Fairfax County Office of Environmental and Energy Coordination (OEEC)

Presentation to Fairfax County Federation of Citizens Associations

February 24, 2022

Office of Environmental and Energy Coordination

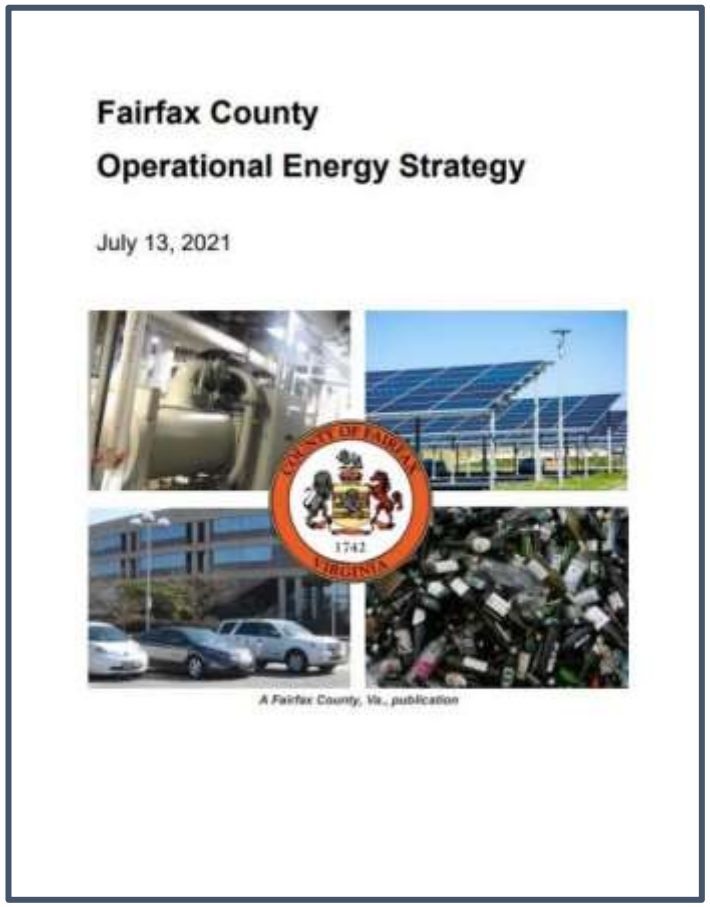
What is the Office of Environmental & Energy Coordination?

- ✓ Reports directly to County Executive
- ✓ Conducts environmental collaboration & coordination across agencies & departments (rather than siloes)
- ✓ Develops and implements environmental and energy policies, goals, programs, projects
- ✓ Engages departments, authorities, businesses, residents, and other levels of government to advance environmental and energy priorities

OEEC Core Areas of Focus

General Environmental Coordination	• **Environmental coordination with other county departments** • **State & local environmental policy coordination** • **Environmental coordination with neighboring jurisdictions & regional groups** • **Fairfax Green Initiatives #1 and #2** • **Sustainability Initiatives** • **Environmental Quality Advisory Council (EQAC)**
Community Programs	CARBON-FREE FAIRFAX Energy Action Fairfax – Step Up to Savings Fairfax County HomeWise Fairfax County Green Business Partners Virginia PACE Authority – Clean Energy Financing
Greening County Operations	• **Carbon Neutral Counties Declaration** • **Operational Energy Strategy (OEC)** • **Joint Environmental Task Force (JET)** • **Environmental Improvement Program (EIP)** • **Fairfax Employees for Environmental Excellence (FEEE)**
Climate Planning	• **Resilient Fairfax:** Adaptation & resilience to climate effects like heat, storms, flooding • **CECAP:** Emissions reduction to lower our contributions to global climate change

