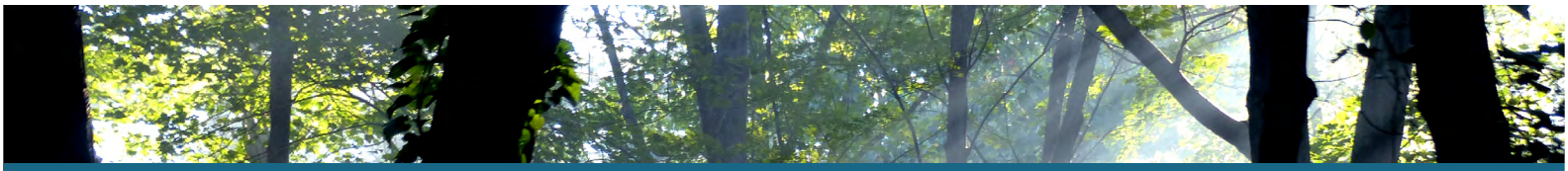

Resilient Fairfax

Climate Adaptation and Resilience Plan

October 2022

A Fairfax County, VA publication

OFFICE OF
Environmental and
Energy Coordination
FAIRFAX COUNTY

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Fairfax County is committed to nondiscrimination on the basis of disability in all county programs, services and activities. Reasonable accommodations will be provided upon request. For information call the Office of Environmental and Energy Coordination, 703-324-7136 | TTY 711.

El condado de Fairfax está comprometido a no discriminar en función de la incapacidad en todos los programas, servicios y actividades del condado. Se proporcionarán las adaptaciones razonables mediante solicitud. Para obtener información, llame a Office of Environmental and Energy Coordination, 703-324-7136 | TTY 711.

The county's language access policy (PM 02-08) sates that "no person will be denied equal access to county services based on his/her inability, or limited ability, to communicate in the English language."

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From left to right: Walter Alcorn, Kathy Smith, Pat Herrity, Daniel Storck, Penny Gross, Jeffrey McKay, Dalia Palchik, John Foust, James Walkinshaw, Rodney Lusk.

A. Table of Contents

B. Letter from the Chairman

Fairfax County is already facing serious and costly challenges due to climate change. Our county has witnessed a measurable increase in the severity and frequency of storms, extreme heat, and flooding. These changes are projected to continue, amplifying vulnerabilities for our populations, infrastructure, public services, and natural systems.

The good news is that Fairfax County is taking action to address both the *cause* and the *effects* of climate change. A previous plan, the Community-Wide Energy and Climate Action Plan (CECAP), focused on the *cause,* aiming to reduce our county's contributions to the global greenhouse gas emissions that feed into climate change. This plan, **Resilient Fairfax**, focuses on the *effects,* helping our county adapt and become more resilient to the changing conditions we experience locally.

There is additional good news. Many of our existing county programs, policies, and initiatives enhance our climate resilience and adaptation. For example, our departments already work hard to tackle flooding issues, infrastructure improvements, and a range of hazard mitigation needs. Our existing aid programs and community services enhance the resilience of our population. Our departments and partners also work daily to protect our natural resources, parklands, and floodplains that provide natural resilience to flooding, storm surge, and extreme heat. Our prioritization of One Fairfax helps us ensure that this work is conducted in an inclusive and equitable way. The existing excellence of the Fairfax County community gives us a uniquely strong foundation for climate resilience.

The Resilient Fairfax plan builds upon this existing work. The plan was led by our Office of Environmental and Energy Coordination (OEEC) and involved a remarkable level of interagency coordination and stakeholder engagement. I want to commend all those who participated, both internal and external to the county. The Resilient Fairfax Planning Team (PT) was composed of 20 county departments and agencies. In addition, the process involved an Infrastructure Advisory Group (IAG) composed of over 40 representatives of utilities, authorities, and infrastructure managers at all levels of government, and a Community Advisory Group (CAG) composed of over 30 representatives of non-profit, advocacy, and environmental organizations, and residents of each district. The general public was also instrumental to the development of this plan, providing essential feedback throughout the process. In all, over **200 engagement meetings** were held.

This Resilient Fairfax plan answers five major questions in one package: 1) What are Fairfax County's current and future climate conditions? 2) Where are we vulnerable to these changing conditions? 3) How are we currently doing in terms of climate resilience? 4) What strategies should we use to enhance our climate adaptation and resilience? 5) How can we implement those strategies?

With the completion of this first Resilient Fairfax plan, the county looks forward to implementation and continuous action. These changing conditions present a challenge, but also an opportunity. Many strategies that boost our climate resilience also enhance our quality of life, public services, natural resource health, infrastructure strength, economic vitality, and social connectivity. Together, we can adapt proactively to create a more resilient, connected, equitable, and prosperous Fairfax County. We thank each of you for your involvement and look forward to working with you towards a more Resilient Fairfax.

Jeffrey C. McKay
Chairman, Fairfax County Board of Supervisors

C. Acknowledgements

Resilient Fairfax would not be possible without the significant contributions of the dozens of local, regional, state, and federal departments, agencies, organizations, partners, and dedicated residents who supported the development of this plan. Thank you to Resilient Fairfax's three advisory groups (the Planning Team, the Infrastructure Advisory Group, and the Community Advisory Group), and to all other partners for their support in time and thought.

PROJECT TEAM

Office of Energy and Environmental Coordination (OEEC): Kambiz Agazi (OEEC Director), Matthew Meyers (Resilient Fairfax Project Director), Allison Homer (Resilient Fairfax Project Manager), Neely Law, and Ali Althen.

PLANNING TEAM (PT)

The PT was composed of technical leads and subject matter experts from 20 relevant county departments and agencies. The PT was responsible for providing interdepartmental information and coordination, reviewing and providing technical feedback on deliverables, developing recommendations, and assisting the OEEC with coordination between Resilient Fairfax and related initiatives in other county departments.

Department of Emergency Management and Security (DEMS): Cara Howard, Seamus Mooney, Greg Zebrowski, Matthew Marquis

Office of Environmental and Energy Coordination (OEEC): All "Project Team" members (above) and: Kate Daley, Maya Dhavale, Monica Downs, Sara Girello, Susan Hafeli, John Morrill, Kevin Smith, Regina Weil

Facilities Management Department (FMD): Jose Comayagua, Laura Seidler

Department of Family Services (DFS): Alycia Blackwell

Department of Information Technology - Geographic Information Systems (GIS): Mike Liddle, Gregory Bacon, Chip Galloway

Fairfax County Health Department (FCHD): Anna Ricklin, Samuel Gaber

Department of Housing and Community Development (HCD): Judith Cabelli

Land Development Services (LDS): Brandy Mueller, Jerry Stonefield, Jan Shaw Leavitt

Neighborhood and Community Services (NCS): Kinda Mines, LaTishma Walters, Robert O'Quinn

Northern Virginia Soil & Water Conservation District (NVSWCD): Laura Grape, Willie Woode

One Fairfax, Office of the County Executive: Karla Bruce, Katherine Miga, Robin Wilson

Fairfax County Park Authority (FCPA): John Burke, Keith Snyder, Samantha Hudson (formerly HHS), Stephanie Cornejo (formerly OEEC)

Department of Planning & Development (DPD), Planning Division (PD): Katherine Hermann

Department of Planning & Development (DPD), Zoning Administration Division (ZAD): Casey Judge

Department of Public Safety Communications (DPSC): Bernard DuCharme, Gabrielle Graves

Fairfax County Public Schools (FCPS): John Lord, Merari Zemany

Department of Public Works and Environmental Services (DPWES): Laurel Shultzaberger, Catherine Torgersen

DPWES Urban Forest Management Division (UFMD): Brian Keightley

Department of Transportation (FCDOT): Jeffrey Hermann, Zachary Krohmal

Department of Vehicle Services (DVS): Marguerite Guarino

INFRASTRUCTURE ADVISORY GROUP (IAG)

The IAG was composed of representatives from relevant infrastructure entities, utilities, service providers, the development community, and authorities at the local, regional, state, and federal levels. Certain relevant county departments served on both the PT and the IAG. The IAG was responsible for reviewing and providing feedback on key deliverables, with the purpose of planning for infrastructure that is resilient to changing climate hazards.

American Society of Highway Engineers (ASHE): Cerasela Cristei

Columbia Gas of Virginia: Terrence Frasier, Petrina Jones Wrobleki

Cox of Northern Virginia: Jeff Merritt

Dominion Energy: Brendon Shaw

Engineers & Surveyors Institute: Jeff Blackford

Fairfax County Department of Emergency Management and Security (DEMS): Cara Howard, Seamus Mooney, Greg Zebrowski

Fairfax County Public Schools (FCPS): John Lord, Merari Zemany

Fairfax County Department of Public Works and Environmental Services (DPWES): Laurel Shultzaberger, Catherine Torgersen

Fairfax County Department of Transportation (FCDOT): Jeffrey Hermann, Zachary Krohmal

Fairfax Water: Greg Prelewicz, Michele Siminari

Federal Emergency Management Agency (FEMA): Nicole Lick

Metropolitan Washington Council of Governments (MWCOG): Maia Davis, Katherine Dyer, Jeff King

National Association of Industrial & Office Properties (NAIOP): Richard Fernicola, Myrrh Caplan

Northern Virginia Building Industry Association (NVBIA): Soledad Portilla, Brian Thomas

Northern Virginia Electric Cooperative (NOVEC): Joshua Cleveland, Priscilla Knight

Northern Virginia Regional Commission (NVRC): Corey Miles, Norm Goulet, Nora Jackson

Northern Virginia Transportation Authority (NVTA): Monica Backmon, Keith Jasper

RUCA Capital: Chelsea Mehra

United States Department of Defense (DOD) – Fort Belvoir Public Works: Wilamena Harback

Verizon: Jessica Chait, Tetoya Gibson

Virginia Department of Conservation & Recreation (VDCR): Russ Baxter, Darryl Glover

Virginia Department of Emergency Management (VDEM): Andy John, Jake Kezele

Virginia Department of Environmental Quality (VDEQ): Chris Bast

Virginia Department of Transportation (VDOT): Alex Foraste, Steve Begg

Washington Gas: Katie Harkless, Ghassan Saroor, Tim Shwarz

Washington Metropolitan Area Transit Authority (WMATA): Claudia Glen

WTS International: Cerasela Cristei

COMMUNITY ADVISORY GROUP (CAG)

The CAG was composed of representatives from environmental, religious, non-profit, and civil rights organizations, businesses, residential communities, and the county's boards, authorities, and commissions. The CAG was responsible for reviewing and providing feedback on key deliverables.

350 Fairfax: Helene Shore

Cornerstones: Alexandra Stewart

EcoLatinos: Ruby Stemmle

Environmental Quality Advisory Council (EQAC): Larry Zaragoza

Faith Alliance for Climate Solutions (FACS): Jean Wintemute

Federation of Citizens Associations: C. Flint Webb

George Mason University: Celso Ferreira, Jeremy M. Campbell, Alexandra Albright

League of Women Voters: Judith Helein

Multicultural Advisory Council: Fazia Dean

National Association for the Advancement of Colored People (NAACP): Lydia Lawrence

Northern Virginia Chamber of Commerce: Jerry Sparks

Northern Virginia Soil & Water Conservation District (NVSWCD): Chris Koerner

Resilient Virginia: Annette Osso

Reston Association: Peter Schultz

Sierra Club, Great Falls Group: Ana Prados

Small Business Commission: Gwyn Whittaker

Tysons Partnership: Elizabeth Wayt

The CAG also includes Board-appointed residents from the following magisterial districts:

Braddock: Andrew Hamilton, Pritidhara (Jini) Mohanty

Dranesville: Kenneth Gubin, Esq., Barbara Ryan

Hunter Mill: Renee Jakobs

Lee: Renee Grebe

Mason: Rafael Arancibia, Kevin Holland

Mount Vernon: Barbara Bacon, Glenda Booth

Providence: Cindy Speas

Springfield: David Skiles

Sully: Rich Weisman, Erica Carter

CONSULTANT SUPPORT

The Cadmus Group: Julia Nassar, Bridget Smith, Lindsey Popken, Zack Wyman, Debra Perry, Julia Chase, Sarah Booth

WSP USA, Inc.: Allie Reilly, Rawlings Miller, Annika Ragsdale, Josh Amos, Jordyn Gross, Sienna Templeman, Mark Teschauer

NspireGreen: Anne Tyska, Nancy Templeton, Karen Armendariz, Kyle Wire

Additional thanks to the **National Aeronautics and Space Administration (NASA) DEVELOP** program for providing Urban Heat Island data and analysis for Fairfax County: Adriana LeCompte, W. Pierce Holloway, Rose Eichelmann, Patricia Murer, Ryan Newell, Caden O'Connell, Kenton Ross, and Lauren Childs-Gleason.

D. Acronyms

AAA	Adaptation Action Areas
ACCO	Association of Climate Change Officers
AE	Adaptive Environments
ASHE	American Society of Highway Engineers
BACs	Boards, Authorities, and Commissions
BOS	Board of Supervisors
BRIC	Building Resilient Infrastructure and Communities
CAG	Community Advisory Group
CAP	Conservation Assistance Program
CDBG	Community Development Block Grant Programs
CDBG-MIT	Community Development Block Grant Mitigation
CDD	Cooling Degree Days
CECAP	Community-Wide Energy and Climate Action Plan
CFPF	Community Flood Preparedness Fund Grant Program
CIP	Capital Improvement Program
CO2	Carbon Dioxide
Cox	Cox Communications
C-PACE	Commercial Property Assessed Clean Energy Program
CRC	Climate Ready Communities
CSB	Community Services Board
DCC	Department of Code Compliance
DEI	Department of Economic Initiatives
DEMS	Department of Emergency Management and Security
DER	Distributed Energy Resources
DFS	Department of Family Services
DIT	Department of Information Technology
DMB	Department of Management and Budget
DOD	United States Department of Defense
DPD	Department of Planning & Development
DPSC	Department of Public Safety Communications
DPWES	Department of Public Works and Environmental Services
DVS	Department of Vehicle Services
EDA	Fairfax County Economic Development Authority
EDGR	Emergency Data Gathering Repository
EIP	Environmental Improvement Program
EPA	U.S. Environmental Protection Agency
EQAC	Environmental Quality Advisory Council
ERRF	Energy Resource Recovery Facility
ESA	Environmentally Sensitive Area
FACS	Faith Alliance for Climate Solutions
FCDOT	Fairfax County Department of Transportation
FCHD	Fairfax County Health Department
FCPA	Fairfax County Park Authority
FCPS	Fairfax County Public Schools
FEMA	Federal Emergency Management Agency
FMA	Flood Mitigation Assistance
FMD	Facilities Management Department
GHG(s)	Greenhouse Gas(es)
GI	Green Infrastructure
GIS	GIS and Mapping Services
HCD	Department of Housing and Community Development
HHS	Health and Human Services
HMA	Hazard Mitigation Assistance
HMGP	Hazard Mitigation Grant Program
HMP	Hazard Mitigation Plan
IAG	Infrastructure Advisory Group
IAP	Integrated Action Planning
ICEF	Inclusive Community Engagement Framework
ICPRB	Interstate Commission on the Potomac River Basin
JET	Joint Environmental Task Force
LDS	Land Development Services
LEED	Leadership in Energy and Environmental Design
LiDAR	Light Detection and Ranging
MARISA	Mid-Atlantic Regional Integrated Sciences and Assessments
MWCOG	Metropolitan Washington Council of Governments
NAACP	National Association for the Advancement of Colored People
NAIOP	National Association of Industrial & Office Properties
NCRF	National Coastal Resilience Fund
NCS	Neighborhood and Community Services
NESC	National Electric Safety Code
NOAA	National Oceanic and Atmospheric Administration

NOVEC	Northern Virginia Electric Cooperative
NVRC	Northern Virginia Regional Commission
NVSWCD	Northern Virginia Soil & Water Conservation District
NVTA	Northern Virginia Transportation Authority
OCA	Office of the County Attorney
OEEC	Office of Environmental and Energy Coordination
OES	Operational Energy Strategy
PT	Planning Team
RCP	Representative Concentration Pathway
RIB	Resilient Infrastructure and Buildings
STORM	Safeguarding Tomorrow Through Ongoing Risk Mitigation
TPPF	Tree Preservation and Planning Fund
UFMD	Urban Forest Management Division of DPWES
UHI	Urban Heat Island
USACE	United States Army Corps of Engineers
VCAP	Virginia Conservation Assistance Program
VDCR	Virginia Department of Conservation & Recreation
VDEM	Virginia Department of Emergency Management
VDEQ	Virginia Department of Environmental Quality
VDOT	Virginia Department of Transportation
VRA	Vulnerability and Risk Assessment
WMATA	Washington Metropolitan Area Transit Authority
WW	Waste Water

1. BACKGROUND INFORMATION ON THE PLAN AND PROCESS

E. Introduction

WHY RESILIENT FAIRFAX? WHY ADAPT?

Fairfax County, Virginia is already feeling the effects of climate change, including more severe storms, increased flooding, and amplified extreme heat. Climate change is a threat multiplier, increasing the frequency and intensity of climate hazards and conditions. This shift in climate hazards can pose threats to our county's residents, businesses, infrastructure, assets, public services, and natural resources.

Climate change is a global phenomenon fed by worldwide emissions of greenhouse gases. These gases trap heat in our atmosphere and alter long-term global climatic patterns. We have an opportunity to help address both the *causes* and the *effects* of climate change. A different plan, the Community-wide Energy and Climate Action Plan (CECAP), focuses on the *causes* of climate change describing how Fairfax County is doing our part in the global group project to reduce emissions.

This program, **Resilient Fairfax**, focuses on adapting to the *effects* of climate change. Resilience and adaptation planning is important because we are already experiencing climate impacts, and those impacts are projected to increase. It is also important because climate change cannot be fully halted. Due to climatic feedback loops, even if all greenhouse gas emissions abruptly came to an end globally today, we would still continue to see some level of climate change in the coming years due to the level of global greenhouse gases already emitted. Therefore, in all future scenarios, it is helpful to build our resilience to climate change effects.

Climate resilience and adaptation planning is also financially smart. NOAA reports that the number of "Billion-Dollar Weather and Climate Disasters" in the United States has increased from an average of 3.1 events per year in the 1980s to 20 per year in 2021. At the local level in Fairfax County, responding reactively to individual climate-amplified hazards as they occur can be costly.

- The North American Blizzard (2010) resulted in a $2 million loss
- Tropical Storm Lee (2011) cost the county $10 million in repairs to bridges and roads
- Hurricane Sandy (2012) cost the county more than $1.5 million
- The July 2019 rainfall/flooding event led to costs of $14.8 million, including $2 million in damages to Fairfax County government property

We have an opportunity to more proactively build resilience to these increasing climatic hazards.

WHAT IS THE DIFFERENCE BETWEEN CLIMATE AND WEATHER?

Weather: Short-term conditions we experience day-to-day

Climate: Long-term weather trends over 20+ years

WHAT IS CLIMATE RESILIENCE?

Resilience is defined as the capacity of a community, business, or natural environment to prevent, withstand, respond to, and recover from a disruption. In the context of climate change, climate resilience is the ability to prepare for and adapt to climate-related conditions, such as increasing heat waves, severe storms, and heavy precipitation and flooding.

Resilience can take many forms-

- **At the individual level,** it can include strengthening ties amongst neighbors or making home improvements, such as undertaking flood-proofing projects or creating a rain garden in your backyard.
- **At the community level,** it can look like raising awareness of climate impacts, supporting community networks and resources, and advocating for resilience upgrades.
- **At the county government level,** it could be preparing our infrastructure for climate hazards, working collaboratively across the region to ensure continuity of critical services, and providing resources to local residents and businesses to enhance their adaption.

The good news is that there is a lot we can do to be resilient, and there is a lot already being done. This plan, Resilient Fairfax, is Fairfax County's first plan that focuses specifically on climate adaptation and resilience. However, this plan is built on a strong foundation of existing county services and practices, including the county's emergency management planning, flood mitigation efforts, population services, and natural resource protections. Resilient Fairfax is envisioned to be a long-term program of iterative climate planning and implementation to help the county better anticipate, prepare for, adapt to, and build resilience to a changing climate.

Climate change resilience and adaptation planning provides an opportunity for the county to reduce climate-related risks while also enhancing the local economy and quality of life, strengthening our infrastructure, protecting our natural environment, and addressing disproportionate vulnerabilities. Rather than reacting to increasingly severe climate hazards as they occur, Fairfax County will serve as a proactive leader and preparing a more resilient, equitable, prosperous, and climate-ready future.

The planning process for Resilient Fairfax included a series of analytical steps, summarized below. To see the full versions of each report, please click the links below.

TECHNICAL REPORT	DESCRIPTION and QUESTIONS ANSWERED
Climate Projections Report	**Fairfax County's current and future climate** ■ What temperature trends will we see? ■ How severe will the storms be? ■ How much precipitation will the county receive?
Climate Vulnerability and Risk Assessment	**Fairfax County's top climate-related vulnerabilities and risks** ■ Which of our infrastructure, populations, natural environments, and services are exposed to climate hazards? ■ Which are sensitive (e.g. shut down) when exposed to climate hazards? ■ Which lack the adaptive capacity to easily change to cope with changing conditions? ■ Which of these vulnerabilities are most likely and severe?
Audit of Existing Policies, Plans, and Programs	**How Fairfax County is currently doing in terms of climate resilience and adaptation** ■ How do our policies, plans, and programs compare to best practices? Are they meeting the needs revealed in the Vulnerability & Risk Assessment? ■ Which programs are working well and should be potentially expanded? ■ Where are the gaps or opportunities to update policies and programs?
Resilient Fairfax: Climate Adaptation and Resilience Plan *(Current Document)*	**What we can do to enhance our climate resilience** ■ Which strategies would help the county address our climate vulnerabilities and risks? ■ Which of these strategies are top priority? **How we will implement the priority strategies** ■ Who is responsible for implementation of each strategy? ■ What action steps should be taken? ■ What are the estimated time frames and costs?

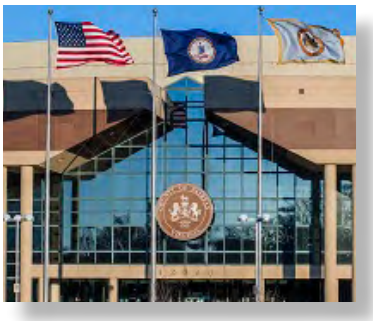
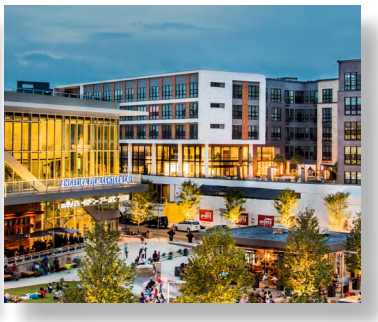
The Resilient Fairfax plan provides a framework to guide the county's resilience action. The plan is organized under four pillars: **Integrated Action Planning**, **Climate Ready Communities**, **Resilient Infrastructure and Buildings**, and **Adaptive Environments**.

IAP	**Integrated Action Planning**	Integration of climate considerations in planning and coordination ensures resiliency is at the forefront across county initiatives.
CRC	**Climate Ready Communities**	A well-connected and prepared community is better able to respond to and recover from climate hazards.
RIB	**Resilient Infrastructure and Buildings**	Infrastructure and buildings that can withstand climate impacts, keep residents safe, and reduce service disruptions enhance countywide resilience.
AE	**Adaptive Environments**	Natural environments that are protected and restored improve the county's overall resilience to climate change impacts.

These four pillars build the vision of a resilient Fairfax County. Each pillar contains a set of goals, strategies, and implementation actions. The prioritized strategies included in the Resilient Fairfax plan aim to address the top climate change risks to the county and build a more resilient future. Please see Section K: Resilient Fairfax Strategies and Implementation for more details on how the strategies were identified and prioritized.

The adaptation and resilience strategies detailed in this plan include proactive and collaborative planning and funding efforts; infrastructure investments that account for changing climate conditions; connected and resilient communities that have access to the resources they need; and natural environments that provide a range of nature-based resilience benefits for the county and its residents. The strategies are not listed in order of priority.

As a county within a Dillon's Rule state, Fairfax County has limited authority to update certain policies and codes. The Resilient Fairfax strategies reflect ambitious goals within the county's legal authority. For more information on Dillon's Rule states, please see page 38. In all, this plan provides a guide to build and maintain a continuously thriving, adaptable, and resilient Fairfax County.

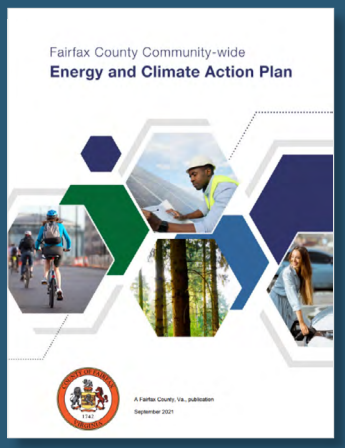
RESILIENT FAIRFAX PLAN AT-A-GLANCE: HOW IS THIS PLAN ORGANIZED?

PAGES	OVERVIEW	
11-22	**Resilient Fairfax: Climate Adaptation and Resilience Plan Development:** Sections A-G summarize the Resilient Fairfax plan development process, including an overview of major steps and analyses. This section also provides an overview of the stakeholder and community engagement that occurred throughout the process to inform and shape the Resilient Fairfax plan.	1. BACKGROUND INFORMATION ON THE PLAN AND PROCESS
23-31	**Climate Projections:** Section H provides an overview of the main findings of the Climate Projections Report, including the primary climate hazards for Fairfax County and how climate conditions are projected to change in the future.	2. SUMMARIES OF TECHNICAL ANALYSES
32-35	**Climate Risks and Vulnerabilities:** Section I provides an overview of the key takeaways from the Climate Vulnerability and Risk Assessment, including the top vulnerabilities of our infrastructure, populations, and systems to climate hazards.	
36-38	**Audit of Existing Policies, Plans, and Programs:** Section J provides an overview of the key takeaways from the Audit, including identifying the steps Fairfax County has already taken to build resilience; opportunities to expand, extend or accelerate initiatives and policies; and gaps where new strategies could further support county resilience.	
39-43	**Strategies Overview:** Section K introduces the four climate resilience strategy pillars: Integrated Action Planning, Climate Ready Communities, Resilient Infrastructure and Buildings, and Adaptive Environments. The section also highlights how these categories build the vision of Resilient Fairfax and provides a summarized list of the strategies for each category.	3. HOW WE WILL ENHANCE OUR RESILIENCE
44-86	**Implementation Roadmap:** Section K includes detailed information on each of the prioritized adaptation and resilience strategies, including implementation action steps, lead and partner departments, estimated implementation time frame and cost, strategy co-benefits, funding opportunities, key performance indicators, and considerations for equitable implementation.	

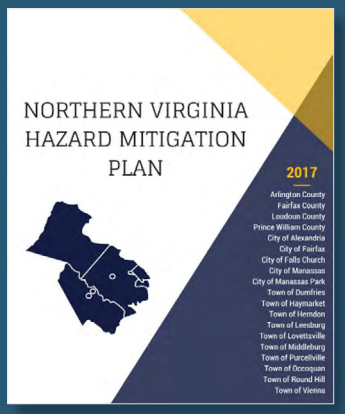
HOW DOES RESILIENT FAIRFAX RELATE TO OTHER COUNTY PLANS?

There are dozens of plans related to climate resilience, because resilience involves many sectors and topic areas. The interagency Resilient Fairfax team is working to align related plans and policies. A few examples of plans that are closely related to or commonly confused with Resilient Fairfax are listed here. For additional plans, please see the Resilient Fairfax Audit of Existing Policies, Plans, and Programs.

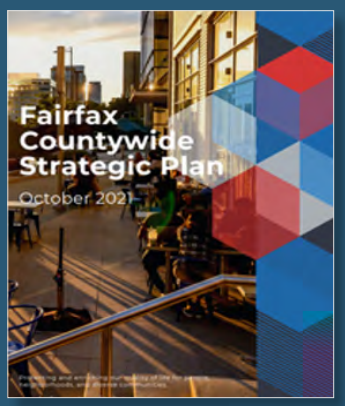
Fairfax County Community-wide Energy and Climate Action Plan (CECAP) (2021): CECAP is the county's first greenhouse gas reduction plan. CECAP is focused on the cause of climate change, while Resilient Fairfax is focused on building resilience to the effects of climate change. CECAP was developed by a working group of dozens of representatives from the Fairfax County community, environmental nonprofits and advocacy organizations, businesses, and other key stakeholder groups. The plan sets ambitious goals for Fairfax County to reduce its greenhouse gas emissions by 50% by 2030 and to achieve carbon-neutrality by 2050. CECAP has 12 areas of focus, some of which support the goals of Resilient Fairfax. For example, CECAP's strategy to "Support Natural Systems and Green Spaces" can also improve resilience to extreme heat and flooding, and is aligned with Resilient Fairfax plan's goal, "Adaptive Environments."



