

Coastal Resilience Master Plan Phase II

Local Government Engagement Meeting – PlanRVA

DCR Office of Resilience Planning

June 17, 2024



Today's Objectives

1. Provide an overview of the upcoming Coastal Resilience Master Plan (CRMP) Phase II and associated products and tools.
2. Get your feedback to help ensure the Phase II products and tools are accessible and useful.
3. Understand your priorities for addressing flood hazards and impacts in the region.
4. Ensure DCR has accurate information about your projects and initiatives to address flooding to include in the plan.

Today's Agenda (2 hours)

- Introductions
- CRMP Phase II Flood Hazards and Impacts Products
 - Presentation, Q&A
 - Facilitated discussion to gather input and feedback
- CRMP Phase II Projects, Initiatives and Funding Products
 - Presentation, Q&A
 - Facilitated discussion to gather input and feedback
- More Opportunities to be Involved

Why Your Participation Matters

The CRMP Phase II applies to each locality in the eight easternmost PDCs; it covers **all types of flooding**, not just coastal.

Participating in the CRMP Phase II provides an opportunity to:

- **Showcase your locality's resilience priorities and accomplishments** in an adopted state plan.
- Provide additional evidence to justify projects when applying for **grant and loan funding opportunities**.
- Help create an **accurate record of flood resilience funding needs**.
- Gain enrichment through **regional collaboration and knowledge sharing**.

Introductions of Locality Members

Tell us your:

- Name
- Locality
- Role
- What primary flooding challenges does your locality face?

Overview of Phase II of the CRMP



Office of Resilience Planning

Developing State Plans

- Coastal Resilience Master Plan
- Virginia Flood Protection Master Plan

Coordinating Action

- Annual Flood Preparedness Coordination Meeting
- Technical Advisory Committees

Supplying Data and Information

- Coastal Resilience Web Explorer and Open Data

Conducting Outreach and Engagement

Secretary of Natural and
Historic Resources
(Chief Resilience Officer),
Travis Voyles

Director of DCR, Matthew Wells

Deputy Director, Darryl Glover

Division of Dam Safety
Chief Engineer, Vacant

Division of Floodplain Management
Director, Angela Davis
Grants Management Team

Office of Resilience Planning
Program Manager, Matt Dalon

What is the Coastal Resilience Master Plan?

A place-specific resource for mitigating severe and repetitive flooding.

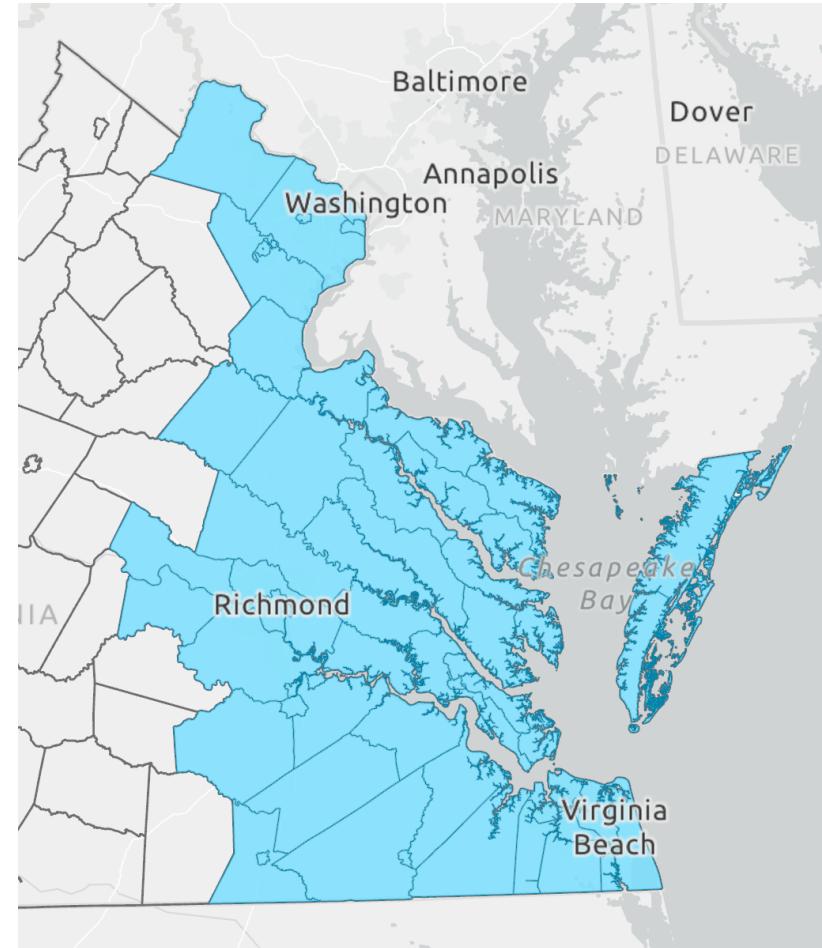
For use by state leaders, PDCs, local governments, and other flood resilience partners and stakeholders, including tribal governments.

Phase I was published in 2021.

The Phase II (updated) plan is due December 2024.

Elements:

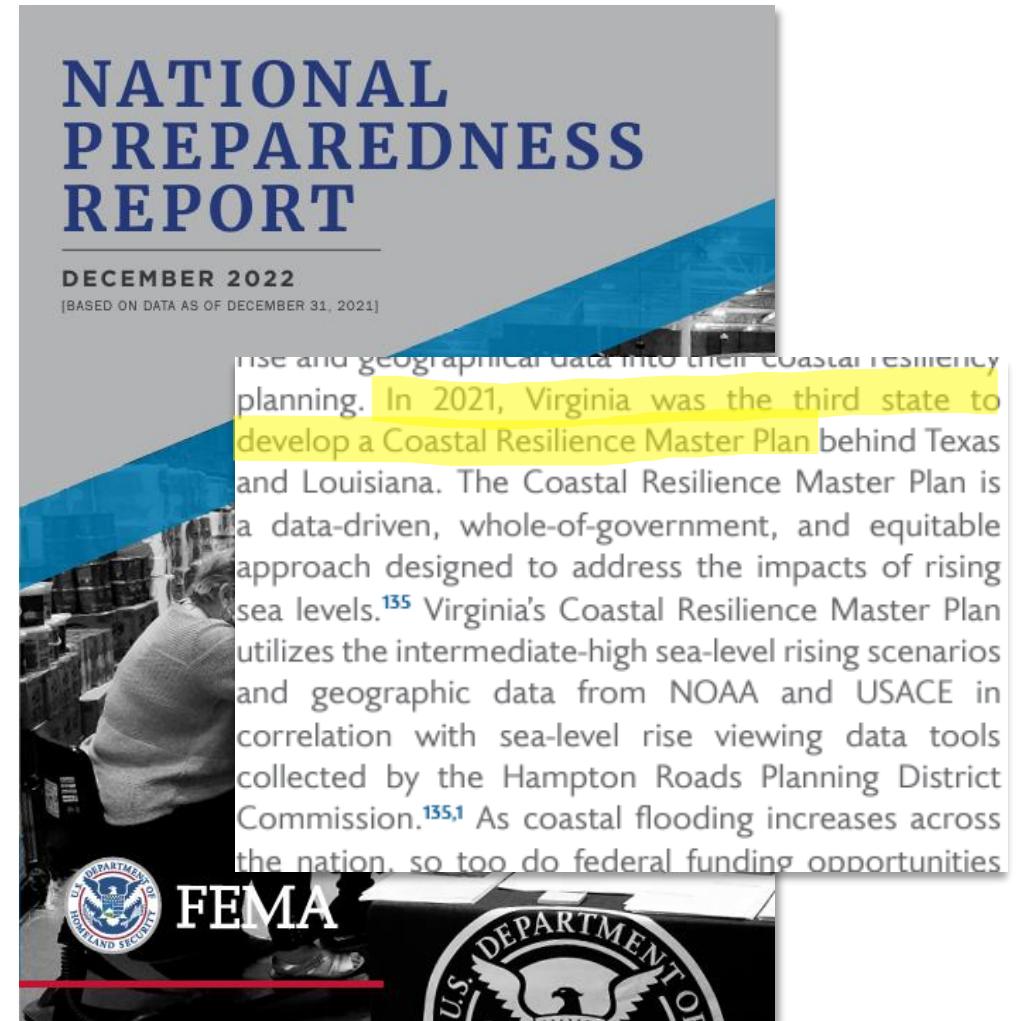
1. Flood Hazard Exposure Model
2. Flood Hazard Impact Assessment
3. Planned Resilience Actions
4. Financial Needs for Flood Resilience
5. Recommendations for Future Planning



VIRGINIA COASTAL
 **RESILIENCE**
MASTER PLAN

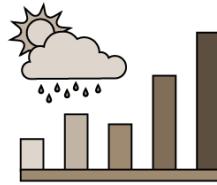
How is the plan used?

- Provides a holistic overview of the flooding challenges and resilience opportunities in the easternmost part of Virginia.
- Used by state agencies, planning district commissions, and local governments as a flood resilience resource to support informed decision making.
- Highly visible document; referenced by federal partners like FEMA.

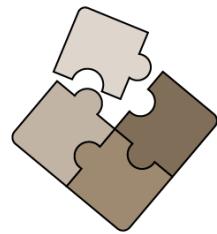


What's new with Phase II?

