



Office of Environmental and Energy Coordination

*Overview of Office, Programs
and Initiatives*

Planning Commission:
Environment Committee

June 24, 2021



Agenda

- I. Overview of OEEC
- II. Energy Analysis & Management
- III. Community Engagement
- IV. Climate Change Planning & Action

OEEC Mission Statement

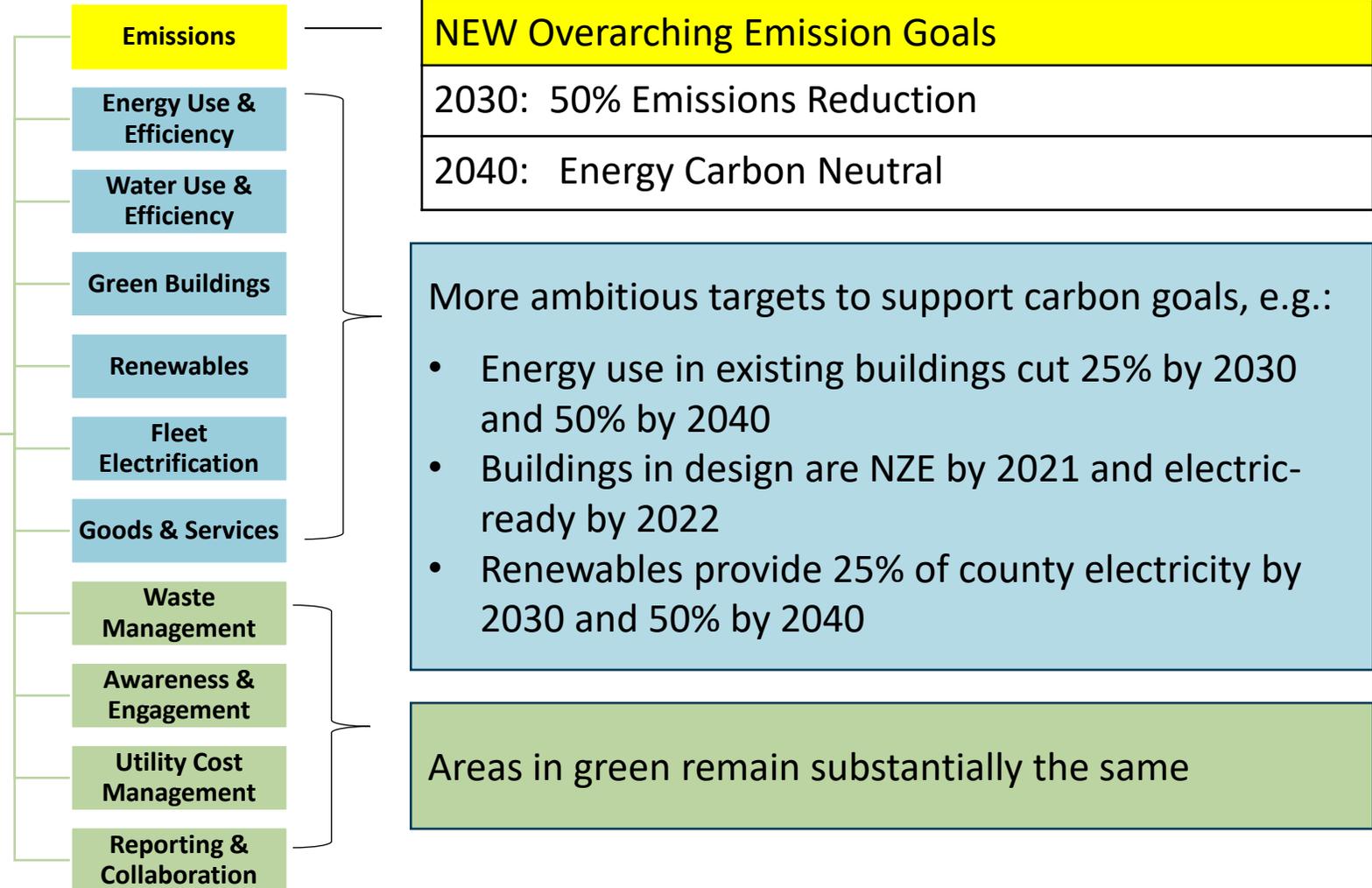
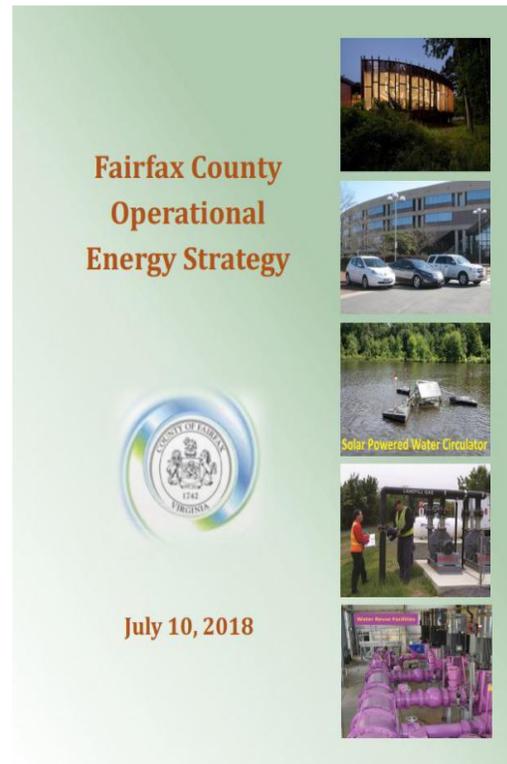
The Fairfax County Office of Environmental and Energy Coordination (OEEC) is situated within the **Office of the County Executive** and is responsible for leading the county's **cross-organizational** development and implementation of effective **environmental and energy policies, goals, programs and projects**. OEEC engages county departments, authorities, businesses and residents to advance environmental and energy priorities and address community needs.

