



Resilient Fairfax

Presentation of Final Plan to the Board of Supervisors Environmental Committee

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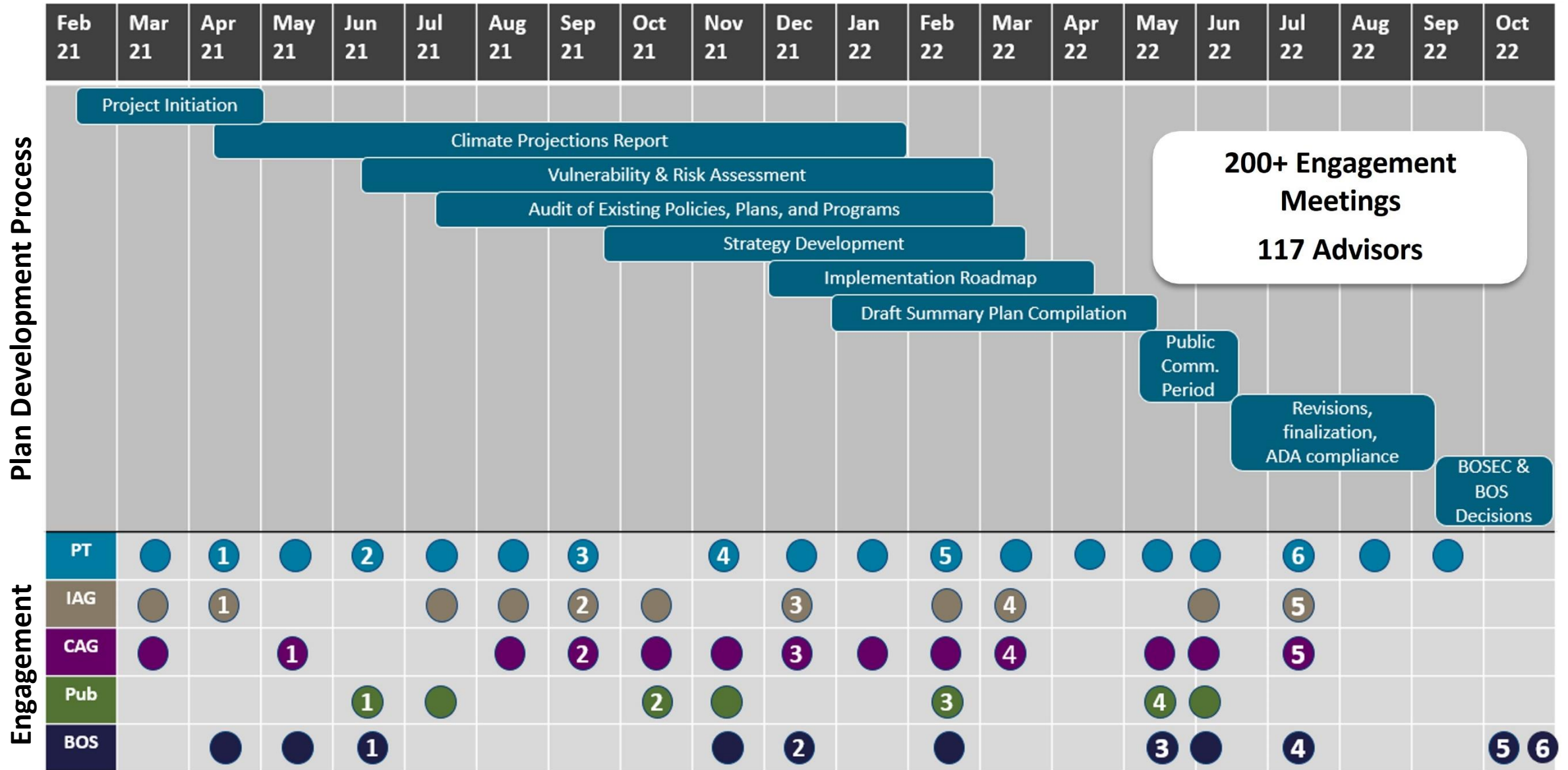
October 4, 2022