When released in December 2024, Phase II will:



Identify flood hazard exposure and impacts based on **all forms of flooding**, including coastal, rainfall-driven and riverine flooding.



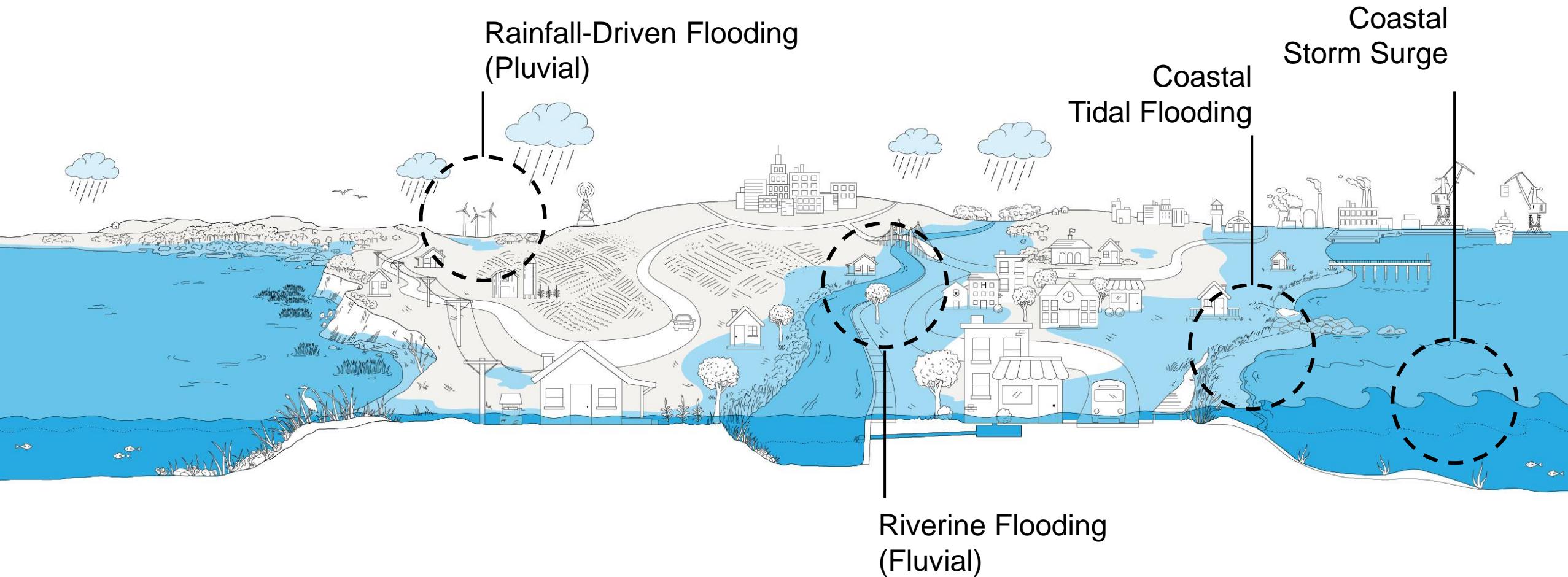
Update the online inventory of **projects, initiatives, and funding** for flood resilience using info from active stakeholders.



Document opportunities for continued improvement in flood hazard data, technical assistance, funding, engagement, and more.

Flood Hazard Exposure

Major Sources of Flooding



Flood Hazard Exposure for CRMP Phase II

Five planning scenarios:

Time Horizon	Present / Baseline	Near Future (2030 – 2060)		Far Future (2060 – 2100)	
Risk Tolerance		Moderate	Low	Moderate	Low
Climate Change Projection	-	RCP 4.5 Median	RCP 4.5 90% CI	RCP 4.5 Median	RCP 4.5 90% CI

To compare flood hazard sources, the plan will also:

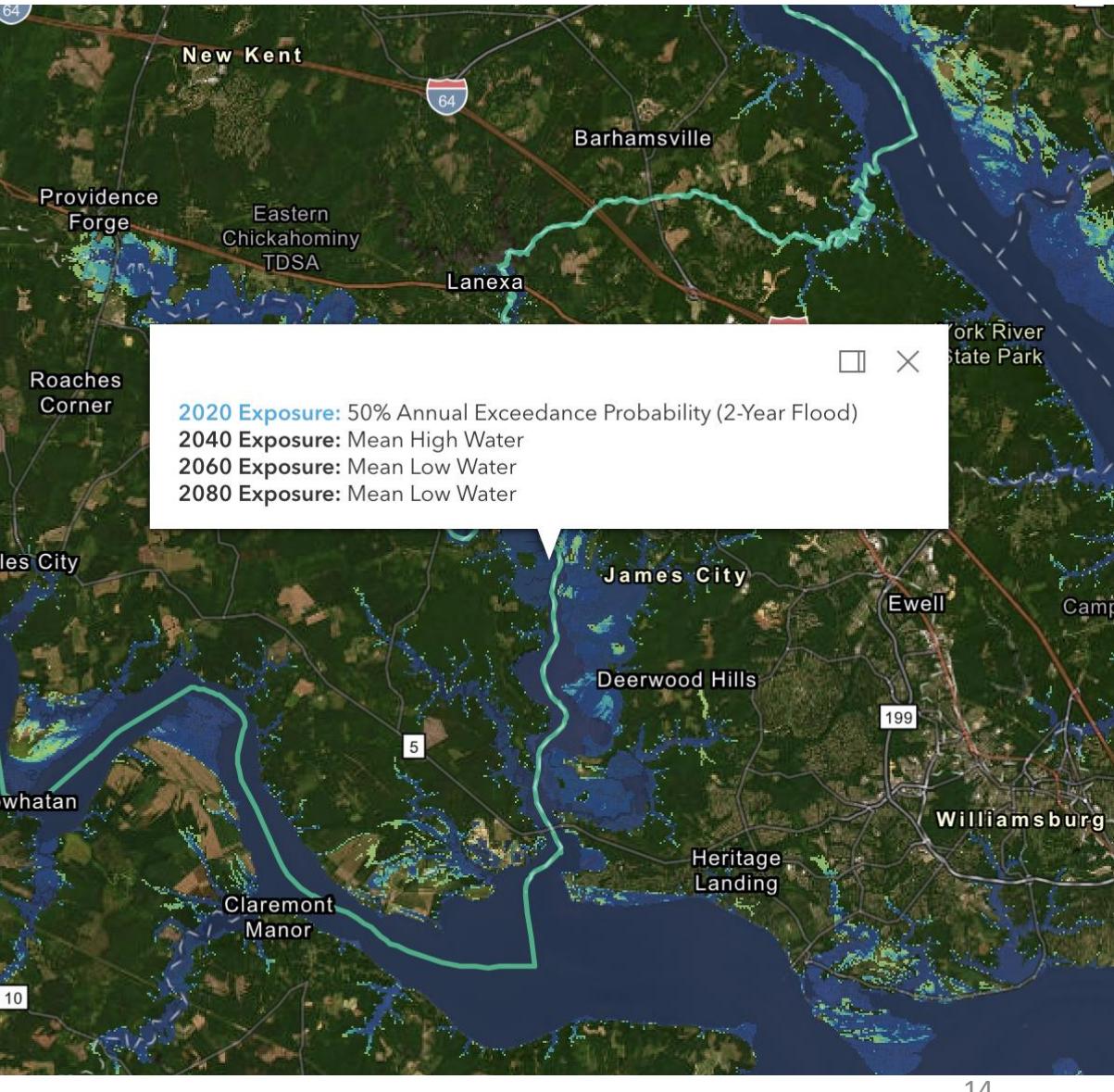
- Identify which flood hazard(s) (coastal, rainfall-driven, or riverine) affect a location.
- Identify the most frequently occurring type of flood hazard impacting a location.

Three flood hazard sources:

- Coastal**
 - CRMP Phase I data (NOAA 2017)
- Rainfall-driven**
 - CRMP Phase II data (Atlas 14 and MARISA)
- Fluvial**
 - FEMA Flood Hazard Data

Coastal Flood Hazard Data

- Mean Low Water
- Mean High Water
- 50% Annual Exceedance Probability (2-Year Storm)
- 20% Annual Exceedance Probability (5-Year Storm)
- 10% Annual Exceedance Probability (10-Year Storm)
- 4% Annual Exceedance Probability (25-Year Storm)
- 2% Annual Exceedance Probability (50-Year Storm)
- 1% Annual Exceedance Probability (100-Year Storm)
- 0.2% Annual Exceedance Probability (500-Year Storm)

