

Resilient Fairfax

Climate Adaption and Resilience Plan

May 2022



NOTE: This document is a draft of the Resilient Fairfax Plan for the purposes of public comment. It is a work in progress and will be revised based on feedback collected. Please do not cite or quote.



A Fairfax County, VA
publication

Resilient Fairfax

*Climate Adaptation and
Resilience Plan*

Update to MWCOG CEEPC

July 27, 2022

Background: Climate Plans for Fairfax County



CECAP: Community-Wide Climate & Energy Action Plan

“Cause:” Reducing emissions that globally contribute to climate change

- Ex: Transition to renewable energy, energy efficiency, waste reduction, alternative transportation
- Community-oriented plan, because 95% of emissions are from the community
- Accepted by BOS in September 2021

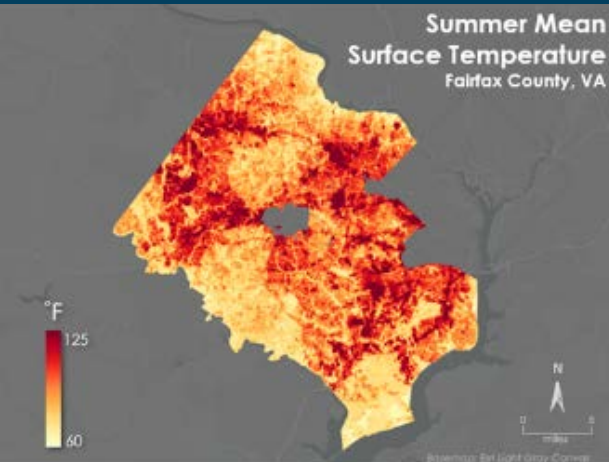


Resilient Fairfax

“Effects:” Adaptation & resilience to long-term change in climate hazards

- Ex: Resilience to flooding, extreme temperatures, severe storms and wind
- BOS direction, led by government, infrastructure partners, interagency effort
- Feb 2021 – Oct 2022 planning process

Resilient Fairfax: Planning Process



1. What climatic conditions and hazards do we face now? In the future?

- [Climate Projections Report](#)

2. How is our county vulnerable to climate hazards?

- [Climate Vulnerability and Risk Assessment](#)

3. How are we currently doing in terms of resilience?

- [Audit of Existing Policies, Plans, and Programs](#)

