



FAIRFAX COUNTY

Proposed Plan for Board Adoption

STAFF REPORT

Resilient Fairfax *Climate Adaptation and Resilience Plan*

Hearing Dates

Board of Supervisors Environmental Committee: October 4, 2022

Board of Supervisors: November 1, 2022

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BACKGROUND

Objective

This staff report summarizes the Resilient Fairfax: Climate Adaptation and Resilience Plan (“Resilient Fairfax plan”) purpose, process, and action requested of the Board of Supervisors. **The Resilient Fairfax plan itself can be found attached to this staff report.**

Climate Change and Climate Planning in Fairfax County

“Climate,” by definition, refers to weather trends averaged over 20 years or more. For the majority of Fairfax County history, our local climate has been relatively stable and predictable. However, in recent decades, there has been a measurable, accelerating shift in our climatic patterns. This shift in climate makes extreme weather events, such as extreme heat, severe storms, and flood-inducing precipitation more common and more likely. The change in climatic patterns on a global scale has been fed by decades of increasing concentrations of “greenhouse gases” (GHGs) such as Carbon Dioxide (CO₂), Methane (CH₄), Nitrous oxide (N₂O) in the planet’s atmosphere. These GHGs trap heat in our atmosphere that would normally be released, altering global climatic patterns of temperature and moisture.

Fairfax County is doing its part to address both the *cause* and *effects* of climate change. Numerous existing plans and programs focus on the *cause* side, ensuring that the county is doing its part in the global effort to reduce greenhouse gases. These emissions reduction efforts include the [Community-wide Energy and Climate Action Plan \(CECAP\)](#), the [Operational Energy Strategy \(OES\)](#), the [Carbon Neutral Counties Declaration](#), Carbon which Free Fairfax engagement efforts, HomeWise, Energy Action Fairfax, and others.

Resilient Fairfax, in contrast, focuses on adapting to the *effects* of climate change. This plan guides the county in becoming more resilient to the shift in climate hazards that we are experiencing locally, such as increasingly heavy precipitation, extreme heat, and severe storms.

Origins of Resilient Fairfax






- **In June 2017**, the Fairfax County Board of Supervisors (BOS) released an updated [Environmental Vision](#), which newly included the planning of adaptation and resilience strategies to prepare for climate impacts.
- **In November 2018**, the Environmental Quality Advisory Council (EQAC) 2018 Annual Report on the Environment included a recommendation that the BOS “direct the development and implementation of a climate adaptation/resilience plan, which would help to minimize the impacts of climate change.
- **In February 2019**, the BOS unanimously adopted the [Fairfax Green Initiatives Board Matter](#), which was composed of 19 action items. These action items included a direction to the Environmental Committee of the Board of Supervisors to discuss and consider “identification of a timeline for developing a county-specific Climate Resiliency and Adaptation Plan.”
- **In June 2020**, the Office of Environmental and Energy Coordination (OEEC) presented to the BOS Environmental Committee the need for funding and ability to use an existing Metropolitan Washington Council of Governments (MWCOC) contract for the development of the plan.
- **In September 2020**, the BOS allocated funding from FY 2020 Carryover funds for contractual services. OEEC then completed the consultant procurement, review, and solicitation process.
- **Between February 2021 to October 2022**, the Resilient Fairfax plan and all associated technical analyses were completed.

SUMMARY OF PROCESS AND PLAN

Resilient Fairfax Major Deliverables

The Resilient Fairfax planning process included five major components, summarized in the table below:

Table 1: Resilient Fairfax Major Deliverables

	Component	Questions Answered	What is Included
	1. Climate Projections Report	<p>What climatic conditions and hazards do we face now and in the future?</p> <p>Which projected conditions are most severe for Fairfax County specifically?</p>	<ul style="list-style-type: none"> • Projections of six climate hazards <ul style="list-style-type: none"> ○ Heat ○ Cold ○ Precipitation ○ Drought ○ Storms ○ Coastal flooding (Potomac) • 4 time periods • 2 Representative Concentration Pathway (RCP) scenarios
	2. Vulnerability and Risk Assessment	<p>How are our services, infrastructure, populations, and natural resources vulnerable to increasing climate hazards? What are our top vulnerabilities?</p>	<ul style="list-style-type: none"> • 21 sub-sectors evaluated for: <ul style="list-style-type: none"> ○ Exposure ○ Sensitivity ○ Adaptive Capacity • Top vulnerabilities evaluated for: <ul style="list-style-type: none"> ○ Likelihood ○ Severity of Consequence
	3. Audit of Existing Policies, Plans, and Programs	<p>How is the County currently doing in terms of resilience?</p>	<ul style="list-style-type: none"> • 100+ policies, plans, and programs • 50 questions • 8 categories
	4. Strategies for Adaptation and Resilience (available in plan)	<p>What strategies will strengthen our resilience?</p>	<ul style="list-style-type: none"> • 4 strategy pillars • 18 priority strategies • 30 additional strategies
	5. Implementation Roadmap (available in plan)	<p>What is the path to implementation?</p>	<ul style="list-style-type: none"> • Detailed implementation roadmaps for all priority strategies.