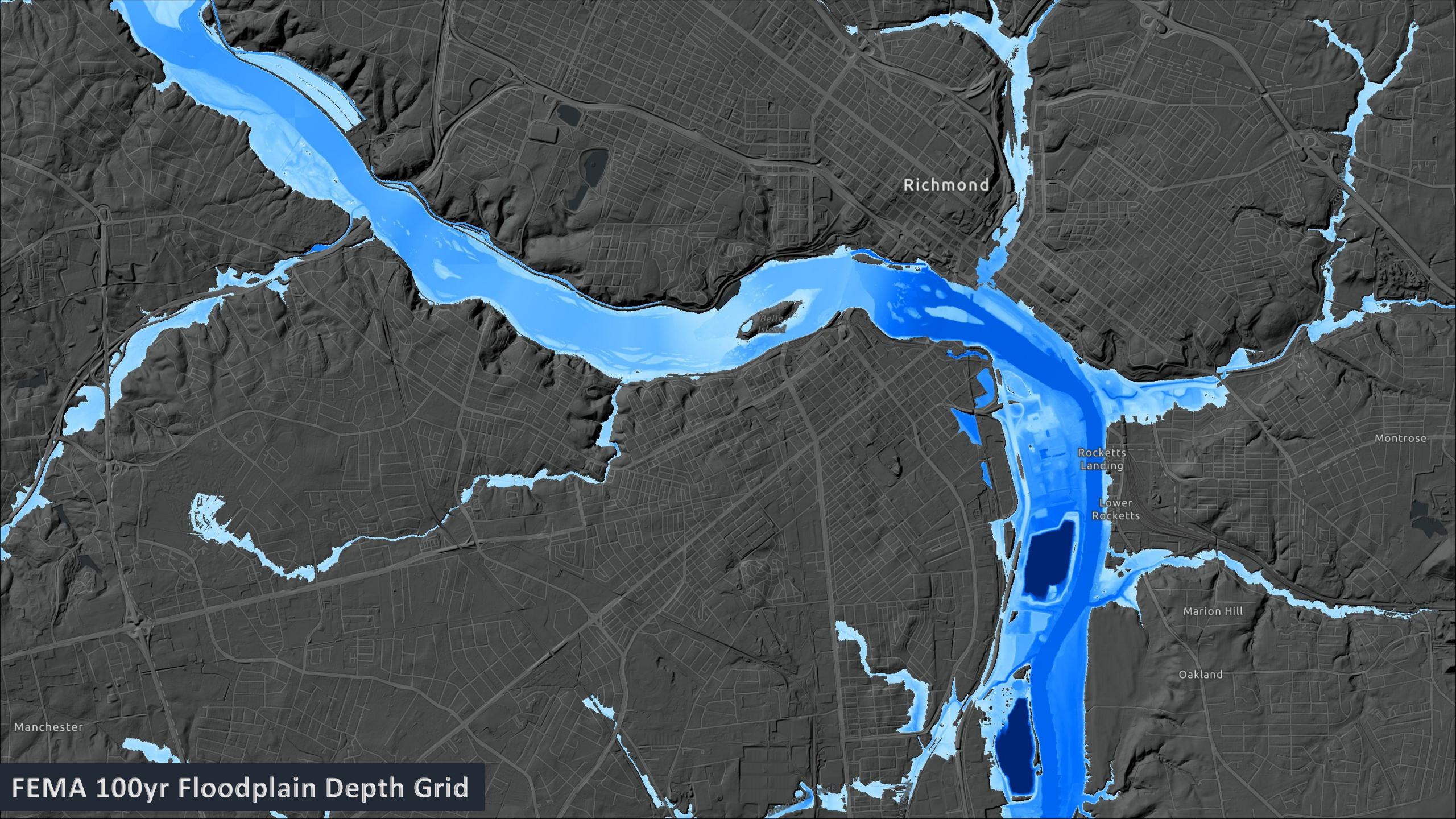


Products currently available:

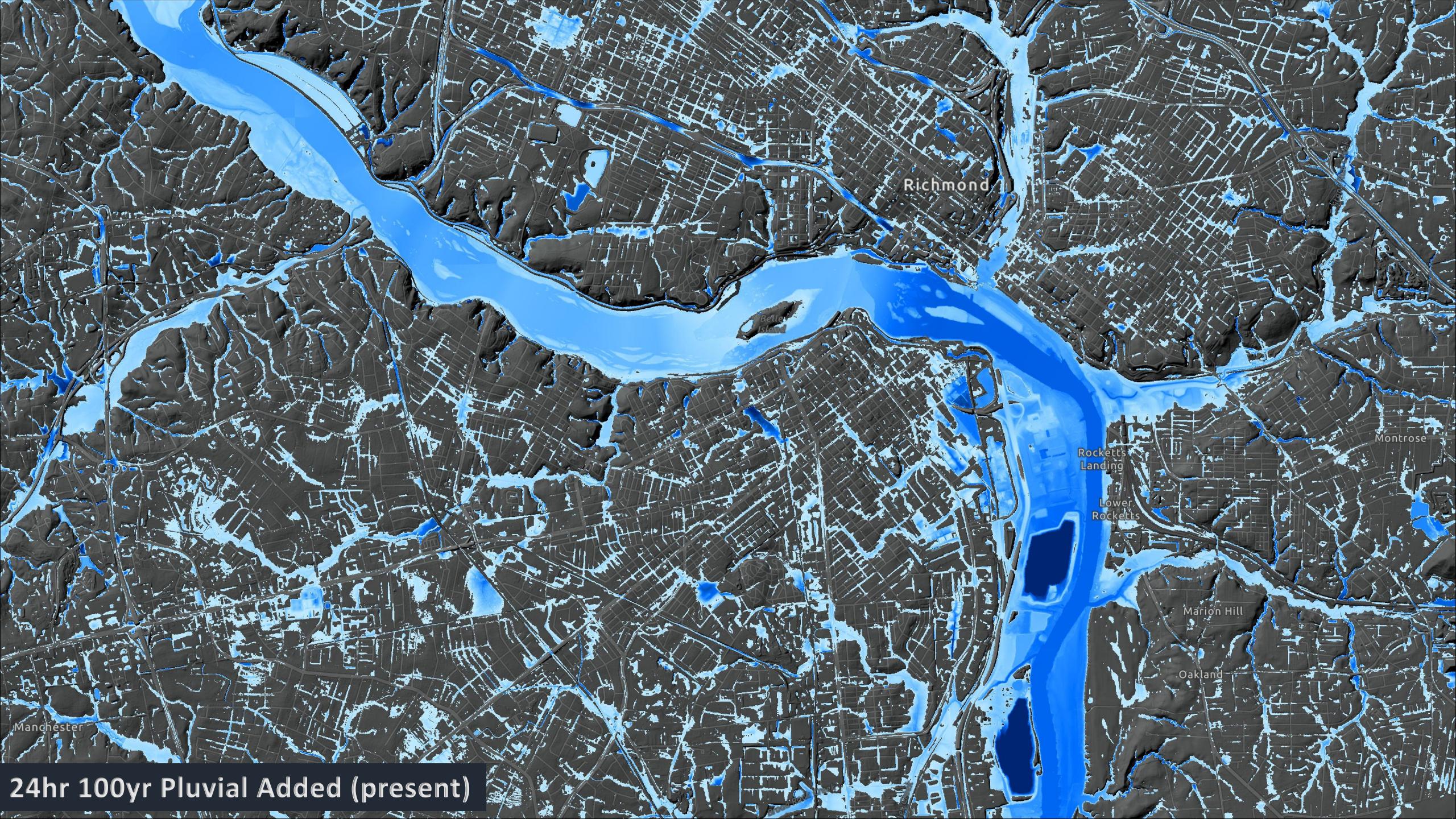
- Graduated Floodplain
- Depth Grids
- Depth Grids with Wave Effects
- Water Surface Elevation

Recurrence Intervals/Tidal Level:

- Mean Low Water
- Mean High Water
- 1.5x Mean Tide Range
- Recurrence Intervals (Annual Exceedance Probabilities)



FEMA 100yr Floodplain Depth Grid



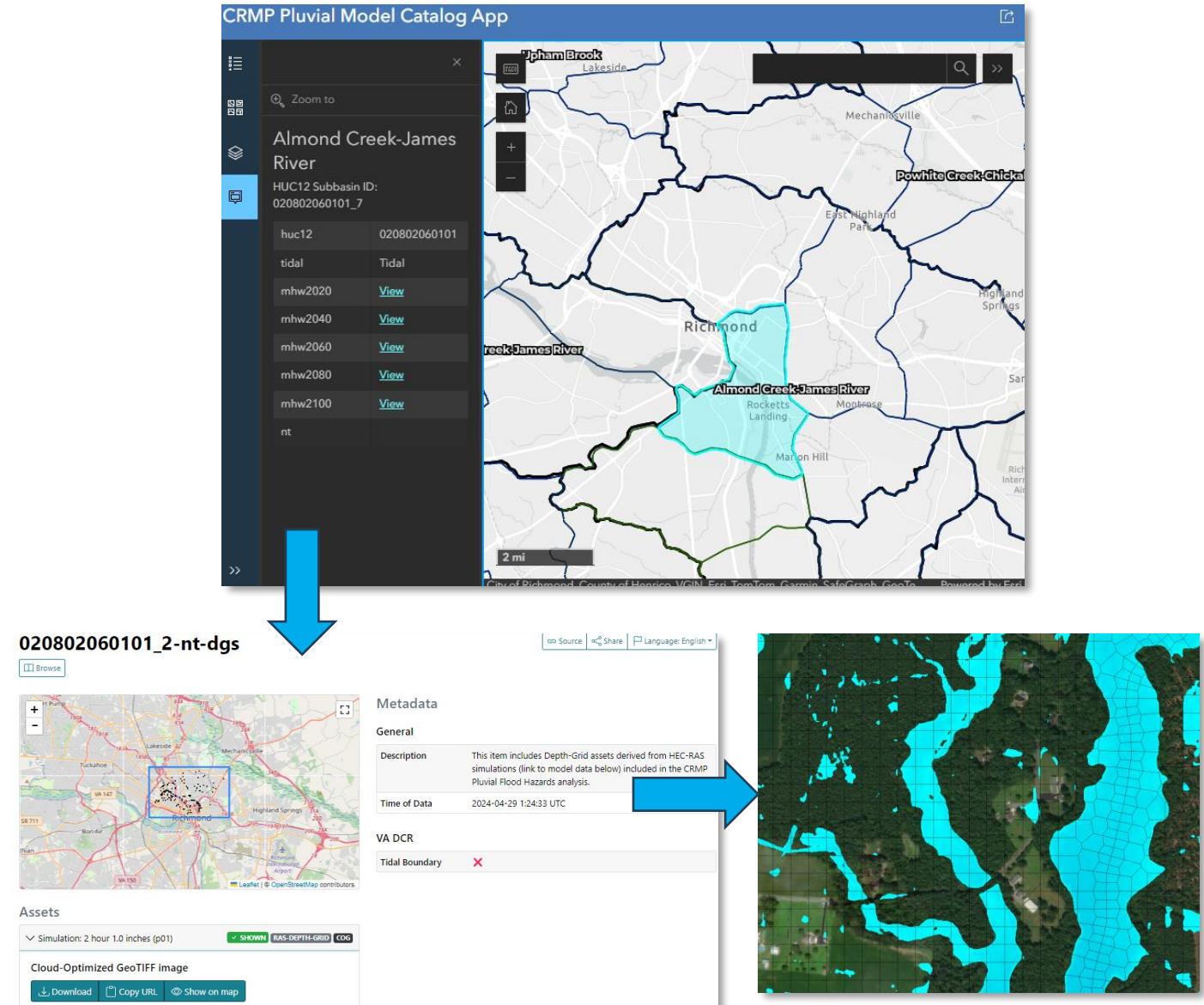
24hr 100yr Pluvial Added (present)

