



# Resilient Fairfax

**Presentation of Final Plan to the Planning Commission**

Matt Meyers, PE | Division Director  
Allison Homer, AICP, LEED AP | Planner IV

September 22, 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

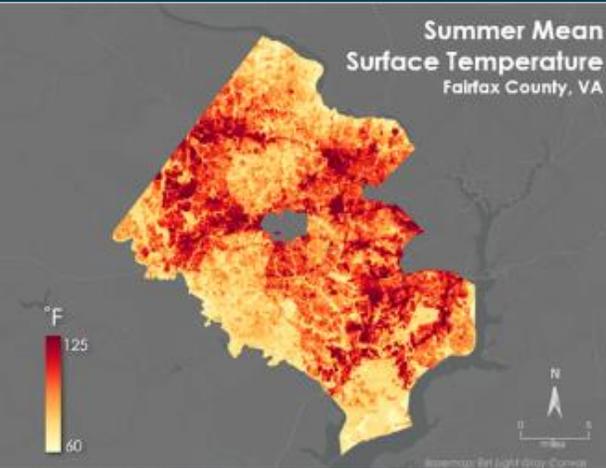


## Resilient Fairfax

***“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](#)

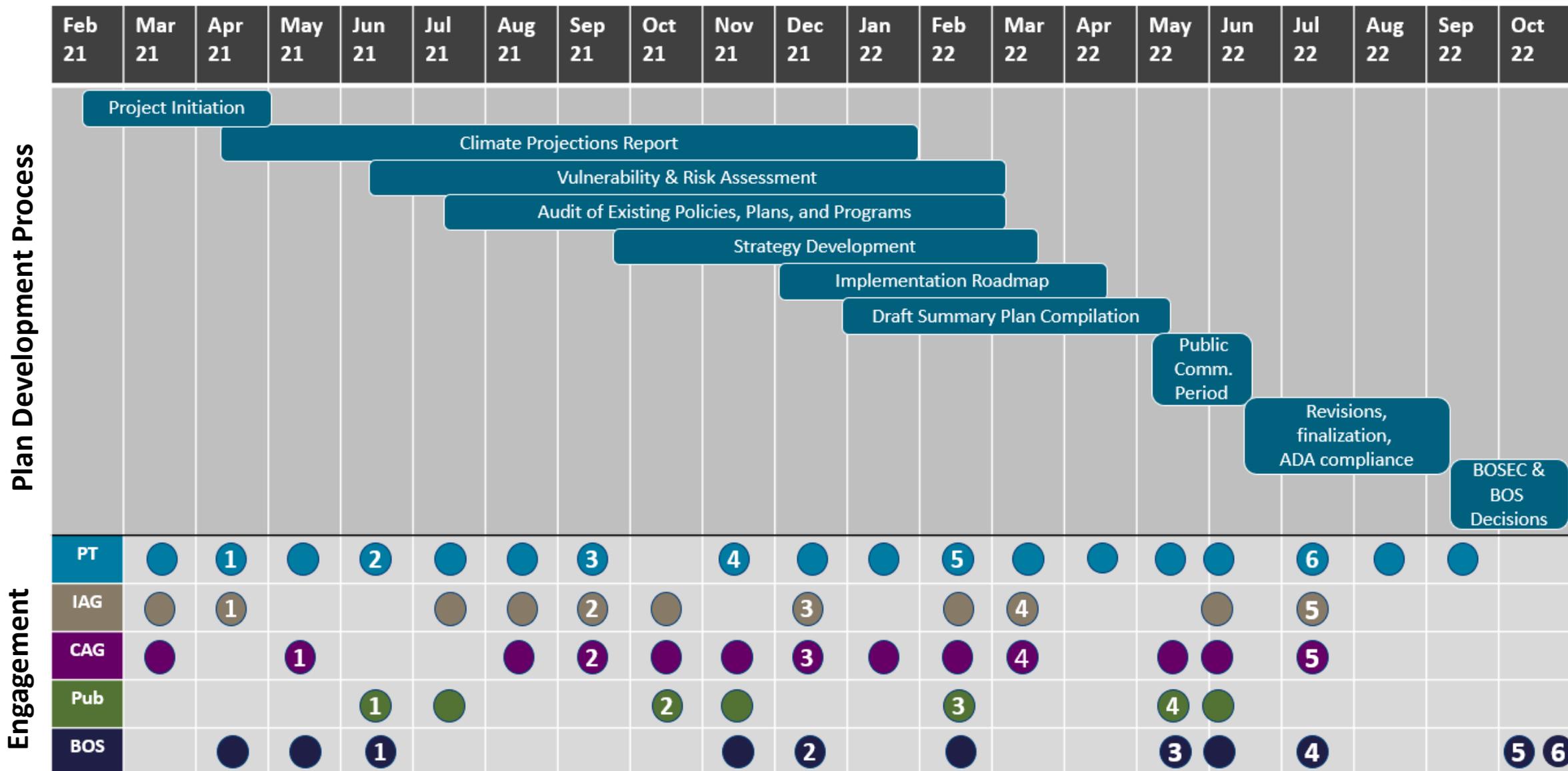
## 4. Which strategies will strengthen our resilience?

