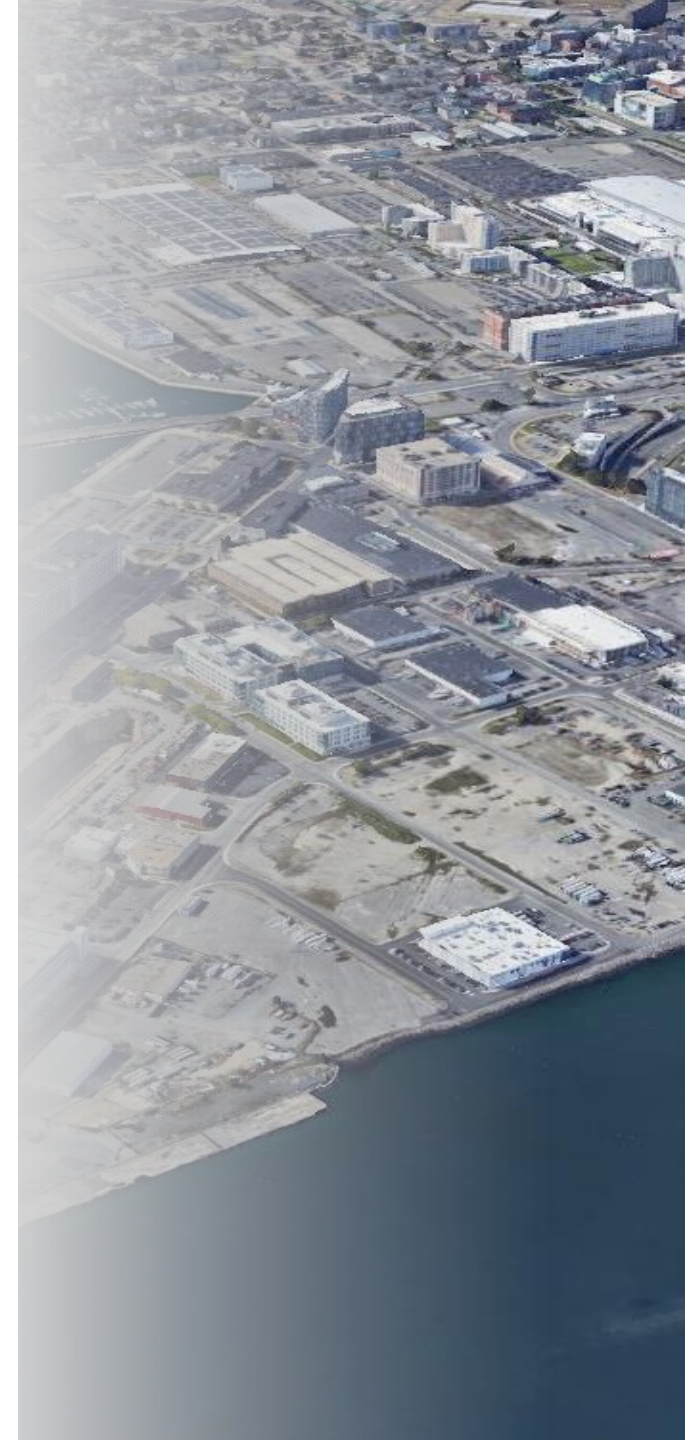


Flood Mitigation Planning & Feasibility at the Raymond L. Flynn Marine Park (RLFMP)

Project Introduction Webinar

Agenda

- Introductions
- Project Introduction
- Project Team
- Prior Work and Engagement
- Project Scope and Timeline
- Expected Outcomes and Next Steps
- Questions and Discussion



Introductions

Please introduce yourself in the chat!

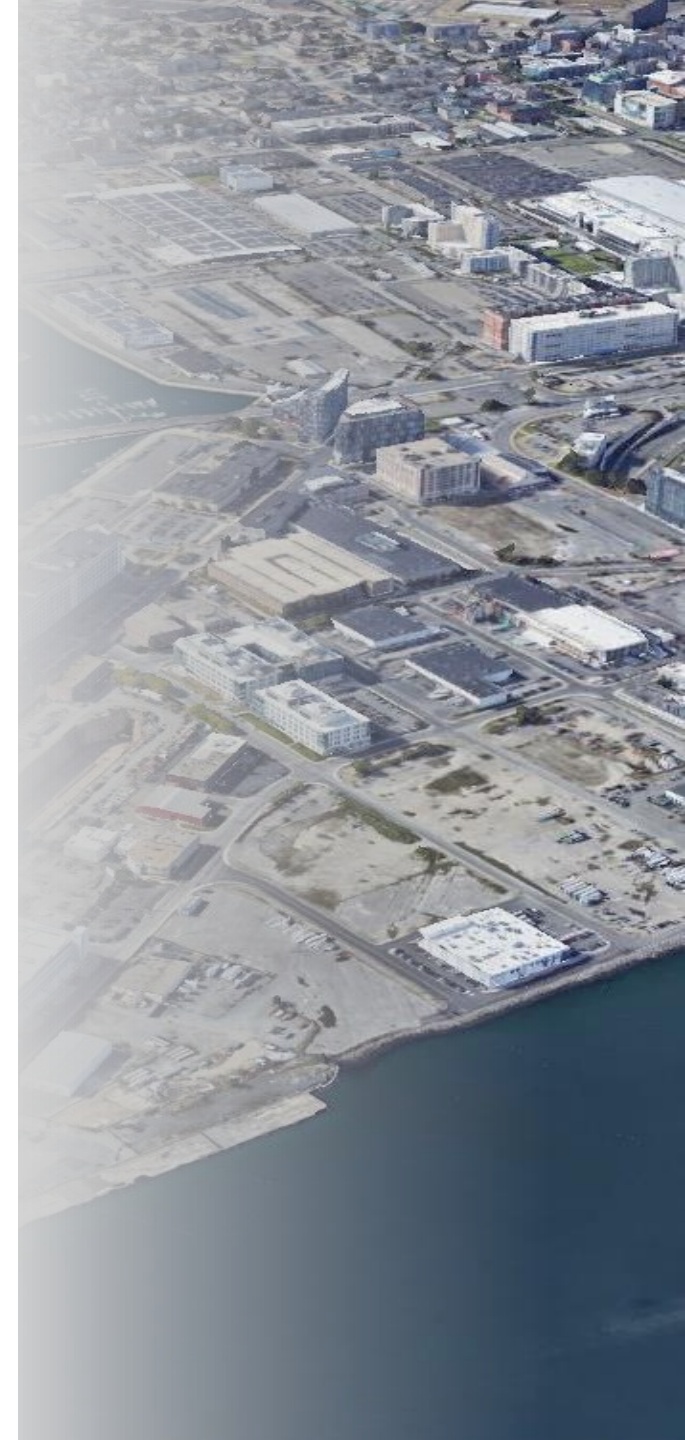
- *Name*
- *Affiliation*
- *What brings you here today*

Expectations and Roles

AS TENANTS, PROPERTY OWNERS, BUSINESS OPERATORS, EMPLOYEES, AND VISITORS, you have an essential role to play in this planning and design process:

- Support integration of accurate information about your business or facility
- Ensure sound decision-making by our team
- Provide authentic feedback and input from YOUR perspective
- Confirm we are engaging the right people with your organization

Today's webinar is a project introduction. We are planning multiple touchpoints with RLFMP stakeholders throughout the planning process



01

Project Introduction

Goals of this Project



Refine our understanding of flood risk at RLFMP and the potential benefits of flood protection options proposed during the Coastal Resilience Solutions for South Boston planning process



Understand flood mitigation measures that have already been implemented or are planned for properties within and neighboring RLFMP and incorporate these into the preferred solutions, as appropriate