OEEC Core Areas of Focus

 Energy Analysis & Management	 Community Engagement	 Climate & Resilience Planning	 Cross-County Policies
<ul style="list-style-type: none"> • Operational Energy Strategy • County’s energy dashboard • Solar Power Purchase Agreements 	<ul style="list-style-type: none"> • Energy Action Fairfax • HomeWise • Green Business Partners • C-PACE • FEEE • Solarize Fairfax County • General public engagement 	<ul style="list-style-type: none"> • Both Mitigation & Adaptation • Community-wide Energy and Climate Action Plan (CECAP) • Resilient Fairfax 	<ul style="list-style-type: none"> • Environmental Improvement Program • Fairfax Green Initiatives

Energy Analysis & Management

Proposed Operational Energy Strategy Update



NEW Overarching Emission Goals

2030: 50% Emissions Reduction

2040: Energy Carbon Neutral

More ambitious targets to support carbon goals, e.g.:

- Energy use in existing buildings cut 25% by 2030 and 50% by 2040
- Buildings in design are NZE by 2021 and electric-ready by 2022
- Renewables provide 25% of county electricity by 2030 and 50% by 2040

Areas in green remain substantially the same

Community Engagement

Programs & Initiatives

- Energy Action Fairfax
- FEEE
- Green Business Partners
- HomeWise
- Solarize Fairfax County
- C-PACE



Climate Change Planning and Action



CECAP: Community-Wide Climate & Energy Action Plan

Reducing emissions that 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
- January 2020 – July 2021 plan; Fall 2021 BOS



Resilient Fairfax

Adaptation & resilience to climate effects

- Ex: Resilience to flooding, extreme temperatures, extreme weather, health hazards, precipitation pattern changes
- Lead by government, infrastructure partners
- Feb 2021 – June 2022 plan; Fall 2022 BOS

CECAP Overview

- **CECAP is a community planning process focused on greenhouse gas (GHG) emission reduction**
- **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**