Northern Virginia Hazard Mitigation Plan (HMP) (2017, 2022): The Northern Virginia Hazard Mitigation Plan (HMP) is a regional plan to address both man-made and natural disasters, facilitated by emergency management staff. Resilient Fairfax differs from the HMP because Resilient Fairfax focuses specifically on climatic conditions and long-term future changes in conditions. County staff have collaborated to align the 2022 HMP with Resilient Fairfax. The HMP addresses several climate-related hazards, including flooding, drought, and extreme temperatures. The HMP acknowledges climate change, the amplification it has on existing hazards, and that hazards are expected to increase over the next 40 to 50 years. Similarly, Resilient Fairfax leveraged data and strategies from the HMP. Future HMP and Resilient Fairfax updates may be even more closely aligned or consolidated.

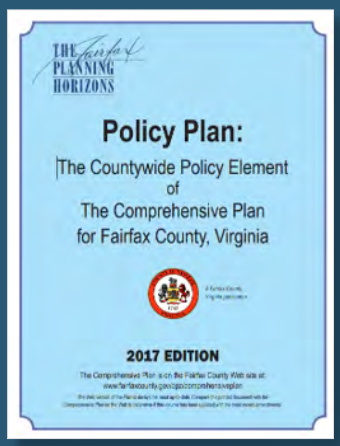


Fairfax County Strategic Plan (2021): The first ever Countywide Strategic Plan was adopted by the BOS (Board of Supervisors) in October 2021. The plan aims to set a clear, unified, community-driven vision for the next 10-20 years; align and integrate existing departmental and issue-specific plans; provide a tool for focusing and prioritizing initiatives over the next three-to-five years; and communicate progress on achieving measurable outcomes. Many of the Strategic Plan's priorities and strategies align with Resilient Fairfax. For example, the Strategic Plan's strategy E9 ("Develop a Climate Action Plan and Improve Community Resilience") directly focuses on climate resilience. Many other strategies indirectly enhance climate resilience by supporting resilient natural resources, health systems, and communities, including support for residents facing disproportionate vulnerability.



One Fairfax: One Fairfax is a joint racial and social equity policy of the Fairfax County Board of Supervisors and School Board. It commits the county and schools to intentionally consider equity when making policies or delivering programs and services. One Fairfax provides an accountability framework, specifies considerations to achieve equity, and aims to ensure that all persons can fully participate in the opportunities of Fairfax County regardless of age, race, color, sex, sexual orientation, gender identity, religion, national origin, marital status, disability, socio-economic status, or neighborhood. The policy establishes 17 focus areas to promote equity including community and economic development, housing, education, environment, and transportation. The One Fairfax data includes a tool to show levels of vulnerability across the county based on population-level indicators such as poverty, health vulnerabilities, and age. One Fairfax provided the foundation for Resilient Fairfax's vulnerability data, equity considerations, and engagement approach.

Comprehensive Plan (2017): The Fairfax County Comprehensive Plan is required by state law to be used as a guide for decision-making on the natural and built environment by the county's BOS, the Planning Commission, the Board of Zoning Appeals, and others. It is also a guide for county staff and the public to use in the planning process. The Comprehensive Plan consists of the Policy Plan, four Area Plan volumes, and a Plan Map. The Policy Plan volume includes general countywide policy on land use, transportation, housing, the environment, heritage resources, economic development, and public facilities, including public parks, recreation, and trails. The Area Plans contain detailed long-range planning recommendations organized by geographic areas of the county. Although the Comprehensive Plan does not explicitly address climate, its plan and policies have indirectly helped to reduce the county's vulnerability and build resilience to climate change. For example, the Environmental Policy Element of the Comprehensive Plan establishes the goals and policies for environmental protection and open space that are integrated throughout the area plans; it also supports flood resilience by stating that new development should not be exposed to the potential of flood impacts and are prohibited within flood impact hazard areas. Through the Resilient Fairfax process, amendments to the Comprehensive Plan and other county plans and policies may be made to further enhance the county's resilience to climate change.



F. Engagement and Plan Development Process

STAKEHOLDER ENGAGEMENT

The Resilient Fairfax planning process involved hundreds of government stakeholders, partners, and members of the public. The process was led by the Office of Environmental and Energy Coordination (OEEC) and a team of consultants, the **Project Management Team**.

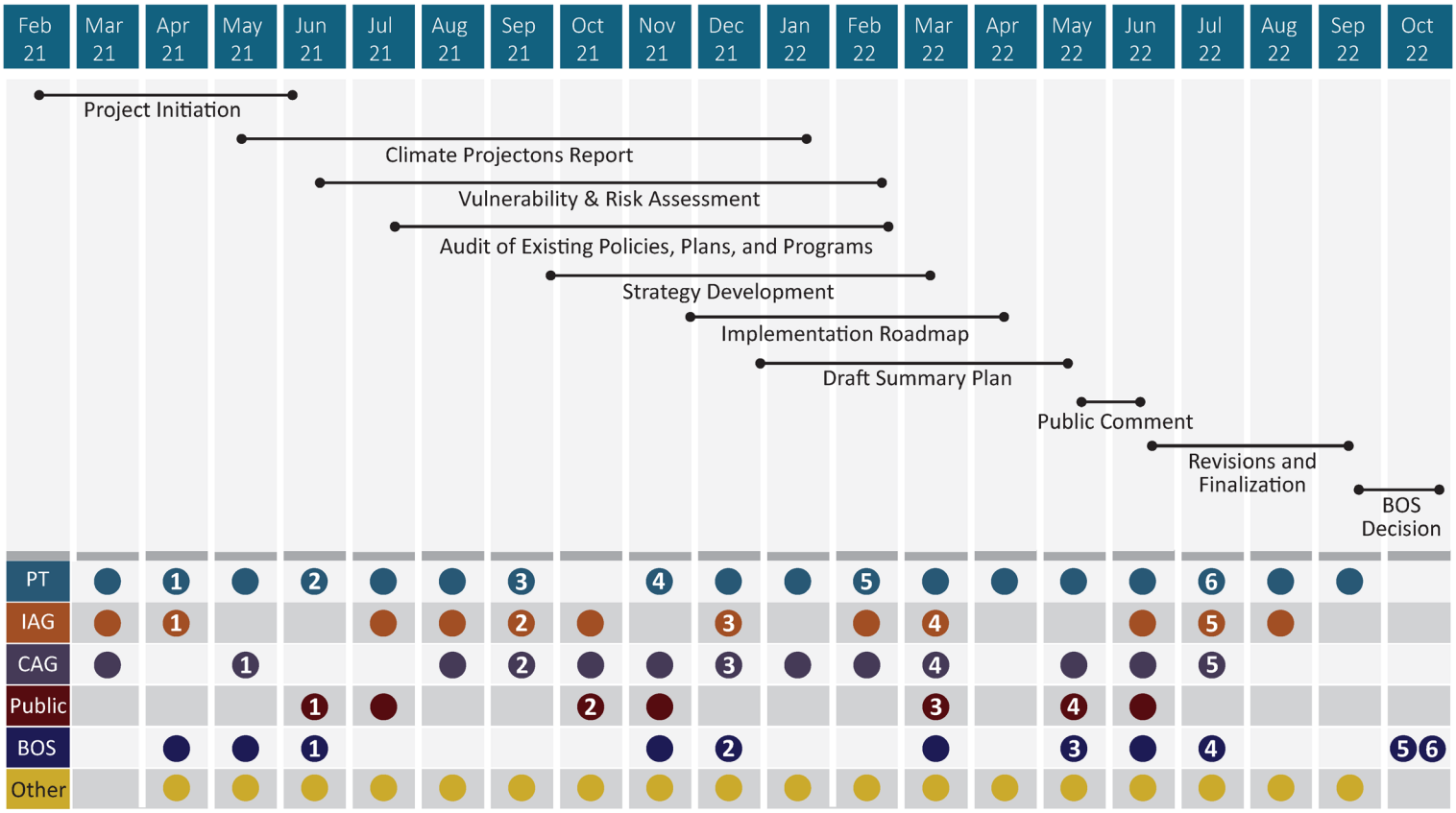
Planning was supported by over 100 advisors, who reviewed deliverables and provided feedback at each milestone. These advisory groups included a **Planning Team (PT)**, which was composed of over 20 county departments; an **Infrastructure Advisory Group (IAG)**, which included utilities, authorities, and infrastructure managers at all levels of government; and a **Community Advisory Group (CAG)**, composed of non-profit and advocacy organizations and residents of each magisterial district. For a full list of advisory group participants, please see the "Acknowledgments" on page 3.

Additionally, the team regularly engaged the **general public**, the **Board of Supervisors (BOS)**, numerous **Boards, Authorities, and Commissions (BACs)**, neighboring jurisdictions, and other relevant groups. In total, the team conducted over 200 engagement meetings during the Resilient Fairfax planning process.

Resilient Fairfax: Participants

Official Participants in the Planning Process		**Project Management**	Office of Environmental and Energy Coordination (OEEC) and Consultants		
		Planning Team (PT)	County departments and agencies	**20 entities** **40 representatives**	**79 meetings** *6 full group* *73 sub-group*
		Infrastructure Advisory Group (IAG)	Utilities, authorities, regional bodies, infrastructure managers at all levels of government	**27 entities** **44 representatives**	**23 meetings** *5 full group* *18 sub-group*
		Community Advisory Group (CAG)	Residents of each district, advocacy organizations, community groups	**26 entities** **33 representatives**	**17 meetings** *5 full group* *12 sub-group*
		General Public	General public	**700+ people, including survey respondents**	**10 meetings** *4 formal* *6 additional*
Additional		**BOS and BACs**	Boards, Authorities, Commissions	**6 entities** **50+ people**	**19 meetings & presentations**
		Other	Neighboring jurisdictions, regional groups, and other	**23 entities** **800+ people**	**65 meetings & presentations**
		Total		***100+*** entities, including ***73*** in Resilient Fairfax advisory groups	***200+*** engagement meetings

Resilient Fairfax: Plan Development Timeline

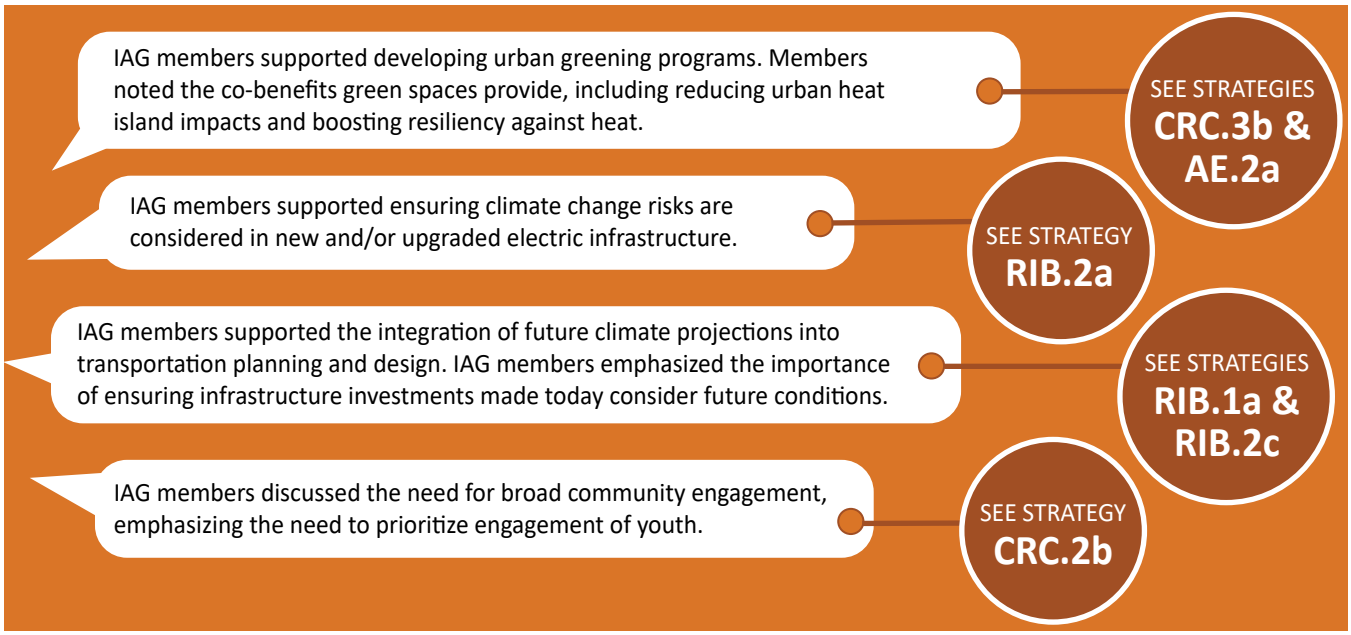


The Resilient Fairfax planning process involved robust engagement of the **Planning Team**, **Infrastructure Advisory Group**, **Community Advisory Group**, the **general public**, the **Board of Supervisors**, **Boards, Authorities, and Commissions**, and **other** entities such as regional working groups, neighboring jurisdictions, and related initiatives. The graphic above illustrates how these groups were engaged throughout the planning process.

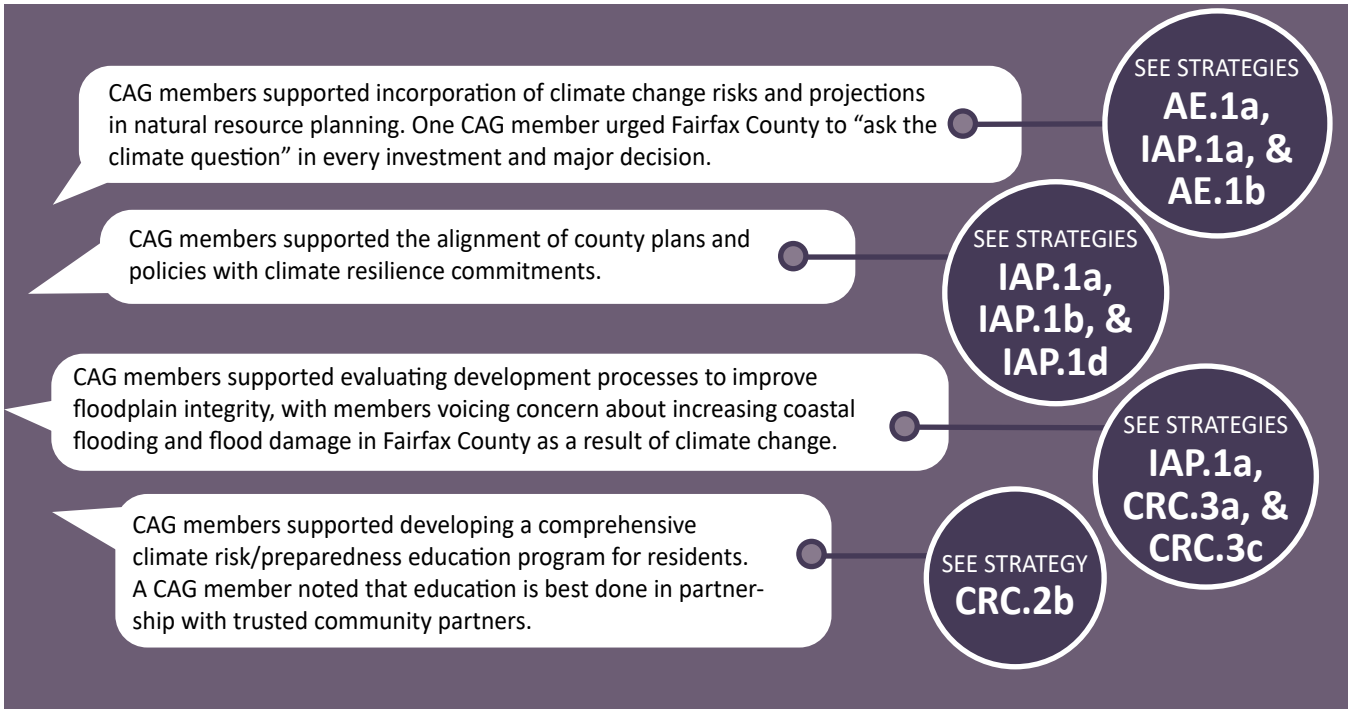
- The top half of the graphic shows the timeline of the major deliverables of the planning process.
- The bottom half of the graphic illustrates engagement.
- Numbered dots represent formal, full-group meetings; blank dots represent months where sub-group meetings were held.
- In total, over 200 engagement meetings were held during the Resilient Fairfax planning process.

FEEDBACK FROM OUR ADVISORY GROUPS

WHAT WE HEARD FROM THE INFRASTRUCTURE ADVISORY GROUP



WHAT WE HEARD FROM THE COMMUNITY ADVISORY GROUP



PUBLIC ENGAGEMENT

The public was regularly engaged throughout the Resilient Fairfax planning process. The Project Management Team held regular public meetings and hosted a month-long public comment period for members of the Fairfax County community to provide input on the plan. Residents were able to provide verbal and written feedback throughout project progress.

In addition to the public meetings and public comment period, OEEC administered a public survey to county residents over the summer of 2021 to better understand the community's current climate concerns and vulnerabilities. This survey was one part of the larger climate vulnerability and risk assessment that included extensive data analyses, mapping, policy reviews, and additional stakeholder engagement.

Highlights from the survey responses are below. To see the full results of the public survey, please click this link.

Survey Highlights:

- 600+ responses across the county.
- 70% of survey takers expressed high levels of concern about climate change (8 or higher on a scale of 1-10).
- 45% of Resilient Fairfax Survey Takers are "extremely concerned" about climate change.
  - 81% are concerned about severe storms.
  - 79% are concerned about temperature changes.
  - 60% are concerned about flooding.
- 46% said they or a household member have a health condition that makes them more sensitive to cold, heat, or air pollution.
- 25% of Fairfax resident survey takers have experienced flooding in their neighborhoods in the last 5 years.
  - Nearly 80% of survey takers stated they do not have flood insurance.

WHAT WE HEARD FROM THE COMMUNITY

G. Equity in Climate Resilience

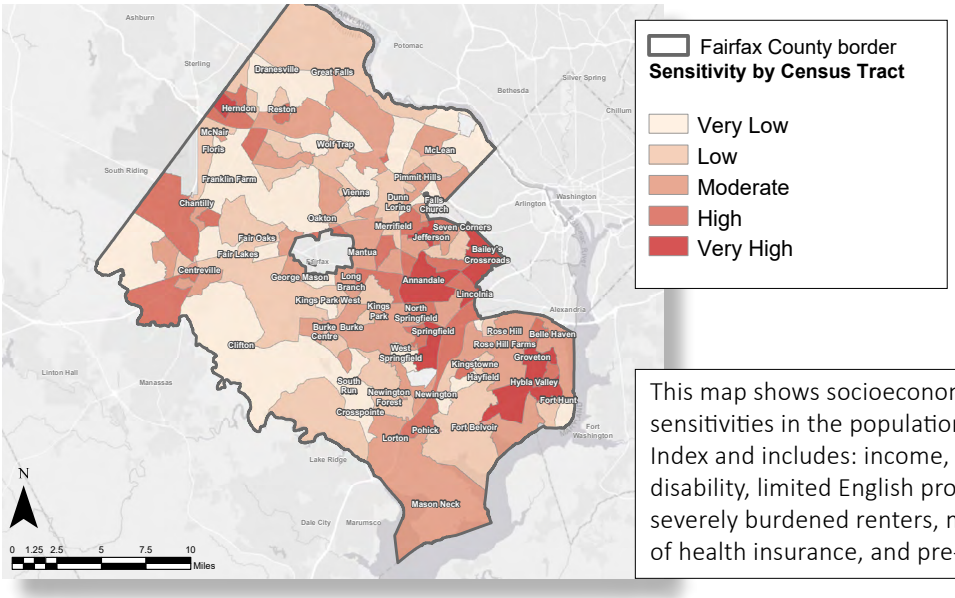
Equity and inclusion are central considerations when planning for climate change impacts. Building climate resilience requires addressing the needs of marginalized or underserved populations, considering community conditions, assets, and resources, and ensuring the voices of the most vulnerable populations are heard throughout planning and implementation. Addressing equity in resilience planning includes identifying existing disparities, promoting inclusive involvement, and advancing equitable outcomes that reduce climate hazard risk and build community capacity.

EXISTING INEQUITIES

Some populations are disproportionately impacted by climate change as a result of historic under-investment, insufficient resources, systemic inequities and discrimination, health issues, and challenges with accessibility. These populations can often experience increased sensitivity to climate hazards and may have less capacity and fewer resources to adapt. Additionally, sensitive populations, such as those listed on the right, may have a harder time stabilizing during and after extreme weather events and recovering from personal property damage. For example, low-income populations may be unable to afford to purchase or operate an air conditioning unit during periods of extreme heat. Climate impacts can also exacerbate existing vulnerabilities. For instance, a resident with a physical disability may have more difficulty evacuating during a flooding or severe storm event.

Addressing inequities and the needs of our disproportionately burdened populations is a top priority for the county. These populations are not a "problem" to be fixed, but rather assets and integral members of the Fairfax community. Our objective is to ensure traditionally underserved communities have access to the resources and systems to be resilient and thrive.

Figure 1. Fairfax Vulnerability and Risk Assessment (Source: VRA)



This map shows socioeconomic, health-related, and other preexisting sensitivities in the population. The data is from One Fairfax's Vulnerability Index and includes: income, poverty, lack of high school diploma, age, disability, limited English proficiency, race, ethnicity, lack of vehicle access, severely burdened renters, multi-unit structures, overcrowded units, lack of health insurance, and pre-existing health conditions.

Populations identified by survey takers as being vulnerable to climate hazards

- Children
- Older adults
- People of color
- People with disabilities
- People with chronic illnesses
- Individuals/families with low to moderate income
- Individuals/families without access to a vehicle
- Individuals/families with limited English proficiency
- Populations experiencing homelessness, including veterans
- Pregnant women, parents of small children
- Frontline/outdoor workers
- New residents without social networks
- College students
- People without internet/ mobile access
- Undocumented immigrants, climate refugees
- People experiencing food and/or housing insecurity
- People in low-lying areas
- Renters relying on goodwill of landlords
- Incarcerated people
- Pet owners/pets
- Individuals reliant upon electrically dependent medical equipment

HOW RESILIENT FAIRFAX IS DRIVEN BY AND ADDRESSES EQUITY

Equity is at the core of Resilient Fairfax planning and implementation. This approach is consistent with the county's One Fairfax racial and social equity policy. One Fairfax commits the county to intentionally consider equity when making policies and delivering programs and services.

Equity in the Planning Phase

The Resilient Fairfax planning process incorporated equity by:

- **Assessing inequitable impacts:** Analyzing the disproportionate impacts of climate hazards on vulnerable populations in the Vulnerability and Risk Assessment.
- **Strategizing for equity:** Developing climate adaptation strategies and resilience measures intended to prioritize underserved populations, and support inclusive engagement in plan implementation.
- **Conducting inclusive engagement:** Engaging community representatives throughout the planning process to advocate for and give voice to marginalized populations.
- **Building trust:** Leveraging partnerships with county departments and partner organizations who already do great work in our community.

Equity in the Implementation Phase

Through proactive action, Fairfax County can reduce climate-related vulnerabilities and inequities. The following core approaches will be taken to advance equity during implementation of Resilient Fairfax:

- **Expanding community engagement:** Implementing climate resilience strategies through meaningful partnership with the communities most affected, equitable distribution of resources and education, and ensuring the ideas of the most vulnerable populations are reflected.
- **Building partnerships:** Identifying community leaders, working groups, and partner organizations that can inform and strengthen equity considerations throughout decision-making processes.
- **Data-informed implementation:** Identifying and utilizing available data, such as the One Fairfax Vulnerability Index, the NASA DEVELOP Urban Heat Island data, flooding database, and qualitative data from communities to support informed, equitable implementation.
- **Justice-driven action:** Prioritizing communities with the greatest need for resilience projects, using policy tools such as 'Adaptation Action Areas' (see Strategy CRC.1a).
- **Facilitating access:** Promoting accessibility and access to climate resilience resources through equitable resource distribution, translation services, physical accessibility, use of trusted and convenient spaces, use of multiple media and material types, and other accommodations.
- **Sharing accountability:** Continued coordination with community leaders and advisory groups during plan implementation and transparency through tracking and reporting.

EQUITY IN ENGAGEMENT

During the planning process, a wide range of local organizations and stakeholders represented and advocated for Fairfax's underserved populations, including the Chief Equity Officer, NAACP, Cornerstones, NCS, DFS, and residents from each Supervisor District (for the full list of participants, see the 'Acknowledgments' Section, page 6). Over 200 engagement meetings were held throughout the process and the public was regularly engaged through public meetings, a survey, and during the public comment period. However, there is always more work to be done to achieve equitable engagement. The county looks forward to additional direct engagement of underserved populations during implementation and future plan updates.

2. SUMMARIES OF TECHNICAL ANALYSES

H. Climate Projections: Warmer, Wetter, Weirder

As a first step in the Resilient Fairfax process, the county completed the Climate Projections Report, which provides projected future climate conditions and hazards in Fairfax County. The report answers the question, "**what climate conditions and hazards are we likely to face in Fairfax County?**"

WHAT THE CLIMATE PROJECTIONS REPORT ASSESSED

An expert team analyzed the trends of six climate hazards in Fairfax County: extreme heat, heavy precipitation, severe wind and storms, extreme cold, drought, and coastal flooding of the Potomac River. These trends were evaluated for four different time periods, centered in 1990, 2005, 2050, and 2085. Time periods were used instead of individual years because "climate" by definition means 20 years or more. Each hazard and time period was analyzed under both a low and high emissions scenario.

Six Hazards Analyzed

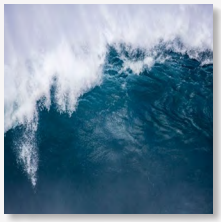

Extreme Heat


Heavy Precipitation


Severe Wind & Storm


Extreme Cold


Drought


Coastal Flooding

Two Scenarios[1]

RCP 4.5 (Low Scenario)

RCP 8.5 (High Scenario)

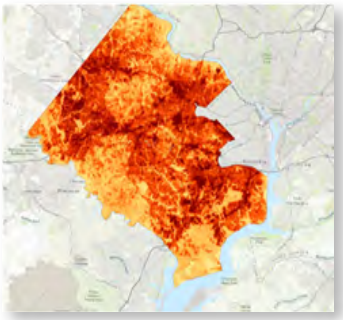
Four Time Periods

- **Baseline** "1990" (1976 - 2005)
- **Current** "2005" (1991 - 2020)
- **Mid-Century** "2050" (2035 - 2064)
- **End of Century** "2085" (2070 - 2099)

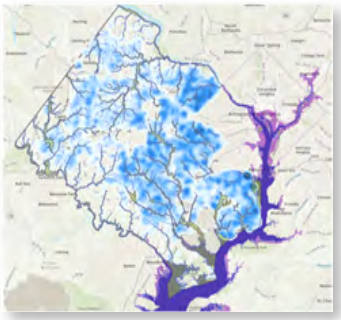
WHAT THE CLIMATE PROJECTIONS REPORT FOUND

The analysis found that Fairfax County's climate is expected to become generally warmer, wetter, and weirder compared to historical trends. Key takeaways for each of these trends are included in the pages below. For more detail, please see the full Climate Projections Report.

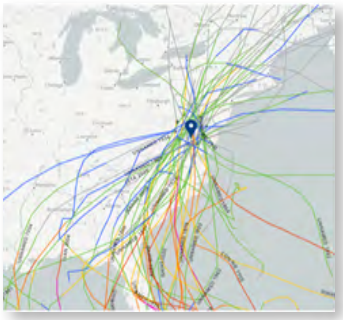
Warmer



Wetter



Weirder



[1]Representative Concentration Pathways (RCP) are used to describe and model different climate futures based on the amount of greenhouse gases emitted. RCP 8.5 represents a "no climate policy" future with continued high reliance on fossil fuels and increasing GHG emissions. RCP 4.5 represents a more moderate scenario where GHG emissions peak around mid-century and then decline.

WARMER

EXTREME HEAT

Average annual temperatures in Fairfax County are projected to increase significantly from present day conditions and at an accelerated rate compared to previously observed trends. Warmer, traditionally "summer" temperatures are projected to start earlier in the late spring and last further into the fall, contributing to more frequent extreme heat conditions.