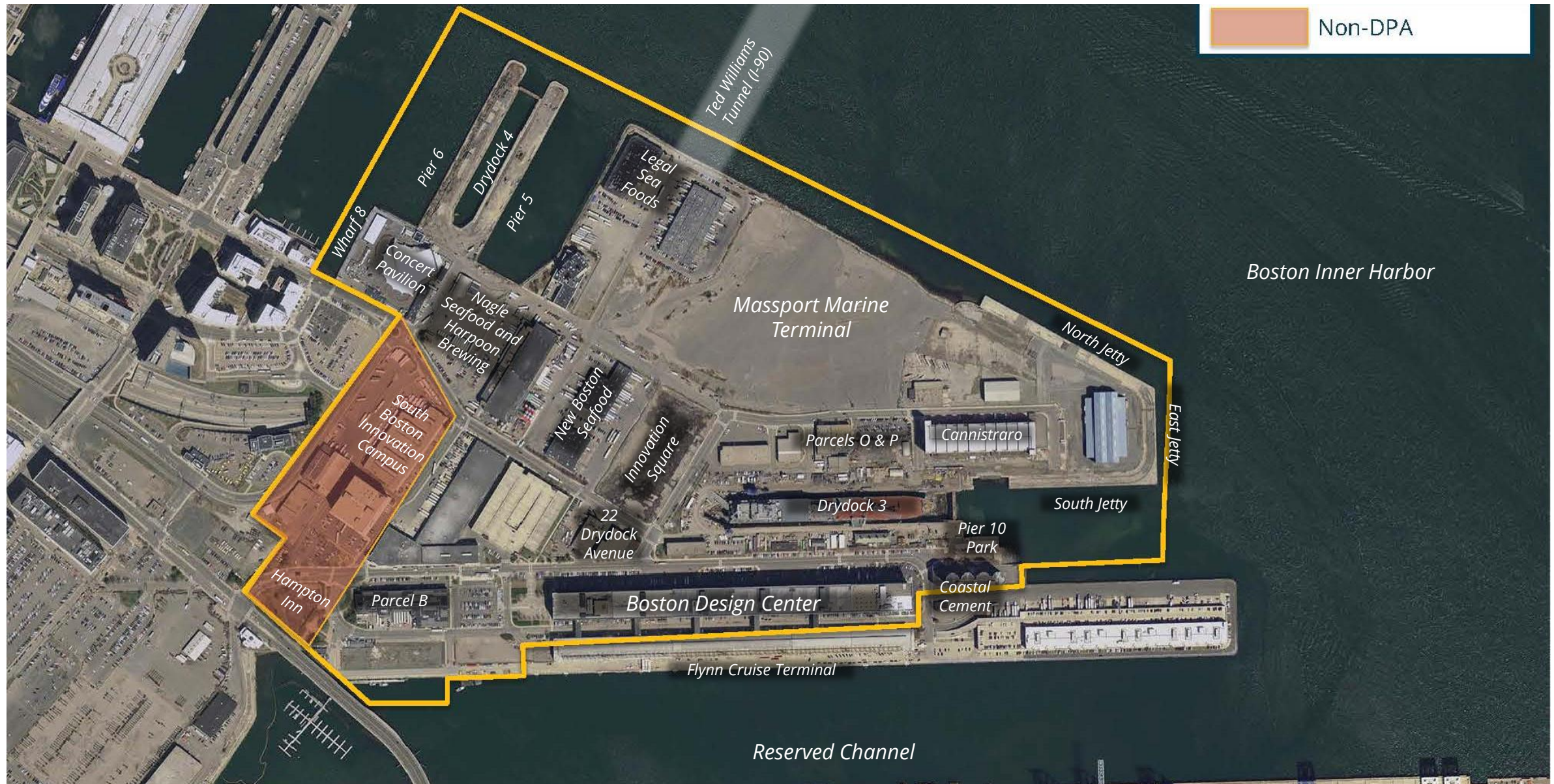


Understand operational and other considerations in implementing flood protection in RLFMP



Identify a preferred long-term flood protection option and develop a refined design, cost estimate, and implementation plan

Project Area



02

Our Team

Project Team



- Project lead
- Engagement lead
- Resilience planning/design lead
- Implementation planning lead

- Waterfront structures assessment lead
- Waterfront structure design lead
- Permitting lead
- Field investigations support

- Coastal modeling lead
- Risk analysis support
- Implementation phasing support
- Resilience planning support

- Landscape, urban, public realm design lead
- Resilience planning/design support
- Engagement support

- Survey
- Other data collection to be determined

03

Prior Work and Engagement

Building on Prior Plans and Guidelines

Building Resilience in Designated Port Areas
(Massachusetts CZM, 2022)

Coastal Storm Risk Management Feasibility Study
(USACE, ongoing)

Coastal Resilience Solutions for South Boston
(City of Boston, 2018)

Raymond L. Flynn Marine Park Final Master Plan Update
(BPDA, 2022)

Climate Resilience Design Standards
(RMAT, 2021)

South Boston Seaport Strategic Transit Plan
(BPDA, 2019)

South Boston Waterfront Sustainable Transportation Plan
(BPDA, 2015)

Climate Resilient Design Standards & Guidelines
(City of Boston, 2018)

Floodproofing Design Guide & Sustainability and Resiliency Design Standards and Guidelines
(Massport, 2018)

Coastal Flood Resilience Design Guidelines

2019



Long-term Strategy

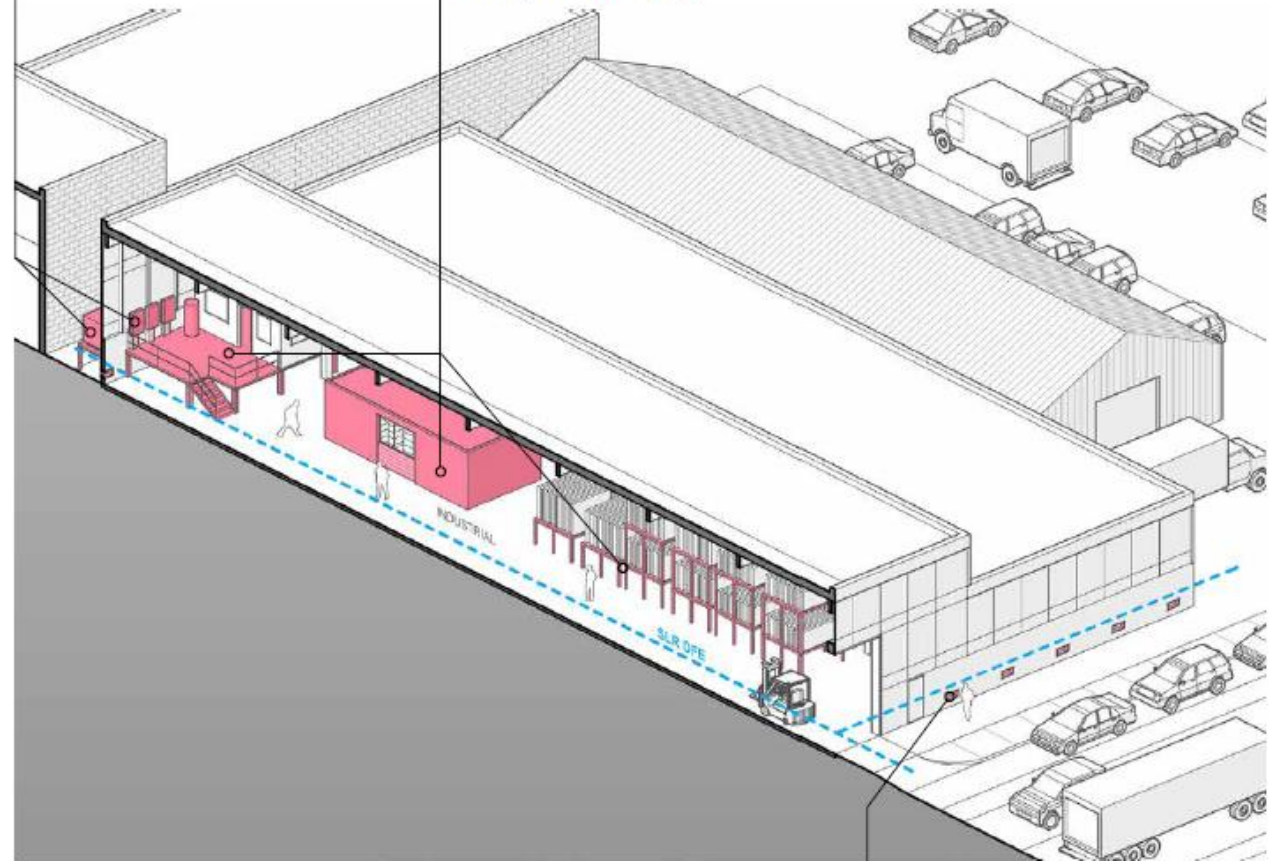
Building Systems

Protect Critical Systems

Locate critical systems above the SLR-DFE. This includes elevating exterior generators or sub-stations onto concrete pads or platforms, elevating electrical panels, and raising mechanical systems. Where space is limited, considering elevating systems onto roofs.

Protect sensitive content inside potentially environment-controlled dry floodproof room with floodgates. Protect general content with elevated storage racks and shelving.

Elevate work stations onto raised platforms or mezzanines to reduce flood damage and help restore operations more quickly.



Building Envelope and Access

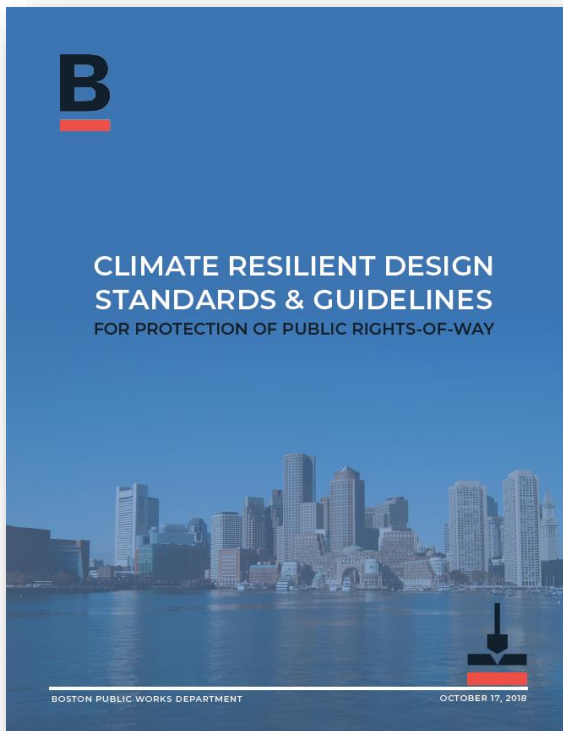
Wet Floodproofing

Install flood vents at basement walls in order for water to enter and balance hydrostatic forces.