Carbon Neutral Counties Declaration and Operational Energy Strategy Update

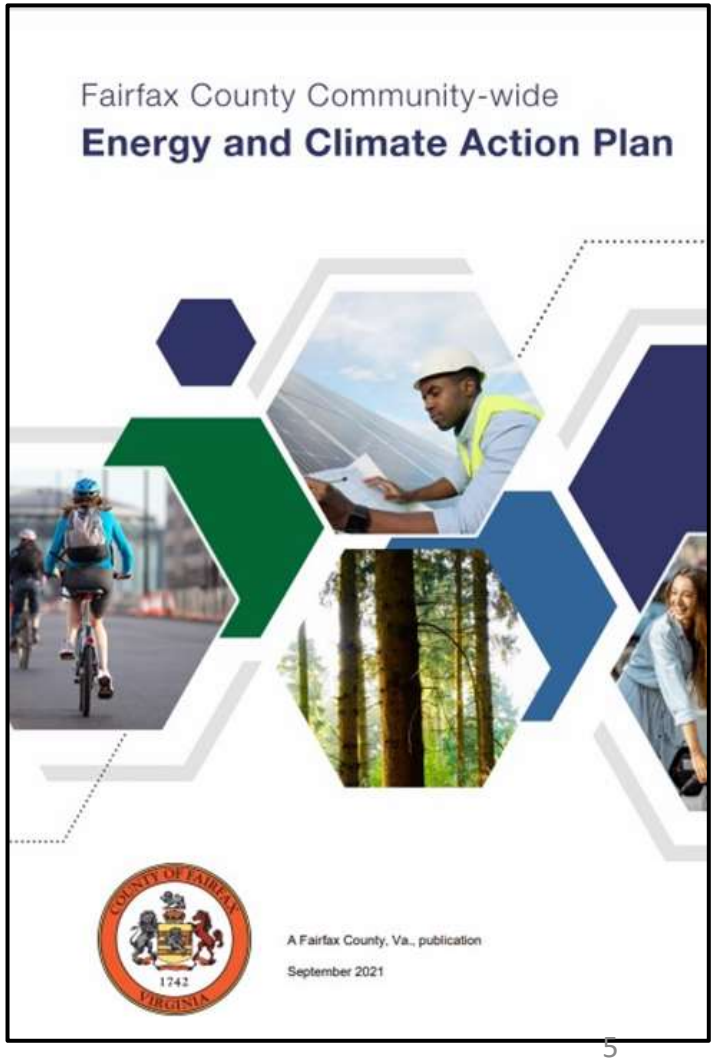


- July 2021 Board signed Carbon Neutral Counties Declaration committing to be energy carbon neutral by 2040
- To support this goal, Board also adopted an update to the Operational Energy Strategy (OES) in July
- OES update includes accelerated goals/targets across 11 focus areas including green buildings, renewables, fleet electrification, and waste management/recycling

https://www.fairfaxcounty.gov/environment-energy-coordination/carbon-neutral-counties-declaration

Community-wide Energy & Climate Action Plan (CECAP) Goals

- **Overall CECAP Goal:** Carbon neutral by 2050, with 87% reduction in total greenhouse gas (GHG) emissions from 2005 level
- **Interim Goals – 2030 and 2040:** 2030: 50% reduction in GHG emission / 2040: 75% reduction in GHG emissions
- **Sector-based goals**
  - Green buildings
  - Retrofitting existing housing for energy efficiency
  - Increasing transit and non-motorized commuting
  - Increasing use of electric vehicles
  - Natural resources
  - Waste
- **12 Strategies, 37 actions, 270+ recommendations**



https://www.fairfaxcounty.gov/environment-energy-coordination/cecap

Carbon-Free Fairfax

Carbon-Free Fairfax envisions a future for Fairfax County that is healthy, sustainable, and economically prosperous without local greenhouse gas emissions. Drawing inspiration from the Community-wide Energy and Climate Action Plan, or CECAP, Carbon-Free Fairfax is a broad greenhouse gas reduction initiative that enables county residents, businesses, nonprofit organizations, and other key stakeholders to decrease their emissions through education, outreach, and engagement opportunities.

https://www.fairfaxcounty.gov/environment-energy-coordination/carbon-free-fairfax

Background: Difference Between the Climate Plans

Fairfax County is addressing both the **cause** and the **effects** of climate change

CECAP / Carbon-Free Fairfax

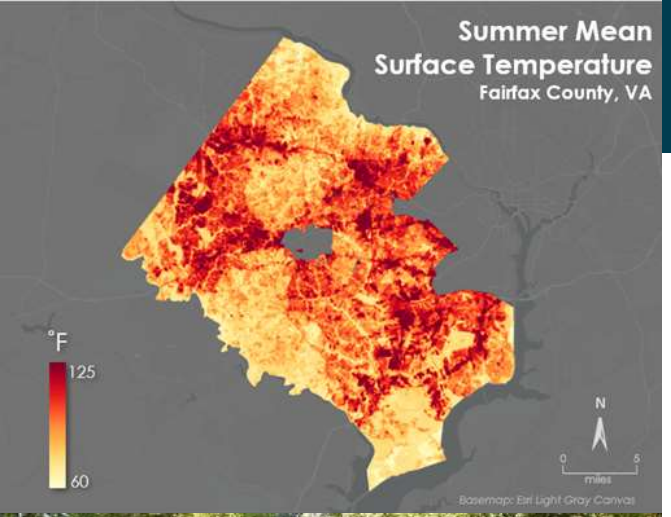
Cause: ***Reducing emissions that lead to global climate change***

- Examples: Transition to renewable energy, energy efficiency, waste reduction, alternative transportation
- Community-led plan, because 95% of emissions are from the community
- January 2020 – July 2021 planning process
- Now transitioning to implementation → Carbon Free Fairfax

Resilient Fairfax

Effects: ***Adaptation & resilience to climate hazards***

- Examples: Resilience and ability to handle flooding, extreme temperatures, extreme weather, health hazards, precipitation pattern changes
- Led by government, because responsible for infrastructure and service upgrades
- Feb 2021 – Fall 2022 planning process



Resilient Fairfax: Steps

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

- Climate Projections Report
- Temperatures, precipitation, flooding, storm severity, drought

2. Where are we vulnerable?

- Climate Vulnerability and Risk Assessment
- Homes, businesses, neighborhoods, infrastructure, services & operations, people in path of climate effects

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

- Audit of Existing Policies, Plans, and Programs
- Which programs are working well? Where do we have gaps?

4. Which strategies will strengthen our resilience?

- Adaptation and Resilience Strategies
- Physical upgrades, policies, design standards, services, staffing, procedural changes, agency coordination, etc.

