

Summary Report

Identify Flood Resilience Strategies
In-Person Workshop



Identify Flood Resilience Strategies Workshop Agenda

- Welcome & Introductions
- Presentation
 - Meeting Objectives & Plan Update
 - Introduction of VFPMP Themes & Strategies
- Break
- Small Group Activity Rounds 1-3
 - Small Group Review of Draft Strategies
- Working Lunch
 - Statewide Flood Impact Analysis Presentation
- Small Group Activity Rounds 4-6
 - Small Group Review of Draft Strategies
- Large Group Discussion on Next Steps
- Wrap Up

Presentation

The Arcadis team delivered a presentation to Virginia Flood Protection Master Plan (VFPMP) Core Stakeholders and select Supporting Stakeholders during an in-person workshop held on April 22nd, 2025, to 1) update stakeholders on the development of the VFPMP and 2) to facilitate an activity on the draft VFPMP strategies to advance flood resilience that will be outlined in the final VFPMP documents.

The VFPMP development update included sharing the final versions of the Vision, Goals, and Objectives and the final versions of the Prioritized Gaps that Core Stakeholders provided feedback on at the previous workshops held on November 20th, 2024, and January 14, 2025 (respectively). The finalized language is provided below:

Vision: A thriving Commonwealth proactively addressing flood risks to further strengthen the resilience of communities, the economy, and the environment now and into the future.



Goal A: Mitigate current and future flood risks statewide.

Objectives:

1. Reduce negative effects on human health from flooding.
2. Reduce negative impacts to vulnerable populations from flooding.
3. Reduce flood damage to buildings and infrastructure.
4. Reduce economic disruptions and losses from flooding.
5. Reduce negative effects to natural and cultural resources from flooding.



Goal B: Advance lasting and unified strategies to address flood risks.

Objectives:

1. Increase understanding of current and potential future flood risks.
2. Strengthen the ability to prepare for and manage flood risks.
3. Increase the adaptability and effectiveness of flood resilience strategies to potential future conditions and regional interests.
4. Increase the return on public investments in flood resilience.
5. Increase the accessibility of flood resilience resources, opportunities, and information for all Virginians.



Goal C: Capture additional benefits through flood resilience.

Objectives:

1. Improve health and quality of life through flood resilience.
2. Boost the economy through flood resilience.
3. Enhance the natural environment through flood resilience.

Prioritized Gaps	
Coordination among state agencies to streamline flood resilience strategies and reduce redundancies.	Staff capacity and data management resources for coordination between federal, state, and local agencies during events to ensure targeted event response.
Funding resources for long-term resilience planning that supports a wide breadth of needs at both the state and local government levels.	Staff capacity and funding resources for additional grant application and management support to local governments.
Access to up-to-date data resources that support long-term flood resilience planning and resource allocation decisions.	Funding resources for asset maintenance.
Community knowledge and capacity to take proactive steps to reduce vulnerability to flooding.	Reliance on non-permanent federal funding posing challenges in sustaining flood resilience programs.
Staff capacity hindering collaboration, technical assistance provision, and funding outreach efforts.	Staff capacity and resources to coordinate technical assistance for funding and program initiatives to address long-term flood resilience goals.
Robust decision-making frameworks and capacities to facilitate long-term planning efforts and resource allocation decisions.	Staff capacity for integration of flood resilience tools.
Staff capacity and resources for interdepartmental data aggregation and coordination for comprehensive flood risk assessments, including those for state-owned assets.	Staff capacity to address and assist with federal and state regulations.

The Arcadis team then transitioned to a presentation of the draft strategies, including how they were created from previous stakeholder engagements, as well as the plan’s Vision, Goals, Objectives, and Prioritized Gaps. The Arcadis team explained that strategies are broad, overarching statements that can be implemented over the next 5 years. These high-level statements are not intended to provide details on “how” actions can be implemented; instead, they focus on “what” the VFPMP intends to accomplish.

