



# Resilient Fairfax

*Climate Adaptation and  
Resilience Plan*

## Community Meeting

June 15, 2021



Office of Environmental and Energy Coordination

CADMUS



# Welcome!





# Agenda (I)

## **I. Welcome & Background**

II. Climate Hazards &  
Projections

III. Climate Adaptation &  
Resiliency

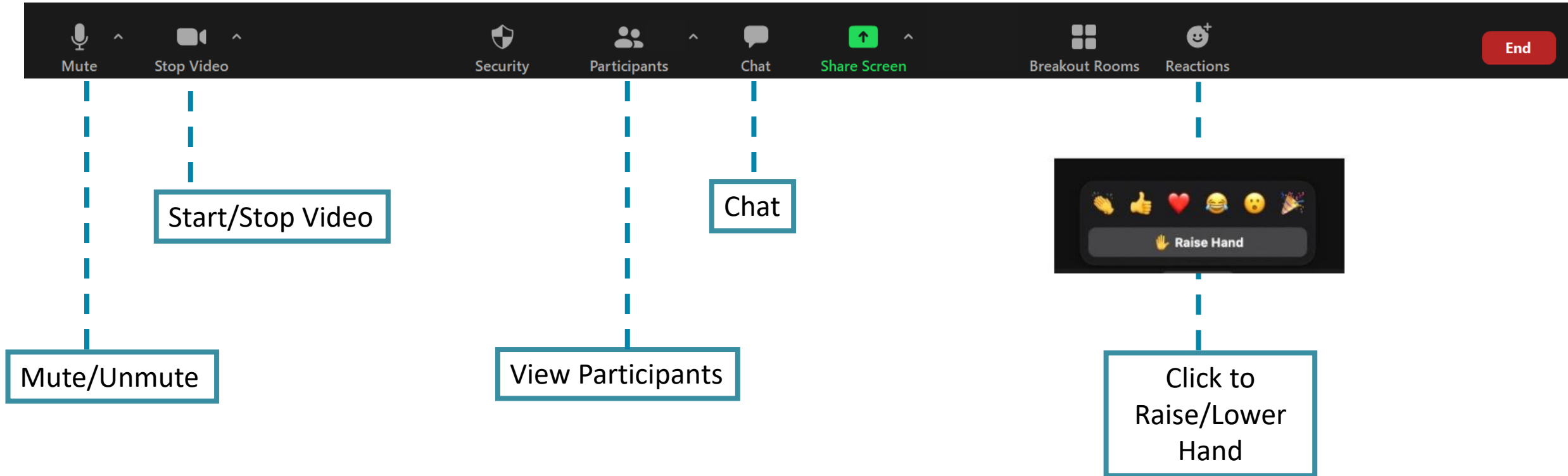
Break

IV. Discussion Session

V. Adaptation & Resiliency  
Strategies

VI. Next Steps

# Zoom Technology Review



**NOTE: Recording in progress**

# Goals & Participation Process

- **Meeting Goals**

- Share what's happening with Resilient Fairfax and ongoing County efforts in adaptation and resiliency
- Gather your feedback on top priorities and concerns

- **Ground Rules**

- Speak openly and honestly
- Listen carefully and respectfully to each person
- Ask questions
- Keep comments brief and stay focused on task
- If you've already spoken, give others the opportunity to speak before you go again
- Explore differences respectfully and look for common ground

# Background : Difference Between the Climate Plans

## Resilient Fairfax: Climate Adaptation & Resilience Plan



### ***Adaptation & resilience to climate effects***

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

## CECAP: Community-Wide Climate & Energy Action Plan



### ***Reducing emissions that contribute to 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

# Purpose & Background

## Resilient Fairfax's purpose is to determine:

- **What climate change *effects* will our county face?**
  - Projections: Flooding, extreme temperature, severe storms, etc.
- **Where are we vulnerable?**
  - Infrastructure, services & operations, homes, businesses, neighborhoods, individuals in path of climate effects
- **Which strategies will strengthen our resilience?**
  - Physical upgrades, policies, design standards, services, staffing, procedural changes, agency coordination, etc.
- **What is the path to implementation?**
  - Funding sources, staffing, timelines





# Planning Team



**Enviro &  
Energy Coord.**



**Family  
Services**



**Emergency  
Mgmt**



**Facilities  
Mgmt**



**GIS &  
Mapping**



**Health  
Dept**



**Housing &  
Comm. Devel.**



**Land Devel.  
Services**



**Neighborhood &  
Community  
Services**



**Nova Soil & Water  
Cons. Dist**



**One  
Fairfax**



**Park  
Authority**



**Planning  
Division**



**Public Safety  
Communications**



**Public Works &  
Enviro Services**



**Public  
Schools**



**Transportation**



**Vehicle  
Services**



**Urban  
Forestry**



**Zoning  
Administration**



# Infrastructure Advisory Group



Metropolitan  
Washington  
Council of Govts



Northern VA  
Regional  
Commission



VA Dept of  
Conservation &  
Recreation



VA Dept of  
Environmental  
Quality



VA Dept of  
Emergency  
Management



VA Dept of  
Transportation



Federal  
Emergency  
Mgmt. Agency



US Dept of  
Defense



Columbia Gas



Cox  
Communications



Dominion Energy



Fairfax Water



Northern VA  
Electric Coop.



Washington  
Metro. Transit  
Authority



Washington Gas



Verizon



Northern VA  
Transp Authority



Engineers &  
Surveyors Inst.



American Society  
of Hwy Engineers



Northern VA  
Bldg Ind. Assoc.



Natl Assoc. Of Indust.  
& Office Properties



Women in  
Transportation



Dept of Public Works  
& Enviro. Services



Dept of  
Transportation



Public Schools

# Community Advisory Group



Braddock



Dranesville



Hunter Mill



Lee



Mason



Mt Vernon



Providence



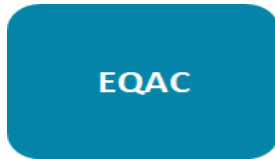
Sully



Springfield



Community Action  
Advisory Board



Environmental  
Quality Advisory  
Council



Multicultural  
Advisory  
Council



Tysons  
Partnership



Small Business  
Commission



NoVA Soil & Water  
Cons. District



Federation of Citizens  
Associations



GMU Institute for a  
Sustainable Earth



League of  
Women Voters



Fairfax County  
NAACP



Cornerstones  
(Pending)



350 Fairfax



EcoLatinos



Faith Alliance for Climate  
Solutions



NoVA Chamber of  
Commerce



Resilient  
Virginia



Sierra  
Club

# Resilient Fairfax: Stakeholder & Community Engagement



Continually open to community feedback : [ResilientFairfax@fairfaxcounty.gov](mailto:ResilientFairfax@fairfaxcounty.gov)  
Web updates & materials: <https://www.fairfaxcounty.gov/environment-energy-coordination/resilient-fairfax>

# Polling: Who's in the room?

## How are you connected to Fairfax County?

- Live in Fairfax
- Work in Fairfax
- Play/Recreate in Fairfax
- Shop in Fairfax
- All the above
- None of the above



