



Northern Virginia Hazard Mitigation Plan
Annex 1: Arlington County

November 2022



Arlington County Overview

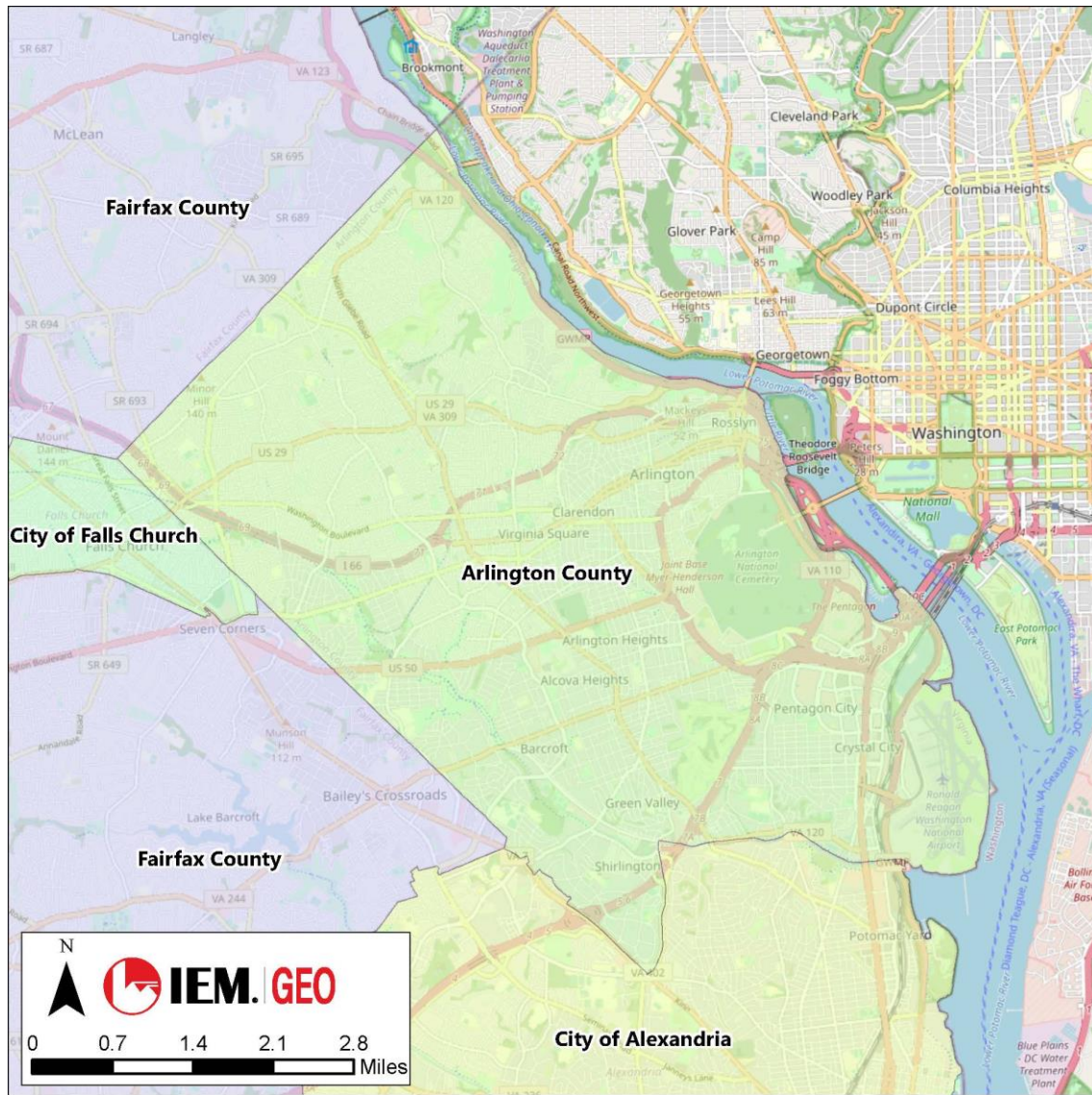








Table 1: Specific Jurisdictional Data

 ESTABLISHED	 LAND AREA	 2020 POPULATION	 GOVERNMENT ADDRESS	 2020 HOUSEHOLDS	 MITIGATION FOCUS
1801	25.8 sq. mi.	238,643	2100 Clarendon Boulevard, Arlington, VA 22201	109,912	Flood/Flash Flood and Winter Weather

Arlington County’s Risk Environment

The following is a snapshot of the details in this annex. The well-researched details form the basis of effective mitigation strategies to improve community resilience.

Hazard Event History

National Centers for Environmental Information (NCEI), 1950–June 2021

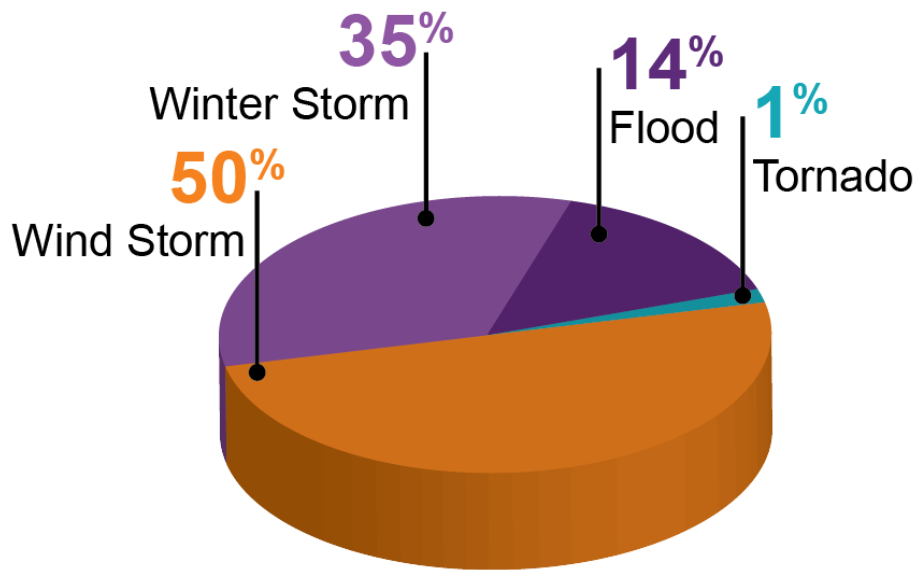


Figure 1: Percentage of Natural Hazards

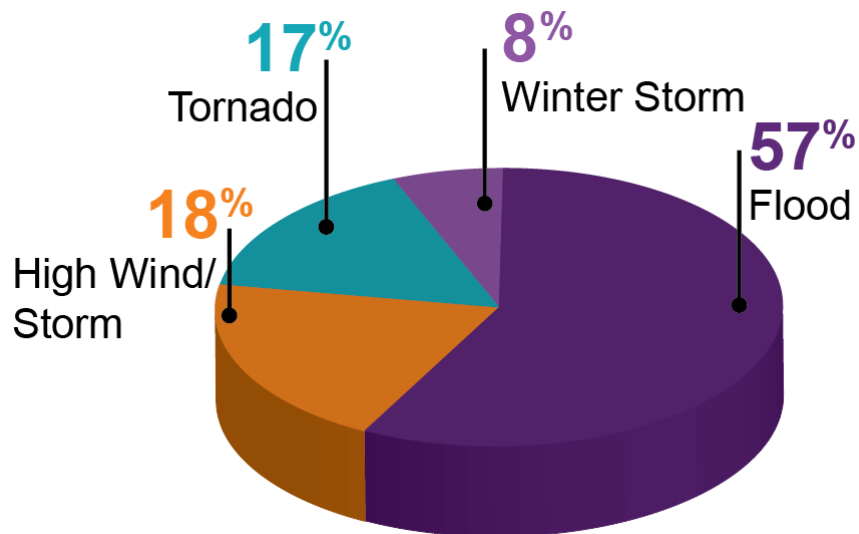


Figure 2: Property Damage Percentages from Natural Hazard Events

Natural Hazard Risk Ranking

Table 2: Natural Hazard Risk Ranking

Hazard	Hazard Ranking
Winter weather	High
Flood	High
High wind/severe storm	High
Tornado	Medium
Extreme temperatures	Medium
Drought	Medium
Earthquake	Low
Karst/sinkhole/land subsidence	Low
Wildfire	Low
Dam failure	N/A
Landslide	N/A

Community Lifelines and Respective Critical Assets

Table 3: Number of Critical Assets for Community Lifelines/Sectors

Lifeline/Sector	Number of Assets
Safety and Security	22
Food, Water, Shelter	6
Health and Medical	1
Energy	0
Communications	4
Transportation	335
Hazardous Materials	8

A lifeline enables the continuous operation of government and business functions, which are critical for human health, safety, or economic security. Lifelines are the most fundamental services for a community that, when stabilized, enable all other aspects of society to function. These lifelines are assets that may be a facility, infrastructure, operation, or entity.



Figure 3: Community Lifeline Components

Summary of Mitigation Capabilities

Table 4: Capability Assessment Summary Ranking for Arlington County

Capability	Ranking
Planning and Regulatory	High
Administrative and Technical	High
Safe Growth	High
Financial	Moderate
Education and Outreach	High

Hazard Mitigation Plan Points of Contact

Table 5: Points of Contact Information

Contact Type	Contact Information
Primary Point of Contact	Sydney McKenna, Emergency Preparedness Manager Department of Public Safety Communications and Emergency Management 1400 N. Uhle St., Suite 300 Arlington, VA 22201 smckenna@arlingtonva.us
Secondary Point of Contact	Elizabeth Thurber, Stormwater Infrastructure Program Manager/Floodplain Administrator/CRS Coordinator Department of Environmental Services 2100 Clarendon Blvd. Suite 705 Arlington, VA 22201 ethurber@arlingtonva.us

Arlington County

This annex presents the following jurisdiction-specific information provided by Arlington County for the 2022 update to the Northern Virginia Hazard Mitigation Plan (NOVA HMP).

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1. Jurisdiction Profile

Incorporated Towns	0 ¹
Geographic Region	Piedmont/Coastal Plain ²
Persons Per Household	2.14 ³
Persons Per Square Mile	9,180 ⁴
Median Age	34.8 ⁵
Elevations	Near sea level – 461 feet ⁶

1.1. Location

Located in the northeast region of the Commonwealth of Virginia, Arlington County is situated on the southwestern bank of the Potomac River directly across from the District of Columbia. The County is bounded on the east across the Potomac River by the District of Columbia and bounded on the south by the City of Alexandria. Arlington County shares a border with Fairfax County and the City of Falls Church on the west and Fairfax County to the north. Arlington County is often referred to as Arlington, Virginia, although it does not have the legal designation of an independent city or an incorporated town under Virginia law.

1.2. History

The land that is now Arlington County was originally part of Fairfax County in the Colonial era, and it was mostly ceded to the United States federal government under the Residence Act of 1790. While the initial square-shape of the federal district, which included Alexandria (and present-day Arlington County), was allowed by the United States Constitution, the Residence Act of 1790 limited construction of any public buildings to the Maryland side of the Potomac River. The County of Alexandria was under exclusive control of Congress until 1846 when Congress allowed the area formerly under its control to be retroceded to the Commonwealth of Virginia, which was accepted by the Virginia legislature in 1847. The City of Alexandria was officially separated from the County in 1870, and in 1920, the name Arlington County was adopted.

Arlington County developed at a steady pace during its history, but by the 1950s, a large influx of new residents led to extensive residential and commercial development. Along with this growth, the transportation system of interstate highways and Metro rail lines expanded throughout the County. Growth has continued at an explosive rate in the twenty-first century.

¹ <https://www.arlingtonva.us/Home>

² <https://pubs.usgs.gov/fs/fs-023-01/>

³ <https://www.census.gov/quickfacts/fact/table/arlingtoncountyvirginia,alexandriacityvirginia/PST045221>

⁴ <https://www.census.gov/quickfacts/fact/table/arlingtoncountyvirginia,alexandriacityvirginia/PST045221>

⁵ <https://data.census.gov/cedsci/table?q=United%20States&t=Age%20and%20Sex%3APopulations%20and%20People&g=0500000US51013&tid=ACSDT5Y2020.B01002>

⁶ <https://www.arlingtonva.us/Government/Projects/Data-Research/Fast-Facts>

1.2.1. Climate

Due to the County's location on both the Virginia Piedmont and the Atlantic Coastal Plain, the County experiences a variety of weather. The diversity of Arlington County's landscape increases its vulnerability to a variety of hazards, most notably flooding and severe storms. In addition to snow melt and rain-related river and urban inland flooding episodes, low-lying areas of Arlington County along the Potomac River are also subject to tidal and storm surge flooding. Permanent inundation of low-lying areas along and near the river shoreline is also a threat as sea levels rise. Additionally, winter storms pose significant threats, as evidenced by the 23- and 31-inch snow levels in late January 2016; blizzard conditions also impacted travel and caused power outages during the 2015–2016 winter season.

1.3. Demographics, Economy, and Governance

Arlington County's population is 236,434, according to the 2020 Decennial Census, which is an approximate 14.9% increase from 2010. The County is densely populated with approximately 9,094.5 residents per square mile. Since 1980, the majority of households consist of a single person or nonrelated individuals.⁷

Table 6: Population and Growth Rate⁸

Year	Population	Decennial Percent Increase
1970	174,284	-
1980	152,599	-12.4%
1990	170,786	11.9%
2000	189,359	10.9%
2010	207,627	9.6%
2020	238,643	14.9%

⁷ Arlington County 2022 Profile website. Retrieved at: <https://www.arlingtonva.us/files/sharedassets/public/projects/documents/data-and-research/profile2022.pdf>

⁸ Ibid.

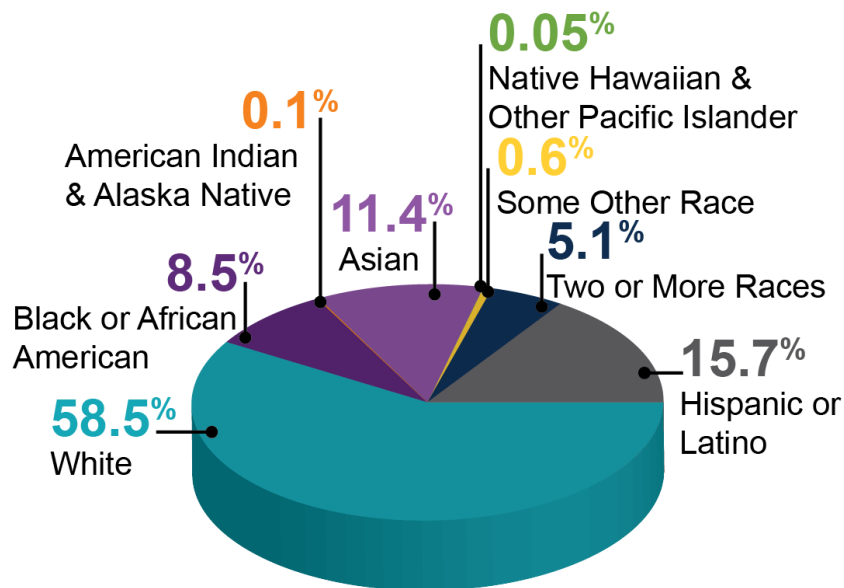


Figure 4: Race and Ethnicity Demographics from 2020 US Census

Table 7: Economic Data

Economy	Data
Median Household Income (2016–2020 American Community Survey 5-Year Estimates)	\$122,604
Unemployment Rate (September 2021 U.S. Bureau of Labor Statistics Local Area Unemployment Statistics)	4.3%
Per Capita Income (2019, Bureau of Economic Analysis)	\$99,407
Average Assessed Value, Single Family Detached (January 2021, Arlington County Department of Management and Finance)	\$1,000,300
Percentage Below Poverty (2019)	6.5%
Top three at-place jobs in industry	Professional and Technical Services (25.1%) Other Services (22.2%) Government (20.6%)

Arlington County has been one of the highest median household income counties in the United States for many years, which is attributed to its close proximity to the District of Columbia, accessibility by car and public transportation, highly skilled labor force, and access to high-paying jobs. Arlington County has also attracted an increasingly varied mix of residential and commercial development. Much of the commercial development in Arlington County is centered around the transit corridors, which also includes high-density, multi-family residential units. Multi-family units make up more than 71% of all housing in Arlington County.⁹

Of the County’s population over the age of 25, approximately 75% have a bachelor’s degree or higher, and 40% have a graduate degree, making it one of the highest-educated workforces in the region. Top

⁹ Arlington County 2021 Profile website. Retrieved at: https://www.arlingtonva.us/files/sharedassets/public/arlington/documents/profile_2021.pdf

private employers in the County, by number of employees, include Amazon, Bloomberg BNA, Booz Allen Hamilton, Virginia Hospital Center, and Nestle.

1.4. Built Environment and Community Lifelines

The information presented in this section was collected from multiple sources, including Arlington County Public Safety Communications and Emergency Management, Hazus (Version 4.2), and county government websites. Data extracted from the Hazus Level 1 assessment indicates that Arlington County has an estimated total of 682 community lifelines and critical assets. The Hazus data is a static point of time when this plan was prepared and does not contain a detailed list of all the facilities and structures in the County. Arlington County keeps an updated list for their records. For the 2022 NOVA HMP update, the community lifeline and critical facility inventory was limited to the Hazus Level 1 database.

Table 8: Number of Assets per Community Lifeline/Sector¹⁰

Lifeline/Sector	Number of Assets
Safety and Security	22
Food, Water, Shelter	6
Health and Medical	1
Energy	0
Communications	4
Transportation	335
Hazardous Materials	8

1.4.1. Safety and Security

Arlington County's safety and security assets include nine fire stations, one district-wide police station, one emergency communications center (911), and one emergency operations center. In addition to the County assets, the Hazus database lists two federal safety and security assets (one emergency operations centers and one fire station) within Arlington County, two Metropolitan Washington Airports Authority facilities, one state police division facility, and one volunteer fire station; however, they are not included as county assets in this plan.

