

A BETTER CITY CONVERSATIONS:

I-90 ALLSTON PROJECT: RIVERFRONT ANALYSIS + DESIGN EXPLORATION

A



BETTER

CITY



WELCOME & INTRODUCTION

RICK DIMINO

A BETTER CITY

TODAY'S GUEST SPEAKERS

GAUTAM SUNDARAM
PRINCIPAL
PERKINS&WILL

KISHORE VARANASI
PRINCIPAL
CBT

DEVANSHI PUROHIT
SENIOR URBAN DESIGNER
CBT

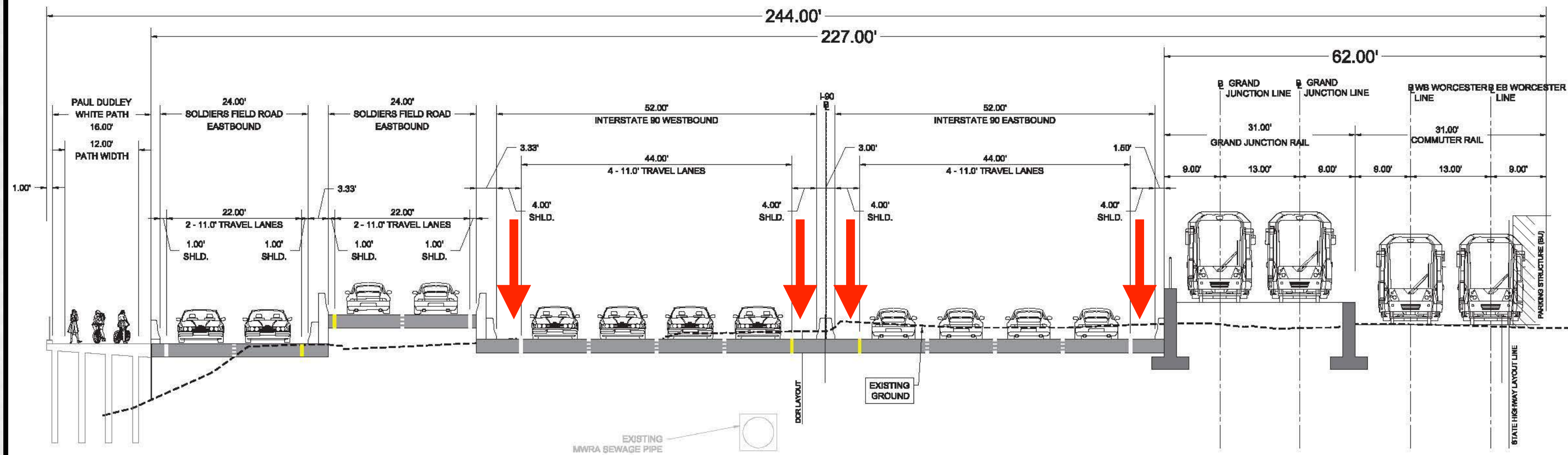
Modified All-At-Grade

ABC Conversation

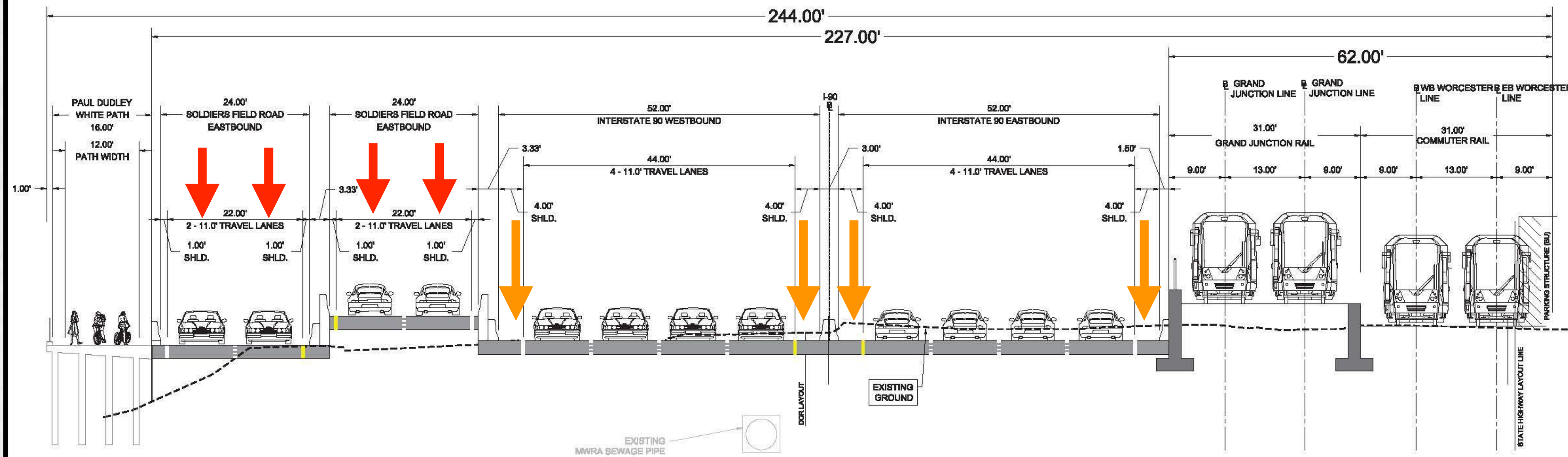
October 9, 2020

Shoulder Widths:

I-90

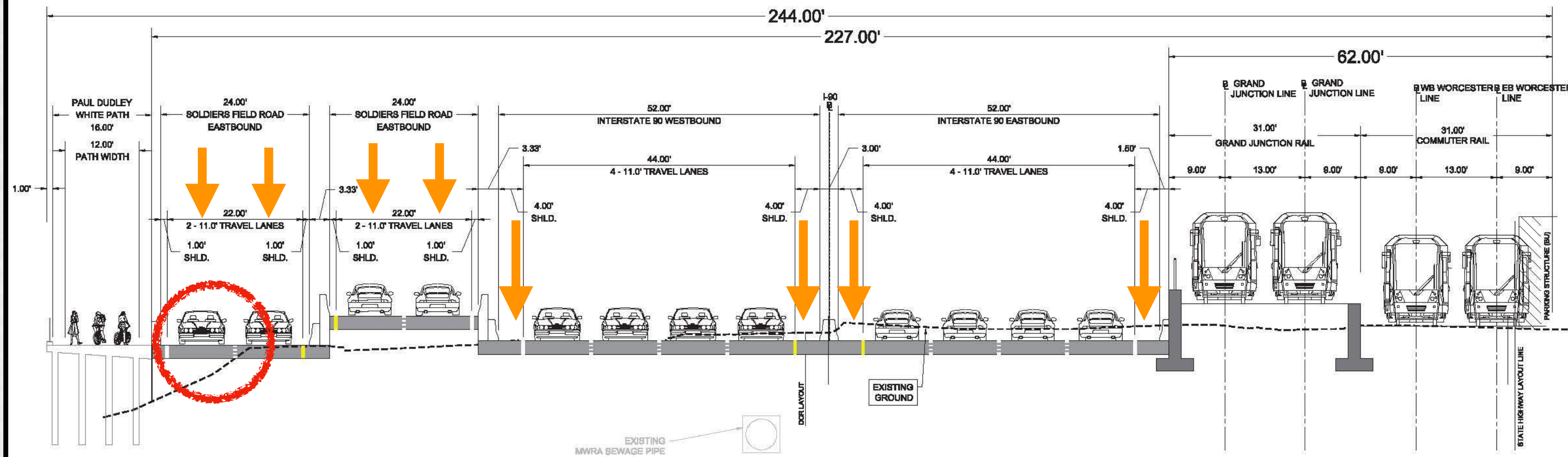


Lane Widths: Soldiers Field Road



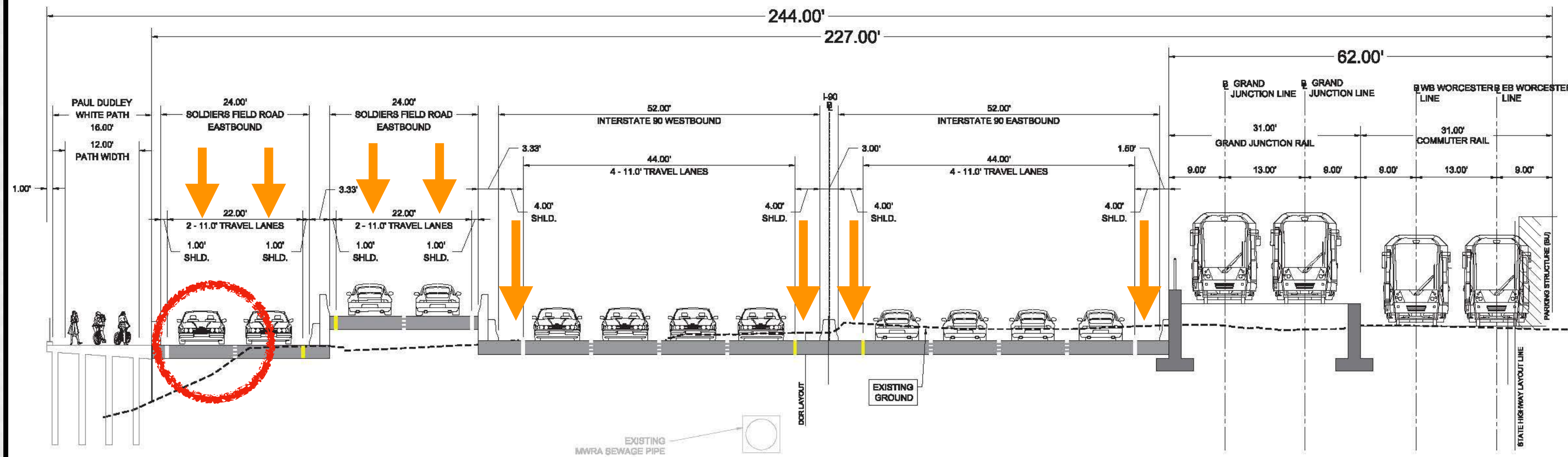
Roadway in River

Soldiers Field Road



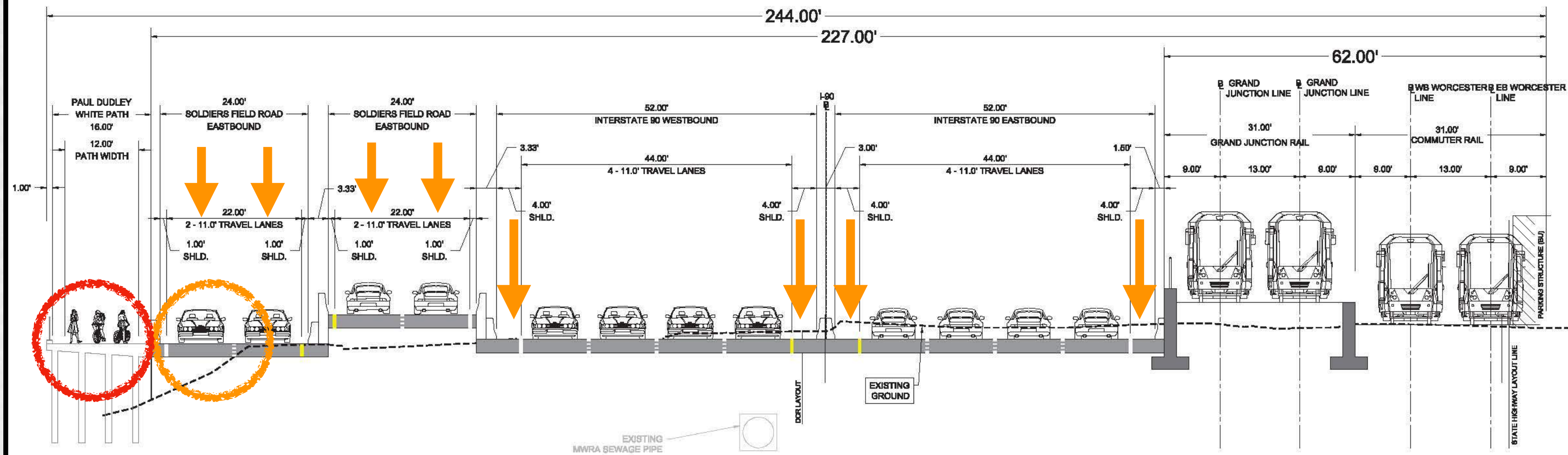
Bank

Not Enhanced



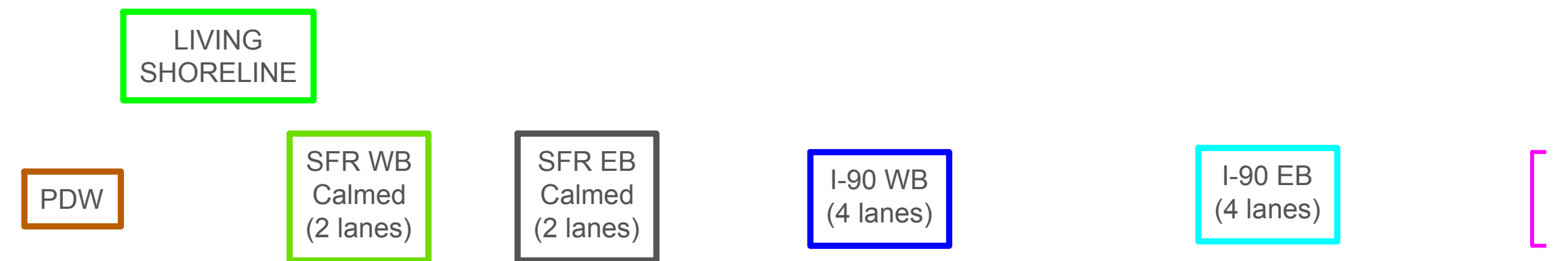
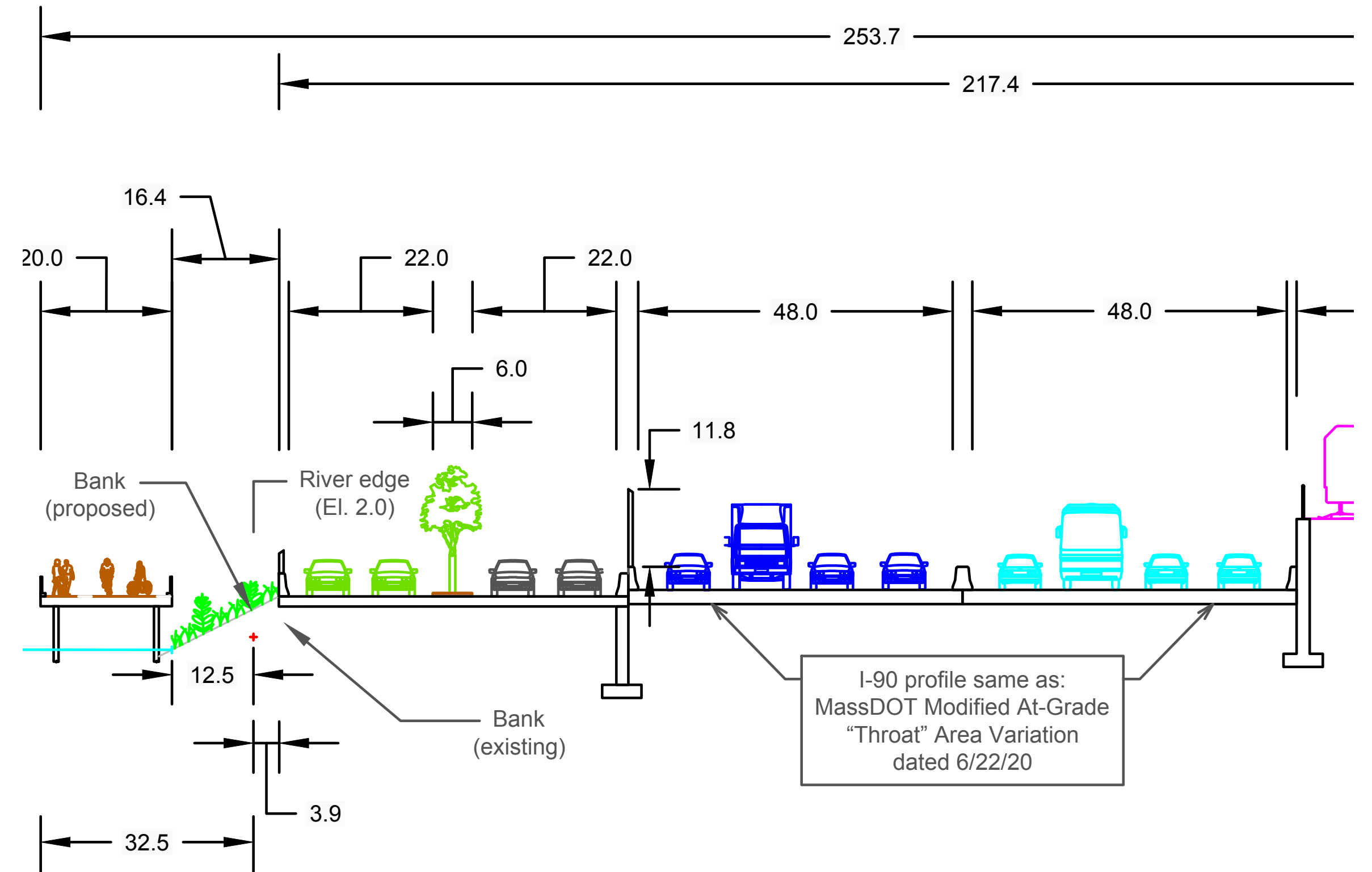
Paul Dudley White

Single Narrow Path



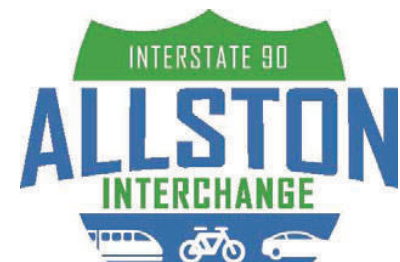
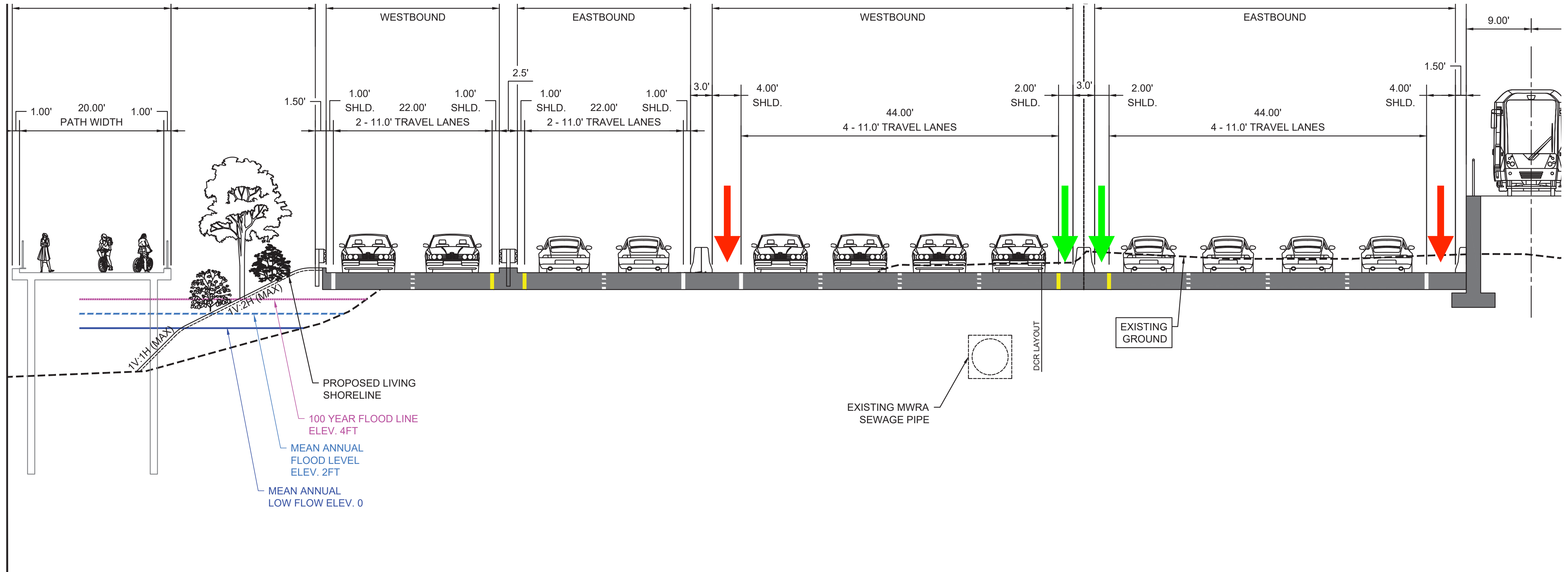
COB/ABC At-Grade Proposal to MassDOT

- No reduction # of lanes
- No roadway in river
- “Flexibility”:
 - a. I-90 shoulder widths
 - b. Soldiers Field Road (Storrow) lane widths
 - c. Boston University
- Living Shoreline | Paul Dudley White



Shoulders Narrowed

I-90

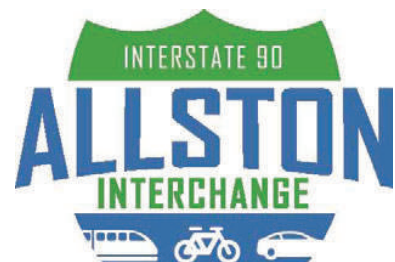
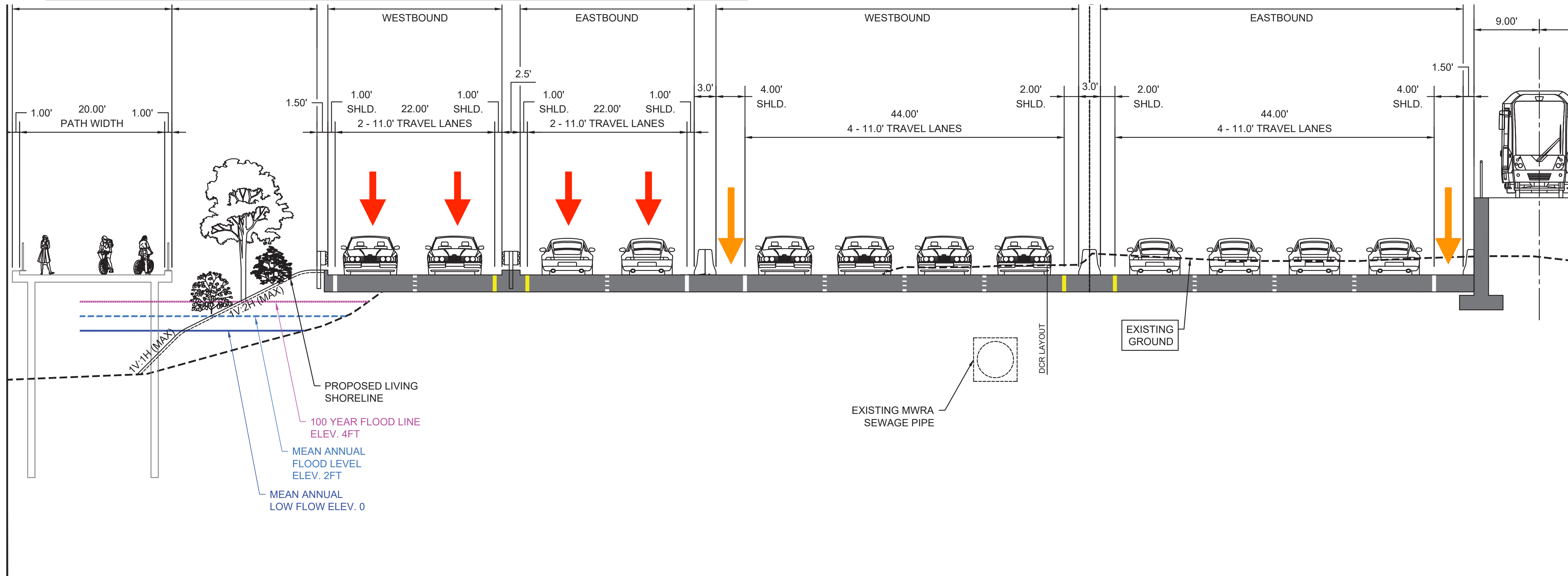


