



# Flood Resilience Planning in VA

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# Department of Conservation and Recreation

- Per Virginia Code §10.1 – 602, 658, 659
  - Coordinator of all flood protection programs and activities in the Commonwealth
  - Develop, administer, implement, and integrate the “Plans” (CRMP and VFPMP)
  - Flood waters disregard jurisdictional boundaries, and the public interest requires the management of flood-prone areas in a manner which prevents injuries to persons, damage to property, and pollution of state waters.

# Outline

- Our Changing Environment
  - Relative Sea Level Rise
  - Coastal Flooding
  - Rainfall-Driven Flooding
  - Critical Infrastructure Impacts
  - Natural Infrastructure Impacts
- Adaptation and Resilience
  - Resilience Planning in VA
  - DCR Resilience Planning
  - Building Flood Resilience
  - Funding Flood Resilience

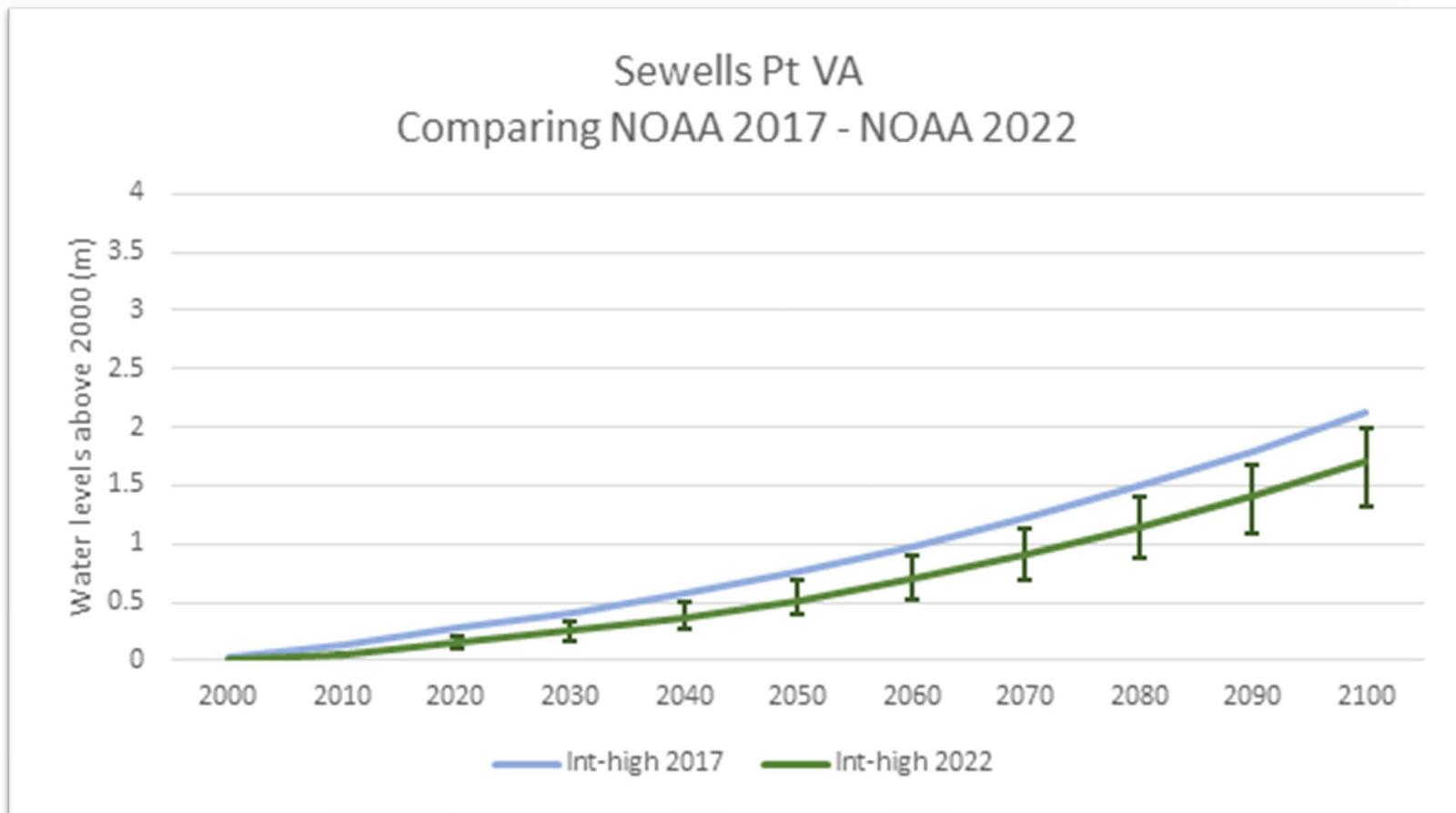
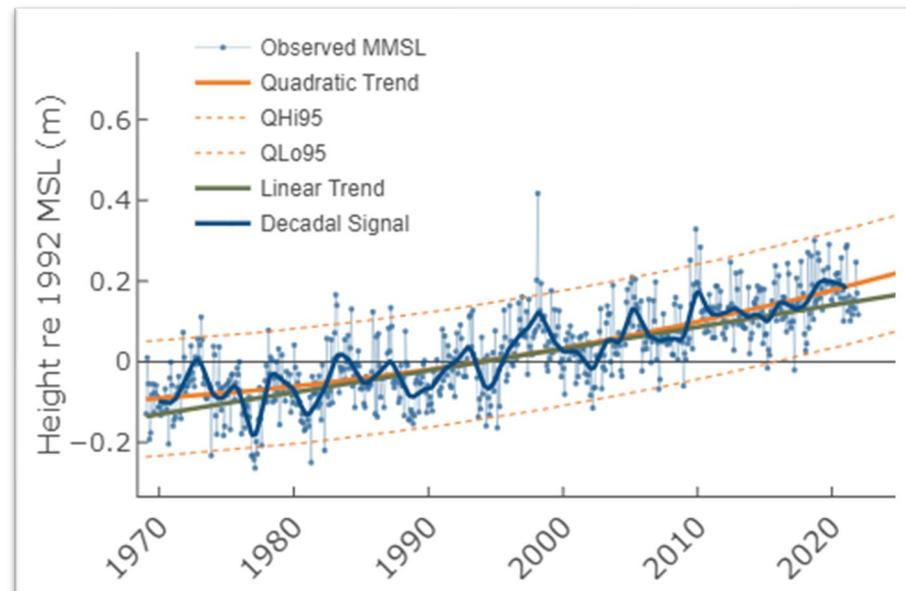
# Strategic Planning Principles