Additional Resources:

1. [NASA DEVELOP Urban Heat Island Report for Fairfax County](#)
2. [Interactive Climate Map for Fairfax County](#)

Resilient Fairfax Planning Process

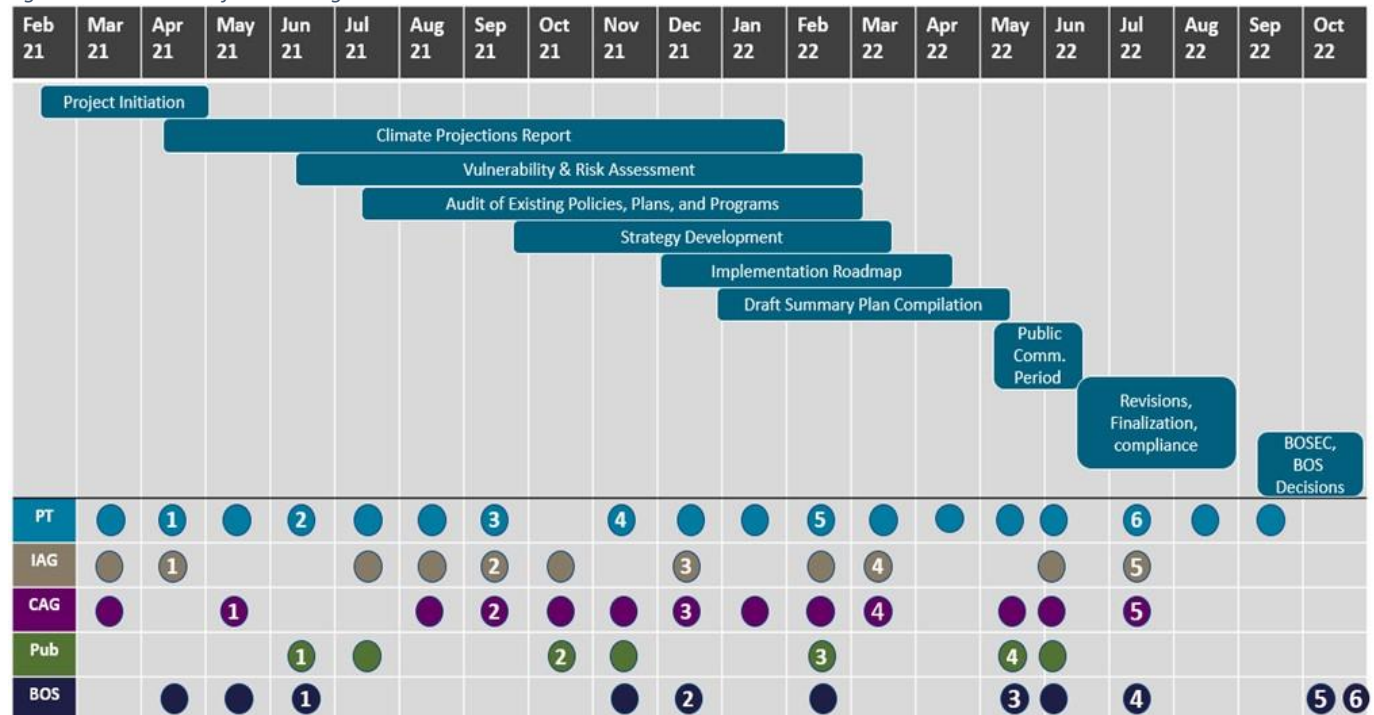
Resilient Fairfax was led by the Office of Environmental and Energy Coordination (OEEC) and a team of consultants. The process was supported by over 100 advisors in three advisory groups who reviewed deliverables and provided feedback at each milestone. (See Table 2).

In addition to the advisory groups, the Resilient Fairfax planning process involved regular engagement of the general public, community groups, neighboring jurisdictions, the Board of Supervisors, numerous Boards, Authorities, and Commissions (BACs), regional entities, and numerous relevant workgroups of related initiatives. In total, over **800 individuals** participated in the planning process.