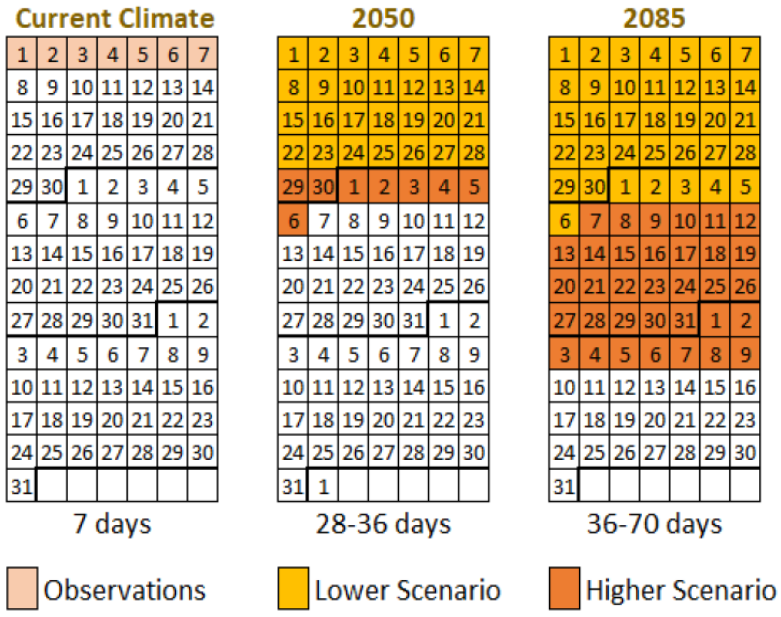
The intensity and frequency of extreme heat conditions in Fairfax County are increasing due to the impacts of climate change. Currently, the county experiences about seven days each year where the average temperature is at or above 95°F. This number is expected to increase substantially by the end of the century under both emissions scenarios.

Heat waves that were once considered rare and record-breaking are forecasted to become much more common. By 2050, longer durations of heat events and higher humidity during these hotter days will intensify the impacts felt by community members and make it harder for the county's most vulnerable populations to seek relief from the heat.

WHAT IS "EXTREME HEAT"?

Extreme heat definitions vary by region but are generally described as a period of high heat and humidity with temperatures above a certain threshold, like 95°F, for an extended period of time, such as two to three days. Figure 2 shows how extreme heat days are projected to increase by mid- and late-century.

Figure 2. Number of Days at or Above 95°F in Fairfax County. (Source: Climate Projections Report).



Number of days at or above 95°F under current climate conditions (averaged over 30-year period).

The number of days at or above 95°F is projected to **increase from 7 days per** year to **28-36 days per year by 2050**. By 2085, Fairfax County may experience up to 70 days per year above 95 degrees.

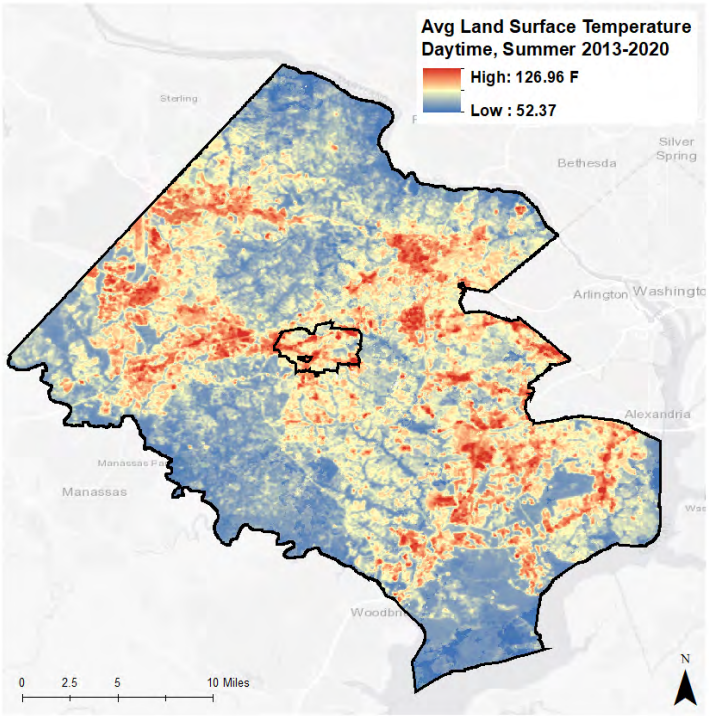
URBAN HEAT ISLAND EFFECT IN FAIRFAX COUNTY

Projected increases in annual average temperatures and extreme heat conditions will be even further exacerbated in areas suffering from the Urban Heat Island (UHI) effect. The UHI effect is the phenomenon of heavily developed urban areas retaining more heat than their surroundings due to greater concentration of paved surfaces, fewer trees and green spaces, and more waste heat (e.g., car exhaust). For example, areas such as Annandale and Tysons Corner currently have land surface temperatures[2] over 120 degrees during the hottest months, whereas our green spaces have land surface temperatures below 80 degrees.

As temperatures rise, Urban Heat Islands in Fairfax County will face even hotter temperatures than other areas of the county.

Fairfax County partnered with NASA DEVELOP for detailed high-resolution Urban Heat Island data for the county. These data are based on several years of detailed land surface temperature satellite measurements. To see a map of Urban Heat Islands in the county, please click here. For more information, please see NASA DEVELOP's full report here.

Figure 3. Average Surface Temperature in Fairfax County (Source: VRA)



Heat Vulnerability & Fairfax's Hottest Neighborhoods: Findings from NASA DEVELOP Project

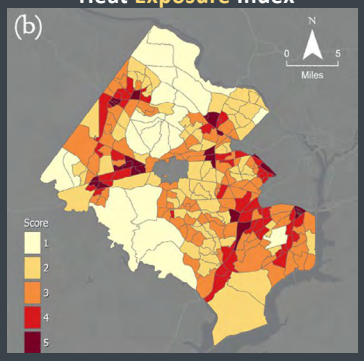
In 2021, NASA DEVELOP conducted an Urban Heat Island assessment of the county. The results include a Heat Exposure Index, a Heat Sensitivity Index, and a Heat Vulnerability Index, among others including daily and nightly average surface temperatures in the summer, evapotranspiration, heat mitigation capacity (ability of an area to cool down), and distance to places to stay cool, among others.

- Heat Exposure: What parts of the county are most exposed to heat?
- Heat Sensitivity: Where do the most heat-sensitive residents live?
- Heat Vulnerability: What parts of the county are the most heat exposed and heat sensitive?

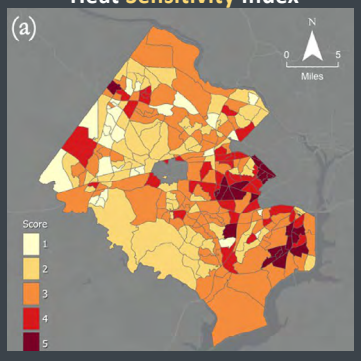
Urban heat islands in the county are particularly prevalent in areas such as Tysons, Annandale, Chantilly, Centreville, Springfield, and Herndon.

For more information, access the full NASA Develop report here.

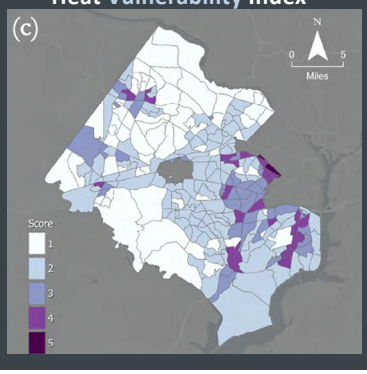
Heat Exposure Index



Heat Sensitivity Index



Heat Vulnerability Index

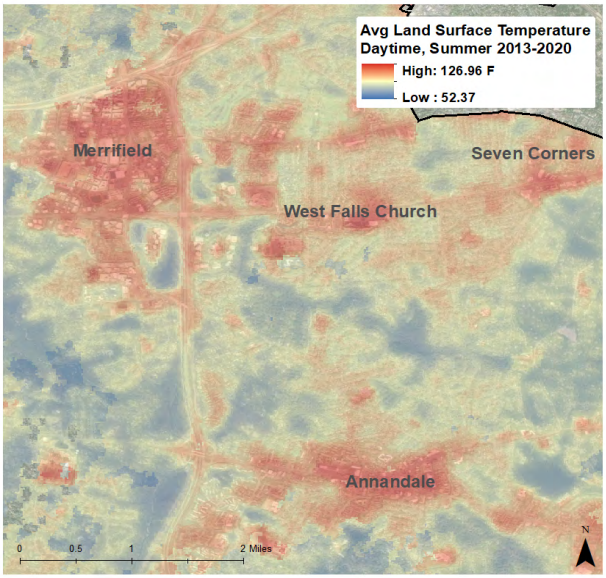


[2] It is important to note that these data refer to land surface temperature, and not air temperature.

EXTREME HEAT IN URBAN HEAT ISLANDS

Existing Urban Heat Islands, like Merrifield, West Falls Church, and Annandale, remain hotter than other areas of the county due to the Urban Heat Island effect. As temperatures rise for all of us, these existing Urban Heat Islands will become even hotter than they are currently, worsening health risks for these communities. Impacts of extreme heat are often more dangerous for heat-sensitive populations such as those with health conditions, disability, advanced age, inability to afford air conditioning, lack of housing, or outdoor occupations. Places to stay cool such as libraries and community centers must be nearby and easily accessible during periods of high heat.

Figure 4. Daytime Summer Average Surface Temperatures in Merrifield, West Falls Church, and Annandale. (Source: Climate Resilience Interactive Map).



WARMING WINTERS

Consistent with the projected trend of warmer climate conditions in Fairfax County, winters will likely become warmer. The number of days below freezing on average per year in Fairfax County is projected to decrease from 86 days (1991-2020 average) to 62-67 days by 2050. The number of freeze-thaw days per year is also projected to decrease.

Freeze-thaw days are days when the temperature crosses the freezing point (0°C/32°F).

DROUGHT

Drought refers to a prolonged period with drier than normal conditions and lack of precipitation. Fairfax County has historically experienced more significant drought events than other parts of the state.[3] From 1950 to 2016, the county recorded over 47 drought events and the Virginia Department of Emergency Management identified Fairfax County at medium risk of drought.

As the climate changes, small-to-moderate decreases in drought conditions are forecasted for Fairfax County, because average precipitation is expected to increase by mid-century. However, when intermittent droughts do occur, they may be more severe than what the region has historically experienced. Given the considerable uncertainty in climate models regarding future drought conditions, the findings of the Climate Projection Report indicate that drought is considered a minor, but ongoing, risk for the county, and additional research is needed.

[3] Drought events here refers to federal disaster declarations for drought.

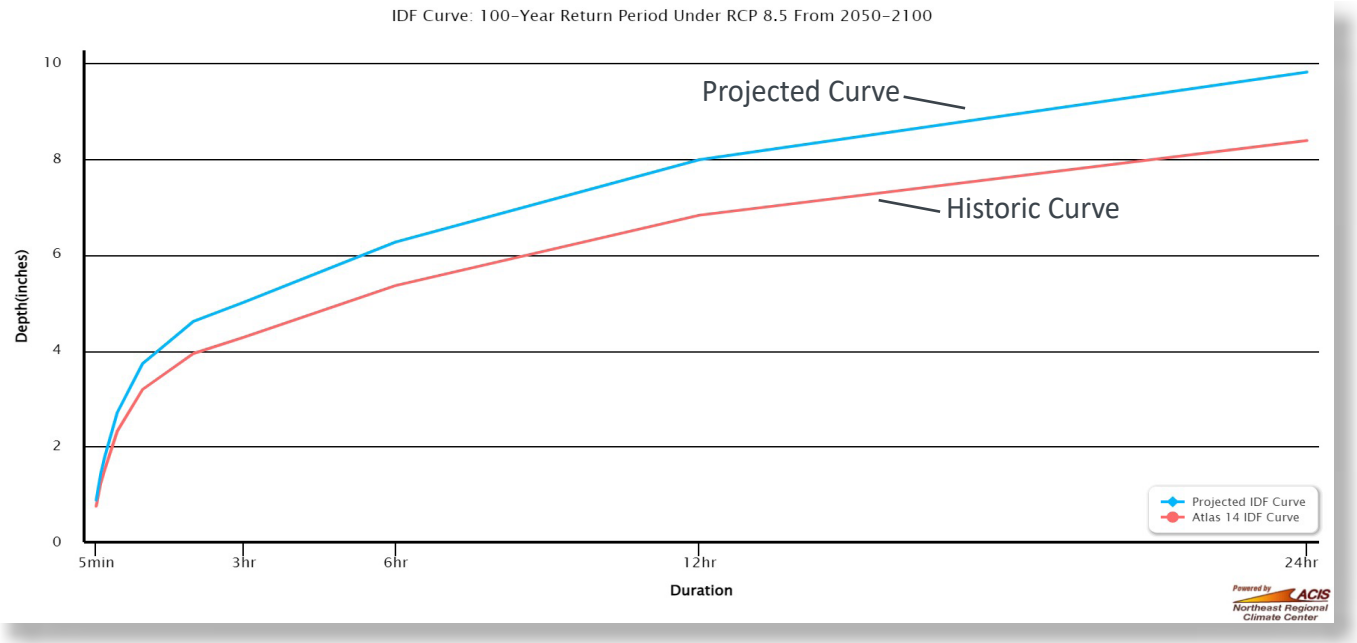
WETTER

PRECIPITATION

Precipitation in Fairfax County is projected to continue increasing in both amount and intensity. Additionally, given warmer conditions, more precipitation events over the year are predicted to shift from snow to rain. The annual total quantity of precipitation for the county is projected to continue increasing slightly. More significantly though, individual precipitation events are becoming more intense. That is, the county is receiving our total amount of annual precipitation from fewer events. This means that intense, heavy rainfall is occurring more frequently, compared to more gentle rains spread over a longer period of time. When too much rain falls too quickly, our stormwater management systems can become overwhelmed, causing flooding.

Precipitation is measured by intensity, duration, and frequency, or "IDF" curves. IDF curves are used by our engineers to design our stormwater systems. The chart below from Mid-Atlantic Regional Integrated Sciences and Assessments (MARISA) shows how these IDF curves are changing. (Please see https://midatlantic-idf.rcc-acis.org/). The red line at the bottom of the chart is the IDF curve engineers have historically used for stormwater design. The blue line is the new IDF curve for the "100-year" storm for Fairfax County. The blue line's location above the red line means that more rain (depth) is expected within the same timeframe (duration). Fairfax County departments, including Land Development Services (LDS), Department of Public Works and Environmental Services (DPWES), and the Office of Environmental and Energy Coordination (OEEC) are seeking to update the county's development design standards to account for these changes. For more, please see the Climate Projections Report.

Figure 5. IDF Curve for 100-Year Return Period, Vienna Station. (Source: MARISA).



INLAND FLOODING

Given the projected increase in heavy precipitation days, inland flooding is also expected to increase. There are two major types of inland flooding:

Riverine flooding occurs when heavy or prolonged rains cause rivers and streams to overflow into floodplains. Figure 6 shows FEMA — and county — recorded floodplains in Fairfax County.

Urban flooding which is more common in Fairfax County, occurs when rainwater overwhelms the county's stormwater drainage systems, particularly in areas that are low-lying, lack sufficient stormwater infrastructure, or have too much impervious cover. Figure 7 is a map of a property-by-property analysis to find areas that may be flood prone. The properties were scored for 10 factors. These factors include urban flooding considerations such as whether the development lacks stormwater infrastructure, was built before modern stormwater regulations, is located in a sump, or has a history of flooding-related service requests, among others. For property anonymity, this data was then summarized into equal-sized hexagons. **This map is for general informational purposes only and is subject to change.** To interact with this map, please see Climate Map Viewer here.

Figure 6. Fairfax County's Recorded Floodplains. (Source: DPWES/FEMA**).**

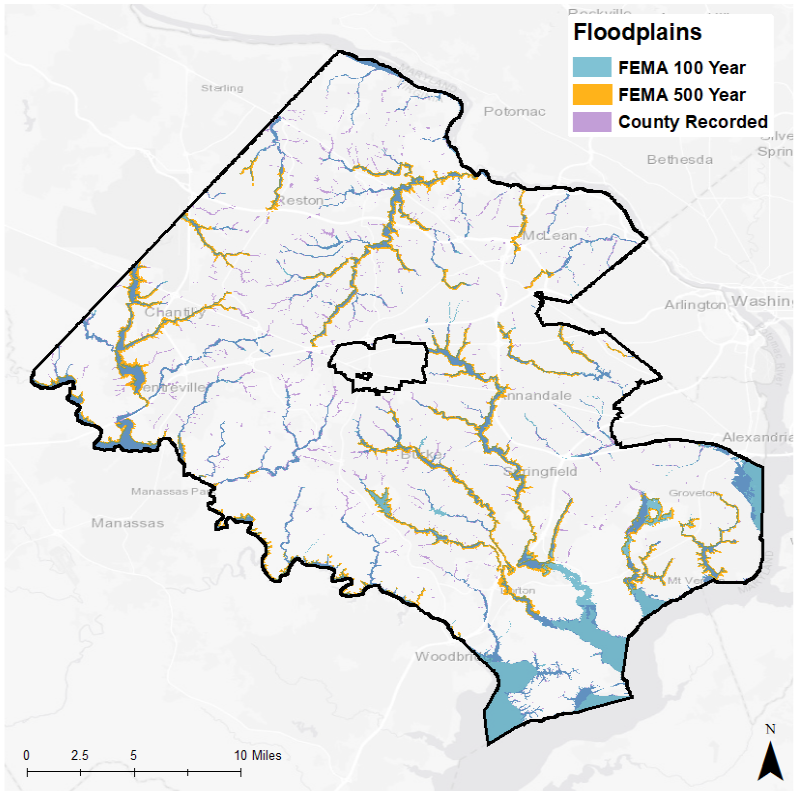
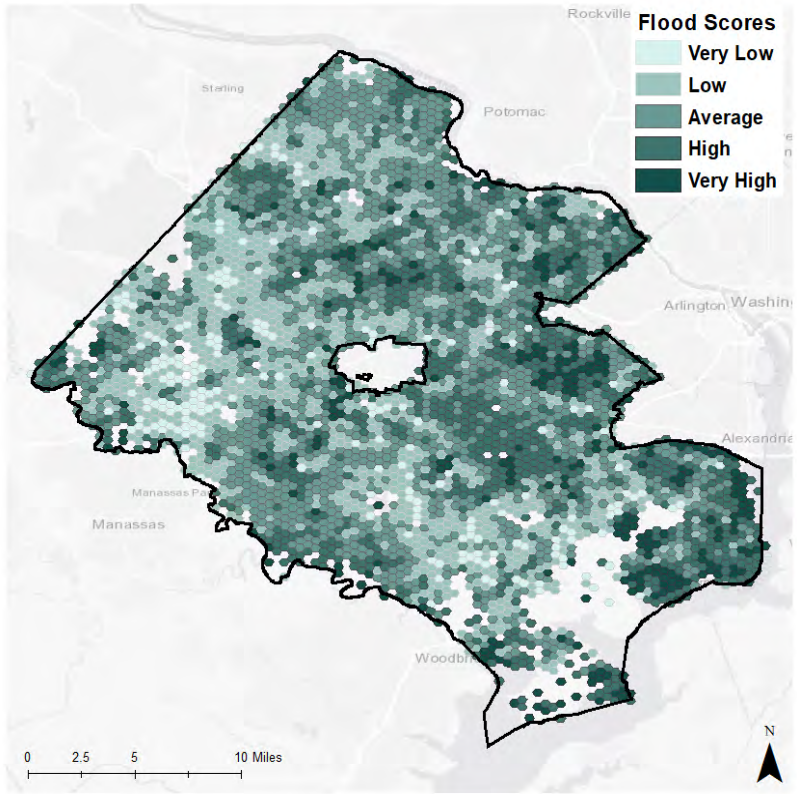


Figure 7. Flood Exposure: 10-factor flood score. (Source: DPWES/GIS).



COASTAL FLOODING

The county is also susceptible to "coastal flooding" impacts. In Fairfax County this means flooding of the Potomac River and associated water bodies due to tidal flooding, sea level rise, coastal storm surge, or a combination of these events. The southeastern portion of Fairfax County is most exposed to coastal flooding hazards.

Historically, sea level rise for the Fairfax County area has occurred at a rate of about 0.135 inches per year. The rate of sea level rise is projected to accelerate; by 2050, the county is projected to experience sea level rise of between 1.1 and 3.6 feet, depending on the GHG emissions scenario.

Figure 9 illustrates potential flooded areas in the county under sea level rise projections of 1 to 3 feet. The flooding occurs along the southeastern portion of the county and is largely an expansion of tidally influenced areas. The image also includes Category 1 and 2 coastal storm surge, which refers to water that is pushed ashore during severe weather events.

Figure 8. Projections of relative sea level rise for Washington DC tide gauge. (Source: NOAA, USACE)

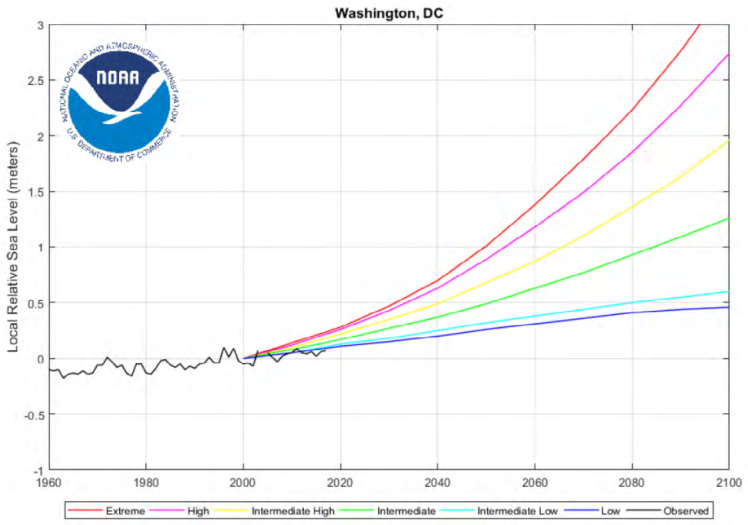
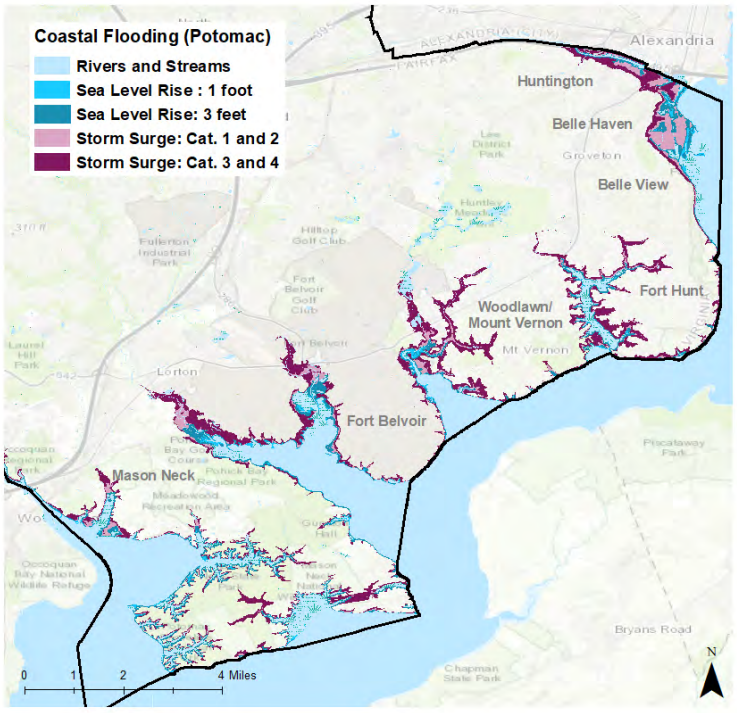


Figure 9. Coastal Flooding Exposure: Sea Level Rise (SLR) and CAT 2 Storm Surge. (Source: NOAA, USACE)



WEIRDER

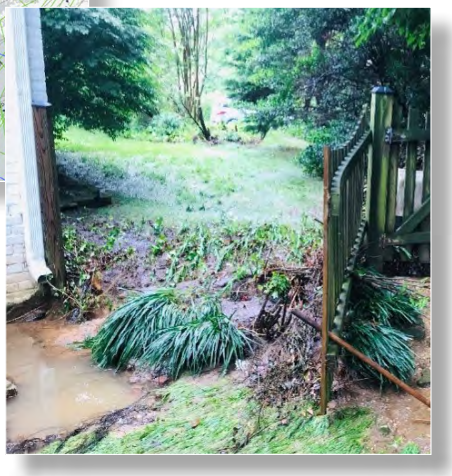
From **1996** to **2021**, there were a total of **10 countywide FEMA Major Disaster Declarations** including blizzards and winter storms (**6**), tropical cyclones (**3**), and severe storm with tornadoes, flooding and/or straight-line winds (**1**). The severity and frequency of "weirder," extreme weather is only expected to increase. (Source: FEMA).

SEVERE STORM AND WIND EVENTS

Each year, Fairfax County experiences a range of severe storm and wind events, including severe thunderstorms, tropical cyclones, and winter storms, among other storm types. Extreme weather events are becoming more frequent, fueled by warming temperatures. As temperatures warm, the air has an increased capacity to hold water vapor, leading to amplified conditions for storm events. There is varying confidence in how storm events may change under a warming climate, but a general consensus that intensity and frequency of extreme storms will continue increasing due to climate change.

TROPICAL CYCLONES

Tropical cyclones include tropical depressions, tropical storms, and hurricanes. Fairfax County tends to experience the remnants of these storms or downgraded storms which can still cause significant rain, high winds, and flooding. While few tropical cyclones have historically crossed the county directly, they can still have significant impact if their path tracks in the vicinity. Tropical cyclones intensities are projected to increase, including stronger wind conditions and heavier rains.



SEVERE THUNDERSTORMS

Severe thunderstorms can occur at any time of year in the county, causing hail, lightning, tornadoes, and strong winds. Derechos are widespread, long-lived, straight-line windstorms that are associated with severe thunderstorms that are particularly damaging. Severe thunderstorms can be associated with flash flooding, lightning, strong winds, hail, tornadoes, and wildfires. Climate change will increase the frequency of environmental conditions in which severe thunderstorms occur, increasing the likelihood of their occurrence.

WINTER STORMS

Winter storms in Fairfax County may range from moderate snow over a relatively short duration of a few hours to blizzard conditions lasting for several days. Significant damage in the form of downed power lines, fallen trees, power disruption, and hazardous travel conditions can occur. Warming conditions are projected to decrease the number of days per year below freezing in Fairfax County and reduce the total snow days per year, with more precipitation falling as rain.

This section has provided a brief summary of the Climate Projections Report. For more information, access the full technical report here.

Recent Fairfax County Hazard Events

- In May 2019, a severe line of thunderstorms produced high winds and damage in the county, leading to downed trees and siding and roofing shingles being pulled off of buildings.
- In July 2019, thunderstorms produced intense rainfall that exceeded stormwater infrastructure capacity and caused severe flooding, requiring swift water rescues.
- In April 2021, cold fronts sparked severe weather that knocked down trees, caused damage to buildings, and blocked roads.

I. Vulnerabilities and Risks

Fairfax County has already experienced rising temperatures, more frequent heat waves, stronger storms, heavier rainfall events, and rising sea levels, as described in the Climate Projections section above. These climatic conditions impact our populations, buildings, natural environments, infrastructure, and vital community services. When we understand these impacts, we are better able to build in resilience to future conditions. Therefore, the second step of the Resilient Fairfax planning process was developing a Climate Vulnerability and Risk Assessment. This section provides a brief summary of that assessment. For more information please see the full Vulnerability and Risk Assessment at this link.

The purpose of the Vulnerability and Risk Assessment (VRA) was to identify the county's top vulnerabilities and risks associated with climate change. The VRA answers the question, "Given these climate projections, where are we vulnerable?"

