Virginia Coastal Resilience Technical Advisory Committee

Quarterly TAC Meeting Agenda

Date: Tuesday, June 18th, 2024
Time: 09:00 AM

Location: Virtual (Zoom Webinar)

Virtual Access: Register at https://vcu.zoom.us/webinar/register/WN_r2MIC4aTTsCpaaC32MNb6g

Agenda

1) Call to Order, Roll Call, and Introductions
2) Adoption of the Agenda
3) Adoption of Meeting Minutes from March 13th, 2024
4) Reports from DCR
5) Reports from TAC Subcommittees
    a. Research, Data, and Innovation Subcommittee
    b. Project Prioritization Subcommittee
    c. Funding Subcommittee
    d. Outreach and Coordination Subcommittee
6) Old Business
7) New Business
    a. TAC Member Discussion and Updates
8) Public Comment
9) Adjourn

---Public Comment: If you seek to provide public comment, please enter your name and affiliation into the Chat noting that you would like to make a public comment.

Coastal Resilience Technical Advisory Committee

Quarterly Meeting

June 18, 2024, 9:00 AM - 12:00 PM

Virtual Zoom Meeting | Register to Participate

VIRGINIA COASTAL RESILIENCE MASTER PLAN

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Meeting Agenda

1) Call to Order and Roll Call
2) Adoption of the Agenda
3) Adoption of Meeting Minutes from March 13th, 2024
4) Reports from DCR
    1) General Updates
    2) CRMP Update
5) Recommendations Development Report-Out and Discussion
6) Break
7) New Business
    1) CRMP P2 Document Outline Feedback
    2) Coastal Resilience Web Explorer Update
    3) TAC Member Discussion and Updates
8) Public Comment
9) Adjourn

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Reports from DCR

General updates

Legislative updates

Coastal Resilience Master Plan, Phase II updates

General Updates from DCR

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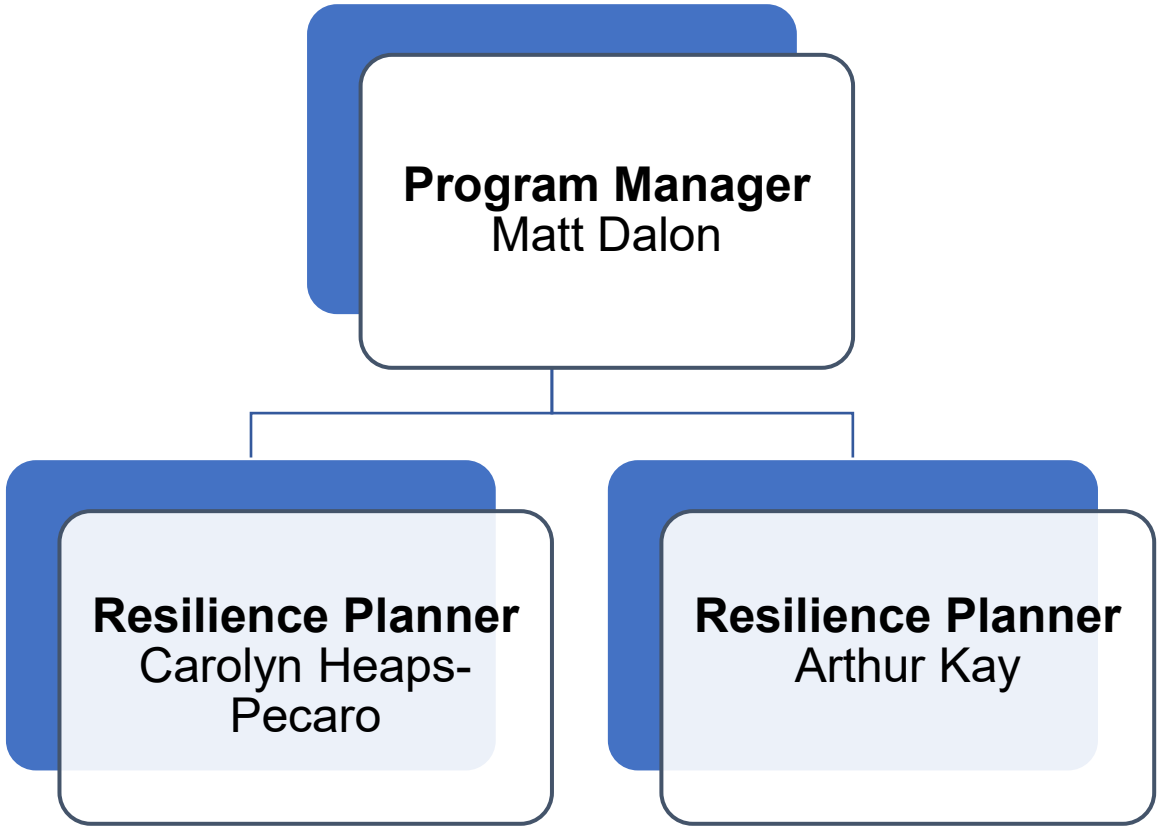
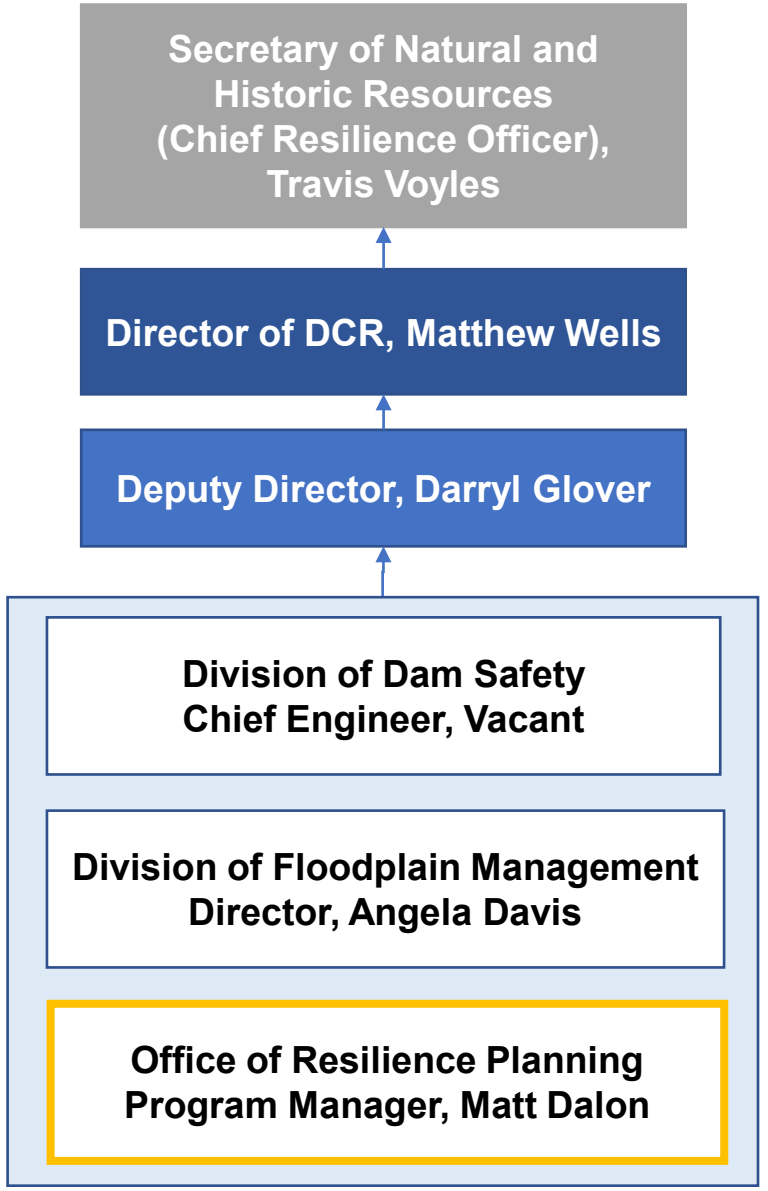
Office of Resilience Planning Staffing Update





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Legislative Update

New CRO Bill [HB 1458 effective 7/1/2024]

- CRO – Bi-Annual Status of Resilience Report (starting 7/1/2025)
- CRO – Interagency Resilience Management Team
  - Quarterly meeting schedule
- DCR – Coastal Resilience Technical Advisory Committee
- DCR – Virginia Flood Resilience Advisory Committee (2/1/2025)
  - Semi-annual meeting schedule

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Consulting Teams for CRMP Phase II

Stantec/Launch! Team:

- Report design and production
- Stakeholder engagement
  - Subcommittee recommendations facilitation
- Data review and analysis
- Planned resilience actions
  - Includes assistance to end users to submit projects

Dewberry Team:

- Flood hazard data
- Impact assessment
- End user survey analysis
- Web explorer update mock-up
- Financial needs for flood resilience

AECOM Team:

- Public outreach campaign
  - Underserved community meetings

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Coastal Resilience Master Plan, Phase II

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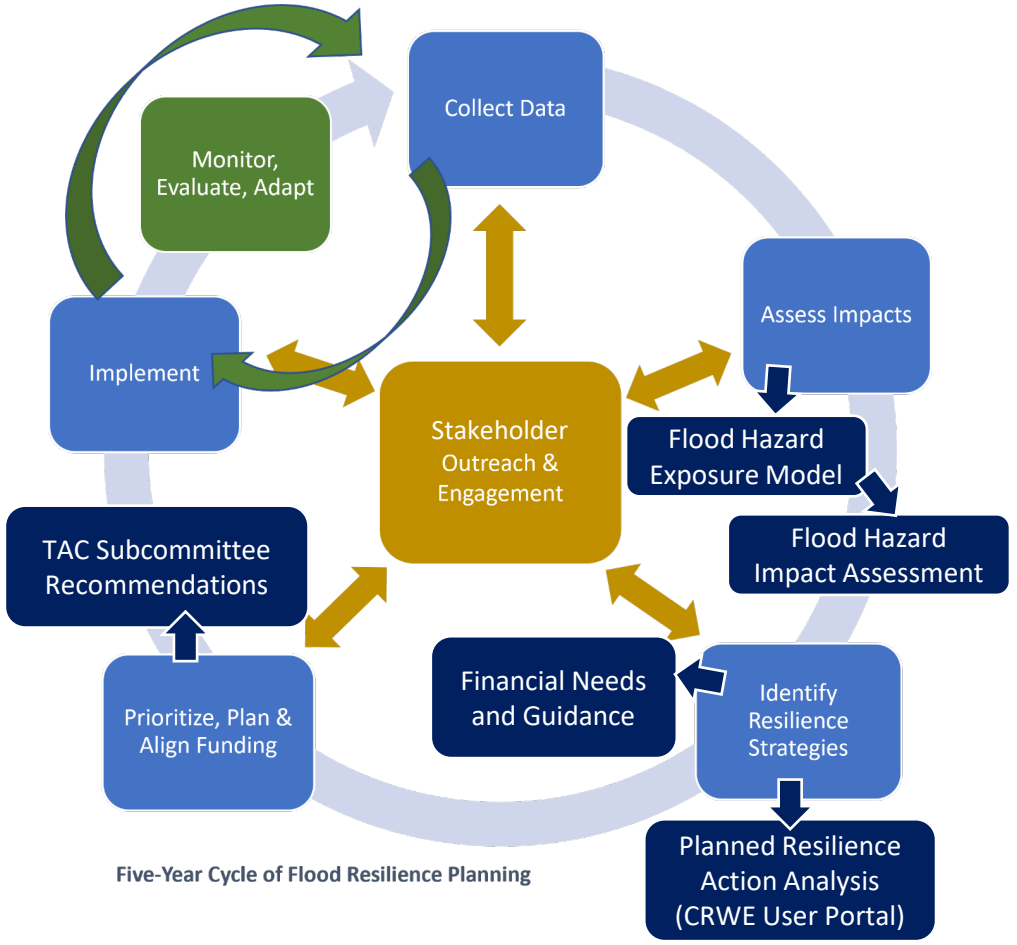
Coastal Resilience Master Plan, Phase II

