Boston Metropolitan Area Coastal Study

US Army Corps of Engineers Coastal Flood Risk Management Watershed Study, in partnership with the MA Executive Office of Energy and Environmental Affairs, and MAPC

Stakeholder Working Group Meeting #2

January 19, 2023

US Army Corps of Engineers®
New England District

Executive Office of Energy and Environmental Affairs

MASSACHUSETTS OFFICE OF COASTAL ZONE MANAGEMENT

MAPC



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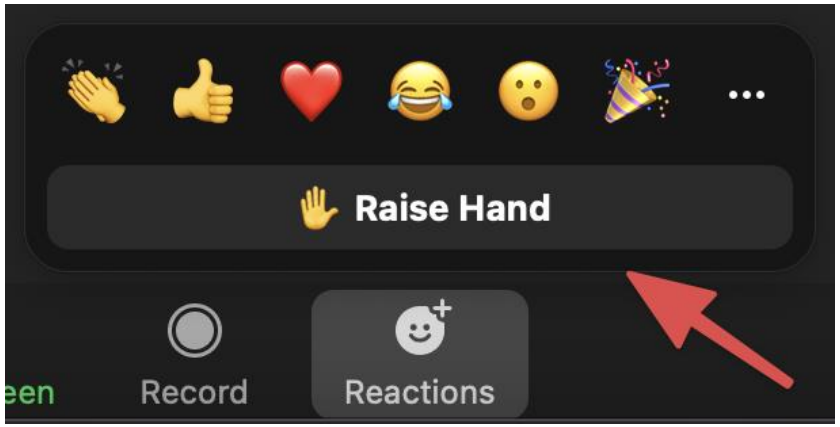
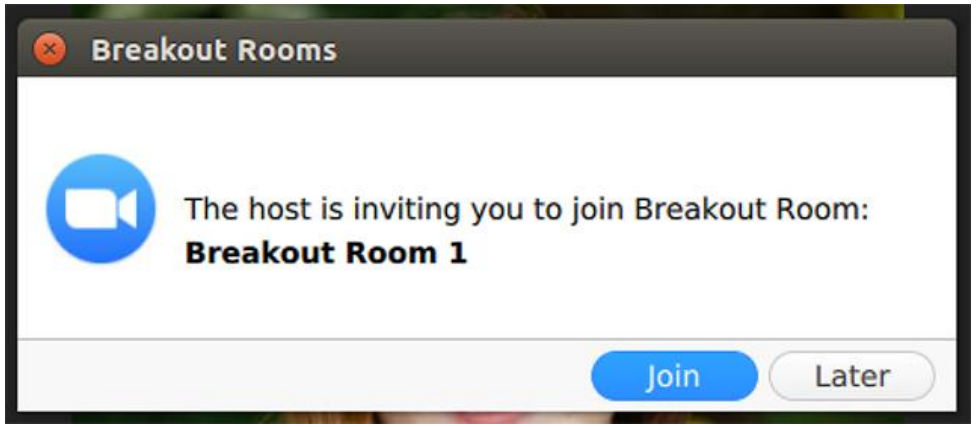
USE THE CHAT FOR ADDITIONAL QUESTIONS AND COMMENTS

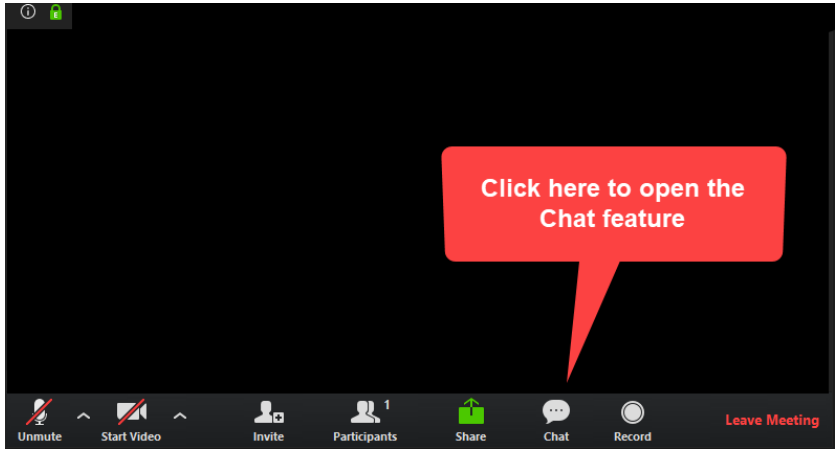


PLEASE MUTE YOURSELF WHEN NOT SPEAKING

Meeting Guidelines









Zoom Logistics

Agenda

Welcome & Introductions (5 min.)