Use water-damage-resistant materials below the SLR-DFE.

Climate Resilience Design Standards & Guidelines

2018



CLIMATE RESILIENT DESIGN STANDARDS AND GUIDELINES FOR PROTECTION OF PUBLIC RIGHTS-OF-WAY

B.2 HARBORWALK AS FLOOD BARRIER (RAISED SEAWALL)

Refer to Climate Resilient Design Standards and Guidelines for notes and guidance.

DOWNLOADABLE FILES:

Standard PWD Details for reference and download can be found [here](#)

B.2 SAMPLE HARBORWALK AS FLOOD BARRIER (RAISED SEAWALL)

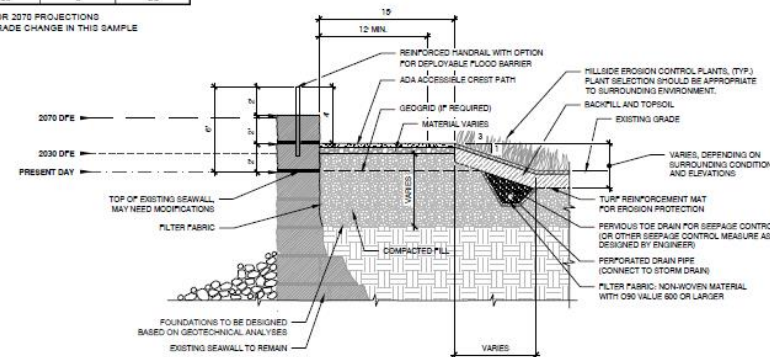
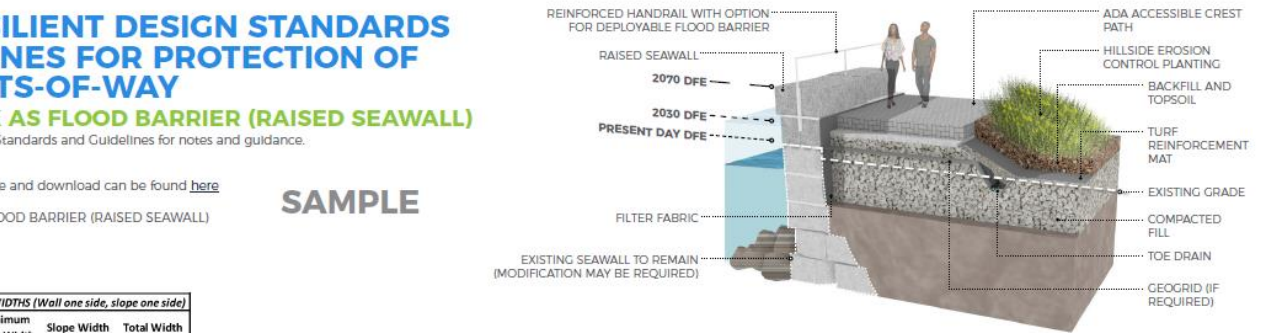
[CAD](#)

[PDF](#)

SAMPLE HARBORWALK CROSS SECTION WIDTHS (Wall one side, slope one side)				
Increased Height from Existing Ground Surface (+ ft)	Minimum Crest Width	Slope Width	Total Width	
1	15	3	18	
2	15	6	21	

NOTE: 4 FT. IS USED FOR SAMPLE BARRIER FOR 2070 PROJECTION
SEAWALL IS RAISED 4 FT. WITH 2 FT. GRADE CHANGE IN THIS SAMPLE

SAMPLE



NOTES:

- HANDRAIL DESIGN FOR ABCE 7 LOADS
- STRUCTURAL DESIGN OF ANCHORAGE IS REQUIRED
- PERFORM WALL STABILITY CALCULATIONS FOR PROPOSED CONDITION (BEARING CAPACITY/VERTICAL/SLIDING)
- DIMENSIONS ARE BASED OFF ASSUMED SLOPE OF 3H:1V (HORIZONTAL/VERTICAL)
- FOR ADDITIONAL CONSIDERATIONS SEE GUIDELINES DOCUMENT
- DFE = DESIGN FLOOD ELEVATION (FREEBOARD INCLUDED)
- 2070 DFE: THE DESIGN FLOOD ELEVATION FOR THE 1% ANNUAL FLOOD EVENT WITH 40 INCHES OF SEA LEVEL RISE. DESIGN FLOOD ELEVATION (DFE) INCLUDES FREEBOARD ON TOP OF THE BASE FLOOD ELEVATION

SAMPLE - NOT TO SCALE

Coastal Resilience Solutions for South Boston

2018



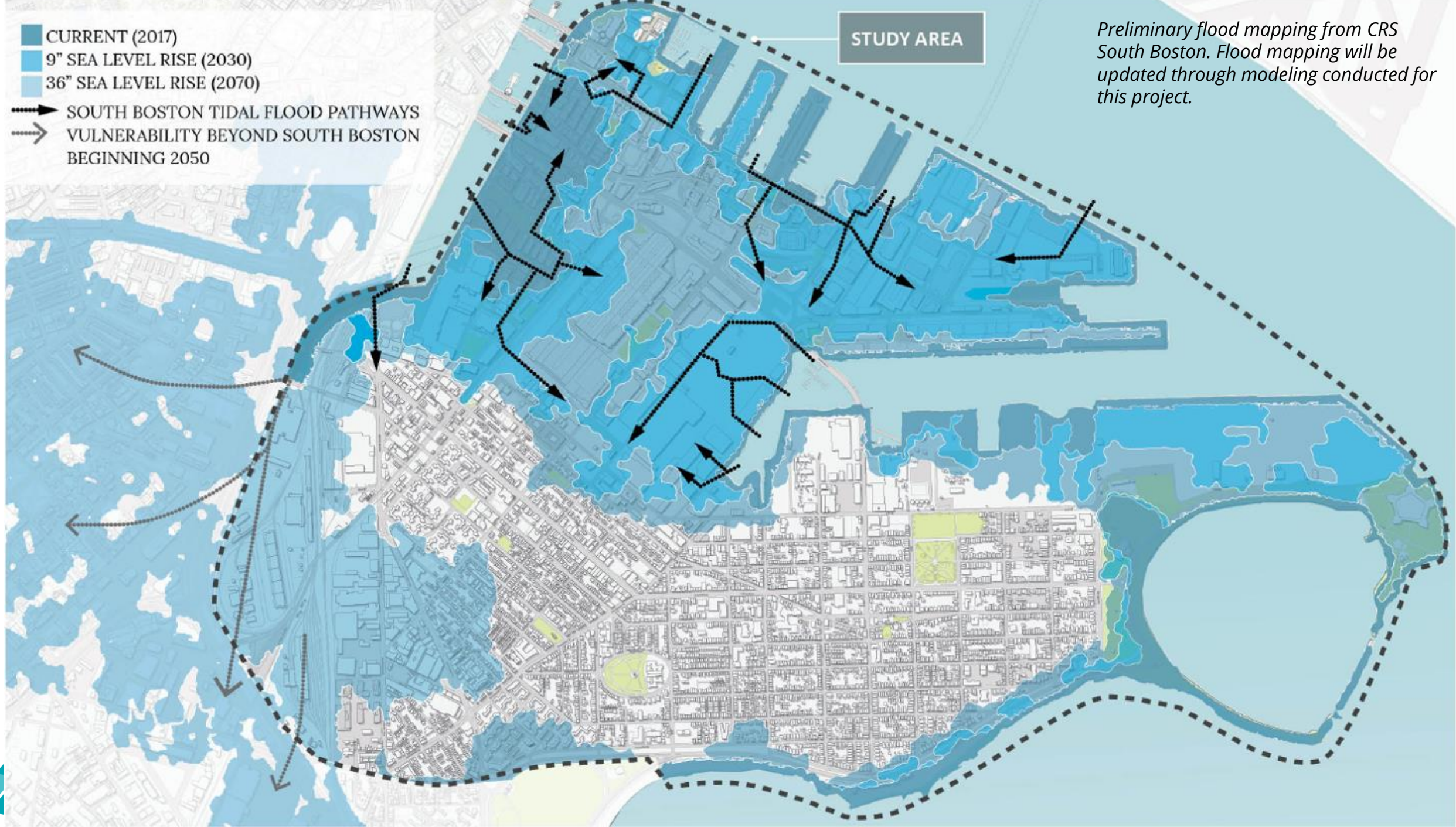
The resiliency strategy outlines a series of layered flood control measures that provide protection from rising sea levels and storm surges, and create social, environmental, and economic benefits and value to the people of South Boston and all who share in the health of the city and the harbor.