Resilient Fairfax: Purpose

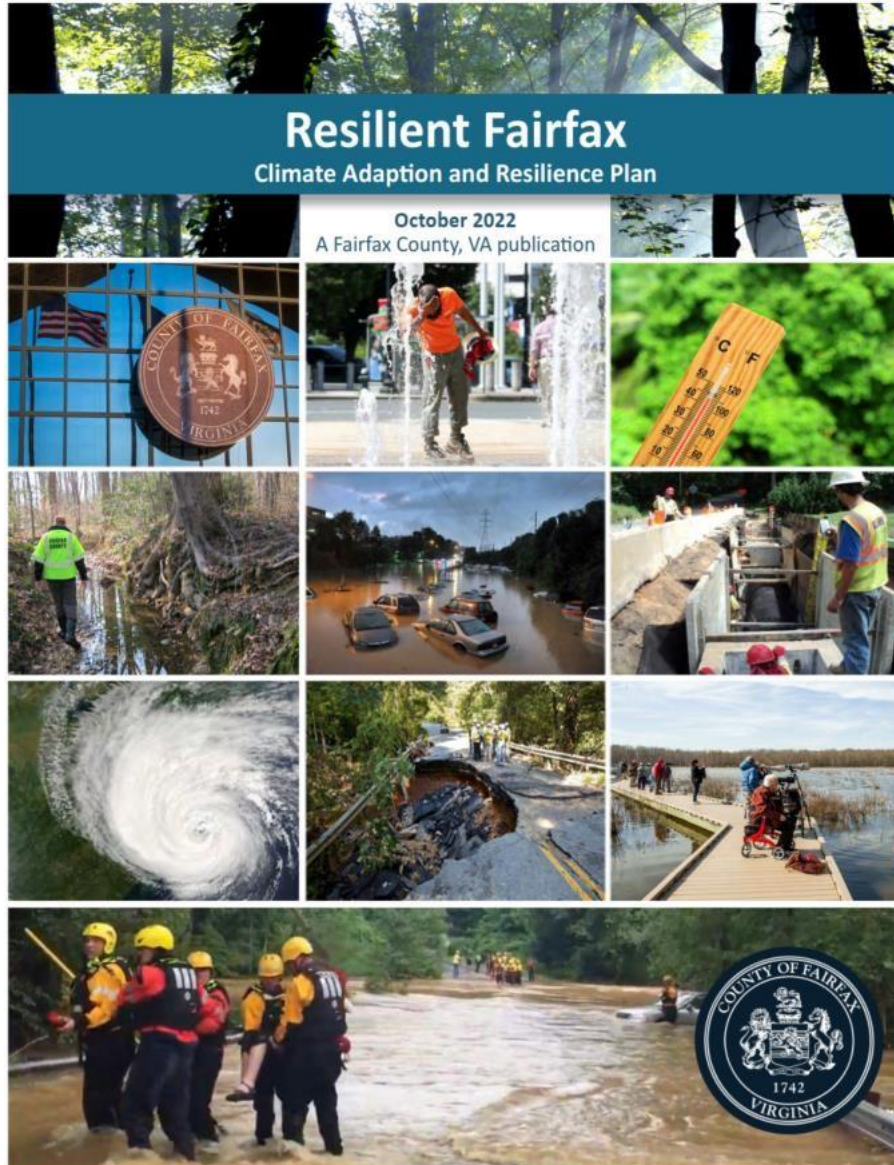
- ✓ Climate effects such as increasingly severe storms, flooding, and extreme heat
- ✓ Adaptation and resilience to changing conditions
- ✓ Financially wise resiliency in lieu of repeated repairs
- ✓ Protection of health, safety, welfare
- ✓ Stronger infrastructure, property, and assets
- ✓ Protection & restoration of natural resources
- ✓ Long-term planning of public services and aid
- ✓ Fulfillment of items within:
 - [Environmental Vision](#)
 - [Fairfax Green Initiatives Board Matter](#)
 - [Countywide Strategic Plan](#)
 - EQAC Annual Report on the Environment



Resilient Fairfax Planning Process Timeline



What is in the Resilient Fairfax Plan?



