



# CLIMATE READY BEACHES

Metropolitan Beaches Commission Hearing  
July 11, 2023

**CITY** of **BOSTON**



boston planning &  
development agency

# INTRODUCTIONS

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An aerial photograph of Boston, Massachusetts, overlaid with a semi-transparent blue filter. The image shows the city's urban layout, including the Charles River, the harbor, and various districts. Overlaid on the map are green and yellow lines and shaded areas, which represent projected climate change impacts such as sea level rise and increased flooding. The text 'CLIMATE READY BOSTON OVERVIEW' is centered in white, bold, sans-serif font. Several district names are visible in smaller white text: 'DORCHESTER' on the left, 'SOUTH BOSTON' in the center, 'DOWNTOWN' on the right, and 'EAST BOSTON' further right. The overall tone is serious and informative, highlighting the city's vulnerability to climate change.

# CLIMATE READY BOSTON OVERVIEW

DORCHESTER

SOUTH BOSTON

DOWNTOWN

EAST BOSTON

# BOSTON'S URBAN BEACHES



CONSTITUTION BEACH | EAST BOSTON



PLEASURE BAY | SOUTH BOSTON



L & M STREET BEACH | SOUTH BOSTON



MALIBU BEACH | DORCHESTER



CARSON BEACH | DORCHESTER | SOUTH BOSTON



TENEAN BEACH | DORCHESTER

SOURCE: Metropolitan Beaches Commission report, Breaking Barriers



# BEACH FLOODING TODAY AND IN THE FUTURE



CASTLE ISLAND FLOODING, MARCH 3, 2018  
(SOURCE: ADAM G., UNIVERSAL HUB)



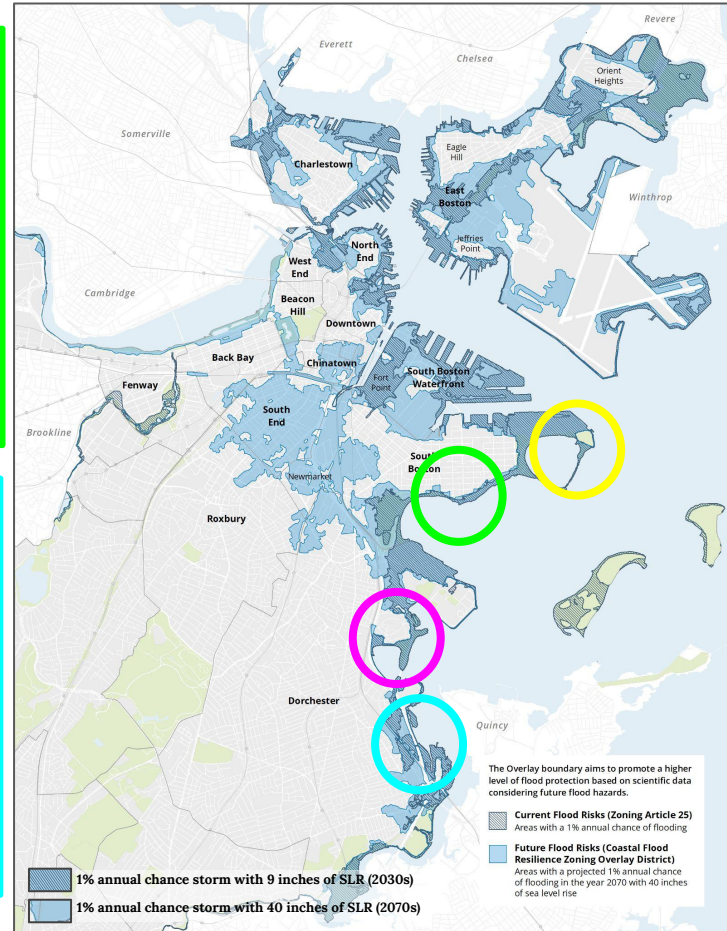
DAY BOULEVARD FLOODING, MARCH 3, 2018  
(SOURCE: ADAM G., UNIVERSAL HUB)