Project Updates from USACE (10 min.)

Stakeholder Engagement: What We've Heard To Date (20 min.)

- *Group Activity 1: Confirming study area problems, opportunities, objectives, constraints*
- *Q&A*

Presentation of Draft Vision Statement (25 min.)

- *Group Activity 2: Review and provide feedback on Draft Vision Statement*
- *Q&A*

Discuss the Study's Decision Criteria (25 min.)

- *Activity 3: Breakout Groups*

Report Out, Wrap Up, and Next Steps (5 min.)

Meet the Project Team

Project Lead

U.S. Army Corps of Engineers, New England District

Barbara Blumeris, Project Manager/Planner
*representing the New England District Multi-Disciplined Project Delivery Team

Chris Hatfield, Chief of Plan Formulation Branch

Hande McCaw, Coastal Engineer

Non-Federal Sponsor

MA Executive Office of Energy and Environmental Affairs

(co-lead) Mia Mansfield, Director of Climate Adaptation and Resilience

(co-lead) Lisa Engler, Director for the Office of Coastal Zone Management

Joanna Yelen, CZM Boston Harbor Regional Coordinator

Patricia Bowie, CZM Coastal Resiliency Specialist

Carolyn Meklenburg, MVP Greater Boston Regional Coordinator

Engagement Facilitator

Metropolitan Area Planning Council

Van Du, Senior Environmental Planner

Adria Boynton, Senior Environmental Planner & Resiliency Specialist

Julia Nassar, Clean Energy and Climate Planner II

Tiffany Wu, Environmental Planning Intern

What is the Boston Metro Area Coastal Study?

- A broad strategic plan and guiding framework for the region to identify and implement coastal flood risk management projects
- A planning effort to gather buy-in from various stakeholders in the region
- Study outcomes will include recommended risk management strategies, but will not result in a specific project development plan

In comparison, the City of Boston Coastal Storm Risk Management Feasibility study is a project development effort that will recommend specific projects for USACE to implement and construct. Both projects have similar stakeholders, so you may hear from both project teams!

