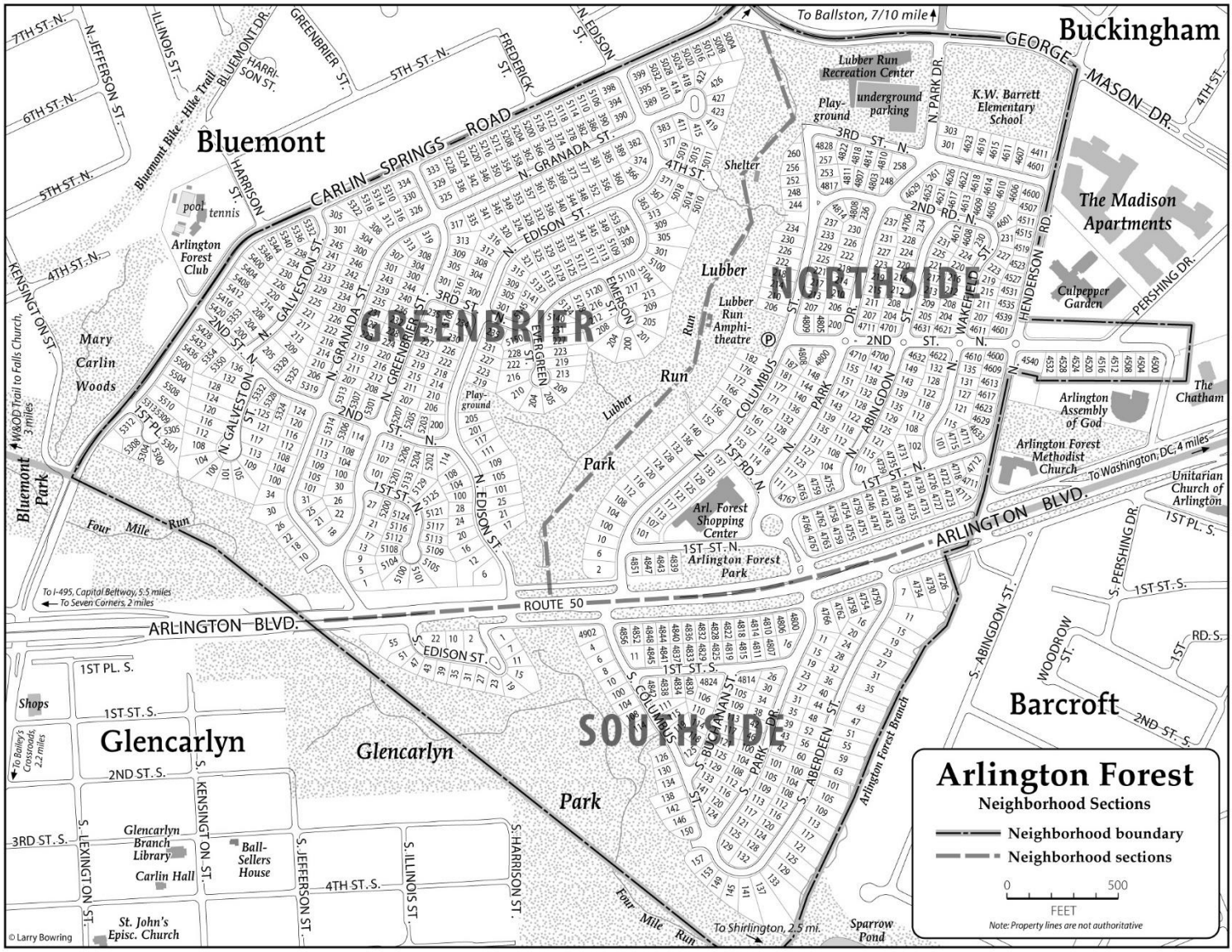
Arlington Forest is a community of 852 single-family detached houses on small properties in west-central Arlington about 3-1/2 miles from Washington, DC. The neighborhood straddles the North/South Arlington line demarcated by Arlington Boulevard. The map on the next page shows the neighborhood boundaries. Covering 219 acres, Arlington Forest is bordered by the W&OD Trail in the southwest; by North George Mason Drive and North Carlin Springs Road in the north and northwest; and by North Henderson Road and Arlington Forest Branch (a brook) in the east. The community also includes a block of homes east of North Henderson Road along 2nd Street North.

Lubber Run and Arlington Boulevard intersect Arlington Forest, dividing our neighborhood into four sections (see the map on the next page). To the north of Arlington Boulevard are Northside (the area east of Lubber Run), with 282 homes; and Greenbrier (the area west of the stream), with 399 homes. To the south of Arlington Boulevard is Southside, mostly to the east of Lubber Run but with a small addition west of the stream, which together have 171 homes.

The three subneighborhoods drain into different subwatersheds formed by Lubber Run and Arlington Forest Branch as tributaries of Four Mile Run. About half of the land area of Arlington Forest is in the Lubber Run watershed, with the rest divided between Four Mile Run and Arlington Forest Branch. The northern and eastern parts of Greenbrier and the western part of Northside are in the Lubber Run watershed. Arlington Forest Branch drains the eastern parts of both Northside and Southside, whereas the southwestern part of Greenbrier and the western part of Southside drain directly into Four Mile Run.

A street in Arlington Forest, typical for most of the neighborhood, as are the large trees.
Photo: Hutch Brown.

As recently as the 1930s, the area was entirely farmland, forestland, and pastureland. Arlington Forest derives its name from the wooded portions of the original landscape, still evident in neighboring parklands and in the large trees on many properties. The streets of Arlington Forest wind through (mostly) colonial-style homes that were originally homogeneous and small (with a standard footprint of about 20 by 25 feet), although the houses now sport a variety of sizes and styles, from gabled traditional to glass-walled modernist. Although our neighborhood appearance has changed, our shared love of our wooded surroundings and our tight-knit community is as strong as ever. Depending on the day and time, you might hear teens joking at a school bus stop,



dog walkers chatting along sidewalks, shrieks of delight coming from playgrounds, toddlers launching pebbles into a stream, parents planning fundraisers to augment elementary school teachers' supplies, guitarists entertaining shoppers buying local produce at our seasonal farmers market, or a mid-July block party with barbecue grills and movie screens.

Our local citizens' association (Arlington Forest Citizens Association, or AFCA) is one of the oldest in the county. AFCA circulates a community newsletter to our 852 households and to businesses in the Arlington Forest Shopping Center, some of which advertise in the newsletter. Through the newsletter and an AFCA listserv, we enlist volunteers to join in seasonal outdoor clean-ups, our springtime home tour, and our longstanding winter holiday celebration. The coronavirus pandemic of 2019 interrupted many community activities in 2020–21, although the community responded in imaginative ways to sustain activities such as the Saturday Lubber Run Farmers Market and Halloween trick-or-treating for kids.

AFCA holds monthly meetings, including dialogues with public servants and thought leaders on topics we care about, from community-supported

agriculture, to traffic safety, to mitigating the unwanted effects of development in our county. We benefit from the generosity of Arlington Forest Shopping Center businesses and from neighbors and donors whose hard work and collaboration sustain the Lubber Run Amphitheater, Arlington's only open-air performing arts venue. Its summer season draws neighbors from across Arlington to enjoy regionally and nationally recognized performers.

It takes a lot of devoted people to create the community we enjoy in the natural environment we strive to protect. The residents of Arlington Forest understand why so many house hunters want to join us. This revised neighborhood conservation plan articulates our collective appreciation for our past, the issues and opportunities we see at present, and our hopes for the future.

Acknowledgments and Chronology of Plan Development

This revised plan reflects the collective efforts of many people over multiple years. Its basis is the previous plan, submitted by AFCA in November 1990 and approved by the Arlington County Board in May 1991. After 30 years, so much has changed in our neighborhood that a revision of the 1991 plan was due—but why reinvent the wheel? The previous plan was so well designed and written that this plan retains some of the same structure and contents, in part to show continuity and ongoing community. Where the original authors see their own ideas, approaches, or language, it is a tribute to their own outstanding work.

Like the previous plan, this plan follows guidelines outlined by Arlington County's Neighborhood Conservation Program (for a list of sources, see appendix B). The guidelines call for discussing public facilities and services used by our residents, such as schools, libraries, police, hospitals, parks, and more, even when the facilities and services originate from or are located in areas outside of Arlington Forest. This plan makes corresponding recommendations for improving the public facilities and services that our residents use and enjoy.

In following the guidelines, this plan occasionally repeats important points and information that pertain to multiple sections. For example, the plan discusses the prospect of converting single-family detached homes in Arlington Forest into "missing middle" units (duplexes and townhouses) in the section on Land Use and Zoning as well as under Housing because it pertains to both sets of issues and is of major importance to our residents.

Planning for the revision began in 2018 during the tenure of AFCA President Allison Kennett. Liz Kauffman, the AFCA representative on Arlington County's Neighborhood Conservation Advisory Committee, assembled a small group of neighbors to begin revising the previous plan. With guidance from Neighborhood Conservation Program staff—especially Tim McIntosh, Katie Brown-Henry, and Naudy Martinez—the team established an outline for the revised plan based on the 1991 plan and the most recent guidebook for Arlington County's Neighborhood Conservation Program.

Next, the team prepared the neighborhood survey required for any neighborhood conservation plan. To get a sense of neighborhood concerns, Julia Battocchi led the team in setting up a "strengths, weaknesses, opportunities, and threats" exercise for Arlington Forest. Liz Grossman then worked with the team, with help from AFCA President Esther Bowring, to prepare, administer, and analyze a neighborhood survey. Conducted in spring 2020, the survey went to homeowners and households across Arlington Forest; it elicited 187 valid responses (see appendix C), enough for the results to count as statistically sound.

Using the survey results and other materials and information (see appendix B), the team finished drafting the plan. Each section describes conditions in our neighborhood (including challenges and opportunities) and ends with the neighborhood's recommendations (if any) to the county and ourselves. Most opportunities described in the plan did not rise to the level of neighborhood

recommendations. Opportunities became recommendations only after the neighborhood reached a community consensus that they should. Appendix A compiles the recommendations.

Neighborhood deliberations about the plan took several forms. Many topics of interest that came up at monthly AFCA meetings from 2018 through 2021, some controversial, went into the plan. Individual neighbors reviewed parts of the draft plan, suggesting corrections, additions, and revisions. Neighborhood goals, a key element of the plan, were reviewed by AFCA officers and voted on at a general AFCA meeting. A draft of the entire revised plan was posted on the AFCA website for neighborhood comment and revision over a period of many months. Portions of the draft plan also appeared in the neighborhood newsletter for comment and discussion at AFCA meetings; the recommendations were voted on at a general AFCA meeting. After a broad community consensus became clear, the writing team finalized the plan for approval by AFCA.

Participants in the entire process included Julia Battocchi, Esther Bowring, Larry Bowring, Dan Brown, Hutch Brown, Karen Burst, Barbara Englehart, Liz Grossman, David Howell, Liz Kauffman, John Naland, Natalie Roisman, and Bob Strawn. Larry Bowring, Liz Kauffman, and Bob Strawn walked through the neighborhood looking for sidewalks, curbs, gutters, streets, and streetlights in need of maintenance. Hutch Brown and David Howell walked the neighborhood parks many times, noting conditions there. Liz Grossman was instrumental in designing and administering the neighborhood survey, including analyzing and presenting the results. Larry Bowring created the maps of Arlington Forest for the plan.

Liz Kauffman led the entire process of plan revision, with Hutch Brown as editor. Liz also drafted the introduction and the sections on street conditions and traffic/transportation. John Naland contributed the sections on the history and historical preservation of Arlington Forest. Natalie Roisman wrote the section on commercial and business areas; Barbara Englehart added the piece on the Lubber Run Farmers Market. Hutch Brown drafted the sections on geology and soils, land use and zoning, housing, green infrastructure, public facilities and services, and other challenges; Esther Bowring contributed the piece on the Lubber Run Amphitheater. Dan Brown added to parts of the plan and furnished many outstanding photos. David Howell, a member of the Park and Recreation Commission and the Forestry and Natural Resources Commission and an amateur wildlife photographer, reviewed the section on green infrastructure and contributed many great photos; he also contributed to parts of the plan. AFCA officers Esther Bowring (President), Sean Lyons (Vice President, Southside), Tom Smialowicz (Vice President, Greenbrier), and Joel Yudken, (Vice President, Northside) reviewed the draft plan, as did many other neighbors whose general comments and contributions are reflected in the results.

Special thanks go to Arlington Regional Master Naturalists Bill Browning, Jeff Elder, David Howell, and Paul Kovenock for information and materials used in writing the revised plan and to Lily Whitesell, Arlington County coordinator for stream monitoring, and Lyndell Core, Arlington County parks area manager, for sharing their expertise on conditions in our neighborhood parks.

Although the individuals recognized above and the 187 survey respondents all contributed to this neighborhood conservation plan update, editor Hutch Brown shouldered the most critical tasks throughout the 3-year update process. He recruited and motivated contributors to the text, found subject matter experts as reviewers, and flagged emerging issues for discussion, such as the county's study of residential zoning issues. He made the working draft available for online posting and community review, and he placed drafted sections and neighborhood recommendations in the community's monthly newsletter preceding each AFCA meeting. Without his helmsmanship, the neighborhood could not have reached the level of consensus that this updated plan represents.

Geology and Soils of Arlington Forest

The geology of the area in and around Arlington Forest is complex, in part because our area straddles the border between two physiographic provinces: the Piedmont to the northwest and the Coastal Plain to the southeast. The Piedmont is hilly, with bedrock exposures and fast-moving streams. The Coastal Plain is flat and made up of sediments, with slow and meandering rivers and streams.

In our area, you can see the transition from the bedrock of the Piedmont to the sediments of the Coastal Plain. You can also see the transition in streamflow in what geologists call the Fall Line, which is actually a zone that can stretch for miles. The Fall Line zone for the Potomac River reaches from Great Falls at least to Little Falls (some 10 miles) and conceivably all the way to the tidewater at Roosevelt Island (some 15 miles).

The Fall Line zone for our three sizable neighborhood streams (Four Mile Run, Long Branch, and Lubber Run) extends throughout our local large parks (Bluemont, Glencarlyn, and Lubber Run). The largest abrupt drop, analogous to Great Falls or Little Falls on the Potomac, is Huffman's Falls. At times audible from the Washington and Old Dominion (W&OD) trail, Huffman's Falls lies in Glencarlyn Park just downstream from the confluence of Long Branch with Four Mile Run.

The bedrock for Arlington Forest, well exposed at Huffman's Falls, formed from sands, silts, and rocks at the bottom of a deep-sea trench about 450 million years ago. The tremendous heat and pressure associated with colliding tectonic plates—pieces of the Earth's crust—lifted the deep-sea sedimentary rock onto the North American continent and transformed it into what geologists call metamorphic rock. The metamorphic bedrock in the area of Arlington Forest is called Indian Run sedimentary melange.

The Indian Run rock ranges from gray to brown in color. You can see lots of glittering mica, along with welded grains of sand. You can also find embedded rocks of various sizes and shapes, and in places you can see veins and nodes of quartz, especially at Huffman's Falls.

At Huffman's Falls on Four Mile Run, the metamorphic bedrock is well exposed, along with intrusions of quartz. Photo: Hutch Brown.

The metamorphic bedrock contains occasional intrusions of massive quartz. Because quartz is so erosion resistant, the intrusions can form huge outcrops, such as Brandymore Castle along the W&OD Trail upstream from Bluemont Park on Four Mile Run. One such intrusion underlies part of Greenbrier; you can find the outcrop near the top of the unpaved trail into Lubber Run Park from North Edison Street. (The black crust on the white quartz is either lichen or manganese oxide.)

Overlying the bedrock is a dense layer of sediments deposited by ancient rivers from about 140 million to 100 million years ago. Forerunners of the Potomac, the rivers carried sand, silt, clay, and

The Potomac Formation, exposed by erosion in Glencarlyn Park near the Long Branch Nature Center. Photo: Hutch Brown.

cobble (pebbles and rounded river rocks) from inland and deposited them where the waters slowed as they approached sea level on the Coastal Plain. The sediments, known as the Potomac Formation, start at about Interstate Highway 66 and gradually thicken to the southeast. Exposed by erosion along our creeks, the Potomac Formation looks like packed sandy or silty soil, often mixed with rounded river rocks, and it is dense and hard to pick apart.

On top of the Potomac Formation is a much younger layer of sediments laid down from about 10 million to 5 million years ago in the elevated areas where homes are built today. Geologists call these broad, relatively flat surfaces terraces, and "Tertiary" is the name for the geologic period of the deposits, which are known as Tertiary Terraces. The Tertiary Terrace in Arlington Forest comprises tightly packed yellow-orange to reddish silty clays mixed with gravel and rounded river rocks.

The Tertiary deposits came from rivers meandering across a flat plain. What was once a flat Piedmont plain became hilly only within the past 5 million years or so due to uplift across our region. Even today, we are seeing a slow rise of the Allegheny Plateau and Blue Ridge Mountains to our west and a lesser uplift of the Piedmont. Over millions of years, the uplift caused our local rivers and streams to cut valleys and gorges into the rising Piedmont plateau.

The downcutting force of our streams was magnified by sporadic Ice Ages over the last 2.6 million years. Although the glaciers never reached our area, our local streams were locked in ice for much of the year. Released for only a few months in summer, our rivers and streams became raging torrents with far greater downcutting power than today. Nothing else can explain Mather Gorge on the Potomac River or the deep valley gouged by tiny Long Branch in Glencarlyn Park.

Overlying the geologic formations in our area are soils associated with what scientists call urban land. Natural soils separate into well-defined layers ("horizons"), but the layers in urban soils get mixed up by the digging and churning associated with the construction of roads, houses, and other parts of the built environment. Urban soils are an amalgam of topsoils and subsoils influenced by the underlying geology.

Most parts of Arlington Forest have an admixture of urban soils and the underlying Tertiary Terrace materials, such as the rounded river rocks that you

Urban soils in a newly formed gulley at the edge of Lubber Run Park in summer 2019. Undisturbed for 80 years, the soils are starting to form horizons again. Note the pale layer under the organic layer at top and the reddish layer underneath. Note also the rounded river rocks from the underlying Tertiary Terrace. Photo: Hutch Brown.

might find in your own backyard. Some residential areas close to Four Mile Run have urban soils with an admixture of deep red silts and clays weathered from the ancient bedrock (the Indian Run sedimentary melange).

As you might expect, our neighborhood parks have more natural soils with better defined soil horizons than do the upland terraces with their urban soils. Lubber Run and Glencarlyn Parks have well-drained loams containing sands, silts, and clays weathered from the Indian Run bedrock, which readily decomposes. Soil scientists classify the soils in our neighborhood parks as in the "Manor" and "Glenelg" soil series. Both are fertile loams with distinct horizons.

The soils on the upper slopes are thinner and younger than the bottomland soils, which have a relatively thick upper ("O") horizon rich in organic materials. The underlying ("A" and "B") soil horizons contain quartz sands and mica weathered from the bedrock. The heavy mica component makes the soils in our parks especially prone to erosion.

History of Arlington Forest[1]

American Indians inhabited the area of Arlington Forest. Artifacts from 8,500 years ago have been found along Four Mile Run, and a village site has been identified at the confluence of Four Mile Run and Long Branch in Glencarlyn Park.

During the 18th century, several large colonial land grants shared a common border at that same stream junction. A large oak tree there was used as a survey marker by one of the landowners, George Washington, who possessed a parcel of land to the south. A weathered marble pedestal without signage now marks the site in Glencarlyn Park, and a section cut from the original oak tree is displayed in the Glencarlyn Library.

Most of the land that is now Arlington Forest once belonged to John Colville, a British merchant and planter who owned trading ships along the Potomac in the early 1730s and was active in land speculation in Virginia and Maryland. Colville purchased a 1,400-acre tract on Four Mile Run in 1731; the tract included the lower part of Lubber Branch (now Lubber Run). In 1754, Colville was granted permission to build a gristmill to grind corn and wheat on Lubber Run just above its confluence with Four Mile Run.

Depiction of an American Indian in 1585 by John White, an English settler on Roanoke Island in what is now North Carolina. American Indians living in the vicinity of what is now Arlington Forest probably looked similar.

[1] John Naland traced the history of Arlington Forest from multiple sources in his 2015 book on behalf of AFCA, partly by using the study in 2004 by Cynthia Liccese-Torres for the Arlington County Historic Preservation Program (see appendix B, Sources Used).

Only a handful of houses were built in the area of what is now Arlington Forest prior to 1894. The three still standing are described below in the section on historical preservation: the Mary Carlin House (built in about 1800); the Charles Mix House (dating to the 1820s–40s); and the Ann Carlin Cottage (erected in about 1850).

In 1847, construction began along Four Mile Run of the W&OD Railway, which extended from Alexandria to the Blue Ridge Mountains. The foundations of some of the pre-Civil War bridges are still in use. During the Civil War, water from Four Mile Run was used to fill train boilers. Train engineers frequently complained that their boilers overflowed with soap suds because thousands of Union soldiers washed their clothes in the creek. Trains rumbled back and forth during the war carrying soldiers, supplies, and casualties.

Along Four Mile Run just south of today's Arlington Boulevard, John Carlin opened a resort in 1872 near the two natural springs there, the Carlin Springs. The resort boasted a dance hall, a 250-seat restaurant and ice cream parlor, and a swimming hole. For the next 20 years, visitors came by train from Alexandria and Washington, DC, until the resort finally closed. W&OD passenger trains in the area continued for some time, as did mail and freight service; the railroad finally closed in 1968. The current bicycle and pedestrian trail (the W&OD Trail) was opened in the late 1970s.

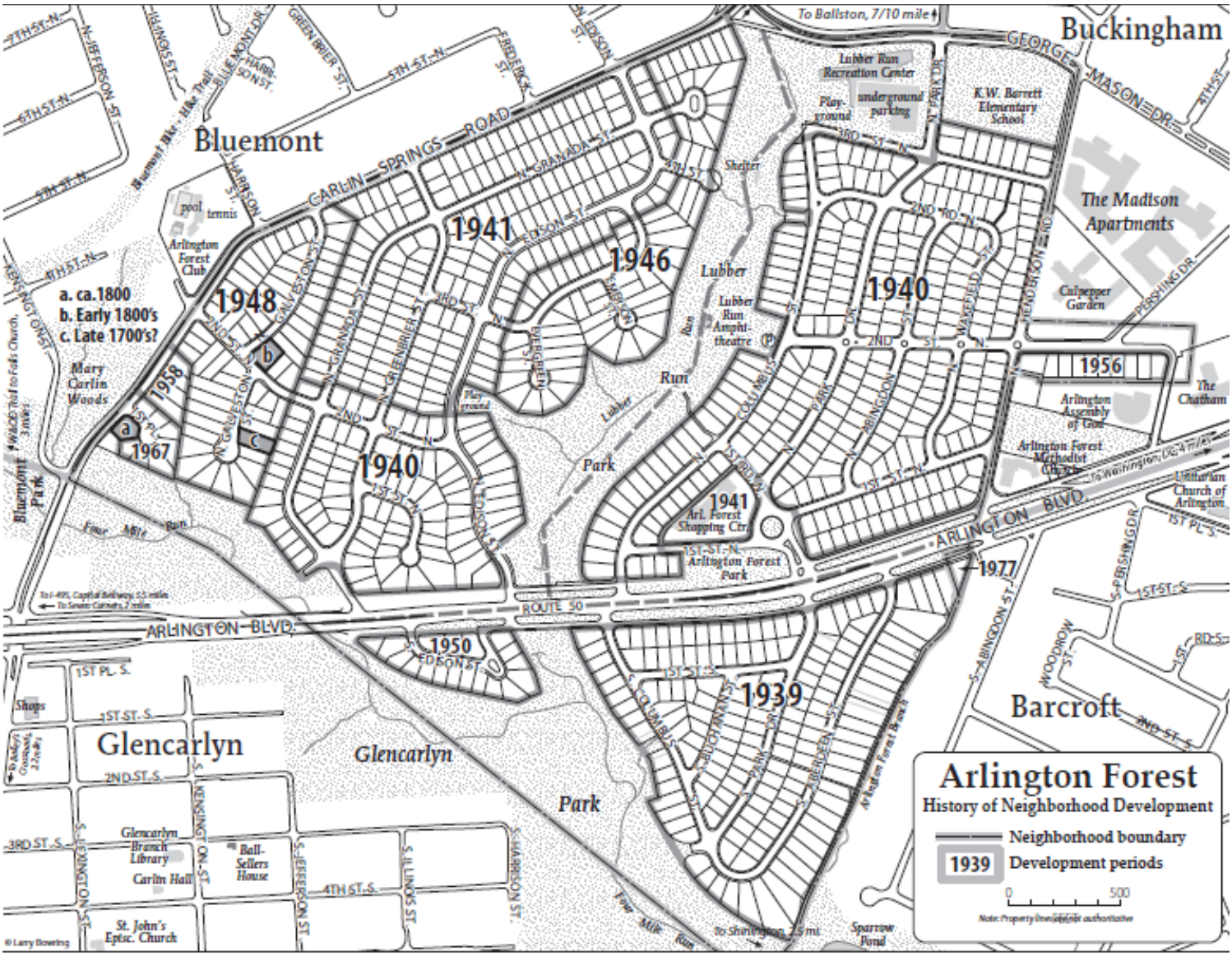
As of 1878, the area of what is now Arlington Forest was occupied by only two families, the William Cipher (or Sypher) and Charles Mix families. In 1893–94, John B. Henderson, Jr., purchased most of what is now Arlington Forest. Henderson's father, a U.S. Senator from Missouri, was the author of the 13th Amendment to the Constitution (abolishing slavery) and was instrumental in keeping Missouri in the Union. John Henderson, Jr., was a lawyer and diplomat whose primary interests lay in marine biology. In 1894, he constructed a two-story wood-and-plaster Swiss-style house as his country estate. The house, which was destroyed in a fire in 1954, was at 4811 3rd Street North. That location is now covered by the Lubber Run Community Center parking garage.

Prior to the platting (mapping out) of Arlington Forest, the area typified the rural character of Arlington County, containing only fields and woods. A 1934 aerial photograph reveals that the area of Arlington Forest prior to development was wooded except for open fields around the Charles Mix House and Henderson House. Arlington Boulevard (named Lee Boulevard until 1951) was built through the area in the early 1930s.

Arlington Forest was built in stages from 1939 to the 1960s, as shown on the map on the next page. Ironically, the developers destroyed much of the wooded scenery during construction, which resulted in a mostly barren appearance not in keeping with the lush surroundings implied by the neighborhood's name. Over time, the remaining trees matured and new trees were planted, reestablishing a natural canopy reminiscent of the original setting.

Arlington Forest was planned and built by the Meadowbrook Construction Company led by Monroe Warren. Local architect Robert O. Scholz designed six variations of the same basic floor plan for Colonial Revival homes. The first building permits were issued on July 13, 1939, for a portion of Southside. By the end of April 1940,

The Henderson House in about 1950, just before it became the first Lubber Run Community Center.



Meadowbrook had already sold 130 homes in Arlington Forest. Construction in Southside continued through the summer of 1940.

In 1939, the first homes, with footprints of 1,144 square feet, sold for $5,990 each. Fireplaces and detached garages were optional for an additional $500 each. Buyers needed to make only a cash down payment of $590, which included all settlement costs. Loans from the Federal Housing Administration were available at 4-1/2 percent interest for a payback period of either 20 or 25 years. On the 20-year financing plan, monthly payments, including principal, interest, taxes, and insurance, totaled $42.94. Monthly payments on the 25-year plan were $38.82.

North Greenbrier Street in 1942, looking north from 2nd Street North. Trees came later. Photo: John Collier, Jr.

The second phase of development was in 1940, when Meadowbrook crossed Arlington Boulevard into the northern sector of Arlington County. The Northside section was built on land historically associated with the Henderson family estate, with the first Northside building permits approved on June 6, 1940. By October 1940, Meadowbrook had sold more than 230 Arlington Forest homes in just 10 months. Building permits for Northside, including the Arlington Forest Shopping Center, continued to be issued through December 1941. An aerial photo of Northside homes under construction appeared in the March 10, 1942, issue of *Life* magazine to illustrate the pre-World War II housing boom in the Washington, DC, area.

The third major part of the subdivision, known as Greenbrier, evolved in nine phases from 1941 to 1946. The first building permits for the Greenbrier section were issued on May 23, 1941. A considerable portion of Greenbrier was approved for construction during and soon after World War II. Wartime material shortages caused modifications to the houses in the central part of Greenbrier, including a slightly smaller floor plan (1,050 square feet). A final phase of construction occurred in 1948 on the western edge of Greenbrier.

House sales in all of Arlington Forest were governed by a restrictive covenant: "No persons of any race other than the Caucasian Race shall use or occupy any building or any lot, except that this covenant shall not prevent occupancy by domestic servants of a different race domiciled with an owner or tenant." Such covenants, common in the United States at the time, were eventually struck down by federal courts. However, the covenant language endured in most title deeds at least until 2020, when Virginia passed a law making it easier and less expensive for property owners to eliminate covenants restricting occupancy or ownership on the basis of "race, color, religion, national origin, sex, elderliness, familial status, source of funds, sexual orientation, gender identity, status as a veteran, or disability" (Code of Virginia title 36, chapter 5.1, section 36–96.3).

Arlington Forest builder Monroe Warren donated the land adjacent to Lubber Run (all of Lubber Run Park and part of Glencarlyn Park) to the county. It was inaugurated as Arlington's first public park on October 9, 1942. Warren also moved a large American holly to the traffic circle in front of the Arlington Forest Shopping Center. It stood there until 2017, when it was removed due to poor health.

Top: *Arlington Forest Shopping Center in 1956.*
Bottom: *A typical original Arlington Forest home, constructed in the 1940s. Note the large trees, which have grown up since. Photos: Richard Wheeler; Dan Brown.*

Several additional small enclaves of homes built from 1950 to 1968 on the borders of the original subdivision are more contemporary in style. In 1950–51, an enclave of one-story brick homes called Forest Park (now known as Broyhill's Addition) was built on South Edison Street. Brick ramblers were constructed in 1956 on 2nd Street North, just east of North Henderson Road. Four brick ramblers on North Carlin Springs Road were built in 1958. Another group of seven split-levels was erected on the historic Mary Carlin property at 1st Place North in 1967–68.

A typical brick rambler in Arlington Forest (Southside), constructed in 1950 and backing onto Glencarlyn Park. Photo: Dan Brown.

Kate Waller Barrett Elementary School opened in 1939. The Arlington Forest Shopping Center was built in three phases in 1941, 1946, and 1947. The Arlington Forest Club (organized by Arlington Forest residents but located in Bluemont) opened in 1954. The Lubber Run Amphitheater opened in 1969. The original Lubber Run Community Center opened in 1956 to replace the Henderson House, which burned down in 1954. Obsolete by the 2000s, the building was demolished in 2019, with a replacement community center completed in 2020.

AFCA was organized in 1940 for the purposes of getting to know neighbors and speaking as a group for the betterment of the community. Over the decades, AFCA has held community meetings eight times a year; organized innumerable neighborhood social events; sponsored many programs to beautify the neighborhood and adjacent public parkland; and responsibly engaged county officials in advocating for improvements to public amenities and safety in areas such as transportation, street lighting, parks, and recreation.