CECAP Process



CECAP Strategies and Actions

Strategy 1	Increase energy efficiency and conservation in existing buildings	Strategy 6	Increase energy supply from renewable natural gas (RNG), hydrogen, and power-to-gas
Action 1a	Energy efficiency in residential buildings	Action 6a	Expansion in supply and use of renewable natural gas, hydrogen, and power-to-gas
Action 1b	Energy efficiency in commercial buildings	Strategy 7	Increase electric vehicle (EV) adoption
Action 1c	Energy efficiency in local government existing buildings and streetlights	Action 7a	EV use across on-road vehicles and off-road equipment through the use of County assets
Action 1d	District energy and CHP systems	Action 7b	EV adoption by consumers and private fleets
Action 1e	Gas and electricity demand programs	Action 7c	EV chargers in new buildings
Strategy 2	Pursue beneficial electrification in existing buildings	Strategy 8	Support efficient land use, active transportation, public transportation and transportation demand management (TDM) to reduce vehicle miles traveled
Action 2a	Beneficial electrification in existing residential buildings	Action 8a	Bicycle and pedestrian infrastructure
Action 2b	Beneficial electrification in existing commercial buildings	Action 8b	Public transportation and commuter services
Action 2c	Reduction in the use of high GWP refrigerants	Action 8c	Smart-growth and transportation demand management (TDM) strategies
Strategy 3	Implement green building standards for new buildings	Strategy 9	Increase fuel economy and use of low carbon fuels for transportation
Action 3a	Increased building code stringency for residential and commercial buildings	Action 9a	Low carbon fuels for transportation
Action 3b	All-electric new residential and commercial construction	Action 9b	Fuel efficiency improvements
Action 3c	Green building principles and practices	Action 9c	Low carbon fuels for aviation
Action 3d	Reuse of existing buildings	Strategy 10	Reduce the amount of waste generated and divert waste from landfills and waste to energy facilities.
Strategy 4	Increase the amount of renewable energy in the electric grid	Action 10a	Reduction in overall waste generation
Action 4a	Large offsite grid renewable energy	Action 10b	Waste diversion from landfills and waste-to-energy through recycling and composting
Action 4b	Grid storage	Strategy 11	Responsibly manage all waste generated including collected residential and commercial waste, wastewater, and other items.
Action 4c	Continued operation of existing nuclear electricity production	Action 11a	Energy capture and use at landfills and waste to energy facilities
Strategy 5	Increase production of onsite renewable energy	Action 11b	Alternative options for long term waste management (landfill, waste to energy, and other options)
Action 5a	Solar PV on existing buildings	Action 11c	Improvements to wastewater treatment processes to capture energy
Action 5b	Solar PV in all new construction	Strategy 12	Strategy 12: Support preservation, restoration, and expansion of natural systems and green spaces
Action 5c	Community Solar projects	Action 12a	Conservation of existing tree canopy and green spaces
Action 5d	Battery storage projects	Action 12b	Expansion of green spaces and tree canopy
		Action 12c	Cross-Disciplinary County Staff Team to Evaluate Climate Change and Natural Resources Policies and Programs

Strategy 3: Recommended Activities for Implementation

Implement green building standards for new buildings

- Voluntary building certifications (proffers) – emphasize high levels of performance
- Prioritize adaptive reuse, reuse vacant/abandoned buildings
- Promote green infrastructure in development projects to protect and expand local natural resources

Strategy 5: Recommended Activities for Implementation

Increase production of onsite renewable energy

- **Promote renewable energy in development projects**
- **Promote solar-ready homes and buildings**

Strategy 7: Recommended Activities for Implementation

Increase electric vehicle (EV) adoption

- **Develop local policies to encourage EV adoption**
- **Explore zoning and land use options to incentivize/encourage EV-ready buildings or EV charging infrastructure**

Strategy 8: Recommended Activities for Implementation

Support efficient land use, active transportation, public transportation and transportation demand management (TDM) to reduce vehicle miles traveled

- Expand walkable paths, bike lanes, encourage placement of bike racks in transit and commercial areas
- Provide for adequate lighting and signaling for pedestrians and bicyclists
- Update the Comprehensive Plan to improve and expand walking and biking infrastructure
- Plant trees along trails and sidewalks
- Use Comprehensive Plan to create higher density neighborhoods, TODs, increase affordable housing options
- Partner with private mobility operators for last-mile solutions

Strategy 12: Recommended Activities for Implementation

Support preservation, restoration, and expansion of natural systems and green spaces

