

FORT POINT NEIGHBORHOOD ASSOCIATION



FPNA Neighborhood Virtual Gathering

Keeping Our Heads Above Water

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Chief Engineer

Feb 25, 2022

DISCLAIMERS

Information provided in this presentation has not been vetted by City/State/Federal partners

Investigations by BWSC include conceptual visions to alternative methods of dealing with need to adapt to the changing climate and minimizing need for pumping and excessive costs (capital and long-term maintenance)

BWSC has been and is committed to working closely with city, state and federal partners to provide the optimal solutions at the appropriate time to protect our citizens, public infrastructure and private property

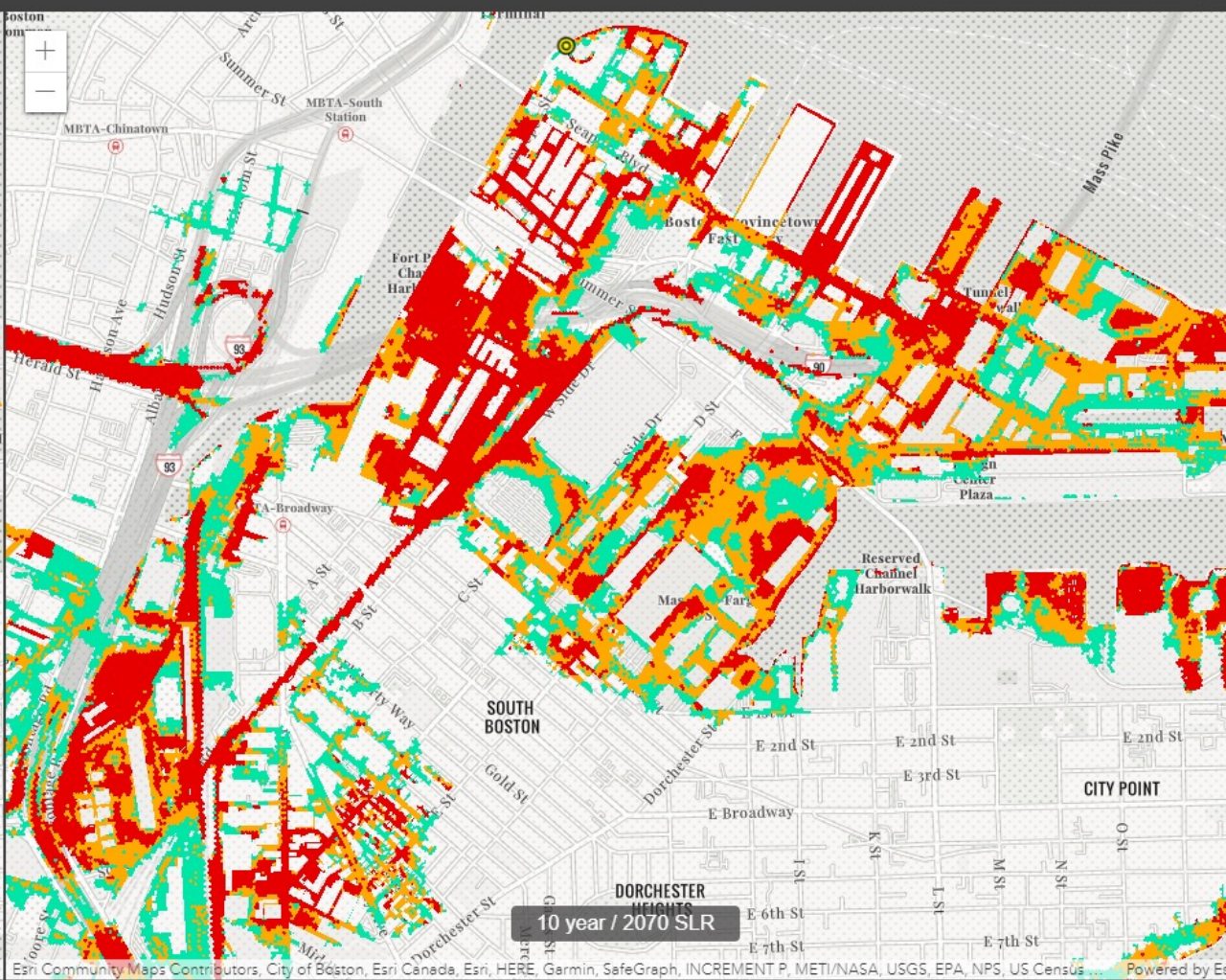
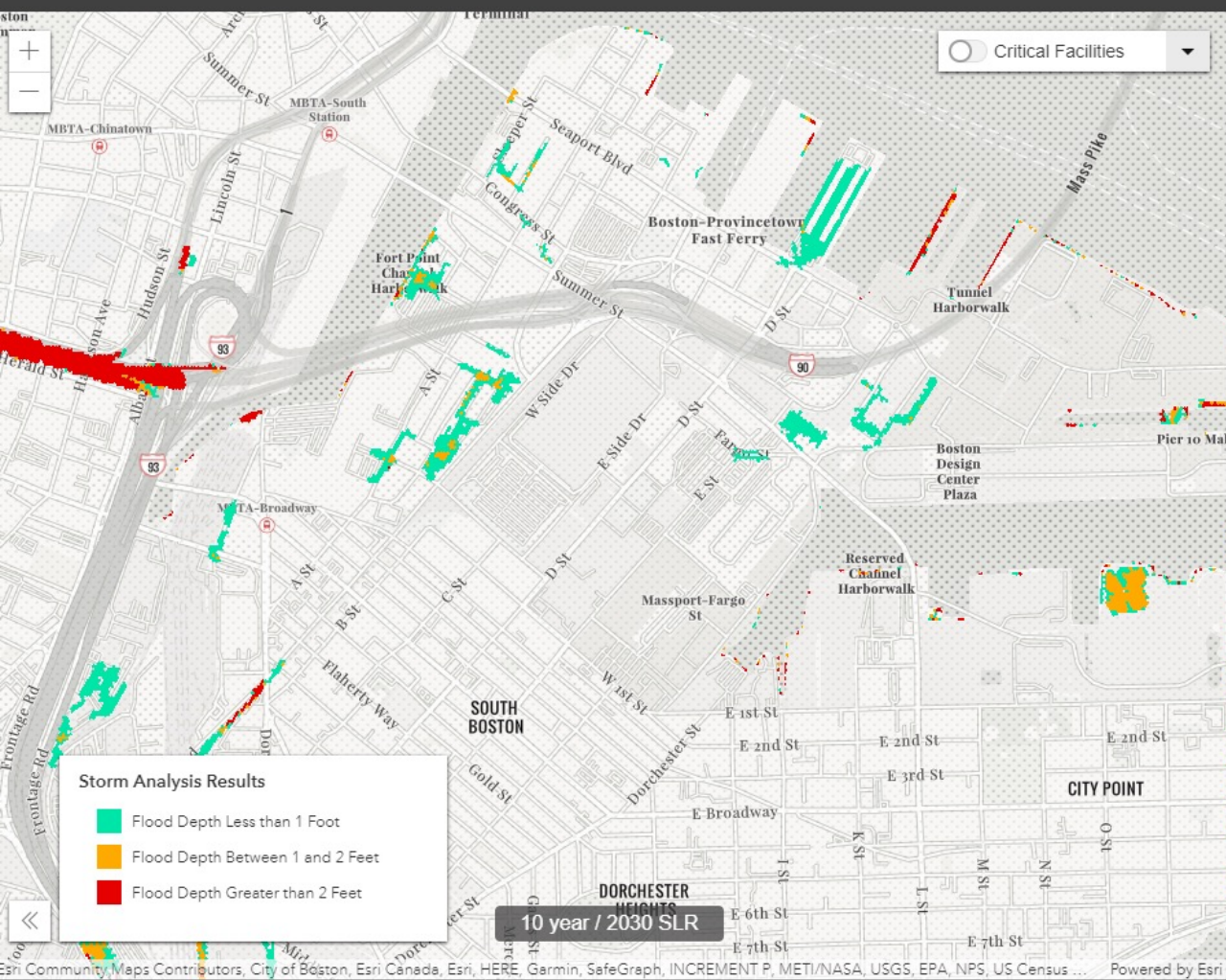
Proposed berms along FPC will not conflict with this proposal but will work in conjunction with overall scheme