To celebrate its 75th anniversary in 2015, AFCA published a 150-page history that included a year-by-year list of activities, resident reminiscences, maps, and historical photos. The book is available in the Center for Local History at the Arlington Central Library, and its contents are posted on the AFCA website.

The AFCA newsletter, *The Arlington Forester*, is said to be the oldest continuously published neighborhood newsletter in Arlington County. Begun in 1942 as an oversized printed postcard with information about meetings, it was expanded to four mimeographed pages in 1947. In recent years, the newsletter has comprised 12 to 16 printed pages. Copies are delivered to all 852 houses in Arlington Forest eight times a year.

NEIGHBORHOOD GOALS

The overarching goal of this neighborhood conservation plan is to help our community preserve the things that residents like most about living in Arlington Forest. Respondents to our neighborhood survey in spring 2020 expressed their appreciation for the parklike residential atmosphere of this rare wooded island in an urban environment. Residents cherish the trees and wildlife in our neighborhood and the ability to get out and enjoy them on walks, both along our streets and in our neighborhood parks. Glencarlyn and Lubber Run Parks contain some of the largest remnants of natural forest in Arlington County, and Arlington Forest residents have a deep affection for these rare natural ecosystems. We have a special stake

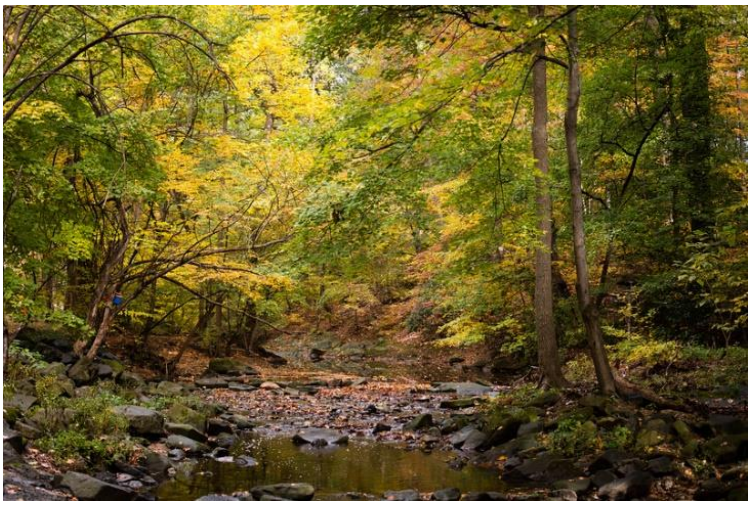
A silver-spotted skipper in Arlington Forest. Photo: David Howell.

in conserving the health, beauty, and enjoyment of our entire urban forest, including the trees maintained by homeowners in their own yards.

Another element of high value to residents is the sense of community in Arlington Forest. Respondents to our neighborhood survey frequently mentioned the same community qualities they liked, such as quiet, walkability, and the charm of our homes and gardens. In particular, residents appreciate having good neighbors—people they trust and rely on for support. Our strong sense of community derives from neighborhood qualities such as common schools, a common history, and a common and inclusive residential experience, warmly welcoming to all. Arlington Forest has a neighborhood vibrancy that residents want to sustain and reinforce as a valuable asset for our county.

Location is another highly valued attribute of our neighborhood. Residents prize living in our community for its convenient commutes to work and for the shops, restaurants, and other opportunities that lie within walking or easy driving distance. They also value the proximity to good schools, libraries, and public services of all kinds, along with opportunities for community volunteering and for enjoying culture and the arts, not least at the Lubber Run Amphitheater. Residents want to work with the county to keep the summer amphitheater program running smoothly, in part by getting needed maintenance done.

Maintenance of our neighborhood parks is a concern for our community in terms of both infrastructure (trails, bridges, recreational facilities, and the like) and ecological integrity. Many respondents to our neighborhood survey listed the effects of stormwater runoff (such as flooding, erosion, and stream degradation) as a major threat to Arlington Forest. Another neighborhood concern is sustaining the canopy trees that put the "forest" in Arlington Forest. Loss of tree cover and the decline of large trees throughout our neighborhood threaten the beauty and integrity of our community.



Lubber Run Park, a highly prized resource in Arlington Forest. Photo: Dan Brown.

Loss of tree cover and open space is tied to the potential for redevelopment in our neighborhood, a major concern for many residents of Arlington Forest. The single biggest threat to our neighborhood listed by survey respondents was potential upzoning and overdevelopment, with homes torn down and replaced by multifamily units, leading to more traffic and noise and less parking, tree cover, and green space. Loss of so many of the amenities that residents like about living in Arlington Forest would fundamentally—and permanently—adversely affect the quality of life in our neighborhood.

Arlington Forest celebrated its 80th anniversary in 2019. Despite the rapid growth of high-density commercial development in the Ballston Metro corridor in recent decades, our neighborhood reached this milestone with its pleasant wooded residential character essentially intact. The goal of this neighborhood conservation plan is to help preserve the qualities that have made Arlington Forest a desirable place to live for the past 80-plus years while welcoming new neighbors and homeowners from every background to our community.

LAND USE AND ZONING

Land uses and zoning for Arlington Forest have remained about the same for more than 80 years. Our current land uses date to the founding of our neighborhood in 1939, before which the land was in rural uses. Most residents of Arlington Forest are satisfied with our legacy land uses and zoning, but we are aware of the potential for conflict between the status quo and county goals for development near the Metro transportation corridor at Ballston. The ongoing high-density development in Ballston, a 15- to 30-minute walk from our neighborhood, is affecting our neighborhood by forming what planners describe as "Arlington's new downtown."

Existing Land Uses

The map on the next page shows the existing land uses and zoning for Arlington Forest based on Arlington's General Land Use Plan for 2020. Our neighborhood has three kinds of land uses—residential (R–6), public (S–3A), and commercial (C–1). Most of Arlington Forest is residential property with single-family detached homes. All residential areas are categorized as "Low: 1–10 units per acre." Family homeowners and renters live in houses on small lots, with about six to seven homes per acre. Some houses have an accessory dwelling (a separate living unit with a kitchen and bath, either within the home or in a separate building on the property).

Part of Arlington Forest has land uses demarcated as both "Public" and "Public Ownership" (meaning land and facilities for public use on public property). Most of this particular area is parkland (Arlington Forest Park, Bluemont Park, Glencarlyn Park, and Lubber Run Park), but it also includes the Lubber Run Amphitheater, the Edison Park playground, the Lubber Run Community Center, Barrett Elementary School, the shopping center circle, and the buffer strips along Arlington Boulevard.

The Arlington Forest Shopping Center is located in the center of the community at North Park Drive and 1st Street North. The land use is

Arlington Forest Park, with the Arlington Forest Shopping Center in the background, illustrating two kinds of land use in Arlington Forest (public and commercial). Photo: Dan Brown.

"Service Commercial—Personal and business services." The one-story shopping center is one of the National Capital Area's first strip malls, still used for commercial shops and eateries. A large parking lot serves the shopping center.

County Policy Guidance for Future Land Development

Arlington County's most recent General Land Use Plan, adopted in February 2020, incorporates a longstanding county focus on high-density development in rapid-transit corridors. A central goal is to concentrate development within three major transportation corridors, including the Rosslyn–Ballston Metro line. Ballston itself is being revitalized as a new "downtown center" for Arlington, with a mix of residential, office, hotel, and retail facilities, according to the plan (see appendix B, Sources Used): "Throughout the R[osslyn]-B[allston] Corridor, the General Land Use Plan concentrates the highest density uses within walking distance of Metro stations; tapers densities, heights, and uses down to the existing single-family residential neighborhoods [fig. 1]; and provides for a mix of office, hotel, retail, and residential development." According to the 2020 zoning map (see appendix B), areas near the Ballston Metro are zoned for the highest density uses, including high-density and medium-density housing. By contrast, neighborhoods zoned for

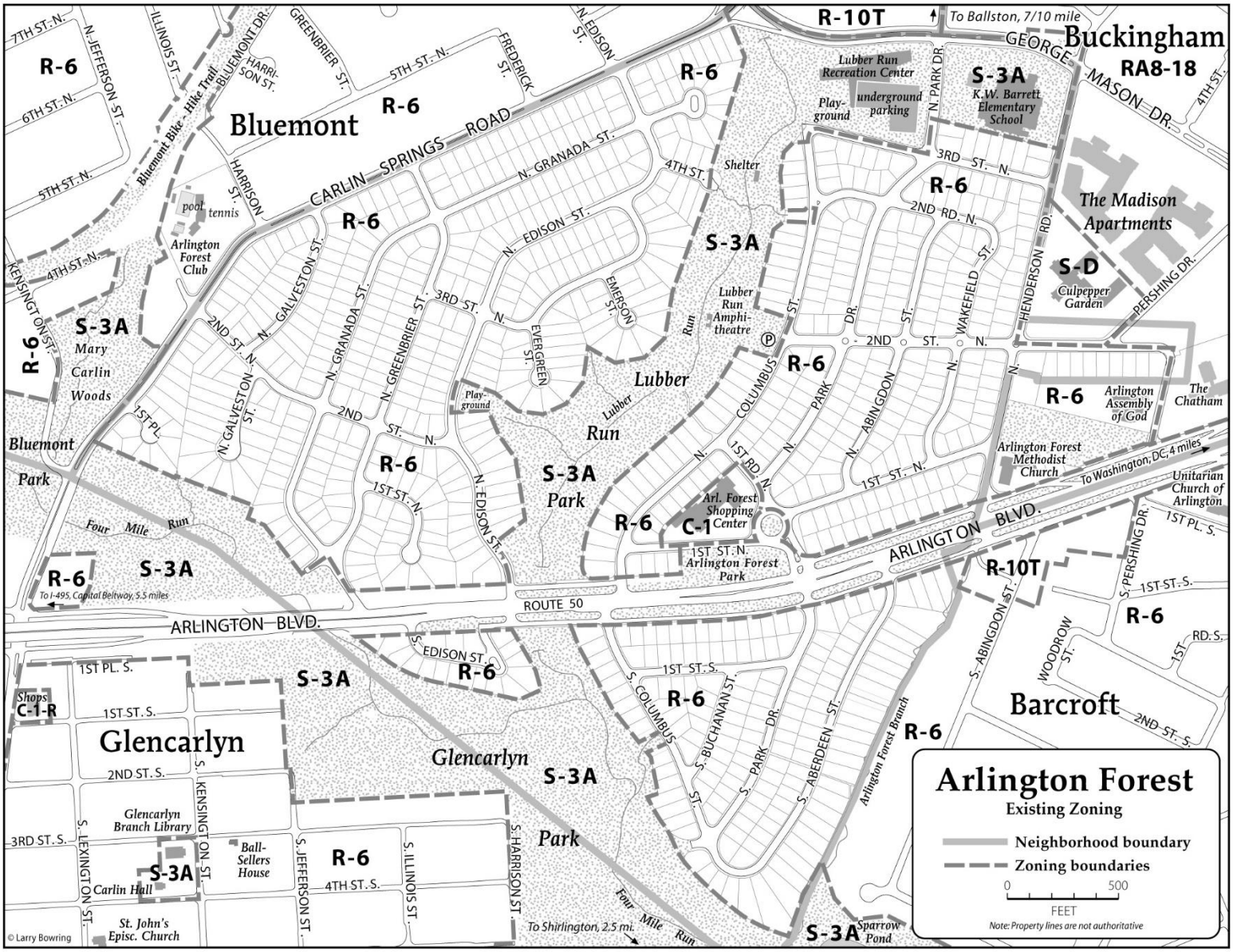


Figure 1—*"Missing middle housing" presumes a continuum of housing types from single-family detached homes (left, as in Arlington Forest) to large apartment buildings (right, as in Ballston).*

single-family units are farther away, with densities tapered "down to the existing single-family residential neighborhoods" like Arlington Forest.

In 2020, Arlington County launched a Missing Middle Housing Study focusing on housing types that fall between the high rises in Ballston and the single-family detached homes in Arlington Forest. "Missing middle housing" is a term used in public policy for housing types ranging from townhouses, to duplexes, to multiplexes with three or more units (fig. 1). Potential occupants include empty nesters, public servants such as teachers, and young families in need of three-bedroom housing.

According to the Missing Middle Housing Study, middle housing ranges from duplexes to multiplexes with 3–16 units. Such housing—though often in two-bedroom garden apartments—accounts for about 29 percent of the units in Arlington, considerably more than the 24 percent for single-family detached units. Within the Rosslyn–Ballston corridor, 76 percent of the housing is in mid- and high-rise multifamily units, 15 percent is in low-rise multifamily units, 6 percent is in duplexes and townhouses, and 3 percent is in single-family detached homes. The housing generally tapers from high-rise apartment buildings in Ballston down to single-family detached units in neighborhoods like Arlington Forest, with middle housing in between (fig. 1).

Arlington's 2020 General Land Use Plan contains a provision that "tapers densities, heights, and uses down to the existing single-family residential neighborhoods" to reflect the full spectrum of middle housing (fig. 1). The plan encourages the construction of "townhouses, midrise, and high-rise dwelling units" near Metro stations while also committing to "preserve and enhance existing single-family and apartment neighborhoods." Commercial and residential buildings have been going up accordingly in the Ballston area, with the corresponding land uses and zoning already in place. Arlington Forest lies at one end of the spectrum (fig. 1), and we welcome the General Land Use Plan's commitment to preserving the historic value and livability of neighborhoods like ours.

Stacked duplexes in Bluemont, an example of existing middle housing in the Ballston area. Photo: Hutch Brown.

Recommendation

- Arlington Forest supports the county's 2020 General Land Use Plan. We strongly urge the county to "preserve and enhance existing single-family and apartment neighborhoods," including ours.

Existing Zoning

The three general types of zoning in Arlington Forest are residential, public, and commercial:

- **Residential** (R–6, One Family Dwelling District) applies to all residential properties in our neighborhood. Permitted uses include "one family detached." The minimum lot size is 6,000 square feet, the maximum building height is 35 feet, and the minimum floor area of any dwelling unit is 750 square feet. The maximum lot coverage is 40 percent for the main building and up to 48 percent with porch and garage; the maximum main building footprint is 2,520 square feet and 2,772 square feet with porch and garage (or an accessory unit). Setbacks for houses are 25 feet from the street, 25 feet from the rear property line, and an aggregate of 18 feet from the right and left property lines (with a minimum of 10 feet on one side and 8 feet on the other).
- **Public** (S–3A, Special District) applies to all public lands and facilities. The purpose is "to encourage the retention of certain properties in

a relatively undeveloped state," but permitted uses include schools. The maximum allowed height of any building is 45 feet.

- **Commercial** (C–1, Local Commercial District) applies to the Arlington Forest Shopping Center. The permitted commercial uses are to serve residential neighborhoods, including with food services, retail stores, healthcare facilities, office space, personal services, and more. The maximum allowed height of a structure is 35 feet, and 10 percent of the site must be fittingly landscaped.

Development Potential

Most residents of Arlington Forest are concerned about potential changes to the single-family nature of our neighborhood, which has the development potential for higher density housing if single-family (R–6) zoning were replaced. In our 2020 neighborhood survey, many respondents listed the historic value of Arlington Forest as one of the things they appreciate most about our neighborhood, and 87 percent wanted Arlington Forest to remain primarily single-family detached homes, with only 7 percent opposed (the rest had no opinion). Our strong opposition (12 to 1) to any substantial redevelopment of Arlington Forest aligns with the county's commitment in its General Land Use Plan to "preserve and enhance existing single-family and apartment neighborhoods." We urge the county to stand by its commitment.

Recommendation

- Arlington Forest strongly supports the current R–6 zoning designation for our residential areas, and we urge the county to keep it in place.

Barrett Elementary School

Constructed on the northeast corner of Arlington Forest as a traditional red brick schoolhouse, Barrett Elementary School opened its doors in 1939 to serve children in central Arlington. The Barrett school administration has done an excellent job of serving a changing elementary school population, and AFCA has worked to help keep the school

Barrett Elementary School. The original brick schoolhouse is in back, with a later addition at center-right. Photo: Dan Brown.

open during periods of low student enrollment. In addition to educating many of our children, Barrett has served our community as a venue for AFCA meetings and for Arlington Forest's seasonal Saturday farmers market. Many neighbors have also used the Barrett playground. We are grateful for Barrett's longstanding service to our community, and we want our children to continue to have the opportunity to attend our local neighborhood schools, including Barrett.

Recommendation

- Arlington Forest supports the current S3–A zoning designation for Barrett Elementary School, and we urge the county to keep it in place.

Lubber Run Community Center

The Lubber Run Community Center occupies about 5 acres adjacent to Lubber Run Park and bordered by North George Mason Drive, North Park Drive, and 3rd Street North. In 1951, Arlington County acquired the site and the large country home that stood there, converting the building into Arlington's first public recreation center. The center burned down in 1954 and was replaced in 1956 by a new community center building. The site featured a popular playground, a picnic area, and basketball and volleyball courts as well as a multistory building with rooms for county programs. AFCA used the building to host our neighborhood's popular winter holiday celebration.

By the 2000s, the community center no longer fully met county and community needs, partly because it did not comply with access requirements under the Americans With Disabilities Act. Planning for a new facility included multiple community meetings from 2015 to 2017. The community helped to decide on the design for a replacement facility and insisted on preserving large parts of the site, including all of the trees on the wooded slope overlooking Lubber Run. The slope was fenced off from construction, as were the grass berm with trees bordering 3rd Street North and the corner of North Park Drive and North George Mason Drive, with its large old ornamental cherry trees.

Construction of the new community center, begun in 2018, was completed in summer 2020. The new building has a floor space of 50,000 square feet, with a gym, a fitness center, community meeting rooms, rooms for preschool and recreation programs, a reception area, and offices for county staff. Outdoor recreation spaces include open areas of lawn with scattered trees; a playground, walkways, and a stairway down to Lubber Run Park; and courts for volleyball, basketball, and pickleball. An underground parking lot has an entryway from North Park Drive. The site features green roofing and a bioretention pond for stormwater runoff. Although construction was completed ahead of schedule, reopening the building was delayed until 2021 due to the effects of the coronavirus pandemic on county budgets. The outdoor facilities reopened on time in fall 2020.

As county land for recreational, educational, and social services, the site is appropriately zoned as S–3A, Special District. In our neighborhood survey, two-thirds of the respondents (67 percent) indicated that they used the previous facilities at least occasionally. The playground and other facilities, both indoor and outdoor, appear to be popular with Arlington citizens far and wide. Arlington Forest commends the county and the contractor for the timely redevelopment of a signature neighborhood facility to better meet community needs and for keeping the project and the site's completion on or ahead of schedule. We thank the architect, planners, workers, and everyone else involved.

The new Lubber Run Community Center from across North George Mason Drive. Photo: David Howell.

Recommendation

- Arlington Forest supports the current S–3A zoning designation for the Lubber Run Community Center, Lubber Run Amphitheater, Lubber Run Park, Arlington Forest Park, and all other public lands and facilities in our neighborhood. We urge the county to keep the current zoning in place.

Arlington Forest Shopping Center

The Arlington Forest Shopping Center, like other strip malls built in the 1940s, was designed to serve the immediate community and blend in with the architectural and residential nature of the neighborhood. As one of the first strip malls in the National Capital Area and a distinctive architectural feature of Arlington Forest, the shopping center contributed to the neighborhood's designation in 2005 as the Arlington Forest Historical District. Although some respondents to our neighborhood survey expressed concern that services at the shopping center do not fully meet the needs of the neighborhood, other shopping opportunities abound nearby. Moreover, strip malls are reportedly regaining in popularity for their local convenience. Most neighborhood survey respondents said that the shopping center should stay as it is;

The Arlington Forest Shopping Center, with its trademark cupola. Photo: Dan Brown.

small majorities rejected the idea of building it out or up, whether with stores, offices, or apartments.

Arlington Forest commends the present owners for their maintenance of the shopping center and for keeping it well occupied by a variety of tenants. The special success of some tenants (such as restaurants) indicates that the shopping center can serve the broader needs of Arlingtonians without exceeding the original developer's conception of a tasteful one-story structure that harmonizes with the style of neighborhood homes. Inappropriate or oversize structures on this site would threaten the residential nature of Arlington Forest.

Recommendation

- Arlington Forest supports the current C–1 zoning designation for the Arlington Forest Shopping Center, and we urge the county to keep it in place.

Areas Adjacent to Arlington Forest

The areas adjoining Arlington Forest reflect a mix of land uses and zoning, ranging from low-density residential to high-density commercial. The residents of Arlington Forest support the county's high-density mixed-use planning for the Ballston Metro hub within its current boundaries northeast of North George Mason Drive.

Our neighborhood shares a common single-family residential nature with Barcroft to the east and south and with Glencarlyn as well as parts of Bluemont to the south and west. We share common schools, parklands, and recreational facilities (including the Arlington Forest Club on North Carlin Springs Road), and AFCA is eager to work with other neighborhood associations and with the county to protect our common resources based on the benefits we all enjoy and the values we all share. In particular, we urge Arlington to maintain the same R–6 zoning for adjacent neighborhoods that we enjoy ourselves, based on the county's commitment in its 2020 General Land Use Plan to "preserve and enhance existing single-family and apartment neighborhoods."

The neighborhood adjoins two churches: the Arlington Forest United Methodist Church and the Arlington Assembly of God. In addition to serving the broader needs of Arlingtonians for spiritual community, the churches are important social and recreational assets, with community programs for children, youth, and others. We support maintaining the current R–6 zoning for the church properties.

Adjoining our neighborhood on North Henderson Road and 2nd Street North is Culpepper Garden, a high-rise apartment building for residents 62 and older on a nicely landscaped 5-acre property with

shrubs, trees, trails, and benches for relaxing outdoors. Designed for affordability, the facility offers apartments for both independent and assisted living. The residents of Arlington Forest are happy to have Culpepper Garden as a neighbor, and we support its current zoning classification of S–D, Special Development District.

The northeast corner of Arlington Forest adjoins recently built multifamily units for both buyers and renters in the Buckingham neighborhood, including subsidized housing for lower income residents. Much of the neighborhood between North Henderson Road and North Pershing Drive is zoned as RA8–18, Multifamily Dwelling District, allowing for duplex and townhouse construction as well as for one-family detached units and semidetached dwellings. The RA8–18 designation, along with various other commercial and residential zonings to the north of Arlington Forest, fits the county's General Land Use Plan for the Ballston Metro corridor as an area for high-density mixed-use development.

Many of the multifamily units adjoining North Glebe Road and North Henderson Road are two-story buildings separated by open spaces with mature trees and attractively landscaped walkways, typical of the historic Garden Apartment style. With a historical sign explaining the architectural origins of the style, much of the area is zoned as a Historic District. The special zoning will help to preserve this part of central Arlington and protect it from redevelopment. Low- to medium-income residents will continue to be able to afford the housing, helping to fill the "missing middle" in the Ballston area. Arlington Forest supports the special Historic District zoning for the garden apartments near our neighborhood.

HOUSING

Arlington Forest was built when Arlington County was rapidly changing from farmland into bedroom communities for Washington, DC. Constructed in multiple phases from 1939 to 1946, the original woodframe houses were on lots of about 6,000 square feet, the minimum required for our neighborhood's R–6 residential zoning. The first model homes went up in Southside near the intersection of Arlington Boulevard and South Park Drive; several homes there still show the original architecture, with few modifications. All houses in Arlington Forest, including later one-story and split-level homes, remain single-family detached units. The developer landscaped each property and put in sidewalks as well as water, sewers, and electricity. One innovation was electrical lines in backyards, freeing sidewalks and frontyards from unsightly poles and lines.

Type and Ownership

All three sections of Arlington Forest (Greenbrier, Northside, and Southside) are largely uniform in terms of history, housing type, and homeownership, with a high occupancy rate and infrequent turnovers. Among respondents to our neighborhood survey, the average duration of residency was more than 20 years.

All 852 homes remain single-family detached units, and their original architecture is usually still visible, despite additions to most homes. According to our neighborhood survey, 84 percent of the houses had an addition or one planned, and 3 percent had an accessory unit (a separate living unit with a kitchen and bath, either within the home or in a separate building on the property).

Our neighborhood survey also indicated that the vast majority of residents in Arlington Forest own

A typical Arlington Forest home with no visible addition, backing onto Glencarlyn Park. Photo: Dan Brown.

An Arlington Forest home with a small addition and typical landscaping. Photo: Dan Brown.

the homes they live in. Of the 852 houses in Arlington Forest in the 2010 national census (see appendix D), 701 (82 percent) were occupied by their owners. Renters resided in 133 homes (16 percent), and 18 (2 percent) were vacant.

Condition

The overall condition of the housing in Arlington Forest is good. Homes range from few improvements to complete makeovers with multiple additions, but many additions are single and small. Properties are generally well cared for; most have conventional suburban landscaping, with lawn grass, shrubs, and at least one tree.

Many homes and gardens in Arlington Forest stand out for their interest and beauty. For example, a homeowner in Greenbrier converted her yard into a beautiful garden for native plants. The neighborhood has a popular annual home and garden tour featuring recent renovations and innovations to both houses and landscaping.

Trends

Good schools and proximity to jobs have created high demand for housing and soaring home prices in Arlington County, where the median home value in 2020 ($669,400) was more than three times the national average ($204,900). With its convenient location on or near major transportation corridors (Arlington Boulevard and the Metro line in Ballston), Arlington Forest has long been a hot real estate market. Even unimproved original homes can fetch prices three to four times higher than 30 years ago. Despite a market downturn during the Great Recession of 2007–09, the long-term trend for home prices in Arlington Forest shows a steady rise.

With its high prices, Arlington Forest attracts home buyers who can afford to renovate. Because the original houses had only about 1,000 square feet of floor space (not including the unfinished basement), many owners have expanded their homes. The trend in other Arlington neighborhoods is to tear down old homes and build new ones, but only one original home in Arlington Forest (in Greenbrier) has been entirely demolished and replaced. Most houses in Arlington Forest instead have additions; 73 percent of the respondents to our neighborhood survey had additions on their homes, and 11 percent were planning one. Some additions have completely changed a property, multiplying the floor space and leaving the original home a small part of the new, much larger structure.

Accordingly, Arlington Forest is part of a countywide trend to enlarge the footprint of existing homes. Extending the footprint of a home expands the area of impervious surfaces in the county, contributing to flooding with every major storm. Home damage can result, along with erosion and stream degradation in our neighborhood parks. Large additions can also affect neighboring properties by blocking views, keeping out sunlight, and damaging trees during construction. Tree roots can extend three to four times beyond the area of the dripline, well into neighboring yards for large trees, where they are susceptible to damage by construction equipment. When planning an addition, homeowners should take such considerations into account, including potential impacts on their own trees.

Another trend affecting our community is changing demographics. Arlington County has a history of racial segregation in neighborhoods like ours. The original covenant for homeowners in Arlington Forest limited residency to people of “the

Caucasian Race" except for "domestic servants of a different race." That began to change in 1948, when the Supreme Court found such covenants to be unenforceable. In the 1960s, Congress passed new civil rights legislation outlawing race-based covenants.

By then, the damage was done. Race-based covenants, "redlining" practices denying loans to low-income home buyers, and zoning restrictions on rowhouses and other kinds of affordable housing left a lasting legacy in Arlington. Such practices combined to keep low-income residents, especially among Blacks and other minorities, from using homeownership to build wealth. As a result, many can't afford homes in much of Arlington today, and the racial makeup of our neighborhood remains disproportionately White.

Today, however, our county and our neighborhood warmly welcome residents from all backgrounds. The proportion of non-White residents in Arlington rose from 5 percent in 1950 to 35 percent in 2020 (including 15 percent Hispanic), with most of Arlington showing non-White residency rates of 10 percent or more. In the 2010 census (see appendix D), non-White residency in Arlington Forest was 18 percent (including 7 percent Hispanic, 5 percent Asian, and 2 percent Black). AFCA firmly repudiates racial inequities and social injustices of all kinds, including the original homeowner covenant.

As home prices have climbed in Arlington Forest, our neighborhood has become increasingly unaffordable for middle-income (including many non-White) home buyers, a concern for many residents. Pricey new high rises in Ballston and new multifamily developments in the area reflect similar trends. Within the past 15 years, for example, townhouses for high-income buyers in neighboring Buckingham have replaced traditional garden apartments for low- to medium-income renters. Although some units were set aside for subsidized housing, many residents of Arlington Forest are worried that the Ballston area is becoming more exclusive and less diverse.

An Arlington Forest home with a complete makeover, including multiple additions. The original home is still visible at left. Photo: Dan Brown.

Arlington County's Missing Middle Housing Study suggests a solution: rezoning neighborhoods like Arlington Forest to allow homeowners to convert homes into duplexes and townhouses. So far, the three-phase study has not shown that new multifamily units in neighborhoods like Arlington Forest would be affordable to those of limited financial means. Builders might gain the most from buying up relatively affordable small old homes and replacing them with pricey upscale new units, whether townhouses, duplexes, or large single-family homes. Would such units attract minority or other buyers of limited financial means?

The issue looms large for many residents. Many respondents to our neighborhood survey listed upzoning and overdevelopment—especially the conversion of single-family houses into multifamily units—as a major threat to the neighborhood. Many residents of Arlington Forest fear a permanent change to the livability of our neighborhood if homeowners were free to sell their homes to townhouse developers or to rebuild their homes into duplexes or multiplexes. The overwhelming majority of survey respondents (87 percent) favored keeping Arlington Forest primarily as a neighborhood of single-family detached homes.

Although the advantages of densification for Arlington Forest are not obvious, the disadvantages would be severe. In addition to sacrificing the neighborhood's historical value as single-family detached units, the tradeoffs would include:

An Arlington Forest makeover home with multiple additions. A sizable oak on the corner apparently died during construction, possibly in connection with oak decline. Photo: Hutch Brown.

- stepped-up conversion of open space to impervious surfaces, exacerbating the adverse effects of stormwater runoff on local homes, regional watersheds, and Chesapeake Bay;
- the loss of neighborhood trees and other vegetation, along with their biophilic, social, economic, and environmental benefits;
- higher demand for public services, including more crowded parks and recreational facilities and increased pressure on already overcrowded local schools;
- more potential use of housing in Arlington Forest for commercial purposes such as rentals and AirBNB, further altering the residential nature of the community; and
- more neighborhood traffic and demand for parking, including the possibility that the residents of Arlington Forest would have to start paying for street parking.

In its phase 1 report, the Missing Middle Housing Study raises such issues for further study in phase 2. The residents of Arlington Forest do not take such tradeoffs lightly, and we acknowledge the need to take them into account in working with the county on any future development in our area. That includes any prospect of rezoning our neighborhood, which we strongly oppose.

Recommendations

- The county should respect and protect the listing of Arlington Forest on the National Register of Historic Places, including its value and livability as a community of single-family detached homes (with accessory units, if the homeowners desire).
- When planning a home expansion, residents should:
  - work with neighbors to take a full range of values and impacts into account, including the health of large trees;
  - avoid seeking waivers for the offsets required by the county in order to conserve open space; and
  - offset any expansion of impervious surfaces with measures to mitigate stormwater runoff, such as installing swales and rain gardens and planting more trees.