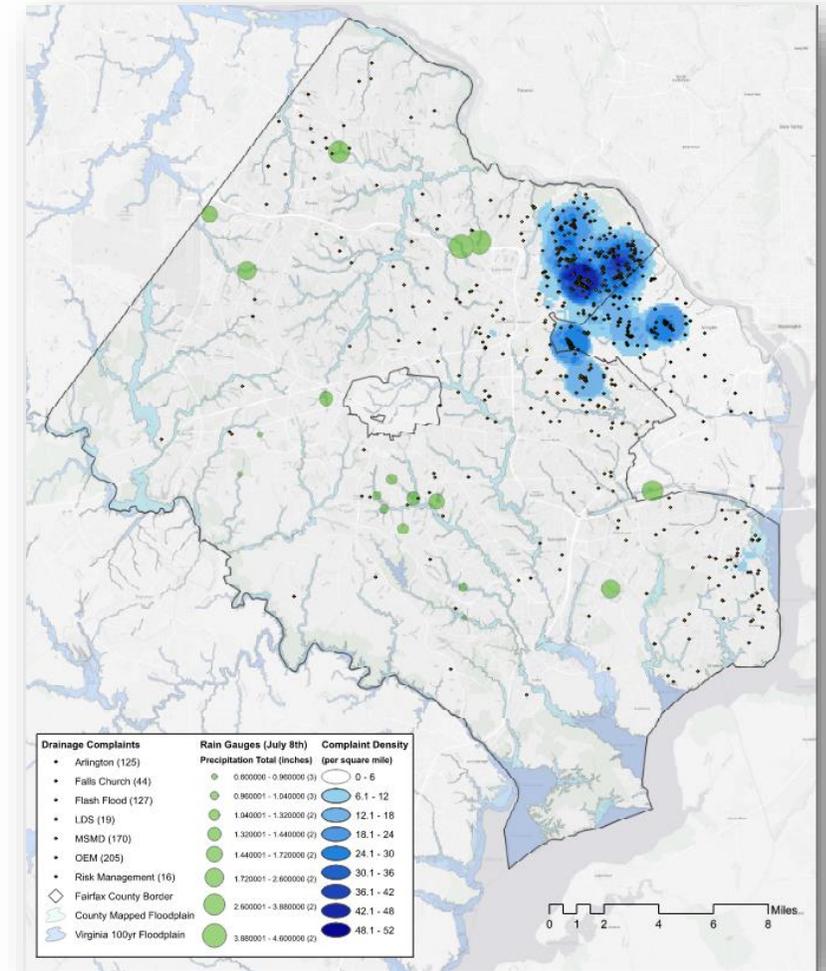
- Use research and inventory data to conduct land use reviews to prioritize open space and preserve natural areas
- Prioritize infill development to conserve existing tree canopies and green spaces
- Continue to monitor county programs to ensure the intended effect for natural resource preservation
- Incentivize preservation of tree canopies and green spaces in development projects
- Provide input on county programs and policies to protect natural resources

Next steps for CECAP

- Presentations to Board
 - Environmental Committee receives CECAP report in July
 - Board adopts Final CECAP Report in September
- Transition from planning to implementation
 - Initial implementation
 - Public education and outreach, including public survey
 - Build on existing County policies, programs, and efforts
 - Develop an implementation plan with Board guidance

Resilient Fairfax: Background

- **Board of Supervisors direction**
 - [Environmental Vision](#)
 - [Fairfax Green Initiatives Board Matter](#)
- **Purpose: address climate effects already taking place**
 - Flooding, severe storms, extreme heat, other effects
 - Example: single 2019 storm: \$14.8 million