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

## 5. What is the path to implementation?

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

# Resilient Fairfax Planning Process Timeline



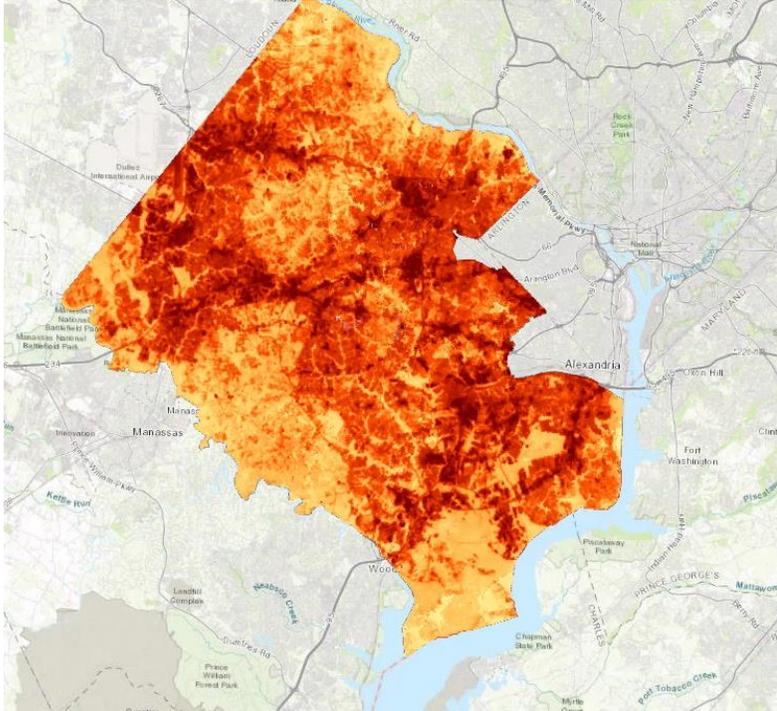
# Resilient Fairfax Advisors

<b>Project Lead</b>		<b>Office of Environmental and Energy Coordination (OEEC) Staff</b>	OEEC & Consultant Team	
<b>Planning Team (PT)</b>		<b>County departments and agencies</b>	DEMS, DFS, DPD, DPSC, DHCD, DPWES, DVS, FCDOT, FCHD, FCPA, FCPS, FMD, GIS, HHS, LDS, NCS, NVSWCD, OEEC, One Fairfax, UFMD	<b>20 entities 40 reps</b>
<b>Infrastructure Advisory Group (IAG)</b>		<b>Utilities, authorities, infrastructure managers at the local, regional, state, and federal levels</b>	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	<b>27 entities 44 reps</b>
<b>Community Advisory Group (CAG)</b>		<b>Representatives of each Supervisor District, advocacy organizations, non-profits, community groups</b>	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 Partnership	<b>26 entities 33 reps</b>
				<b>73 entities 117 reps</b>



