City of Boston & U.S. Army Corps of Engineers Partnership

Friday February 3, 2023

AGENDA

1. Introductory Remarks

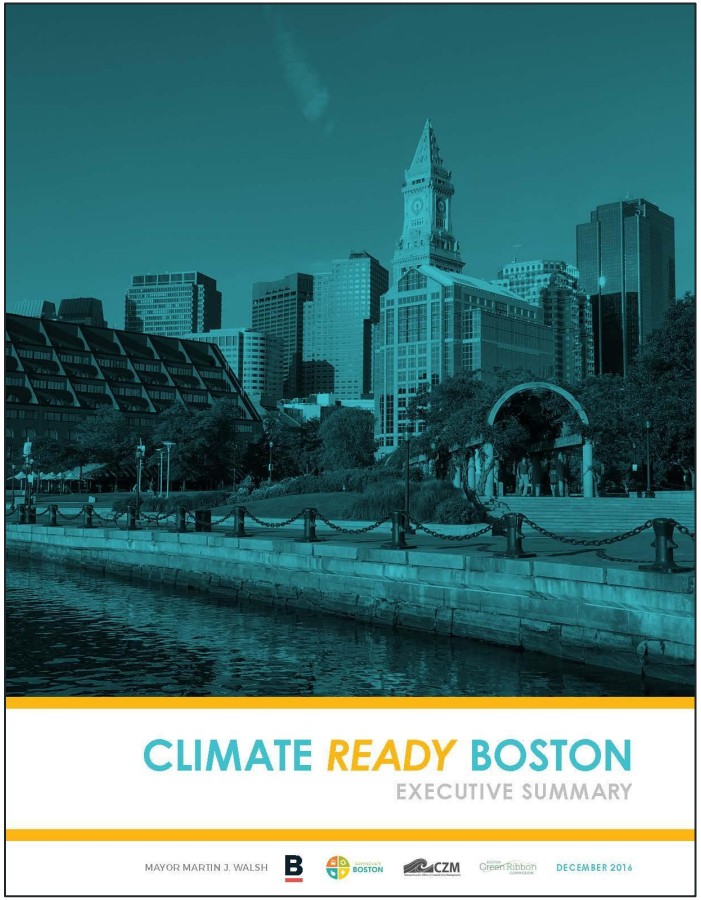
2. Climate Ready Boston: Update on Progress & Key Projects

3. U.S. Army Corps of Engineers & City of Boston Partnership

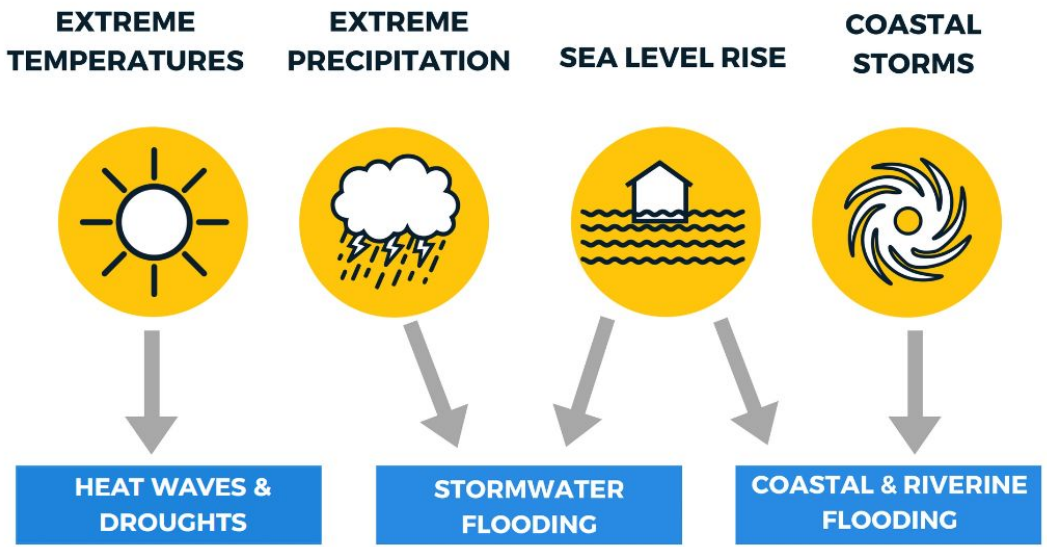
4. U.S. Army Corps of Engineers Presentation

5. Question & Answer Session

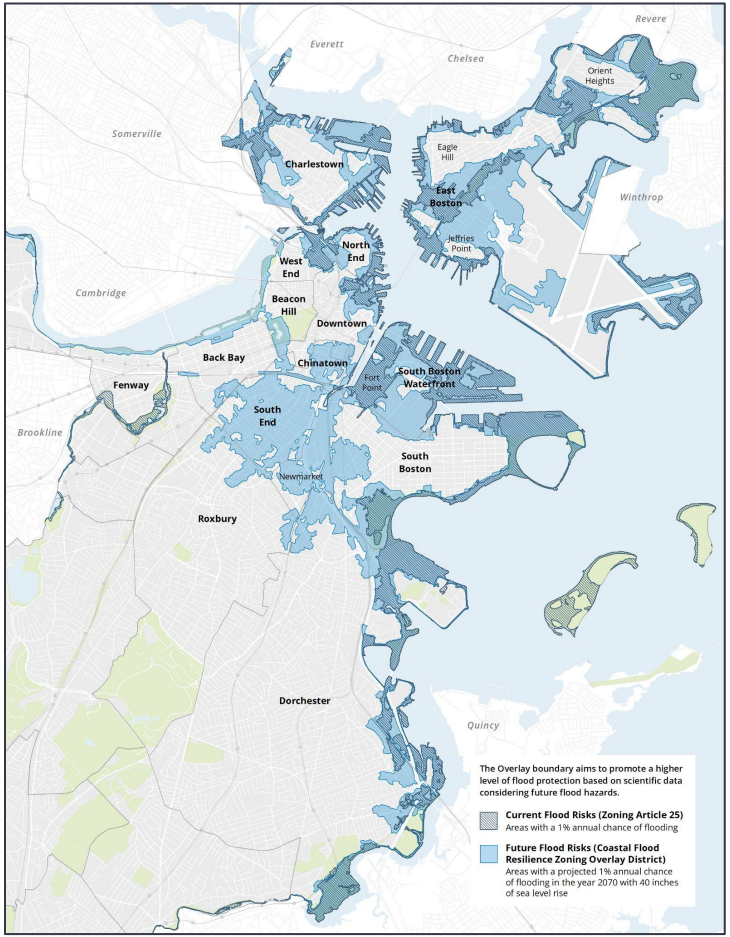
CLIMATE READY BOSTON



In 2016, the City of Boston released the *Climate Ready Boston* report, which included a comprehensive vulnerability assessment of current and projected risks associated with each of three climate hazards under a low, medium, and high greenhouse gas emissions scenario.



PROJECTED COASTAL FLOOD RISK



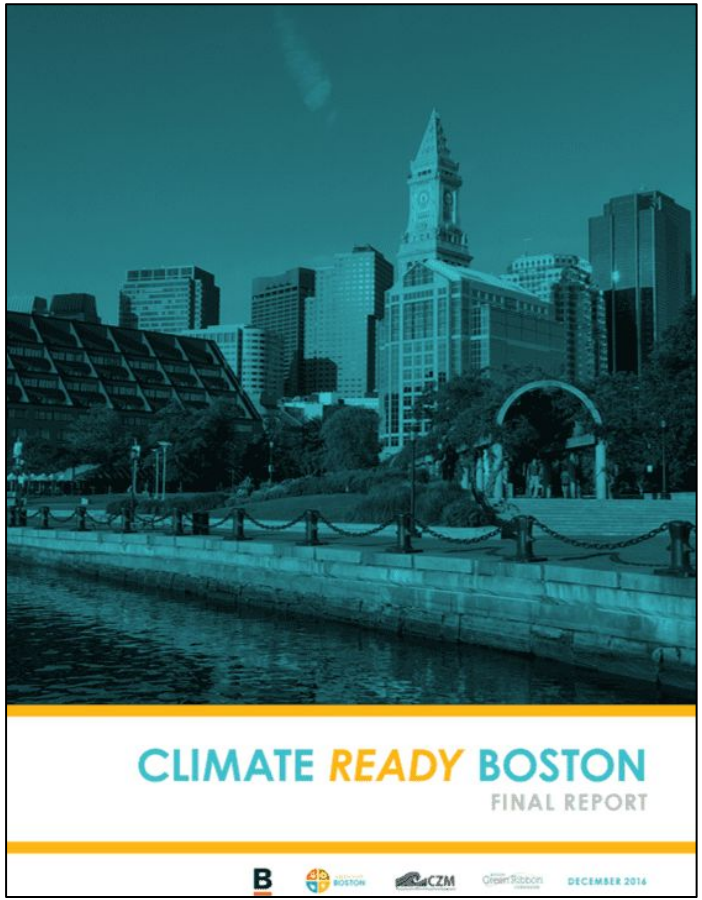
Projections indicate that Boston's sea levels are likely to rise (from 2013 levels) by approximately 9 inches as early as 2030, and approximately 36 inches as soon as 2070, plus an additional four inches of land subsidence.