City of Boston Inundation Model

WWW.BWSCSTORMVIEWER.COM

Boston Water and Sewer Commission





1 Extreme Weather Event

T-storm

Nor'easter

Tropical

Frontal

2 Amount of Rainfall

10 year

5.84 in

50 year

8.46 in

100 year

9.58 in

(over a period of 48 hours)

3 Sea Level Rise (SLR) and Storm Surge from Baseline Condition

1.3 ft
2030 SLR

4.3 ft
2070 SLR

No Storm Surge

Compare 2030 & 2070

4 360 Tour
Click on Map

5 Impact Forecast

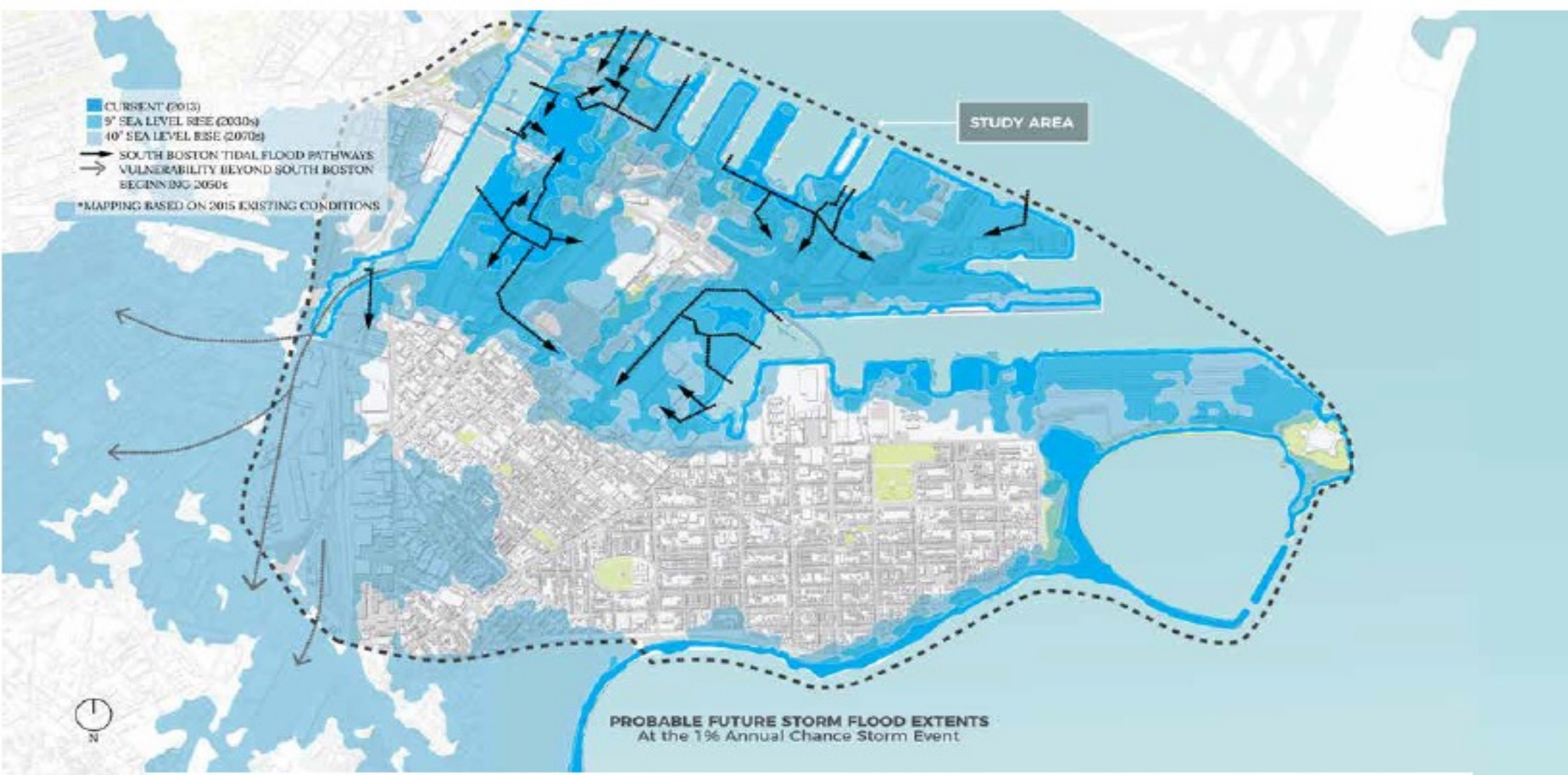
School

Health Facility

Police Department

EMS/Fire Station

MBTA Station

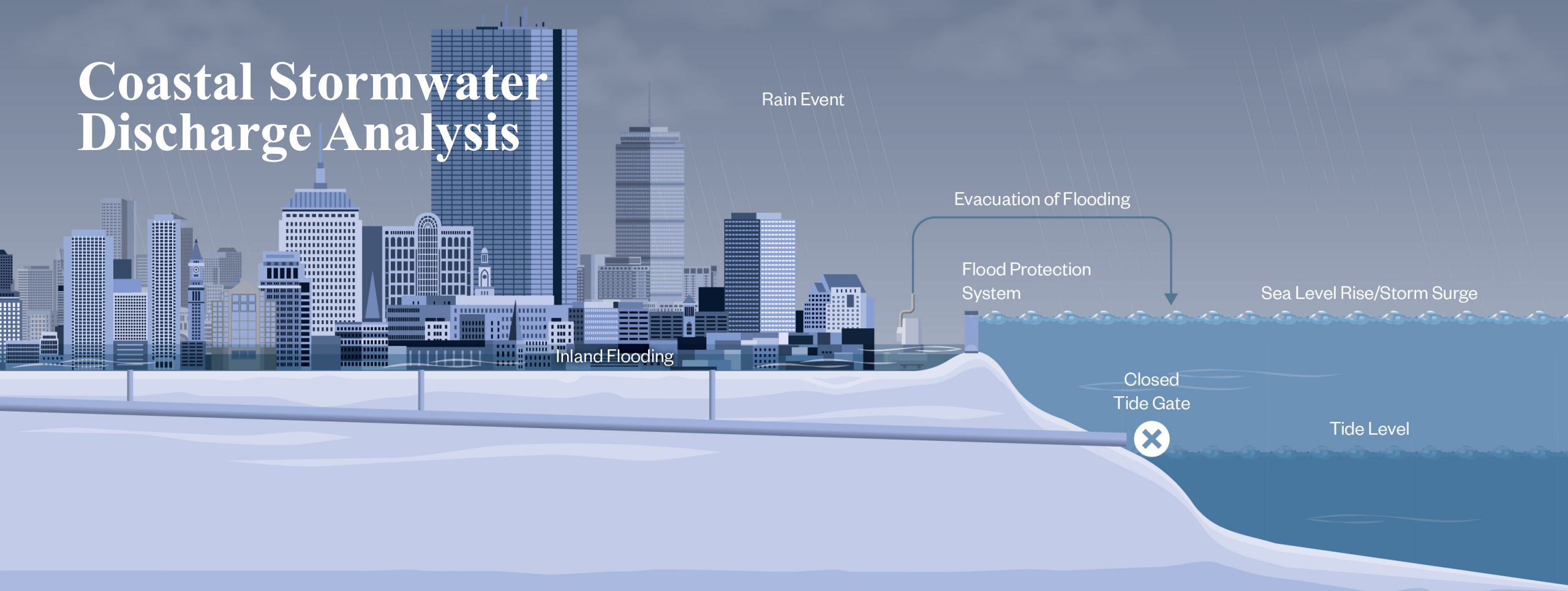


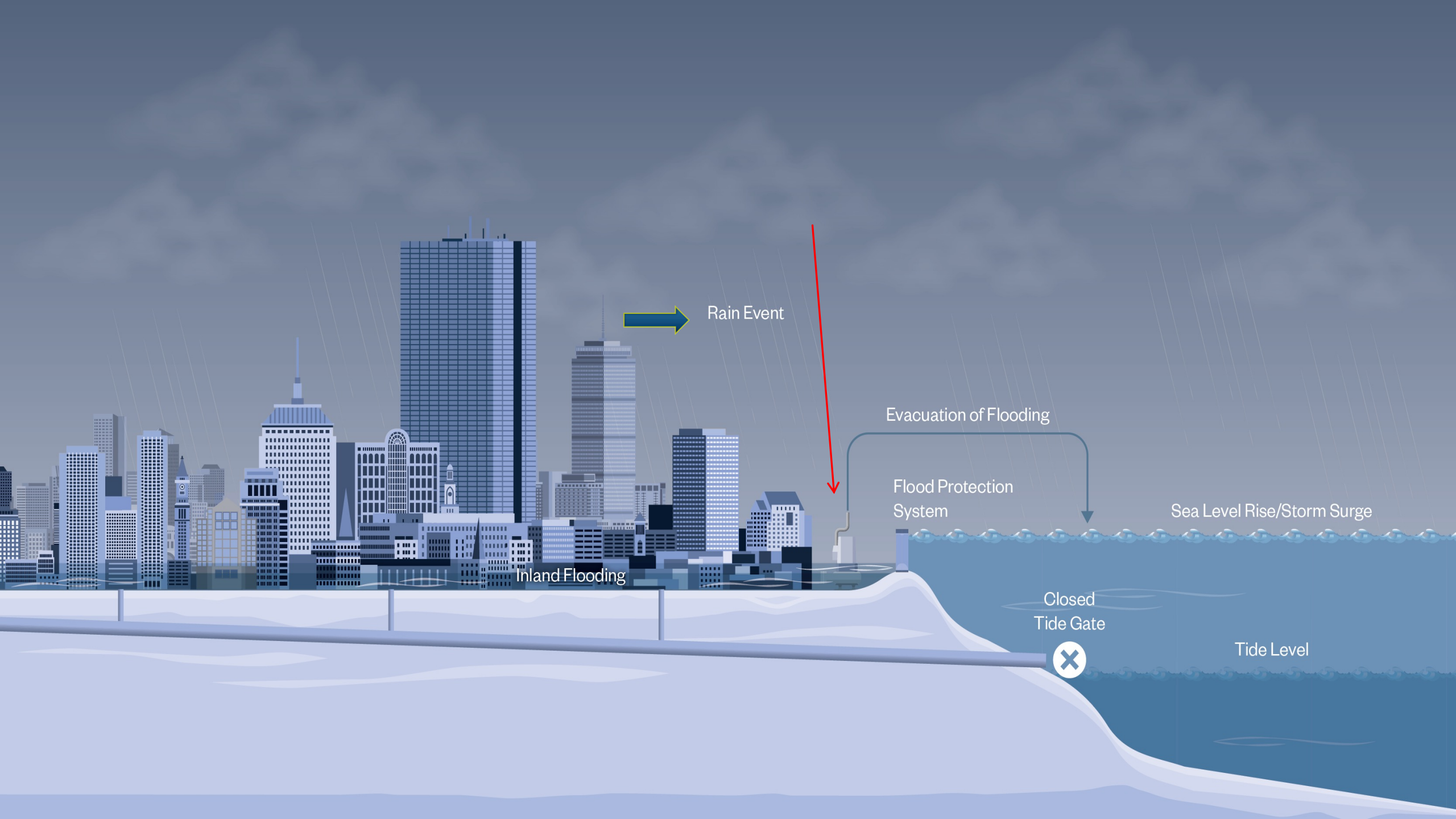
South Boston faces extensive current and future flood risk. The gradations of blue in the map show how the 1-percent annual chance flood changes through time. As the climate changes and sea level increases, the extent of flooding due to storm events also evolves. The colors do not indicate depth of flooding. Arrows indicate key flood pathways. If no action is taken, flood pathways from the South Boston neighborhood will eventually extend into other parts of the City, including the South End via the Fort Point Channel.