Deliverables

1) a PDF Document Plan
2) an updated Coastal Resilience Web Explorer

Key Components

1) Flood Hazard Exposure Model
2) Flood Hazard Impact Assessment
3) Planned Resilience Actions
4) Financial Needs for Flood Resilience
5) TAC Subcommittee Recommendations



Five-Year Cycle of Flood Resilience Planning

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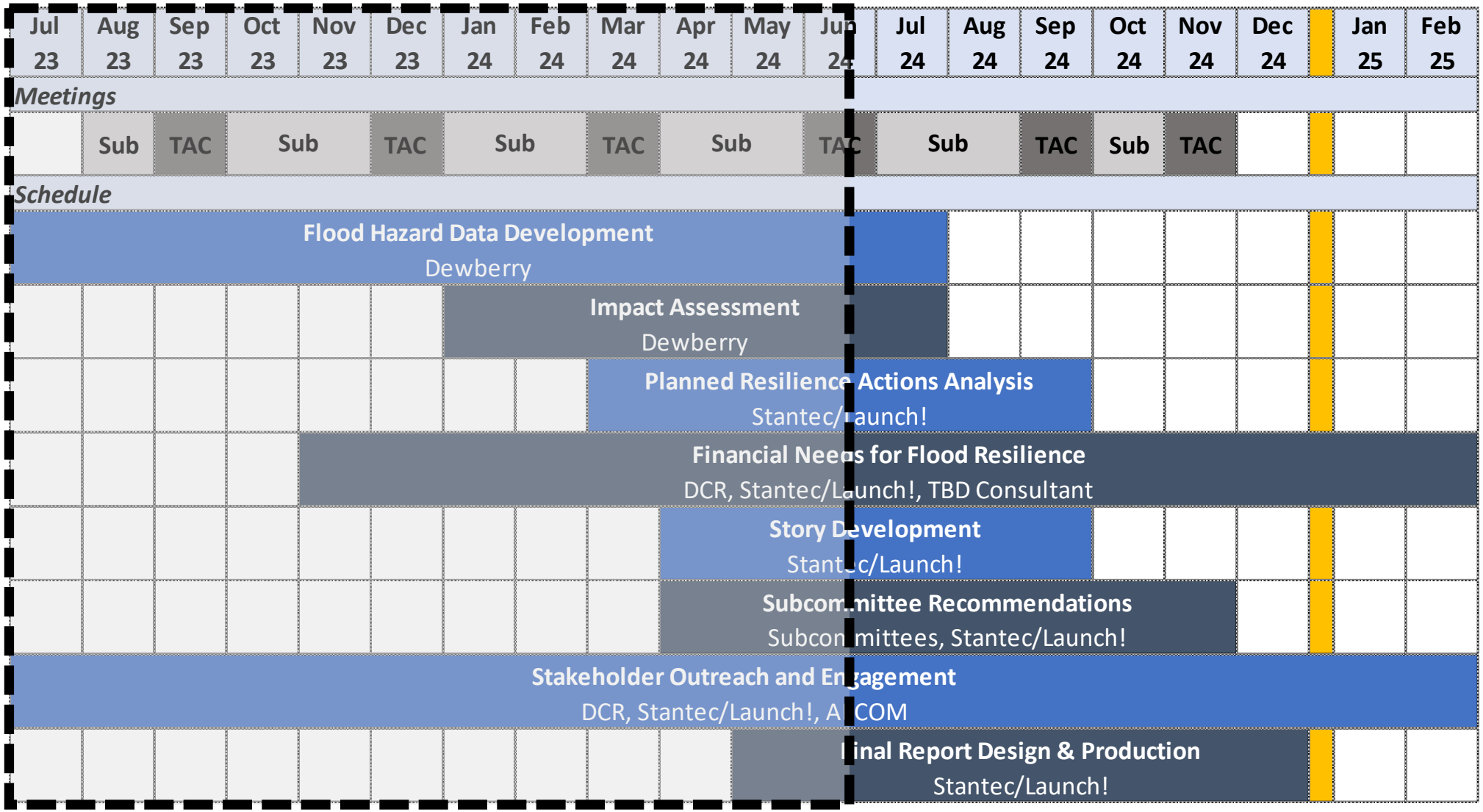
Plan Development Timeline



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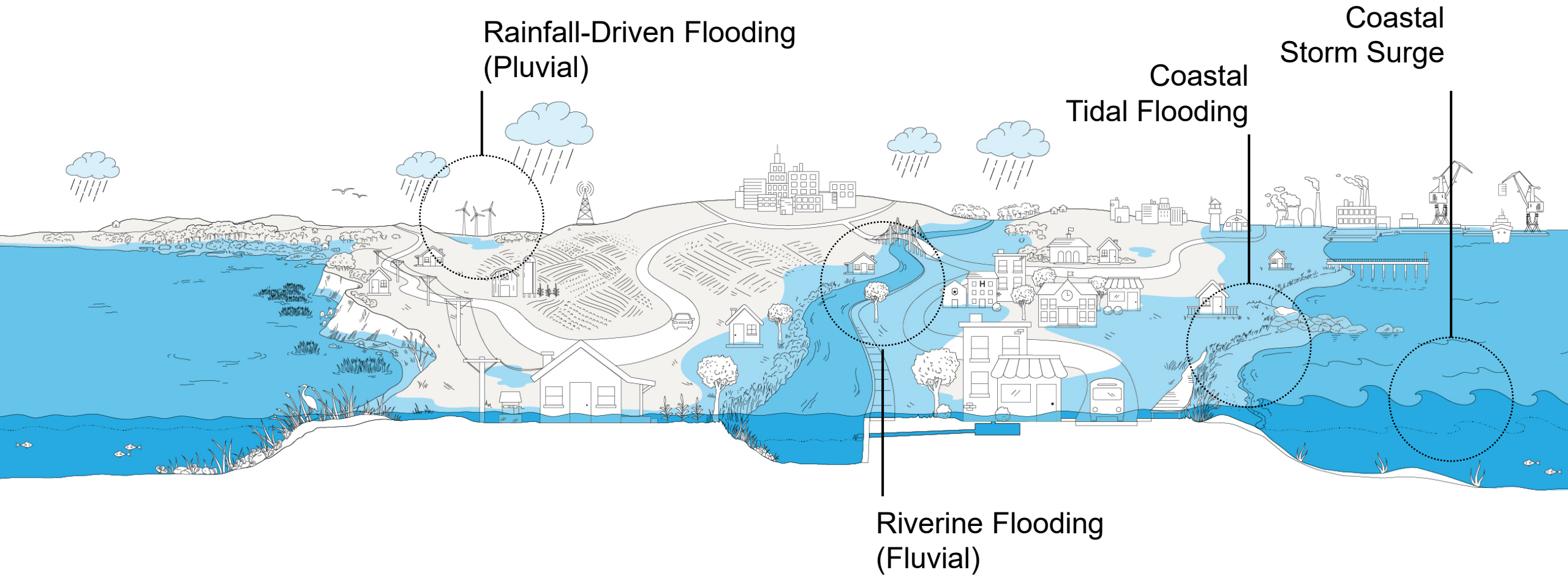
Major Sources of Flooding



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CRMP2 Planning Scenarios and Data

	Reference Scenario
Time Horizon	2000-2020
Coastal	2020 CRMP
Pluvial	Atlas14
Fluvial	FEMA

	Planning Scenarios			
Planning Horizon	Near Future ~2030-2060		Far Future ~2060-2100	
Risk Tolerance	Moderate	Low	Moderate	Low
Coastal	2040 CRMP	2060 CRMP	2060 CRMP	2080 CRMP
Pluvial	2020-2070 RCP 4.5 Median	2020-2070 RCP 4.5 90th %	2050-2100 RCP 4.5 Median	2050-2100 RCP 4.5 90th %
Fluvial	FEMA	FEMA	FEMA	FEMA

Notes:
Coastal: 2020 CRMP MSL adjusted based on tidal observations. 2040, 2060, & 2080 CRMP based on NOAA 2017 Intermediate-High Relative Sea Level Rise Projection
Pluvial: Precipitation values from Atlas14 and MARISA RCP 4.5 projections will be rounded to the nearest return interval pluvial model using conventional rounding.

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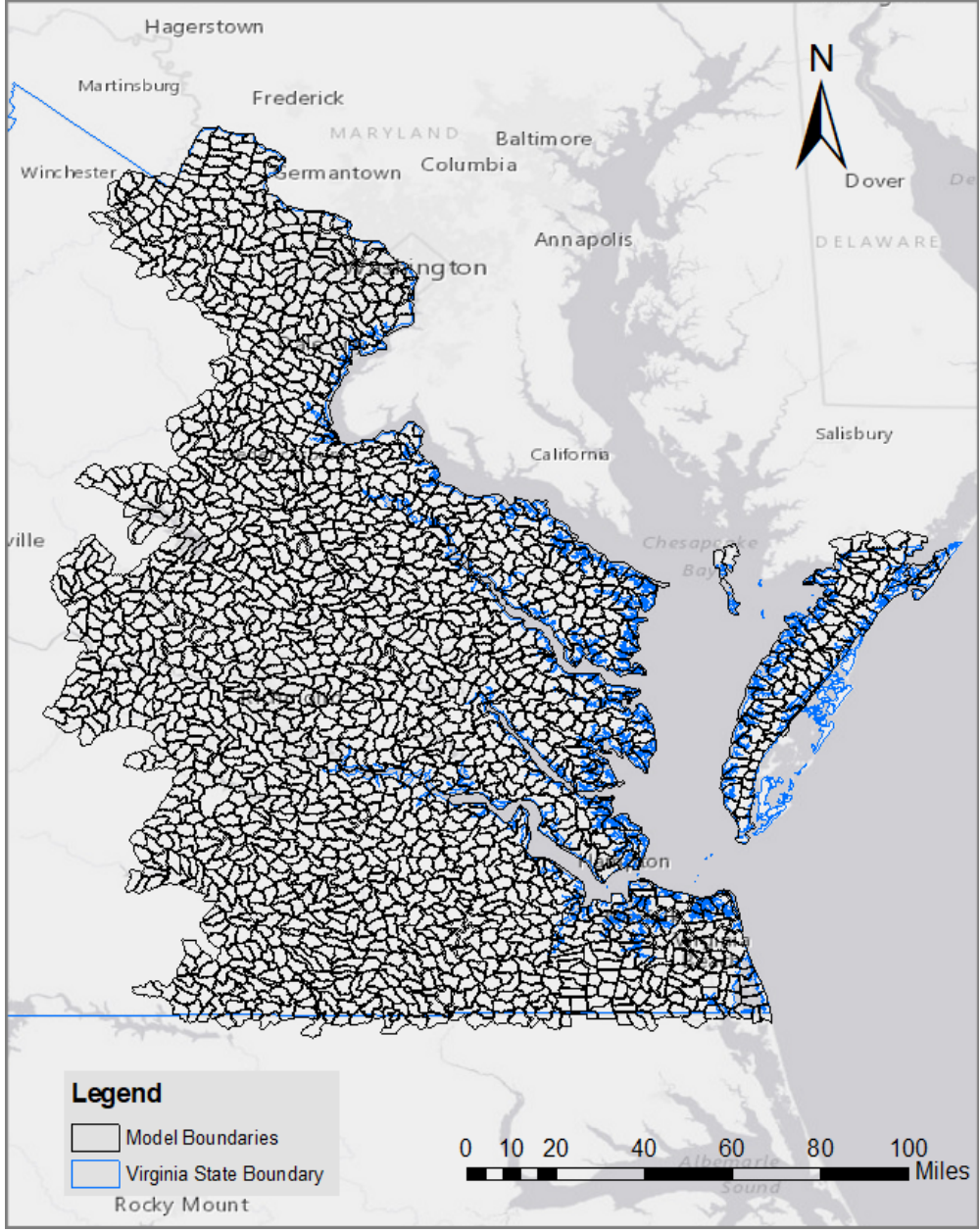
Pluvial Flood Hazard Data

