

FLOOD MITIGATION PLANNING & FEASIBILITY AT THE RAYMOND L. FLYNN MARINE PARK

Open House



Thursday July 11, 2024



Planning Department

CITY of **BOSTON**

ZOOM TIPS - MEETING PARTICIPATION

Here are some tips on using Zoom for first-time users. Your controls are at the bottom of the screen:



Participants will be muted during the presentation.

The host will unmute you during the discussion if you raise your hand and it is your turn to talk.



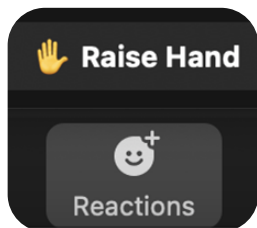
Click the video button to turn your video on/off.

If you experience connectivity or bandwidth issues, turning off your video can help.



Use the chat to type a comment or ask a question at any time.

Members of the Project Team will moderate the chat.



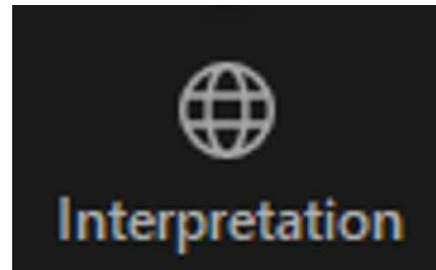
To raise your hand, click on “Reactions” at the bottom of your screen, and then choose “Raise Hand.”

Use *9 to raise your hand via phone.

LANGUAGE ACCESS

Interpretation is being provided for this meeting in Spanish

- Para la interpretación al español, por favor seleccione "**Spanish**"
- A project overview has been posted to the project webpage in English and Spanish



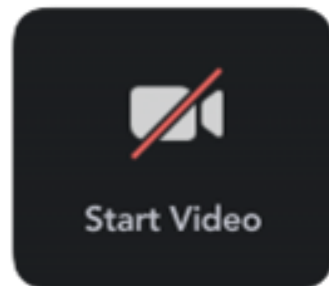
ZOOM TIPS - MEETING RECORDING

This event will be recorded and posted on the project webpage for those who are unable to attend the Zoom event live:

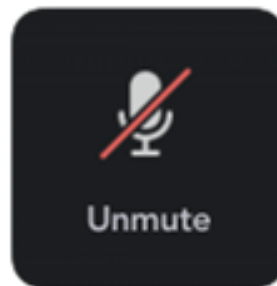
www.bostonplans.org/planning/planning-initiatives/raymond-l-flynn-marine-park-master-plan-update#summary

If you do not wish to be recorded during the meeting, please turn off your microphone and camera.

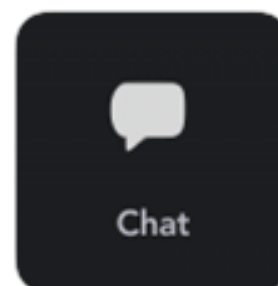
If your camera and microphone are off, you can still participate through the text chat feature.



Start Video



Unmute



Chat

FLOOD MITIGATION PLANNING & FEASIBILITY AT THE RAYMOND L. FLYNN MARINE PARK

Open House



Thursday July 11, 2024



Planning Department

CITY of BOSTON

MEETING AGENDA

- Introductions
- Project introduction
- Progress to date
- Flood risk analysis
- Options evaluations
- Next steps
- Questions and discussion

INTRODUCTIONS



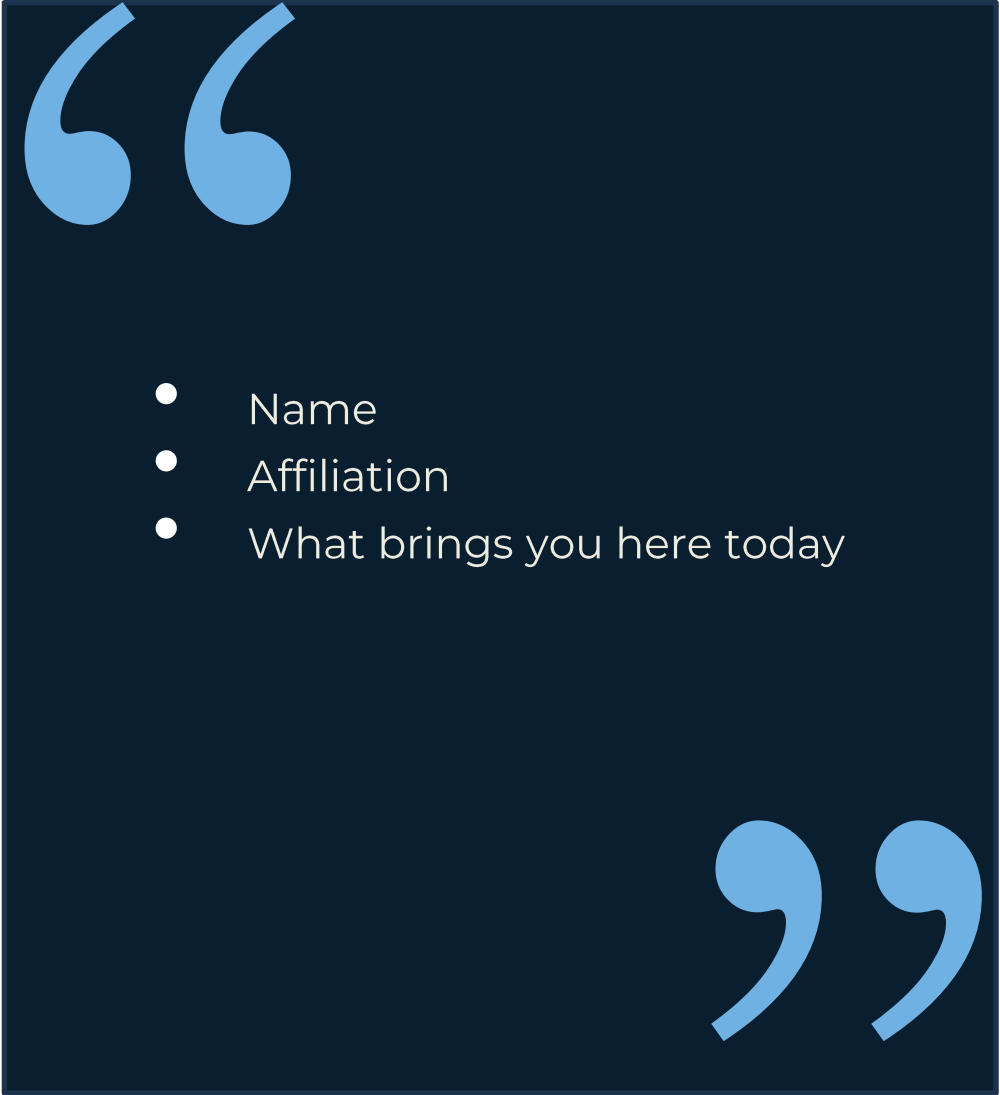


City of Boston
Planning Department



INTRODUCTIONS

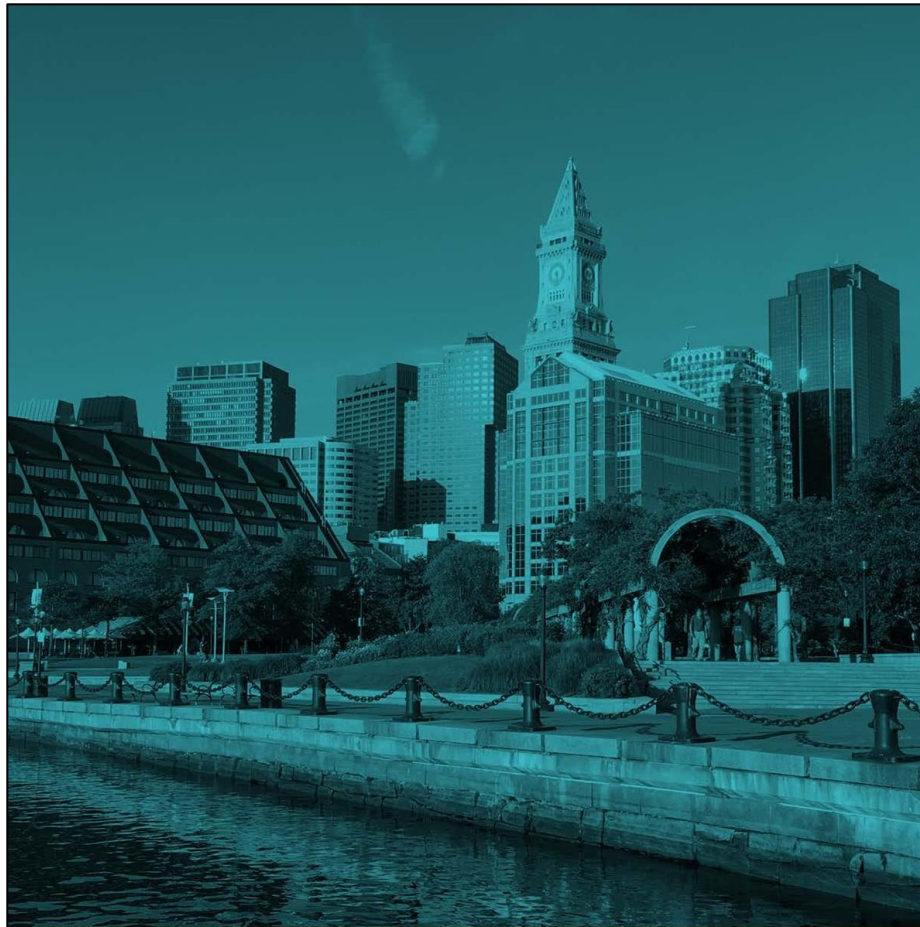
Please introduce yourself in the chat



- Name
- Affiliation
- What brings you here today

PROJECT INTRODUCTION

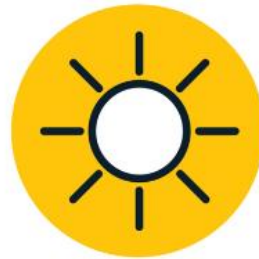




CLIMATE READY BOSTON EXECUTIVE SUMMARY

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.

**EXTREME
TEMPERATURES**



**HEAT WAVES &
DROUGHTS**

**EXTREME
PRECIPITATION**



**STORMWATER
FLOODING**

SEA LEVEL RISE

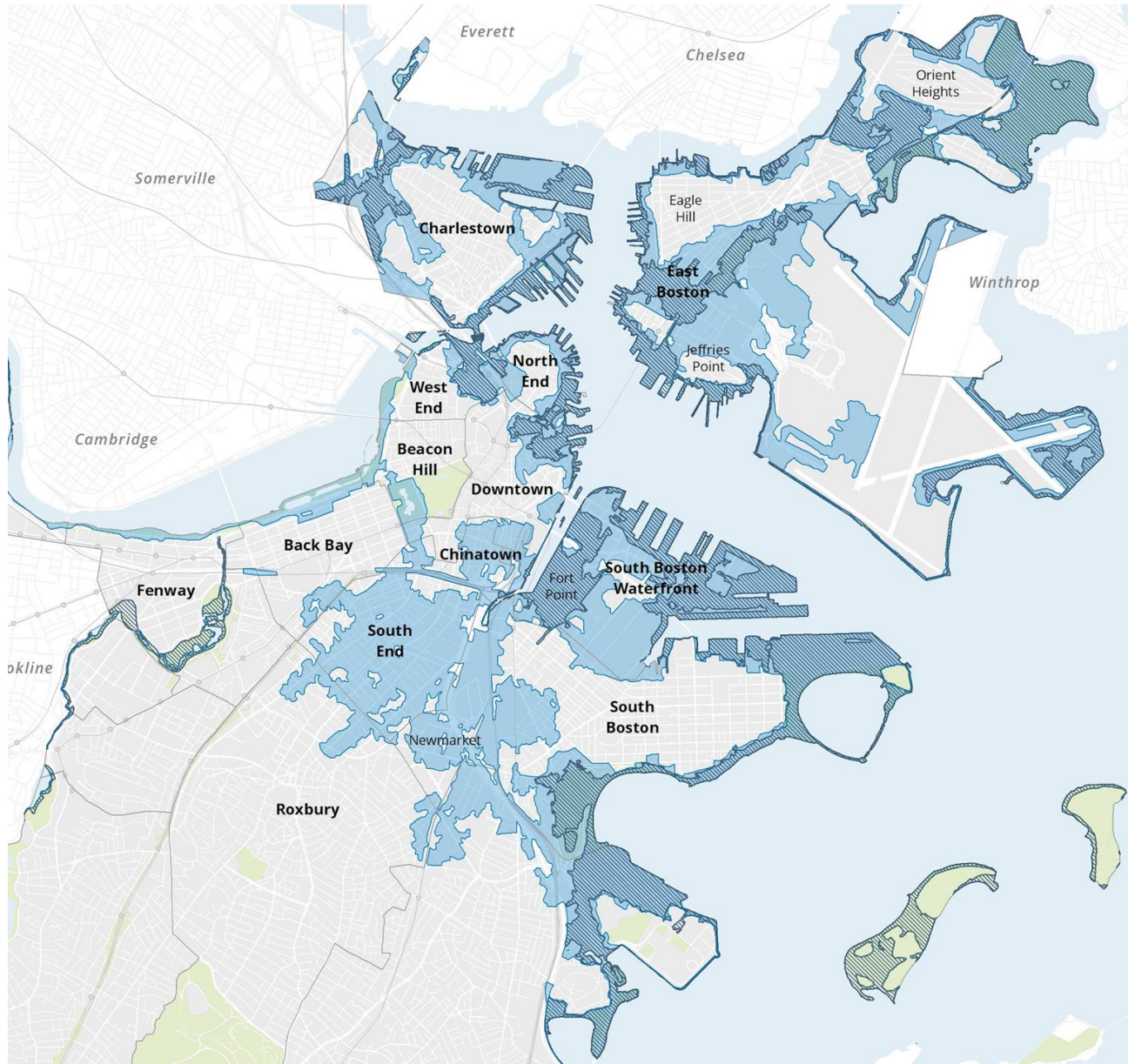


**COASTAL & RIVERINE
FLOODING**

**COASTAL
STORMS**



COASTAL FLOOD RISK

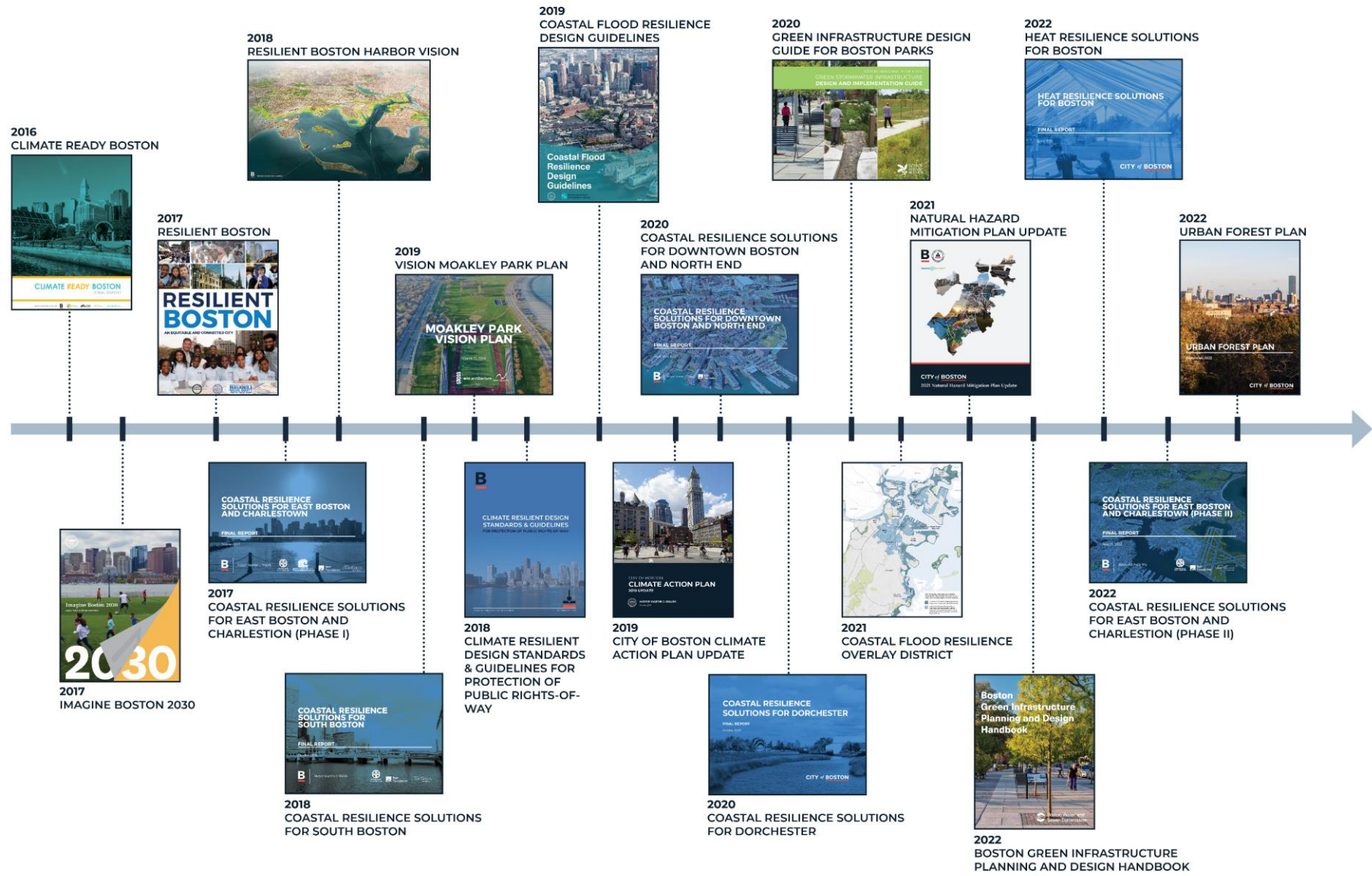


Projections indicate that Boston's sea levels are likely to rise (from 2013 levels) by approximately 9 inches as early as 2030, and approximately 36 inches as soon as 2070, plus an additional four inches of land subsidence.