DRAFT

Modified At-Grade Throat Area

I-90 Allston Multimodal Project
Allston, Massachusetts
September 29, 2020

Lane Widths: Soldiers Field Road



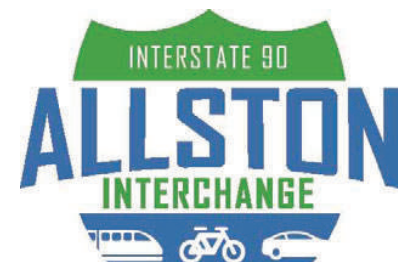
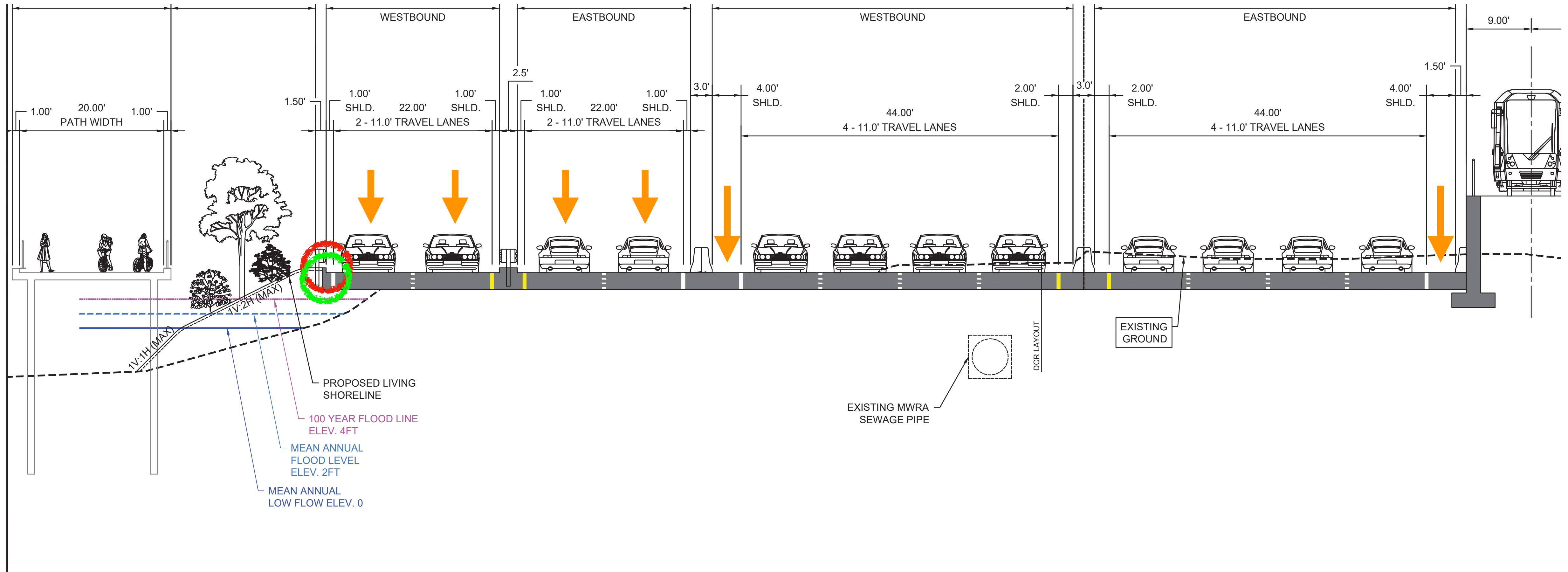
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Modified At-Grade Throat Area

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Roadway in River

Soldiers Field Road



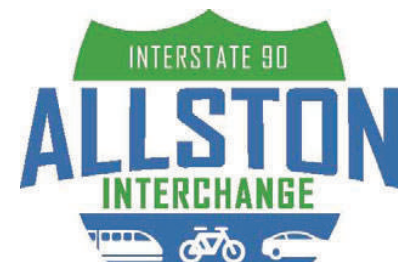
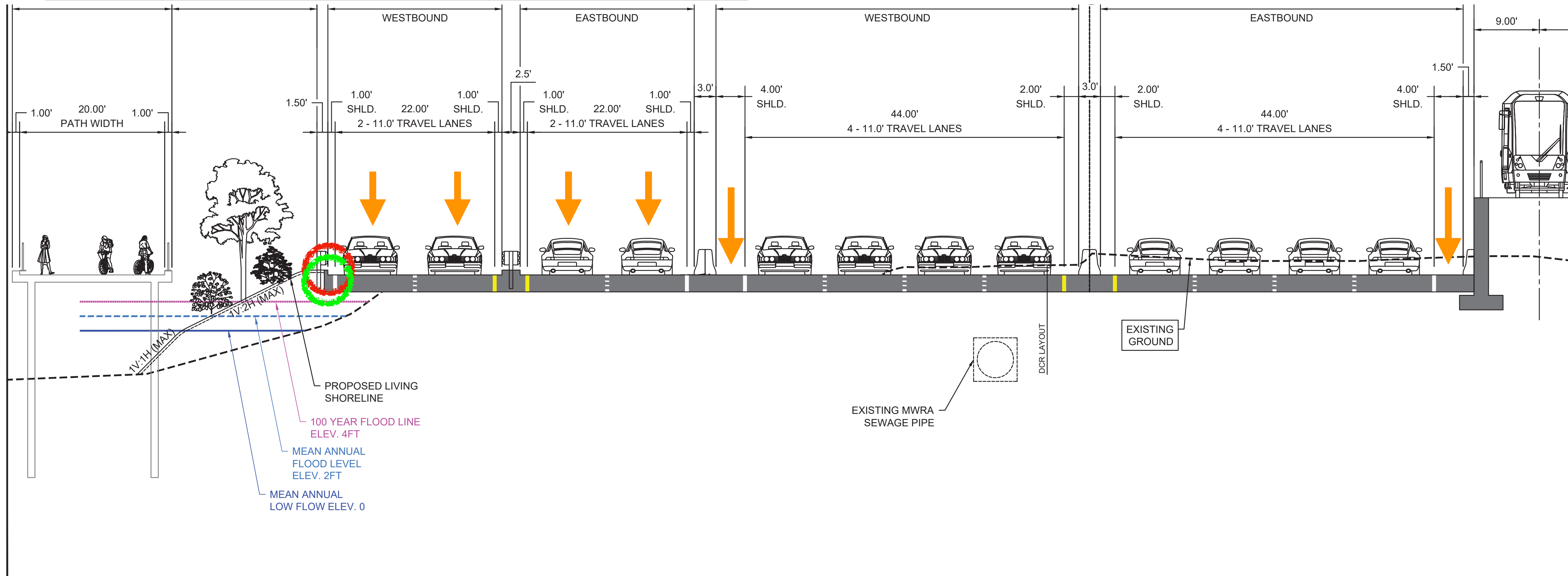
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Modified At-Grade Throat Area

I-90 Allston Multimodal Project
Allston, Massachusetts
September 29, 2020

Roadway in River

Several Ways to Eliminate

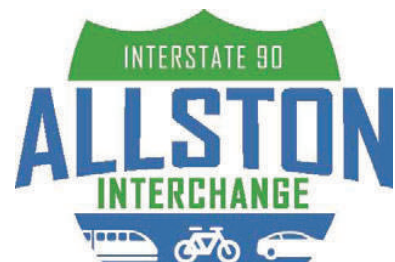
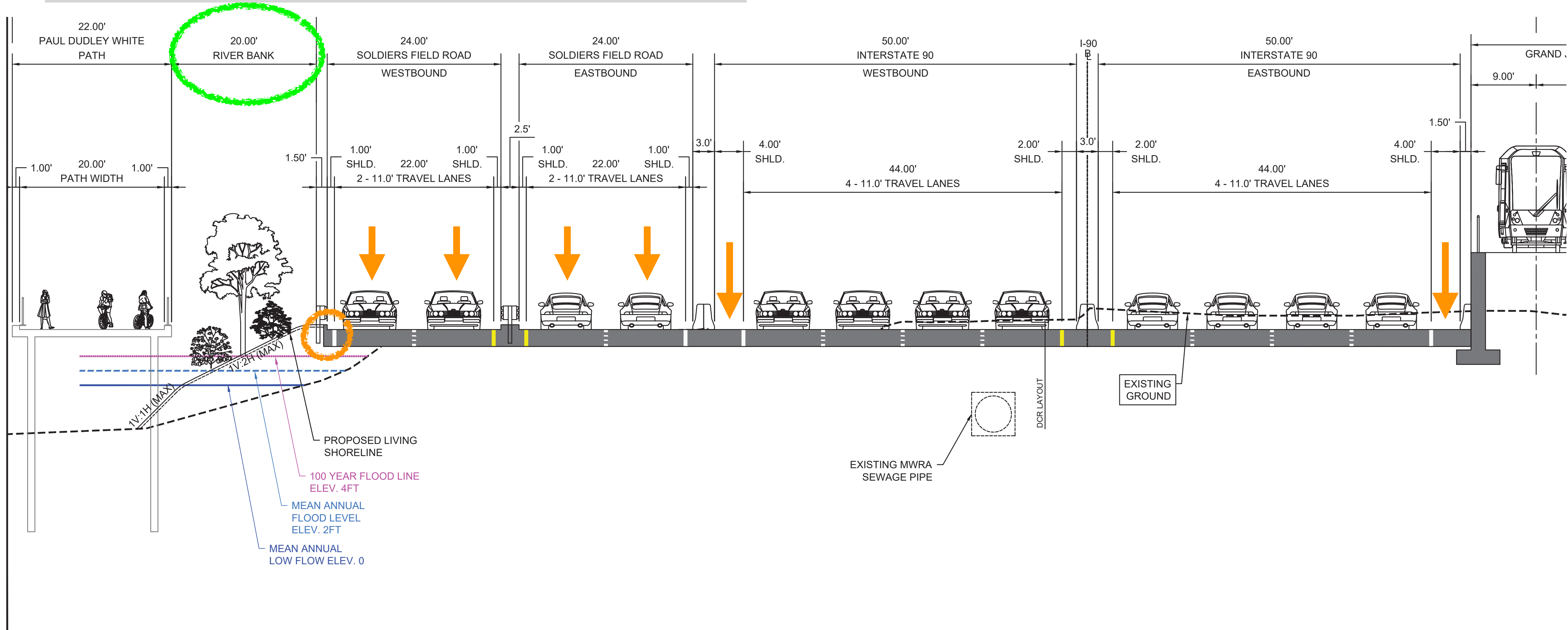


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Modified At-Grade Throat Area