- Complete
  - Pluvial Modeling
  - Models and Results Uploaded to AWS / the Open Data Portal (Catalog Viewer Link)
  - 1,830 Subbasins
    - Non-Tidal = 63 Plans
    - Tidal = 315 Plans
  - Planning Scenario Reference Table
- Work in Progress
  - Building Planning Scenario Depth Grids
  - Use Case Guide



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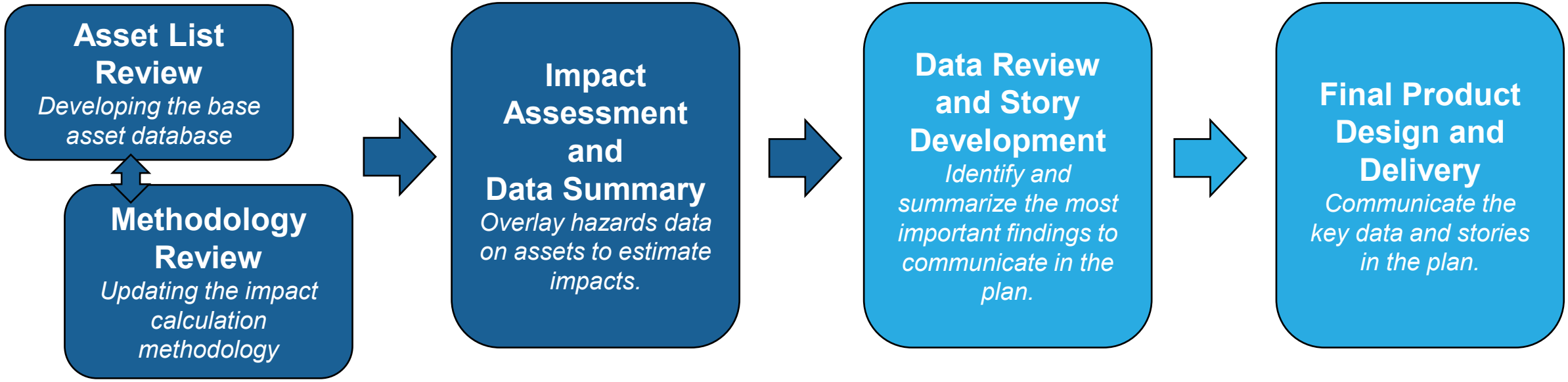
Impact Assessment

In Dewberry scope

In Stantec scope



January – April
(Complete)

March – July
(In Progress)

May – September
(In Progress)

August – December
(Not Started)

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Coastal Resilience Master Plan, Phase 2 Financial Information Included in the Plan

- Flood Hazard Impact Assessment
  - $ Building/Structures Average Annualized Loss (AAL)
  - $ Ecosystems Service Loss
  - $ Regional Economic Impacts
  - $ Local Real Estate Tax Revenue Impacts
- Contextual Information
  - $ Locality Economic Capacity/Indices
  - $ Natural Infrastructure Ecosystem Services **Baseline Benefits**
- Planned Resilience Actions
  - $ of Projects and Initiatives

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Additional CRMP Phase II Updates

Coastal Resilience Web Explorer Funding Opportunities Updates

VIRGINIA COASTAL RESILIENCE WEB EXPLORER Ver 1.0

‹ ıction | Hazards | Impacts | Community Context | Projects and Initiatives | **Funding Opportunities**

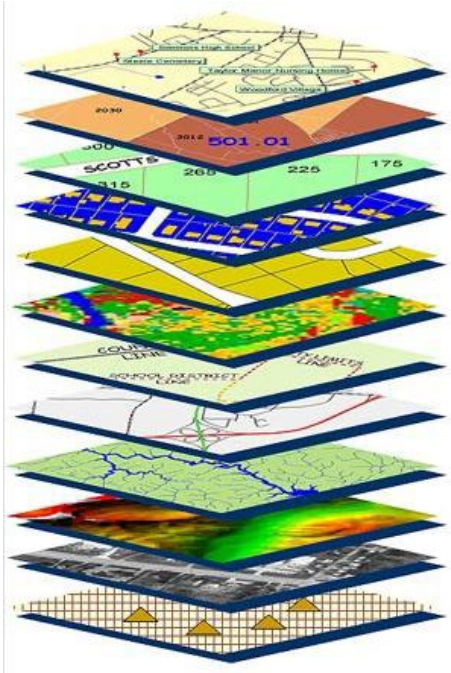
The Master Plan expanded and enhanced a funding database established by the Virginia Coastal Zone Management Program. This database is intended to provide a comprehen
and mechanisms that would support coastal resilience projects in Virginia. **Last updated September 2021.**

Search by Column: Name Clear

VA Funding for Projects (Features: 97, 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 address how acidification and at least one other environmental stre multiple parameter physical, chemical, or biological observing syste priorities of this funding opportunity are to (1) build or strengthen r aquaculture research community (including university, industry, priv perspectives), (2) develop scientific knowledge on the impact of oc shellfish aquaculture, and (3) create data products, tools, technolog applicable to building resilience within the shellfish aquaculture sec
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. ci overarching strategies. These strategies include 1) collaboration wit data on local climate projections, health effects, social determinants evaluation of adaptation actions that address the threats identified i to improve adaptation actions and enhance understanding of effec
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 prepare for climate change impacts on tribal treat and trust resourc of Available Funding: - Adaptation planning - Ocean and Coastal M or Protect-in-Place Planning - Internships and Youth Engagement

Mapping Financial Focal Areas



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Planned Resilience Actions Analysis

Review Data & Build Approach

- Initial Review and Summary
- Analysis Content Outline
- Data Quality Improvement Plan

May
(Complete)

Improve Data

- Data Entry Support
- Data Quality Improvement

May – July
(In Progress)

Produce Summary

- Final Report PDF
- Coastal Resilience Web Explorer

July – December
(Not Started)

In Stantec scope

In future scope

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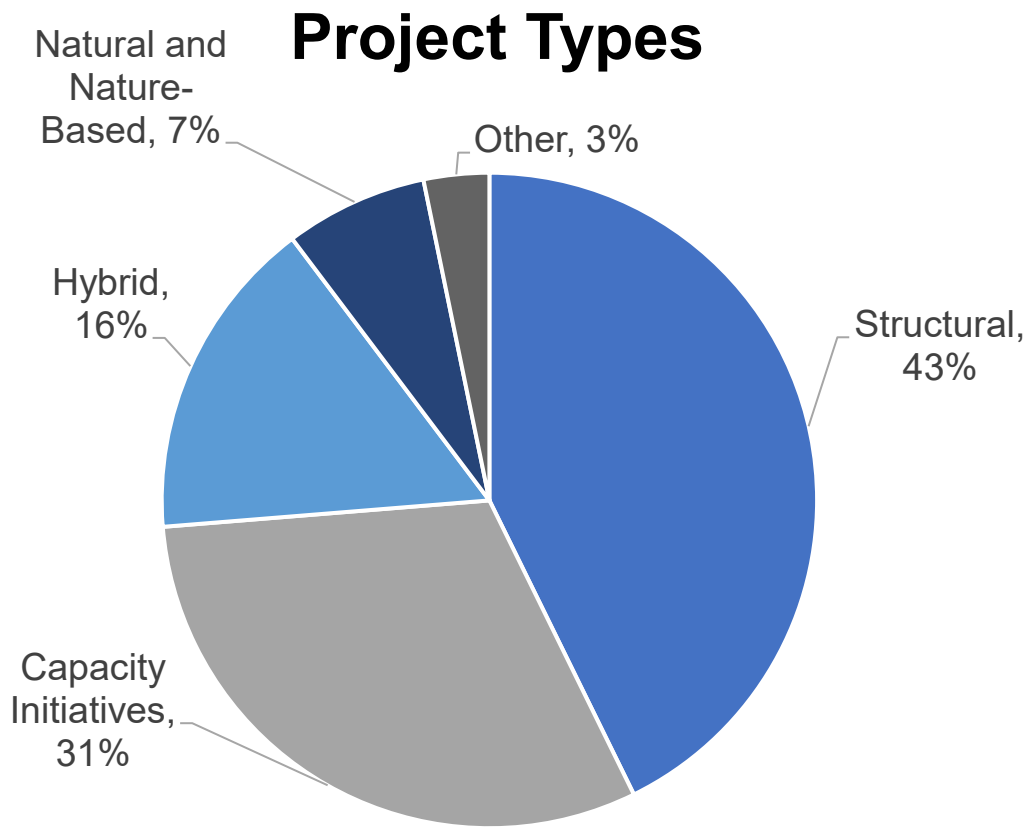
Planned Resilience Actions Analysis

- 681 entries
  - About 70% are projects
  - 76% were submitted in 2021
  - Nearly all submissions made by PDCs or local governments
- Most projects address stormwater flooding
- Most initiatives have multiple purposes
  - Least common: funding capacity, ecosystem resilience, economic resilience.