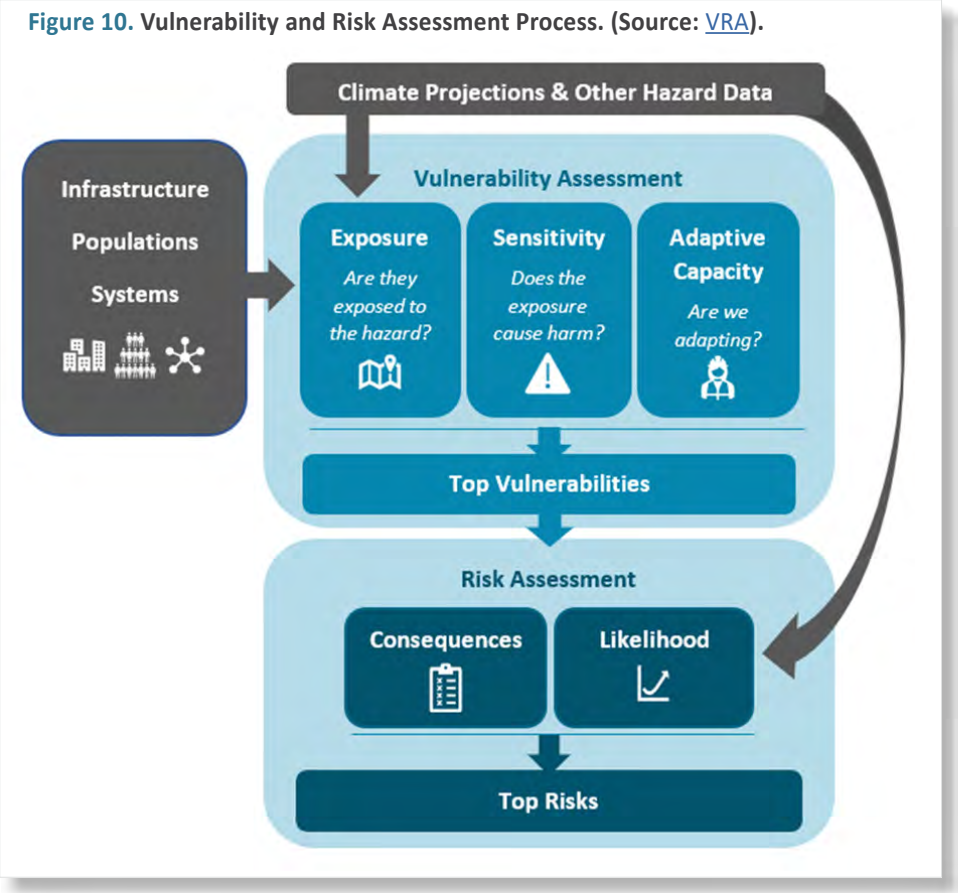
VULNERABILITY AND RISK ASSESSMENT METHODOLOGY

The VRA is composed of two major parts: a Vulnerability Assessment, and a Risk Assessment.

The **Vulnerability Assessment** identifies which Fairfax County infrastructure types, natural resources, public services, and populations are *most exposed, most sensitive, and least adaptive* to the projected climate hazards. This assessment was used to help identify the county's "top vulnerabilities."

The **Risk Assessment** analyzes the top vulnerabilities to determine which of these is *most likely* and *most severe in consequence.*

Figure 10. Vulnerability and Risk Assessment Process. (Source: VRA).



The scoring approach used in the Vulnerability Assessment was adapted from methodology developed by the Association of Climate Change Officers (ACCO). The results of the VRA are briefly summarized in the following pages. For more information, please see the full Vulnerability and Risk Assessment at this link.

Vulnerability and Risk Assessment Sectors

Based on best available science, these sectors and subsectors were evaluated for their vulnerability to six climate hazards of concern: extreme heat, heavy precipitation and inland flooding, severe storms, extreme cold, coastal flooding, and drought (see Table 1).

Table 1. Vulnerability and Risk Assessment Sectors

Sector	Subsectors
Populations	General Population and Vulnerable Populations
Public Services	Health and Community Services, Emergency Response and Management Services, Parks and Recreational Services, Waste Management Services
Buildings	Residential, Commercial, Industrial, Mixed-Use, Parking Garages, Public Buildings, Other Buildings
Water Infrastructure	Drinking Water, Stormwater, Wastewater Infrastructure
Energy and Telecommunications Infrastructure	Electricity, Natural Gas, Telecommunications
Transportation Infrastructure	Roadways and Bridges, Rail and Public Transit, Bicycle and Pedestrian Infrastructure
Natural and Cultural Resources	Water Bodies, Wetlands and Environmentally Sensitive Areas, Trees and Forests, Agricultural and Farm Areas, Cultural and Historic Resources

VULNERABILITY AND RISK ASSESSMENT SCORING

The **Vulnerability Assessment** evaluates the exposure, sensitivity, and adaptive capacity of Fairfax County assets, systems, and populations. The purpose is to identify which are most vulnerable to the projected climate hazards.

Vulnerability = Exposure x Sensitivity x Adaptive Capacity

The results of the Vulnerability Assessment highlight which sectors and subsectors are most vulnerable to a changing climate and provide a generalized understanding of current and future threats to the county.

The **Risk Assessment** evaluates the top vulnerabilities, to identify which vulnerabilities are most likely and which could present the most severe consequences.

Exposure measures whether an asset, system, or population may be exposed to a climate hazard.

Sensitivity measures how sensitive an asset, system, or population is to the climate hazard.

Adaptive Capacity measures capacity to enhance resilience and adapt to these hazards.

Risk = Likelihood of Occurrence x Consequence

VULNERABILITY AND RISK ASSESSMENT KEY FINDINGS AND OUTCOMES

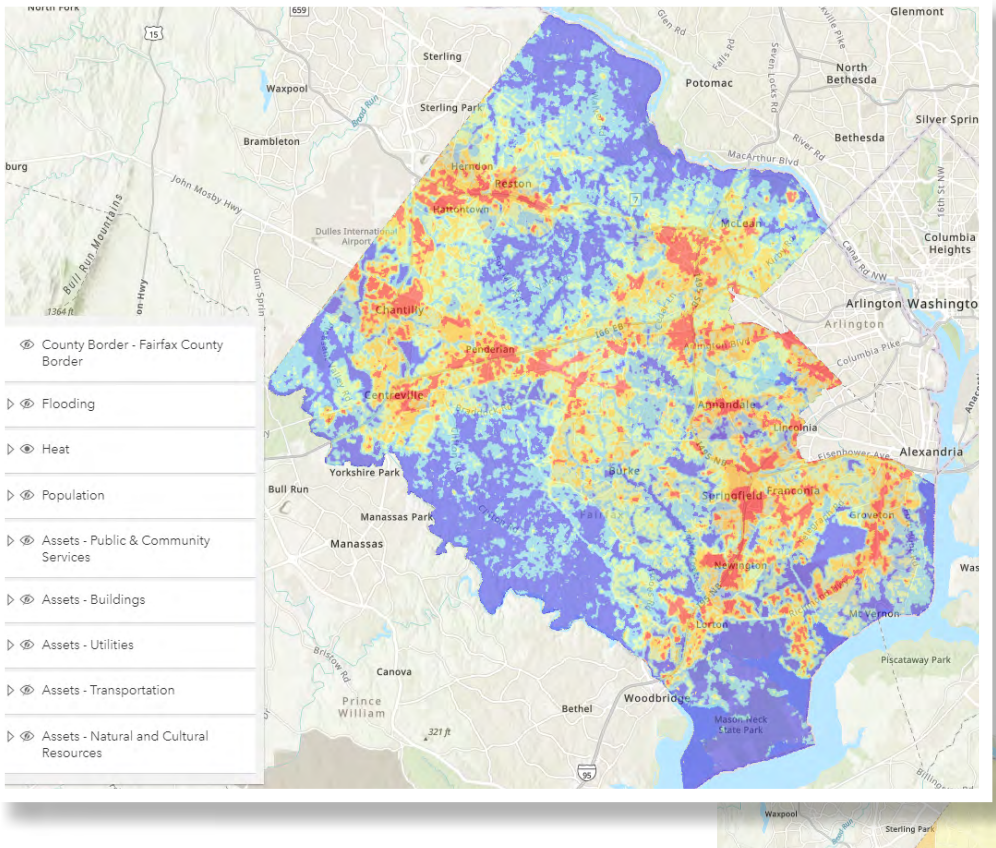
The VRA helped the county identify our top vulnerabilities to climate change. These top vulnerabilities are summarized in the table below. This section has provided a brief summary of the Vulnerability and Risk Assessment. For more information, please see the full VRA.

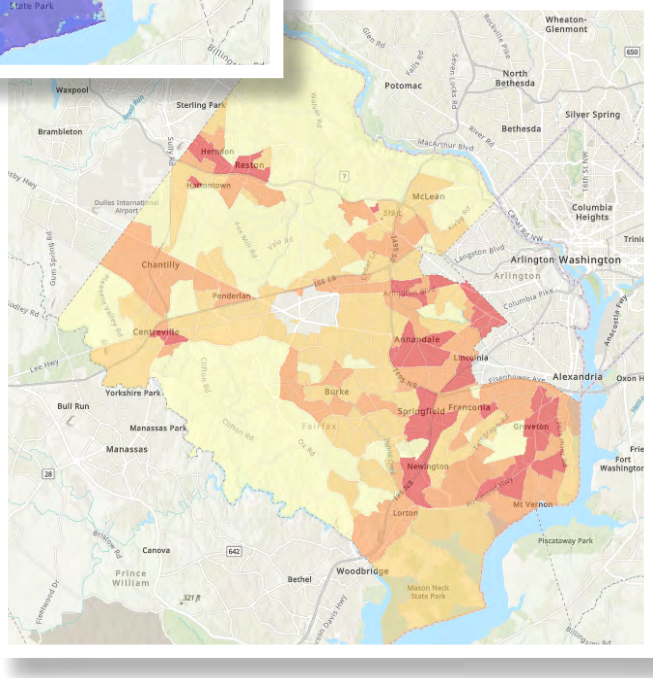
	**Heavy Precipitation Causing Inland Flooding of Communities** **Sectors Most Impacted:** Vulnerable populations, general population, buildings, cultural and historic, roadways, agriculture, electricity, emergency response, health and community services, parks and recreation, public transit, stormwater management infrastructure, tree canopy, wastewater infrastructure, and water bodies
	**Combined Stress on Natural Systems** **Systems Most Impacted:** Water bodies, wetlands and environmentally sensitive areas, trees and forested areas, parks and recreation areas, and agricultural districts and farms
	**Severe Storms and Wind Causing Vulnerabilities Due to Debris, Damage, and Unsafe Storm Conditions** **Sectors Most Impacted:** Emergency response and management services, buildings, health and community services, roadways, tree canopy, vulnerable populations, bicycle and pedestrian, cultural and historic, general population, parks and recreation, public transit, and telecommunications
	**Severe Storms and Wind Causing Vulnerabilities due to Power Outages** **Sectors Most Impacted:** Electrical infrastructure, general population, vulnerable populations, drinking water, emergency response and management services, buildings, public transit, telecommunications, and health and community services
	**Extreme Heat Causing Health Related Impacts** **Sectors Most Impacted:** Vulnerable populations, general population, emergency response and management services, public transit, bike and pedestrian, parks and recreation areas, waste management (health-related hazards), and health and community services
	**Coastal Flooding (Potomac River) Impacts** **Sectors Most Impacted:** Buildings, vulnerable populations, general population, water bodies, and wetlands and environmentally sensitive areas

CLIMATE HAZARDS IN YOUR COMMUNITY

The Climate Resilience Interactive Map tool was developed to help Fairfax County community members visualize locations in the county that may be more vulnerable to climate change-related hazards. The map includes both hazard data (for hazards where mapping is feasible), and assets that could be vulnerable to climate hazards.

Residents can zoom into their communities and explore the impact of various hazards like extreme heat and flooding on local assets such as buildings, transportation infrastructure, public and community services, and natural and cultural resources.





For example, this layer shows Census Tracts where populations have a higher total vulnerability to extreme heat (darker colors indicate greater vulnerability). High vulnerability means that these Census tracts are both highly exposed to the Urban Heat Island effect and highly sensitive to extreme heat due to population characteristics such as health conditions or lower income households. The sensitivity layer was based on the One Fairfax Vulnerability Index. The exposure layer was based on real land surface temperature measurements from NASA satellites.

J. Audit of Existing Policies, Plans and Programs

AUDIT PURPOSE AND OVERVIEW

To support and inform the Resilient Fairfax plan, the county team completed an Audit of Existing Policies, Plans, and Programs ("Audit"). The Audit sought to understand the extent to which Fairfax County has already incorporated climate change resilience into planning, programming, and policy, and where updates are needed. The good news is that Fairfax County has numerous initiatives and policies already in place to address the impacts of climate change. However, there are opportunities for improvement. The Audit helped the county identify those opportunities including:

- Where Fairfax has already begun to implement best practices for increasing resilience.
- Opportunities to expand, extend, or accelerate existing initiatives.
- Gaps where new strategies or policy updates may be needed to address climate resilience needs.

When taken in partnership with the VRA, the Audit provides a strong foundation for the strategy identification phase of the planning process. The Audit process helped the county select and develop strategies that build upon Fairfax County's existing initiatives and address key policy gaps.

AUDIT STRUCTURE

The Audit is composed of a series of adaptation and resilience-focused questions. These questions are organized into the following sectors, which align with the sectors in the VRA.

- Population
- Governance
- Interdisciplinary/Other
- Buildings and Sites
- Water Infrastructure
- Energy
- Transportation
- Natural and Cultural Resources
- Buildings

For each question, the report provides the following: the relevance of the question to climate resilience, a qualitative score to summarize how the county is doing on that item, a description of findings, opportunities for improvement, and a list of key supporting resources that were used to answer the question.

AUDIT METHODOLOGY

The Audit was completed by a consultant team, with significant coordination and feedback from 20 county departments and dozens of external advisors on the Infrastructure Advisory Group and Community Advisory Group. A thorough literature review of over 150 county policies, plans, and programs was completed. This literature review was supplemented and refined based on primary information from county departments and other agencies with extensive firsthand experience. The consultant team then provided independent qualitative "scores" and opportunities for improvement to help the county identify areas of focus in the strategy development stage.

AUDIT KEY FINDINGS

What is working well? Where are there opportunities for new programs, policies, or actions?

The Audit found that Fairfax County is active and engaged across all sectors relevant to climate resilience, but there are opportunities to further strengthen the county's policies, plans, and programs. Fairfax County has numerous areas of strength and important fundamental policies and programs upon which to build. The Audit identifies more than 100 potential opportunities for the county to consider as it builds out the Resilient Fairfax program. Findings for each sector are summarized in Table 2. When partnered with the other technical reports, these opportunities and gaps helped inform the development of the county's climate adaptation and resilience strategies, which are summarized in Section I.

Table 2. Summary of Audit Key Findings

Key Strengths	Resilience Opportunities	Strategies
Population		
Fairfax County is strong in its provision of resources to vulnerable populations before, during, after, and unrelated to extreme weather. There is significant work underway to implement the One Fairfax Policy to consider equity in decision-making.	The work to identify, invest in, and engage vulnerable communities is done in a fragmented and not yet systematic approach across different departments. There is the opportunity to build on the One Fairfax Policy and integrate with Resilient Fairfax to ensure more inclusive processes and more equitable outcomes for vulnerable communities.	IAP.2a CRC.1b CRC.2a CRC.2b
Governance		
The county has commitments in support of climate action, dedicated funding and staff for climate planning, collaboration with regional partners, and the ability to conduct cross-sector, interdepartmental collaboration through the Office of Environmental and Energy Coordination.	There is opportunity for the county to strengthen its coordination with local non-profit and other partners on climate action initiatives. There is the opportunity for the county to develop standards for including climate change impacts in the Capital Improvement Program process.	IAP.4a RIB.1a
Interdisciplinary / Other		
Interdisciplinary efforts identified as areas of strength for the county include the robust GIS and Mapping Service Program that provide the community access to a plethora of GIS maps and data as well as the inclusion of climate hazards in the hazard mitigation and emergency response plans.	Interdisciplinary efforts require extensive collaboration and coordination to integrate climate action across departments including emergency management, public health and human services, GIS/data services, and economic development. Areas of opportunity identified include further integration of climate projections into county process and planning, integration of climate resilience workforce needs into economic development and job training, and completion of a climate and health plan.	IAP.1c IAP.2a IAP.4a IAP.4b RIB.1e

Table 2. Summary of Audit Key Findings, Continued

Key Strengths	Resilience Opportunities	Strategy
Buildings		
Fairfax County has strong site development guidelines, with thorough requirements for floodplain and stormwater management. The county's government buildings are required to meet Green Building Standards and private development are encouraged to do the same.	While the county does not control the Virginia Building Code, there is an opportunity for the county to advocate for stronger codes and standards at the state level. There is an opportunity for expanded education to building owners, developers, and designers and for the county to lead by example through implementation of resilience measures for county-owned buildings and critical facilities.	CRC.2b CRC.3a CRC.3c RIB.1b RIB.2b
Water Infrastructure		
Fairfax Water oversees drinking water infrastructure and has taken steps to increase resilience of these assets. Wastewater and stormwater infrastructure are areas of strength for Fairfax County, with robust efforts underway to improve resilience, such as consideration of climate impacts for the Wastewater Management Program and a comprehensive flood mitigation program.	There is the opportunity to more systematically integrate climate projections into stormwater and floodplain modeling and watershed management plans. Considering current and future climate conditions in development of a long-term neighborhood stormwater improvement program to address flooding and infrastructure reinvestment would build resilience.	RIB.1a RIB.1b CRC.3a
Energy		
Fairfax County has limited ability to directly address energy infrastructure; however, the county has completed significant work to assess back-up power to critical facilities and complete infrastructure upgrades for vulnerable components.	There are opportunities to advance energy resilience through advocacy for undergrounding and other energy grid enhancements, energy efficiency and energy diversity improvements, deployment of energy storage, and feasibility assessments for potential solar-plus-storage and microgrid projects where appropriate.	RIB.1a RIB.1c RIB.1d RIB.2a RIB.2b CRC.1b
Transportation		
Transportation partners at the state level have made notable strides in considering climate projections and vulnerabilities in infrastructure planning and design.	There are opportunities to further integrate climate projections into transportation design and for Fairfax to improve collaboration with other agencies who plan and maintain transportation infrastructure.	IAP.4a RIB.1a RIB.2c
Natural and Cultural Resources		
Fairfax County has a strong history of natural resource conservation, particularly related to water quality. There are numerous policies and programs in place that support protection of the natural environment, including comprehensive regulations for Resource Protection Areas and for floodplains. The county also has numerous initiatives, pilots, and policies related to green infrastructure and nature-based solutions, such as living shorelines.	There is an opportunity for Fairfax County to develop a consolidated natural resource management plan in which natural resources are more systematically considered to be a managed asset for climate resilience. There are opportunities to further support green infrastructure implementation in the county, through guidance documents, technical support, educational programs, and updated monitoring and maintenance standards.	AE.1a AE.1b AE.1c AE.1d AE.2a AE.2b AE.2c AE.2d AE.2e AE.2f

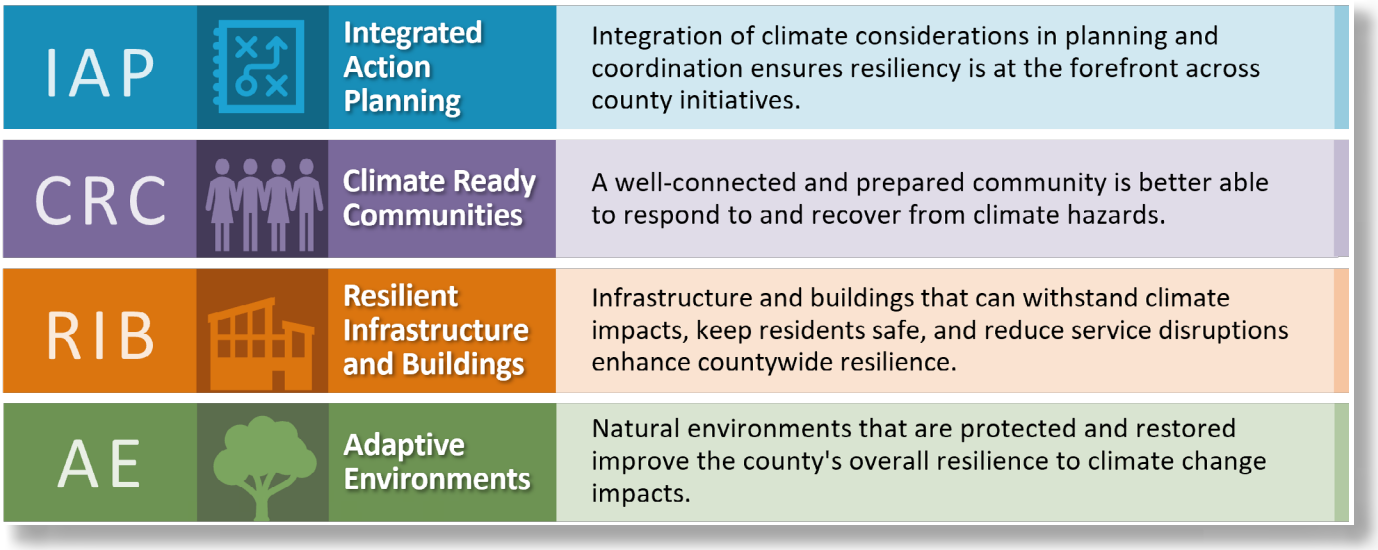
This section provides a brief summary of the Audit. For more information, please see the full Resilient Fairfax Audit of Existing Policies, Plans, and Programs.

3. HOW WE WILL ENHANCE OUR RESILIENCE

K. Resilient Fairfax Strategies and Implementation

WHAT CAN FAIRFAX COUNTY DO TO BECOME MORE RESILIENT TO CLIMATE HAZARDS AND VULNERABILITIES?

This section of the plan summarizes our strategies and plans for implementation. Resilient Fairfax strategies are organized into four key pillars that, together, build the vision of a resilient Fairfax County. The pillars are:



Each pillar of Resilient Fairfax contains a set of goals, strategies, and implementation actions. Because resiliency requires coordination at all levels, the strategies include a diverse range of action types, time frames, scales, and costs.

The strategies include near-term, long-term, and ongoing programs. Some strategies address countywide policies or plans, while others focus specifically on prioritizing the needs of vulnerable communities, physical infrastructure upgrades, and protection of natural resources.

Climate change is impacting a range of sectors and geographies; therefore, our response must be similar. Resiliency requires interdisciplinary coordination between county departments; neighboring jurisdictions; regional, state, and federal partners; utilities and infrastructure managers; community organizations; businesses; and community members.

The strategies were identified and prioritized through a rigorous process of analysis and stakeholder and community engagement (See Section F for more detail). Results from the Climate Projections Report, Vulnerability and Risk Assessment, and Audit of Existing Policies, Plans and Programs were used to develop to create an initial list of potential strategies. A database of national emerging best practices was also consulted in development of this list.

Collaborative workshops were held with stakeholders throughout plan development process to help refine the final Resilient Fairfax strategies. The final strategies were scored against the criteria below and prioritized with input from the Planning Team, Infrastructure Advisory Group, Community Advisory Group, and the general public.

Implementation Criteria:

- Capacity (i.e., staff/financial capacity)
- Robustness (i.e., addresses multiple hazards)
- Technical feasibility
- Alignment with other county plans

Co-Benefits Criteria:

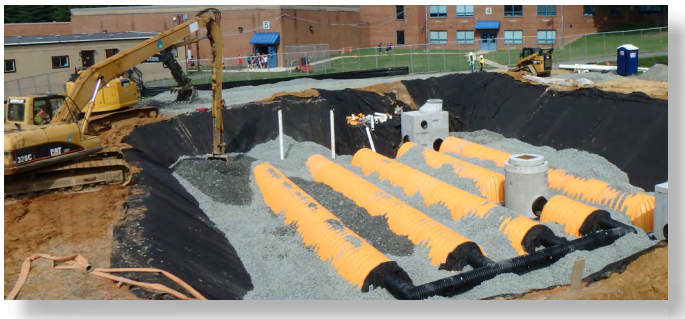
- Quality of life/public health
- Environmental quality
- Avoided losses/economic benefit
- Social equity

Strategies are easier to act on when there is a plan for implementation. **Therefore, each of the prioritized strategies contains a detailed Implementation Roadmap.** The Implementation Roadmaps contain information needed to bring each prioritized strategy to fruition, including lead departments and partners, planning-level cost estimates, action steps, key performance indicators, equity considerations, co-benefits, and more.

To keep track of the other strong strategy suggestions identified throughout Resilient Fairfax plan development process, a list of "Additional Strategies" is also included for each goal. These additional strategies are included to ensure the intent and value of these strategies are carried forward and can be built upon in the future. Many of these Additional Strategies are already being pursued.

Advocacy and Partnerships

In "Dillon's Rule" states, like Virginia, local governments like Fairfax County have limited authority to make updates to policies and codes unless action is authorized at the state level. For example, the county does not have direct control over the Building Code, which is set at the state level. County staff also do not have direct jurisdiction over many aspects of its energy, transportation, and drinking water infrastructure. However, the county can advocate for resilience initiatives in these sectors. The Legislative Committee of the BOS and county staff closely monitor state and federal legislation that may affect the county. The county's Government Relations team formally advocates for state-level legislative changes and other county priorities at the General Assembly.



SNAPSHOT OF RESILIENT FAIRFAX STRATEGIES

Pillars	Integrated Action Planning				Climate Ready Communities			Resilient Infrastructure and Buildings		Adaptive Environments	
Goals	**IAP.1. Integrate Resilience into General Planning**	**IAP.2. Coordinate and Enhance Data Collection**	**IAP.3. Obtain and Track Funding**	**IAP.4. Enable Interagency Collaboration**	**CRC.1. Create Safe and Resilient Spaces**	**CRC.2. Build Community Capacity**	**CRC.3. Pursue Climate Ready Development**	**RIB.1. Incorporate Climate Resilience into County Infrastructure Decisions**	**RIB.2. Advocate for Infrastructure Resilience Outside of County Control**	**AE.1. Protect Natural Resources that Enhance Resilience**	**AE.2. Restore Damaged Areas Through Nature-Based and Natural Solutions**
Strategies	**IAP.1a. Inventory and Update the Comprehensive Plan to Enhance Resilience**	**IAP.2a. Develop Resilience Metrics and a Tracking System for Ongoing Assessment of Community Resilience and Improvements**	**IAP.3a. Develop a County Climate Fund**	**IAP.4a. Establish a Long-Term Interagency Collaboration System**	**CRC.1a. Develop Adaptation Action Areas Where Resilience Action is Prioritized**	**CRC.2a. Provide Community Aid and Services to Alleviate Resilience Needs**	**CRC.3a. Pursue and Implement a Flood-Risk Reduction Plan for the Fairfax County Community**	**RIB.1a. Update the Capital Improvement Program Process to Include Climate Resilience Considerations**	**RIB.2a. Advocate and Partner for Energy Resilience**	**AE.1a. Develop a Consolidated Natural Resources Management Plan**	**AE.2a. Pursue Green Infrastructure Projects that Provide Climate Resilience Benefits**
	IAP.1b. Update the Strategic Plan to Enhance Climate Resilience	IAP.2b. Support Climate Research and Data Collection	**IAP.3b. Pursue Federal and State Funding Opportunities**	IAP.4b. Build County Staff Capacity to Lead on Climate Resilience Planning and Implementation	**CRC.1b. Pursue Development of a Network of Resilience Hubs in Climate-Vulnerable Areas of the County**	**CRC.2b. Launch a Climate Resilience Education and Guidance Program**	**CRC.3b. Encourage Heat-Resilient Design, Development, Upgrades, and Practices**	**RIB.1b. Enhance Flood Resilience of County Government Buildings and Other Facilities**	RIB.2b. Advocate for Resilience Updates to the Building Code	**AE.1b. Survey and Protect Areas that Provide Natural Resilience Benefits**	AE.2b. Support Continued Stream Corridor Restoration
	IAP.1c. Complete the Climate Health Plan	IAP.2c. Create Consolidated Database of Flood-Prone Areas	IAP.3c. Identify Funding for Long-Term Data Collection		CRC.1c. Expand Targeted Tree Plantings	CRC.2c. Support Resilience Related Workforce Development	**CRC.3c. Pursue Amendments to the Zoning Ordinance and other County Codes**	RIB.1c. Enhance Energy Resilience for County Buildings and Facilities	RIB.2c. Advocate and Partner with Transportation Agencies to Support Transportation Resilience	AE.1c. Update Provisions for Conservation Easements	AE.2c. Support Continued Urban Reforestation
	IAP.1d. Coordinate Hazard Mitigation and Emergency Management Planning with Climate Resilience Planning	IAP.2d. Continue to Collect Rainfall Data	IAP.3d. Identify Additional Funding Opportunities		CRC.1d. Enhance C-PACE Program Outreach and Technical Assistance	CRC.2d. Expand Heat Warning System	CRC.3d. Update the Public Facilities Manual	RIB.1d. Enhance Heat Resilience for County Buildings and Facilities		AE.1d. Integrate Climate Change Considerations into Urban Forestry Program	AE.2d. Explore Living Shoreline Opportunities
		IAP.2e. Create Database to Track Hazard Mitigation Actions						RIB.1e. Update Procurement Practices for Resilience			AE.2e. Restore Wetlands and Floodplains
		IAP.2f. Continue to Collect Tree Canopy Data									AE.2f. Explore Regenerative Agriculture Opportunities
		IAP.2g. Support Updates to LiDAR Data									
		IAP.2h. Collect Climate Change and Vector-Borne Disease Data									

4 PILLARS.

11 GOALS.

18 PRIORITY STRATEGIES.

30 ADDITIONAL STRATEGIES.

The strategies in bold font are prioritized strategies. Each prioritized strategy is detailed in a full Implementation Roadmap in the following pages. The strategies in normal font are additional strategies that are critical to climate resilience.

How to Read an Implementation Roadmap

STRATEGY DESCRIPTION:
Description of the strategy, including context for how it connects to existing county plans, policies, or programs, how the strategy addresses climate risk, and/or how the strategy improves Fairfax's resilience.