I-90 Allston Multimodal Project
Allston, Massachusetts
September 29, 2020

Living Shoreline

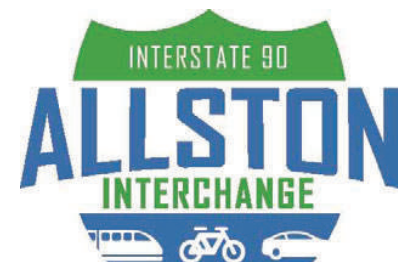
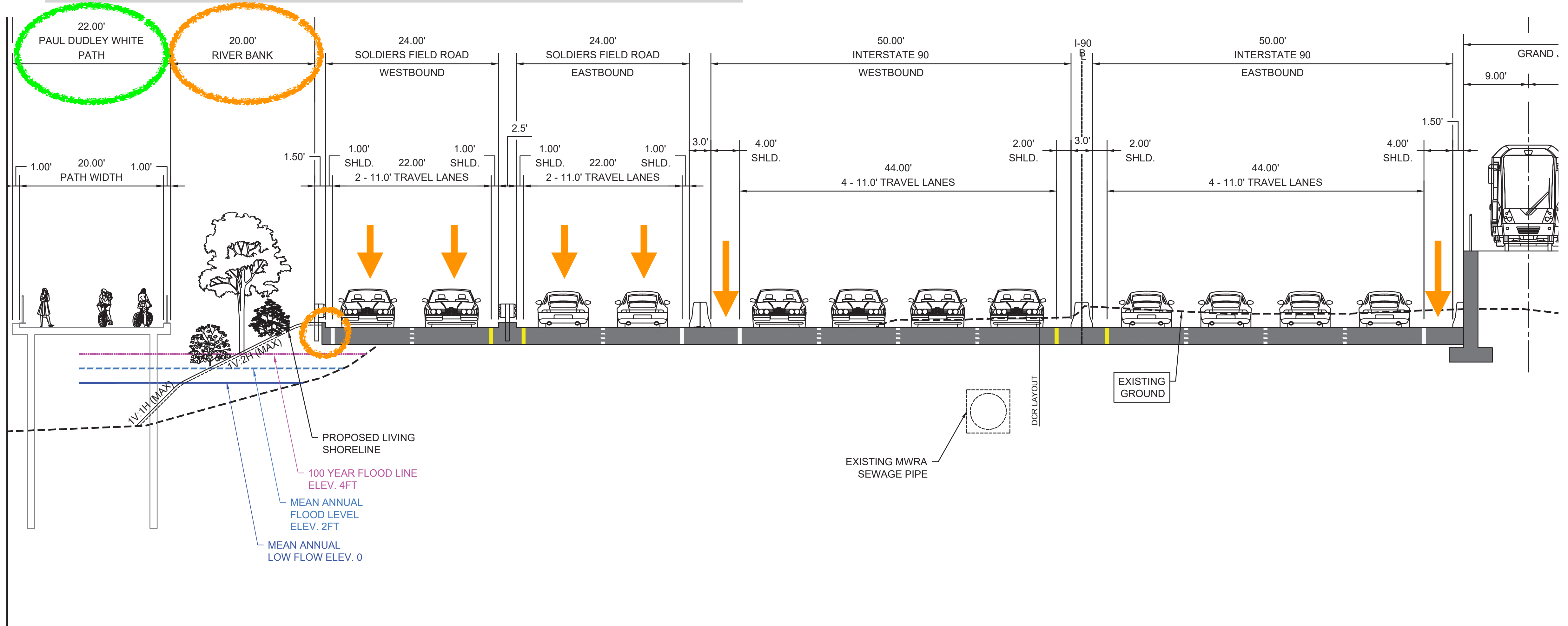


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Modified At-Grade Throat Area

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Allston, Massachusetts
September 29, 2020

Paul Dudley White



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Modified At-Grade Throat Area

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Allston, Massachusetts
September 29, 2020

cbt | Perkins&Will



10.09.2020

I-90 Allston Interchange

Riverfront Analysis +
Design Exploration

cbt | Perkins&Will

Acknowledgements

This study was a collaborative effort by CBT and Perkins&Will to synthesize stakeholder concerns, and analyze the environmental and climate change impacts along the diverse riverfront edge conditions. The process involved stakeholder input from a diverse group of advocacy, neighborhood and community groups. Charles River Conservancy, Charles River Watershed Association, Conservation Law Foundation, and A Better City provided critical input, data and support in developing a series of strategies that outlines a regenerative approach to creating a resilient riverfront.

We thank our stakeholders for their valuable input, advocacy and support.

- Allston Civic Association
- Boston Cyclists Union
- Boston Society for Architecture
- Charles River Conservancy
- Conservation Law Foundation
- A Better City
- Livable Streets
- MassBike
- Walk Boston
- Weston & Sampson
- Allston Brighton Community Development Corporation
- Allston Village Main Streets
- Boston Society of Landscape Architects
- Charles River Watershed Association
- 495/MetroWest Corridor Partnership

Building on years of great advocacy...

BSA Beacon Yards Charette | Sep 2014

A Better City At-Grade | Dec 2014
(see attached), renderings by NBBJ (early 2018)

Beacon Yards: DeNovo Urbanism | Dec 2014
By Northeastern School of Architecture / Tim Love

Elevated Grand Junction by Ari Ofsevit | Jul 2015

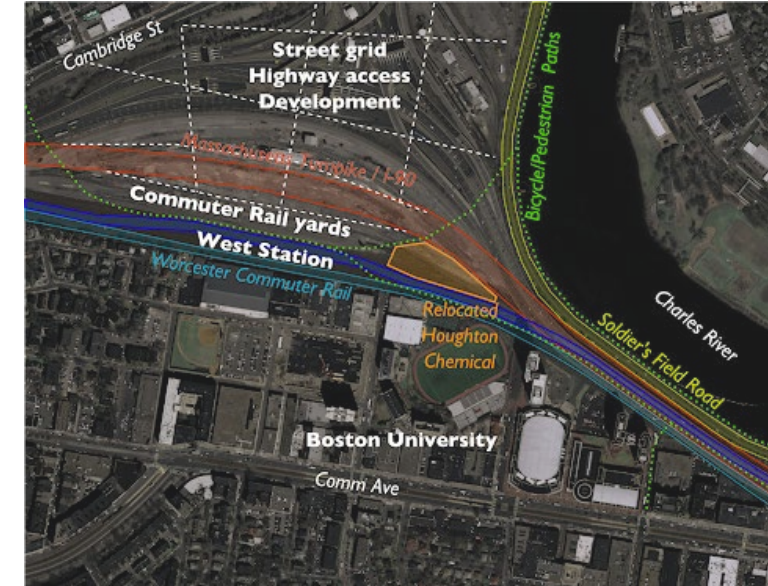
I90 Allston Placemaking Study | Dec 2015 - Oct 2016
By The Cecil Group/Harriman with Nelson Nygaard and Stantec
(funded by MassDOT with oversight by MassDOT/Harvard/BPDA)

River Remarkable Work Group | starting in 2016
John Shields, Skip Burck, Frank M. Costantino, etc

Unchoke the Throat design | Feb 2018
work by Sasaki for WalkBoston and Charles River Conservancy

BSA Allston Esplanade charette | Apr 2019

Riverfront Analysis + Design Exploration | Sep 2020
By CBT / Perkins + Will



Goals

Establish a cohesive, pragmatic and variable strategy that responds to challenge along the length of the corridor

Effectively connect PDW to the urban system and neighborhoods
BU Bridge/Aggannis/
Grand Junction/
Cambridge - N/Harvard
Street

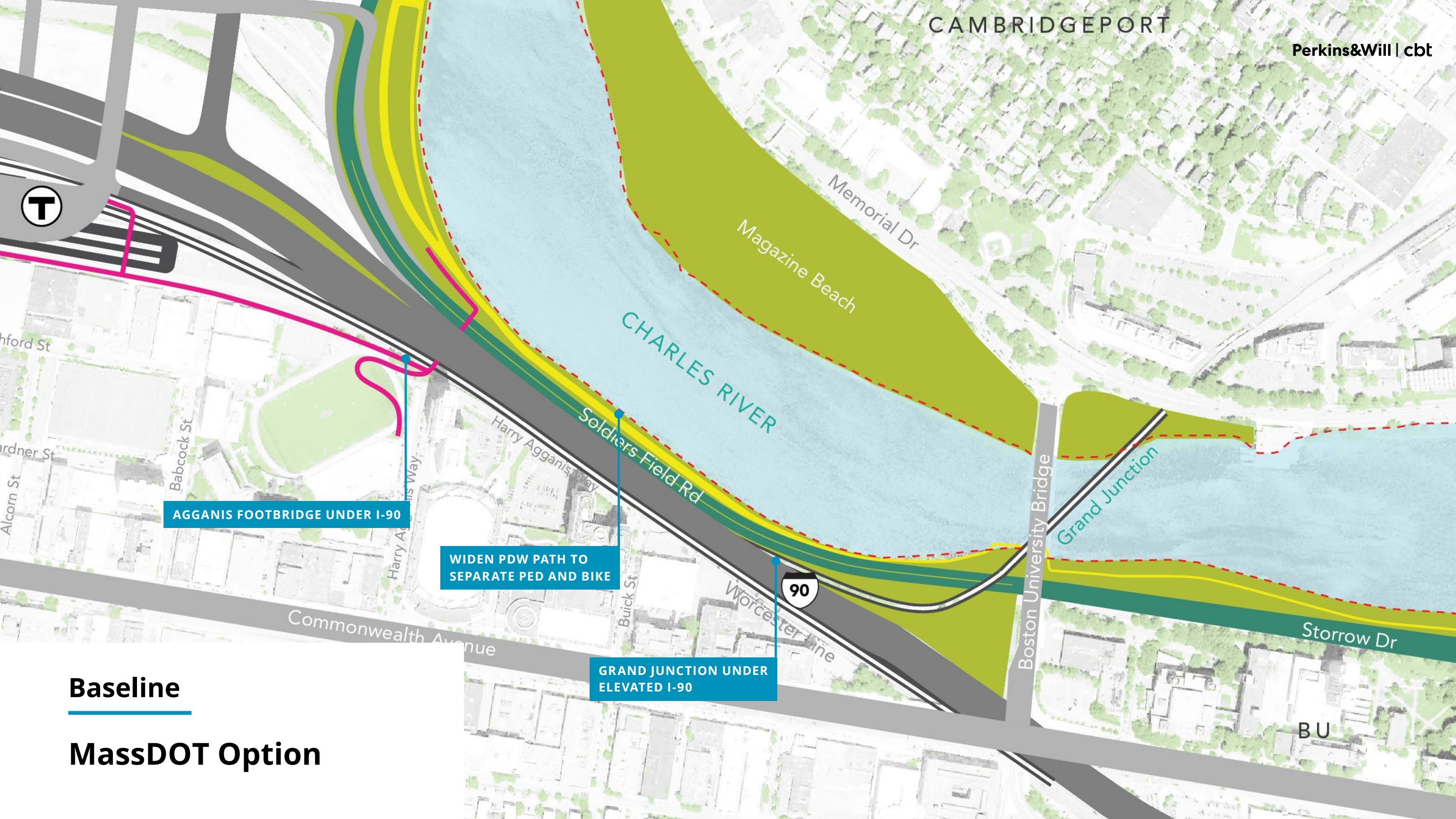
Balance the transportation needs with multiple variables including pedestrian, bicycles, river users, ecology and aquatic life