Planned Resilience Actions

Analysis Content Outline

Themes and Trends

- Action types and subtypes
- Hazards addressed and action purpose
- Project costs (considering type, scale of benefits)
- Geographic distribution: locality, watershed

Opportunities and Gaps

- Areas of high flood risk and elevated social vulnerability without actions
- Opportunities for coordination based on actions' geographic proximity and type

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Planned Resilience Actions Analysis

Key Data Improvements Underway

- Confirm that our **data is complete** in areas of high flood risk
- **Consolidate duplicate** projects and initiatives
- Expand the number of projects containing **cost information**
- Understand and attempt to **recategorize projects with "Other"** as the subtype
- Improve spatial **extents of project locations**
- Improve the **accuracy of the "scale of benefits"** field

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Stakeholder Outreach and Engagement

Activity		Complete by	Status	Stakeholders	O&E Strategy Goals
1	Coastal Resilience TAC	Ongoing (quarterly)	**In progress**	Primary plan end users and partners	All goals
2	NGO Coordination Meetings	Ongoing (monthly)	**In progress**	Non-profits and other partners	Drive awareness (4)
3	Critical Infrastructure Working Group (led by VDEM)	Ongoing	**In progress**	Critical infrastructure owners and managers	Understand end users (1); Contextualize interventions (3); Drive awareness (4)
4	End-User Survey	Jan ‘24	**Complete**	Primary plan end users	Understand end users (1)
5	Participatory Mapping (Flood Story)	Mar ’24 / Ongoing	**In progress**	Public	Contextualize flood impacts (2)
6	Locality Meetings	Jun ‘24	**In progress**	Local governments	All goals
7	Resilience User Portal & Data Call	Apr ‘24 / Jul ’24	**In progress**	Primary plan end users	Contextualize interventions (3)
8	Tribal Engagement Meeting(s)	Jun ’24	**In progress**	Tribal governments	All goals
9	Community Meetings	Sep ’24	Development	Underserved communities	Contextualize flood impacts (2); Drive awareness (4)
10	Virtual Public Meetings (mid-point / end-point)	Sep ‘24 / Dec ’24	Not started	Public	Drive awareness (4)
11	Private Sector Meeting	Sep ‘24	Not started	Private sector	Drive awareness (4)
12	Federal Facility Owners Meeting	Sep ’24	Not started	Federal facility owners	Drive awareness (4)
13	PDC Interviews	Sep ’24	Not started	Planning District Commissions	Understand end users (1); Contextualize flood impacts (2); contextualize interventions (3);
14	Public Comment	Feb ‘25	Not started	Public	Contextualize flood impacts (2); Contextualize interventions (3)

Locality Meetings

Workshops with local government staff in areas with flood risk and historically lower engagement to understand challenges, gather info on planned resilience actions.

- *Crater PDC: completed May 22nd, 2024*
- *Plan RVA: completed June 17th, 2024*
- HRPDC – Peninsula: planned June 26th, 2024
- HRPDC – Southwest: planned June 27th, 2024

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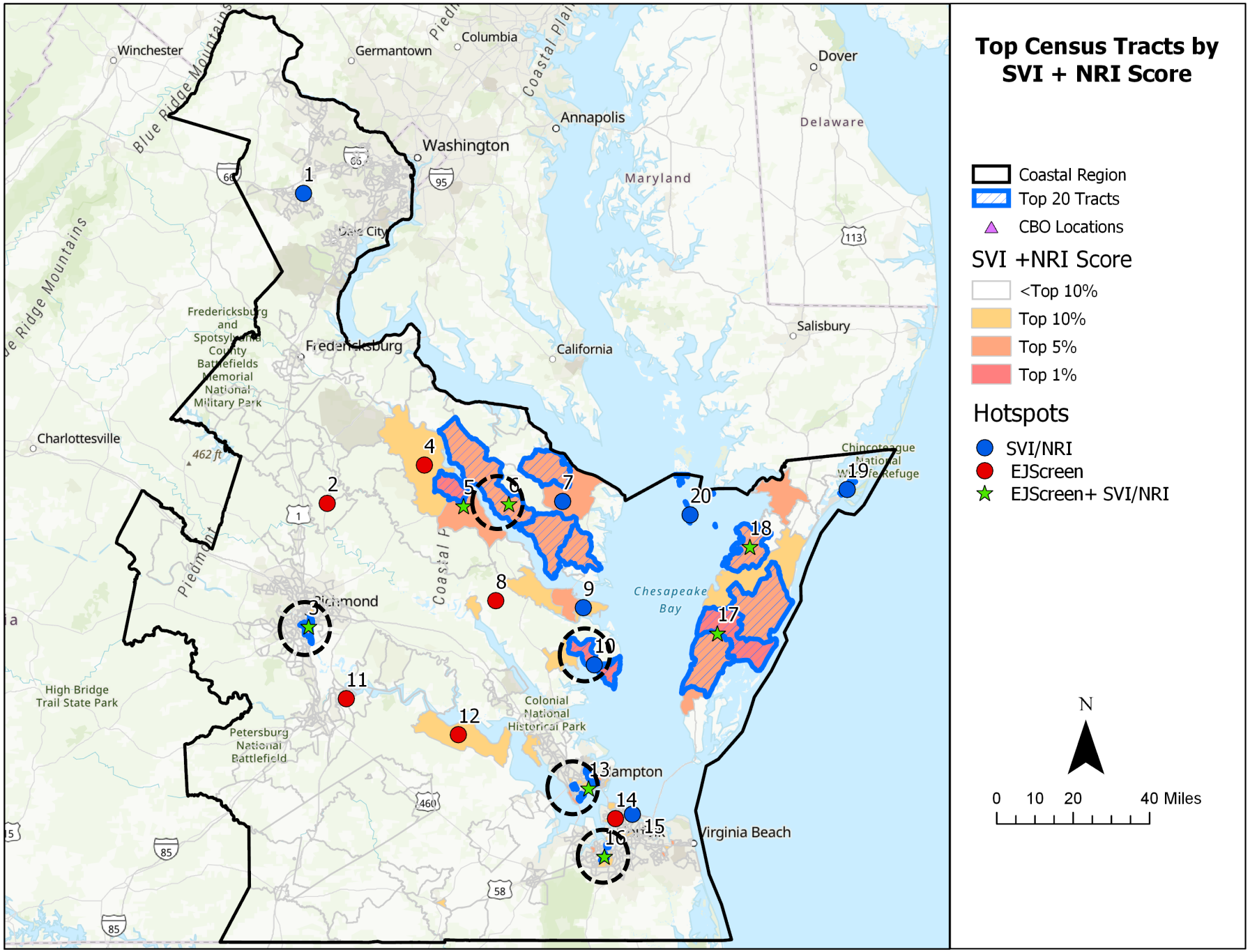
Community Meetings

Identify areas meeting CFPF definition of “underserved” which are at greatest flood risk

Determine whether extensive flood resilience engagement already exists

A: If so, partner with localities and others to understand challenges

B: If not, co-host meetings with community-based organizations



6/18/2024

Working List of Community Meetings

Geographic Area Identified	Approach
Accomack, Eastern Shore	A – learn from existing efforts
Tappahannock or Warsaw, Northern Neck and Inner Middle Peninsula	B – co-host meeting
Southside Richmond, Richmond	B – co-host meeting
Mathews, Middlesex, Mathews, and Outer Middle Peninsula	B – co-host meeting
Downtown Hampton, Hampton	A – learn from existing efforts
Southern Newport News, Newport News	To be determined
East Ocean View, Norfolk	A – learn from existing efforts
Cradock or Park View, Portsmouth	B – co-host meeting
North Central Chesapeake*, Chesapeake	B – co-host meeting

*Although this area was not identified through analysis, it has been prioritized because the community has requested a meeting.

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Public Outreach Campaign

Key Strategies

- Develop partnerships for community meetings
- Publicize Flood Story app
- Promote public webinars
- Subject matter expert promotion of plan
- “Stealth Learning” approach

Tactics

- Materials: print, web
- Newsletter and email blasts
- Social media and traditional media
- Public service announcements
- Feedback opportunities
- Conference, board, professional presentations

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TAC Discussion

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Recommendations Development

Report out and Discussion

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Subcommittee Recommendations

Outreach and Coordination Subcommittee
Project Prioritization Subcommittee
Funding Subcommittee
Research, Data, and Innovation Subcommittee

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Subcommittee Recommendations

Purpose: Identify opportunities to improve mitigation of severe and repetitive flooding in the coastal region. This may include:

- Actions to implement prior to the next planning phase. (Next 1-4 years)
- Planning process improvements.

Audience: State government, PDCs, local governments, and/or others.

- Recommendations for implementation actions will identify the intended audience in general terms (ex., state agencies).

Aiming for 3-5 recommendations per subcommittee, 20 recommendations in total.

Presentation: A section of the final plan document, presented as recommendations of the public body.

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Recommendations Development

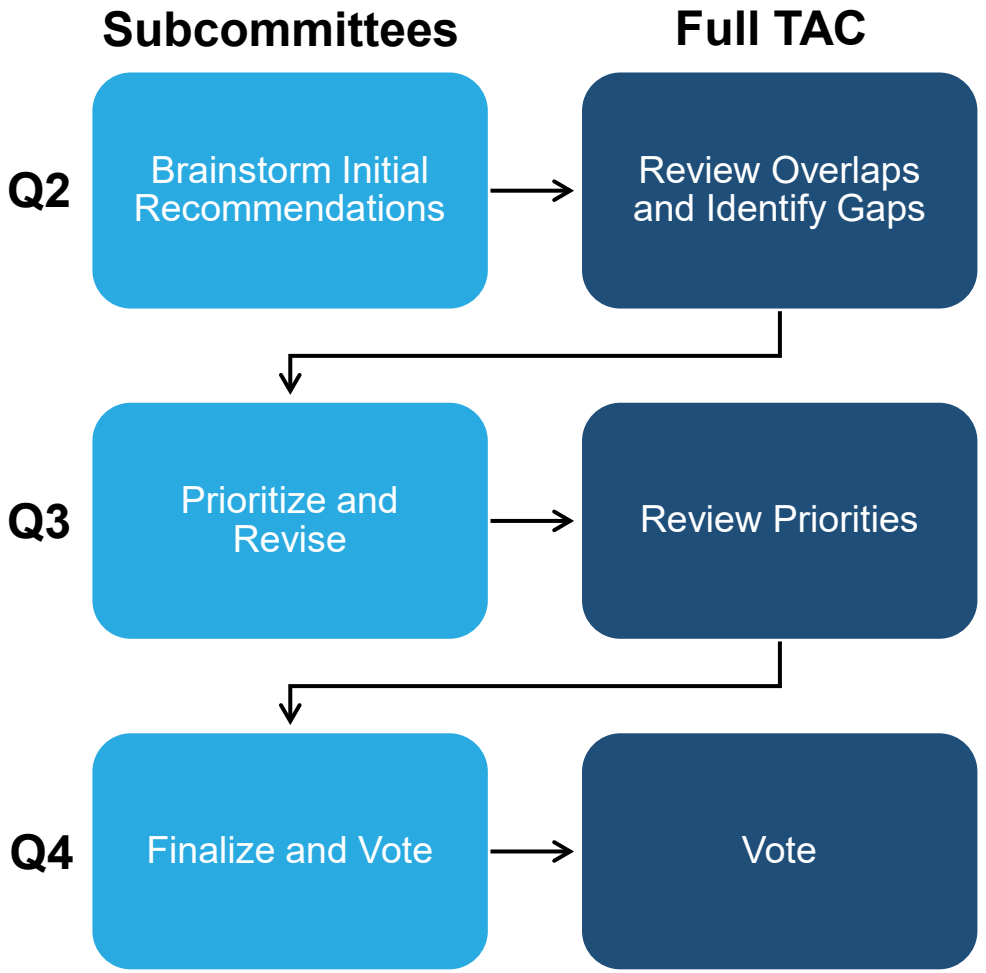
Collaborative process

- Launch! team facilitates discussions
- Members may attend other subcommittees' meetings

Informed by:

- Prior TAC discussions
- Phase I plan
- Stakeholder engagement
- TAC member surveys

Final recommendations will be voted on by subcommittee members, followed by full TAC.