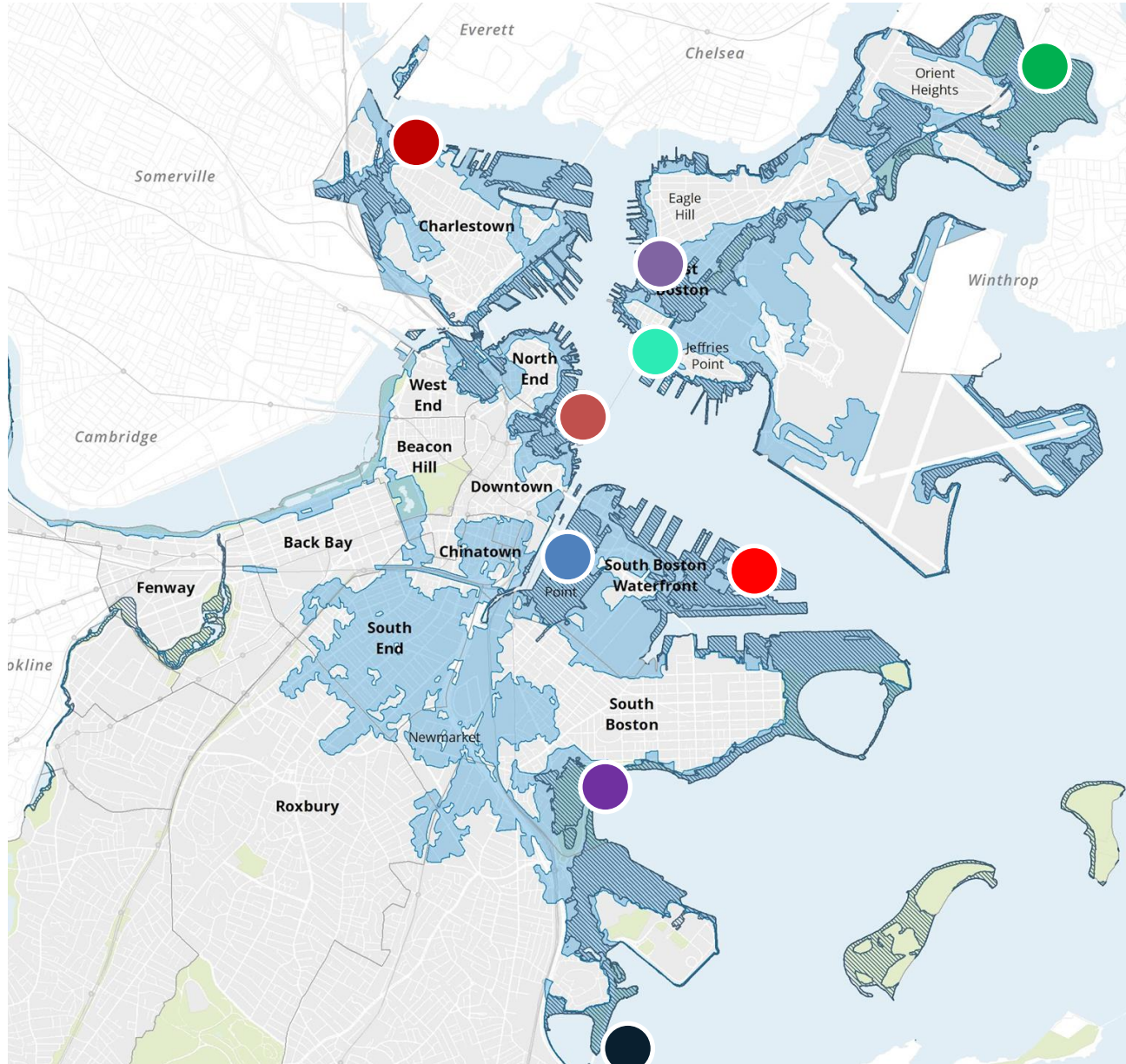
By 2070, we anticipate approximately 40 inches of sea-level rise across the City (or approximately 3 feet).

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

CITYWIDE CLIMATE RESILIENCE EFFORTS



PROJECTS UNDERWAY TO ADDRESS NEAR-TERM FLOOD PATHWAYS



- Long Wharf
- Fort Point Channel
- Border Street
- Carlton Wharf and Lewis Mall
- Ryan Playground
- Moakley Park and Connectors
- Bennington Street
- Tenean Beach / Conley Street
- Raymond L Flynn Marine Park

COASTAL RESILIENCE IMPLEMENTATION TIMELINE

**CLOSE THE URGENT FLOODPATH
IMPROVE THE NEIGHBORHOOD** **2030**

ACHIEVE COMPREHENSIVE COASTAL TRANSFORMATION **2070**

ADVANCE DESIGN/ENGINEERING AND CONSTRUCT NEAR-TERM PROJECTS

ALIGN WITH PARTNER PLANS

WORK WITH USACE ON DEVELOPING THE COASTAL STORM RISK MANAGEMENT PLAN

DELIVER USACE COASTAL STORM RISK MANAGEMENT PLAN

CONTINUE TO ADDRESS PERMITTING AND REGULATORY CHALLENGES

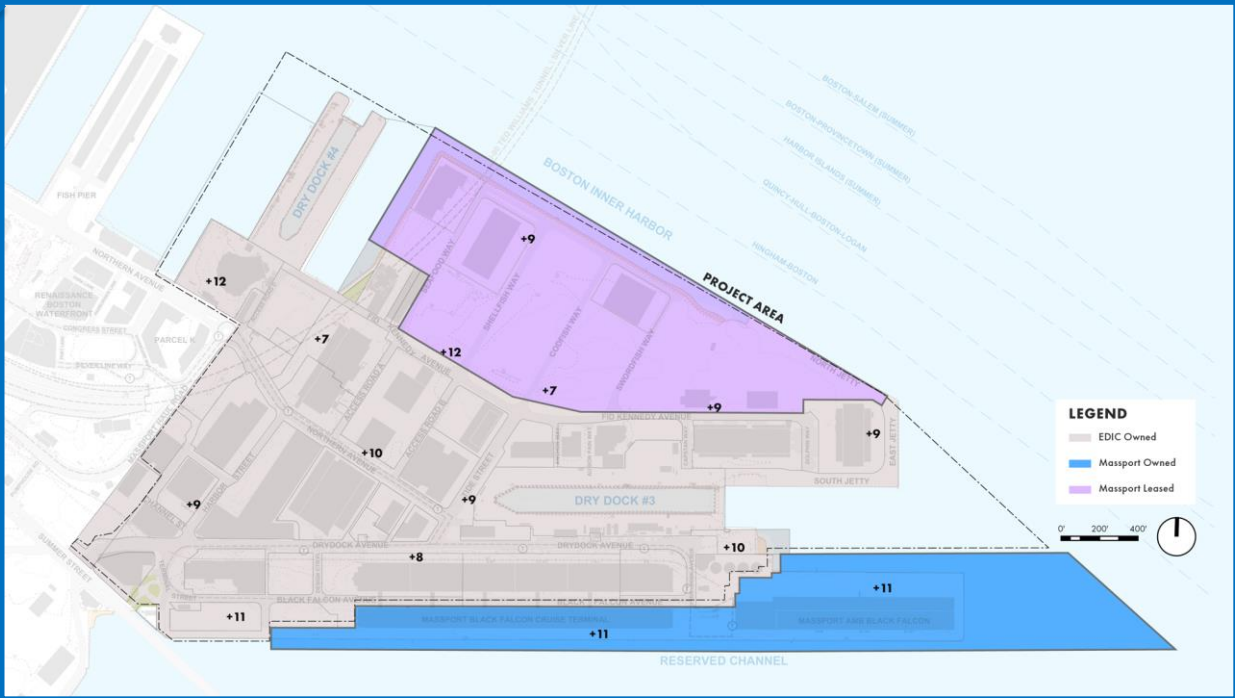
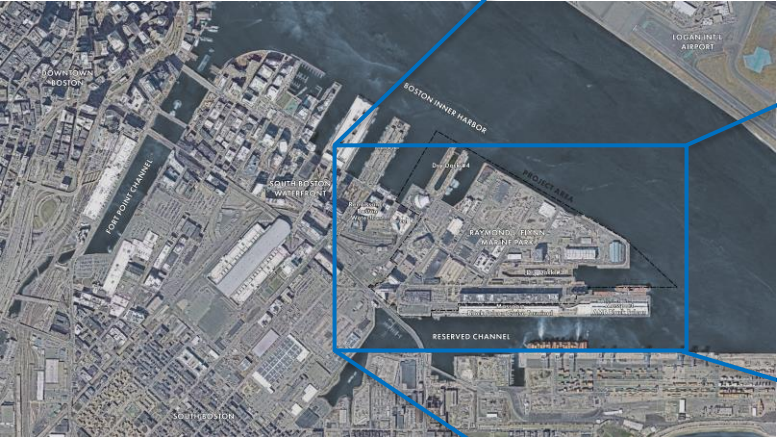
DEVELOP AND IMPLEMENT LONG TERM FINANCING ROADMAP

NEAR TERM

MID TERM

WORK WITH BUILDING OWNERS ON ADAPTATION THAT COMPLEMENTS DISTRICT SCALE STRATEGIES

PROJECT AREA



HISTORY OF RAYMOND L. FLYNN MARINE PARK

- **Late 19th Century** – mud flats begin to be filled
- **Early 20th Century** – Department of Defense acquires land, catalyzing industrial development
- **Post World War II** – decreased military activity
- **1970s** – Boston Economic Development and Industrial Corporation (EDIC) begins taking ownership

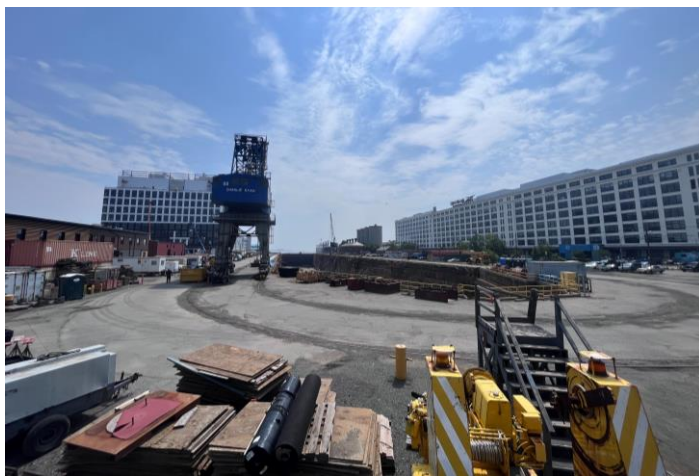
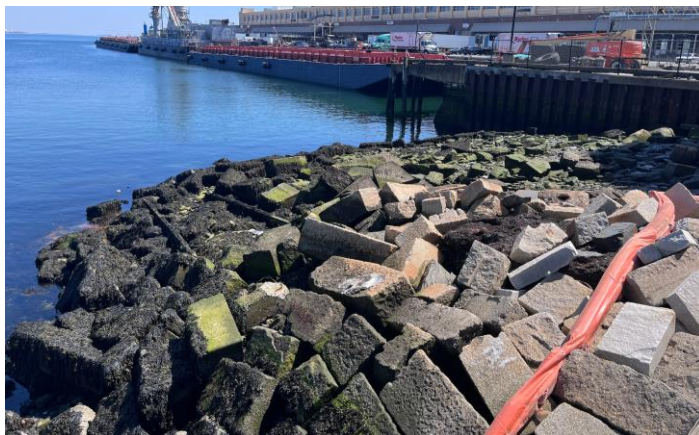


A postcard from 1935 features an illustration of an aerial view of the South Boston Army Base. The buildings now known as the Boston Innovation and Design Center are visible in the forefront of the site.