Pluvial Flood Data

Sub-HUC 12 level

Downloads available:
[Model Catalog Link](#)

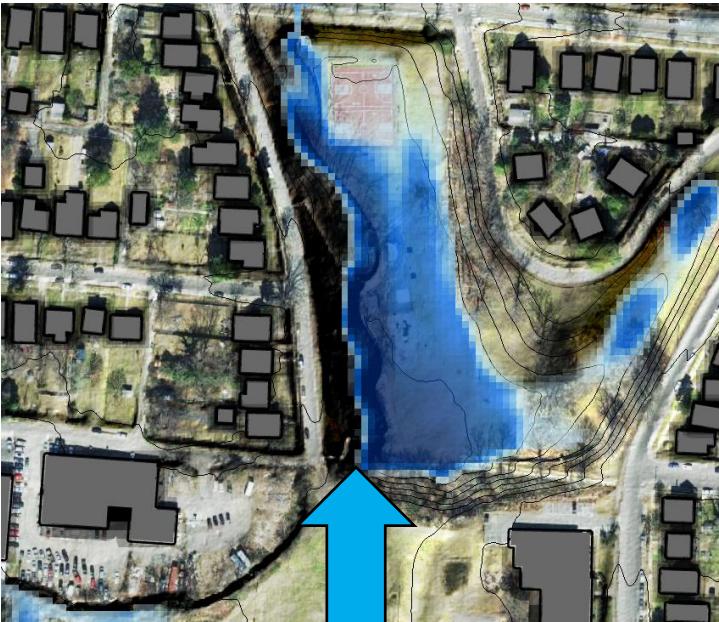
- RAS Models
- Depth Grids (located under “Additional Resources” of STAC catalog)



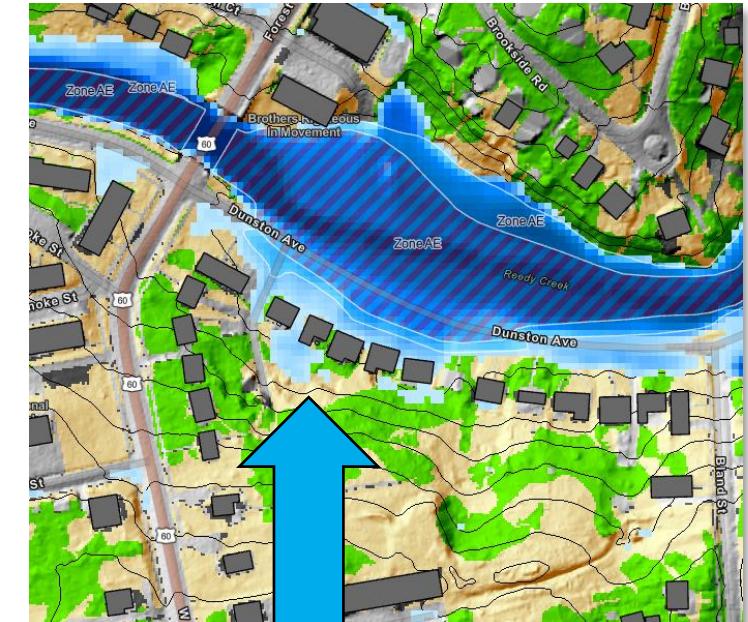
Early Exploration of the Data



Potential area of ponding water
in a large parking lot but no
Stormwater BMP nearby



Deepest ponding location in a
public park that is starting to
form a natural wetland



Homes that may experience
flooding, but are mapped outside
the effective SFHA (2014)

Pluvial Models Use Case Guide

Purpose:

Promote the use of the publicly available models and data products by:

- Describing models and data benefits and limitations
- Illustrating potential end use cases

Upcoming Workshops:

Agenda

- Overview of pluvial models
- Questions
- Participant input: polling, discussion

Date Options

- Tuesday, 6/25: 3:30 – 4:30 p.m.
- Friday, 6/28: 12:30 – 1:30 p.m.
- Monday, 7/1: 2 – 3 p.m.
- All dates will offer the same content.

Flood Hazard Impact Assessment

Flood Hazard Impact Assessment

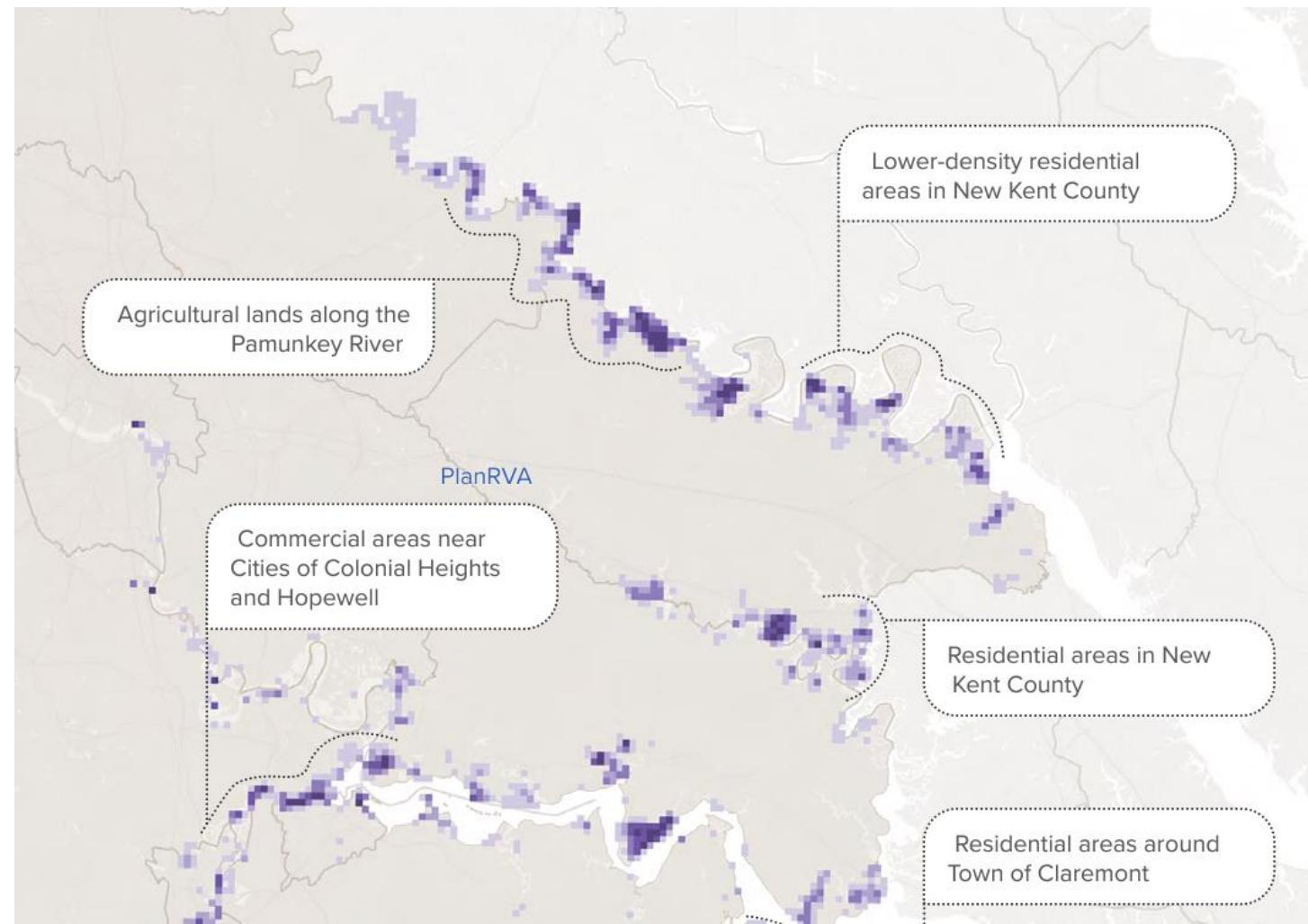
Residential Population Exposed		2020	2080	Change
Crater PDC	High tide	< 5	80	+ 2700%
	Extreme flood	130	530	+ 302%
PlanRVA	High tide	20	500	+ 2495%
	Extreme flood	1,100	2,200	+ 105%

Annualized Structure Losses*		2020	2080	Change
Crater PDC	Residential	\$1.62M	\$7.46M	+ 360%
	Non-Residential	\$0.69M	\$6.00M	+ 765%
PlanRVA	Residential	\$3.30M	\$14.2M	+ 331%
	Non-Residential	\$13.0M	\$27.40M	+ 111%

* Projected average annualized losses due to damages to structures and contents.