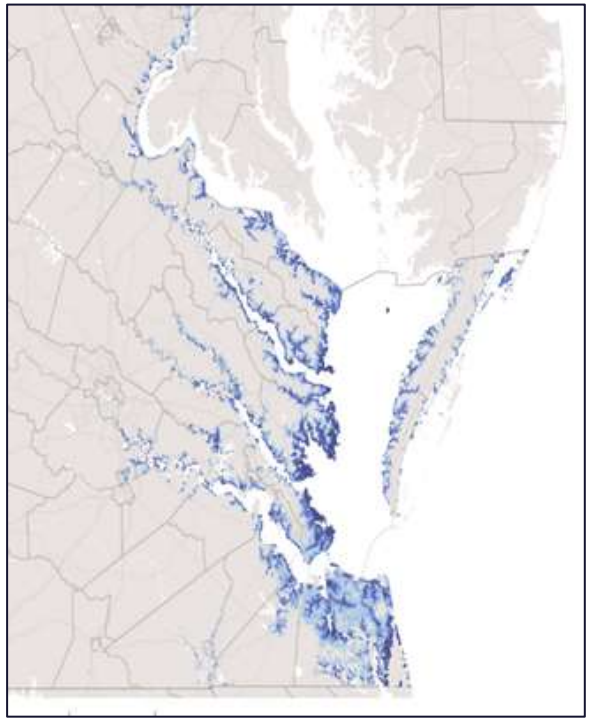
5. What is the path to implementation?

- Implementation Roadmap
- Funding sources, staffing, timelines

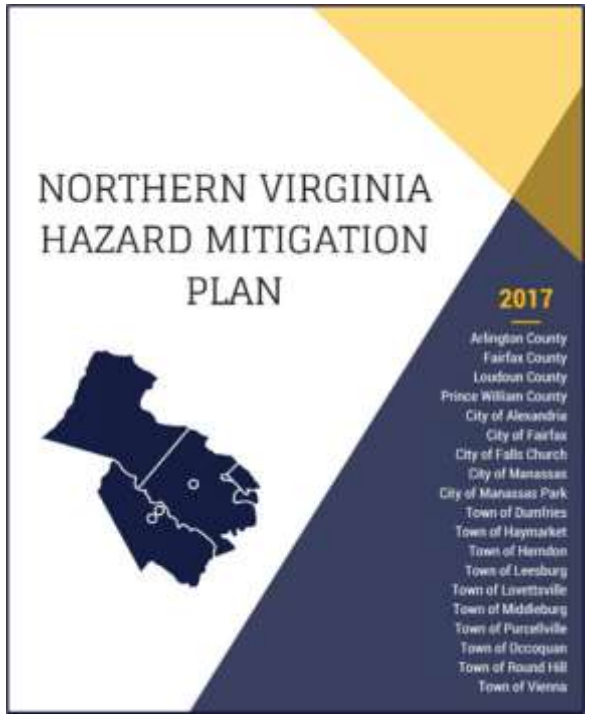
Resilient Fairfax Key Players

Project Managers	**Office of Environmental and Energy Coordination (OEEC) Staff**
Consultants	**Cadmus, WSP, NspireGreen**
Planning Team	**20 county departments and agencies**
Infrastructure Advisory Group (IAG)	**Infrastructure managers and utilities at the local, regional, state, and federal levels**
Community Advisory Group (CAG)	**Residents of each Supervisor District, advocates, non-profits, community groups**

Concurrent Plans, Programs, Policy Updates



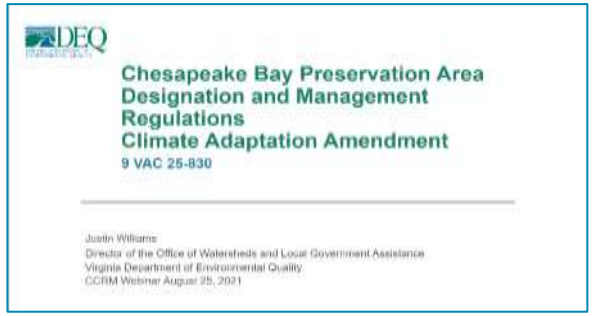
VA Coastal Resilience Master Plan



NOVA Hazard Mitigation Plan

Fairfax County Strategic Plan

USACE Coastal Storm Risk Study



VDEQ Ches. Bay Reg. Amend.