Arcadis then introduced stakeholder-identified themes that are used to organize strategies. Six themes were introduced:

- Meaningful Coordination
- Enhanced Capacity
- Sustainable Funding
- Reliable Data Systems
- Proactive Adaptation
- Supported Localities

Each of these themes is assigned corresponding strategies that were presented individually to the group and are listed in the table below. Stakeholders were split into six small groups to begin the small group exercise. Groups rotated to six tables, with each table assigned a unique theme and corresponding strategies for discussion. The six themes and corresponding strategies are listed in the table below.

Theme	Strategy
Meaningful Coordination	Coordinate with key staff across state agencies to increase their awareness of and responsiveness to flood resilience.
Meaningful Coordination	Leverage existing coordination bodies and non-governmental entities to advance flood resilience.
Enhanced Capacity	Expand the flood resilience knowledge base of state agencies.
Enhanced Capacity	Routinely assess and optimize state agency roles and responsibilities in flood resilience.
Sustainable Funding	Explore new funding mechanisms to expand flood resilience (programs, infrastructure, etc.).
Sustainable Funding	Inventory and optimize existing funding resources for flood resilience.
Reliable Data Systems	Establish a state-wide comprehensive flood data management program.
Reliable Data Systems	Establish data-informed decision-making frameworks for prioritizing flood resilience actions.

Proactive Adaptation	Invest in innovative flood resilience solutions to improve the Commonwealth's financial wellness and economic competitiveness.
Proactive Adaptation	Expand support for the deployment and maintenance of Nature-Based Solutions to improve ecosystem health.
Proactive Adaptation	Leverage regular updates of plans, policies, regulations, and codes to incorporate flood resilience best practices.
Supported Localities	Expand engagement with flood risk and resilience concepts statewide to promote increased understanding.
Supported Localities	Provide comprehensive technical assistance for local governments on flood resilience.
Supported Localities	Explore state agency pathways for supporting communities in managed retreat and voluntary relocation.

Small Group Exercise

All attendees were divided into six small groups to participate in discussions about each theme and its corresponding strategy. Every attendee was provided with the opportunity to provide feedback on every theme and strategy. Key takeaways from the conversations are outlined below.

THEME 1 – MEANINGFUL COORDINATION

Strategies

- Coordinate with key staff across state agencies to increase their awareness of and responsiveness to flood resilience.
- Leverage existing coordination bodies and non-governmental entities to advance flood resilience.

Notes

- Clarify Coordination Roles
 - Define "key staff" more clearly; consider "key teams" terminology.
 - Coordination needs formalization through executive orders, legislation, or appointed boards.
 - Chief Resilience Officer and Office of Resilience Planning must be central to this effort but supported.
- Strengthen Resource Sharing
 - Move beyond communication to tangible resource sharing. Several agencies are already doing this on occasion.
 - Learn from other states' models like Maryland, Texas, North Carolina, & Louisiana.
 - Meetings must lead to action items, not just plans.
- Align Programs and Reduce Silos
 - Address and align overlapping flood-related programs.
 - Clarify agency and locality roles in flood resilience work to reduce redundancy.
- Engage Local Governments and Practitioners
 - Include local implementers like zoning administrators earlier and more consistently.
 - Strengthen technical assistance to local entities and clarify how local and state plans align and/or work together.

- Incorporate Academia and Private Sector
 - Universities and community colleges should play a defined role, particularly in the research and workforce components.
 - The private sector, particularly engineering and consulting firms, should be part of coordination strategies.
- Preserve Institutional Knowledge
 - Mitigate leadership turnover impacts through documented processes and team involvement.
 - Embed coordination responsibilities into agency business plans through 2-year update cycles.
- Build Accountability and Incentives
 - Use leadership reports, performance tracking, and internal incentives to encourage coordination.
 - Coordination should be prioritized by managers and be accessible to staff members.
- Leverage Existing Structures
 - Enhance the effectiveness of existing groups like PDCs, Silver Jackets, and flood committees.
 - Avoid creating duplicative structures where current structures exist that could be improved.
- Use Adaptive Management
 - Implement regular updates and planning checkpoints in the 5-year planning cycle.
 - Embed flexibility to respond to changing conditions and leadership.