By 2070, we anticipate approximately 40 inches of sea-level rise across the City (or approximately 3 feet).

Storms of greater magnitudes will become more frequent than they have been in the past with increased average rainfall.

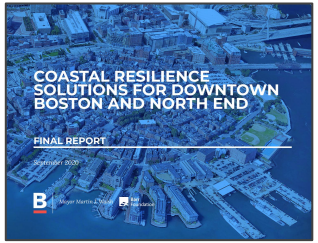
1% annual chance storm with 9 inches of SLR (2030s
1% annual chance storm with 40 inches of SLR (2070s)

NEIGHBORHOOD-LEVEL COASTAL RESILIENCE PLANNING



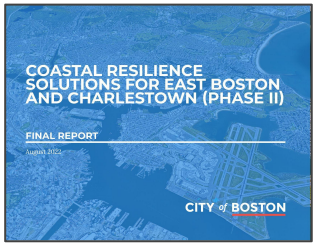
East Boston & Charlestown Phase 1 (2017)

South Boston (2018)



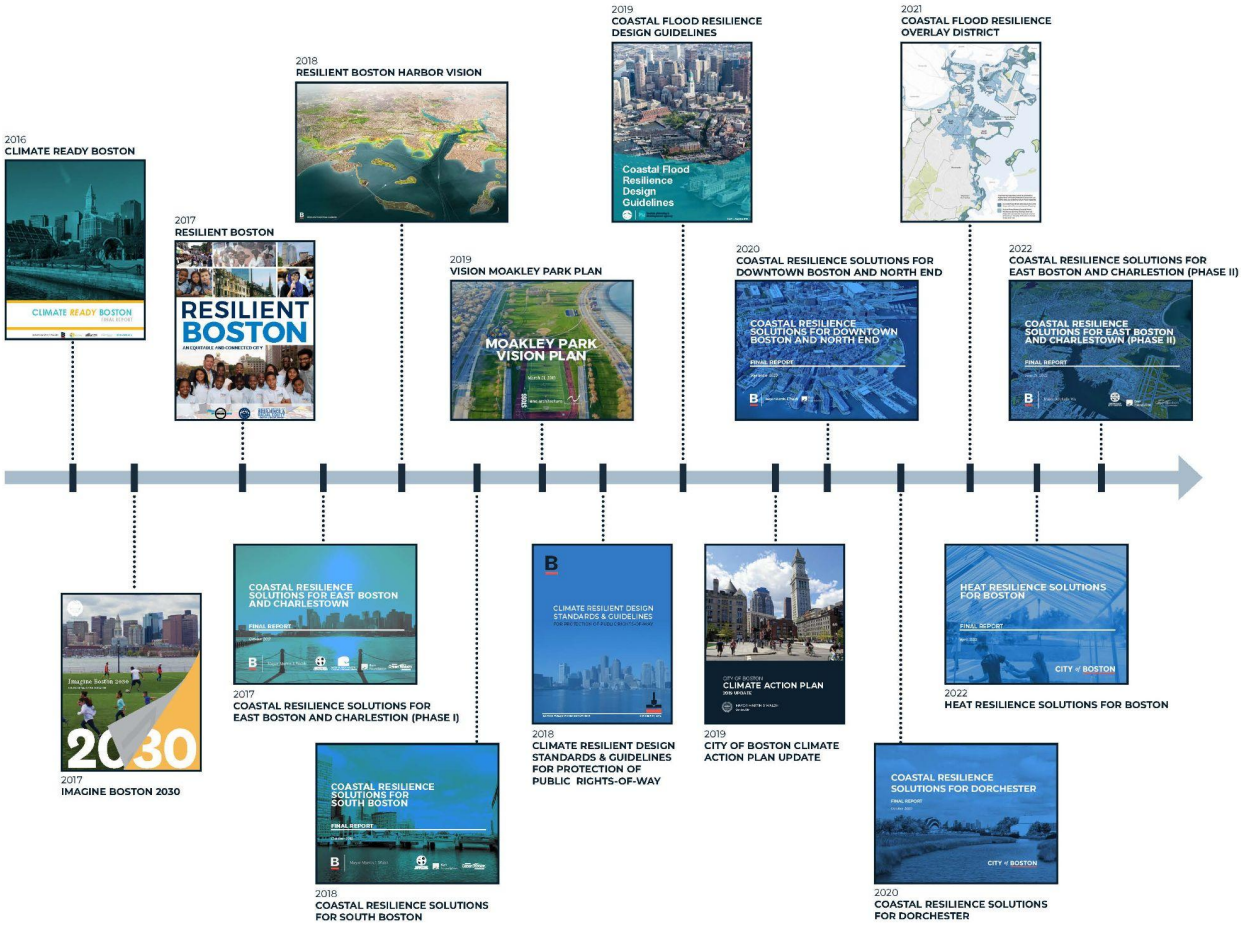
North End & Downtown (2020)

Dorchester (2020)



East Boston & Charlestown Phase 2 (2022)

CITYWIDE CLIMATE RESILIENCE EFFORTS



GOALS AND OBJECTIVES OF COASTAL RESILIENCE SOLUTIONS PLANS

1. **Identify the location and timing of flood risk** across the given study area;

2. **Engage stakeholders** to identify key priorities, opportunities, and constraints to inform coastal resilience strategies;

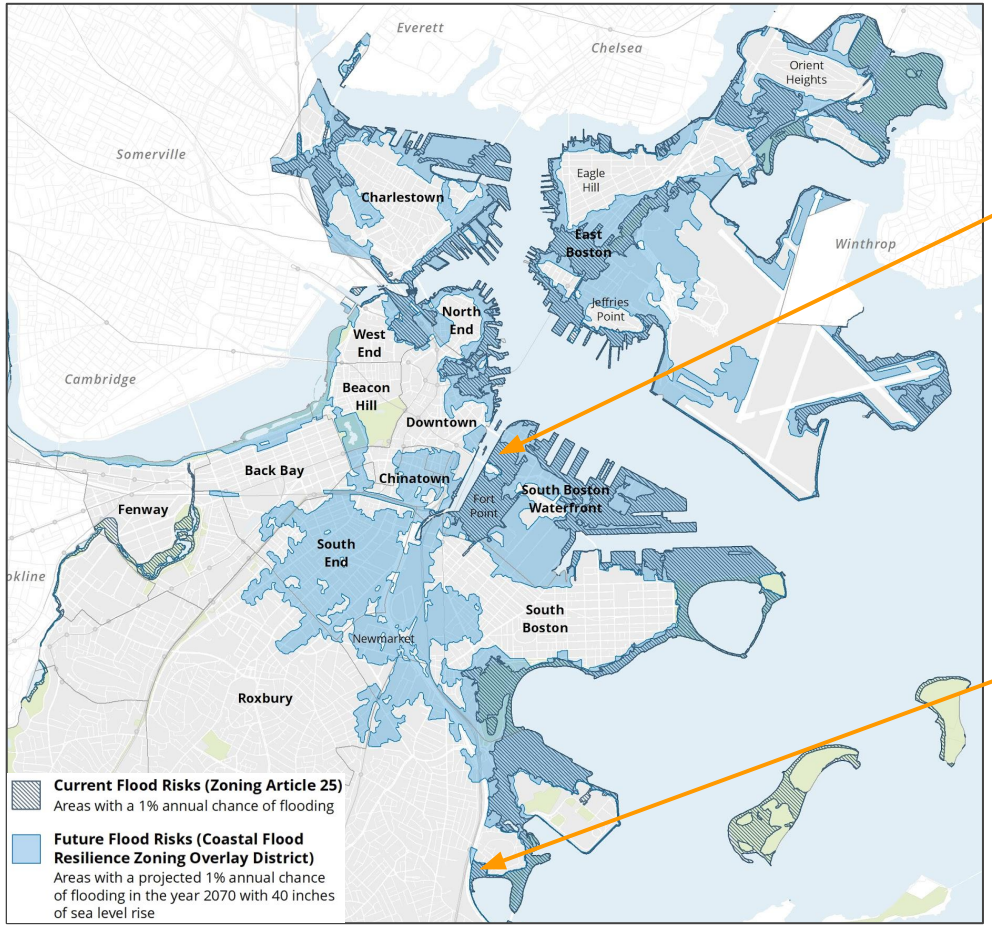
3. **Develop effective coastal resilience solutions** that provide multiple benefits for the community; and

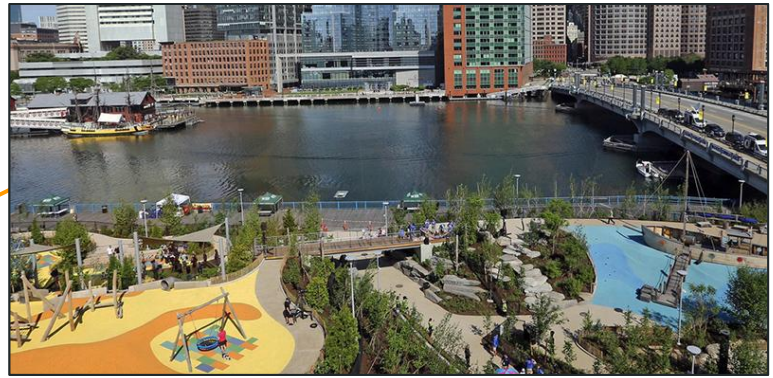
4. **Create an implementation roadmap** that outlines the timing by which solutions need to be constructed and next steps for advancing each proposed project