Image Source: Historic New England



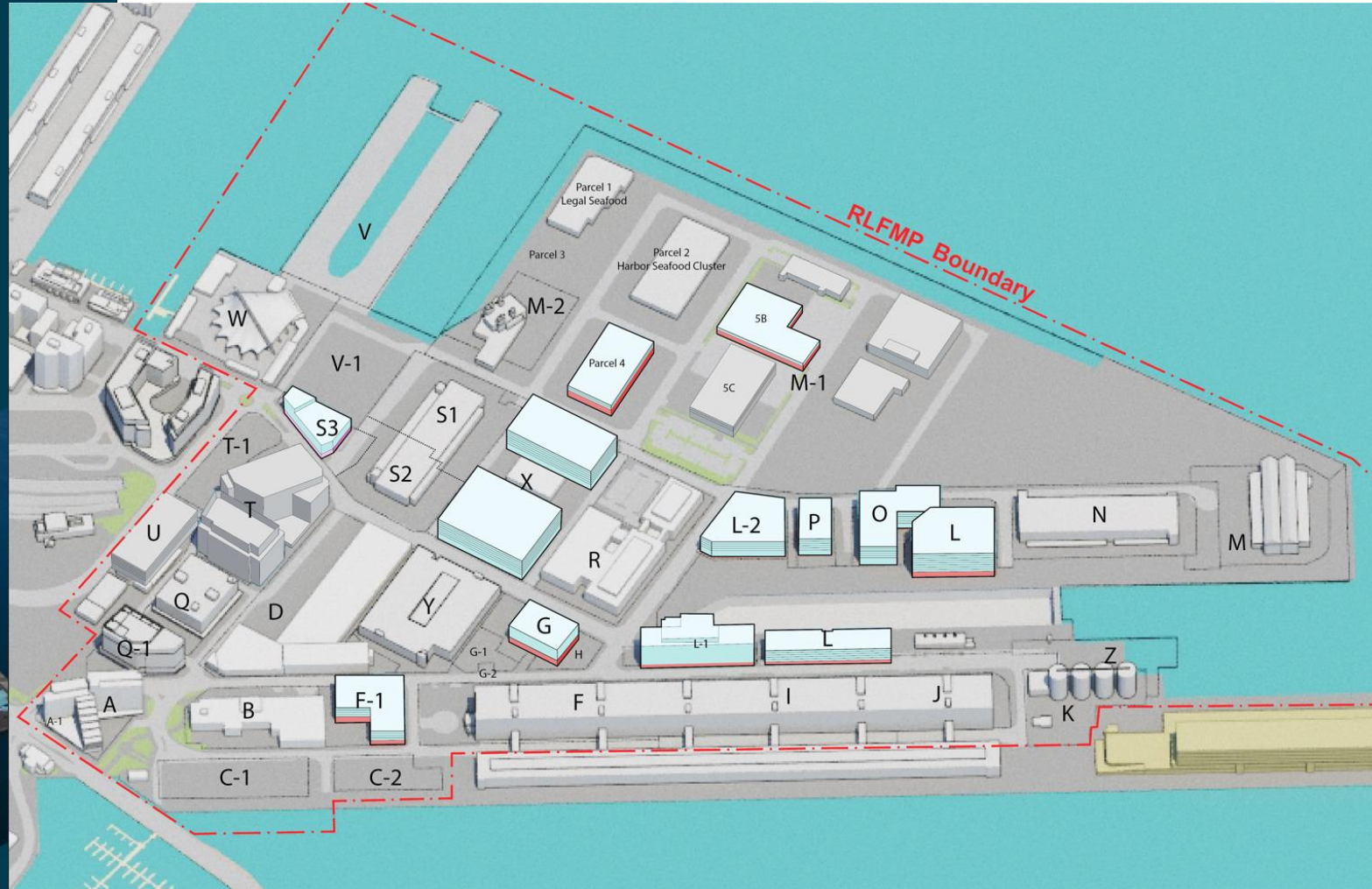
RAYMOND L. FLYNN MARINE PARK TODAY



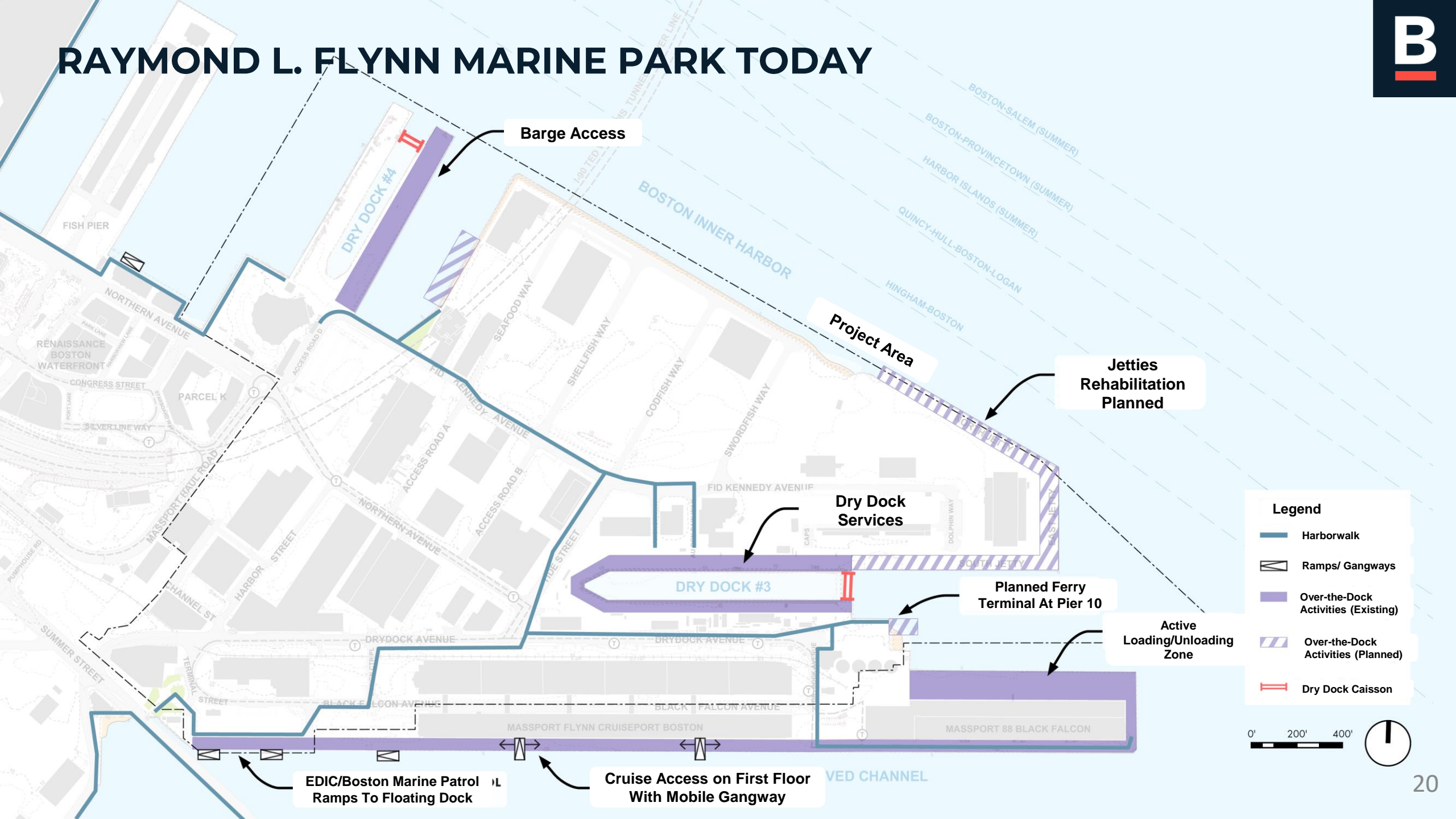


March 2017

Raymond L. Flynn Marine Park Master Plan Update

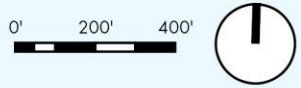


RAYMOND L. FLYNN MARINE PARK TODAY

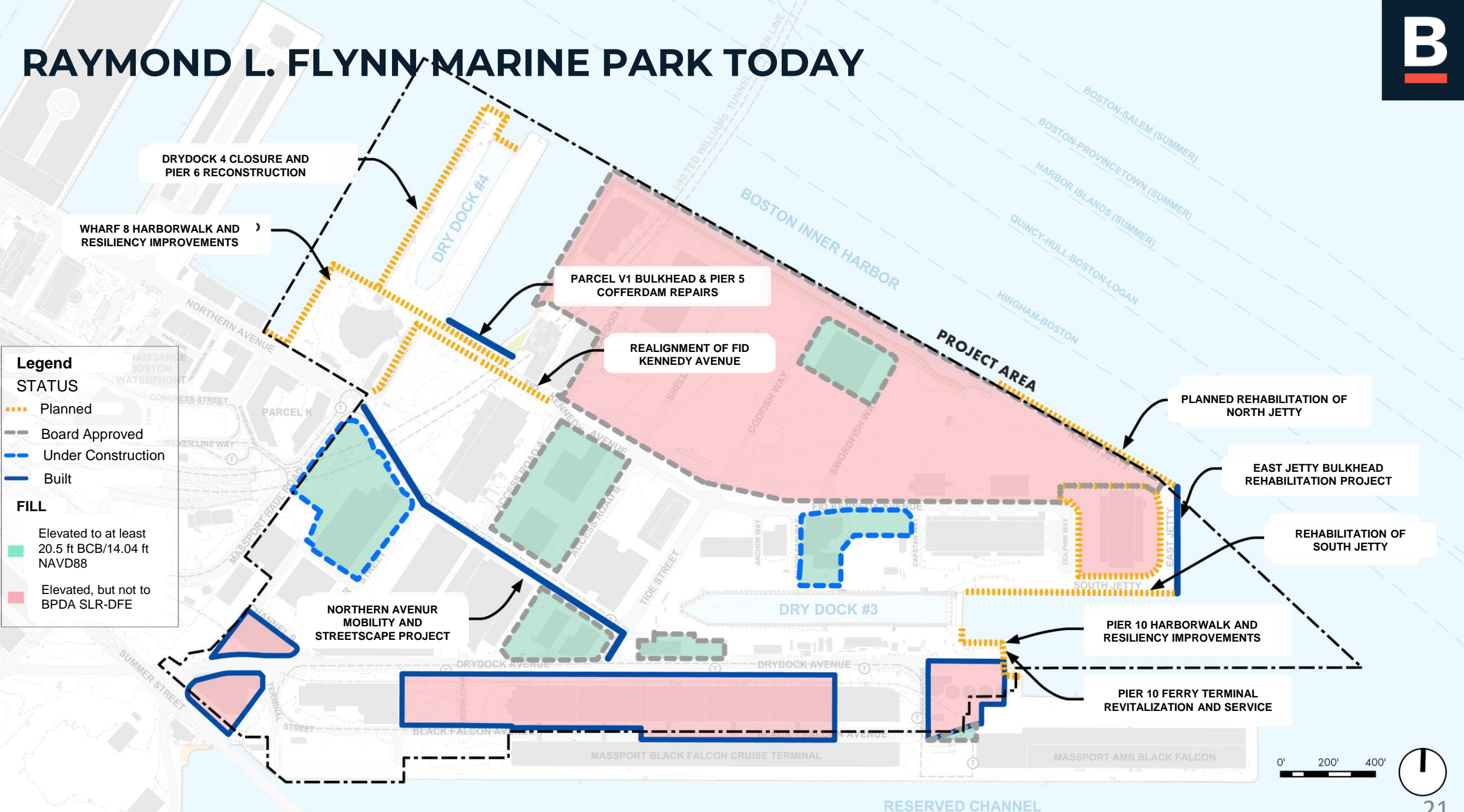


Legend

- Harborwalk
- Ramps/ Gangways
- Over-the-Dock Activities (Existing)
- Over-the-Dock Activities (Planned)
- Dry Dock Caisson



RAYMOND L. FLYNN MARINE PARK TODAY



Legend

STATUS

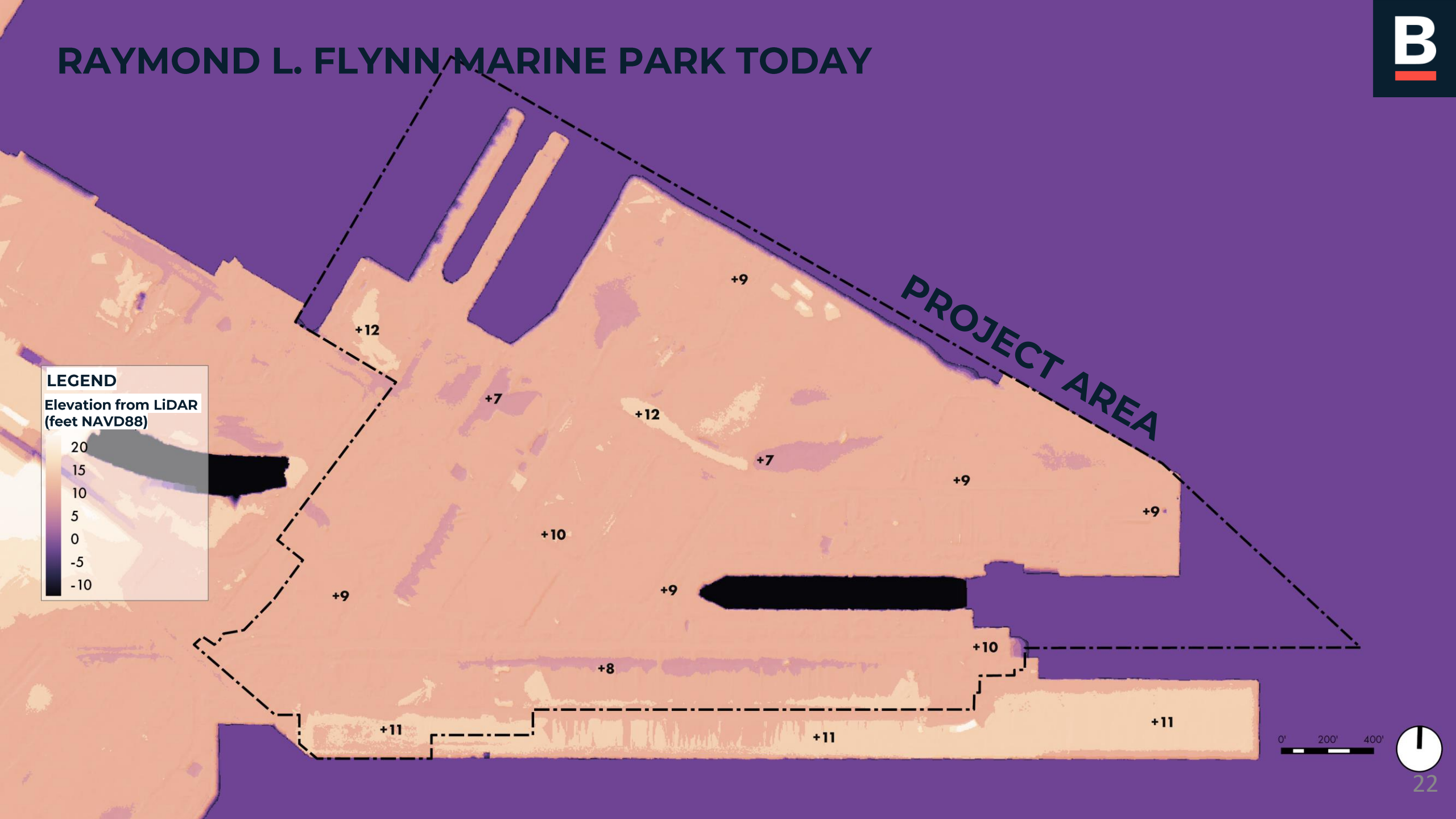
- Planned
- Board Approved
- Under Construction
- Built

FILL

- Elevated to at least 20.5 ft BCB/14.04 ft NAVD88
- Elevated, but not to BPDA SLR-DFE



RAYMOND L. FLYNN MARINE PARK TODAY



LEGEND

Elevation from LiDAR
(feet NAVD88)

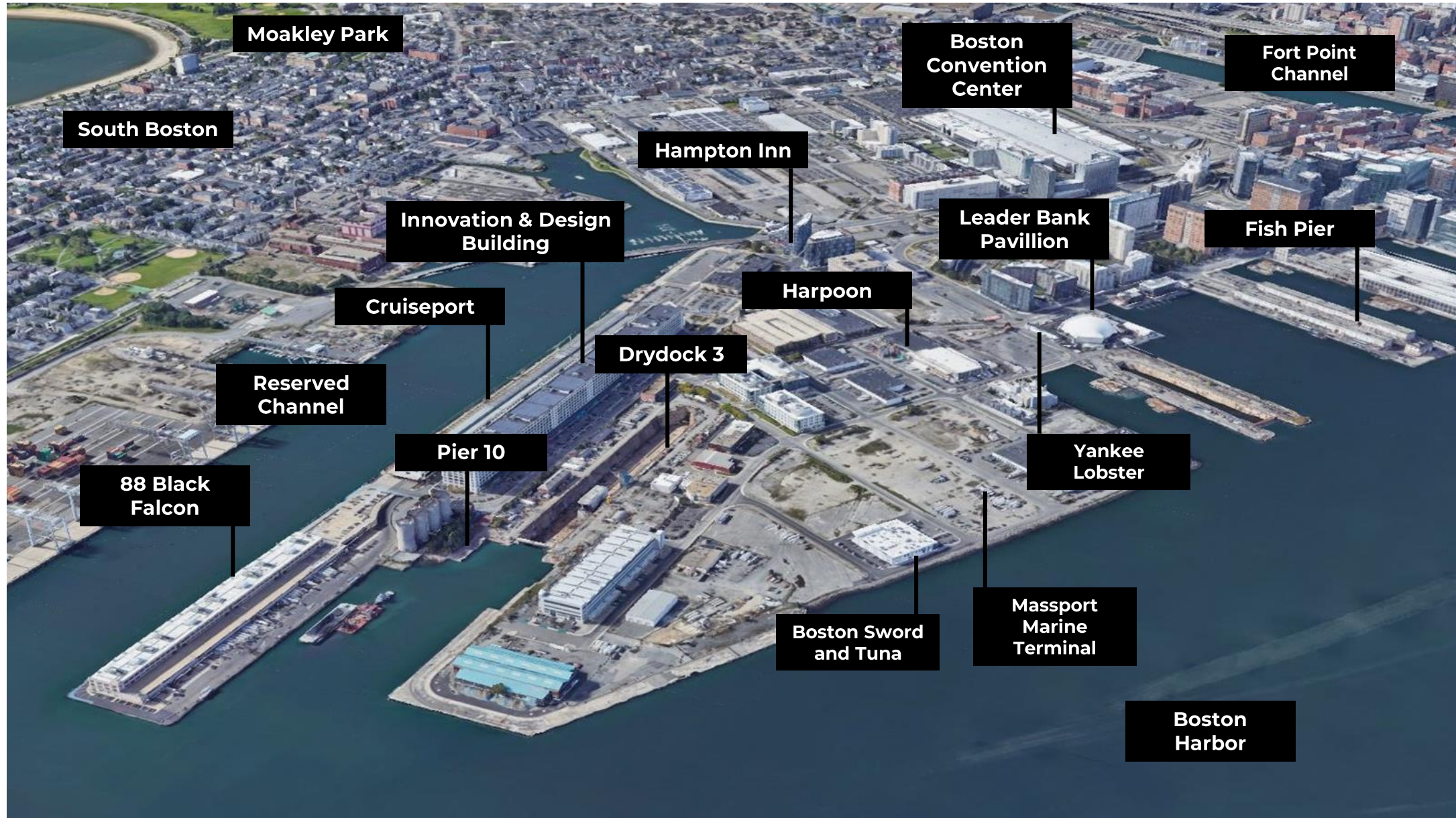
- 20
- 15
- 10
- 5
- 0
- 5
- 10

PROJECT AREA

0' 200' 400'



RAYMOND L. FLYNN MARINE PARK



GOALS OF THIS PROJECT



Refine our understanding of flood risks and benefits at RLFMP



Understand and incorporate ongoing flood mitigation efforts

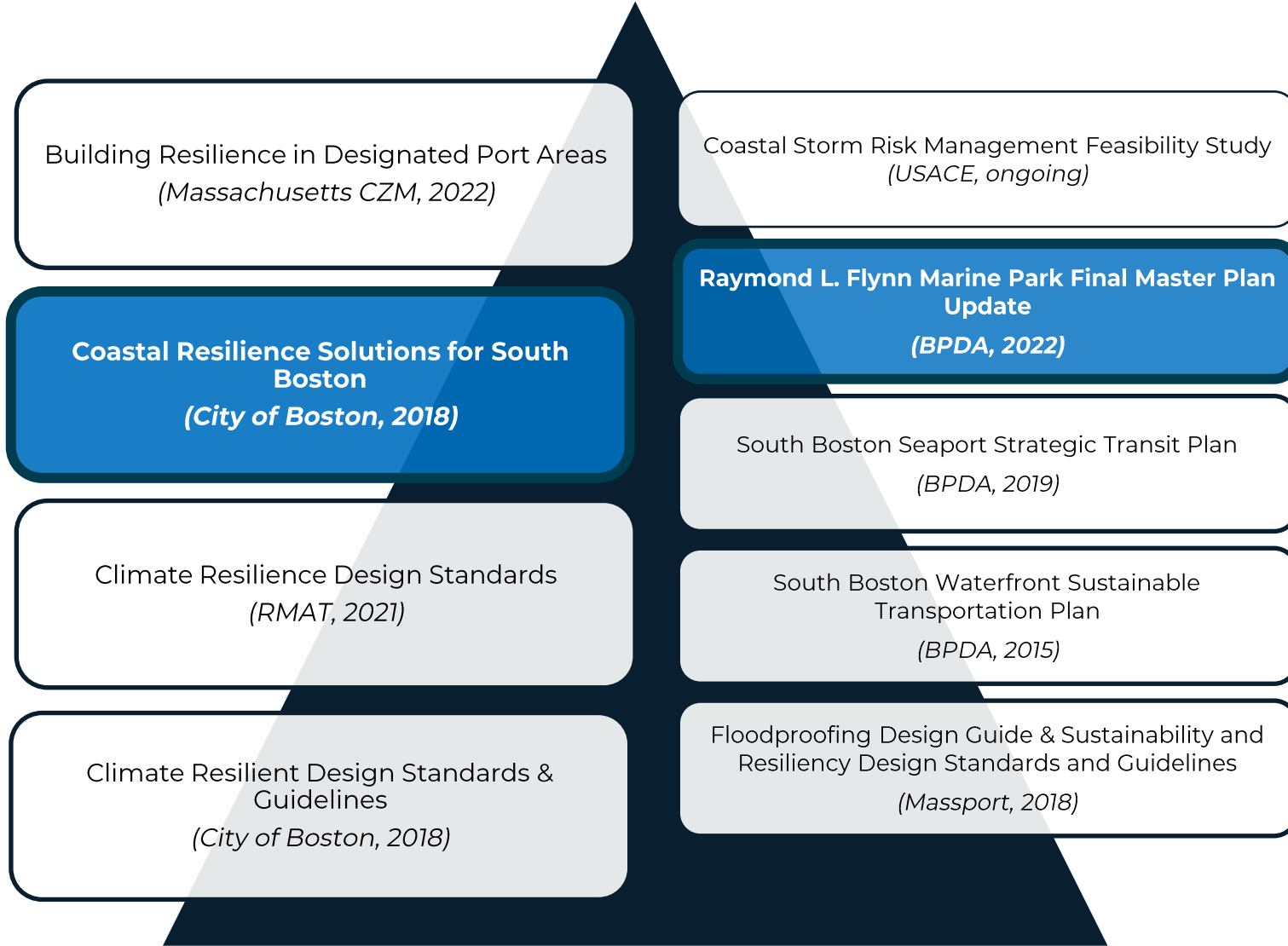


Understand operational and other considerations in implementing flood mitigation in RLFMP