- Introduction
- Resilient Fairfax Development Process
- Stakeholder Engagement
- Equity in Climate Resilience
- Climate Projections: Warmer, Wetter, Weirder
- Vulnerabilities & Risks
- Audit of Existing Policies, Plans, and Programs
- Strategies and Implementation Roadmaps
- Moving Forward

Background
on the Plan
and Process

Summaries
of Technical
Analyses

How we will
enhance our
resilience

Resilient Fairfax Strategy Pillars

Integrated Action Planning 	Climate Ready Communities 	Resilient Infrastructure & Buildings 	Adaptive Environments 
			
<ul style="list-style-type: none"> • Resilience into county plans and policies • Resilience data collection • Resilience funding • Continued interagency coordination 	<ul style="list-style-type: none"> • Network of safe & resilient spaces • Community capacity to prepare for, withstand, and recover from events • Climate-ready development 	<ul style="list-style-type: none"> • Resilience in major county infrastructure decisions • County building & facility resiliency • Advocacy for external infrastructure resiliency, i.e., energy grid & transit 	<ul style="list-style-type: none"> • Protection of natural resources that enhance resilience • Restoration of damaged areas with nature-based and natural solutions

Pillars, Goals and 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.

Implementation Roadmaps for Each Prioritized

- ✓ Action Steps
- ✓ Leads
- ✓ Partners
- ✓ Timeline
- ✓ Cost
- ✓ KPIs
- ✓ Equity
- ✓ Co-benefits

Resilient Infrastructure and Buildings Implementation Roadmaps

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.

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. It provides the framework for the investment in and planning of capital projects. This strategy promotes revising the CIP evaluation and project prioritization process to integrate climate resilience into capital projects and to consider impacts and consequences from projected extreme heat, heavy precipitation, coastal flooding, severe storms, and other climatic conditions into infrastructure planning and development. These climate hazards can impact function, maintenance costs, and lifespan. Integration of climate projections and resilience enhancements into the county's CIP will ensure continued provision of critical county services that protect public health and safety and that capital investments provide their intended function and benefit over their lifespan.

Climate Hazards Addressed:



Lead:	DMB, DPWES, OECC
Partners:	DEMS, FCDOT, DPWES, UFMD, FCPA, OCA, One Fairfax, UFMD
Timeline:	Medium-Term (2-5 years)
Cost:	\$\$\$ (\$500k - 1 million)



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 resiliency 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.

Resilient Fairfax: Climate Adaptation & Resilience Plan



Key Performance Indicators:

Outcome: Updated CIP process.

- Number (#) of CIP projects identified on project list for resilience
- Board approval of CIP process updates

Equitable Implementation:

- ✓ Consider how to factor needs of disadvantaged communities into Capital Improvement Program process.
- ✓ Identify how the county can monitor the effects of proposed projects on disadvantaged 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.

How to Equitably Implement:

- ✓ Ensure distribution of projects to areas most impacted by climate change and serving vulnerable communities.
- ✓ Build in method to identify and highlight proposed projects that disproportionately impact vulnerable communities and prioritize these projects.

Funding Opportunities:

- BRIC
- Hazard Mitigation Grant Program (HMGP)

Co-Benefits:



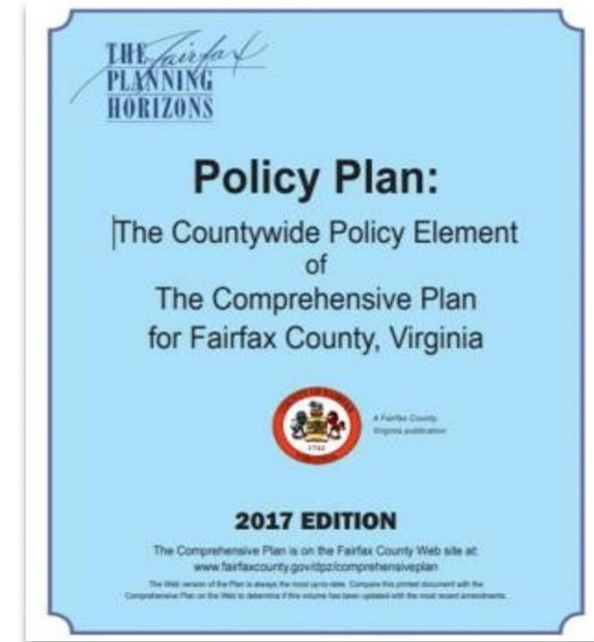
Case Study: VDOT Design Standards Consider Climate Change and Coastal Storms

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 adaptive to climate change.