Table 2: Resilient Fairfax Advisory Group Members

Advisory Group	Description	Entities involved	Number
Project Lead	Project leaders	OEEC and consultants	N/A
Planning Team (PT)	County departments and agencies	DEMS, DFS, DPD, DPSC, DPWES, DPWES-UFMD, DVS, FCDOT, FCHD, FCPA, FCPS, FMD, GIS, HCD, HHS, LDS, NCS, NVSWCD, OEEC, One Fairfax	20 entities 40 individuals
Infrastructure Advisory Group (IAG)	Utilities, authorities, and infrastructure managers at the local, regional, state, and federal levels	Columbia Gas, Cox, DEMS, Dominion, DPWES, Fairfax Water, ESI, FCPS, FEMA, MWCOG, NAIOP, NOVEC, NVBIA, NVRC, NVTA, OEEC, RUCA, TAC, USDOD, VDCR, VDEM, VDEQ, VDOT, Verizon, Washington Gas, WMATA, WTS	27 entities 44 individuals
Community Advisory Group (CAG)	Representatives of each Supervisor District, advocacy organizations, non-profits, community groups	Braddock, Dranesville, Hunter Mill, Lee, Mason, Mount Vernon, Providence, Springfield, Sully, 350, Chamber, Cornerstones, EcoLatinos, EQAC, FACS, FCA, GMU, League of Women Voters, Multicultural Advisory Council, NAACP, NVSWCD, Resilient VA, Reston Association, Sierra Club, Small Business Commission, Tysons	26 entities 33 individuals

Figure 1: Resilient Fairfax Planning Process Timeline



The Resilient Fairfax Planning process began in February 2021 and was completed in October 2022. The plan was accomplished on a shorter than average timeline with an above-average level of detail. This accelerated

schedule was achieved by combining the five major deliverables that are customarily conducted as separate, sequential processes (1. The Climate Projections Report, 2. Vulnerability and Risk Assessment, 3. Audit, 4. Strategies, and 5. Implementation Roadmap) into one Resilient Fairfax planning process. The top half of Figure 1 provides an overview of the planning process timeline and major deliverables. The bottom half of Figure 1 illustrates the regular engagement of the Planning Team (PT), Infrastructure Advisory Group (IAG), Community Advisory Group (CAG), the general public, and the Board of Supervisors that occurred throughout the planning process. The numbered dots represent formal, full-group meetings. The plain dots represent months where multiple sub-group meetings occurred. In addition to the meetings represented in the graphic below, the Resilient Fairfax process involved regular meetings with and presentations to other community groups and entities. In total, **over 215 engagement meetings were held.**

What is in the Resilient Fairfax Plan

The Resilient Fairfax plan includes three major sections. The first major section covers background information, including an introduction and an overview of the planning process, stakeholder engagement, and equity considerations. The second major section summarizes the three major technical analyses: the Climate Projections Report, the Vulnerability and Risk Assessment, and the Audit of Existing Policies, Plans, and Programs. The full versions of each of the technical reports are available on the OEEC website and as appendices to the plan. The third and final section describes the strategies that Fairfax County will use to enhance our resilience, and how those strategies will be implemented.



Summary of Resilient Fairfax Strategies

The Resilient Fairfax plan (attached to this Staff Report) details 48 strategies to enhance the county’s resilience to climate hazards. Of these strategies, 18 are identified as “priority” and 30 are identified as “additional” strategies. Each prioritized strategy (bolded in the list below) has a detailed Implementation Roadmap in the Resilient Fairfax plan to facilitate implementation. The strategies are organized into four pillars: Integrated Action Planning (IAP), Climate Ready Communities (CRC), Resilient Infrastructure and Buildings (RIB), and Adaptive Environments (AE). The pillars are equally important; they are not listed in order of value.

Summary of Strategies - Integrated Action Planning (IAP) Pillar

The Integrated Action Planning (IAP) pillar provides the foundation for long-term success in resilience implementation, through plan alignment, data, funding, and strong interagency coordination. **For more detail, please see the Resilient Fairfax plan.**

GOALS	STRATEGIES
<p><u>IAP.1</u> General Plans: Integrate Climate Resilience into Countywide General Planning</p>	<ul style="list-style-type: none"> ● IAP.1a Inventory and Update the Comprehensive Plan to Enhance Climate Resilience ● 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
<p><u>IAP.2</u> Data: Coordinate and Enhance Data Collection to Inform Resilient Fairfax Implementation</p>	<ul style="list-style-type: none"> ● IAP.2a Develop Resilience Metrics and a Tracking System for Ongoing Assessment of Community Resilience Improvements ● IAP.2b Support Climate Research and Data Collection ● IAP.2c Create Consolidated Database of Flood-Prone Areas ● IAP.2d Continue Collection of Rainfall Data ● IAP.2e Create Database to Track Hazard Mitigation Actions ● IAP.2f Continue Collection of Tree Canopy Data ● IAP.2g Support Updates to LiDAR data ● IAP.2h Collect Climate Change and Vector-Borne Disease Data
<p><u>IAP.3</u> Funding: Obtain and Track Funding for Successful Resilient Fairfax Implementation</p>	<ul style="list-style-type: none"> ● IAP.3a Develop a County Climate Fund ● IAP.3b Pursue Federal and State Funding Opportunities for Resilience ● IAP.3c Identify Funding for Long-Term Data Collection ● IAP.3d Identify Additional Funding Opportunities Including Regional Coordination, Public-Private Partnerships, and Cost Share Programs to Support Resilience
<p><u>IAP.4</u> Interagency Coordination: Enable Continued Coordination on Climate Resilience</p>	<ul style="list-style-type: none"> ● IAP.4a Establish a Long-Term Interagency Collaboration System for Resilience ● IAP.4b Build Interagency County Staff Capacity to Lead on Climate Resilience Planning and Implementation