CSN IDF Curve Research

VMRC Tidal Wetlands Guidelines

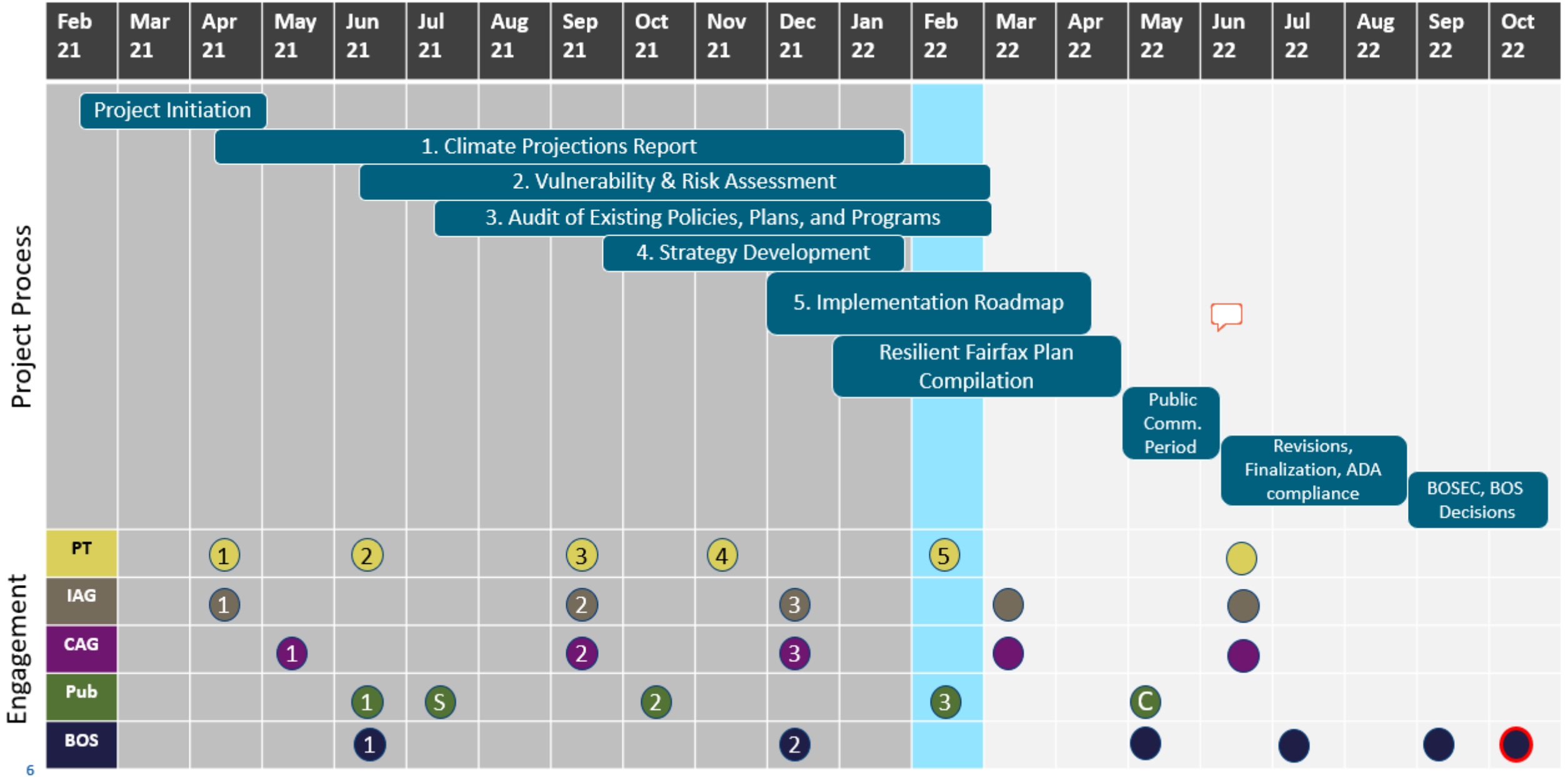
nvrc Northern Virginia Regional Commission