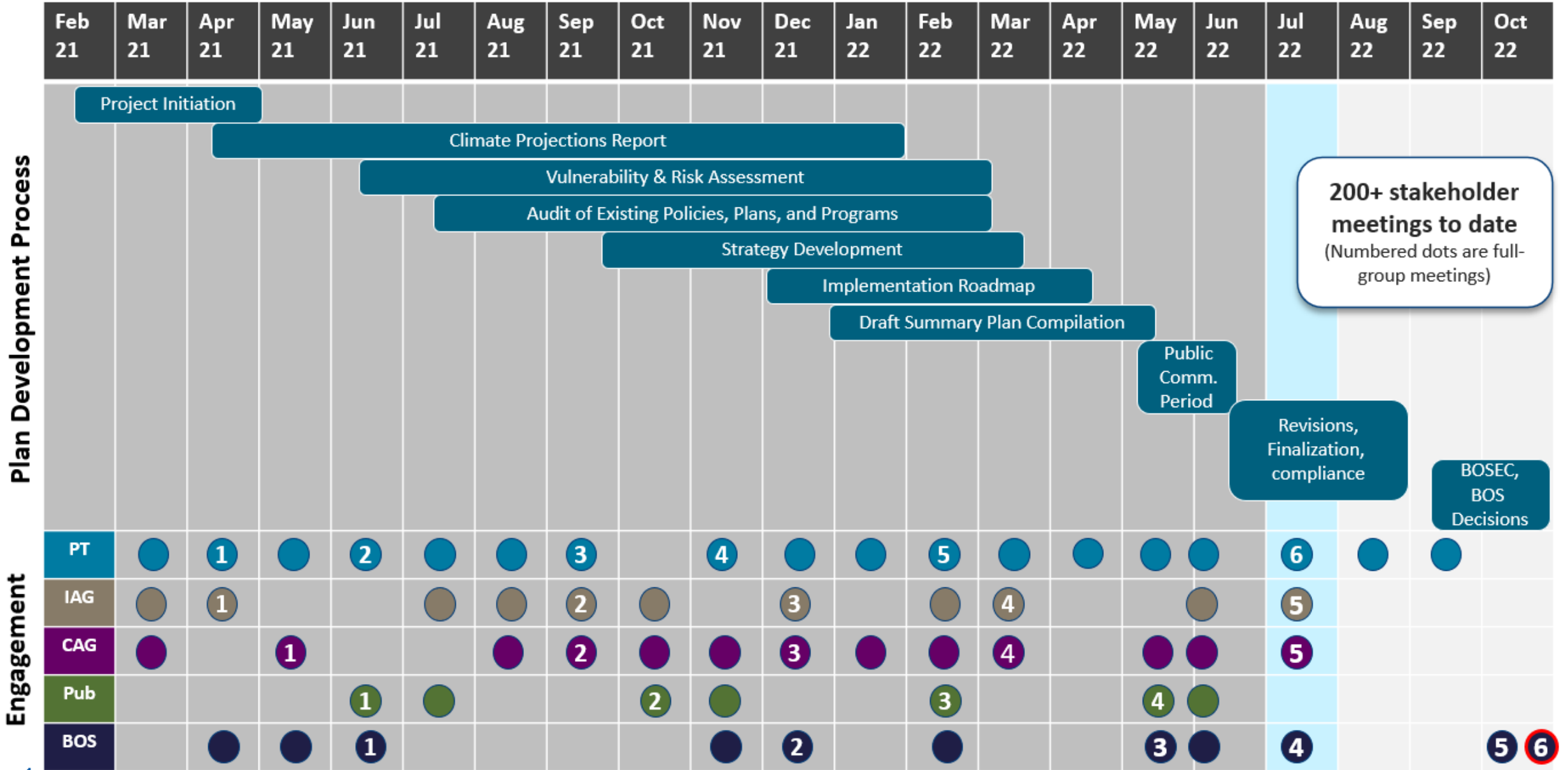
4. Which strategies will strengthen our resilience?

- [Adaptation and Resilience Strategies \(available in full plan\)](#)




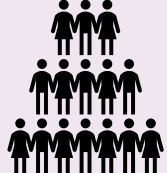
5. What is the path to implementation?

- [Implementation Roadmap \(available in full plan\)](#)