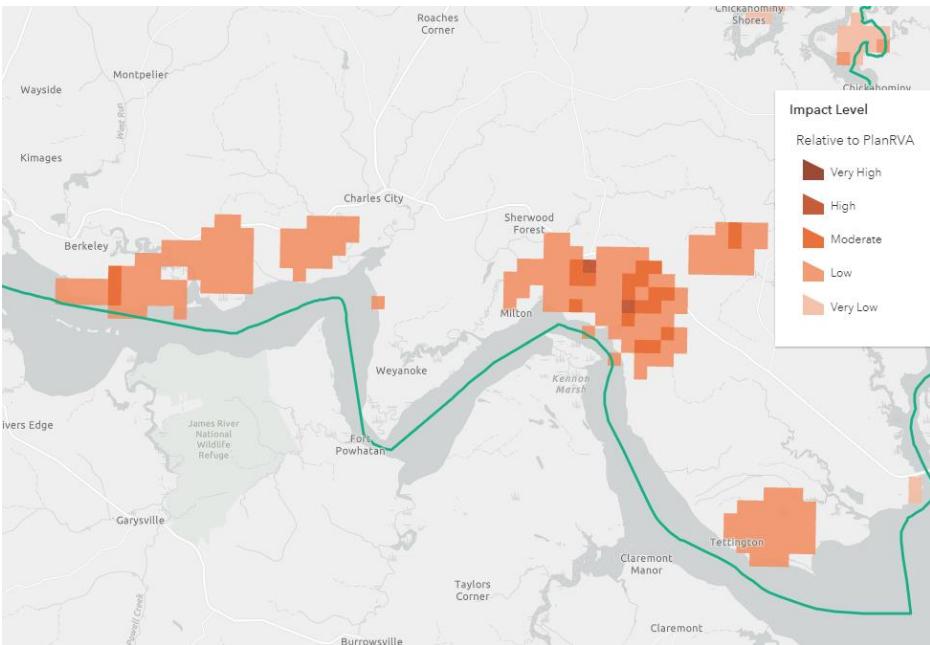
Agricultural Land Acres Exposed		2020	2080	Change
Crater PDC	High tide	480	1,300	+ 176%
	Extreme flood	1,500	1,900	+ 23%
PlanRVA	High tide	2,400	4,500	+ 86%
	Extreme flood	5,300	7,500	+ 41%

Differences in asset exposure numbers and percentage changes can be attributed to rounding for presentation. Percentage changes reflect exact exposure numbers.



Flood Hazard Impact Assessment

dcr.virginia.gov/crmp/ResilienceExplorer

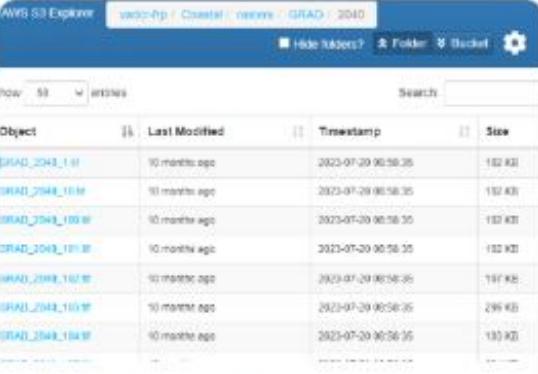


PDC / Regional Commission	County or City Name	Building Type	Epoch	Average Annualized Losses
PlanRVA	Charles City	Commercial	2020	\$ 3,946.00
PlanRVA	Charles City	Commercial	2040	\$ 18,875.00
PlanRVA	Charles City	Commercial	2060	\$ 70,765.00
PlanRVA	Charles City	Commercial	2080	\$ 124,571.00
PlanRVA	Chesterfield	Commercial	2020	\$ 14,244.00
PlanRVA	Chesterfield	Commercial	2040	\$ 85,851.00
PlanRVA	Chesterfield	Commercial	2060	\$ 438,552.00
PlanRVA	Chesterfield	Commercial	2080	\$ 704,949.00
PlanRVA	Henrico	Commercial	2020	\$ 9,433.00
PlanRVA	Henrico	Commercial	2040	\$ 30,256.00
PlanRVA	Henrico	Commercial	2060	\$ 103,237.00
PlanRVA	Henrico	Commercial	2080	\$ 225,319.00
PlanRVA	New Kent	Commercial	2020	\$ 452,231.00
PlanRVA	New Kent	Commercial	2040	\$ 1,037,566.00
PlanRVA	New Kent	Commercial	2060	\$ 2,799,927.00
PlanRVA	New Kent	Commercial	2080	\$ 5,915,590.00
PlanRVA	Richmond City	Commercial	2020	\$ 281,735.00
PlanRVA	Richmond City	Commercial	2040	\$ 545,536.00
PlanRVA	Richmond City	Commercial	2060	\$ 877,455.00
PlanRVA	Richmond City	Commercial	2080	\$ 1,055,926.00

Resilience Open Data Hub

Central location for all spatial data viewing and downloading

<https://crmp-vdcr.hub.arcgis.com/>



AWS S3 Explore waro-fp / Catalog / resiliency / CRAD / 2040

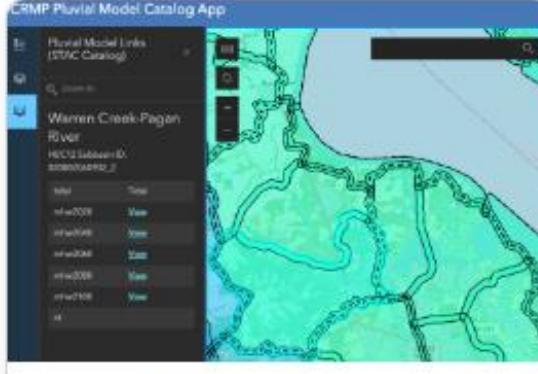
Object Last Modified Timestamp Size

- CRAD_2043_1.tif 10 months ago 2023-07-29 00:58:35 132 KB
- CRAD_2048_1.tif 10 months ago 2023-07-29 00:58:35 132 KB
- CRAD_2048_100.tif 10 months ago 2023-07-29 00:58:35 137 KB
- CRAD_2048_101.tif 10 months ago 2023-07-29 00:58:35 132 KB
- CRAD_2048_102.tif 10 months ago 2023-07-29 00:58:35 197 KB
- CRAD_2048_103.tif 10 months ago 2023-07-29 00:58:35 296 KB
- CRAD_2048_104.tif 10 months ago 2023-07-29 00:58:35 130 KB

AWS Open Data Portal S3 Bucket

This link will send you to the AWS Open Data Portal where...

[Explore](#)



CRMP Pluvial Model Catalog App

Warren Creek-Pagan

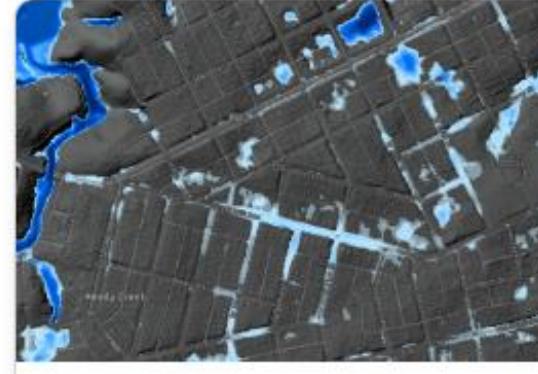
Model Type

- 10yr
- 100yr
- 1000yr
- 2000yr
- 5000yr
- 10000yr

CRMP Pluvial Model Catalog App

Catalog of pluvial flood models developed for the Virginia...

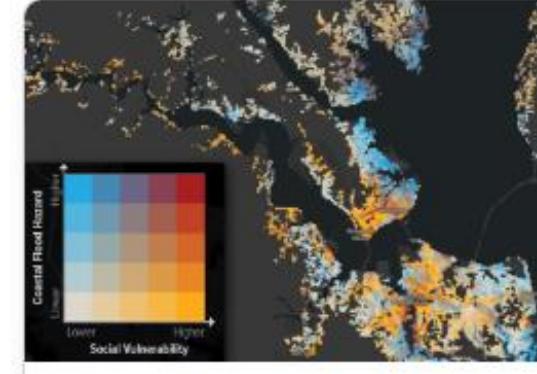
[Explore](#)



Pluvial Depth Grid 100yr (24hr Present)

Preview of Pluvial Hazard Data to be analyzed as part of the CR...