Metropolitan Washington Council of Governments

metro

Ongoing regional resilience work

Resilient Fairfax Planning Timeline

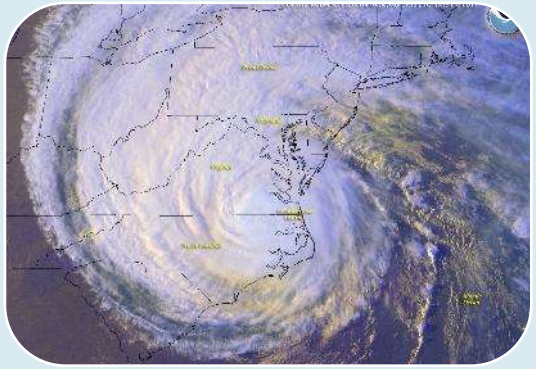


1. Climate Projections Report

Six Hazards Analyzed

Extreme Heat

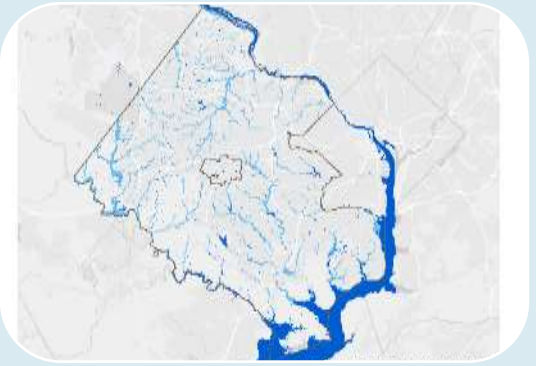
Heavy Precipitation



Severe Wind & Storms

Extreme Cold

Drought



Coastal Flooding

Two Scenarios

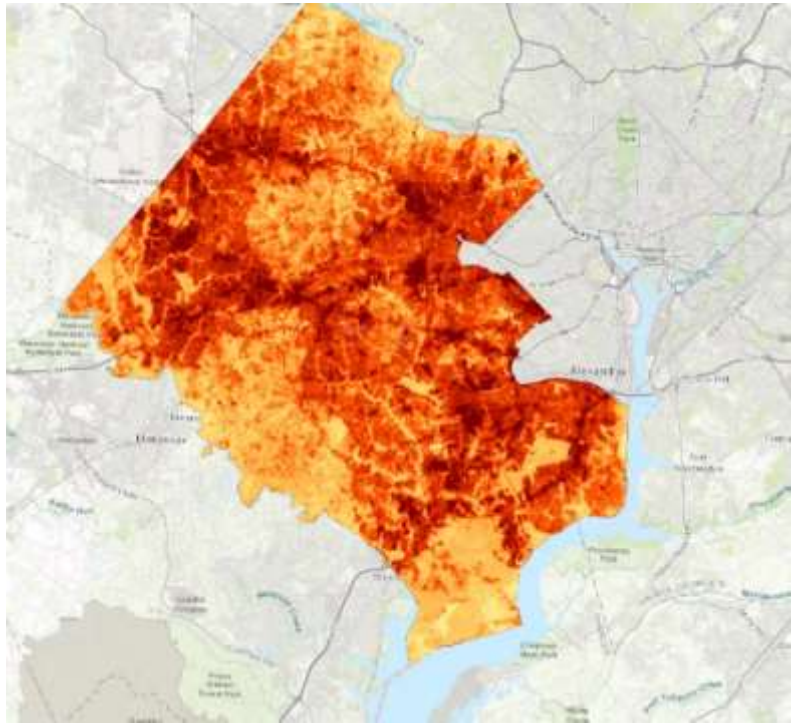
- **RCP4.5** (Low Scenario)
- **RCP 8.5** (High Scenario)

Four Periods

- **Baseline** (1976 – 2005)
- **Current** (1991 – 2020)
- **Mid-Century** (2035 – 2064)
- **End of Century** (2070 – 2099)

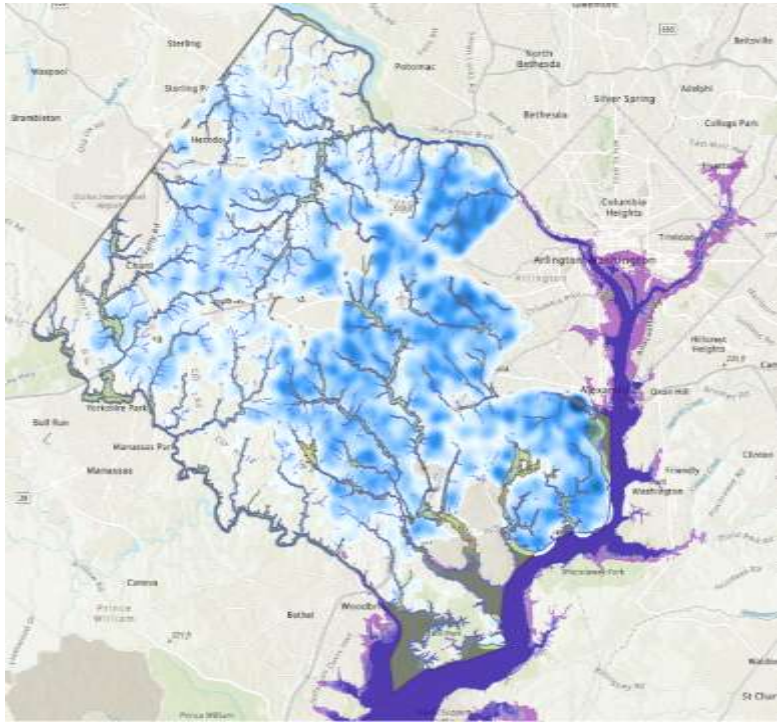
1. Climate Projections Report

Warmer



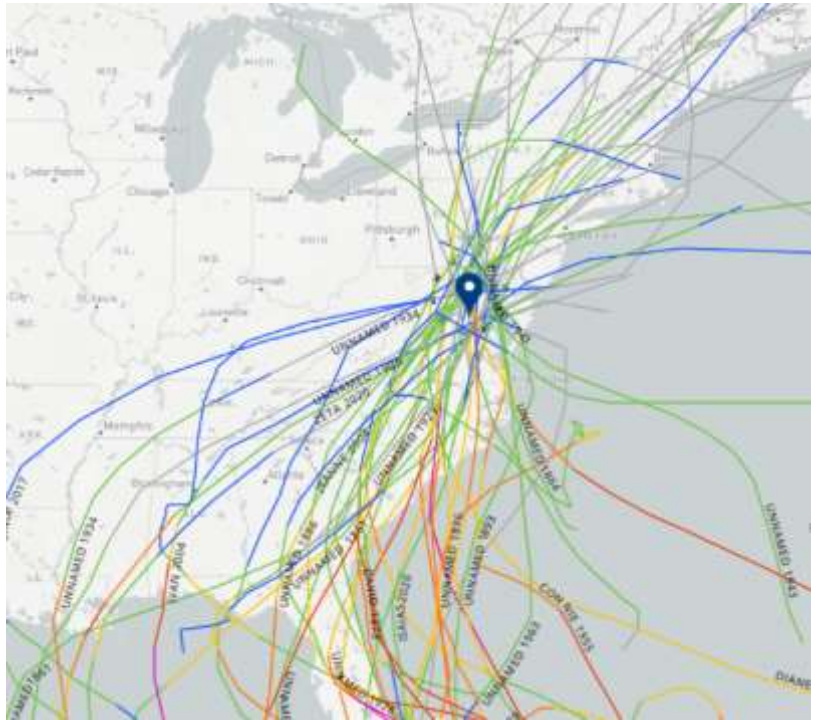
- **Annual temperature** rise 4.4 – 8°F by 2085
- **Extreme heat days** projected to increase from 7 to 70 days per year by 2085
- **Urban Heat Island Effect** on top of temperature increase