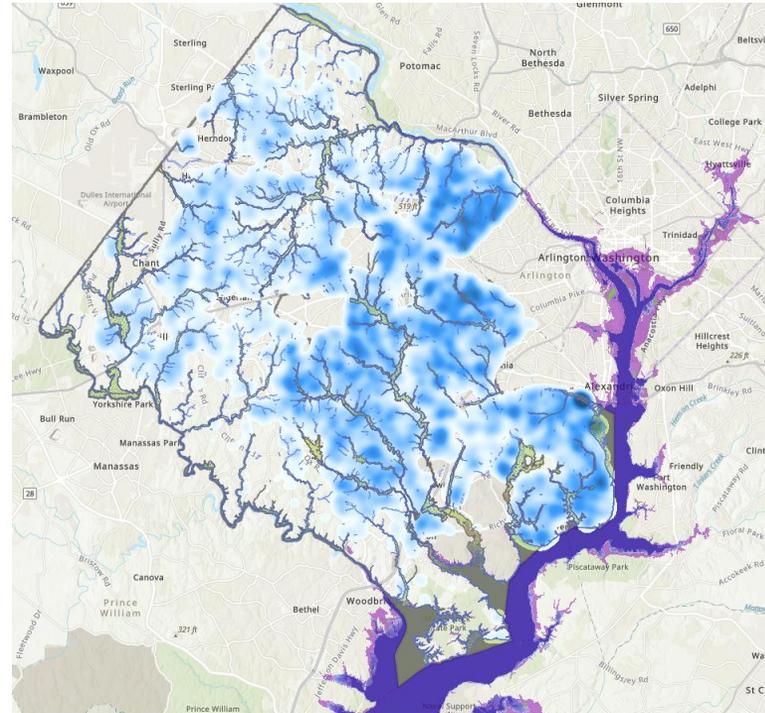
# Climate Projections

## Warmer



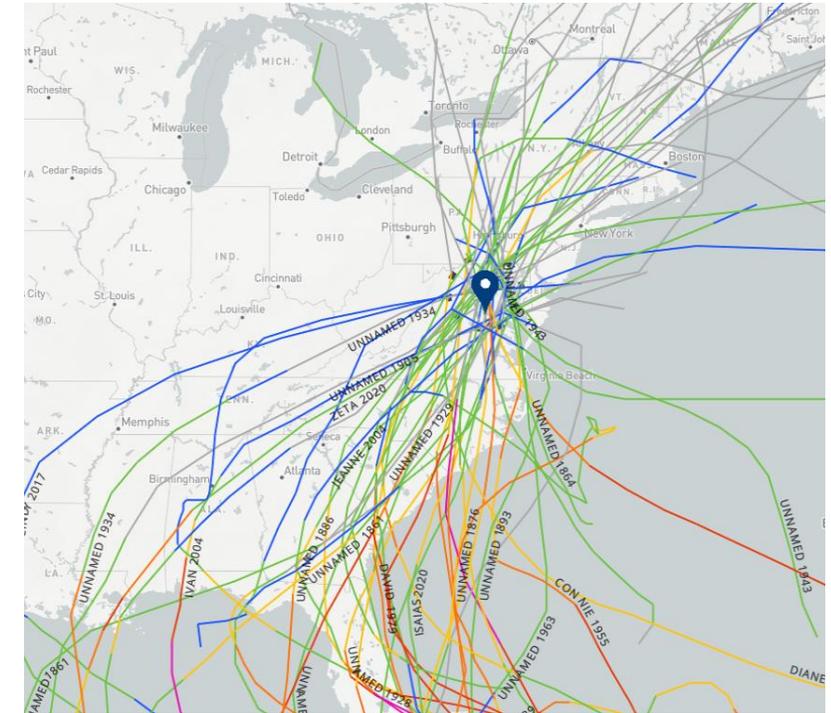
- **Annual temperature rise 4.4 – 8°F by 2085**
- **Extreme heat days to increase from 7 to 70 days per year by 2085**
- **Urban Heat Island Effect** on top of temperature increase