# Polling: Who's in the room? (continued 1)

## How long have you lived in Fairfax County?

- <3 years
- 3-6 years
- 6-10 years
- 10-15 years
- 15+ years
- I don't live in Fairfax





# Polling: Who's in the room? (continued 2)

## Which district of Fairfax County do you reside in?

- Braddock
- Dranesville
- Hunter Mill
- Lee
- Mason
- Mount Vernon
- Providence
- Springfield
- Sully
- I don't live in Fairfax County





# Agenda (II)

I. Welcome & Background

**II. Climate Hazards & Projections**

III. Climate Adaptation & Resiliency

Break

IV. Discussion Session

V. Adaptation & Resiliency Strategies

VI. Next Steps



# Climate Hazards in Fairfax



Extreme Heat



Drought



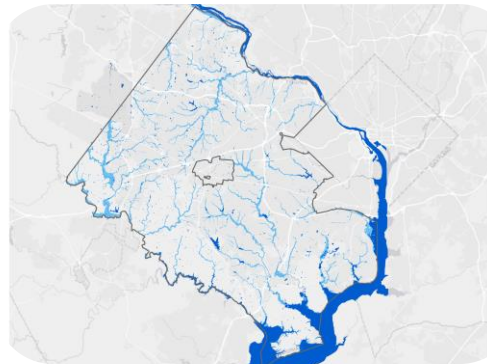
Extreme Cold



Extreme  
Precipitation Events



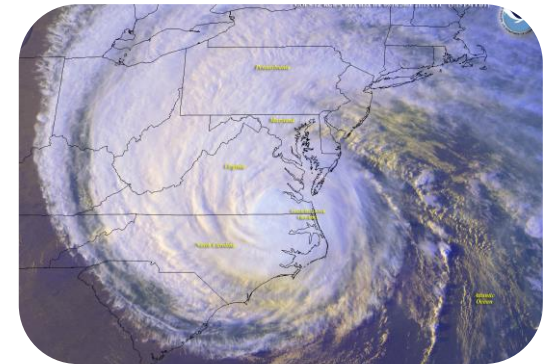
Inland Flooding



Coastal Flooding



Severe Wind

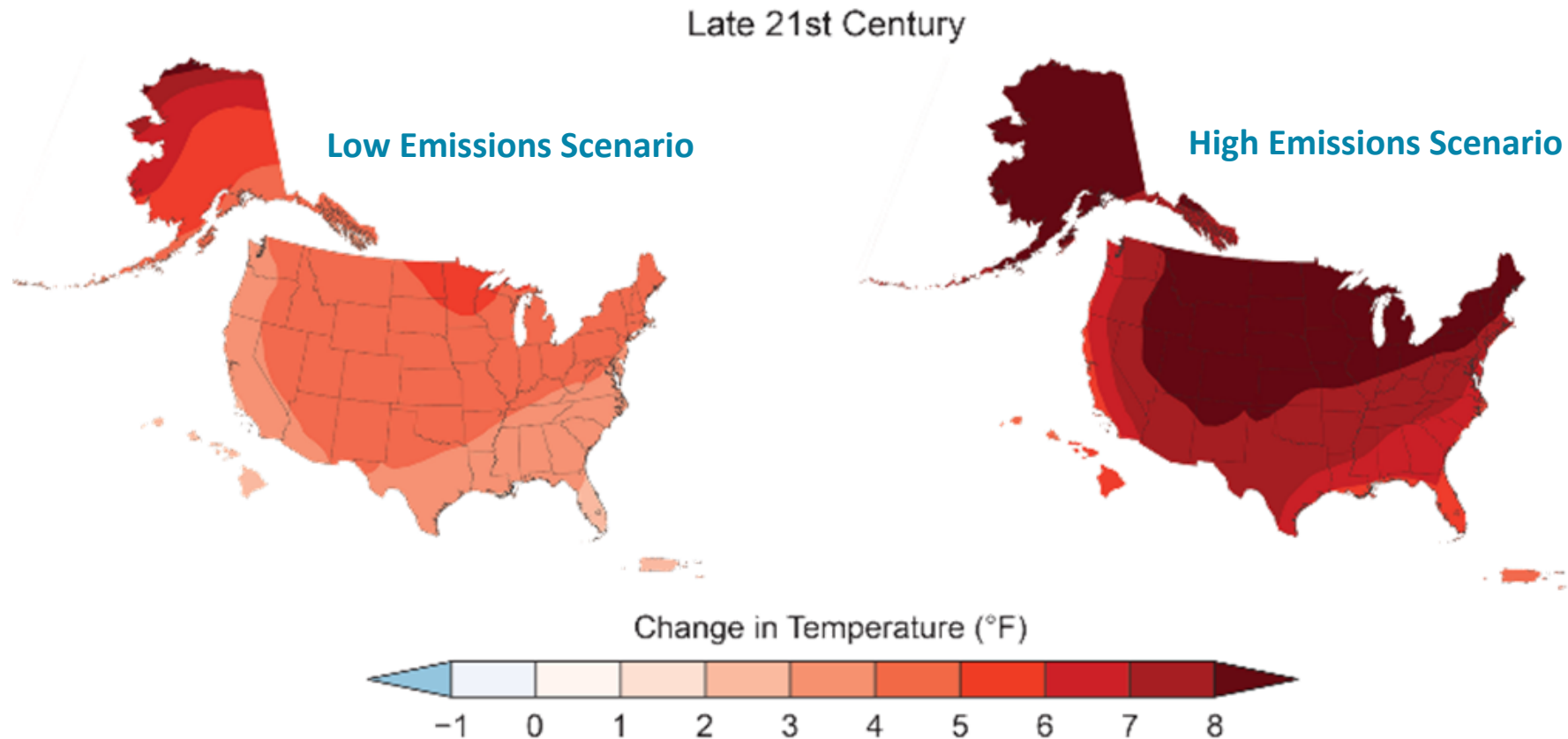


Extreme Storms







# Climate Projections

## How is the climate projected to change in the coming decades?

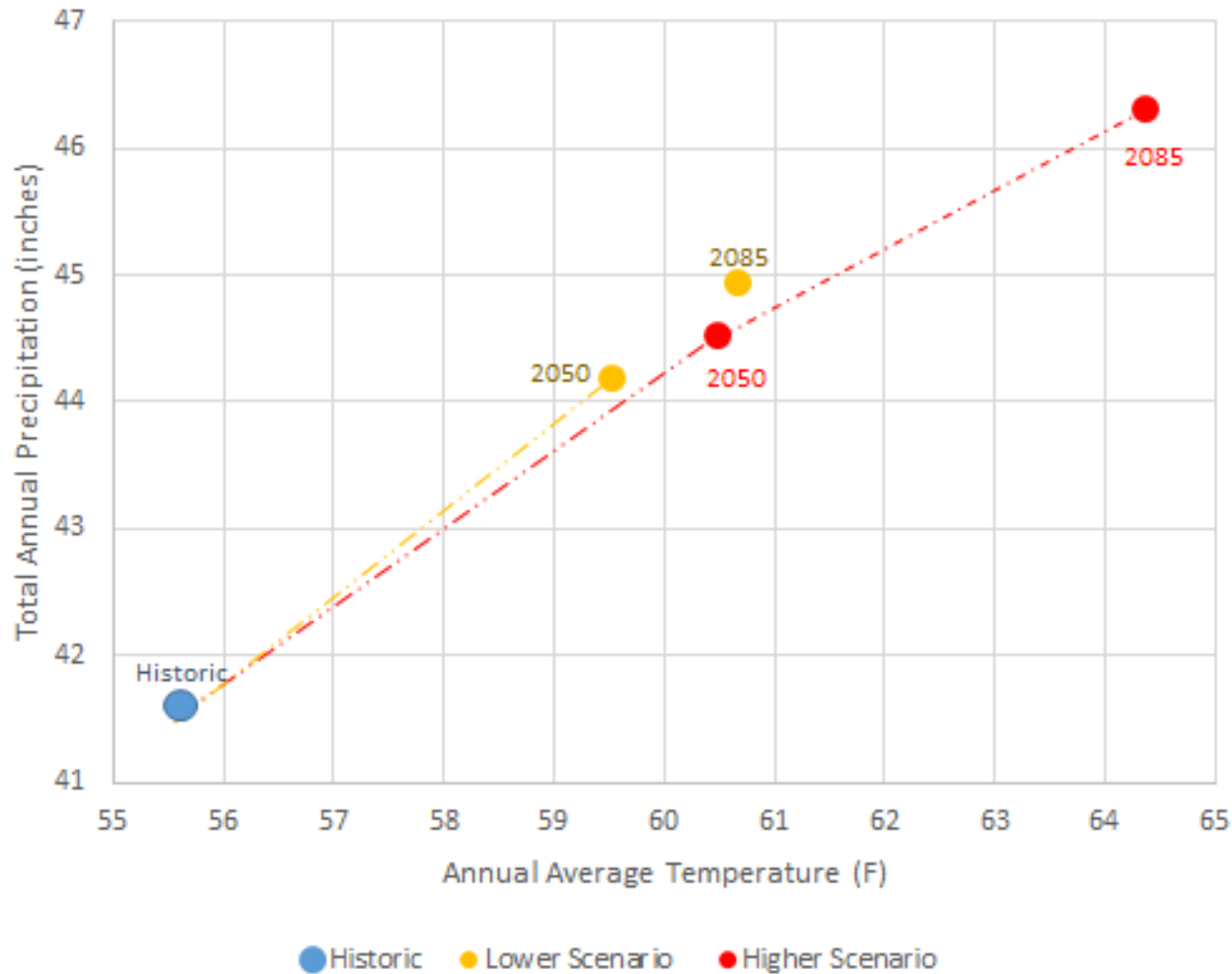
- Climate projections are based on future scenarios of greenhouse gas emissions
- We're unfortunately on track for the "high emissions scenario"



# Summary of Climate Stressors

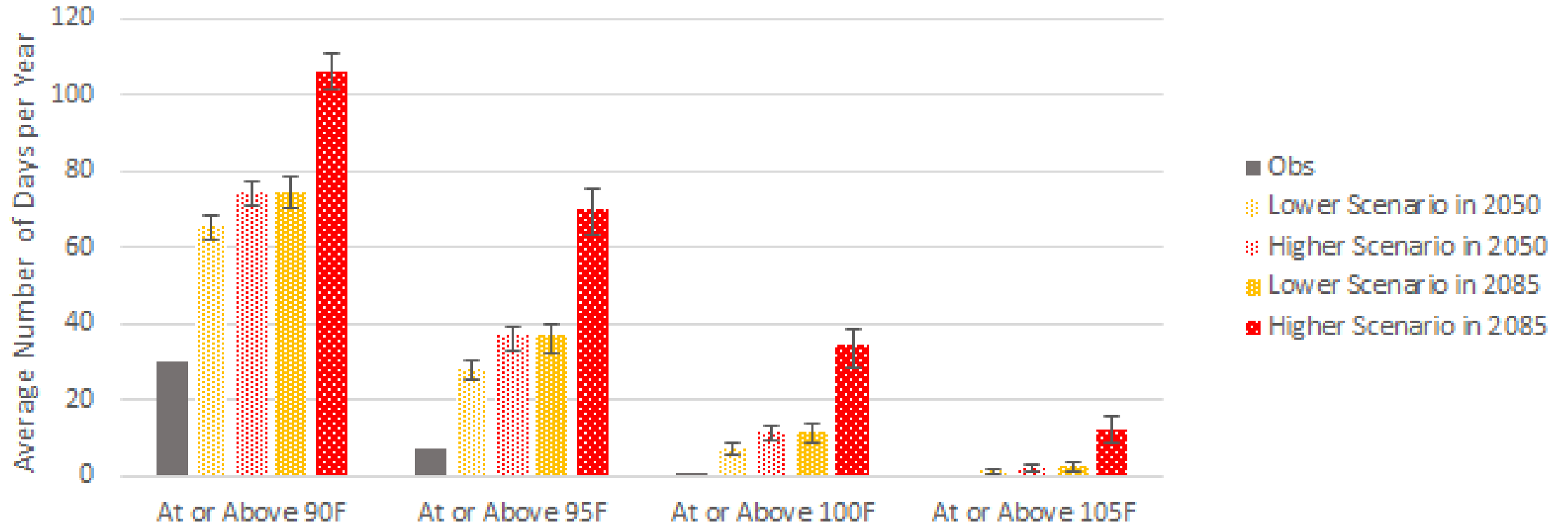
Hazards	Climate Stressors/ Indicators	Populations, Assets, Systems
	<ul style="list-style-type: none"> <li>Days per year above 95F, 100F, 105F per year; Consecutive days above 95F</li> <li>Cooling Degree Days (CDD)</li> </ul>	<ul style="list-style-type: none"> <li>Heat-related illnesses &amp; mortality</li> <li>Increased water &amp; energy (AC) demand</li> <li>Heat damage to bridges, pavement, rail, electrical lines, etc.</li> </ul>