Resilient Fairfax Planning Timeline

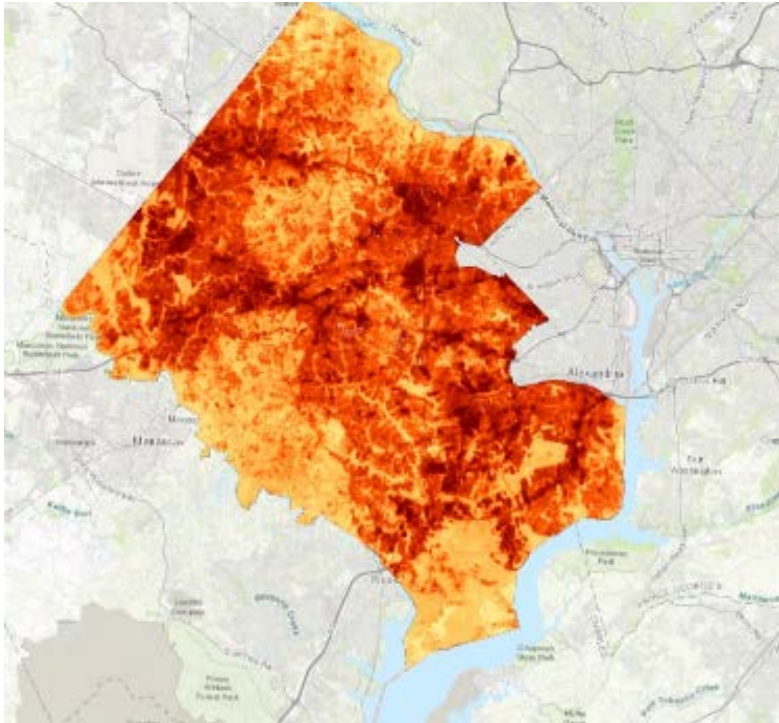


Resilient Fairfax Key Players

Project Lead		Office of Environmental and Energy Coordination (OEEC) Staff	OEEC	
Consultants	CADMUS	Consultant Team	Cadmus, WSP, NspireGreen	
Planning Team (PT)		County departments and agencies	DEMS, DFS, DPD, DPSC, DHCD, DPWES, DVS, FCDOT, FCHD, FCPA, FCPS, FMD, GIS, HHS, LDS, NCS, NVSWCD, OEEC, One Fairfax, UFMD	20 entities 40 reps
Infrastructure Advisory Group (IAG)		Utilities, authorities, 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 reps
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 reps
				73 entities 117 reps

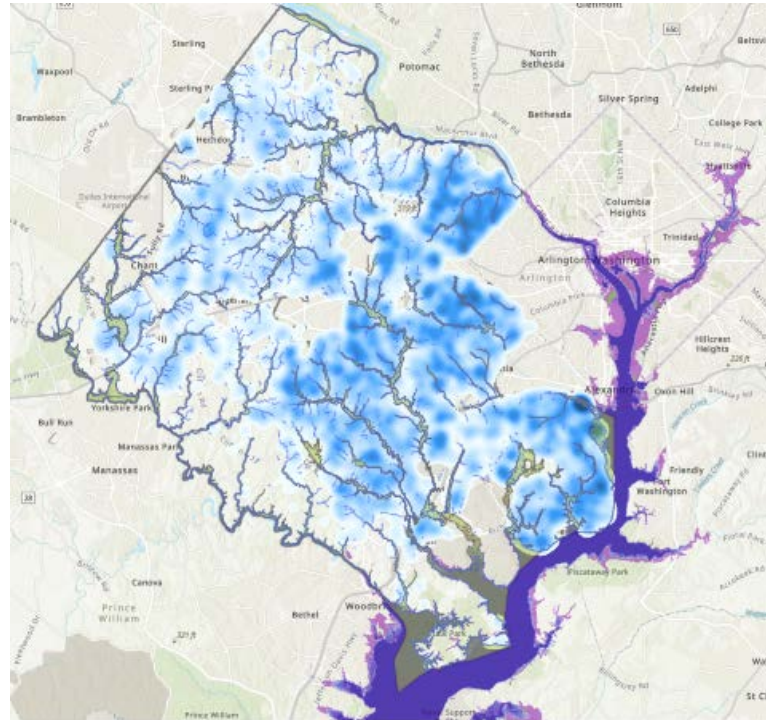
Climate Projections Report

Warmer



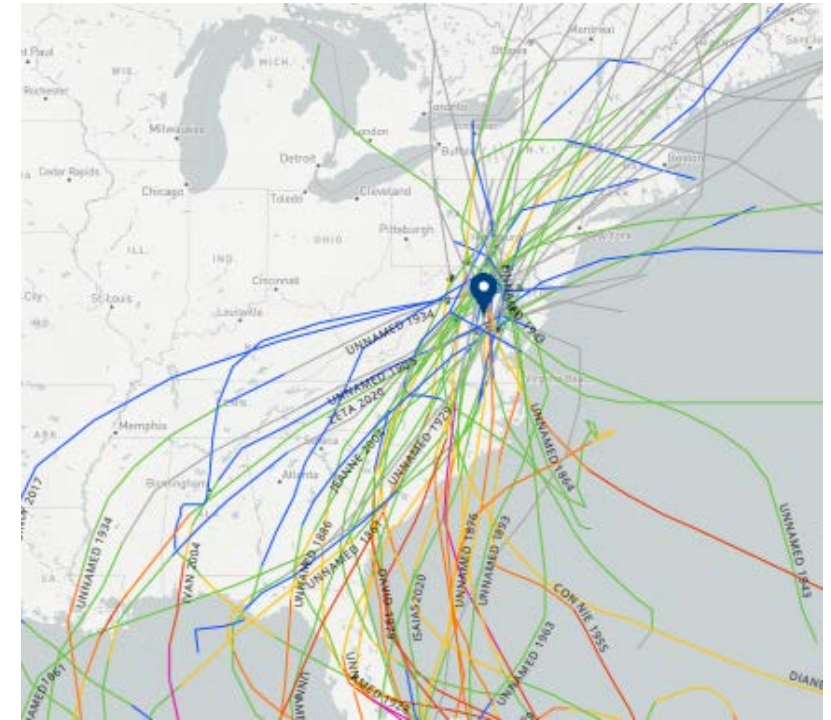
- **Annual temperature** rise 4.4 – 8°F by 2085
- **Extreme heat days** projected to increase from 7 to 70 days per year by 2085
- **Urban Heat Island Effect** on top of temperature increase