Wetter



- **Annual and seasonal precipitation** increase
- **Precipitation intensity** increase across all return periods
- **Sea level rise** of 3 feet --> 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**

Wetter: Flooding Types

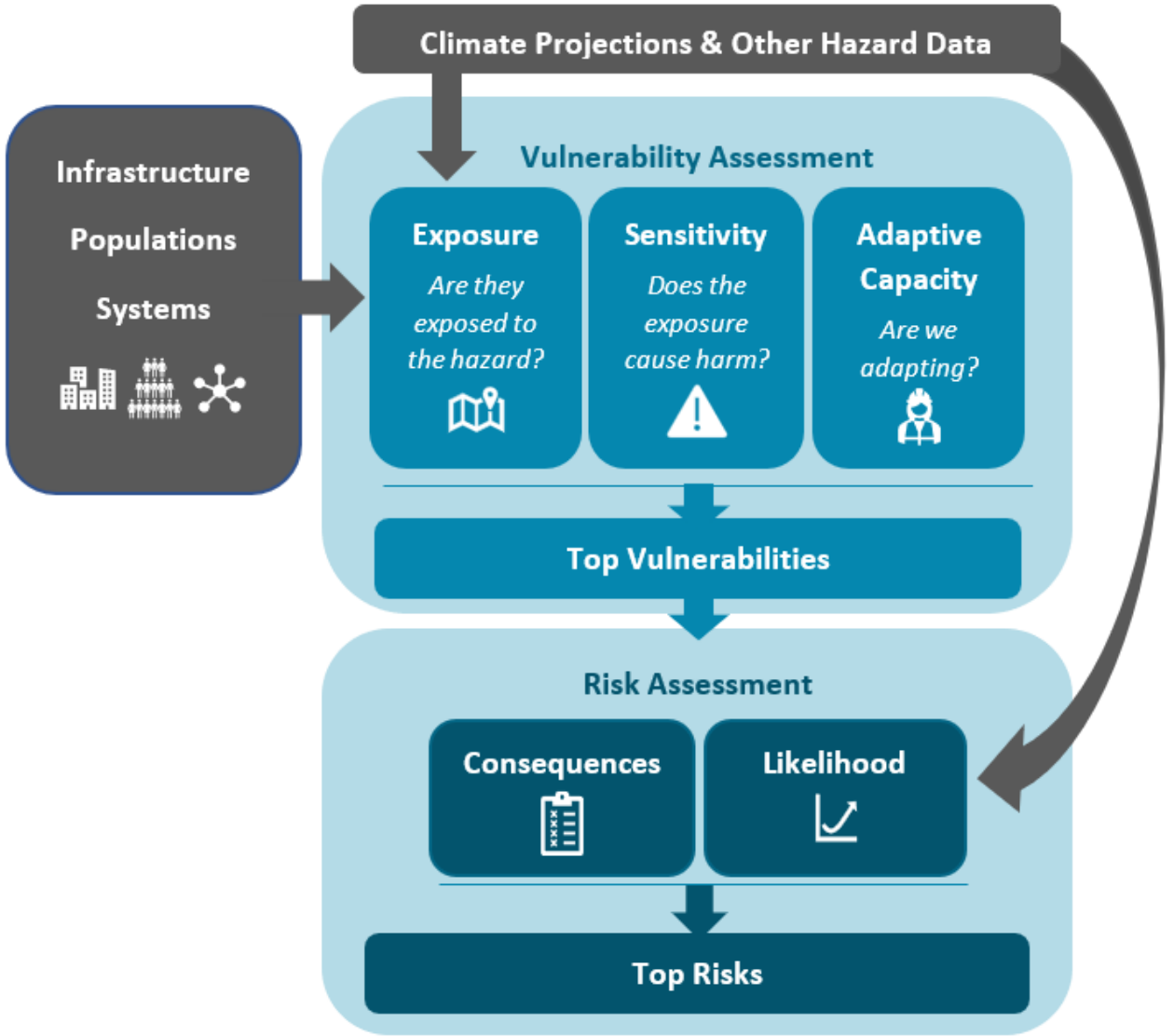
There are 4 major types of climate-related flooding in Fairfax County

Inland Flooding		Coastal Flooding	
1. STORMWATER ISSUES Heavy rain overwhelms stormwater infrastructure	**2. FLOODPLAINS** Heavy rain makes rivers and streams overflow	**3. SEA LEVEL RISE** Rising sea means a rising Potomac River	**4. COASTAL STORM SURGE** Hurricanes, tropical storms, etc. push water on shore
			

2. Vulnerability and Risk Assessment (VRA)

"Given these projections, where are we vulnerable?"