	<ul style="list-style-type: none"> <li>Standardized Precipitation Index</li> </ul>	<ul style="list-style-type: none"> <li>Water supply issues</li> <li>Drinking water &amp; wastewater treatment plants</li> <li>Fire potential</li> </ul>
	<ul style="list-style-type: none"> <li>Days below 32F</li> <li>Freeze-thaw days</li> <li>Heating Degree Days (HDD)</li> </ul>	<ul style="list-style-type: none"> <li>Cold-related health &amp; mortality</li> <li>Increased energy demand</li> <li>Damage to roads, water pipes</li> </ul>
	<ul style="list-style-type: none"> <li>24-hour to 1-hour return periods</li> <li>1-percentile daily precipitation</li> <li>5-day max precipitation</li> <li>Data from past flood complaints</li> </ul>	<ul style="list-style-type: none"> <li>Health &amp; safety risks</li> <li>Damage to homes and buildings</li> <li>Damage to exposed infrastructure and facilities</li> </ul>
	<ul style="list-style-type: none"> <li>SLR: 3 feet for 2050 (high)</li> <li>SLR: 1 foot for 2050 (intermed.)</li> <li>2050 USACE NACCS Cat 2 Storm proxy</li> </ul>	<ul style="list-style-type: none"> <li>Damage to exposed infrastructure &amp; critical facilities</li> <li>Damage to homes</li> <li>Saltwater damage</li> </ul>
	<ul style="list-style-type: none"> <li>Qualitative literature review on storm severity for the region</li> </ul>	<ul style="list-style-type: none"> <li>Health &amp; safety risks, power outages</li> <li>Wind and flooding damage</li> </ul>