CLIMATE HAZARDS ADDRESSED:
Identifies which climate hazards are relevant to the strategy.

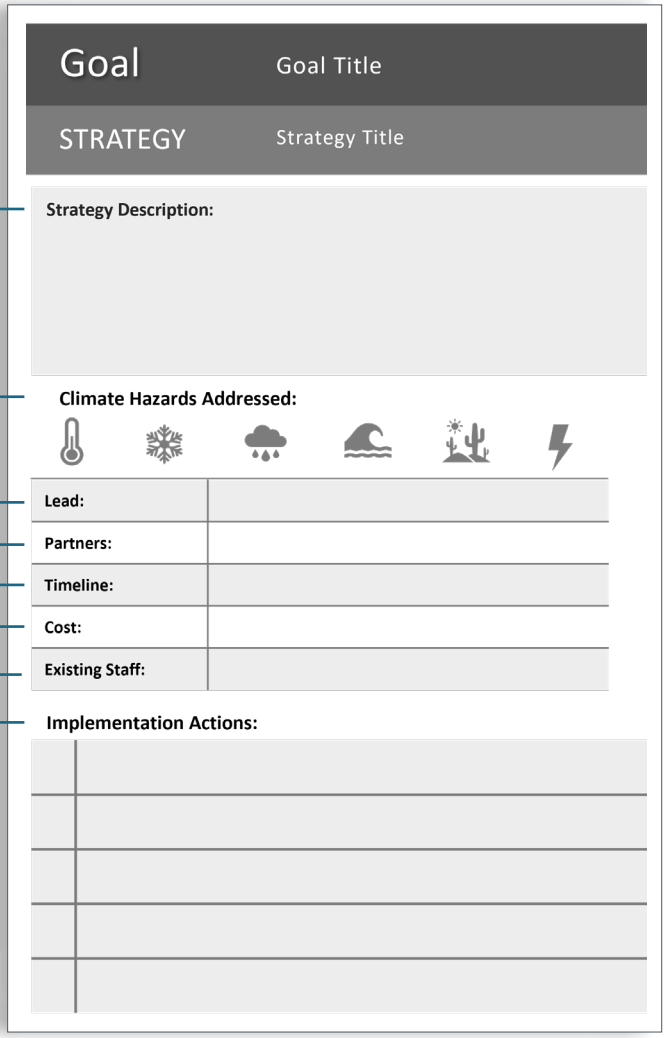
LEAD:
County department(s) that will lead and coordinate the completion of the Implementation Actions.

PARTNERS:
Other county departments or key coordinating public agencies that will have a supportive role in completion of the Implementation Actions.

TIMELINE:
Estimated timeline needed to **complete** the specific Implementation Actions listed for a particular strategy. The timeline does not refer to time before the strategy will start. Estimated scale of time (0-8 years).

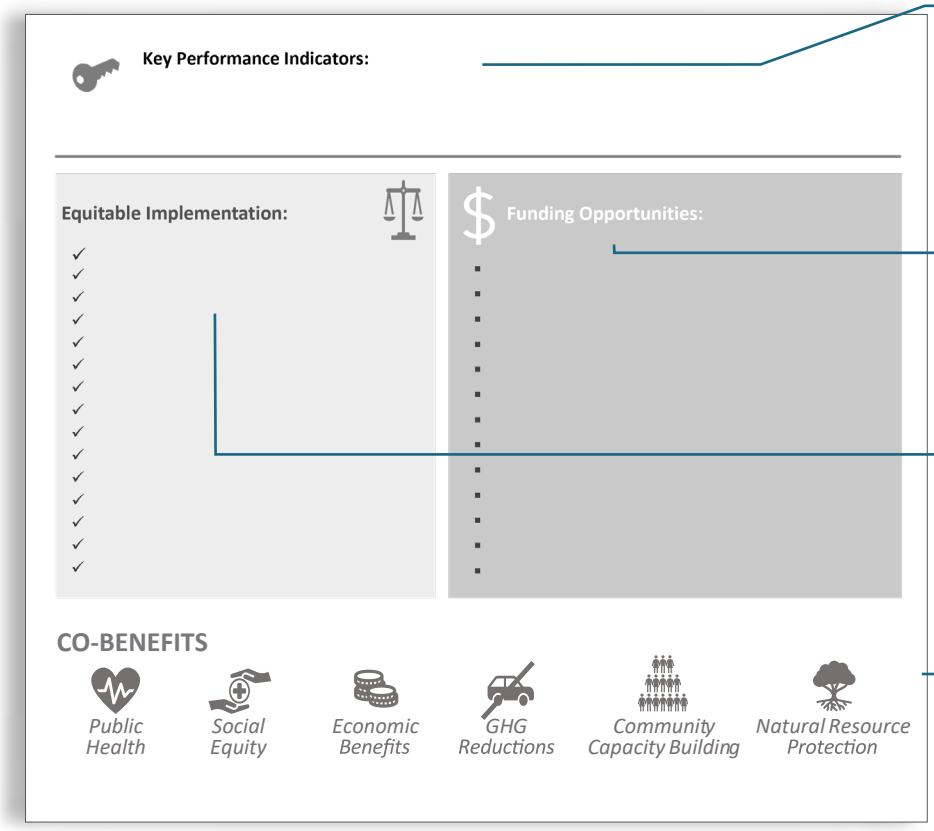
COST:
Estimated level of funding needed to complete the specific Implementation Actions listed. Costs do not refer to recurring annual costs, existing staff salaries, or construction costs. Costs may reflect anticipated additional staff or consultant/ contractor needs to complete the Implementation Actions listed. More formal cost estimates will be developed for each strategy as appropriate during the county budgeting processes. Estimated scale of investment ($-$$$).

EXISTING STAFF:
Yes = This strategy can be accomplished with existing staff.
Partial = There are staff who can devote some time to this strategy, but additional staff and/or consultant services may be needed to bring the strategy to full fruition.
No = There are no existing staff to work on this strategy.



IMPLEMENTATION ACTIONS:
Clear, measurable steps to achieve the strategy objective. Implementation Actions can be, but are not necessarily, sequential.

CLIMATE HAZARDS KEY



KEY PERFORMANCE INDICATORS:
Key metrics that help to measure progress, monitor implementation, and inform decision-making.

FUNDING OPPORTUNITIES:
Identifies applicable funding sources that could assist with strategy implementation.

EQUITABLE IMPLEMENTATION:
Recommendations for how to implement the strategy more equitably, with considerations for needs of vulnerable and historically disadvantaged populations.

CO-BENEFITS:
Highlights additional benefits provided by strategy implementation, beyond climate resilience.

ADDITIONAL STRATEGIES:
Other key adaptation and resilience strategies identified throughout the strategy development phase. Because strategy prioritization was necessary, the "Additional Strategies" are not fleshed out with detailed Implementation Roadmaps. However, these Additional Strategies are also critical to resilience, top of mind for staff, and important to include in the plan. Therefore, the "Additional Strategies" are incorporated in the plan in a simplified form. In some instances, the Additional Strategies were not selected for Implementation Roadmaps because work is already well underway through another initiative, or they are already regularly addressed through county work programs.

ADDITIONAL STRATEGIES FOR GOAL	

Integrated Action Planning Implementation Roadmaps

PILLAR 1: INTEGRATED ACTION PLANNING (IAP):

The Integrated Action Planning pillar builds climate change considerations into planning, data collection, funding, and interagency collaboration to establish a system for continuous resiliency success. This pillar provides a strong foundation for the other pillars. It supports resilience collaboration that is multidisciplinary, well-coordinated, data-based, iterative, inclusive, and transparent. Strategies in the "Integrated Action Planning" pillar support the county in aligning plans and policies, making informed decisions, conducting metric-based monitoring and evaluation, obtaining needed funding, and working collaboratively across county departments and agencies for the long-term.

Integrated Action Planning includes:

- Amending county-wide plans such as the Comprehensive Plan, Strategic Plan, and the Hazard Mitigation Plan to enhance resilience
- Monitoring and evaluating progress, supporting transparency, and informing implementation
- Positioning the county to be competitive for state and federal funding opportunities
- Building new funding streams and providing dedicated funding source to support county's climate goals
- Establishing long-term continued interdepartmental resiliency collaboration and capacity

IAP	Integrated Action Planning Strategies:		
Goal IAP.1: Integrate Resilience into General Planning	**Goal IAP.2:** Coordinate and Enhance Data Collection	**Goal IAP.3:** Obtain and Track Funding	**Goal IAP.4:** Enable Interagency Collaboration
Priority Strategies: IAP.1a: Inventory and Update the Comprehensive Plan to Enhance Resilience	*Priority Strategies:* IAP.2a: Develop Resilience Metrics and a Tracking System for Ongoing Assessment of Community Resilience and Improvements	*Priority Strategies:* IAP.3a: Develop a County Climate Fund IAP.3b: Pursue Federal and State Funding Opportunities	*Priority Strategies:* IAP.4a: Establish a Long Term Interagency Collaboration System
Additional Strategies: ▪ IAP.1b: Update the Strategic Plan to Enhance Climate Resilience ▪ IAP.1c: Complete the Climate Health Plan ▪ IAP.1d: Coordinate Hazard Mitigation and Emergency Management Planning with Climate Resilience Planning	*Additional Strategies:* ▪ IAP.2b: Support Climate Research and Data Collection ▪ IAP.2c: Create Consolidated Database of Flood-Prone Areas ▪ IAP.2d: Continue to Collect Rainfall Data ▪ IAP.2e: Create Database to Track Hazard Mitigation Action ▪ IAP.2f: Continue to Collect Tree Canopy Data ▪ IAP.2g: Support Updates to LiDAR Data ▪ IAP.2h: Collect Climate Change and Vector-Borne Disease Data	*Additional Strategies:* ▪ IAP.3c: Identify Funding for Long-Term Data Collection ▪ IAP.3d: Identify Additional Funding Opportunities	*Additional Strategies:* ▪ IAP.4b: Build County Staff Capacity to Lead on Climate Resilience Planning and Implementation through Staff Trainings, Capacity Building, and Continuity of Operations Guidance

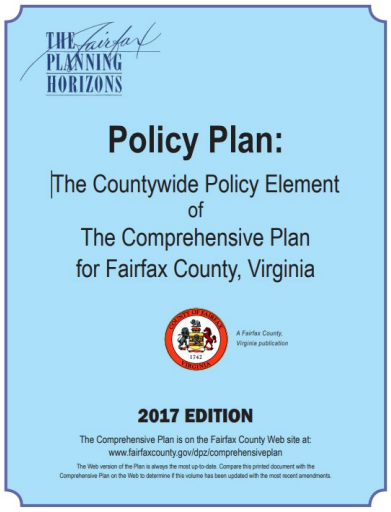
Goal IAP.1 General Planning: Integrate Climate Resilience into Countywide General Planning

STRATEGY IAP.1a Inventory and Update the Comprehensive Plan to Enhance Resilience

Strategy Description: The Fairfax County Comprehensive Plan, as required by state law, serves as a guide for decision-making about the natural and built environment. The Policy Plan includes general countywide policy on land use, transportation, housing, the environment, heritage resources, economic development, and public facilities, including public parks, recreation, and trails. The Area Plans identify key elements for implementing the Policy Plan's goals and objectives at more detailed levels. The Comprehensive Plan is relevant to climate resilience because it provides a long-term vision for the county and includes numerous sectors that serve as pieces of the resilience puzzle. The Comprehensive Plan can guide resilience for both private development and public facilities in addition to natural areas. This strategy includes analysis, recommendation formation, and potential updates to Comprehensive Plan elements pertaining to climate resilience. This strategy will build upon work completed through the Resilient Fairfax Audit process. Potential updates could pertain to critical public service facilities, land use patterns, floodplains, wetlands and shorelines, Urban Heat Islands, and stronger protection for Resource Protection Areas, among others. All amendment processes require Board of Supervisors authorization. Comprehensive Plan amendments relating to resilience should be coordinated with other Comprehensive Plan amendments, such as those associated with CECAP. Completion of this strategy will align long-term planning with Resilient Fairfax and the county's climate resilience goals.

Climate Hazards Addressed:

Lead:	OEEC, DPD
Partners:	DEMS, DOT, DPWES, EDA, FCHD, FCPA, LDS, NCS
Timeline:	Long-term (5-8 years)
Cost:	$ ($0k - $100k)
Existing Staff:	Yes



Implementation Actions:

i.	OEEC, in coordination with DPD and other partner agencies, will develop specific draft recommendations for amended or added text in the Policy Plan Elements or Area Plans to enhance the county's climate resiliency, beginning with Policy Plan Elements. In drafting these recommendations, OEEC will seek input from advisory groups, Boards, Authorities, and Commissions (BACs), the Planning Commission, the public, and other key stakeholders.
ii.	As authorized by the Board, staff will develop amendments to the Comprehensive Plan. OEEC will lead outreach efforts associated with any Comprehensive Plan amendments and will assist with technical climate resilience-related details. DPD will lead the Comprehensive Plan amendment processes.
iii.	OEEC, in coordination with DPD, will identify specific sections that may have subsequent amendments to enhance the county's climate resilience. The future phased identification will expand upon the work completed through the Resilient Fairfax Audit process. Sections "relevant to climate resilience" may include but are not limited to: those related to public facilities, human service facilities, transportation, or other critical facilities, land use that may mitigate Urban Heat Island effect and/or flooding, floodplains, wetlands, shorelines, Environmental Quality Corridors, Resource Protection Areas, trees, green infrastructure, and impervious cover. The process will also identify specific county departments and/or other partner agencies responsible for each of the Comprehensive Plan sections.

Key Performance Indicators:

- Number, type, and location of engagement opportunities offered during the amendment process.
- Number of plan amendments proposed that align with Resilient Fairfax.

Equitable Implementation:

- ✓ Well-meaning policies can have negative unintended consequences on certain populations. Staff should consider if any Comprehensive Plan updates could adversely impact vulnerable populations.
- ✓ Comprehensive Plan amendment updates should include a robust public engagement process that seeks to collect input from those that are often underrepresented. Stakeholders should be engaged through a variety of platforms, at times convenient to those most affected, and through materials translated into multiple languages.
- ✓ Staff should leverage the Inclusive Community Engagement Framework (ICEF).
- ✓ Staff should analyze compatibility of land uses with any change in land use designation that is adjacent to, or otherwise affects identified vulnerable communities.
- ✓ Staff should use One Fairfax to identify regions that are seeing an increase in vulnerable groups to prepare for increased need of services in that area.

Funding and Resource Opportunities:

- Community Development Block Grant Mitigation (CDBG-MIT) Program
- General Fund (salaries)

Co-Benefits:

ADDITIONAL STRATEGIES FOR GOAL IAP.1

Strategy IAP.1b	**Update the Strategic Plan to Enhance Climate Resilience** Pursue potential additions to the countywide Strategic Plan to enhance climate resilience during the anticipated regular update cycle. (The county's first-ever countywide Strategic Plan (2021) did include climate resilience strategies. However, with the completion of the Resilient Fairfax plan, additions could be made for greater specificity).
Strategy IAP.1c	**Complete the Climate Health Plan** Complete the Climate Health Plan, including considerations for resident and worker safety in extreme climate conditions such as extreme heat. (The Climate Health Plan process was started prior to the Covid-19 pandemic and has been paused while Health Department resources are focused on pandemic response).
Strategy IAP.1d	**Coordinate Hazard Mitigation & Emergency Management Planning with Climate Resilience Planning** Continue coordination between OEEC and DEMS to ensure alignment between hazard mitigation/emergency management plan updates and climate resilience plan updates. (OEEC and DEMS have coordinated for alignment between their respective plans, both scheduled for completion in 2022. In future iterations, there may be opportunities for further streamlining or even combining hazard mitigation and climate resilience planning processes).

Goal IAP.2 Data Collection: Coordinate and Enhance Data Collection to Inform Resilient Fairfax Implementation

STRATEGY IAP.2a Develop Resilience Metrics and a Tracking System for Ongoing Assessment of Community Resilience and Improvements

Strategy Description: Monitoring and evaluation is key to the success of the adaptation process. An ongoing assessment of community resilience and improvements helps to increase accountability, transparency, and long-term success while advancing community understanding of resilience measures. Resilience metrics are quantifiable variables that can be measured or tracked over time. They outline a set of indicators that help to track progress, measure improvement, identify priority needs, or monitor changes. While there is currently no national standard for resilience metrics, the Key Performance Indicators outlined in the Resilient Fairfax plan for each prioritized strategy offer an initial opportunity to benchmark resilience implementation and evaluate progress. Data monitored over time will be used to support ongoing quality improvement. Community representatives from Fairfax County will be invited to participate in monitoring, quality improvement, and evaluation processes. Future development of a climate resilience index could provide greater insight to the outcomes of Resilient Fairfax implementation and measurable progress in community resilience.

Climate Hazards Addressed:

Lead:	OEEC
Partners:	DCC, DEI, DEMS, DFS, DIT, FCDOT, DMB, DPD, DPSC, DPWES, FCPA, FCPS, FMD, HCD, FCHD, LDS, NVSWCD, One Fairfax, UFMD
Timeline:	Medium-Term (2-5 years), Ongoing
Cost:	$ ($0 to $100k)
Existing Staff:	Partial

Implementation Actions:

i.	Building from the Key Performance Indicators and tracking tool developed through the Resilient Fairfax plan, design a monitoring and evaluation process, schedule, and tracking system to track implementation progress over time.
ii.	Develop an annual progress report that documents progress made, key successes, and future needs. Collect data and information from implementation leads on the status of each strategy using the Key Performance Indicators established in the Resilient Fairfax plan. Data requests will be streamlined with other OEEC data requests for efficient use of partners' time and to reduce duplication of requests.
iii.	Explore development of a climate resilience index that includes resilience-related metrics, such as vulnerable populations, climate hazard exposure, environment, proximity to critical services/facilities, social factors, and built infrastructure.

Key Performance Indicators:

- Number of strategies initiated by type, population served, and location (where applicable).
- Number (and percentage) of Implementation Actions completed by type, population served, and location (where applicable).

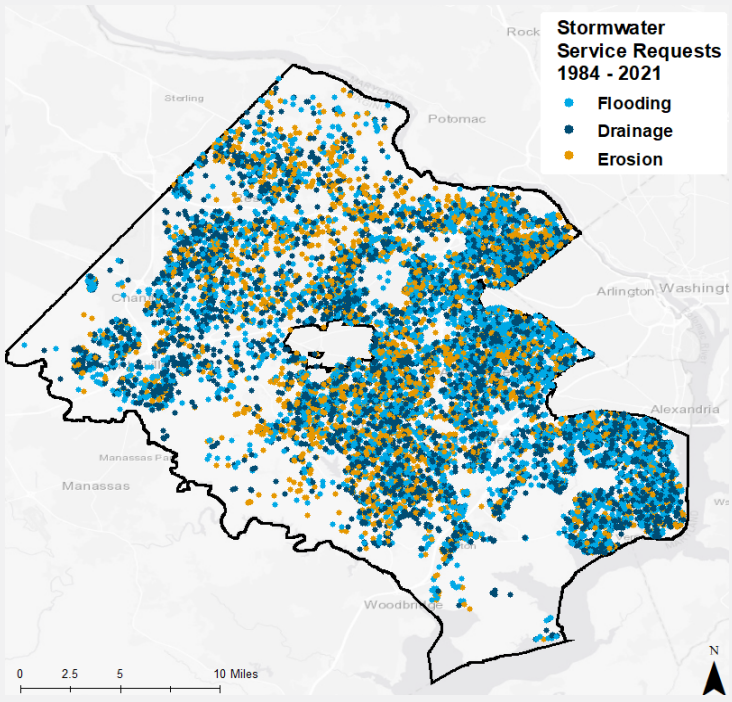
Equitable Implementation:

- ✓ Consider transparency and accountability.
- ✓ Consider how vulnerable populations contribute to overall metrics, and how social factors impact metrics.
- ✓ Establish regular reporting against the goals and targets of community resilience improvements.
- ✓ Break down the beneficiaries of funding spent on resilience by social factors and demographics.
- ✓ Build in the opportunity to reevaluate the success metrics based on whether positive change is observed.

Funding and Resource Opportunities:

- General Fund (salaries)

Co-Benefits:

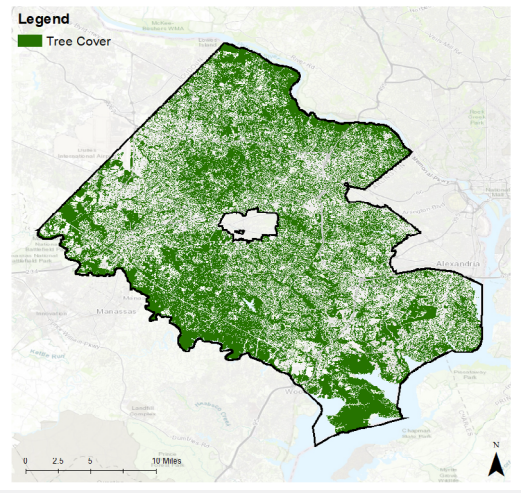


Flooding-related Service Requests

Flooding and drainage service requests are one tool Fairfax County uses to track and monitor flooding. When residents experience flooding in their yards or neighborhoods, they can submit a service request through DPWES. In addition to providing service, the service requests are plotted on a map over time to track which areas of the county may experience the greatest or most repetitive flooding. While this approach helps county staff identify key problem areas, it likely underreports the true extent of flooding, because many residents are not aware of this service. Visit the DPWES webpage to file a service request.

ADDITIONAL STRATEGIES FOR GOAL IAP.2

Strategy IAP.2b	**Support Climate Research and Data Collection** Support climate-related research and data collection through partnerships with schools and universities, internship opportunities, and citizen science projects.
Strategy IAP.2c	**Create Consolidated Database of Flood-Prone Areas** Consolidate currently separate databases of flood-prone and storm-affected areas to provide comprehensive documentation of vulnerable areas. Pursue potential expansion of internal databases such as the Emergency Data Gathering Repository (EDGR) to enable long-term tracking.
Strategy IAP.2d	**Continue to Collect Rainfall Data** Collect localized rainfall data and consolidate regional rain gauge networks. Rainfall data collection and analysis should consider effects of impervious surfaces.
Strategy IAP.2e	**Create Database to Track Hazard Mitigation Action** Create a tracking database to record hazard mitigation retrofits and future cost savings and expenditures. Build upon and align with the Hazard Mitigation Plan documentation.
Strategy IAP.2f	**Continue to Collect Tree Canopy Data** Regularly update the tree canopy data layer to support strategic and equitable tree planting.
Strategy IAP.2g	**Support Updates to LiDAR Data** Support regular updates of Fairfax County GIS LiDAR data to facilitate resilience-related GIS analyses.
Strategy IAP.2h	**Collect Climate Change and Vector-Borne Disease Data** Collect data on and map current disease-carrying insect vector populations, and monitoring of vector-borne diseases throughout Fairfax County, considering future conditions impacts on vector populations.



Tree Canopy Data

The county regularly collects tree canopy data through a range of sources including LiDAR, satellite imagery technology, field measurements, and vector data. This data helps the county assess changes in land cover, identify gaps in the urban forest, and inform strategic and equitable tree plantings. A strong and healthy tree canopy helps our county retain excess stormwater, provide shading and cooling relief from the heat, support biodiversity, and maintain healthy air quality.

Goal IAP.3 Funding: Obtain and Track Funding for Successful Resilient Fairfax Implementation

STRATEGY IAP.3a Develop a County Climate Fund

Strategy Description: This strategy seeks to develop a county-level Climate Fund to mobilize financial resources and provide a dedicated funding source for county-led climate adaptation and resilience projects. The proposed Climate Fund would support implementation of Resilient Fairfax strategies and provide an identified funding source to be leveraged as a local match for federal, state, and other resilience related grants. The fund would not be county department specific, but rather available to all county departments who are implementing resilience related projects. The fund would promote implementation of projects that lessen the impact of climate change on Fairfax County's communities, with prioritization of more vulnerable communities. Development of a Climate Fund would need to consider startup capital, funding sources, and fund structure. The Climate Fund could leverage public funding to support Resilient Fairfax goals, fostering a more resilient community, economy, and environment.

Climate Hazards Addressed:

Lead:	DMB, OEEC
Partners:	DEI, DEMS, DPWES, FCPA, NVSWCD, OCA, One Fairfax, UFMD
Timeline:	Medium-Term (2-5 years)
Cost:	$$ ($100k - $500k)
Existing Staff:	Partial

Implementation Actions:

i.	Receive authorization to pursue development of a Climate Fund.
ii.	Conduct research on Climate Fund practices, structures, mechanisms, legal considerations, and other factors, for applicability to Fairfax County. Explore options for development of a county Climate Fund for county investment in climate adaptation and mitigation projects, with priority consideration for more vulnerable communities.
iii.	Identify and compile list of potential grant funding opportunities for which the Climate Fund could provide a local match. This action item should be coordinated with Strategy IAP.3b.
iv.	In coordination with the development of AAAs (Strategy CRC.1b) updates to the county CIP process (RIB.1a), and flood risk reduction planning (CRC.3a), identify project needs and level of funding required for project implementation. Projects nominated for Climate Fund investment may be larger in scope than those funded through the Environmental Improvement Program (EIP).
v.	Establish ranking criteria that will guide prioritization and selection of resilience projects to be funded through the Climate Fund. Criteria should consider factors including but not limited to: vulnerable populations, risk of climate hazard, scale of funding needed, and available grant funds.

Key Performance Indicators:

- Percentage of funding directed, by project type and location (e.g., grant matching, enhancing County projects with resilience focus, projects or initiatives in AAAs for vulnerable neighborhoods).
- Annual total funds in Climate Fund and percentage used, organized by type of project.

Equitable Implementation:

- ✓ In the creation of a County Climate Fund, transparency is important to understand where funds are being directed. Consider the fairness and equity of how the Climate Fund will be used.
- ✓ Define how the fund will prioritize vulnerable communities.
- ✓ Allocate a portion of the fund to reach vulnerable communities via community programming.

Funding and Resource Opportunities:

- General Fund (salaries)
- State Clean Water Revolving Loan Funds
- Bonds

Co-Benefits:

Tree Preservation and Planting Fund

The county's Tree Preservation and Planting Fund (TPPF) supports efforts by the county and the community at large to protect, manage, and enhance its urban forest resources. The TPPF helps to collect, manage, and allocate funding that supports the preservation and management of existing forest as well as the planting of new trees. The TPPF can be applied towards a range of programs and policies, including tree planting to support watershed management plans, conservation of trees to align with the county's Tree Action Plan, and tree-related projects that are identified in the annual Environmental Improvement Plan.

Goal IAP.3 Funding: Obtain and Track Funding for Successful Resilient Fairfax Implementation

STRATEGY IAP.3b Pursue Federal and State Funding Opportunities

Strategy Description: Federal and state grant opportunities could provide significant funding to support implementation of Resilient Fairfax strategies and the county's broader climate goals. This strategy will best position the county to be both competitive and successful in securing funding as it becomes available. To organize around funding and grant opportunities, the county should create an updated, centralized database to track and apply for grant opportunities, and an interagency, streamlined process for the pursuit of funding opportunities. This strategy should be part of the interagency collaboration system (IAP.4a).

Climate Hazards Addressed:

Lead:	DMB, OEEC (Facilitator)
Partners:	DEMS, DFS, DOT, DPWES, FCDOT, FCHD, FCPA, FCPS, Fort Belvoir, HCD, One Fairfax, NCS, NVRC, NVSWCD, UFMD
Timeline:	Short-Term (2 years or less)
Cost:	$$ ($100k - $500k)
Existing Staff:	Partial

What is BRIC?

Building Resilient Infrastructure and Communities (BRIC) is a FEMA grant funding opportunity that supports states, local communities, Tribes, and territories in undertaking projects to promote resilience and reduce risks posed by natural hazards, including those due to climate change. A wide range of project are eligible for BRIC funding, including capability and capacity building activities, project scoping, and planning related activities, and hazard mitigation projects, including projects designed to increase resilience, protect public safety, and mitigate risk to critical services and infrastructure.

Implementation Actions:

i.	Create an updated and consolidated database of all climate resilience-related federal and state funding opportunities, shared with all relevant departments. Example funding opportunities may include but are not limited to: Community Development Block Grant Programs (CDBG), Community Flood Preparedness Fund Grant Program (CFPF), the Flood Mitigation Assistance (FMA) Grant Program, Building Resilient Infrastructure and Communities (BRIC), Hazard Mitigation Assistance (HMA), Infrastructure Investment and Jobs Act, American Rescue Plan, National Coastal Resilience Fund (NCRF), National Coastal Wetlands Conservation Grant, Safeguarding Tomorrow Through Ongoing Risk Mitigation (STORM) grants, and Virginia Coastal Zone Management Program, among others.
ii.	Establish a process for coordinated tracking and prioritization of resilience-related grant opportunities, proposals submitted, funding awarded, and projects conducted. The process should include clear identification of lead and support agencies for each grant and/or funding opportunity. The lead department for each grant will be determined based on topic. For example, DPWES will lead stormwater-related grants, and FCHD will lead health-related grants. The process should identify "best fit" grant opportunities that both align with county priorities and likelihood of success.
iii.	Assess and identify need for dedicated staff to support grant tracking, proposals, and active grant management.
iv.	Apply for available and appropriate federal and state funding opportunities for resilience.