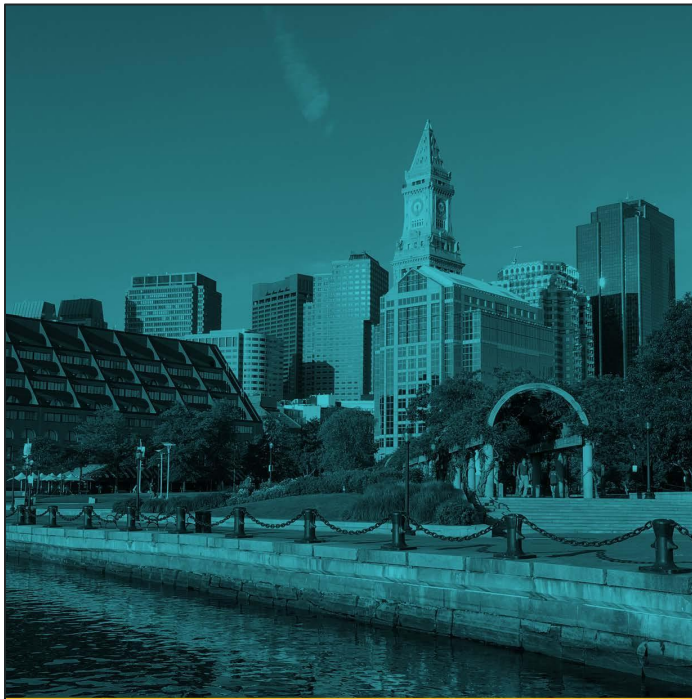
SAVIN HILL / MALIBU BEACH FLOODING, DECEMBER 23, 2022  
(SOURCE: JOHN MORONEY, NBC10 BOSTON)



TENEAN BEACH FLOODING DURING HIGH TIDE, SEPTEMBER 23, 2020  
(SOURCE: MAUREEN DAHILL, CAUGHTINDOT)



# CLIMATE READY BOSTON COASTAL RESILIENCE PLANNING



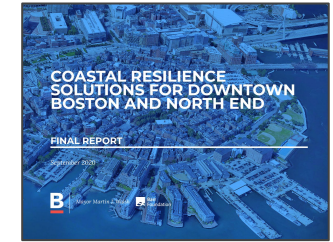
## CLIMATE READY BOSTON EXECUTIVE SUMMARY



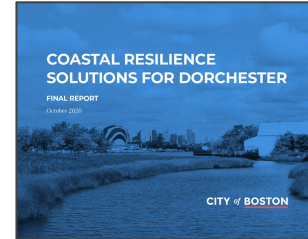
**East Boston  
& Charlestown  
Phase 1 (2017)**



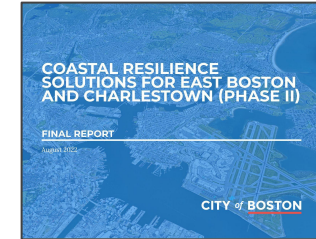
**South Boston  
(2018)**



**North End &  
Downtown  
(2020)**



**Dorchester  
(2020)**



**East Boston  
& Charlestown  
Phase 2 (2022)**

# GOALS OF COASTAL RESILIENCE PLANS

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- 1. Identify the location, timing, and extent of flood risk** across the given study area;
- 2. Engage stakeholders** to identify priorities, opportunities, and constraints to inform coastal resilience strategies;
- 3. Develop effective coastal resilience solutions** that account for the necessary elevation needed and provide co-benefits for the community;
- 4. Create an implementation roadmap** that outlines the timing by which solutions need to be constructed and next steps for advancing each proposed project



## FRINGE FLOODING

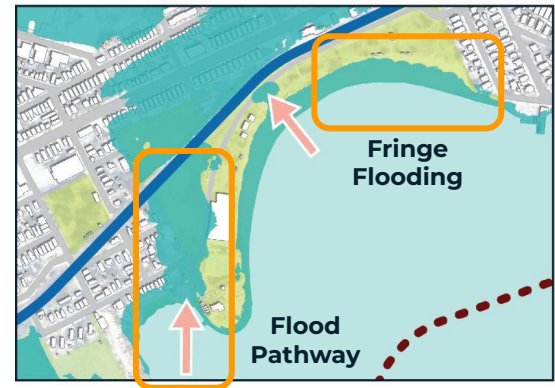
Impacts low-lying areas along the waterfront as water levels rise above the ground elevation.



## FLOOD PATHWAY

Impacts low-lying inland areas when water enters through a discrete low-lying area on the waterfront.

### Example: Constitution Beach, East Boston



# EXAMPLE COASTAL RESILIENCE TOOLKIT

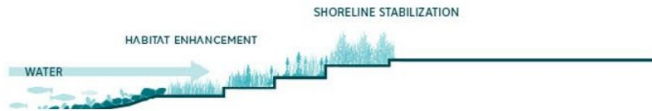
## RAISED HARBORWALK / RAISED PARK SPACE