Wetter

















- **Annual and seasonal precipitation** increase
- **Precipitation intensity** increase across all return periods
- **Sea level rise** --> Potomac River

Weirder

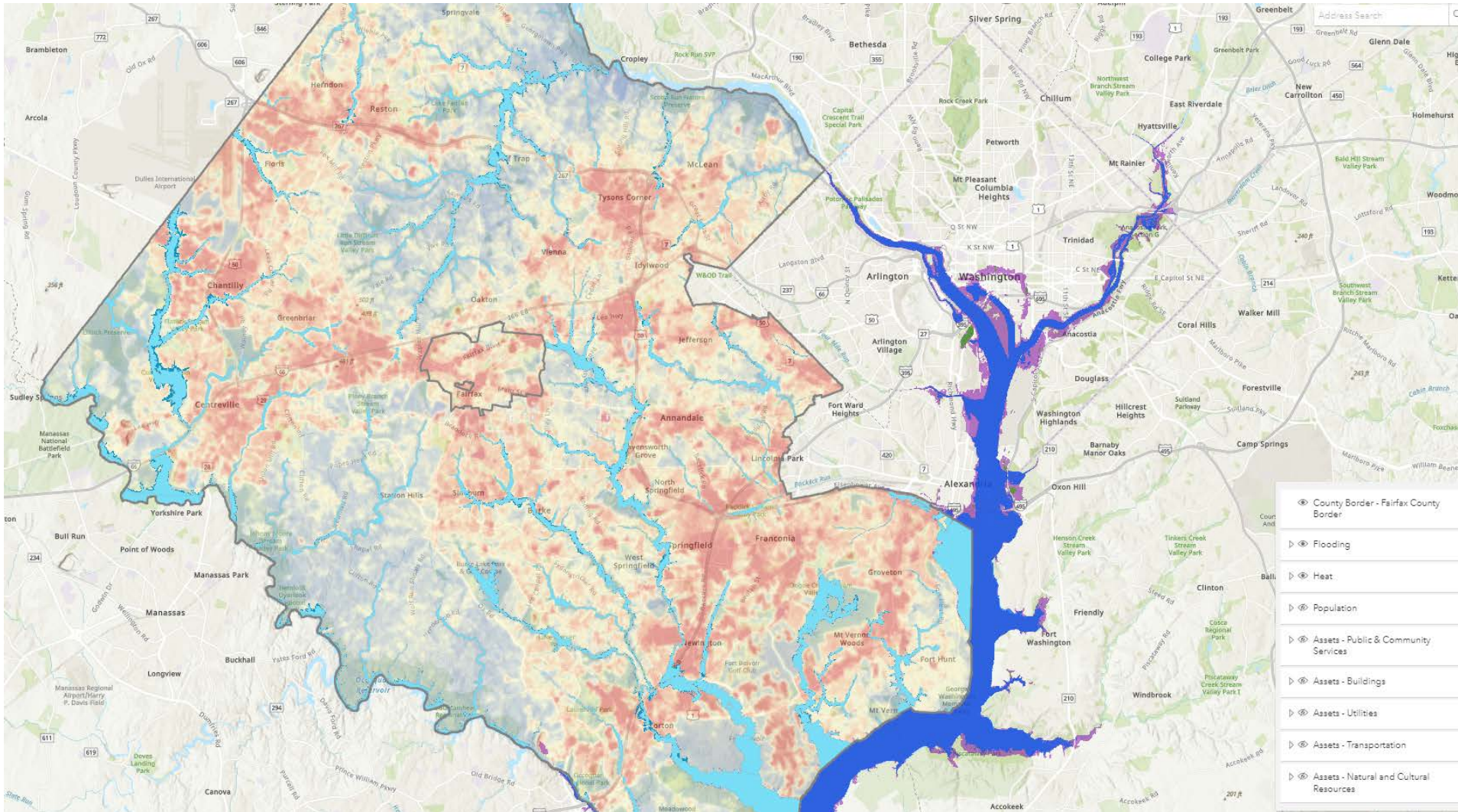


- **Severe storm strength** increase, including tropical storms, derechos, hurricanes, nor'easters
- **Unseasonably warm/cool** temperatures
- **Periods of no precipitation followed by sudden, heavy precipitation**

Top Vulnerability Groups

	<p>1. Heavy Precipitation causing inland flooding of communities</p>	 <p>People Roads Bldgs Historic Electric EMS HCS Transit WWM Parks/Rec Waters Trees Farms</p>
	<p>2. Combined hazard stress on natural systems</p>	 <p>Trees ESAs Farms Parks/Rec Waters</p>
	<p>3. Storms & Wind causing damage & safety risks</p>	 <p>People EMS HCS Roads Trees Bldgs Transit Tele Parks/Rec Historic Bike/Ped</p>
	<p>4. Storms & Wind causing power outage impacts</p>	 <p>Electric People EMS HCS Water Bldgs Telecomm Transit</p>
	<p>5. Extreme heat causing health impacts</p>	 <p>People EMS HCS Transit Bike/Ped Parks/Rec WM</p>
	<p>6. Coastal flooding impacts</p>	 <p>People Bldgs Waters ESAs</p>
	<p>7. Extreme heat causing damage to built systems</p>	 <p>Electric Roads Transit Bike/ Ped</p>

Interactive Climate Map Viewer











[Resilient Fairfax](#)
[Interactive Map](#)
[Viewer](#)

Audit of Existing Policies, Plans, and Programs

“How are we currently doing in terms of climate resilience?”

- ✓ 100+ Policies, Plans, and Programs reviewed by Consultants, Planning Team, IAG, CAG
- ✓ 50 Questions
- ✓ 8 categories

Category		Summary	
	Governance	Strong	Climate commitments, coordination, funding, staff
	Water Infrastructure	Strong	Drinking water, stormwater, wastewater plans & policies
	Natural & Cultural Resources	Strong	Floodplain regs, insurance, NR protections, incentives
	Transportation Infrastructure	Neutral	Transportation assessments, design, standards, upgrades
	Buildings & Sites	Neutral	Building code, site design, permitting, incentives
	Energy Infrastructure	Neutral	Grid assessments, back-up power, energy storage policies
	Interdisciplinary/ Other	Neutral	Data, resources, emergency management, incentives
	Population Services	Neutral	ID vulnerabilities, engagement, investments, resources

Resilient Fairfax Strategy Pillars

<h2>Integrated Action Planning</h2> 	<h2>Climate Ready Communities</h2> 	<h2>Resilient Infrastructure & Buildings</h2> 	<h2>Adaptive Environments</h2> 
			
<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

Implementation Roadmaps

- ✓ 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, OEEC
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.

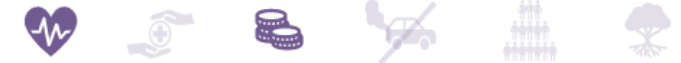
How to Equitably Implement:

- ✓ 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)