Key Performance Indicators:

- Number and type of Fairfax departments involved in the development and use of the grant tracking system.
- Number of grant opportunities pursued, by type and percent of opportunities targeting projects in AAAs.
- Amount of funding secured for resilience projects, organized by categories such as granting agency, county department/agency, new or existing project/initiative, communities served, grant focus, period of performance, and cost share.

Equitable Implementation:

- ✓ Consider how grant funding can be prioritized for vulnerable populations and which grants may designate funding for vulnerable populations.
- ✓ Apply for funding opportunities that are specifically for the advancement of equitable initiatives and vulnerable communities.
- ✓ Identify community organizations led by vulnerable and under-served populations and collaborate on securing funding.
- ✓ Track funding allocated to vulnerable communities.

Funding and Resource Opportunities (to apply for the additional funding):

- General Fund (salaries)

Co-Benefits:

ADDITIONAL STRATEGIES FOR GOAL IAP.3

Strategy IAP.3c	**Identify Funding for Long-Term Data Collection** Identify funding to support long-term data collection, analysis, and management.
Strategy IAP.3d	**Identify Additional Funding Opportunities** Identify additional funding opportunities including regional coordination, public-private partnerships, and cost-share programs to support resilience.

Goal IAP.4 Interagency Coordination: Enable Continued Interagency and Intergovernmental Collaboration on Climate Resilience

STRATEGY IAP.4a Establish a Long-Term Interagency Collaboration System

Strategy Description: Interagency collaboration is foundational to climate resilience planning and implementation and is promoted within Fairfax County by OEEC. OEEC was created to lead interagency environmental coordination, including climate resilience. OEEC also leads the county's climate-related coordination with regional, state, and federal entities. Throughout development of this Resilient Fairfax plan, the Resilient Fairfax Planning Team, comprised of 20 county departments, coordinated closely with OEEC to inform project deliverables, including the technical analyses, strategies, and the compiled Resilient Fairfax plan. Continued interagency collaboration during the implementation phase is critical to the success of Resilient Fairfax, because climate resilience efforts are interdisciplinary and cross-cutting across many departments. This strategy involves the establishment of a system for long-term climate resilience coordination, capacity building, and project alignment across all relevant county departments. The collaboration system should be structured in a way that is helpful, convenient, and streamlined for participating departments.

Climate Hazards Addressed:

Lead:	OEEC
Partners:	DCC, DEI, DEMS, DFS, DIT, DMB, DPD, DPSC, DPWES, FCDOT, FCPA, FCPS, FMD, HCD, FCHD, LDS, NVRC, NVSWCD, One Fairfax, UFMD
Timeline:	Shovel Ready
Cost:	$ ($0 - $100k)
Existing Staff:	Yes

Office of Environmental and Energy Coordination: OEEC was created in 2019 and is responsible for interagency coordination and implementation of countywide environmental and energy policies, goals, programs, and projects. OEEC reports to the Office of the County Executive and is given the ability to coordinate across all county departments.

OFFICE OF Environmental and Energy Coordination FAIRFAX COUNTY

Implementation Actions:

i.	Identify county departments who should be involved in climate resilience collaboration long-term, led by OEEC. Beginning with the departments involved in the Resilient Fairfax planning process, these departments may include but are not limited to: DEMS, DFS, DPD, DPSC, DPWES, DVS, FCDOT, FCPA, FCPS, FMD, GIS, HCD, FCHD, HHS, LDS, NCS, NVSWCD, OCA, OEEC, One Fairfax, and UFMD. Designate a climate champion within each department.
ii.	Identify non-county infrastructure management and resilience-related entities who should continue to be involved in the county's climate resilience implementation collaboration and data sharing long term.
iii.	Create a clear and user-friendly system for long-term collaboration. This system could include periodic Resilience Work Group meetings, information sharing protocols, a schedule for updates, or other options.
iv.	Establish a process for clear coordination of interagency resilience projects, policy and plan updates, resilience-related grant opportunities (IAP.3b), and capacity building. This process should include different "levels" of engagement, including more regular collaboration between agencies that are particularly imperative to the community's climate resilience and have expressed interest in closer collaboration, including but not limited to FCHD, NCS, LDS, FCPA and DPWES.
v.	Conduct yearly evaluations of the collaboration system and adjust as needed to improve coordination efforts.

Key Performance Indicators:

- Number of county departments engaged per year to implement, track and monitor the progress of implementation.
- Number of non-county entities engaged per year to implement, track and monitor the progress of implementation.
- Number of engagement opportunities and level of public interaction (e.g., frequency of feedback, public input, number, and type of comments).

Equitable Implementation:

- ✓ Use inclusive community engagement across departments to inform collaboration on resilience issues.
- ✓ Consider setting up a dashboard for quick access to important information and a designated place for representatives to share best practices in promoting equitable outcomes.
- ✓ Create a system to "tag" when a topic is related to equity and inclusion.
- ✓ During annual evaluation of the collaboration efforts, assess if/how efforts have improved equity.

Funding and Resource Opportunities:

- General fund (salaries)

Co-Benefits:

ADDITIONAL STRATEGIES FOR GOAL IAP.4

Strategy IAP.4b	**Build County Staff Capacity to Lead on Climate Resilience Planning and Implementation through Staff Trainings, Capacity Building, and Continuity of Operations Guidance** Provide climate resilience and climate equity trainings as well as climate-oriented continuity of operations assistance to county staff, customized for relevance to their work. Consider staffing needs for implementation of resilience projects.

Metropolitan Washington Council of Governments

nvrc Northern Virginia Regional Commission

Building on Existing Regional Coordination:

Fairfax County regularly engages and collaborates with regional entities such as the Metropolitan Washington Council of Governments (MWCOG) and the Northern Virginia Regional Commission (NVRC) to address climate change. County staff are active participants in numerous other regional and statewide initiatives and groups relating to climate resilience, including but not limited to: the Virginia Municipal Stormwater Association, the Virginia Forestry Association, the Virginia Association of Forest Health Professionals, Southeast Sustainability Directors Network, American Planning Association local and state chapters, Resilient Virginia, and the Virginia Energy and Sustainability Peer Network, among others.

Climate Ready Communities Implementation Roadmaps

PILLAR 2: CLIMATE READY COMMUNITIES (CRC):

The Climate Ready Communities pillar aims to ensure that Fairfax County communities are resilient, adaptable, and prepared for a changing climate. Climate-ready communities are well-connected with a strong social fabric, have access to the resources they need, are prepared for climate hazards, and live in physically resilient neighborhoods. To support climate-ready communities, we are working to address existing inequities, improve access to county resources and aid, strengthen neighbor-to-neighbor connections, build greater social cohesion, reduce the climate vulnerabilities of our neighborhoods and development, and improve awareness of and readiness for climate change impacts.

Climate Ready Communities have:

- Strong social cohesion to support community response to climate hazards, including both long-term stressors and short-term shocks
- Homes and neighborhoods that are resilient to flooding, extreme heat, storms, and power outages
- Education, training, and resources that are easily accessible to all members before, during, and after climate events

In the event of an emergency or natural disaster, 77% of Resilient Fairfax survey takers said they could count on their neighbors for help and 75% have their neighbor's contact information.

CRC	Climate Ready Communities Strategies:	
Goal CRC.1: Create Safe and Resilient Spaces	**Goal CRC.2:** Build Community Capacity	**Goal CRC.3:** Pursue Climate Ready Development
Priority Strategies: CRC.1a: Develop Adaptation Action Areas Where Resilience Action is Prioritized CRC.1b: Pursue Development of a Network of Resilience Hubs in Climate Vulnerable Areas of the County	*Priority Strategies:* CRC.2a: Provide Community Aid and Services to Alleviate Resilience Needs CRC.2b: Launch a Climate Resilience Education and Guidance Program	*Priority Strategies:* CRC.3a: Pursue and Implement a Flood-Risk Reduction Plan for the Fairfax County Community CRC.3b: Encourage Heat-Resilient Design, Development, Upgrades, and Practices CRC.3c: Pursue Amendments to the Zoning Ordinance and other County Code Chapters to Enhance Community Resilience
Additional Strategies: ▪ CRC.1c: Expand Targeted Tree Plantings ▪ CRC.1d: Enhance C-PACE Program Outreach and Technical Assistance	*Additional Strategies:* ▪ CRC.2c: Support Resilience Related Workforce Development ▪ CRC.2d: Expand Heat Warning System	*Additional Strategies:* ▪ CRC.3d: Update the Public Facilities Manual

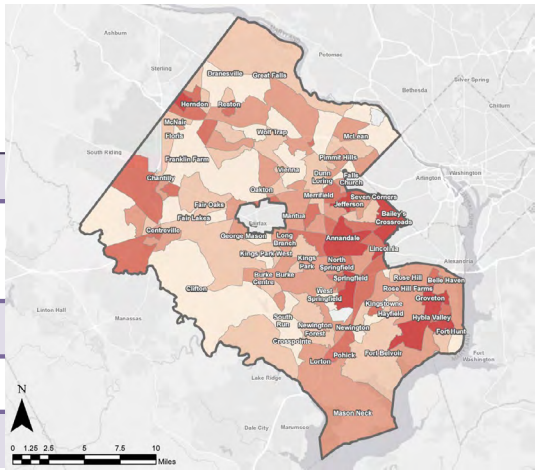
Goal CRC.1 Create Safe and Resilient Spaces for the Community

STRATEGY CRC.1a Develop Adaptation Action Areas Where Resilience Action is Prioritized

Strategy Description: Adaptation Action Areas (AAAs) are a land-use planning and policy tool that can be used to guide and prioritize climate adaptation implementation. AAAs may be used to identify, map, and establish locations of greatest need within Fairfax County where the county will take resilience action first. Development of the AAAs will be informed by complete analysis and technical reports, including the Resilient Fairfax Vulnerability and Risk Assessment, the Climate Projections Report, the Audit of Existing Policies, Plans, and Programs, the county's flood risk reduction efforts, and the NASA Develop Urban Heat Island Effect Study. These reports, along with the best available science, will inform the mapping of AAAs and include consideration for: flood-prone areas, Urban Heat Islands, population vulnerability (such as the One Fairfax Vulnerability Index, as pictured below), and low adaptive capacity, among other factors. Development of AAAs provides a comprehensive and cohesive approach for the county to effectively implement resilience related policies, programs, and projects.

Climate Hazards Addressed:

Lead:	OEEC
Partners:	DCC, DEI, DEMS, DFS, DPD, DPWES, FCDOT, FCHD, FCPA, HCD, LDS, NCS, NVSWCD, OCA, One Fairfax, UFMD
Timeline:	Medium-Term (2-5 years)
Cost:	$$ ($100k - $500k)
Existing Staff:	Partial



Implementation Actions:

i.	Identify and map potential AAAs based on climate risk and the One Fairfax Vulnerability Index. AAA considerations could include but are not limited to: flood-prone areas, Urban Heat Islands, population vulnerability, and low adaptive capacity.
ii.	Draft options for the incorporation of AAAs. Options could include but are not limited to: using AAAs during the Capital Improvement Program process to prioritize implementation of resilience projects, using AAAs to prioritize funding of Resilient Fairfax implementation, and to prioritize resilience aid and/or incentives, among others.
iii.	Present options for incorporation of AAAs for BOS approval and receive authorization to incorporate AAAs.
iv.	Prioritize implementation and engagement in AAAs. Consider piloting resilience approaches in AAAs that can be scaled up community-wide.

Key Performance Indicators:

- Number and type of stakeholders involved in the development and operationalization of AAAs.
- Number and type of climate resilience programs, projects, and initiatives in AAAs.
- Demographics of communities in designated AAAs.
- Reduction of vulnerability to specific climate hazards in AAAs (e.g., reduction in localized flooding service requests, number of heat-related illness reports).

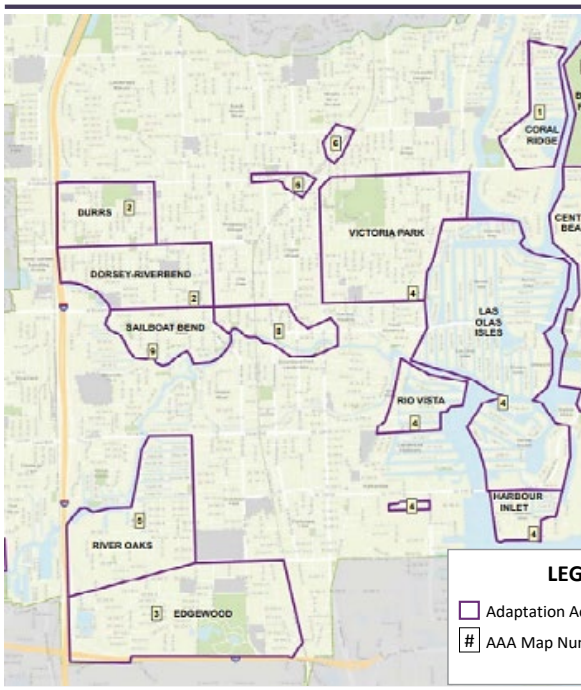
Equitable Implementation:

- ✓ Neighborhoods may reflect similar demographics but have different needs or desires. Consider how AAAs will incorporate community input for these decisions.
- ✓ Involve community members and organizations in the decision-making process.
- ✓ Conduct surveys or other means of collecting feedback to understand how a pilot AAA program could affect certain populations.
- ✓ Include equity factors in determining locations for AAAs.
- ✓ Leverage the Inclusive Community Engagement Framework (ICEF).

Funding and Resource Opportunities:

- BRIC
- Community Development Block Grant Mitigation (CDBG-MIT)

Co-Benefits:



Case Study: Adaptation Action Areas

Fort Lauderdale, Florida updated their comprehensive plan to designate Adaptation Action Areas (AAAs) to provide the foundation for the development and implementation of adaptation measures to reduce risk to climate change impacts, such as sea level rise. AAAs are designated areas that are prioritized for infrastructure and other resilience improvements to reduce climate risk. The mapped AAAs and identified capital improvement projects within the AAAs are reviewed and updated annually by staff to inform funding needs and project prioritization.

Goal CRC.1 Create Safe and Resilient Spaces for the Community

STRATEGY CRC.1b Pursue Development of a Network of Resilience Hubs in Climate-Vulnerable Areas of the County

Strategy Description: Resilience hubs are community-serving facilities (often existing facilities) that distribute and centralize information and resources, connect residents to county assistance, support residents' resilience to climate events, and build community capacity and connection. These facilities are sometimes upgraded to enhance their physical resilience to climatic effects, to ensure continuity of service during climate hazards. Resilience hubs are typically located in existing facilities that are trusted by community members, such as recreation centers, community centers, libraries, non-profit facilities, or faith centers. On a day-to-day basis, hubs function as a space for community gathering or events, location for trainings, and as a centralized place for community members to seek resources. Resilience hubs are most effective when there is strong partnership between the local government (the county) and community organizations and/or networks; resilience hubs should be community-led and community-serving. This strategy will explore options for development of a network of resilience hubs in the areas of Fairfax County, with a prioritization for areas with the greatest need and that are most vulnerable to climate change impacts. Resilience hubs should not be confused with "shelter" facilities, which follow specific emergency management protocols and plans. Resilience hubs help to build greater community connection and enhanced capacity to adapt and respond to climate related events.

Climate Hazards Addressed:

Lead:	OEEC
Partners:	DEMS, DFS, DPD, DPSC, DPWES, FCHD, FCPA, FCPS, FMD, GIS, HCD, LDS, NCS, OCA, One Fairfax
Timeline:	Medium-Term (2-5 years)
Cost:	$$$ ($500k - $1 million)
Existing Staff:	Partial

What Are Resilience Hubs?

Resilience Hubs are community-serving facilities augmented to support residents, coordinate communication, distribute resources, and enhance communities' capacity to adapt to climate change. Existing community centers, libraries, and non-profit entities are among potential sites for resilience hubs.

Implementation Actions:

i.	Identify areas of the county where there is the greatest need and greatest benefit for resilience hubs. Utilize data sources such as Resilient Fairfax, One Fairfax data, Adaptation Action Areas, and others to determine these locations.
ii.	Inventory existing network of centers that could serve as "resilience hubs." Prioritize trusted locations within community, such as community centers (NCS), recreation centers (FCPA), places of worship, and non-profit facilities that provide essential services to the community. Coordinate with DEMs' identification of places to stay cool and OEEC's ESCO (Energy Service Company) work.
iii.	Compile site information to support evaluation of location for resilience hub. Consider building condition, location, transportation and access, site capacity, key climate hazards impacting that community, planned and/or required retrofits, typical operations and staffing, and other needs as identified by the community.
iv.	Conduct outreach to community organizations, nonprofits, faith groups, or other community serving groups in identified areas (CRC.2a) to begin county-community collaboration on the visioning of a resilience hub network in the community.
v.	Identify a pilot resilience hub location and work with facility managers and community partners to build out community resilience offerings.
vi.	Evaluate potential network of resilience hubs, with priority consideration to identified areas in CRC.2a and in collaboration with community partners. Consider staffing and funding needs for resilience hub implementation. As appropriate, explore establishing working groups for each resilience hub location.

Key Performance Indicators:

- Number of potential and actual Resilience Hub locations identified, pursued, and implemented by the county.
- Accessibility of Resilience Hubs within AAAs (e.g. travel distance, closest metro/transit, density per district).
- Number and demographics of community members served by Resilience Hubs.
- Number and type of community members aware of Resilience Hub locations and resources, measured through surveys.

Equitable Implementation:

- ✓ Work with communities to identify needs of vulnerable populations to ensure accessibility to resilience hubs.
- ✓ Work with communities to identify which areas of the county would benefit the most from or have greatest need for resilience hubs.
- ✓ Meet with community organizations and partners to foster collaboration and identify areas that will best serve as resilience hubs.
- ✓ Identify transportation/evacuation routes that would assist access to the hubs.
- ✓ Engage community members on what they want to see in a resilience hub.

Funding and Resource Opportunities:

- BRIC
- Community Development Block Grant

Co-Benefits:

ADDITIONAL STRATEGIES FOR GOAL CRC.1

Strategy CRC.1c	**Expand Targeted Tree Plantings** Build upon existing Urban Forest Management Division tree planting efforts to expand targeted tree plantings. Prioritize neighborhoods with high vulnerability as determined by One Fairfax, the Vulnerability and Risk Assessment, and Adaptation Action Area mapping (CRC.1a).
Strategy CRC.1d	**Enhance Commercial Property Assessed Clean Energy (C-PACE) Program Outreach and Technical Assistance** Support utilization of the existing C-PACE program through enhanced outreach and technical assistance.

Goal CRC.2 Build Community Capacity to Understand, Be Ready For, Respond To, And Bounce Back from Climate Change Impacts

STRATEGY CRC.2a Provide Community Aid and Services to Alleviate Resilience Needs

Strategy Description: Vulnerable populations will be disproportionately impacted by climate change. There are many existing county resources that can help. However, many residents are unaware of these resources, do not know how to request services, or are hesitant to access aid. Populations experiencing homelessness may be especially exposed and in need of aid. This strategy focuses on community engagement to better connect residents to existing resilience-related support and resources, and to continue the identification of unmet needs. Meaningful engagement should center on traditionally under-served populations, expanding the work of Equity Impact Plans and One Fairfax. This strategy includes identification of community-based partners and community-specific needs, identification of pressing needs, and enhancing and streamlining access to aid from multiple county departments. This strategy will support improved preparedness and resilience of the county's more vulnerable populations. (For education and guidance, please see strategy CRC.2b).

Climate Hazards Addressed:

Lead:	OEEC (Facilitator)
Partners:	CSB, DEMS, DFS, DHCD, DPWES, FCHD, FCPA, FCPS, NCS, NVSWCD, One Fairfax
Timeline:	Short-Term (2 years or less); Ongoing
Cost:	$$ ($100k - $500k)
Existing Staff:	Partial

Implementation Actions:

i.	Launch an implementation group responsible for this program. The group should leverage partners from the Resilient Fairfax planning process, and should include county agencies, community-based organizations, and community leaders who hold existing trust with vulnerable populations in Fairfax County. Work collaboratively to develop a climate resilience community engagement program, using the county's Inclusive Community Engagement Framework (ICEF).
ii.	Building upon the results of the Vulnerability and Risk Assessment and concurrent county initiatives such as the Flood Risk Reduction Plan (Strategy CRC.3a), identify specific, pressing climate-related needs of the county's vulnerable neighborhoods, such as areas of extreme heat exposure and recurrent flooding.
iii.	Identify how best to connect neighborhoods, residents, outdoor workers, and other vulnerable groups with existing county aid and resources. Work with community leaders, CSB, NCS, DFS, DEMS, FCHD, OPEH, NCS, and others to help ensure that awareness of available county aid is equitably reaching communities of color and low-income, older adult, unhoused, disabled, outdoor workers, and other under-served residents.
iv.	Streamline and facilitate access to existing climate hazard-related resources and assistance from numerous departments such as: flood mitigation assistance (DPWES), energy resilience for frequent power outages, air conditioning assistance during extreme temperatures (DFS), energy efficiency and other building improvements for enhanced resiliency (HCD, OEEC), sites that serve as places to stay cool (DEMS), relocation for repetitive loss properties (DPWES), and/or health and human services that can also enhance resilience to climate hazard effects (CSB, DFS, FCHD, NCS). Produce easy-to-understand, multi-lingual guides to help residents understand what aid is available and how to access it. Provide centralized physical and virtual locations for climate hazard related resources. Resilience hubs (Strategy CRC.1b) could potentially serve this purpose.

Key Performance Indicators:

- Type and quantity of aid applied for and distributed to community members to address resilience needs.
- Number and type of organizations involved in the provision of resilience-related support and resources.
- Number and type of touchpoints between service-aid provider and individuals in need.
- Awareness of county aid programs in the community, measured by surveys and/or application rates.

Equitable Implementation:

- ✓ Consider how to engage with underserved communities on a regular ongoing basis.
- ✓ Ensure a balanced understanding of community interests and concerns.
- ✓ Leverage the Inclusive Community Engagement Framework (ICEF).
- ✓ Choose times and locations that work best for a variety of different schedules.
- ✓ Use various engagement approaches based on what will include representative demographics of community members and voices of the more vulnerable populations.
- ✓ Ensure residents are given clear help (in their language of choice) for aid applications that may be confusing or difficult to navigate.

Funding and Resource Opportunities:

- Robert Wood Johnson Foundation grant opportunities
- Climate and Clean Energy Equity Fund

Co-Benefits:

Community Partners

Throughout the Resilient Fairfax plan development process, staff gathered recommendations for community partners, faith-based institutions, and other community organizations who may wish to participate in the implementation of this pillar's strategies. These organizations include but are not limited to: Cornerstones, George Mason Center for Climate Change Communication, Medical Society Consortium for Climate and Health, Virginia Clinicians for Climate Action, Faith Alliance for Climate Solutions, and American Lung Association.

Goal CRC.2 Build Community Capacity to Understand, be Ready for, Respond to, and Bounce Back from Climate Change Impacts

STRATEGY CRC.2b Launch a Climate Resilience Education and Guidance Program

Strategy Description: To be successful, climate adaptation and resilience strategies require local community awareness, understanding, buy-in, and participation. Climate resilience education for the community should include guidance documents and resources for various climate-related topics such as emergency preparedness, flood mitigation, natural resource resilience, and energy resilience, among others. Education may include resources on introductory concepts of climate change, such as background on climate science and impacts on public health and safety. All educational materials will be customized for the intended audience, and their needs, to ensure materials are translated, relatable, relevant, understandable, and accessible.

Climate Hazards Addressed:

Lead:	OEEC
Partners:	DCC, DEMS, DFS, DPWES, FCPA, FCPS, FCHD, HCD, LDS, NCS, NVRC, NVSWCD, One Fairfax
Timeline:	Medium-Term (2-5 years)
Cost:	$$ ($100k - $500k)
Existing Staff:	Partial

Fairfax County Public Schools: Get2Green Program:

The Fairfax County Public Schools Get2Green is an environmental stewardship program that provides guidance and resources to bring hands-on environmental action into classrooms and the community. The Get2Green program supports student eco-teams that engage in student-driven sustainability activities such as reducing waste, conserving energy, planting, and maintaining habitat, and tending to edible gardens.

Implementation Actions:

i.	Identify and engage key partners for a climate resilience education campaign, including local schools (Get2Green), community-based and environmental organizations, county departments, libraries, homeowners' associations, and other partners with existing community education programs such as OPA, FCPA, NCS, DEMS, DPWES, and NVSWCD. Engage with community leaders and residents to increase understanding and tailor educational materials to specific community needs.
ii.	Develop and deliver Climate Change 101 educational materials to Fairfax County staff and residents to provide background on climate science, climate hazards, climate mitigation, climate adaptation and resilience, and climate impacts on public health and safety.
iii.	Host a series of interagency, informational meetings in accessible neighborhood locations throughout the county. Leveraging existing programs and resources from DEMS, DPWES, and other agencies.
iv.	**Flood resilience guidance**: Develop and promote existing guidance for flood safety and resilience measures, such as elevating structures or equipment, wetproofing, dry proofing, flood insurance, and small-scale green infrastructure for property owners and operators/landlords. Any assistance will be in alignment with applicable laws and policy.
v.	**Heat resilience guidance**: Develop and promote guidance on heat safety, such as safe thresholds for outdoor workers, outdoor activities, and youth sports, guidance for those experiencing homelessness during extreme heat, and heat resilience retrofits, such as cool roofs, cool pavements, trees, building orientation and design, and energy efficiency.
vi.	**Wind, storm, and energy resilience guidance**: Develop and promote existing guidance for severe storm, wind, and energy resilience (power outage prevention) retrofits, such as solar plus storage, back-up power, infrastructure hardening, tree trimming to prevent tree falls on power lines, and pre-storm actions.
vii.	**Agricultural resilience guidance**: Connect local farmers and landowners to education and funding opportunities for regenerative and resilient agricultural practices.

Key Performance Indicators:

- Amount of funding allocated to community education and guidelines on resilience.
- Number and type of organizations involved in community education and outreach for Resilience Fairfax activities and programs.
- Number of views of guidance documents and/or outreach materials.
- Number and type of educational and guidance materials, events, and learning opportunities available.
- Number of residents using practices recommended through this strategy (i.e. number of flood insurance holders over time).
- Community understanding of resilience practices, evaluated through community outreach and/or surveys.

Equitable Implementation:

- ✓ Consider how this information will be made available to all residents.
- ✓ Consider how the county can strategically identify partners that will reach a diverse audience.
- ✓ Partner with community-based organizations and entities that are on the ground and connected to underrepresented communities.
- ✓ Develop education materials that are easily understood, available online and in a designated location, and available in multiple languages.

Funding and Resource Opportunities:

- EPA Environmental Education Grants
- NOAA Environmental Literacy Grants

Co-Benefits:

ADDITIONAL STRATEGIES FOR GOAL CRC.2

Strategy CRC.2c	**Support Resilience-Related Workforce Development** Pursue workforce development initiatives to develop resilience-related construction and contracting skillsets, such as pervious paver installation, solar-plus-storage installation, green infrastructure installation, and other skillsets.
Strategy CRC.2d	**Expand Heat Warning System** Promote early warning system to warn community members of upcoming heat events. Explore tiered warning system approach for heat. Promote and leverage existing Fairfax Alerts, National Weather Service, and other warning systems.

Goal CRC.3 Integrate Climate Hazard and Resilience Considerations into Development Regulations, Processes, and Retrofits

STRATEGY CRC.3a Pursue and Implement a Flood-Risk Reduction Plan for the Fairfax County Community

Strategy Description: This strategy aligns with and advances the "Flood Risk Reduction Plan" recently initiated by DPWES. This strategy is focused on reducing flooding risk that threatens the health, safety, and welfare of county residents in their neighborhoods. (For flooding of county government facilities, please see Strategy RIB.1b). The Fairfax County community experiences multiple types of flooding, including urban, inland, riverine, and coastal flooding, each of which requires a customized approach. Additionally, flood risk reduction requires action for both new and existing development. Any changes made to county policies and standards apply only to new development or re-development (see Strategy RIB1.a). For existing neighborhoods with flooding issues, retroactive physical capital improvement projects may be needed. Across all approaches, projected climate conditions and impacts should be factored into flood risk reduction efforts.