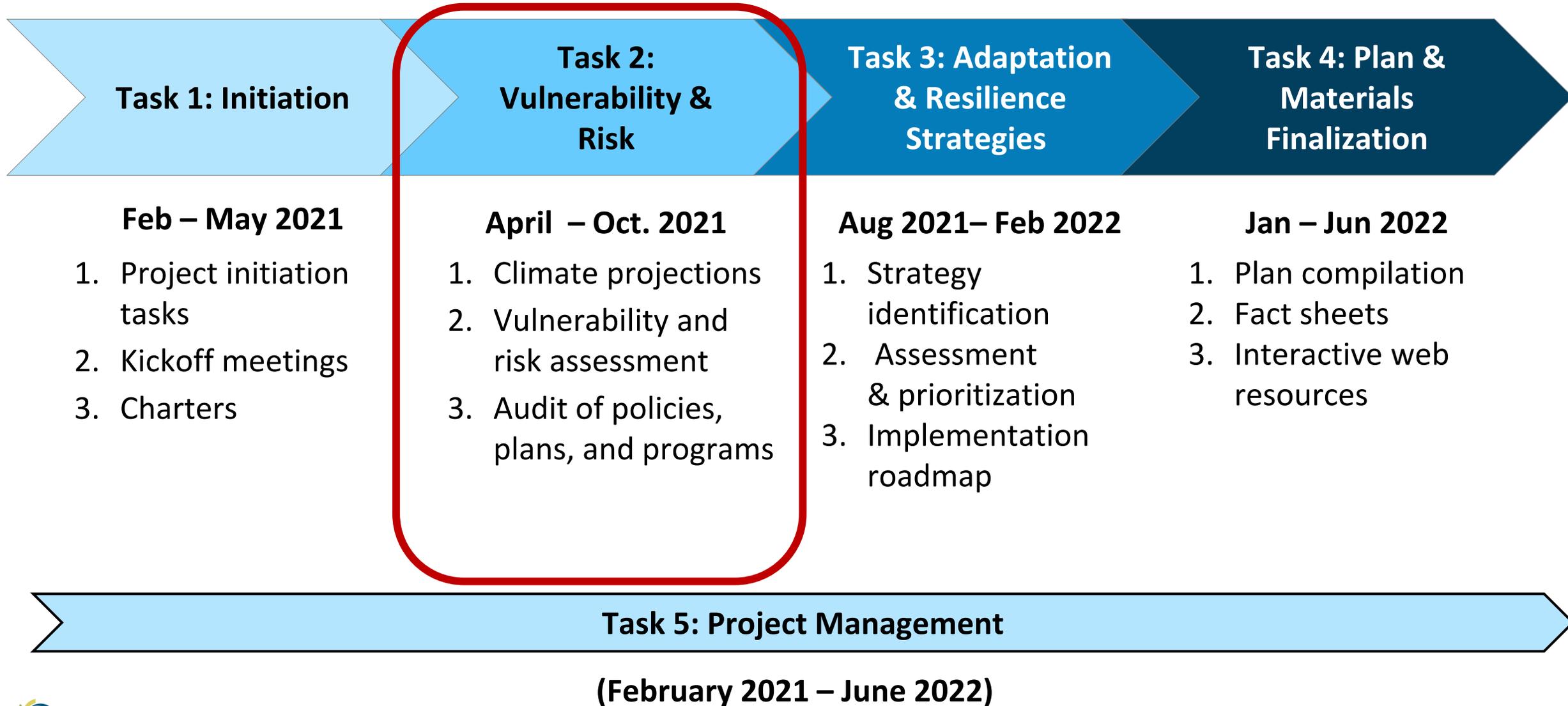
Map of flooding complaints

Resilient Fairfax's purpose is to determine:

- **What climate change *effects* will our county face?**
 - Flooding, temperature, storm severity, etc.
- **Where are we vulnerable?**
 - Infrastructure, Population, Services/Operations
- **What policies, programs, and plans do we have in place?**
 - Which work well and can be expanded?
 - Where are the gaps?
- **Which strategies will strengthen our resilience?**
 - Feasibility, Priority
- **What is the path to implementation?**
 - Funding, policies, operations, partnerships



Resilient Fairfax Scope of Work



Resilient Fairfax Key Players

Project Management Team: Office of Environmental and Energy Coordination Staff

Consultant Team: Cadmus, WSP, NSpireGreen

Planning Team (PT): County departments & agencies (DFS, DOT, DPD, DPWES, DVS, FCPA, FCPS, FMD, GIS, HD, HCD, LDS, NCS, NVSWCD, OEEC, OEM, OneFairfax, PSC)

Infrastructure Advisory Group (IAG): Utilities, authorities, building industry groups, transportation commissions, regional partners, state agencies, federal agencies