# Annual Changes



Fairfax County is  
projected to be  
**Warmer & Wetter**

# Heat Stressor



*By 2050,*

***35 to 44 additional days above 90°F***

***21 to 30 additional days above 95°F***

***each year in Fairfax County***



# Heavy Precipitation Events



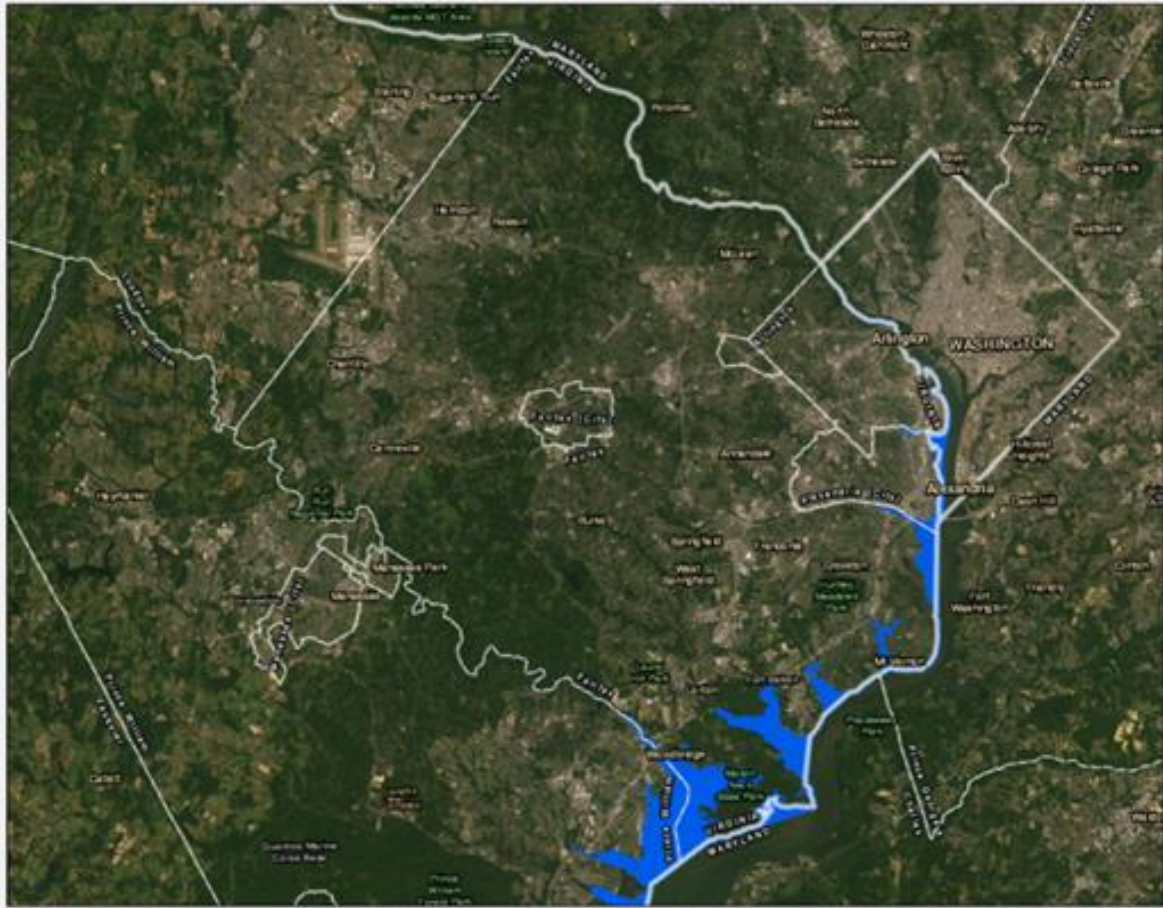
## Increase in more intense precipitation events

- 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)