FROM PLANNING TO IMPLEMENTATION

CRB PROGRESS & KEY PROJECTS

COMPLETED PROJECTS

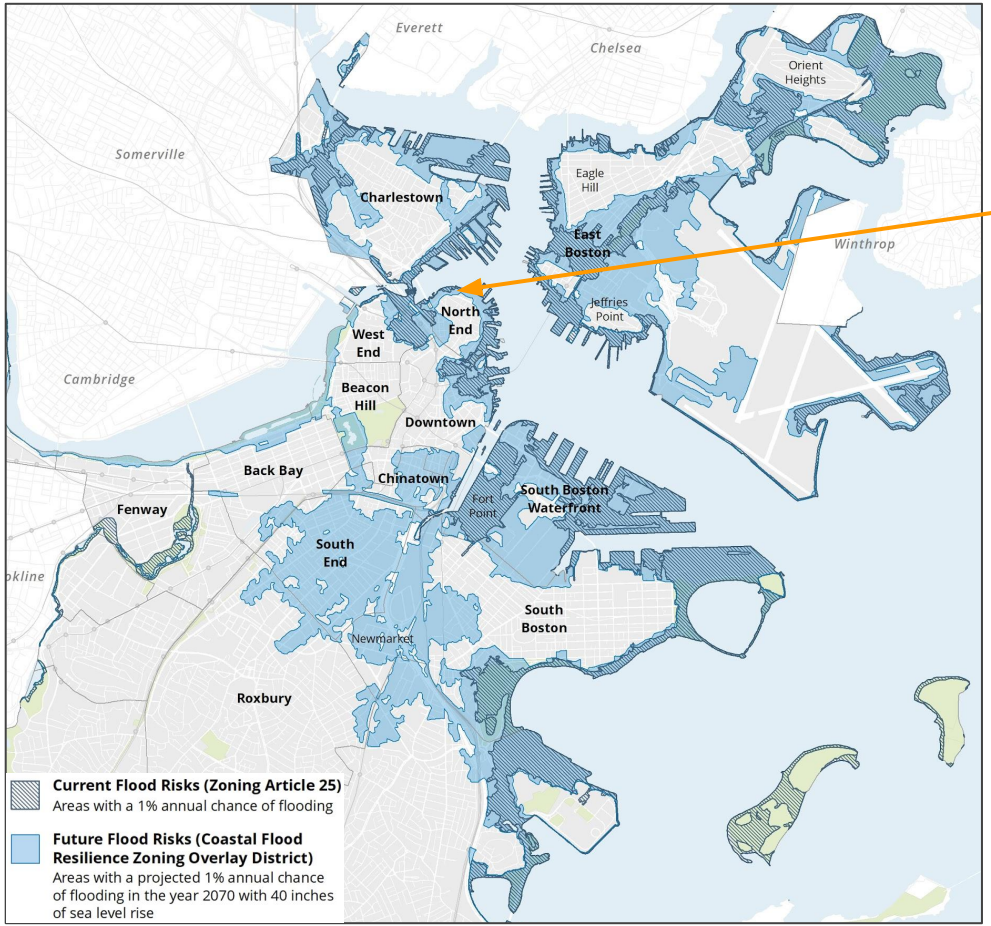




Martin's Park | Seaport
Construction completed in 2019

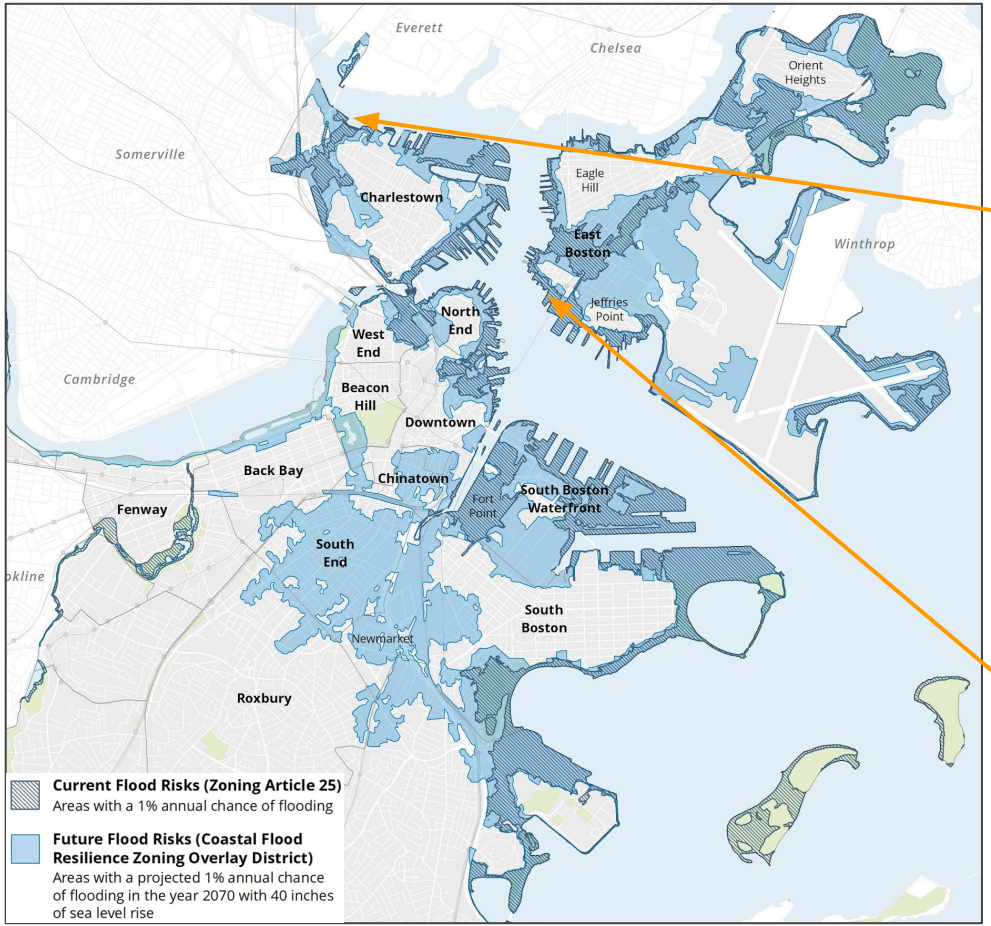
McConnell Park and Playground | Dorchester
Construction completed in 2022