- CURRENT (2017)
- 9" SEA LEVEL RISE (2030)
- 36" SEA LEVEL RISE (2070)

- SOUTH BOSTON TIDAL FLOOD PATHWAYS
- VULNERABILITY BEYOND SOUTH BOSTON BEGINNING 2050

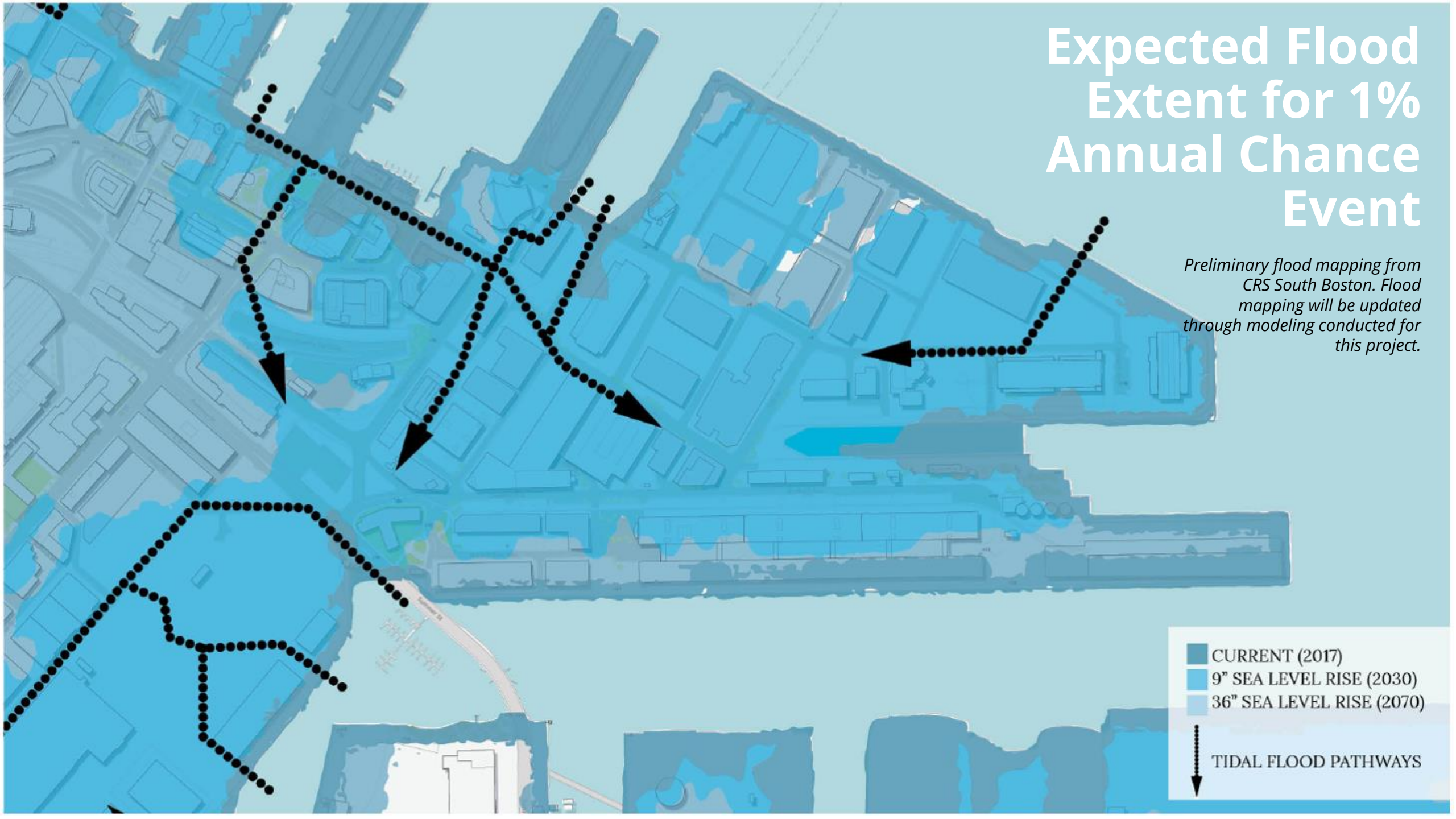
STUDY AREA

Preliminary flood mapping from CRS South Boston. Flood mapping will be updated through modeling conducted for this project.



Expected Flood Extent for 1% Annual Chance Event

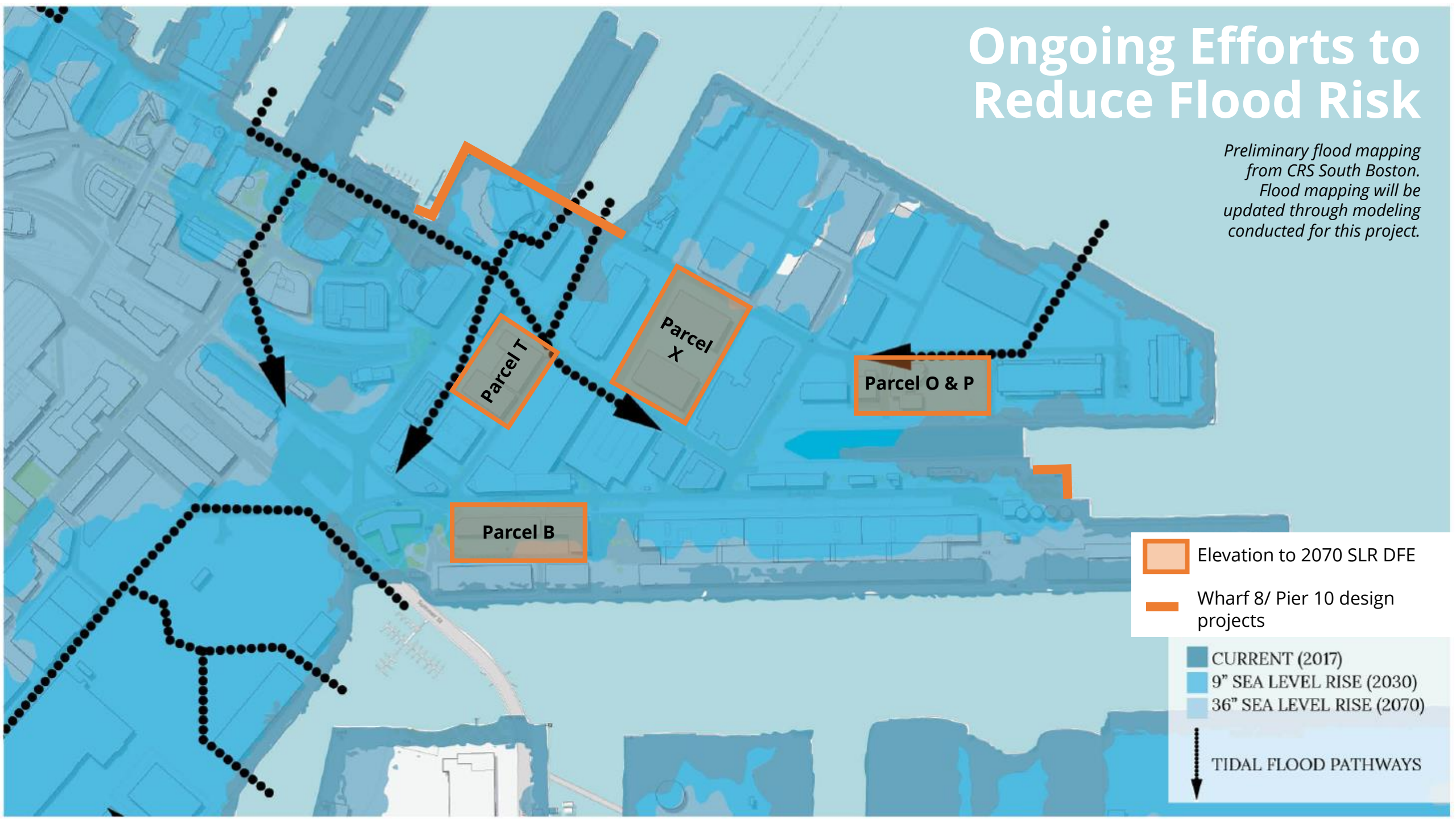
Preliminary flood mapping from CRS South Boston. Flood mapping will be updated through modeling conducted for this project.



- CURRENT (2017)
- 9" SEA LEVEL RISE (2030)
- 36" SEA LEVEL RISE (2070)
- TIDAL FLOOD PATHWAYS

Ongoing Efforts to Reduce Flood Risk

Preliminary flood mapping from CRS South Boston. Flood mapping will be updated through modeling conducted for this project.