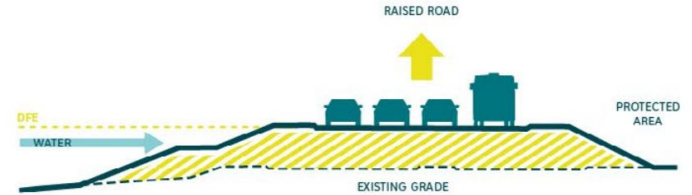
## RAISED BERMS AND DUNES



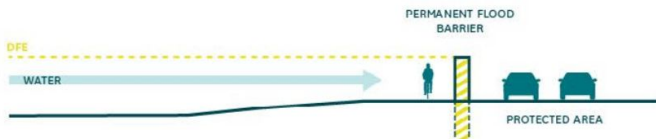
## NATURE-BASED SOLUTIONS



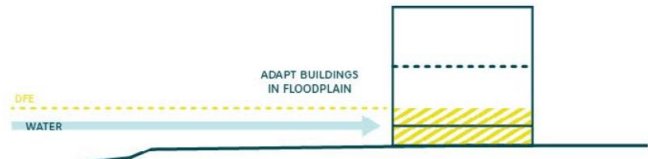
## RAISED ROADWAYS / MEDIAN FLOODWALLS



## VERTICAL FLOODWALLS

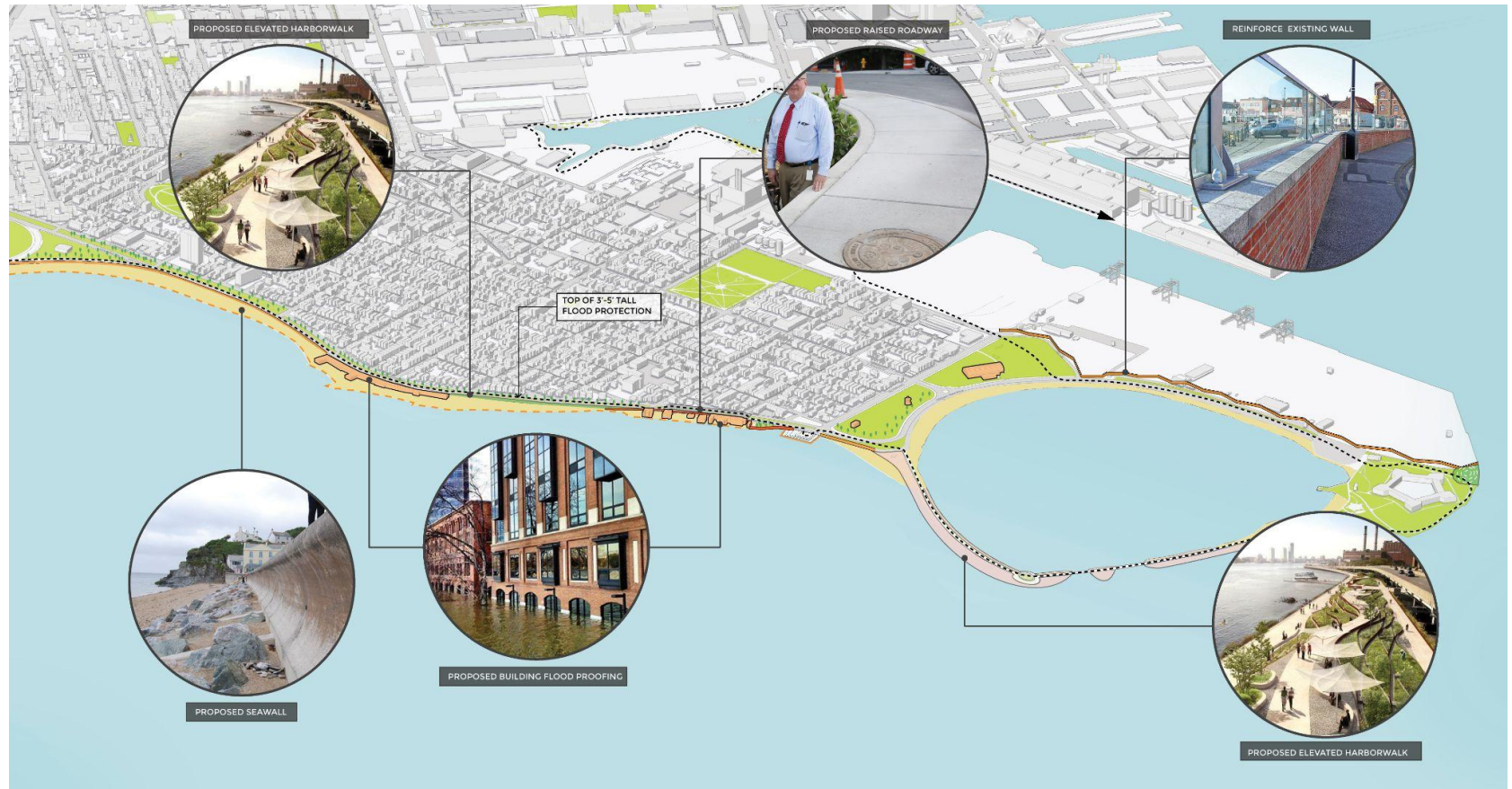


## ADAPTED BUILDINGS AND STRUCTURES





# L + M STREET BEACH / PLEASURE BAY PROPOSED CONDITIONS



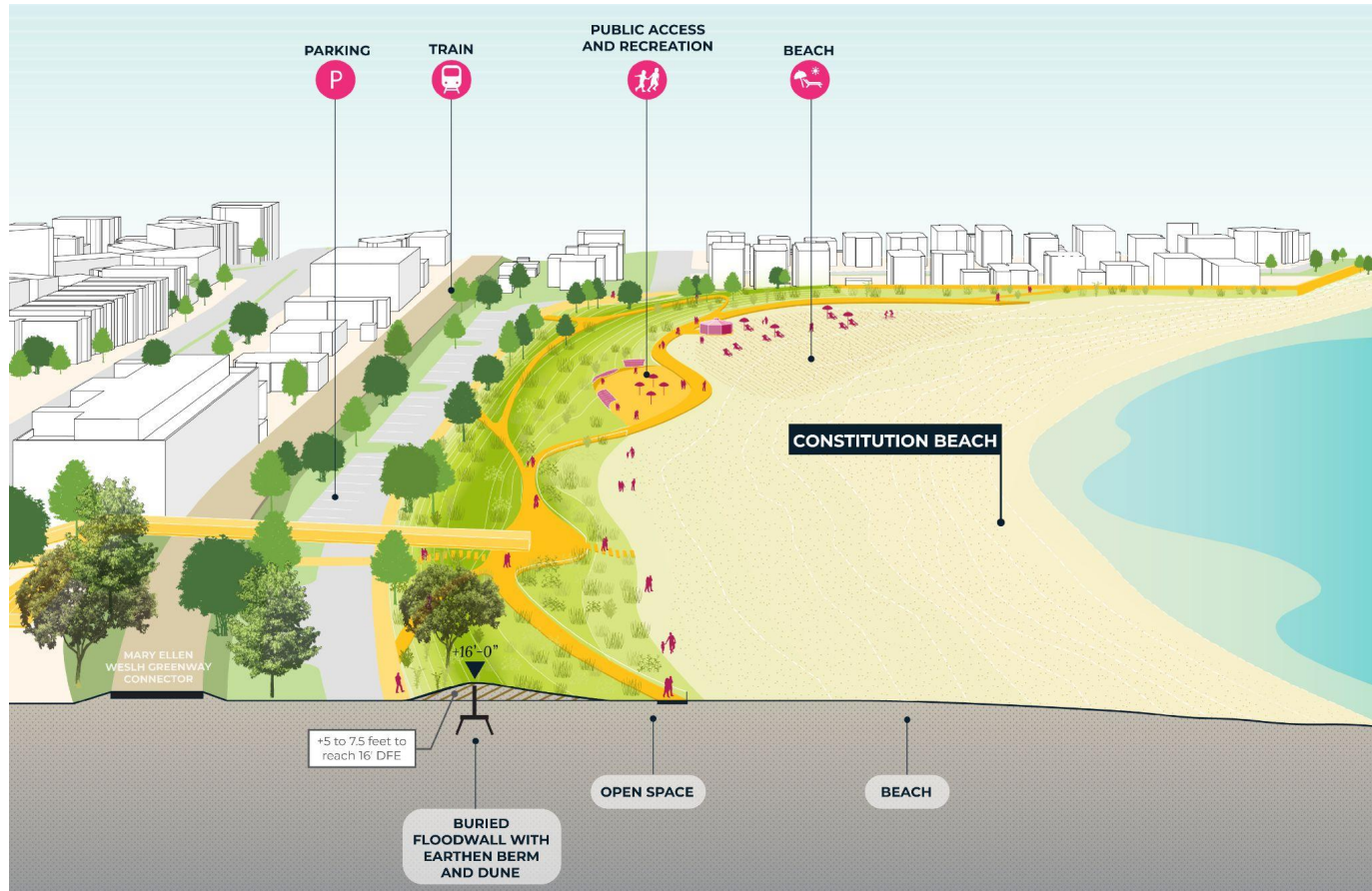
# MOAKLEY PARK / CARSON BEACH PROPOSED CONDITIONS



# MALIBU BEACH PROPOSED CONDITIONS



# CONSTITUTION BEACH PROPOSED CONDITIONS

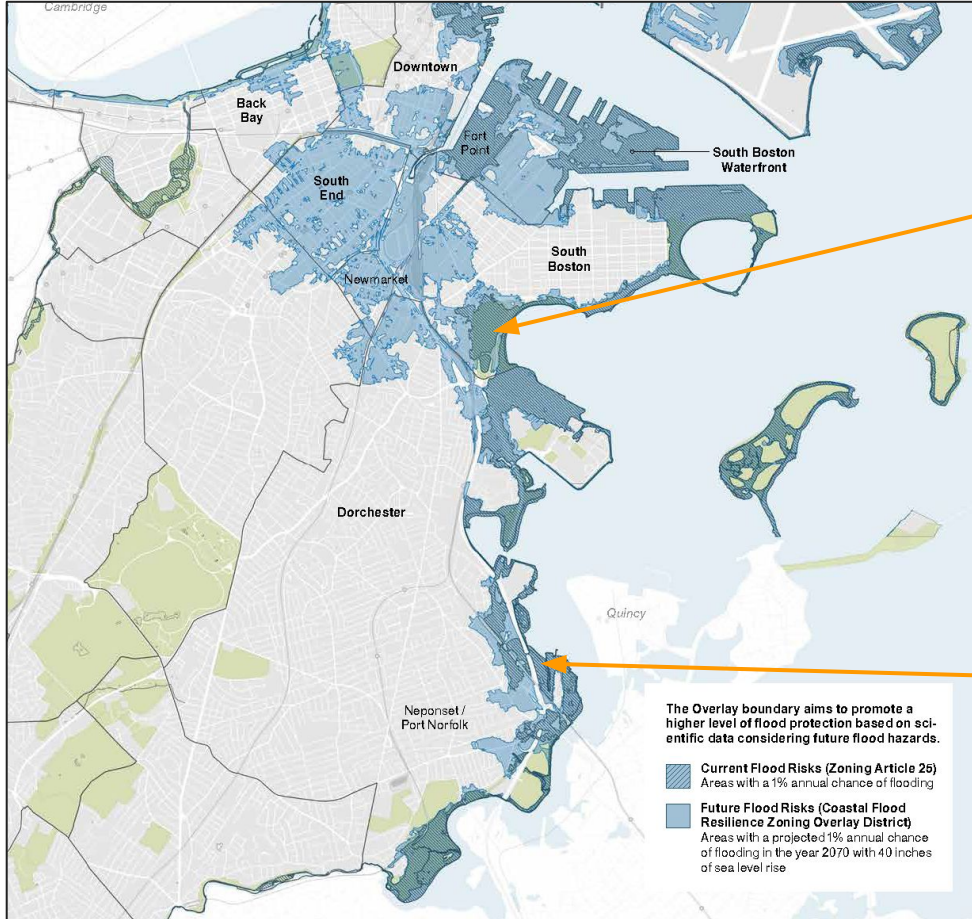