Project Updates

Progress since Working Group Meeting 1

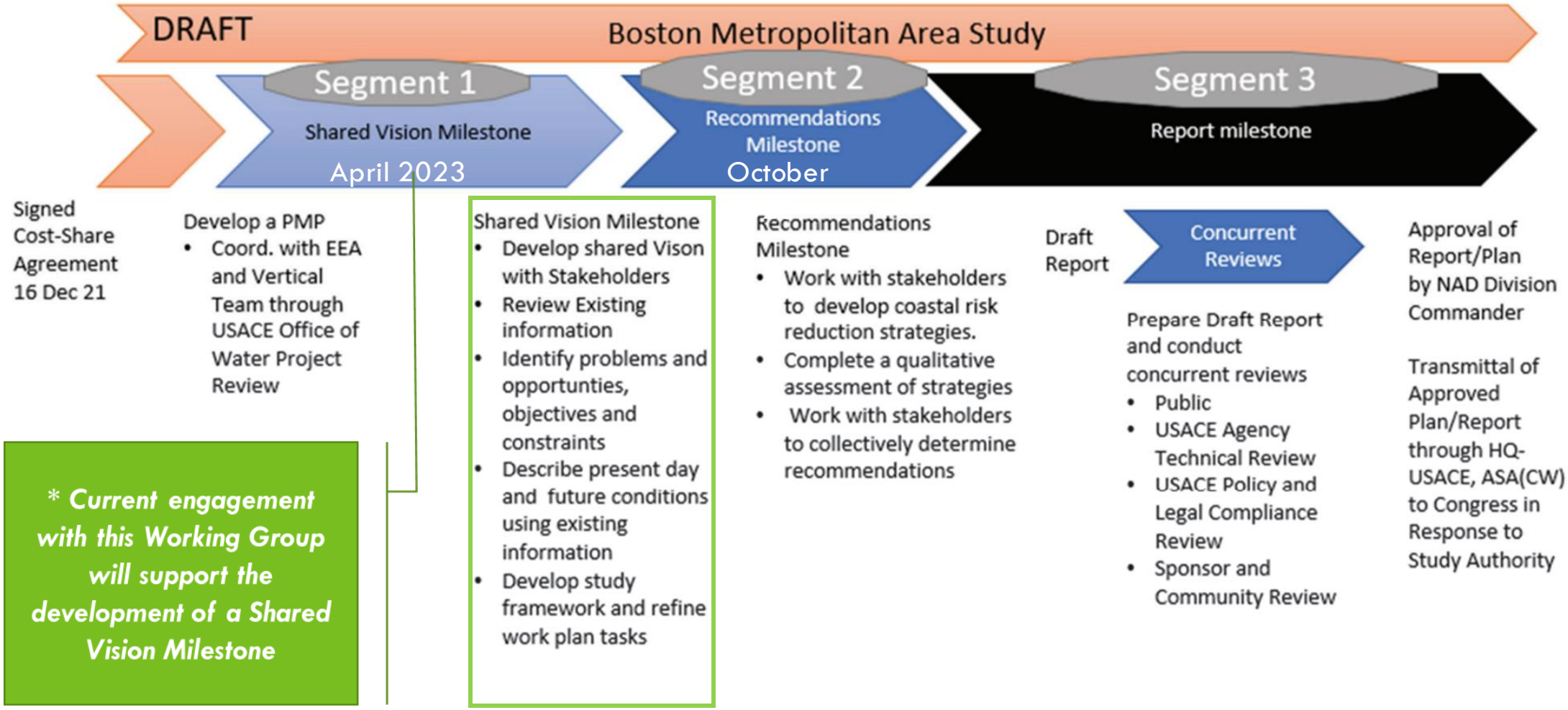
Follow-up stakeholder interviews (ongoing)

- ✓ NPS
- ✓ DCR
- ✓ Massport
- ✓ MBTA
- ✓ MEMA
- ✓ MWRA
- ✓ City of Boston
- ✓ City of Cambridge and RMC
- Mashpee Wampanoag Tribe

Focus groups (ongoing)

- ✓ Study area's inland communities
- ✓ Non-profits and environmental advocacy groups
- Regional/watershed groups
- And more!

Study Timeline



Study Framework - Initial Steps

SEGMENT 1 OF STUDY

Identify Problems and Opportunities, Objectives and Constraints for study planning and develop "Shared Vision Statement"

- Determine problems, opportunities, objectives and constraints in the regional study area by involving a board set of study stakeholders
- Recognize roles and responsibilities of stakeholders in the study area (Federal, State and Local stakeholders, etc.)
- Determine who will use the information being developing in this study, and how will they use it. Understand what decisions are being made by those using this study to manage the coastal storm risk.
- Use information from the outreach process to **identify criteria such as risk to infrastructure, population, and social vulnerability that are important to decision makers**
- **Selected criteria will need to be measurable in some fashion, qualitative, semi-quantitative, and or quantitative to inform the decision-making process.** For this study, the level of measurement will generally be qualitative or semi-qualitative.