Baseline for this study

**MassDOT
Option**



**All At-grade
Option**



AGGANIS FOOTBRIDGE UNDER I-90

WIDEN PDW PATH TO SEPARATE PED AND BIKE

GRAND JUNCTION UNDER ELEVATED I-90

Baseline

MassDOT Option



BU

hford St

ardner St

Alcorn St

Babcock St

Harry Agganis Way

Harry Agganis Way

Soldiers Field Rd

Buick St

Worcester Ave

Commonwealth Avenue

Memorial Dr

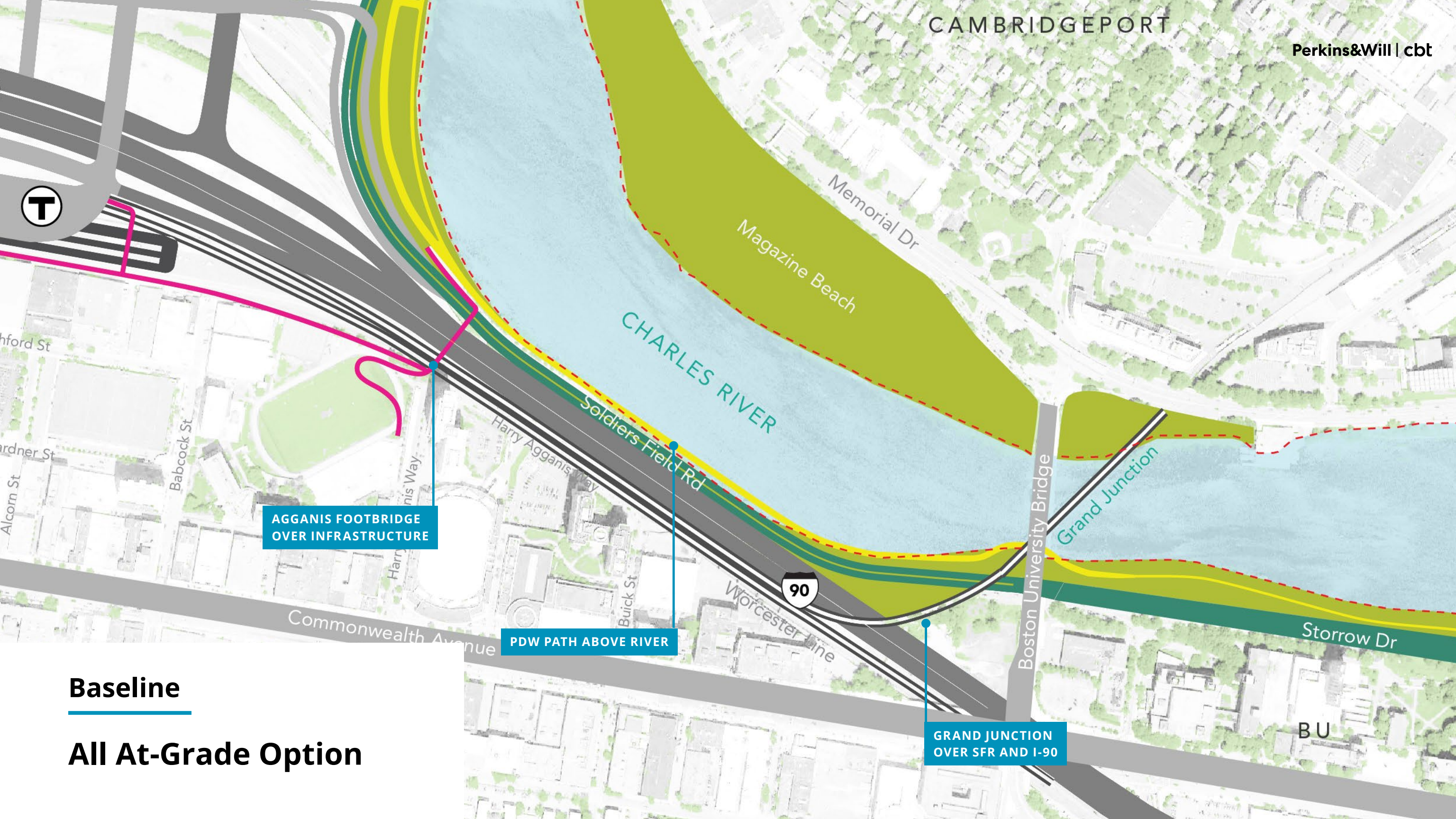
Magazine Beach

CHARLES RIVER

Boston University Bridge

Grand Junction

Storrow Dr



AGGANIS FOOTBRIDGE OVER INFRASTRUCTURE

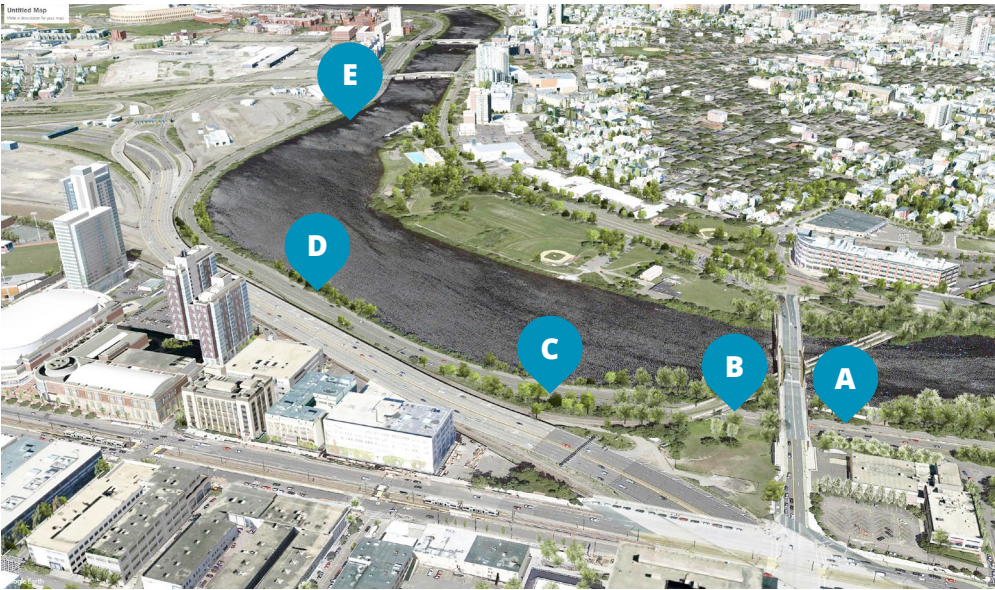
PDW PATH ABOVE RIVER

GRAND JUNCTION OVER SFR AND I-90

Baseline

All At-Grade Option

Existing Conditions



Multi-modal Transportation
 BU Bridge, Grand Junction and the PDW path stack up each other



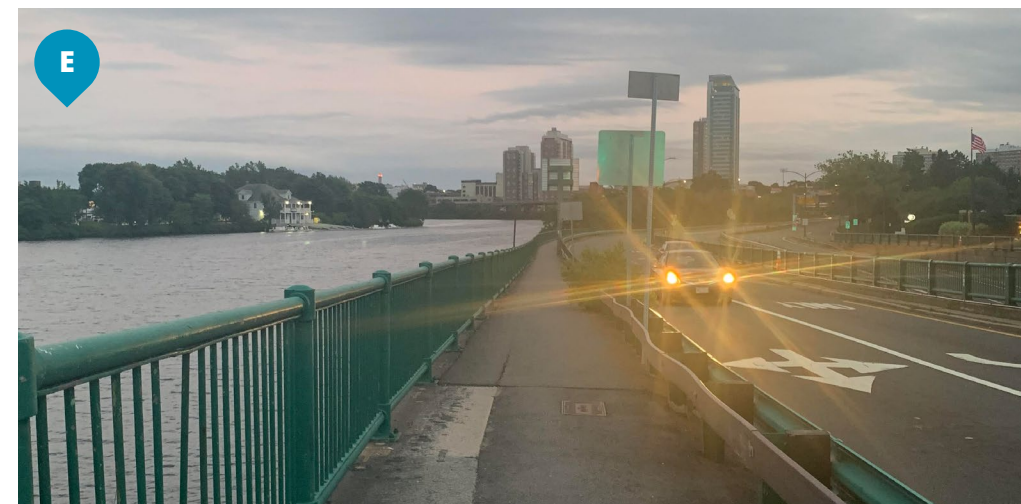
Lookout
 There are scattered lookout where people can stop



Disconnected from the city
 Bike and ped cannot connect back to the city through BU Bridge