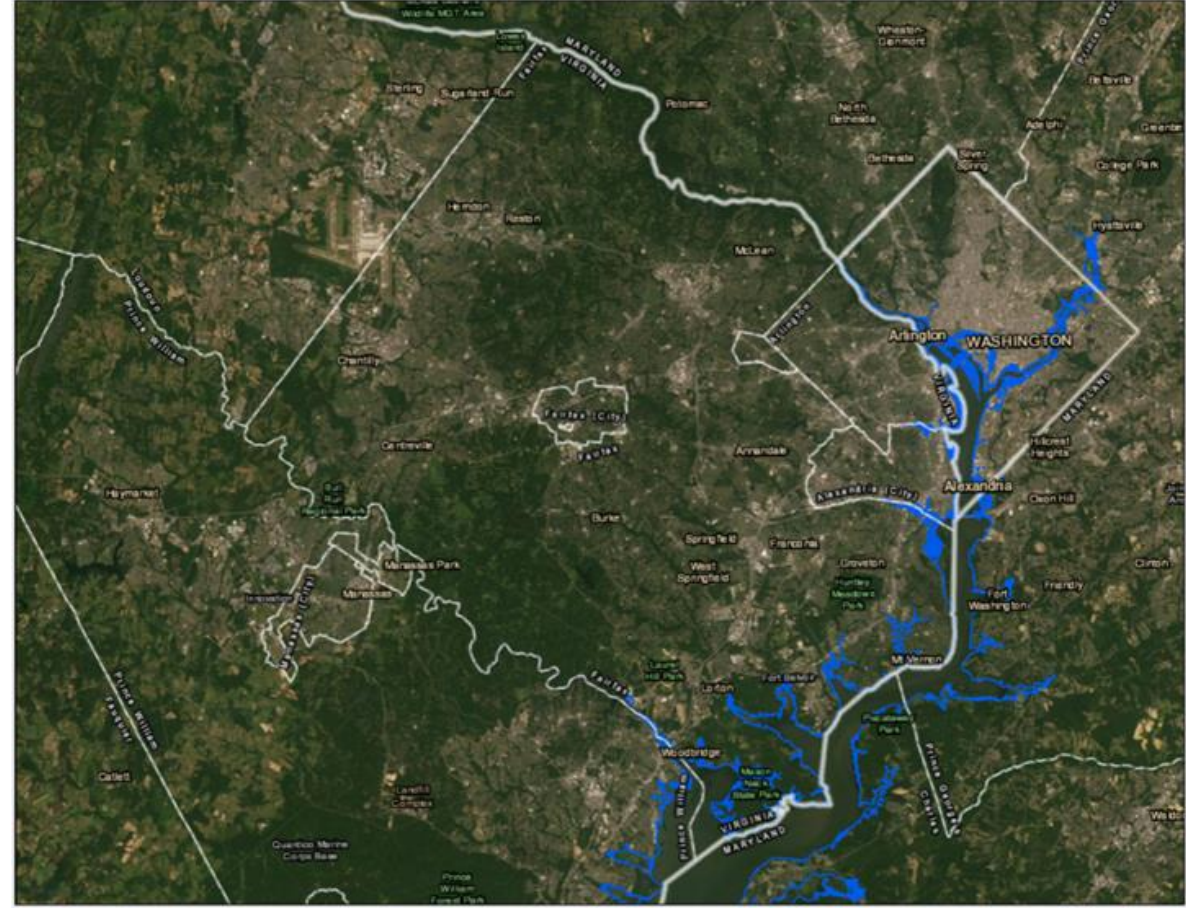


# Coastal Flooding



**3 feet of sea level rise**

Source: NOAA  
(2050 relative to 1991-2009)



**Category 2 hurricane storm surge extent map**

Source: USACE  
(2050 of coastal flooding under 3 feet of rise)



# Future Concerns by 2050

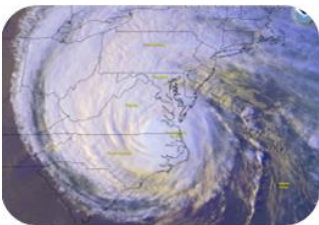
## Most significant:

- Summertime heat
- Heavy precipitation and inland flooding



## Moderate:

- Potential increase in severe thunderstorms
- Coastal flooding for southeastern coastline (including potentially more intense tropical cyclones)



## Minor:

- Drought



## Opportunities:

- Reduced cold temperature events and winter temperatures
- Reduced precipitation falling as snow



# Polling (III)

## What are your top 3 climate hazard concerns?

- Extreme Heat
- Drought
- Extreme Cold
- Extreme Precipitation/ Inland Flooding
- Sea Level Rise
- Severe Wind
- Extreme storms
  - *E.g., blizzards, tropical cyclones*
- Not concerned with climate



# Polling (III, continued)

## How important is it to you to act on climate change?

- Very important
- Important
- Neutral / No opinion
- Not so important
- Not at all important



# Polling (III, continued, 3)

**What locations in the County are you most concerned about being affected by climate change?**

*(Enter a neighborhood name, subdivision name, or intersection in the chat)*





## Agenda (III)

- I. Welcome & Background
- II. Climate Hazards & Projections

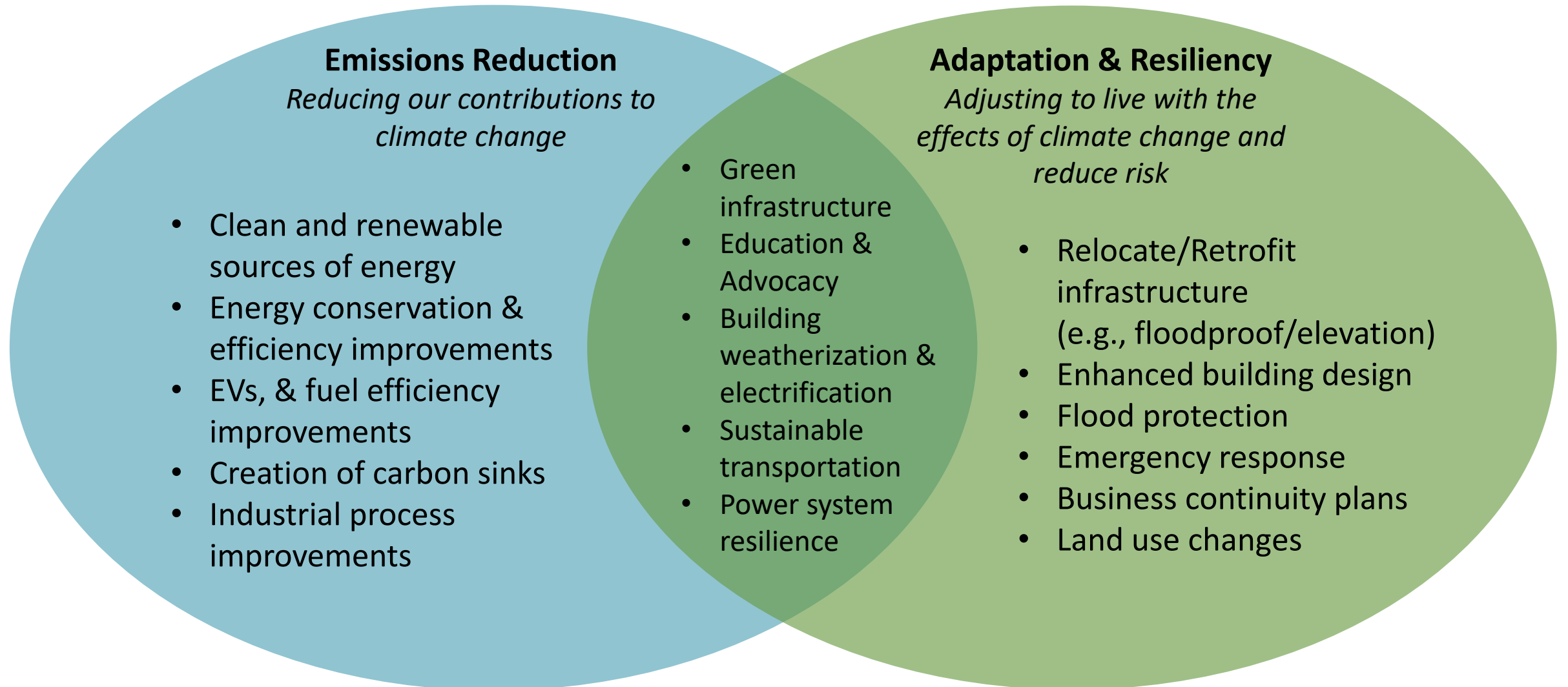
### **III. Climate Adaptation & Resiliency**

Break

- IV. Discussion Session
- V. Adaptation & Resiliency Strategies
- VI. Next Steps



# Climate Action



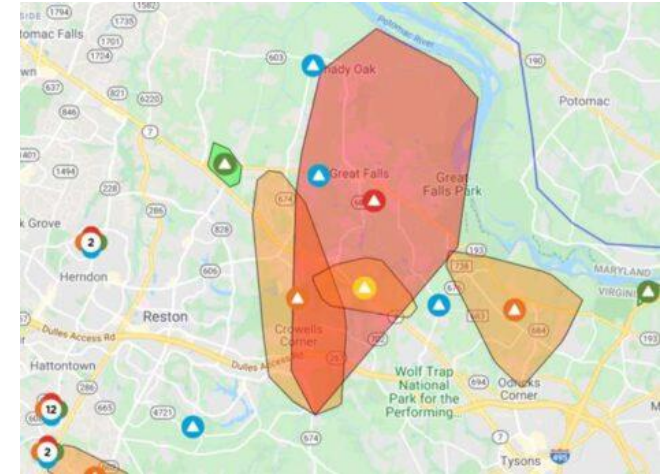
# The Need for Adaptation & Resiliency

To address increasing storm severity, flooding, extreme heat, sea level rise and other climate effects already seen in the County