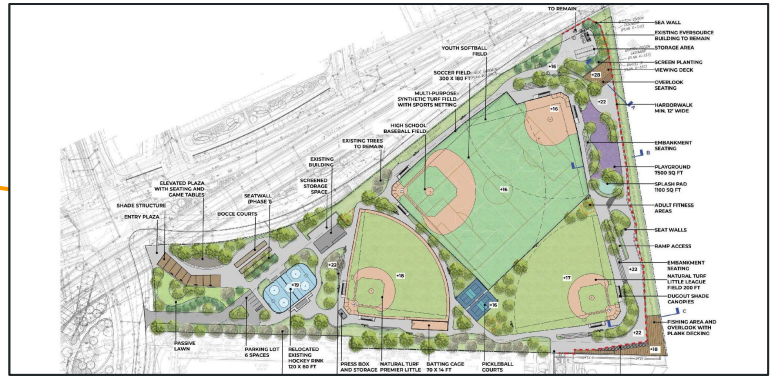
COMPLETED PROJECTS



Langone Park & Puopolo Playground | North End
Construction completed in 2020

IN-PROGRESS

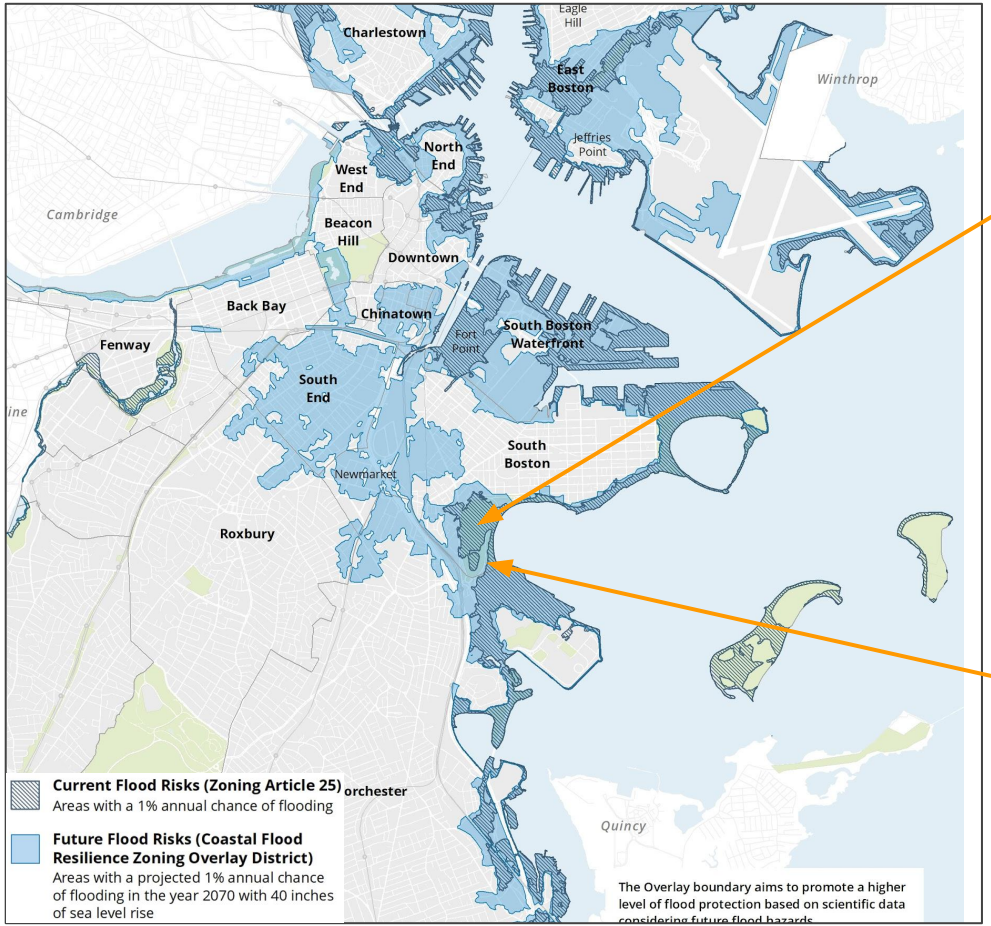




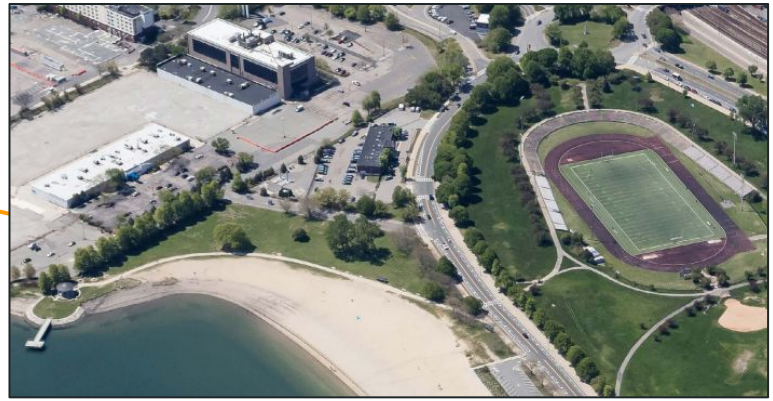
Ryan Playground | Charlestown
Design process completed in 2022; rendering by Weston & Sampson

East Boston Resilient Waterfront Project at Lewis Mall | East Boston
Design completed in 2022; submitted application for HMGP funding on December 5, 2022

IN-PROGRESS

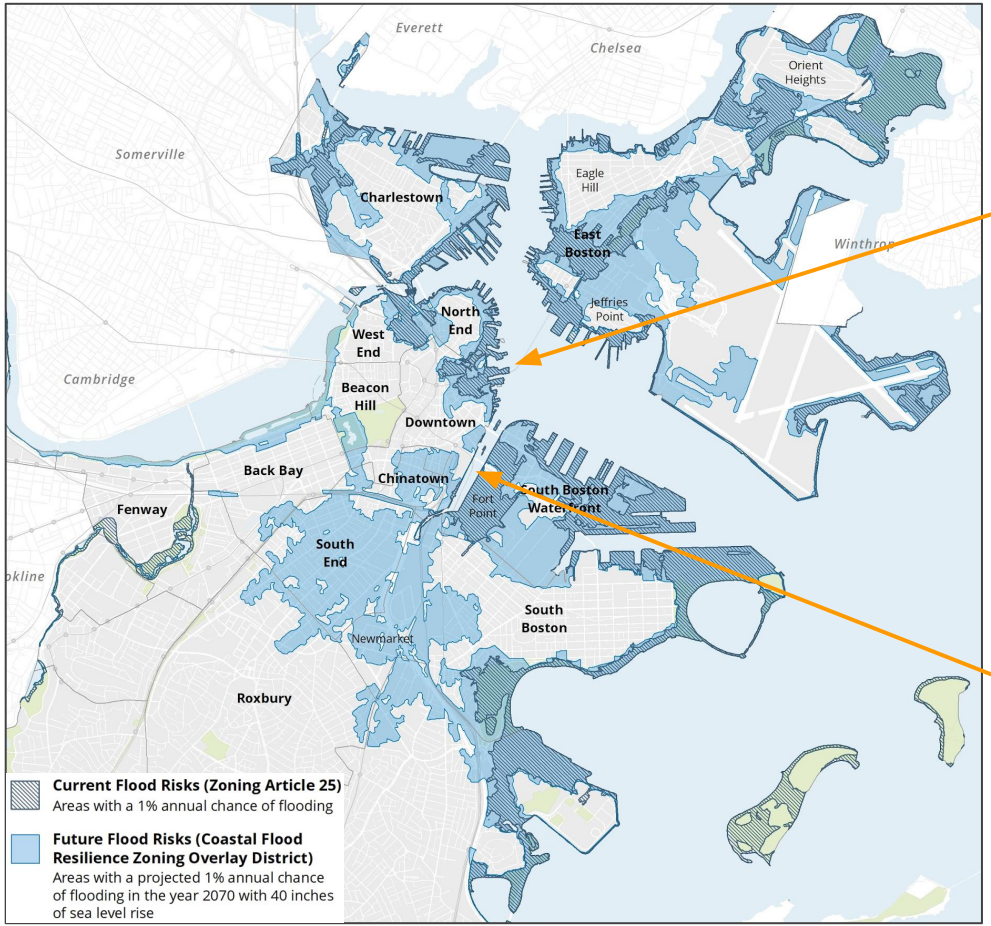


Moakley Park | Dorchester
Design completed; rendering by Stoss Landscape Urbanism



Moakley Connectors Project | Dorchester
Pre-construction planning & design grant funds received

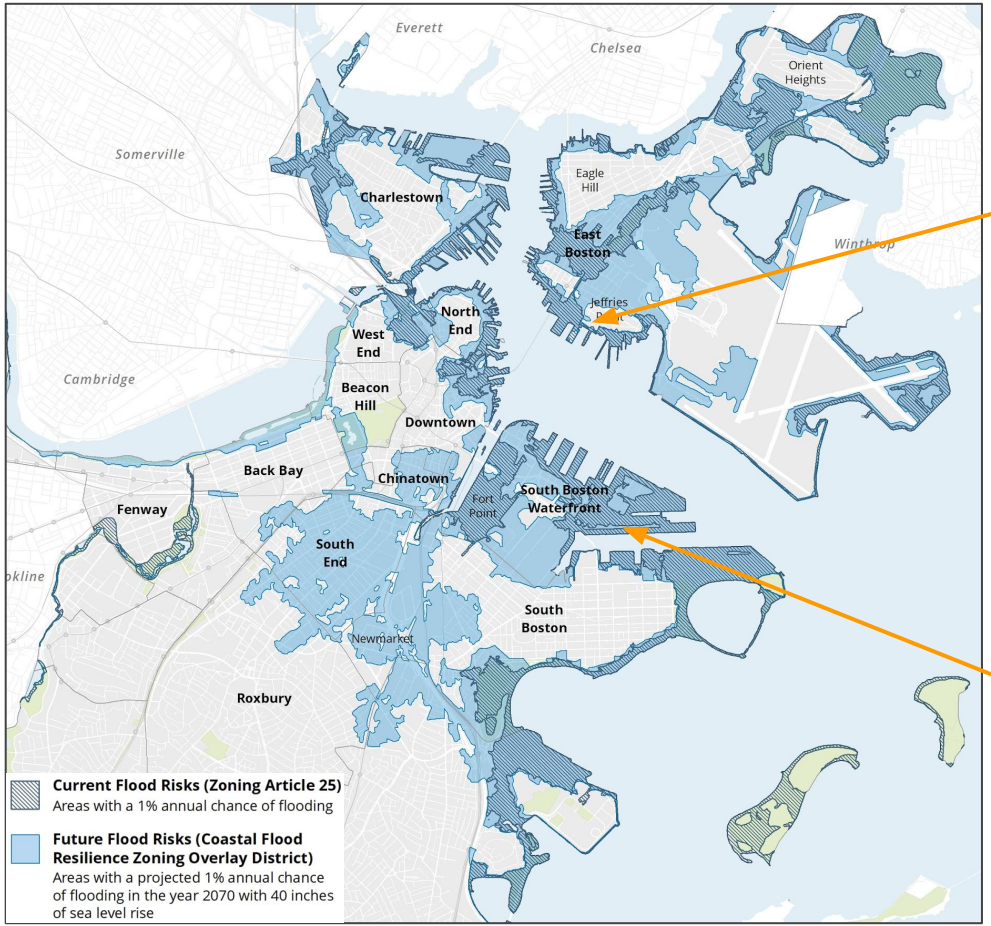
IN-PROGRESS



Long Wharf | Downtown
Flood Mitigation Planning & Feasibility Study In-Progress

Fort Point Channel | Downtown & Seaport
Applied for FEMA funding; currently in environmental review