STREET CONDITIONS

Curbs, Gutters, Sidewalks, and Storm Drainage

Arlington Forest benefits from its original streets, gutters, and sidewalks, which were planned into the neighborhood from the start. The neighborhood commends the county departments responsible for maintaining streets. When underground work requires removing pavement, such as when water supply pipes are replaced, new pavement follows quickly.

As expected in a neighborhood "forest," sidewalks near large trees heave from root pressure. The county has ground off the resulting sidewalk unevenness or replaced concrete with more pliable asphalt, thereby protecting tree roots from damage. Most neighbors prefer this approach to cutting roots and repouring concrete, which could result in loss of tree canopy. The neighborhood periodically surveys sidewalks for unevenness greater than 2 inches in height and reports the results to county authorities.

Some utility providers have reneged on their responsibility to replace or repair sidewalks removed in order to access underground pipes or wires. Broadband and cable companies regularly leave unsightly bundles of cable on the ground or hanging on posts at eye level. Neighbors who have attempted to resolve these problems with the companies responsible have, in some cases, found that customer service departments' promises to correct the situation ring hollow.

To the county's credit, the Edison Park renovation in Greenbrier included stormwater management measures to reduce erosion in the park and on the unpaved trail leading to Lubber Run. The project included an enlarged resource protection area with new plantings, which will slow erosion along the Lubber Run tributary below Edison Park.

On our neighborhood streets, the curbs and rain gutters have functioned well. However, the rising number of storms with abnormally high rainfall over short time periods has surpassed the capacity of existing storm drains.

In particular, two street drainage problems occur after heavy rains:

1. Where South Columbus Street meets South Park Drive, stormwater pools on the uphill side of the intersection, which lacks a storm drain. The pooling water is inconvenient in the warmer months and becomes a safety hazard when it freezes, especially for motorists and pedestrians unaware that it is there. When snowmelt refreezes, the black ice can greatly expand, increasing the danger to pedestrians and drivers.
2. At the intersection of North Columbus Street with Arlington Boulevard, water drains from the shopping center and uphill homes across the end of North Columbus Street downhill toward Lubber Run. Black ice sometimes coats the pavement at the stop sign. An unwary driver slowing for the stop sign could slide out into oncoming traffic on Arlington Boulevard.

Poor drainage at the intersection of South Park Drive with South Columbus Street. Photo: Dan Brown.

Recommendations:

- Arlington Forest urges the county to continue its excellent service on residential roads and its removal of sidewalk tripping hazards while avoiding damage to tree roots.
- The county should help neighbors get utility or cable companies to repair sidewalks after tearing them up and to remove unneeded bundles of cabling from utility strips.
- The county should take measures to eliminate the pooling of water and black ice formation on South Columbus Street where it meets South Park Drive and on North Columbus Street where it meets Arlington Boulevard.

Street Lighting

Dominion Energy owns and maintains Arlington Forest's colonial-style streetlights. The concrete posts and colonial lamp design and the underground wiring have weathered well over the decades. Most residents are satisfied with both the design and the amount of light cast on streets and sidewalks, which provides good visibility for motorists, cyclists, and pedestrians.

As Dominion Energy updates its aging lamps, residents want to be involved in making choices. Improvements might be made in terms of energy efficiency; light temperature/color; phased dimming as activity levels wane during the night; and light shields to direct the light where it is needed and

keep other areas dark, thereby reducing "light pollution."

Smart technologies are now available, such as streetlights capable of remote adjustments and self-reporting malfunctions. In its 2020 Streetlight Management Plan, Arlington County proposed a centralized web interface for all streetlight malfunctions. The community supports the county's proposal, which would apply to both Dominion Energy and county lights.

Recommendations

- The county should encourage Dominion Energy to work with AFCA to inform and engage residents in choosing replacements for aging streetlights.
- The county should seek Dominion Energy's full participation in a centralized streetlight malfunction reporting system to optimize repair efficiency and minimize outage time.

TRANSPORTATION/TRAFFIC MANAGEMENT

Many Arlington Forest residents are concerned about safety, especially in connection with street crossings for pedestrians and cyclists.

Streets

Respondents to our neighborhood survey listed the neighborhood's wide and winding streets and sidewalks among the features of our community that they like most. Sidewalks encourage walking, bringing neighbors together and contributing to the sense of community that survey respondents also greatly valued. In addition, respondents valued proximity to Washington, DC, and to workplaces, shopping, transit, schools, markets, parks, and trails, most of which are accessible by walking or cycling or by a relatively short drive.

Biking/Walking Conditions

Walking and biking have environmental and health benefits, and both are popular in Arlington Forest. In our neighborhood survey, 56 percent of the respondents reported biking at least occasionally and 96 percent reported walking.

Cyclists and walkers value both the neighborhood streets and the mixed-use trails in our neighborhood parks, which offer access to much of central, western, and southern Arlington. Riders appreciate the bicycle racks at county facilities, many attractively integrated into their surroundings. Safe places to secure bicycles at destinations also make biking more viable as a means of transportation.

Arlington Forest residents have expressed interest in having a bike-sharing company operate in our neighborhood. Park entrances or the Arlington Forest Shopping Center might be good locations.

The neighborhood appreciates traffic-calming measures that make walking and cycling safer. Some cyclists note that curb nubs slow traffic but also present cyclists with the choice of merging into the motorist's lane or dismounting and lifting their bicycle onto a sidewalk. Cyclists appreciate the county's efforts to segregate bike lanes from motorists, especially as traffic increases in high-density corridors.

Some neighbors take advantage of rented motorized scooters to get around the area, but scooters left haphazardly standing or lying across sidewalks present safety hazards.

Recommendations

- The county should continue its popular bicycle safety improvements, including establishing segregated bicycle lanes where dedicated bike trails are unavailable.
- The county should urge motorized scooter rental companies to solve the problem of scooters cluttering sidewalks.

Traffic Safety Concerns

Both cyclists and pedestrians are concerned about traffic safety, especially as traffic gets heavier due to population growth in the Ballston area. Arlington Forest commends the county for joining the national Vision Zero Network, with the goal of

reducing traffic fatalities to zero. Nevertheless, excessive motorist speeds and failure to stop at marked crosswalks continue to endanger both cyclists and pedestrians. Arlington Forest urges the county to focus on reducing traffic dangers at a number of problem spots.

North Carlin Springs Road

North Carlin Springs Road, which separates Arlington Forest from neighboring Bluemont, serves the rapidly growing Ballston area. Development in the Metro corridor has increased traffic, making the frequently used pedestrian crossings over North Carlin Springs Road more dangerous. Multiple pedestrians and a cyclist have been injured by cars in recent years, and many report having experienced near misses. Residents from Bluemont share concerns about traffic safety on North Carlin Springs Road.

Some crossings are especially dangerous. Young people on their way to Kenmore Middle School use the intersection at North Harrison Street, which also serves pedestrians and cyclists headed to the Arlington Forest Club, the Bluemont Junction Trail, and other destinations, including Ballston Metro and the Route 25B southbound bus stop. Hills and curves on North Carlin Springs Road limit line-of-sight visibility; drivers coming from the north curve to their right before seeing the intersection, whereas drivers coming from the south see the intersection only after cresting a steep hill. The posted speed limit is 30 miles per hour, but a radar speed display on the east side of the road at the intersection with 2nd Street North regularly displays speeds of 35–45 miles per hour, and cars pick up still more speed as they crest the hill past the radar sign.

The county improved safety by creating a pedestrian refuge within the median strip at the intersection with North Harrison Street, painting zebra crossing stripes and installing a pedestrian-activated amber flashing beacon to warn motorists to stop. Pedestrian crossing signs posted north and south of the intersection also tell motorists to slow down. However, drivers often ignore posted speed limits and sail past the flashing lights, unnerving

The crosswalk and other pedestrian safety measures at the intersection of North Carlin Springs Road with North Harrison Street. Photo: Dan Brown.

would-be crossers; near collisions have led many residents to give up walking and instead drive the few blocks to the Arlington Forest Club.

Survey respondents familiar with the North Harrison Street intersection agreed that additional measures are needed to curb speeding. Most who voiced an opinion (52 percent) were in favor of a high-intensity activated crosswalk red light at the intersection, believing that motorists will stop for a red light even if they don't stop for the amber lights. Some of those opposed feared that a traffic light could push additional cut-through traffic onto residential streets.

Another dangerous intersection is at North Edison Street, where residents have noticed similar unsafe motorist speeds and a failure to yield to pedestrians and cyclists. The neighborhood appreciates the newly installed high-visibility zebra-stripe pedestrian crossing, the refuge in the median, curb extensions, relocation of bus stops, and amber flashing beacons to alert motorists to stop. We also appreciate the signs warning motorists of a $200 fine for speeding.

In 2021, residents reported mixed success in safely crossing Carlin Springs with the current measures in place, even though traffic was lighter than usual during the coronavirus pandemic. Given the variable effectiveness of the amber flashing beacon at slowing traffic at the North Harrison Street and North Edison Street intersections, a large majority of survey respondents who

voiced an opinion (70 percent) favored a pedestrian-activated high-intensity activated crosswalk red light.

Residents from Bluemont, the neighboring community across North Carlin Springs Road, have joined us to discuss shared concerns about traffic safety on North Carlin Springs Road between North Kensington Street and the renovated bridge over North George Mason Drive. This stretch of the road has four lanes, two in each direction, separated by a median and utility strip. One proposal is to reduce travel lanes to just one in each direction, with a left-turn lane in place of the current median strip. We also discussed the possibility of bollard-protected pedestrian refuges, segregated bike lanes, and additional parking. Collectively, these measures would slow traffic and make it easier for bicyclists to use North Carlin Springs Road instead of the Bluemont Trail or North Granada Street to reach the W&OD Trail, but the proposal will require careful consideration to avoid unintended congestion and cut-through traffic.

Recommendations

- The county should:
  - install pedestrian-activated high-intensity activated crosswalk red lights on North Carlin Springs Road at North Edison and North Harrison Streets;
  - enforce speed limits more frequently, ticketing those who fail to stop or who exceed the speed limit;
  - post traffic infraction fine warnings on both sides of intersections;
  - publicize the traffic data that the county uses in making decisions about intersections on North Carlin Springs Road; and
  - continue to engage Arlington Forest residents in improving the safety of crossings on North Carlin Springs Road and averting cut-through traffic on North Edison, North Granada, and North Greenbrier Streets.

Intersection of North Park Drive with North George Mason Drive, dangerous to cross despite crosswalks. Photo: Dan Brown.

North George Mason Drive

North George Mason Drive is a major Arlington thoroughfare, and residents have noticed speeding on the road, particularly on the hill between North Carlin Springs Road and North Henderson Road. Large numbers of children going to Barrett Elementary School regularly cross the intersection at North Henderson Road, another busy neighborhood thoroughfare. Crosswalk guards are essential at school opening and closing hours, but children cross at other hours too. Pedestrian-activated walk signals work well as long as drivers don't speed or run red lights.

North Park Drive borders both Barrett Elementary School and the renovated Lubber Run Community Center. Speeding on North George Mason Drive, along with poor visibility for drivers approaching North Park Drive, have made for a risky intersection, which has seen multiple accidents. When the community center's new outdoor facilities opened in 2020, they drew more traffic from across the area, which only increased when the new community center building opened its doors in summer 2021. As traffic at the intersection with North Park Drive grows, so will hazards for motorists, cyclists, and pedestrians.

The county improved the pedestrian crossing and installed a pedestrian-activated amber flashing beacon, a welcome safety measure. However, experience on North Carlin Springs Road suggests

that the beacon might be effective only some of the time. Residents familiar with the intersection favor a traffic light there instead. In our neighborhood survey, 80 percent of the respondents with an opinion called for installing a traffic light at North Park Drive. In addition to preventing accidents, a traffic light would slow traffic before it reaches the elementary school crossing at North Henderson Drive, making it safer for school children.

Recommendations

- The county should better enforce the posted speed limit on North George Mason Drive as well as the requirement for drivers to stop at amber blinking lights.
- The county should install a traffic signal at the intersection of North George Mason Drive and North Park Drive.
- On North George Mason Drive, between the North Carlin Springs Road overpass and North Henderson Road, the county should add signage or pavement markings warning motorists of a traffic light ahead.

Arlington Boulevard

Arlington Boulevard, a major thoroughfare, traverses Arlington Forest, dividing Southside from Northside and Greenbrier. Unlike Interstate 66, Arlington Boulevard has no high-occupancy-vehicle requirements at rush hours, so commuters avoid the rush-hour toll by taking Arlington Boulevard. The heavy traffic poses risks to pedestrians, cyclists, and drivers alike.

During rush hour, eastbound motorists on Arlington Boulevard detour around stopped traffic at the signal for Park Drive by turning right at South Edison Street and then immediately left, continuing eastward on the service road parallel to Arlington Boulevard.

Others turn right onto South Park Drive, then immediately turn left onto the Arlington Boulevard service road, taking it all the way to South George Mason Drive. They often speed and ignore stop signs on this stretch, endangering pedestrians (including school children), cyclists, and local motorists. Heavier traffic in recent years (before the coronavirus pandemic) has heightened the danger.

Arlington County has recently improved the intersection of Arlington Boulevard with North and South Park Drives by relocating bus stops, widening sidewalks and curb ramps, and narrowing the entryway to the roundabout in Northside. Although the changes have generally worked well, pedestrians and cyclists have continued to report dangers crossing Arlington Boulevard.

Some have observed motorists running red lights and failing to yield to pedestrians because motorists didn't see them in time. People crossing Arlington Boulevard at the intersection with North Henderson Road have also reported that motorists making left turns don't slow for pedestrians.

Recommendations

- Along the Arlington Boulevard service road between South Edison Street and South Pershing Drive, the county should:
  - install "No Through Traffic" signs at entrance points,
  - better enforce stop sign compliance and post fines for violators, and
  - post additional speed limit signs and install a speed monitor.
- At the intersection of North Henderson Road with Arlington Boulevard, the county should work with the state to:
  - delay the "Walk" signal for a few seconds longer to reduce the chances of pedestrians being hit, and
  - install a zebra-stripe pedestrian crosswalk across Arlington Boulevard.

Residential Streets

Many respondents to our neighborhood survey reported through traffic and speeding problems in Arlington Forest. Almost a third (32 percent) cited through traffic as a problem on their own streets,

and almost half (48 percent) cited it as a problem on other neighborhood streets. Fifty percent reported speeding as a problem on their own streets, and 63 percent saw it as a problem elsewhere in the neighborhood. The county has opportunities to calm traffic and discourage through traffic by ticketing speeders and installing traffic circles, speed bumps or rumble strips, and more visible pavement markings indicating speed limits and upcoming stop signs.

Greenbrier

During rush hour, westbound drivers headed toward North Carlin Springs Road via Arlington Boulevard sometimes avoid the traffic signals at the intersection of Arlington Boulevard with Carlin Springs Road. Instead, they turn right onto North Edison Street to reach North Carlin Springs Road. Residents report seeing through traffic speeding at rush hour and occasional hot-rodding at night.

At times, northbound cars climbing North Edison Street from Arlington Boulevard crest the steep hill and pick up speed as they cross the intersection with 2nd Street North. They then zoom downhill past the newly rebuilt Edison Park playground, which attracts parents and children from near and far, especially after school but at other times of day too. A playground sign (a seesaw icon) posted just north of Arlington Boulevard often fails to slow drivers as they approach the park.

Second Street North, a major cross street in Greenbrier, gives drivers limited visibility at its intersections with steeply sloping North Greenbrier and North Granada Streets. Southbound drivers on North Granada Street have no stop sign and occasionally speed through the intersection. Drivers from both directions on 2nd Street North have no stop signs at North Greenbrier Street, so they sometimes speed through that intersection as well.

Recommendations

- The county should install a zebra-stripe pedestrian crosswalk across North Edison Street at an entrance to Edison Park, with rumble strips approaching the crosswalk from both sides.

The recently reconstructed Edison Park playground on North Edison Street, where speeding traffic can put playground users at risk. Photo: Dan Brown.

- On 2nd Street North between North Carlin Springs Road and North Edison Street, the county should post traffic-calming signage or pavement markings, such as "Slow, Children at Play."
- The county should install four-way stop signs at the intersections of 2nd Street North with North Greenbrier, North Granada, and North Edison Streets.
- The county should post speed limit signs at both ends of North Greenbrier, North Granada, and North Edison Streets.
- The county should install a traffic circle at the intersection of 2nd Street North and North Edison Street, which could double as a watershed retrofit (such as a dry pond).
- The county should install a speed bump or rumble strip on the downhill segment of North Edison Street between North Carlin Springs Road and 4th Street North.

Northside

Residents have noticed speeding on lower North Park Drive as northbound drivers come from the Arlington Boulevard intersection into the roundabout and across 1st Road North. Dangerous

speeds persist despite visible crosswalks, yield signs, and warning signs to slow down.

Moreover, drivers use North Columbus Street as well as North Park Drive to cross between two major thoroughfares, Arlington Boulevard and North George Mason Drive. Residents regularly observe through traffic and speeding on both streets.

To bypass stoplights on Arlington Boulevard, drivers on North Pershing Street sometimes take 2nd Street North and North Park Drive through Arlington Forest. Problems include speeding, ignoring stop signs, and rounding the traffic circle at North Park Drive and 2nd Street North counterclockwise to shorten the turn. Northbound drivers who stop at the stop sign on North Henderson Drive at its intersection with 2nd Street North have trouble seeing cross-traffic on 2nd Street North, which has no stop signs.

Recommendations

- On North Columbus Street and North Park Drive, the county should:
  - install more traffic circles, which could double as watershed retrofits; and
  - mark pavement to prompt drivers to slow down approaching the entrances to Lubber Run Park and Barrett Elementary School.
- On North Columbus Street before intersections, the county should install speed bumps or rumble strips.
- On 2nd Street North, the county should:
  - install four-way stop signs at the intersection with North Henderson Road, and
  - mark pedestrian crosswalks across 2nd Street North on both sides of the intersection with North Henderson Road.

Parking

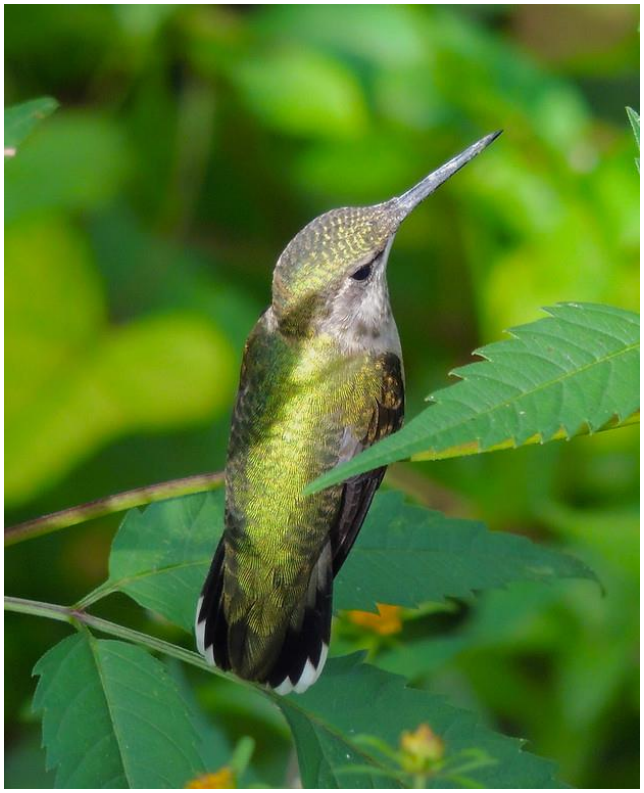
Instead of a garage, most Arlington Forest homes have driveways with enough space for at least one car. However, most residents with multiple vehicles also rely on street parking. The width of most streets allows for parking on both sides, and parking spaces are seldom lacking on most streets. Only 5 percent of the respondents to our neighborhood survey reported regular parking problems on their own streets, but 18 percent noticed parking problems elsewhere in the neighborhood.

Commuters to Ballston and Metro often leave their vehicles on North Park Drive and adjacent streets in Arlington Forest, and commercial vehicles sometimes park there too. Barrett Elementary School employees compete for the same spaces for daytime parking; before renovation of the Lubber Run Community Center, Barrett employees used its parking lot, but the new parking garage will not accommodate school employees. Streets adjacent to the Lubber Run Community Center have posted daytime parking limits to discourage commuter and other long-term parking.

Since the opening of the new playground at the Lubber Run Community Center, users from across the area have preferred to park in front of homes on nearby streets rather than in the center's underground garage, creating hardships for local residents. Posted signage might encourage playground users to park in the underground garage intended for them.

Commuters to the National Foreign Affairs Training Center on the corner of North George Mason Drive and Arlington Boulevard sometimes park on Arlington Boulevard service roads and nearby streets, whether to save parking fees or because onsite parking is unavailable. Some use Arlington Forest for daytime parking.

Overall, parking in Arlington Forest is currently sufficient for residents, but many fear rising competition for street parking due to high-density mixed-use development in the Ballston Metro corridor. Of particular concern is the planned mixed-use development across from the Ballston Parking Garage at North Glebe Road and North Randolph Street. If residents and patrons do not get reasonably priced onsite parking, they will almost certainly seek free parking in Arlington Forest four blocks away.



A ruby-throated hummingbird at Sparrow Pond in Glencarlyn Park. Photo: David Howell.

Recommendation:

- The county should require developers within three blocks of Arlington Forest to provide sufficient onsite parking at reasonable rates for residents and patrons.

Mass Transit

Many residents of Arlington Forest rely on mass transit for commuting to work and other destinations. Although the coronavirus pandemic interrupted the widespread use of mass transit for much of 2020–21, prior patterns of use seem likely to return following the pandemic. In our neighborhood survey, 25 percent reported regular use of Metro, 11 percent of Metrobus, and 2 percent of ART buses. For regular or occasional use, 70 percent took Metro, 40 percent Metrobus, and 14 percent ART buses. Accordingly, large majorities of Arlington Forest residents use some form of mass transit at least occasionally. Some noted that they would take ART buses more often if the buses ran more often. Arlington Forest commends the county for supporting mass transit.

Green Infrastructure

Green infrastructure aligns with the concept of a biophilic city, an urban environment that invites you to get outdoors and connect to nature, whether in your own backyard or in your neighborhood parks. The residents of Arlington Forest commend Arlington County for joining Washington, DC, and dozens of other cities in the United States and around the world in the Biophilic Cities Network, with many cities more preparing to join. The network will allow the county to collaborate with researchers and managers in other urban environments. Together, the partners can evaluate biophilic conditions in Arlington, exchanging information and sharing knowledge and experience. By joining the project, the county will benefit from best practices in biophilic urban design and planning across the country.

Arlington County is poised to contribute through its careful urban planning. The county's Public Spaces Master Plan, approved in April 2019, calls for updating the Urban Forest Master Plan and the Natural Resources Management Plan and integrating them into a single comprehensive plan. The combined plan will offer guidance in managing the wooded landscapes of Arlington County to conserve and promote their biophilic features.

A red fox in one of the nature parks near Arlington Forest. Photo: Dan Brown.

Such landscapes in and around Arlington Forest comprise the three relatively well-wooded portions of our neighborhood as well as the adjacent county parklands. The residents of Arlington Forest want to work with the county to maintain and expand the tree canopy in our neighborhood and to protect and conserve our natural ecosystems on public lands through careful urban forest management.

County Parks and Facilities

The parks in Arlington County enjoy a good reputation. In Arlington's 2018 countywide survey, 85 percent of the respondents expressed overall satisfaction with the quality of the county's parks and recreation programs.

The five local parks often visited by Arlington Forest residents are (see the map above):

- Arlington Forest Park (1 acre), which lies at the entrance to Northside across from the Arlington Forest Shopping Center parking lot;
- Bluemont Park (51 acres), which lies along Four Mile Run to the northwest of North Carlin Springs Road and includes sports facilities and a large playground;
- Bluemont Junction Park (24 acres), which shares the greenway corridor with Bluemont Park, separated from it to the east by the W&OD Trail;
- Glencarlyn Park (100 acres), which lies to the southeast of North Carlin Springs Road along Four Mile Run and contains natural areas and the Long Branch Nature Center; and
- Lubber Run Park (31 acres), which bisects Arlington Forest and features Lubber Run, a major tributary of Four Mile Run and a cherished neighborhood stream used and enjoyed by many local residents.

Within our neighborhood boundaries, Arlington Forest contains Arlington Forest Park, Lubber Run Park, and parts of Glencarlyn and Bluemont Parks. However, we consider all of our local parklands to be part of our larger neighborhood because we use them so heavily, sharing them with other neighborhoods for their outstanding amenities and recreational facilities. In our neighborhood survey, almost all respondents (99 percent) reported frequent or occasional use of Lubber Run Park. Large majorities also used Bluemont Park (88 percent), Glencarlyn Park (81 percent), and the cross-cutting W&OD Trail (94 percent).

Bluemont Park, Bluemont Junction Park, and Glencarlyn Park all occupy the greenway corridor along Four Mile Run. The centerpiece of the greenway is the W&OD Trail, a paved trail built on the foundations of the old W&OD Railroad. The railroad's 100-foot right-of-way belongs to the Northern Virginia Regional Park Authority (NOVA Parks), which manages the 45-mile-long W&OD Railroad Regional Park. The regional park contains both the W&OD Trail and the adjacent high-tension powerlines operated by Dominion Energy, with county parkland on both sides.

The W&OD Trail and high-tension powerlines in the parkland corridor along Four Mile Run comanaged by NOVA Parks and Dominion Energy. The trail and bridge were built on the foundations of the W&OD Railroad. Photo: Dan Brown.

Other public spaces frequented by Arlington Foresters include the grounds of the Lubber Run Community Center, Barrett School playground at North Park Drive and North George Mason Drive, Edison Park playground on North Edison Street, and the Lubber Run Amphitheater adjacent to Lubber Run Park.

Community Priorities for Parks

The parks and other public spaces in or near Arlington Forest are an essential feature of the neighborhood and the key to its quality of life. Many residents chose to purchase homes in the neighborhood, in part, for its easy access to these refuges from urban living. In our neighborhood survey, many residents listed our local parks and recreational facilities as things they value most about living in Arlington Forest. Almost all residents use them at least occasionally.

The residents of Arlington Forest agree that the natural resources in our neighborhood parks, including both aquatic and terrestrial ecosystems, should be protected through high standards of maintenance grounded in a sophisticated understanding of the principles of urban park

management. We support the principles of biophilic planning and design, such as conserving natural resources and expanding natural elements within Arlington's built environments. In addition, we recognize that recreational facilities within the parks, including trails, playing fields, and structures, must be periodically maintained and upgraded.

The use and enjoyment of green space, including undisturbed natural areas, and of excellent facilities for outdoor recreation are high priorities for Arlington Forest. As a community, we are privileged to have nearby county facilities that meet a wide variety of needs and are regularly used by people of all ages and abilities. In a way, the parks are the soul of Arlington Forest and should not be neglected or abused. In recognition of our own responsibility, neighbors organize periodic cleanup walks along our neighborhood streams and volunteer for regular county stream monitoring in both Lubber Run and Four Mile Run.

The Nature Parks

In 2008, Arlington County commissioned a Natural Heritage Resources Inventory. Based on the inventory, the county adopted a Natural Resources Management Plan in 2010 (currently being updated and combined with the Urban Forest Master Plan). The plan focuses on protecting intact resources in Arlington's remaining natural areas. Of Arlington's total land area (15,576 acres), general open space comprises 18.9 percent (2,940 acres), with natural lands making up 4.7 percent (738 acres) and county-owned natural lands 1.6 percent (248 acres). Accordingly, the protected natural areas in Arlington County are a rare and precious resource.

Arlington's natural areas include the nature parks in or near Arlington Forest. Most Arlington parks are dominated by softball fields, tennis courts, or open grassy areas, but Lubber Run and Glencarlyn Parks are primarily nature parks, as is the southwestern section of Bluemont Park, along with Mary Carlin Woods. These parklands contain some of the largest remnants of natural landscapes

A great blue heron in Lubber Run Park. Photo: David Howell.

remaining in Arlington County, including a forest stand that has never been logged.

Landscape Features

Our local nature parks feature a range of topographies, from streamside bottomlands to "terrace" uplands where the homes are built. Forest predominates almost everywhere, but the varied topographies, soils, and moisture levels create conditions for a variety of plant and animal communities, including the potential for rich biological diversity.

Bottomlands

Four Mile Run, Long Branch, Lubber Run, and Arlington Forest Branch all have small floodplains with relatively flat terrain and soils for native plants that prefer or tolerate wet conditions and disturbance by floods. The trees include pin oak, catalpa, American sycamore, black cherry, black locust, black willow, green ash, red maple, silver maple, American elm, American basswood, tupelo, river birch, and eastern cottonwood, with

An eastern red-backed salamander in Lubber Run Park. Photo: David Howell.

an understory that includes boxelder, sassafras, American hornbeam, viburnums, and witch hazel.

The floodplains feature wetlands in winter and spring. For example, small seasonal swamps dot the northern bank of Four Mile Run upstream from the Arlington Boulevard overpass. Ephemeral springs and seeps feed the seasonal wetlands, which tend to dry out by summer. They are vital breeding grounds for amphibians such as frogs and salamanders.

In Glencarlyn Park, the county maintains a series of connected ponds for stormwater control and water filtration below the foot of South Abingdon Street adjacent to the W&OD Trail. In 1996, fearing that high water might wash out the W&OD Trail, park managers removed a beaver dam from Arlington Forest Branch, the brook that divides Southside from neighboring Barcroft. The brook joins Four Mile Run just upstream from Huffman's Falls by way of a culvert built more than a century ago under the W&OD Railroad.

In 2002, partly in response to neighborhood concerns about beaver removal, the county worked with NOVA Parks to install a series of artificial ponds on Arlington Forest Branch to collect stormwater runoff from neighborhood streets and remove litter, sediments, and nutrients from the brook. Known as Sparrow Pond, the site is now a year-round marsh featuring wetland vegetation and a viewing deck for visitors.

In 2019, beavers returned to the site, building a dam on top of the weir for the artificial ponds and raising water levels high enough to join the ponds together. An area of marsh, possibly due to seepage from the beaver pond under the W&OD Trail, has emerged on the other side of the old railroad berm. A brooklet drains the marshy area, trickling into Four Mile Run downstream from its confluence with Arlington Forest Branch.

Arlington County manages Sparrow Pond as a wildlife sanctuary for reptiles, amphibians, and other wetland creatures. If you arrive at dawn or dusk, you might see a beaver swimming through the pickerelweed and spatterdock. Near the Long Branch Nature Center, the county also maintains a small seasonal pond for amphibians next to the access road and a year-round viewing pond outside the nature center doors on Long Branch, where ducks, hawks, herons, and other birds find seasonal feeding habitats. Arlington Forest commends the county for sustaining rare local wetland ecosystems with habitats for a variety of plants and animals.