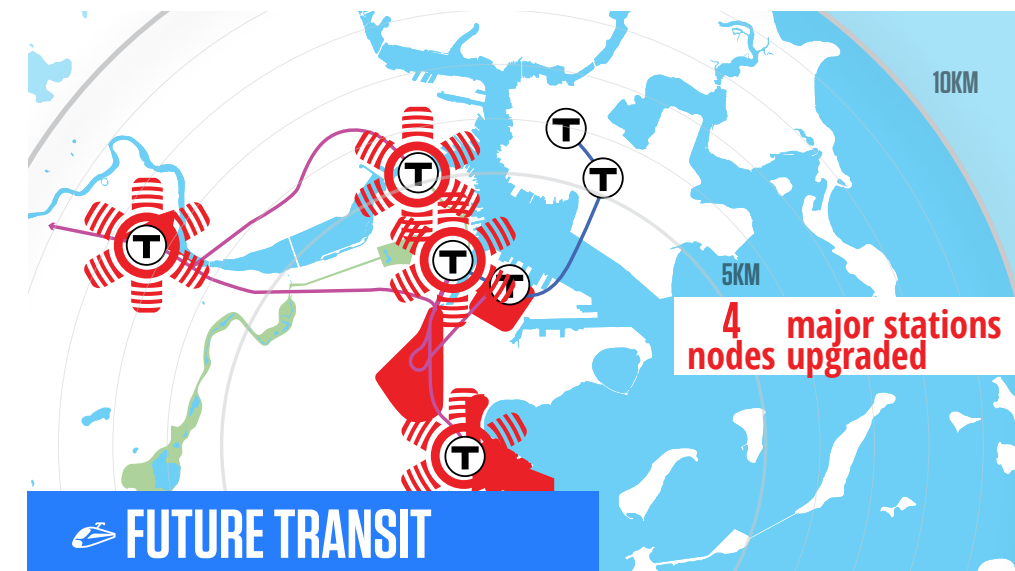
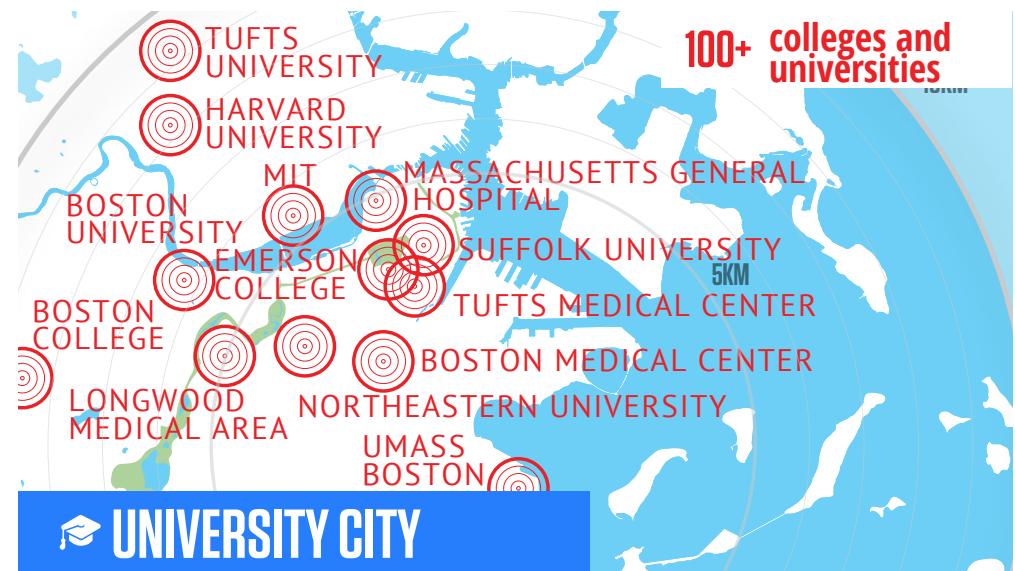
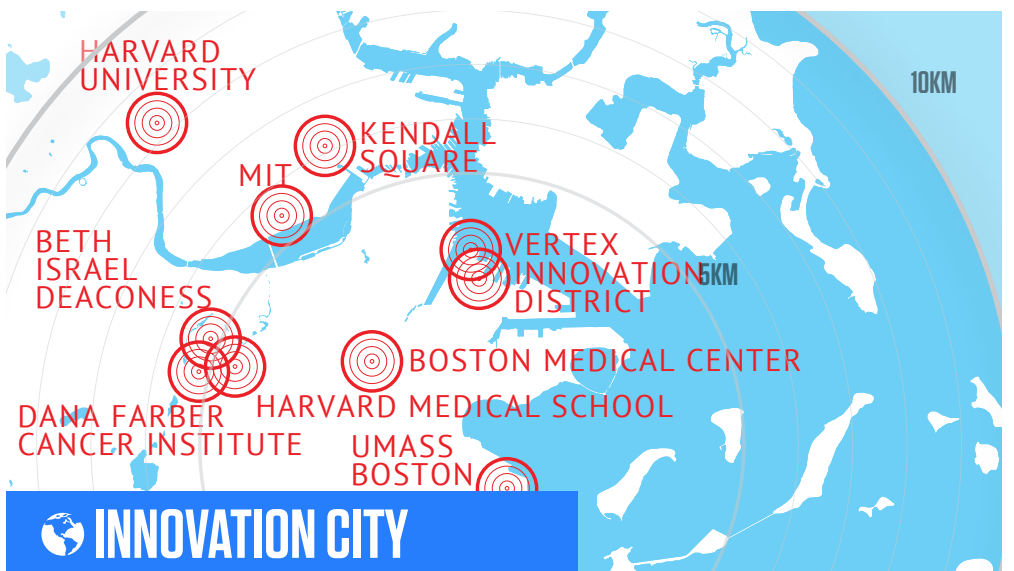
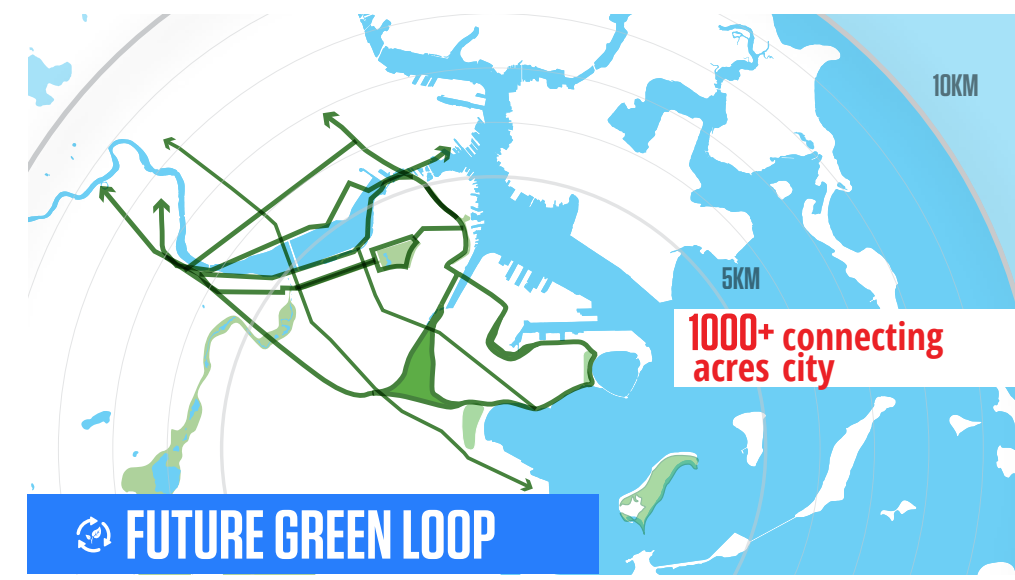
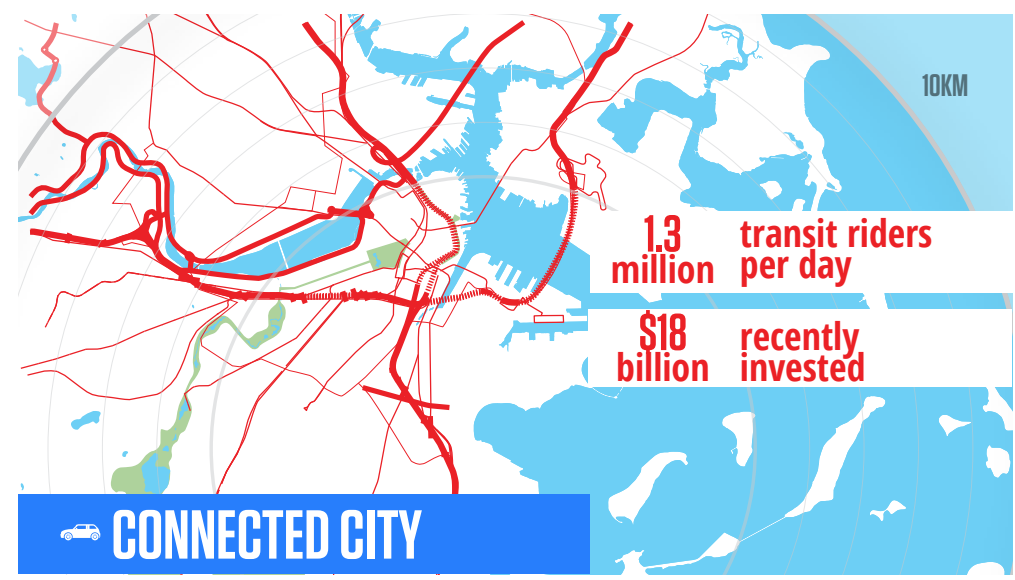
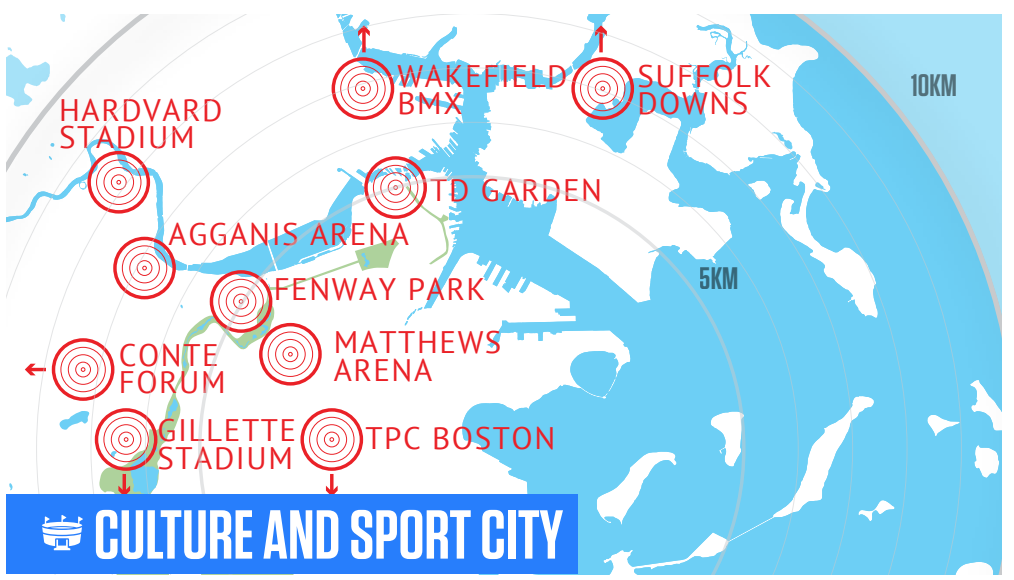
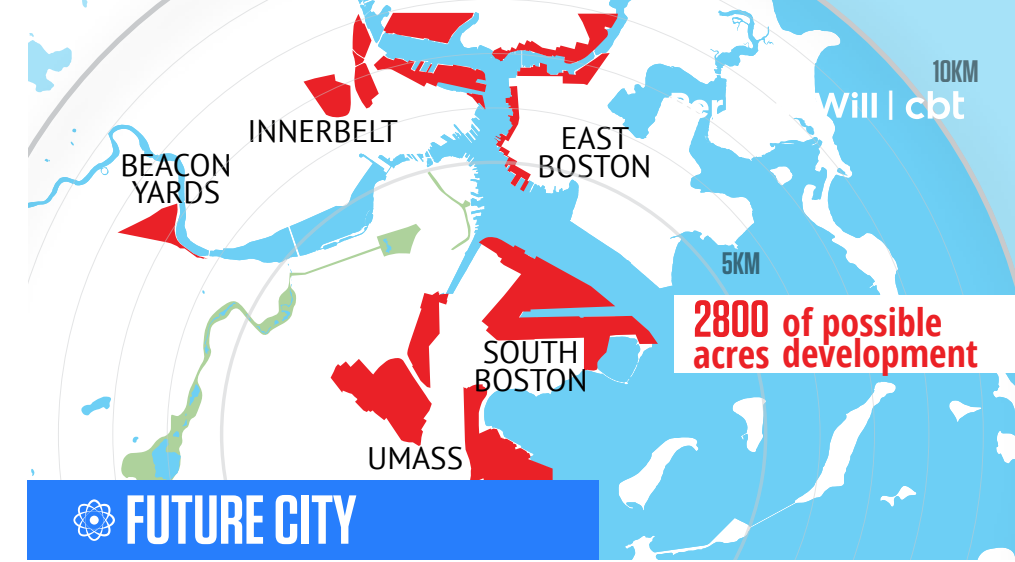
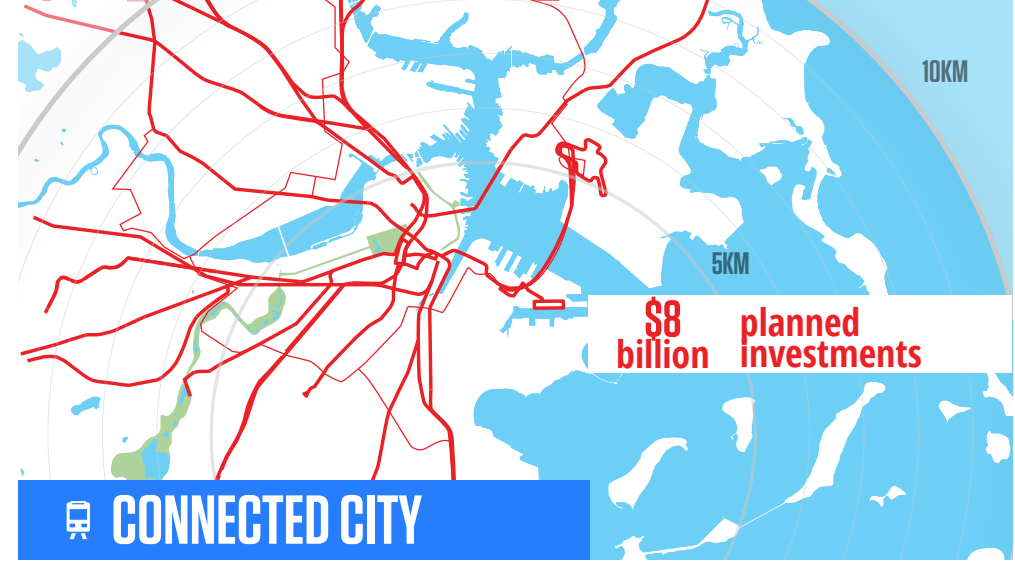
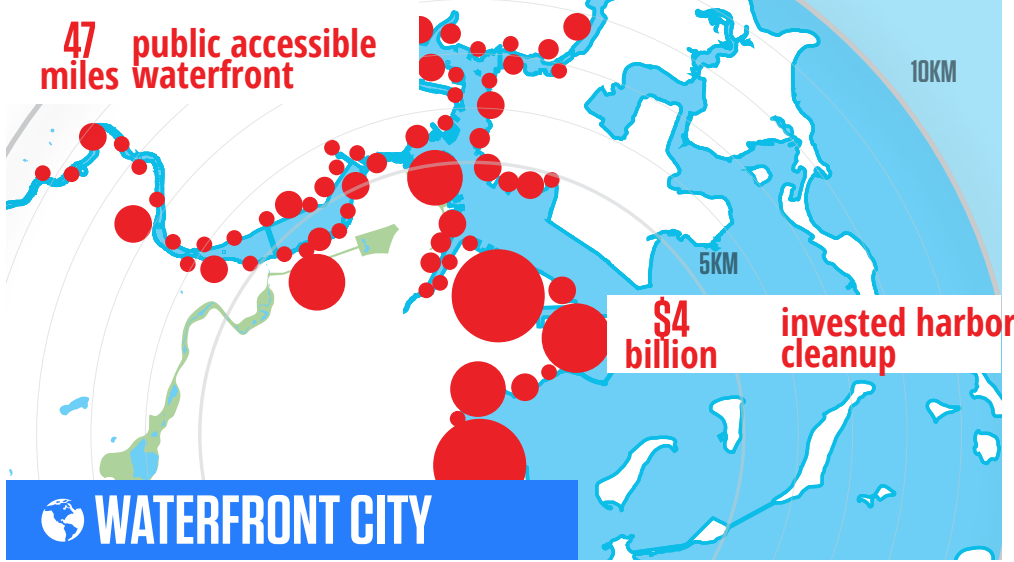