1.4.2. Food, Water, Shelter

Food commodities are available from public retail providers and wholesalers throughout Arlington County. Contracted services also provide food for specific institutions and facilities. Additional contracts may be entered into for post-disaster needs.

Arlington County provides water and wastewater services to its citizens. The Hazus database identifies six wastewater treatment facilities within the County, four owned and operated by the County and two under the authority of the United States Department of Defense.

Arlington County has identified facilities throughout the County that can function as a shelter in the event of an emergency or disaster that results in the need for temporary housing. Most emergency shelter facilities are Arlington Public Schools facilities or County-owned community centers. Two facilities have full power generators.

¹⁰ Arlington County, Hazus

1.4.3. Health and Medical

The Hazus data identifies one health and medical facility in Arlington County (Virginia Hospital Center) that offers patient care, urgent care, emergency rooms, and other healthcare services.

1.4.4. Energy

No energy assets are identified in the Hazus database. Power providers in Arlington County include Dominion Virginia Power and Washington Gas.

1.4.5. Communications

Most communications and information systems and infrastructure in the United States are privately owned; however, the County maintains authority and control over public safety communications for fire, police, and other responding agencies. Four communications assets, radio, and television broadcasters are identified in the Hazus database. In recent years, the federal government has taken a stronger role in protecting information and communication infrastructure, which may present a challenge during disaster impacts. Increasing reliance on this infrastructure by individuals, businesses, and the government could cause vulnerabilities that emergency managers should take into consideration during pre- and post-incident planning and operations.

1.4.6. Transportation

Arlington County is serviced by the following major highways and commuter and rail lines:

- Interstates: 66, 395
- U.S. Highways: 1, 29, 50
- State Highways: 27, 110, 120, 123, 124, 233, 237, 244, 309
- Washington Metrorail: 11 stations for Orange, Blue, Yellow, and Silver lines
- Virginia Railway Express (VRE)
- 16 area rapid transit (ART) bus routes

The maintenance of transportation facilities and systems is the responsibility of the owner or entity with authority, including municipal, county, state, and federal highway departments, and agencies; toll and rail authorities; and the military. Arlington County maintains its own roads (359 miles) using Virginia Department of Transportation funding.

The Amtrak rail system connects at certain VRE stations for rail service beyond the Northern Virginia area.

The Ronald Reagan Washington National Airport is located in Arlington County.

The Hazus database notes a total of 346 transportation structures, facilities, or segments, including the following:

- Highway bridges: 169
- Highway segments: 125
- Highway tunnels: 2

- Railway bridges: 2
- Railway segments: 9
- Light rail facilities and segments: 25
- Bus terminals: 1
- Ports (including public and private wharfs and marinas): 5
- Airport facilities: 1

1.4.7. Hazardous Materials

The Hazus database identifies no oil or gas facilities within Arlington County. The Arlington County Fire Department oversees the hazardous materials team. The team includes firefighters and paramedics with the addition of specialized equipment for use when responding to hazardous material incidents. There are numerous Tier II facilities within the County that report hazardous materials. Furthermore, with many interstates going through the County, hazardous materials travel in and out daily.

1.4.8. Education

Arlington Public Schools (APS) is the 13th largest among Virginia's 132 school divisions. APS is comprised of 41 schools and programs, including 23 elementary schools, 6 middle schools, 4 high schools, 1 secondary school (grades 6-12), and 7 other programs. The APS division has approximately 26,895 students that hail from 142 nations and speak 115 languages.¹¹

There are 39 additional educational facilities in Arlington County that include private pre-K–12 schools, colleges, universities, and technical and career schools.

1.4.9. Recreational, Cultural and Historic Sites, and Assets

Arlington County owns and operates 148 parks, in addition to a variety of other recreational facilities available to residents, including nature centers, athletic fields, and 52 miles of multi-use trails.¹² The multitude of parks and recreational lands within the County underscores its priority to protect environmentally sensitive resources and areas of historic significance.

The County maintains a Historic Resources Inventory of 394 historic assets of special architectural, historical, archaeological, or cultural value to residents and visitors. The inventory identifies 23 essential properties that have the greatest prominence in the community.¹³ These sites are designated by the National Register of Historic Places, Virginia Landmarks Register, and/or the local landmarks process. The County's Comprehensive Plan addresses the preservation of these historic properties. In addition, Arlington County participates in the Certified Local Government program, which requires a level of commitment through land use planning, as well as community preservation efforts over and above regular zoning protection to prevent destruction of or encroachment upon historic districts and properties. These sites serve as an asset by providing significant context to the County's development over time and contributing to the community's tourism economy.

¹¹ Arlington Public Schools website. Retrieved at: <https://www.apsva.us/wp-content/uploads/2022/01/APSQuickFacts-update0122.pdf>

¹² Arlington County 2022 Profile website. Retrieved at: https://www.arlingtonva.us/files/sharedassets/public/projects/documents/data-and-research/profile2022_1.pdf

¹³ [HRI-Phase1.pdf](https://www.arlingtonva.us/files/sharedassets/public/Projects/Documents/HRI-Phase1.pdf) (arlingtonva.us)

Within Arlington County, there are several historical federal sites and facilities, including the following:

- Arlington House
- Arlington National Cemetery
- The Pentagon (including the National 9/11 Pentagon Memorial)
- Air Force Memorial
- U.S. Marine Corps War Memorial

1.5. Growth and Development Trends

The Arlington County General Land Use Plan provides policy guidance for future development in the jurisdiction using “smart growth” principles that concentrate future development along transit corridors. Referred to as “Planning Corridors,” these areas are four times more dense than non-corridor areas, consisting of approximately 53% of the County’s residents as of 2022.¹⁴ The three Planning Corridors are the Rosslyn-Ballston (R-B) Corridor, Richmond Highway Corridor, and Columbia Pike Corridor. In 2002, Arlington County received one of the first National Award for Smart Growth Achievement from the U.S. Environmental Protection Agency for “overall excellence in smart growth”¹⁵ for its Rosslyn–Ballston Metro Corridor.

Over the last few decades, Arlington County has evolved from a residential suburb of Washington, D.C., to a vital commercial, residential, office, and research hub. This substantial change has been reflected in the jurisdiction’s land use pattern, with a vast expansion of non-residential land uses and, to a lesser extent, growth in residential land use (by acres).

As of 2021, Arlington County had an estimated 41.8 million square feet of rentable building area, largely made up of private office space.

The forecast for Arlington County is continual population growth over the next decades, which will impact development pressures to expand housing to accommodate new residents. Based on county projections, 84% of Arlington’s population growth will occur in the Planning Corridors between 2020–2045.

Table 9: Arlington County Growth and Development Forecast¹⁶

Census Year	Number of Housing Units	Projected Population
2020	117,300	231,200
2025	126,800	249,200
2030	133,300	261,600
2035	139,700	273,900
2040	146,300	287,200
2045	152,500	299,500

¹⁴ Arlington County 2022 Profile website. Retrieved at:

<https://www.arlingtonva.us/files/sharedassets/public/projects/documents/data-and-research/profile2022.pdf>

¹⁵ United States Environmental Protection Agency, 2002 National Award for Smart Growth Achievement Booklet.

Retrieved January 22, 2022, at: <https://www.epa.gov/smartgrowth/2002-national-award-smart-growth-achievement-booklet>

¹⁶ Ibid, p. 19.

The increased demand for future housing and related infrastructure may result in pressures to build in inappropriate areas that are susceptible to impacts from natural hazards, such as floods. Land use controls through the County’s ordinances and regulations provide some protection against this pressure, but projected growth trends should be monitored in the next planning cycle with the intent of providing a more detailed statistical analysis of vulnerable populations and how this could potentially impact hazard consequences and mitigation opportunities.

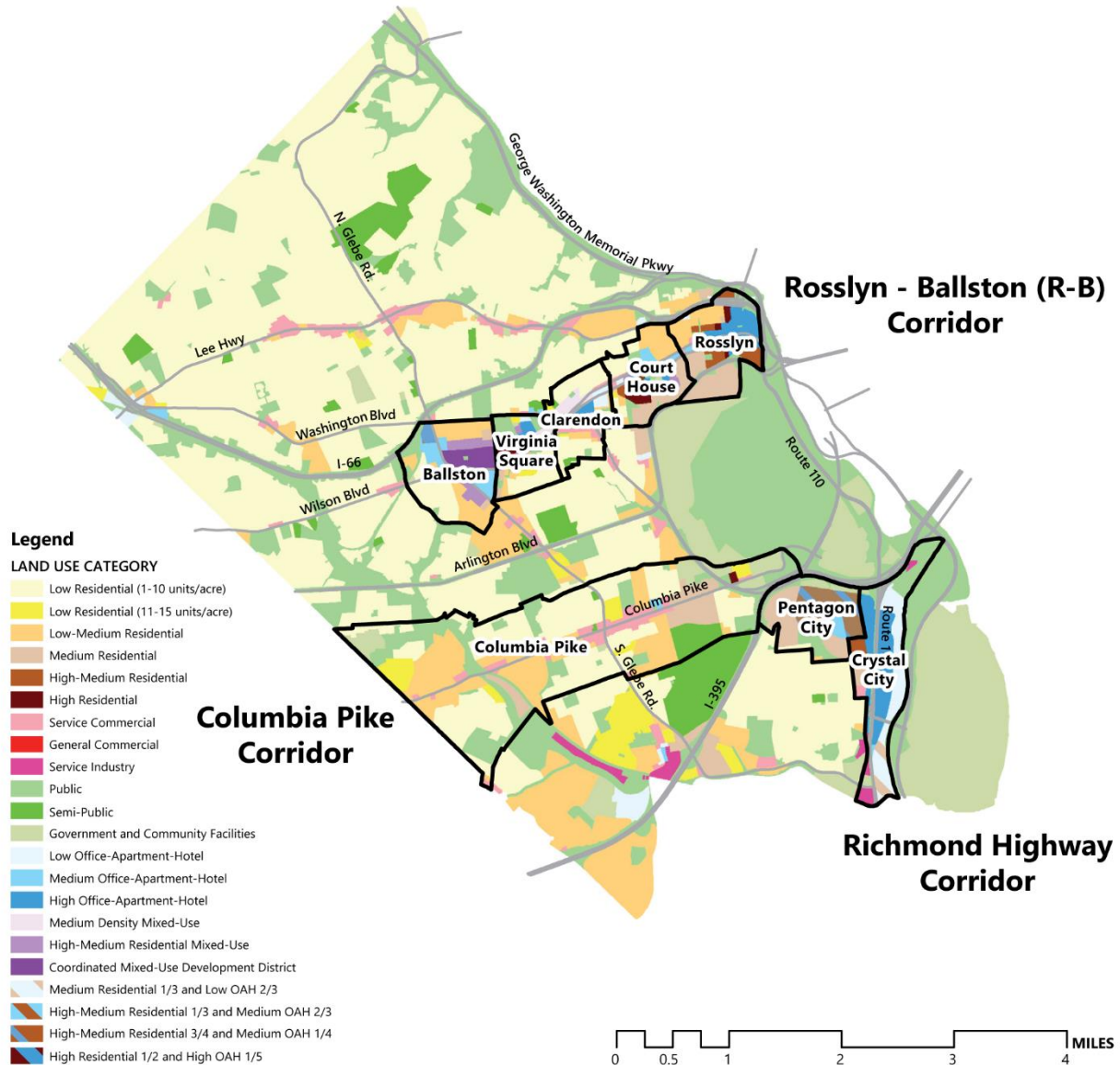


Figure 5: General Land Use Plan and Planning Corridors, Arlington County¹⁷

¹⁷ Arlington County 2022 Profile website. Retrieved at: <https://www.arlingtonva.us/files/sharedassets/public/projects/documents/data-and-research/profile2022.pdf>

2. Jurisdiction Planning Process

For the 2022 NOVA HMP update, Arlington County followed the planning process described in [Section 2, Base Plan](#). In addition to providing representation to the Northern Virginia Hazard Mitigation Planning Team, the County supported the local planning process requirements by coordinating with representatives from other departments and agencies within its jurisdiction, creating an Arlington County Hazard Mitigation Planning Group. The table below lists the Arlington County employees who participated in the 2022 Arlington County Hazard Mitigation Planning Group. The positions/titles listed may have changed since the final publishing and approval of this plan.

Table 10: Arlington County Hazard Mitigation Planning Team Participants

Name	Position/Title	Department/Agency
Erin DeLuca	Emergency Management Specialist	Department of Public Safety Communications and Emergency Management
Rich Dooley	AIRE Program Manager	Department of Environmental Services - Office of Sustainability and Environmental Management
Teresa Elkins	Risk Manager	Human Resources Department
Anthony Fusarelli, Jr.	Planning Division Chief	Department of Community Planning, Housing, and Development
Ryan Hudson	Communications Specialist and ESF 15 External Affairs Lead	County Manager's Office
Dave Hundelt	Chief Support Engineer	Department of Environmental Services – Water, Sewer and Streets Bureau
Dennis Leach	Deputy Director and ESF 1 Transportation Lead	Department of Environmental Services – Transportation and Development Division
Robert Lutz	Deputy Sheriff's Captain	Arlington County Sheriff's Office
Sydney McKenna	Emergency Preparedness Manager	Department of Public Safety Communications and Emergency Management
David Morrison	Emergency Operations Manager	Department of Public Safety Communications and Emergency Management
John Paras	Training and Exercise Coordinator	Department of Public Safety Communications and Emergency Management
Corrie Silcox	Senior Emergency Planner/Coordinator	Department of Human Services, Public Health Division
Michael Stewart	Deputy Director	Department of Management and Finance
Elizabeth Thurber	Stormwater Infrastructure Program Manager/Floodplain Administrator/CRS Coordinator	Department of Environmental Services
Steve Troyano	Lieutenant and ESF 13 Public Safety Lead	Arlington County Police Department
Hannah Winant	Public Affairs Manager	Department of Public Safety Communications and Emergency Management

Name	Position/Title	Department/Agency
Aileen Winquist	Stormwater Communications Manager	Department of Environmental Services – Environmental Management

The chief hazard mitigation planning responsibility as providing oversight in the planning process and providing County representation in the Emergency Managers Group. The County also identified the following tasks as part of its mitigation planning responsibilities:

- Management support for the planning effort
- Planning Group resource/subject matter expert
- Hazard risk and vulnerability assessment
- Provide technical data and hazard information
- Capabilities assessment
- Mitigation strategy development
- Sponsor mitigation actions
- Review plan drafts and provide input
- Public outreach activities
- Implementation of the plan
- Maintaining the plan

Arlington County Hazard Mitigation Planning Team conducted virtual meetings throughout the planning process. The participants completed a series of worksheets that provided a history of hazard events, hazard risks and vulnerabilities, capabilities, and past mitigation efforts. Additional planning process documentation of the NOVA Planning Team meetings is included in the [Base Plan, Appendix A](#).

2.1. Public Participation

Several opportunities for public involvement were provided during the planning process, including a public hazard survey and access to the 2022 draft plan for review and input.

Notification of the hazard survey and draft plan release was made through a county's social media account. Documentation of the public survey and draft plan review is included in [Attachment 2](#) of this annex.

3. Jurisdiction-Specific Hazard Event History

Arlington County’s comprehensive hazard history is described in [Section 5, Base Plan](#). The diversity of the landscape increases the vulnerability to various hazards, most notably flooding and severe storms. In addition to snow melt and rain-related and urban inland river flooding, low-lying areas of the County along the Potomac River are also subject to tidal and storm surge flooding. Permanent inundation of low-lying areas along and near the river shoreline is also a threat as sea levels rise. Additionally, winter weather storms pose significant threats, as evidenced during the 2015–2016 winter season, which resulted in a federal disaster declaration.

The National Oceanic and Atmospheric Administration (NOAA) National Center for Environmental Information (NCEI) Storm Events Database recorded 522 natural meteorological events that took place in the County between January 1, 1950, and June 30, 2021. Arlington County has also been included in three Federal Disaster Declarations and emergencies between 2017 and June 2021.

Table 11: Federal Disaster and Emergency Declarations (2017–2021), Arlington County¹⁸

Declaration	Date	Hazard	Assistance Type
DR-4512-VA	4/2/2020 (continuing)	COVID-19 Pandemic	Individual Assistance, Public Assistance
EM-3448-VA	3/13/2020 (continuing)	COVID-19 Pandemic	Public Assistance (Category B)
EM-3403-VA	9/11/2018	Hurricane Florence	Public Assistance (Category B)

The Arlington County Hazard Mitigation Planning Group submitted the following additional details related to significant hazard events since the 2017 plan. Additional risk information was provided in relation to flood/flash flood, infrastructure failure, and severe winter weather events.

Table 12: Significant Hazard Events Identified by Arlington County, 2017–2021

Date	Hazard	Event and Description
July 8, 2019	Severe Storm/Flash Flood	<ul style="list-style-type: none"> On the morning of July 8, 2019, three to five inches of rain fell in approximately one hour during the morning rush hour. A record setting 3.3 inches fell in one hour at National Airport. This flash flood emergency prompted over 600 emergency calls to Arlington’s Emergency Communications Center, though no fatalities or major medical issues were reported. The Fire Department reported 38 water rescues, including 25 in Arlington. The Police Department received approximately 50 traffic complaints that resulted in the closure of several major roads at peak travel times. The Department of Environmental Services received 151 calls about damage to private property, storm drain backups, indoor flooding, and roadway flooding. The Department of Parks and Recreation reported that six pedestrian bridges in various parks were completely destroyed, in addition to damage to playgrounds and a storage building.