Boston Water and
Sewer Commission

Coastal Stormwater Discharge Analysis





Rain Event



Evacuation of Flooding

Flood Protection
System

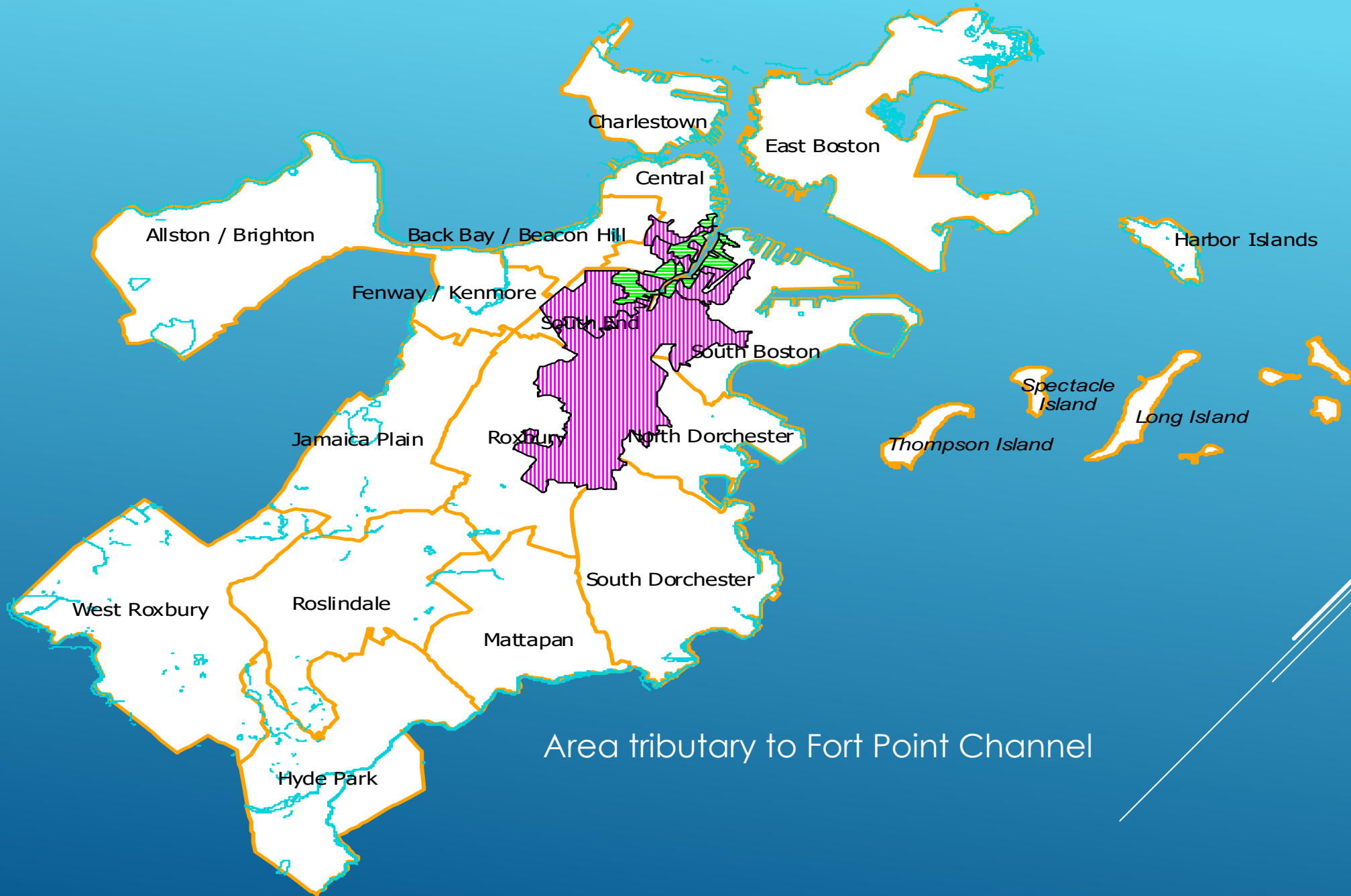
Sea Level Rise/Storm Surge

Inland Flooding

Closed
Tide Gate

Tide Level





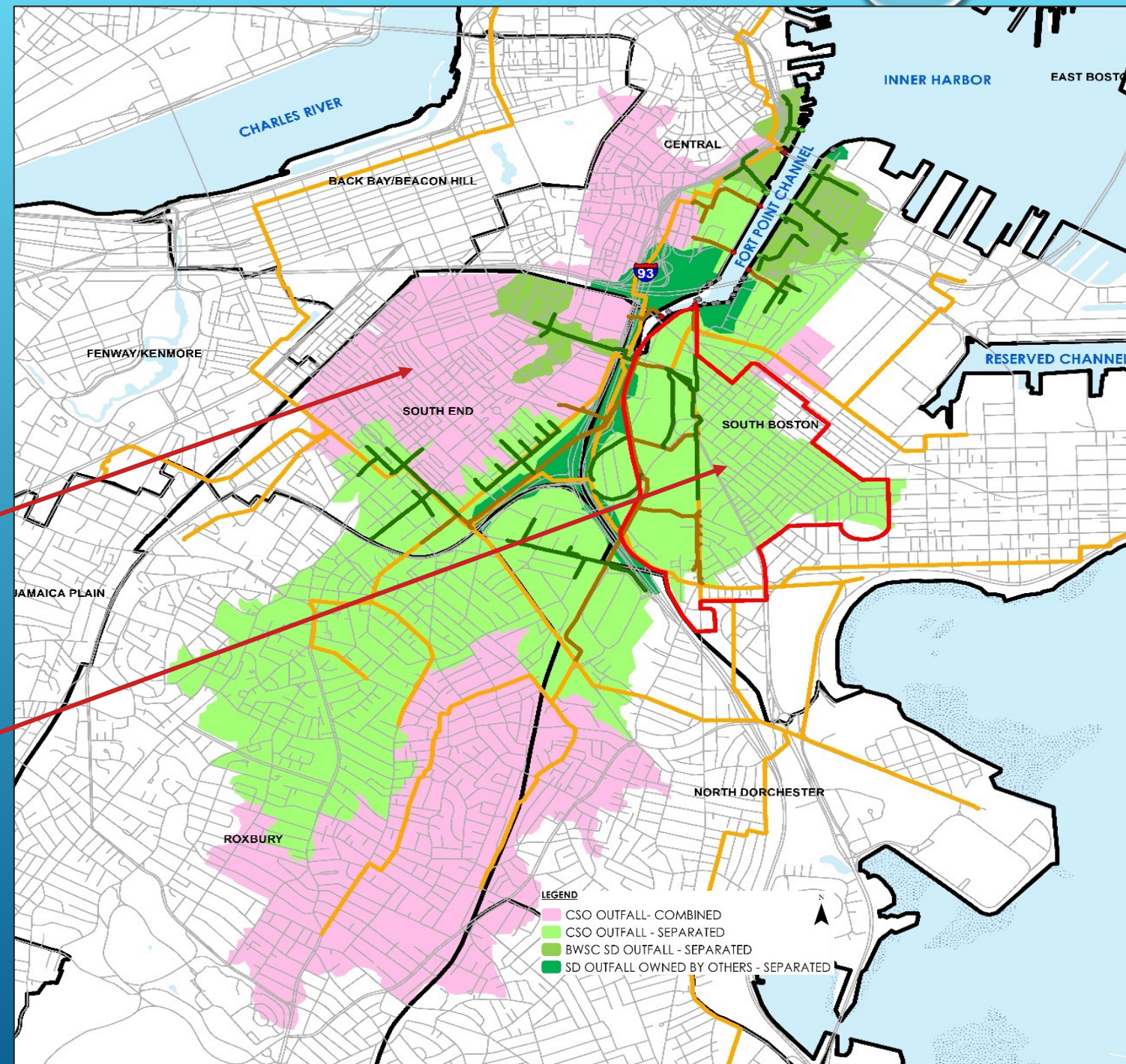
Area tributary to Fort Point Channel