- 1) We are committed to addressing challenges relating to flooding and resiliency.
- 2) We must address these challenges with programs that work for all impacted parts of Virginia.
- 3) The programs we implement must work together as parts of comprehensive, cohesive plans.
- 4) These programs and plans must be developed and implemented with transparency and input from the public.

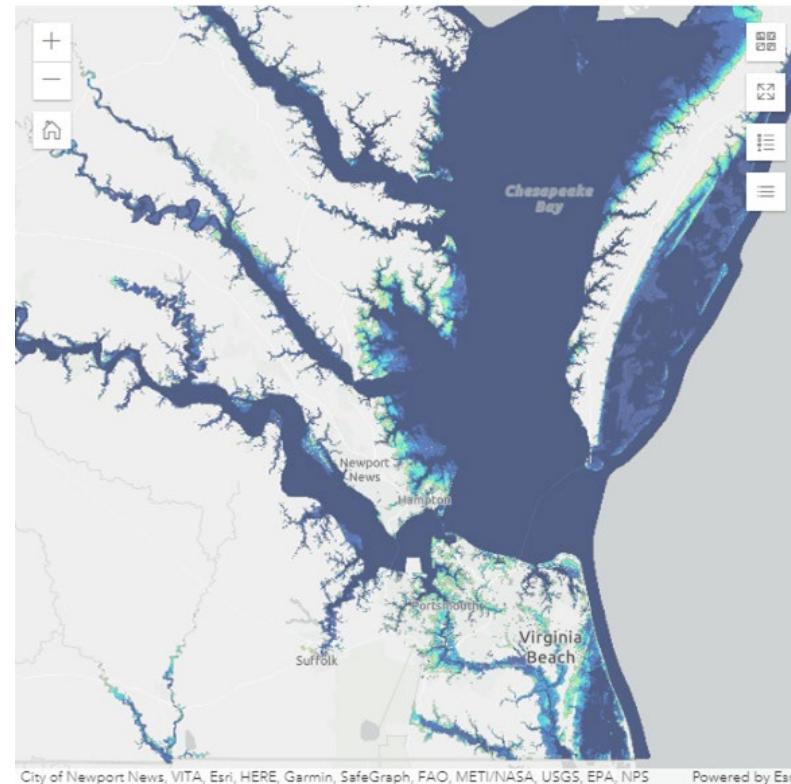
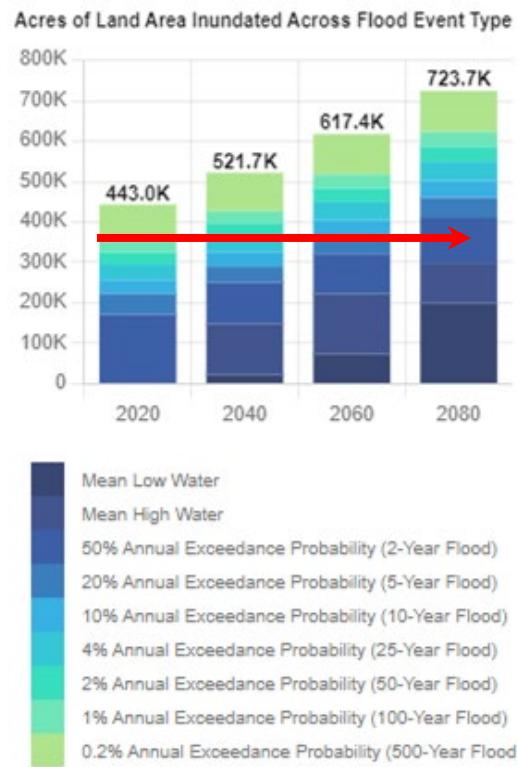
# Our Changing Environment