¹⁸ FEMA

Date	Hazard	Event and Description
		<ul style="list-style-type: none"> • Damage to county-owned facilities totaled approximately \$4 million. The information below provides summaries of damages to residential homes and commercial property. <p>Residential Homes Damaged (data collected through Crisis Track)</p> <ul style="list-style-type: none"> • Affected: 59 for a total of \$1,616,190.00 • Destroyed: 1 for a total of \$285,300.00 • Major: 27 for a total of \$5,096,460.00 • Minor: 32 for a total of \$2,976,925.00 • None: 17,311 for a total of \$0.00 • Grand Total: 17,430 for a total of \$9,974,875.00 <p>Commercial Property Damaged (data collected through Crisis Track)</p> <ul style="list-style-type: none"> • Affected: 2 for sum of amount \$0.00 for a sum of contents damage \$0.00 • Major: 3 for sum of amount \$150,000.00 for sum of content damage \$200,000.00 • Minor: 3 for sum of amount \$807,075.00 for sum of content damage \$50,000.00 • None: 27 for sum of amount \$0.00 for sum of content damage \$0.00 • Unknown: 2 for sum of amount \$0.00 for sum of content damage \$0.00 • Grand Total: 37 for sum of amount \$957,075.00 for sum of content damage \$250,000.00
November 8, 2018	Infrastructure Failure – Water Main Break	<p>On November 8, 2018, a 36-inch transmission water main broke on North Glebe Road near the intersection of Route 123 and Chain Bridge. The water main break caused major road damage to North Glebe Road and caused cascading impacts across Arlington County and Washington, D.C.</p> <ul style="list-style-type: none"> • A boil water advisory was issued for Arlington and areas of northwest D.C. • Arlington County Public Schools were closed November 8.

4. Hazard Risk Ranking

After developing hazard profiles, the Arlington County Hazard Mitigation Planning Group conducted a two-step quantitative risk assessment for each hazard that considered population vulnerability, geographic extent/location, probability of future occurrences, and potential impacts and consequences. The numerical scores for each category were totaled to obtain an overall risk score, which is summarized as one of the following risk and vulnerability classifications:

- **Low:** Two or more criteria fall in lower classifications or the event has a minimal impact on the planning area. This rating is sometimes used for hazards with a minimal or unknown record of occurrences or for hazards with minimal mitigation potential.
- **Medium:** The criteria fall mostly in the middle ranges of classifications and the event's impacts on the planning area are noticeable but not devastating. This rating is sometimes used for hazards with a high extent rating but very low probability rating. The potential damage is more isolated and less costly than a widespread disaster.
- **High:** The criteria consistently fall in the high classifications and the event is likely/highly likely to occur with severe strength over a significant to extensive portion of the planning area.

The two-step hazard risk ranking methodology is detailed in [Section 4, Base Plan](#).

The overall risk score for each hazard served as the basis for determining whether a vulnerability assessment should be conducted. Natural hazard profiles are presented within the hazard sub-sections in [Section 5, Base Plan](#), and local detail is provided in the Jurisdiction Annexes. Non-natural hazard profiles are presented in [Volume II of the Base Plan](#).

Table 13: Hazard Risk Ranking Summary: Natural Hazards

Hazard	Total Probability Score	Total Consequence Score	Overall Risk Score	Hazard Ranking
Winter weather	3.3	3.8	7.1	High
Flood	2.7	4.1	6.8	High
High wind/severe storm	2.7	3.0	5.7	High
Tornado	1.3	4.2	5.5	Medium
Extreme temperatures	2.3	2.9	5.2	Medium
Drought	1.7	3.2	4.8	Medium
Earthquake	1.3	2.8	4.1	Low
Karst/sinkhole/land subsidence	1.3	2.7	4.0	Low
Wildfire	1.0	3.0	4.0	Low
Dam failure	0	0	0	N/A
Landslide	0	0	0	N/A

Table 14: Hazard Risk Ranking Summary: Non-Natural Hazards

Hazard	Total Probability Score	Total Consequence Score	Overall Risk Score	Hazard Ranking
Infectious disease/public health	2.7	5.0	7.7	High
Cyberattack	2.0	4.7	6.7	High
Terrorism	1.0	4.7	5.7	Medium
Civil unrest	1.0	4.7	5.7	Medium
Communication disruption	1.3	3.7	5.0	Medium
Hazardous materials	1.0	3.9	4.9	Low
Active violence	1.0	3.6	4.6	Low

4.1. Additional Hazard Risk Considerations

4.1.1. Flood/Flash Flood

The Arlington County Hazard Mitigation Planning Group noted that the frequency of flash flood incidents has increased in recent years. This trend is attributed to more frequent excessive rainfall events combined with aging drainage and stormwater infrastructure designed for lower capabilities. The County is addressing flooding issues by increasing the maintenance of drainage systems and capacity upgrades funded through capital improvement projects.



Figure 6: Arlington County Fire Department Performs Water Rescues, July 2019 Flash Flood Event, Arlington County¹⁹

¹⁹ Arlington County Fire Department, Arlington County Department of Public Safety Communications and Emergency Management, May 10, 2021.

Table 15: Flood/Flash Flood Events in Arlington County, 1950–2021²⁰

Impact	Data
Flood/Flash Flood Events	50
Direct Deaths	1
Direct Injuries	1
Property Damage	\$3,753,000
Crop Damage	\$0
Total Property and Crop Damage	\$3,753,000

4.1.1.1. The County Flood Mitigation Efforts in Arlington County

Recent localized flooding from intense short periods of rainfall now challenges parts of Arlington County's stormwater system due to issues of capacity and limited overland relief. Arlington is working toward flooding resilience by defining balance between private and public responsibility, scaling levels of flood protection and mitigation, and making needs-based investments.

A web-based story map, "A Flood Resilient Arlington,"²¹ describes how early development practices in Arlington have led to flood impacts through succeeding years. The story map explains how the natural stream network that originally served as the stormwater management system was subsequently filled in and paved over to accommodate development over the years. As a result, many stormwater pipes used in the past are no longer adequate for the capacity needed to prevent urban flooding. The figure below shows a comparison of the original and current stream network in Arlington County.

As a component of the "A Flood Resilient Arlington" program, the County has identified local hot spots that have experienced repetitive flood damage (based on 911 calls). Locating these losses will assist in developing appropriate mitigation measures to address property and infrastructure exposure.

²⁰ NCEI Storm Events Database, January 1, 1950, to June 30, 2021. Retrieved January 12, 2022.

²¹ A Flood Resilient Arlington, Story Map. Retrieved at:
<https://storymaps.arcgis.com/stories/d0bb906589d144e5939281b60160b583>

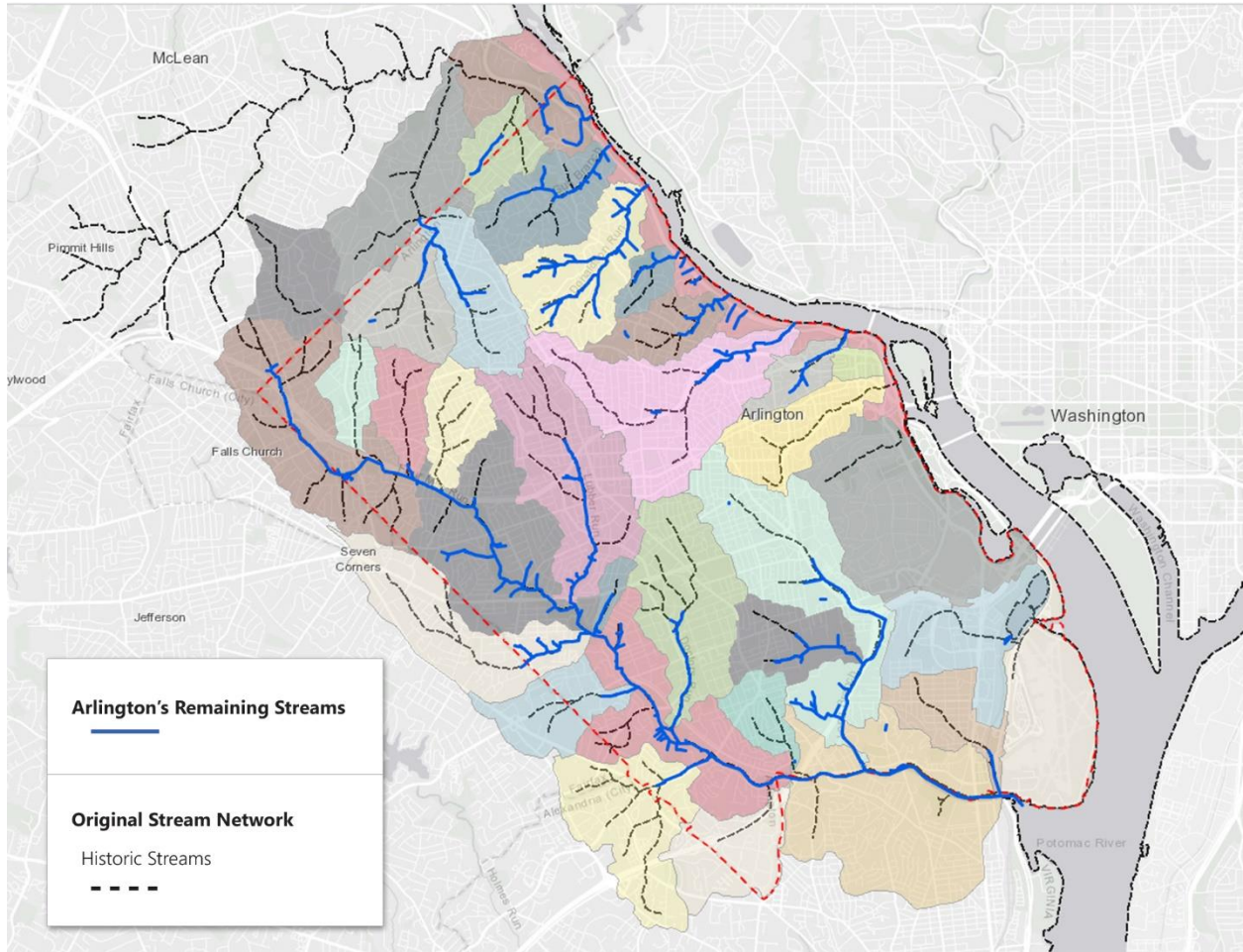


Figure 7: Comparison of Original and Current Stream Network in Arlington County²²

²² "A Flood Resilient Arlington, story map. Retrieved at: <https://storymaps.arcgis.com/stories/d0bb906589d144e5939281b60160b583>

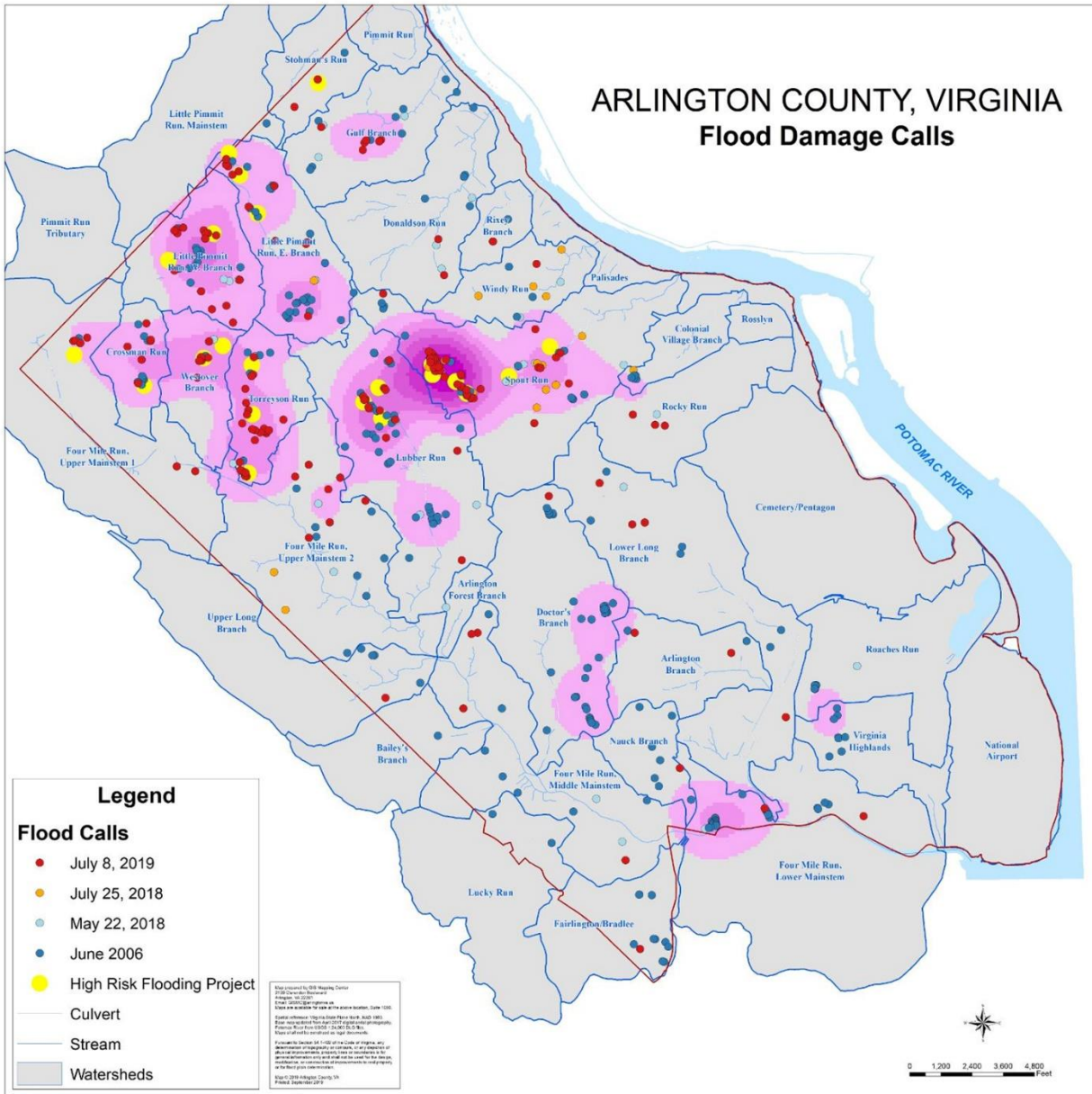


Figure 8: Comparison of Flood Damage Calls for 2006, 2018, and 2019 Flash Flood Events²³

- The County noted multiple ongoing efforts to reduce the risk of flooding. The County NFIP Flood Insurance Rate Maps (FIRMs) were undergoing an update during the 2021 planning process and were projected to be finalized in 2022. FEMA restudied the entirety of Four Mile Run and re-designated all floodplain boundaries for Four Mile Run. This study will include new FIRMs. The County has submitted comments on the study, pending FEMA reply. FEMA accepted one of the County’s appeals on the proposed maps, and the new FIRMS will be finalized in 2023.
- Arlington County and Alexandria will work together to dredge the flood control project along Four Mile Run (\$3 million project).

²³ A Flood Resilient Arlington, story map. Retrieved at: <https://storymaps.arcgis.com/stories/d0bb906589d144e5939281b60160b583>

- Arlington County recently funded a project to develop a manual for flood resilient design guidelines that specifies resilient flood construction standards for homeowners. The manual will be completed in 2023. Its guidelines will be initially optional, becoming mandatory for certain construction types over time.
- The Office of Sustainability and Environmental Management is leading a county-wide project to develop the Risk Assessment Management Plan (RAMP), which is expected to be finalized in 2023. The RAMP will inform and prioritize strategic investments for mitigation risk, amplification, and optimization of the County's integrated stormwater management (capacity) system as well as valuation of project benefits and co-benefits (including avoidance costs) using a measurable return-on-investment methodology. The intent of the RAMP is to address the risk and uncertainty of flooding due to current and future climates and to project and map risk and consequential impacts in support of a long-term resiliency strategy. The RAMP will inform a prioritized capital improvement plan (CIP) with enhanced design standards and forward-looking asset management and adaptation strategies that will allow the County to maintain a responsive level of service (LOS) and a pathway for long-term system resiliency.

4.1.2. High Wind/Severe Storm

The number of severe storm events and impacts on people, property, and crops are documented in the NCEI Storm Events Database under the categories of hail, high winds, lightning, strong winds, and thunderstorm winds.

Table 16: High Wind/Severe Storm Events 1950–May 31, 2021²⁴

Impact	Data
High Wind and Severe Storm Events	145
Direct Deaths	-
Direct Injuries	7
Property Damage	\$6,521,100
Crop Damage	\$5,750
Total Property and Crop Damage	\$6,527,850

²⁴ NCEI Storm Events Database

4.1.3. Severe Winter Weather

Table 17 presents the number of severe winter storm events documented in the NCEI Storm Events Database, including blizzards, heavy snow, winter storms, and winter weather.

Table 17: Severe Winter Weather Storm Events in Arlington County, 1950–2021²⁵

Impact	Data
Severe Winter Weather Events	120
Direct Deaths	1
Direct Injuries	0
Property Damage	\$440,000
Crop Damage	\$0
Total Property and Crop Damage	\$440,000

²⁵ NCEI Storm Events Database, January 1, 1950, to June 30, 2021.

5. Vulnerability Assessment

The Vulnerability Assessment quantifies the people and property that may be impacted by various hazards. Quantitative loss estimates are provided when available. The assets at risk were identified during the planning process as potential assets vulnerable to one or more hazards.

FEMA's hazard model Hazus was used to estimate potential losses to flood, wind, and earthquake hazards. Accompanying the data is a discussion of community assets potentially at risk during a hazard event. Additional details related to the vulnerability assessments are provided in [Section 4, Base Plan](#).

Quantitative loss estimates are provided when available. Using the FEMA hazard model Hazus, qualitative measurement considers hazard data and characteristics, including the potential impact and consequences based on past occurrences. Accompanying the data is a discussion of community assets potentially at risk during a hazard event.

The assets at risk were identified during the planning process as potential assets vulnerable to one or more hazards.

5.1. National Flood Insurance Program

Arlington County is a participant in the National Flood Insurance Program (NFIP). In addition, the County participates in the voluntary Community Rating System (CRS) program under the NFIP. Arlington County is currently a Class 8 in CRS, which is associated with a 10% flood insurance discount for policyholders.