FPC Tributary Area – 2030

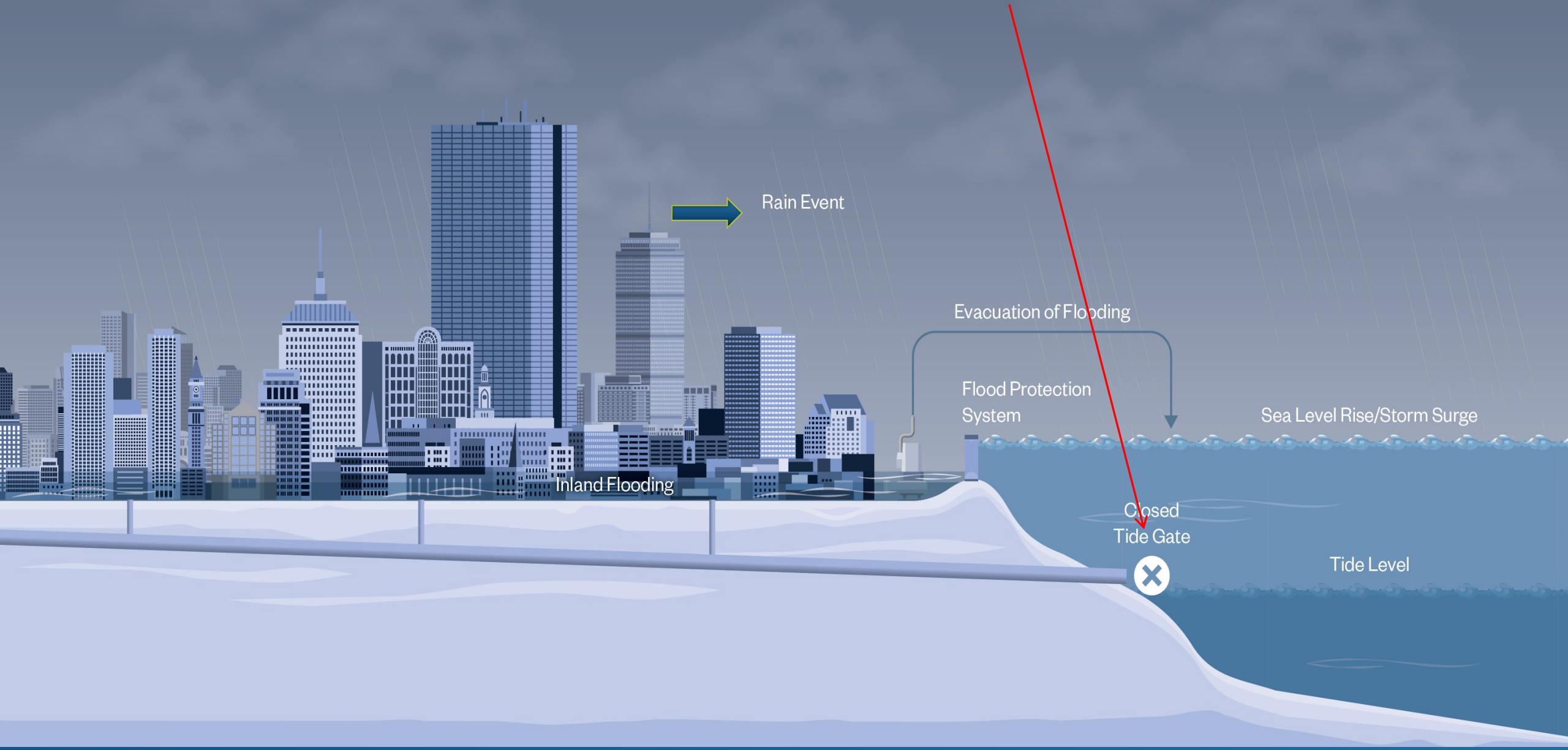
Approx. 10% of Boston falls within FPC Watershed

South End CSO is treated at UPPS

Combined sewer area outlined in red is currently being separated under a 7-year construction program



What are tide gates and why are they important?