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2024 Q2 Recommendations Process

Facilitated discussions of recommendations at the Q2 meeting for each TAC subcommittee, with breakout groups:

- **Outreach & Coordination**: May 16, 2024
- **Project Prioritization**: May 17, 2024
- **Funding**: May 23, 2024
- **Research, Data, & Innovation (RDI)**: May 24, 2024

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Recommendations Themes

A. RDI (29)*

1. Research (10)
2. Data (10)
3. Innovation (6)
4. Other (3)

B. Project Prioritization (28)

1. Driving Toward Outcomes (9)
2. Supplying Actionable Impact Data (11)
3. Identifying Flood Resilience Needs (8)

C. Funding (34)

1. Building the Financial Baseline (6)
2. Making the Financial Case (9)
3. Documenting Opportunities for State Support (11)
4. Providing Guidance and Information (8)

D. Outreach & Coordination (32)

1. Encouraging Plan Uptake (11)
2. Enhancing Coordination (9)
3. Understanding Our Stakeholders (12)

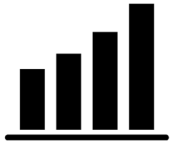
*Numbers in parentheses are the number of initial draft recommendations developed for each subcommittee/theme.

Recommendations by Subcommittee

Research, Data, and Innovation Topic Areas within Themes

Research

1. Support research on nature-based solutions, modeling, and other topics
2. Research local challenges and lessons learned from other states
3. Support research on benefits/costs of resilience action and human adaptative behavior
4. Monitor performance of resilience projects



Data

1. Support multi-institutional data efforts
2. Integrate a variety of data sources and types
3. Provide data-related training and incorporate customer feedback
4. Publish data in way that protects privacy
5. Update data regularly
6. Identify critical data needs and plan for funding

Innovation

1. Expand support for innovation programs and research development
2. Engage stakeholders in knowledge creation
3. Simplify and improve funding process
4. Identify opportunities for public-private partnerships

Other

1. Determine how to support local resilience champions
2. Define resilience success
3. Identify mechanisms for future collaboration amongst stakeholders

Project Prioritization
Topic Areas within Themes

Driving Toward Outcomes

1. Develop an implementation plan focused on funding and policy
2. Address long-term planning challenges
3. Identify project options
4. Develop metrics to determine outcomes

Supplying Actionable Impact Data

1. Identify additional data sources to fill gaps
2. Coordinate and improve inter-agency data management, accessibility, and integration
3. Utilize historic, real-time and future conditions data

Identifying Flood Resilience Needs

1. Ensure criteria are multi-faceted and consider future conditions
2. Develop a needs assessment
3. Engage and support localities to identify needs
4. Identify outlier data

Funding
Topic Areas within Themes

Building the Financial Baseline

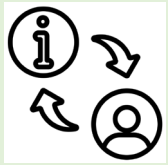
1. Track real estate value data
2. Track and leverage financial data from impacts and projects
3. Establish flood resilience metrics

Making the Financial Case

1. Develop tools to track flood impacts and financial needs
2. Engage with legislators and special interest groups
3. Consider complex metrics and data
4. Consider impacts to private and public property

Documenting Opportunities for State Support

1. Identify and evaluate funding sources
2. Consider additional methods for state support based on current needs and opportunities
3. Address challenges with reimbursement-based grants
4. Identify opportunities for public-private partnerships



Providing Guidance & Information

1. Provide clear, consistent funding guidance
2. Research long-term funding resources for future adaptation measures
3. Enhance evaluation metrics and methods to increase impact

Outreach & Coordination Topic Areas within Themes

Encouraging Plan Uptake

1. Demonstrate the value of plan to stakeholders
2. Identify funding opportunities
3. Identify capacity constraints and build support
4. Provide education and training to stakeholders

Enhancing Coordination

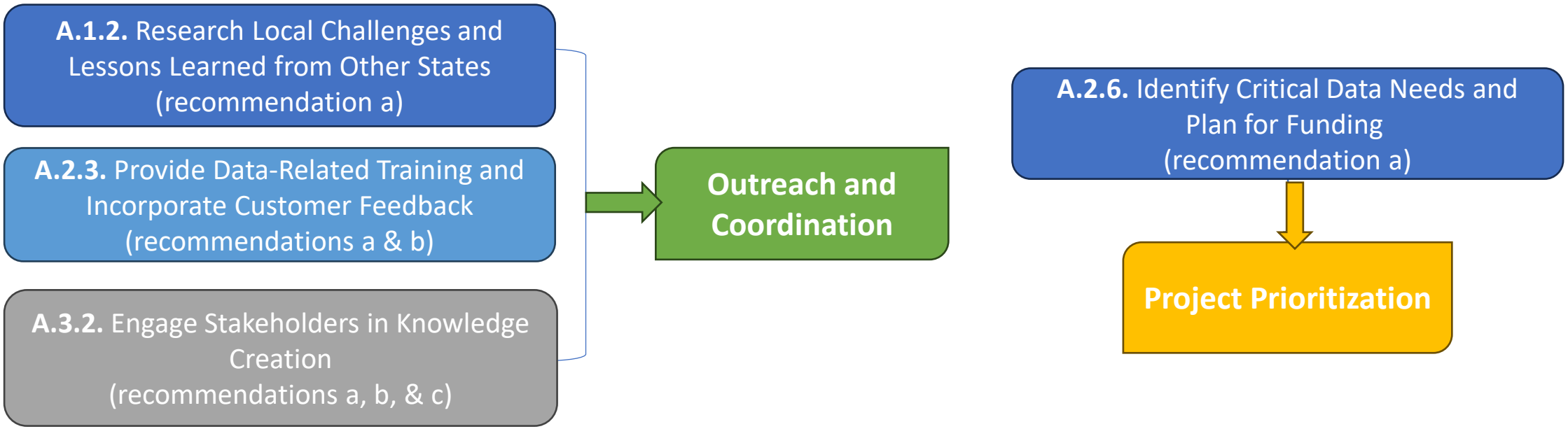
1. Coordinate interagency activities
2. Increase awareness of CRMP products
3. Conduct meaningful engagement to improve knowledge sharing

Understanding our Stakeholders

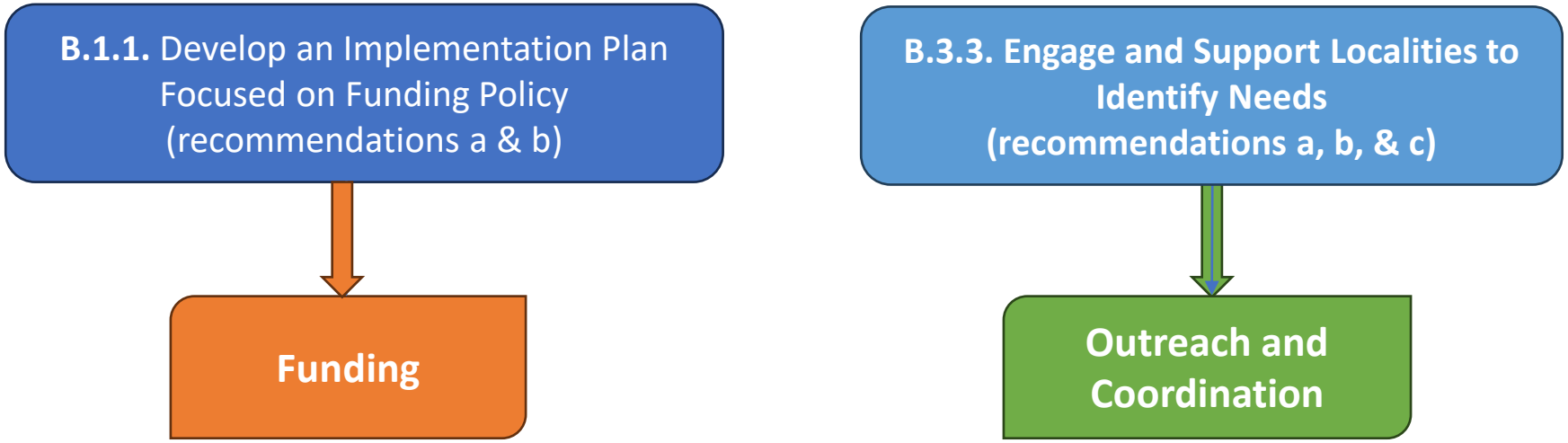
1. Build trusting relationships
2. Design initiatives to reach more vulnerable populations
3. Consider additional outlets to increase stakeholder engagement
4. Use clear, consistent messaging

Discussion: Areas of Overlap (see handout)

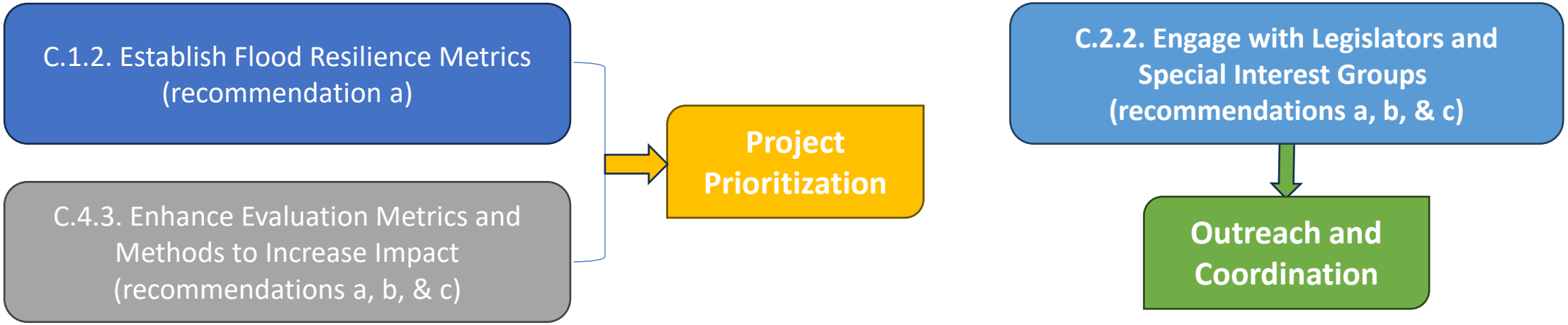
Areas of Overlap:
A) Research, Data, and Innovation



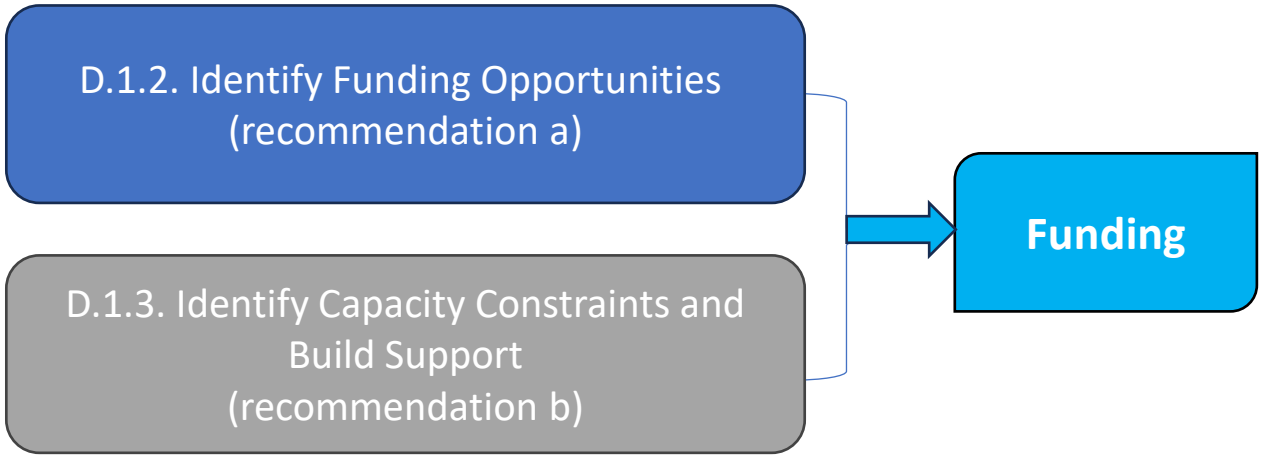
Areas of Overlap:
B) Project Prioritization



Areas of Overlap:
C) Funding



Areas of Overlap:
D) Outreach & Coordination



Discussion: Gaps (see handout)

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Gaps in Recommendations?