Strategy IAP.1a: Comprehensive Plan Updates for Resilience

Potential sub-topic areas for amendments:

- Urban Heat Island effect
- Flood-prone areas (both urban and floodplain)
- Public service facility resilience
- Protections of natural resources that reduce impacts of climate hazards: e.g., wetlands, floodplains, shorelines, RPAs, EQCs, trees
- Impervious cover
- Green infrastructure



\$ Funding and Resource Opportunities:

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

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 Roadmap written through **interagency coordination**
- ✓ Coordination with upcoming update of **Environmental Policy Plan**
- ✓ Planned **alignment** of numerous related environmental amendments

Strategy CRC.2a: Community Aid and Services to Alleviate Resilience Needs

Promote, Facilitate Access to, Streamline, and Expand (where needed) Existing Services

- Flooding service requests (DPWES, NVSWCD)
- Emergency response, preparedness, places to stay cool (DEMS)
- Air conditioning assistance during extreme heat (DFS)
- Aid for especially exposed populations, such as those experiencing homelessness (DHCD, OPEH)
- Health and human services that enhance population resilience (CSB, FCHD, NCS, FCPS, One Fairfax)



Funding and Resource Opportunities:

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

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)

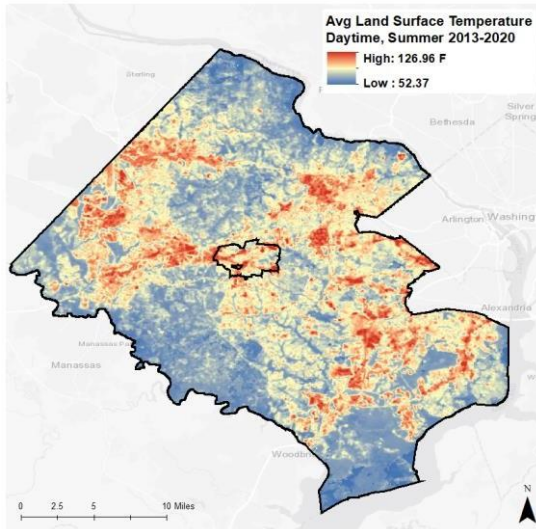
Existing Staff:

Partial

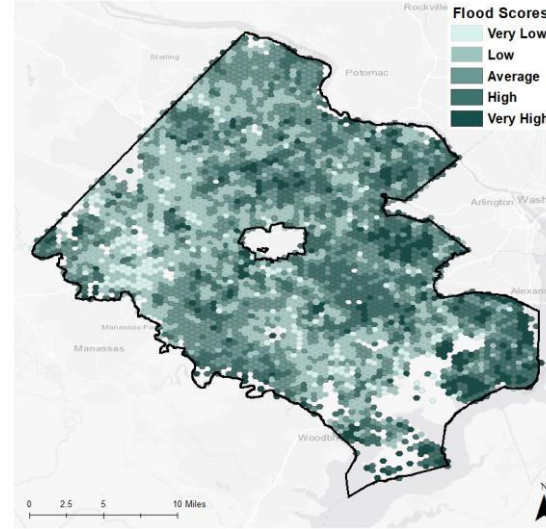
- ✓ Interagency collaboration
- ✓ Use of Inclusive Community Engagement Framework (ICEF)
- ✓ Prioritization of underserved
- ✓ Creation of an easy-to-understand guide for all relevant services: “If you need help with __, here is who to contact.”