Climate Hazards Addressed:

Lead:	DPWES, LDS
Partners:	DCC, DEMS, DPD, FCPA, OEEC, One Fairfax
Timeline:	Medium-Term (2-5 years)
Cost:	$$$ ($500k - $1 million)
Existing Staff:	Partial

Implementation Actions:

i.	(In progress): Initiate plan. Complete project initiation tasks, including establishment of: an interagency workgroup, flood risk reduction approach, community engagement and equity approach, benchmarking against other jurisdictions, and draft levels of service.
ii.	(In progress): Complete detailed analysis on existing and future flooding issues. Quantify and categorize existing and future flooding issues in the county. For future flooding, utilize the latest accepted climate projections.
iii.	(In progress): Complete detailed analysis on existing flood-related policies, standards, and processes, building upon work completed through the Resilient Fairfax Audit and update regularly. Consider a lens of future climate projections.
iv.	Draft flood risk reduction recommendations, including potential updates to county policies, design standards and guidelines, ordinances, processes, and capital projects (see Strategy CRC.3c).
v.	Identify and prioritize capital projects for flood alleviation. The identification of areas in need of flood alleviation capital projects may be facilitated through the Adaptation Action Area process (see Strategy CRC.1a). The prioritization of capital projects may be facilitated through a revised Capital Improvement Program (CIP) process (see Strategy RIB.1a).
vi.	If applicable and approved by the BOS, implement approved updates.

Note: For flood-related upgrades to county government facilities, please see Strategy RIB.1b. For small-scale property owner flood-proofing guidance, please see Strategy CRC.2b. For Adaptation Action Areas, please see Strategy CRC.1a. For Capital Improvement Program (CIP) process updates please see Strategy RIB.1a. For updates to County Codes, see CRC.3c.

Key Performance Indicators:

- Quantity and type of flooding issues in the county, organized by demographics of communities most affected.
- Number, type, and geographic distribution of public engagement activities during plan development, project identification, and project implementation.
- Number, type, and location of flood risk reduction capital improvement projects planned, budgeted for, and implemented.
- Percent of flood-vulnerable residences with flood insurance over time.
- Number of county flood risk reduction projects completed.
- Percent of structural flood-related service requests out of total number of structures in the county.

Equitable Implementation:

- ✓ Consider that well-meaning development regulations can sometimes have negative unintended consequences on certain populations.
- ✓ Provide a robust public engagement process for changes to development regulations, that seeks to collect input from those that are often underrepresented.
- ✓ Assess development regulations/restrictions in residential areas to ensure that regulations do not result in displacement of existing community members.

Funding and Resource Opportunities:

- BRIC
- Virginia Community Flood Preparedness Fund
- Flood Mitigation Assistance

Co-Benefits:

Huntington Levee

The Huntington Levee project was a $41.2 million dollar project completed in June 2019. A levee and pumping station were constructed to protect homes and property in the Huntington neighborhood from flooding. The project mitigates flooding due to tidal surges from to Potomac River and flash flooding from the Cameron Run Watershed. The project included the development of approximately 4,800 linear feet of recreational trails along the top of the levee and around the ponding area for public recreation and enjoyment.

Goal CRC.3 Integrate Climate Projections and Resilience Considerations into Development Regulations, Processes, and Retrofits

STRATEGY CRC.3b Encourage Heat-Resilient Design, Development, Upgrades, and Practices

Strategy Description: Extreme heat is a pressing issue with increasing impacts on both public health and infrastructure. This strategy is focused on encouraging new and existing development to consider heat-mitigation measures, including nature-based solutions, in their design, construction or redevelopment, and operations and maintenance. Guidance materials, potential incentive programs, and integration of heat-related climate risk into development review processes can mitigate the impact of extreme heat to residents, particularly more vulnerable populations. A comprehensive approach can better prepare neighborhoods for more extreme and frequent heat conditions.

Climate Hazards Addressed:

Lead:	EDA, LDS, OEEC
Partners:	DCC, DEMS, DPD, FCDOT, FCHD, FCPA, NCS, OCA, UFMD
Timeline:	Medium-Term (2-5 years)
Cost:	$$ ($100k - $500k)
Existing Staff:	Partial

Implementation Actions:

i.	Complete detailed analysis to identify a suite of applicable cooling measures for priority heat islands as identified by the Resilient Fairfax planning process and NASA Develop's Urban Heat Island assessment. Example cooling measures could include but are not limited to cool roofs and cool pavements, targeted tree canopy, green infrastructure, and green space for evapotranspiration, building and site orientation for heat mitigation, heat-mitigating building materials and efficiency, among others.
ii.	Complete detailed analysis of existing standards and processes. Identify opportunities to update existing standards and processes to consider heat mitigation. Examples include heat-specific updates to urban design guidelines, Sustainable Development Policy for Capital Projects, and guidelines relating to trees and impervious coverage limitations.
iii.	Develop design guidelines that are a practical reference for planners, building developers, and other stakeholders with influence in design/construction of projects in Fairfax County. The guidelines will serve as a resource for public and private development (both new construction and retrofits). The design guidelines will provide guidance on how to evaluate the building or site/landscape for heat vulnerabilities and offer guidance/considerations on cooling measures and opportunities to enhance resilience. Guidelines should support the use of native plantings when feasible and effective. These guidelines can build on the use of Urban Design Guidelines for Commercial Revitalization Districts and Areas and certain Mixed-use Centers as designated on the Fairfax County Comprehensive Plan including the Tysons Urban Center and the Reston Transit Station Areas.
iv.	Identify additional financing or incentive options. Highlight and align with existing financing and incentive programs that can be used for heat mitigation retrofits or cooling measures, such as C-PACE (see Strategy CRC.1d) or potential green infrastructure incentive programs (see Strategy AE.2a).

Key Performance Indicators:

- Community sentiment towards usability and use of guidelines.
- Number of developments and building retrofits with heat mitigation measures by location and demographics of communities affected.
- Number of heat-related health stresses and illnesses in AAAs relative to average county incidents.
- Developer and community awareness of heat risk reduction design guidelines and considerations (e.g., surveys).

Equitable Implementation:

- ✓ Identify which types of assistance and guidelines will best support retrofits in heat-vulnerable neighborhoods.
- ✓ Minimize impacts of additional review and requirements to help ensure continued affordability.
- ✓ Use best practices for inclusion of retrofits that can be applied to low-income housing projects to include best practices (e.g., increase in tree cover/street trees, pervious surface requirements).
- ✓ Consider offering density incentives for added heat-mitigating features, to offset affordability of units with these features.

Funding Opportunities:

- General Fund (salaries)

Co-Benefits:

Urban Design Guidelines

Urban Design Guidelines provide detailed urban design and streetscape guidance intended to be used by citizens, developers, designers, Fairfax County staff, and the Fairfax County Planning Commission and Board of Supervisors when proposing, designing, or reviewing development. Fairfax County has developed and published several Urban Design Guidelines, including guidelines from Commercial Revitalization Districts and Areas, as well as district areas guidelines such as Richmond Highway and Annandale. Design guidelines include many elements that support a resilience county, such as inclusion green infrastructure, urban park design, and stormwater management.

Goal CRC.3 Integrate Climate Projections and Resilience Considerations into Development Regulations, Processes, and Retrofits

STRATEGY CRC.3c Pursue Amendments to the Zoning Ordinance and Other County Code Chapters to Enhance Community Resilience

Strategy Description: There are several County Codes that guide development and land use in Fairfax County, including the Zoning Ordinance, Stormwater Management Ordinance, Chesapeake Bay Preservation Ordinance, Tree Conservation Ordinance, and the Subdivision Ordinance, among others. Incorporating resilience into these County Codes helps ensure that new development can withstand a changing climate. This strategy pursues potential amendments to the Zoning Ordinance and other County Code chapters to enhance climate resilience. The strategy will build upon opportunities identified by the Resilient Fairfax Audit. This strategy connects to other strategies in the Implementation Roadmap, such as potential updates to the Comprehensive Plan (IAP.1a), the Countywide Strategic Plan (IAP.1b), the Flood Risk Reduction Plan (CRC.3a), Heat Resilient Design Guidelines (CRC.3b), the Public Facilities Manual (CRC.3d), the Capital Improvement Program (RIB.1a), and the potential Consolidated Natural Resources Management Plan (AE.1a). Amendments to County Code associated with Resilient Fairfax will be aligned with other ongoing, scheduled, considered, and planned amendments.

Climate Hazards Addressed:

Lead:	DPD, DPWES, LDS, OEEC
Partners:	DCC, DEMS, FCHD, FCPA, NCS, OCA, UFMD
Timeline:	Long-Term (5-8 years)
Cost:	$$ ($100k - $500k)
Existing Staff:	Partial

Implementation Actions:

i.	OEEC will identify regulatory document sections that are relevant to climate hazard resilience and identify opportunities to address resiliency. Topics may include but are not limited to limitations on impervious coverage and pavement, parking requirements ("Parking Reimagined"), density and open space, tidal flooding setbacks, stormwater and floodplain regulations, environmental site assessments, landscaping requirements (including trees), land use definitions for resilience-related uses, and energy production and storage. Amendments will be aligned with amendments from related initiatives such as the Flood Risk Reduction Plan (CRC.3a), CECAP, and Fairfax Green Initiatives.
ii.	Lead and partner agencies, in coordination with OEEC, will aid in the analysis of identified regulatory changes. Specifically, LDS will aid any amendments related to site plans, parking, floodplain requirements, and landscaping and screening provisions. DPWES will aid in any amendments relating to floodplains and flood mitigation. The Urban Forestry Management Division will aid in any amendments relating to trees.
iii.	Lead and partner agencies, in coordination with OEEC, will bring any proposed amendment topics to the Board for consideration. If supported, the amendments will be added to the agency's work program.
iv.	As authorized by the Board, develop amendments to the relevant documents. All proposed amendments will be drafted and revised in coordination with applicable stakeholder groups, Boards, Authorities, and Commissions (BACs), and the public.
v.	Agencies will proceed through the amendment process, to include outreach, draft amendments, and public hearings.

Key Performance Indicators:

- Number and description of county code amendments authorized and adopted.
- Number and description of stakeholder and community engagement opportunities during the amendment process.

Equitable Implementation:

- ✓ Well-meaning regulations can have negative unintended consequences on certain populations. Consider whether any amendments negatively impact climate conditions in other areas.
- ✓ Conduct a robust public engagement process beyond the public hearings for the County Code amendment processes, seeking to collect input from those that are often underrepresented. Engage stakeholders during times and with platforms that are convenient to those most affected. Use best practices for collecting input from all stakeholders including various platforms translated into multiple languages.
- ✓ Leverage the Inclusive Community Engagement Framework (ICEF).
- ✓ Assess regulations to ensure that regulations do not result in displacement of existing community members.
- ✓ Ensure county codes do not exclude multi-generational families, single-earner families, etc. on the premise of implementing a climate resilience measure.
- ✓ Ensure zoning does not exclude certain populations from accessing critical facilities, including public service facilities, parks, recreation, and natural resource areas. Ensure existing amenities are maintained in vulnerable areas.

Funding and Resource Opportunities:

- BRIC
- Community Development Block Grant Mitigation (CDBG-MIT)

Co-Benefits:

ADDITIONAL STRATEGIES FOR GOAL CRC.3

Strategy CRC.3d	**Update the Public Facilities Manual** Pursue updates to the Public Facilities Manual to consider climate projections and enhance resilience. This strategy may occur concurrently with County Code and plan amendments depending on breadth and scope. Please see Strategy CRC.3c.

Resilient Infrastructure and Buildings Implementation Roadmaps

PILLAR 3: RESILIENT INFRASTRUCTURE AND BUILDINGS (RIB):

The Resilient Infrastructure and Buildings pillar aims to ensure that the infrastructure and buildings in Fairfax County can withstand climate impacts, keep residents safe, reduce service disruptions, and improve countywide resilience. This pillar includes embedding resilience considerations into infrastructure decisions, so that new and upgraded infrastructure are ready for a changing climate. It advocates for the safety of our buildings, accessibility of the transportation network, and reliability of our critical infrastructure. These actions help us maintain key services and keep residents safe.

Resilient infrastructure and buildings:

- Can withstand extreme temperatures, flooding, and severe storms
- Are built and prepared for future conditions
- Are energy-resilient, energy efficient, and leverage diverse and clean energy sources with backup power
- Support safe movement to jobs, homes, critical services, and other points of interest

In addition to **buildings**, this pillar includes enhancing resiliency of critical infrastructure and facilities in the **transportation**, **water**, **energy**, **communications**, and **public services** sectors.

RIB — Resilient Infrastructure and Buildings Strategies:

Goal RIB.1: Incorporate Climate into County Infrastructure Decisions	Goal RIB.2: Advocate for Infrastructure Resilience Outside of County Control
Priority Strategies: RIB.1a Update the Capital Improvement Program Process to Include Climate Resilience Considerations RIB.1b: Enhance Flood Resilience of County Government Buildings and Other Facilities	*Priority Strategies:* RIB.2a: Advocate and Partner for Energy Resilience
Additional Strategies: ▪ RIB.1c: Enhance Energy Resilience for County Buildings and Facilities ▪ RIB.1d: Enhance Heat Resilience for County Buildings and Facilities ▪ RIB.1e: Update Procurement Practices for Resilience	*Additional Strategies:* ▪ RIB.2b: Advocate for Resilience Updates to the Building Code ▪ RIB.2c: Advocate and Partner with Transportation Agencies to Support Transportation Resilience

Goal RIB.1 Resilient County Government Buildings and Infrastructure

STRATEGY RIB.1a Update Capital Improvement Program Process to Include Climate Resilience Considerations

Strategy Description: The Capital Improvement Program (CIP) is Fairfax County's five-year roadmap for creating, maintaining, and funding present and future capital infrastructure requirements. The CIP guides the investment in and planning of capital projects. Climate hazards such as increasingly severe flooding, extreme heat, and severe storms can impact the lifespan, function, and maintenance costs of capital facilities. Additionally, capital projects that address climate vulnerabilities may be increasingly needed. This strategy promotes revisions to the CIP evaluation and project prioritization process to better integrate climate resilience into infrastructure planning and development. The intended results of this strategy are to A. ensure that capital facilities planned now can withstand future climatic conditions, and B. prioritize resilience-related capital projects, (such as stormwater infrastructure upgrades) that address top vulnerabilities. Prioritization of these considerations will help the county ensure the long-term safety and resiliency of the Fairfax County community.

Climate Hazards Addressed:

Lead:	DMB, DPWES, OEEC
Partners:	DEMS, DPD, DPWES, FCDOT, FCPA, OCA, One Fairfax, UFMD
Timeline:	Medium-Term (2-5 years)
Cost:	$$ ($100k - $500k)
Existing Staff:	Partial

Implementation Actions:

i.	Review the existing CIP process to identify revisions needed to embed consideration of: climate change projections, potential risks from climate hazards, and resilience enhancements for the county's infrastructure and facilities. Resilience enhancements should consider ways a project could enhance overall community resilience. Explore screening criteria and identify selection criteria for projects that support the county's resilience goals. Identify pathways to prioritize implementation and funding for climate resilience projects.
ii.	Build a project list of identified resilience projects, including those identified in the Flood Risk Reduction plan and the Hazard Mitigation Plan. Integrate One Fairfax and build upon the completed analysis of the Vulnerability and Risk Assessment to prioritize projects that support the needs of vulnerable populations and/or address top climate risks to the county.
iii.	Partner with staff responsible for capital improvement evaluation, project management, and implementation to draft proposed revisions.
iv.	Proceed through revision and approval processes to encourage capital projects that mitigate risk and build resilience to future projected extreme heat, heavy precipitation, coastal flooding, and severe storms. Coordinate with the department responsible for asset management or use in advance of project approval to ensure there are no adverse impacts.
v.	Monitor and evaluate CIP implementation results and project outcomes. Adjust process and/or prioritization criteria if needed.

Key Performance Indicators:

- Number of CIP projects that address a climate vulnerability (e.g., flood risk reduction projects).
- Percent of CIP projects that consider long-term resilience of the project to projected climate conditions.
- Percentage of resilience-related CIP projects located in AAAs or vulnerable areas.
- Amount of funding dedicated to resilience-focused or resilience-related CIP projects.

Equitable Implementation:

- ✓ Consider how to factor needs of underserved communities into the CIP process.
- ✓ Identify how the county can monitor the effects of proposed projects on marginalized populations.
- ✓ Consider how to maintain the integrity and fabric of communities that are seeing significant impacts from flooding due to their location, while protecting them from potential risk and loss during storm events.
- ✓ Prioritize and distribute projects to communities most vulnerable to climate change.

Funding and Resource Opportunities:

- BRIC
- Hazard Mitigation Grant Program (HMGP)

Co-Benefits:

Case Study: VDOT Design Standards Consider Climate Change and Coastal Storms

The Virginia Department of Transportation (VDOT) issued new design standards for bridge structures that aim to make them more resilient to climate change impacts. The standards account for sea level rise, water salinity, temperature changes, and rainfall intensity when constructing and maintaining bridges. The guidelines identify adaptive measures, such as building certain bridges higher and longer to account for rising seas and more intense rains. The department is also developing new standards to make roadways more resilient to climate change.

Goal RIB.1 Resilient County Government Buildings and Infrastructure

STRATEGY RIB.1b Enhance Flood Resilience of County Government Buildings and Other Facilities

Strategy Description: Fairfax County's local government buildings should be flood-resilient to ensure continuity of public services and long-term durability during more frequent flooding events. The county has implemented best practice flood resilience measures for certain county facilities. Other existing facilities may be in need of flood resilience enhancements and protection. This strategy would include prioritization of local government facilities that are flood-vulnerable, interagency collaboration to address those vulnerabilities, and improvements to county processes for reporting and tracking such issues long-term. Flood resilience actions could include but are not limited to: elevating or relocating critical infrastructure, flood proofing measures, stormwater management improvements, and improving accessibility.

Climate Hazards Addressed:

Lead:	OEEC (Facilitator)
Partners:	DEMS, DPWES, FCPA, FCPS, FMD, HCD, and other departments as relevant to specific facilities.
Timeline:	Medium-term (2-5 years)
Cost:	$$ ($100K - $500k)
Existing Staff:	Partial

Executive Orders: Complementing this local government strategy, Virginia Governor Ralph Northam issued two executive orders that support resilience at the state level. Executive Order 24 (2018) directed the state to take a range of actions to plan for flooding and sea level rise, including developing a Virginia Coastal Resilience Master Plan and adopting an updated freeboard standard for state-owned properties. Executive Order 45 (2019) created the Virginia Flood Risk Management Standard which increased freeboard requirements for state-owned buildings in floodplains.

Implementation Actions:

i.	Building upon preliminary work conducted during the Resilient Fairfax process, complete an inventory of county buildings and facilities with current and potential future flooding vulnerabilities.
ii.	Categorize building vulnerabilities for appropriate resolution. Example categories could include: those requiring routine maintenance only (FMD, FCPA, FCPS, HCD), those requiring significant capital improvements (agencies' Capital Facilities entities), and those requiring stormwater management improvements on site (DPWES - Stormwater).
iii.	Prioritize buildings and facilities for flood resilience upgrades for implementation through appropriate avenues, such as maintenance work orders or the CIP. CIP upgrades should be coordinated with Strategy RIB.1a.
iv.	Review current processes for internal county reporting of flooding issues and/or damage to county buildings. Reporting should include both repetitive small-scale flooding and larger-scale flooding events. This process review should include DEMS, FMD, DPWES, FCPA, FCPS, HCD, and designated facilities managers. Clarify roles, responsibilities, and standard procedures. Identify opportunities for streamlining, consolidated reporting, and improved data collection consistency.
v.	Incorporate findings into facility reporting and improvement processes. Educate staff to provide improved understanding and use of proper reporting systems for each flooding type. These reporting systems may include the Emergency Data Gathering Repository (EDGR), DPWES service requests, and facility maintenance requests.

Key Performance Indicators:

- Number of county government facilities and buildings inventoried for flood vulnerabilities.
- Percentage of facilities identified with flooding-related vulnerabilities, and percentage with improvements completed.
- Locations of and demographics served by buildings in need of flood vulnerability improvements.
- Number of staff trained on building vulnerability reporting systems.

Equitable Implementation:

- ✓ Consider buildings that provide critical services to vulnerable groups.
- ✓ Insert a prioritization factor that uses demographics of the community. Low-income neighborhoods may be more reliant on community centers and improving the accessibility for critical infrastructure will be instrumental.

Funding and Resource Opportunities:

- Hazard Mitigation Grant Program (HMGP)
- Flood Mitigation Assistance Grant

Co-Benefits:

ADDITIONAL STRATEGIES FOR GOAL RIB.1

Strategy RIB.1c	**Enhance Energy Resilience for County Buildings and Facilities** Enhance the energy resilience of county-owned facilities, particularly new facilities, through strategies such as increasing the availability of on-site back-up power (prioritizing clean power when feasible), elevating equipment, hardening infrastructure, creating energy redundancy, and establishing back-up communications. Coordinate with OEEC's ESCO work.
Strategy RIB.1d	**Enhance Heat Resilience for County Buildings and Facilities** Include consideration of heat mitigation techniques for new and renovated county facilities, such as heat-resilient trees and shading, energy efficiency and ventilation, cool roofs, passive cooling, and heat-resilient building orientation and materials. Pursue these updates through the CIP process (Strategy RIB.1a) or through resilience-related updates to the Sustainable Development Policy for Capital Projects, as appropriate.
Strategy RIB.1e	**Update Procurement Practices for Resilience** Project scope descriptions for county procurement and Architecture/Engineering contracts should maximize the inclusion of construction methods and design elements that maximize resilience, such as porous material installation, green infrastructure implementation, wetland restoration, and solar plus storage design and construction.

Goal RIB.2 Advocate for Infrastructure Resilience Outside of County Control

STRATEGY RIB.2a Advocate and Partner for Energy Resilience

Strategy Description: Energy infrastructure (i.e., the electricity grid and natural gas infrastructure systems) can be affected by climate change impacts, including extreme storms, flooding, and heat. These impacts can cause service disruptions and cascading effects across many sectors. Power outage impacts were identified as a top risk in the Resilient Fairfax Vulnerability and Risk Assessment. While Fairfax County has limited ability to directly address energy infrastructure, opportunities have been identified for Fairfax County to continue and expand engagement and coordination with energy utilities, including Dominion Energy and NOVEC (Northern Virginia Electric Cooperative). Fairfax County can also promote energy resilience enhancements by developing an Energy Assurance Plan, which would consider a community's energy profile, providers, and critical facilities. Through advocacy and partnership, Fairfax County can support greater energy resilience for the community, helping to limit energy disruption and improve energy reliability.

Climate Hazards Addressed:

Lead:	OEEC
Partners:	DEI, DEMS, DPD, DPSC, OCA
Timeline:	Ongoing
Cost:	$$ ($100k - $500K)
Existing Staff:	Yes

Implementation Actions:

i.	Continue coordination with the State Corporation Commission to support statewide and regional efforts to improve energy resilience through distributed energy resources, undergrounding, improved grid reliability, and islanding capabilities while maintaining energy affordability.
ii.	Continue coordination with energy utilities, including Dominion Energy, NOVEC, Washington Gas, and Columbia Gas, to support consideration of climate hazards in new and/or upgraded energy infrastructure, and to advocate for continued energy resilience enhancements. Where applicable, advocate for strategies such as undergrounding and energy infrastructure hardening.
iii.	Identify opportunities for implementation of distributed energy resources, such as renewables (i.e. solar), back-up power, and energy storage. Identify priority locations for siting distributed energy resources, with consideration for vulnerable populations, community-serving facilities, emergency operation centers, and other critical facilities. As use of distributed energy matures, monitor the community for opportunities for microgrid applications for greater redundancy.
iv.	Evaluate options for development of an Energy Assurance Plan, either at the county or state level, to enhance preparedness for climate hazard events and improve energy resilience.

Key Performance Indicators:

- Number, length, and geographic distribution of power outages in the county.
- Number of DER sites identified and implemented, tracked over time, including the percentage of DER programs supporting vulnerable communities and/or within AAAs.
- Number of coordination meetings with utilities and/or state regulators.

Equitable Implementation:

- ✓ Consider which programs and policies would best support needs of vulnerable communities and ensure access to energy during climate change related impacts.
- ✓ Consider how to best advocate for all residents, especially vulnerable communities.
- ✓ Ensure that the Energy Assurance Plan considers energy needs of the most vulnerable populations.
- ✓ Prioritize implementation of renewables, and storage in low-income communities.
- ✓ Identify funding options to support upfront costs to vulnerable communities in the future.

Funding and Resource Opportunities (for future energy resilience projects):

- BRIC
- Community Development Block Grant State Program

Co-Benefits:

What are distributed energy resources?

Distributed energy resources (DER) are small scale electricity generation and storage technologies that provide energy capacity where needed. DER systems are typically less than 10 megawatts of power and can be either connected to the local power grid or stand alone from the power grid. DER includes a range of technologies such as wind turbines, solar photovoltaics, natural gas generators, battery energy storage, and fuel cells.

ADDITIONAL STRATEGIES FOR GOAL RIB.2

Strategy RIB.2b	**Advocate for Resilience Updates to the Building Code** Continue advocating for updates to the Virginia Statewide Building Code to enhance resilience to climate hazards for new buildings.
Strategy RIB.2c	**Advocate and Partner with Transportation Agencies to Support Transportation Resilience** Support transportation infrastructure managers such as WMATA, VDOT, FCDOT and others to advocate for climate adaptive measures for transportation infrastructure, including roadways and public transit. Resilience measures may include flood mitigation upgrades, energy resilience retrofits, shaded transit stops, green bus stops, seating, cool pavements, or alternate paving materials.

Adaptive Environments Implementation Roadmaps

PILLAR 4: ADAPTIVE ENVIRONMENTS (AE):

The Adaptive Environments pillar focuses on protection and restoration of the county's natural environments to enhance resilience and protect biodiversity. Adaptive Environments improve the county's overall resilience to climate impacts by supporting ecosystems' ability to naturally mitigate risks and provide ecosystem services. When ecosystems are healthy and protected, they are better able to provide critical services that support county-wide resilience. For example, wetlands, thriving stream valley parks, and green infrastructure are able to naturally absorb excess flood waters. Living shorelines are able to naturally absorb coastal storm surge energy along the Potomac, providing protection to the communities behind the shores. Tree canopies and green spaces provide a localized cooling effect from heat through shade and evapotranspiration.

Adaptive Environments in Fairfax include:

- Green infrastructure that enhances neighborhood resilience to flooding and heat
- Natural resources and environments that are thriving, biodiverse, accessible to the public, and able to provide ecosystem services and natural resilience
- Environmentally sensitive areas that are protected and conserved
- Natural resources planning that considers future climate conditions

AE	Adaptive Environments Strategies:
Goal AE1: Protect Natural Resources that Enhance Resilience	**Goal AE2:** Restore Damaged Areas Through Nature-Based and Natural Solutions
Priority Strategies: AE.1a: Develop a Consolidated Natural Resources Management Plan AE.1b: Survey and Protect Areas that Provide Natural Resilience Benefits	*Priority Strategies:* AE.2a: Pursue Green Infrastructure Projects that Provide Climate Resilience Benefits
Additional Strategies: ▪ AE.1c: Update Provisions for Conservation Easements ▪ AE.1d: Integrate Climate Change Considerations into Urban Forestry Program	*Additional Strategies:* ▪ AE.2b: Support Continued Stream Corridor Restoration ▪ AE.2c: Support Continued Urban Reforestation ▪ AE.2d: Explore Living Shoreline Opportunities ▪ AE.2e: Restore Wetlands and Floodplains ▪ AE.2f: Explore Regenerative Agriculture Opportunities

Goal AE.1 Protection: Protect Natural Resources That Enhance Resilience

STRATEGY AE.1a Develop a Consolidated Natural Resources Management Plan

Strategy Description: A consolidated natural resources management plan will allow the county to more comprehensively plan for and manage its numerous natural resources, including tree canopies and forests, parkland and conserved land, stream corridors and valleys, water bodies, shorelines, wetlands, green infrastructure, critical habitats, and other natural resources. Currently, these natural resources are managed and planned in numerous separate processes, policies, and programs, which renders it difficult for the county to manage our natural resources as an interconnected, integrated, and overarching system. Climate change impacts, such as changing precipitation patterns and increasing temperatures, will affect ecological systems' integrity and ability to provide ecosystem services. A comprehensive natural resources management plan will enable the county to plan with a systems-level approach, include climate change projections into planning and management decisions, and identify needed measures to improve ecosystem resilience. This strategy will fold together the county's existing natural resource management related plans, including those managed by DPD, FCPA, NVSWCD, DPWES Urban Forestry Division, and other applicable departments. The natural resources management plan should cover all of Fairfax's natural assets, consider climate change impacts to the resources and biodiversity, include invasive species management and consideration of climate-resilient species, identify measures to mitigate risk, and develop management actions to increase resource resilience. The natural resources management plan will provide clear guidance to county staff that manage natural resource assets. Guidance from the natural resources management plan should be integrated into applicable county plans and ordinances to facilitate implementation.