# FROM PLANNING TO IMPLEMENTATION

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# ADVANCING COASTAL RESILIENCE ON AND AROUND BOSTON'S BEACHES



MOAKLEY PARK AND MOAKLEY CONNECTORS - In design



TENEAN BEACH - Schematic design complete in June 2023

An aerial photograph of Boston, Massachusetts, showing the city's layout and waterfront. The image is semi-transparent, with a blue tint. The text 'RESILIENT DORCHESTER WATERFRONT AT TENEAN BEACH / CONLEY STREET' is overlaid in white, bold, sans-serif font. The background shows the city grid, the Charles River, and the harbor. Labels for 'DORCHESTER', 'SOUTH BOSTON', 'DOWNTOWN', and 'EAST BOSTON' are visible on the map.

**RESILIENT DORCHESTER WATERFRONT AT  
TENEAN BEACH / CONLEY STREET**

# TEAM INTRODUCTION



## IN PARTNERSHIP WITH:



City of Boston  
Environment



MASSACHUSETTS DEPARTMENT OF  
CONSERVATION AND RECREATION

## CONSULTANT TEAM:

**SCAPE**

LANDSCAPE ARCHITECTURE



TETRA TECH

COASTAL ENGINEERING DESIGN



COASTAL MODELING



SITE SURVEY

## GRANT FUNDED BY:





## PROJECT GOALS

- 1 Provide flood risk reduction to inland neighborhoods as well as DCR's Morrissey Boulevard during:

  - (a) larger/rare flood events,
  - (b) tidal flood events.