- Elevation to 2070 SLR DFE
- Wharf 8/ Pier 10 design projects

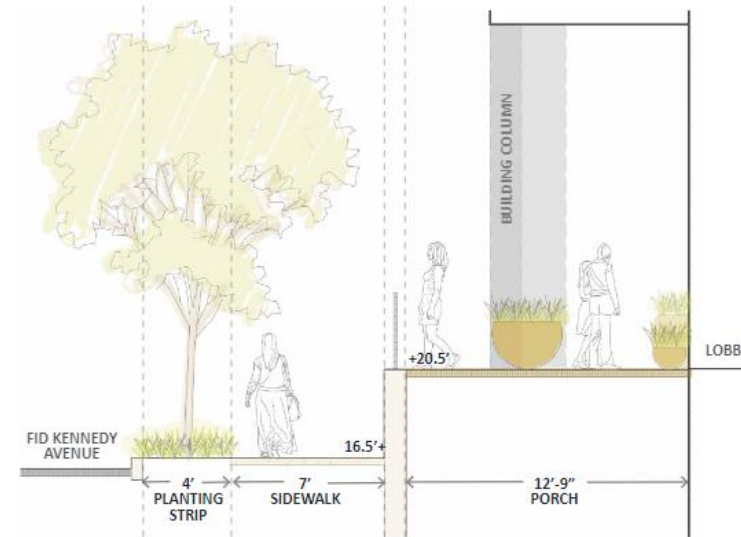
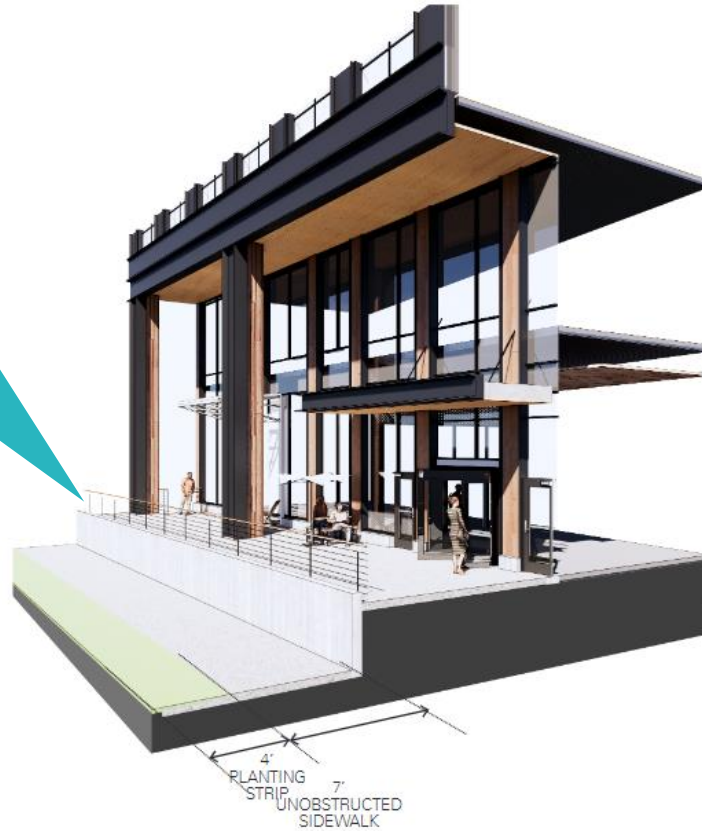
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TIDAL FLOOD PATHWAYS

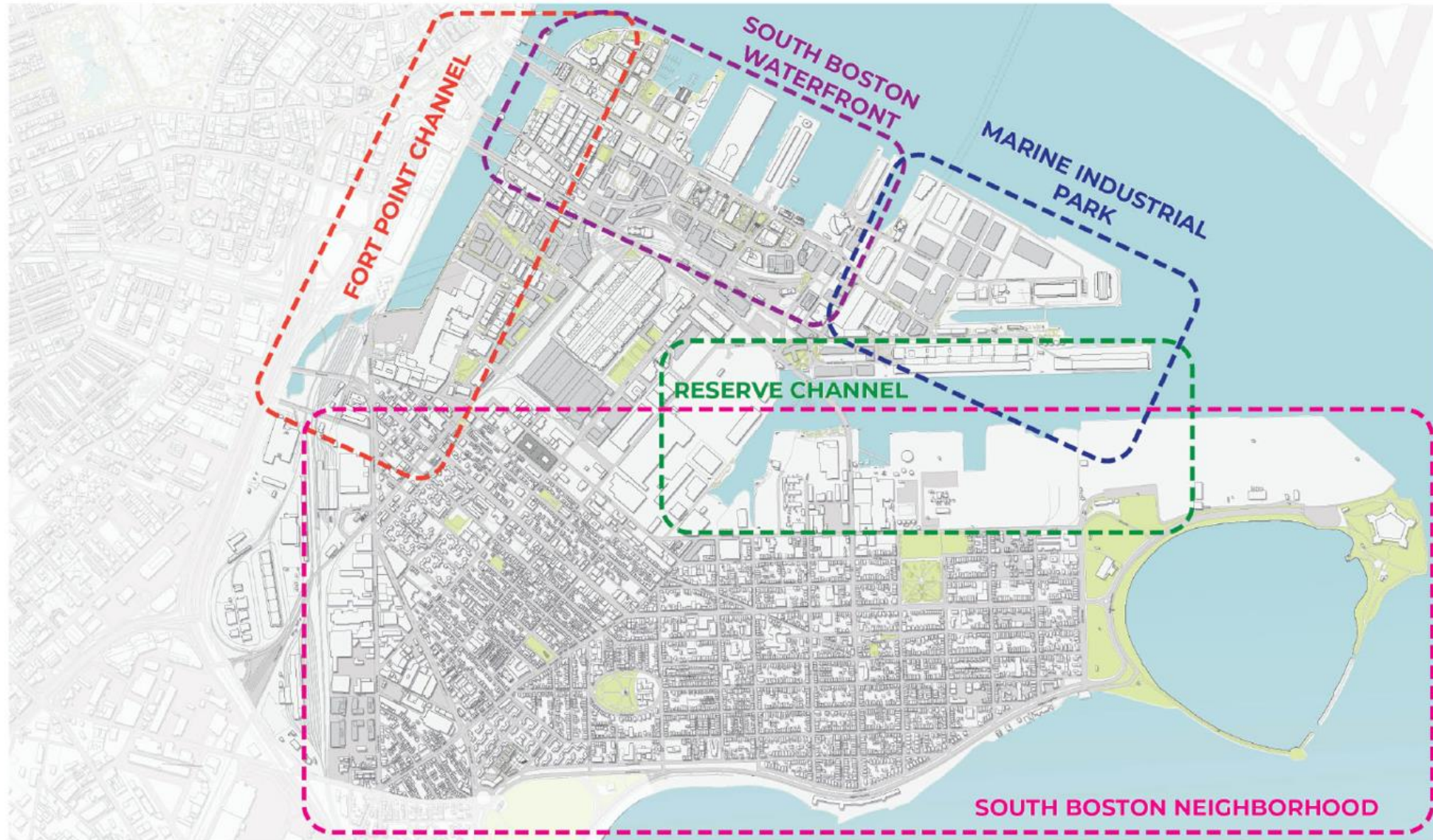
Parcels O & M Redevelopment Example

THE URBAN REALM
CELEBRATING RESILIENCY WHILE CREATING USABLE OUTDOOR SPACE

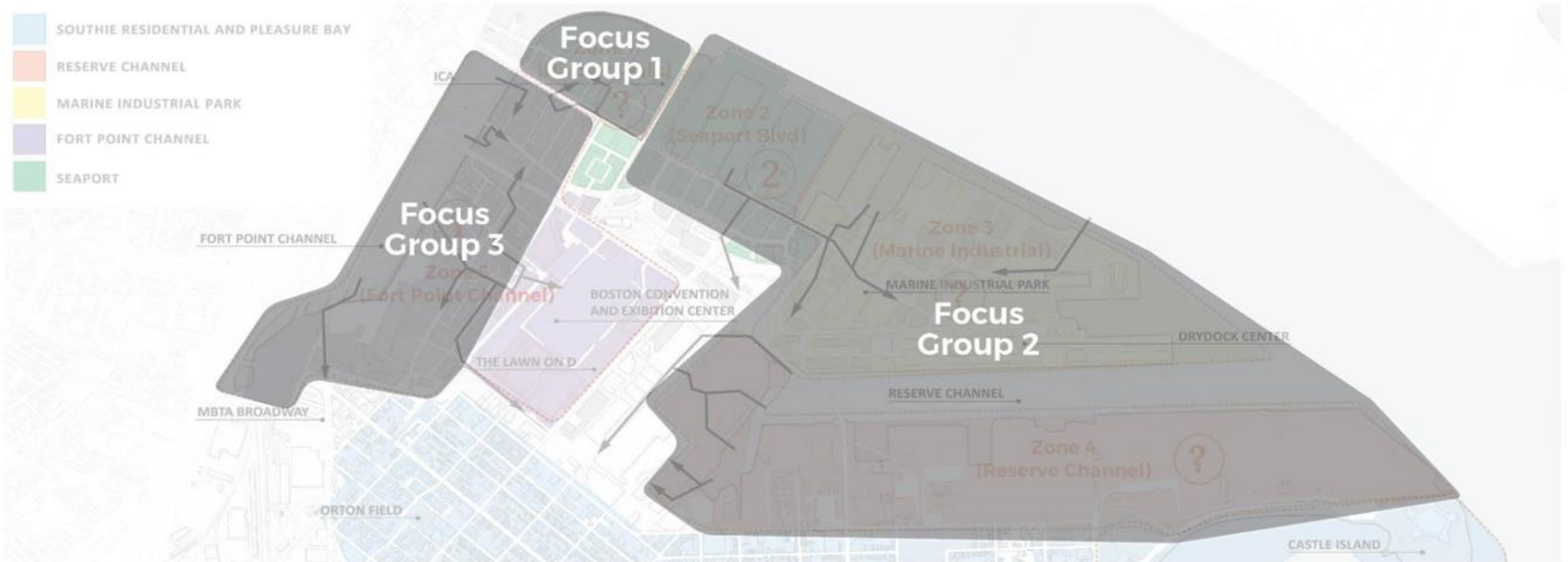
Elevation of First Floor and Critical Systems above BPDA Sea Level Rise-Base Flood Elevation (BCB 19.5 ft)