## Wetter



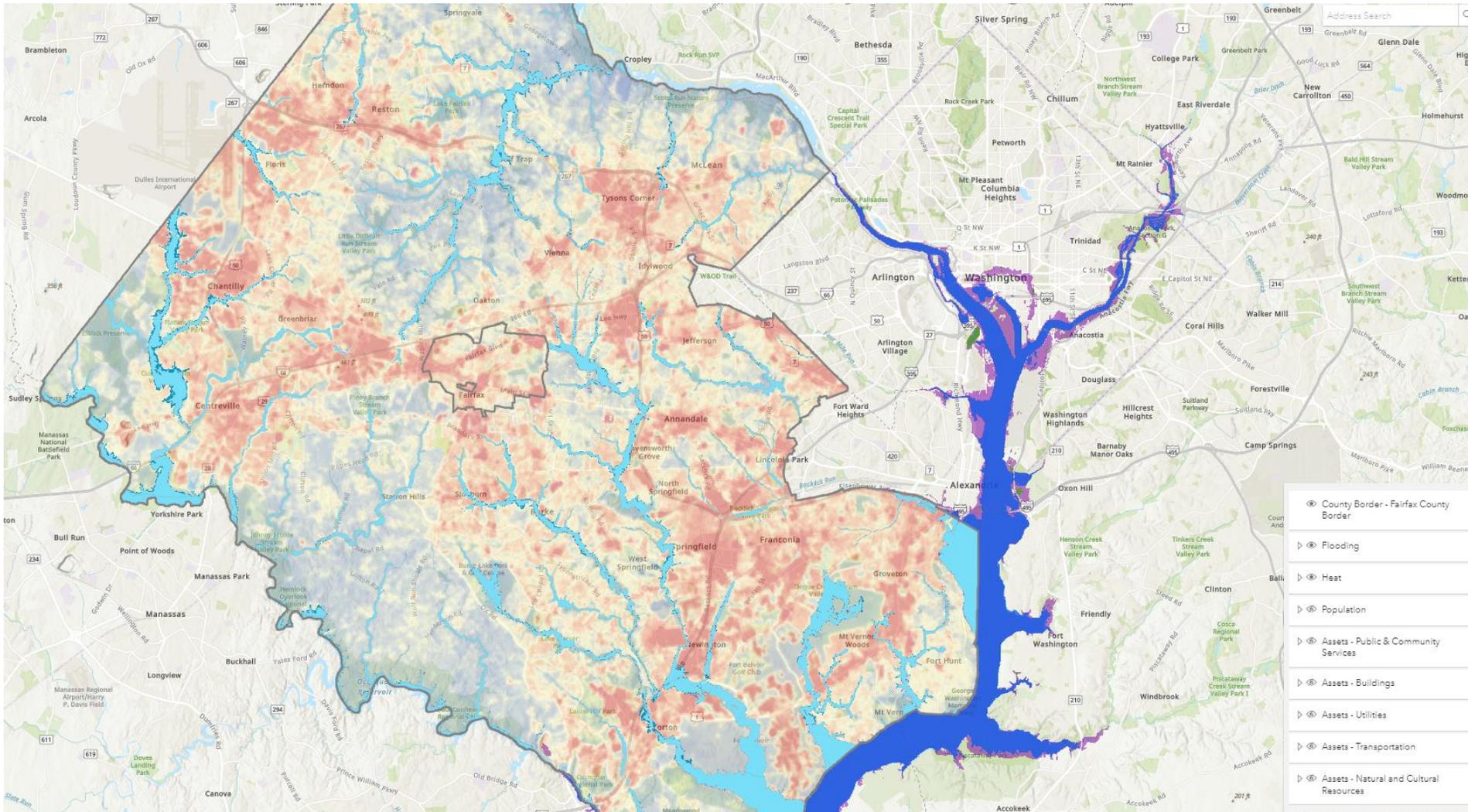
- **Annual and seasonal precipitation increase**
- **Precipitation intensity** increase across all return periods
- **Sea level rise** --> Potomac River