[Explore](#)



Coastal Flood Hazard

Lower Social Vulnerability Higher

Social Vulnerability and Flood Hazard Bivarariate...

Identification of areas with both high social vulnerability and...

[Explore](#)

DCR Flood Story App

- www.dcr.virginia.gov/floodstory
- Publicly accessible online tool via Survey123
- Reviewed by staff before published
- Published flood stories appear in VFRIS
- DCR can share results back to local government staff

The screenshot shows a mobile application interface for the DCR Flood Story App. At the top, there's a map of a coastal area with roads labeled US 13, VA 190, VA 166, I-64/US 17, and I-164. A blue location pin is visible on the map. To the right of the map is a large image of a flooded road with water covering the asphalt. Above the image, the text "Blue sky flooding" is displayed. Below the image, the date "January 31, 2024" is shown. The main content area contains the following data in a table format:

Description of Event	This is tidal flooding - no rain involved. This happens twice a day. Sometimes less flooding sometimes more. The water enters because the road dips at Sykes Creek and the water just flows in. Probably an easy fix.
Flooding Impacted	Property, Mobility, Public-services
Description of Impacts	Tidal flooding when coupled with rain floods our homes.
How often does it flood here?	
Type of Flooding	Tidal

At the bottom of the app screen, the text "Created on 5/13/2024, 2:44 PM." is visible. In the bottom right corner of the slide, the Virginia Department of Conservation & Recreation (DCR) logo is displayed, featuring a stylized blue and green wave graphic next to the letters "DCR".

How might you use these tools?

Planning & Zoning

- Comprehensive planning
- Zoning and Future land use planning
- Rezoning and variances
- Siting and design guidelines

Emergency Management

- Hazard mitigation planning
- Critical infrastructure siting

Community Development

- Property acquisition
- Economic development priorities
- Projecting potential changes in tax revenue

Public Works

- Baseline flood hazard data inputs for H&H modeling
- Baseline flood hazard data for design standards

Parks, Environmental Management

- Restoration and conservation priorities
- Property acquisition
- Public access planning



Group Discussion:

Input on Phase II Plan Products and Tools

1. Discuss initial questions and feedback
2. How can DCR best support localities in leveraging these new products and tools?
 - I. Pluvial flood models and use case guide
 - II. Flood hazard impact assessment summary and data
 - III. Flood Story App



Group Discussion:

Barriers to Addressing Flooding Concerns

1. Consider the barriers to addressing flooding challenges in your locality (e.g., financial, staff capacity, lack of data, etc.)
2. Please write all barriers on your sticky notes and place them on the flip chart under a related flooding challenge



Projects, Initiatives and Funding

Projects and Initiatives in the Plan

Purpose:

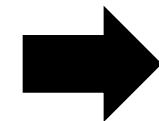
- ✓ Create a **record of flood resilience needs**, including funding needs.
- ✓ **Provide recommendations** for grant and loan **funding opportunities** for known project needs.
- ✓ Support **regional collaboration** and knowledge sharing.
- ✓ **Showcase resilience priorities and accomplishments.**

What types of actions are included?

- Programs, studies, plans, or projects
- Led or supported by the government
- Primary purpose to address the impacts of flooding on people, the environment, or the economy

Projects and Initiatives in the Plan

Projects and Initiatives Inventory (Coastal Resilience Web Explorer)



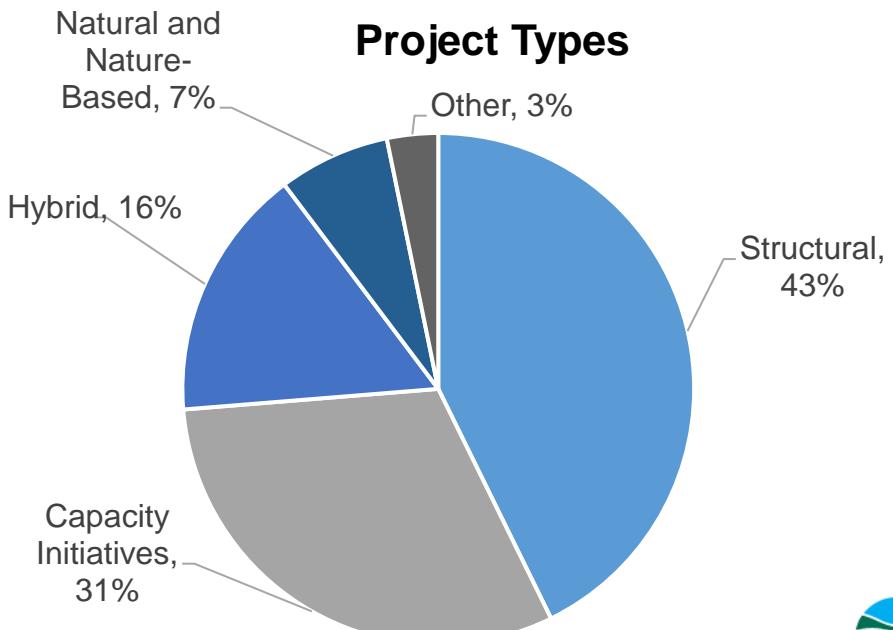
Planned Resilience Actions Analysis (CRMP Phase II PDF Plan)

Search: Clear

Projects and Initiatives (Features: 78, Selected: 0)

<input checked="" type="checkbox"/>	Name
<input type="checkbox"/>	Adjustment to Floodplain Ordinance/Restricting Development
<input type="checkbox"/>	Advancing Resiliency in Virginia's Coastal Zone by Supporting Climate-Adaptive Nearshore Natural & Nature-Based Restoration Projects in York River, Piankatank River, & Mobjack Bay
<input type="checkbox"/>	Application of Floodplain Ordinance to potentially developed Local Floodplains from Project ID #28
<input type="checkbox"/>	Appomattox River Trail (blueway and greenway)
<input type="checkbox"/>	Belle Isle Shoreline Restoration
<input type="checkbox"/>	Belmont Road (Whitepine Rd to Corcoran Dr) Drainage Improvement
<input type="checkbox"/>	Climate Change Vulnerability and Risk Assessments
<input type="checkbox"/>	Conservation Targeting for Resilience
<input type="checkbox"/>	Consideration of Floodplain Ordinance
<input type="checkbox"/>	Dam Inventory and Assessment

City of Richmond, County of Henrico, VGIN, Esri, TomTom, Garmin, S



Funding Database and Summary

Searchable Database

VA Funding for Projects (Features: 97, Selected: 0)

Name	Administering Office	Funding Source	Funding Type	Purp
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	Support address multiple priorities aquac persp shellfi applic
Building Resilience Against Climate Effects: Implementing and Evaluating Adaptation Strategies that Protect and Promote Human Health	National Center for Environmental Health	CDC	Federal	Support overall data c evalua to imp
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	Support preparat of Avail or Pro

Project to Funding Matching

Name: Belmont Road (Whitepine Rd to Corcoran Dr) Drainage Improvement This project will construct a multiple barrel box culvert and curve realignment on Belmont Road between Whitepine Road and Corcoran Drive to address routine flooding.



Location: Chesterfield County



Type: Structural - Utility Retrofit / Upgrades



Coastal Hazards Addressed: Stormwater Flooding



Phase: Final Design/Permitting



Owner: Chesterfield County



Climate Standards: No Scenarios



Implementation Cost: \$4,500,000

The table and sections below summarize the funding sources and financing mechanisms identified by the Master Plan process to potentially support coastal resilience projects.

Funding Sources

Funding programs provide money to pay for specific project operating and/or capital costs. These programs can include grants and loans from federal and state agencies and private philanthropies.

VA Projects & Fundings (Features: 18, Selected: 0)

Funding Source Name	Administering Office	Cost Share	Award Max (\$)	Purp
EPA	Environmental Protection Agency (EPA)	51%		Supp inves infras rang projec whic hurri
USACE	U.S. Army Corps of Engineers (USACE), Norfolk District	Varies based on applicable project phase	10,000,000	Supp shore vege mate estuar Supp projec

PlanRVA Projects in the Inventory

Category	Owner	Name
project	Henrico County	Henrico Floodplain Acquisitions
project	Henrico County	Henrico Old Nine Mile Landfill Stream Restoration
project	Henrico County	Henrico Deitrick Road Outfall Restoration
project	Henrico County	Henrico Graham Meadows Buffer Restoration
project	Henrico County	Henrico Wilder Middle Stream Restoration
project	Henrico County	Henrico Three Lakes Park Stream Restoration
project	Henrico County	Henrico Hidden Creek Park Stream Restoration
project	Henrico County	Henrico Adams Elementary Stream Restoration
project	Henrico County	Henrico Meadowview Park Stream Restoration
project	Henrico County	Henrico JSRCC Stream Restoration
project	Henrico County	Henrico Gambles Mill Pump Station Generator
project	Henrico County	Henrico Woodman Rd Drainage Improvement
project	Richmond	Pine Camp Safety Project and Stream Rehabilitation
project	Richmond	Belle Isle Shoreline Restoration
project	Richmond	JRPS Low head Dam Project
project	Ashland	Stony Run Floodplain and Stream Restoration (Near Yowell Road)
project	Ashland	Stony Run Floodplain and Stream Restoration Project (Along Lee Avenue)
project	Ashland	Stony Run Floodplain and Stream Restoration Project (DeJarnette Park)
project	Ashland	Stony Run Floodplain and Stream Restoration Project (Town Parcel)
project	Ashland	Stony Run Tributary Floodplain and Stream Restoration Project at Carter Park