THEME 2 – ENHANCED CAPACITY

Strategies

- Expand the flood resilience knowledge base of state agencies.
- Routinely assess and optimize state agency roles and responsibilities in flood resilience.

Notes

- Clarify Roles and Responsibilities
 - Agencies need a clearer understanding of their flood resilience roles before and after disasters.

- Post-disaster coordination issues reveal gaps in agency roles and knowledge.
 - Coordination on building codes and resilience standards must improve across agencies.
- Strengthen Training and Professional Pipelines
 - No formal educational pathways for floodplain management; workforce development is critical.
 - Flood-related training should be proactive and consistent across agencies and sectors.
 - The private sector, universities, and NGOs can help build and sustain capacity.
- Enhance Local Capacity
 - Local governments, especially rural ones, lack capacity for floodplain management and enforcement.
 - Increased technical assistance, funding, and professional development opportunities are needed.
 - Incentives are needed to strengthen local flood resilience capabilities.
- Optimize and Adapt Resources
 - "Optimization" should include adaptation based on changing needs and resource availability.
 - Roles, responsibilities, and resources should be aligned and periodically reassessed.
- Improve Knowledge Management
 - Consistency across agencies in training, language, and data usage is necessary.
 - Data and information must be accessible, usable, and not duplicative across agencies. Coordination can improve efficiency.
 - Building a shared, agreed-upon data source for flood information is critical.
- Leverage Disaster Recovery Lessons
 - Disasters expose system weaknesses; recovery efforts should inform future planning.
 - Case studies and success stories should be used to build institutional memory across agencies.
- Support Long-Term Coordination
 - Regular communication, shared data standards, and cross-agency partnerships are essential.

- Coordination structures must account for turnover and resource constraints.
- Maintain Focus on Workforce and Funding
 - More staff are needed to sustain resilience initiatives.
 - Funding availability must match increased resilience demands, especially as federal support shifts.
- Integrate Technology and Innovation
 - Tools like AI and improved databases could enhance information management and efficiency.
 - Strategic technology use must support consistent, statewide capacity building.

THEME 3 – SUSTAINABLE FUNDING

Strategies

- Explore new funding mechanisms to expand flood resilience (programs, infrastructure, etc.).
- Inventory and optimize existing funding resources for flood resilience.

Notes

- Inventory and Optimize Existing Funding
 - Prioritize understanding and optimizing existing funding sources before creating new ones.
 - Identify barriers that prevent communities from accessing existing funds.
 - Regular audits and ROI analysis could improve funding effectiveness and transparency.
- Define Measures of Success
 - ROI must be broadened to include risk reduction, ecosystem benefits, and community impacts.
 - Metrics for success must be clear, consistent, and developed collaboratively across agencies.
- Strengthen Local Capacity and Access
 - Funding systems should be easier to navigate for under-resourced communities.
 - Flexibility in eligible applicants (e.g., NGOs, PDCs) could help address local capacity gaps.
 - Streamlined application processes would reduce the administrative burden.
- Incentivize Private Sector and Innovative Partnerships

- Private sector engagement needs to be incentivized, possibly through flood credits or risk reduction investments.
 - Universities and COGs are underutilized resources that could augment resilience efforts.
- Address Structural Challenges
 - Sustainable funding must account for long-term needs, not just one-year grants.
 - Maintenance and resilience upgrades should receive equal funding focus as new projects.
 - Federal funding uncertainty highlights the need for reliable, state-controlled funding streams.
- Enhance Cross-Agency Alignment
 - Aligning funding requirements across agencies could maximize impact and reduce inefficiencies.
 - Coordination is needed to ensure resilience investments are integrated across sectors (e.g., transportation, health).
- Focus on Equity and Risk Reduction
 - Funding decisions should prioritize risk reduction over purely economic return.
 - Efforts must ensure that resilience benefits reach vulnerable and underserved communities.
- Innovate Funding Approaches
 - Concepts like pay-for-performance, resilience banks, and third-party management of resilience funds could streamline access and improve outcomes.
 - Models from other states and sectors offer tangible strategies for Virginia to adapt.