Strategy CRC.1a: Adaptation Action Areas (AAAs) Where Resilience is

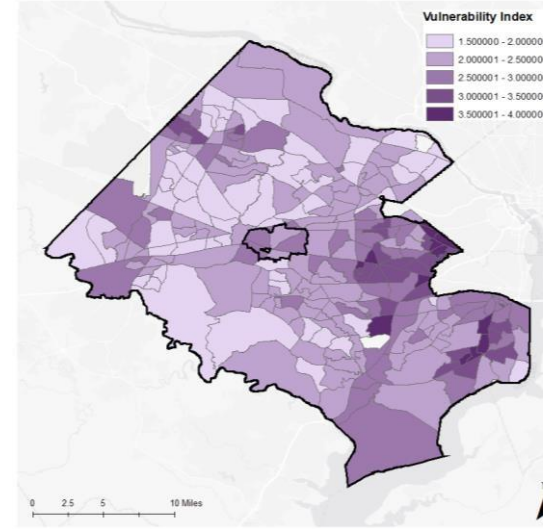
Heat-Vulnerable



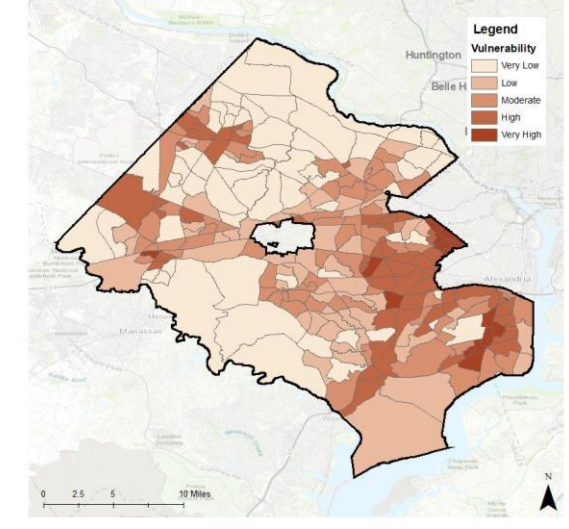
Flood-Vulnerable



One Fairfax



Potential* AAAs



Funding and Resource Opportunities:

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

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

*DRAFT Map subject to change during formal implementation process

How Other Jurisdictions Have Implemented AAAs:

- AAAs as a Zoning Overlay
- AAAs to prioritize resilience CIP projects
- AAAs to prioritize resilience public services
- AAAs for resilience incentives
- AAAs to guide resilience funding distribution

Strategy RIB.1a: Update Capital Improvement Program (CIP) Prioritization to Include Resilience

Two Major Purposes

1. **Ensure that infrastructure and facilities built today can withstand new climatic conditions, for durability.**
 - I.e., ensure roads, facilities, SWM pipes in CIP are using updated design standards and/or updated data.
2. **Ensure that critical stand-alone resilience projects are prioritized.**
 - E.g., flood risk reduction projects in most flooded neighborhoods



Funding and Resource Opportunities:

- BRIC
- Hazard Mitigation Grant Program (HMGP)

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

- ✓ Alignment with other strategies, such as CRC.3a (Flood Risk Reduction Plan), CRC.3c (Amendments to County Code)
- ✓ Interagency team currently working to update stormwater design standards

Strategy AE.2a: Green Infrastructure Projects with Resilience Benefits

- In right context, GI can support stormwater management & Urban Heat Island reduction
- Modeling first to demonstrate the assumed benefit
- **DPWES:** GI within stormwater projects
- **FCDOT:** GI within transportation projects and plans
- **NVSWCD:** Small-scale GI for residents, private properties
- **DPD:** GI in plan review



\$ Funding and Resource Opportunities:

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

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

- ✓ Guidance for businesses, homeowners, HOAs
- ✓ Workshops & promotion of existing GI programs
- ✓ Integration of GI into CIP projects where appropriate
- ✓ Prioritization of native or climate-resilient plants

Resilient Fairfax

Climate Adaption and Resilience Plan

October 2022

A Fairfax County, VA publication



Requested BOS Action:

The County Executive recommends that the Board of Supervisors adopt the Final Resilient Fairfax Plan during the November 1, 2022 BOS Meeting.

Resources

- **Resilient Fairfax Final Plan** (in BOSEC materials)
- Longer technical reports that provide additional detail
 - [Climate Projections Report](#)
 - [Climate Vulnerability and Risk Assessment](#)
 - [Audit of Existing Policies, Plans, and Programs](#)
 - [NASA Develop Report on Urban Heat Island in Fairfax County](#)
- [Interactive Climate Map Viewer](#)