## Weirder



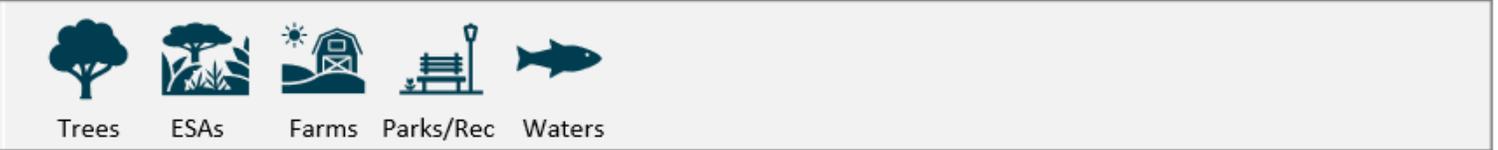
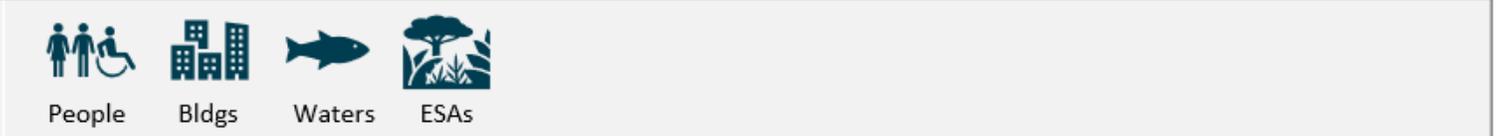
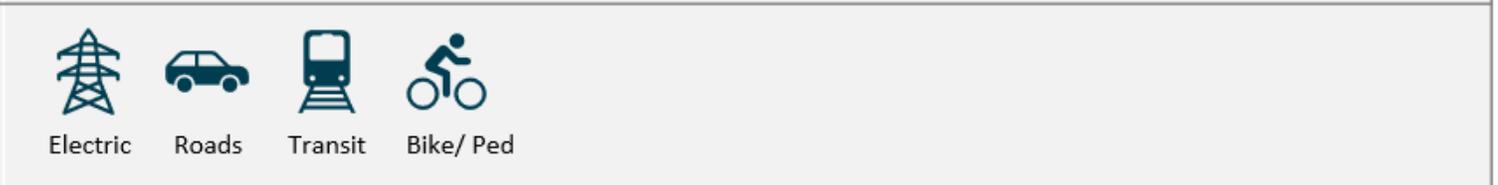
- **Severe storm strength increase**, including tropical storms, derechos, hurricanes, nor'easters
- **Unseasonably warm/cool** temperatures
- **No precipitation followed by sudden, heavy precipitation**

# Interactive Climate Map Viewer



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

# Top Vulnerability Categories

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

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

# Resilient Fairfax Strategy Pillars & Themes

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

# Resilient Fairfax Strategies: Examples Relevant to Planning Commission

Integrated Action Planning	Climate Ready Communities	Resilient Infrastructure & Buildings	Adaptive Environments
<ul style="list-style-type: none"> <li>• <b>IAP.1a:</b> Comprehensive Plan updates</li> <li>• <b>IAP.1b:</b> Strategic Plan updates</li> </ul>	<ul style="list-style-type: none"> <li>• <b>CRC.1a:</b> Adaptation Action Areas</li> <li>• <b>CRC.1b:</b> Resilience Hubs</li> <li>• <b>CRC.3a:</b> Flood Risk Reduction Plan</li> <li>• <b>CRC.3b:</b> Heat-Resilient Design and Development</li> <li>• <b>CRC.3b:</b> Zoning Ordinance Updates</li> </ul>	<ul style="list-style-type: none"> <li>• <b>RIB.1b:</b> Flood Resilience of County Buildings and Facilities</li> <li>• <b>RIB.2a:</b> Advocate and Partner for Energy Resilience</li> <li>• <b>RIB.3c:</b> Advocate and Partner for Transportation Resilience</li> </ul>	<ul style="list-style-type: none"> <li>• <b>AE.1a:</b> Consolidated Natural Resources Management Plan</li> <li>• <b>AE.1b:</b> Survey and Protect Areas that Provide Natural Resilience Benefits</li> <li>• <b>AE.2b:</b> Green Infrastructure</li> <li>• <b>AE.2c:</b> Urban Reforestation</li> <li>• <b>AE.2d:</b> Living Shorelines</li> </ul>

# Implementation Roadmaps for Each Prioritized Strategy

- ✓ 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:**



<b>Lead:</b>	DMB, DPWES, OEEC
<b>Partners:</b>	DEMS, FCDOT, DPWES, UFMD, FCPA, OCA, One Fairfax, UFMD
<b>Timeline:</b>	Medium-Term (2-5 years)
<b>Cost:</b>	\$\$\$ (\$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. Resiliency 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:**

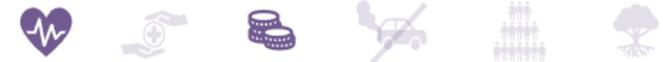
- ✓ Ensure distribution of projects to areas most impacted by climate change and serving vulnerable communities.
- ✓ Build in method to identify and highlight proposed projects that disproportionately impact vulnerable communities and prioritize these projects.