Characterize Conditions:

- Inventory relevant water and land resources, existing models, maps, and data to characterize current and future conditions in the regional study area
- Develop inventory of potential projects

Risk/ Vulnerability Assessment

START IN SEGMENT 1 AND CONTINUE IN SEGMENT 2 OF STUDY

- Hazard (coastal storms, sea level rise)
- Physical setting (ocean facing, back bay, islands, river tidally impacted areas)
- Assets at risk include items such as:
  - Public & Private Property, damages to structures and contents
  - Critical Infrastructure, damages and disruption
  - Population at risk, socially vulnerable persons, etc.
  - Environmental, loses in important habitats
  - Regional Economic Activity - Losses in regional employment output because the physical capital stock has been degraded

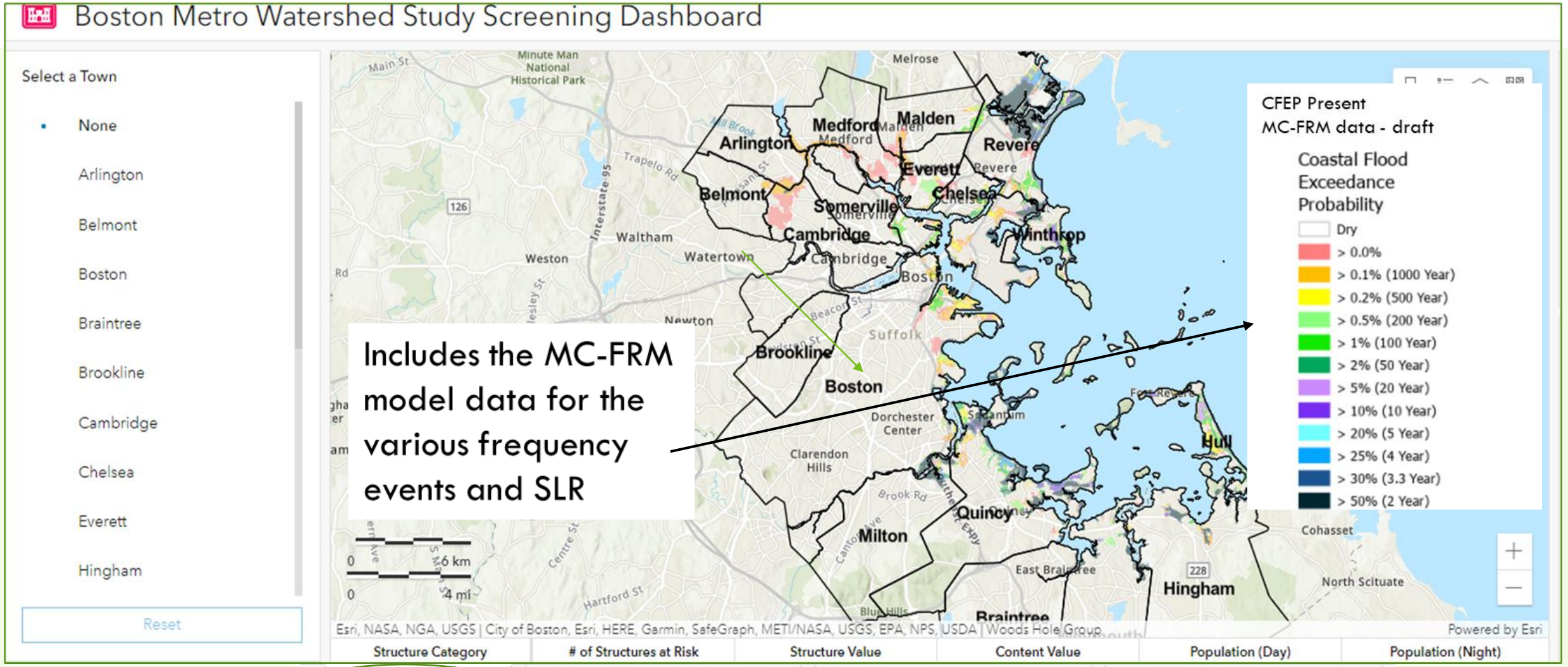
Risk Assessment looks at the performance of the system, or how the system reacts to a hazard and associated consequences