**Storms:** Severe thunderstorms *three weeks ago* left 5,000+ without power across the County.

**Extreme Temperature:** February 2021 ice storms - iciest weather in the last 15 years

**Flooding:** One 2019 storm event saw \$14.8 million of damage to Fairfax homes and businesses



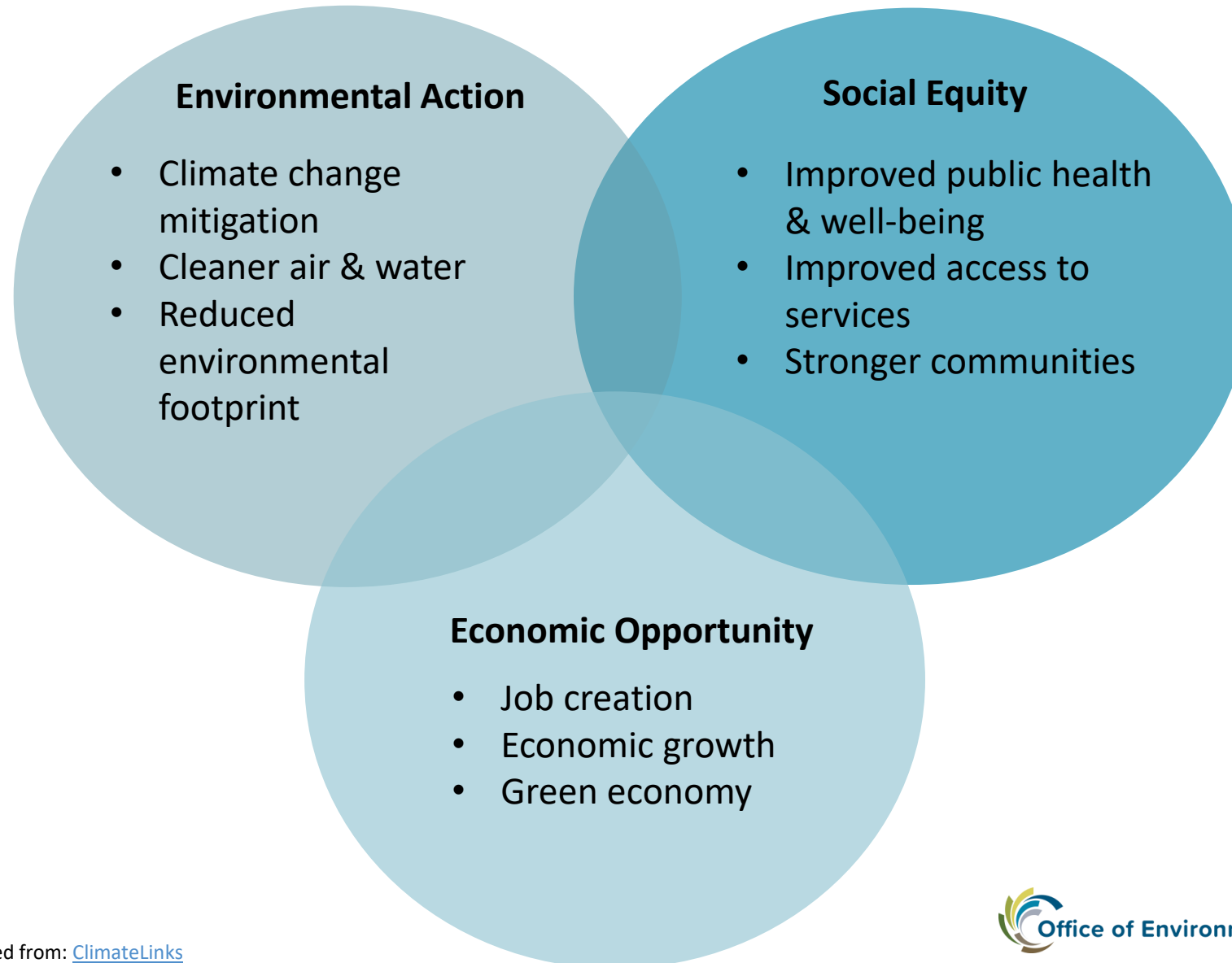
Power outage map, 2021



Flood damage, 2019



# Co-Benefits of Adaptation & Resiliency



# Resiliency in Fairfax

## What are examples of action by different County departments?

### Speakers

- **Catie Torgersen**, Fairfax County Department of Public Works and Environmental Services
- **Cara Howard**, Fairfax County Office of Emergency Management
- **Anna Ricklin**, Fairfax County Health Department
- **Note:** There are **15+** other departments that are also already taking action, including **NCS** (evacuation shelters), **DFS** (emergency AC assistance), and many more.





# DPWES: Emergency & Flood Response Initiatives

- **FEMA National Flood Insurance Program**
  - Community Rating System (CRS)
- **Mitigate Structural Flooding**
  - Stormwater drainage system improvements (pipes, culverts, inlets)
  - Construction of adequately sized paths for water to flow over land without flooding structures
  - Voluntary Property Acquisition
- **Identify known flood prone areas of the county and assess options to address drainage concerns**