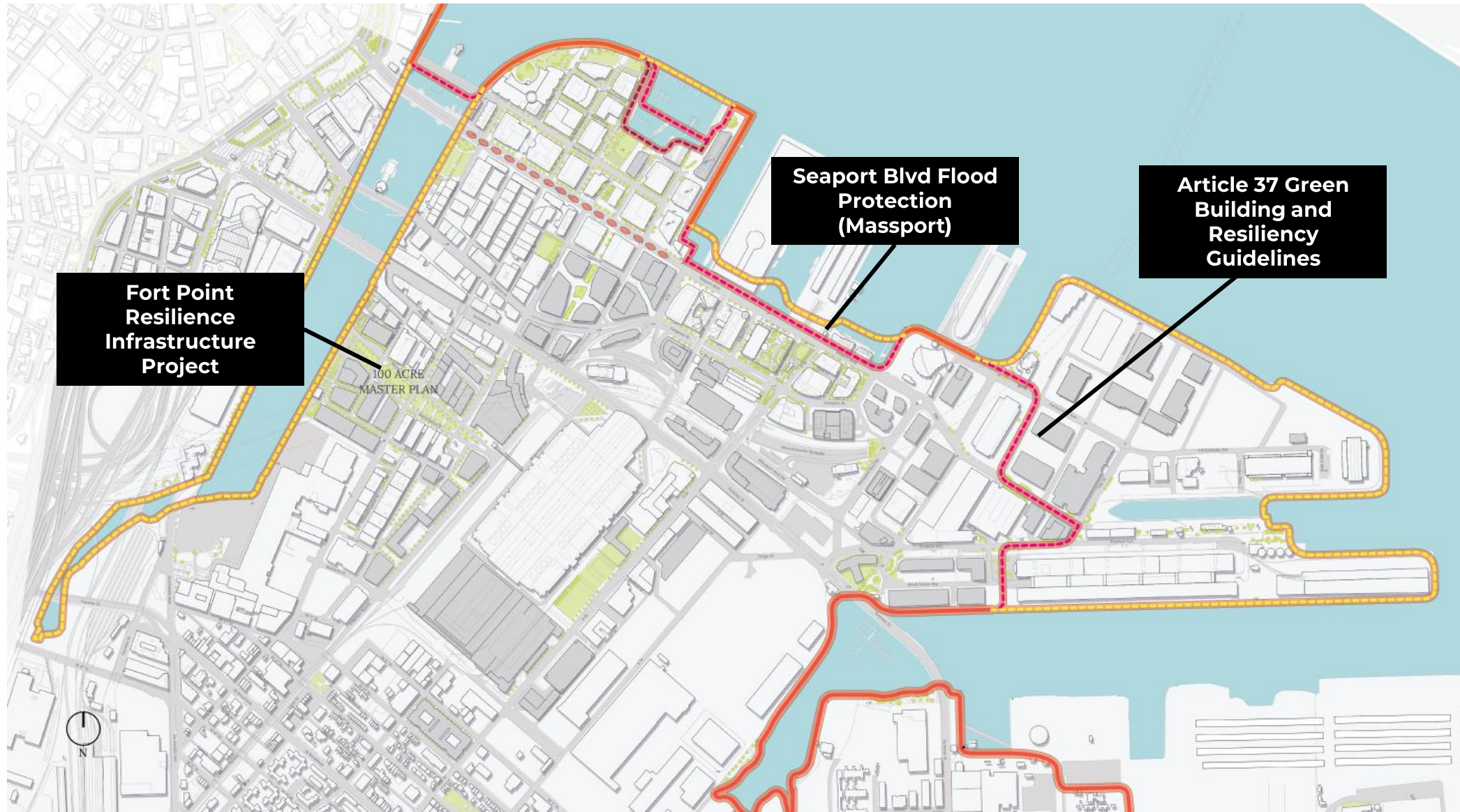


Identify and develop design of a preferred long-term flood mitigation option

BUILDING ON PRIOR PLANS AND GUIDELINES



INTEGRATION WITH OTHER RESILIENCE PROJECTS



ARTICLE 37 – GREEN BUILDING AND CLIMATE RESILIENCY GUIDELINES

- All new construction within RLFMP is subject to Article 37 guidelines
- This means all major new building projects are planned, designed, constructed and managed to:
 - Minimize adverse environmental impacts
 - Conserve natural resources
 - Be resilient to climate change
 - Promote a more sustainable city, and
 - Enhance quality of life in Boston



South Boston Innovation Campus located at 2 Harbor Street

(source: Parcel T Project Development Notification)

PROGRESS TO DATE



PROJECT TIMELINE



Considered high-level concepts based on initial engagement and feasibility analysis conducted in 2017-2018

Developed and evaluated RLFMP-wide concepts, including additional variations on initial concepts

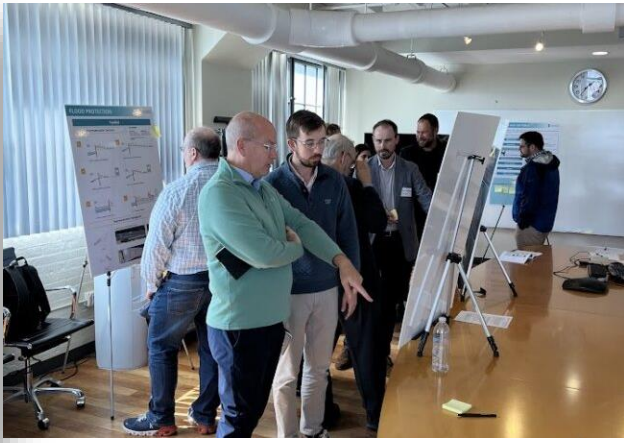
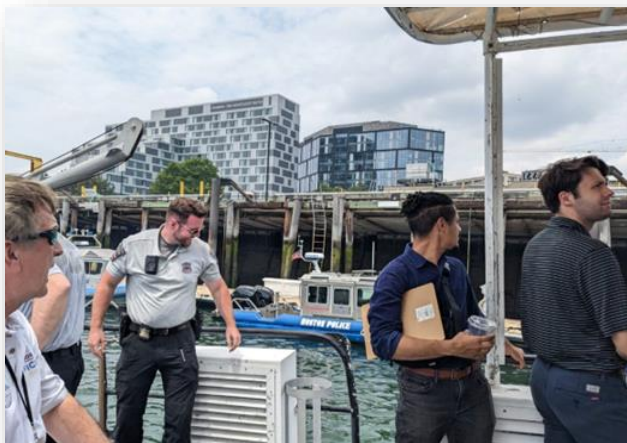
Refined conceptual design for recommended option(s) based on technical evaluation and stakeholder input

Develop schematic design package for selected option

ENGAGEMENT WAS CRITICAL TO THE DEVELOPMENT AND SELECTION OF A PREFERRED FLOOD PROTECTION DESIGN

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

boston planning & development agency May 31, 2023



WEBINAR

Introduce the project goals and process to stakeholders

SITE VISITS

Understand existing conditions and needs

OPEN HOUSE

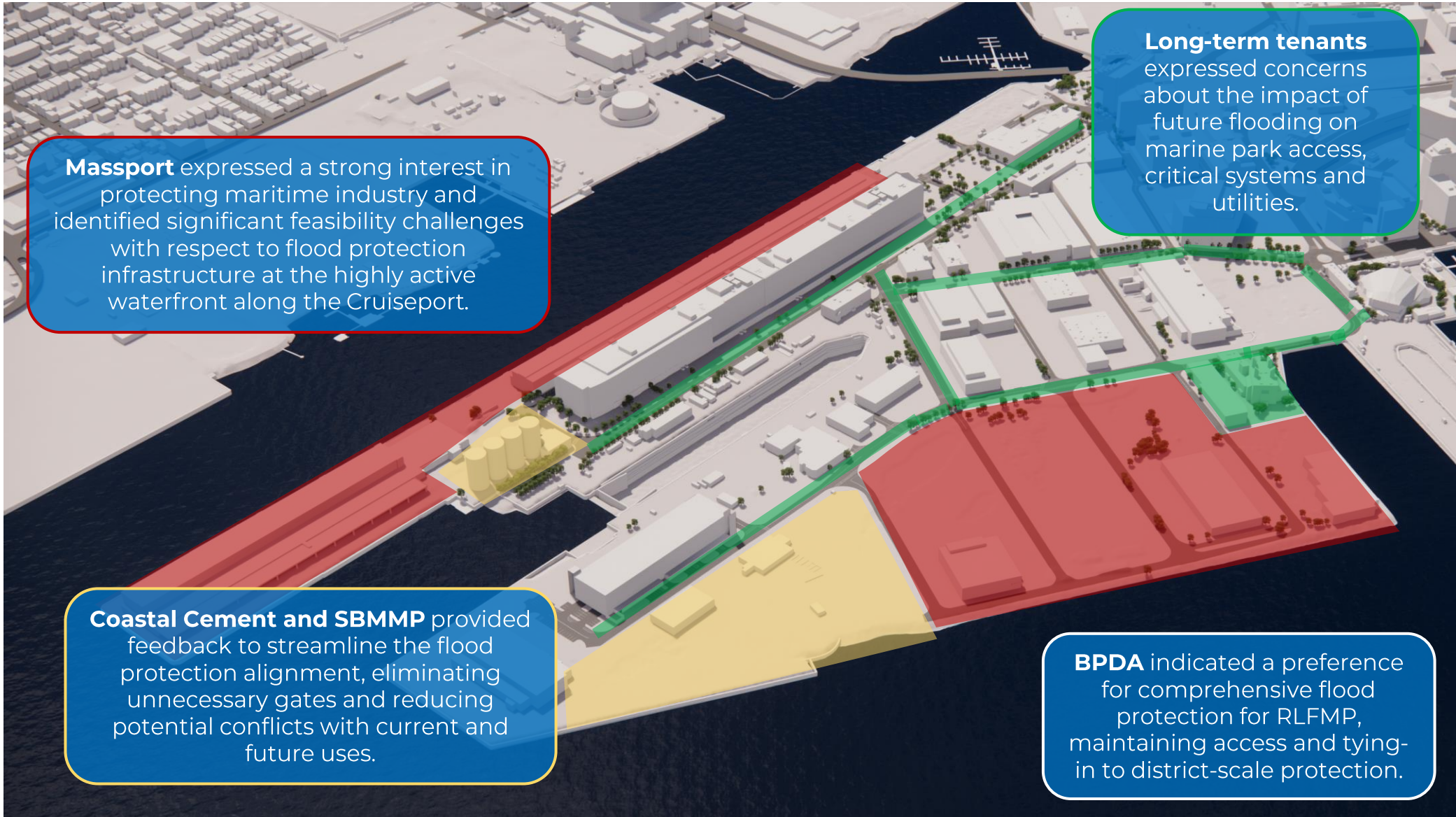
Understand detailed and site-specific preferences to refine concepts

FOCUSED DISCUSSIONS

Understand detailed and site-specific preferences to refine concepts

Thank you for your engagement throughout this process!

WHAT WE'VE HEARD FROM STAKEHOLDERS



Massport expressed a strong interest in protecting maritime industry and identified significant feasibility challenges with respect to flood protection infrastructure at the highly active waterfront along the Cruiseport.

Long-term tenants expressed concerns about the impact of future flooding on marine park access, critical systems and utilities.

Coastal Cement and SBMMP provided feedback to streamline the flood protection alignment, eliminating unnecessary gates and reducing potential conflicts with current and future uses.

BPDA indicated a preference for comprehensive flood protection for RLFMP, maintaining access and tying-in to district-scale protection.

FLOOD RISK ANALYSIS



WHERE DID WE CONSIDER FLOOD RISK?

Coastal flood risk analysis was carried out for two spatial extents, **the South Boston Waterfront neighborhood** and **the Raymond L. Flynn Marine Park project area**.

The Neighborhood Extent

- Encompassing areas of South Boston potentially impacted by flooding originating in RLFMP

The Project Area Extent

- Detailed analysis at Project Area-level to provide granular representation of risk
- Incorporates increased elevation of existing buildings, where known



HOW DID WE CONSIDER FLOOD RISK?

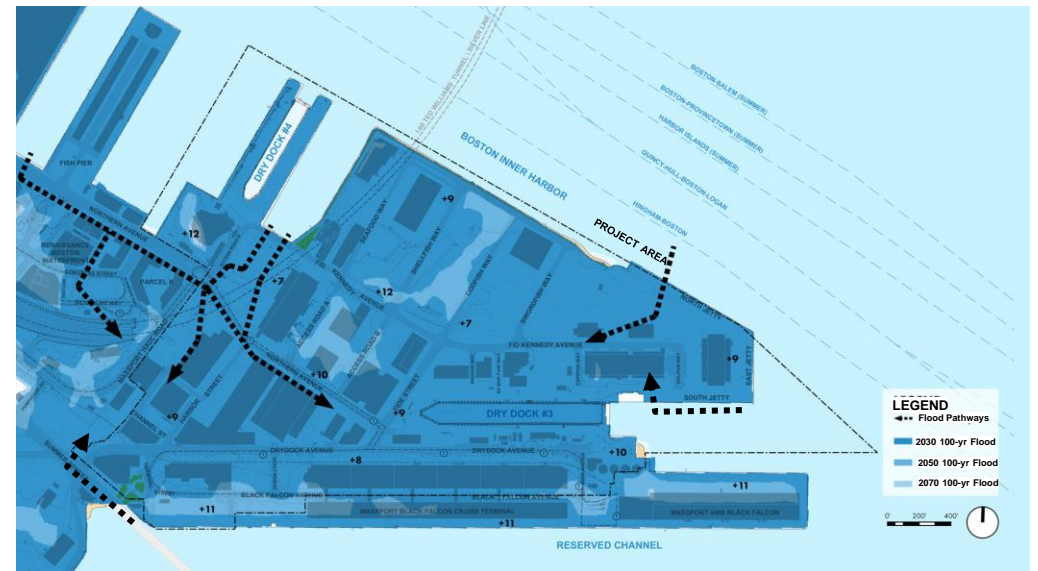
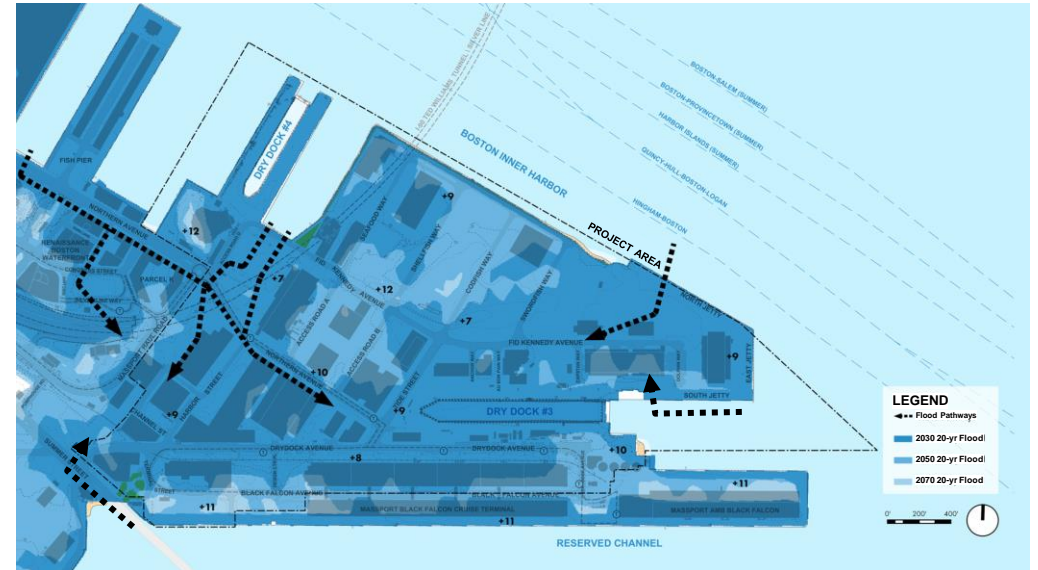
Four Time Horizons:

2023, 2030, 2050, and 2070

At these time horizons, **flood events with an annual exceedance probability of:**

- 5% (“20 Year Storm”)
- 2% (“50 Year Storm”)
- 1% (“100 Year Storm”)
- 0.5% (“200 Year Storm”)
- 0.2% (“500 Year Storm”)
- 0.1% (“1000 Year Storm”)

As well as **tidal flooding**



Flood Exposure (source: MC-FRM) 5% AEP (top) 1% AEP (bottom) 34

RLFMP, LIKE THE REST OF THE SEAPORT, HAS EXISTING SUBSTANTIAL FLOOD RISK, THAT WILL INCREASE IN THE FUTURE



Coastal Flooding by 2070 2023-2070 Cumulative Present Value of Risk, 2070 1% AEP Exposure

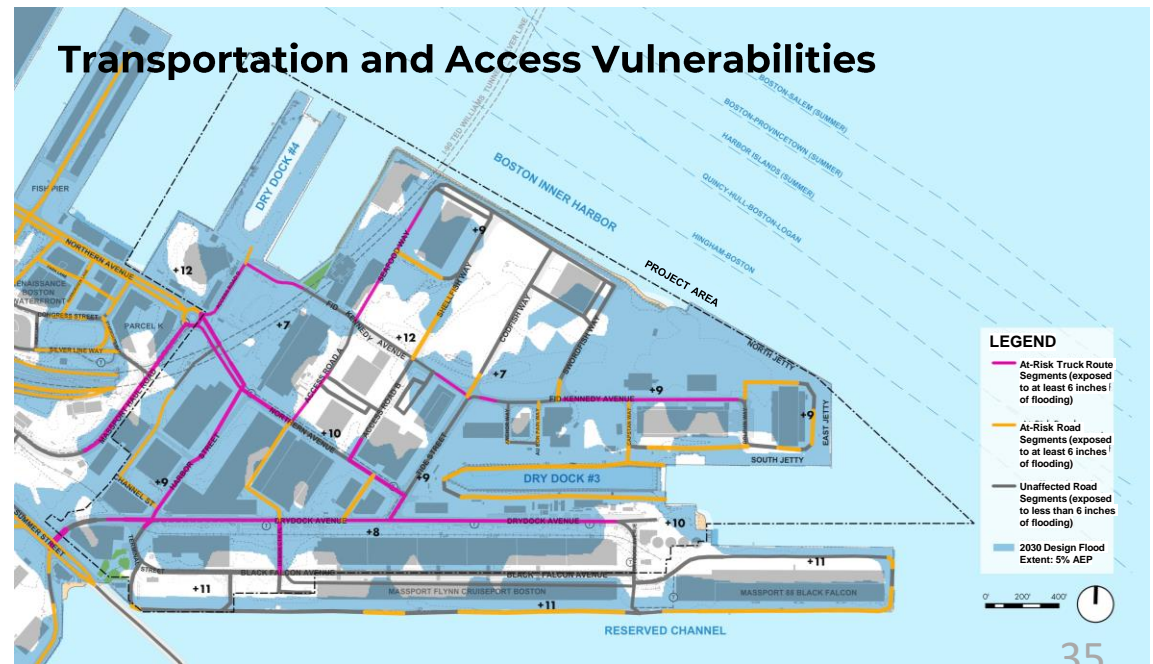
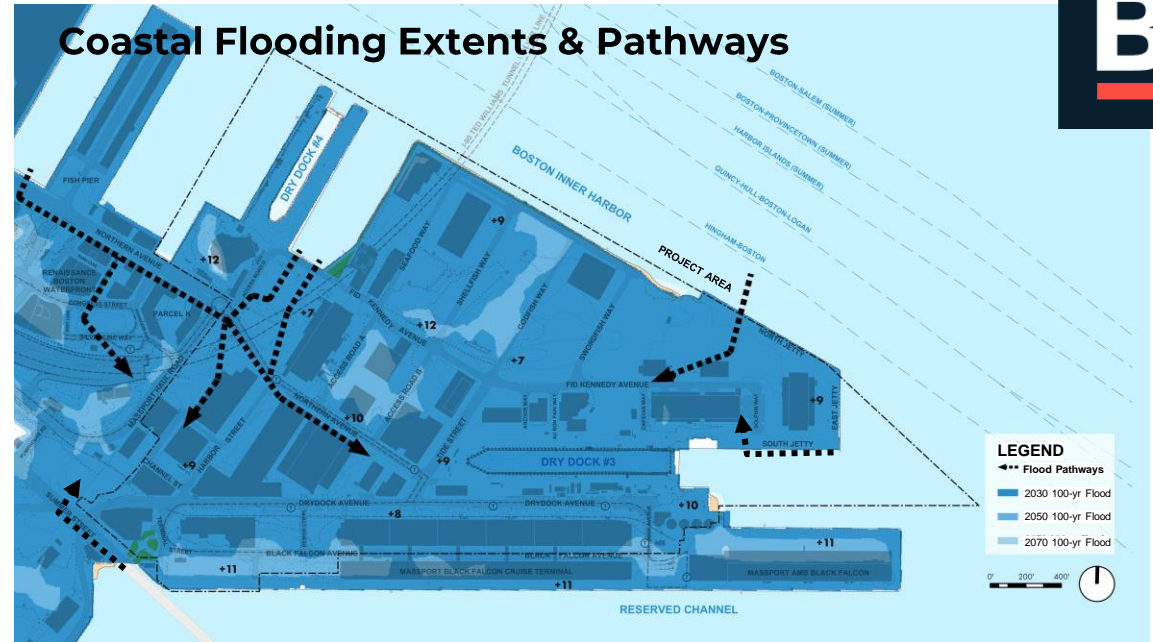
\$1.5 Billion
In expected losses