Identify, Evaluate, and Compare Risk Management Strategies

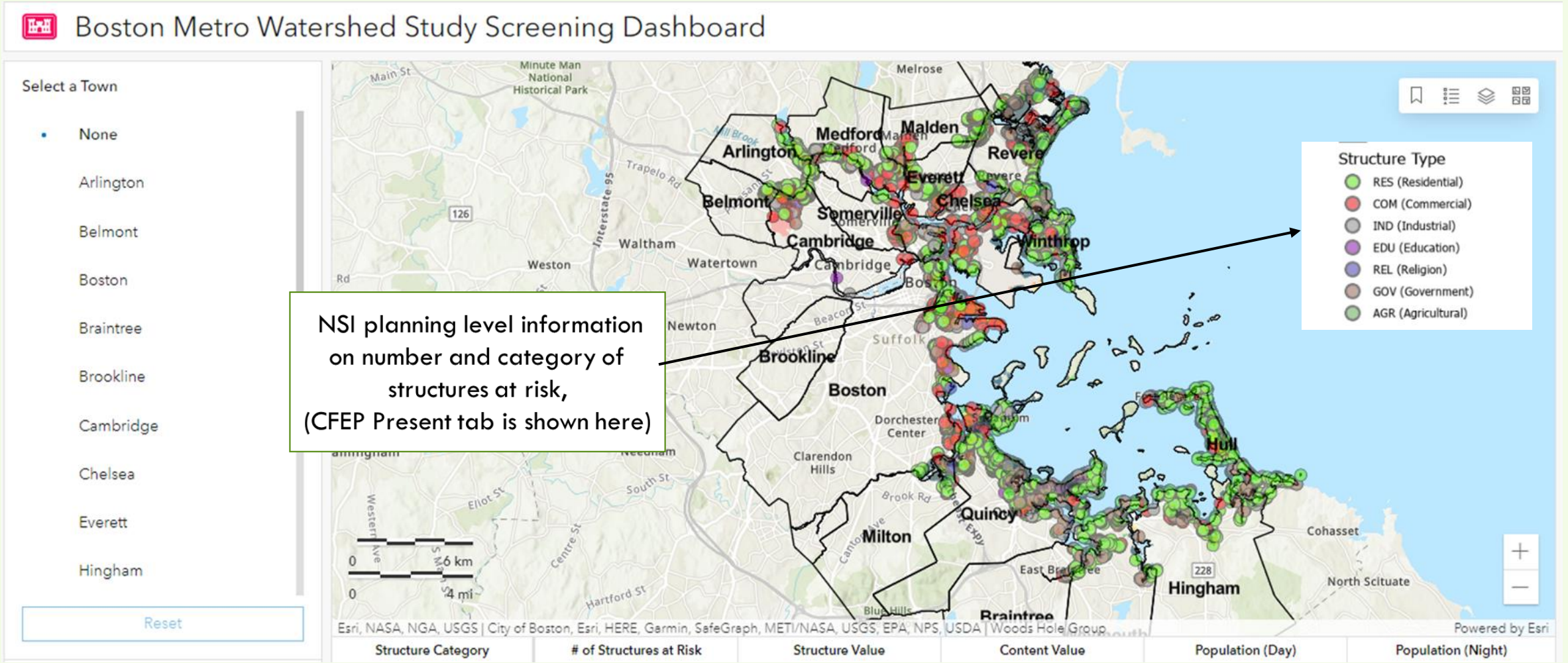
SEGMENTS 2 AND 3 OF STUDY

- Formulate Initial Array of Strategies: Describe the risk and identify a list/array of measures (structural/ nonstructural / nature based) that can be employed to manage the identified risk over space and time
- Refine initial array and evaluate focused array of strategies for identified criteria
- Strategy Comparison and Selection: Compare the strategies against one another
- Consider trade-offs between strategies, and select the best suited strategy for meeting the study objectives

Draft Study Screening Dashboard – collecting information to characterize conditions in the study area



Draft Study Screening Dashboard, with USACE National Structures Inventory (NSI) database



Stakeholder Engagement: What We've Heard

Key Considerations from Working Group Meeting #1 and Interviews

Anything else to add?

- **Needs & Gaps:** funding, climate projections, staff capacity and expertise, regional coordination and state guidance, extreme weather warning systems
- **Vision for regional flood risk management:** collaboration, hope, living with change, building on existing efforts, protecting cultural, historic, and recreational resources
- **Components of an Implementation Framework:** flexibility and adaptability, permitting feasibility, funding opportunities, project readiness, phasing, life-cycle planning, O&M, anticipated future changes

Stakeholder Engagement: What We've Heard

Anything else to add?