Coastal Resilience Solutions for South Boston – Project Focus Areas



Geographic Focus Groups

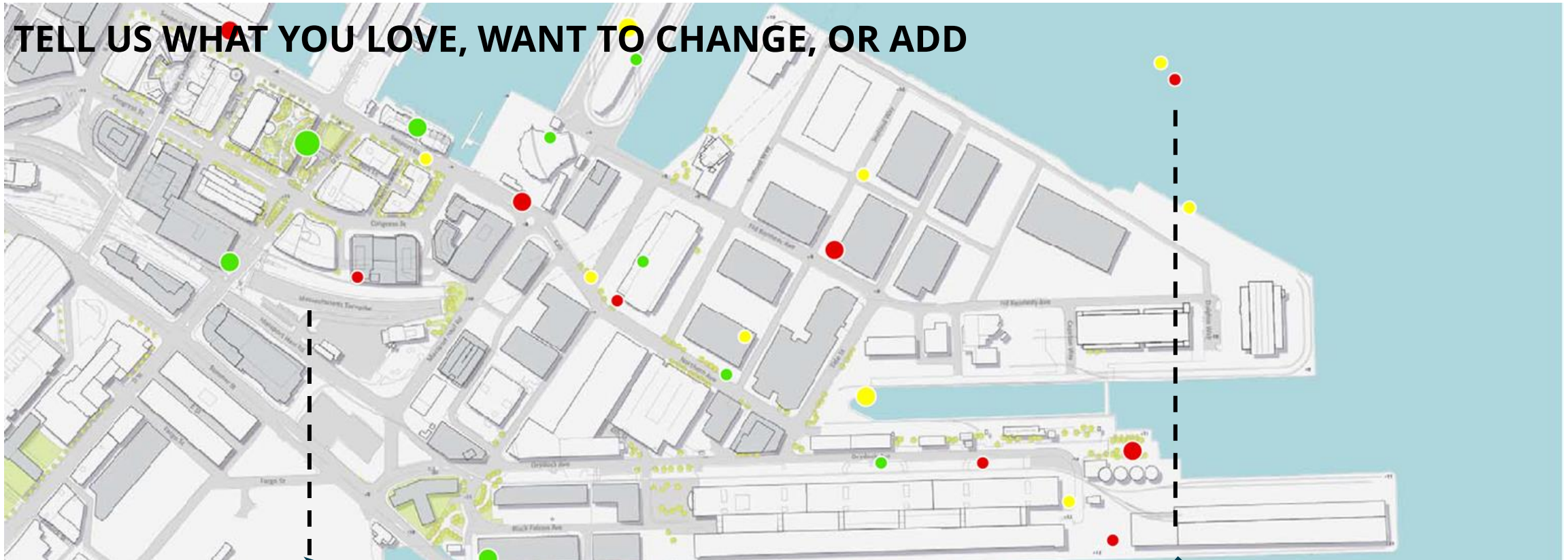


FOCUS GROUP 2 - MARINE INDUSTRIAL PARK

Inc. Boston Freight Terminals, BPDA, Cargo Ventures/Millennium Partners, Eversource, Jamestown Developers, Legal Seafoods, Marine Business Park Association, MassDevelopment, Massport, Pembroke RE, Skanska, Stavis Seafoods

What We Heard

- = something you love
- = something you want to change
- = something you want to add



Existing truck routes must be preserved.

The Cruiseport and other maritime, commercial, and industrial uses in the area are a great economic engine.

Serious risks involving large oil tankers. Better awareness and protections.

What We Heard

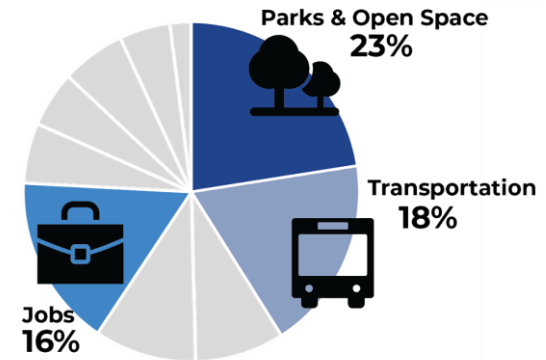
Over the course of the CRS South Boston Project, we engaged the Marine Industrial Park through multiple open houses, an online survey, and two focus group meetings. Throughout those engagements we heard...

- Solutions cannot suppress current planned or existing economic activity and uses
- Existing and potential ship to shore connections must be considered for any resilience design
- Businesses in the Marine Industrial Park are not likely to have resources to contribute to a major solution
- Tenants must be engaged as stakeholders in the decision-making process

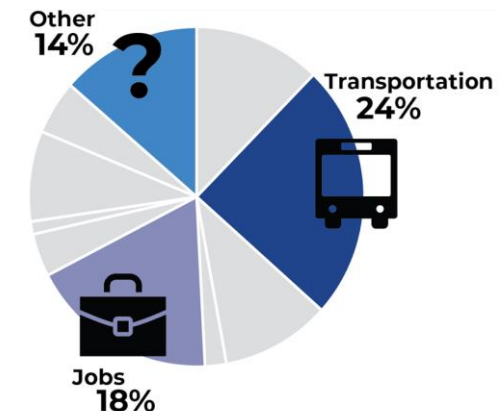
Are there additional priorities we should be considering?
Are there other concerns we should be aware of?

MARINE INDUSTRIAL PARK PRIORITIES

RESIDENT PRIORITIES



NON-RESIDENT PRIORITIES

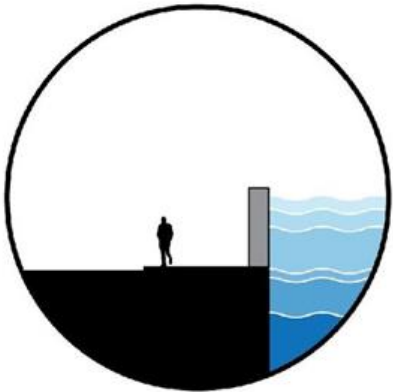


Respondents were asked to choose up to two top priorities for improvement. The above pie chart percentages indicate top categories selected for Marine Industrial Park.

Coastal Resilience Design Toolkit

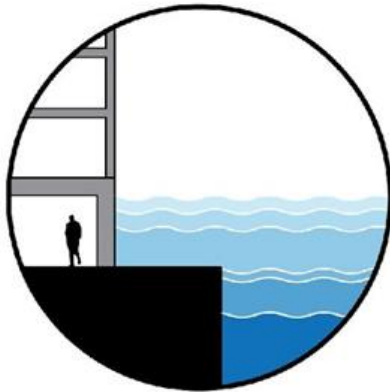
Multiple coastal resilience approaches were considered.