THEME 4 – RELIABLE DATA SYSTEMS

Strategies

- Establish a state-wide comprehensive flood data management program.
- Establish data-informed decision-making frameworks for prioritizing flood resilience actions.

Notes

- Clarify Ownership, Roles, and Maintenance
 - There must be clear responsibility for managing, updating, and stewarding data—many suggested DCR, CRO, or a central state entity.

- Maintenance responsibilities should be enduring across administrations and budgets, with a strong continuity plan in place.
- Leverage and Inventory Existing Data
 - Start with a full inventory of available flood data across agencies and regions to avoid duplication and identify gaps.
 - Utilize what's already working in-state (e.g., dam safety inventory) and learn from other states like Iowa, North Carolina, and Texas.
- Define the Comprehensive Flood Data Management Program's Purpose and Scope
 - Confusion exists around whether this is a database, a program, or a decision-support system—definitions must be clear.
 - The term “comprehensive” raised concerns about scope; participants recommended defining datasets by use-case (e.g., planning vs. design).
- Build an Authoritative, Flexible, and Transparent System
 - Centralized access to authoritative data is key, but flexibility must be retained for local use-cases and innovation.
 - Guidance should clarify when to use which datasets, and metadata must be standardized.
- Include a Decision-Making Framework
 - The program should include frameworks to support decision-making and prioritization—these should nest across state, agency, and local levels.
 - Transparency in how decisions are made and what data drives them is critical, especially when tied to funding.
- Ensure Accessibility and Usability
 - Users vary widely: localities, state agencies, universities, and the public all need appropriate access levels and tools tailored to their needs.
 - Tools should be easy to use and understand, with training and documentation provided.
- Consider Data Types and Uses
 - Include not just geospatial data but also post-event analyses, decision history, and modeling assumptions.
 - Data should support diverse needs—from infrastructure planning to emergency response and policy evaluation.
- Promote Equity and Capacity Building

- Data tools must work for under-resourced and rural communities—broadband access, digital literacy, and staff capacity are ongoing barriers.
 - Avoid systems that unintentionally favor well-resourced localities or create more work for communities with less capacity.
- Coordinate Across Agencies and Align Standards
 - State agencies should align formats, models, and update schedules for consistency.
 - A unified platform or interoperable system can reduce confusion, cost, and administrative burden.
- Balance Standardization with Local Autonomy
 - Frameworks and tools must be adaptable to different geographies, risks, and governance structures across the Commonwealth.
 - State-level standardization should support—not override—local decision-making.

THEME 5 – PROACTIVE ADAPTATION

Strategies

- Invest in innovative flood resilience solutions to improve the Commonwealth’s financial wellness and economic competitiveness.
- Expand support for the deployment and maintenance of Nature-Based Solutions to improve ecosystem health.
- Leverage regular updates of plans, policies, regulations, and codes to incorporate flood resilience best practices.

Notes

- Expand Support for Types of Solutions
 - Not only is it important to invest in innovative flood resilience solutions, but also solutions that we already know are effective.
 - Hybrid solutions are sometimes more appropriate than 100% Nature-Based Solutions based on the project site, details, and lifespan.
 - Consider how to best incentivize industries to invest in various solution types, especially those that are more innovative.
- Broaden the Benefits of Solutions
 - Innovative flood resilience solutions can also positively benefit human and ecosystem health, in addition to financial wellness.
 - Nature-Based Solutions can also improve human health in addition to ecosystem health.

- Adjust Timelines and Processes of Plan Updates
 - Plans, policies, etc. are not always updated on a regular basis, so effort should be made to better coordinate these on a regular schedule.
 - “Revisions” is a more appropriate term for these amendments than “updates.”
 - State agency staff are overloaded with public comments when update periods happen over long periods (e.g. every 10 years), so it would be beneficial to create opportunities for comments to be collected in the interim periods between updates.
 - Important to consider how update processes ebb and flow as state leadership changes.
- Create Baseline Best Practices & Regular Evaluation Periods
 - On the action level, baseline flood resilience best practices need to be created that state agencies can then use to fine tune their own policy and programs.
 - A regular evaluation period needs to be set for reviewing the effectiveness of these flood resilience best practices.
 - Important to document all processes as they are happening (on-the-ground projects, coordination efforts, etc.) so that effective monitoring and evaluation can occur.
- Receiving Communities are Critical for Managed Retreat Planning
 - Receiving communities need to be integral to managed retreat and voluntary relocation conversations just as much as the retreating communities.
 - Important that communities and localities lead these conversations as much as possible with funding and technical support coming from the state when needed.