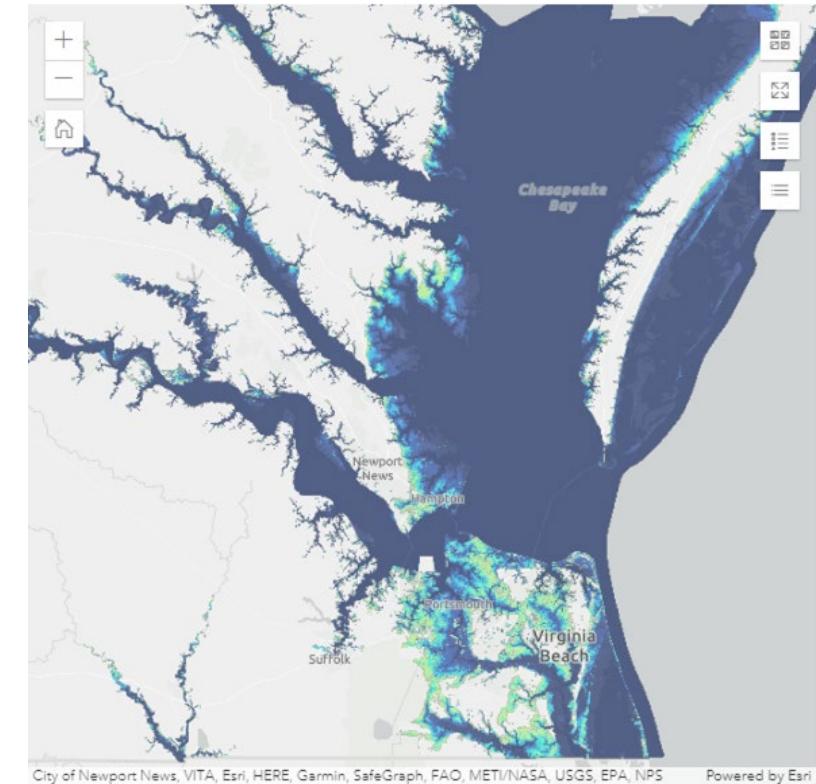
# Relative Sea Level Rise



# Coastal Flood Hazard with SLR[NOAA 2017 Int-High]

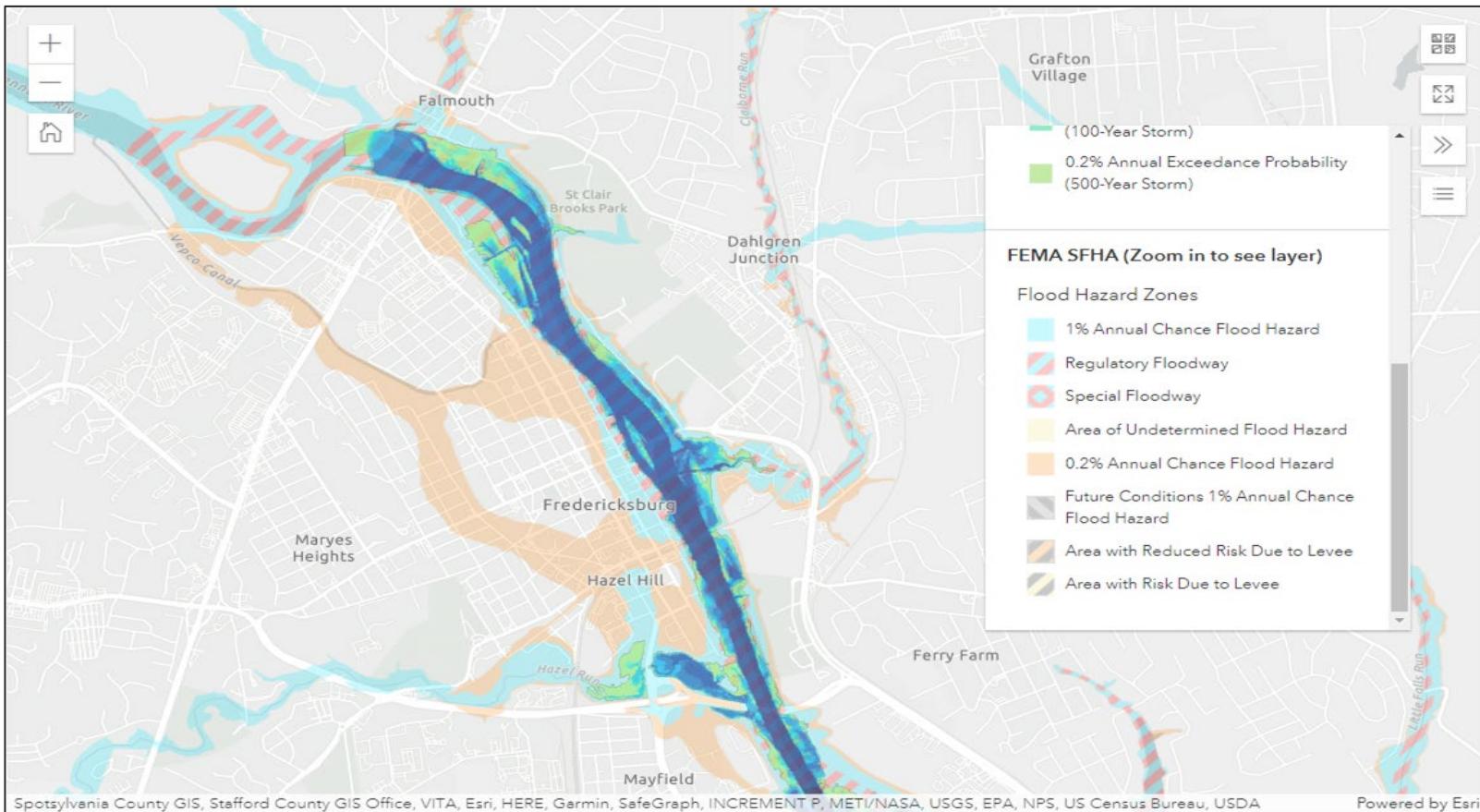


2020



2080

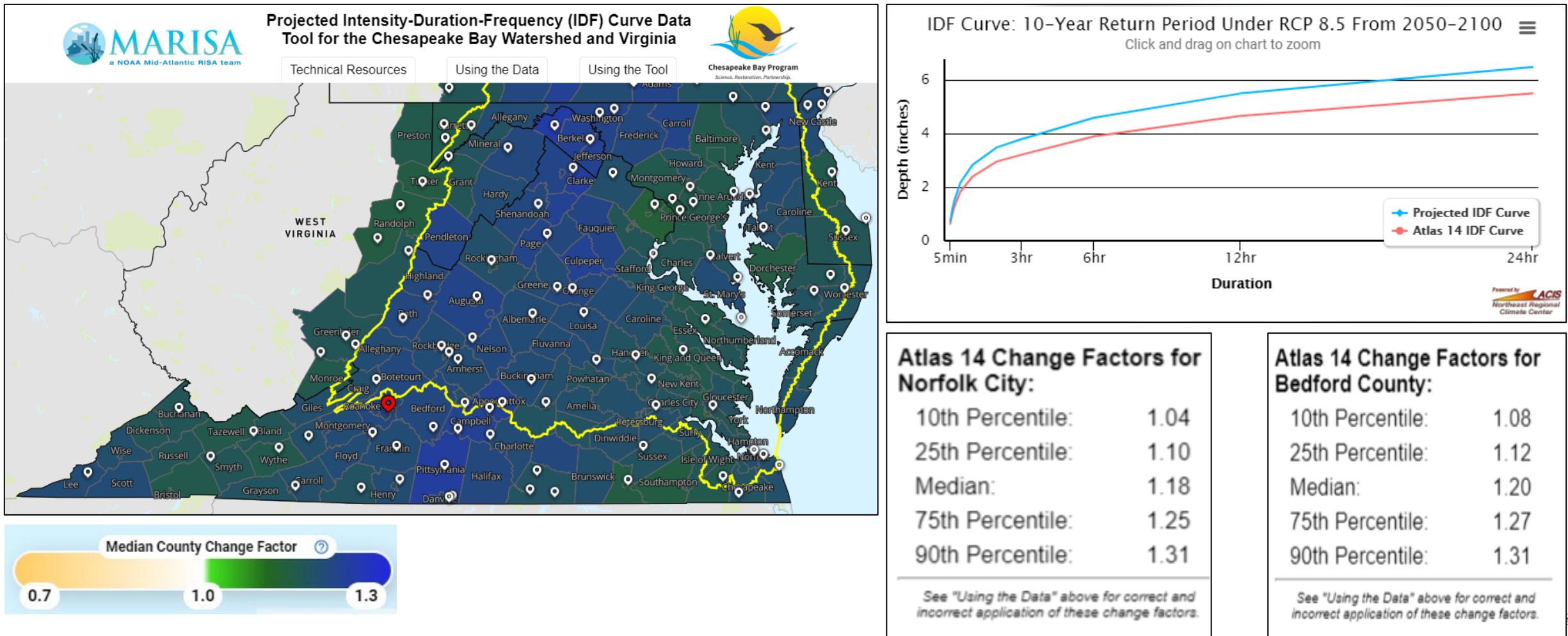
# Coastal Flood Hazard $\neq$ Total Flood Hazard