**Funding Opportunities:**

- BRIC
- Hazard Mitigation Grant Program (HMGP)

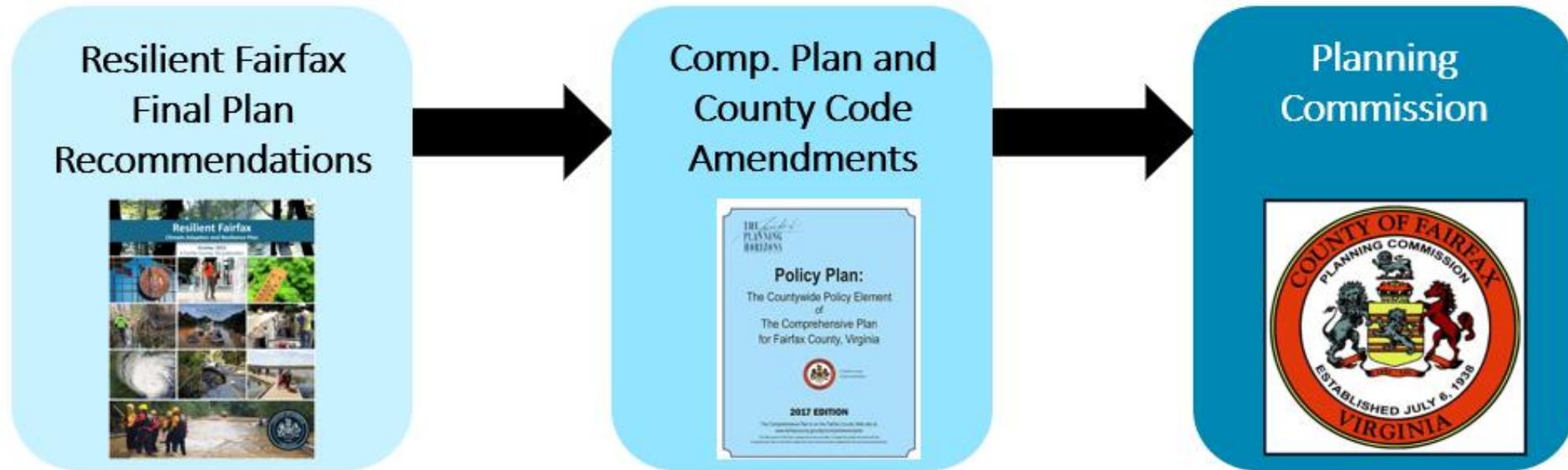
**Co-Benefits:**



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

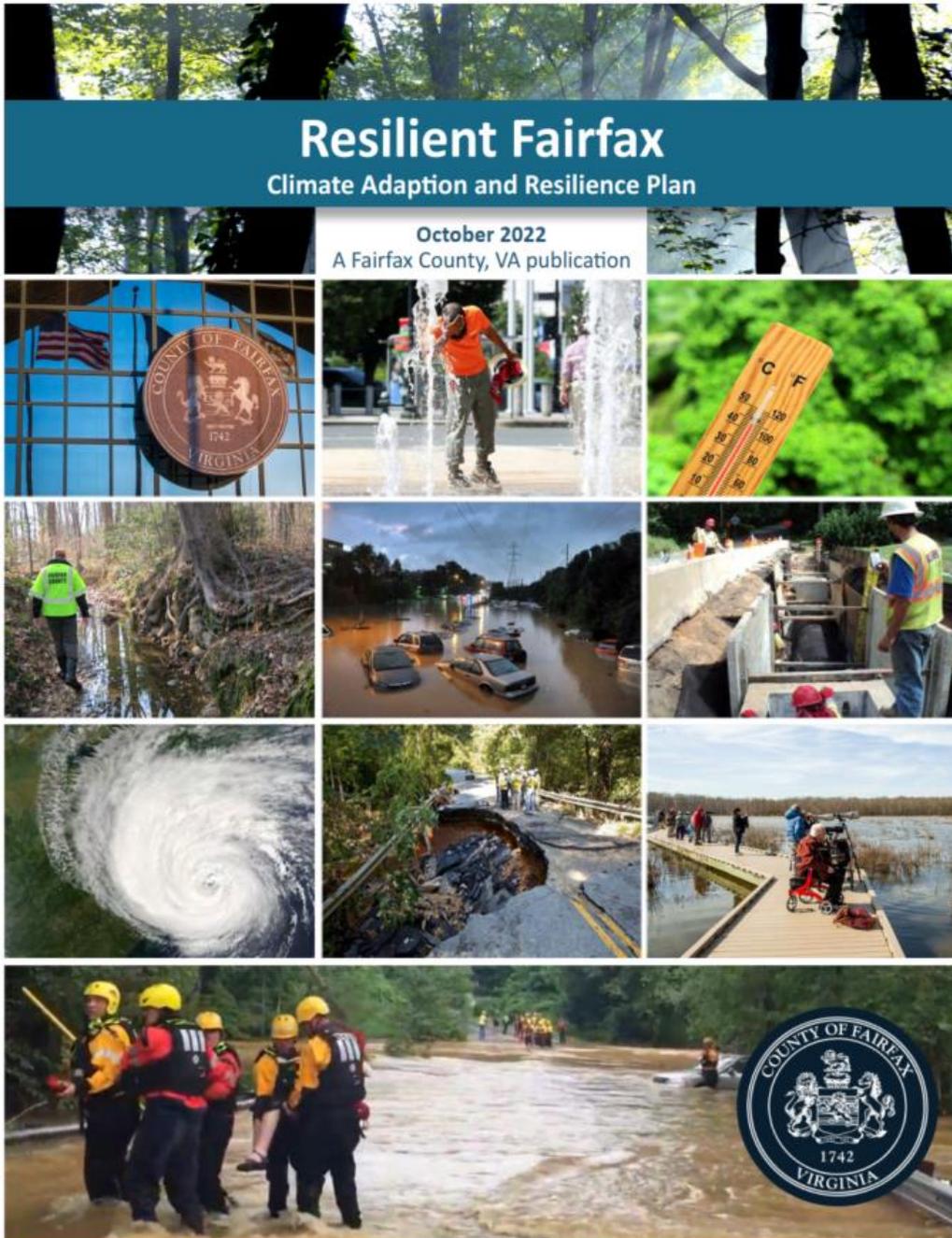
The Virginia Department of Transportation (VDOT) issued new design standards for bridge structures that aim to make them more resilient to climate change impacts. The standards account for sea level rise, water salinity, temperature changes, and rainfall intensity when constructing and maintaining bridges. 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.

# How will this apply to the Planning Commission?



- Resilient Fairfax includes recommendations **to update** the Comprehensive Plan, the Zoning Ordinance, and other County Codes for climate resilience
- Updates will be coordinated with stakeholders including the Planning Commission, and will be streamlined with other environmental updates (e.g. CECAP-related updates)
- Once complete, the Planning Commission would include **climate resilience** among their review considerations

# Questions?



## Contacts:

- **Kambiz Agazi** | Director, OEEC  
[Kambiz.Agazi@fairfaxcounty.gov](mailto:Kambiz.Agazi@fairfaxcounty.gov)
- **Matt Meyers** | Division Manager  
[Matthew.Meyers@fairfaxcounty.gov](mailto:Matthew.Meyers@fairfaxcounty.gov)
- **Allison Homer** | Planner IV, Project Manager  
[Allison.Homer@fairfaxcounty.gov](mailto:Allison.Homer@fairfaxcounty.gov)
- **Neely Law, PhD** | Planner III  
[Neely.Law@fairfaxcounty.gov](mailto:Neely.Law@fairfaxcounty.gov)

## Resources:

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