Summary of Strategies - Climate Ready Communities (CRC) Pillar

The Climate Ready Communities pillar includes promotion and expansion of county services and aid, public education and outreach, and updates to our county codes to encourage more climate-ready development. **For more detail, please see the Resilient Fairfax plan.**

GOALS	STRATEGIES
<p><u>CRC.1</u> Safe and Resilient Spaces: Create Safe and Resilient Spaces for the Community</p>	<ul style="list-style-type: none"> • 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 • CRC.1c Expanded Tree Plantings • CRC.1d Enhance Commercial Property Assured Clean Energy (C-PACE) Program Outreach and Technical Assistance
<p><u>CRC.2</u> Community Capacity: Build Community Capacity to Understand, Be Ready for, Respond to, and Bounce Back from Climate Change Impacts</p>	<ul style="list-style-type: none"> • CRC.2a Provide Community Aid and Services to Alleviate Resilience Needs • CRC.2b Launch a Climate Education and Guidance Program • CRC.2c Support Resilience-Related Workforce Development • CRC.2d Expand Heat Warning System
<p><u>CRC.3</u> Climate-Ready Development: Integrate Climate Hazard and Resilience Considerations into Development Regulations, Processes, and Retrofits</p>	<ul style="list-style-type: none"> • 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 • CRC.3d Update the Public Facilities Manual for Resilience

Summary of Strategies - Resilient Infrastructure and Buildings (RIB)

The Resilient Infrastructure and Buildings (RIB) pillar includes both fortification of internal infrastructure that is within county control and advocacy for external infrastructure resiliency, such as electricity grid reliability. **For more detail, please see the Resilient Fairfax plan.**

GOALS	STRATEGIES
<p><u>RIB.1</u> County Facilities: Resilient County Government Buildings and Infrastructure</p>	<ul style="list-style-type: none"> • RIB.1a Update the Capital Improvement Program Process to Include Climate Resilience Considerations • RIB.1b Enhance Flood Resilience of County Buildings and Other Facilities • 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
<p><u>RIB.2</u> External Infrastructure: Advocate for Infrastructure Resilience Outside of County Control</p>	<ul style="list-style-type: none"> • RIB.2a Advocate and Partner for Energy Resilience • RIB.2b Advocate for Resilience Upgrades to the Building Code • RIB.2c Advocate and Partner with Transportation Agencies to Support Transportation Resilience

Summary of Strategies - Adaptive Environments (AE)

The Adaptive Environments (AE) pillar includes protection and restoration of our environmental resources that naturally provide climate resilience. For example, healthy wetlands and green space help to absorb flooding and storm surges. Healthy trees reduce the Urban Heat Island effect. **For detail, see the Resilient Fairfax plan.**

GOALS	STRATEGIES
<p><u>AE.1:</u> Protection: Protect Natural Resources that Enhance Resilience</p>	<ul style="list-style-type: none"> • AE.1a Develop a Consolidated Natural Resources Management Plan • AE.1b Survey and Protect Areas that Provide Natural Resilience Benefits • AE.1c Update Provisions for Conservation Easements • AE.1d Integrate Climate Change Considerations into Urban Forestry Program
<p><u>AE.2:</u> Restoration: Restore Damaged Areas Through Nature-Based and Natural Solutions</p>	<ul style="list-style-type: none"> • AE.2a Pursue Green Infrastructure Projects that Provide Climate Resilience • 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

RECOMMENDED ACTION

The County Executive recommends that the Board of Supervisors (BOS) adopt the *Resilient Fairfax: Climate Adaptation and Resilience Plan* at the November 1, 2022 BOS meeting. In addition to this staff report for the Board of Supervisors Environmental Committee (BOSEC), a Board Action Item document will be provided.

ATTACHMENTS

1. *Resilient Fairfax Plan*
2. *Technical Reports*
 - a. [Climate Projections Report \(Linked\)](#)
 - b. [Vulnerability and Risk Assessment \(Linked\)](#)
 - c. [Audit of Existing Policies, Plans, and Programs \(Linked\)](#)