- 32 projects
- Ashland (15), Henrico (14), and Richmond (3)

Category	Owner	Name
project	Ashland	Retrofit Existing BMP Along Maple Street
project	Ashland	Flood Control BMP on Vacant Lot
project	Ashland	Flood Control BMP on Vacant Lot 2
project	Ashland	Slash Cottage Drainage Improvements
project	Ashland	Permeable Pavers and Flood Control BMPs Near Hanover County Human Services Parcel
project	Ashland	Ditch Regrading and Flood Control BMP Along Route 1 North
project	Ashland	Storm Sewer Retrofits Near North Center Street
project	Ashland	Ditch Regrading and Storm Sewer Retrofits along Snead Street Between John Street and Henry Clay Road
project	Ashland	Ditch Regrading, Storm Sewer Retrofits, and Flood Control BMP Along MacMurdo Street and Virginia Street
project	Ashland	Ditch Regrading and Flood control BMP Along Route 1, Near Palm Leaf Mobile Home Park
project	Henrico County	Forest Glen Drainage Improvements
project	Henrico County	Meadow Road Culvert Replacement

PlanRVA Initiatives in the Inventory

Category	Owner	Name
initiative	Henrico County	Henrico County Floodplain Acquisition Program Development
initiative	Henrico County	Incorporating Resiliency into Plans for Henrico County
initiative	Henrico County	Floodplain Mapping in Henrico County
initiative	Henrico County	Floodplain Management Training for Henrico County Staff
initiative	Henrico County	Henrico County Public Outreach
initiative	PlanRVA	PlanRVA Resilience Priorities Dashboard
initiative	PlanRVA	Resilience Policy Toolkits
initiative	PlanRVA	PlanRVA Resilience Public Outreach and Education
initiative	PlanRVA	PlanRVA Region Resilience Plan
initiative	PlanRVA	Regional Resilience Plan Matrix
initiative	PlanRVA	Resilience Program and Project Cobenefit Connector
initiative	PlanRVA	Resilience Planning and Education for Businesses
initiative	Ashland	Update and Revise Existing Town SWMM Model
initiative	Ashland	New SWMM Model of Town
initiative	Ashland	Model of Stony Run
initiative	Ashland	Delineation of Community Floodplains Beyond the FEMA Studies
initiative	Ashland	Evaluation of Floodplain Ordinance Freeboard
initiative	Ashland	Adjustment to Floodplain Ordinance/Restricting Development
initiative	Ashland	Application of Floodplain Ordinance to potentially developed Local Floodplains from Project ID #28
initiative	Ashland	Website of Resiliency Plan and Projects

- 35 initiatives
- Ashland (9), PlanRVA (8), Henrico (5), Richmond (4), Goochland (2), New Kent (2), and Powhatan (1)

Category	Owner	Name
initiative	Goochland County	GIS Floodplain/Dam inundation zone updates
initiative	PlanRVA	Update NFIP repetitive flood loss data for CRS
initiative	Richmond	NFIP Data review
initiative	Hanover County	NFIP Data review
initiative	New Kent County	NFIP Data review
initiative	Powhatan County	NFIP Data review
initiative	Goochland County	Increase Environmental Staff
initiative	Ashland	Flood Risk Public Involvement Plan
initiative	New Kent County	Dam Inventory and Assessment
initiative	Richmond	Improve Flood Warning System
initiative	Richmond	Climate Change Vulnerability and Risk Assessments
initiative	Richmond	Increase Hazard Staff

Group Discussion:

Review of the Coastal Resilience Web Explorer Projects and Initiatives

1. What other projects, programs, plans, or policies are you working on to address flooding in your community?
2. Review handout with current CRWE projects and initiatives in the PlanRVA region – updates are welcome!
3. Add the following for any missing project/initiative for your locality:
 - I. Owner (locality)
 - II. Project name/description
 - III. Contact (name, title, phone, and email)



More Opportunities to be Involved

- Pluvial use case guide workshops
 - June 25th, June 27th, July 1st
- Community meetings
 - late summer in Southside Richmond
- Public webinars
 - September and December 2024
- Quarterly TAC meetings
 - June 18th, September 18th, and November 13th
- Public comment
 - Early 2025

DCR calendar:

<https://www.dcr.virginia.gov/dam-safety-and-floodplains/dam-safety-and-floodplains-calendar>



DCR Flood Resilience Funding Opportunities

Community Flood Preparedness Fund

- Grant manual public comment period coming soon.
- CFPF Round 5 application period scheduled to open this fall.

Resilient Virginia Revolving Loan Fund

- Available in two categories:
 - Non-Federal Match (for Federal grants and loans) \$5 million
 - Hazard Mitigation of Buildings \$7.5 million
- Applications accepted **until June 30.**

Stay in Touch!

Office of Resilience Planning
flood.resilience@dcr.virginia.gov

Sign up for our newsletter:
www.dcr.virginia.gov/signup

dcr.virginia.gov/resilience-planning

Input Dataset	Source	Date Last Updated	Spatial Data Type	Sensitive Data? (Limited Asset Data Released Publicly)
Above Ground LNG Storage Facilities	Homeland Infrastructure Foundation-Level Database (HIFLD), original source unclear	12/15/2022	Points	
Airports	United States Department of Transportation, Federal Aviation Administration-Aeronautical Information Services (Accessed via ArcGIS Hub)	11/30/2023	Points	
AM Transmissions Towers	Federal Communications Commission Licensing Database (accessed via HIFLD)	5/7/2022	Points	
Amtrak Stations	Virginia Department of Rail & Public Transportation (DRPT)		Points	
Bridges & Culverts	Virginia Department of Transportation (VDOT)	1/19/2024	Points	
Broadband Radio Service and Educational Broadband Service Transmitters	Federal Communications Commission (accessed via HIFLD)	11/23/2021	Points	
Bus Routes	Virginia Department of Rail & Public Transportation (DRPT)	3/1/2024	Lines	
Bus Stations	Virginia Department of Rail & Public Transportation (DRPT)	3/1/2024	Points	
Cellular Towers	Federal Communications Commission (accessed via HIFLD)	6/1/2022	Points	
Child Care Facilities	Virginia Department of Social Services (accessed via HIFLD)	12/8/2022	Points	
Conservation Lands	Virginia Department of Conservation and Recreation (DCR)	11/1/2023	Area Polygons	
Conservation Priority Area: Agriculture and Forestry	DCR Agriculture and Forestry (ConserveVA)	11/18/2021	Area Polygons	
Conservation Priority Area: Natural Habitat and Ecosystem Diversity	Natural Habitat and Ecosystem Diversity Exposure (ConserveVA) (DCR)	11/18/2021	Area Polygons	
Conservation Priority Areas: Protected Landscapes Resilience	DCR Protected Landscapes Resilience (ConserveVA)	11/18/2021	Area Polygons	
Dams	Virginia Department of Conservation and Recreation (DCR)	2/12/2024	Points	
Development Vulnerability Model	Virginia Department of Conservation and Recreation (DCR)	6/16/2022	Raster	
Emergency Medical Service Stations	Homeland Infrastructure Foundation-Level Database (HIFLD), original source unclear	6/1/2022	Points	
Emergency Operations Centers	Virginia Department of Emergency Management (VDEM)	10/1/2023	Points	
EPA Toxic Substance Control Act Facilities	United States Environmental Protection Agency (EPA)	3/11/2024	Points	
FDIC Insured Banks	Federal Deposit Insurance Corporation (accessed via HIFLD)	5/17/2022	Points	
Federal Real Property Public Dataset	U.S. General Services Administration	10/25/2023		
Federally-Owned Land	Chesapeake Bay Program's Federal Facilities Workgroup	1/1/2017		
Federally-Owned Land	BLM, DoD, USFS, USFWS, NPS, PADUS 2.1 (accessed via ESRI)	7/7/2023	Area Polygons	
Fire Stations	U.S. Geological Survey, National Geospatial Technical Operations Center (Accessed via HIFLD)	10/22/2023	Points	
FM Transmissions Towers	Federal Communications Commission (accessed via HIFLD)	9/18/2018	Points	
General Manufacturing Facilities	Industrial PinPointer database of manufacturing companies (accessed via HIFLD)	7/3/2023	Points	
Hazardous Waste Generators	U.S. Environmental Protection Agency (EPA) (accessed via VGIN)	11/18/2020	Points	
Higher Education Facilities	National Center for Education Statistics (accessed via HIFLD)	12/7/2022	Points	
Historic Resources	Virginia Department of Historic Resources (VDHR)		Area Polygons	Y
Hospitals	Oak Ridge National Laboratory (Accessed via HIFLD)	9/20/2023	Points	
Hurricane Evacuation Routes	Virginia Department of Transportation (VDOT), VDOT	9/20/2023, 9/30/2023	Lines	Y
Industry-Specific Manufacturing	HIFLD Secure	3/15/2024	Point	Y
Land Cover Data	Chesapeake Conservancy and Virginia State	1/1/2018	Raster	
Land Mobile Broadcast Towers	Federal Communications Commission (accessed via HIFLD)	9/18/2021	Points	
Land Mobile Commercial Transmission Towers	Federal Communications Commission Licensing Database (accessed via HIFLD)	11/23/2021	Points	
Land Use Data	Chesapeake Conservancy	1/1/2018		
Local Law Enforcement Facilities	Oak Ridge National Laboratory (Accessed via HIFLD)	2/1/2021	Points	
Major State Government Buildings	Technigraphics Inc. (accessed via HIFLD)	10/19/2021	Points	
Microwave Service Towers	Federal Communications Commission (accessed via HIFLD)	8/23/2022	Points	
National Shelter System Facilities	Federal Emergency Management Agency (FEMA) (accessed via HIFLD)	7/3/2023	Points	
Natural and Nature-Based Features	Virginia Institute of Marine Science (VIMS)	1/1/2021	Area Polygons	