PDW Path Adjacent to SFR
 Narrow path (no separation of peds and cyclists) with inadequate buffer from the road

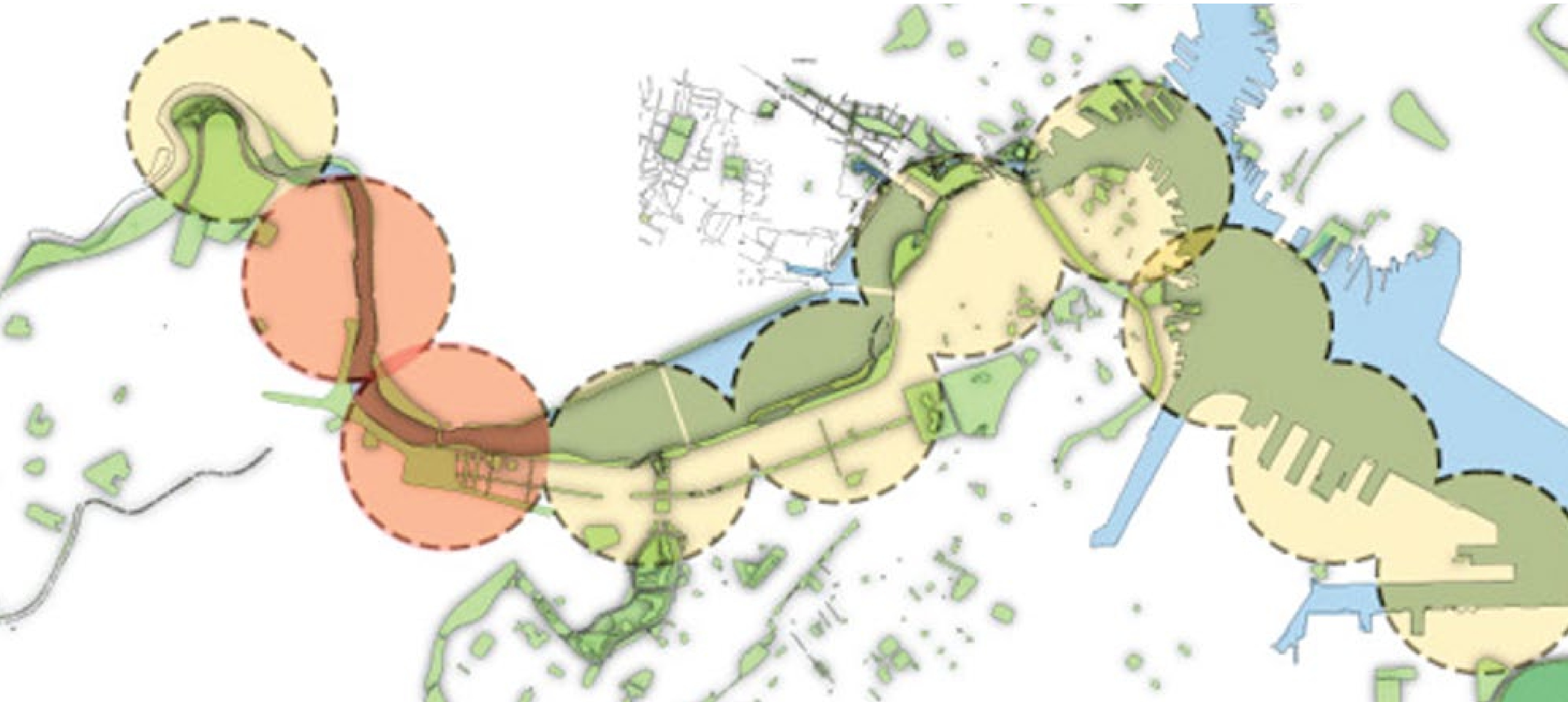


Hard Edge Close to Western Ave
 River edge becomes quay walls as it gets closer to Western Ave

Nature of Opportunity



Complete the challenging link along Charles River



Restore the River's Edge Ecology

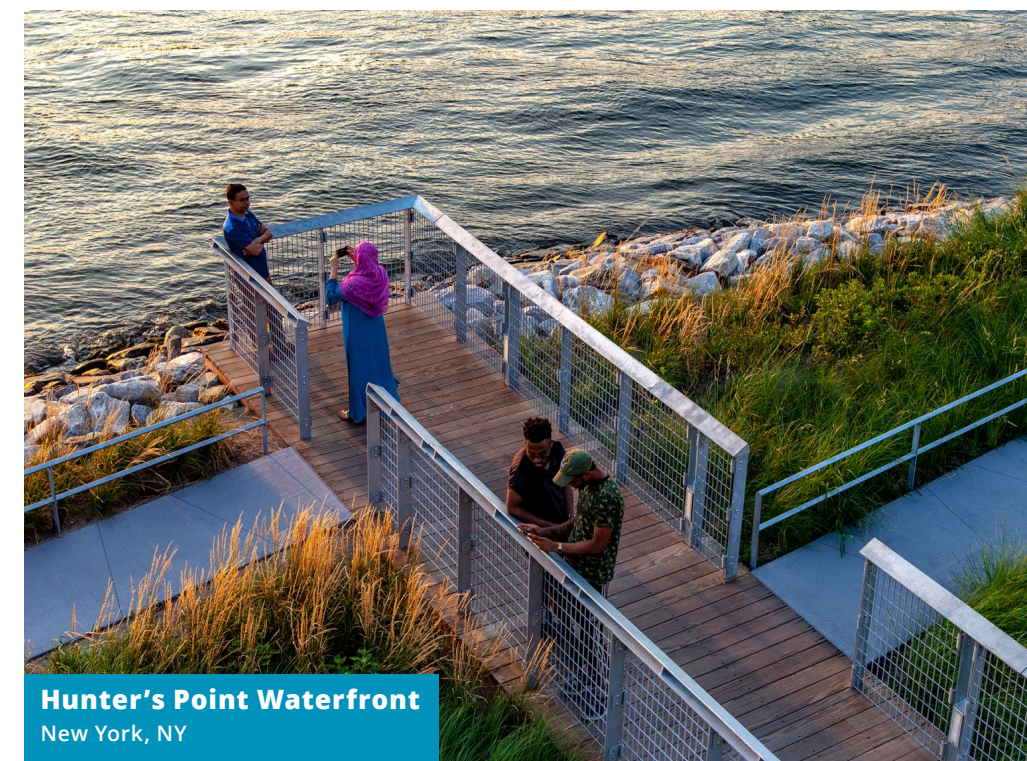


Hunter's Point Waterfront
New York, NY

©Lloyd/SWA



Infra-space 1
Boston, MA



Hunter's Point Waterfront
New York, NY

Connect to the City



Charlesgate
Boston, MA



Charlesgate
Boston, MA



Seattle Waterfront
Seattle, WA

Build 21st Century Infrastructure



Liberty Bridge
Greenville, SC



Broad Canal Walk
Cambridge, MA



Lakefront Trail
Chicago, IL



East Bank Esplanade
Portland, OR

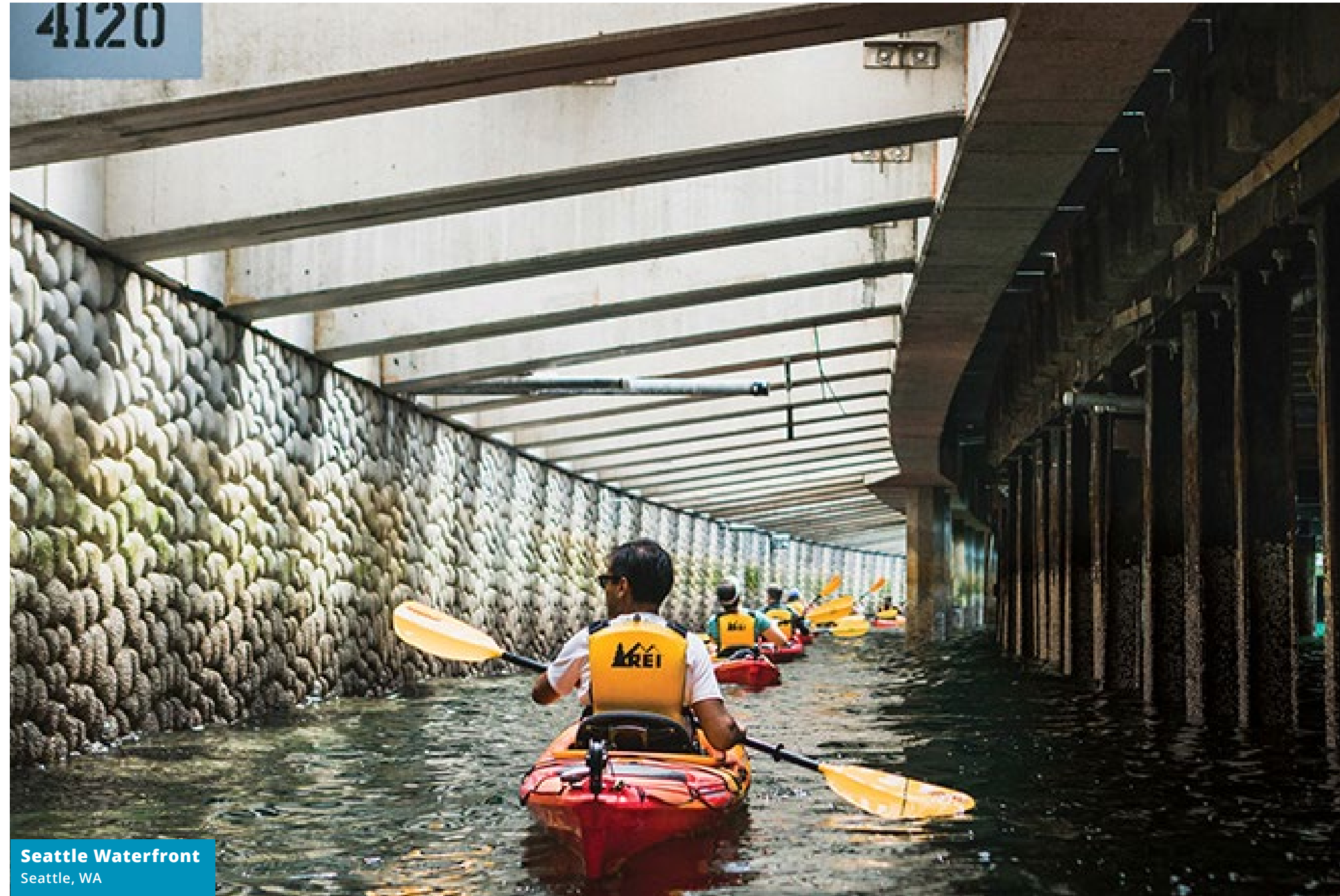


East River Greenway Proposal
New York, NY

Transportation and Ecology can co-exist



Seattle Waterfront
Seattle, WA



Seattle Waterfront
Seattle, WA



Infra-space 1
Boston, MA

Restoring River's Edge Ecology

Analysis

- Evaluate existing natural systems
- Challenges of existing infrastructure systems
- Impacts of climate change
- Diverse edge conditions