113 Buildings
Impacted out of 113 total buildings

0 Residents*
In impacted homes out of 0 residents

Results represent the cumulative present value of risk from 2020 through 2070 across only the RLFMP area, assuming a 3% discount rate

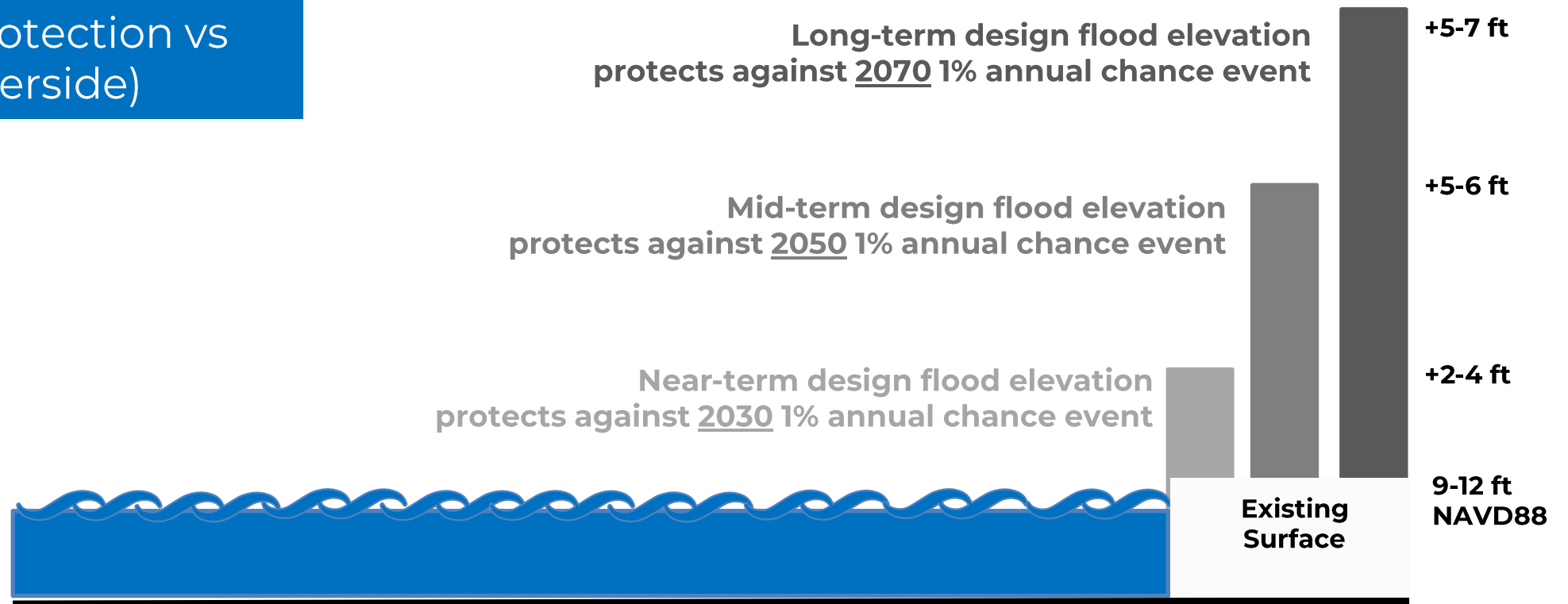
*There are no residential properties within the RLFMP Project Area, therefore no Census data is distributed to buildings in RLFMP. This does not account for the potential for workers or visitors to RLFMP to be exposed or impacted.



LEVELS OF PROTECTION

Key considerations:

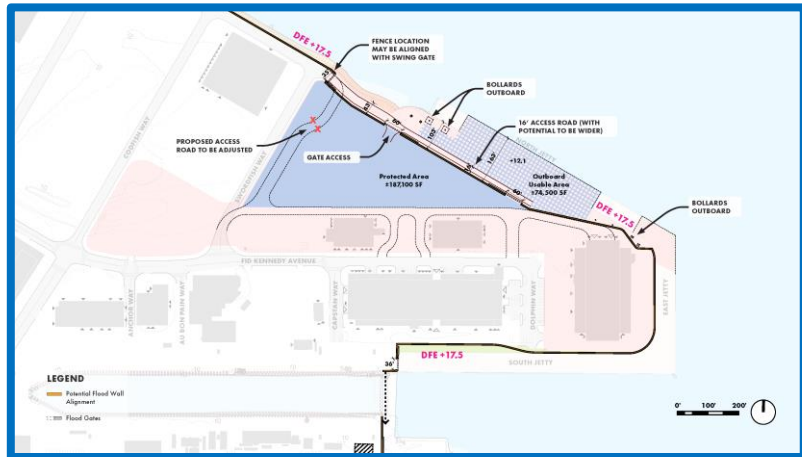
- Timing of implementation
- Adaptability of protection over time
- Trade-offs (protection vs access to waterside)



OPTIONS EVALUATION

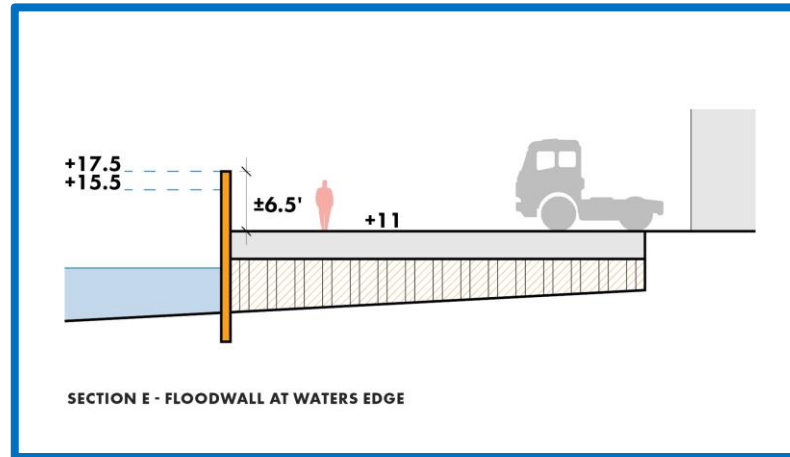


ALIGNMENT Where is it?

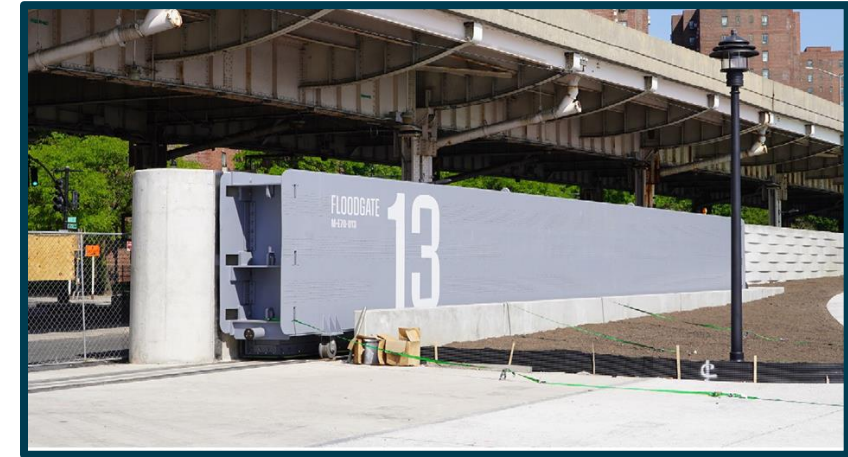


Considered in this Assessment

APPROACH What is it?

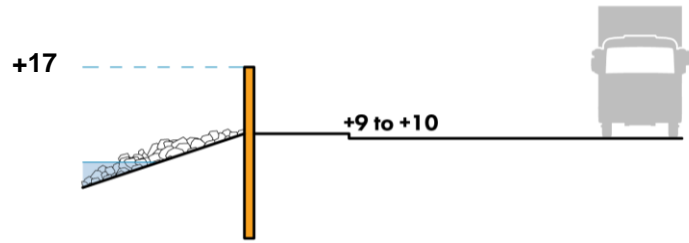


DESIGN What does it look like?

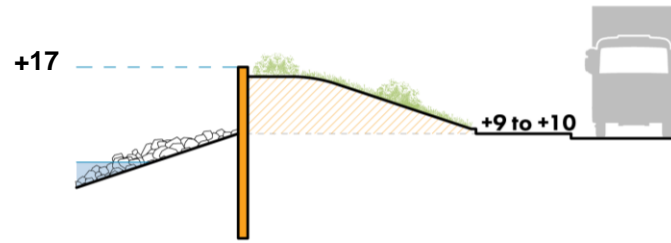


Considered in Future Project Phases

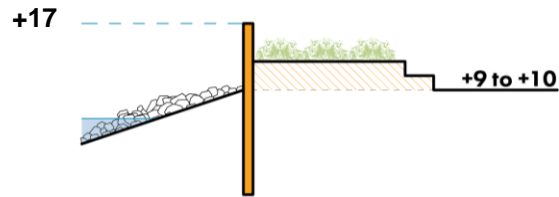
COASTAL FLOOD PROTECTION APPROACHES



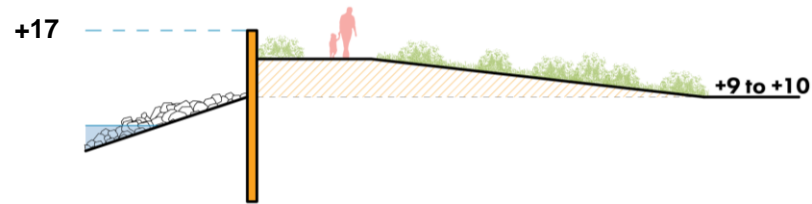
Flood Wall at Shoreline with Truck Access



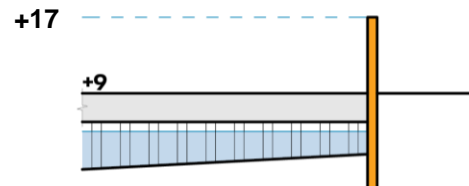
Flood Wall and Berm with Truck Access



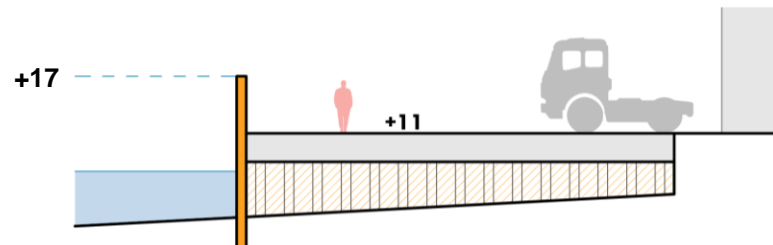
Flood Wall with Raised Planter



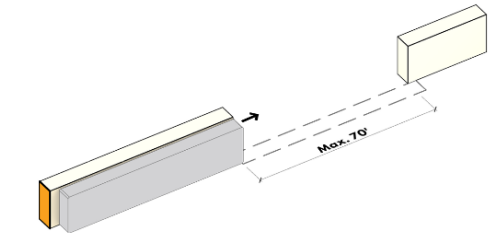
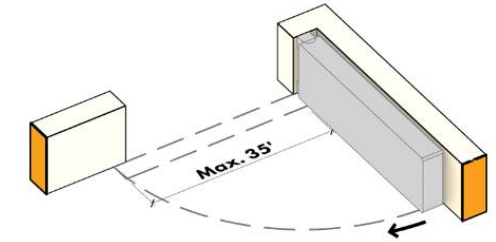
Flood Wall with Raised Park or Landscape



Flood Wall on Bulkhead at Back of Jetty



Floodwall at Water's Edge



Flood Wall Gates Types: Swing (top) and Roller (bottom)

COASTAL FLOOD RESILIENCE DESIGN GUIDELINES



Long-term Strategy

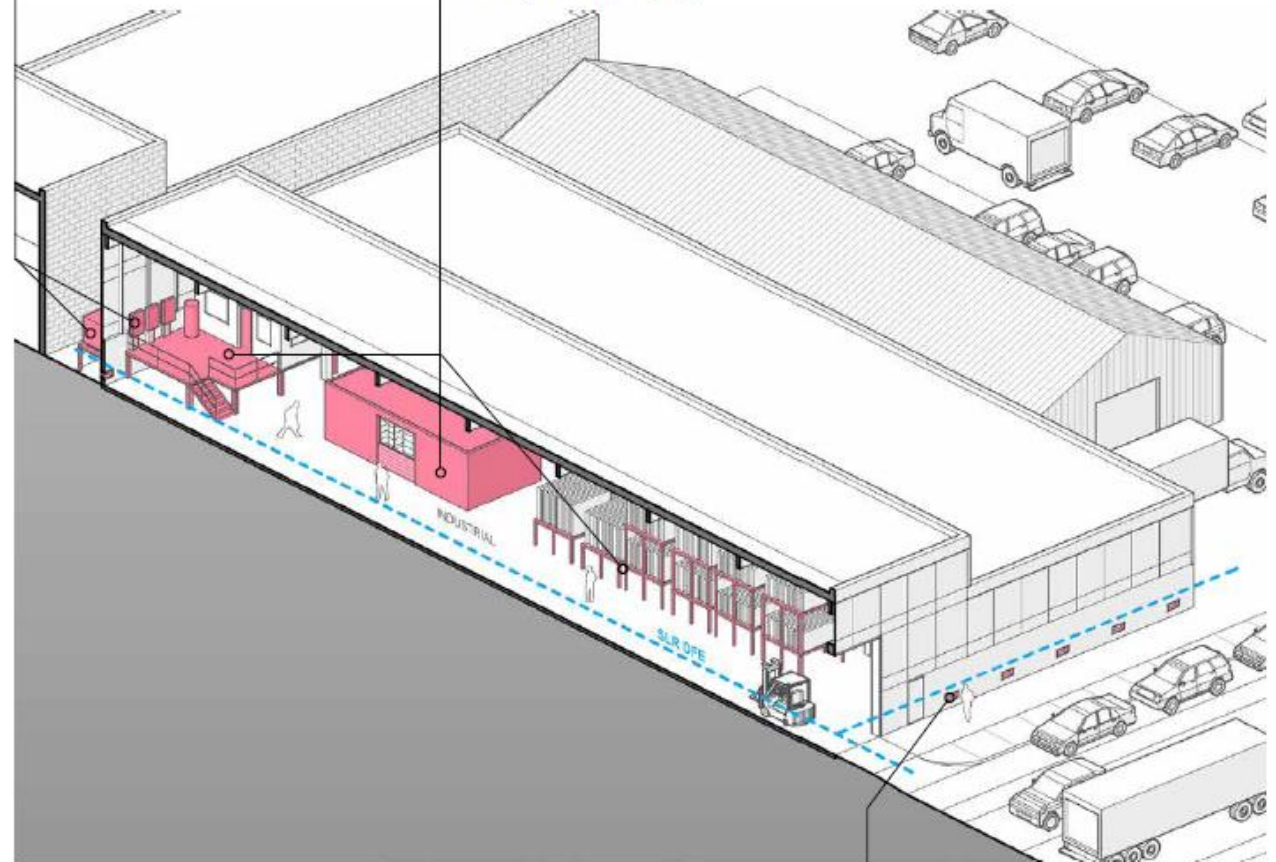
Building Systems

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.

HOW MANY OPTIONS WERE CONSIDERED?

Building on the recommendations of CRS, the project team considered 7 coastal flood risk mitigation options, and an optional independent utility alignment.

Differences between each option include:

- Location of flood protection infrastructure
- Type of flood protection infrastructure
- Level of protection
- Impacts to access and waterfront businesses
- Opportunities to integrate with other ongoing efforts



EVALUATION CRITERIA

EFFECTIVENESS

The alternative reduces long-term flood risk to businesses and infrastructure within RLFMP.