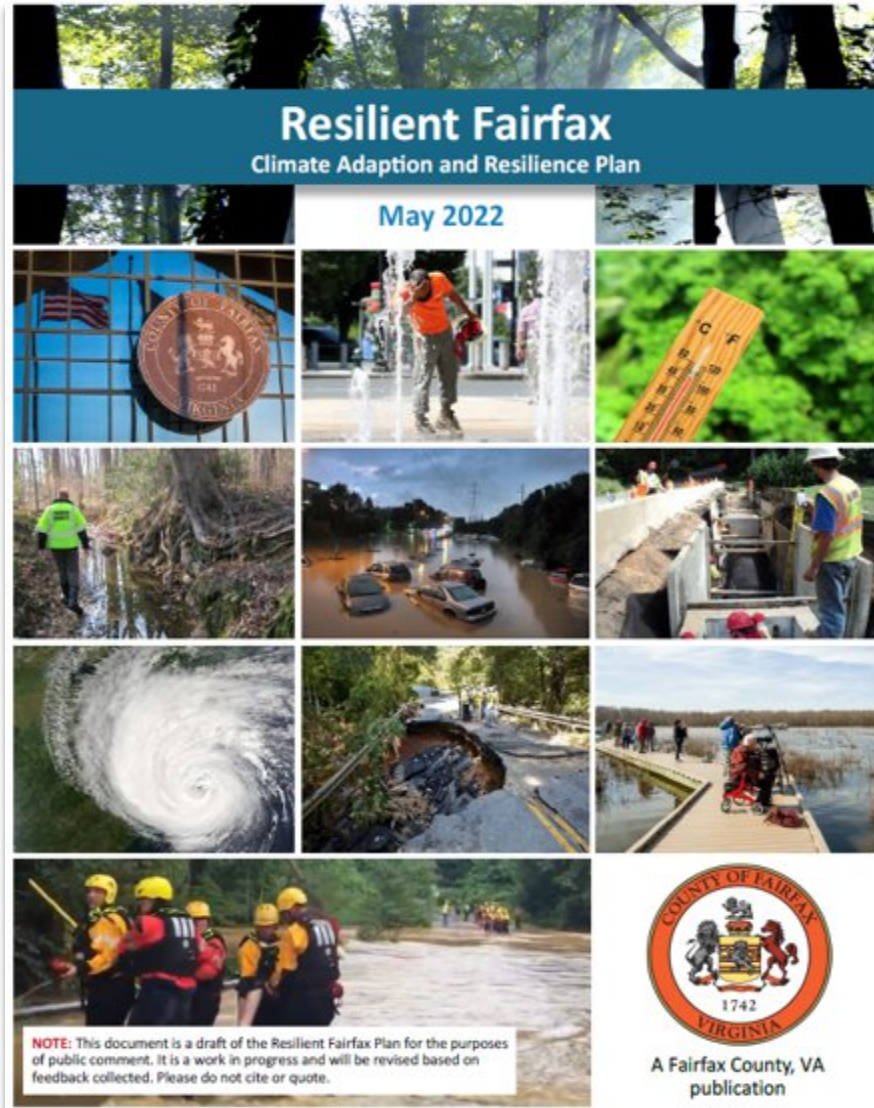
Co-Benefits:



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.