Table 18: National Flood Insurance Program Status, Arlington County²⁶

Initial FBM Identified	Initial FIRM Identified	Current Eff Map Date	Reg-Emer Date	CRS Entry Date	Current Eff Date	CRS Class	% Disc SFHA	% Disc Non SFHA
-	10/1/1969	8/19/2013	12/31/1976	10/1/1993	10/1/2014	8	10%	5%

Table 19: NFIP Policy Status, as of September 14, 2021

Policy Statistics		Claim Statistics	
Policies in Force	Premiums Paid	Total Claims	Total Payment
780	\$447,253	129	\$372,316

Table 20: NFIP Status, as of September 14, 2021

NFIP Topic	Source of Information	Comments
Insurance Summary		

²⁶ FEMA NFIP Community Status Report, September 9, 2021.

NFIP Topic	Source of Information	Comments
How many NFIP policies are in the community? What is the total premium and coverage?	State NFIP Coordinator or FEMA NFIP Specialist	792 policies
How many claims have been paid in the community? What is the total amount of paid claims? How many of the claims were for substantial damage?	FEMA NFIP or Insurance Specialist	213 claims; \$1.6 million paid Two substantial damage claims
How many structures are exposed to flood risk within the community?	Community Floodplain Administrator (FPA)	145 structures
Describe any areas of flood risk with limited NFIP policy coverage	Community FPA and FEMA Insurance Specialist	Areas outside of floodplains along trunk storm sewer lines
Staff Resources		
Are the Community FPA or NFIP Coordinator certified?	Community FPA	No, but there are Certified Flood Plan Administrators on staff
Is floodplain management an auxiliary function?	Community FPA	Yes – FPA has many other duties besides floodplain administration
Provide an explanation of NFIP administration services (e.g., permit review, geographic information system (GIS), education or outreach, inspections, engineering capability)	Community FPA	All listed – Public information and outreach, coordination with GIS to provide floodplain information, propose flood mitigation capital improvements, and plan reviews
What are the barriers to running an effective NFIP program in the community, if any?	Community FPA	Desire for economic development, staffing, and budget
Compliance History		
Is the community in good standing with NFIP?	State NFIP Coordinator, FEMA NFIP Specialist, community records	Yes
Are there any outstanding compliance issues (e.g., current violations)?		1
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?		CAV – 3/18/2014 Workshop – 9/20/2019

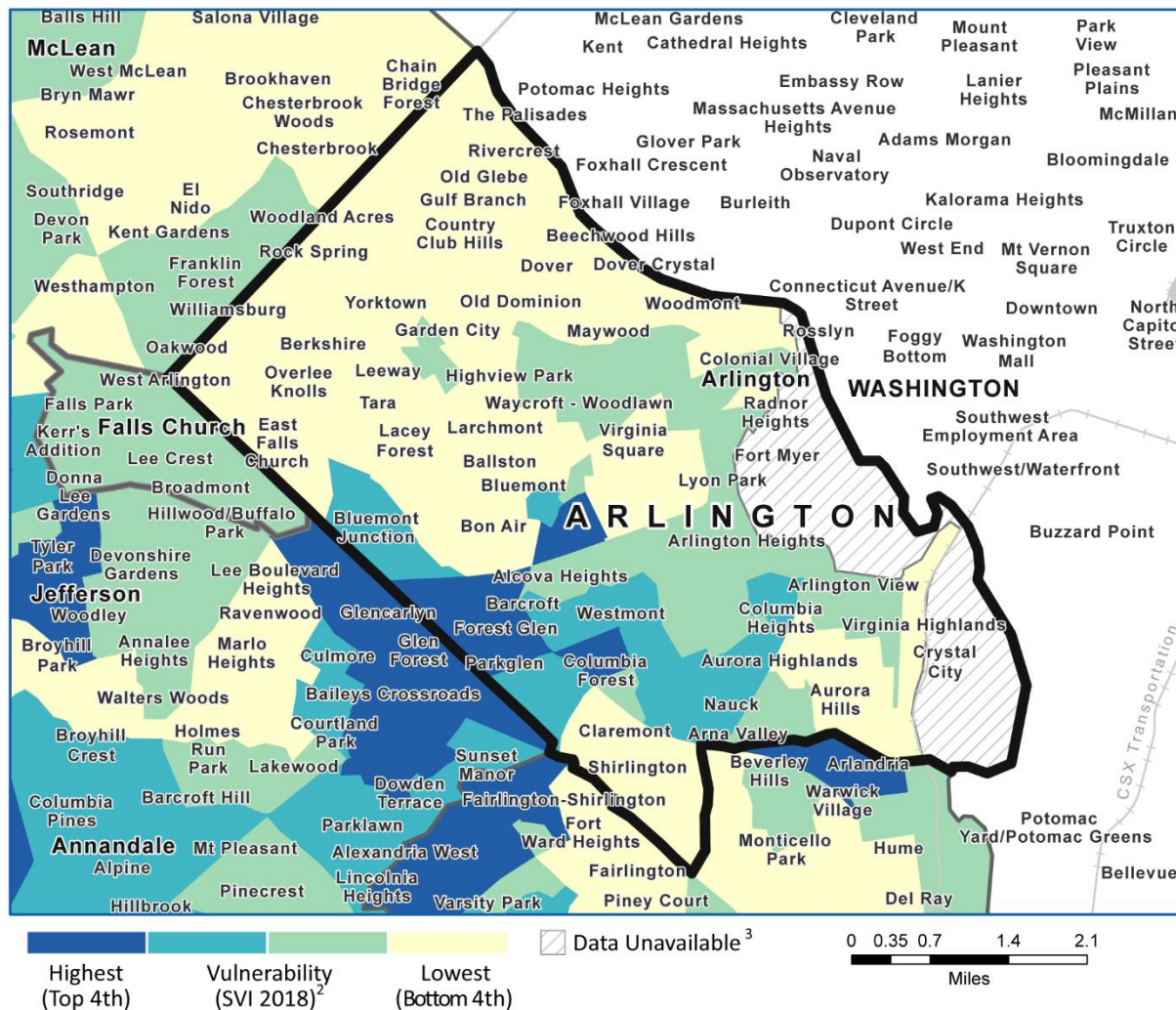
5.2. Population

Arlington County is a densely populated jurisdiction in the Washington metropolitan area. Consequently, in addition to hazard events that have a direct geographic impact within the jurisdiction, residents could be susceptible to impacts within the metropolitan area, especially because many residents work in the District of Columbia. Approximately 5.9% (3,970 residents) are identified as disabled due to access or

functional needs²⁷ and are more vulnerable to hazard events. The multi-county workforce could bring additional challenges in coordinating emergency information and educating residents about hazard risks and vulnerabilities as well as the benefits of hazard mitigation.

Estimates of the number of Arlington County residents vulnerable to each hazard are presented in the various hazard sections in the [Base Plan](#).

The Centers for Disease Control and Prevention (CDC) Agency for Toxic Substances and Disease Registry (ASTDR) Social Vulnerability Index (SVI) (formerly referred to as the Centers for Disease Control and Prevention (CDC) Social Vulnerability Index (SVI)) uses 15 U.S. census variables to help local officials identify communities that may need support before, during, and after disasters. Social vulnerability refers to a community’s capacity to prepare for and respond to the stress of hazardous events ranging from natural disasters (e.g., tornadoes or disease outbreaks) to human-caused threats (e.g., toxic chemical spills). The SVI groups the 15 census track level variables into four themes: socioeconomic status, household composition/disability, race/ethnicity/language, and housing type/transportation. The overall CDC SVI illustrated in Figure 9 indicates that the southwestern area of the County has the highest overall vulnerability, including the following locations: Barcroft, Forest Glen, Virginia Heights, and Parkglen.



²⁷ Arlington County 2021 Profile. Retrieved at: <https://www.arlingtonva.us/Government/Projects/Data-Research/Demographics>

Figure 9: Overall Social Vulnerability Index, Arlington County²⁸

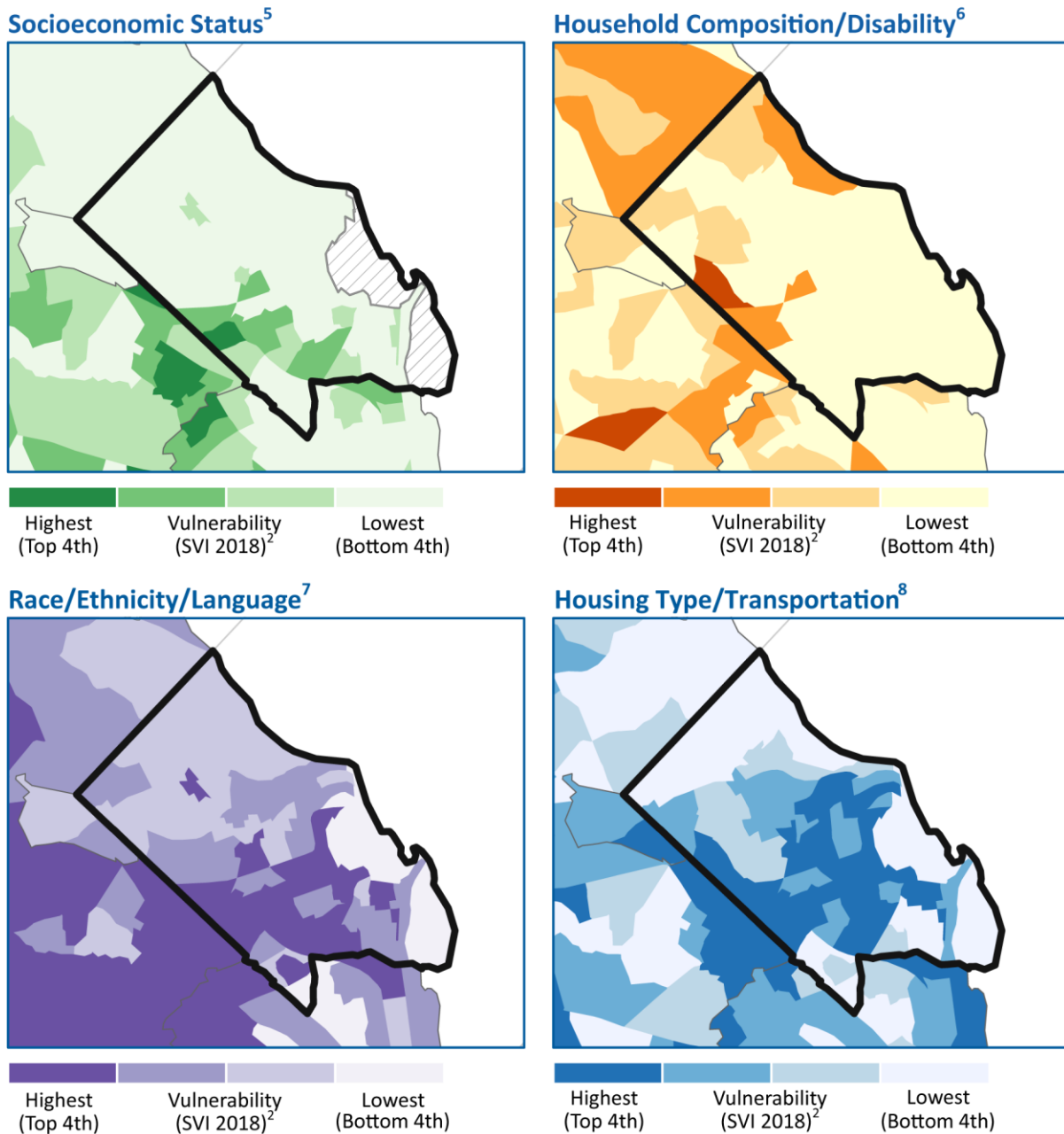


Figure 10: Social Vulnerability, by Theme, Arlington County²⁹

The themed maps illustrate the County’s higher level of vulnerability within the race/ethnicity/language and housing type/transportation themes, demonstrating the importance of communicating essential hazard mitigation, preparedness, response, and recovery information to the public in a variety of formats

²⁸ Centers for Disease Control and Prevention, 2018 Social Vulnerability Index. Retrieved at: https://svi.cdc.gov/Documents/CountyMaps/2018/Virginia/Virginia2018_Arlington.pdf

²⁹ Centers for Disease Control and Prevention (<https://svi.cdc.gov/map.html>)

and in multiple languages. When examined by the vulnerability theme, the planning districts with highest vulnerabilities include:

- Socioeconomic status – Parkglen
- Household composition/disability – Glencarlyn, Parkglen, Buckingham
- Race/ethnicity/language – Glencarlyn, Parkglen, Buckingham, Highview Park, Addison Heights, Virginia Heights, Arlington Village
- Housing type/transportation – Glencarlyn, Parkglen, Buckingham, Highview Park, Addison Heights, Virginia Heights, Arlington Village

5.3. Built Environment

Arlington County contains over \$33 billion of building stock that could be potentially exposed to and damaged by natural or manmade hazards. The table below summarizes the value of this building stock by general occupancy category.

Table 21: Total Value of Arlington County Building Stock Exposure by General Occupancy³⁰

Type	Amount
Residential	\$27,386,560,000
Commercial	\$4,390,075,000
Industrial	\$345,710,000
Agricultural	\$26,163,000
Religion	\$614,708,000
Government	\$371,546,000
Education	\$277,738,000
TOTAL	\$33,412,500,000

5.4. Community Lifelines and Assets

Arlington County reviewed its community lifelines and assets to identify critical facilities, systems, and infrastructure that have the most significant risks and exposure. Vulnerabilities include structures, systems, resources, and other assets defined by the community as susceptible to damage and loss from hazard events.³¹ Critical facilities in Arlington County were analyzed to determine whether they are located in FEMA's 100-year and 500-year floodplains. Buildings and infrastructure located inside floodplain areas have a higher probability of experiencing flooding. Although Arlington County maintains a separate critical facilities database, the Hazus' critical facilities database was used for this analysis to maintain consistency with other jurisdictions in the planning area.

³⁰ Hazus.

³¹ Although Arlington County maintains a separate critical facilities inventory, information used in this analysis is extracted from the Hazus critical facilities database to maintain consistency with other jurisdictions.

Table 22: Critical Facilities Exposed to FEMA Effective Floodplains, Arlington County³²

Facility Type	Total Facilities	In 100-Year Floodplain	In 500-Year Floodplain
Fire Stations	15	1	1
Highway Bridges	169	17	10
Highway Segments	125	36	18
Light Rail Segments	15	4	4
Railway Bridges	2	1	0
Railway Segments	9	2	0
Schools	73	1	2
Wastewater Treatment Plants	6	0	4
TOTAL	414	62	39

³² Ibid.

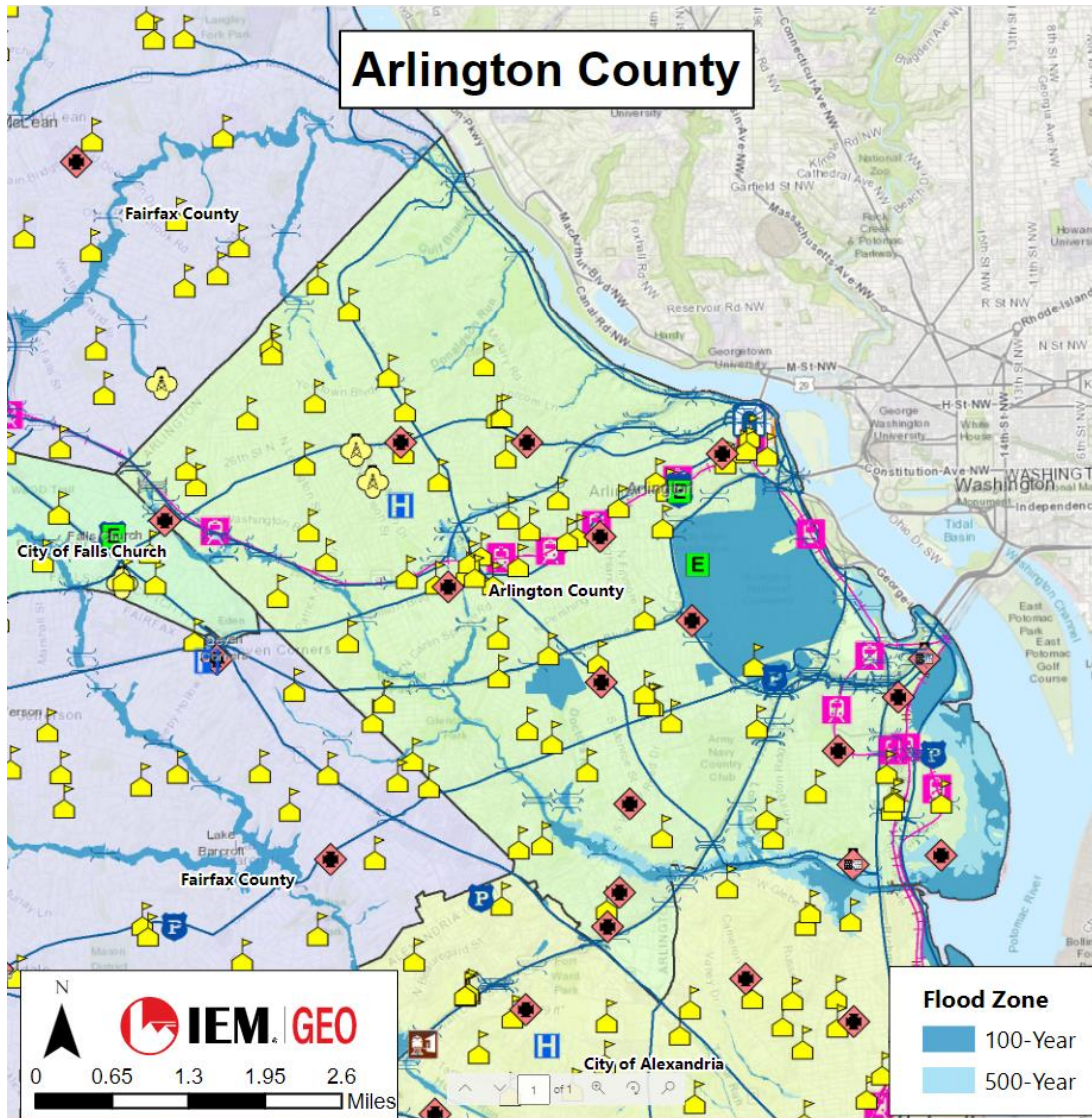


























Figure 11: Community Lifelines/Critical Facilities and the 100- and 500-Year Effective Floodplains, Arlington County³³

³³ Hazus 100- and 500- Year Flood Scenarios, August 3, 2021.