FEASIBILITY

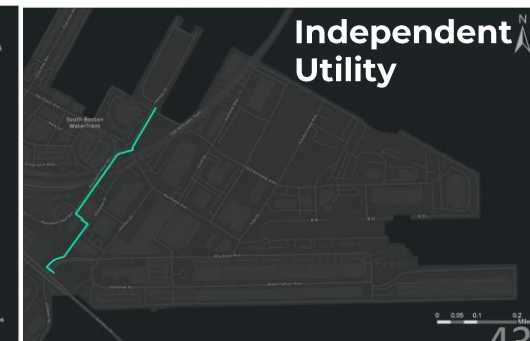
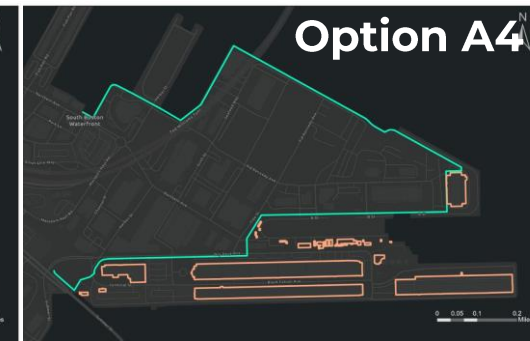
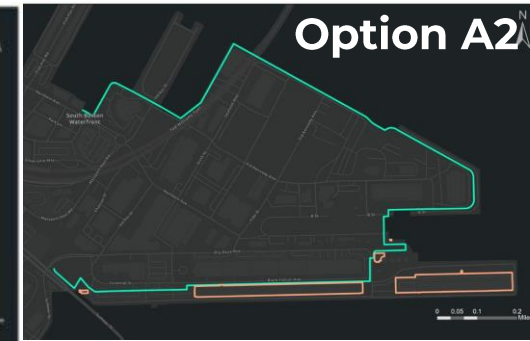
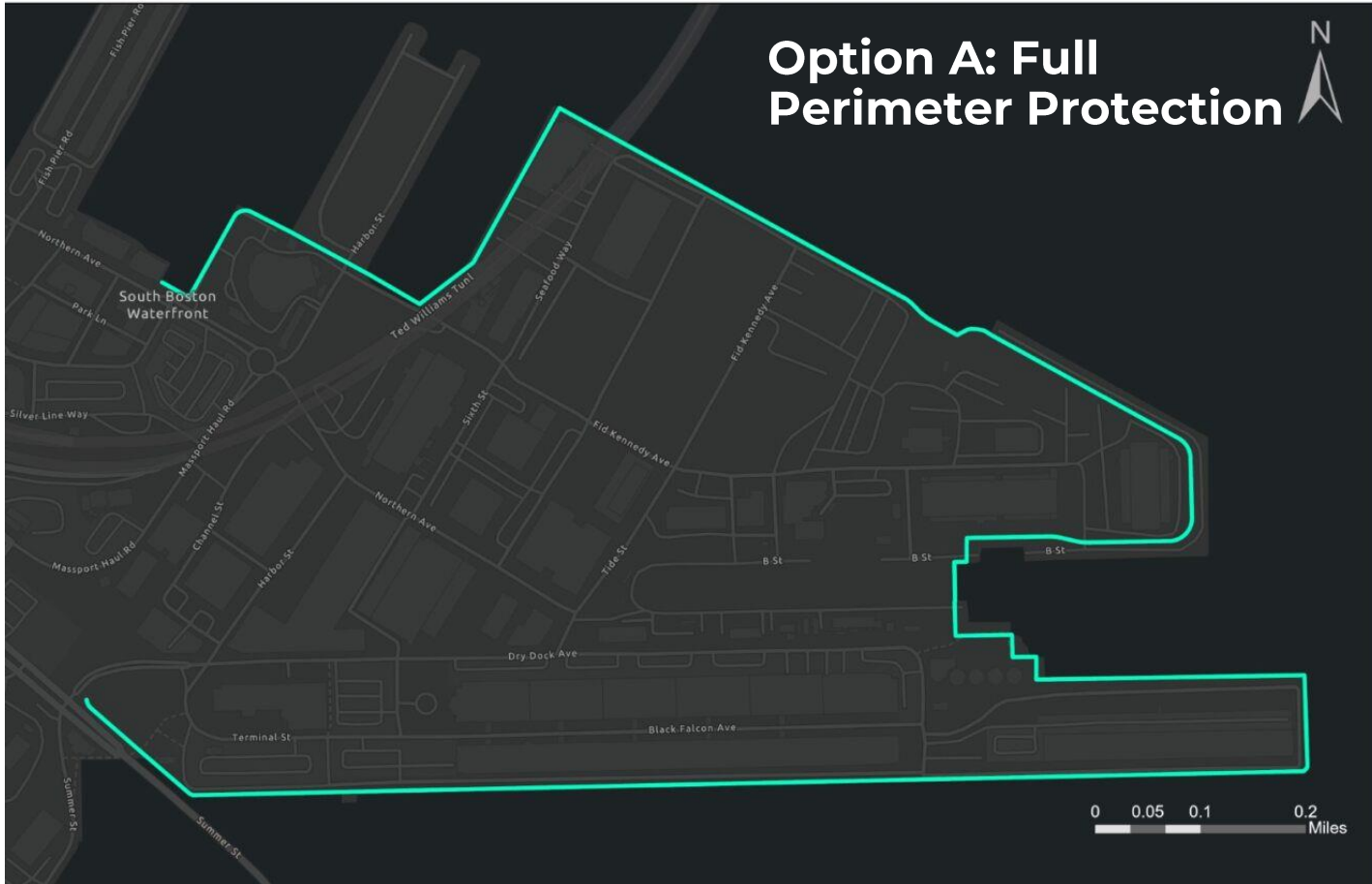
The alternative integrates with industrial business operations, minimizes disruption to shorefront activities, is consistent with laws and regulations, and is technically achievable.

DESIGN LIFE AND ADAPTABILITY

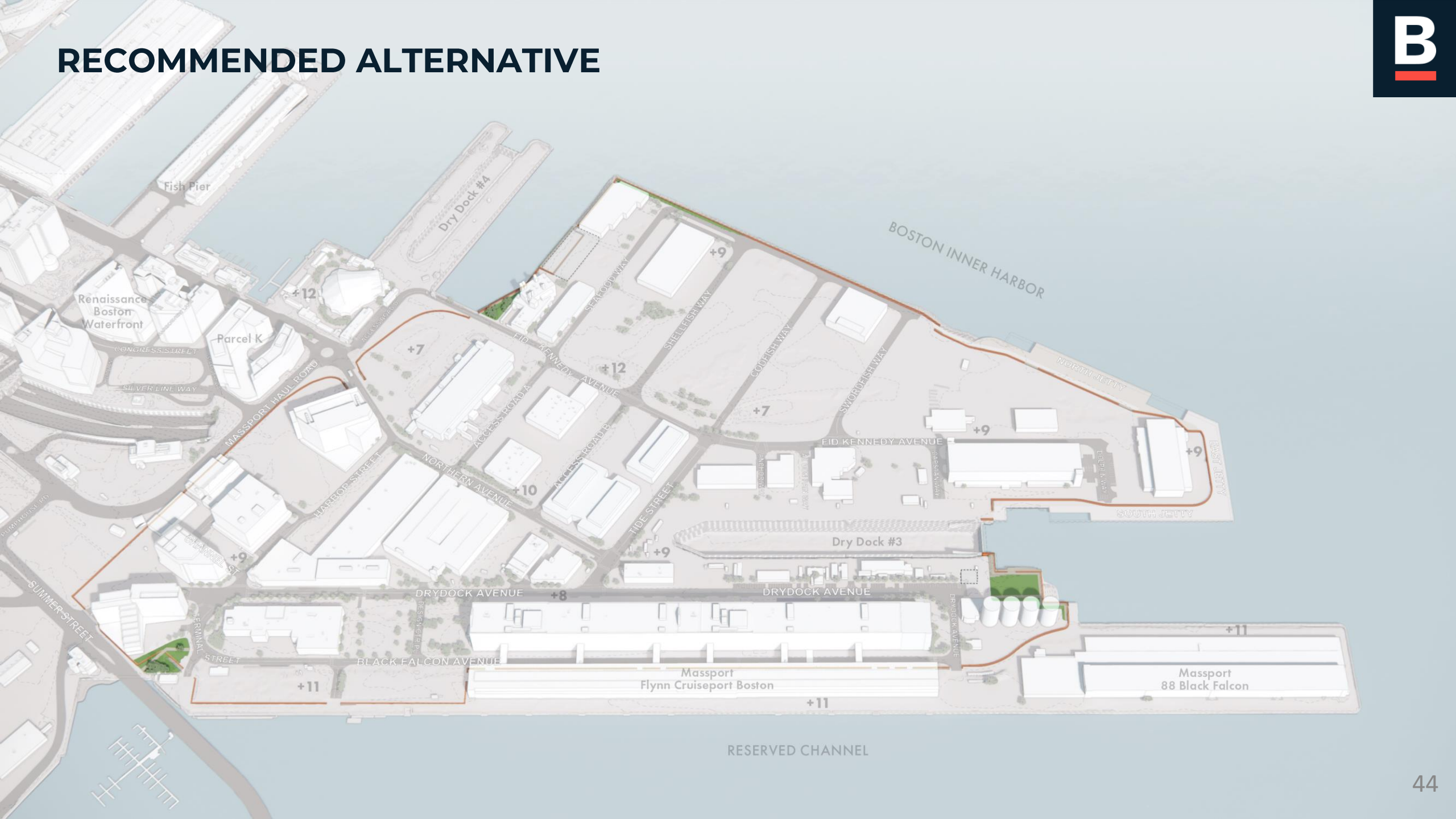
The alternative provides protection through at least 2050 and can be adapted to higher levels of flood protection in the future.



ALIGNMENT ALTERNATIVES CONSIDERED



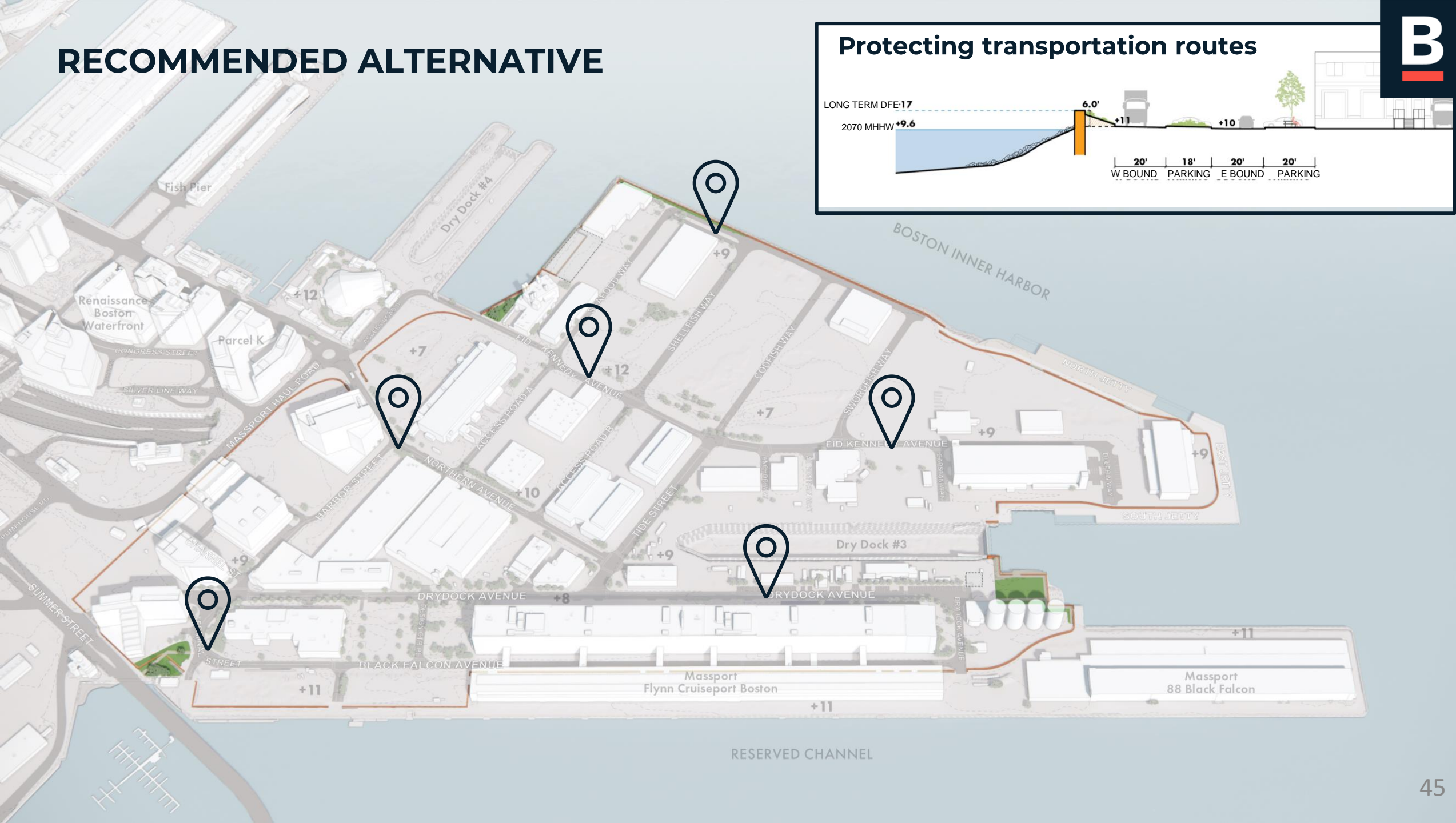
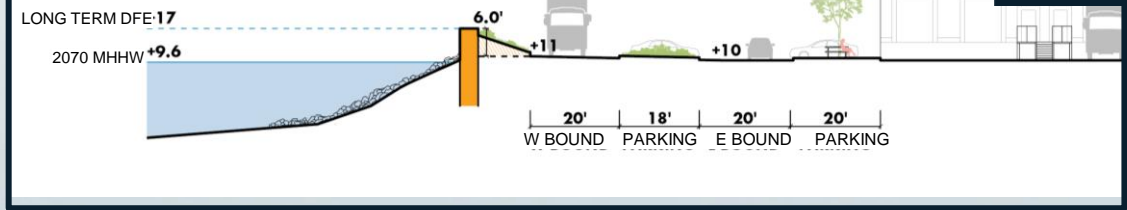
RECOMMENDED ALTERNATIVE



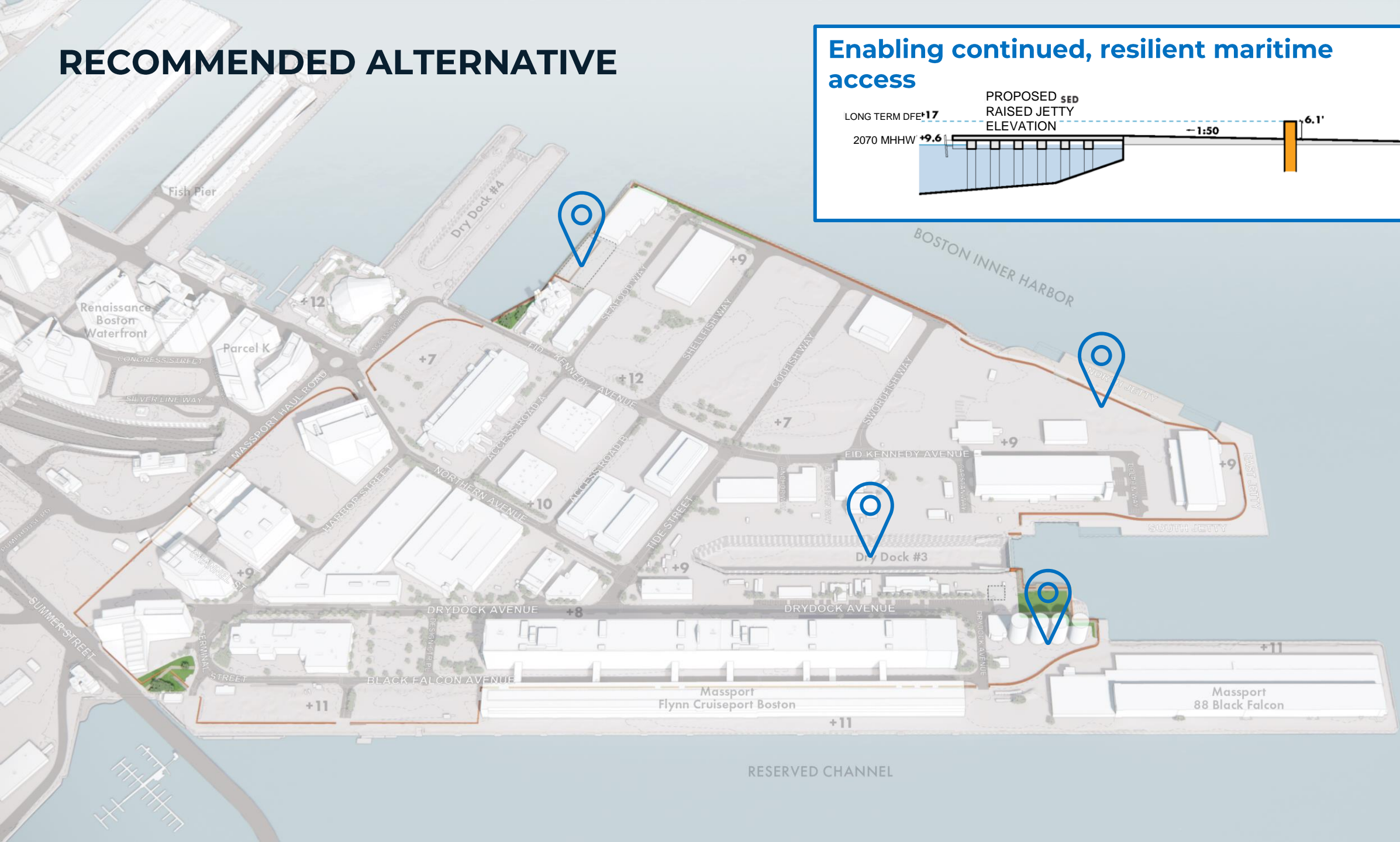
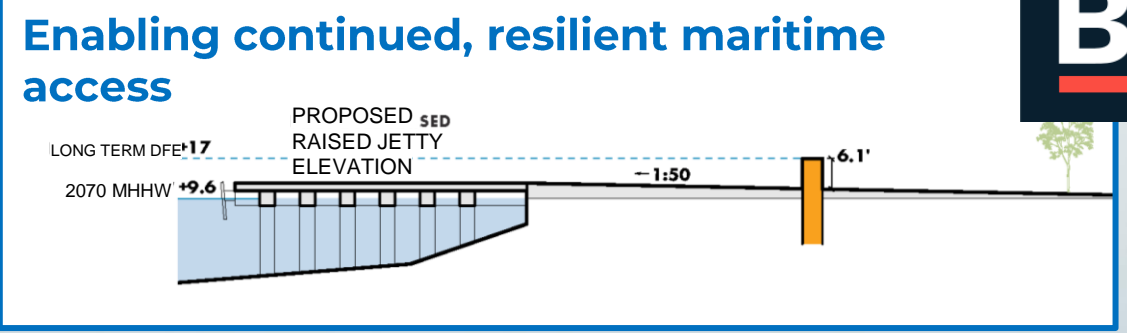
RESERVED CHANNEL