Big Picture/Overall Recommendations?

Across Subcommittees?

Within a Subcommittee?

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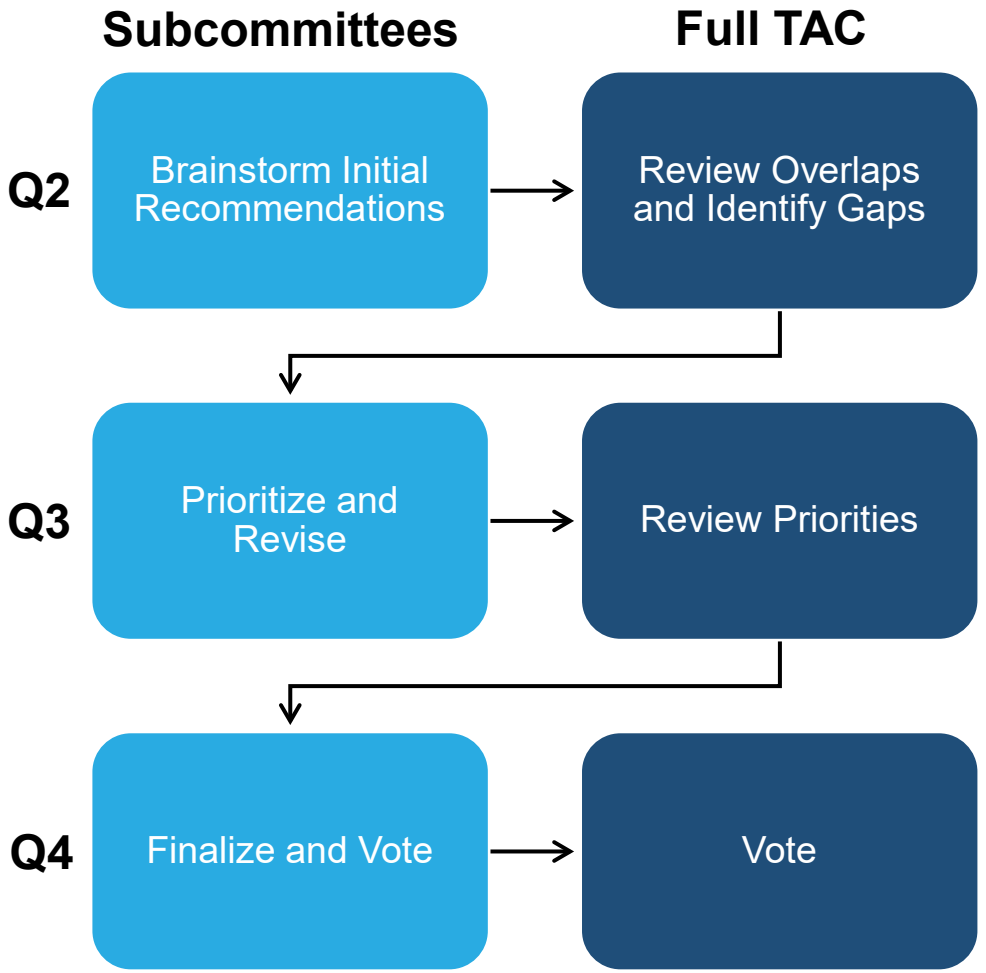
Recommendations: Next Steps

- Q2: Launch to send surveys to each subcommittee in July
- Q3: Subcommittees will refine and revise top recommendations
- Q4: Final recommendations will be voted on by subcommittee members, followed by full TAC.



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New Business

CRMP Plan Products

TAC and Subcommittee Schedule

TAC Member Discussion and Updates

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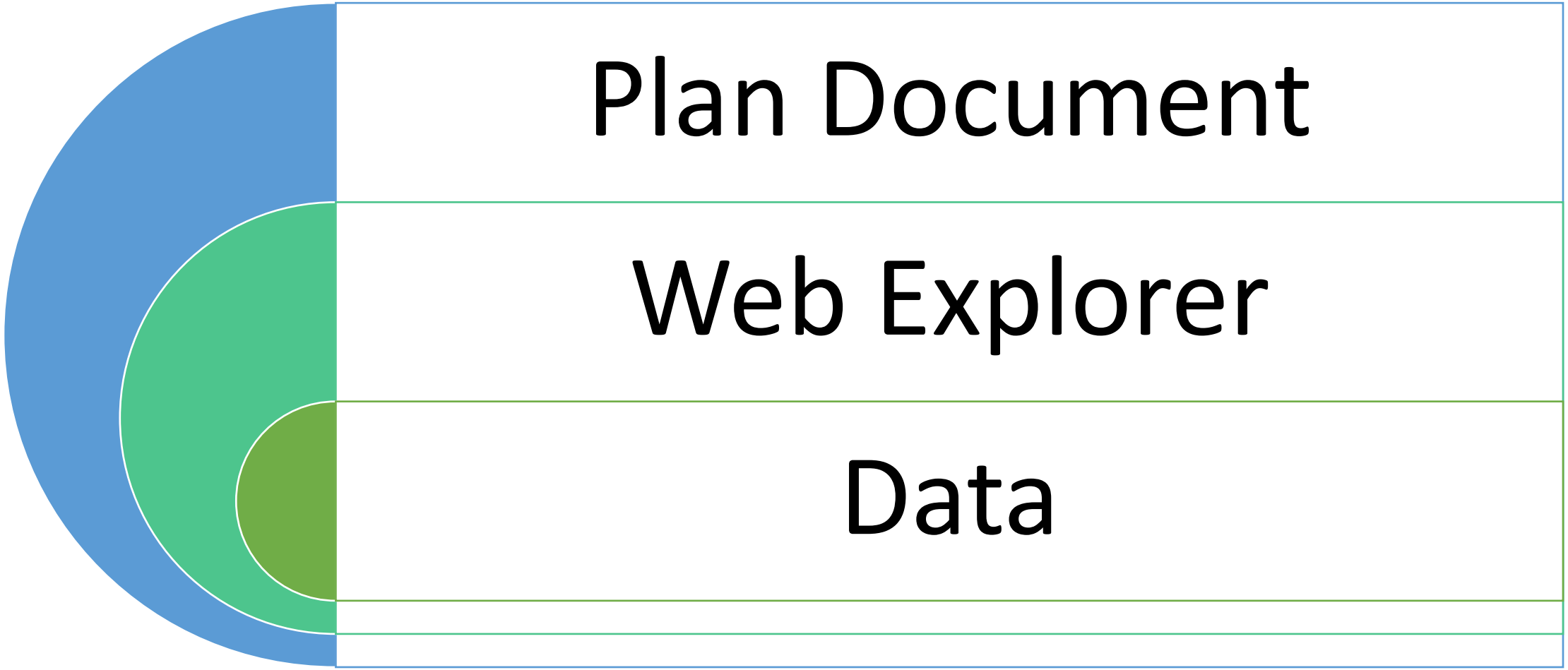
Coastal Resilience Master Plan Products



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Virginia Coastal Resilience Master Plan, Phase 2

Plan Document (PDF)

Purpose

- Present compelling stories of the challenges and opportunities that we face.
- Highlight existing efforts across the region.

Primary Audiences

- Planning District Commissions;
- Localities;
- State agencies supporting or funding flood resilience projects and initiatives

Desired Results

- Implement place-based flood resilience projects and initiatives in communities by providing process, structure, and identifying resources to support regional and local actors.
- Advance inter-governmental flood resilience coordination.

VIRGINIA COASTAL RESILIENCE MASTER PLAN

DCR

Document Outline

Key Elements

- Flood Hazard Exposure Model
- Flood Hazard Impact Assessment
- Planned Resilience Actions
- Financial Needs for Flood Resilience
- TAC Subcommittee Recommendations

Organization

- Executive Summary
- Introduction
- Advancing Flood Resilience in Coastal Virginia
  - VA CRMP Plan Perspective
- Regional Resilience Profiles
  - Individual PDC Perspectives

Document Outline

VA CRMP Perspective

- Overview of Coastal Virginia
- Major Flood Concerns
- Flood Hazard Impact Assessment
- Analysis of Projects and Initiatives
- Exploring Financial Opportunities

Individual PDC Perspectives

- Introduction to the Region
- Major Flood Concerns
- Flood Hazard Impact Assessment
- Regional Flood Stories
- Regional Success Stories

Coastal Resilience Web Explorer

Purpose

- Make available flood and flood damage reduction data to localities for planning purposes.

Primary Audience

- Planning District Commissions;
- Localities;
- State agencies supporting or funding flood resilience projects and initiatives

Desired Results

- Decision makers leverage data and information to support planning processes.
- Advance inter-governmental flood resilience coordination.