Legend

-  Medical Care Facilities
-  Emergency Operations Centers
-  Fire Stations
-  Police Stations
-  Schools
-  Highway Bridges
-  Highway Tunnels
-  Railway Bridges
-  Railway Facilities
-  Light Rail Facilities
-  Bus Terminals
-  Ports
-  Ferries
-  Potable Water System Facilities
-  Waste Water Treatment Plants
-  Natural Gas Compressor Plants
-  Oil Refineries
-  Power Plants
-  Airport Facilities
-  Broadcast Facilities
-  Highway Segments
-  Light Rail Segments
-  Railway Segments
-  Natural Gas Pipelines

Source: FEMA 2021

Figure 12: Map Legend for Figure 11

5.5. Environment

Information related to environmental vulnerability is presented in the hazard-specific sections of the **Base Plan**.

Additional environmental concerns for Arlington County are related to the Potomac River, watersheds, waterways, and potential for flooding. The County also has a high number of public parks, outdoor sporting facilities, and National Park Service trails and parks that may be at risk from flooding.

5.6. Economy

Information related to economic vulnerability is presented in the hazard-specific sections of the **Base Plan**. Specific direct economic losses (in thousands of dollars) related to earthquakes, floods, and hurricane winds events are identified by Hazus for specific assets.

Table 23: Direct Economic Losses Related to Earthquakes, Floods, and Hurricane Winds³⁴, Arlington County

Hazard	Buildings (capital stock and income)	Transportation	Utilities
Earthquakes (2500-Year, 6.5 Magnitude)	\$359,916,000	\$15,331,000	\$5,748,000
Floods (100-Year)	\$1,493,000	\$0	\$754,516,000

³⁴ Hazus (2500-year, 6.5 magnitude scenario)

Hurricane Winds	\$20,128,000	\$0	\$0
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Additional economic concerns for Arlington County are related to the area's economic base, which relies on the government, information technology, and finance. Major employers include Fortune 500 companies, the federal government, and the military.

5.7. Cultural/Historical

Information related to vulnerability of cultural and historical assets are presented in the hazard-specific sections of the **Base Plan**.

Arlington County has more than 70 historic buildings, sites, and neighborhoods listed in the National Register of Historic Places.

Historic structures and sites are frequently more vulnerable to flood hazards due to the historic development of a city or town along waterways. Because removing historic structures from their original sites affects their historical value, there are challenges to protecting these fragile sites.

Table 24: Cultural and Historic Properties Exposed to FEMA Floodplains, Arlington County

Total Facilities	In 100-Year Floodplain	In 500-Year Floodplain
62	4	5

6. Capability Assessment

Arlington County reviewed its legislative and departmental capabilities to identify resources, strengths, and gaps for implementing hazard mitigation efforts. Using a capabilities assessment worksheet, the community documented existing institutions, plans, policies, ordinances, programs, and resources that could be brought to bear on mitigation strategy implementation. The capabilities in relation to hazard mitigation were assessed in the following categories:

- Planning and regulatory
 - Implementation of ordinances, policies, site plan reviews, local laws, state statutes, plans, and programs that relate to guiding and managing growth and development
- Administrative and technical
 - County, city, and town staff and their skills and tools that can be used for mitigation planning and to implement specific mitigation actions
- Safe growth
- Financial
 - Resources that a jurisdiction has access to or is eligible to use to fund mitigation actions
- Education and outreach
 - Programs and methods that could be used to implement mitigation activities and communicate hazard-related information

In addition to the capabilities assessment worksheet, Arlington County completed a jurisdiction needs identification questionnaire that summarized changes in and enhancements of capabilities since the last plan. This information is integrated into the summaries in this section.

6.1. Capability Assessment Summary Ranking and Gap Analysis

The jurisdiction ranked the levels of capability in relation to each assessment category as a means of identifying where elements could be strengthened or enhanced. Capabilities were ranked on a qualitative basis as demonstrated by the jurisdiction's authorities, programs, plans, and/or resources:

- **Limited:** The jurisdiction is generally unable to implement most mitigation actions.
- **Low:** The jurisdiction has some capabilities and can implement a few mitigation actions.
- **Moderate:** The jurisdiction has some capabilities, but improvement is needed to implement some mitigation actions.
- **High:** The jurisdiction has significant capabilities, as demonstrated by its authorities, programs, plans, and/or resources, and it can implement most mitigation actions.

Table 25: Capability Assessment Ranking Summary

Capability	Ranking
Planning and Regulatory	High
Administrative and Technical	High
Safe Growth	High
Financial	Moderate
Education and Outreach	High

6.1.1. Planning and Regulatory Capabilities Summary

The County utilizes the all-hazards approach when developing any jurisdictional plans, including emergency operations and continuity of operations as well as the HMP.

The following plans and regulatory measures have been newly developed or updated since the 2017 NOVA HMP:

- FY 2021 Adopted CIP
- Arlington, Virginia Emergency Operations Plan, June 2021
- County of Government Ordinance (related to COVID-19)
- County Continuity of Operations Plans
- Community Energy Plan, 2019
- Zoning Ordinance, 2021
- Preliminary FIRMs update, September 2020
- Energy Assurance Plan (EAP)

6.1.1.1. Capability Analysis: High

Significant planning and regulatory tools are in place within Arlington County and bring to light successful integration of hazard mitigation planning with existing planning mechanisms. This demonstrates that the jurisdiction recognizes the benefit of incorporating hazard mitigation in local planning and regulatory processes, such as the Comprehensive Plan, Capital Improvement Plan (CIP), and land development and floodplain regulations, as well as how to use these to develop and implement mitigation actions. The CIP includes bridge renovation and replacements, stormwater infrastructure investments, and localized flood projects. The County continues to promote and enforce appropriate land use based on development codes and ordinances.

During the 2022 plan update process, an Energy Assurance Plan (EAP) was in development to improve the County's (government and community) readiness and resilience to threats of energy disruption. Becoming more energy resilient generally means reduction of energy risk and, more specifically, helping Arlington County to prepare for, respond to, recover from, and mitigate against potential emergencies that impact energy while minimizing economic loss and protecting public health and safety.

6.1.2. Administrative and Technical Capabilities Summary

- Planning and zoning staff include planners, engineers, and a floodplain manager with an understanding of natural and non-natural hazards who are integrated with mitigation planning.
- The County maintains a GIS capability within the Department of Environmental Services.
- County emergency management staff, health department staff, and other staff are familiar with the community's hazards.
- The Department of Public Safety Communications and Emergency Management, Police Department and Fire Department have grant writers who coordinate with the hazard mitigation program.
- The Department of Public Safety Communications and Emergency Management has an emergency warning system for internal and external notifications and warnings.

The County identified the following departments and agencies as key stakeholders in the planning and implementation processes of the HMP:

- Arlington County Department of Community Planning, Housing, and Development
- Arlington County Department of Human Resources
- Arlington County Department of Public Safety Communications and Emergency Management (DPSCEM)
- Arlington County Fire Department
- Arlington County Manager's Office, Communications and Public Engagement Team
- Arlington County Police Department
- Arlington County Sheriff's Office
- Department of Environmental Services
- Department of Technology Services

6.1.2.1. Capability Analysis: High

Arlington County has a robust staffing capability that provides for a high level of coordination for the purpose of mitigation planning and action implementation. While enhancements in its administrative and technical capabilities were gained through the increase in department and agency positions, the jurisdiction noted an area of improvement to conduct a more detailed assessment of staff capabilities to better understand needs and gaps, and identify ways to expand capabilities to reduce risk in the future.

6.1.3. Safe Growth Capabilities Summary

- Growth guidance instruments, such as future land-use policies, regulations, and maps, identify natural hazard areas, such as floodplains, and discourage or prohibit development or redevelopment within those areas.
- The Comprehensive Plan includes a transportation element that addresses appropriate placement and utilization of transportation systems. The bicycle element of the plan recommends caution signage to alert multi-use trail users of potential hazards, including areas that experience frequent flooding. It also addresses optimization of the system to execute evacuation when necessary.

- Environmental policies encourage appropriate development to protect ecosystems.
- The capital improvement program integrates hazard mitigation projects identified in the HMP.
- The building code and floodplain regulations provide for a base flood elevation (BFE) sufficient to protect property from the 100-year flood event.

6.1.3.1. Capability Analysis: High

Arlington County has well-established and nationally recognized safe growth regulatory and enforcement capabilities to limit or prevent inappropriate development in identified hazard areas and protect the natural environment. No additional enhancements are identified at this time. Areas for enhancing the capability include the following:

- Integrating goals from the 2022 NOVA HMP into the Comprehensive Plan.
- Including limits on zoning changes that allow greater density of use in natural hazard areas in rezoning procedures.
- Integrating mitigation actions from the NOVA HMP into the capital improvement program.

6.1.4. Financial Capabilities Summary

- The County's Capital Improvement Plan (CIP) provides funding for projects outside of the jurisdiction's annual operational budget. The 2020 CIP included \$14.6 million to launch a 10-year, \$189 million investment in the County's stormwater management infrastructure to better handle the impact of intensifying climate change and continued population growth.
- The County has the authority to incur debt through general obligation bonds and/or special tax bonds as well as fees for utility services and impact fees for new development.
- The County participates in multiple federal and state funding programs, such as Hazard Mitigation Assistance (HMA), FEMA's Homeland Security Grant Program, the Urban Area Security Initiative (UASI), and other programs through multiple disciplines.

6.1.4.1. Capability Analysis: Moderate

Although rising operational costs and limited financial resources are an everyday challenge to most local governments, Arlington County has significant experience and success in leveraging and combining local, state, and/or federal funding sources to implement mitigation-related projects. The process for identifying potential grants, developing and submitting applications, and managing grant-funded projects is time-consuming and challenging, especially if multiple disasters have occurred simultaneously. In addition, onsite work restrictions imposed during the COVID-19 pandemic (beginning March 2020 and continuing throughout 2021) have presented challenges in staff availability and coordination. To address these shortfalls, the jurisdiction may access technical assistance available to potential applicants provided by many grant programs or expand its capabilities to develop and manage mitigation actions through contracted services. The County identified a measure to enhance capability by continuing to explore programs to fund hazard mitigation. For example, the Department of Environmental Services is examining options to apply for FEMA HMA program grants to help fund various flood mitigation projects in the future.

6.1.5. Education and Outreach Capabilities Summary

- The Arlington County Department of Public Safety Communications and Emergency Management (DPSCEM) implements a robust public education and information program using multiple communication methods, such as programs, events, published materials, and social

media. The department heavily relies on partnerships with trusted community organizations and leaders for information sharing and outreach.

- Arlington County is creating an agile, diverse, and sustainable resident-driven group to identify barriers to, and solutions for, enhancing community resilience. This group, composed of residents, partners, and community leaders from all neighborhoods and sectors, will work alongside and amplify existing resilience efforts within the County to assist Arlington residents prepare for and recover from a disaster or an emergency. In addition to amplifying existing efforts, the community resilience group will coordinate and integrate with County, state, and federal emergency preparedness organizations as well as schools, civic communities, commercial communities, services communities as well as other government agencies.
- DPSCEM has several robust volunteer-coordinated and operated organizations. The Community Emergency Response Team (CERT) is composed of a group of Arlington residents who are trained by professional responders in areas that will help them take care of themselves and others before, during and after a major emergency. CERT is known for their flexibility and quick boots-on-the-ground response capacity in addition to their extensive training courses including Until Help Arrives. RACES, or Radio Amateur Civil Emergency Service, is also a volunteer-led organization housed in DPSCEM. RACES establishes and maintains the leadership and organizational infrastructure necessary to provide Amateur Radio communications in support of emergency management entities throughout the United States.
- The Local Emergency Planning Committee (LEPC), which is housed under the Arlington County Fire Department, works in collaboration with the Department of Public Safety Communications and Emergency Management to help ensure that Arlington County is a safe and well-prepared place to live, work and visit.
- Arlington County is designated as a StormReady community (2020–2023), which includes components of public education and training related to multiple hazards.

CRS initiatives within the NFIP program can increase public awareness of and involvement in hazard mitigation.

Arlington County has identified programs or organizations that can help integrate hazard mitigation into community programs to increase public involvement and sustainability:

- Community Emergency Response Team (CERT)
- Community resilience group
- Arlington County Solid Waste Bureau
- Public–private partnerships, including the Arlington County – Amazon Vaccination Clinic, Spring 2021
- Police department – Personal safety
- American Red Cross
- Northern Virginia Volunteer Organizations Active in Disasters (VOAD)
- Partnerships with energy and water companies

6.1.5.1. Capability Analysis: High

Although Arlington County is highly proactive about informing residents, visitors, and others about hazard preparedness and mitigation, there continues to be opportunities to broaden public outreach and information to reach a wider audience. Arlington County strives to provide this information in a greater variety of languages and through multiple formats. Jurisdictions have multiple opportunities to promote hazard mitigation and increase involvement of stakeholders and the public. The Virginia Department of

Emergency Management mitigation staff can provide technical assistance to support increased jurisdictional involvement. Many hazard mitigation educational tools and materials are available from state agencies as well as from disaster preparedness and response organizations, such as the American Red Cross, FEMA, and faith-based organizations with disaster response missions.

6.2. Capability Summary – Activities that Reduce Natural Hazard Risk or Impacts

As a component of the capability assessment, Arlington County identified activities related to each natural hazard that support risk reduction.

Table 26: Capability Summary – Activities that Reduce Natural Hazard Risk or Impacts

Hazard	Activity
Drought	<ul style="list-style-type: none"> Public education and operational plans address preparedness and response to reduce risk. Land use and environmental policies acknowledge the importance of protecting the natural environment.
Earthquake	<ul style="list-style-type: none"> State and international building codes provide for seismic design regulations. Public education and operational plans address preparedness and response to reduce risk.
Extreme Temperature	<ul style="list-style-type: none"> Public education and operational plans address preparedness and response to reduce risk.
Flood/Flash Flood	<ul style="list-style-type: none"> Floodplain administration and regulations ensure that inappropriate activities and future development in the floodplain are prohibited. Stormwater management programs and projects address flood prevention and risk reduction. The A Flood Resilient Arlington Program has increased the focus on flood risk and mitigation measures. The multi-year capital improvement program to improve the stormwater management system will provide opportunities to reduce flood risk.
High Wind/Severe Storm	<ul style="list-style-type: none"> State and international building codes provide for seismic design regulations.
Karst/Sinkhole/Land Subsidence	<ul style="list-style-type: none"> Land use and environmental policies acknowledge the importance of protecting the natural environment.
Landslide	<ul style="list-style-type: none"> Land use and environmental policies acknowledge the importance of protecting the natural environment.
Tornado	<ul style="list-style-type: none"> Public education and operational plans address preparedness and response to reduce risk.
Wildfire	<ul style="list-style-type: none"> Public education and operational plans address preparedness and response to reduce risk.
Winter Weather	<ul style="list-style-type: none"> Public education and operational plans address preparedness and response to reduce risk.
Non-Natural Hazards	<ul style="list-style-type: none"> Public education and operational plans address preparedness and response to reduce risk.

Hazard	Activity
	<ul style="list-style-type: none"> Beginning with the 2022 NOVA HMP, hazard mitigation planning is being integrated into existing planning and risk reduction activities for technological and human-caused hazards.
Climate Change	<ul style="list-style-type: none"> The Community Energy Plan addresses potential impacts of future meteorological events and provides opportunities to reduce energy usage by the government and the public.

7. Resilience to Hazards

7.1. National Risk Index

The National Risk Index (NRI) is a dataset and online tool developed by the Federal Emergency Management Agency (FEMA) and other partners to help illustrate communities in the United States that are potentially at risk to 18 natural hazards. Hazard risk is calculated from data of a single hazard type and reflects the relative risk for that hazard type. This data is presented for general comparison with the local hazard risk ranking in the Hazard Risk Ranking section of this annex. The NRI defines some hazards differently from the hazards in this plan, so a direct hazard-to-hazard comparison of risk cannot be determined.

Based on the NRI findings, the three hazards with the highest risk rating in Arlington County are tornado, strong wind, and winter weather; however, all 15 applicable hazards rated for risk were determined to be “very low.” The NRI does not align with the NCEI Storm Events Database in that the actual number of historic hazard events is not consistent with the NRI rating. Consequently, the NRI should only be used as a comparative tool with risk levels in other jurisdictions and not as an indication of natural hazard risk in Arlington County.