- 27 sub-sectors analyzed for 6 hazards
- **Vulnerability =**
  - *Exposure*
  - *Sensitivity*
  - *Adaptive Capacity*
- **Risk =**
  - *Likelihood*
  - *Severity of Consequence*



Office of Environmental and Energy Coordination

2. VRA: Top Vulnerabilities

1. Heavy Precipitation causing inland flooding of communities (186)

People, Roads, Transit, Bldgs, SWM, WWM, EMS, Parks/Rec, Waters, ESAs, Trees, Historic, Farms

2. Combined hazard stress on natural systems (186)

Waters, ESAs, Trees, Farms, Parks/Rec

3. Storms & Wind causing damage & safety risks (177)

People, EMS, HCS, Roads, Trees, Bike/Ped, Transit, Bldgs, Parks/Rec, Historic

4. Storms & Wind causing power outage impacts (159)

Electric, People, EMS, HCS, Water, Telecomm, Transit, Bldgs, Parks & Rec

5. Extreme heat causing health impacts (117)

People, EMS, HCS, Transit, Bike/Ped, Parks/Rec, WM

6. Coastal flooding impacts (72)

People, Buildings, Waters, ESAs

7. Extreme heat causing damage to built systems (54)

Electric, Roads, Transit, Bike/ Ped

3. Audit of Existing Policies, Plans, and Programs

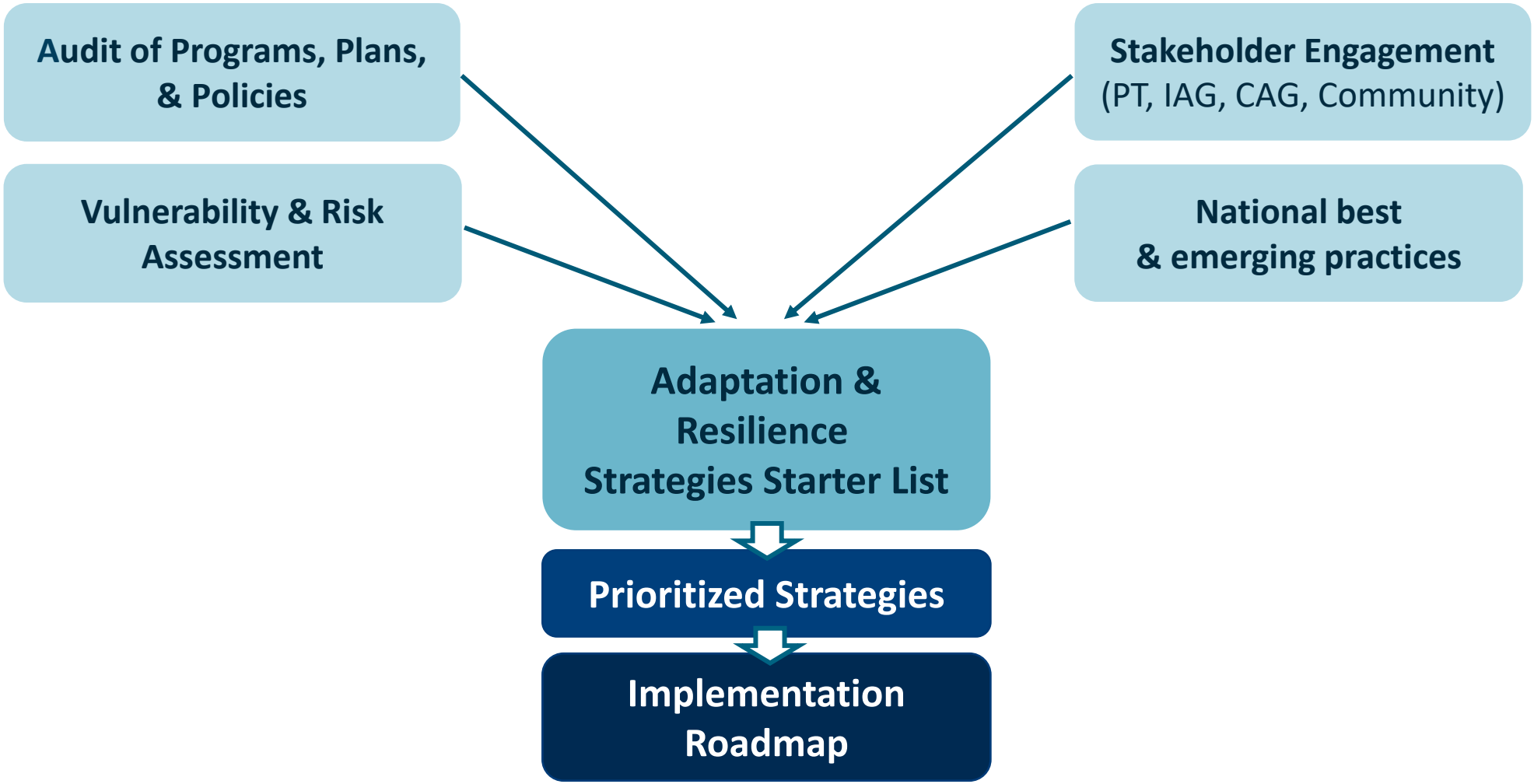
"How are we currently doing in terms of climate resilience?"