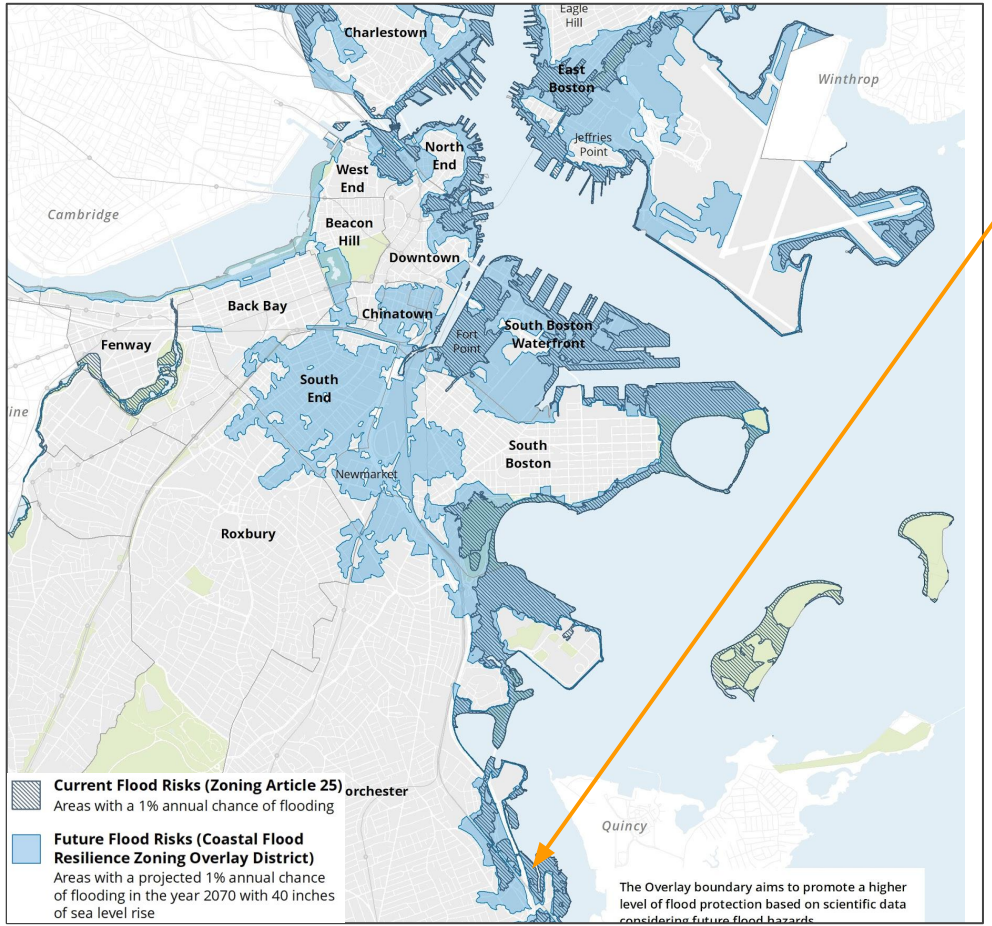
IN-PROGRESS



East Boston Greenway Entrance | East Boston
Improvements under design, including measures to reduce stormwater & coastal flooding

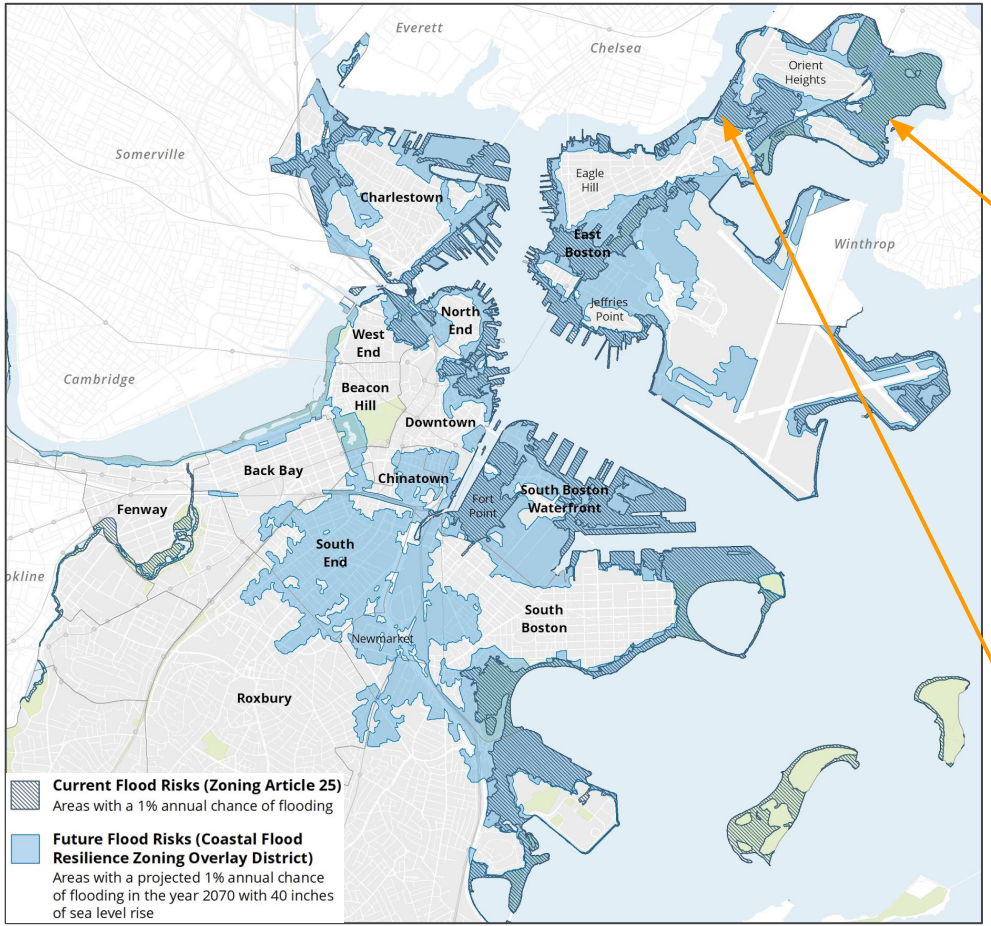
Raymond Flynn Industrial Park | South Boston
Flood Mitigation Planning & Feasibility Study In-Progress

IN-PROGRESS

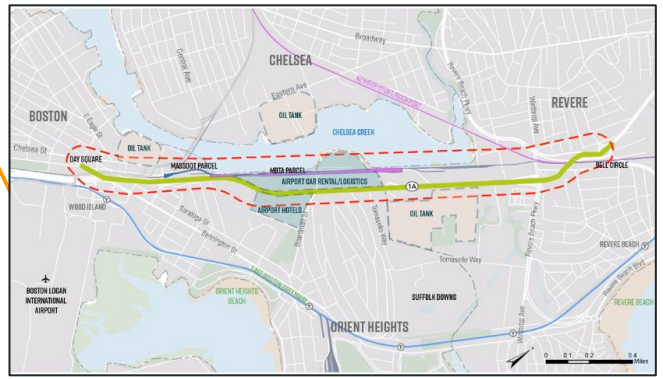


Tenean Beach and Conley Street | Dorchester
Project in progress to develop schematic designs; funded by CZM Coastal Resilience Grant