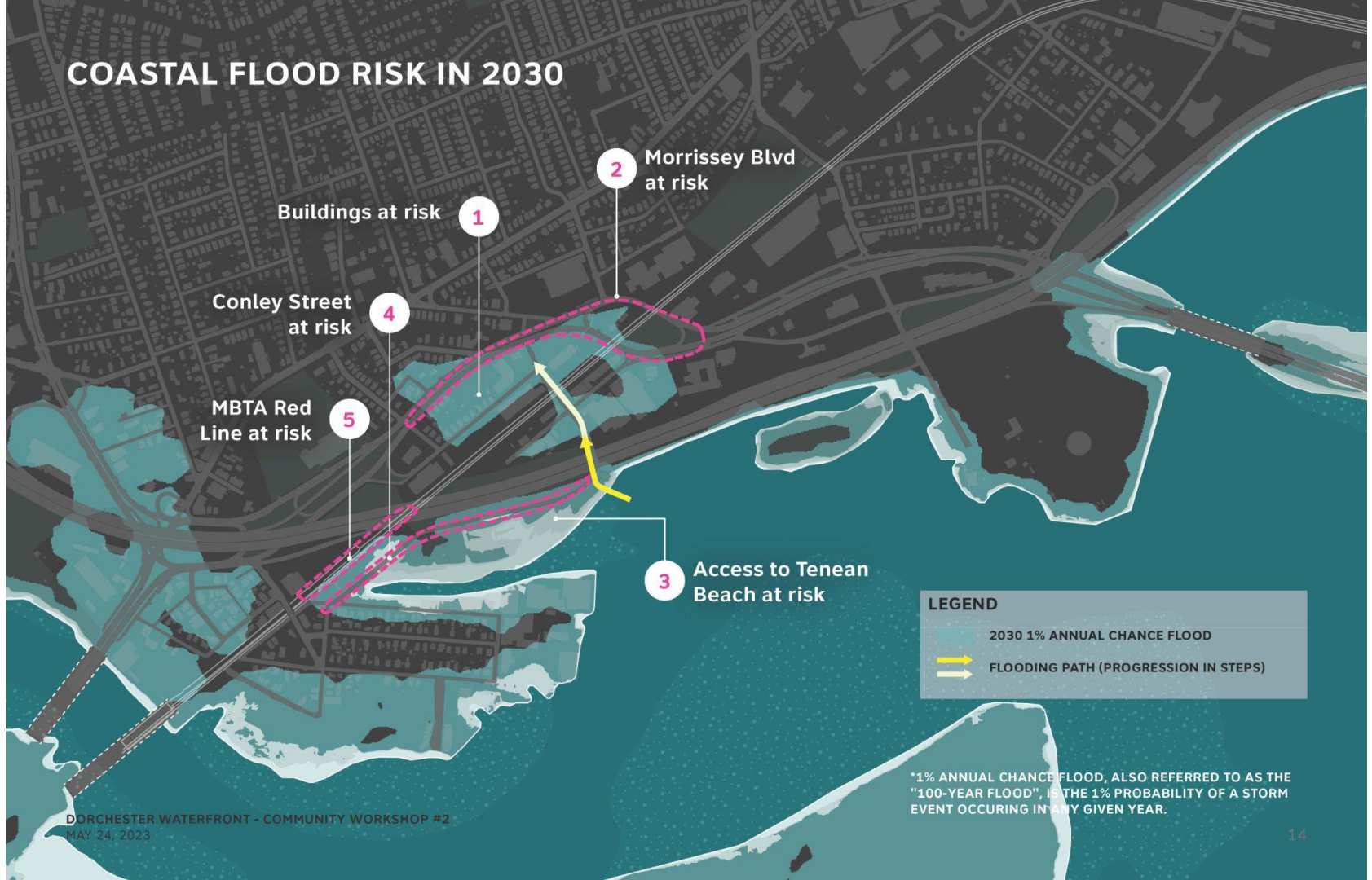
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- 2 Preserve, protect, and enhance waterfront access and recreation, by providing flood risk reduction to DCR's assets at Tenean Beach.

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- 3 Preserve, protect, and enhance local ecology and open space.

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- 4 Improve or be compatible with adaptation efforts of critical transportation infrastructure, such as (1) the Southeast Expressway, (2) MBTA Rail Line, and (3) Evacuation routes from Port Norfolk

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- 5 Improve or be compatible with adaptation efforts of stormwater infrastructure.

# COASTAL FLOOD RISK IN 2030



\*1% ANNUAL CHANCE FLOOD, ALSO REFERRED TO AS THE "100-YEAR FLOOD", IS THE 1% PROBABILITY OF A STORM EVENT OCCURRING IN ANY GIVEN YEAR.