OUTFALL INVENTORY – 585 –

COMMISSION GIS (INVENTORY WILL BE UPDATED)

- BPDA – 5
- BWSC - 271
- CAT - 1
- DCR - 53
- DOT - 27
- MBTA - 1
- MHD - 29
- MassPort - 11
- MWRA - 15
- Private - 172



NEW TIDE GATES MT. WASHINGTON AVE

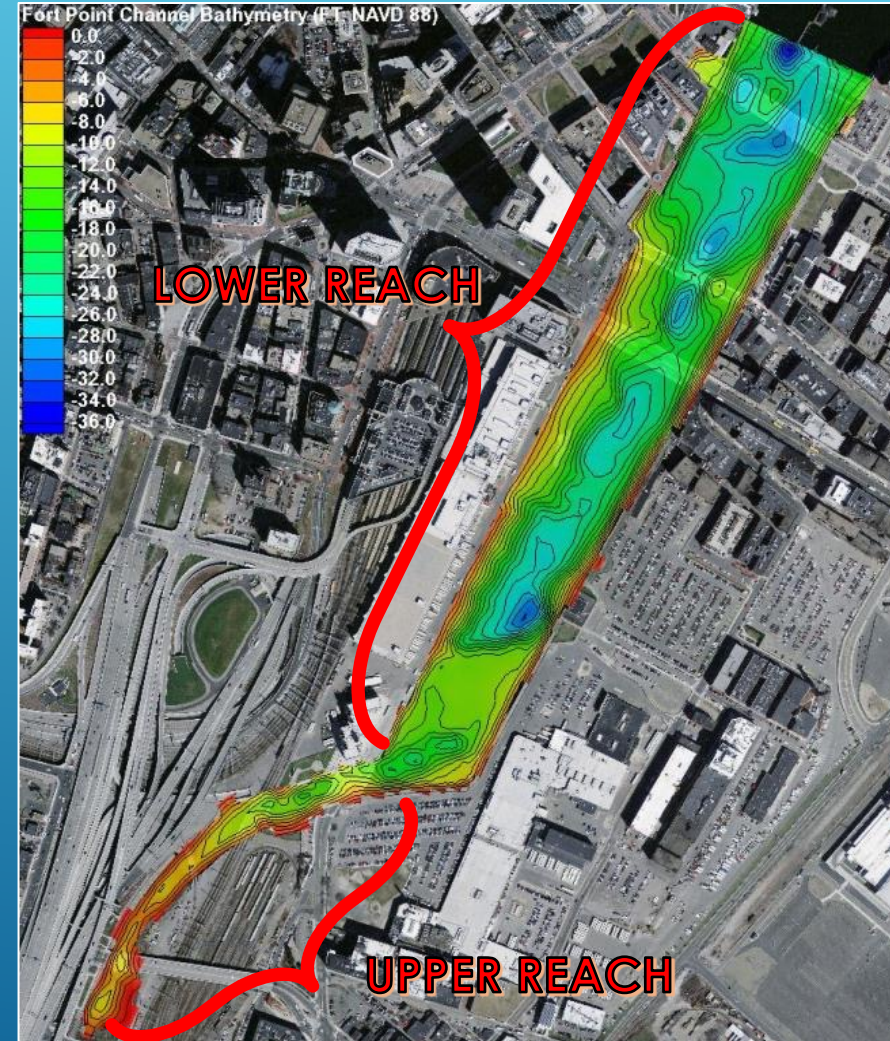




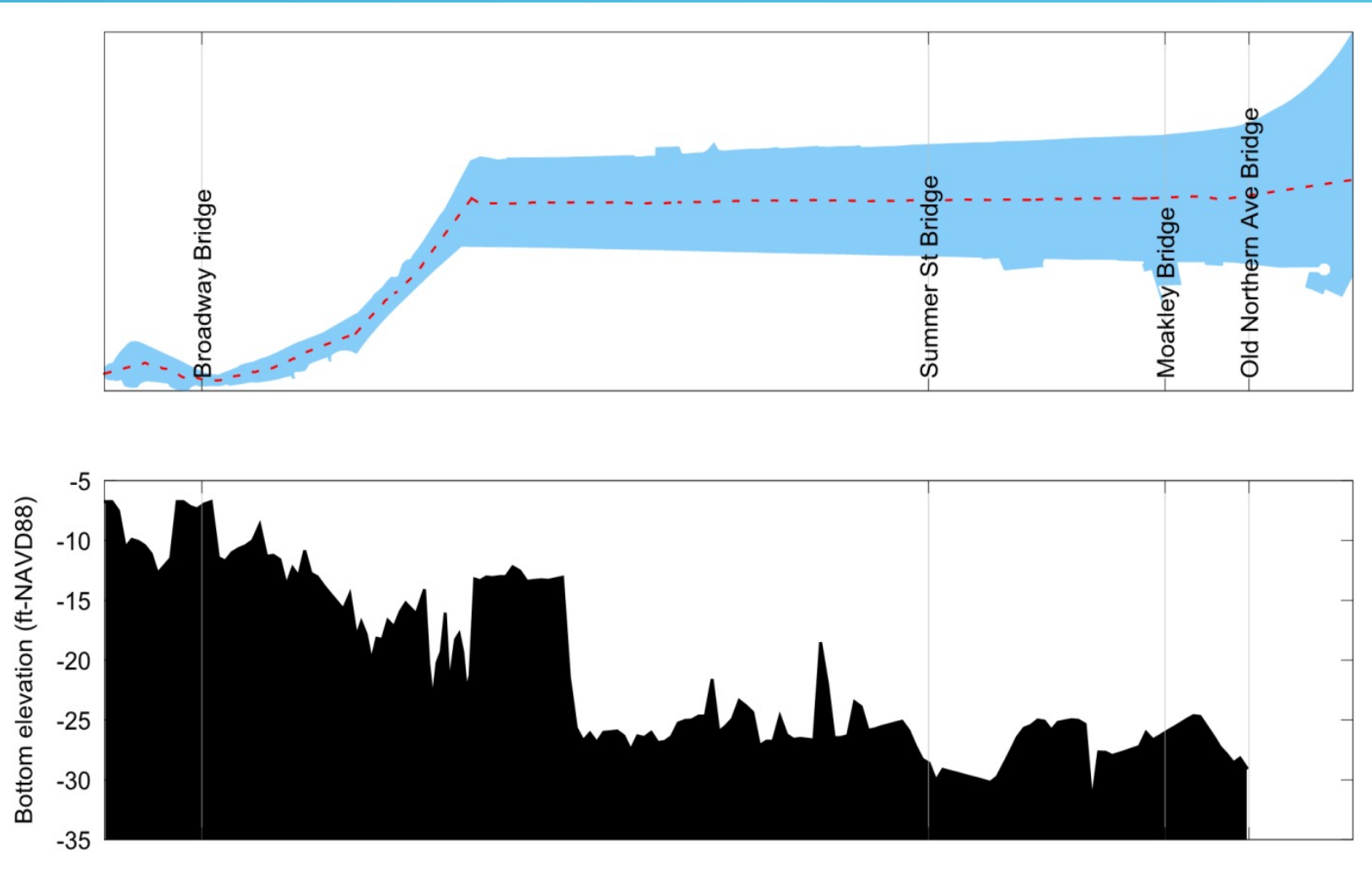
- ▶ Fort Point Channel between Downtown Boston and South Boston