Study Area Problems	Study Area Opportunities
• Threats to natural resources • Impacts to emergency services and life safety • Flood impacts to buildings, transportation, stormwater infrastructure, communities, open space, and recreational resources • Time and future retreat: how long do we have?	• Leveraging and developing best practices • Improving public access to natural resources and the waterfront • Nature based solutions (including parks, living shorelines, and more) and their co-benefits • Protecting priority populations • Create a resilient working port and foster economic growth • Education for utility providers, developers, and the public • Improve regional collaboration and develop regional solutions where appropriate • Proactively plan for evacuations, post-disaster recovery, and managed retreat

Stakeholder Engagement: What We've Heard

Anything else to add?

Study Area Objectives (draft)

- Strategy Objective: Reduce risk of coastal flooding and damage to assets and critical infrastructure of all kinds
- Strategy Objective: Center equity, support Environmental Justice communities, avoid strategies that displace socially vulnerable communities, and avoid negative impacts for local tribes
- Strategy Objective: Protect ? or improve ? to the extent practicable public access to open space and recreation
- Strategy Objective: Reduce life and health safety risk
- Study Objective: Align with the state climate agenda and goals
- Study Objective: Obtain buy-in of stakeholders
- Study Objective: Develop regional strategies where appropriate

Study Area Uncertainties
Weather forecasting

Study Area Constraints & Considerations (draft)

Constraints

- There is a limit to our ability to eliminate flooding
- Funding limitations
- Regulatory and permitting constraints
- To the extent practicable, avoid unintended side-effects like exacerbating stormwater flooding in inland communities, or significantly increasing emissions

Considerations

- Jurisdiction of each organization and agency
- No regional or county level government
- Social ramifications of retreat for vulnerable populations
- Existing conditions: low-lying neighborhoods built on saltmarsh, contaminated soils, degraded shoreline infrastructure
- Changing and variable priorities
- Private property ownership



Let's pause for questions & comments

What is a Shared Vision Statement?

USACE watershed study initial target is the "Shared Vision Milestone" that includes an inventory of problems and opportunities, defines the overall "Shared Vision", and presents a coordinated study framework that will be used as a reference point to which efforts are aligned as the study continues.

The **Shared Vision Statement** is developed through close coordination with partners and stakeholders and should be broad enough to encompass various goals of individual partners and stakeholders, with a sufficiently detailed description to allow for subsequent development of objectives and risk management strategies.

The Shared Vision Statement can be simple or more detailed. Here's an example from the South Atlantic Coastal Comprehensive Study (SACS) that covers multiple states and territories:

"The SACS vision is to provide a common understanding of risk from coastal storms and sea level rise to support resilient communities and habitats. This collaborative effort will leverage stakeholders' actions to plan and implement cohesive coastal storm risk management strategies along the South Atlantic and Gulf Coast shorelines, including the territories of Puerto Rico and the U.S. Virgin Islands." Source: https://www.sad.usace.army.mil/SACS/

Draft Shared Vision Statement

The study area for the Boston Metropolitan Area Coastal Study is the Boston Harbor region, defined by the Winthrop Peninsula to the north and the hooked Nantasket Peninsula/Hull to the south and includes twelve coastal communities, that are directly impacted by coastal storms and rising sea levels. Seven inland communities along the Mystic, Charles, and Neponset River channels are also at risk from coastal storm surge. Communities adjacent to the Harbor have a strong historic, economic, environmental, and recreational connections to the Boston Harbor but are at risk to coastal storm flooding that is expected to increase due to sea level rise driven by climate change.

As coastal storm flooding increases with sea level rise, the region's built and natural assets are at risk, including residences, businesses, critical facilities and infrastructure (e.g., transportation, medical and emergency services, port and harbor infrastructure, water/wastewater systems), historic and cultural resources, open space and recreation, and natural resources (e.g., beaches, dunes and salt marshes). Coastal flooding, and the costs and time to recover from storm damages, will also impact the safety and livelihood of people and businesses in the region. While many communities have begun their local efforts to assess, plan, and implement solutions to manage coastal flood risks, there is a need for a regional strategic plan to support the development of effective and cost-efficient strategies for the area. Participants in this process envision a hopeful future where the region collaboratively builds on existing resiliency efforts to better adapt to, and live with, a changing environment.