1. VERTICAL SEAWALL



- 1A. VERTICAL SEAWALL
- 1B. BRIDGE RAILING MODIFICATION
- 1C. PEDESTRIAN TIDAL GATE

2. WATERTIGHT BUILDINGS / STRUCTURES



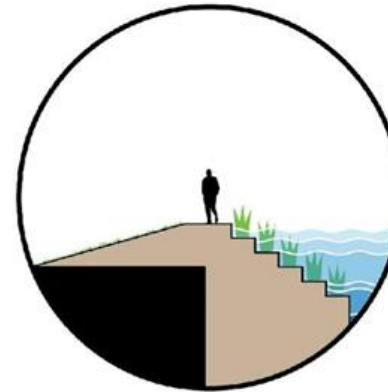
- 2A. FLOOD IMPROVEMENTS TO BUILDINGS / STRUCTURES
- 2B. RAISED FUTURE BUILDING PAD

3. RAISED HARBORWALK / PARKSPACE



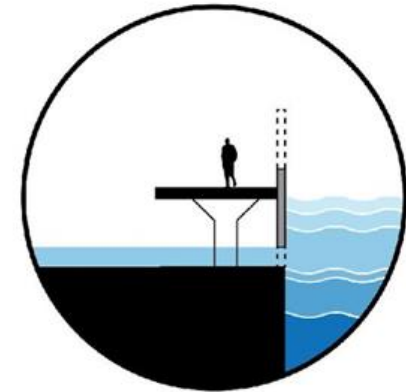
- 3A. RAISED HARBORWALK / PARK LEVEE
- 3B. RAISED ROADWAY GRID

4. CONSTRUCTED GROUND



- 4A. CONSTRUCTED LAND HARBORWALK / PARK LEVEE
- 4B. CONSTRUCTED BARRIER
- 4C. CONSTRUCTED SALT MARSH TERRACES
- 4D. CONSTRUCTED SAND DUNES

5. TRANSPORTATION / NAVIGATION

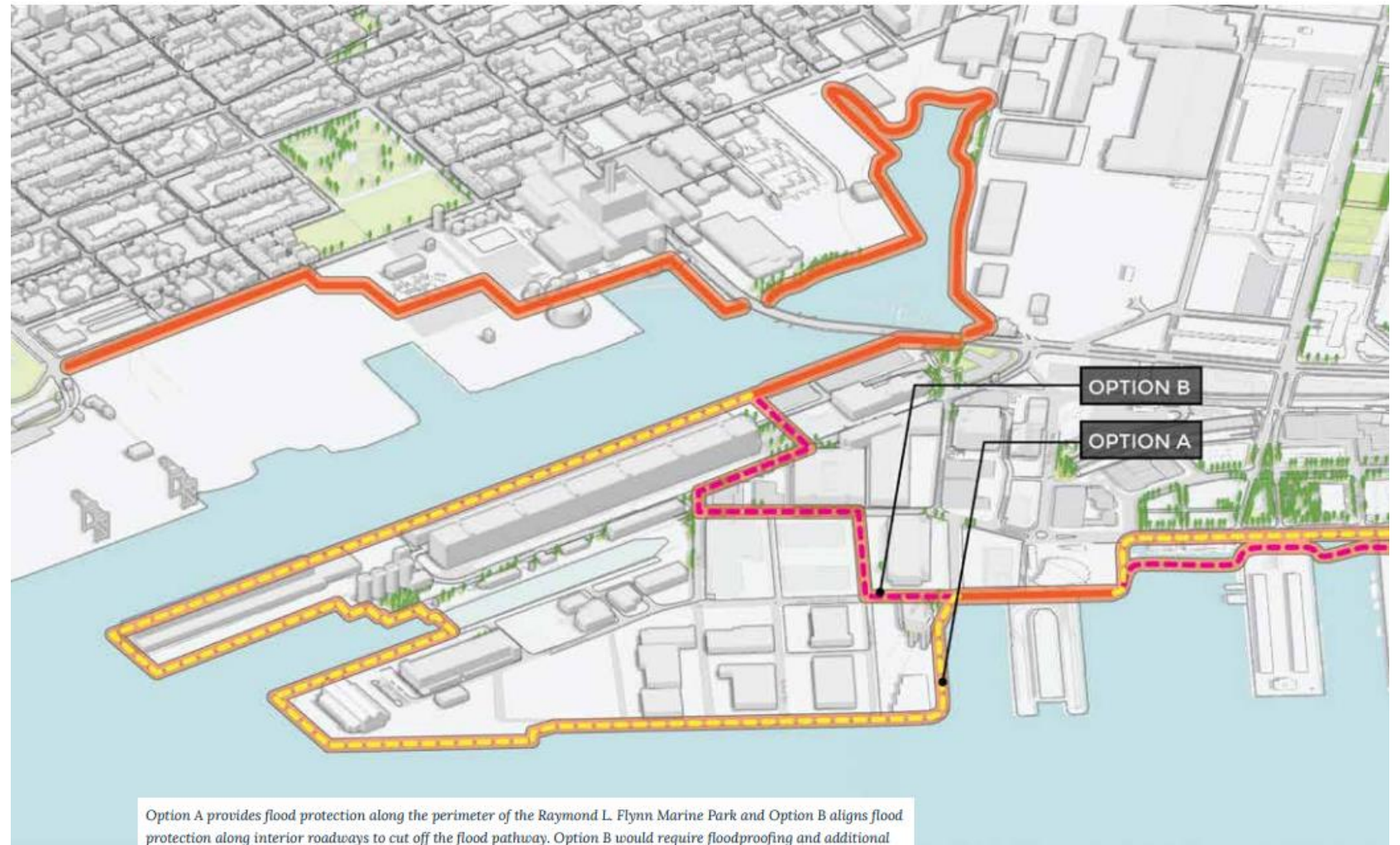


- 5A. NEW HARBORWALK OVER WATER
- 5B. NAVIGATIONAL TIDAL GATE / BARRIER SYSTEM
- 5C. NAVIGATIONAL TIDAL GATE AT RECREATIONAL MARINA
- 5D. VEHICULAR TIDAL GATE

RLFMP: Mid-term and Long-term Coastal Resilience Solutions

Option A: Flood protection along the perimeter of the Raymond L. Flynn Marine Park and Reserved Channel

Option B: Flood protection interior to the Marine Park with the Right-of-Way



04

Project Scope & Timeline

Moving Towards Implementation

With input from stakeholders like you, this project will advance and refine the protection options proposed during Coastal Resilience Solutions for South Boston. At the conclusion of this project, a preferred option will be selected, and an implementation plan and design package will be developed.

Refined Risk and
Vulnerability Analysis

Detailed Conceptual
Designs and Feasibility
Assessment

Identification of
Preferred Protection
Option and Development
of Design Package

Our Approach

We Are Here



Ongoing Coordination with BPDA and other Key Stakeholders

How You Will be Engaged

- Stakeholder Project Intro Webinar
- Site Visit #1: Existing Conditions
- Preliminary RFI

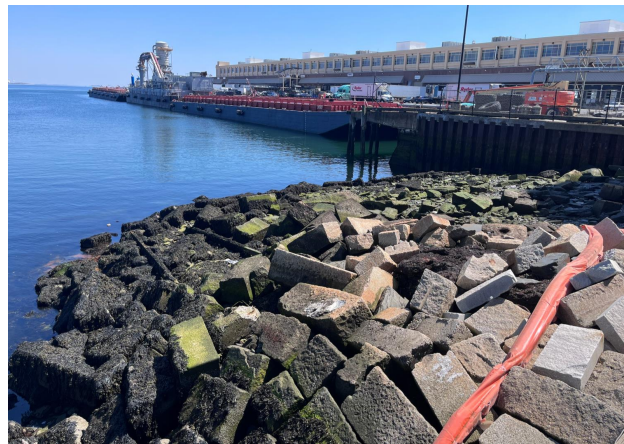
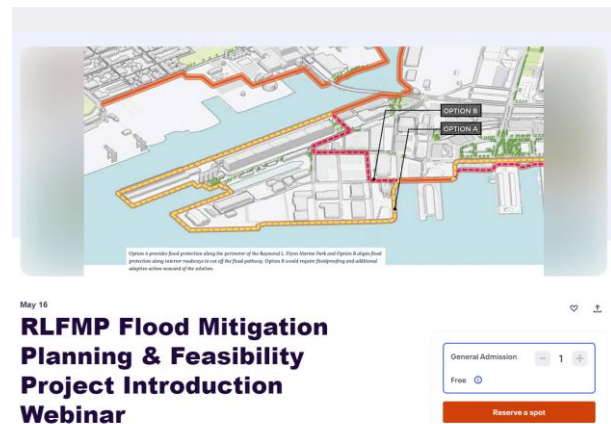
- Small-scale Meetings & Site Walks
- Follow-Up RFI
- Climate Ready Boston Proposed Solutions Webinar

- Workshop #1: Determining Preferences
- Site Visit #2: Understanding Planned Resilience Projects and Preferences

- Workshop #2: Implementation Planning for the Preferred Solution

Engagement with you will be integral to the process

Over the course of this project, we will be engaging BPDA staff, long-term tenants of RLFMP, the Boston Marine Park Business Association, Seaport Transportation Management Association, Massport, MassDOT, Eversource and others through:



WEBINARS (2)

SITE VISITS (2)

SMALL-SCALE MEETINGS & SITE WALKS

WORKSHOPS (2)

Through this engagement we'll ask questions like...