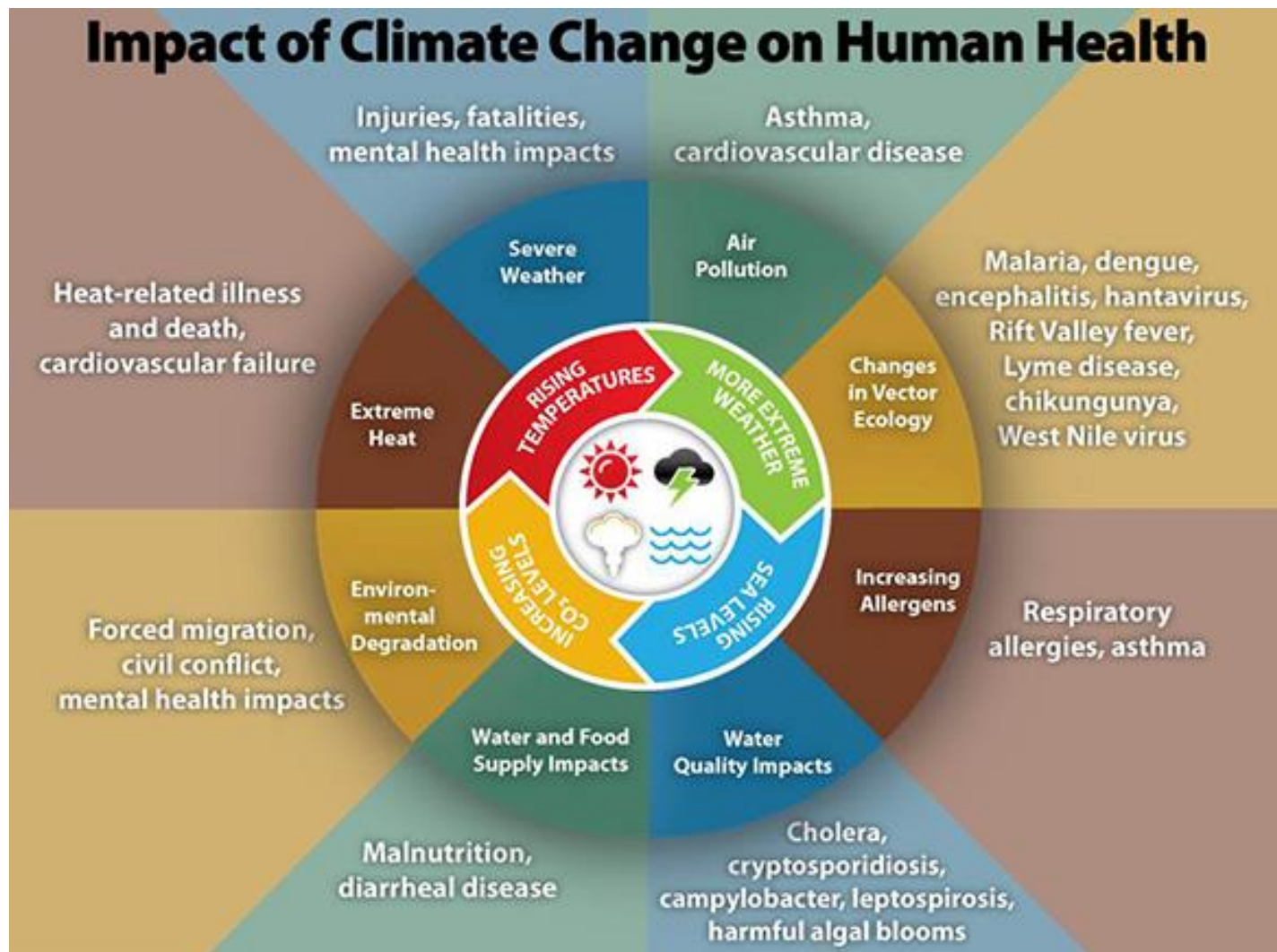




# HD: Climate and Health

## What shapes our health?

- Most factors that shape our health are in our community – not in the doctor's office
- Transportation, housing, access to food, jobs, education – all shape health over our lifetimes
- As the climate changes and begins to effect daily life, *community health will also be impacted*



# HD: Climate and Health (continued)

**To ensure we all can be healthy, climate planning must be centered on equity**

**Health Department goal:** *Reduce negative health impacts from climate change – especially for residents experiencing health, housing, financial, or other challenges*

## **Community:**

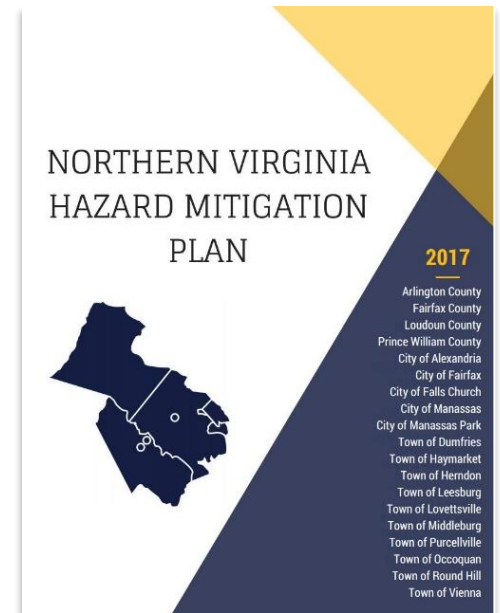
- Community partnership is critical to successful planning
- Pandemic recovery is an opportunity to “build back better” for residents’ health and the climate
- Climate policy must prioritize the health and wellbeing of ***all*** Fairfax County residents

# OEM: Hazard Mitigation Plan

*Identifies hazards, establishes mitigation goals and objectives, and identifies projects that will help prepare for and reduce the impacts of natural disasters*

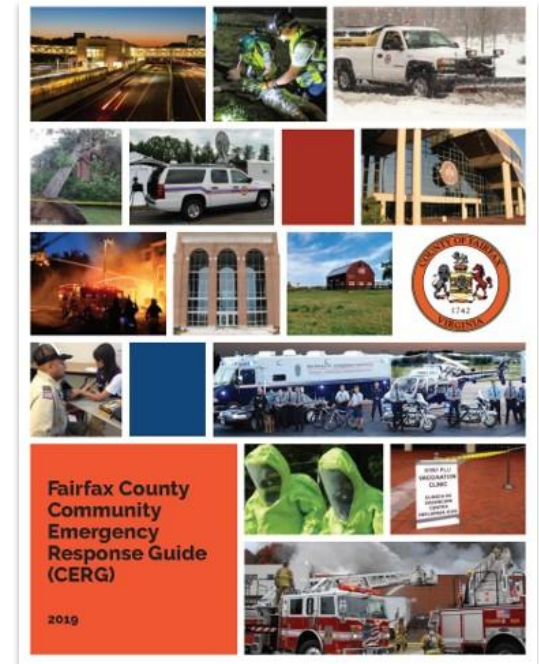
## About the Plan:



- Regional plan (~22 participating jurisdictions)
- 5-year cycle, last approved by the Board of Supervisors in April 2017
- Public outreach and comment throughout the process
- Review and revision is currently underway with a completion in Spring 2022
- [Emergency Plans | Emergency Management \(fairfaxcounty.gov\)](#)



# OEM: Ready Fairfax

- **Ready Fairfax:** Preparedness program designed to educate and empower community members to prepare for, respond to, and recover from emergencies and disasters.
- **Community Emergency Response Guide (CERG):** Online guide that provides the public with tools needed to become more resilient.
  - Templates to create: a family emergency plan, business emergency plan, neighborhood preparedness plan, and an emergency supply kit
  - Available in 6 languages
  - <http://bit.ly/FFXCERG>



Follow Us    
@ReadyFairfax







# Agenda (Break and Discussion Session)

- I. Welcome & Background
- II. Climate Hazards & Projections
- III. Climate Adaptation & Resiliency

## **Break**

- IV. Discussion Session
- V. Adaptation & Resiliency Strategies
- VI. Next Steps

# Discussion Questions

- Out of the climate hazards discussed today (e.g., extreme heat, flooding, storms, etc.), which are your top concerns today? Why?
- Are there specific areas in your community you consider vulnerable to climate change today? If so, which ones and why?
- How do the climate projections influence your answer to the first two questions?
- What do you want to see changed in your community? What strategies might we consider including in Resilient Fairfax to support these changes?