VIRGINIA COASTAL RESILIENCE MASTER PLAN

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Web Explorer Framework

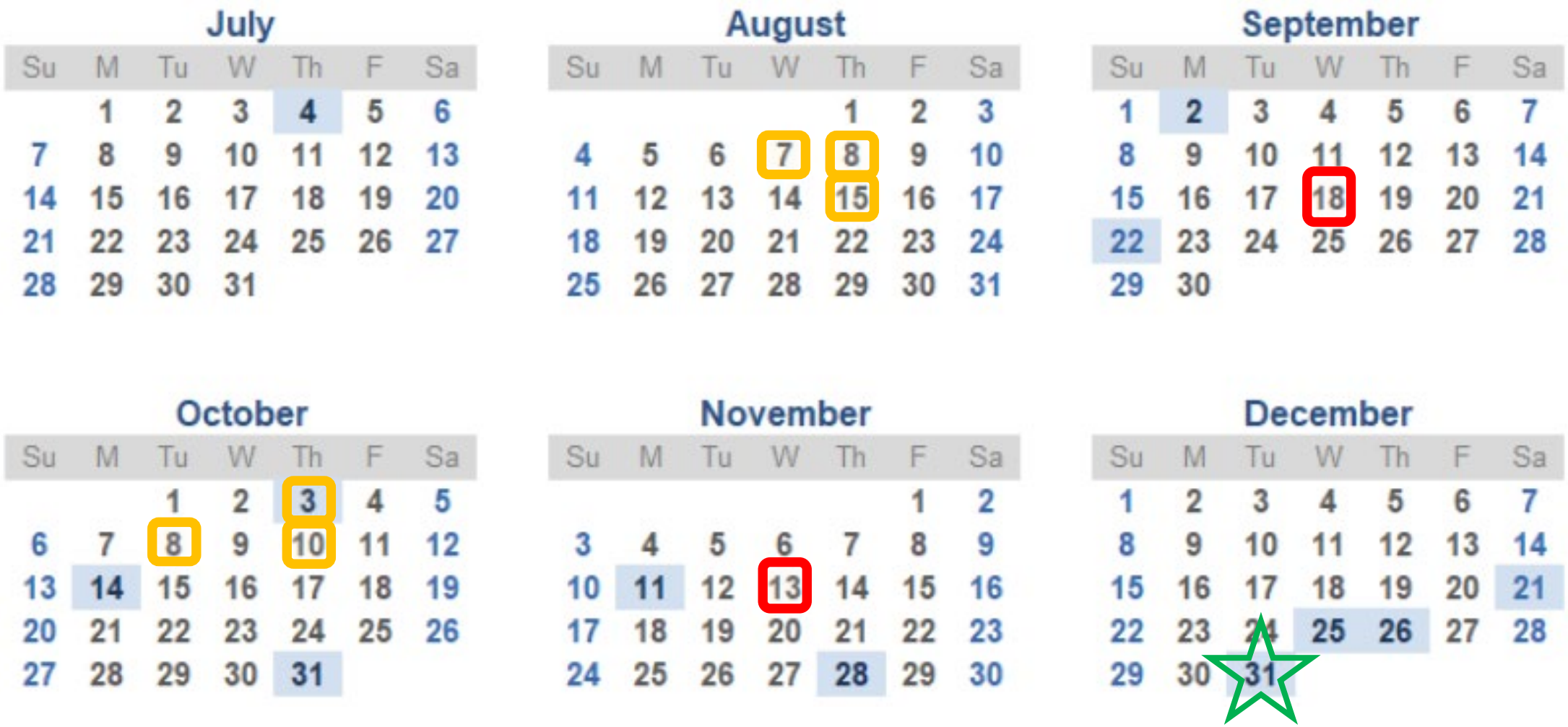
Key Elements

- Flood Hazard Exposure
- Flood Hazard Impacts
- Contextual Information
- Resilience Actions
- Financial Resources

Key Features

- Mapped and graphical data
- Political and watershed
- Scalable areas of interest

Remaining 2024 Meeting Schedule



Full TAC

Subcommittee

VIRGINIA COASTAL RESILIENCE MASTER PLAN

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TAC Member Discussion and Updates

VIRGINIA COASTAL RESILIENCE MASTER PLAN

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Public Comment

If you would like to provide public comment, please let us know using the Chat window.

VIRGINIA COASTAL RESILIENCE MASTER PLAN

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Adjourn

Coastal Resilience Technical Advisory Committee

Initial Subcommittee Recommendations from Q2 Meetings

Grouped by Subcommittee, Themes, and Common Topic Areas

Contents

A. Research, Data, and Innovation Subcommittee

A.1 Research: Applying Research to CRMP Flood Resilience Planning, Processes, and Implementation.

A.1.1 Support Research on Nature-Based Solutions, Modeling, and Other Topics (Alignment w/Funding & PP)

a) Support research on economic valuation of nature-based infrastructure that includes blue carbon and other ecosystem services, including agricultural, wildlife, and other relevant values that have been difficult to measure.
b) Support research to evaluate flood reduction metrics of natural and nature-based solutions. Establish topic-specific, standing, and ad hoc sub-working groups to track research progress on needed research and data gaps, identify research priorities regularly, and catalyze teams to secure funding from applicable RFPs.
    - Compound flood modeling,
    - Human dimensions of adaptation behavior,
    - Socio-Economic impacts,
    - Emerging best practices from other states addressing flooding
c) Support research, monitoring, and modeling of groundwater levels and saltwater intrusion.
d) Consider researching a Virginia flood-centric SVI dataset to inform project prioritization.
e) Support research on next generation Social Vulnerability Indices (SVI) and understanding of climate justice, cultural and historic resources, including a Virginia flood-centric SVI dataset to inform project prioritization.

A.1.2 Research Local Challenges and Lessons Learned from Other States

a) Research [planning?, design?, regulatory?, legal, financial?] obstacles that exist at the local scale, and what innovations are required at the state level to meet local needs innovatively and effectively. (Overlap w/O&C)
b) Conduct a synthesis fully analyzing how other states are addressing the issue of coastal flooding to provide context to the approach we are using thus far and in the future.

A.1.3 Support Research on Benefits/Costs of Resilience Action and Human Adaptative Behavior

a) Support research to evaluate the benefits and costs of resilience action and of failing to take resilience actions.
b) Conduct research to generate a better understanding of human adaptive behavior (e.g., tipping or trigger points for choices, incremental adaptive behavior At the individual, organizational and community scales)

A.1.4 Monitor Performance of Resilience Projects and Assessments

a) Develop measures and methods to monitor performance of resilience projects (dashboards including ecological, infrastructure, social, economic, cultural, and justice indicators), including sensor, drone, and other smart-tech data gathering and analysis methodologies.

A.2 Data: Sourcing, Using, And Managing High-Quality Data to Improve Models, Risk Assessment, and Planning Approaches.

A.2.1 Support Multi-Institutional Data Efforts (Alignment w/PP)

a) Support multi-institutional efforts to collate quantitative AND qualitative data on modeling, risk assessment, and planning decisions in Virginia.

A.2.2 Integrate a Variety of Data Sources and Types

a) Integrate groundwater data with existing flooding and infrastructure risk datasets. (inter-agency and centralized)
b) Develop comprehensive bridge deck elevation data.
c) Consider drone usage for collecting data.
d) Consider modeling flood loss estimates that consider agricultural and wildlife habitat value in BC A tools for considering new projects and studies.

A.2.3 Provide Data-Related Training and Incorporate Customer Feedback (Overlap w/O&C)

a) Provide training opportunities at the local scale to utilize and apply new data and identify additional gaps in data needed for flood resiliency planning at the local scale.
b) Identify ways to learn how useful and successful the data is for localities to use. Collect customer feedback, follow up, and iterate.

A.2.4 Publish Data in Way that Protects Privacy

a) Disseminate / visualize data to preserve privacy of individuals, and develop protocols for identifying sensitive data, ensuring ethical research methods and conduct (e.g., supporting research that undergoes Institutional Review Board procedures).

A.2.5 Update Data Regularly

a) Develop a mechanism to update data over 4-year time horizon.

A.2.6 Identify Critical Data Needs and Plan for Funding (Overlap w/PP)

a) Identify critical data needs for resilience planning and develop a plan for regular funding for acquisition, processing, and analysis.

A.3 Innovation: Identifying Innovations Suitable to Address Flood Risks and Fill Gaps in Resilience Action.

A.3.1 Expand Support for Innovation Programs and Research Development

a) Expand the support for innovation ecosystem programs to support emerging resilience and adaptation innovations.
b) Conduct use-inspired collaborative R&D between public and private partners on adaptation solutions including:
    i. NBS that simultaneously meet water quality and water quantity standards
    ii. Enhance marsh plant production
    iii. Alternative septic

iv. Wells – saltwater intrusion.
v. Beneficial dredge use
vi. Property scale monitoring technologies (sensors, drones)

c) Develop policy innovation tools to allow responsible, rapid policy adaptation and experimentation e.g., establish experimental zones – R&D, but also Policy Zones, with Resilience principles, goals that must be met – to receive tax incentives, regulatory discretion, permit integration and coordination (see the integration team efforts of the SF Bay restoration program, Green Tape Cutting Initiative).
d) Identify regulatory barriers to testing out innovative resilience practices.

A.3.2 Engage Stakeholders in Knowledge Creation (Overlap w/O&C)

a) Develop statewide strategy to support co-production of initiatives/products/future research needs with stakeholders, including mechanisms to engage and incorporate community and stakeholder input into research, data visualization, and project implementation.
b) Create environments that help move from information sharing to creation of knowledge.

A.4 Other

A.4.1 Determine How to Support Local Resilience Champions (Overlap w/O&C)

a) What is the role of local/regional/state agencies in supporting local/regional resilience champions?

A.4.2 Define Resilience Success (Overlap w/PP)

a) Define what resilience success looks like.

A.4.3 Identify Mechanisms for Future Collaboration Amongst Stakeholders (Overlap w/O&C)

a) Identify mechanisms for future collaboration amongst diverse stakeholders.

B. Project Prioritization Subcommittee

B.1 Driving Toward Outcomes: Develop a Clear Purpose, Goals, Implementation Strategy, and Measures of Success for Future Iterations of the CRMP.

B.1.1 Develop an Implementation Plan Focused on Funding and Policy

a) Use the CFPF to implement the CRMP. (Overlap w/Funding)
b) It's still problematic that the CRMP and the Community Flood Preparedness Fund are not directly connected. Using the CFPF to implement the CRMP or the VFPMP would go a long way towards getting buy-in.(Overlap w/Funding)
c) The scale of the CRMP is too large to have a useful implementation plan, unless that plan is focused on policy or programmatic changes. The level of geography at which on-the-ground implementation will be done is mostly within individual jurisdictions. It's unclear how the CRMP supports that work.

B.1.2 Address Long-Term Planning Challenges

a) Take temporal aspects into account when developing clear plan purpose and goals. Clarify what the timespan is, expected to help short-term, mid-term, long-term? And what does that do to our costs and investments long-term?
b) Include mention of path-dependency as an issue that can cause future challenges in adaptation due to actions taken right now to address current problems. As an example, think of the so called "levee effect" whereby research has demonstrated that in many instances, development of structural protections has often led to greater future losses in "protected" areas when the infrastructure is overwhelmed. This results because the perceived safety offered by infrastructure increases development and investment, all of which suffers when the infrastructure is overwhelmed. And infrastructure is often overwhelmed as we typically build, at most, to a 1% annual chance event, which itself is an arbitrary standard, not a safety standard.

B.1.3 Identify Project Options

a) Have a few detailed project alternatives, possibly a low-cost, med-cost, and high-cost alternative so localities aren't being bombarded with expensive and intensive projects that they need to do without the capacity and funding to do them. Recognizing that even a small step is a step makes seeking outcomes a lot less overwhelming for our more stressed localities.

B.1.4 Develop Metrics to Determine Outcomes

a) Balance PROCESS metrics with OUTCOME metrics – Design outcomes and how they are determined.
b) Frequency, magnitude – Strategize with tracking.

B.2 Supplying Actionable Impact Data: Effectively Assess the Potential Impacts of Flooding to Support Decision Making.

B.2.1 Identify Additional Data Sources to Fill Gaps

a) Survey stakeholders to learn what they consider critical data to inform decision-making, and what data is missing.

b) Utilize/survey flood management practice data to supplement flood hazard data for a full picture of flood risk and vulnerability.
c) Map data needs across the entire "supply chain", (i.e. program-wide KPIs to vulnerability assessment data to project scoring criteria) and come up with plan to fill any gaps.