The W&OD Trail skirts another such wetland, a small pond and marsh near Four Mile Run across from the pavilion in Bluemont Park. In recent years, the wetland has rarely dried out, fed by permanent seeps and by floods when storms push Four Mile Run over its banks. The pond and marsh have come to support a variety of birds, reptiles, amphibians, mammals, and insects during much of the year. If you're lucky, you might spot a green heron waiting in ambush for small fish, frogs, and other prey. Arlington County has a great opportunity to afford the pond the same protections it gives to Sparrow Pond and other resource protection areas.

Forest Types

Our neighborhood streams have carved valleys into the terraces where the homes are built, so most of our local parkland comprises wooded valley slopes with multiple ecological niches.

A green heron at the small pond in Bluemont Park. Herons also frequent Sparrow Pond. Photo: David Howell.

Top: *Leaves on tuliptree, a major forest tree in our neighborhood parks.* **Bottom:** *Blooms on white fringetree in Lubber Run Park. Photos: Hutch Brown.*

Arlington's Natural Resources Management Plan has identified several forest types in the parks. The upper slopes, depending on location, feature acidic oak–hickory forest and oak–heath forest, whereas the lower slopes are dominated by mesic mixed-hardwood forest, along with a rare remnant of basic mesic forest in Glencarlyn Park.

The soils on the upper park hillsides are thin and rocky. Oaks abound, including white oak, black oak, scarlet oak, and chestnut oak. Pignut hickory and mockernut hickory are mixed in, along with tuliptree; tuliptrees are often the largest and tallest canopy trees in our area. Understory trees and shrubs include sassafras, redbud, dogwood, American holly, rhododendron, blueberries, wild azalea (pinxter), mountain laurel, and (rarely) coralberry.

The lower slopes tend to be cooler and shadier, with deeper soils that retain more moisture. In the mixed-hardwood forest type, scarlet oak gives way to northern red oak and bitternut hickory joins the hickories. Other hardwoods include white oak, tuliptree, tupelo, black cherry, black locust, black walnut, American elm, catalpa, white ash, and American basswood; on the shadiest sites, American beech and red maple reach from the understory into the canopy. American chestnut was present before the invasive chestnut blight wiped it out in the early 20th century. But if you look carefully, you might find chestnut shoots from old rootstocks (and Glencarlyn Park has a chestnut tree more than 10 feet tall). The understory includes witch hazel, common hazel, dogwood, redbud, sassafras, American holly, viburnums, serviceberry, American hornbeam, and (rarely) white fringetree.

The largest trees in the parks are over 170 years old, almost three times the age of our neighborhood. A tree felled along Lubber Run in the early 1980s was 3 feet in diameter; its 165 growth rings indicated that it began life in about 1818, just 4 years after British troops burned the White House and Capitol. The steep terrain and poor soils discouraged farming and homebuilding on the

hillslopes, allowing native forests to grow—or to regrow where trees were felled for the W&OD Railroad or by Union troops to protect the railroad from Confederate raids during the Civil War.

In 2015, the Maryland-based Old-Growth Forest Network designated a stand of trees in Glencarlyn Park as old growth (never been logged). The stand straddles the asphalt spur trail that leads from the W&OD Trail up to 2nd Street South in Glencarlyn; it extends eastward along the park slopes below Glencarlyn towards the Long Branch Nature Center. The Glencarlyn stand is one of only two recognized old-growth forests in all of Arlington (the other is at Arlington Cemetery); it contains about 100 notable trees, some more than 2 centuries old. The county has an opportunity to protect a rare Virginia old-growth stand and to post an educational sign about it.

The part of the old-growth stand facing southeast is acidic oak–hickory forest. It contains mixed oaks and hickories, with little or no chestnut oak and a heavy component of tuliptree and scarlet oak. By contrast, the stand just across the spur trail facing northwest has a heavy component of chestnut oak, along with rhododendron, mountain laurel, wild azalea, and blueberries in the understory. It is a forest type known as oak–heath ("heath" for mountain laurel, which belongs to the heather family).

The oak–heath community prefers dry northwest-facing slopes in our parks, such as the slope on the southeastern side of lower Long Branch in Glencarlyn Park. In Lubber Run Park, the oak–heath community dominates the slopes below Northside but is absent on the Greenbrier side of the creek. You can tell by the prevalence of mountain laurel east of Lubber Run and its total dearth west of the creek.

Natural Resource Conservation Areas

Unusual natural features deserve special protection, and Arlington's Natural Resources Management Plan recommended that some areas containing them be designated as natural resource conservation areas. The county designated 10 such areas covering 126 acres countywide, including 3 areas

A large northern red oak in the old-growth stand in Glencarlyn Park, part of a county-designated natural resource conservation area. Diameter at breast height (a standard forestry measure) in 2019 was about 3 feet. Photo: Hutch Brown.

covering more than 50 acres in our neighborhood parks. The residents of Arlington Forest commend the county for giving these special places the recognition and protection they deserve. We are proud of our local natural resource conservation areas.

Large blocks of Glencarlyn Park southwest of Four Mile Run, including the old-growth stand, are designated as natural resource conservation areas. A little-visited 3-acre tract just north of Arlington Boulevard is a prime example of an undisturbed acidic oak–hickory forest. South of Arlington Boulevard lies a 50-acre tract with multiple forest types on the slopes below Glencarlyn. Largely free from invasive species, these old-

Arlington Forest Park, designated as a natural resource conservation area for its rare oak savanna ecosystem (known as dry gravel cap–xeric oak/poverty oatgrass glade). Photo: Dan Brown.

growth woodlands contain such special features as county champion trees, locally rare native plants, and geological attributes of scientific importance (such as the bedrock exposures at Huffman's Falls). Neighbors can enjoy a walk through the area on an unpaved trail leading uphill through old-growth forest from the Carlin Springs historical marker towards the Long Branch Nature Center.

Another natural resource conservation area is little-known Arlington Forest Park, a 1-acre tract between the Arlington Forest Shopping Center and Arlington Boulevard. The park contains Arlington's largest remnant of a plant community called dry gravel cap–xeric oak/poverty oatgrass glade. The native soils, derived from ancient river sediments, are thin and sandy. The site features native plants adapted to xeric (dry) habitats, including a grassland species known as poverty oatgrass, a grass that gets about a foot tall. The park is one of the only places in Arlington where you can find rare plants like pineweed, globe flatsedge, St. Andrew's cross, and forktip three-awn grass. Dry-site trees like white oak and chestnut oak are scattered across the park, which also contains a few bigtooth aspens. Young trees of other kinds have seeded in as well, including Virginia pine, eastern redcedar, tuliptree, tupelo, and Bradford pear (an invasive species).

In the thin soils, the large oaks are vulnerable to prolonged drought, and multiple trees weakened and died due to the "oak decline" precipitated by the unusually hot and dry conditions that followed torrential rains on July 8, 2019. The dead trees were a safety hazard for park visitors, and their prominent location made them a community eyesore. The county removed the dead trees while leaving stumps and 20-foot trunks ("snags"). The snags will hasten natural processes of deadfall and decay while providing habitat for insects, woodpeckers, and other wildlife. Some of the upper portions were left on the ground to gradually decay. Oak seedlings are coming up in the park, and managers will encourage their growth, fencing them off from deer if necessary.

Plants like poverty oatgrass are adapted to periodic burning, which destroys vegetation that would otherwise shade them out, such as Virginia pine and eastern redcedar (trees that readily colonize such open spaces). A tall native grass called broomsedge bluestem is also crowding out the oatgrass and other rare species. Unfortunately, controlled fires are infeasible in this tiny urban park, but park managers are planning alternatives, such as weeding out pines and junipers. To better "frame" the space, both to make it visually more appealing and to keep vegetation from spilling over trails and sidewalks, the county will mow around the park perimeter each summer. Park staff will hand trim areas around desirable plants, and the rest of the park will be mowed once a year to discourage the broomsedge, but only after the oatgrass has flowered and released its seeds.

The county is committed to protecting a rare remnant ecosystem in Arlington Forest Park, and it plans to post an educational sign about it. Arlington Forest commends the county for its expertise, conservation commitment, and professional natural resource management.

Fire Ecology

Although our neighborhood parks contain a variety of plant communities, they probably do not much resemble the original landscapes in our area because a key factor is missing: wildland fire. Four hundred years ago, surface fires burned through our area at intervals of 30 years or less, opening the landscape and creating patches of grassland with scattered trees. Many of our upland forests probably resembled Arlington Forest Park, with its open fire-adapted vegetation.

Virginia gets few lightning fires. What kept our ancestral landscapes open was seasonal burning by American Indians for agriculture, hunting, travel, and trade. "They cannot travel but where the woods are burnt," noted John Smith, a co-founder of Jamestown in 1607.

The area near Arlington Forest originally contained an American Indian village (at the confluence of Long Branch with Four Mile Run). The residents used fire to clear bottomland for farming after killing the trees by girdling them (cutting away a ring of life-giving bark). Upland forested areas, maintained by seasonal burning, probably had widely spaced large old trees of oak and hickory, with an understory of fire-adapted grasses and other plants. Browse and forage for deer, elk, and other game would have been plentiful in the open shade, and visibility would have been good, with big trees to hide behind while stalking game.

Without wildland fire, most natural landscapes in our area have become dense and self-sustaining forest, free from disturbances except for occasional windthrow and bottomland flooding during storms. Especially within the same species, old trees nurture their offspring—and each other—through complex interactions in their roots and in forest soils. The oldest and tallest trees eventually die from rot or topple in storms, creating openings

Depiction of American Indians in the late 16th century by John White, an English settler in what is now North Carolina. Note the hunters in the background pursuing deer or elk on what appears to be savanna (grassland with scattered trees).

for the next generation of trees. In July 2020, for example, a large white oak with rot in its heartwood fell across Lubber Run just below 3rd Street North. Fatally weakened, it might have toppled in a light breeze.

Subsoil interactions among trees through their roots involve fungi in sharing resources. Trees draw water and nutrients through their roots to help them convert sunlight into energy through their leaves. Insects and other animals eat the leaves, cycling the sun's energy to the animals that in turn eat them, from spiders to foxes and hawks. Our local forests support habitats for a rich variety of native wildlife, all deriving sustenance from the constant cycle of energy through soils, plants, and animals. The residents of Arlington Forest want to ensure that such natural processes continue through careful forest stewardship, along with protection for rare bottomland and upland ecosystems like Sparrow Pond and Arlington Forest Park.

Threats to Our Urban Forests

In Arlington Forest, we are keenly aware of environmental issues. In our neighborhood survey, majorities expressed concerns about a range of

Entrances to Arlington Forest Park (left), with its open dry-site trees and grasses, and Lubber Run Park (right), with its dense and self-sustaining forest vegetation. Photos: Dan Brown.

threats to the health, beauty, and enjoyment of our parks and natural areas. Concerns about environmental health, for example, ranged from drought (58 percent) to water pollution (85 percent); concerns about user enjoyment included erosion (68 percent) and flood-related damage in our parks (76 percent).

Seventy-nine percent of the respondents expressed concern about air pollution, high levels of which obscure even clear nighttime skies in our area and can make outdoor activity unhealthy on summer days. Seventy-five percent worried about tree loss at a time when conversion of forest to developed uses affects many parts of the nation, including much of northern Virginia. Seventy-four percent were also concerned about loss of biodiversity, a problem nationwide.

Many environmental concerns across the nation are tied to broader developments associated with changing climates and weather patterns, including drought, storms, floods, forest decline, and catastrophic wildfire. In recent decades, worsening wildfires linked to climate change have taken lives and destroyed homes in the western United States. The areas most at risk are in the so-called wildland/urban interface, where bedroom communities adjoin large areas of wildland vegetation. Arlington Forest fits the bill, and 62 percent of the respondents in our neighborhood survey reported forest fire as a threat. The risk from wildfire in our area is actually quite low, but climate change is fraught with uncertainty and drought could eventually elevate the risk.

Protecting Our Natural Resources

The main climate-related risks in our area have to do with changing weather patterns, especially severe storms. In our neighborhood survey, 76 percent of the respondents said that changing climate and unusual weather patterns were a threat to the health of our urban forest, as were flood-related damage (56 percent), erosion (62 percent), and water pollution (85 percent). Large majorities also identified invasive species as a threat to the health (64 percent) and beauty (66 percent) of our nature parks. An emerging threat to biodiversity comes from the growing deer population in our neighborhood parks.

Stormwater Runoff

> "When soil washes away faster than it forms, and when water systems exhibit abnormal floods and shortages, the land is sick."
>
> –Aldo Leopold, *A Sand County Almanac*

The Clean Water Act of 1977 requires state agencies to work with the Environmental Protection Agency (EPA) to clean up polluted streams and water bodies such as Chesapeake Bay. In 2010, EPA set a total maximum daily load (TMDL) for

A northern watersnake along Four Mile Run. Often spotted along our neighborhood streams, this common snake depends on healthy riverine habitats. Photo: David Howell.

Chesapeake Bay, an upper limit on pollutants allowed to reach the bay from throughout its multistate watershed (from Virginia to New York). The pollutants of most concern are nitrogen, phosphorus, and sediments.

Under the law, state governments are taking steps to meet the Chesapeake Bay TMDL. As the holder of a state permit for a municipal storm sewer system, Arlington County adopted a Chesapeake Bay TMDL Action Plan for meeting TMDL requirements. Stormwater runoff accounts for most of Arlington's contribution of nitrogen, phosphorus, and sediments to Chesapeake Bay. The county's strategy for meeting the TMDL requirements includes stream restoration projects to reduce stormwater runoff and sedimentation; watershed retrofits (such as bioretention ponds) to slow and filter stormwater runoff; and canopy tree retention and restoration across Arlington.

Stream Degradation

Part of what residents enjoy about our neighborhood parks are the streams, with their clear waters tumbling over rocks into peaceful pools. You can sometimes see small fish hovering in the currents, and you can often find the tracks of raccoon, white-tailed deer, and other native wildlife on the streambanks—or maybe a snake sunning itself on a rock. The first European settlers in our area found streams that were cooler and deeper than today, with higher ground water levels and greater steady flows. Our streams originally sustained native brook trout, now limited to Appalachian streams.

Until the 1940s, Arlington was mostly farmland, with about 70 miles of natural streams. Flooding was not a major concern. As housing tracts like Arlington Forest mushroomed across the county from the 1930s to the 1950s, most of Arlington's smaller streams and the headwaters of larger ones were buried in pipes underground. No laws protected watersheds, and little thought was given to what stormwater specialists today call overland relief—floodplains and retention areas for stormwater runoff to relieve pressure on storm sewers overtaxed by torrential rains.

Today, only about 32 miles of stream remain in Arlington, less than half of the original total.

Erosion scar on Four Mile Run in Glencarlyn Park. On an outer bend of the creek, floodwaters have scoured down to the bedrock, leaving an escarpment and a toppled tree. Photo: Hutch Brown.

Tree toppled by erosion along Lubber Run in 2018. Photo: Hutch Brown.

Development has covered the ground with impervious surfaces—roads, parking lots, driveways, rooftops, sidewalks, and the like, which keep precipitation from filtering into the soil. About 43 percent of the land area in Arlington is now covered by impervious surfaces, an area that continues to grow, especially as homeowners expand the footprint of their homes. Single-family home expansions comprised almost 60 percent of the increases in impervious surfaces in Arlington from 2010 to 2013.

During heavy downpours, the soils in Arlington are saturated within minutes. Landscaping and sump pumps then channel the runoff onto streets and into storm sewers. The antiquated stormwater facilities from the 1930s–50s cannot handle the volume, and the runoff sometimes pours overland, flooding streets and inundating basements and parked cars. The waters finally reach our truncated streams, resulting in year-round flooding with every heavy rainfall.

The results are obvious in our neighborhood parks. The streams have scoured away their gravel beds, exposing the bedrock. In their deepened channels, the creeks no longer connect to their floodplains, amplifying the erosive force of their floodwaters. On outer bends, the scouring floods have left eroded escarpments many feet high; erosion scars are evident along all three major neighborhood streams (Long Branch, Lubber Run, and Four Mile Run). During especially heavy downpours, our neighborhood streams can become raging brown torrents that fill their entire floodplains, scouring away soils, washing out trails and bridges, and posing drowning hazards to anyone nearby. Dammed up behind an Arlington Boulevard culvert too small to take the volume of the floodwaters, Lubber Run can form a turbulent lake, leaving lower Lubber Run Park buried in mud when the waters finally recede.

Torrential rains on July 8, 2019, were a case in point. Total rainfall in Arlington measured 3 to 4 inches in a single hour, with Four Mile Run rising by 11 feet. Rainfall data from the national airport indicated the equivalent of a 150-year storm; other data across Arlington suggested a 500- to 1,000-year storm. The torrential rains flooded Lubber Run Park, toppling trees, tearing out bridges, and leaving trails covered with sand and silt. When a tree fell over lower Lubber Run south of Arlington Boulevard, its roots ruptured the sanitary sewer pipe under the bank. The creek dove into the sewerline and went entirely underground. Until the county repaired the sewer pipe almost 2 weeks later, the confluence of Lubber Run with Four Mile Run was completely dry.

Severe floods threaten fish and other aquatic life, flushing them downstream while disrupting their habitats and impairing water quality. Every storm brings fluctuations in water temperatures and in dissolved oxygen levels, further stressing aquatic life. After the storm passes, the floodwaters release loads of sediment, burying stream gravels

and degrading streambed habitats. As a result, streams that once supported species of relatively large fish now sustain reduced populations of a few types of small fish that can tolerate degraded conditions, such as blacknose dace. Fish decline is mirrored by a decline in the number and variety of the aquatic insects and other creatures that live in or on streambed gravels and silts. Only relatively tolerant species survive, such as midges, black flies, aquatic worms, and small minnow mayflies. County-commissioned assessments in 2011 found all three of our local creeks to be in poor to very poor condition compared to state reference streams.

Some stream sections are stabilizing (no longer downcutting and eroding streambanks) because they have scoured down to the erosion-resistant bedrock. Many stream sections are now lined with riprap (boulders trucked in and dumped along streambanks) to control erosion. Sunfish, absent from fish counts in 2011, have been spotted in Lubber Run and upstream in Four Mile Run from its confluence with Lubber Run, an indication that conditions might be improving.

Unconnected to their floodplains, however, our local streams retain their erosive power, and riprap stream linings only push streambank erosion to unlined sections downstream. Moreover, erosion continues from stormwater outlets that open onto degraded gullies. Examples in our neighborhood parks include the gullies below 2nd Road North in Northside, South Park Drive in Southside, and the Edison Park playground in Greenbrier. Stormwaters on July 8, 2019, started a new gulley in Lubber Run Park at the foot of 3rd Street North after overwhelming the storm drains there, illustrating how easily erosion can begin. The county repaired the gulley in spring 2020, but summer thunderstorms damaged the repairs, reopening parts of the gulley.

Until the 2000s, Arlington County lacked reliable data on the extent of stream degradation in Arlington and the potential for stream restoration. In 2001, the county launched a program to engage local volunteers in monitoring conditions in Arlington's streams, including levels of bacteria and

Signs of flooding and erosion in Lubber Run Park, including bare soil, a toppled tree, and riprap—boulders dumped along the streambank to control erosion. Photo: Dan Brown.

nutrients (nitrogen and phosphorus) as well as the presence and abundance of aquatic insects and other streambed creatures. Arlington Forest commends the county for its successful stream monitoring programs based on citizen science in all three of our neighborhood creeks. We urge the county to continue the programs.

Since 2011, according to the Potomac Conservancy, conditions in the Potomac River have been improving (until a downturn in 2020 associated with torrential rains in 2018–20 and the corresponding pulses of pollutants). The county has met TMDL requirements in part by completing an award-winning stream restoration project on the lower (estuarine) portion of Four Mile Run and by restoring degraded sections of streams in North Arlington: Donaldson Run (in progress), Gulf Branch (in planning), and Windy Run (completed). On Donaldson Run, for example, restoration has included reconnecting the stream to its floodplain and reinstalling meanders. Workers have placed boulders to mimic natural features such as splash pools and streambank linings for channeling streamflow energy inward. They have also planted trees and other vegetation on the restored and reconnected floodplain.

One reason for stream restoration is to protect human health. Before stream restoration on

A concrete-encased sewerline exposed by erosion along Lubber Run. Photos Dan Brown.

Donaldson Run, stream erosion had exposed and undercut a sanitary sewer pipeline (since repaired and reburied). Similar erosion has exposed the concrete casings for sanitary sewer pipelines in both Lubber Run (downstream from the amphitheater) and Four Mile Run (downstream from its confluence with Lubber Run). Exposed sanitary sewer pipes can burst during storms, releasing sewage into streams. Contact with the bacterium *Escherichia coli* (better known as E. coli) can sicken and kill.

During the torrential rains of July 8, 2019, the floodwaters in Lubber Run ruptured the concrete casings of manhole covers on the sewage pipes just south of Arlington Boulevard. The waters pushed off the manhole lids, then inundated the open manholes, potentially releasing loads of human waste. Although the floodwaters soon receded, it took almost 2 weeks for the county to repair the damage, exposing the open sewers to potential subsequent floods. The county can mitigate such health hazards by restoring Lubber Run.

Stream restoration is no panacea. The core problem is the extent of impervious surfaces across Arlington, along with inadequate stormwater management planning when Arlington was first developed in the 1930s–50s; stream restoration cannot resolve such issues. Moreover, restoration takes heavy equipment, and it requires removing trees, disturbing soils, and temporarily disrupting park facilities. Some residents of Arlington Forest oppose stream restoration projects for fear of making matters worse at high cost to taxpayers.

However, the restored sections of Donaldson Run and Windy Run in North Arlington weathered the July 8 floods much better than the degraded creeks in our neighborhood. The no-action alternative would invite ongoing catastrophic flooding, toppled trees, infrastructure damage, ecological degradation, and risks to human health and safety. In June 2020, for example, a 160-year-old tree (a northern red oak) fell over a trail along Lubber Run after being undercut by years of streambank erosion. In our neighborhood survey, the vast majority of respondents (87 percent) expressed support for county projects to restore streambeds in our neighborhood parks.

It might be too soon. Streambed restoration might not be feasible in our neighborhood creeks until their upper watersheds have been treated. The restored sections of Windy Run and Donaldson Run are near their headwaters, whereas Lubber Run Park is at the lower end of a watershed with impervious surfaces across almost half (46 percent) of its relatively large area. The watershed, 1,029 acres in size (about one-tenth of which lies in Arlington Forest), extends all the way to Langston Highway in North Arlington. Almost all of the headwaters and tributaries are piped, with few if any mitigating bioretention projects or other watershed retrofits. The result is a stormwater blowout downstream in Lubber Run Park with every major storm.

Restored (top) and unrestored (bottom) sections of Donaldson Run in North Arlington. The photos, taken well after torrential rains and flooding in July 2019, suggest that stream restoration works to reconnect a stream to its floodplain and reduce erosion. Photos: Hutch Brown.

A major restoration project for Lubber Run is underway at Ballston Pond, which can capture about 30 percent of the stormwater runoff in the Lubber Run watershed but is no longer fully functional. Until Ballston Pond renovation and other upstream watershed retrofits are in place, stream restoration in Lubber Run Park might have to wait.

Water Pollution

Stormwater runoff washes nitrogen, phosphorus, and other pollutants into our neighborhood streams and ultimately into Chesapeake Bay. Underground pipes comprise most of the stormwater drainage system for the larger Four Mile Run watershed, including Long Branch and Lubber Run. The gutters of Ballston, for example, can be subject to wastewater dumping, and they lead to a storm main (a pipe 36 inches or more in diameter) that empties into Lubber Run just downstream from the North George Mason Drive overpass.

The residents of Arlington Forest strongly support county efforts to prevent point-source pollution (the dumping of chemicals and wastewater), and we are committed to reporting evidence of toxic materials poured into storm drains. Residents routinely carry cell phones on their frequent walks through our neighborhood parks, and they can immediately report any streamwater discoloration or other signs of pollution. The county has an opportunity to post educational signs in our parks telling residents what to look for and where to report it.

Yards, roads, driveways, and other surfaces collect nonpoint-source pollutants such as motor oil, fertilizers, pesticides, detergents, street trash, and animal waste. Stormwaters and meltwaters then carry the trash, waste, and pollutants into our neighborhood streams. Downstream impacts from nitrogen, phosphorus, and sediments include reduced dissolved oxygen levels in Chesapeake Bay, killing fish and other estuarine life.

The residents of Arlington Forest are aware of related issues, with large majorities in our neighborhood survey reporting pet feces (81 percent) and improperly disposed garbage (81 percent) as threats to the health of our parks. Waste from dogs, cats, and other animals contaminates streamwater with E. coli, posing a hazard to human health. Unhealthy levels of coliforms are common in our neighborhood creeks, as are nutrients, sediments, and street litter. Trash in our streams, especially plastic, is a growing threat to the health of aquatic systems, including estuaries like Chesapeake Bay and even the world's oceans.

Arlington County's strategy for meeting its Chesapeake Bay TMDL requirements includes installing or restoring facilities that slow and filter stormwater runoff, such as Ballston Pond. Sparrow Pond is a stormwater retention facility in our immediate neighborhood; located in Glencarlyn Park on lower Arlington Forest Branch, the marsh reduces nonpoint-source pollution and sedimentation through a system of capture ponds. The county is planning to restore the main pond to its

original depth, add a sediment collection forebay, and improve the surrounding wetland habitat. Arlington Forest commends the county for the planned renovation project, yet we recognize the need to leave the current beaver activity in place while monitoring the impacts.

Sparrow Pond is in a state-designated "resource protection area" on both sides of Arlington Forest Branch. Intended to protect Chesapeake Bay, resource protection areas encompass lands within 100 feet of a stream or gulley, including parts of backyards adjacent to our neighborhood parks. These areas are vital stream buffers for reducing stormwater runoff, preventing erosion, and filtering out pollutants. AFCA supports county efforts to sustain native vegetation in resource protection areas throughout our neighborhood, and we urge homeowners to cooperate.

Stormwater Management Planning

To meet TMDL requirements for Chesapeake Bay, Arlington County launched studies in the 2000s that culminated in the county's current Stormwater Master Plan, adopted in 2014. The plan combined and updated the previous Stormwater Master Plan (from 1996) and the Watershed Master Plan (from 2001), giving a comprehensive overview of the challenges and opportunities associated with stormwater runoff in Arlington. Arlington Forest commends the county for framing the issues and proposing the means for resolving them for residents to find all in one place (the Stormwater Master Plan website shown in appendix B).

The starting point was (and is) the extent of impervious surfaces in Arlington County, coupled with an overwhelmed legacy infrastructure for stormwater management. Because Arlington is fully developed and pipeline replacement is costly and disruptive, opportunities to overhaul the antiquated system are limited. In its Stormwater Master Plan, the county listed the highest priority pipelines for replacement, and several projects have been completed or are underway.

The main opportunities for improving stormwater management in Arlington are aboveground—as simple as street sweeping. For redevelopment projects (such as the recently completed Lubber Run Community Center), the county requires stormwater mitigation measures, which can range from

An eastern wood-peewee (top) and a blue dasher dragonfly (bottom) at Sparrow Pond. Wetlands in our area furnish habitats for a variety of birds, insects, and mammals. Photos: David Howell.

planting trees to emplacing underground cisterns. Other county initiatives include stream restoration, watershed retrofits (such as bioswales and rain gardens), and large-scale bioretention projects (such as Ballston Pond renovation). Taken together, the measures constitute a comprehensive approach to stormwater management in Arlington: through redevelopment, street sweeping, stream restoration, Ballston Pond renovation, and watershed retrofit projects, the county can capture and filter stormwater runoff while reducing its rate and volume, thereby improving conditions in Arlington's streams and diminishing outflows of pollutants into the Potomac River and Chesapeake Bay.

In the short term (through 2028), according to Arlington's Stormwater Master Plan, stream restoration promises the greatest benefits, including 35 percent of the nitrogen and 59 percent of the phosphorus reduction. Accordingly, the county has focused many of its limited resources on stream restoration projects. Our neighborhood creeks in Arlington Forest are obvious candidates, but they are lower in priority for the county than most other Arlington streams. For example, Lubber Run's vulnerability to erosion is considered relatively low because bedrock is exposed in the streambed and riprap lines many streambanks.

Watershed retrofits represent a rising share of the benefits in the longer run (through 2063), reaching 38 percent of the nitrogen and 25 percent of the phosphorus reduction. In its 2013 Watershed Retrofit Study, the county listed 1,176 potential watershed retrofit projects, including 86 projects for Arlington Forest's Four Mile Run subwatershed, 145 for the entire Lubber Run watershed, and 11 for Arlington Forest Branch. The list included six high-priority projects in our immediate neighborhood:

1. a rain garden on North Edison Street between 2nd and 3rd Streets North;
2. disconnection of the parking lot and trailer storage lot for the Arlington Assembly of God;
3. street bioretention on 3rd Street North between North Columbus Street and North Park Drive;
4. street bioretention at 2nd Street North and North Columbus Street;
5. street bioretention at the intersection of North Wakefield Street and 2nd Street North; and
6. bioretention at the Lubber Run Community Center.

The "rain garden" proposed for North Edison Street became part of the Edison Park playground renovation, with watershed retrofits in the resource protection area (a bioswale and reforestation in the area above the gulley). "Disconnection" (proposed for the church parking lots) usually means channeling stormwater runoff into an area where it can filter into the ground instead of dumping it into a storm sewer. "Street bioretention" typically involves installing a vegetated swale or other depression (such as a dry pond) along a street right-of-way. None of the parking lot and street projects have gone beyond the conceptual stage.

"Bioretention" at the Lubber Run Community Center is an example of using redevelopment to improve stormwater management. An underground cistern captures stormwater runoff from the roof of the new building, with the overflow going into a bioretention pond that filters the

Newly installed bioretention pond at the Lubber Run Community Center in 2020. Photo: Hutch Brown.

water as it seeps into the ground. New underground parking and green roofing has greatly reduced the overall area of impervious surfaces on the site. Renovated parts of the site include bioswales and about 200 newly planted shade and understory trees, mostly reflecting the native mix of trees in our area. The trees will add beauty to the site while improving its ecological and watershed functions.

Ballston Pond renovation, currently underway, is another example of bioretention with downstream benefits for our community. A retention facility like Ballston Pond captures stormwater runoff and gradually releases it, mimicking natural wetland processes. The sheer size of Ballston Pond—4 acres—will benefit Arlington Forest by retaining floodwaters in its 300-acre drainage area, capturing and slowly releasing up to 30 percent of the stormwater runoff in the entire Lubber Run watershed. By reducing the volume of stormwater flows into Lubber Run, the project will alleviate the impacts of flooding in Lubber Run Park.

Through its comprehensive stormwater management planning, Arlington County has created a commendable blueprint for mitigation projects of various types and sizes on public land. In addition to Ballston Pond and its six high-priority watershed retrofit projects in or near Arlington Forest, the county has listed more than a dozen lower priority projects for our immediate neighborhood. Street bioretention is proposed for South Park Drive, for example, and a bioswale for the Lubber Run Amphitheater.

Pavilion in Lubber Run Park, popular with recreational users and also used by stream monitors. Photo: Dan Brown.