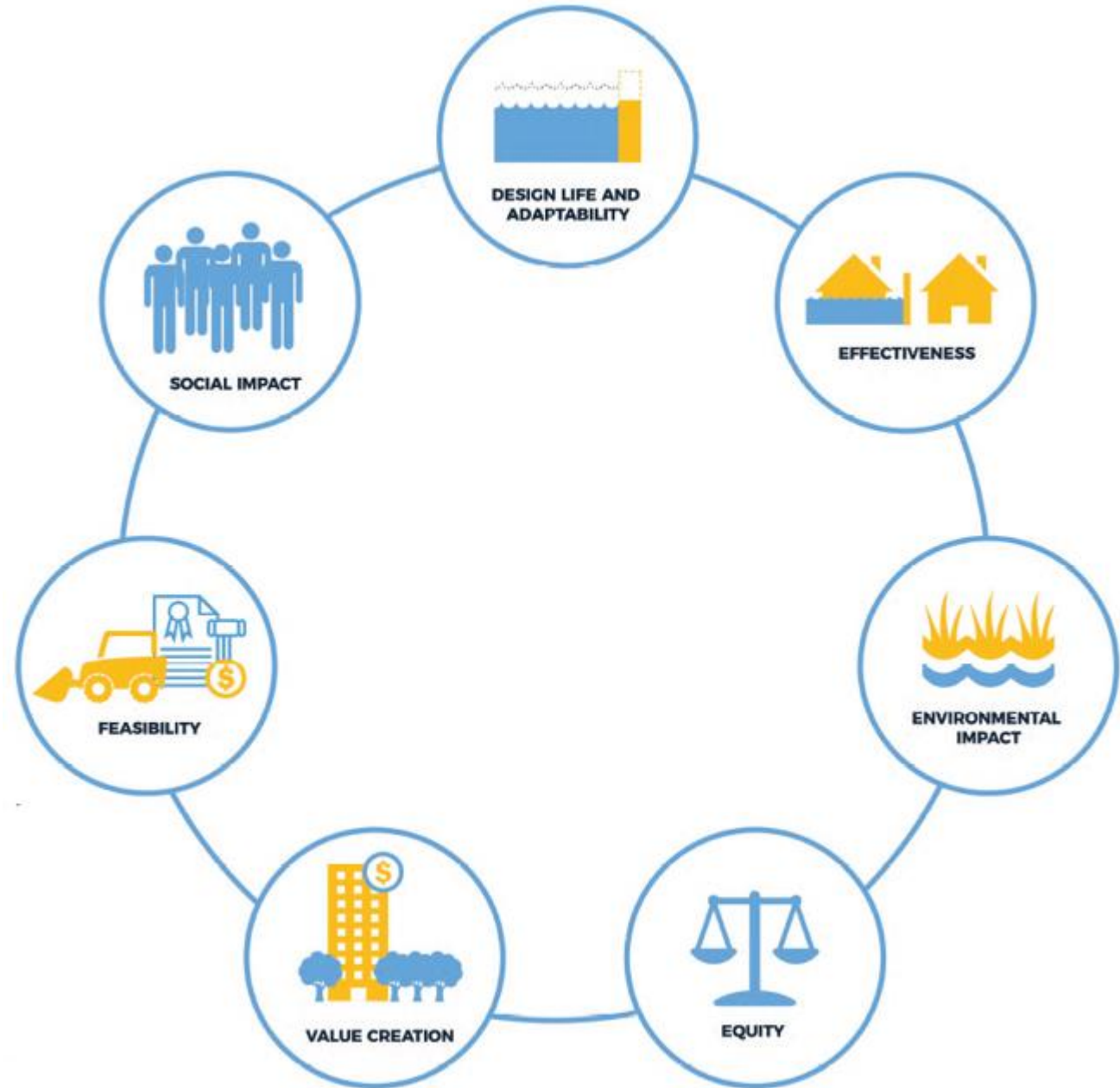
- Has your site experienced flooding in the past? Were there damages?
- Has your site implemented any flood mitigation projects?
- Are there planned flood resilience projects for your site?
- Are there known impediments to reducing flood risk at your site?
- What should we consider when evaluating flood protection alternatives?
- What trade-offs are important to consider for your business and operations?
- Which flood protection alternative do you prefer and why?
- In implementing the preferred alternative, what challenges may your business or operations face?

Are there other points of contact we should be in touch with to help answer these questions?

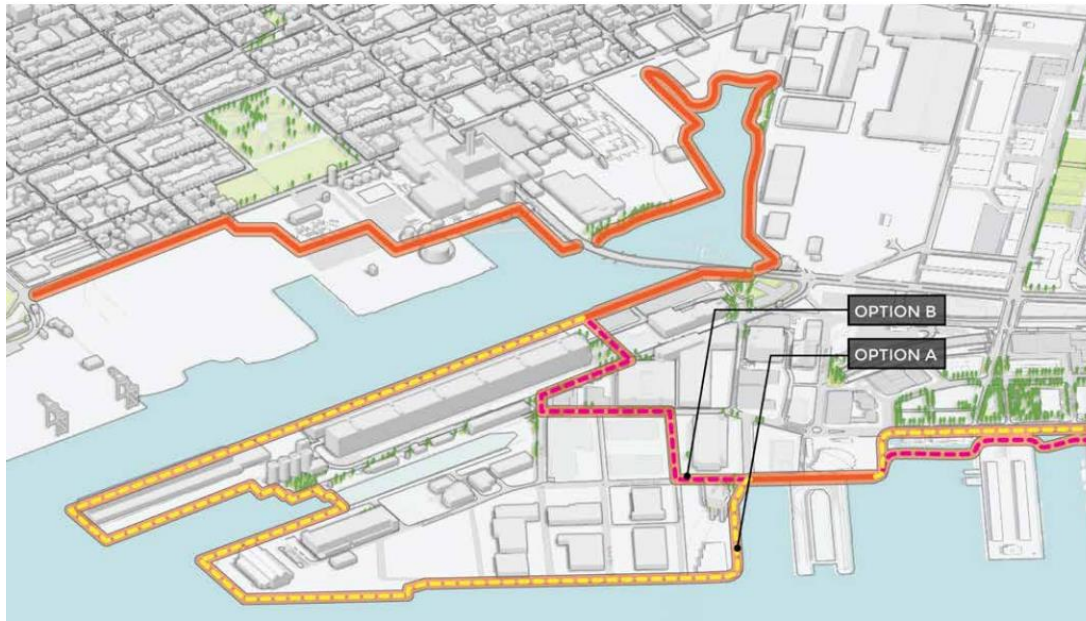
How Should Flood Protection Options be Evaluated?

Through Climate Ready South Boston, Options A and B were evaluated based on the following criteria:

- Effectiveness
- Feasibility
- Design life and adaptability
- Environmental benefits
- Social impact
- Equity
- Value Creation



Evaluation Criteria Performance



Evaluation Criteria Performance

Effectiveness	● ● ● ● ●
Environmental Impact	● ● ● ● ●
Design Life & Adaptability	● ● ● ● ●
Feasibility	● ● ● ● ●
Equity	● ● ● ● ●
Social Impact	● ● ● ● ●
Value Creation	● ● ● ● ●

- Key Considerations**
- Careful design is required to avoid disruption of current and planned waterfront uses
 - Potential operational disruption during construction of the flood protection solutions
 - Can be designed to address 40 inches of sea level rise now and may be adapted to address higher flooding later

Option A

Evaluation Criteria Performance

Effectiveness	● ● ● ● ●
Environmental Impact	● ● ● ● ●
Design Life & Adaptability	● ● ● ● ●
Feasibility	● ● ● ● ●
Equity	● ● ● ● ●
Social Impact	● ● ● ● ●
Value Creation	● ● ● ● ●

- Key Considerations**
- Potential points of failure if gates used to accommodate exit from area
 - Potential for significant operational disruption to the area during construction and/or additional accommodations on nearby properties likely to be required
 - Alternate actions would be needed to protect land uses on water side of the solution

Option B

As we move towards design and construction, what else should be considered?

- **Ease and timing of implementation** – Are there constructability, permitability or regulatory considerations? How can project implementation be phased?
- **Fit For Funding** – Does the proposed project meet requirements and performance standards of federal and state grant funding?
- **Alignment with Port Funding** – Does the proposed project provide opportunities to leverage federal funding available for port facility improvements?
- **Co-Benefits** – Does the proposed project provide co-benefits such as by incorporating nature-based solutions or enhancing mobility?
- **Integration with Business Needs** – Is the proposed strategy consistent with the needs of waterfront industries?
- **Others?**

05

Expected Outcomes & Next Steps

This project will result in preferred design project(s) and associated design documentation, cost estimates, and phasing plans.

Your Participation and Feedback Will...

Help our team incorporate planned and ongoing resilience projects

Inform our understanding of flood risks and evaluation of proposed protection options

Help develop a preferred solution that meets the needs of your business and operations

Project Schedule

Task	Months												
	March	April	May	June	July	August	Sept	Oct	Nov	Dec '23	Jan '24	Feb	March
Task 1 – Provide Initial Site Assessment			◆	□									
Task 2 – Collect & Synthesize Data					□	◆							
Task 3 – Establish Conceptual Design							▲	□					
Task 4 – Design Development									▲				
Task 5 – Final Report													

◆ Webinar ▲ Workshop □ Site Visit

Our first site visit is scheduled for **June 12**.

All dates tentative and subject to change

June 12 Team Site Visit

- Explore condition of existing protection or mitigation infrastructure
- Confirm known flood pathways and areas of flooding
- Confirm location of critical utilities and assets
- Visual inspection of waterfront conditions



What we need from you

- **Follow up questionnaire: Please share things our team needs to know about your business or site**
- **Requests for Information**

Questions & Discussion?

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Dolores Fazio

Dolores.Fazio@boston.gov

Thank You!