PUBLIC AGENCY PARTNER-LED

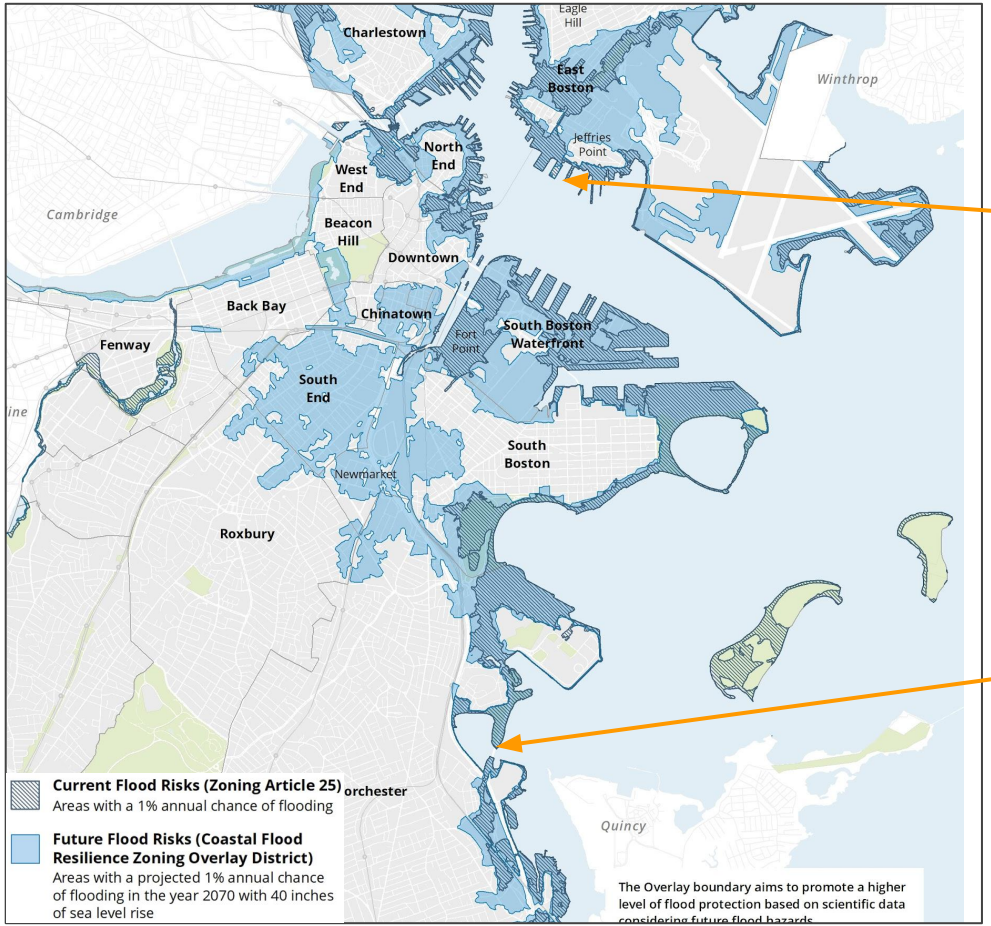


Belle Isle Marsh Study | East Boston
DCR is leading a regional flood protection study



Route 1A Corridor Study | East Boston
MassDOT is leading a study to evaluate future uses of rail parcels along the Chelsea Creek

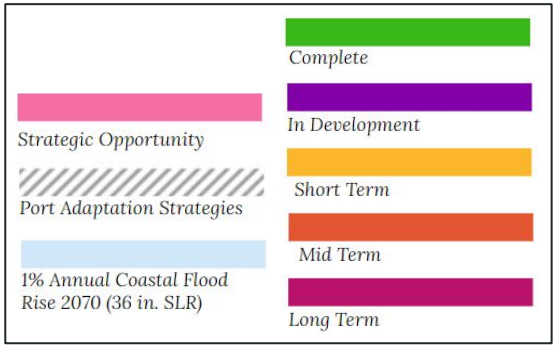
PUBLIC AGENCY PARTNER-LED

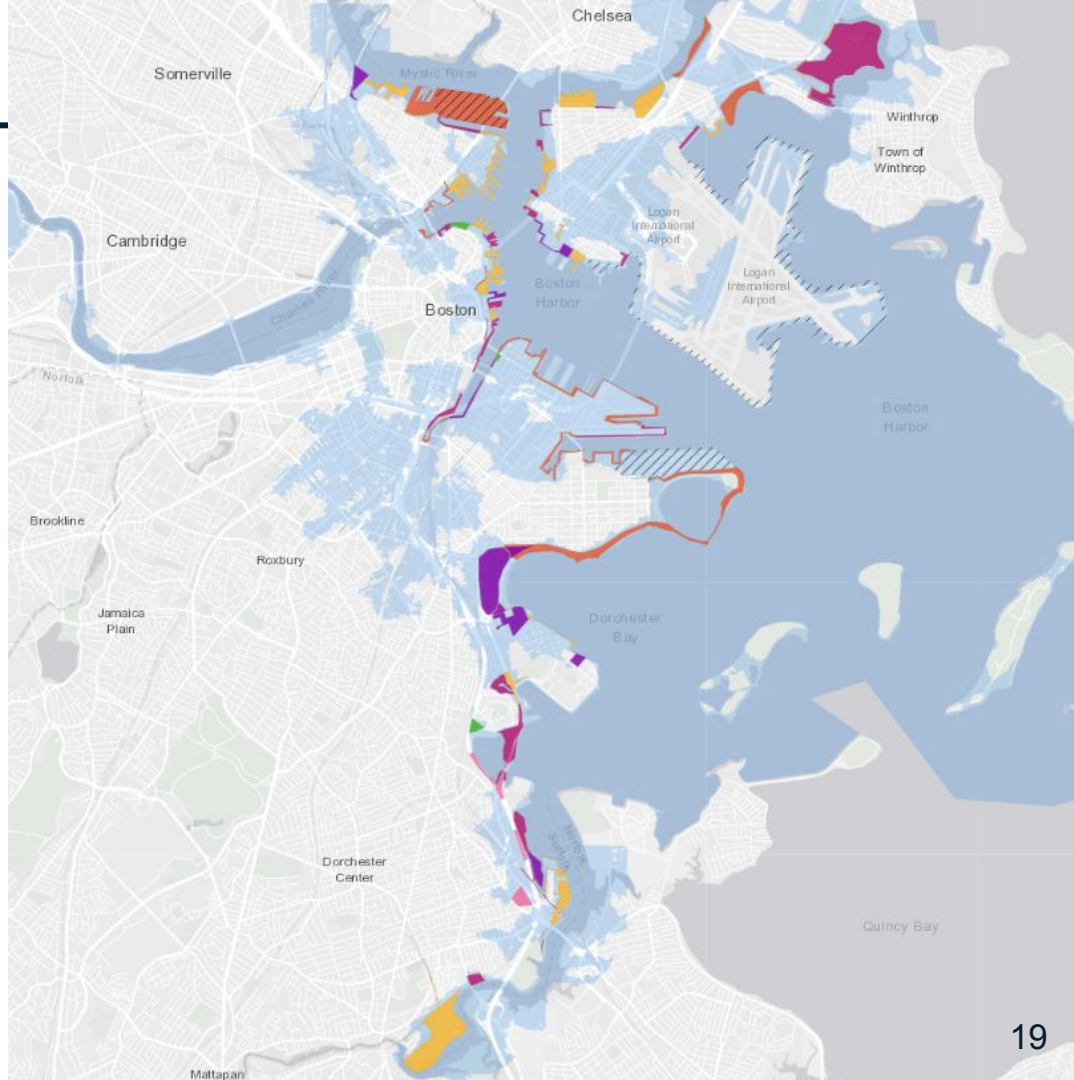


Piers Park Phase 2 and 3 | East Boston
Massport park construction project in progress

Kosciuszko Circle & Morrissey Boulevard Study | Dorchester
MassDOT & DCR planning effort in progress

STATUS OVERVIEW



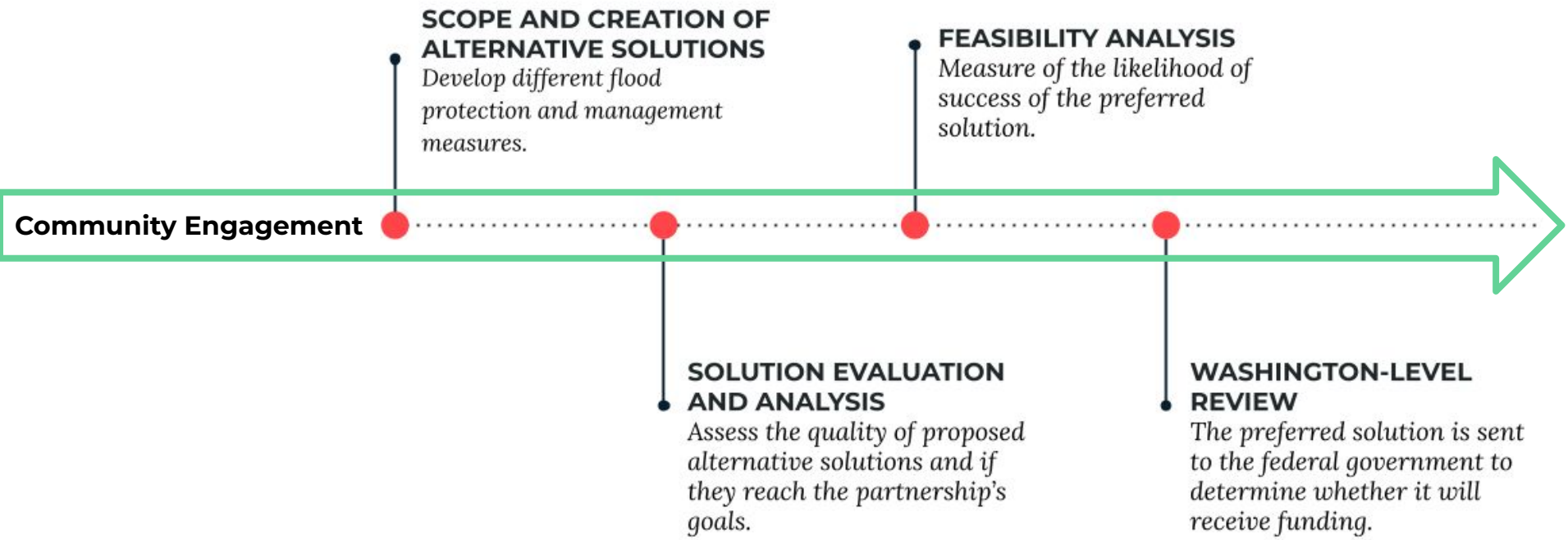


USACE Coastal Storm Risk Management Project

U.S. ARMY CORPS OF ENGINEERS (USACE) PARTNERSHIP

- Build on Climate Ready Boston and other resilience work in the City of Boston
- The Coastal Storm Risk Management Feasibility Study will assess existing flooding preparation and open Boston to potential federal investment
- The Study will focus on medium- and long-term coastal storm risks

STUDY TIMELINE



PROGRESS TO DATE

- Kickoff & Introduction to City of Boston Resilience Efforts
- Connect with Resource Agencies
- Initial Scoping & Analysis
- Build Case for Federal Interest
- Coordination with Watershed-Level USACE Study
- Begin Outreach & Engagement

USACE Presentation

WHO IS THE US ARMY CORPS OF ENGINEERS?