B.2.2 Coordinate and Improve Inter-Agency Data Management, Accessibility, and Integration

a) Continue state inter-agency coordination efforts aimed at the development, maintenance, and enhancement of accessible region-wide asset datasets for non-sensitive data, and to ensure that agencies aren't duplicating efforts.
b) Establish programs to encourage coordination and cost savings for data collection. Ex. real-time flood data from sensors. Create an intuitive system to index, document, search, and analyze data using FAIR (Findable, accessible, interoperable, reusable) principles across agencies (https://internetofwater.org/valuing-data/making-public-data-fair/).
c) Create a standard going forward that is interoperable to ensure high-quality data that can be used by various agencies in the future. Potentially rework older data that is less usable.
d) Create a one-stop-shop platform to host data for all state agencies, starting with coastal resilience data.
e) Have a standard to ensure all ingested data has a process for curation, de-identification, de-duplication, and a safe and secure way to identify characteristics about all data elements. This will allow everyone to know that data has been contributed and available.

B.2.3 Utilize Historic, Real-Time and Future Conditions Flood Data

a) Expand availability and use of real-time data (e.g. real-time flooding) to assist in response. Increase use of real data instead of projections and historic data.
b) Consider forward-looking/future-conditions data for all components of flood risk (hazard, exposure, vulnerability). Examples include SLR, precipitation frequency (Atlas 15, MARISA), projected growth, demographic changes, etc.
c) Analyze historic trends of flooding to look for recent increases in flooding events and damage. This will help to identify what areas are more likely to have more immediate increased impacts with climate change.

B.3 Identifying Flood Resilience Needs: Establish Criteria to Define where the Greatest Need for Flood Resilience Actions Exist.

B.3.1 Ensure Criteria are Multi-faceted and Consider Future Conditions

a) Integrate criteria for weighting of actions that balances need/desire for action on today's impacts with evaluation of the feasibility of long-term viability of an area. Determining "long-term viability" is clearly not an objective process, but the difficulty of engaging in such a discussion is to engage community and thus provide learning opportunities.
b) Consider compounding hazards like SLR and coastal surge to project and estimate future conditions to identify flood resilience needs.
c) Establish criteria that is multi-faceted and addresses both vulnerability and solutions that identify the greatest needs.

B.3.2 Develop a Needs Assessment

a) Develop an initial needs assessment for coastal flood resilience, like exists for wastewater or Ag, and a process to update it as an element of the plan.

B.3.3 Engage and Support Localities to Identify Needs (Overlap w/O&C)

a) Provide support to localities on developing locally specific weighting for prioritization of projects utilizing CRMP data.
b) If there are no planned actions, establish state staff/consultant team program to reach out to local government to identify if they are not interested in actions or what factors (staff, funding) would support developing actions.
c) Coordinate with local governments to ID flood prone areas. Talk to residents and other stakeholders and work to address their concerns.

B.3.4 Identify Outlier Data

a) Include section in final report(s) discussing outliers in responses (disproportionately high or low) and plans to address in subsequent iterations.

C. Funding Subcommittee

C.1 Building the Financial Baseline: Using Financial Data to Guide the Development of Flood Resilience Metrics.

C.1.1 Track Real Estate Value Data

a) Track the data on real estate analysis and recognize the detrimental impacts of water in relation to the tax base.
b) Existing real estate land value and building values should be tracked annually to report when local tax revenue slippage is occurring in areas at risk to flooding, sea level rise, saltwater intrusion, marsh migration, or other related environmental changes.

C.1.2 Track and Leverage Financial Data from Impacts and Projects

a) Identify specific financial needs for private and public projects.
b) Ensure matching funds are tracked to identify or validate contributor expectations. Determine a justifiable financial report that portrays flood damage trends.

C.1.3 Establish Flood Resilience Metrics (Overlap w/PP)

a) Determine future efforts to set metrics for flood resilience.

C.2 Making the Financial Case: Providing Financial Information to Motivate and Enable Action.

C.2.1 Develop Tools to Track Flood Impacts and Financial Needs

a) Develop financial tools and reports to more clearly explain the immediate and mid-term cost of doing nothing at the local level.
b) Develop and promote tool for localities to track flood damages, especially minor flood events where FEMA doesn't get involved in reporting.

C.2.2 Engage with Legislators and Special Interest Groups (Overlap w/O&C)

a) Engage with special interest groups to determine what is important to adapt the messaging and data to fit their interests and motivate potential investments.
b) Make the case to state legislators using project prioritization and project readiness.
c) Ensure businesses, government officials, citizens and other stakeholders are aware of the financial opportunity from economic development potential of innovative resilience and adaptation technologies, products, services and designs created in Virginia and sold to an emerging global market.

C.2.3 Consider Complex Metrics and Data

a) Consider complexity of metrics and various types of stakeholders.
b) Connect economic benefits and other benefits outside of resilience improvements to resilience-focused projects.

C.2.4 Consider Impacts to Private and Public Property

a) Consider recommendations for private properties and for public properties.
b) Ensure that all businesses are aware of financial impacts that may threaten their businesses associated with water.

C.3 Documenting Opportunities for State Support to Reduce Barriers and Increase Access to Financial Tools for Flood Resilience

C.3.1 Identify and Evaluate Funding Sources

a) Determine what the existing and available funding resources are.
b) Evaluate existing state grant funds such as the Flood Fund which primarily supports short term projects and maybe should be looking longer-term. Consider additional funding mechanisms that may be needed for longer-term challenges, e.g., strategic relocation, saltwater intrusion into public drinking water systems, infrastructure abandonment, etc.
c) Identify opportunities for inter-regional revenue and cost-sharing methods and programs, e.g., if one community provides a resilience benefit that supports other communities within the region, then there may be a means of providing revenues to maintain and enhance that resilience benefits; similar to the Catskill Watershed Corporation, or other governance tools (wetlands banks, nutrient trading, transferable development rights, conservation easements).

C.3.2 Consider Additional Methods for State Support Based on Current Needs and Opportunities

a) Consider fight the flood initiatives as a framework for additional state support.
b) Establish state program for non-federal match with multi-year projections and eligibility criteria so localities can plan for state or federal funds on a timeline.
c) Identifying revenue sources for projects that don't receive grant funding, including loan options.
d) Consider impact bonds/type of performance metrics.
e) Simplify the process to connect the flood resilience need to the pursuit of funding.

C.3.3 Address Challenges with Reimbursement-Based Grants

a) Review reimbursable grants and management of cash flow.
b) State agencies develop new mechanisms to allow for more flexibility with funding grant reimbursement.

C.3.4 Identify Opportunities for Public-Private Partnerships

a) Identify opportunities for public private partnerships in pursuing prioritized resilience projects.

C.4 Providing Guidance and Information to Government for Funding and Financing Flood Resilience Activities

C.4.1 Provide Clear, Consistent Funding Guidance

a) Define & outline who the funding is for (public vs. private).
b) Provide clear rules and concise guidance for obtaining and using funding to ensure consistency and predictability.
c) Ensure funding prioritization is politically agnostic.

C.4.2 Research Long-Term Funding Resources for Future Adaptation Measures

a) Consider how to secure resources for the future beyond M&O costs, e.g., strategic relocation of key public assets, iterative adaptation measures to update existing resilience projects, etc.
b) Research resources for future, or iterative adaptation measures.

C.4.3 Enhance Evaluation Metrics and Methods to Increase Impact (Overlap w/PP)

a) Determine what we are trying to accomplish and where we can make the largest impact. Review return on investment calculations for pursuing federal dollars.
b) Identify crossover benefits of prioritized resilience projects at the local, regional and Commonwealth level as a starting point for potential pooling of resources to get projects completed.
c) Enhance the state's ability to further evaluate local flood resilience needs.

D. Outreach and Coordination Subcommittee

D.1 Encouraging Plan Uptake: Identify Sustainable Outreach and Engagement Strategies to Support the use of the Planning Products.

D.1.1 Demonstrate the Value of Plan to Stakeholders

a) Encourage state agencies to leverage the plan through representation on the TAC.
b) Show value of the plan to stakeholders by increasing coordination with local government departments to pinpoint areas of flooding complaints, then target those areas with increased coordination (by getting into the communities with informative town hall meetings, etc.)
c) Determine a strategy for how to get local governments and stakeholders interested.
d) Periodically review and assess plan uptake progress and pivot strategies.

D.1.2 Identify Funding Opportunities (Overlap w/Funding)

a) Given budget constraints, identify a comprehensive list of available funding (state, federal) opportunities to support plan initiatives.

D.1.3 Identify Capacity Constraints and Build Support

a) Recognize capacity constraints that prevent plan uptake and try to find ways to bridge those gaps.
b) In assessing partner capabilities/constraints, think about ways to build support network for grant writing. (Overlap w/ Funding)
c) Define issues and explain how they impact underserved communities.

D.1.4 Provide Education and Training to Stakeholders

a) Hold webinars/demonstrations of tools available with interested local governments and stakeholders to increase visibility of what we have that others can use. Make simplified and short tutorials for people to learn in their free time.
b) Provide education to community groups.
c) Conduct trainings/workshops on materials/tools.

D.2 Enhancing Coordination: Strengthen Relationships with Key Stakeholders.

D.2.1 Coordinate Interagency Activities

a) Coordinate activities among agencies to minimize participant fatigue and show that participants' input is utilized.
b) Capture data via coordination with other agencies.

D.2.2 Increase Awareness of CRMP Products

a) Increase awareness of online tools available to local stakeholders.
b) Increase outreach efforts via social media.
c) Utilize state office that can help with language of the messages.

D.2.3 Conduct Meaningful Engagement to Improve Knowledge Sharing

a) Go to a community before and after a flooding event and capture metrics to see if plans are working.
b) Coordinate with community groups who must react to resilience events to understand how they typically respond.
c) Eliminate barriers to attend meetings and do what is possible to go to people/meet people where they are.

D.3 Understanding our Stakeholders: Improve our Understanding of Key Stakeholders, including their Capacities and Needs.

D.3.1 Build Trusting Relationships

a) Listening to groups and understand and respect word choice/approach to establishing relationships.
b) Develop a strategy to take action to work with different groups to obtain trust.
c) Incorporate stakeholder suggestions and feedback into future actions taken related to the plan.

D.3.2 Design Initiatives to Reach More Vulnerable Populations

a) Partner with localities to investigate best cultural format for distributing information.
b) Identify highest at-risk populations specifically for Virginia and curate outreach initiatives for those needs (e.g., elderly in retirement, men aged 15-30, etc., whoever is assessed to be at the most risk for flood hazard).
c) Engage with non-English media outlets on outreach efforts to raise awareness of issues and resources available – TV, radio, print, etc.
d) Engage with media outlets in languages other than English.

D.3.3 Consider Additional Outlets to Increase Stakeholder Engagement

a) Provide interactive community events that encourage engagement and provides education.
b) Join Community Action Groups to present information on flood resilience.
c) Identify outlets and see if they overlap with those who haven't been participants.

D.3.4 Use Clear, Consistent Messaging

a) Commit to plain English to translate/describe/explain flood mitigation activities and challenges throughout the full process.
b) Provide a consistent message.