Climate Hazards Addressed:

Lead:	FCPA, NVSWCD
Partners:	DPD, DPWES, OEEC, One Fairfax, UFMD
Timeline:	Long-Term (5-8 years)
Cost:	$$$ ($500k - $1 million)
Existing Staff:	Partial

Implementation Actions:

i.	Following authorization by applicable Boards (Board of Supervisors, Park Authority Board, and NVSWCD Board), create a working group inclusive of all county departments and entities that oversee and manage the existing natural resource plans and/or enforce related natural resource policies and ordinances.
ii.	Building upon the Resilient Fairfax Audit and VRA, identify A. applicable existing natural resource-related plans that should be consolidated into and updated through a consolidated Natural Resources Management Plan, B. related natural resource policies and ordinances that need to be aligned with such plans, such as the Chesapeake Bay Preservation Ordinance, the Tree Conservation Ordinance, Wetlands Zoning Ordinance, and others, and C. new plan sections that should potentially be added, such as a Shoreline Management Plan.
iii.	Create a work plan for creation of the Natural Resource Management Plan, including schedule, tasks, responsibilities (including leads for each section), coordination system, and budget.
iv.	Develop a draft consolidated Natural Resource Management Plan that folds together existing county natural resource management plans, incorporates climate change projections and consideration for climate change impacts, and identifies measures needed to protect and enhance ecosystem resilience. Align this plan with related County Code updates (CRC.3c), plan updates (IAP.1a, IAP.1b, IAP.1c), Adaptation Action Areas (CRC.1a), the Flood Risk Reduction Plan (CRC.3a), and other natural resource strategies (AE.1b-d, AE.2a-f).
v.	Lead and partner agencies will bring the draft plan forward through the public hearing process, including outreach and public hearings prior to Board consideration of adoption. Relevant entities such as the Wetlands Board, the Chesapeake Bay Exception Review Committee, the Tree Commission, EQAC, and others will be consulted.

Key Performance Indicators:

- Number and type of previously separate plans incorporated into the Consolidated Natural Resource Management Plan.
- Progress towards completing plan consolidation (measured against work plan).
- Number and type of departments and organizations involved in plan development.

Equitable Implementation:

- ✓ Well-meaning regulations can have negative unintended consequences on certain populations. Consider if measures identified in the natural resource management plan could negatively impact vulnerable communities and identify ways to ensure vulnerable populations are able to enjoy benefits provided by natural areas.
- ✓ Consider access to natural areas for low-income neighborhoods so the ecosystems benefits that come from these areas are equitably distributed.
- ✓ Leverage the Inclusive Community Engagement Framework for community outreach during plan development.

Funding and Resource Opportunities:

- BRIC
- National Fish and Wildlife Foundation
- Small Watershed Grants Planning and Technical Assistance

Co-Benefits:

Tree Planting:

Fairfax County's tree canopy covers more than 50% of the county. To protect and maintain this tree canopy, the county supports numerous tree preservation, management, and planting programs. For example, the Fairfax County Urban Forest Management Division works to protect the vitality of the urban forest through development plan review to maximize opportunities to preserve trees, pest management to detect threats to the County's urban forests, and through public outreach to foster awareness and support for tree planting and preservation. UFMD also has a pilot program with Casey Trees to plant trees on residential properties in vulnerable neighborhoods, as identified by the One Fairfax Vulnerability Index. Additional tree planting initiatives, seedling sales, and assistance are provided by Fairfax County Park Authority (FCPA) and Northern Virginia Soil and Water Conservation District (NVSWCD), among others.

Goal AE.1 Protection: Protect Natural Resources That Enhance Resilience

STRATEGY AE.1b Survey and Protect Areas that Provide Natural Resilience Benefits

Strategy Description: Healthy natural lands and environmentally sensitive areas are critical to the long-term resilience of Fairfax County. These areas, such as wetlands, critical habitats, biodiverse land, natural shorelines, and healthy stream corridors, can reduce our climate vulnerabilities and enhance resilience in several ways. They can serve as natural barriers against severe storms, absorb excess flood waters and storm surge energy, protect downstream communities, reduce erosion, mitigate against extreme heat, and support the biodiversity of ecosystems threatened by climate change, among other benefits. These areas and natural resources provide many additional co-benefits, such as water quality protection and protection of areas with historical, archaeological, or recreational significance. This strategy involves the surveying, mapping, prioritization, and conservation of natural areas that currently lack sufficient protection.

Climate Hazards Addressed:

Lead:	FCPA, NVSWCD
Partners:	DPD, DPWES, FCDOT, OCA, OEEC, UFMD
Timeline:	Long-Term (5-8 years)
Cost:	$$$ ($500k - $1 million)
Existing Staff:	Partial

Implementation Actions:

i.	Identify and secure additional staff capacity and/or consultant support needed to implement this strategy.
ii.	Leverage the Consolidated Natural Resources Management Plan (Strategy AE1.a) and other applicable plans as a starting point for identification of environmentally sensitive areas that could be candidates for more stringent protection. To thoroughly analyze these candidate areas, complete field surveys of public land to verify and document lands that naturally enhance climate resilience, contain sensitive and/or rare habitats, and areas with extensive invasive species in need of management. Consider leveraging existing GIS data, such as tree canopy cover and land use type, to inform field survey work. Partner with state and federal agencies, as applicable, to coordinate survey work and data collection. Build off of existing and ongoing surveys and documentation from FCPA and NVRC.
iii.	Informed by data collection under this strategy as well as available county data, create an updated GIS database of natural areas in need of stronger protections for climate resilience, including lands with sensitive and/or rare habitat and species and high-quality natural resources areas.
iv.	Based upon the field surveys, GIS database, and Resilient Fairfax Vulnerability and Risk Assessment, identify land prioritized for conservation easements, Natural Area Preserve designation, or other protective status to enhance or preserve natural climate resilience.
v.	Explore strategic partnerships, grant opportunities and/or financing opportunities for conservation and protection of identified environmentally sensitive areas, including but not limited to: tidal and freshwater wetlands, intermittent streams, shorelines, and habitat for key species. Partners in this effort may include, but are not limited to: Department of Defense, National Park Service, Northern Virginia Regional Parks, Northern Virginia Conservation Trust, and Virginia Department of Conservation and Recreation.

Key Performance Indicators:

- Total amount of land area surveyed, and number of field surveys completed.
- Amount secured in grant and/or other funding sources for conservation.
- Percent of eligible acres of environmentally sensitive land conserved and/or protected within the county.

Equitable Implementation:

- ✓ Consider how the protection of environmentally sensitive areas could affect development and/or change land values.
- ✓ Consider whether the benefits of protecting environmentally sensitive areas will be distributed equitably.
- ✓ Along with protecting environmentally sensitive areas, include aspects of environmental restoration in low-income neighborhoods so the benefits that come from these ecosystems are equitably distributed.

Funding and Resource Opportunities:

- BRIC
- Coastal and Estuarine Land Conservation Program
- Conservation Reserve Enhancement Program
- Emergency Coastal Resilience Fund
- Land and Water Conservation Fund
- National Coastal Resilience Fund
- National Coastal Wetlands Conservation Grant Program
- Virginia Environmental Endowment
- Wildlife Conservation Society Climate Adaptation Fund
- Virginia Land Conservation Fund
- Virginia Open Space Lands Preservation Trust Fund
- Virginia Recreational Trails Fund

Co-Benefits:

ADDITIONAL STRATEGIES FOR GOAL AE.1

Strategy AE.1c	**Update Provisions for Conservation Easements** Update the provisions for conservation easements to include potential canopy credit as well as resources needed to maintain or improve the condition of the resource in perpetuity.
Strategy AE.1d	**Integrate Climate Change Considerations into Urban Forestry Program** Consider future climate conditions to support long term tree health, including consideration for tree selection, required maintenance, and planting processes.

Dyke Marsh Wildlife Preserve Restoration

Dyke Marsh is the Washington metropolitan region's largest freshwater wetland and one of the best studied wetlands in the nation. Located in Fairfax County, the marsh is home to 300 different plant species including six species of concern. The marsh began growing 2,500 years ago. During the 20th century, over 100 acres of the marsh was dredged away for mining of sand and gravel. Erosion and sea level rise pose additional threats. The USACE and NPS have been working on Dyke Marsh stabilization. Phase I is complete, and Phase II was scheduled to start summer 2022. Restoration and stabilization of marshes like Dyke Marsh not only provide critical habitat for a variety of wildlife, but also provide storm buffers, helping to reduce wave energy and prevent erosion. Additionally, our marshes act as natural filters to clean the waters of the Potomac River.

Goal AE.2 Restoration: Restore Damaged Areas Through Nature-Based and Natural Solutions

STRATEGY AE.2a Pursue Green Infrastructure Projects that Provide Climate Resilience Benefits

Strategy Description: "Green infrastructure" refers to systems that use a combination of ecologically-based and engineered solutions to support heat mitigation, water quality, stormwater management, and numerous other co-benefits. Green infrastructure can range from structural projects, such as bioretention ponds, bioswales, permeable pavements, and green roofs, to non-structural green infrastructure, such as tree conservation, floodable parks, and green spaces. Strategic implementation of green infrastructure projects can support the county's broader flood mitigation efforts through localized retention of stormwater, as well as providing localized cooling and other community benefits. The county has numerous initiatives, pilots, and policies that relate to the goals of green infrastructure. This strategy would expand upon existing efforts to support implementation of green infrastructure for resilience benefits. Departmental leads for specific green infrastructure (GI) projects may depend on the project type, as follows: DPWES: for GI within stormwater management projects, capital facilities, tree planting, invasive species management, and maintenance. FCDOT: for GI within transportation projects and plans. NVSWCD: Small-scale GI for residents and other private properties. DPD: For GI in plan review, code, and compliance.

Climate Hazards Addressed:

Lead:	FCDOT, DPWES, NVSWCD
Partners:	DPD, FCPA, FCPS, LDS, OEEC, UFMD
Timeline:	Medium-Term (2-5 years)
Cost:	$$$ ($500k - $1 million)
Existing Staff:	Partial

Implementation Actions:

i.	Identify areas that are: heat vulnerable, flood-prone, and/or areas where green infrastructure would provide additional community and resilience benefits. Model green infrastructure in identified areas to determine if the project will provide the assumed benefit(s).
ii.	(In progress) Integrate structural green infrastructure projects into county CIP process and support prioritization of green infrastructure projects in identified areas. Prioritize native and/or climate-resilient plants when feasible and effective.
iii.	Explore policies to support green infrastructure implementation, including but not limited to: incentive programs, de-paving programs, and limits on impervious surfaces.
iv.	Develop and promote guidance for small-scale green infrastructure projects, such as tree plantings or rain gardens, that can be implemented on-site by local businesses, commercial and industrial properties, and homeowners to support heat mitigation, local retention of stormwater, and other resilience benefits. Promote and expand awareness of existing green infrastructure programs, workshops, and assistance provided by entities such as NVSWCD.
v.	Support community greening programs to encourage reduction of impervious spaces and expansion of green spaces in communities, prioritizing native and/or climate-resilient plants when feasible and effective. Develop maintenance programs for green spaces. Engage with community groups, volunteers, and students.

Key Performance Indicators:

- Number of CIP projects with green infrastructure component (public projects, by type).
- Number of tree plantings and their survivorship.
- Total acreage of green space and green infrastructure in the county, sorted by type so as not to count the replacement of forested land with developments that have green infrastructure as a net positive.

Equitable Implementation:

- ✓ Consider how these green infrastructure projects affect surrounding neighborhoods and how residents, particularly low-income, can benefit and meaningfully participate in community greening projects.
- ✓ Include a maintenance program for green infrastructure installations to ensure proper drainage and that the amenity does not attract/collect litter or dumping, which can affect the values of surrounding properties.
- ✓ Assess interest in and engage those interested in green infrastructure and provide tools necessary to participate at an individual level.
- ✓ Include a community education component to involve stewards that can address continued use of green infrastructure installations.
- ✓ Set up programs that subsidize or provide incentives for residents to adopt rain capture practices to reduce localized flooding. Incorporate an educational component to promote neighborhood-wide adoption.

Funding and Resource Opportunities:

- BRIC
- HMGP
- Flood Mitigation Assistance Grant
- Virginia Community Flood Preparedness Fund
- Healthy Streets Program

Co-Benefits:

Case Study: Green Infrastructure

A study of social and economic benefits of green infrastructure (GI) in 12 cities across the United States as well as international cities, including Copenhagen, Adelaide, Toronto, and Tokyo, confirmed many of the co-benefits provided by GI beyond stormwater mitigation. The study found that GI helped to lower heat stress, heat stroke, and heat-related deaths. Through implementation of GI, the creation of new green spaces in communities improved community livability, providing recreation opportunities, encouraging walkability, and other outdoor activities. GI also supported air quality improvement through improved filtering of the air by vegetation and lower energy consumption in buildings with GI implementation. Many Fairfax County government buildings incorporate green infrastructure, such as the Public Safety Headquarters, which has a suite of green infrastructure including a vegetated roof, rain garden, and pervious pavement, among others.

ADDITIONAL STRATEGIES FOR GOAL AE.2

Strategy AE.2b	**Support Continued Stream Corridor Restoration** Continue and expand the county's stream corridor restoration opportunities, leveraging best available science and best practices in habitat restoration. Include inventories of existing habitat quality and design for ecological lift as part of the project selection and design process.
Strategy AE.2c	**Support Continued Urban Reforestation** Aid with Urban Heat Island effect and flooding impacts through urban reforestation projects, expanding upon existing initiatives by the Urban Forestry Management Division. Explore tree planting programs that plant, maintain, and replace loss of mature trees in residential neighborhoods, using the One Fairfax lens.
Strategy AE.2d	**Explore Living Shoreline Opportunities** Aid in coastal flooding risks through living shorelines projects. Pursue potential development of a Shoreline Management Plan, as a component of the Consolidated Natural Resources Management Plan (see Strategy AE.1a). Leverage existing living shorelines pilot projects for educational purposes.
Strategy AE.2e	**Restore Wetlands and Floodplains** Aid in reduction of flooding risk through wetland and floodplain restoration.
Strategy AE.2f	**Explore Regenerative Agriculture Opportunities** Engage local farmers, community gardeners, and food advocates, and aid in agricultural resilience to climate hazards.

Case Study: Living Shoreline

The Leesylvania State Park Living Shoreline Project was a collaborative effort between Prince William County, NVRC, the Virginia Department of Conservation and Recreation, Leesylvania State Park, Dominion Power, and the Virginia Institute of Marine Science. Completed in 2016, the project includes 800 linear feet of stabilized shorelines and 25,000 square feet of restored inter-tidal marsh and beach habitat. The project utilizes various living shoreline practices such as marsh restoration, beach enhancement, and rocky ledges to promote shoreline and habitat protection while maintaining recreational access. Living shorelines are a nature-based approach to address climate risk due to sea level rise.

What are nature-based solutions?

Nature based solutions are "actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits" (IUCN). Nature-based solutions can include ecosystem restoration (wetlands restoration), infrastructure related approaches (green infrastructure), ecosystem management approaches (water resources management), or ecosystem protection approaches (land conservation).

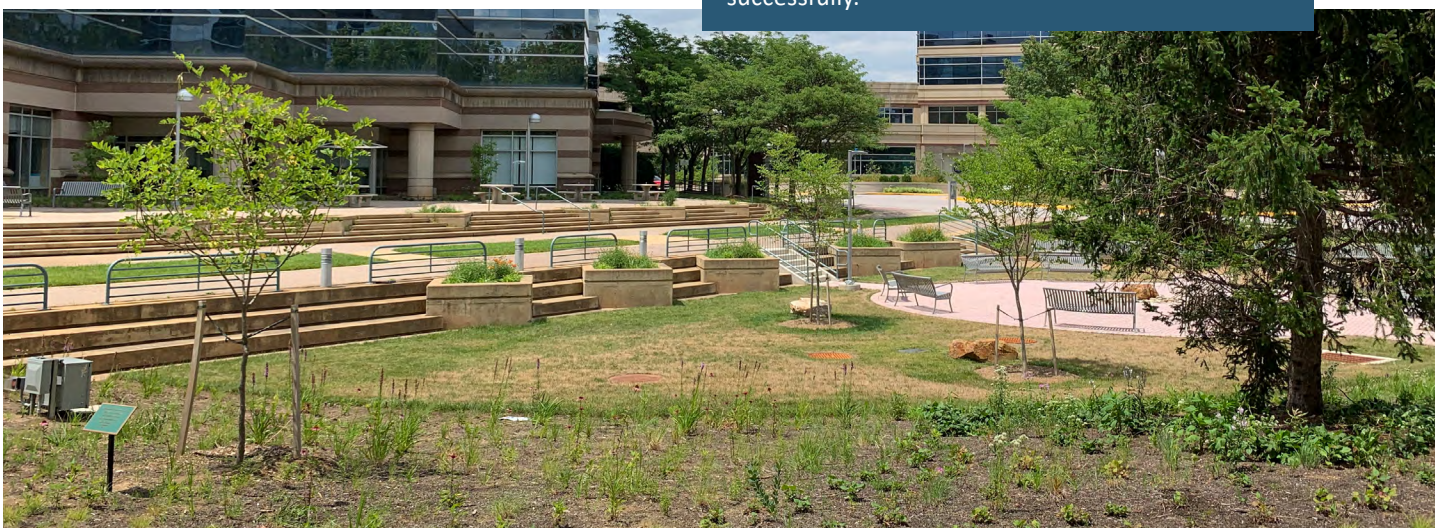
L. Moving Forward

The climate crisis poses real, costly, and serious threats to the county's residents, infrastructure, and services. Preparing for and adapting to climate change takes hard work, dedicated leadership, and meaningful engagement from community members and infrastructure partners. However, these conditions also create a valuable and exciting opportunity. When we enhance our climate resilience, we can also enhance our quality of life, financial sustainability, natural resource health, infrastructure durability, equitable access to services, and emergency preparedness. Despite the significant challenges ahead, Fairfax County is prepared to answer the call. By taking action now, the county reduces risk and minimizes costs in the long run. The adaptation and resilience goals outlined in this plan guide the county to become a stronger, more resilient, and climate-ready place to live for all its residents.

Broad-based dissemination of the plan throughout the community will bring awareness of the plan and a call for action. It is the intention of the county that Resilient Fairfax will continue as an ongoing program, with periodic updates, learning, engagement, and monitoring and evaluation of implementation. As the state of science advances, technologies mature, and successes and shortcomings are identified through Resilient Fairfax, the strategies may evolve to fit the emerging needs and best practices. The county looks forward to working alongside local, state and federal partners, community organizations and leaders, and residents, among other stakeholders to realize a Resilient Fairfax.

It takes a village!

The county will continue engaging and collaborating across its departments and agencies, community and infrastructure partners, and state and regional entities to ensure the goals are implemented successfully.



References

For a full list of the sources consulted in development of this plan, please see the accompanying technical reports:

- Climate Projections Report
- Vulnerability and Risk Assessment
- Audit of Existing Policies, Plans and Programs

Appendix A: Glossary

(Based on U.S. Climate Resilience Toolkit)

Adaptation: The process of adjusting to new (climate) conditions in order to reduce risks to valued assets.

Adaptive capacity: The ability of a person, asset, or system to adjust to a hazard, take advantage of new opportunities, or cope with change.

Assets: People, resources, ecosystems, infrastructure, and the services they provide. Assets are the tangible and intangible things people or communities value.

Climate Change: Changes in average weather conditions that persist over multiple decades or longer.

Climate Projections: Simulated response of the climate system to a scenario of future emissions derived from climate models.

Climate shock: A sudden condition or event that is high impact with a limited duration and that can increase vulnerability of a system.

Climate stressor: A condition, event, or trend related to climate variability and change that can exacerbate hazards.

Co-benefits: Positive secondary benefits in addition to climate risk mitigation provided by strategy implementation that improve overall resilience of Fairfax.

Consequence: A subsequent result (usually negative) that follows from damage to or loss of an asset. Quantifying potential consequences is an important part of determining risk.

Drought: Based on the meteorological drought, "drought" is the degree of dryness or rainfall deficit and the length of the dry period. Hydrologic drought is based on the impact of rainfall deficits on the water supply such as stream flow, reservoirs and lake levels, and ground water table.

Ecosystem services: Benefits that humans receive from natural systems, such as climate regulation, water purification, nutrient cycling, among others.

Equity: The commitment to promote fairness and justice in the formation of public policy that results in all residents – regardless of age, race, color, sex, sexual orientation, gender identity, religion, national origin, marital status, disability, socio-economic status or neighborhood of residence or other characteristics – having opportunity to fully participate in the region's economic vitality, contribute to its readiness for the future, and connect to its assets and resources.

Exposure: The presence of people, assets, and ecosystems in places where they could be adversely affected by hazards.

Flood Mitigation: Implementation of actions to reduce or eliminate long-term risk of flood-damage to buildings, other structures and infrastructure.

Greenhouse gases (GHGs): Gases that trap heat in the atmosphere, contributing to global warming and climate change. Common GHGs include carbon dioxide (CO2), methane (CH4), nitrous oxide (N20), and fluorinated gases.

Greenhouse gas reductions: Decreases in the emissions of heat-trapping greenhouse gases into the atmosphere.

Hazard: An event or condition that may cause injury, illness, harm, or death to people, unsafe conditions, damage to assets and systems, and/or impact on services.

Hazard Mitigation: Sustained action(s) taken to reduce or eliminate long-term risk to life and/or property from hazard event, and can occur before, during, or after a hazard event.

Impacts: Effects on natural and human systems that result from hazards. Evaluating potential impacts is a critical step in assessing vulnerability.

Implementation Partners: Implementation partners include other county departments as well as key public, private, and/or nonprofit organization that will support implementation and strategy success.

Implementation Actions: Specified set of activities developed to carry out a climate adaptation and resilience strategy.

Key Performance Indicators: Quantitative metrics that can help measure progress and success of strategy implementation.

Lead: County department that will oversee strategy implementation.

Mitigation: Processes that can reduce the amount and speed of future climate change by reducing emissions of heat-trapping gases or removing them from the atmosphere. See also Flood Mitigation and Hazard Mitigation.

Probability: The likelihood of hazard events occurring. Probabilities have traditionally been determined from the historic frequency of events. With changing climate and the introduction of non-climate stressors, the probability of hazard events also changes.

Projections: Potential future climate conditions calculated by computer-based models of the Earth system. Projections are based on sets of assumptions about the future (scenarios) that may or may not be realized.

Renewable energy: Energy generated from renewable, non-fossil fuel sources such as solar and wind.

Representative Concentration Pathways (RCPs): Scenarios that include time series of emissions and concentrations of the full suite of greenhouse gases, aerosols, and other chemical active gases, as well as land use/land cover. The word "representative" signifies that each RCP provides only one of many possible scenarios that would lead to the specific radiative forcing characteristics. The term "pathway" emphasizes that not only the long-term concentration levels are of interest, but also the trajectory taken over time to reach that outcome. Emissions scenarios are labeled as “RCP” followed by a number, such as RCP 2.5, RCP 4.5, RCP 6.0, and RCP 8.5. The numbers refer to the warming (in watts) per square meter across the planet by the end of century. For example, “RCP 8.5” means the emissions scenario where the concentration of carbon results in warming at an average of 8.5 watts per square meter over the planet in 2100.

Resilience: The capacity of a community, business, or natural environment to prevent, withstand, respond to, and recover from a disruption.

Risk: The potential for negative consequences where something of value is at stake. In the context of the assessment of climate impacts, the term risk is often used to refer to the potential for adverse consequences of a climate-related hazard. Risk can be assessed by multiplying the probability of a hazard by the magnitude of the negative consequence or loss.

Sea Level Rise: Increase in the average long-term global rise of the world’s sea level due to global warming.

Sensitivity: The degree to which a system, population, or resource is or might be affected by hazards.

Strategy: A broader set of actions or set of subsector work that can be modeled to understand GHG emissions reductions.

Strategy Description: Description of the strategy, including context for how it connects to existing county plans, policies, or programs, how the strategy addresses climate risk, and/or how the strategy improves Fairfax’s resilience.

Storm Surge: The sea height during storms such as hurricanes and tropical storms that is above the normal level expected at that time and place based on the tides alone.

Tropical Cyclones: Low pressure system (not associated with a front) that develops over tropical and sometimes sub-tropical waters and has organized deep convection with a closed wind circulation about a well-defined center. Tropical depression, tropical storms, and hurricanes are all examples of tropical cyclones.

Uncertainty: A state of incomplete knowledge. Uncertainty about future climate arises from the complexity of the climate system and the ability of models to represent it, as well as the inability to predict the decisions that society will make.

Urban Heat Island Effect (UHI): The tendency for higher air temperatures to persist in urban areas because of heat absorbed and emitted by buildings and asphalt, tending to make urbanized areas warmer than the areas with ample green space.

Vulnerability: The propensity or predisposition of assets to be adversely affected by hazards. Vulnerability encompasses exposure, sensitivity, potential impacts, and adaptive capacity.

Appendix B: Summary Table of How Strategies Address Top Risks

RESILIENT FAIRFAX STRATEGIES X TOP RISKS (AS IDENTIFIED BY THE VULNERABILITY RISK ASSESSMENT)

		Heavy Precipitation Causing Inland Flooding of Communities	Combined Stress on Natural Systems	Severe Storms and Wind Causing Vulnerabilities Due to Debris, Damage, and Unsafe Conditions	Severe Storms and Wind Causing Vulnerabilities due to Power Outages	Extreme Heat Causing Health Related Impacts	Coastal Flooding Impacts
Goal IAP.1 | General Planning: Integrate Climate Resilience into Countywide General Planning	Strategy IAP.1a | Inventory and Update the Comprehensive Plan to Enhance Resilience	X	X	X	X	X	X
Goal IAP.2 | Data Collection: Coordinate and Enhance Data Collection to Inform Resilient Fairfax Implementation	Strategy IAP.2a | Develop Resilience Metrics and a Tracking System for Ongoing Assessment of Community Resilience and Improvements	X	X	X	X	X	X
Goal IAP.3 | Funding: Obtain and Track Funding for Successful Resilient Fairfax Implementation	Strategy IAP.3a | Develop a County Climate Fund	X	X	X	X	X	X
	Strategy IAP.3b | Pursue Federal and State Funding Opportunities	X	X	X	X	X	X
Goal IAP.4 | Interagency Coordination: Enable Continued Interagency and Intergovernmental Collaboration on Climate Resilience	Strategy IAP.4a | Establish a Long-Term Interagency Collaboration System	X	X	X	X	X	X
Goal CRC.1 | Create Safe and Resilient Spaces for the Community	Strategy CRC.1a | Develop Adaptation Action Areas Where Resilience Action Is Prioritized	X	X	X	X	X	X
	Strategy CRC.1b | Pursue Development of a Network Of Resilience Hubs In Climate-Vulnerable Areas of the County	X		X	X	X	X
Goal CRC.2 | Build Community Capacity to Understand, be Ready for, Respond to, and Bounce Back from Climate Change Impacts	Strategy CRC.2a | Provide Community Aid and Engagement to Identify and Alleviate Resilience Needs	X		X	X	X	X
	Strategy CRC.2b | Launch a Climate Resilience Education and Guidance Program	X	X	X	X	X	X
Goal CRC.3| Integrate Climate Projections and Resilience Considerations into Development Regulations, Processes, and Retrofits	Strategy CRC.3a | Pursue and Implement a Flood-Risk Reduction Plan for the Fairfax County Community	X	X	X			X
	Strategy CRC.3b | Encourage Heat-Resilient Design, Development, Upgrades, and Practices					X	
	Strategy CRC.3c | Pursue Amendments to the Zoning Ordinance and other County Code Chapters to Enhance Community Resilience	X	X	X	X	X	X
Goal RIB.1 | County Infrastructure Decisions: Incorporate Climate Projections and Resilience into County Infrastructure Decisions	Strategy RIB.1a | Update Capital Improvement Program Process to Include Climate Resilience Considerations	X	X	X	X	X	X
	Strategy RIB.1b | Enhance Flood Resilience of County Government Buildings and Other Facilities	X					
Goal RIB.2 | Advocate for Infrastructure Resilience Outside of County Control	Strategy RIB.2a | Advocate and Partner for Energy Resilience				X	X	
Goal AE.1 | Protection: Protect Natural Resources That Enhance Resilience	Strategy AE1.a | Develop a Consolidated Natural Resources Management Plan	X	X			X	X
	Strategy AE1.b | Survey and Protect Areas that Provide Natural Resilience Benefits		X			X	X
Goal AE.2| Restoration: Restore Damaged Areas Through Nature-Based and Natural Solutions	Strategy AE.2a | Pursue Green Infrastructure Projects that Provide Climate Resilience Benefits	X	X			X	X