This regional study will serve as a strategic framework for agencies, communities, and stakeholders in the Boston Metropolitan area to prioritize mitigation strategies to reduce and manage long-term coastal flood risks that considers vulnerability, centers equity, protects environmental justice communities, public access to the waterfront, and infrastructure, creates positive regional benefits, and avoids unintended side-effects. This study will inform future decision-making, support a consistent approach to future flood risk management, partnerships/cross-agency and municipal collaborations, and provide a general timeline of potential activities to help prioritize limited time and resources.



Let's pause for questions & comments

Introduction to Decision Criteria

- Criteria are the attributes, variables, and values associated with a decision problem that are important to decision makers. A criterion is something the decision makers care about and something that can influence the decision makers' choice
- The specific criteria for strategy evaluation should reflect the objective that is desired to be achieved by the strategy and items important to decision makers, for example:
  - If the objectives is to manage flood risk in the study area, then a criterion related to measuring flood risk, such as the economic estimate of flood damages or an estimate of assets at risk, will very likely be an important screening/decision criteria
  - If the objective is to consider interruptions to employment, social services, education, and short and long-term healthcare among other factors, than a criterion may be the location of flooding relative to these assets
  - If cost is important to decision making, then criteria may include implementation cost and O&M costs
- USACE also uses the four plan formulation criteria of completeness, effectiveness, efficiency, and acceptability (CEEA) identified in the 1983 "Principles and Guidelines" for Water and Land Related Resources to screen potential strategies
- As noted on a previous slide, the level of measurement for this study will generally be qualitative or semi-quantitative

Decision Criteria Recommended by Stakeholders To-Date

Decision Criteria related to Technical Considerations:

- Level of damages prevented/reduced
- Level of protection provided
- Effectiveness
- Time horizons
- Flood events
- Ease of implementation
- Cost
- Funding availability
- Flood pathways
- Permitting feasibility
- Transferability
- Adaptability

Decision Criteria related to Co-Benefits and Other Considerations:

- Regional benefits
- Cultural and historic assets
- Recreation and conservation
- Natural resources
- Quality of life
- Life safety
- Equity and Environmental Justice
- Feasibility of partnerships and coordination
- Carbon emissions reduction
- Adaptive capacity/ability to recover

Decision Criteria

Study Area Objectives identified by Stakeholders (draft)	Decision Criteria Identified by Stakeholders (draft)
Strategy Objective: Center equity, support Environmental Justice communities, avoid strategies that displace socially vulnerable communities, and avoid negative impacts for local tribes	• Equity and Environmental Justice • Cultural and historic assets • Life safety
Strategy Objective: Reduce risk of coastal flooding and damage to assets and critical infrastructure of all kinds	• Level of protection provided • Effectiveness • Adaptability
Strategy Objective: Protect ?/Improve ? public access to open space and recreation	• Recreation and conservation • Quality of life
Strategy Objective: Reduce life and health safety risk	• Population at risk
Study Objective: Get Buy-in	• Regional benefits • Feasibility of partnerships and coordination • Transferability
Study Objective: Develop a clear roadmap that addresses competing priorities	• Permitting feasibility • Cost and funding availability • Flood pathways and flood events • Ease of implementation
Study Objective: Align with the state climate agenda and goals	• Time horizons



Discussion: Decision Criteria for the Study

Which decision criteria would you prioritize for the study?