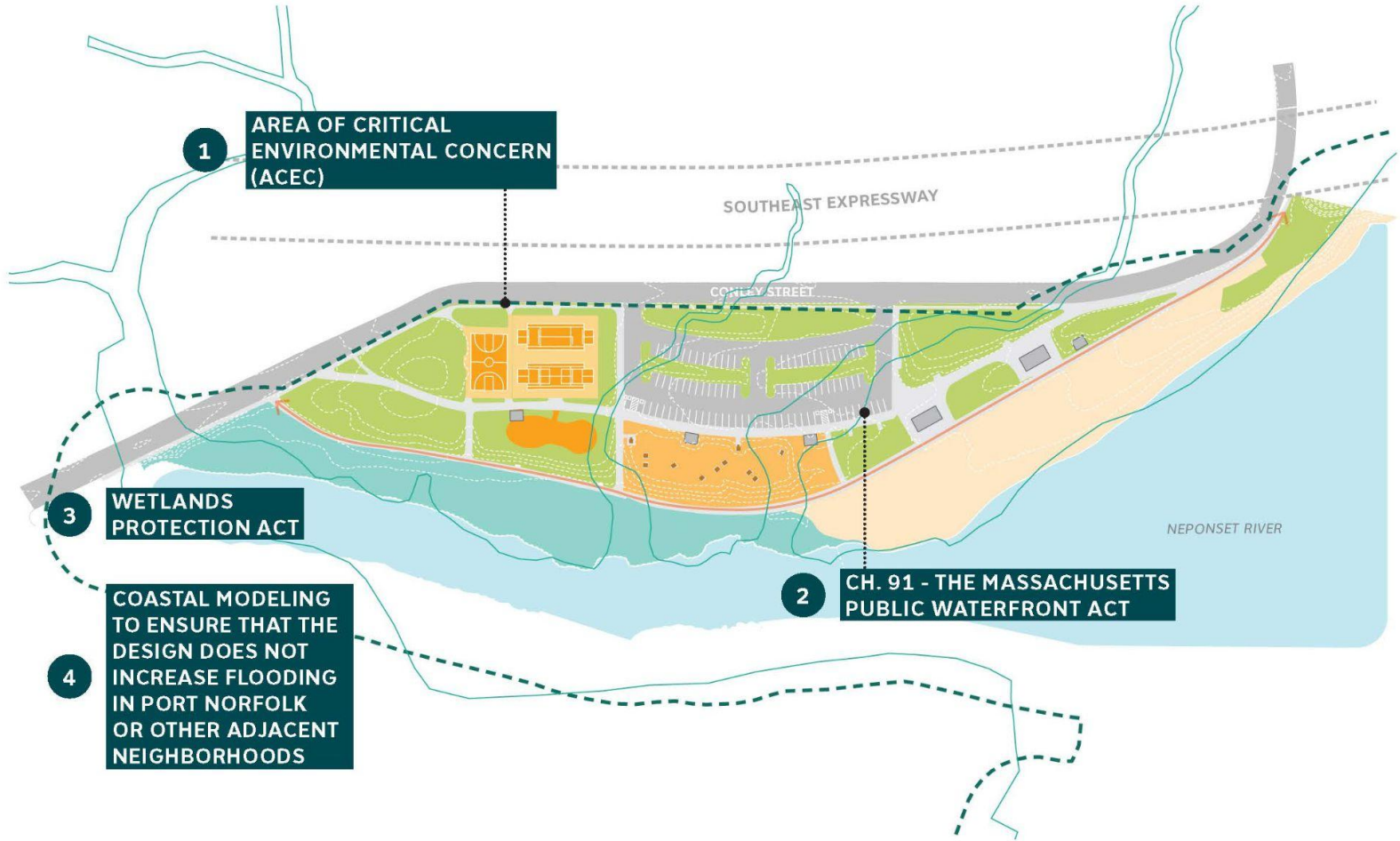


# DESIGN PARAMETERS | EXISTING PLAN

*A terraced park with elevated recreational amenities to extend use over time. Access maintained through an elevated Conley Street and Harborwalk enhancing natural resources at the water's edge over time.*



# TECHNICAL CONSIDERATIONS | EXISTING PLAN



# PROPOSED DESIGN

## ACCESS

- 1 PARKING AND DROP-OFF
- 2 NEPONSET RIVER GREENWAY EXTENSION
- 3 RE-ALIGNED HARBORWALK
- 4 EXPANDED HARBORWALK PATH AT CONLEY ST