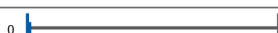



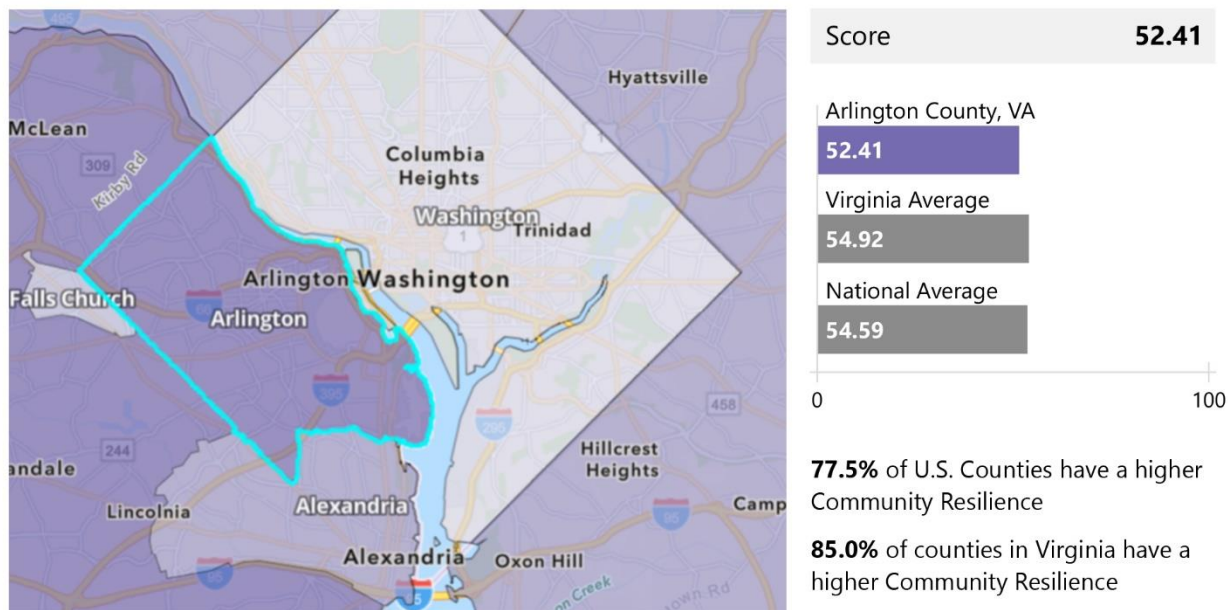
Hazard Type	Risk Index Rating	Risk Index Score
Avalanche	Not Applicable	--
Coastal Flooding	Vert Low	0.31 
Cold Wave	No Rating	0.00 
Drought	Very Low	0.13 
Earthquake	Very Low	0.42 
Hail	Very Low	0.80 
Heat Wave	Very Low	0.80 
Hurricane	Very Low	0.70 
Ice Storm	Very Low	0.99 
Landslide	Very Low	1.56 
Lightning	Very Low	1.61 
Riverine Flooding	Very Low	1.09 
Strong Wind	Very Low	2.11 
Tornado	Very Low	2.15 
Tsunami	Not Applicable	--
Volcanic Activity	Not Applicable	--
Wildfire	No Rating	0.00 
Winter Weather	Very Low	1.81 

Figure 13: Arlington County – Hazard Risk by Type, National Risk Index³⁵

³⁵ National Risk Index, FEMA. Retrieved at: <https://hazards.fema.gov/nri/map#>

The National Risk Index (NRI) provides an overview of hazard risk, vulnerability, and resilience. The designation of “low risk” is driven by lower loss due to natural hazards, lower social vulnerability, and higher community resilience. Based on the NRI assessment, Arlington County has a relatively moderate community resilience.



Community Resilience Legend

- Very High
- Relatively High
- Relatively Moderate
- Relatively Low
- Very Low
- Data Unavailable

Figure 14: National Risk Index Community Resilience Rating, Arlington County³⁶

Arlington County’s NRI community resilience score of 52.41 represents a relatively low ability to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions when compared with the rest of the United States. The NRI uses broad factors to account for resilience rating and may not have all of the up-to-date information, leading to a different outcome than the Planning Group’s assessment.³⁷

Table 27: Comparison of Arlington County Scores with Virginia and National Average³⁸

Index	Arlington County	Virginia Average	National Average
Risk	1.04	6.50	10.60
Expected Annual Loss	12.57	9.22	13.33
Social Vulnerability	3.78	35.32	38.35
Community Resilience	52.41	54.92	54.59

³⁶ National Risk Index. Retrieved at: <https://hazards.fema.gov/nri/map#>

³⁷ https://www.fema.gov/sites/default/files/documents/fema_national-risk-index_technical-documentation.pdf

³⁸ Ibid.

Table 28: Arlington County Risk Ranking Summary³⁹

Index	Rank
Risk	Very Low
Expected Annual Loss	Relatively Low
Social Vulnerability	Very Low
Community Resilience	Relatively Low

7.2. Community Resilience Estimate

The Community Resilience Estimate (CRE) is a data product produced by the U.S. Census Bureau that can be used to estimate potential community resilience to disasters by combining data from several sources to analyze individual and household level risk factors.

The index produces aggregate-level (census tract, county, and state) small-area estimates, providing a tool for understanding how at-risk specific neighborhoods may be to disasters due to characteristics that might make specific segments of the population more vulnerable to the impacts and consequences of disasters. The following are the 10 risk factors.⁴⁰

1. Income-to-poverty ratio
2. Single or zero caregiver household
3. Unit-level crowding
4. Communication barrier
5. Aged 65 years or older
6. Lack of full-time or year-round employment (household)
7. Disability
8. No health insurance coverage
9. No vehicle access (household)
10. No broadband internet access (household)

³⁹ Ibid.

⁴⁰ The Community Resilience Estimates are developed by the U.S. Census Bureau; initial release date, August 10, 2021. Methodology is described at the [U.S. Census Bureau Community Resilience Methodology page](https://www.census.gov/programs-surveys/community-resilience-estimates/technical-documentation/methodology.html) (<https://www.census.gov/programs-surveys/community-resilience-estimates/technical-documentation/methodology.html>).

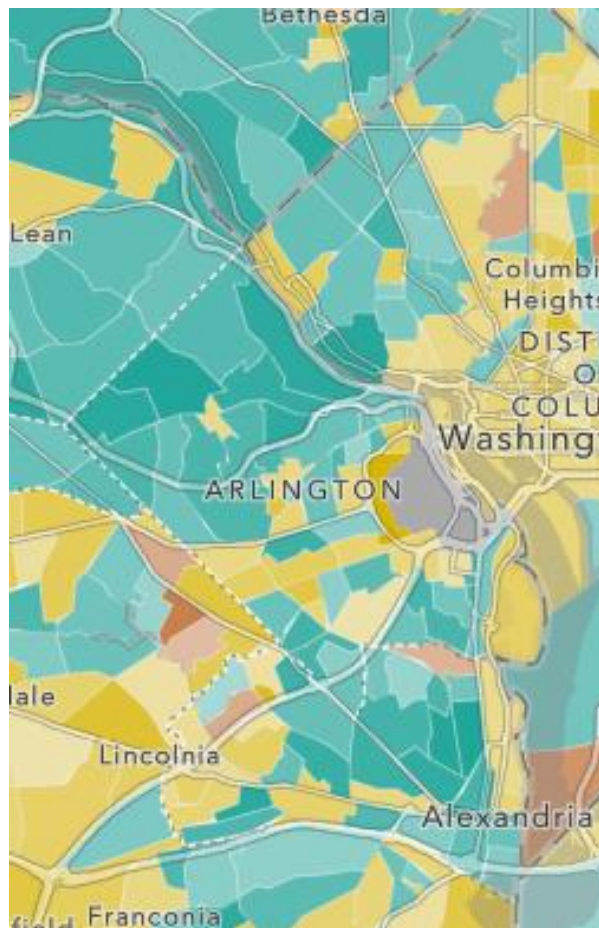


Figure 15: Community Resilience Estimate, Predominant Risk Factor Map⁴¹

The estimate is categorized into three groups: zero risks, one to two risks, and three or more risks. Yellow, gold, and orange map colors indicate increasing levels of risk. The CRE for Arlington County indicates that 34,900 of county residents have three or more risk factors.

The combination of data and analysis described in this section provides an overview of Arlington County's risk, vulnerability, and resilience to all hazards.

7.3. New Hazard Risk Challenges or Obstacles to be Monitored in the Next Planning Cycle

The Arlington County Hazard Mitigation Planning Group identified specific hazard challenges and obstacles to be monitored in the next planning cycle:

- The risk that cyber-related incidents pose to critical infrastructure and key resource sites,
- Climate change, and
- Increases in the number of excessive rainfall events that impact new areas with flooding.

⁴¹ Community Resilience Estimates, U.S. Census Bureau. Retrieved at: <https://experience.arcgis.com/experience/b0341fa9b237456c9a9f1758c15cde8d/>

8. Mitigation Actions

8.1. Goals and Objectives

The Arlington County Hazard Mitigation Planning Group adopted the regional goal statement presented in [Section 8, Base Plan](#).

8.2. Status of Previous Actions

Arlington County monitors actions and tracks progress through the periodic review, evaluation, revision, and update of the NOVA HMP. Some projects that contribute to risk reduction have been completed or are currently in progress but have not been included in this plan for one of the following reasons:

- Project funding has been approved, received, or identified, and additional resources are not needed to complete the project.
- The project scope is inconsistent with the hazard mitigation planning goals defined in this plan.
- The responsible department, agency, or organization maintains an internal tracking system that documents progress and resulting risk reduction.

Table 29: Status of Previous Mitigation Actions

NOVA HMP Year	Number of Actions	Number of Actions Removed from Plan for 2022 Update	Justification for removal
2006	2	1	Completed
2010	17	12	Completed or no longer relevant
2017	2	2	Completed

The comprehensive list of previous mitigation actions, including descriptions of progress made and current status, is presented in [Attachment 3](#) of this annex.

While not captured in the 2017 NOVA HMP, the County has made significant progress toward completing several stormwater capacity projects identified in the 2014 Stormwater Master Plan. In general, the areas with completed projects have experienced reduced flooding. The current flooding challenges are in interior, urban locations where the system is overwhelmed by intense and short-lived storms. Arlington County has five critical watersheds where blended capacity solutions are being proposed to address these current challenges.

The first major project under the resilience initiative, a stormwater detention vault under athletic fields at a school, began construction in the fall of 2021.

8.2.1. Changes in Priorities Since the 2017 Plan

Since 2017, Arlington County has experienced changes in rainfall patterns and increased storm intensity. In July 2019, the region experienced widespread flooding from a summer storm that dropped 3.44" of rain in one hour, approximately equal to a 200-year storm event. Since then, Arlington County has shifted its stormwater program toward flood resilience and is focusing on adding additional capacity and flexibility to the storm drain system. Under A Flood Resilient Arlington, the following steps have been taken:

- Proposing a first-ever stormwater bond to voters in November 2020, which was approved.
- Expanding storm detention facility types and locations.
- Moving beyond increasing pipe capacity to detention vaults, stormwater pumping stations, and other facilities.
- Looking at new locations for stormwater facilities, such as underneath athletic fields and parks.
- Completing/Initiating the Risk Assessment and Management Plan – a vulnerability assessment with climate projections for 2040 and 2070 that will include updated rainfall curves and inundation maps.

The shifting focus of Arlington County’s stormwater program to flood resilience will reduce flood risk from both short duration, high intensity rain events and longer duration, hurricane-type events. The County is expanding the types of storm detention facilities, moving beyond increasing pipe capacity in the public right-of-way to detention vaults, stormwater pumping stations, and other facilities. Arlington County is also looking at more locations for stormwater facilities, such as schools and parks as well as possible voluntary property acquisition in a few key locations.

8.3. New Mitigation Actions

Arlington County identified 37 mitigation actions for the 2022 update, which include previously identified actions from the 2006, 2010, and 2017 plans. **Attachment 3** of this annex includes a table that summarizes each new and continued mitigation action, describing the proposed activity, priority level, estimated cost, interim measures of success, and lead agency.

8.4. Action Plan for Implementation and Integration

The Arlington County Department of Public Safety Communications and Emergency Management (DPSCEM) is responsible for coordinating county departments and agencies that participate in hazard mitigation activities. The DPSCEM-designated Mitigation Coordinator is responsible for implementing the mitigation plan on two levels: implementation of the jurisdiction’s actions and facilitating implementation of the multi-jurisdictional regional plan. Tasks to ensure that the jurisdiction’s actions are implemented are integrated into the Action Plan for Implementation and Integration (which includes the prioritized list of mitigation actions). Plan maintenance procedures are described in the next section.

The Action Plan for Implementation and Integration describes how the County’s hazard mitigation risk assessment and goals will be incorporated into its existing plans and procedures.

Table 30: Action Plan for Implementation and Integration, Arlington County

Existing Plan or Procedure	Description of How Mitigation Will Be Incorporated or Integrated
Integrate goals into the local comprehensive plan.	The Arlington County Department of Public Safety Communications and Emergency Management (DPSCEM) will work with the Community Planning and Housing Department to determine the best way to integrate the hazard mitigation goals into the next update of the local comprehensive plan.
Maintain regulatory requirements of the National Flood Insurance Program (NFIP).	Arlington County will continue to maintain regulatory requirements of the NFIP by enforcing our floodplain management ordinance, reviewing site plans, participating in compliance reviews (community assistance contacts/community

Existing Plan or Procedure	Description of How Mitigation Will Be Incorporated or Integrated
	assistance visits), and participating in flood insurance studies and flood risk mapping.
Enhance floodplain management through the Community Rating System (CRS).	As a CRS community, Arlington County will continue to abide by the CRS program requirements and advance our standing in the CRS by conducting various flood mitigation activities to reduce our risk of flooding.
Continue public engagement in mitigation planning.	Hazard mitigation is a key component of the DPSCEM's community engagement mission and will be incorporated into future outreach projects.
Identify opportunities for mitigation education and outreach.	One future opportunity for mitigation education outreach includes embedding hazard mitigation education into Preparedness Month by September 2022, including programming hosted by APS. For example, DPSCEM will collaborate with the Department of Environmental Services to host education opportunities at civic events (e.g., civic association meetings, neighborhood fairs) to showcase county-sponsored hazard mitigation opportunities, such as flood protection programming and rainwater harvesting, in addition to general preparedness tips.
Review/update stormwater plans and procedures for consistency with mitigation goals.	The stormwater management plan and capital improvement plan will be reviewed and updated to align with mitigation goals.
Review/update emergency plans to address evacuation and sheltering.	Arlington County maintains a shelter plan/SOP that is reviewed and updated every 2–3 years.
Monitor funding opportunities.	Monitor local, state, and federal funding opportunities that could be utilized for hazard mitigation. This includes hazard mitigation assistance opportunities and non-traditional mitigation funding sources.

9. Annex Maintenance Procedures

9.1. Maintenance of the NOVA HMP, Base Plan

The point of contact for the Northern Virginia Mitigation Project Team is the facilitator for the process to monitor, evaluate, and update the **NOVA HMP, Base Plan**. This facilitator is responsible for initiating the annual activities, convening the NOVA Planning Team (made up of the Emergency Managers Group and Planning Group), and providing follow-up reports to designated entities defined in the method and schedule for the plan maintenance process, as outlined in **Section 3, Base Plan**. This facilitator is not from Arlington County.

Table 31: Arlington County Plan Maintenance Responsibilities for the Northern Virginia Hazard Mitigation Plan, Base Plan

Activity	Responsibilities
Monitoring the Plan	<ul style="list-style-type: none"> • Represent the jurisdiction during the monitoring process. • Collect, analyze, and report data to the NOVA Planning Team. • Maintain records and documentation of all jurisdictional monitoring activities. • Assist in disseminating reports to stakeholders and the public. • Promote the mitigation planning process with the public and solicit public input.
Evaluating the Plan	<ul style="list-style-type: none"> • Represent the jurisdiction during the evaluation process. • Collect and report data to the NOVA Planning Team. • Maintain records and documentation of all jurisdictional evaluation activities. • Assist in disseminating information and reports to stakeholders and the public.
Updating the Plan	<ul style="list-style-type: none"> • Represent the jurisdiction during the planning cycle, including plan review, revision, and update process. • Collect and report data to the NOVA Planning Team. • Maintain records and documentation of all jurisdictional plan review and revision activities. • Help disseminate reports to stakeholders and the public.

9.2. Maintenance of the Jurisdiction Annex

In addition to maintenance of the **NOVA HMP, Base Plan**, the Arlington County Mitigation Planning Coordinator will facilitate the method and schedule for maintaining the **Jurisdiction Annex**.

9.2.1. Plan Maintenance Schedule

- **Monitor:** Annually and/or following major disaster(s)
- **Evaluate:** Annually and/or following major disaster(s)
- **Update:** Annual tasks over the five-year planning cycle; planning process in fifth year

Table 32: Arlington County Jurisdiction Annex Maintenance Procedure

Activity	Procedure and Schedule	Outcome
Monitoring the Annex	<ol style="list-style-type: none"> 1. Schedule the annual plan review with the Arlington County Hazard Mitigation Planning Team. 2. Review the status of all mitigation actions, using the Mitigation Action Implementation Worksheet (Section 3, Attachment A, NOVA HMP Base Plan). 	Produce an annual report that includes the following: <ul style="list-style-type: none"> • Status update of all mitigation actions • Summary of any changes in hazard risk or vulnerabilities and capabilities • Summary of activities conducted for the Action Plan for Implementation and Integration
Evaluating the Annex	<ol style="list-style-type: none"> 1. Schedule the annual plan evaluation with jurisdiction Arlington County Hazard Mitigation planning team. 2. Evaluate the current hazard risks and vulnerabilities as well as the hazard mitigation capabilities using the Planning Considerations Worksheet (Section 3, Attachment C, NOVA HMP Base Plan). 	Submit the annual report to the NOVA HMP Project Team point of contact
Updating the Annex	<ol style="list-style-type: none"> 1. Coordinate with Northern Virginia jurisdictions to identify the method and schedule for the five-year update of the NOVA HMP. 2. Participate in the planning process. 3. Provide input related to the plan components. 4. Following FEMA Approvable Pending Adoption designation, adopt the updated plan. 	Adoption of the FEMA-approved plan every five years will maintain the jurisdiction's eligibility for federal post-disaster funding.

Mitigation actions presented in the Arlington County Jurisdiction Annex may be reviewed, revised, and updated at any time. This will ensure that mitigation actions remain current and positioned for potential funding as it becomes available.

Arlington County will continue to be a planning partner with multiple jurisdictions and regional entities to identify hazard mitigation opportunities that reduce risk to the hazards identified in this plan.

10. Annex Adoption

The Arlington County Jurisdiction Annex will be adopted simultaneously with the adoption of the *NOVA HMP*.