We are not an organization of green-suit Soldiers- There are 38,000 Civil Servant technical and planning experts across 8 Divisions and 48 Districts in the United States and abroad

We are the Nation's Engineering Firm- Water Resource Project Experts (Riverine Flooding, Coastal Flooding, Dam Safety, Maritime Navigation, Aquatic Ecosystem Restoration)

We are FEMA's Engineering Firm- FEMA calls on us to support Planning, Preparation, Response and Recovery Operations across the Nation

When you work with the Corps of Engineers, you get the entire Enterprise

A Few Examples-
- Connecticut Long Wharf in New Haven, CT along I-95
- New Charles River Dam
- Belle Island Marsh Engineering With Nature initiative
- Rhode Island Coastal Storm Risk Management

MEET THE USACE TEAM

Jeff Herzog- Project Manager and Lead Planner

- Retired US Army
- USACE Planner since 2015
- Water Resources Certified
- Experience in Alaska, Hawaii, Mass.
- Expertise in Climate Change adaptation, Community resilience,Communications, and Urban Planning

Todd Randall- Lead Environmental Coordinator

- Marine Ecologist
- USACE Planner since 2000
- Water Resources Certified
- Experience throughout New England
- Expertise in Ecology, Ecological Resource Inventories, Environmental Impact Assessments, and National Environmental Policy Act (NEPA) procedures

Lisa Winter- Lead Engineer

- Registered Professional Engineer
- Certified Floodplain Manager
- USACE Coastal Engineer since 2015
- Agency Technical Reviewer for Coastal Engineering and Climate preparedness & Resilience
- Experience in New England, California, Florida and Gulf Coast regions
- Expertise in coastal engineering, coastal structure design, climate change analysis and adaptation

Courtney Jackson- Lead Economist

- USACE Economist and Planner since 2015
- Master's degree in applied economics and statistics
- Experience in southeast and Gulf Coast regions
- Expertise in economic analysis as part of USACE navigation and coastal storm risk management planning studies

AUTHORIZATION AND PURPOSE

Authorized for execution and funded in 2022.

Army Corps studies are not unilateral, need 3 things-

1) Authorization
2) Funding
3) Non-federal Partner for cost sharing 50/50

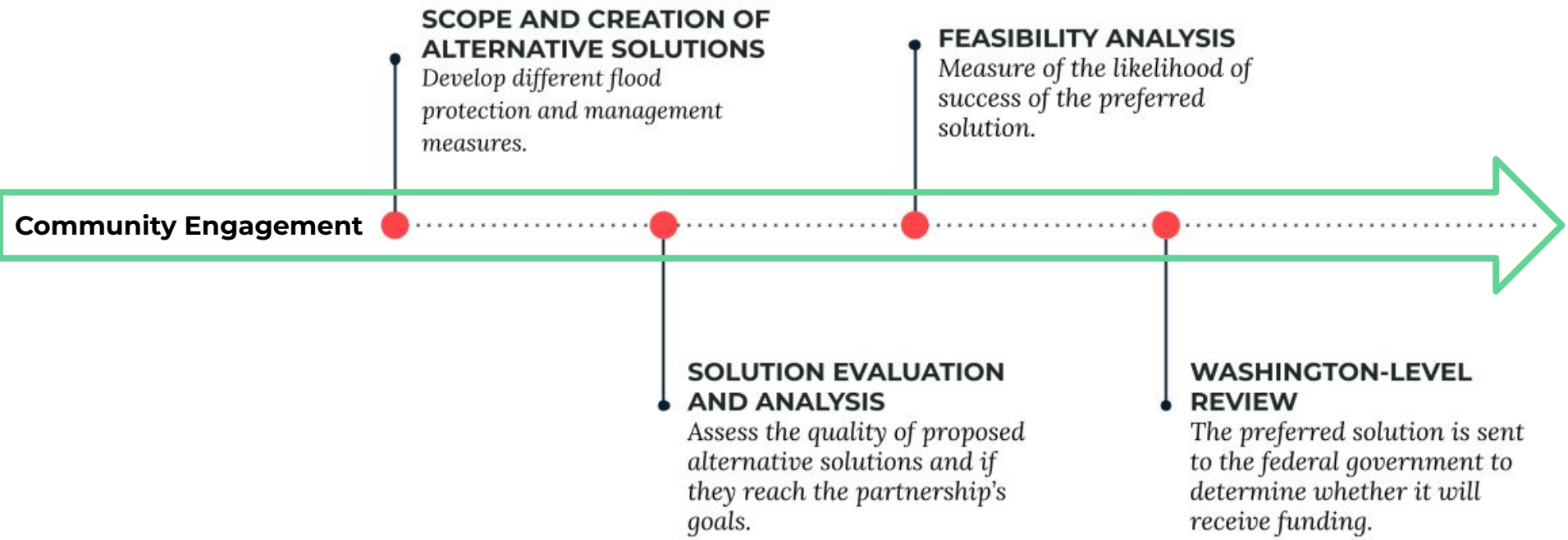
Study is authorized to build upon Climate Ready Boston efforts to investigate opportunities for federal investment

Objective is to manage risks associated with coastal storms and coastal hazards to the city over a 50-year period for economic analysis, but adaptable over 100-years

Outcome is a recommendation to Congress for design and implementation

2018 Nor'easter, Boston, MA

STUDY TIMELINE



STUDY PROCESS

2023 Focus:

- COMMUNITY ENGAGEMENT IS A VITAL PART TO ANSWERING THESE QUESTIONS: Check the website, participate in meetings, email, send pictures and videos from your experience!

- What does the future look like without federal investment? Science, Engineering, Community Engagement, Local Knowledge

- What are the risks to community safety, homes, mobility, local economy? What do we see already, and what do we think will happen without further action; how would people respond?

- What are the natural resources, cultural and historic resources in the area and how are they impacted in a future without federal investment?

2024 Focus:

- COMMUNITY ENGAGEMENT IS A VITAL PART TO ANSWERING THESE QUESTIONS: Share your ideas, concerns, questions

- Where should the federal government invest to support state, regional and local efforts?

- How can the federal government invest, construction, planning, adaptation?

- Where can we use nature-based adaptation vs. where does risk require stronger intervention with barriers along the coastline? What are the impacts to community, economy, natural resources if we build?

- How do we optimize benefits while balancing costs, community impacts and natural resources?

STUDY PROCESS

2025 Focus:

- Engage stakeholders, community, resource agencies to identify what did we miss in our draft analysis?

- Present a plan for public, peer, academic, technical, and agency review

- Coordinate mitigation and conservation recommendations for cultural, historic, and natural resources

2026 Focus:

- Develop a final recommendation for Washington DC Leaders to endorse and recommend to Congress

- State and Agency Review of final recommendation

- Finalize NEPA Document and Publish

- Chief of Engineers US Army Corps of Engineers submits recommendation to Congress