VIRGINIA COASTAL  
**RESILIENCE**  
WEB EXPLORER  
Ver 1.0

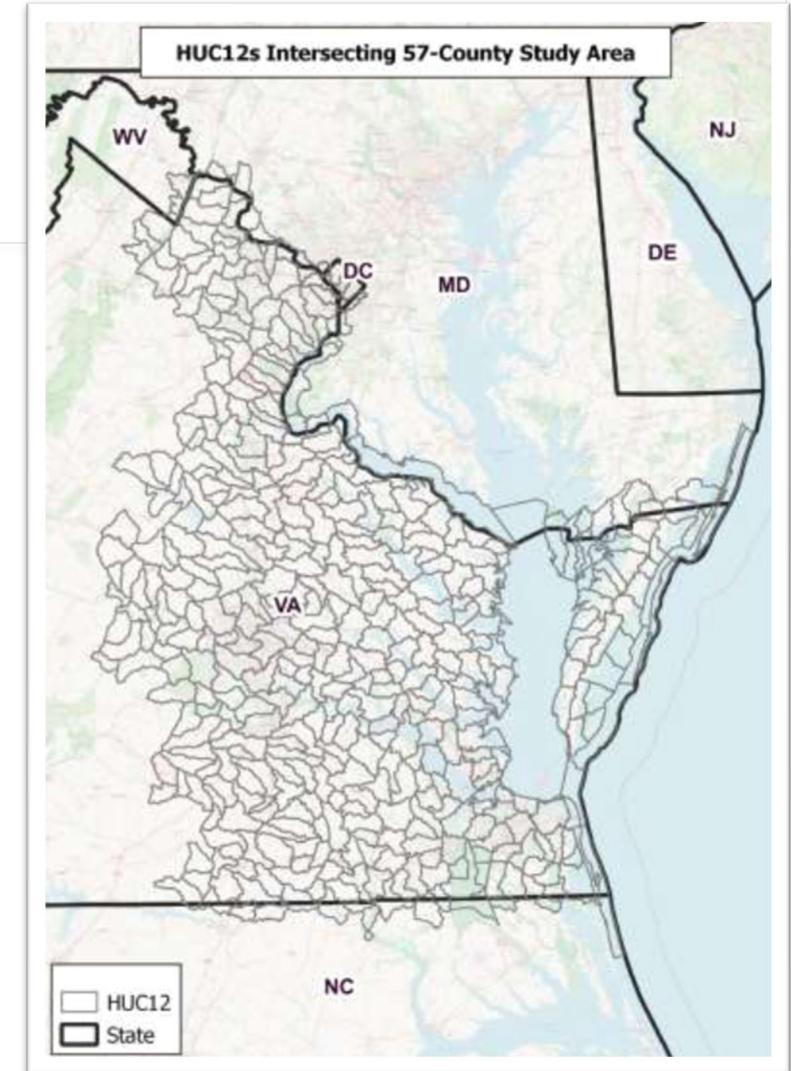


# Pluvial Flooding

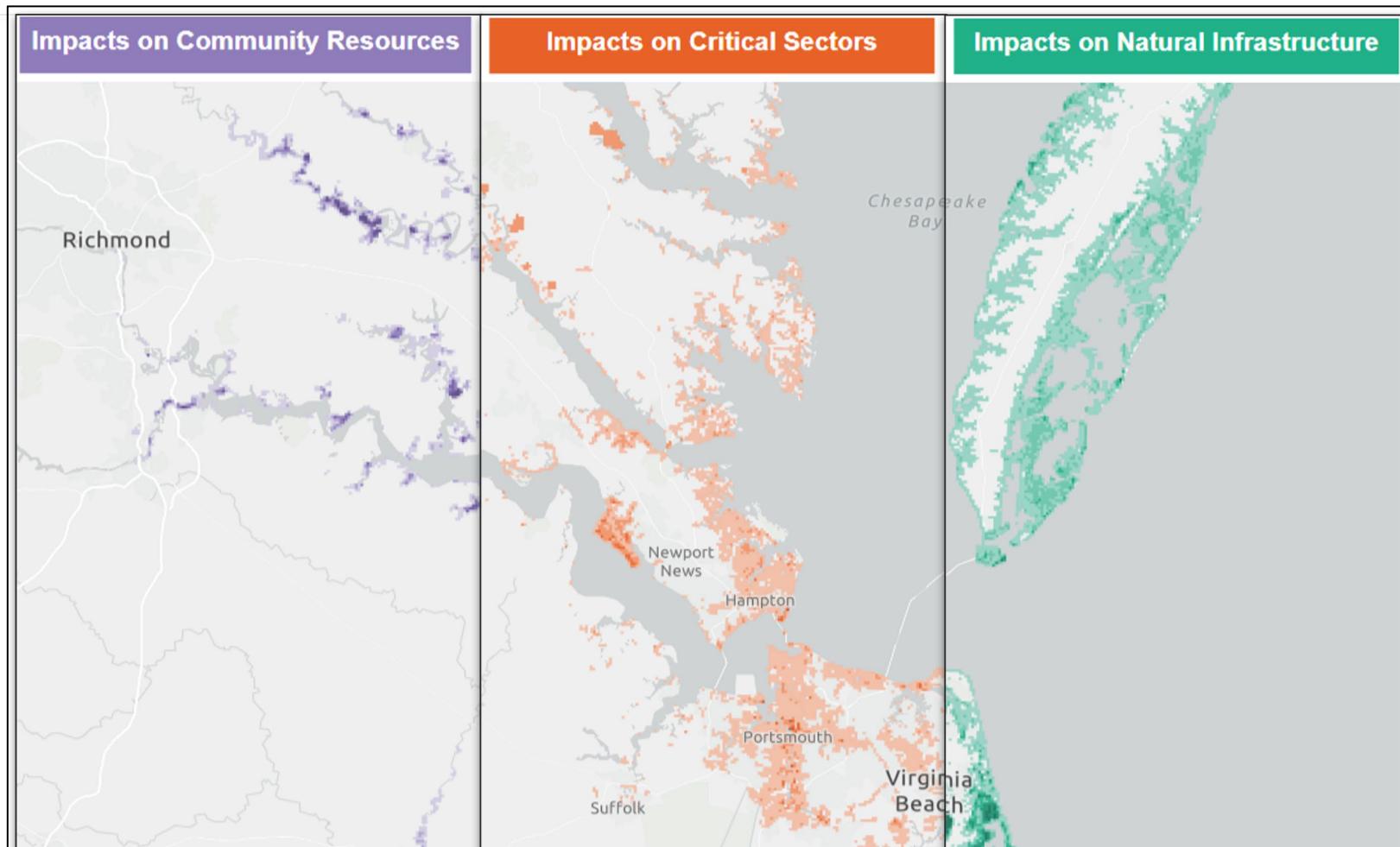


# Pluvial Flood Modeling

- Coastal Resilience Master Plan to include Precipitation-Driven Flooding
- 440 HUC12 ~ 3,000 Basins
- 50 Basin Pilot to Inform Full Production
- Public Model Inventory
- Pluvial Impacts Analysis