Community Advisory Group (CAG): District reps, community, advocacy groups

Steering Committee (SC): Deputy County Executives, Equity Officer

Climate Hazards in Fairfax County



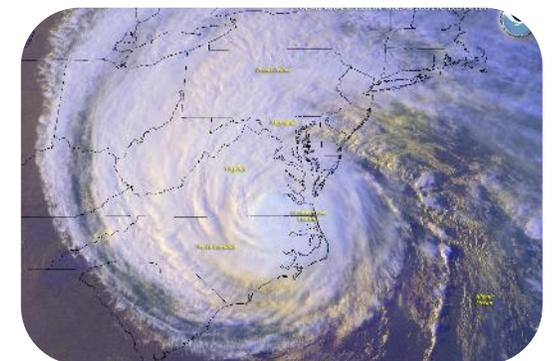
Extreme Heat



Extreme Precipitation
Events



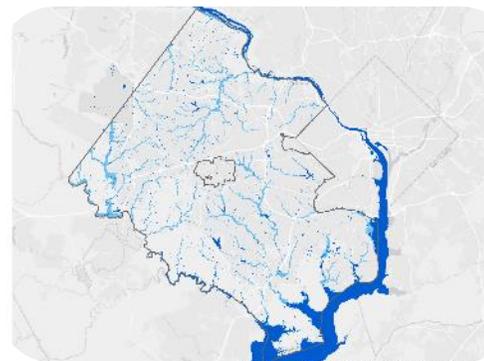
Inland Flooding



Extreme Storms



Severe Wind



Coastal Flooding

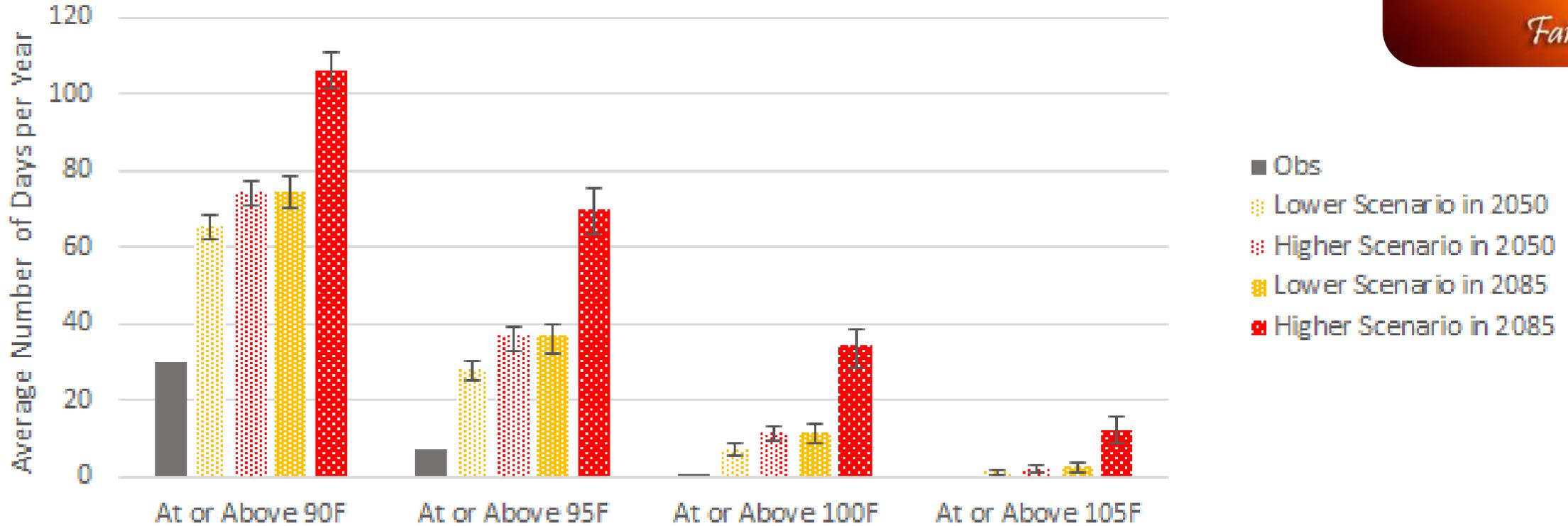


Drought



Extreme Cold