RECOMMENDED ALTERNATIVE

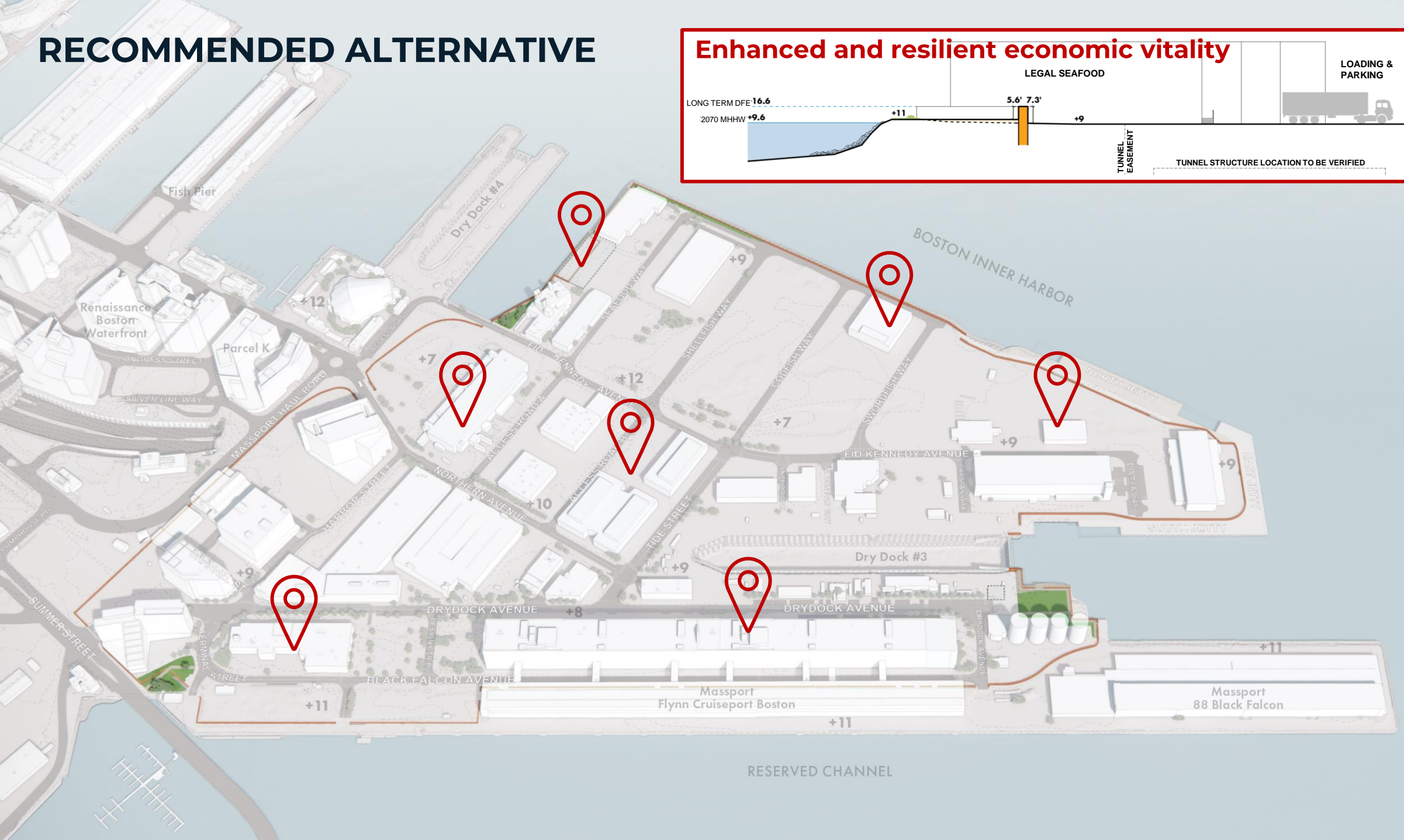
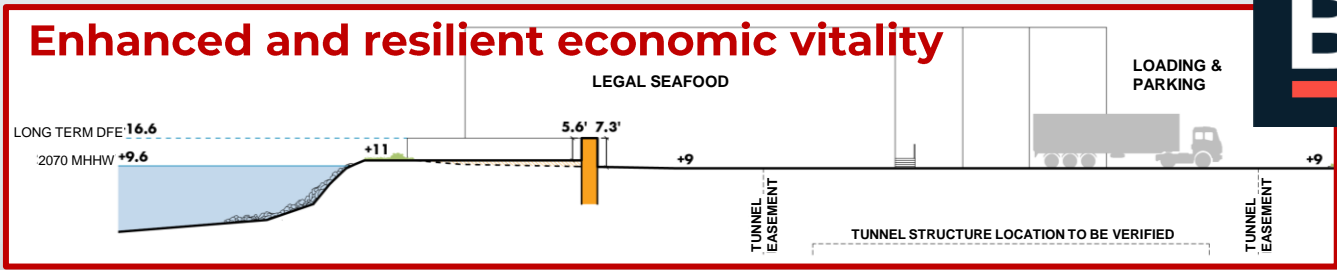
Protecting transportation routes



RECOMMENDED ALTERNATIVE

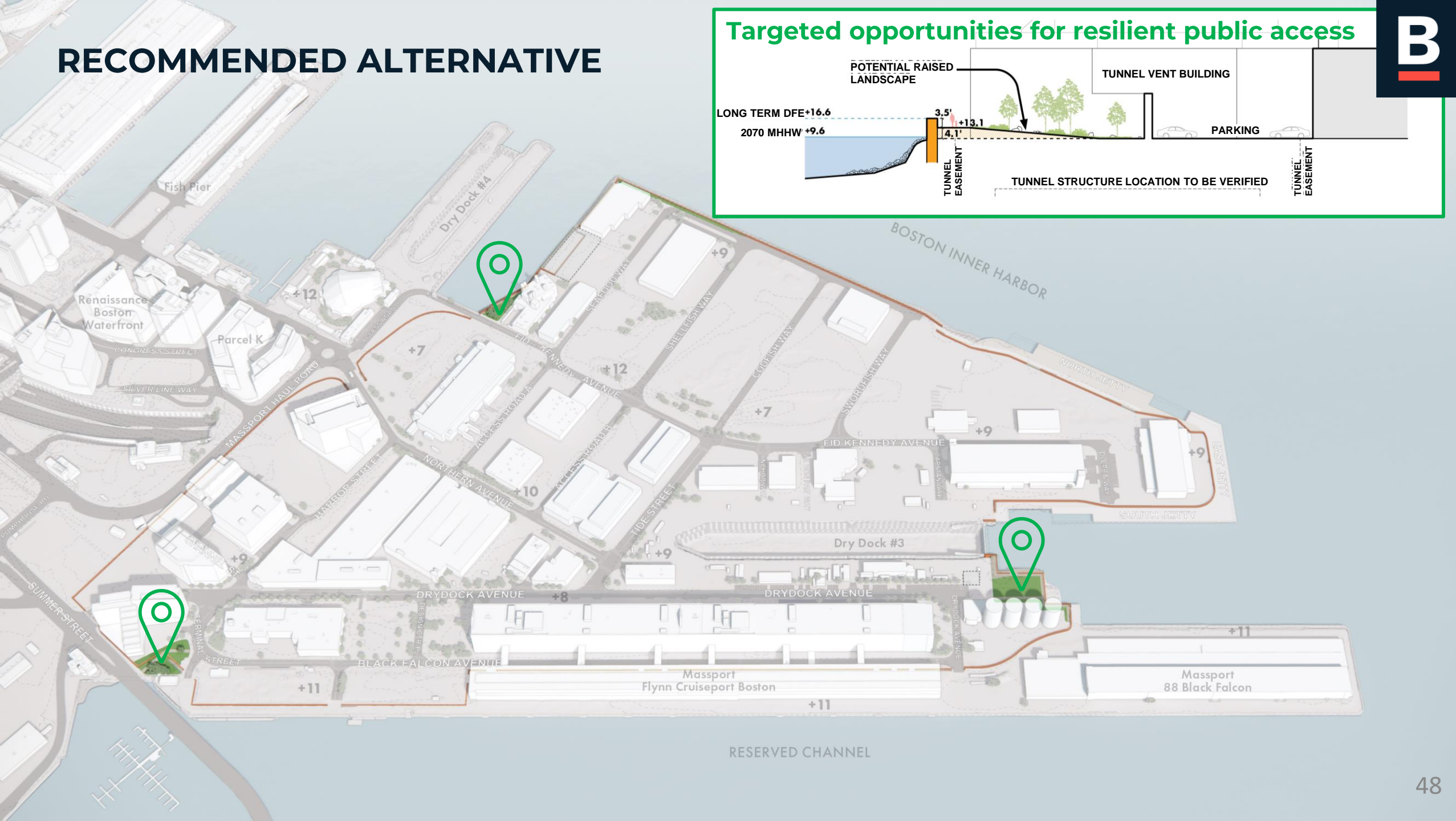
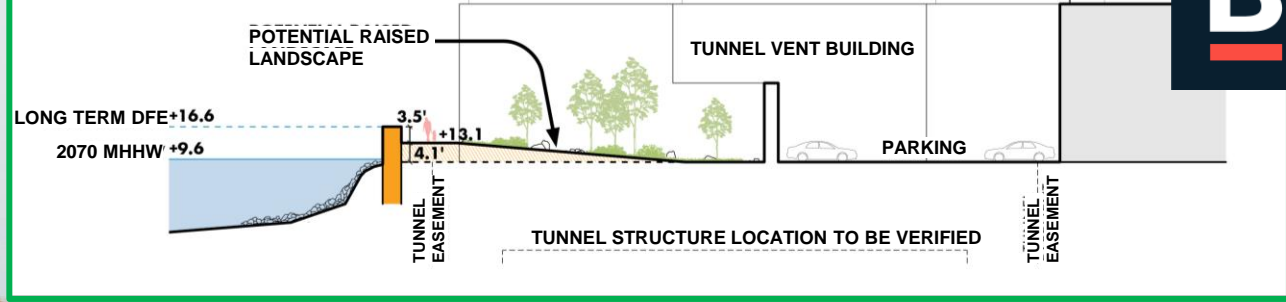


RECOMMENDED ALTERNATIVE



RECOMMENDED ALTERNATIVE

Targeted opportunities for resilient public access

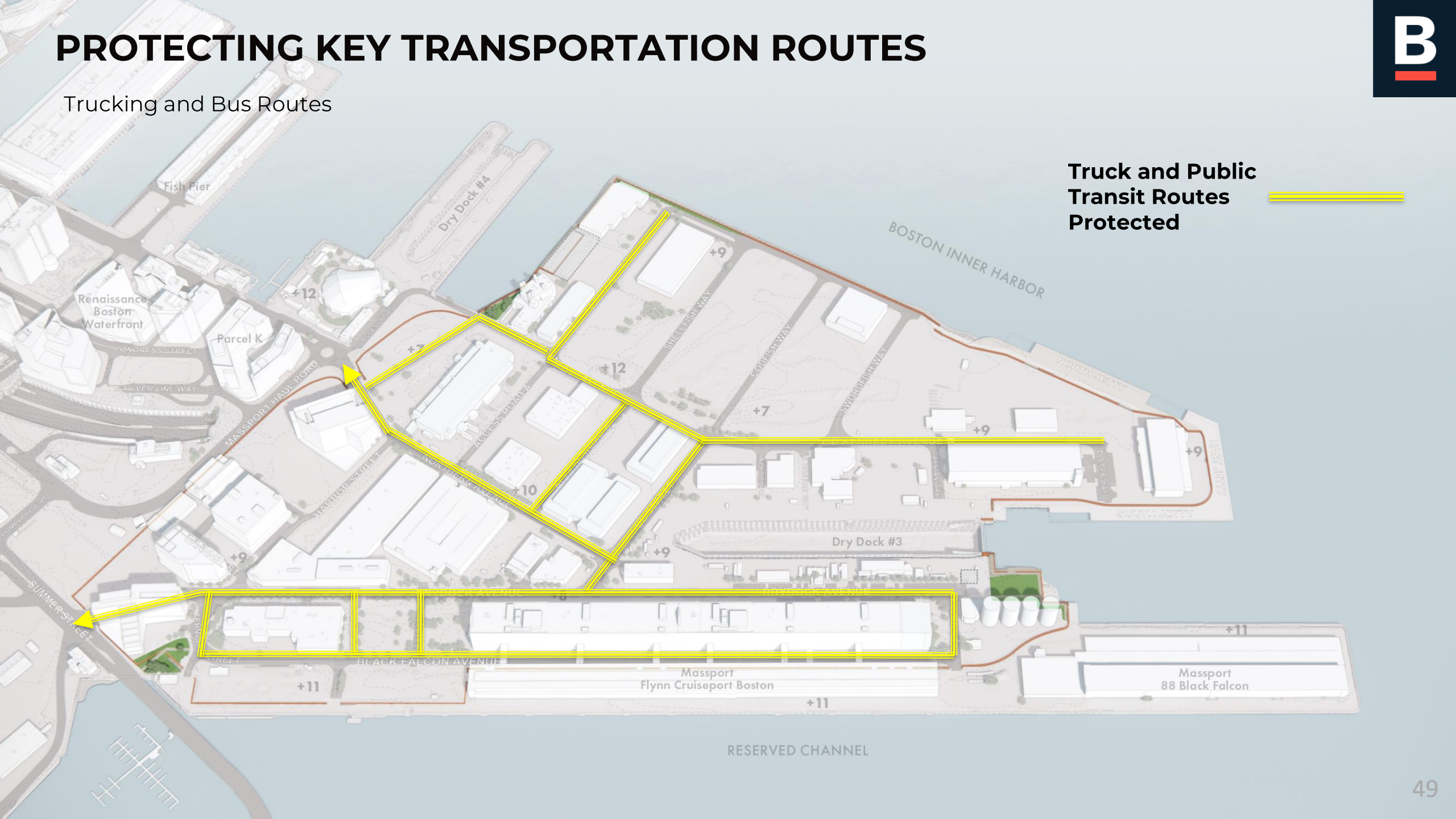


PROTECTING KEY TRANSPORTATION ROUTES



Trucking and Bus Routes

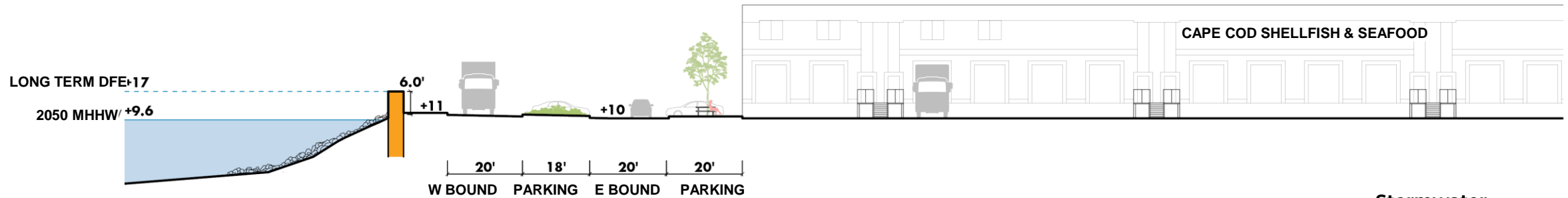
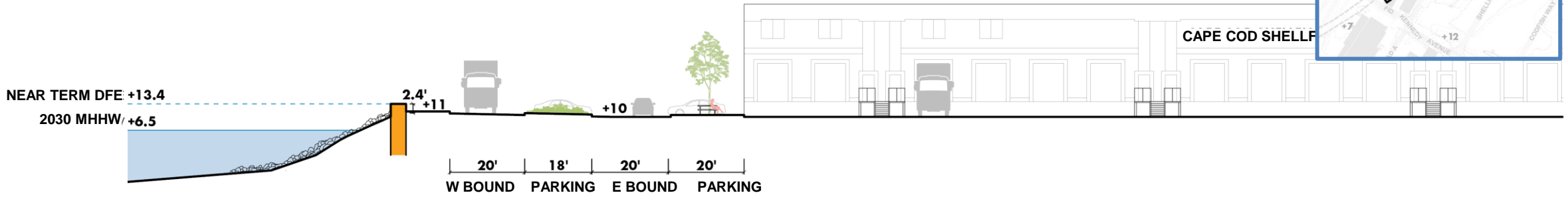
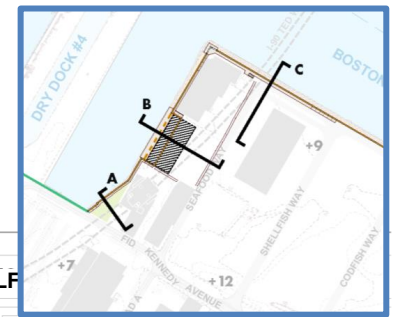
**Truck and Public
Transit Routes
Protected**



PROTECTING KEY TRANSPORTATION ROUTES



Section C - Massport Marine Terminal



Truck access and parking protected and maintained

Stormwater management approaches in-land



BLACK FALCON AVENUE



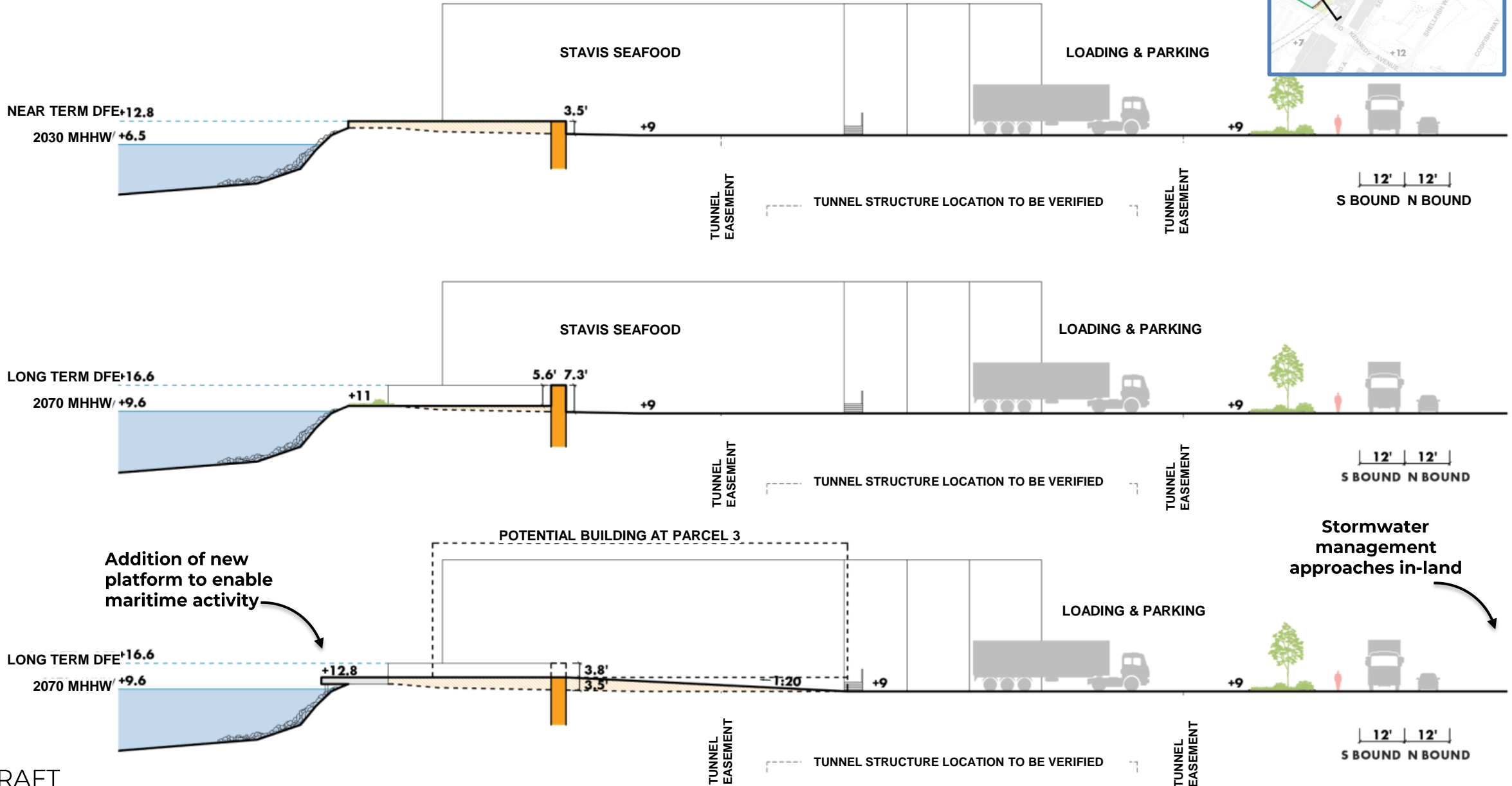
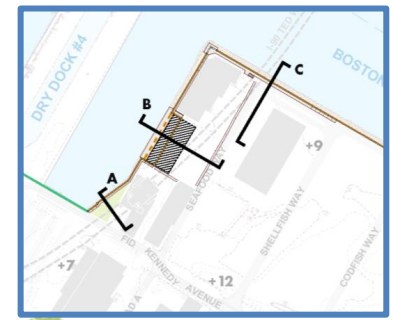
Cruiseport