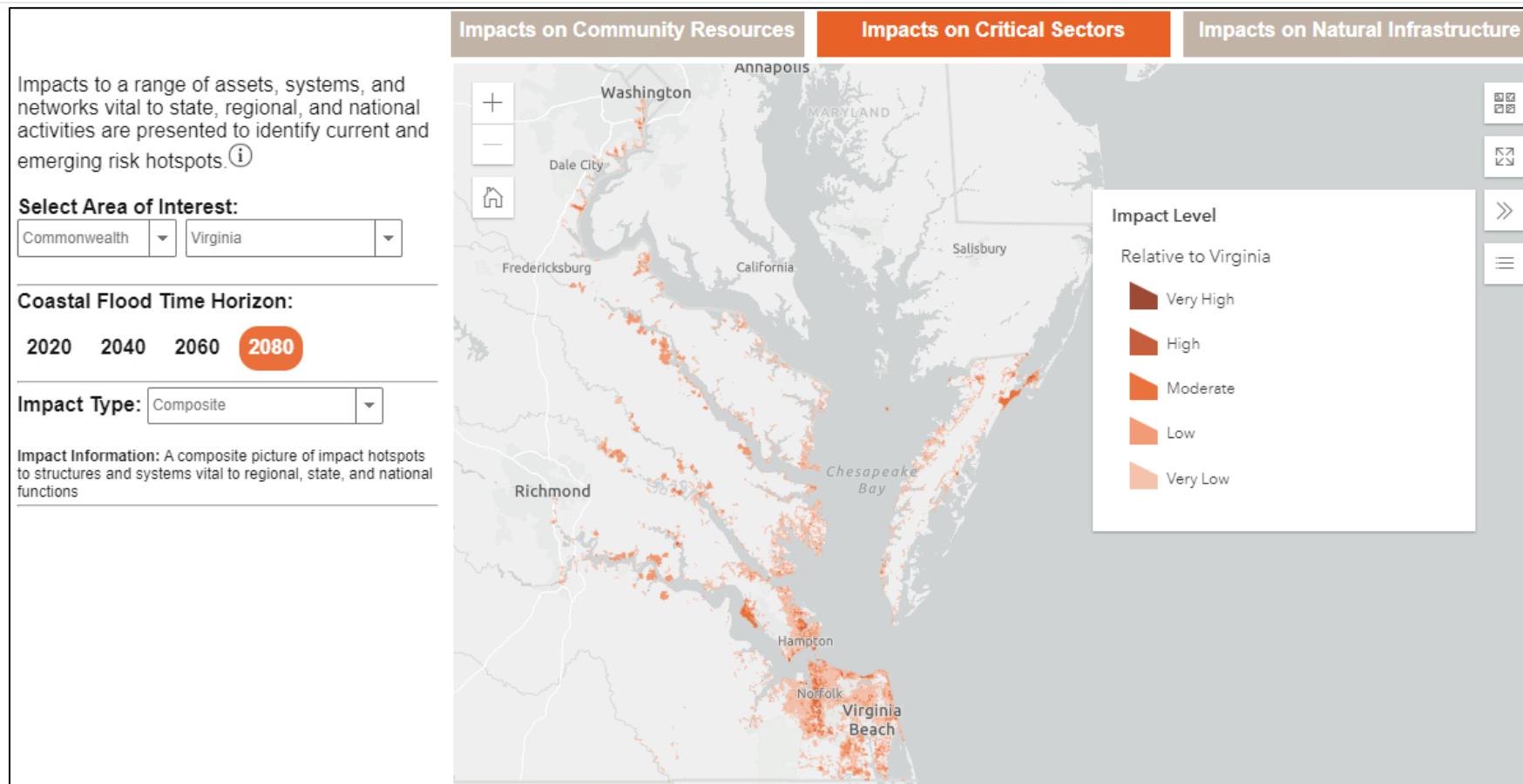
# Flood Hazard Impacts



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 **DCR**  
Virginia Department of Conservation & Recreation