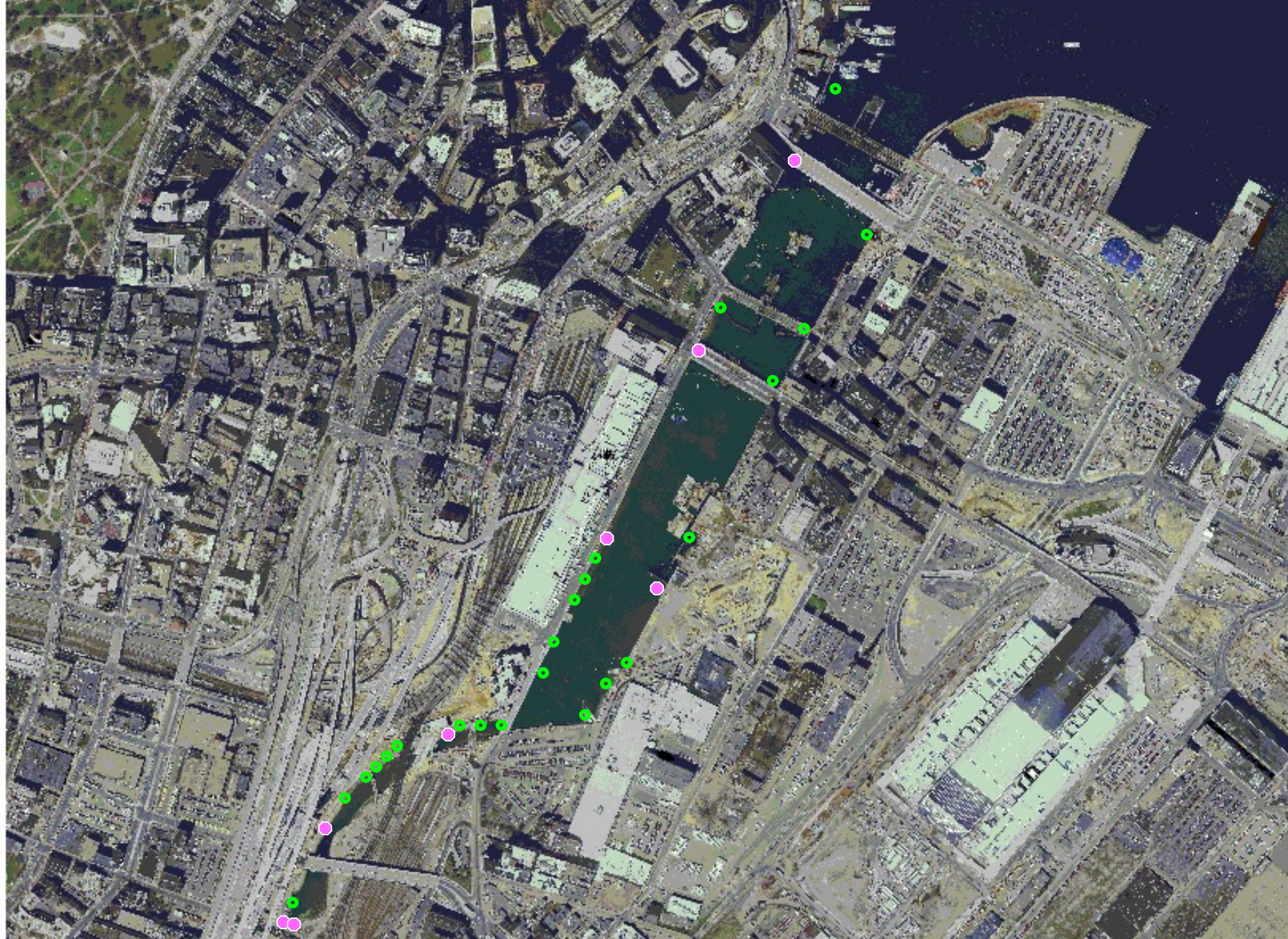
CHANNEL GEOMETRY & BATHYMETRY

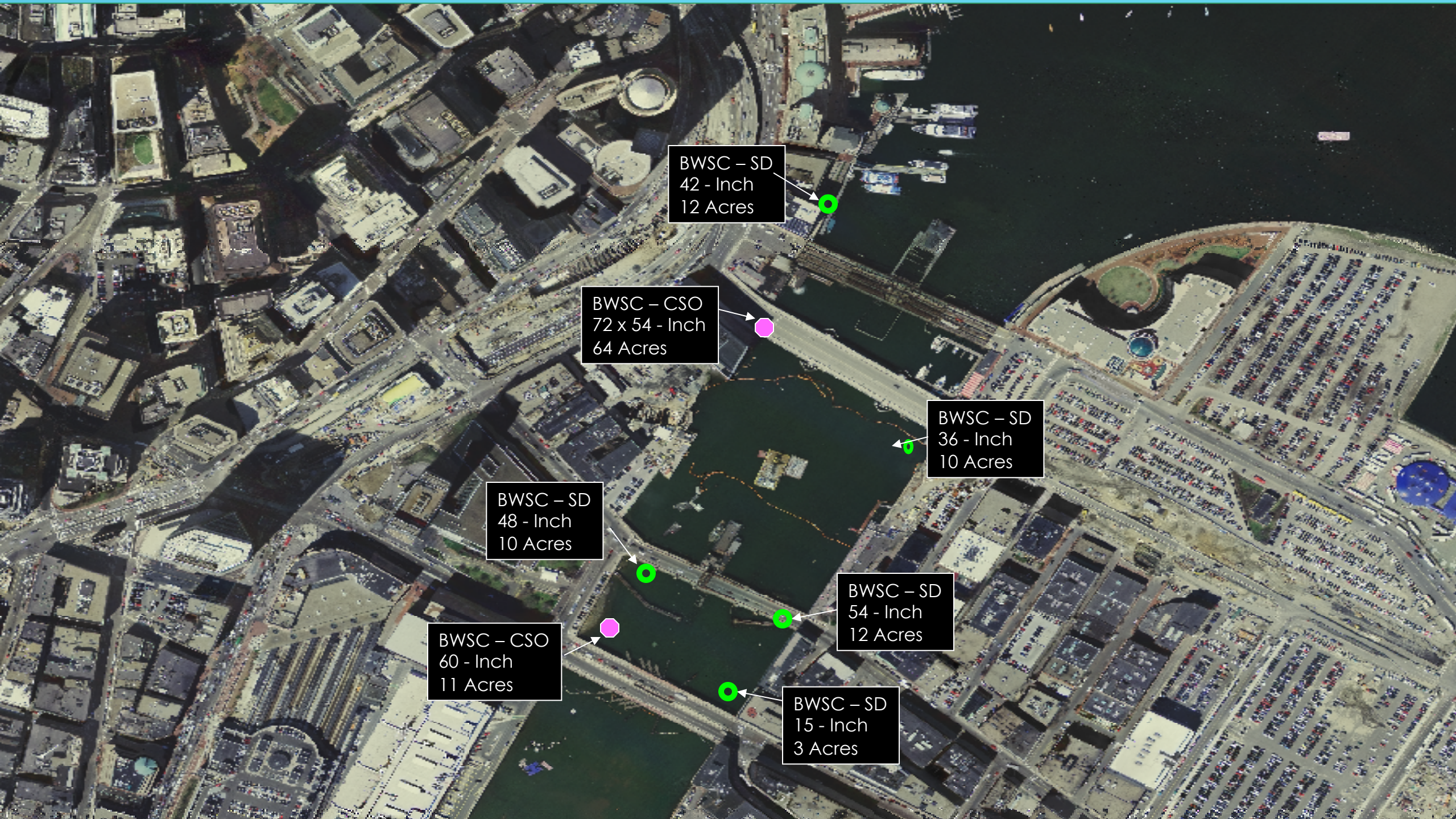
- ▶ Lower Reach
 - ▶ Approx. Length = 3700 ft
 - ▶ Avg. Width = 530 ft
- ▶ Upper Reach
 - ▶ Approx. Length = 1960 ft
 - ▶ Avg. Width = 90 ft
- ▶ 36 feet deep at the old Northern Avenue Bridge.
- ▶ Upstream end is shallow.