What's in the Draft Plan



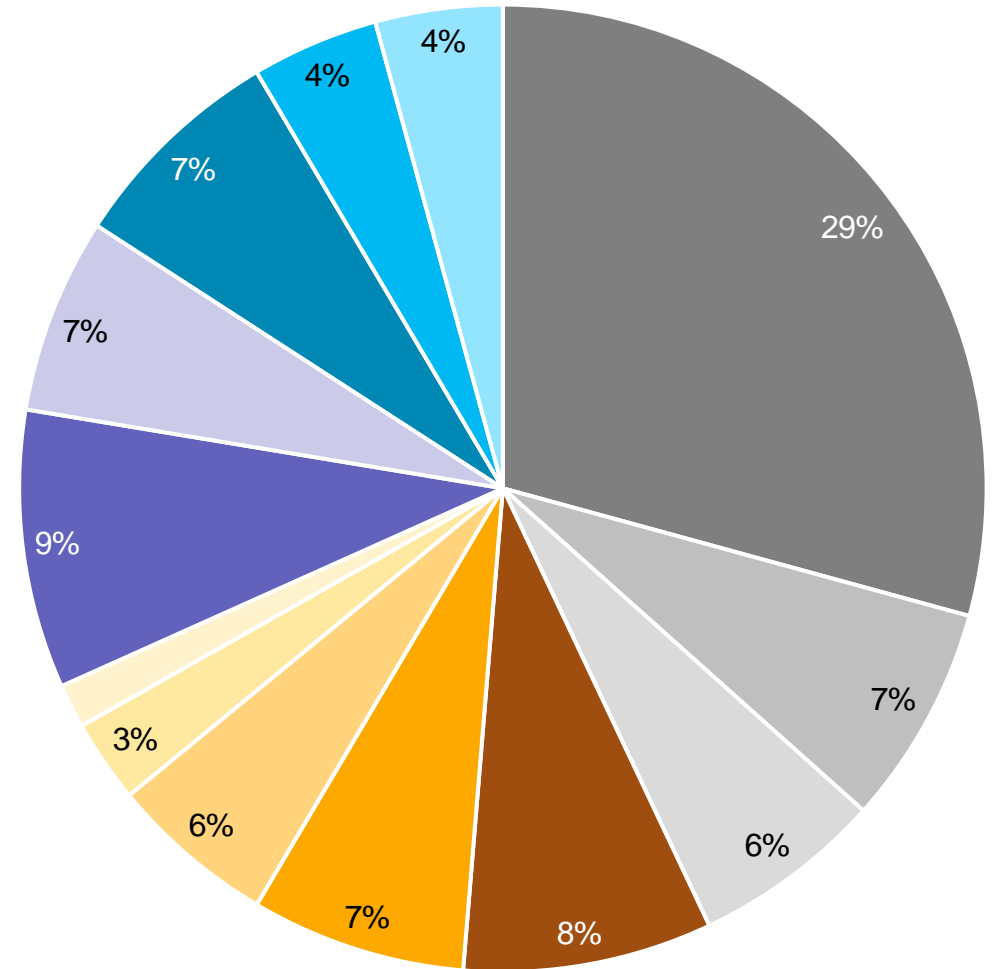
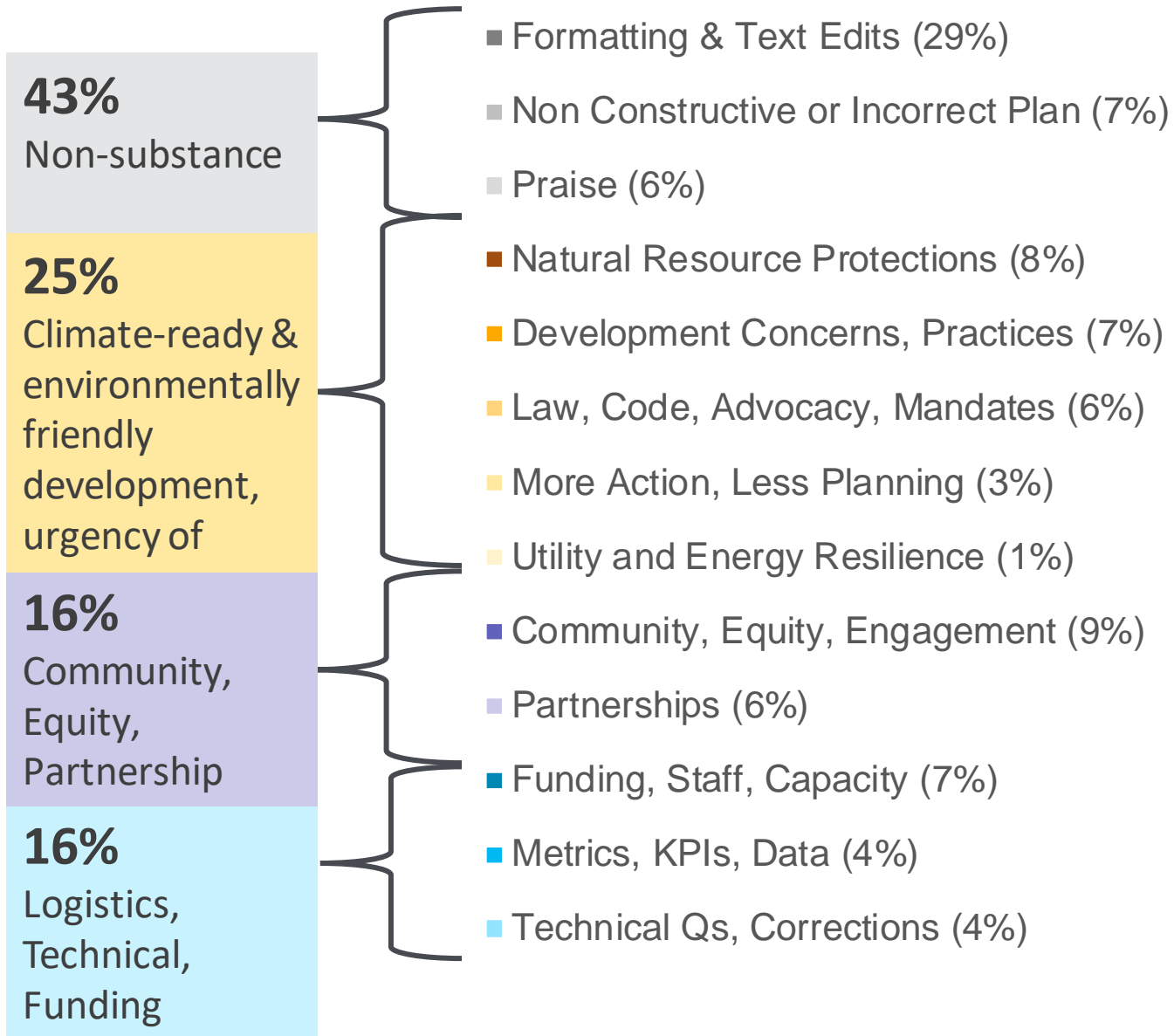
- Introduction
- Resilient Fairfax Development Process
- Stakeholder Engagement
- Equity in Climate Resilience
- Climate Projections: Warmer, Wetter, Weirder
- Vulnerabilities & Risks
- Audit of Existing Policies, Plans, and Programs
- Strategies and Implementation Roadmaps
- Moving Forward