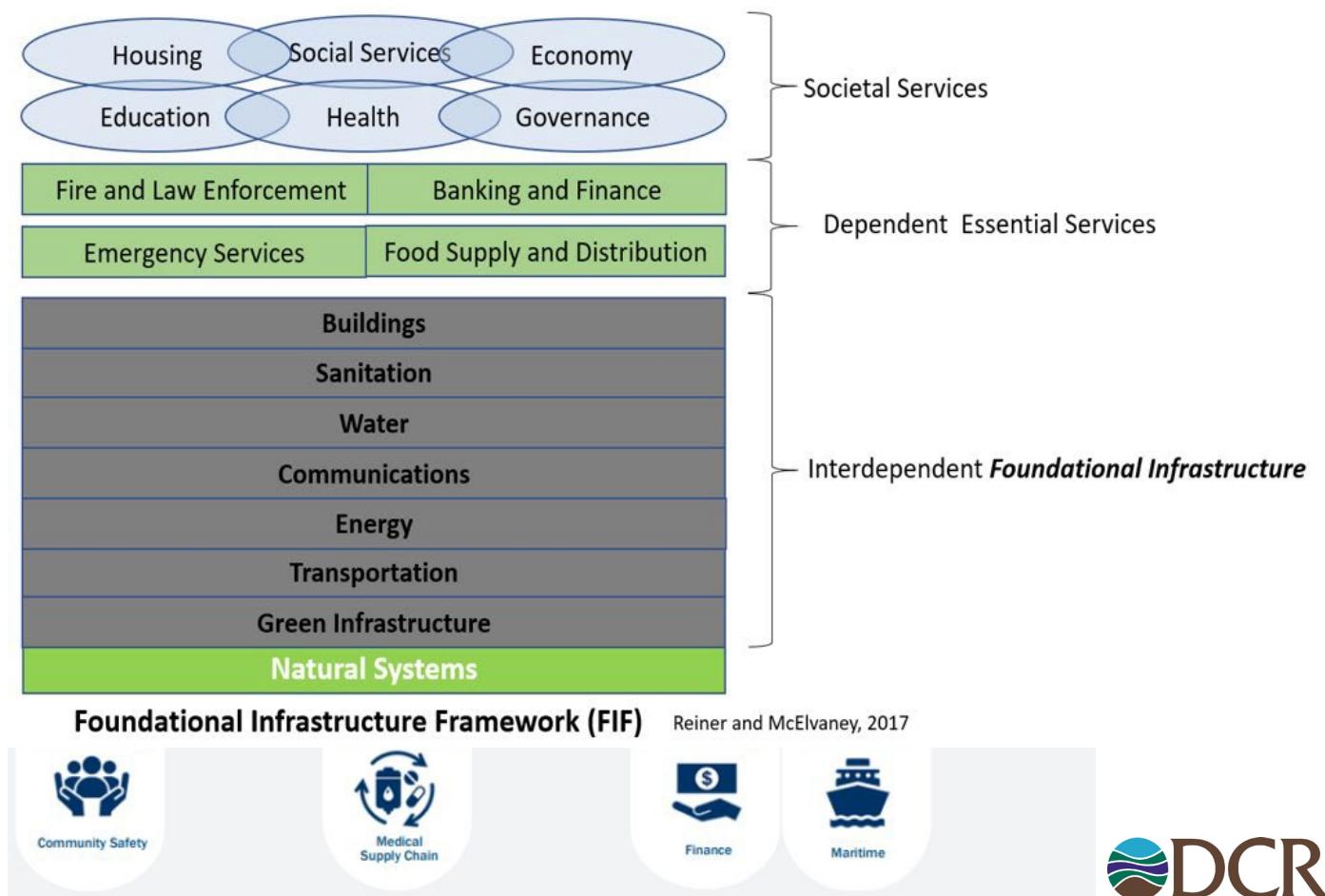
# Critical Infrastructure



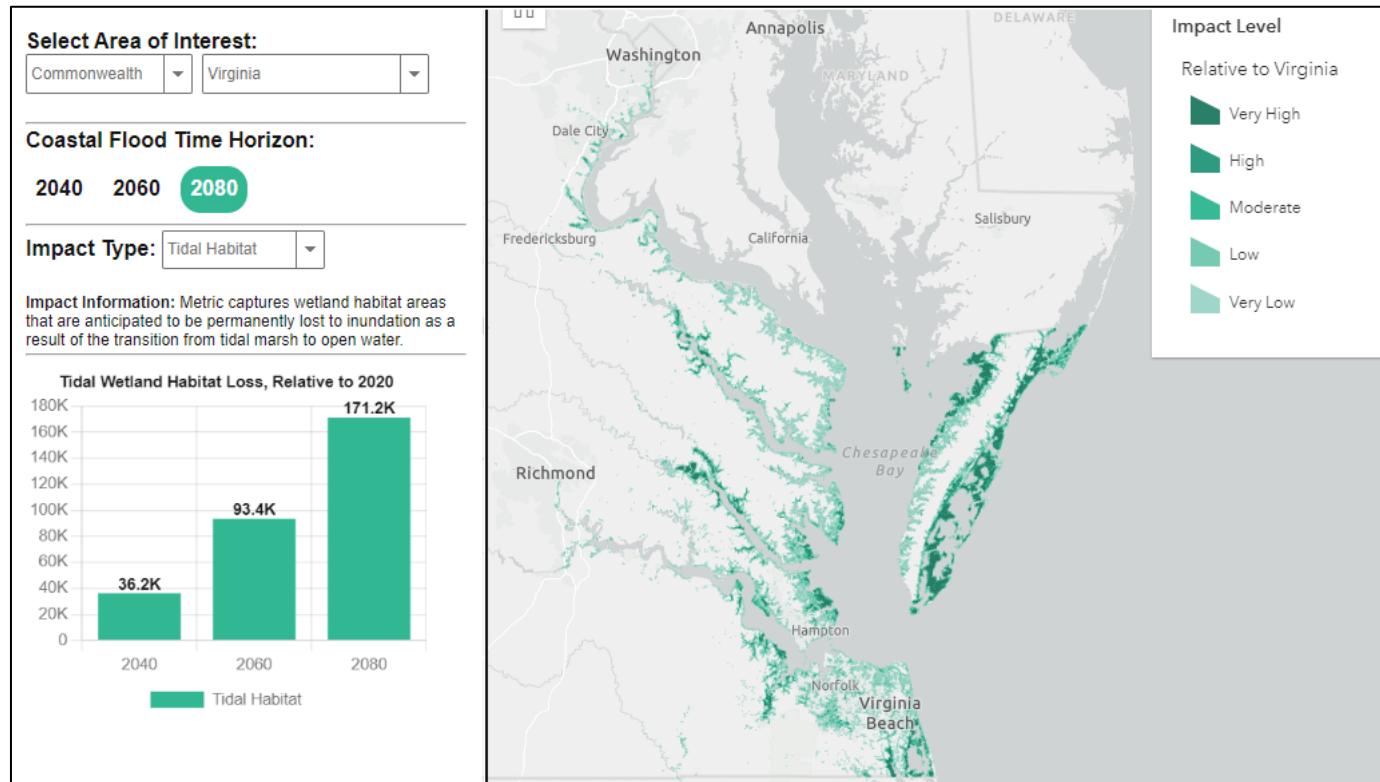
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**RESILIENCE**  
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# Critical Infrastructure

- Status of Flood Resilience
  - Natural Systems
  - Human Infrastructure
    - Transportation
    - Energy
    - Communication
    - Waste Management
    - Water and Food Supply
    - Emergency Services
    - Health



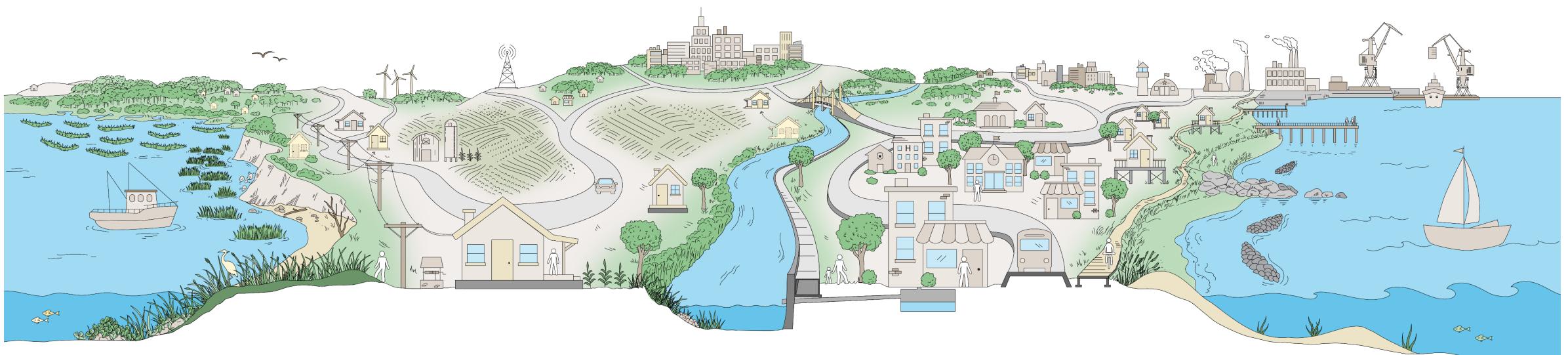
# Wetland Inundation



"Coastal wetlands will survive rising seas, but only if we let them"

"Rural areas will bear the brunt of U.S. sea-level rise"

# Adaptation and Resilience



# Resilience Planning Across Virginia



# DCR Flood Resilience Planning

Virginia Flood  
Protection  
Master Plan

Virginia Coastal  
Resilience  
Master Plan

Community  
Outreach and  
Engagement  
Plan

Bi-Annual Status  
of Flood  
Resilience Report

Quarterly  
Coastal  
Resilience TAC  
Meetings

Annual Flood  
Resilience  
Coordination  
Meeting(s)