THEME 6 – SUPPORTED LOCALITIES

Strategies

- Expand engagement with flood risk and resilience concepts statewide to promote increased understanding.
- Provide comprehensive technical assistance for local governments on flood resilience.
- Explore state agency pathways for supporting communities in managed retreat and voluntary relocation.

Notes

- Clarify Engagement Goals and Audiences

- Engagement should meet people where they are. Move beyond traditional formats to reach the public, local staff, and underserved communities.
- Expand definitions to include PDCs, tribal nations, NGOs, and the private sector—not just “local governments.”
- Effective engagement requires consistent terminology, plain language, and shared definitions across stakeholders.
- The public needs clearer, accessible flood risk disclosures, especially at the property level.
- Make Engagement Actionable and Equitable
 - Engagement must lead to informed action—not just awareness.
 - Outreach should include decision-making tools, guidance, and project implementation frameworks.
 - Leverage trusted messengers (e.g., extension agents) to build local relationships.
 - Ensure outreach materials are tailored, not one-size-fits-all; adapt to regional, cultural, and geographic contexts.
- Reframe and Strengthen Technical Assistance
 - "Technical assistance" needs clearer definition—consider adding terms like "appropriate," "targeted," or "and guidance."
 - Combine direct (hands-on) and indirect (behind-the-scenes) support, matched to local capacity.
 - Prioritize assistance based on need, risk level, and potential impact—not just on who requests it.
 - Provide continuity. Short-term contracts and one-off support do not build sustainable local capacity.
 - Agencies should coordinate to avoid duplicating outreach and information.
- Support Local Capacity and Governance
 - Many rural and under-resourced communities lack the staff, funding, and political will to act independently.
 - The state should help localities meet planning requirements through standards, shared tools, and direct assistance.
 - Establish consistent expectations and timelines to provide planning certainty, especially around high-risk areas.
- Address Managed Retreat with Clarity and Care

- Managed retreat is controversial—language matters. Alternatives like “flood hazard displacement” may better reflect voluntary, community-driven actions.
- State’s role should be supportive—not directive—by offering incentives, options, and best practices.
- Support must extend to both departing and receiving communities, with attention to housing, employment, and infrastructure.
- Equity is critical: without support, the burden falls disproportionately on underrepresented and lower-resourced communities.
- Link Resilience to Broader Systems
 - Economic development, housing, and infrastructure planning must be integrated with flood resilience.
 - Address tax base implications, insurance considerations, and real estate impacts of flood-prone areas.
 - Cross-train relevant state and local staff (e.g., soil and water, planning, emergency management).
- Enhance Communication and Transparency
 - Clarify what “increased understanding” actually means—understanding for awareness, planning, or implementation?
 - Communicate expected flood risks, timelines, and thresholds for action (e.g., “when is this no longer worth it?”).
 - Share projections and scenario planning to guide long-term decisions.

Large Group Discussion

Following the small group discussions, Arcadis led a large group discussion on the draft themes and strategies presented. Notes from this discussion are below.

NOTES

Which of these strategies do you see as the most challenging to implement? Why?

- Capacity
- Funding

Who else needs to be a part of implementing these strategies?

- Chief Resilience Officer
- State Legislators
- Financial markets, insurers, etc.
 - These groups are making decisions on where to put money, and that will impact our flood landscape
 - Generally, private sector partners have a lot to offer

What would make it easier for your agency to implement these strategies?

- CRO is going to have to be the pivotal figure in this effort because the first thing that person has to do is meet everyone, reach out to all the players, and build immediate credibility.

Out of the 6 themes, which one is the most important to implement first to ensure success for all others?

- Meaningful Coordination & Sustainable Funding tied in a hand raise vote