# Agenda (V)

- I. Welcome & Background
- II. Climate Hazards & Projections
- III. Climate Adaptation & Resiliency
- IV. Discussion Session
- V. Adaptation & Resiliency Strategies**
- VI. Next Steps

# Adaptation & Resiliency Strategies

Local governments across the country are planning strategies to adapt to the impacts of climate change. Types of strategies include:



**Emergency  
Preparedness &  
Social Resiliency**



**Outreach &  
Awareness**



**Flood Protection  
& Risk Reduction**



**Heat Reduction**



**Resilient Design  
Standards**



**Green  
Infrastructure**



**Resilient Energy  
System**

# Sample Climate Resilience Strategies



**Emergency Preparedness & Social Resiliency:** E.g., develop local emergency preparedness plans; resilience hubs; enhance social networks



**Resilient Design Standards:** E.g., update standards to account for future projections, align building/zoning codes



**Outreach & Awareness:** E.g., raise awareness for climate change risks, impacts, and strategies, especially in vulnerable communities



**Green Infrastructure:** E.g., enhance tree canopy equity; promote green roofs and other GI for stormwater mgmt. and heat mitigation



# Sample Climate Resilience Strategies (continued)



**Flood Protection & Risk Reduction:** Floodproof critical infrastructure, assistance for home retrofits, drainage improvements



**Resilient Energy Systems:** E.g., micro-grids on critical facilities, deep energy efficiency, ensure system prepared for outages



**Heat Reduction:** E.g., cooling centers, cool roofs/pavements, shading structures, adjust hours for outdoor workers, etc.

# Polling (V)

## What are your top 3 priority areas for climate adaptation/resiliency action?

- Emergency preparedness/social resiliency
- Resilient design standards
- Outreach & awareness
- Green infrastructure
- Flood protection & risk reduction
- Resilient energy system
- Combatting extreme heat
- Other (*tell us in the chat!*)



# Polling (V, continued)

## What is most important to you when prioritizing strategies?

- Highest impact (number of people/communities affected)
- Quickest timeline
- Most cost effective
- Most environmental benefit
- Other (*tell us in the chat!*)



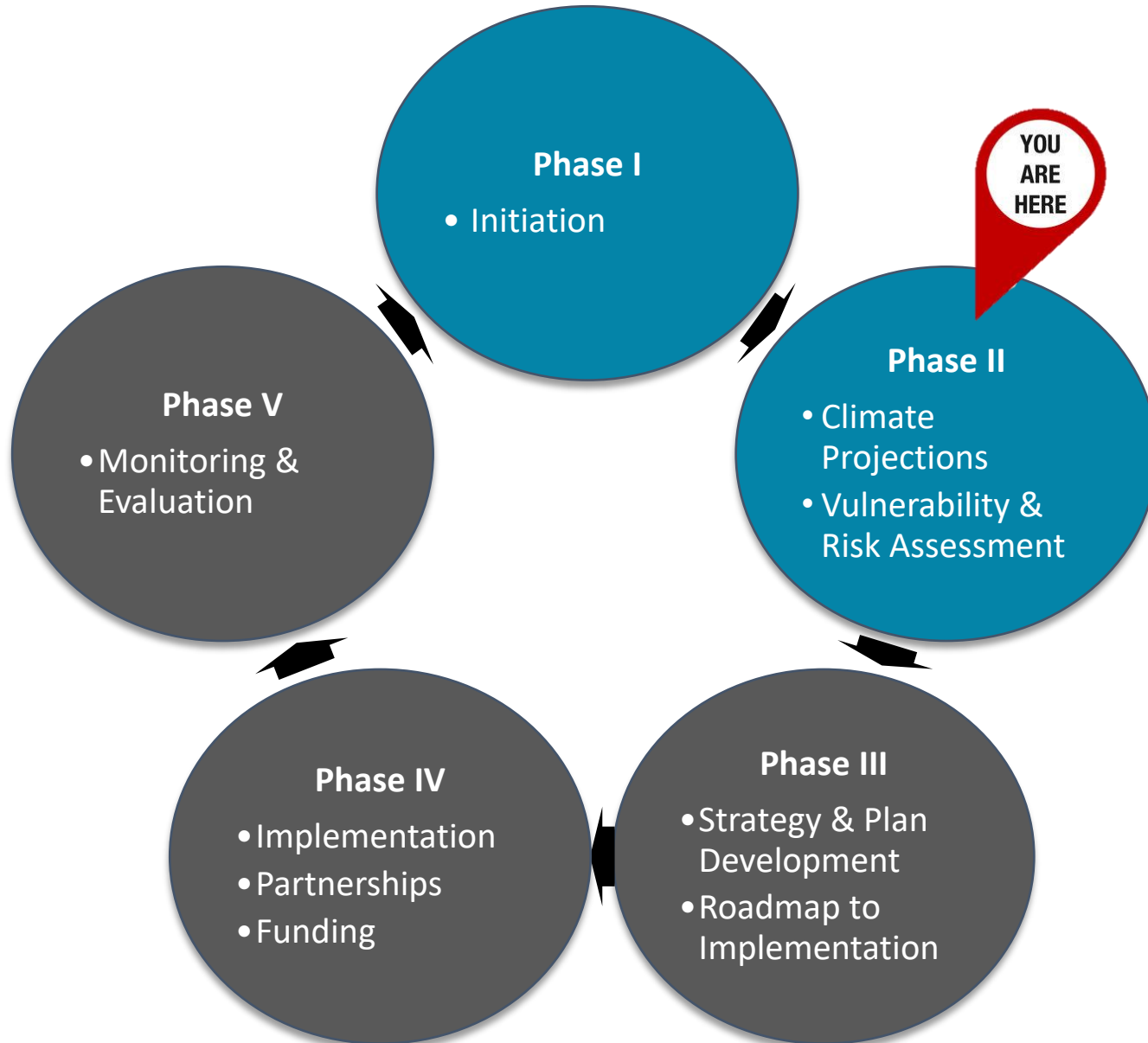


# Agenda (VI)

- I. Welcome & Background
- II. Climate Hazards & Projections
- III. Climate Adaptation & Resiliency
- IV. Discussion Session
- V. Adaptation & Resiliency Strategies
- VI. Next Steps**



# Resilient Fairfax Program - Next Steps



- Big picture: long-term cycle
- Climate Vulnerability & Risk Assessment
- Adaptation & Resilience Strategies
  - [Public Meeting 2](#)
- Implementation Plan
  - [Public Meeting 3](#)
- Finalize Climate Adaptation and Resiliency Plan
  - [Public Comment Period](#)
- Implementation, Monitoring & Evaluation

# Stay Engaged!

- **Take the Public Survey:** <https://www.surveymonkey.com/r/ResilientFFX>
- **Share the Meeting Recording:** [Public Engagement with Resilient Fairfax | Office of Environmental and Energy Coordination \(fairfaxcounty.gov\)](#)
- **Keep up with our progress at :** [Resilient Fairfax | Office of Environmental and Energy Coordination \(fairfaxcounty.gov\)](#)
- **Next community meeting:** September 2021
- **Contact us at** [ResilientFairfax@fairfaxcounty.gov](mailto:ResilientFairfax@fairfaxcounty.gov)

# Thank You!



CADMUS