Resilience  
Coordination  
Workgroup

# Building Flood Resilience

**Select Area of Interest:**

Commonwealth  Virginia

**Filters:**

Category: All

Hazard Addressed: All

Project Class: All

**Additional Map Layers:**

**Reset All Filters & Map**

**Search:**  Clear

Projects and Initiatives (Features: 517, Selected: 0)

<input checked="" type="checkbox"/>	Name
<input type="checkbox"/>	18th Street Drainage Improvements
<input type="checkbox"/>	1. Crow's Nest Peninsula and Estuary Conservation
<input type="checkbox"/>	2019 FMA
<input type="checkbox"/>	5th Street Improvements
<input type="checkbox"/>	Aberdeen Gardens Drainage Improvements
<input type="checkbox"/>	Aberdeen Road Disconnect Wet Pond
<input type="checkbox"/>	Aberdeen School Neighborhood Park ED Wetland Retrofit
<input type="checkbox"/>	Amherst Road Wetlands
<input type="checkbox"/>	Annual Coastal Bays seagrass restoration
<input type="checkbox"/>	Appomattox River Trail (blueway and greenway)
<input type="checkbox"/>	Aquatic Center Parking Lot
<input type="checkbox"/>	Aquisition of LiDAR Data
<input type="checkbox"/>	Aragona Drainage Improvements

The map displays the coastline of Virginia, including the Chesapeake Bay and major rivers. It highlights several areas in yellow, representing coastal floodplains or project implementation areas. Specific cities like Richmond, Norfolk, and Virginia Beach are labeled. The map also shows parts of Maryland, Delaware, and North Carolina.

**VIRGINIA COASTAL RESILIENCE WEB EXPLORER**  
Ver 1.0

# Funding Flood Resilience

VA Funding for Projects (Features: 96, Selected: 0)						...
Name	Administering Office	Funding Source	Funding Type	Purpose	...	...
Addressing the Impacts of Multiple Stressors on Shellfish Aquaculture Through Research/Industry Partnerships	National Oceanic and Atmospheric Administration (NOAA) Oceanic and Atmospheric Research	NOAA	Federal	Supports: establishing, continuing, and/or expanding collaboration between researchers and shellfish growers in order to address how acidification and at least one other environmental stressor affects the U.S. shellfish aquaculture industry. Project priorities of this funding opportunity are to (1) build or strengthen relationships between the shellfish aquaculture industry and aquaculture research community (including university, industry, private sector, tribal, state, and/or federal scientists representing perspectives), (2) develop scientific knowledge on the impact of ocean and coastal acidification in combination with other stressors on shellfish aquaculture, and (3) create data products, tools, technologies, management practices, or other deliverables that are applicable to building resilience within the shellfish aquaculture sector.		
Building Resilience Against Climate Effects: Implementing and Evaluating Adaptation Strategies that Protect and Promote Human Health	National Center for Environmental Health	CDC	Federal	Supports: the building and enhancement of the resilience of U.S. cities and states to the health impacts of climate change through overarching strategies. These strategies include 1) collaboration with stakeholders to create a Climate Impact Compendium data on local climate projections, health effects, social determinants of health, and current adaptive capacity; 2) implementation evaluation of adaptation actions that address the threats identified in the Compendium; and 3) use and dissemination of evidence to improve adaptation actions and enhance understanding of effective climate resilience adaptations in public health and resilienc		
Bureau of Indian Affairs (BIA) Tribal Climate Resilience Program	Department of Interior, Bureau of Indian Affairs (BIA), Trust Services, Tribal Climate Resilience Program	BIA	Federal	Supports: tribal resilience and ocean and coastal management and planning. The Tribal Climate Resilience Program supports tribes to prepare for climate change impacts on tribal trust resources, economies, infrastructure, and human health and safety. Available Funding: - Adaptation planning - Ocean and Coastal Management Planning - Capacity Building - Relocation, Migration, or Protect-in-Place Planning - Internships and Youth Engagement		



# Community Flood Preparedness Fund

[§ 10.1-603.24-27]

	<b>Round 1</b>	<b>Round 2</b>	<b>Totals</b>	<b>Round 3</b>
<b>Funds Advertised</b>	<b>\$18M</b>	<b>\$17M</b>	<b>\$35M</b>	<b>\$40M + \$30M</b>
<b>Funds Requested</b>	<b>\$14.5M [32]</b>	<b>\$29.7M [37]</b>	<b>\$44.2M [69]</b>	<b>\$91M [64]</b>
<b>Funds Awarded</b>	<b>\$7.8M [19]</b>	<b>\$24.5M [30]</b>	<b>\$32.3M [49]</b>	<b>\$13.6M+</b>
<i>Low Income Geographic Area</i>	\$3.8M (48%) [11]	\$19.7M (79%) [15]	\$23.5M (72%) [26]	TBD
<i>Non Low Income Geographic Area</i>	\$4.0M [8]	\$4.8M [15]	\$8.8M [23]	TBD

# Resilient Virginia Revolving Fund

[§10.1-603.29]

- Established 2022 by HB1309 (Bulova) / SB 756 (Lewis)
- Fund is capitalized with \$25 million from the CFPF
- Loans and grants for resilience projects via Virginia Resources Authority (VRA)
- DCR will administer and will develop guidelines with VRA
- Anticipate accepting first round of applications early CY2023
- Transparency:
  - Fund guidelines/manuals will be put out for public comment
  - Review committee will be established to review applications



# VIRGINIA ENGINEERS CONFERENCE



AMERICAN COUNCIL OF ENGINEERING COMPANIES  
*of Virginia*

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