## ACTIVE

- 5 SPORTS COURTS
- 6 EXISTING PLAYGROUND

## PASSIVE

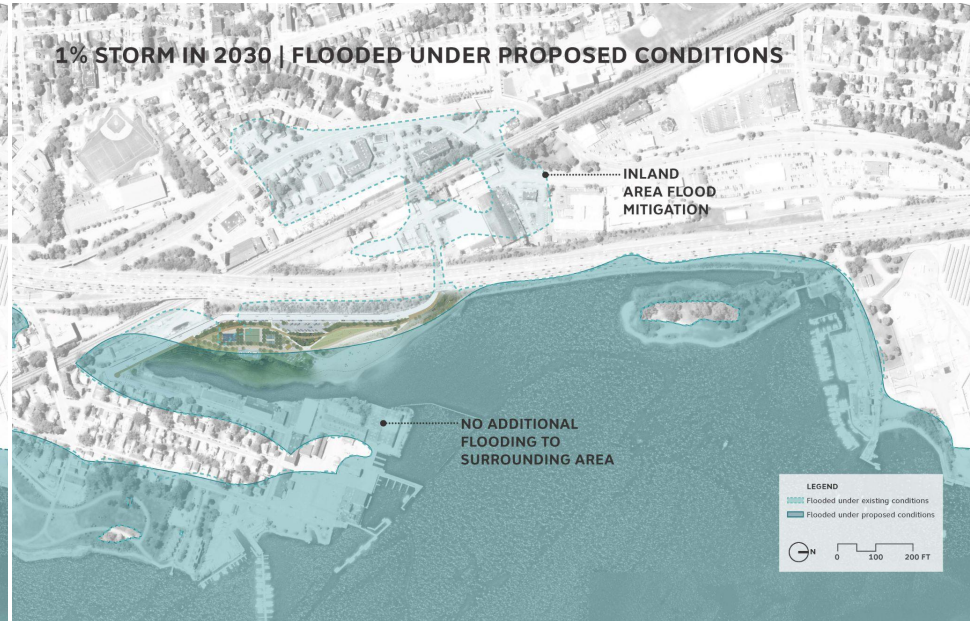
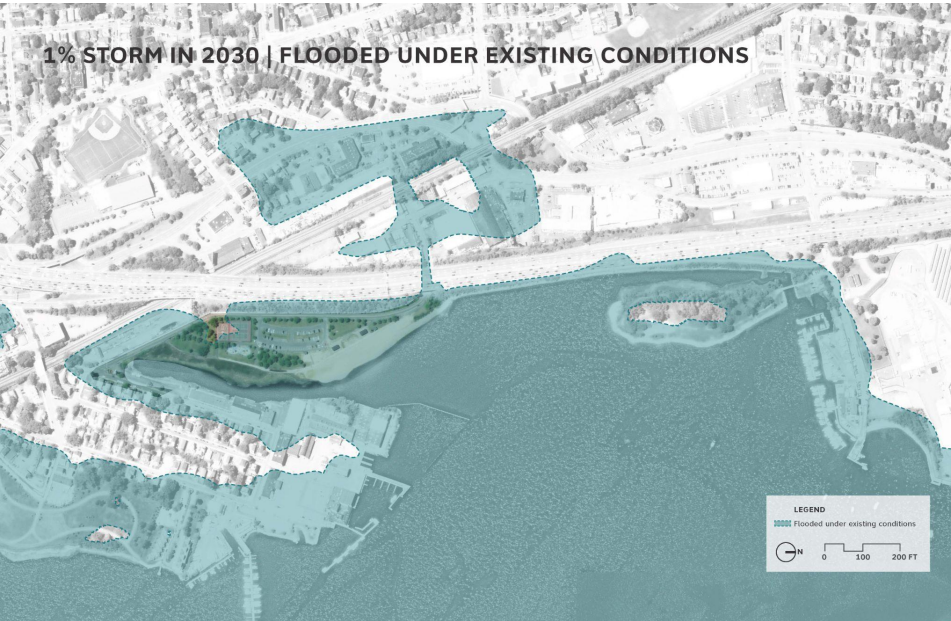
- 7 RECREATIONAL LAWN
- 8 PICNIC AREA
- 9 REFLECTIVE TREE GROVE
- 10 BEACH

## ECOLOGICAL

- 11 COASTAL PLANTINGS
- 12 CREEK RESTORATION
- 13 BEACHGRASS STABILIZED DUNE



# Flooding Under Existing / Proposed Conditions



# RECREATIONAL AMENITIES

(LOOKING SOUTH TOWARDS PORT NORFOLK)



PICNIC AREA

EXISTING PLAYGROUND

SPORTS COURTS BEYOND

RE-ALIGNED HARBORWALK BEYOND

PICNIC SHELTERS

BEACHGRASS STABILIZED DUNE

RECREATIONAL LAWN

+10.0

+14.0

+12.0

*\*Elevations given in NAVD83 can be converted to Boston City Base (BCB) elevation by adding 6.46 feet.*



# HARBORWALK

(LOOKING NORTH TOWARDS HARBOR)



RE-ALIGNED HARBORWALK

COASTAL PLANTING

RECREATIONAL LAWN

BEACH

BEACHGRASS  
STABILIZED DUNES

+14.0

+12.0

+10.0

*\*Elevations given in NAVD88 can be converted to Boston City Base (BCB) elevation by adding 6.46 feet.*

# Full Report Published July 2023



Scan here for access to the project page where the full executive summary has been published



DORCHESTER

SOUTH BOSTON

DOWNTOWN

EAST BOSTON

**THANK YOU!**