Because all streets in Arlington Forest are broad and most intersections lack traffic circles, the county has an opportunity to tear out asphalt in intersections and create islands of open space to capture precipitation while also calming traffic. In our neighborhood survey, many respondents pointed to speeding issues on community thoroughfares such as North Edison Street in Greenbrier and North Park Drive, North Henderson Road, and North Columbus Street in Northside. Such thoroughfares might have opportunities for traffic-calming measures that could double as watershed retrofits for filtering precipitation.

For example, stormwater pours from 3rd Street North in Northside across the intersection with North Park Drive, at times overwhelming storm drains at the end of the street above Lubber Run Park. A watershed retrofit (such as a dry pond) in the intersection with North Park Drive, together with the planned street bioretention along 3rd Street North, might help to alleviate the situation.

However, no new watershed retrofit projects in our neighborhood appear to be under active consideration, perhaps due to cost. Street bioretention is especially costly due to the expensive utility work and street alterations needed. To raise the needed funds, Arlington County is considering either increasing the sanitary district tax component of the annual property tax for homeowners or establishing a stormwater user fee based on the area of impervious surfaces on a property. Stormwater user fees are common in urban areas worldwide, encouraging homeowners to minimize the extent of impervious surfaces on their properties.

Homeowners have opportunities of their own. In a way, the spread of impervious surfaces in Arlington replays the "tragedy of the commons:" by expanding home footprints, individuals derive personal benefit but shrink the open-space resource to the detriment of all. The woodlands and other green spaces in Arlington Forest, whether on public or on private land, represent a shared resource and a common buffer shielding the

community from the worsening impacts of stormwater runoff. The residents of Arlington Forest respect and support private property rights, but we also recognize open space as a common good to be sustained through community action in cooperation with willing homeowners—and with county help.

Arlington Forest comprises parts of three watersheds: Lubber Run, Four Mile Run, and Arlington Forest Branch. Homeowners in Arlington Forest have opportunities to reduce stormwater runoff in all three subwatersheds by:

- leaving mature forest intact or restoring native vegetation, especially in areas adjoining public parkland and resource protection areas;
- reducing the area of impervious surfaces and improving the capacity of soils to absorb and filter rainwater, for example by expanding areas of mulch and native vegetation; and
- installing bioretention and rain harvesting measures such as swales, cisterns, rain barrels, dry wells, and rain gardens.

Only 32 percent of the respondents to our neighborhood survey reported stormwater management features on their properties, and county incentives were little known and less used: only 15 percent of the respondents were aware of them, and only 3 percent took advantage of them. AFCA has an opportunity to explore ways of working with the county to better publicize opportunities for technical assistance to homeowners. For its part, the county has an opportunity to offer incentives to homeowners to sustain or restore mature forest, especially on property bordering parks and resource protection areas.

In short, the residents of Arlington Forest have a vested interest in maintaining healthy, flourishing nature parks; and green spaces throughout our neighborhood, both public and private, are a vital community resource. Homeowners can help sustain our urban forest by conserving open space and improving stormwater management on their own properties. The county has opportunities to mitigate the problems associated with stream degradation and water pollution through green engineering, including watershed retrofits—and, in good time, stream restoration in our neighborhood creeks, beginning with Lubber Run. The county might also consider other opportunities for mitigating the effects of stormwater runoff in our nature parks, even as simple as placing sections of fallen trees as checkdams in eroding gullies.

Recommendations

- AFCA should work with the county to better explain the issues associated with stormwater management, including reasons for resource protection areas and for a comprehensive approach to stormwater management. That includes better publicizing county assistance for homeowner watershed retrofits in connection with homeowner incentives for tree planting.
- The county should monitor seasonal wetlands in the W&OD Trail corridor and protect them from degradation, including trampling by people. In particular, the county should map the wetland near Four Mile Run across from the pavilion in Bluemont Park as a resource protection area.
- Arlington Forest welcomes a countywide stream assessment planned for fiscal year 2023 to set investment priorities for the county. AFCA will work with the county to explore stormwater management options for Arlington Forest, including watershed retrofits and potential stream restoration, making suggestions to the county.

Invasive Species

> "A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise."
>
> –Aldo Leopold, *A Sand County Almanac*

The residents of Arlington Forest want their nature parks to model ecological integrity by sustaining diverse communities of native plants, with plentiful habitat for native fish and wildlife. Global trade and travel have introduced nonnative

species into our parks, often by way of our own backyards. When nonnative species harm the environment by destroying or supplanting native species, they become invasive.

A Eurasian insect introduced in 1869 (*Lymantria dispar*, formerly known as gypsy moth) is now established in our area. Outbreaks have defoliated oaks in our parks, but not in recent decades. Emerald ash borer has killed many local ashes; dead and dying trees are evident throughout our area, both along streets and in parks. Dutch elm disease as well as chestnut blight have removed many elms and almost all American chestnut from our forest canopies.

Domestic cats that are allowed to roam free prey on songbirds and small mammals. Birds that nest on the forest floor or in shrubs are especially vulnerable. Cats kill more than a billion birds across the United States each year; as a major cause of bird decline, housecats are, in effect, an invasive species when released outdoors.

Some of the most serious threats to our local parks now come from invasive plants such as English ivy, lesser celandine, kudzu, porcelainberry, bamboo, bush honeysuckle, wineberry, Japanese honeysuckle, Japanese knotweed, garlic mustard, and more. Such plants offer poor habitat for native wildlife. Deer, birds, and other animals will either not eat the leaves and fruits or derive little food value from them. Worse, invasive plants outcompete native plants, depriving them of sunlight, nutrients, and the space they need to grow. Native insects rely on native plants for food, and they in turn feed our native bats. The vast majority of our native birds rely on native caterpillars to feed their chicks. No native insects, no bats or birds.

The greenway corridor bordering the W&OD Trail along Bluemont and Glencarlyn Parks is overrun by invasive plants. The greenway is kept free from forest growth to protect the high-tension powerlines. Invasive plants such as porcelainberry, kudzu, wineberry, multiflora rose, bamboo, mimosa, ailanthus, English ivy, Japanese knotweed, Japanese honeysuckle, Japanese stiltgrass,

Kudzu infestation along the W&OD Trail below Southside. Photo: Hutch Brown.

and autumn clematis have colonized most open areas, joined by native pokeweed.

For example, porcelainberry has overgrown large areas in Glencarlyn Park east of the W&OD Trail, overwhelming shrubs and trees and forming monocultures. In some places, kudzu is rapidly overgrowing all other plants (including porcelainberry), forming monocultures of its own. Japanese knotweed has formed monocultures in many places along the W&OD Trail and in areas disturbed by floods along Four Mile Run.

Along parts of the W&OD Trail, the county has worked with Dominion Energy and NOVA Parks to remove invasive species and establish native prairie vegetation, such as little bluestem, milkweeds, and goldenrods. The county can add to the beauty and wildlife habitat value of the W&OD greenway by doing the same in the entire Bluemont/Glencarlyn Park corridor, working with partners to replace invasive plants with native

A mat of competing invasive plants (porcelainberry and autumn clematis) smothering native vegetation along the W&OD Trail below Southside. Photo: Hutch Brown.

prairie and wetland vegetation in the open spaces under the high-tension powerlines and east of the W&OD Trail. One success story is a triangular area between the W&OD Trail and North Carlin Springs Road, where partners have restored goldenrod and other native prairie vegetation.

Lubber Run Park is another model of invasive species control. English ivy, escaped from backyards, covered large parts of the park in the 1990s. Growing up trees, English ivy can encase branches, keeping the life-giving sun away from a tree's leaves. The added weight can topple trees in windstorms, and the vine harbors bacterial leaf scorch, a pathogen for hardwoods. Mats of English ivy on the ground suppress all other plant life. The shallow roots do not control erosion but rather facilitate downstream ivy spread as pieces of vine are torn out and washed away during storms.

Lesser celandine, still persistent in places, was another major threat to Lubber Run Park. You might have noticed it as a green mat carpeting park floors in early spring, featuring yellow flowers that look like buttercups. Lesser celandine comes out earlier in the year than native flowers, forming monocultures that suppress native plants such as bloodroot, trillium, and spring beauty. Garlic mustard, bush honeysuckle, and other invasive plants were also common.

In 2001, Arlington Forest neighbors led by Greenbrier's Paul Kovenock (a major source of the information in this section, referenced in appendix B) organized an invasive plant removal project in Lubber Run Park. They started by cutting English ivy vines and pulling the ivy away from the bases of trees. In 2005, AFCA obtained a grant from Arlington's Neighborhood Conservation Program for a 5-year project to work with homeowners and neighborhood volunteers to control English ivy, lesser celandine, garlic mustard, and other invasive plants in Lubber Run Park.

As a result, native wildflowers like bloodroot have reappeared in the park. In 2012, field botanists hired by the county identified 181 different species of native plants in our restored Lubber Run woodland. Local volunteers check the park for invasives each spring and note where herbicidal spraying is needed, particularly for English ivy and lesser celandine. A local donor has made funds available for the county to continue removing invasive plants from Lubber Run Park.

Through the Arlington Regional Master Naturalist program, the county continues to recognize and use the Lubber Run initiative as a model for other parks and neighborhoods. The residents of Arlington Forest commend the county for working with neighborhoods like ours and for using the Tree Stewards and Arlington Regional Master Naturalists to mobilize volunteers for controlling invasive species in Arlington's nature parks. We urge the county to continue and strengthen volunteer programs for detecting and removing invasive species from our parks.

Lesser celandine (yellow blooms), an invasive plant that once carpeted much of Lubber Run Park. Photo: Hutch Brown.

Native bloodroot blooming in spring in Lubber Run Park after neighbors removed invasive plants such as English ivy and lesser celandine. Photo: David Howell.

Recommendations

- Arlington Forest strongly supports the control of English ivy, lesser celandine, kudzu, Japanese knotweed, and other invasive plants. AFCA pledges to work with the county, in alignment with programs such as Tree Stewards and Arlington Regional Master Naturalists, to support invasive plant control in our local parks.
- AFCA urges residents to control invasive plants in their own yards, especially to prevent their spread into adjacent parklands.
- The county should work with Dominion Energy and NOVA Parks to remove invasive plants and establish native prairie and wetland plants throughout the entire Bluemont/Glencarlyn Park corridor along the W&OD Trail.

Deer Overpopulation

> "I have seen every edible bush and seedling browsed [and] the starved bones of the hoped-for deer herd, dead of its own too-much."
>
> –Aldo Leopold, *A Sand County Almanac*

The residents of Arlington Forest enjoy seeing native wildlife, whether bats, frogs, squirrels, raccoons, or native birds of all kinds. We commend the county for its detailed descriptions of our native wildlife in the Arlington County Natural Heritage Resources Inventory, including the new animals that have moved into our neighborhood. Foxes, rabbits, and deer, now often seen, were rarely if ever spotted in Arlington Forest 20 years ago.

Predator-prey relationships among foxes, rabbits, mice, owls, and other native species keep most forest animals in balance with our forest plants. However, the main predators of white-tailed deer—wolves and cougars—were extirpated from Virginia long ago (the last recorded wolf was killed in the winter of 1909–10). Coyotes and bobcats, both sighted in Arlington County, are too small and solitary to be effective deer predators.

White-tailed deer in Glencarlyn Park below Southside. Photo: Dan Brown.

Although black bears sometimes prey on fawns, bears are almost never seen in Arlington anymore.

By the 1920s, overhunting had all but eliminated deer from Virginia as well; but deer were reintroduced from other states, and their populations have rapidly grown in the absence of natural controls. Hunting and collisions with vehicles—the two remaining checks—have failed to control deer numbers. More deer are thought to inhabit Virginia now than when colonists first settled Jamestown in 1607, and they sometimes form sizable herds in Glencarlyn Park.

Deer will eat a wide range of plants. A single deer can eat 5 to 7 pounds of plants per day, preferring native woodland plants (and thereby making way for invasive plants). Foraging and browsing by deer can eliminate most understory vegetation from a woodland up to about 6 feet from the ground, depriving many insects, birds, amphibians, reptiles, and small mammals of habitats they need. Favorite woody foods include oak seedlings and saplings; heavy cropping by deer can suppress oak regeneration in the forest canopy. Oaks host hundreds of leaf-eating insect species that migrating birds rely on for food, so the effects of deer overpopulation can ripple through the system, altering forest composition, changing habitats, and reducing biodiversity.

Moreover, residents on streets adjacent to our neighborhood parks have complained of deer coming into their yards to eat plants in gardens carefully cultivated at great time and expense, especially ornamental plants such as hostas, lilies, and viburnums. Worse, too many deer can pose safety hazards, particularly from collisions with vehicles. Deer are also a primary host for the black-legged tick, which transmits Lyme disease to people. Hundreds of thousands of Americans are thought to get Lyme disease each year.

White-tailed deer in northern Virginia are either approaching or exceeding the carrying capacity of the land in three regards:

- Occasional photos of emaciated deer in our area suggest that white-tailed deer, in some places, might be approaching their *biological* carrying capacity (the point at which deer themselves starve, famously noted by Aldo Leopold for the Southwest of the 1930s as "the starved bones of the hoped-for deer herd, dead of its own too-much").
- The influential movie *Bambi* (1942) created widespread sympathy for deer in the United States. However, concerns about deer impacts on landscaping (ornamental shrubs and flowers) as well as growing risks from vehicle collisions and Lyme disease suggest that white-tailed deer, in some areas, might be approaching their *cultural* carrying capacity (the point at which people and communities will tolerate deer in such large numbers).
- Many studies suggest that white-tailed deer have already exceeded the *ecological* carrying capacity of the land in mid-Atlantic forests by altering habitats and plant/animal communities to the point where native forest ecosystems, no longer able to function, are transitioning to more impoverished systems with greatly reduced biodiversity.

White-tailed deer resting in an Arlington Forest garden. Photo: Dan Brown.

Arlington Forest welcomes the return of white-tailed deer to our neighborhood, but we share the county's concern about overpopulation. We commend the county for conducting a deer population census using drones in April 2021.

The results are sobering. The census found 290 deer in Arlington, or about 13 per square mile.

According to wildlife professionals cited in the survey report, a population of 5 to 15 deer per square mile is typically healthy. However, the deer in Arlington congregate in the county's natural areas, which make up less than 5 percent of the total land area in Arlington. The survey found heavy deer concentrations in natural areas along Four Mile Run, especially in Lubber Run and Glencarlyn Parks, with 30 to 40 deer per square mile. The report concluded that overall deer density in Arlington "is likely beyond the threshold of carrying capacity."

Woody vegetation in our local parks shows growing signs of being cropped by deer, especially in winter. Too many deer pose a threat to the ecological integrity of our nature parks, to the value and enjoyment of private properties affected by deer browsing, and ultimately to the deer herds themselves.

Deer management in our area has ranged from fencing to hunting. Fences can be effective if they are at least 8 feet high. Chemical repellents are ineffective if they wash off in the rain or if deer get used to them (as they often do); deer can also get used to sound repellents. Birth control methods are ineffective and stressful to deer, making them sick (and illegal in Virginia). Reliance on predators in our area, such as coyotes and bobcats, is futile. However, organized hunting can be effective in controlling numbers of deer.

White-tailed deer herd in Arlington Forest parkland. Too many deer can reduce regeneration by oaks and other forest trees. Photo: Dan Brown.

Based on the April 2021 deer census, the county has an opportunity to assess the threat deer pose, in particular to our neighborhood parks, and take steps to control deer populations. Fairfax County, Montgomery County, and the national parks in our area all have successful deer management programs that Arlingtonians might learn from.

Recommendations

- The county should assess the scope of damage by deer to plants in our local parks and determine whether our local deer have exceeded the ecological carrying capacity of the land.
- The county should assess the impact of deer on the safety, health, and well-being of Arlington residents in view of the cultural carrying capacity of the land, including damage from deer browsing on private property.
- The county should make plans for managing deer populations within the biological, cultural, and ecological carrying capacities of the land.

Park Trails

Our neighborhood parks have many well-used trails. The paved W&OD Trail, the centerpiece of the greenway corridor along Four Mile Run, gets the heaviest use. In the vicinity of Arlington Forest, the trail follows the creek from Bluemont Park downstream through Glencarlyn Park to Sparrow Pond; both parks have additional paved and unpaved trails, including deer trails. The paved Bluemont Junction Trail leads northeast from the W&OD Trail toward Rosslyn and connects to a little-known unpaved trail through Mary Carlin Woods.

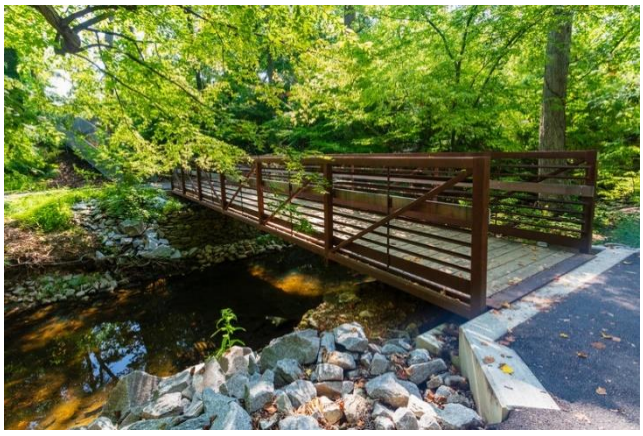
In Glencarlyn Park, a paved trail leads from the Long Branch Nature Center down to Four Mile Run, where it connects to the W&OD Trail through side trails and fords (low concrete bridges). By connecting with an unpaved trail near the Long Branch Nature Center, you can walk through old-growth forest down to the historical marker for Carlin Springs on Four Mile Run (but

you must cross a gulley with a damaged and unusable bridge). Lubber Run Park has a paved trail along Lubber Run paralleled by well-used unpaved trails on both sides of the creek.

The paved trails in our parks are used by pedestrians, joggers, skaters, and cyclists for both recreating and commuting. In our neighborhood survey, 96 percent of the respondents reported walking often or occasionally and 56 percent reported biking. Arlington Forest commends the county for its leading role in managing a popular and effective system of trails and bridges in our neighborhood parks, including signage for safety and for reducing user conflicts.

Some paved trails in our parks—especially the W&OD Trail—have become crowded on weekends and holidays, and we ask cyclists, dog walkers, and other users to show courtesy and respect for others on local multiple-use trails. Signs along the W&OD Trail ask cyclists to slow for pedestrians, but some do not, even when trail use is high. In 2017, NOVA Parks commissioned a study of the section of the W&OD Trail from Falls Church to North Carlin Springs Road. The study found user conflicts and safety issues. In response, NOVA Parks is planning on widening portions of the trail near Falls Church and building a dual-trail corridor, with a divider separating a bike trail from a pedestrian trail.

The county is considering extending dual-trail construction through Bluemont Park to improve



New bridge over Lubber Run, part of the Lubber Run Community Center reconstruction. Photo: Dan Brown.

Unpaved trail through forest in Lubber Run Park. Photo: Dan Brown.

safety and reduce user conflicts. The tradeoffs would include construction damage to natural areas, including loss of trees, and the expansion of impervious surfaces along Four Mile Run, a badly degraded stream. Moreover, a divided trail might encourage faster cycle speeds and less courtesy in sharing multiple-use facilities.

The trails in our neighborhood parks cross streams on foot bridges of two types. The low concrete fords are flood resistant but can clog up during storms; water can then pour over them for days or weeks at a time, rendering them all but unusable. Higher bridges made of wood and metal, though more reliable and attractive, have tended to wash out in floods. Less vulnerable are the bridges along the W&OD Trail, built on the sturdy elevated foundations of the W&OD Railroad.

The Lubber Run crossings are needed by residents to connect Greenbrier to Northside and to reach neighborhood schools, shops, playgrounds, and bus stops. In Lubber Run Park, the county replaced an unsafe metal bridge below 3rd Street North in May 2020 as part of renovating the Lubber Run Community Center. In July 2020, the county approved a 1-year Capital Improvement Plan containing funds for replacing metal bridges in Lubber Run and Glencarlyn Parks. We welcome county plans to rebuild the bridges.

The heavily used ford near the Lubber Run Amphitheater, clogged by flooding on July 8, 2019, remained inundated and all but unusable for

A flooded concrete ford over Lubber Run.
Photo: Dan Brown.

months. Although the county made temporary repairs, the ford has a long history of failures following even moderate storms; several storms in summer 2020 again left the ford flooded for days, as did overnight rains in spring and fall 2021. The county has an opportunity to repair or replace the ford once and for all, just as it replaced the failing upstream ford near the Lubber Run pavilion, elevating it above most high flows.

The well-used unpaved trail west of Lubber Run is in danger of being entirely washed out in its lower portions by future floods. Temporary repairs to the washed-out portions of the trail are unsustainable; although they survived flooding during storms in 2020–21, the repairs are in danger of being overwhelmed at any time by future floods. The county has an opportunity to move and rebuild the trail, although there are no obvious routes on the steep hillside and there might be environmental damage if the trail were moved uphill. In time, the trail might be rebuilt in connection with restoring the Lubber Run streambed to reconnect it to its floodplain.

The residents of Arlington Forest oppose any further paving of trails to keep from encouraging their use by cyclists and to slow the spread of impervious surfaces. We also oppose bike riding on unpaved trails because of user conflicts and safety issues: bike use on the unpaved trails in our area is unsafe for riders and pedestrians alike. People using the trails can get hit by bikers, who themselves are prone to injury from falls.

The county has opportunities for improving or closing unpaved trails in our local parks:

- ***Bluemont Park***—The park extends northeast from near the North Carlin Springs Road overpass along a brook that originates from storm sewers behind the Arlington Forest Club. The brook drains a 7-acre tract of forest designated in 2015 as Mary Carlin Woods. A poorly maintained trail in this little-known woodland leads northeast along the brook from North Kensington Road to North Harrison Street. The trail connects (albeit unclearly) to the paved Bluemont Junction Trail in the north; in the south, it comes out near a paved spur trail to the Bluemont Junction Trail and near an unpaved spur trail across North Carlin Springs Road leading to the W&OD Trail. The county has an opportunity to improve the trail to protect its fragile bottomland soils and to use signage to better connect it to nearby paved trails for a much nicer nature walk than along the paved trails alone.
- ***Bluemont and Glencarlyn Parks***—The trail through Mary Carlin Woods has a side trail created by mountain bikers, who have built jumps into the area near the brook, tearing up the bottomland soils. Bikers also use an extension trail across North Carlin Springs Road along the north bank of Four Mile Run below Greenbrier, creating jumps and turns and thereby tearing up soils while placing

A black-throated blue warbler in Lubber Run Park.
Photo: David Howell.

A fox kit in Mary Carlin Woods, curious about a blue jay's call. Photo: David Howell.

themselves at risk of serious injury in a fall. This trail traverses a seasonal wetland near the ford over Four Mile Run below North Greenbrier Street; the wetland deserves special protection for its rare wildlife habitat. Signs are posted on both trails forbidding bike use, and the county could impose fines for violations. The county also has an opportunity to reclaim both trails by positioning downed trees and branches to discourage use.

- ***Glencarlyn Park***—The county has an opportunity to repair the bridge over the gulley next to the historical sign for Carlin Springs, part of the unpaved trail through old-growth forest on the slopes below Glencarlyn. In addition, a potential new trail (now a deer trail) could connect Lubber Run Park across Arlington Boulevard to Glencarlyn Park by following Lubber Run from the south end of its culvert under Arlington Boulevard to its confluence with Four Mile Run. Deer trails crisscross the little-used area, which has historical significance: in the late 19th century, the two streams joined to form a deep pool, a swimming hole that served the historic amusement park at Carlin Springs. An unpaved trail built from the service road on Arlington Boulevard down to the confluence of Lubber Run and Four Mile Run might connect by ford or bridge to the maintained unpaved trail that currently leads from the old swimming hole up to the W&OD Trail. A historical marker could explain the swimming hole as a centerpiece of the old amusement park.

Recommendations

- The county should repair or replace, in a way that is effective and sustainable in an era of changing climates and worsening storms:
  - the washed-out unpaved trail below Greenbrier in Lubber Run Park;
  - bridges in Lubber Run Park and Glencarlyn Park (plans are in place), including the damaged footbridge over the gulley by the old Carlin Springs; and
  - the unreliable ford near the amphitheater in Lubber Run Park.
- The county should take vigorous steps to keep mountain bikers from creating unpaved trails, which are dangerous and damaging to the environment.

Playgrounds and Other Facilities

In addition to trails, the parks near Arlington Forest have multiple playgrounds and other facilities for recreational use. The playground in Glencarlyn Park across from Southside was recently renovated through Arlington's Neighborhood Conservation Program. Through the same program, the county renovated the Edison Park playground, a half-acre site on North Edison Street in Greenbrier adjacent to Lubber Run Park. Bluemont Park has a large wooded playground, and the Lubber Run Community Center has a well-used new playground. Many Arlington Forest residents also use the playground facilities at Barrett Elementary School, across North Park Drive from the Lubber Run Community Center.

An eastern box turtle on a playground paver in Edison Park, adjacent to Lubber Run Park. Photo: David Howell.

Next to its playground, Bluemont Park has a wooded frisbee course that is popular and well maintained. The park also has grass fields for sports, along with baseball diamonds and tennis courts. Across the W&OD Trail in Bluemont Junction Park, a soccer field is available for use by teams and leagues in the area.

Lubber Run Park has a pavilion with picnic tables and a separate picnic area with a fire ring, along with another picnic area downstream. Glencarlyn Park has two pavilions with parking lots and picnic facilities, including one that the county renovated in 2019, in part to make it more accessible for people with disabilities. Bluemont Park has a parking lot and a pavilion with picnic facilities near its wooded playground. Most recreational facilities in our neighborhood parks are accessible to people with disabilities.

Glencarlyn Dog Park

Glencarlyn Park has a designated area for dogs (the Glencarlyn Dog Park) just south of the confluence of Long Branch with Four Mile Run. The dog park boundaries are well marked by signs that explain the rules for its use, and it gets plenty of traffic. In our neighborhood survey, almost a third of the respondents indicated having used the Glencarlyn Dog Park often (13 percent) or occasionally (18 percent), and a significant minority (20 percent) would like to see another dog park in Arlington Forest or nearby.

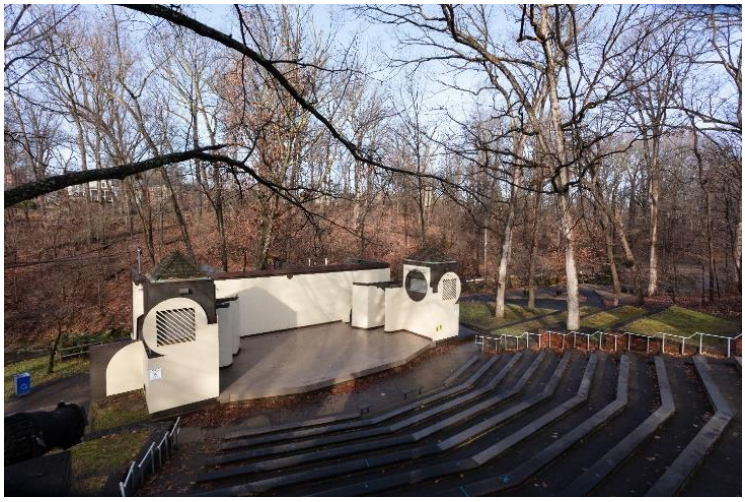
The Glencarlyn Dog Park was partially washed out by the flooding on July 8, 2019; streams naturally change course on their floodplains, and Long Branch appears to be changing course through the dog park, although the dogs don't mind and the park remains well used. The residents of Arlington Forest commend the county for meeting a community need by establishing and maintaining an effective and popular dog park.

Lubber Run Amphitheater

The Lubber Run Amphitheater occupies about an acre of Lubber Run Park at the intersection of 2nd Street North and North Columbus Street in Northside. The outdoor facility is used by Arlington Cultural Affairs to stage free open-air productions in summer. The amphitheater has a parking lot and bench seating for about 300, with additional space for lawn chairs and blankets.

Inaugurated in 1969, the facility was initially opposed by AFCA for fear of increased traffic and noise, but the performances became popular with residents. In 2009, the county closed the amphitheater to performances because the stage was no longer deemed safe and other repairs were also urgently needed. The county considered permanently closing the amphitheater because of the expense of bringing the facility into compliance with the Americans With Disabilities Act and other requirements. However, Arlington Forest and other neighborhoods rallied support for the amphitheater, saving it through a successful partnership with the county.

The amphitheater celebrated its 50th anniversary in 2019, and Arlington Forest remains proud to host its free outdoor entertainment, enjoyed by large majorities in our neighborhood: more than nine-tenths (92 percent) of our survey respondents reported using the amphitheater at least occasionally. The popular performances are conducted in a manner that minimizes inconvenience to the neighborhood (through early closing times and a sensible volume of music). We commend the



The Lubber Run Amphitheater. Photo: Dan Brown.

county for sponsoring consistently good entertainment in a way that is sensitive to community needs.

The amphitheater is a key part of what residents like about living in Arlington Forest, and a community goal is to preserve it as an arts venue, working with the county to keep lively entertainment going throughout each summer. The facility needs upgrades to replace retaining walls, and the county has an obligation to perform the maintenance needed to keep the amphitheater in good condition. As part of the work, the county has an opportunity to install stormwater retrofits onsite, as proposed in its 2013 Stormwater Retrofit Study.

Recommendations

- The community strongly supports the ongoing use of the Lubber Run Amphitheater for summer entertainment programs.
- The county should complete upgrades to the facility by replacing retaining walls and anything else needed to keep the amphitheater in good condition.
- The county should work with AFCA to explore the feasibility of stormwater retrofit projects for the site, including those proposed in the 2013 Stormwater Retrofit Study.

Long Branch Nature Center

The Long Branch Nature Center in Glencarlyn Park, with a parking lot and an access road from South Carlin Springs Road, opened in 1972. The center has a small one-story building featuring live animal displays, a children's Discovery Room, a meeting room for up to 40 people, and exhibits of local wildlife and geology. Outside its doors, the center maintains interpretive gardens, a year-round viewing pond, a small outdoor amphitheater, and space for birthday parties and nature-based programs.

County staff use the facilities for hosting programs and special events, including story times, campfires, nature walks, and invasive plant removals. The staff also maintains ponds and other habitat for native wildlife in the parks. Local clubs and programs use the Long Branch Nature Center for meetings, presentations, and classroom space, including space for the Arlington Regional Master Naturalist program. The Arlington County stream monitoring program stores equipment there. Geology, birdwatching, and other nature walks often start at the center because of its excellent access to the parks.

The residents of Arlington Forest commend the county for maintaining the Long Branch Nature Center and its programs for people of all ages. Three-quarters of the respondents to our neighborhood survey (75 percent) reported using the center at least occasionally. We hope that the center will continue its educational and recreational offerings as well as its support for parkland stewardship activities on behalf of the surrounding communities.

Park Maintenance

The parks contain splendid natural areas as well as developed spaces such as playgrounds and picnic areas. Bluemont Park also contains large grass fields and other sports facilities. The residents of Arlington Forest commend the county for managing the parks for so many benefits, including their natural beauty and ecological integrity. We also commend the county for the variety of recreational facilities available in the parks.

However, many respondents to our neighborhood survey registered concern about park maintenance. Less than half (47 percent) expressed satisfaction and more than one in five (21 percent) were dissatisfied with park maintenance, perhaps reflecting the aftermath of heavy flooding in summer 2019. Eighty-nine percent reported that long delays in replacing washed-out bridges were a threat to user enjoyment of our neighborhood parks.