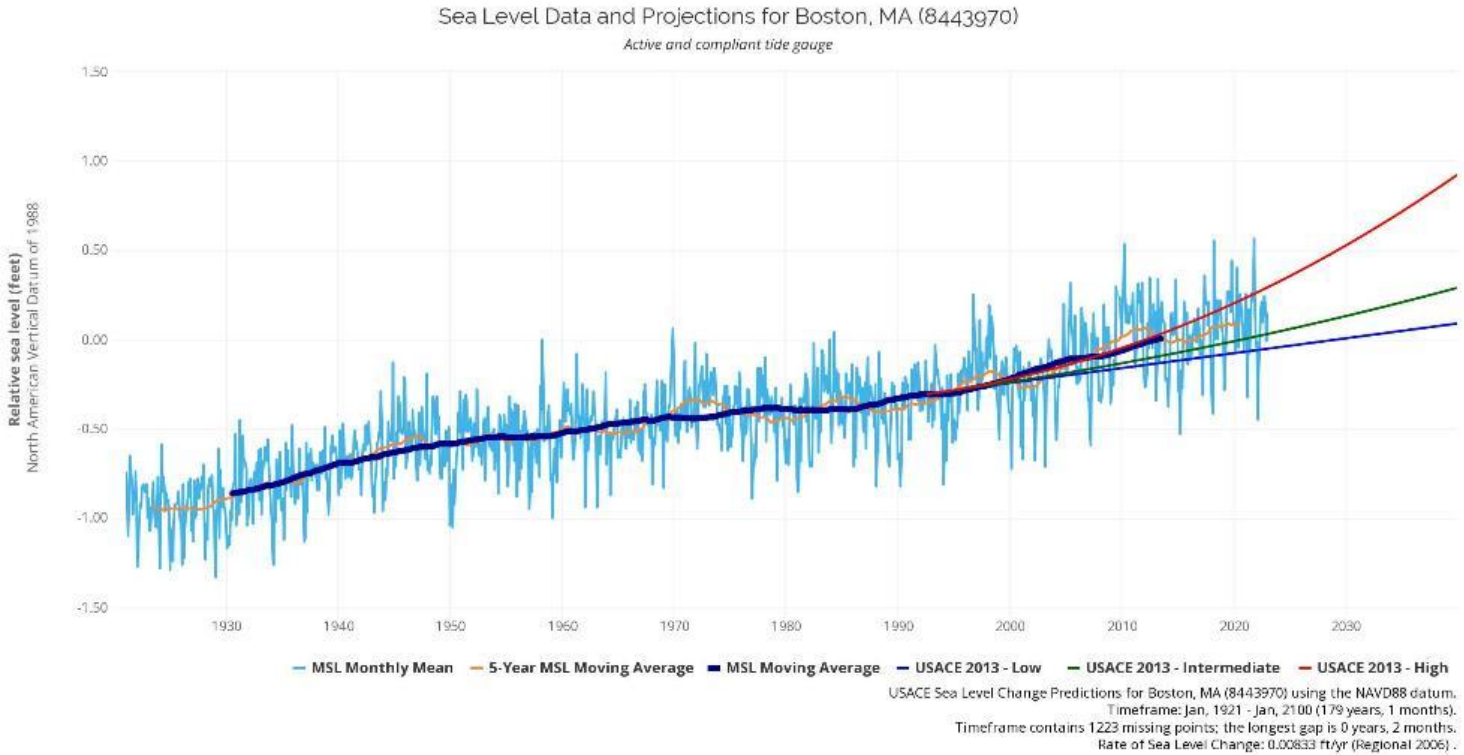
Beyond 2026: Wait for Congress to authorize and fund implementation

WHAT ARE WE LOOKING AT?

- Five Neighborhoods
  - East Boston
  - Charlestown
  - Downtown and North End
  - South Boston
  - Dorchester (Neponset River)
- Sea Level Change

- Structures at risk now and in the future

SEA LEVEL CHANGE PROJECTIONS



STRUCTURES AT RISK

Cursory estimate of structures in the national database that are at risk with no project.

Neighborhood	Structure count
Charlestown	1,760
Dorchester	2,791
Downtown	5,029
East Boston	4,228
South Boston	4,505
TOTAL	18,313

Data sources and tools used: NSI (updated 2022), 2070 100 yr. WSEs from WHG, NACCS depth-damage functions, non-residential damage functions from April 2009 expert elicitation, Paul Morelli's Python script to estimate AMM-level damages

STUDY CONSIDERATIONS

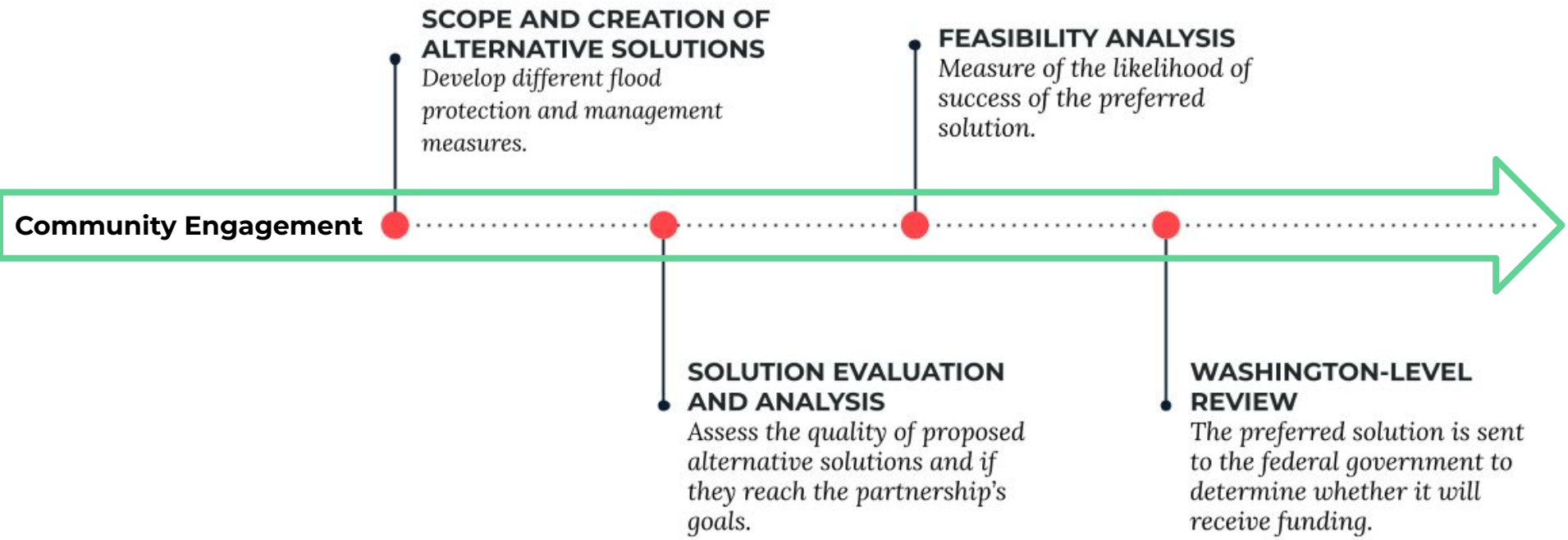
- Sea Level Change
- Public and Private Real Estate
- Future Infill Development
- Actions by Other Agencies/ Organizations
- Navigation and Port-related Operations
- Existing/Future Environmental Conditions
- Evacuation Corridors
- Community Connectedness to the Water
- Existing and Future Projects
- Flood Pathways
- Environmental Justice Communities
- Protected Resources

MEASURES- THE BUILDING BLOCKS OF A PLAN

- We will consider a wide range of measures to address the risk:
  - Elevated Harborwalks
  - Beach and/or dune creation
  - Elevated bike paths, walking trails
  - Nature and Natural Based Features, such as salt marshes, living levees (tiered green spaces)
  - Buried flood walls under walking paths, built into parks, fields
  - Vertical flood walls (3'-5' tall) where space constraints limit opportunities
  - Building adaptations
  - Managed retreat over time
  - Land use planning

Next Steps

OPPORTUNITIES FOR ENGAGEMENT



Questions?

THANK YOU!

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617-635-4398

Connect with us:
https://docs.google.com/forms/d/e/1FAIpQLSeYX7gpBi_zDAjCDxnBCN7oHlSnY6tW95gO-DGoaeaK4do0jg/viewform

City of Boston Project Site:
https://www.boston.gov/departments/environment/climate-ready-boston-and-army-corps-partnership

USACE Project Site:
https://www.nae.usace.army.mil/Missions/Projects-Topics/City-of-Boston-Coastal-Storm-Risk-Management-Project/

Reference Materials

PROJECT DETAILS & LINKS

- Martin's Park: https://www.boston.gov/martins-park
- McConnell Park and Playground: https://www.boston.gov/departments/parks-and-recreation/improvements-mcconnell-playground
- Langone Park: https://www.boston.gov/news/now-open-langone-park-and-puopolo-playground-north-end
- Long Wharf: https://www.bostonplans.org/work-with-us/procurement-portal/rfp-listing-page?id=1310
- Fort Point Channel: http://fortpointneighborhood.org/wp-content/uploads/2022/01/BPDA-Presentation_to_FPNA012522.pdf
- Raymond Flynn Marine Park: https://www.bostonplans.org/work-with-us/procurement-portal/rfp-listing-page?id=1311
- Ryan Playground: https://www.boston.gov/departments/parks-and-recreation/improvements-ryan-playground
- East Boston Greenway: https://www.boston.gov/departments/parks-and-recreation/improvements-mary-ellen-welch-greenway
- East Boston Resilient Waterfront Project: https://www.bostonplans.org/planning/planning-initiatives/east-boston-resilient-waterfront-project
- Moakley Park: https://www.boston.gov/parks/moakley-park
- Route 1A Corridor Study: https://www.mass.gov/route-1a-corridor-study
- Morrissey Boulevard Study: https://www.mass.gov/news/city-and-state-agencies-announce-kosciuszko-circlemorrissey-boulevard-planning-study-to-improve-mobility-and-climate-resiliency
- 425 Medford Street: https://www.bostonplans.org/projects/development-projects/425-medford-master-plan-pda
- Dorchester Bay City: https://www.bostonplans.org/projects/development-projects/dorchester-bay-city-pda
- Wharf District Council: https://www.wharfdistrictcouncil.org/