Extreme Heat



By 2050, 35 to 44 additional days above 90°F each year in Fairfax County

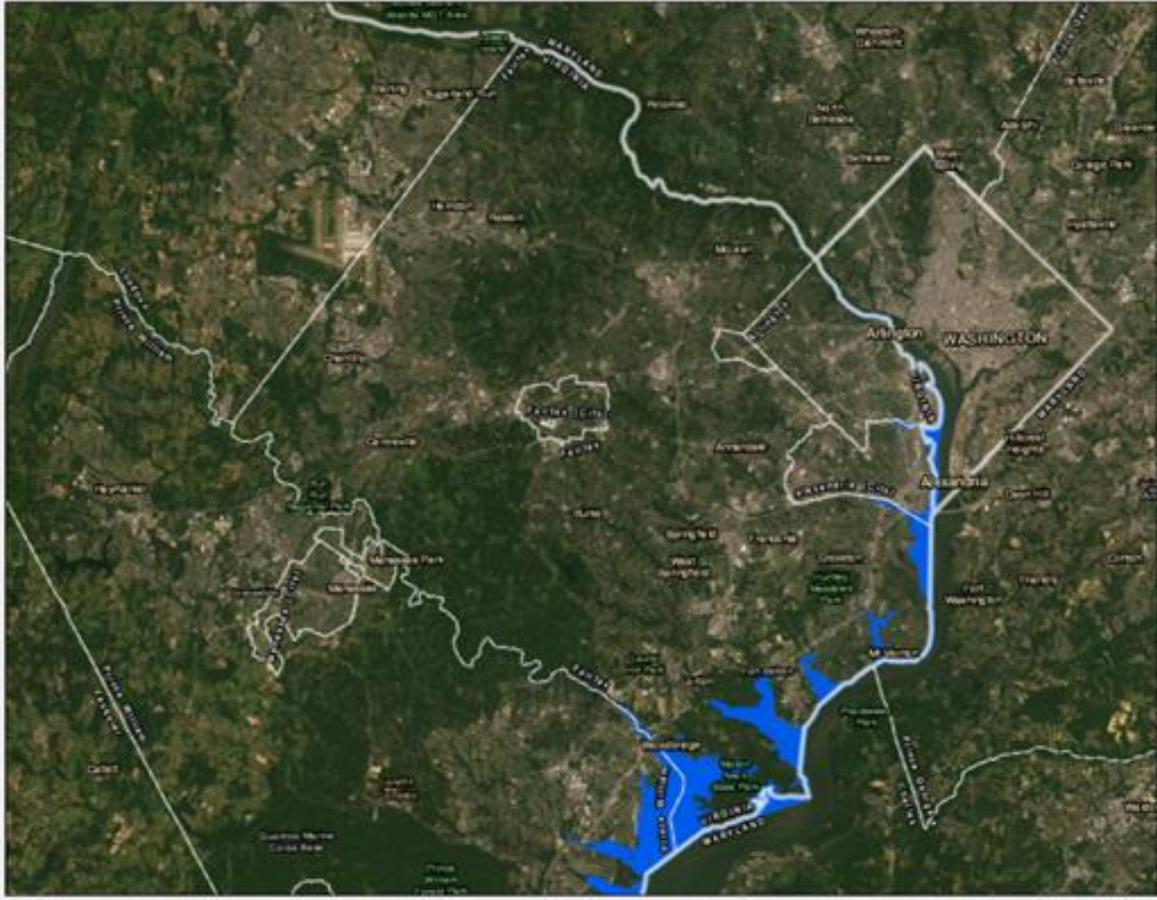
Extreme Precipitation

More frequent, higher intensity events

- Increase in the top 1-percentile of daily precipitation
- Increase in maximum 5-day precipitation
- Shift from snow to rain
- Increase in precipitation depths across all return periods (2-year to 500-year) and durations (24-hr, 12-hr, 6-hr, 3-hr, 2-hr, 10hr)