On July 8, 2019, a severe storm brought torrential rains to Arlington. More than 3 inches of rain fell in an hour, equaling the county's average annual precipitation for the entire month of July, with rainfall intensity reaching 7 to 9 inches per hour at times. Partly because Arlington has impervious surfaces on about 43 percent of its land area, much of the rainfall poured into streets, basements, and storm sewers. Stormwater runoff turned our neighborhood creeks into raging torrents, flooding neighborhood parks, toppling trees, and washing out trails and bridges. Heavy stormwater runoff overwhelmed storm drains at the foot of 3rd Street North and opened a new gulley at the edge of Lubber Run Park, threatening the unpaved trail east of Lubber Run.

Erosion scars (top) along a popular unpaved trail in Lubber Run Park. Makeshift repairs (bottom) are vulnerable to a major storm. Photos: Hutch Brown.

Foundations of a washed-out bridge in Lubber Run Park. Photo: Dan Brown.

The toppled trees were soon removed and the trails were cleared of sand and silt, but much damage remained. In Glencarlyn Park, two metal bridges over Four Mile Run were destroyed. In Lubber Run Park, two of the three metal bridges over Lubber Run were entirely washed out, and the third remained unsafe and unusable. The storm blocked up one of the two fords—low concrete bridges—over Lubber Run, so that only one of the five crossings over Lubber Run remained fully functional. Lower sections of a popular unpaved trail west of Lubber Run were also washed out, as were improvements by a Boy Scout project to the well-used unpaved trail east of Lubber Run. The county did not begin to repair much of the damage for months.

Historically, the probability of storms as severe as the July 8, 2019, flood has been low—less than 1 percent in any given year. But warming temperatures associated with climate change will likely increase the probability of severe storms. In our neighborhood survey, 79 percent of the respondents expressed concern about the changing climate and unusual weather patterns. We urge the county to gear up for maintaining and repairing

park facilities at a time of growing threats from severe weather events. That includes renovating and improving trails, bridges, playgrounds, picnic areas, and other facilities to withstand increasingly severe storms and floods.

Through Boy Scout projects in Lubber Run Park, the community has worked with the county to maintain and improve our local unpaved trails. The county has an opportunity to work with AFCA and other citizens associations in our area to find ways to collectively contribute ideas and resources for improving and better maintaining our park infrastructure at a time of growing challenges associated with climate change. That includes ideas for expanding neighborhood buffers from the effects of severe storms, such as stormwater management measures.

In particular, the county has an opportunity to work with AFCA to develop a long-term master plan for Lubber Run Park to protect the park's assets. The plan could be used in the county's budgeting and prioritization processes for stormwater management, including implementation of the county's Stormwater Retrofit Study in 2013. The plan might include a stream restoration project for Lubber Run when conditions are right.

Arlington Forest neighbors have a proven record of pitching in to help maintain our local public lands. Since 2008, a group in Greenbrier has conducted semiannual trash cleanups along Four Mile Run north of the Arlington Boulevard overpass. The cleanup events turn out about two dozen participants spending 90 minutes each. Similarly, Southside neighbors have cleaned up the buffer strip between Arlington Boulevard and the Southside service road once a year at least since 2010, turning out about two dozen participants spending 60 minutes each on average. In addition, volunteers from Northside tend the plants in the traffic circles on 2nd Street North.

From 2001 to 2005, Paul Kovenock of Greenbrier mobilized neighbors to pull invasive weeds in Lubber Run Park (see his article in appendix B), leading to a 5-year grant from the Neighborhood Conservation Program to restore the park.

A crew of Arlington Foresters following a spring 2020 cleanup along Four Mile Run in Bluemont Park. Photo: John Naland.

Volunteer English ivy pulls took place on 5 days during this period; a total of 130 volunteers turned out. In followup actions in 2006 and 2011, volunteers encouraged neighbors to control English ivy in their yards and publicized the Lubber Run Park cleanup in an event sponsored by the Arlington Regional Master Naturalists.

In 2014, an anonymous donor established a trust fund at the Arlington Community Foundation to reimburse Arlington County for future invasive plant removal costs by a contractor in Lubber Run Park. Arlington Forest resident Jim Graham walks the park's boundary each spring and reports signs of invasive plants spreading from neighbor' backyards.

Recommendations

- The county should join AFCA and other neighborhoods in strategizing on how to respond to vulnerabilities of park infrastructure to severe weather events and what we can do together to mitigate the threat, such as repositioning and "hardening" the infrastructure.

Neighborhood Trees

The mature trees that give character to the streets of Arlington Forest are, in some respects, an extension of adjacent parkland. The developer of Arlington Forest left many trees standing and planted new ones, giving our neighborhood its

A barred owl in Arlington Forest. Photo: David Howell.

name. The trees are part of our neighborhood identity and a visually appealing backdrop to our community. Neighbors devote time and resources to tending their own trees as well as the trees and other vegetation on Northside traffic circles and on the buffer strips along Arlington Boulevard.

Tree Benefits

The neighborhood trees in Arlington Forest are mostly hardwoods native to Arlington, including oaks, maples, hickories, sweetbay, tuliptree, sweetgum, American sycamore, dogwood, redbud, river birch, serviceberry, and more. Pines, American holly, southern magnolia, and other evergreens are mixed in, along with exotic ornamentals such as zelkova, deodar cedar, crepe myrtle, and saucer magnolia.

Trees of all types confer benefits. Trees produce oxygen, store carbon, purify the air, soak up stormwater, reduce air temperatures in summer, and create habitat year round for birds, bats, squirrels, and other wildlife. Native trees in particular furnish critical habitats for native insects, birds, and mammals.

Environmental benefits from trees have economic and social value as well. In its Urban Forest Master Plan, Arlington County estimated that its trees furnish values worth more than $1.8 million in air pollution control and more than $6.8 million in stormwater control each year. Healthy mature trees can add up to 10 percent to residential property values. Leafy neighborhoods correlate with stronger communities, higher property values, and lower levels of stress and crime.

Arlington Forest has many large old trees, with diameter sizes of 2 feet or more. At least one neighbor has a large tree (an eastern redcedar) on the county list of designated Notable Trees of Arlington. Until recently, the neighborhood featured another Notable Tree of Arlington: a large American holly in the shopping center circle on North Park Drive. The holly, a longstanding neighborhood symbol, was damaged and dying, so the neighborhood replaced it in 2018 with a young scarlet oak, a common and attractive native upland tree.

Arlington Forest commends the county for raising community awareness of neighborhood trees through its Notable Trees program. We also appreciate the availability of support and advice from volunteer programs such as Tree Stewards and Master Gardeners. We urge the county and AFCA to help give these programs the public visibility and support they deserve.

Tree Cover

Arlington County has set a goal of 40 percent urban forest cover overall. The county has met the goal: a tree cover study for Arlington from 2017 showed an overall urban forest cover of 41 percent (excluding the airport and federal lands). Arlington Forest had an urban forest cover of 62 percent, one of the highest in the county, thanks to our nearby nature parks. The neighborhood's estimated urban tree cover potential was even higher—76 percent—so residents have room to grow more trees.

Conditions are not ideal for trees in Arlington Forest. Urban trees are under stress from soil compaction, damage from machinery, competition with lawn grass, and other adverse conditions, giving them less resilience and shorter average lifespans than trees in natural areas. The small property sizes in Arlington Forest, along with the presence of backyard wires and the ongoing expansion of homes, also limit the space needed for large trees. Some of our aging oaks, maples, and other large trees are in visible decline, in part due to poor growing conditions across our urban landscape.

Stress from changing climates and unusual weather patterns also figures in. Most sycamores lost their leaves in spring 2020 due to anthracnose, a fungus stimulated by unusually cool and wet spring weather. The condition is not fatal, and the sycamores leafed out again by summer. A prolonged summer drought in 2019 caused dieback or outright mortality in many oaks across northern Virginia, especially in upland urban neighborhoods like ours. The dieback initiated a period of regional "oak decline" associated with unusually strong storms and long droughts, which combined to place many urban trees under additional stress, particularly trees in the white oak family (such as white oak and chestnut oak). Oak decline remains visible in trees along our streets and in our local parks, especially in Arlington Forest Park, where more than a dozen large oaks have died.

Tree decline and mortality, along with fear of falling branches, have led many neighbors to remove large trees from their properties. Many have replaced the trees, if at all, with understory trees such as dogwoods and redbuds. In our neighborhood survey, 20 percent of the respondents reported a large tree dying on their property within the previous year, and 50 percent reported removing a large tree within the previous 10 years, with only half having replaced the tree. From 2008 to 2016, Arlington Forest had a net tree cover loss of 1 percent.

From 2011 to 2016, however, our neighborhood reversed the loss, adding about 4 percent to our overall tree cover. The fluctuating rate of tree removal and replacement in Arlington Forest indicates a willingness among many homeowners to replace trees or plant new ones. Our neighborhood has the potential to expand our urban tree cover, if not always with large shade trees.

A downy woodpecker feeding chicks in a tree cavity in Arlington Forest. Photo: David Howell.

Tree Planting Opportunities

The county has opportunities to work with the neighborhood to get more homeowners in Arlington Forest to plant trees. Through its Tree Distribution Program, Arlington County offers free native trees to residents for planting on their properties. For its part, AFCA encourages homeowners to replace canopy trees and add new ones through a neighborhood tree grant program that covers part of the cost. Arlington County also has a Tree Canopy Fund administered by EcoAction Arlington, which plants trees for willing homeowners at no cost. More than half of the respondents to our neighborhood survey said that they would take advantage of such programs if they qualified. AFCA and the county have an opportunity to work

together to better coordinate and publicize their tree programs in our neighborhood, perhaps with help from the Tree Stewards.

The tree cover in our neighborhood parks appears to be stable. Natural cycles of tree mortality and regeneration are predictable; oak decline in Arlington Forest Park, for example, is being offset by natural recruitment of seedlings and saplings, many of them oaks. The county has also planted trees in the few large canopy gaps in our neighborhood parks, such as at the south end of Lubber Run Park. The trees removed during reconstruction of the Lubber Run Community Center were replaced in large numbers as the site was replanted.

Our neighborhood street tree cover also appears to be stable. Some survey respondents reported that street trees on sidewalk strips and on the buffer strips along Arlington Boulevard sometimes died without being replaced. However, the vast majority of survey respondents (80 percent) noticed no street trees on county land that were removed and not replaced.

The two churches adjacent to our neighborhood, the Arlington Forest United Methodist Church and the Arlington Assembly of God, have large properties with room for more trees. In the 1940s, according to a homeowner at the time, the same areas were becoming wooded, with residents going there to cut Christmas trees (presumably young pines). The county, working with the churches and with support from EcoAction Arlington and the Tree Stewards, might have an opportunity to plant more canopy trees on church grounds, perhaps in conjunction with watershed retrofits to capture stormwater runoff from the sites.

The trees in Arlington Forest, whether on public or on private land, are a collective community resource that is a source of pride and comfort to residents. Our neighborhood has an aesthetic, environmental, historical, and economic interest in working with the county to sustain and enhance the parklike nature of Arlington Forest.

Recommendations

- Neighbors should take advantage of county and AFCA programs for replacing canopy trees and planting new ones, possibly with help from the Tree Stewards program.
- The county should continue its policies of replacing street trees that have died or been removed and filling canopy gaps in our neighborhood parks.

Neighborhood Beautification

Arlington Forest takes pride in the natural beauty of our local parks and our neighborhood trees. We want people to know about our neighborhood, and we want to beautify our community in every way we can.

Neighborhood Identification Signs

Neighborhood identification signs are a source of community pride, telling people what neighborhood they are passing by or through. Arlington Forest has four attractive neighborhood signs, the maximum number that the county will pay to install in a neighborhood. AFCA is responsible for trimming vegetation around the signs and for repainting signposts or supports if needed.

Designed by Northside's Larry Bowring, the signs were installed in 1992–93 through a project proposed in the 1991 Arlington Forest Neighborhood Conservation Plan and funded by the county's Neighborhood Conservation Program. The signs

Photo: Dan Brown.

are located in Greenbrier on North Carlin Springs Road just north of Arlington Boulevard; in Southside at the intersection of Arlington Boulevard and South Park Drive; and in Northside at both ends of North Park Drive.

High-Tension Powerlines

The high-tension powerlines along the W&OD Trail detract from the greenway's natural beauty for both park users and adjacent homeowners. Although the poles are on property under the jurisdiction of NOVA Parks in collaboration with Dominion Energy, they affect neighboring homeowners and visitors who come to enjoy the natural landscapes of the parks. Chipped paint on some of the poles suggests a possible need for scheduled repainting soon. The neighborhood would like the visual intrusion of the poles to be mitigated by painting them a color (currently battleship gray) that would blend in more with their forested backdrop.

Recommendations

- The county should join the neighborhood in requesting that the power poles between Columbia Pike and North Carlin Springs Road (where they are located in a wooded valley against a backdrop of trees higher than the poles themselves) be repainted in a more natural color that blends in with the surrounding trees.

Utility Lines Undergrounding

The developer of Arlington Forest was the first in the county to improve the appearance of the community by installing powerlines behind houses rather than on streets. However, powerlines were placed along some neighborhood streets, detracting from the beauty of the trees. Moreover, the placement of powerlines behind homes has made access much more difficult for maintenance and repair. The problems are worst on streets adjacent to parkland, where fallen trees on steep slopes have caused lengthy power outages and delayed repairs.

A transformer for underground powerlines in Southside, a reminder that undergrounding is possible. Photo: Dan Brown.

For example, Southside has experienced prolonged power outages, especially for property owners along Arlington Forest Branch, which extends from a culvert under Arlington Boulevard at South Aberdeen Street to Sparrow Pond and Four Mile Run. Neighbors have reported outages from severe storms as well as fallen trees and branches due to stream erosion and possibly oak decline or aging trees. Some outages have lasted for more than a week, and residents have observed that this part of the neighborhood seems to be last in the county for powerline repairs. Repair crews, unable to use trucks to reach the area behind the homes where the powerlines are located, must carry in all tools, materials, and equipment. As a result, many homeowners rely on costly generators for reliable power.

The county has an opportunity to place all overhead utility lines in Arlington Forest underground. If funding and other limitations prevent powerline undergrounding for the entire community, then the county might do it just for the areas most at risk from lengthy blackouts—the powerlines in our neighborhood parks, especially along Arlington Forest Branch.

On streets where utility lines are located in front of homes, the yearly pruning of trees to keep branches away from the wires is aesthetically displeasing. There are attractive areas in the metropolitan region, including in Arlington, where street trees are pruned around wires and allowed

to grow in a normal and pleasing manner. Similar pruning skills should be applied throughout the county.

Recommendations

- The county should work with Dominion Energy to move powerlines on steep hillsides in Arlington Forest to adjacent streets and replace them with underground wiring.
- Where powerlines are along streets in Arlington Forest, the county should work with Dominion Energy to place them underground.

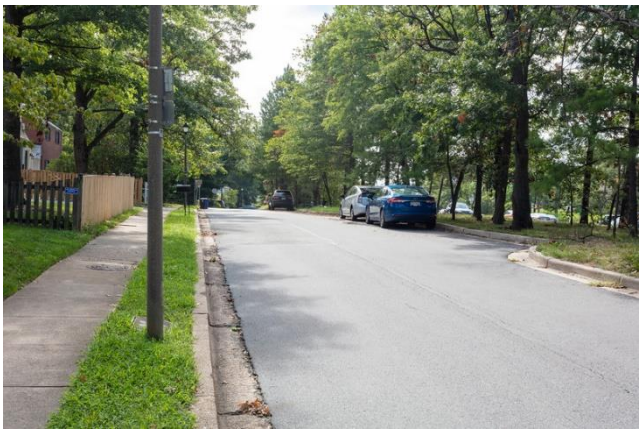
Arlington Boulevard Buffer Strips

The buffer strips between Arlington Boulevard and the parallel service roads for Arlington Forest, though zoned the same as adjacent Arlington Forest Park (S–3A, Special District), are managed quite differently. The county manages the park as a natural resource conservation area for the remnant native plant community known as dry gravel cap–xeric oak/poverty oatgrass glade. By contrast, some buffer strips are used for residential parking and most are infested with invasive species.

A geologic map of Arlington County shows the area where Arlington Boulevard crosses Lubber Run as "artificial fill" (amorphous soils used for construction). In the 1930s, roadbuilders used artificial fill to bury Lubber Run in a culvert and build Arlington Boulevard over it. In the process, they left berms and roadcuts, including the slopes and buffer strips on Arlington Boulevard adjacent to the Lubber Run overpass.

The slopes and most buffer strips are now thinly wooded. The intent seems to be to hold soils in place while maintaining pleasant forest screens that shield the neighborhood both visually and audially from a busy thoroughfare. Unfortunately, the trees tend to be small and scraggly in the poor soils and limited space, and the wooded strips are infested with invasive plants.

The vegetation is a random blend of pioneer trees (early colonizers of open space, such as Virginia pine, eastern redcedar, and black locust); planted



Southside buffer strip and service road with parking for residents. Photo: Dan Brown.

conifers, such as pines and northern whitecedar; native oaks that tolerate stressful conditions, such as white oak and pin oak; and invasive shrubs and vines, including bush honeysuckle, English ivy, and Japanese honeysuckle. In some places, neighbors have planted ornamental nonnative vegetation to improve the appearance of the strips. However, native and invasive plants prevail.

The same random mix, joined by kudzu, Japanese knotweed, and a panoply of additional invasive plants, extends along the embankment west of Lubber Run between Arlington Boulevard and Southside and along the steep slope separating Greenbrier from Arlington Boulevard. The slope below Greenbrier appears to be managed for any vegetation that will hold the soils in place; Japanese honeysuckle is rampant, and English ivy encircles the trunks of many trees. None of the slopes or wooded buffer strips show beauty or ecological integrity.

One buffer strip is open rather than wooded. The Northside buffer strip over Lubber Run features a storm drain and lawn grass. It resembles the buffer strips separating Arlington Boulevard from the service road to North Henderson Road (next to the two church properties), where the vegetation is lawn grass with a few trees. All might be good candidates for watershed retrofits, such as bioswales planted with native vegetation.

The service roads are so narrow that residents in both Northside and (in the past) Southside have

used the buffer strips for parking, even though the strips are zoned as public land. Parking cars on the buffer strips has suppressed vegetation and compacted soils, degrading conditions for trees and other plants.

In Southside, through a project funded by the Neighborhood Conservation Program, the county widened the service road and installed curbs along the buffer strips. Completed in 1998, the project created parking spaces for residents while keeping people from using the strips for parking. Arlington Forest commends the county for a successful rehabilitation project, which has left the buffer strips in better condition in Southside than in Northside.

Between North Park Drive and North Henderson Road, residents continue to use the buffer strip for parking. The county has an opportunity to protect the strip in Northside in the same way as in Southside by widening the service road for parking and installing curbs. In our neighborhood survey, a majority (53 percent) expressed support for such a project.

On both sides of Arlington Boulevard, the buffer strips might have originally been extensions of the rare oak–grass ecosystem at Arlington Forest Park. The neighborhood might have an opportunity to have some or all of the buffer strips managed for the same native ecosystem. The tradeoff would be less screening, but it is not clear that the buffer strips are wide enough and the soils suitable enough to sustain effective and attractive forest screens.

Recommendation

- The county should conduct a joint study with AFCA and the Virginia Department of Transportation (which owns and manages the buffer strips) to investigate ways to improve the appearance as well as the ecological and watershed functions of the Arlington Boulevard buffer strips. Issues of beautification, noise abatement, stormwater management, and residential parking should be considered; residents most affected should be included in the process. In the interim, the county should identify areas where maintenance is required to control invasive plants and prevent further deterioration of trees.

Other Public Facilities and Services

Arlington County has a reputation for high-quality schools and parks, and the residents of Arlington Forest are generally satisfied with Arlington's schools and other public facilities and services. For most facilities and services, the rate of satisfaction in our neighborhood survey was 60 percent or higher and the rate of dissatisfaction negligible (in the single digits). A countywide survey in 2018, with participation by residents of Arlington Forest, found similarly high rates of satisfaction with the quality of county services (88 percent) and with the overall quality of life in Arlington (86 percent).

Arlington Forest appreciates the outstanding service by our public employees in Arlington County, including our teachers, librarians, park managers, police and other first responders, and everyone else. Some of them live in our neighborhood and count as our highly valued neighbors. We especially value their ongoing dedication and service during the coronavirus pandemic.

Schools

Most Arlington Forest children attend our local public schools. Elementary school children are zoned to Barcroft Elementary School (for Southside) and Barrett (for Greenbrier and Northside). Older children and teenagers are zoned to Kenmore Middle School (for grades 6 to 9) and to two different schools for grades 10 to 12: Wakefield High School (for Southside) and Washington–Liberty High School (for Greenbrier and Northside). Other school choices are also available in Arlington, including Arlington Traditional School, H–B Woodlawn Secondary Program, Key Elementary School, and more.

Barrett is located in Arlington Forest. Barcroft is in the adjoining community of Barcroft, and Kenmore is in Glencarlyn on South Carlin Springs Road; both are within walking or biking distance from Arlington Forest. Washington–Liberty is off

Barcroft Elementary School. Photo: Samantha Bell.

North Quincy Road near the Arlington Central Library, and Wakefield is on South George Mason Drive between Four Mile Run Drive and Leesburg Pike. All five schools offer busing to and from school. The residents of Arlington Forest are generally happy with our school choices, and we generally support the principle of zoning our local school children to attend our local schools. In our neighborhood survey, many mentioned good schools as one of the things they value most about living in Arlington Forest; 60 percent expressed satisfaction with our local schools, and only 7 percent were dissatisfied. General satisfaction applies to the whole range of schools chosen by Arlington Forest parents.

Discussing the whole range of schools chosen by Arlington Forest parents is beyond the scope of this neighborhood conservation plan. This plan focuses on the two elementary schools zoned to our neighborhood, which serve the overwhelming majority of our elementary school children and their parents. As focal points for most Arlington Forest families, our two local elementary schools help to shape the character of our community.

Barcroft Elementary School

A four-room red brick schoolhouse, the core of today's Barcroft Elementary School opened its doors in 1925 on South Wakefield Street in Barcroft. Located on a 5-acre site, the school gradually expanded, adding rooms and facilities from 1945 to 1987 to accommodate a growing student body. School enrollment has fluctuated since the 1990s but has averaged well over 400 students, about where it stands today.

The school serves children from kindergarten through 5th grade. The facilities, all in good repair, include a gym and plenty of playground space for children of various ages and abilities. The school is fully compliant with the Americans With Disabilities Act.

Barrett Elementary School

Located on the corner of North George Mason and North Henderson Drives, Barrett serves children from prekindergarten through 5th grade. Constructed in 1939, the original red brick schoolhouse was greatly expanded in the early 1990s with a modern addition, partly to make the school fully compliant with the Americans With Disabilities Act.

The site is large, about 4 acres in size, with plenty of playground space and facilities for children of multiple ages and abilities. The outdoor areas include well-tended gardens and trees for learning and enjoyment. Some garden areas are integrated into the school curricula.

School enrollment has risen in recent decades, from just over 300 students in 1990 to more than 550 students today. With the growth of school enrollment in the late 2000s, the school placed a temporary structure with several classrooms onto the playground in its rear.

The county has an opportunity to work with Arlington Public Schools to find the funding needed to replace the temporary classrooms with permanent additions to the original structure. The temporary classrooms, which have been in place for about 10 years, indicate overcrowding. The failure to fully accommodate the students zoned to Barrett in the school's permanent facilities is partly why so many residents of Arlington Forest oppose increased housing density in our neighborhood, which would only worsen school overcrowding.

Libraries

The Arlington Public Library serves Arlington Forest through a central building located on North Quincy Street in Ballston and eight branch libraries in various locations around the county. The residents of Arlington Forest are happy with our public library services, with 86 percent expressing satisfaction in our neighborhood survey.

Some residents of Arlington Forest use the nearest branch library, a small facility in the neighboring community of Glencarlyn. Established in the late 19th century, the Glencarlyn facility was Arlington's first library. Most neighbors use the more extensive resources of the central library. The large two-story brick building is within walking or biking distance of Arlington Forest and less than 10 minutes away by car. Users can find plenty of parking in lots on the edge of Quincy Park or in the underground garage.

Ramps and elevators make the building wheelchair accessible. The library also has services for the visually and hearing impaired, including audiobooks and books in large print. Interlibrary borrowing services are available. The library catalogue is online, with plenty of terminals and self-checkout as well as online borrowing. Collections for children and teens are available, as is a collection of videos for children. The library has plenty of tables and chairs, including comfortable sitting areas and areas where students can work with tutors. Rooms and an auditorium are available for meetings and events by community groups.

The Arlington Public Library supports the Little Free Library Project, a free book-sharing service. Several residents of Arlington Forest have set up boxes along sidewalks where neighbors can donate and borrow books on the honor system.

Public Safety

Police reports and online community networks suggest that instances of crime and numbers of arrests and traffic tickets are low in Arlington Forest. Thefts (such as automobile break-ins) and vandalism are sometimes reported, but Arlington Forest is a relatively safe neighborhood. In our neighborhood survey, 91 percent of the respondents did not regard crime as a problem on their own streets, and 77 percent did not see crime as a problem anywhere in Arlington Forest.

However, the perception of crime in neighborhood parks is high, with 69 percent of the survey respondents viewing crime and 67 percent viewing vandalism as a threat to user enjoyment. The Arlington Forest Neighborhood Conservation Plan from 1991 noted "generic problems facing urban parks" such as "excessive noise, vandalism, and the proliferation of graffiti." Memories of past problems and ingrained beliefs about urban parks might influence perceptions today.

Satisfaction with law enforcement activity in Arlington Forest is high. In a 2018 countywide survey, 85 percent of the respondents indicated overall satisfaction with the quality of police services in Arlington. In our neighborhood survey, 71 percent expressed satisfaction with the police and dissatisfaction was negligible (1 percent).

Satisfaction with fire and ambulance services is equally high. A fire station on Wilson Boulevard is only minutes away from our neighborhood. Fire Station 2 service the community with a fire engine, heavy rescue squad, and medic unit. The Virginia Hospital Center on North George Mason Drive is very close, with very short transit times for patients. In our neighborhood survey, 70 percent of the respondents expressed satisfaction with fire and ambulance services, with no dissatisfaction reported.

Arlington Forest thanks and commends our police and other first responders in Arlington County for serving our community so well, especially during a pandemic.

Other County Services

The residents of Arlington Forest appreciate the trash, water, and sewer services we get from the county for their quality and reliability. We also appreciate the county's system for picking up and removing bulk items for homeowners. Most residents of Arlington Forest participate in the

county's programs for recycling and for yard waste and autumn leaf removal, and some take advantage of the county's inexpensive mulch delivery service. In our neighborhood survey, large majorities were satisfied with the county's water and sewer services (73 percent), trash pickup (87 percent), and curbside recycling (77 percent).

However, large majorities (69–81 percent) reported improper disposal of garbage as a threat to the health, beauty, and enjoyment of our neighborhood parks, and trash is often evident in and along our neighborhood creeks. The source appears to be street litter rather than illegal dumping or problems with trash pickup. Arlington Forest encourages the county to increase rates of street sweeping as funding permits, and we endorse programs such as Adopt-a-Street, which encourages Arlington residents to remove street litter as a civic service. In response to the litter in our neighborhood streams, we pledge to continue our periodic stream cleanups.

Social Services

Arlington County offers an array of social services for the disabled, the elderly, and those of limited financial means. Arlington Forest salutes the county for the extent and variety of its social services, including subsidized housing for low-income families. Some residents of our community or their relatives take advantage of services related to childcare, elder care, or those with disabilities, including food and transportation services. In particular, we appreciate the county's support for residents who want to age in place.

Arlington Forest commends the county for its commitment to serving residents of all ages, abilities, and financial means. We urge the county to continue and expand its social services to meet the needs of all county residents.

Commercial/Business Areas

Commercial and business areas within Arlington Forest comprise the permanent year-round Arlington Forest Shopping Center and the summer Lubber Run Farmers Market.

Arlington Forest Shopping Center

The Arlington Forest Shopping Center is a small strip shopping mall at 4801–4831 1st Street North, situated near the Park Drive entrance to Northside. The shopping center was built in the 1940s (in three phases: 1941, 1946, and 1947) at the same time as many of the homes in the neighborhood; it was designed to blend in with the neighborhood's architectural and residential nature. The one-story structure, served by a surface parking lot, is one of the National Capital Area's first strip malls. As the Neighborhood Conservation Program recognizes, it is beneficial to preserve and revitalize such neighborhood retail areas throughout Arlington.

The county-designated land use for the shopping center is "Service Commercial." This designation includes permitted uses to serve residential neighborhoods, such as food services, retail stores, childcare, healthcare, rentals, office space, personal services, vehicle maintenance, and more.

Types of Businesses

The shopping center remained open and fully used by businesses throughout the 2020–21 global coronavirus pandemic. Merchants in the shopping center include:

- Brooke Rental Center, which rents all kinds of equipment for business and residential use, such as carpet cleaners;
- Outback Steakhouse, a restaurant;
- Crystal Thai, a restaurant;
- Fashion Nails, a nail salon;
- Full Motion Life & Sport, a chiropractor;
- New Forest Valet, a dry cleaner;
- DA Studio Salon, a hair salon;
- Brick's Pizza, a takeout restaurant;
- Sense of Place, a coffee shop and wine bar;
- DaVita Arlington Dialysis, a medical facility; and

The Arlington Forest Shopping Center features a range of businesses. Photo: Dan Brown.

- Mathnasium, a tutoring center for school children.

Conditions

Arlington Forest commends the owners for their maintenance of the shopping center and for keeping it well occupied. Although the businesses there faced challenges during the pandemic, all remained in operation. The merchants agreed that the single best thing that the neighborhood and Arlington County can do for them is to support their businesses.

Relationship With Residential Areas

The merchants in the shopping center maintain excellent, mutually supportive relationships with Arlington Forest. For example, several merchants advertise in *The Arlington Forester* (the neighborhood newsletter), and the shopping center serves as a gathering place for neighborhood events such as the annual Halloween parade and autumn scarecrow making.

In early 2021, several shopping center businesses were the targets of a late-night burglary, resulting in theft and property damage. In response, Arlington Forest residents organized a GoFundMe effort to support the affected merchants, raising more than $30,000 from the neighborhood and others in the community. The merchants expressed deep appreciation in a note saying, "It's an honor to own a business here because we get to know everyone that lives close by, and those neighbors who used to live here that still patronize all of us" and that the GoFundMe support would "make our businesses healthier during such a hard time."

About half of the respondents in our 2020 neighborhood survey (51 percent) indicated that the shopping center met the needs of the community. Of the 47 percent of respondents who indicated that the shopping center did not meet community needs, many suggested the addition of a convenience store, drugstore, or small restaurant with outside seating.

Most survey respondents (56 percent) would keep the shopping center as is. However, substantial minorities (23–28 percent) supported increasing the shopping center's size by building it either out or up. Smaller numbers (11–16 percent) supported building offices or apartments atop the shopping center. The survey results were not strong enough in any direction to warrant a recommendation to the county.