Innovation &
Design Building



PROTECTING ECONOMIC VITALITY

Section B – Massport Marine Terminal Parcel 3



PROTECTING ECONOMIC VITALITY

Massport Marine Terminal Parcel 3



Harbor Seafoods

Stavis Seafoods

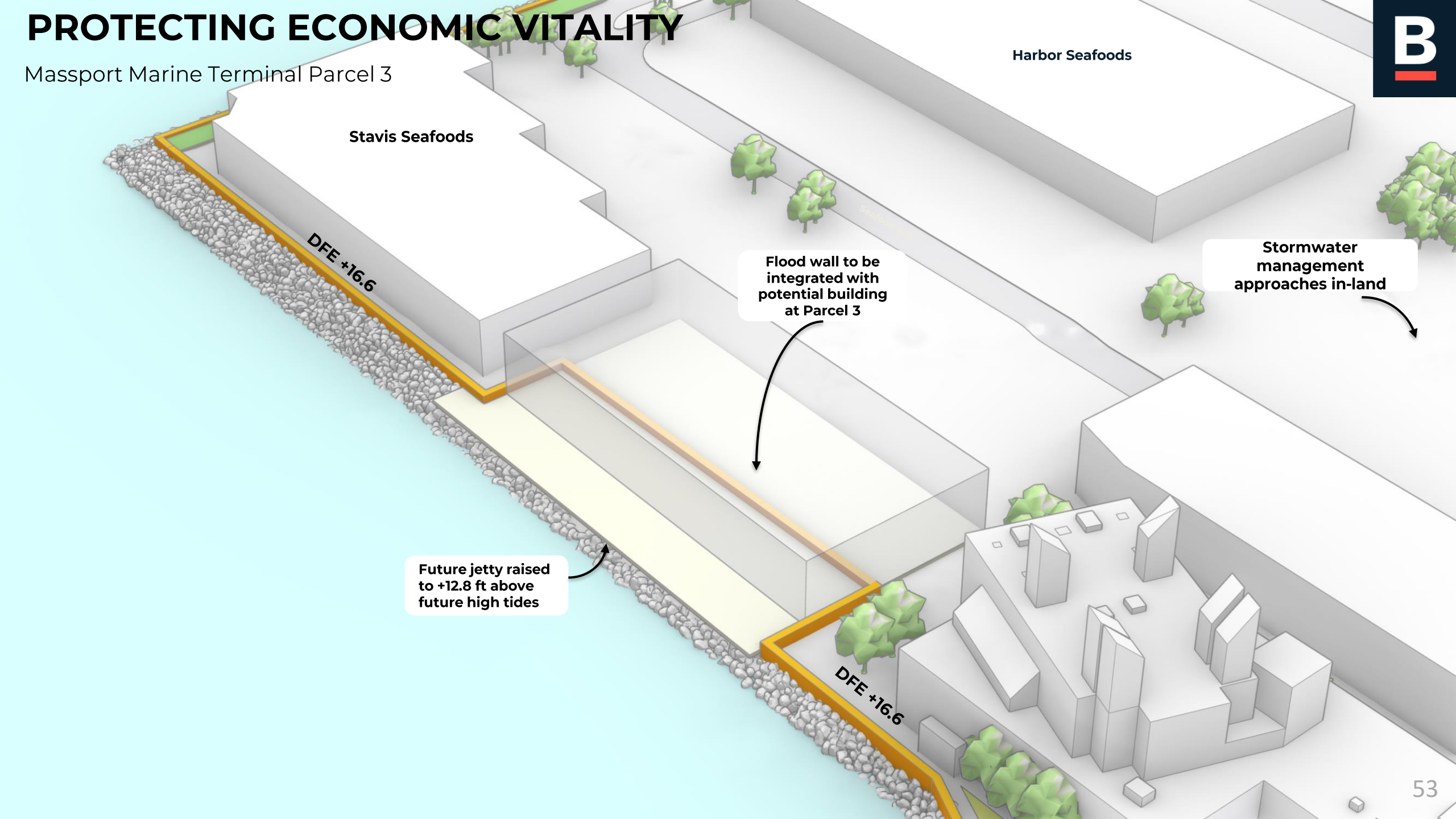
DFE +16.6

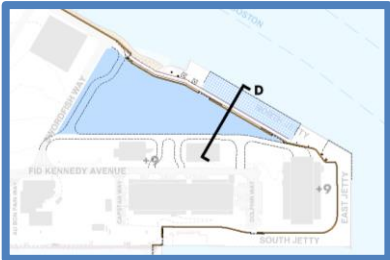
Flood wall to be integrated with potential building at Parcel 3

Stormwater management approaches in-land

Future jetty raised to +12.8 ft above future high tides

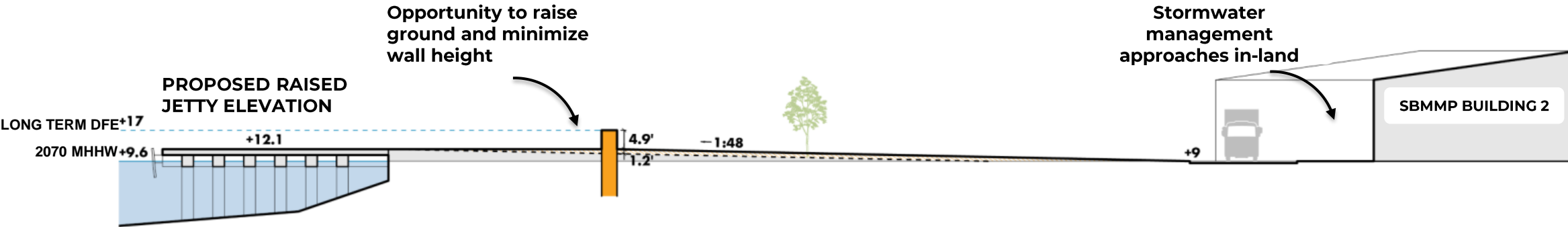
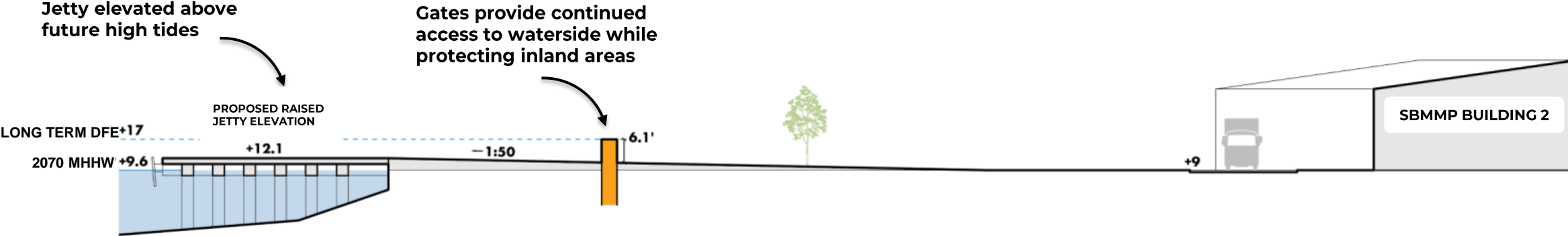
DFE +16.6





ENABLING CONTINUED MARITIME ACCESS

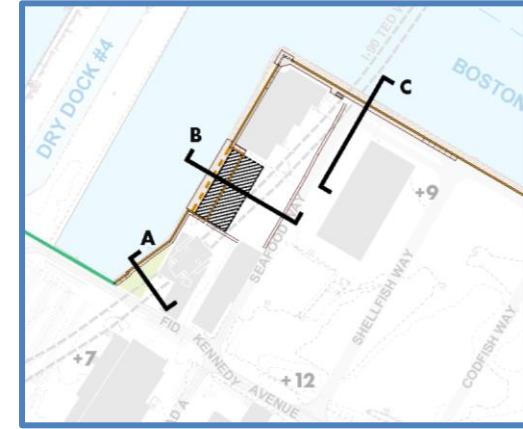
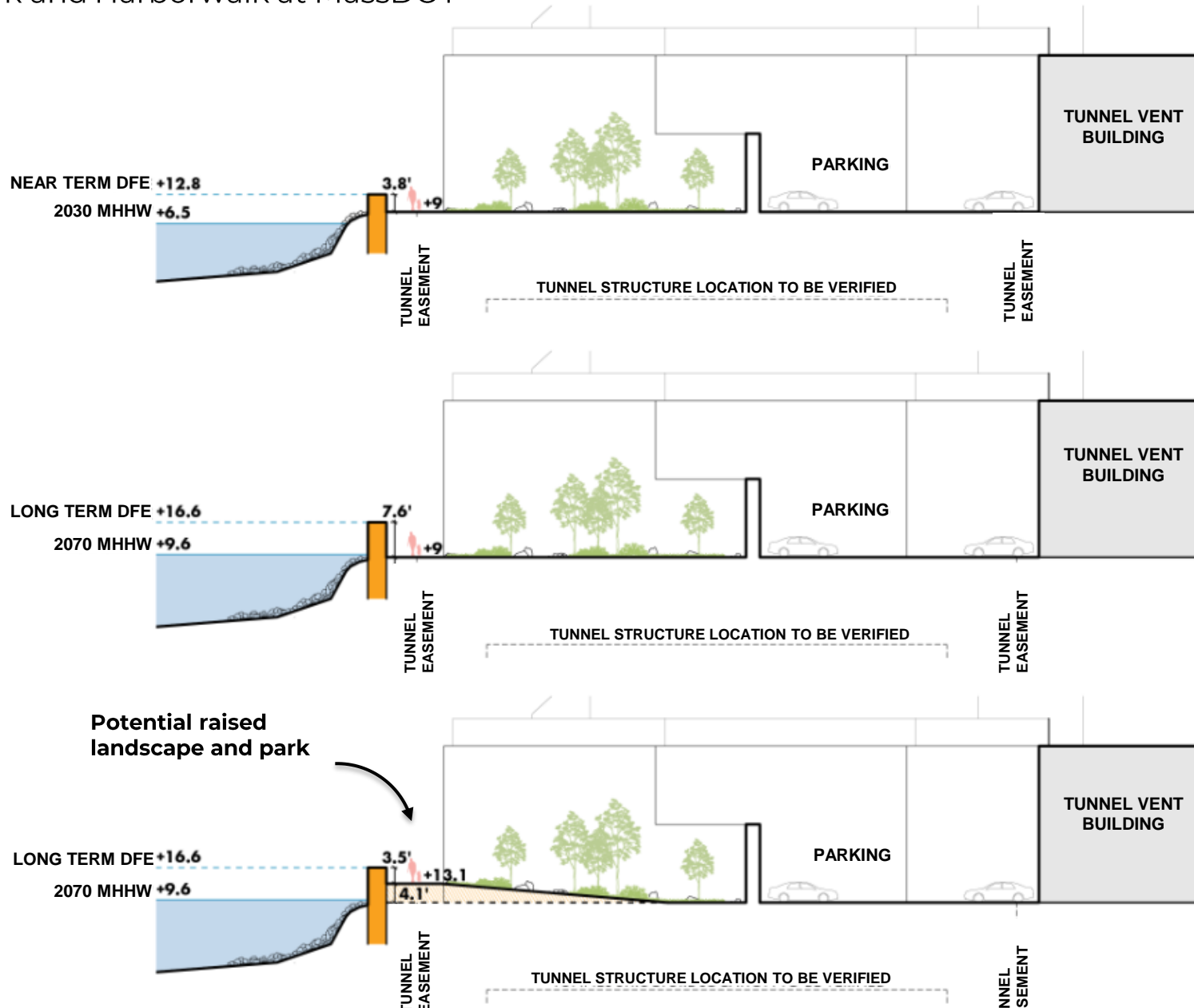
Section D – South Boston Marine Multiport



TARGETED OPPORTUNITIES FOR PUBLIC ACCESS

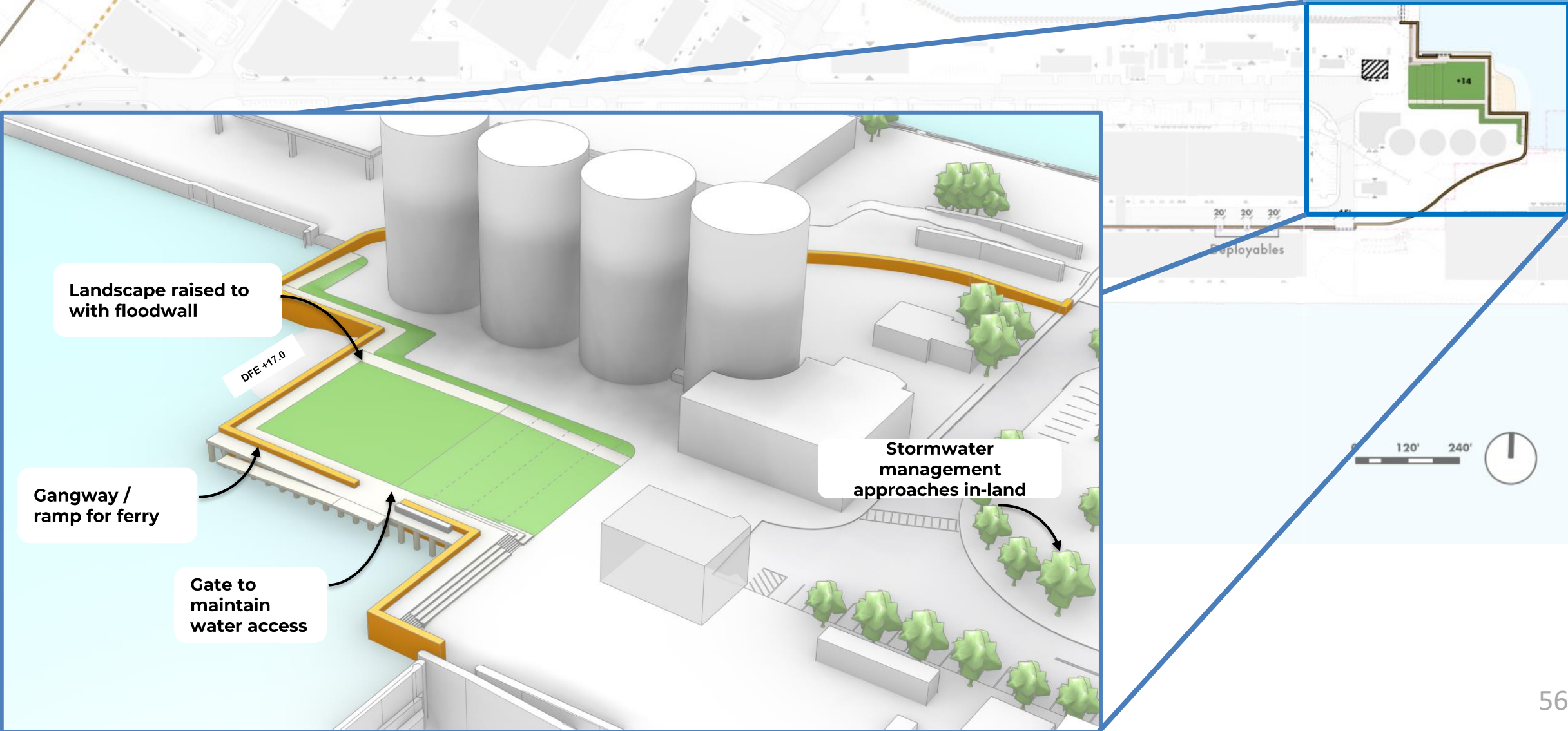


Section A – Raised Park and Harborwalk at MassDOT Ventilation Building



TARGETED OPPORTUNITIES FOR RESILIENT PUBLIC ACCESS

Raised Park at Pier 10



NEXT STEPS



THIS PROJECT WILL RESULT IN CONCEPTUAL DESIGN DOCUMENTATION, COST ESTIMATES, AND PHASING PLANS FOR THE PREFERRED ALTERNATIVE.

Next Steps

Incorporate feedback from permitting agencies and other stakeholders

Develop conceptual design package for preferred alternative

Release of final report
Funding
Stormwater Analysis
Detailed Design

Meeting presentation and recording will be posted to the project website in the coming days.

Do you have more questions?

- Join **upcoming office hours** on July 16 at 12-1 pm and July 17 at 5-6 pm at the City of Boston Offices at 12 Channel Street South Boston, MA 02210. Office hours will be held on the ninth floor. This location is within the Raymond L. Flynn Marine Park.
- RSVP for July 16: <https://www.bostonplans.org/news-calendar/calendar/2024/07/16/raymond-l-flynn-marine-park-flood-mitigation-plann>
- RSVP for July 17: <https://www.bostonplans.org/news-calendar/calendar/2024/07/17/raymond-l-flynn-marine-park-flood-mitigation-plann>

QUESTIONS AND DISCUSSION



- How do you engage with Raymond L Flynn Marine Park? For example:
 - I work there
 - I visit restaurants, shops, or entertainment venues there
 - I know someone who works there
- Do you have questions, concerns, or feedback about the project?
- What types of improvements would you like to see along the waterfront in the Marine Park?

THANK YOU

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