11. Attachments

- Attachment 1: Adoption Resolution
- Attachment 2: Documentation of Public Participation
- Attachment 3: Mitigation Actions

11.1. Attachment 1: Adoption Resolution

[This page is a placeholder for the Adoption Resolution for this jurisdiction.]

11.2. Documentation of Public Participation

Ready Arlington 🤖
@ReadyArlington

Fires, floods and storms, oh my! We want to learn about hazards that worry you as we update the region's Hazard Mitigation Plan.

This plan lays out policies and actions to reduce risk of hazards like storms, floods + cyber attacks. Share your ideas:
bit.ly/3IHYvrJ

6:18 PM · Aug 25, 2021 · Sprout Social

1 Retweet 1 Like



Ready Arlington
@ReadyArlington




Fires, floods and storms, oh my! We want to learn about hazards that concern you as we update the region's Hazard Mitigation Plan. This plan lays out policies and actions to reduce risk of hazards like storms, floods + cyber attacks. Share your ideas:

bit.ly/3IHYvrJ




Arlington County
Public Affairs Manager, Arlington County Emergency Management Hannah Winant • Just now



Help us update NOVA's Hazard Mitigation Plan!

Help us update the Northern VA Hazard Mitigation Plan! Arlington's Emergency Management team is working with colleagues across the region to update the Northern Virginia Hazard Mitigation Plan, which lays out actions to reduce the risk to life and property from hazardous events like severe storms, floods, and cyber attacks. We want to learn about hazards that concern you and to incorporate your feedback into our work. Share your ideas: <https://bit.ly/3lHYvrJ>

 **Northern Virginia Hazard Mitigation Survey**
surveymonkey.com

Posted to **Subscribers of Arlington County**



- The County Board will host community conversations on Missing Middle Housing from September to October 2022. [Register here and submit questions in advance for upcoming information sessions.](#)
- Join the first Missing Middle Housing Information Session on Housing Development and Economics virtually on Wed., September 14, at 7 p.m. [Submit your questions in advance to this and other upcoming information sessions.](#)
- County transportation staff will [host a virtual meeting](#) on Thurs., September 15, at 7 p.m. to review the proposed design and share your feedback on the proposal to reconstruct 23rd Street South between Route 1 and Crystal Drive.
- [Provide feedback](#) on how the General Land Use Plan (GLUP) designation for the Sunrise Senior Living property at North Glebe Road and 20th Street North could change in the future, now through September 19.
- Do your current broadband internet services meet your needs? Share your input through September 30 for the [Digital Equity Broadband Study eCheckup](#) as a [resident](#) or as a [business](#) to help the County better understand the community's internet access and use.
- Provide your feedback on the [Draft Forestry and Natural Resources Plan](#) through October 3 ([formulario en español](#)). Arlington's Forestry and Natural Resources Plan is designed to address environmental challenges and ensure Arlington's natural resources for current and future generations.
- The [2022 Northern Virginia Hazard Mitigation Plan is open for public comment!](#) This plan aims to minimize impact from hazards that affect our community, such as flooding, winter weather, and other disasters. Learn more and share your feedback through October 8.

For more information on engagement opportunities, check the [Engage Page](#).

Digital Equity Broadband Study eCheckup - Feedback Form through Sept. 30: Share your input as a [resident](#) and/ or [business](#) on the broadband study to help the County better understand the community's internet use and broadband access. [Learn](#) about this study by visiting the project page.

Draft Forestry and Natural Resources Plan - Feedback Form through Oct. 3: Share your [feedback](#) on the Draft Forestry and Natural Resources Plan to help assure the future benefits of nature. [Visit](#) the project page to learn about the plan and [leave a comment](#) directly.

Northern Virginia Hazard Mitigation Plan Public Comment Period - Feedback Opportunity through Oct. 8: [Share your input](#) with Northern Virginia Emergency Response Managers on the 2022 Hazard Mitigation Draft Plan. The plan will aim to minimize impact from hazards that affect our community, such as flooding, winter weather, and other disasters. Visit their project page to learn more and review documents to help guide your comments.



Ready Arlington @ReadyArlington · Sep 9

Fires, floods, hurricanes and blizzards - oh my! The Northern Virginia Hazard Mitigation plan is officially open for public comment. Check it out and let us know what you think by October 8: [nvers.org/hmp](https://www.nvers.org/hmp)

Email questions + comments to NOVA2022PublicComment@iem.com.



Ready Arlington @ReadyArlington · Sep 15

If you're looking for some quality bedtime reading then we sure have the link for you.

Check out the Northern Virginia Hazard Mitigation Plan (www.nvers.org/hmp) and let us know what you think about it by emailing NOVA2022PublicComment@iem.com.

[#nova](#) [#arlingtonva](#)





Ready Arlington @ReadyArlington · Oct 3

Embrace [#spookyszn](#) and [#scares](#) by reading about the greatest hazards facing Northern Virginia (and our plans to mitigate them): www.nvers.org/hmp

Let us know what you think by Oct 8. Email questions and comments to NOVA2022PublicComment@iem.com.

[#arlingtonva](#) [#nova](#) [#dmv](#)



11.3. Attachment 3: Mitigation Actions

Table 33: Previous Mitigation Actions

Project No.	Mitigation Action	Lead Agency/ Department/ Organization	Hazard	Funding Source	Target Completion Date	Interim Measure of Success	Priority	Current Status	Comments to Justify Current Status
2006-1	Upgrade county EOC to modern standards.	Department of Public Safety Communications and Emergency Management (DPSCEM)	<ul style="list-style-type: none"> All Hazards 	UASI, county funds	December 2025	Funding sources identified/ secured by June 2023. EOC upgrade plan completed	High	R – Retain for 2022 HMP	Currently seeking leased space. Funding stream remains unclear after project was removed from County CIP. The County EOC has not been upgraded. Project remains a priority.
2006-7	Continue training for employees and partners on the Incident Command System.	DPSCEM	<ul style="list-style-type: none"> All Hazards 	DHS and Authority	Continual	Continue periodic training and exercise activities internally and with Arlington County	Medium	Completed	This is an ongoing program that our department provides to employees and local partners.
2010-1	Enhance the ability of patrol officers, through increased training and additional equipment to respond to active shooter and/or terrorist attacks.	Police Department	<ul style="list-style-type: none"> Mass Casualty/ Mass Fatality 	Bureau of Justice Administration DHS Funding	Continual	Funding Secured Training in progress. Equipment upgrades ongoing.	Critical	Completed	Completed 2012 and ongoing. Note that this action item addresses non-natural hazards (e.g., active shooter, active violence, and terrorism).

Project No.	Mitigation Action	Lead Agency/ Department/ Organization	Hazard	Funding Source	Target Completion Date	Interim Measure of Success	Priority	Current Status	Comments to Justify Current Status
2010-6	Secure additional special needs supplies to support the special needs population.	Arlington Red Cross	<ul style="list-style-type: none"> All Hazards 	UASI	Continual	Secure funding and storage and order supplies by January 2011.	High	Completed	Completed regionally in 2016.
2010-10	Coordinate regionally to integrate evacuation plans.	VDEM/DPSCEM	<ul style="list-style-type: none"> Flood Landslide Tornado Wildfire 	State and federal funding sources	Continual	Regional evacuation plan developed by August 2011.	High	Completed	Completed based off 2017 HMP project status.
2010-11	Secure prisoner transportation resources in the event of a jail evacuation.	Sheriff's Office	<ul style="list-style-type: none"> Flood Landslide Tornado Wildfire 	County funding	December 2025	Determine number and type of assets required by March 2023.	High	R – Retain for 2022 HMP	Update action description to: Draft and finalize memorandums of understanding with ART bus, Metrobus, and/or Arlington Public Schools to utilize buses to transport prisoners in the event of a jail evacuation.
2010-12	Identify building(s) to house the courts, if the courthouse is compromised.	Sheriff's Office/ Department of Environmental Services	<ul style="list-style-type: none"> All Hazards 	County funding	June 2011	Determining capacity and resource requirements to house the courts by February 2011.	High	N – No longer relevant	This is no longer considered a mitigation action but rather a step that will be taken through the continuity of operations planning process.

Project No.	Mitigation Action	Lead Agency/ Department/ Organization	Hazard	Funding Source	Target Completion Date	Interim Measure of Success	Priority	Current Status	Comments to Justify Current Status
2010-15	Conduct annual outreach to each FEMA-listed repetitive loss and severe repetitive loss property owner, providing information on mitigation programs (e.g., grant assistance) and mitigation measures (e.g., flood insurance information) that can assist them in reducing their flood risk.	DPSCEM	<ul style="list-style-type: none"> Flood 	FEMA Unified Hazard Mitigation Assistance (HMA) funding	Ongoing	Develop outreach materials or identify appropriate outreach materials for dissemination by June 2025.	Medium	R – Retain for 2022 HMP	Complete- The DES conducted outreach in July 2021 to repetitive loss properties. This is using an old set of repetitive loss property data from FEMA. There are limitations to access to up-to-date repetitive loss data currently.

Project No.	Mitigation Action	Lead Agency/ Department/ Organization	Hazard	Funding Source	Target Completion Date	Interim Measure of Success	Priority	Current Status	Comments to Justify Current Status
2010-16	Support mitigation of priority flood-prone structures through promotion of acquisition, demolition, elevation, flood proofing, minor localized flood control projects, mitigation reconstruction, and, where feasible, using FEMA HMA programs where appropriate.	DPSCEM	<ul style="list-style-type: none"> Flood 	FEMA Unified HMA funding	Ongoing	Identify all priority flood-prone structures by December 2025	Medium	R – Retain for 2022 HMP	<p>Ongoing- Purchased our first acquisition property. Developing demolition plan currently. Will turn into a micro-forest. Did not use grants; just used CIP funding. Maintaining a "watch list" of properties that we are interested in acquiring in the future. Once CIP funding is secured, may be able to move forward with other acquisitions. Continuing to conduct outreach to other property owners.</p>

Project No.	Mitigation Action	Lead Agency/ Department/ Organization	Hazard	Funding Source	Target Completion Date	Interim Measure of Success	Priority	Current Status	Comments to Justify Current Status
2010-17	Promote structural mitigation to assure redundancy of critical facilities, including but not limited to roof structure improvement, meeting or exceeding building code standards, upgrading electrical panels to accept generators, etc.	DPSCEM	<ul style="list-style-type: none"> All Hazards 	FEMA Unified HMA funding	Ongoing	Query local government building services staffs as to effectiveness of provided information regarding the structural review	Medium	R – Retain for 2022 HMP	Ongoing- The County is in the process of developing a Risk Assessment and Management Project (RAMP) that analyzes the County's flood risk and maps flood inundation areas, maps critical facilities/checks vulnerability of these facilities to flooding, and calculates risk of taking no action to mitigate these properties. The County is looking at adopting more flood resilient building codes in the future. (BCGES)

Project No.	Mitigation Action	Lead Agency/ Department/ Organization	Hazard	Funding Source	Target Completion Date	Interim Measure of Success	Priority	Current Status	Comments to Justify Current Status
2010-18	Review locality's compliance with the National Flood Insurance Program (NFIP) with an annual review of the floodplain ordinances and any newly permitted activities in the 100-year floodplain. Additionally, conduct annual review of repetitive loss and severe repetitive loss property list requested of VDEM to ensure accuracy. Review will include verification of the geographic location of each repetitive loss property and determination if that property has been mitigated and by what means. Provide corrections if needed by completing form FEMA AW-501.	DPSCEM	<ul style="list-style-type: none"> Flood 	County funding	Ongoing	Establish a schedule of review and a review committee (if necessary) by June 2025.	Medium	R – Retain for 2022 HMP	Ongoing- Completed an audit and completed the annual verification for NFIP. Continuing to comply with CRS. In the process of updating our FEMA FIRMs, in the appeals process currently. After, will be working on updating our floodplain management ordinance to comply with FEMA/Virginia regulations.

Project No.	Mitigation Action	Lead Agency/ Department/ Organization	Hazard	Funding Source	Target Completion Date	Interim Measure of Success	Priority	Current Status	Comments to Justify Current Status
2010-19	Develop a communications plan with the private industry within Arlington County for emergency management (preparedness and response) purposes.	Office of Communica-tions	<ul style="list-style-type: none"> All Hazards 	County funding	Continual	Create a partnering committee with at least five members of the private industry to assist in developing the plan by January 2012.	Medium	N – No longer relevant	Complete – Significant retirement will require training. A communications system exists to support this function. A plan is no longer necessary. DPSCEM crafts messaging and AED disseminates.
2010-20	Conduct a gap analysis of workforce safety within the County.	Department of Human Resources	<ul style="list-style-type: none"> All Hazards 	County funding	Continual	Establish parameters of analysis (i.e., determine what areas need to be analyzed specifically) by April 2011.	Medium	Completed	Completed – Departmental Safety Officer Staffing increased significantly in 2010. Completion indicated in 2017 plan
2010-21	Establish a partnership with members of the academic community. Look at specific opportunities to partner with Virginia Tech.	DPSCEM	<ul style="list-style-type: none"> All Hazards 	County funding	Continual	Schedule a meeting between county and academic partners to discuss opportunities by January 2011.	Medium	Completed	Ongoing- DPSCEM has engaged with academic partners, including Virginia Tech, to support various emergency management programs and initiatives.

Project No.	Mitigation Action	Lead Agency/ Department/ Organization	Hazard	Funding Source	Target Completion Date	Interim Measure of Success	Priority	Current Status	Comments to Justify Current Status
2010-22	Conduct preparedness presentations in the community to ensure public awareness of steps the public can take to care for themselves during an emergency.	Arlington Red Cross	<ul style="list-style-type: none"> All Hazards 	Arlington Red Cross	Continual	Schedule the first presentation by April 2011.	Medium	Completed	Ongoing- DPSCEM has established a community engagement unit that is responsible for organizing and putting on community training and preparedness events. There is also a regional Red Cross liaison who conducts public awareness campaigns.
2010-26	Acquire the ability to have remote access to medical records	Sheriff's Office	<ul style="list-style-type: none"> All Hazards 	County funding	January 2018	Secure funding by January 2012.	Medium	Completed	In progress- ACPD/Sherriff's Office have the ability to access remote medical records.
2010-27	Identify the most effective tools for communications with the public during emergencies, including leveraging emergency technologies(e.g. , social media)	Office of Communica-tions	<ul style="list-style-type: none"> All Hazards 	FEMA Unified HMA grants	Continual	Improve situational awareness to enhance public outreach and notification by April 2011.	Medium	Completed	Ongoing- This is a continual capability of our Office of Communications; therefore, the action is completed.

Project No.	Mitigation Action	Lead Agency/ Department/ Organization	Hazard	Funding Source	Target Completion Date	Interim Measure of Success	Priority	Current Status	Comments to Justify Current Status
2010-28	Identify effective means of communicating with special populations (e.g., non-English speakers, special needs, tourists, non-digital).	Office of Communica-tions	<ul style="list-style-type: none"> All Hazards 	FEMA Unified HMA grants	Continual	Planning underway.	Medium	Completed	Ongoing- This is a continual capability of our Office of Communications; therefore, the action is completed.
2010-29	Ensure delivery of critical emergency text messages (Arlington Alert) to Arlington Public Schools' Schools Talk Alert System.	Office of Communica-tions	<ul style="list-style-type: none"> All Hazards 	FEMA Unified HMA grants	Continual	Hold discussions with Arlington Public Schools and set up process.	Medium	Completed	Ongoing- This is a continual capability of our Office of Communications; therefore, the action is completed.
2017-01	Acquire additional snow melting equipment.	Department of Environmental Service (ESF 3)	<ul style="list-style-type: none"> Winter Weather 	County Operational funds	December 2017	Identify the right type of equipment.	Low	Completed	The additional snow melting equipment was acquired.
2017-2	Develop and adopt threat and hazard identification and assessment plan for the County.	DPSCEM	<ul style="list-style-type: none"> All Hazards 	County funding	December 2017	Draft ready by June 2017.	High	Completed	THIRA completed by Arlington County in 2018.

Table 34: 2022 Mitigation Actions

Project No.	Mitigation Action	Lead Agency/ Department/ Organization	Hazard	Funding Source	Target Completion Date	Interim Measures of Success	Priority	Comments
2006-1	Upgrade county EOC to modern standards.	Department of Public Safety Communications and Emergency Management (DPSCEM)	<ul style="list-style-type: none"> All Hazards 	UASI, county funds	December 2025	Funding sources identified/ secured by June 2023. EOC upgrade plan completed	High	R - Retained from previous HMP Currently seeking leased space. Funding stream remains unclear after project was removed from County CIP. The County EOC has not been upgraded. Project remains a priority.
2010-11	Secure prisoner transportation resources in the event of a jail evacuation.	Sheriff's Office	<ul style="list-style-type: none"> Flood Landslide Tornado Wildfire 	County funding	December 2025	Determine number and type of assets required by March 2023.	High	R- Retained from previous HMP Update action description to: Draft and finalize memorandums of understanding with ART bus, Metrobus, and/or Arlington Public Schools to utilize buses to transport prisoners in the event of a jail evacuation.

Project No.	Mitigation Action	Lead Agency/ Department/ Organization	Hazard	Funding Source	Target Completion Date	Interim Measures of Success	Priority	Comments
2010-15	Conduct annual outreach to each FEMA-listed repetitive loss and severe repetitive loss property owner, providing information on mitigation programs (e.g., grant assistance) and mitigation measures (e.g., flood insurance information) that can assist them in reducing their flood risk.	DPSCEM	<ul style="list-style-type: none"> Flood 	FEMA Unified Hazard Mitigation Assistance (HMA) funding	Ongoing	Develop outreach materials or identify appropriate outreach materials for dissemination by June 2025.	Medium	R - Retained from previous HMP Complete- The DES conducted outreach in July 2021 to repetitive loss properties. This is using an old set of repetitive loss property data from FEMA. There are limitations to access to up-to-date repetitive loss data currently.
2010-16	Support mitigation of priority flood-prone structures through promotion of acquisition, demolition, elevation, flood proofing, minor localized flood control projects, mitigation reconstruction, and, where feasible, using FEMA HMA programs where appropriate.	DPSCEM	<ul style="list-style-type: none"> Flood 	FEMA Unified HMA funding	Ongoing	Identify all priority flood-prone structures by December 2025	Medium	R - Retained from previous HMP Ongoing- Purchased our first acquisition property. Developing demolition plan currently. Will turn into a micro-forest. Did not use grants; just used CIP funding. Maintaining a "watch list" of properties that we are interested in acquiring in the future. Once CIP funding is secured, may be able to move forward with other acquisitions. Continuing to conduct outreach to other property owners.