Lubber Run Farmers Market

The Lubber Run Farmers Market (LRFM) is an open-air seasonal market in Arlington Forest. Held in the parking lot of Barrett Elementary School, the market is open from April through November on Saturdays from 8 a.m. to noon. The market is a relatively new addition to Arlington Forest, opening in spring 2018 and just entering its fourth season in 2021.

The market offers local produce and other goods from farms and other businesses within 125 miles of our community. Most produce and flower vendors come from two areas—southern Pennsylvania near Gettysburg and Virginia's Northern Neck. Having vendors from both areas extends the seasonal availability of offerings because Virginia farms tend to get produce earlier in the season and Pennsylvania farms tend to carry the same produce later on.

In addition to produce and flowers, vendors in 2020 offered meats, dairy goods, baked goods, and specialty foods. For example:

- Hog Haven, a farm in Goochland, VA, offered pasture-fed pork products.
- Cold Country Salmon, based in Charlottesville, VA, sold salmon caught each year in Bristol Bay, AK, along with seafood from Chesapeake Bay.
- Cheese Goatee offered fresh goat cheese products from a family farm in Franklin County, PA.

Lubber Run Farmers Market in the Barrett Elementary School parking lot. Photo: Dan Brown.

- Baguette Republic sold baked goods from a local artisan bakery run by an Arlington Forest father/daughter team.
- Commonwealth Bee Company sold honey from northern Virginia, including from hives in Arlington Forest.
- Ozfeka, based in Arlington, offered homemade Mediterranean and Turkish cuisine.

Although the coronavirus pandemic delayed its 2020 opening, the market ultimately thrived in its third season. It adopted procedures for operating safely by requiring masks, social distancing, and controlled traffic flow. A new "LR To Go" service allowed customers to buy items in advance for easy pickup at the market. Business increased from previous years, and customers expressed their thanks for having this local resource. Business is expected to further grow when the Lubber

Run Community Center opens its indoor facilities in 2021.

The LRFM is run by Field to Table, Inc., an Arlington-based nonprofit organization dedicated to the "locavore" movement, which encourages people to reestablish their relationship with the land and purchase from local farmers and food preparers. Field to Table also operates the Westover, Fairlington, and Marymount Farmers Markets. The four Field to Table markets work cooperatively with each other, and several vendors work across multiple markets.

An independent volunteer market committee directs overall market operations for the LRFM. On market days, the LRFM is staffed by a Field to Table market manager, along with market volunteers. Especially with the additional coronavirus procedures, the market is always looking for more volunteers.

Recommendations:

- Arlington Forest strongly supports our neighborhood shopping center and urges the county to do everything it can to keep it in place.
- For a nominal fee, Arlington Public Schools allows Field to Table to use the Barrett parking lot for the Lubber Run Farmers Market. Arlington Forest appreciates the support and asks Arlington Public Schools and the county to continue supporting local farmers markets.
- County signage ordinances allow political and real estate signs on county property but prohibit farmers market signs. Arlington Forest asks the county to allow farmers markets to post signs on public property during market hours and up to 24 hours before to remind residents of the unique shopping opportunities.

HISTORICAL PRESERVATION

Arlington Forest takes pride not only in the natural beauty of our neighborhood but also in the unique history of our built environment. Our community was added to the National Register of Historic Places in 2005. The nomination document, posted on the AFCA website, cited Arlington Forest as one of Arlington County's best examples of a planned mixed-use community from the mid-20th century. The neighborhood typifies the innovative trends of suburban planning from the World War II era, incorporating curvilinear streets, culdesacs, community parklands, and a neighborhood shopping center into its original design.

Mary Carlin House in Arlington Forest. The original log cabin structure is still visible, though later added onto. Photo: Dan Brown.

Placement on the National Register of Historic Places does not protect structures in the Arlington Forest Historic District from being modified or even destroyed. The first complete teardown of an original Arlington Forest house took place in 2015 at 234 North Galveston Street in Greenbrier. Since then, perhaps a dozen original houses have been gutted, with no more than a few exterior walls left untouched so that the interior could be completely replaced.

Pre-Civil War Homes

Designation of Arlington Forest as a Historic District was based on buildings constructed from 1939 to 1948. However, the district also includes three structures built before the Civil War, all in Greenbrier. The oldest house in Arlington Forest (and the second oldest in Arlington) is the Mary Carlin House at 5512 North Carlin Springs Road. It was constructed in about 1800 by William Carlin, George Washington's tailor. The one-story log home was originally part of Carlin's 165-acre tract, purchased in 1772. Carlin later gave the

property to his granddaughters, Mary and Ann Carlin. Mary Carlin lived there until her death in 1905.

Nearby is the one-story Ann Carlin Cottage at 117 North Galveston Street, which dates to about 1850. Not far away is the two-story frame farmhouse at 205 North Galveston Street, which likely dates from the 1820s–40s. During the Civil War, the property was owned by Charles E. Mix, who served as Commissioner of the Bureau of Indian Affairs in 1858.

Historical and Other Markers

Since the 1960s, Arlington County has erected markers at historic sites. The markers are rectangular black-and-white metal signs with a distinctive scroll-like shape on top. The three signs in or near Arlington Forest are for:

- the Mary Carlin House, an original log farmhouse built in about 1800 by William Carlin (George Washington's tailor), who left the property to his granddaughters, Mary and Ann Carlin (in Greenbrier at 5512 North Carlin Springs Road, on the corner of 1st Place North);
- the original location of the Carlin Springs (now dry) and the associated 19th-century amusement park (in Glencarlyn Park near the junction of the W&OD Trail and the asphalt spur trail that leads up to 2nd Street South); and
- the location of the last dairy farm in our area, known as Reevesland (in Bluemont Park on the W&OD Trail north of the parking lot for the pavilion and wooded playground).

Since the 1990s, NOVA Parks has posted markers for historical features and notable wildlife along the W&OD Trail. The markers are plastic signs on wooden pedestals at waist level. On most, the plastic is so badly scratched that the signs are barely legible. The markers are for:

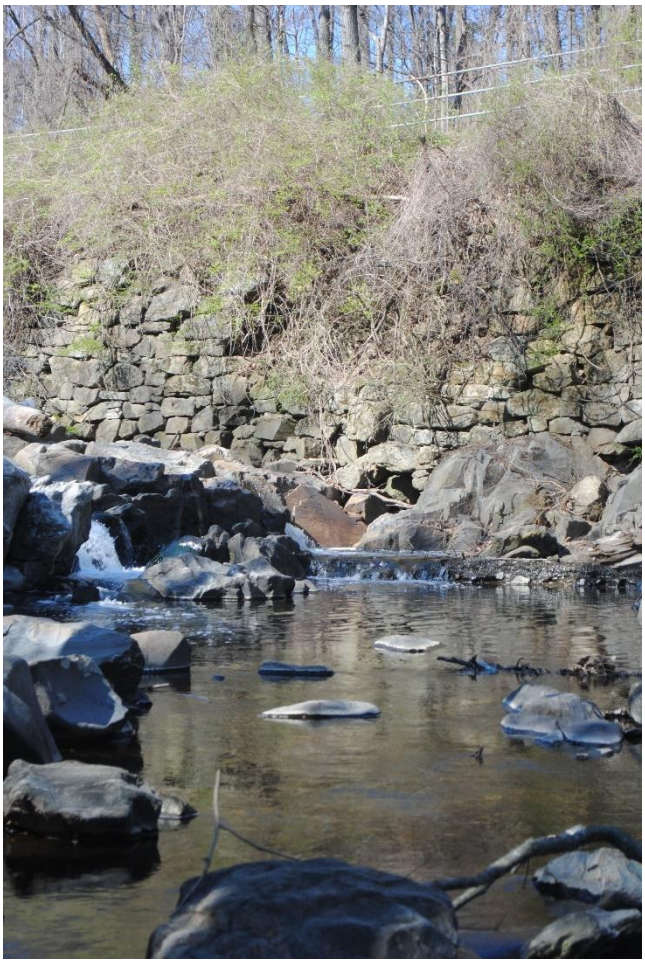
- Bluemont Junction Station, where a rail line to Rosslyn joined the W&OD Railroad (in Bluemont Junction Park just south of Wilson Boulevard);
- Glencarlyn Station on the W&OD Railroad (in Bluemont Park just north of the Arlington Boulevard overpass);
- wild turkey (in Bluemont Park just north of the Arlington Boulevard overpass);
- dragonflies (in Glencarlyn Park adjacent to Sparrow Pond); and
- groundhog (in Bluemont Park along the W&OD Trail, across Four Mile Run from the pavilion).

In addition, signage explains the nature and purpose of Sparrow Pond in Glencarlyn Park along the W&OD Trail. In Bluemont Park along Four Mile Run, you can also find trailside signs about an art project from the 1980s inscribing evocative names (such as "Old Sentinel" and "Sleeping Moon") into eight scattered bedrock boulders.

Arlington Forest is proud of its historical and natural heritage and wants to share information about it. The neighborhood conservation plan from 1991 noted vandalism (such as spray paint) on recreational facilities and on the bedrock along Four Mile Run. Neighborhood pride in our natural, recreational, and historical resources, displayed by educational signs, can reduce the risk of such vandalism. Our neighborhood survey showed strong support for installing historical markers at the following sites, some suggested by survey respondents:

- The confluence of Long Branch and Four Mile Run, where George Washington used a large oak tree in 1785 to survey the boundary line of land he owned to the south. Archeologists have also found evidence of an American Indian village near the site.
- A unique old-growth forest stand located in Glencarlyn Park. Part of a county-designated natural resource conservation area, the stand is one of only two recognized old-growth tracts remaining in Arlington.

- Arlington Forest Park, designated by the county as a natural resource conservation area for its rare oak savanna ecosystem, the largest remaining tract of its kind in Arlington. (The county has already announced plans to install an interpretive sign for the site.)
- Huffman's Falls on Four Mile Run, a point of both geological and historical interest. The area's bedrock is well exposed at the waterfall, as is the pre-Civil War stonework for the W&OD Railroad.
- The one-story Ann Carlin Cottage at 117 North Galveston Street in Greenbrier. The home was built around 1850 as a tenant house or servants' quarters for the Carlin family farm.
- The two-story frame farmhouse at 205 North Galveston Street in Greenbrier, built in the 1820s–40s and once owned by Charles E. Mix, who served as Chief Clerk of the Bureau of Indian Affairs from 1838 to 1868 (and briefly as Commissioner in 1858).
- The Lubber Run Amphitheater, Arlington's only open-air performing arts venue and a beloved landmark for the community. Constructed in 1969, the amphitheater celebrated its 50th-year anniversary in 2019.
- The site of the historic Henderson House at the Lubber Run Community Center. Constructed in 1894, the fashionable country home became Arlington County's first community recreation center in 1951.
- The Arlington Forest Historic District, placed on the National Register of Historic Places in 2005 for its unique history and architecture. A marker might be installed at the centrally located Arlington Forest Shopping Center, which contributed to the designation.
- The first Arlington Forest homes, constructed in 1939 in Southside. A marker describing the Colonial Revival architectural style might be placed at the entrance to Southside on South Park Drive, where some of the first homes still show the original architecture.



Huffman's Falls on Four Mile Run, an important geological feature and a vantage point for viewing the 19th-century foundations of the W&OD Railroad. Photo: Hutch Brown.

Where markers are prone to flood damage along creeks, they might be in the form of metal plaques affixed to boulders or bedrock.

Recommendations

- The county should install permanent historical markers at all listed sites.
- The county should work with NOVA Parks to repair or replace its damaged signs.

OTHER CHALLENGES AND OPPORTUNITIES

Since we completed our original Arlington Forest Neighborhood Conservation Plan in 1991, our awareness of the world has changed. Pivotal

developments have included the firming up of climate change science in the 1990s–2000s and rising awareness of severe weather impacts on our area. The 9/11 attacks highlighted a growing need for emergency preparedness in the National Capital Area. An additional need for emergency preparedness—unprecedented in our lifetimes—emerged from the coronavirus pandemic of 2019.

Climate Change

In 1990, in a little-known law called the Global Change Research Act, Congress called for "a comprehensive and integrated United States research program … to understand, assess, predict, and respond to human-induced and natural processes of global change." In response, the U.S. science community has produced reports every 4 years summarizing the impacts of climate change on the United States. The Fourth National Climate Assessment, published in 2017–18, found that communities are experiencing "more frequent and intense extreme weather and climate-related events," resulting in damage to "infrastructure, ecosystems, and social systems that provide essential benefits to communities."

Across Virginia, the average number of days with heavy precipitation (3 inches or more) has shown a steady rise in recent decades, including—in our area—heavy rainstorms in June 2006, July 2018, July 2019, and July 2020. The resulting damage to infrastructure and ecosystems has been palpable, generating concern in Arlington Forest. Large majorities of respondents to our neighborhood survey reported threats to the health, beauty, and enjoyment of our neighborhood parks from climate change and unusual weather events (60–79 percent), flood-related damage (58–76 percent), and erosion from stormwater runoff (63–67 percent).

Federal scientists and natural resource managers agree on a three-pronged climate change response: helping forests and other ecosystems adapt to a changing climate; mitigating climate change by fostering carbon uptake and storage in forest trees and soils; and reducing human carbon footprints, in part by reducing carbon emissions from fossil fuels. For example, the U.S. Forest Service prepared a National Roadmap for Responding to Climate Change with two central components: (1) managing landscapes on the national forests and grasslands to improve conditions and reduce climate-related risks, such as forest decline and catastrophic wildfire; and (2) sustaining forests as carbon sinks, thereby offsetting U.S. carbon emissions and mitigating climate change. Despite such initiatives, strong federal leadership on climate change has not been sustained. In its absence, state and local governments have an opportunity—indeed, an obligation—to take the lead.

The main climate-related risks in northern Virginia come from severe weather events, including storm surges from hurricanes in low-lying parts of Arlington. In Arlington Forest, the main risks come from high winds and torrential rains. Arlington's Stormwater Master Plan outlines a comprehensive approach to stormwater management, including the effects of a changing climate. In particular, stream restoration and watershed retrofits (bioswales, rain gardens, and the like) are ways for a county like Arlington—and a community like ours—to adapt. Mitigation takes a different form: the county's latest Comprehensive Energy Plan, adopted in 2019, calls for mitigating climate change by reducing carbon emissions as well as sustaining carbon sinks.

Arlington Forest has opportunities for a climate change response through both adaptation and mitigation. Open space in our neighborhood, whether on public or on private land, represents a shared resource and a common good for responding to climate change in two basic ways:

1. Through green engineering (such as watershed retrofits and, where feasible, stream restoration), we can *adapt* to the effects of a changing climate by reducing the impacts of stormwater runoff.
2. By conserving and expanding the area of native vegetation (especially tree cover), we can *mitigate* the effects of climate change by maximizing the capacity of the land to take up and

store atmospheric carbon in soils, trees, and other carbon sinks.

Densification of Arlington Forest would defeat the purpose. Constructing multifamily units would reduce open space and tree cover in our community, undermining our capacity to work with the county toward climate change adaptation and mitigation. Mitigation in particular requires carbon sequestration in Arlington's trees and other carbon sinks. In 2019, trees stored over 180,000 metric tons of carbon in Arlington and took up another 8,700 metric tons annually. Loss of just 5 percent of Arlington's tree cover would emit about 9,000 metric tons of carbon into the atmosphere, as much as 9,000 round-trip flights from New York to Paris.

Another component of climate change mitigation is sustainable consumption. By consuming vast quantities of coal, oil, and other fossil fuels, the United States contributes more per capita to atmospheric carbon than any other country. Arlington County can mitigate climate change by replacing fossil fuel consumption with green energy use. Accordingly, the county's 2019 Comprehensive Energy Plan set the goal of carbon neutrality (zero net carbon emissions) by 2050 through changes in its energy grid, buildings, transportation, and renewable energy use.

Arlington Forest supports the county's goal of carbon neutrality. We encourage residents in our neighborhood to work with AFCA, EcoAction Arlington, Tree Stewards, and other programs to sustain and expand our urban forest. We also commend the county for redeveloping the Lubber Run Community Center to achieve more energy efficiency, an example of using redevelopment projects for environmental benefits. The new building is rated Gold in the U.S. Green Building Council's LEED (Leadership in Environmental and Energy Design) rating system. Carbon savings come from geothermal heating and energy-efficient LED lighting. The facility uses mass timber technologies to incorporate wood (a renewable resource) into its structure, thereby saving energy and storing carbon, including in lumber from trees removed from the site, which went back into the new structure. In addition, the roof is set up for a solar array, which would optimize the building's energy performance in connection with its design.

Residences in Arlington, including the homes in Arlington Forest, account for over one-quarter of countywide energy use in buildings, and relatively few homes use green energy. Only 4 percent of the respondents to our neighborhood survey reported renewable energy use such as solar or geothermal on or in their homes. Many homes in Arlington Forest have roofs suitable for solar energy panels, as does Barrett Elementary School and the Arlington Forest Shopping Center. AFCA applauds the county's use of renewable energy in recently built schools. AFCA has an opportunity to reach out to property owners with information about renewable energy technologies; cost trends; utility policies; green energy incentives for homeowners; and the short- and long-term benefits of green energy, including slowing climate change.

Emergency Response

Historically, severe storms have been rare in northern Virginia. However, hurricanes and tropical storms have struck our area before, most recently in 2003 and again in 2011. In 2012, a line of fast-moving thunderstorms known as a derecho caused heavy wind damage to our area, and climate change has increased the likelihood of our area being hit by a catastrophic weather event. Moreover, 9/11 and the violent seizure of the Capitol building on January 6, 2021, illustrated the risk of a political attack in the National Capital Area requiring a large-scale emergency response.

In 2017, Arlington County published an Emergency Operations Plan as part of its Comprehensive Emergency Management Program. Based on the National Interagency Management System first developed by the federal government for wildland firefighting, the plan establishes a countywide framework for responding to any large-scale emergency or disaster. The plan involves a Citizens Corps Council, with opportunities for Arlington Forest and other neighborhoods to form Citizens Emergency Response Teams.

Like many counties around the country, Arlington has a system for issuing emergency notices to residents, called Arlington Alert. Residents can get training to help in an emergency by joining the Arlington Network for Community Readiness or by signing up for the Disaster Volunteer Registry. In addition, the county gives online information on making emergency preparedness kits and household evacuation plans for use in an emergency.

Pandemic Preparation

Since the 1990s, the United States has prepared for epidemics through the work of the federal Centers for Disease Control and Prevention, the National Institutes of Health, and the U.S. Department of Health and Human Services. The United States responded to the global swine flu pandemic of 2009–10 with swift and effective testing and vaccination programs. International outbreaks of severe acute respiratory syndrome (2003–04), Middle East respiratory syndrome (2012–15), and the Ebola virus in West Africa (2014–16) were contained before many cases reached the United States, partly through international assistance from the United States.

Not so for the coronavirus disease of 2019, or COVID-19. Coronavirus transmissions began in December 2019 (if not before) in Wuhan, China. In the United States, after (or perhaps before) the first reported case on January 20, 2020, the disease rapidly spread nationwide. As of mid-July 2020, the United States had 3.3 million confirmed cases of COVID-19 and more than 135,000 fatalities. With less than 5 percent of the world's population, the United States had about 25 percent of the world's coronavirus cases and 24 percent of global fatalities. Economic activity plunged due to fear of contracting the disease as well as government lockdowns, with unemployment reaching levels not seen since the Great Depression. The partial success of springtime social-distancing measures notwithstanding, the pandemic and economic downturn persisted into summer with a surge in new cases, especially in southern and southwestern states. The average number of new cases nationwide rose from 20,000 per day in mid-June to 60,000 per day in mid-July.

In spring 2020, Arlington County suffered some of the highest rates of coronavirus transmission in Virginia. By mid-June, Arlington had recorded more than 2,300 cases (about 1 percent of the county's population), including more than 120 fatalities. By then, COVID-19 had receded in many other countries and economic activity was resuming. Successful responses to the pandemic, ranging from Canada and Germany to New Zealand and Taiwan, were predicated on strong and effective measures by central governments, including:

- a prompt and well-coordinated national response based on guidance from healthcare professionals;
- early and ample stockpiling and efficient distribution of tests, hospital equipment, and personal protective equipment (such as masks and gloves); and
- effective programs for testing, tracing, and isolating infections as well as for quarantining and social distancing.

It worked. By mid-June 2020, with a population half again as large as Arlington's, Iceland had less than a tenth of Arlington's fatalities; and Seoul (the capital of South Korea), with a population 40 times the size of Arlington's, had half the number of confirmed coronavirus cases and 5 percent of Arlington's mortality rate. None of the successful approaches used by other countries extended to the United States, despite our nation's enormous resources.

In the absence of effective national leadership, state and local governments cannot trust the federal government to lead any future pandemic response. In preparing for the future, Arlington County has an opportunity—indeed, an obligation—to learn from the past based on what worked in other countries around the world. The county has an opportunity to join with other counties in urging the state, in cooperation with other states, to make contingency plans for a future pandemic. Regional plans could include timely acquisition of

sufficient tests in case of an epidemic outbreak; stockpiling and timely distribution of the equipment needed for an effective pandemic response; efficient systems for testing, tracing, and isolating infections; and effective policies for quarantining and social distancing, including lockdowns and sheltering in residence.

Special vulnerabilities have lessons to teach: most initial fatalities in Arlington were among the elderly residents of facilities for assisted living. The county should work with such facilities to reduce risks for their residents from future disease transmission, especially in a pandemic.

CONCLUSION

The citizens of Arlington Forest are fortunate to live in a county where the vast majority of residents care about the things we hold dear: good governance, public safety, public services, the conservation of natural resources, and the sheer pleasure of living in a walkable and well-wooded neighborhood. We salute the county for giving neighborhoods like ours opportunities to conserve these things through neighborhood conservation plans. We urge the county to work with us in supporting and preserving the parklike residential atmosphere of our community, including the health, beauty, and enjoyment of our urban forest; a sense of community and neighborhood fellowship in Arlington Forest; and a common and inclusive residential experience, warmly welcoming to all.

We recognize the tremendous changes in our neighborhood over the last hundred years, including suburban growth, ecological degradation, and a period of pervasive and reprehensible social injustice. Our hope is to separate out the good from the bad, eliminating all vestiges of social injustice, striving to restore healthy urban streams and forests, and passing on to the next generation all the benefits we enjoy ourselves from living in Arlington Forest. We look forward to working with Arlington County on projects to improve conditions in Arlington Forest, and we hope that neighbors will remain aware of the recommendations and opportunities outlined in the plan. As conditions change and the opportunities and recommendations stated in this plan grow in importance, we hope that they will be integrated into county initiatives over time.

APPENDIX A: RECOMMENDATIONS/IMPLEMENTATION STRATEGIES

Based on our neighborhood goals, this Arlington Forest Neighborhood Conservation Plan outlines conditions in our neighborhood, including challenges and opportunities in a range of areas, as required by county guidelines for a neighborhood conservation plan. We arrived at a community consensus that some opportunities should become recommendations for county and neighborhood action to help achieve our goals. This appendix summarizes the recommendations by corresponding section of the plan, together with suggestions for carrying them out in terms of resources needed and alignment with county policies and procedures.

A typical Arlington Forest home, with small additions on a small lot. Photo: Dan Brown.

Land Use and Zoning

Arlington Forest strongly supports all existing land uses and zonings in our neighborhood, and we urge the county to keep them in place, including the current R–6 zoning for our residential areas; the S3–A zoning for Barrett Elementary School, the Lubber Run Community Center, Lubber Run Amphitheater, Lubber Run Park, Arlington Forest Park, and all other public lands and facilities in our neighborhood; and the C–1 zoning for the Arlington Forest Shopping Center. With respect to the shopping center, we urge the county to work with AFCA and with the present owners to preserve the historical nature of the shopping center and to revitalize it as needed.

Our recommendation for ***maintaining the current R–6 zoning*** for residential areas dovetails with the county's General Land Use Plan for 2020 but might conflict with outcomes of the Missing Middle Housing Study. Arlington Forest is ready to work with the county to help align study outcomes with the General Land Use Plan. Residents are working with citizens in adjoining neighborhoods to align mutual concerns and make them known to the county in coordination with AFCA. A committee of residents, working through AFCA, has perused the documents from the Missing Middle Housing Study and raised questions about the initiative.

Housing

Arlington Forest urges the county to respect and protect the listing of Arlington Forest on the National Register of Historic Places, including its nature as a community of ***single-family detached homes*** (with accessory units, if homeowners desire). We stand ready through AFCA to work with the county to align the results of the Missing Middle Housing Study with the 2020 General Land Use Plan's commitment to "preserve and enhance existing single-family and apartment neighborhoods."

Through AFCA, Arlington Forest will also work with the county to ***preserve and protect open space*** in our community. We urge residents who are planning a home expansion to:

- work with neighbors to take a full range of values and impacts into account, including the health of large trees;
- avoid seeking waivers for county-mandated offsets in order to conserve open space; and
- offset any expansion of impervious surfaces with stormwater mitigation measures such as installing swales and rain gardens and planting more trees.

Street Conditions/Lighting

Arlington Forest urges Arlington County to:

- continue its excellent service on residential roads and its removal of sidewalk tripping hazards while avoiding damage to tree roots;
- help neighbors get utility or cable companies to repair sidewalks after tearing them up and to remove unneeded bundles of cabling from utility strips;
- eliminate the pooling of water and black ice formation on South Columbus Street where it meets South Park Drive and on North Columbus Street at the Arlington Boulevard intersection;
- seek Dominion Energy's full participation in a centralized streetlight malfunction reporting system to optimize repair efficiency and minimize outage time; and
- encourage Dominion Energy to work with AFCA to inform and engage residents in choosing replacements for aging streetlights.

Arlington Forest is ready to work with the county through AFCA to engage utility and cable companies as well as Dominion Energy in meeting neighborhood needs regarding street, sidewalk, and streetlight conditions.

Transportation/Traffic Management

The residents of Arlington Forest are intimately familiar with safety conditions in our neighborhood in connection with roads and traffic. Through AFCA, we stand ready to discuss a range of safety issues with the county and improvements that could be made. In particular, we urge the county to take the following measures:

- For ***bicycles***, continue its popular bicycle safety improvements, including establishing segregated bicycle lanes where dedicated bike trails are unavailable.
- Urge motorized scooter rental companies to solve the problem of scooters cluttering sidewalks.
- On ***North Carlin Springs Road***:
  - install pedestrian-activated high-intensity activated crosswalk red lights on North Carlin Springs Road at North Edison and North Harrison Streets;
  - enforce speed limits more frequently, ticketing those who fail to stop or who exceed the speed limit;
  - post traffic infraction fine warnings on both sides of intersections;
  - publicize the traffic data that the county uses in making decisions about intersections on North Carlin Springs Road; and
  - continue to engage Arlington Forest residents on improving the safety of crossings on North Carlin Springs Road and averting cut-through traffic on North Edison, North Granada, and North Greenbrier Streets.
- On ***North George Mason Drive***:
  - better enforce the posted speed limit and the requirement for drivers to stop at amber blinking lights;
  - install a traffic signal at the intersection of North George Mason Drive and North Park Drive; and

  - between the North Carlin Springs Road overpass and North Henderson Road, add signage or pavement markings warning motorists of a traffic light ahead.
- On ***Arlington Boulevard***, along the service road between South Edison Street and South Pershing Drive:
  - install "No Through Traffic" signs at entrance points,
  - better enforce stop sign compliance and post fines for violators, and
  - post additional speed limit signs and install a speed monitor.
- At the intersection of North Henderson Road with Arlington Boulevard, the county should work with the state to:
  - delay the "Walk" signal for a few seconds longer to reduce the chances of pedestrians being hit, and
  - install a zebra-stripe pedestrian crosswalk across Arlington Boulevard.
- On residential streets in ***Greenbrier***, the county should install:
  - a zebra-stripe pedestrian crosswalk across North Edison Street at the entrance to Edison Park, with rumble strips approaching the crosswalk from both sides;
  - traffic-calming signage or pavement markings, such as "Slow, Children at Play," on 2nd Street North between North Carlin Springs Road and North Edison Street;
  - four-way stop signs at the intersections of 2nd Street North with North Greenbrier and North Granada Streets;
  - speed limit signs at both ends of North Greenbrier, North Granada, and North Edison Streets;
  - a traffic circle at the intersection of 2nd Street North and North Edison Street, which could double as a watershed retrofit (such as a dry pond); and
  - a speed bump or rumble strip on the downhill segment of North Edison Street between North Carlin Springs Road and 4th Street North.
- On residential streets in ***Northside***, the county should install:
  - more traffic circles on North Columbus Street and North Park Drive, which could double as watershed retrofits;
  - pavement markings to prompt drivers to slow down approaching the entrances to Lubber Run Park on North Columbus Street and Barrett Elementary School on North Park Drive;
  - speed bumps or rumble strips before intersections on North Columbus Street;
  - stop signs on North 2nd Street at its intersection with North Henderson Road; and
  - pedestrian crosswalks across 2nd Street North on both sides of its intersection with North Henderson Road.

Parking

- Arlington Forest urges the county to require developers, within three blocks of Arlington Forest, to provide sufficient onsite parking at reasonable rates for residents and patrons.

The Nature Parks

Stormwater runoff is a major threat to the nature parks in our neighborhood, as are invasive species and the growing number of deer. Arlington Forest is prepared to work with the county through AFCA to mitigate such threats, in part by countering the loss of trees and open space.

- AFCA should work with the county to explore the issues associated with ***stormwater management*** in Arlington, including the reasons for resource protection areas as well as for a comprehensive approach to stormwater management. That includes better publicizing homeowner incentives for watershed ret
- Arlington Forest welcomes a countywide stream assessment planned for fiscal year 2023 to set investment priorities for the county. AFCA will work with the county to explore stormwater management options for Arlington Forest, including watershed retrofits and potential stream restoration, making suggestions to the county.
- The county should monitor seasonal wetlands in the W&OD Trail corridor along Four Mile Run and protect them from degradation, including trampling by people. In particular, the county should map the wetland across Four Mile Run from the pavilion in Bluemont Park, which has evolved into a year-round marsh and pond, as a resource protection area.
- Arlington Forest strongly supports the control of English ivy, lesser celandine, kudzu, Japanese knotweed, and other ***invasive species***. AFCA pledges to work with the county, in alignment with programs such as Tree Stewards and Arlington Regional Master Naturalists, to support invasive plant control in our local parks.
- AFCA urges residents to control invasive plants in their own yards, especially to prevent their spread into adjacent parklands.
- The county should work with Dominion Energy and NOVA Parks to remove invasive species and establish native prairie and wetland vegetation, as appropriate, throughout the Bluemont/Glencarlyn Park corridor along the W&OD Trail.
- Arlington Forest welcomes the county's spring 2021 aerial drone inventory of the ***deer population*** in Arlington. The county should assess the scope of damage by deer to plants in our local parks and determine whether our local deer have exceeded the ecological carrying capacity of the land.
- The county should assess the impact of deer on the safety, health, and well-being of Arlington residents in view of the cultural carrying capacity of the land, including damage from deer browsing on private property.
- The county should make plans for managing deer populations within the biological, cultural, and ecological carrying capacities of the land.