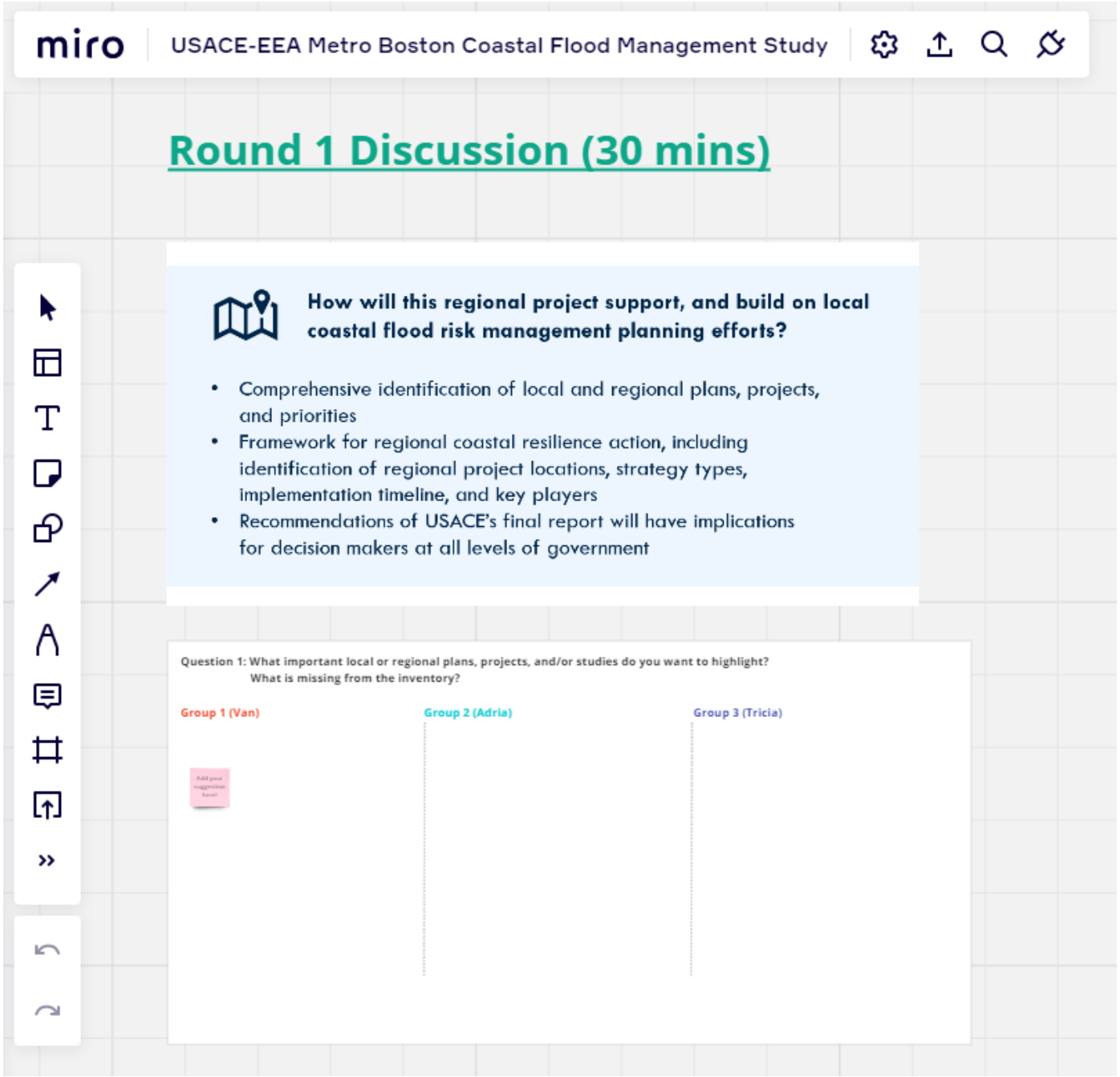
What metric would we use to measure it (qualitatively, semi-quantitatively)?



Join Breakout Rooms

Miro

- Link to join: https://mapc.ma/3gTFAKF
- Use sticky notes to add comments, questions



Report Out and Q&A



Debrief from Breakout Rooms



Any Questions?

Wrap Up & Next Steps

- Project team will continue to host interviews and focus groups
- Stay tuned for a follow-up email with links to share feedback
- Stay tuned for an invitation to Working Group Meeting #3, anticipated in February

Let's Keep the Conversation Going!

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