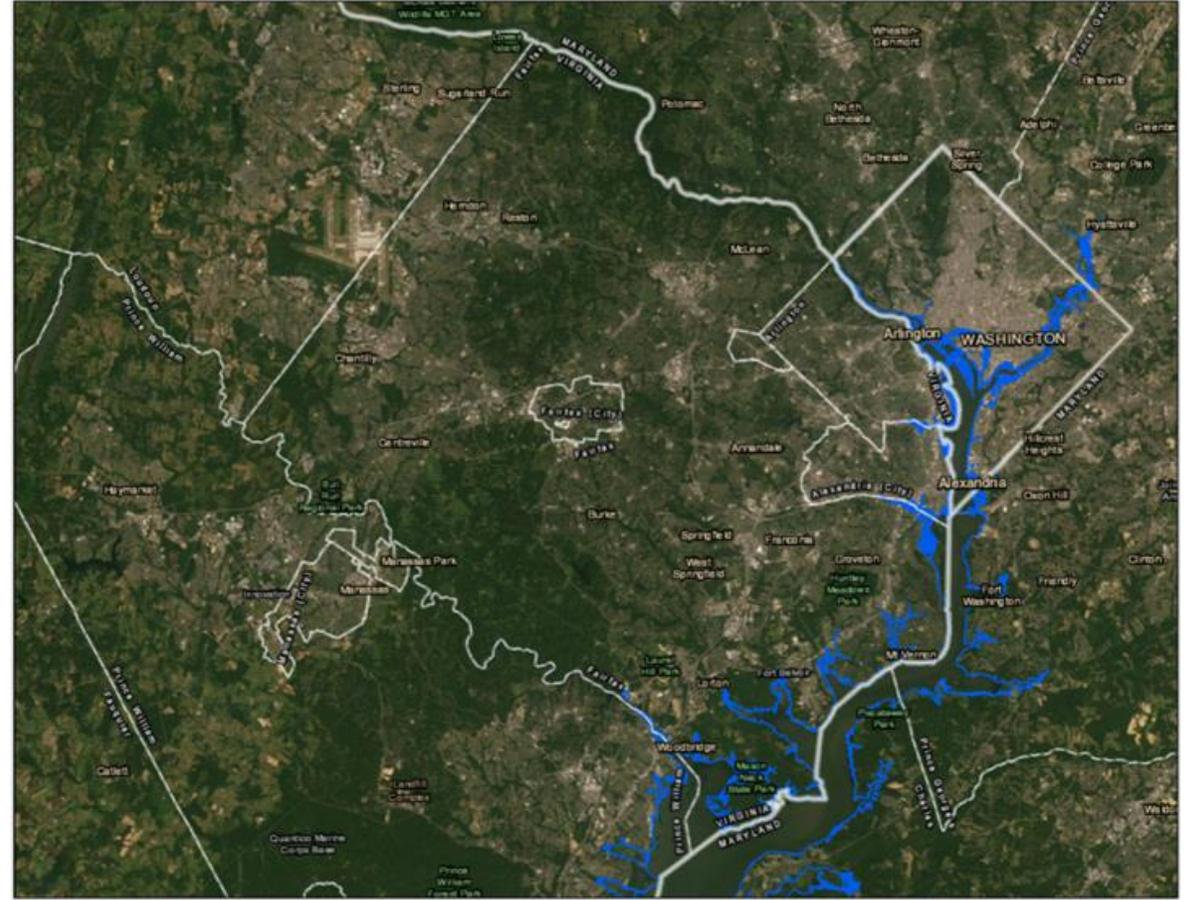
Coastal Flooding



3 feet of sea level rise

Source: NOAA

(2050 relative to 1991-2009)



Category 2 hurricane storm surge

Source: USACE

(2050 of coastal flooding under 3 feet of rise)

Relevance to Planning Commission (1 of 2)

Ultimately, implementation of Resilient Fairfax strategies

Examples may include:

- Demonstration that plans account for climate projections
- Buildings located away from & above flood-prone areas
- Cooling centers
- Cool roofs & pavements
- Tree preservation for urban heat island effect and flooding reduction
- Green infrastructure and other on-site stormwater management
- Floodproof critical infrastructure & other flood protection



Relevance to Planning Commission (2 of 2)

Questions for the Planning Commission – for Resilient Fairfax Audit

- **Where are the current gaps & limitations?:**
 - What are the current limitations in the PC's ability to recommend or advocate for climate resiliency measures?
 - Do you see the need for changes in Comprehensive Plan policies to support Resilient Fairfax?
- **What would be helpful to Planning Commission members?**
 - More detailed information on climate projections?
 - More specific education on climate resiliency strategies?
 - Other?





**Fairfax County
Office of Environmental and Energy
Coordination**

12000 Government Center Parkway
Suite 330
Fairfax, VA 22035

703-324-7136
oeecinfo@fairfaxcounty.gov

www.fairfaxcounty.gov/environment-energy-coordination