An eastern rat snake in a local nature park. The nature parks in and near Arlington Forest, including the wildlife they contain, are cherished by residents. Photo: Dan Brown.

Park Infrastructure, Trails, and Facilities

Severe storms in recent decades have damaged park infrastructure, and invasive species have overrun many public lands. In view of such challenges, AFCA stands ready to join with the county and other neighborhoods to improve park maintenance.

A pileated woodpecker in Lubber Run Park. Photo: Dan Brown.

- The county should join AFCA and other neighborhoods in strategizing on how to respond to vulnerabilities of ***park infrastructure*** to severe weather events and what we can do together to mitigate the threat, such as repositioning trails and "hardening" the infrastructure.
- The county should repair or replace, in a way that is effective and sustainable in an era of changing climates and worsening storms:
  - the washed-out unpaved trail below Greenbrier in Lubber Run Park;
  - pedestrian bridges in Lubber Run Park and Glencarlyn Park (plans are already in place), including the damaged footbridge over the gulley by the old Carlin Springs; and
  - the unreliable ford near the amphitheater in Lubber Run Park.
- The county should take vigorous steps to keep mountain bikers from creating unpaved trails, which are dangerous and damaging to the environment.
- The community strongly supports the ongoing use of the ***Lubber Run Amphitheater*** for summer entertainment programs.
  - The county should complete upgrades to the Lubber Run Amphitheater by replacing retaining walls and anything else needed to keep the amphitheater in good condition.
  - The county should work with AFCA to explore the feasibility of stormwater retrofit projects for the Lubber Run Amphitheater, including those proposed in the county's 2013 Stormwater Retrofit Study.

Neighborhood Trees and Beautification

- Neighbors should take advantage of county and AFCA programs in ***replacing canopy trees*** and planting new ones, possibly with help from the Tree Stewards program.
- The county should continue its policies of replacing street trees that have died or been removed and filling canopy gaps in our neighborhood parks.
- The county should join the neighborhood in requesting that the ***power poles*** between Columbia Pike and North Carlin Springs Road (where they are located in a wooded valley against a backdrop of trees higher than the poles themselves) be repainted in a more natural color that blends in with the surrounding trees.
- The county should work with Dominion Energy to move ***powerlines*** on steep hillsides in Arlington Forest to adjacent streets and replace them with underground wiring.

- Where powerlines are along streets in Arlington Forest, the county should work with Dominion Energy to place them underground.
- The county should conduct a joint study with AFCA and the Virginia Department of Transportation to investigate ways to improve the appearance as well as the ecological and watershed functions of the ***Arlington Boulevard buffer strips***. Issues of beautification, noise abatement, stormwater management, and residential parking should be considered; residents most affected should be included in the process. In the interim, the county should identify areas where maintenance is required to control invasive plants and prevent further deterioration of trees.

Commercial/Business Areas

- Arlington Forest strongly supports our neighborhood shopping center and urges the county to do everything it can to keep it in place.
- For a nominal fee, Arlington Public Schools allows Field to Table to use the Barrett parking lot for the Lubber Run Farmers Market. Arlington Forest appreciates the support and asks Arlington Public Schools and the county to continue supporting local farmers markets.
- County signage ordinances allow political and real estate signs on county property but prohibit farmers market signs. Arlington Forest asks the county to allow farmers markets to post signs on public property during market hours and up to 24 hours before to remind residents of the unique shopping opportunities.

Historical Preservation

- The county should install permanent historical markers at the sites listed below. Where markers are prone to flood damage along creeks, they might be in the form of metal plaques affixed to boulders or bedrock.
  - The confluence of Long Branch and Four Mile Run, where George Washington used a large oak tree in 1785 to survey the boundary line of land he owned to the south. Archeologists have also found evidence of an American Indian village near the site.
  - A unique old-growth forest stand located in Glencarlyn Park. Part of a county-designated natural resource conservation area, the stand is one of only two recognized old-growth tracts remaining in Arlington.
  - Arlington Forest Park, designated by the county as a natural resource conservation area for its rare oak savanna ecosystem, the largest remaining tract of its kind in Arlington. (The county already plans to install an interpretive sign for the site.)
  - Huffman's Falls on Four Mile Run, a point of both geological and historical interest. The area's bedrock is well exposed at the waterfall, as is the pre-Civil War stonework for the W&OD Railroad.
  - The one-story Ann Carlin Cottage at 117 North Galveston Street in Greenbrier. The home was built around 1850 as a tenant house or servants' quarters for the Carlin family farm.
  - The two-story frame farmhouse at 205 North Galveston Street in Greenbrier, built in the 1820s–40s and once owned by Charles E. Mix, who served as Chief Clerk of the Bureau of Indian Affairs from 1838 to 1868 (and briefly as Commissioner in 1858).
  - The Lubber Run Amphitheater, Arlington's only open-air performing arts venue and a beloved landmark for the community. Constructed in 1969, the amphitheater celebrated its 50th-year anniversary in 2019.

  - The site of the historic Henderson House at the Lubber Run Community Center. Constructed in 1894, the fashionable country home became Arlington County's first community recreation center in 1951.
  - The Arlington Forest Historic District, placed on the National Register of Historic Places in 2005 for its unique history and architecture. A marker might be installed at the centrally located Arlington Forest Shopping Center, which contributed to the designation.
  - The first Arlington Forest homes, constructed in 1939 in Southside. A marker describing the Colonial Revival architectural style might be placed at the entrance to Southside on South Park Drive, where some of the first homes are located.
- The county should work with NOVA Parks to repair or replace its damaged signs along the W&OD Trail.

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APPENDIX C: NEIGHBORHOOD CONSERVATION SURVEY

All households in Arlington Forest received hand-delivered notification in the neighborhood newsletter of a neighborhood conservation survey coming up in spring 2020 in connection with revising the 1991 Arlington Forest Neighborhood Conservation Plan. Notification of the survey appeared in the October and November 2019 issues of the neighborhood newsletter and again in the February and March 2020 issues. AFCA also publicized the neighborhood conservation survey on its website, and AFCA sent periodic email announcements and deadline reminders to Arlington Forest residents through the AFCA listserv.

A link to an 80-question online survey was published in the March 2020 newsletter and posted on the AFCA website. Neighbors who preferred a printed copy of the survey received hand-delivered copies, and all 38 nonresident Arlington Forest homeowners were sent letters to addresses supplied by the county real estate office so they could link to the survey.

The survey closed on May 1, 2020. A total of 187 households completed valid responses to the survey, whether online or in hardcopy. The 80-question survey is replicated below, along with the results. (Percentages might not add up to 100 due to rounding.)

Section 1: Demographics

1. Do you live in Arlington Forest?

   Yes: 179 (97%)

   No: 6 (3%)

   No answer: 2 (1%)

2. What is your Arlington Forest address? *(Required)*

   Responses varied

If you do not live in Arlington Forest, please go to section 2.

3. How many people live in your house?

   Responses varied

4. Please indicate the number of people in your household in each of the following age categories:

   17 or younger

   18 to 24

   25 to 34

   35 to 54

   55 or older

   Responses varied

5. Of those who live in your household:

   a. How many work in the public sector (federal, state, or county government)?

   b. How many work at home full time?

   c. How many work at home sometimes?

   d. How many are retired?

   Responses varied

6. How many years have you lived or owned in Arlington Forest?

   Responses varied

Section 2: Neighborhood Character and Identity

7. What are the three things you value most about Arlington Forest?

Responses varied

8. What do you see as the biggest threats to the quality of life in Arlington Forest? Please provide up to three.

Responses varied

9. Should the following sites be considered historical and designated as such with markers?

- George Washington's survey marker at Long Branch and Four Mile Run

  Yes: 134 (72%)

  No: 3 (2%)

  No opinion: 47 (25%)

  No answer: 2 (1%)

- An old mill site on our local creeks

  Yes: 106 (57%)

  No: 10 (5%)

  No opinion: 68 (36%)

  No answer: 3 (2%)

- Historical farmhouses in Greenbrier near the Mary Carlin House

  Yes: 114 (61%)

  No: 8 (4%)

  No opinion: 63 (34%)

  No answer: 2 (1%)

- The Arlington Forest Shopping Center (Arlington Forest as a Historic District and the shopping center as a historic feature)

  Yes: 98 (52%)

  No: 46 (25%)

  No opinion: 41 (22%)

  No answer: 2 (1%)

- Arlington Forest Park (describing the park's unique oak-grassland ecosystem)

  Yes: 123 (66%)

  No: 22 (12%)

  No opinion: 39 (21%)

  No answer: 3 (2%)

- The old-growth forest stand in Glencarlyn Park (never been logged)

  Yes: 128 (68%)

No: 8 (4%)

No opinion: 49 (26%)

No answer: 1 (1%)

- Huffman's Falls on Four Mile Run (explaining the geology and the Civil War-era stonework)

  Yes: 113 (60%)

  No: 5 (43%)

  No opinion: 64 (34%)

  No answer: 5 (3%)

10. Are there any additional locations or stories that have historical or cultural significance in the neighborhood?

    Responses varied

Section 3: Housing

11. Does your home have an addition?

    Yes: 137 (73%)

    No: 49 (26%)

    No response: 1 (1%)

12. Does your home have an accessory dwelling unit (a separate living unit with a kitchen and bath, either within your home or in a separate building on your property)?

    Yes: 3 (2%)

    No: 183 (98%)

    No response: 1 (1%)

13. Do you rent your home?

    Yes: 11 (6%)

    No: 176 (94%)

14. Do you plan to build an addition or another addition on your home? *[only those who answered "no" in question 13]*
    Yes: 20 (11%)

    No: 111 (63%)

    No opinion/don't know: 42 (24%)

    No answer: 3 (2%)

15. Do you plan to build an accessory dwelling unit on your property? *[only those who answered "no" in question 13]*
    Yes: 3 (2%)

    No: 147 (85%)

No opinion/don't know: 24 (14%)

No answer: 2 (1%)

16. Do you believe that Arlington Forest should remain primarily a neighborhood of single-family detached homes?

Yes: 162 (87%)

No: 12 (6%)

No opinion: 12 (6%)

No response: 1 (1%)

Section 4: Sustainability

17. Does your house have a source of renewable energy (such as passive solar, solar panels, or geothermal)?

Yes: 7 (4%)

No: 179 (96%)

No opinion: 1 (1%)

18. In the past year, have any large shade trees (such as an oak or maple) on your property died?

Yes: 38 (20%)

No: 147 (79%)

Don't know: 1 (1%)

No response: 1 (1%)

19. In the past 10 years, have you removed any large shade tree(s) (such as an oak or maple) on your property?

Yes: 92 (50%)

No: 94 (50%)

No response: 1 (1%)

If you have not removed any large shade trees on your property in Arlington Forest, please skip to question 23.

20. Why did you remove the tree or trees? (Check all that apply) *[only those who answered "yes" in question 18]*

The tree(s) died: 46 (50%)

The tree(s) got sick: 53 (58%)

Construction: 7 (8%)

The location of the tree(s) threatened structures: 19 (21%)

The tree(s) had undesirable characteristics (leaves, pollen, flowers, fruit, shape, scars, etc.): 1 (1%)

Other (please specify): 10 (11%)

21. Did you replace any of those trees? *[only those who answered "yes" in question 18]*

Yes: 47 (51%)

I plan to replace at least one tree: 23 (22%)

No: 26 (27%)

If you replaced any large shade trees on your property in Arlington Forest, please skip to question 23.

22. Please indicate the reason or reasons why you did not replace the tree or trees (check all that apply) *[only those who answered "no" in question 21]*

The tree might fall and hurt someone or damage something: 3 (12%)

The tree would block out too much sun: 4 (16%)

The tree would be too much trouble to care for: 1 (4%)

The tree would be too expensive to care for: 0 (0%)

The tree would be too expensive to plant: 3 (12%)

The tree died too recently to replace: 3 (12%)

23. In the past 10 years, have any of your neighbors removed large shade tree(s) (such as an oak or maple) on their property?

Yes: 138 (74%)

No: 19 (10%)

Don't know: 28 (15%)

No response: 2 (1%)

If none of your neighbors in Arlington Forest removed a large shade tree in the past 10 years or if you don't know, please skip to question 26.

24. Why did they remove any tree or trees? (Check all that apply) *[only those who answered "yes" in question 23]*

The tree(s) died: 58 (63%)

The tree(s) got sick: 58 (63%)

Construction: 36 (39%)

The location of the tree(s) threatened structures: 12 (13%)

The tree(s) had undesirable characteristics (leaves, pollen, flowers, fruit, shape, scars, etc.): 10 (11%)

Don't know: 39 (42%)

Other (please specify): 12 (13%)

25. Did your neighbors replace any tree(s)? *[only those who answered "yes" in question 23]*

Yes: 13 (9%)

My neighbor plans to replace the tree(s): 7 (5%)

No: 82 (59%)

Don’t know: 36 (26%)

26. The Arlington Forest Civic Association makes matching grants to residents of Arlington Forest to pay for a shade tree on their property. If you qualified for this grant, would you plant a shade tree on your property?

    Yes: 94 (50%)

    No: 25 (13%)

    No opinion: 67 (36%)

    No response: 1 (1%)

27. Arlington County has a tree fund administered by EcoAction Arlington. EcoAction Arlington provides you with a native canopy tree and plants it for you. If you qualified for this grant, would you plant a shade tree on your property?

    Yes: 101 (54%)

    No: 25 (13%)

    No opinion: 60 (32%)

    No answer: 1 (1%)

28. In the last 10 years, have you seen street trees on county land that have been removed and not replaced?

    No: 150 (80%)

    Yes: 28 (15%) Please specify where: *Responses varied*

    Don’t know: 1 (1%)

    No answer: 8 (4%)

29. Should the county widen the service road parallel to Arlington Boulevard on Northside east of the shopping center and install curbs so residents can park on asphalt, protecting the buffer strip and the trees growing there? (The county has done the same thing on the Southside service road, and residents no longer park on the buffer strip there.)

    Yes: 99 (53%)

    No: 29 (16%)

    No opinion: 59 (32%)

30. Do storm drains on your street back up during heavy rainfall/snowmelt?

    No: 107 (57%)

    Don’t know: 49 (26%)

    Yes: 29 (16%) Please specify where: *Responses varied*

    No response: 2 (1%)

31. Does water pool on streets or sidewalks in your neighborhood?

    No: 102 (55%)

Don't know: 29 (16%)

Yes: 56 (30%) Please specify where: *Responses varied*

32. Do you have any stormwater management features (such as rain collection, pervious pavers, or a rain garden) on your property?

Yes: 59 (32%)

No: 119 (64%)

Don't know: 9 (5%)

33. Are you aware of the incentives the county offers to add stormwater mitigation feature(s) to your property?

Yes: 28 (15%)

No: 159 (85%)

If you were not aware of county incentives to add stormwater mitigation features to your property, please skip to question 36.

34. Have you taken advantage of any of the incentives the county offers to add stormwater mitigation feature(s) to your property? *[only those who answered "yes" in question 33]*

Yes: 5 (18%)

No: 23 (82%)

35. Why not? *[only those who answered "yes" in question 33]*

Mitigation costs are too high even with the incentives offered: 3 (13%)

I applied but my application was not accepted by the county: 2 (9%)

I am not interested in this program: 3 (13%)

Other: 13 (57%) Please describe: *Responses varied*

No response: 2 (9%)

36. Should the county restore the streambeds in our neighborhood parks to help prevent flood damage from stormwater runoff and improve habitat for fish and other aquatic life?

Yes: 163 (87%)

No: 3 (2%)

No opinion: 20 (11%)

No response: 1 (1%)

Section 5: Neighborhood Amenities

37. Does the Arlington Forest shopping center meet the needs of the community?

Yes: 95 (51%)

No: 88 (47%) Please explain: *Responses varied*

No opinion: 1 (1%)

No response: 3 (2%)

38. Please indicate your extent of agreement with the following statements about the Arlington Forest Shopping Center. *[Nonresponses not counted.]*

Statement	Agree	Disagree	No opinion
The shopping center should stay as it is.	104 (56%)	36 (20%)	45 (24%)
It's okay to increase the size of the shopping center by building it out.	42 (23%)	116 (63%)	27 (14%)
It's okay to increase the size of the shopping center by building it up.	51 (28%)	102 (55%)	33 (17%)
Building apartments atop the shopping center is a good idea.	29 (16%)	134 (72%)	24 (13%)
Building offices atop the shopping center is a good idea.	21 (11%)	139 (74%)	27 (14%)

Section 6: Public Safety

39. Is crime a problem on your street in Arlington Forest?

Yes: 14 (8%)

No: 171 (91%)

No response: 2 (1%)

40. Is crime a problem anywhere in Arlington Forest?

No: 144 (77%)

Yes: 38 (20%) Please specify where: *Responses varied*

Don't know: 1 (1%)

No response: 4 (2%)

41. What county actions would you suggest to reduce crime and improve safety?

Responses varied

Section 7: Parks and Recreation

42. Please indicate how frequently you use these parks and recreation areas around Arlington Forest. *[Nonresponses not counted.]*

Park/Recreation Facility	Often	Occasionally	Never
Glencarlyn Park	61 (34%)	85 (47%)	36 (20%)
Bluemont Park	55 (30%)	106 (58%)	21 (12%)
The W&OD Trail	117 (63%)	58 (31%)	10 (5%)

Park/Recreation Facility	Often	Occasion-ally	Never
Lubber Run Park	133 (73%)	47 (26%)	3 (2%)
Lubber Run Amphitheater	72 (39%)	96 (53%)	15 (8%)
Lubber Run Community Center (prior to renovation)	32 (18%)	89 (49%)	62 (34%)
Edison Park	34 (19%)	82 (45%)	67 (37%)
Long Branch Nature Center	25 (14%)	111 (61%)	46 (25%)
Glencarlyn Dog Park	23 (13%)	33 (18%)	124 (69%)

43. Would you like to see another dog park in Arlington Forest or nearby?

No: 137 (73%)

Yes: 37 (20%) Please specify where you would put it: *Responses varied*

No response: 13 (7%)

44–48. Please indicate which of the following you believe is a threat to the health, beauty, and enjoyment of our parks and recreation areas. *[Nonresponses not counted.]*

Threat	**To the Health**	**To the Beauty**	**To User Enjoyment**
Erosion from stormwater runoff	116 (62%)	121 (65%)	127 (68%)
Flood-related damage	105 (56%)	122 (65%)	142 (76%)
Delays in replacing bridges	60 (32%)	76 (41%)	166 (89%)
Drought	109 (58%)	117 (63%)	87 (47%)
Forest fire	116 (62%)	95 (51%)	97 (52%)
Tree loss	140 (75%)	165 (88%)	137 (73%)
Air pollution	147 (79%)	78 (42%)	113 (60%)
Water pollution	159 (85%)	94 (50%)	120 (64%)
Decreasing biodiversity	138 (74%)	116 (62%)	108 (58%)
Changing climate/unusual weather patterns	145 (76%)	113 (60%)	128 (68%)
Invasive species	120 (64%)	124 (66%)	100 (54%)
Improper disposal of garbage	151 (81%)	138 (74%)	129 (69%)
Noise	73 (39%)	52 (28%)	137 (73%)
Deer damage to plants	64 (34%)	101 (54%)	57 (31%)

Threat	To the Health	To the Beauty	To User Enjoyment
User conflicts (such as pedestrians/bikers/sports players)	53 (28%)	15 (8%)	126 (67%)
Pets off leash	81 (43%)	23 (12%)	116 (62%)
Pet feces not picked up	151 (81%)	120 (64%)	145 (78%)
Vandalism	63 (34%)	123 (66%)	126 (67%)
Crime	96 (51%)	71 (38%)	129 (69%)

Section 8: Transportation

49. How frequently do you use Metro Train as a means of transportation?

Regularly: 47 (25%)

Occasionally: 84 (45%)

Rarely: 42 (23%)

Never: 8 (4%)

No response: 6 (3%)

If you use Metro Trains regularly, occasionally, or rarely, please answer question 49a and skip to question 50.

If you never use Metro Trains as a means of transportation, please answer question 49b.

49a. What improvements could the county make to encourage others to ride Metro Trains?

Responses varied

49b. Please share any thoughts or comments you have on Metro Train as a means of transportation.

Responses varied

50. How frequently do you use Metrobus as a means of transportation?

Regularly: 21 (11%)

Occasionally: 55 (29%)

Rarely: 51 (27%)

Never: 53 (28%)

No response: 7 (4%)

If you use Metrobus regularly, occasionally, or rarely, please answer question 50a and skip to question 51.

If you never use Metrobus as a means of transportation, please answer question 50b.

50a. What improvements could the county make to encourage others to ride Metrobus?

Responses varied

50b. Please share any thoughts or comments you have on Metrobus as a means of transportation.

Responses varied

51. How frequently do you use ART buses as a means of transportation?
Regularly: 3 (2%)

Occasionally: 23 (12%)

Rarely: 56 (30%)

Never: 93 (50%)

No response: 12 (6%)

If you use ART buses regularly, occasionally, or rarely, please answer question 51a and skip to question 52.

If you never ride ART buses as a means of transportation, please answer question 51b.

51a. What improvements could the county make to encourage others to ride ART buses?

Responses varied

51b. Please share any thoughts or comments you have on ART buses as a means of transportation.

Responses varied

52. How frequently do you use a bicycle as a means of transportation?

Regularly: 41 (22%)

Occasionally: 63 (34%)

Rarely: 30 (16%)

Never: 44 (24%)

No response: 9 (5%)

If you use a bicycle regularly, occasionally, or rarely, please answer question 52a and skip to question 53.

If you never use a bicycle as a means of transportation, please answer question 52b.

52a. What improvements could the county make to encourage others to ride bicycles?

Responses varied

52b. Please share any thoughts or comments you have on bicycles as a means of transportation.

Responses varied

53. How frequently do you use e-bikes as a means of transportation?

Regularly: 0 (0%)

Occasionally: 6 (3%)

Rarely: 14 (8%)

Never: 156 (83%)

No response: 12 (6%)

If you use e-bikes regularly, occasionally, or rarely, please answer question 53a and skip to question 54.

If you never use e-bikes as a means of transportation, please answer question 53b.

53a. What improvements could the county make to encourage others to ride e-bikes?

Responses varied

53b. Please share any thoughts or comments you have on e-bikes as a means of transportation.

Responses varied

54. How frequently do you use motorized scooters as a means of transportation?

Regularly: 2 (1%)

Occasionally: 5 (3%)

Rarely: 21 (11%)

Never: 145 (78%)

No response: 14 (8%)

If you use motorized scooters regularly, occasionally, or rarely, please answer question 54a and skip to question 55.

If you never use a motorized scooter as a means of transportation, please answer question 54b.

54a. What improvements could the county make to encourage others to ride motorized scooters?

Responses varied

54b. Please share any thoughts or comments you have on motorized scooters as a means of transportation.

Responses varied

55. How frequently do you walk as a means of transportation?

Regularly: 156 (83%)

Occasionally: 24 (13%)

Rarely: 2 (1%)

Never: 1 (1%)

No response: 4 (2%)

If you walk regularly, occasionally, or rarely, please answer question 54a and skip to question 56.

If you never walk as a means of transportation, please answer question 55b.

55a. What improvements could the county make to encourage others to walk?

Responses varied

55b. Please share any thoughts or comments you have on walking as a means of transportation.

Responses varied

Section 8: Traffic Management

56. Is through traffic a problem on other streets in Arlington Forest?

No: 82 (44%)

Yes: 90 (48%) Please specify where: *Responses varied*

No response: 15 (8%)

57. Is through traffic a problem on your street?

Yes: 60 (32%)

No: 122 (65%)

No response: 5 (3%)

58. Is speeding a problem on your street?

Yes: 92 (50%)

No: 92 (50%)

No response: 3 (2%)

59. Is speeding a problem on other streets in Arlington Forest?

No: 60 (32%)

Yes: 102 (55%) Please specify where: *Responses varied*

No response: 25 (13%)

60. Should the county install a traffic light at Carlin Springs Road and North Edison Street?

Yes: 75 (40%)

No: 32 (17%)

No opinion: 80 (43%)

61. Please explain.

Responses varied

62. Should the county install a traffic light at Carlin Springs Road and North Harrison Street?

Yes: 39 (21%)

No: 36 (19%)

No opinion: 111 (59%)

No response: 1 (1%)

63. Please explain.

Responses varied

64. Should the county install a traffic light at North Park Drive and George Mason Drive?

Yes: 111 (59%)

No: 20 (11%)

No opinion: 52 (28%)

No response: 4 (2%)

65. Please explain

Responses varied

66. Are there intersections in Arlington Forest where you believe the county should construct traffic circles to calm traffic?

    No: 139 (74%)

    Yes: 25 (13%) Please specify where: *Responses varied*

    No response: 23 (12%)

67. Have you noticed any other traffic hazards or bottlenecks in Arlington Forest?

    No: 76 (41%)

    No opinion: 48 (26%)

    Yes: 53 (28%) Please specify where: *Responses varied*

    No response: 10 (5%)

68. Are there any other measures that the county should consider to improve traffic safety in Arlington Forest?

    No: 94 (50%)

    Yes: 55 (30%) Please specify where: *Responses varied*

    No response: 38 (20%)

69. Do you regularly have problems parking on your street?

    Yes: 10 (5%)

    No: 176 (94%)

    No response: 1 (1%)

If you do not regularly have problems parking on your street, please go to question 74.

70. Would posted 4-hour parking zones to dissuade commuter parking solve the problem? *[only those who answered "yes" in question 69]*

    Yes: 7 (70%)

    No: 3 (30%)

71. Would posted permit parking zones from 8 p.m. to 8 a.m. (may require paying a homeowner fee) solve the problem? *[only those who answered "yes" in question 69]*

    Yes: 4 (40%)

    No: 3 (30%)

    No opinion: 3 (30%)

72. Would it solve the problem for the county to require that new multifamily residential developments within three blocks of Arlington Forest accommodate resident parking onsite? ***[only** those who answered "yes" in question 69]*

    Yes: 6 (60%)

    No: 1 (10%)

No opinion: 2 (20%)

No response: 1 (10%)

73. Do you have any other suggestions for solving parking problems on your street?

Responses varied

74. Is street parking an issue in other parts of Arlington Forest?

Yes: 34 (18%)

No: 29 (16%)

Don't know: 107 (57%)

No response: 17 (9%)

If street parking is not an issue in other parts of Arlington Forest, please go to section 9.

75. Would posted 4-hour parking zones to dissuade commuter parking solve the problem? *[only those who answered "yes" in question 74]*

Yes: 14 (41%)

No: 5 (15%)

No opinion: 15 (44%)

76. Would posted permit parking zones from 8 p.m. to 8 a.m. (may require paying a homeowner fee) solve the problem? *[only those who answered "yes" in question 74]*

Yes: 8 (24%)

No: 6 (18%)

No opinion: 19 (56%)

No response: 1 (3%)

77. Would it solve the problem for the county to require new multifamily residential developments within three blocks of Arlington Forest to accommodate resident parking onsite? ***[only** those who answered "yes" in question 74]*

Yes: 28 (85%)

No: 0 (0%)

Don't know: 5 (15%)

No response: 1 (3%)

78. Do you have any other suggestions for solving parking problems in Arlington Forest?

Responses varied

Section 9: County Services

79. Please indicate your satisfaction with each of the following county services.

Service	Satisfied	Neutral	Dissatisfied	No Response
Animal control	89 (48%)	76 (41%)	14 (8%)	8 (4%)

Fire/ambulance	132 (71%)	49 (26%)	0 (0%)	6 (3%)
Hazardous waste disposal	105 (56%)	61 (33%)	12 (6%)	9 (5%)
Leaf collection	145 (78%)	26 (14%)	12 (6%)	4 (2%)
Libraries	160 (86%)	16 (9%)	4 (2%)	7 (4%)
Park maintenance	88 (47%)	54 (29%)	40 (21%)	5 (3%)
Police	133 (71%)	46 (25%)	2 (1%)	6 (3%)
Public schools	113 (60%)	51 (27%)	13 (7%)	10 (5%)
Snow removal	111 (59%)	57 (31%)	14 (8%)	5 (3%)
Social services	67 (36%)	103 (55%)	5 (3%)	12 (6%)
Street cleaning	116 (62%)	55 (29%)	9 (5%)	7 (4%)
Street/sidewalk maintenance	88 (47%)	65 (35%)	29 (16%)	5 (3%)
Street light maintenance	93 (50%)	69 (37%)	20 (11%)	5 (3%)
Trash pickup	163 (87%)	15 (8%)	6 (3%)	3 (2%)
Curbside recycling	143 (77%)	19 (10%)	22 (12%)	3 (2%)
Water/sewer service	137 (73%)	39 (21%)	6 (3%)	5 (3%)

80. Could county services be improved?

No: 25 (13%)

No opinion: 84 (45%)

Yes: 70 (37%) Please explain. *Responses varied*

No response: 8 (4%)

APPENDIX D: NEIGHBORHOOD DEMOGRAPHICS

According to our *2020 neighborhood survey*, the average household size in Arlington Forest was 2.9. Among respondents, the age distribution was:

- under 18 years 25.3%
- 18 to 24 years 8.8%
- 25 to 34 years 5.1%
- 35 to 54 years 31.2%
- over 54 years 29.6%

Among respondents, the average length of time lived and/or homeownership in Arlington Forest was 20.9 years. The homeownership distribution by longevity was:

- under 6 years 13.4%

- 6 to 15 years 22.5%
- 16 to 25 years 33.7%
- 26 to 35 years 15.0%
- over 35 years 15.5%

Among the respondents, at least one person worked in the public sector (federal, state, or local government) in 54.3 percent of the households, at least one person worked at home full time in 37.4 percent and part time in 83.1 percent, and at least one person was retired in 45.0 percent.

According to the *2010 national census*, the total population of Arlington Forest was 2,223. The age distribution was:

- under 18 years 25.6%
- 18 to 24 years 5.4%
- 25 to 34 years 12.5%
- 35 to 44 years 19.6%
- 45 to 54 years 14.5%
- over 54 years 22.5%

The racial makeup of the residents was:

- white alone 82.3%
- Hispanic or Latino 7.3%
- black or African-American alone 1.7%
- American Indian or Alaska Native alone 0.1%
- Asian alone 4.7%
- Native Hawaiian or Pacific Islander alone 0.4%
- some other race alone 0.1%
- two or more races 3.4%

The housing units in Arlington Forest are all one-story or two-story single-family homes. Of the 852 houses in Arlington Forest in 2010, 701 (82.3 percent) were occupied by owners, 133 (15.6 percent) were occupied by renters, and 18 (2.1 percent) were vacant. Of the 834 houses occupied by owners and renters, the household types were:

- husband/wife family 61.3%
- other family 7.2%
- householder living alone 20.7%
- householder not living alone 10.8%

The number of people per household was:

- 1 person 20.7%

- 2 people 31.7%
- 3 people 19.4%
- 4 people 21.1%
- 5 people or more..... 7.0%

According to the U.S. Census Bureau, the median annual household income for Arlington County in 2014–18 was $117,374 (in 2018 dollars). Reliable statistics for Arlington Forest were not found.