Natural Gas Receipt Delivery Points	Oak Ridge National Laboratory (accessed via HIFLD)	12/11/2023	Points	
Nature Based Recreational Access Model	Virginia Department of Conservation and Recreation (DCR)	7/1/2021	Raster	
NOAA Marsh Migration	NOAA	5/30/2023	Raster	
Paging Transmission Towers	Federal Communications Commission Licensing Database (accessed via HIFLD)	9/18/2021	Points	
Petroleum Ports	Federal Communications Commission (accessed via HIFLD)	1/8/2022	Points	
Petroleum Registered Tank Facilities	Virginia Department of Environmental Quality (DEQ)	1/9/2024	Points	
Petroleum Terminals	Federal Communications Commission (accessed via HIFLD)	4/5/2022	Points	
Population Demographics	American Community Survey (ACS), US Census Bureau (from 2021 TIGER data)	7/20/2023		
Port of Virginia Facilities	Virginia Economic Development Partnership (VEDP)	10/22/2022	Points	
Power Plants	Oak Ridge National Laboratory (accessed via HIFLD)	9/21/2023	Points	
Predicted Suitable Habitat for Sensitive Species	High-resolution Predicted Suitable Habitat Summary (non-public dataset); (DCR)	12/5/2023	Area Polygons	Y
Private Schools	National Center for Education Statistics (accessed via HIFLD)	10/4/2023	Points	
Public Refrigerated Warehouses	The International Association of Refrigerated Warehouses (accessed via HIFLD)	7/5/2023	Points	
Public Schools	National Center for Education Statistics (accessed via HIFLD)	12/7/2022	Points	
Public Water Supply	Virginia Department of Health (VDH)	7/14/2016	Points	Y
Railroad Crossings	Virginia Department of Rail and Public Transportation (DRPT)	5/1/2020	Point	
Railways	Virginia Department of Rail & Public Transportation (DRPT)		Lines	
Road Intersections	Virginia Department of Transportation (VDOT)	3/22/2023	Points	
Roadway Centerlines	Virginia Geographic Information Network (VGIN); Virginia Department of Transportation (VDOT)	1/12/2024	Lines	
Septic Systems	Virginia Department of Health (VDH)		Points	
Social Vulnerability Index	Virginia Department of Conservation and Recreation (DCR)	10/18/2023		
Solid Waste Facilities	Virginia Department of Environmental Quality (DEQ)	7/12/2023	Points	
State Building Inventory	Virginia Department of General Services (DGS)			
Structures (Lightbox/HIFLD)	Lightbox/HSIN (accessed via HIFLD Secure)	7/15/2023	Structure Polygons	Y
Substations	HIFLD Secure	7/20/2023	Points	Y
Supplemental Colleges	National Center for Education Statistics (accessed via HIFLD)	12/7/2022	Points	
Tribal-Owned Lands	United States Census Bureau	11/11/2023	Area Polygons	
TV Analog Transmitters	Federal Communications Commission (accessed via HIFLD)	12/16/2021	Points	
U.S. Army Corps of Engineers (USACE) Offices	USACE (accessed via HIFLD)	12/18/2023	Points	
VDOT Average Daily Traffic (ADT)	Virginia Department of Transportation (VDOT)	2/3/2024	Line	
VDOT Roadway Centerlines	Virginia Department of Transportation (VDOT)	3/11/2024	Line	
VGIn Building Footprint Data (Phase I)	Virginia Geographic Information Network (VGIn)		Polygon	
Wastewater Treatment Facilities	United States Environmental Protection Agency (EPA) (accessed via HIFLD)	4/17/2022	Points	
Watershed Impact Model	Virginia Department of Conservation and Recreation (DCR)	6/7/2022	Raster	

Name: _____ Locality: _____ Email: _____

PlanRVA Region – Coastal Resilience Web Explorer (CRWE) Current Projects and Initiatives

Type	Owner	Name
project	Ashland	Stony Run Floodplain and Stream Restoration (Near Yowell Road)
project	Ashland	Stony Run Floodplain and Stream Restoration Project (Along Lee Avenue)
project	Ashland	Stony Run Floodplain and Stream Restoration Project (DeJarnette Park)
project	Ashland	Stony Run Floodplain and Stream Restoration Project (Town Parcel)
project	Ashland	Stony Run Tributary Floodplain and Stream Restoration Project at Carter Park
project	Ashland	Retrofit Existing BMP Along Maple Street
project	Ashland	Flood Control BMP on Vacant Lot
project	Ashland	Flood Control BMP on Vacant Lot 2
project	Ashland	Slash Cottage Drainage Improvements
project	Ashland	Permeable Pavers and Flood Control BMPs Near Hanover County Human Services Parcel
project	Ashland	Ditch Regrading and Flood Control BMP Along Route 1 North
project	Ashland	Storm Sewer Retrofits Near North Center Street
project	Ashland	Ditch Regrading and Storm Sewer Retrofits along Snead Street Between John Street and Henry Clay Road
project	Ashland	Ditch Regrading, Storm Sewer Retrofits, and Flood Control BMP Along MacMurdo Street and Virginia Street
project	Ashland	Ditch Regrading and Flood control BMP Along Route 1, Near Palm Leaf Mobile Home Park
initiative	Ashland	Update and Revise Existing Town SWMM Model
initiative	Ashland	New SWMM Model of Town
initiative	Ashland	Model of Stony Run
initiative	Ashland	Delineation of Community Floodplains Beyond the FEMA Studies
initiative	Ashland	Evaluation of Floodplain Ordinance Freeboard
initiative	Ashland	Adjustment to Floodplain Ordinance/Restricting Development
initiative	Ashland	Application of Floodplain Ordinance to potentially developed Local Floodplains from Project ID #28
initiative	Ashland	Website of Resiliency Plan and Projects
initiative	Ashland	Flood Risk Public Involvement Plan

initiative	Goochland County	GIS Floodplain/Dam inundation zone updates
initiative	Goochland County	Increase Environmental Staff
initiative	Hanover County	NFIP Data review
project	Henrico County	Henrico Floodplain Acquisitions
project	Henrico County	Henrico Old Nine Mile Landfill Stream Restoration
project	Henrico County	Henrico Deitrick Road Outfall Restoration
project	Henrico County	Henrico Graham Meadows Buffer Restoration
project	Henrico County	Henrico Wilder Middle Stream Restoration
project	Henrico County	Henrico Three Lakes Park Stream Restoration
project	Henrico County	Henrico Hidden Creek Park Stream Restoration
project	Henrico County	Henrico Adams Elementary Stream Restoration
project	Henrico County	Henrico Meadowview Park Stream Restoration
project	Henrico County	Henrico JSRCC Stream Restoration
project	Henrico County	Henrico Gambles Mill Pump Station Generator
project	Henrico County	Henrico Woodman Rd Drainage Improvement
project	Henrico County	Forest Glen Drainage Improvements
project	Henrico County	Meadow Road Culvert Replacement
initiative	Henrico County	Henrico County Floodplain Acquisition Program Development
initiative	Henrico County	Incorporating Resiliency into Plans for Henrico County
initiative	Henrico County	Floodplain Mapping in Henrico County
initiative	Henrico County	Floodplain Management Training for Henrico County Staff
initiative	Henrico County	Henrico County Public Outreach
initiative	New Kent County	NFIP Data review
initiative	New Kent County	Dam Inventory and Assessment
initiative	PlanRVA	PlanRVA Resilience Priorities Dashboard
initiative	PlanRVA	Resilience Policy Toolkits
initiative	PlanRVA	PlanRVA Resilience Public Outreach and Education
initiative	PlanRVA	PlanRVA Region Resilience Plan

initiative	PlanRVA	Regional Resilience Plan Matrix
initiative	PlanRVA	Resilience Program and Project Cobenefit Connector
initiative	PlanRVA	Resilience Planning and Education for Businesses
initiative	PlanRVA	Update NFIP repetitive flood loss data for CRS
initiative	Powhatan County	NFIP Data review
project	Richmond	Pine Camp Safety Project and Stream Rehabilitation
project	Richmond	Belle Isle Shoreline Restoration
project	Richmond	JRPS Low head Dam Project
initiative	Richmond	NFIP Data review
initiative	Richmond	Improve Flood Warning System
initiative	Richmond	Climate Change Vulnerability and Risk Assessments
initiative	Richmond	Increase Hazard Staff

Please use the tables below to add any missing projects or initiatives to be included in the CRWE:

Locality	
Category (Project or Initiative)	
Description	
Point of Contact	

Locality	
Category (Project or Initiative)	
Description	
Point of Contact	

Locality	
Category (Project or Initiative)	
Description	
Point of Contact	

Locality	
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