CHANNEL PROFILE







BWSC - SD
42 - Inch
12 Acres

BWSC - CSO
72 x 54 - Inch
64 Acres

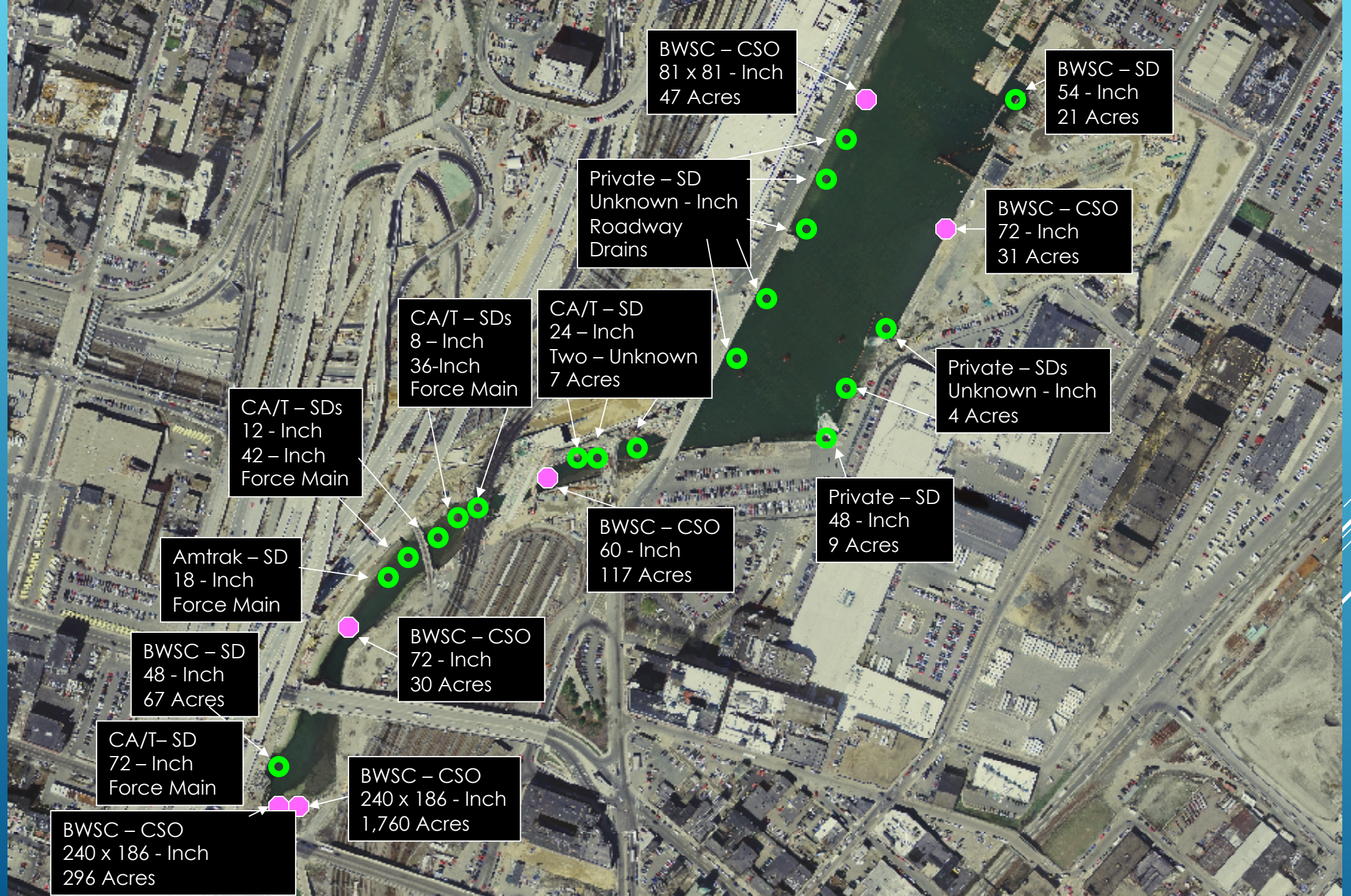
BWSC - SD
36 - Inch
10 Acres

BWSC - SD
48 - Inch
10 Acres

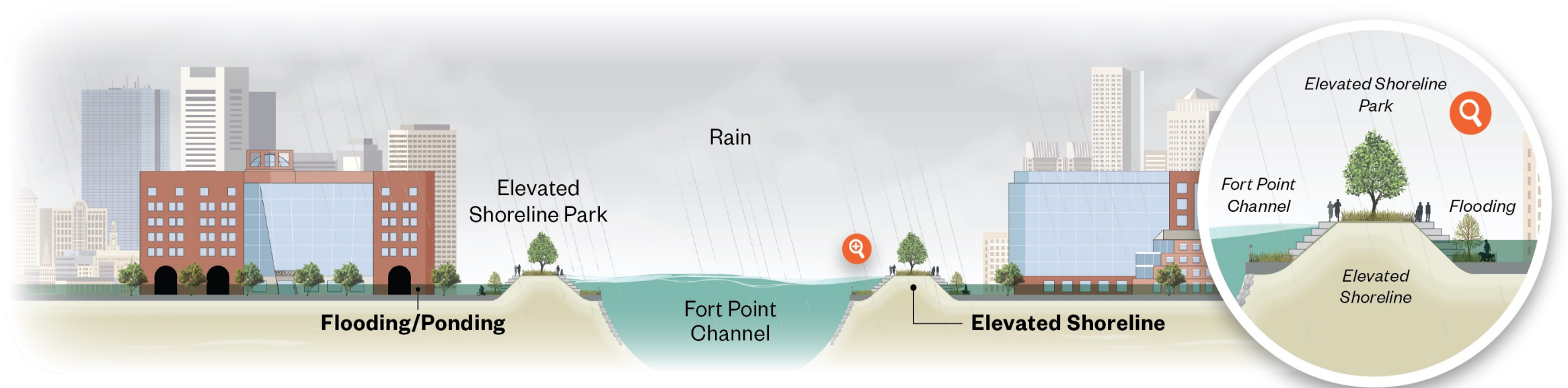
BWSC - CSO
60 - Inch
11 Acres

BWSC - SD
54 - Inch
12 Acres

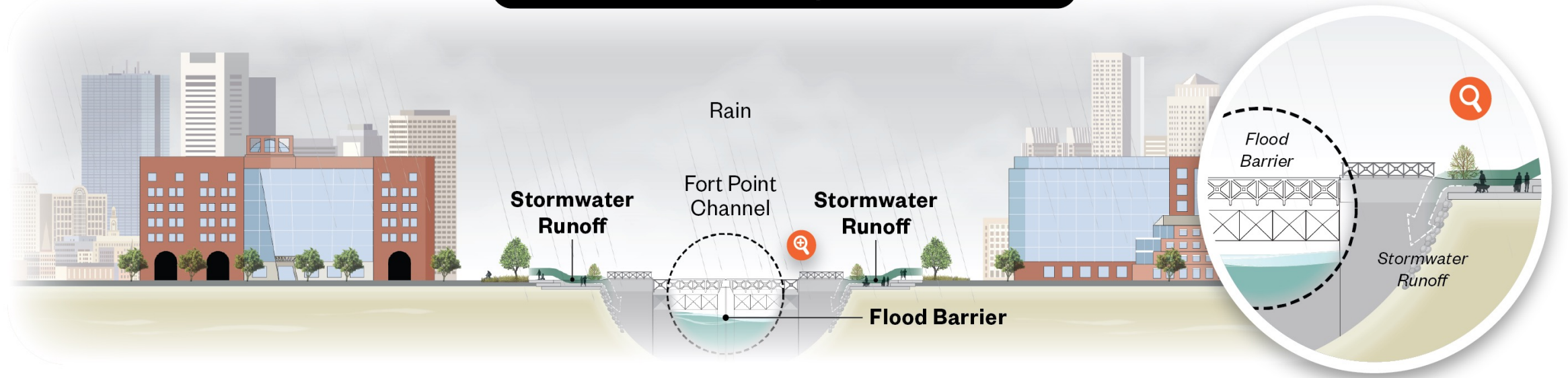
BWSC - SD
15 - Inch
3 Acres



FORT POINT CHANNEL – BARRIER & ELEVATED SHORELINE OPTIONS



↑ Elevated Shoreline / Flood Barrier ↓



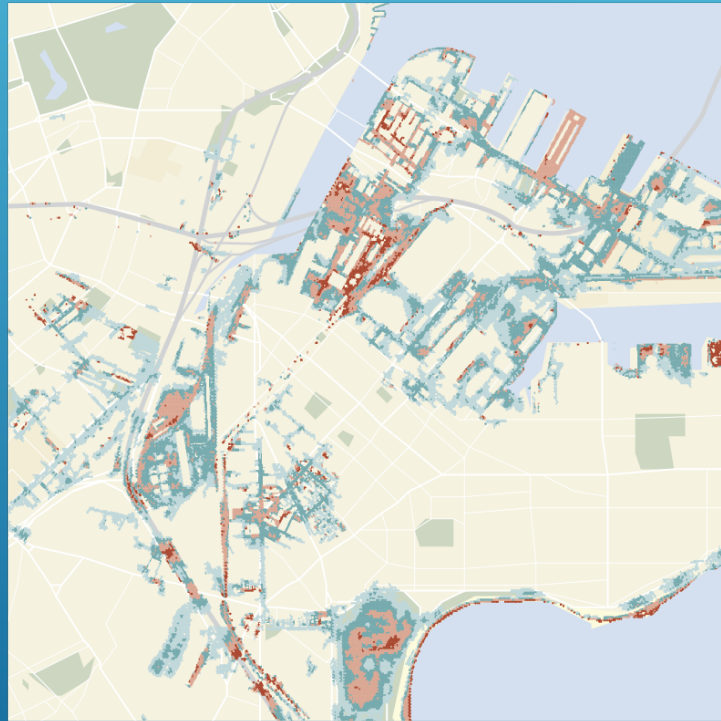
FORT POINT CHANNEL BARRIER – PRELIMINARY ASSESSMENT OF EFFECTIVENESS

Legend (flooding depth)

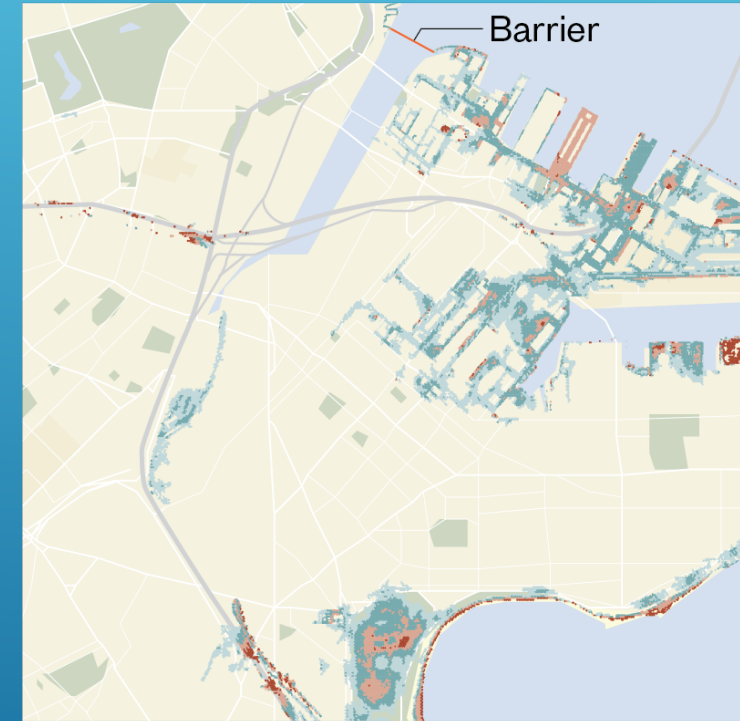
0-1 ft 1-2 ft 2-3 ft 3-4 ft

- 2D Inundation Model used to assess effectiveness with MC-FRM boundary conditions
- Barrier at the mouth of the Channel facilities interior drainage and prevents flooding due to high sea levels

Existing Conditions



Channel "Closed"



Google Earth Pro
File Edit View Tools Add Help

"Public Parcel"

"Public Parcel"

CITY OF BOSTON
NORTH AVENUE BRIDGE
LANDSCAPE PLAN - 2 OF 3

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA		19	20

PROJECT FILE NO. 62866338
Revised on: 16-May-2022 3:51 PM

MEAN HIGH WATER ELEV. -4.33'
MEAN LOW WATER ELEV. -5.17'
(ALL MATCH COASTAL BANK IN PLAN VIEW)

NORTH PROMENADE - SITE IMPROVEMENTS:

- WOOD DECKING
- PRECAST CONCRETE UNIT PAVERS
- SEAT ELEMENTS

NOTE: PHASE 2 DESIGN SHOWN

NORTH FLYOVER - SITE IMPROVEMENTS:

- PRECAST CONCRETE UNIT PAVERS
- SEAT ELEMENTS
- RAISED PLANTERS
- PLANTING

PROMENADE PHASE 3 PROGRAMMING TO BE DETERMINED

PHASE 1

PHASE 2

PHASE 3

WEST RAMP - SITE IMPROVEMENTS:

- CAST IN PLACE PAVING
- SEAT ELEMENTS
- RAISED PLANTERS
- PLANTING

SOUTH PROMENADE - SITE IMPROVEMENTS:

- PRECAST CONCRETE UNIT PAVERS
- SEAT ELEMENTS
- PLANTER EDGE
- PLANTING

NOTE: PHASE 2 DESIGN SHOWN

EAST STAIR AND BRIDGE PLAZA - SITE IMPROVEMENTS:

- CAST IN PLACE PAVING
- SEAT ELEMENTS
- RAISED PLANTERS
- PLANTING

SOUTH FLYOVER - SITE IMPROVEMENTS:

- PRECAST CONCRETE UNIT PAVERS
- CAST IN PLACE PAVING

RESOURCE AREA LEGEND

- COASTAL BANK, MEAN HIGH WATER, HIGH TIDE LINE

Google Earth

“Public Parcel

RESOURCE AREA LEGEND

- COASTAL BANK,
MEAN HIGH WATER,
HIGH TIDE LINE

WEST RAMP - SITE IMPROVEMENTS:

- CAST IN PLACE PAVING
- SEAT ELEMENTS
- RAISED PLANTERS
- PLANTING

SOUTH PROMENADE - SITE IMPROVEMENTS:

- PRECAST CONCRETE UNIT PAVERS
- SEAT ELEMENTS
- PLANTER EDGE
- PLANTING

NOTE: PHASE 2 DESIGN SHOWN

NORTH PROMENADE - SITE IMPROVEMENTS:

- WOOD DECKING
- PRECAST CONCRETE UNIT PAVERS
- SEAT ELEMENTS

NOTE: PHASE 2 DESIGN SHOWN

NORTH FLYOVER - SITE IMPROVEMENTS:

- PRECAST CONCRETE UNIT PAVERS
- SEAT ELEMENTS
- RAISED PLANTERS
- PLANTING

COLUMN (TYPE)
 PHASE 3
 PHASE 2

PROMENADE PHASE 3
 PROGRAMMING TO BE
 DETERMINED

PHASE 1

PHASE 1

—

SOUTH FLYOVER - SITE IMPROVEMENTS
PRECAST CONCRETE UNIT PAVERS
CAST IN PLACE PAVING

**EAST STAIR AND BRIDGE PLAZA -
SITE IMPROVEMENTS:**

- CAST IN PLACE PAVING
- SEAT ELEMENTS
- RAISED PLANTERS
- PLANTING

CITY OF BOSTON
NORTHERN AVENUE BRIDGE

STATE	FED. AID PROJ. NO.	SHEET NO.	TOT SHEETS
MA	-	15	3
PROJECT FILE NO.		60560338	

LANDSCAPE PLAN - 2 OF 3

MEAN HIGH WATER ELE
MEAN LOW WATER ELEV
(ALL MATCH COASTAL BANK IN PL)



Google Earth

Imagery Date: 4/28/2019 lat 42.354612° lon -71.049374° elev 0 ft eye alt 762 ft

FEASIBLE GATE TYPES FOR FORT POINT CHANNEL



Vertical Lift Gate

- Low-cost alternative
- Proven technology
- Low O&M burden
- Adaptable to future conditions
- Relatively high viewshed impacts



Submerged Axis Flap Gate

- Greater capital cost
- Minimized viewshed impact
- Higher O&M burden
- Adaptable to future conditions



► Next steps

Discussion

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