Project No.	Mitigation Action	Lead Agency/ Department/ Organization	Hazard	Funding Source	Target Completion Date	Interim Measures of Success	Priority	Comments
2010-17	Promote structural mitigation to assure redundancy of critical facilities, including but not limited to roof structure improvement, meeting or exceeding building code standards, upgrading electrical panels to accept generators, etc.	DPSCEM	<ul style="list-style-type: none"> All Hazards 	FEMA Unified HMA funding	Ongoing	Query local government building services staffs as to effectiveness of provided information regarding the structural review	Medium	R – Retained from previous HMP Ongoing- The County is in the process of developing a Risk Assessment and Management Project (RAMP) that analyzes the County's flood risk and maps flood inundation areas, maps critical facilities/checks vulnerability of these facilities to flooding, and calculates risk of taking no action to mitigate these properties. The County is looking at adopting more flood resilient building codes in the future. (BCGES)

Project No.	Mitigation Action	Lead Agency/ Department/ Organization	Hazard	Funding Source	Target Completion Date	Interim Measures of Success	Priority	Comments
2010-18	Review locality's compliance with the National Flood Insurance Program (NFIP) with an annual review of the floodplain ordinances and any newly permitted activities in the 100-year floodplain. Additionally, conduct annual review of repetitive loss and severe repetitive loss property list requested of VDEM to ensure accuracy. Review will include verification of the geographic location of each repetitive loss property and determination if that property has been mitigated and by what means. Provide corrections if needed by completing form FEMA AW-501.	DPSCEM	<ul style="list-style-type: none"> Flood 	County funding	Ongoing	Establish a schedule of review and a review committee (if necessary) by June 2025.	Medium	R- Retained from previous HMP Ongoing- Completed an audit and completed the annual verification for NFIP. Continuing to comply with CRS. In the process of updating our FEMA FIRMs, in the appeals process currently. After, will be working on updating our floodplain management ordinance to comply with FEMA/Virginia regulations.
2022-1	Policy/regulatory changes relating to large-scale stormwater facilities.	Community Planning and Housing Department (CPHD) – Planning/Department of Environmental Services (DES)	<ul style="list-style-type: none"> Flood 	Future County General Fund	End of CY2024	Policy updates and zoning ordinance amendments.	High	At a minimum, anticipated to include Zoning Ordinance updates to better accommodate large-scale stormwater detention facilities

Project No.	Mitigation Action	Lead Agency/ Department/ Organization	Hazard	Funding Source	Target Completion Date	Interim Measures of Success	Priority	Comments
2022-2	<p>Historic resources inventory (HRI) update – Conduct a comprehensive update to the HRI. The HRI identifies and ranks specific types of historic buildings in the County according to their historical and architectural significance. Buildings are categorized into one of six classifications: essential, important, notable, minor, altered/not historic, and demolished. The results of the HRI will assist property owners and the County in taking a prioritized approach to addressing preservation goals and development options simultaneously.</p>	CPHD-HP	<ul style="list-style-type: none"> • Earthquake • Flood • High Wind • Landslide • Tornado • Winter Weather 	Future county general fund; state or federal grants	End of FY2024	Adoption of the Historic Preservation Master Plan Update	High	HRI update will be done following the adoption of the Historic Preservation Master Plan

Project No.	Mitigation Action	Lead Agency/ Department/ Organization	Hazard	Funding Source	Target Completion Date	Interim Measures of Success	Priority	Comments
2022-3	Pilot a program to install flood detection warning systems at two traffic intersections highly prone to flooding: Columbia Pike at S Greenbriar Street and Wilson Boulevard and North Manchester Street (along Bluemont).	Department of Environmental Services (DES)	<ul style="list-style-type: none"> Flood 	County General Fund	Summer 2022	Obtain detailed site surveys and project quote.	High	Currently have funding to install sensors at two intersections and will seek additional funding in the future to install at all four high-priority locations. Construction of two sensors is complete.
2022-4	Design and construct a 500,000 cubic foot stormwater detention vault capable of storing water up to the 10-year flood event to serve as a watershed-scale solution to reduce flood risk in Torreyson Run Watershed.	DES OSEM	<ul style="list-style-type: none"> Flood 	Stormwater bond referenda funding	CY2023 first quarter	Complete phase 2 project design.	High	There are other stormwater mitigation projects planned in the Torreyson Run Watershed that will be funded through 2030, using funding sources including but not limited to stormwater bond referenda, FEMA HMA grants, USACE grants, and the 2021 infrastructure bill. Construction of facility is underway.
2022-5	Develop a flood resilience design guidelines manual.	DES OSEM	<ul style="list-style-type: none"> Flood 	Seeking funding; currently have \$250,000 set aside in CIP.	CY 2023	Secure additional funding. Develop outline of manual.	High	Procurement of consultant is underway.

Project No.	Mitigation Action	Lead Agency/ Department/ Organization	Hazard	Funding Source	Target Completion Date	Interim Measures of Success	Priority	Comments
2022-6	Complete a Risk Assessment and Management Project (RAMP) that includes updated climate projections and inundation maps to support vulnerability and risk assessments that will inform investments throughout future Capital Improvement Plan (CIP) cycles.	DES OSEM	<ul style="list-style-type: none"> Flood 	FY 2021 CIP funding	End of FY2023	Complete climate projections and inundation mapping.	High	Project is underway with additional scope of services beginning.
2022-7	Conduct regular training and outreach to county departments and staff to educate them about the County's flood risk, our stormwater management program, and future projects.	DES OSEM (lead), DPSCEM (support)	<ul style="list-style-type: none"> Flood 	County General Fund	2023	Develop presentation template for training that can be periodically updated with new information.	High	Ongoing
2022-8	Create and fill a full-time position dedicated to ESF 6 and Department of Human Services (DHS) emergency preparedness.	DHS	<ul style="list-style-type: none"> All Hazards 	Future County General Fund, grants	Mid-FY2022	Identify funding source, obtain approval, draft JIQ, post position and recruit, fill position, onboard new staff person.	High	This position would address all applicable natural hazards and non-natural hazards.

Project No.	Mitigation Action	Lead Agency/ Department/ Organization	Hazard	Funding Source	Target Completion Date	Interim Measures of Success	Priority	Comments
2022-9	Increase the tree pruning and maintenance of trees throughout Arlington County to lessen opportunities of trees falling during storms, and bring Arlington County's public trees into the average tree maintenance cycle as recommended by arborists.	DPR – Parks and Natural Resources (PNR) Forestry Team	<ul style="list-style-type: none"> • High Wind • Landslide • Tornado • Winter Weather 	County General Fund, Virginia Department of Forestry Urban and Community Forestry Grant Program	December 2022	Create a maintenance plan for Arlington County's public trees, per recommendations by arborists.	High	
2022-10	Formalize and expand the remote call taking and dispatch program by identifying a supervisor to manage the program, developing policies and procedures, and acquiring additional equipment.	DPSCEM	<ul style="list-style-type: none"> • All Hazards 	County General Fund	June 2022	Hire individual to manage the program, identify gaps/needs in current program	High	

Project No.	Mitigation Action	Lead Agency/ Department/ Organization	Hazard	Funding Source	Target Completion Date	Interim Measures of Success	Priority	Comments
2022-11	Expand outreach and community engagement programming to be more equity-focused and build community resilience, including multi-lingual outreach, stronger relationships with community partners through the establishment of a COAD and attendance at ongoing roundtables like the Health Providers Network, and diversifying community advisory and volunteer groups.	DPSCEM	<ul style="list-style-type: none"> All Hazards 	County General Fund, FEMA BRIC program	December 2023	Implement multi-lingual programming by December 2021; identify and invite organizations to participate in the COAD.	High	
2022-12	Develop and maintain standby contracts for response and recovery personnel to bring on surge-staffing to augment full-time emergency management staff.	DPSCEM	<ul style="list-style-type: none"> All Hazards 	County General Fund	December 2022	Identify pool of contractors and potential scopes of work.	High	
2022-13	Develop a program of zoning and land use policy practices relating to disaster recovery efforts.	CPHD – Zoning	<ul style="list-style-type: none"> All Hazards 	Future County General Fund	End of CY2024	Staff training program, policy guide, and or zoning ordinance amendments	Medium	This is a draft placeholder for now, may evolve through further updates

Project No.	Mitigation Action	Lead Agency/ Department/ Organization	Hazard	Funding Source	Target Completion Date	Interim Measures of Success	Priority	Comments
2022-14	Private property LHD exterior building documentation/site technical assistance – Perform exterior building documentation and site technical assistance for private property in local historic districts.	CPHD-HP	<ul style="list-style-type: none"> • Earthquake • Flood • High Wind • Landslide • Tornado • Winter Weather 	Future county general fund; state or federal grants	End of FY2023	Develop schedule and timeline to begin review and documentation of properties	Medium	Will be done as part of historic preservation outreach
2022-15	Construct localized repetitive flood and drainage improvement projects on a sub-watershed scale and install tertiary system assets. Many of these projects encompass one street or block and may supplement a larger project.	DES OSEM	<ul style="list-style-type: none"> • Flood 	Stormwater bond referenda, FEMA HMA grants, USACE grants, 2021 infrastructure bill	2025	Prioritize project implementation based on repetitive flood damage.	Medium	
2022-16	Acquire properties in watershed high risk flood areas (HRFAs) to provide critical overland relief or land required for capacity improvements.	DES OSEM	<ul style="list-style-type: none"> • Flood 	Stormwater bond referenda, FEMA HMA grants, USACE grants, 2021 infrastructure bill	2025	Apply for and secure funding to acquire all interested repetitive and severe repetitive loss properties.	Medium	There are currently 28 properties on a watch list (subject to change in the future). The County currently has funding for five properties and will be seeking additional funding in the future for these acquisitions.

Project No.	Mitigation Action	Lead Agency/ Department/ Organization	Hazard	Funding Source	Target Completion Date	Interim Measures of Success	Priority	Comments
2022-17	Develop a training for DHS/Behavioral Healthcare Division (BHD) clients to assist with developing a personal emergency plan.	DHS	<ul style="list-style-type: none"> All Hazards 	Future County General Fund	End of FY2022	Identify existing trainings and adapt. Recruit different SMEs to participate in training Identify existing meetings in which trainings might be delivered.	Medium	This would likely be started following the creation and recruitment of an ESF 6 position. It could be similar to the trainings we have offered in senior buildings in the past in partnership with DPSCEM, ACFD, and the Red Cross. It would address all applicable natural and non-natural hazards.
2022-18	Assess and upgrade (as needed) emergency shelter locations to make sure they are set-up to receive generator connections to operate the building and/or have a generator on the property.	DPR (lead) working with DES and DHS (ESF 6)	<ul style="list-style-type: none"> High Wind Tornado Winter Weather 	VDEM Emergency Shelters Upgrade Assistance Grant Fund (or similar)	December 2025	Inter-department teams meet to develop needs assessment and plan to secure funds and implement the needed upgrades.	Medium	Virginia General Assembly approved \$2.5 million for this Shelter Upgrade grant fund in FY2021, and we will seek similar funding in the future to support this project.

Project No.	Mitigation Action	Lead Agency/ Department/ Organization	Hazard	Funding Source	Target Completion Date	Interim Measures of Success	Priority	Comments
2022-19	Acquire shelf-stable meals that could be deployed during pandemics, weather emergencies, or long-term shelter-in-place events (put on by ESF 6).	DPR (lead) working with DHS (ESF 6) and DPSCEM (ESF 5)	<ul style="list-style-type: none"> • Earthquake • High Wind • Tornado • Winter Weather 	Future County General Fund, FEMA Urban Areas Security Initiative (UASI) Regional Preparedness System (RPS) Grant	December 2022	Work with inter-department team to decide what should be acquired, make space in an existing location for maintenance of supplies, purchase supplies. Create a maintenance plan for reviewing and replenishing supplies.	Medium	
2022-20	Enhance the current inventory of emergency shelter-in-place kits located at community centers and create additional kits for programming teams (to include summer camps).	DPR – Athletic and Facility Services Division (AFSD), Safety Program, and Community Recreation Division (CRD)	<ul style="list-style-type: none"> • Tornado • Winter Weather 	Future County General Fund, FEMA UASI RPS Grant	December 2022	Review/ update the list of contents in the current kits and acquire the needed supplies to update kits and make new ones. Create a maintenance plan for reviewing and replenishing supplies.	Medium	

Project No.	Mitigation Action	Lead Agency/ Department/ Organization	Hazard	Funding Source	Target Completion Date	Interim Measures of Success	Priority	Comments
2022-22	Acquire tents that could be used as cooling or warming structures in times of emergencies and/or for special events or outdoor programming. Train various staff teams within DPR on how to set these up in various weather conditions.	DPR – CRD and PNR Teams	<ul style="list-style-type: none"> Extreme Temperatures 	County General Fund	December 2022	Identify types and number of tents to buy and storage locations. Develop a maintenance schedule. Secure source of funding.	Medium	
2022-23	Develop an access and functional needs capability responsible for reviewing and ensuring that all plans, policies, and procedures related to emergency management and ECC (911) take into account accessibility and the functional needs of the population.	DPSCEM	<ul style="list-style-type: none"> All Hazards 	Future County General Fund	December 2023	Identify if this resource or capability exists already in the County to support our need.	Medium	
2022-24	Plan and conduct an exercise (tabletop or functional) to socialize and practice the Arlington County Continuity of Operations Plan.	DPSCEM	<ul style="list-style-type: none"> All Hazards 	UASI RPS Grant	December 2022	Complete the COOP plan.	Medium	

Project No.	Mitigation Action	Lead Agency/ Department/ Organization	Hazard	Funding Source	Target Completion Date	Interim Measures of Success	Priority	Comments
2022-25	Review and update damage assessment plans and SOPs, including integrating the Crisis Track tool and Windshield Assessment processes.	DPSCEM; DES	<ul style="list-style-type: none"> • Earthquake • Flood • High Wind • Tornado • Winter Weather 	UASI RPS Grant	December 2023	Form a planning team, identify gaps in existing plans and SOPs, draft updated plans.	Medium	
2022-26	County-owned local historic district (LHD) building/site documentation – Develop a record of county-owned LHD buildings, documenting conditions, specification, and photos. This site documentation will serve as a record so that the County will know what existed previously if the building is damaged or destroyed.	CPHD/DES-Facility Design and Construction (FD&C)	<ul style="list-style-type: none"> • Earthquake • Flood • High Wind • Landslide • Tornado • Winter Weather 	Future County General Fund	End of CY2024	Partnership (DES and DPR) and scope of work developed; vendor secured	Low	Coordination with DES FD&C, DPR, and APS is required

Project No.	Mitigation Action	Lead Agency/ Department/ Organization	Hazard	Funding Source	Target Completion Date	Interim Measures of Success	Priority	Comments
2022-27	Design and construct multi-phase watershed scale capacity improvements for the Spout Run Watershed to include, but not limited to, distributed detention on public and private land (including underground detention in Woodstock Park), property acquisition, and pipe expansion and tertiary infrastructure.	DES Office of Sustainability and Environmental Management (OSEM)	<ul style="list-style-type: none"> Flood 	Stormwater bond referenda, FEMA HMA grants, USACE grants, 2021 Infrastructure Bill	2025	Secure funding through FY2025 to complete construction.	Low	Design of options ongoing
2022-28	Design and construct multi-phase watershed scale capacity improvements for the Lubber Run Watershed, including completing a watershed scale engineering analysis and survey and easement acquisitions (surveys, plats, etc.).	DES OSEM	<ul style="list-style-type: none"> Flood 	Stormwater bond referenda, FEMA HMA grants, USACE grants, 2021 infrastructure bill	2030	Secure funding through 2030 to complete construction.	Low	Conceptual planning is underway.

Project No.	Mitigation Action	Lead Agency/ Department/ Organization	Hazard	Funding Source	Target Completion Date	Interim Measures of Success	Priority	Comments
2022-29	Conduct a study of several pedestrian bridges and also the Bon Air Park, all located within floodplains of Four Mile Run, to determine sustainable floodplain management solutions that may include, but are not limited to, mitigating degradation of the stream channel and relocation of community shelter and other park infrastructure outside of the floodplain.	DES OSEM, Department of Parks and Recreation (DPR)	<ul style="list-style-type: none"> Flood 	Future County General Fund, FEMA BRIC program	December 2025	Develop cost estimate for project. Secure funding through County General Fund and local/federal grants. Design and build the project.	Low	
2022-30	Develop an all-hazards pre-disaster recovery plan.	DPSCEM	<ul style="list-style-type: none"> All Hazards 	UASI RPS Grant	December 2023	Gain consensus on a county recovery organization and planning process.	Low	
2022-31	Develop an all-hazards evacuation plan.	DPSCEM	<ul style="list-style-type: none"> All Hazards 	UASI RPS Grant	December 2023	Gain consensus on county process and strategy for evacuation.	Low	
2022-32	Plan and conduct a tabletop exercise to socialize and practice the Arlington County Family Assistance Center Plan.	DPSCEM	<ul style="list-style-type: none"> All Hazards 	UASI RPS Grant	June 2023	Complete the FAC Plan.	Low	

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2022-33	Use census tract and THIRA information to target hazard education by language and geographic risk profile in the County to best meet resident needs.	DPSCEM	<ul style="list-style-type: none"> All Hazards 	Future County General Funding, UASI RPS Grant	CY2023	Complete THIRA plan update.	Low	