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

Category		Summary	
	**Governance**	Strong (3.6)	Commitments, coordination, funding, staff
	**Water Infrastructure**	Strong (3.4)	Drinking water, stormwater, wastewater plans & policies
	**Natural & Cultural Resources**	Strong (3.4)	Floodplain regs, insurance, NR protections, incentives
	**Transportation Infrastructure**	Neutral (3.0)	Transportation assessments, design, standards, upgrades
	**Buildings & Sites**	Neutral (3.0)	Building code, site design, permitting, incentives
	**Energy Infrastructure**	Neutral (2.8)	Grid assessments, back-up power, energy storage policies
	**Cross-Cutting**	Neutral (2.6)	Data, resources, emergency mgmt, incentives
	**Population Services**	Neutral (2.5)	ID vulnerabilities, engagement, investments, resources

4. Strategies for Climate Adaptation and Resilience

"What should we do?"



4. Strategy Goals

Strategies should:

- ✓Include a diverse and balanced mix of actions
- ✓Address range of top risks
- ✓Consider key next steps

4. Strategies: Overview of Draft Categories

Resilient Infrastructure & Buildings

- Resilience in major county infrastructure decisions
- County building & facility resiliency
- Advocacy for external infrastructure resiliency

Climate Ready Communities

- Network of safe & resilient spaces
- Community capacity to prepare for, withstand, and recover from events
- Climate-ready development

Adaptive Environments

- Protection of natural resources that enhance resilience
- Restoration of damaged areas with nature-based and natural solutions

Integrated Action Planning

- Resilience into county plans and policies
- Resilience data collection
- Funding plan
- Continued interagency coordination

4. Strategies Overview: For Reference

Resilient Infrastructure & Buildings			Climate Ready Communities			Adaptive Environments		Integrated Action Planning			
County infrastruc-ture decisions	**County building & facility resiliency**	**Advocacy for external infra-structure resiliency**	**Network of Safe & Resilient Spaces**	**Community Capacity**	**Climate Ready Development**	**Protection of existing natural resources that enhance resilience**	**Restoration of damaged areas with nature-based and natural solutions**	**General Planning**	**Data Collect-ion**	**Funding Strategy**	**Agency Coord-ination**
Capital Improvement Projects (CIP) criteria updates	Flood resilience for county facilities	Building code advocacy	Resilience Hubs	Engagement & aid in vulnerable areas	Flood-resilient development standards to factor in climate	Conservation and protection of environmentally sensitive areas	Green infrastructure: for stormwater management & heat mitigation	Comprehensive Plan updates	Resilience metrics	County climate fund	Interagency collaboration
Stormwater Capital Project decisions	Heat resilience for county facilities	Public transit advocacy	Adaptation Action Areas (AAAs)	Education & guidelines for flood, heat, and storm resilience	Heat-resilient development standards to factor in climate	Updates requirements for conservation easements	Stream corridor restorations	Zoning Ordinance updates	Research & data support	Federal & State Funding	Staff training and capacity building
Public Facility Manual (PFM) Updates	Energy resilience for county facilities	Energy resiliency advocacy	Targeted tree plantings	Workforce development for resilience skillsets	Transfer of Development Rights (TDR) ordinance	Enhance review process for Resource Protection Areas (RPAs)	Urban reforestation	Strategic Plan updates	Tree canopy data	Funding for long-term data collection	Continuity of operations plans (COOP) during hazards
Architecture and Engineering (A/E) procurement updates			Warning system for extreme heat and other climate hazards	C-PACE expansion		Consolidated Natural Resources Management Plan	Living Shorelines	Climate and Health Plan completion	Hazard mitigation tracking	Additional funding, grants, PPPs, cost-shares	
Wastewater planning						Climate projections into Urban Forestry program	Wetland and floodplain restoration		Flood-prone areas and rainfall data consolidation		
Transportation planning							Regenerative agriculture		Lidar regular updates		

**Draft strategies may be further revised during review by appropriate county agencies.*

Reducing Energy Demand

- **Existing energy programs for the public:**
  - ✓ HomeWise (low-to-moderate income)
  - ✓ Energy Action Fairfax (everyone)
  - ✓ Solarize Fairfax County and Solar Incentives
  - ✓ C-PACE
- **Existing energy demand reduction programs for county government:**
  - ✓ Carbon Neutral Counties, Operational Energy Strategy, Fairfax Green Initiatives
  - ✓ ESCOs, Energy Dashboard,
  - ✓ Solar PPAs
  - ✓ Green (County) Buildings, Sustainable Development Policy for Capital Projects
- **RGGI financing specifically**
  - Virginia Community Flood Preparedness Fund
  - Housing Innovations in Energy Efficiency
- **Grid stability**
  - Dominion and NOVEC manage the grid (rather than the county)
  - Resilient Fairfax: advocacy strategy to encourage grid stability upgrades
  - State Corporation Commission

Resilient Fairfax Next Steps

Next Steps

- **Ongoing**: Development of Strategies and Implementation Roadmap
- **March 2022:** Next IAG, CAG, PT meetings
- **April 2022:** Resilient Fairfax Plan compiled draft released for Public Comment
- **July 2022**: Final Draft Resilient Fairfax Plan presented to BOSEC
- **Fall 2022:** Present Final Resilient Fairfax Plan to Board of Supervisors

Contacts

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- OEECinfo@fairfaxcounty.gov for any other OEEC initiatives.