Background information on the plan and process

Summaries of Technical Analyses

How we will enhance our resilience

Summary of Draft Plan Comments



Lessons Learned

- ✓ **Clearly explain relevancy and roles to each agency. Nearly all depts are relevant to climate resilience.**
 - *“I wasn’t sure why our dept was in this group until today.”*
- ✓ **In your RFPs:** include language to ensure proposals → actuality
- ✓ **Customize best practices** to your locality. Fully hear and work through departmental reactions to concepts such as Resilience Hubs and AAAs.
- ✓ **Strive for plan alignment** with HMPs, flood plans, regional plans.
- ✓ **Sub-groups** may be more productive than full-group advisory meetings.
- ✓ **Customized, targeted questions** may receive better responses than open discussion.
- ✓ **Do not assume understanding of climate change basics** for public and stakeholder meetings.
- ✓ **Make it relatable: layman’s terms, pictures, maps, stories**
- ✓ **NASA DEVELOP** collaboration is free and extremely helpful.
- ✓ **Keep track of items to be added in the future.** For us: resilience of the broader food supply.
- ✓ **Building trust and connectivity takes time and effort but is always worth it!**



How does Resilient Fairfax align with related initiatives?



Alignment at multiple levels

- ✓ **Data** that is shared, consistent, and complementary
- ✓ **Staff** collaboration
- ✓ **Plan** alignment at multiple levels of government
- ✓ **Strategy** and project alignment across multiple departments and plans
- ✓ **Funding** coordination and opportunities



Next Steps

- ✓ **Final Advisory Group Meetings of the Planning Process** (Complete)
 - ✓ Planning Team Meeting #6
 - ✓ Community Advisory Group #5
 - ✓ Infrastructure Advisory Group #5

- ☐ **Plan Revisions Based on Public Comment** (Ongoing – Summer 2022)
 - Each comment is tracked, categorized, and considered
 - Documentation is provided: whether each comment was incorporated, and why

- ☐ **Final Plan Presented to Board of Supervisors for Adoption** (Fall 2022)
 - BOSEC – tentatively scheduled for October 4, 2022
 - BOS – tentatively scheduled for October 25, 2022

- ☐ **Implementation** (Fall 2022 and Beyond)
 - The Implementation Roadmaps will serve as a guide
 - Continued interagency coordination

Thank you!

Resilient Fairfax

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May 2022



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Links:

- [Draft Resilient Fairfax Plan](#)
- Longer draft technical reports that provide additional detail
 - [Climate Projections Report](#)
 - [Climate Vulnerability and Risk Assessment](#)
 - [Audit of Existing Policies, Plans, and Programs](#)
- [Climate Viewer Map](#)