Strategies

- Tool kit of natural strategies
- Case studies



Exploration

- Framework of guiding principles
- Propose natural strategies for diverse edge conditions
- Framework for connectivity
- Establish ecosystems that promote biodiversity and enhance ecology

Analysis

Plans

- Understand environmental issues and evaluate existing natural systems
- Challenges and opportunities to enhance ecology and establish aquatic habitat
- Understand the limitations and challenges of existing infrastructure
- Evaluate the impact of climate change
- Analyze the diverse edge conditions and experiential qualities

Analysis

Bathymetry

Challenges + Opportunities

- Identify shallow areas in the river bed to establish aquatic habitats
- Understand natural topography and drainage patterns
- Identify areas with steep slopes that casuse erosion and sedimentation in the river bed

Isobaths (f)



Analysis

Topography

Challenges + Opportunities

- Identify ideal locations to propose BMPS to mitigate stormwater and flooding issues
- The low-lying areas of Allston Landing and the Enterprise Research Campus are vulnerable to flooding
- Identify areas that are vulnerable to flooding and projected flood elevations

Elevation (f)



Analysis

Infrastructure

Challenges + Opportunities

- Improve overall water quality to support aquatic habitat & biodiversity
- Collect and treat discharge from CSO and remove pollutants prior to entering the Charles River
- Introduce BMPS to treat stormwater runoff from roadways and reduce pollution discharge into the river

Key

- BWSC Outfalls
- CSO Outfalls
- DCR Outfalls
- ⊞ Monitoring Station
- ▬ Sub-watersheds
- ▬ Underground Culverts
- Pollution + Sediment



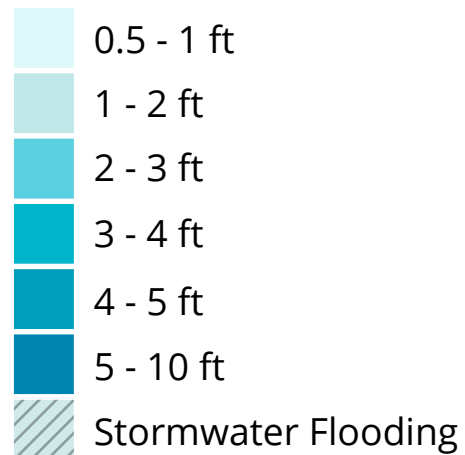
Analysis

1% Annual Flooding

Challenges + Opportunities

- Limited storage capacity to capture and treat 1"-5" storm events
- Inland flood issues anticipated due to climate change impacts
- Address the impacts of climate change and make the river resilient by increasing flood storage along riverbanks

2070 0.1% Inundation Depth




Analysis

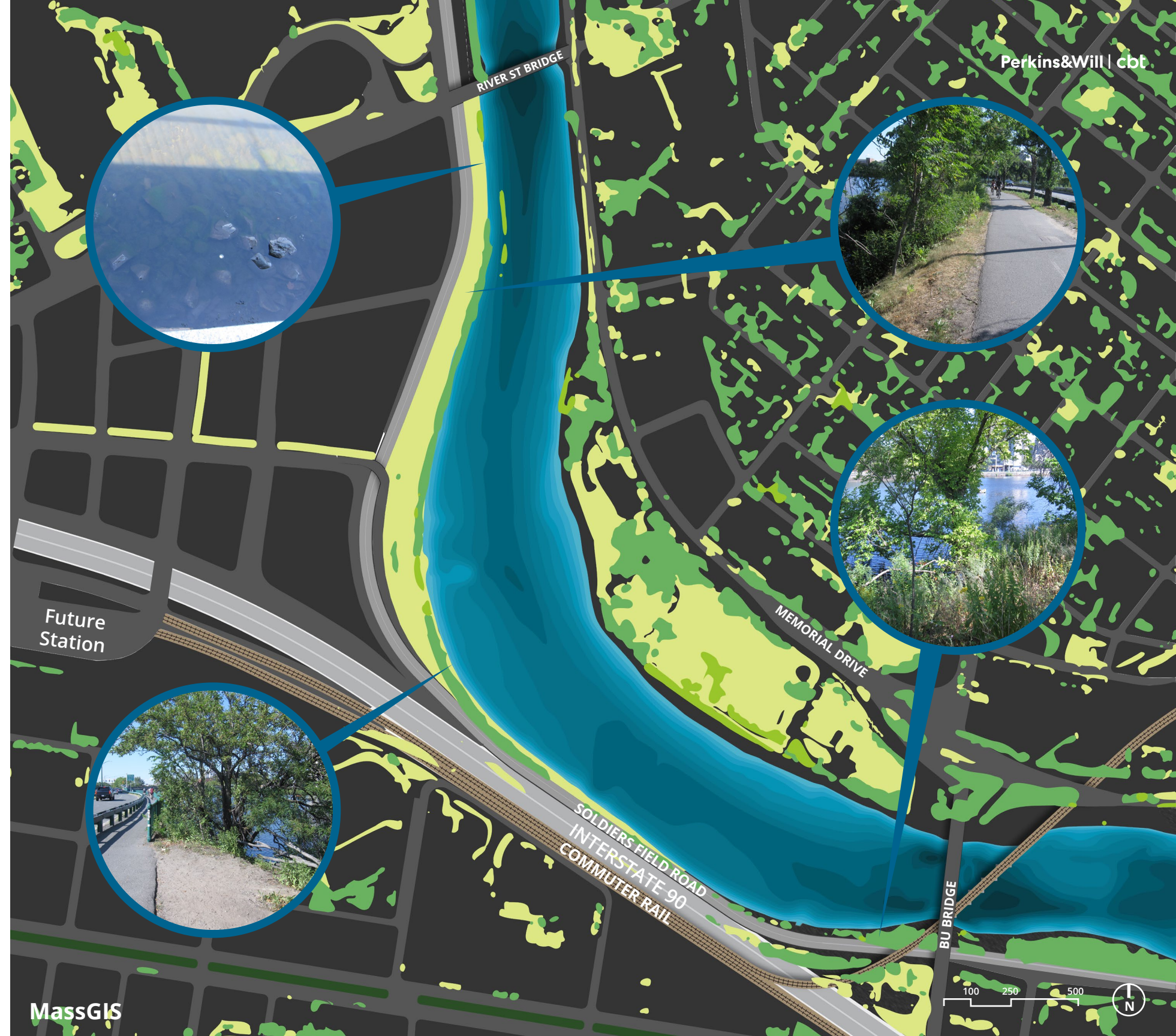
Ecology & Habitat

Challenges + Opportunities

- Limited width for trees and shrubs that prevent erosion along steep slopes
- Invasive and nuisance species such as Japanese knotweed that do not enable biodiversity
- Historically important fish habitat has been drastically reduced
- Richness of species is constrained by compacted, barren soils
- Promote a stable tree canopy to provide shade and mitigate the heat island effect

Key

-  Developed Open Space
-  Tree Cover
-  Shrub Cover



Analysis

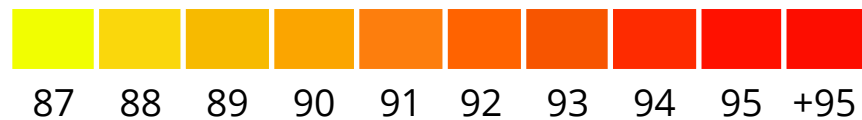
Surface Temperature

Challenges + Opportunities

- Roadways immediately adjacent to river intensify the heat island effect
- Additional pavement, hardscape, and buildings developed for Allston Landing will exacerbate temperatures
- Higher river temperatures can stress the ecosystem, resulting in toxic algal blooms and fish die-off

Modeled Air Temperature (F)

July / August 2019



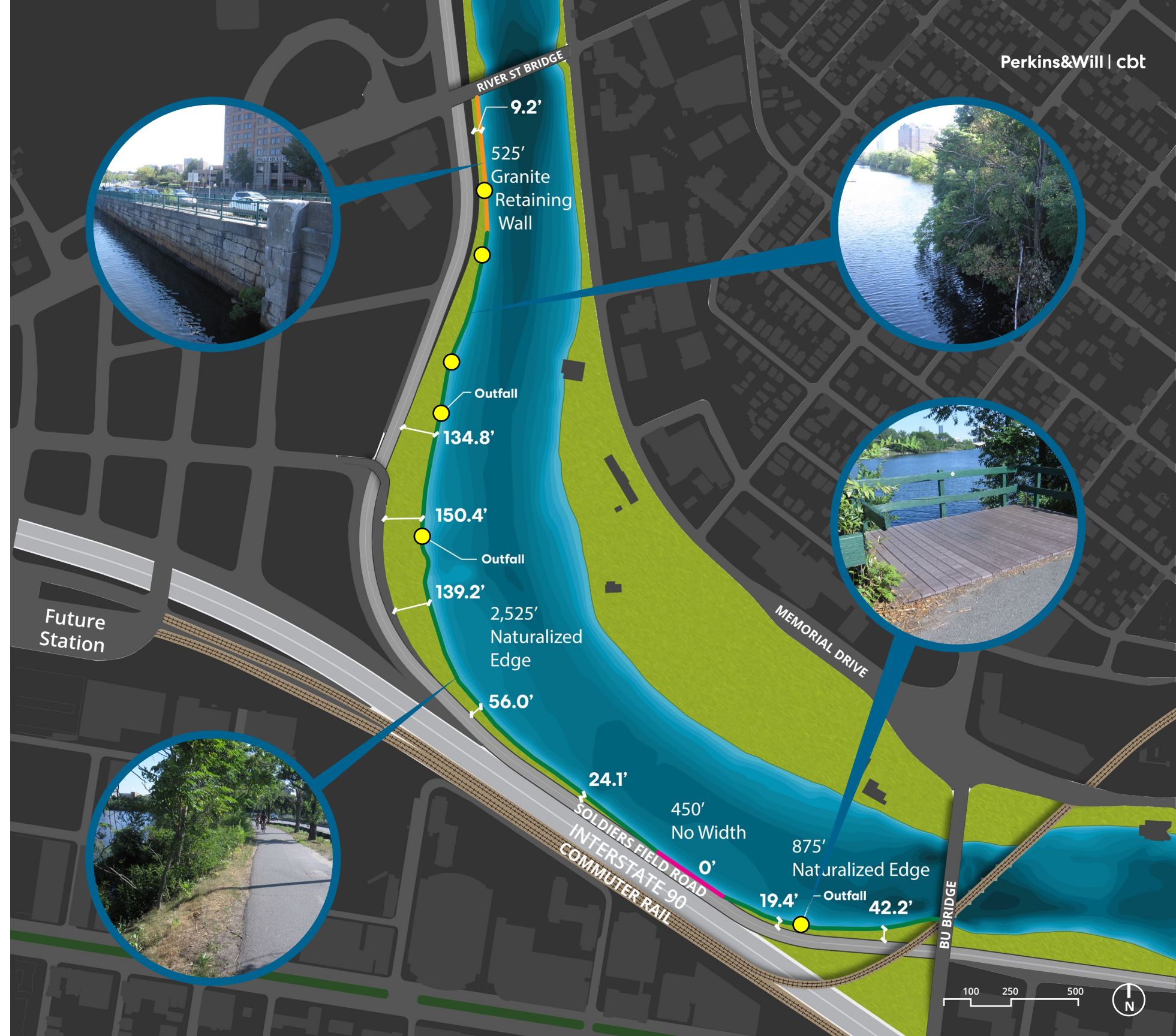
Edge Conditions

Challenges + Opportunities

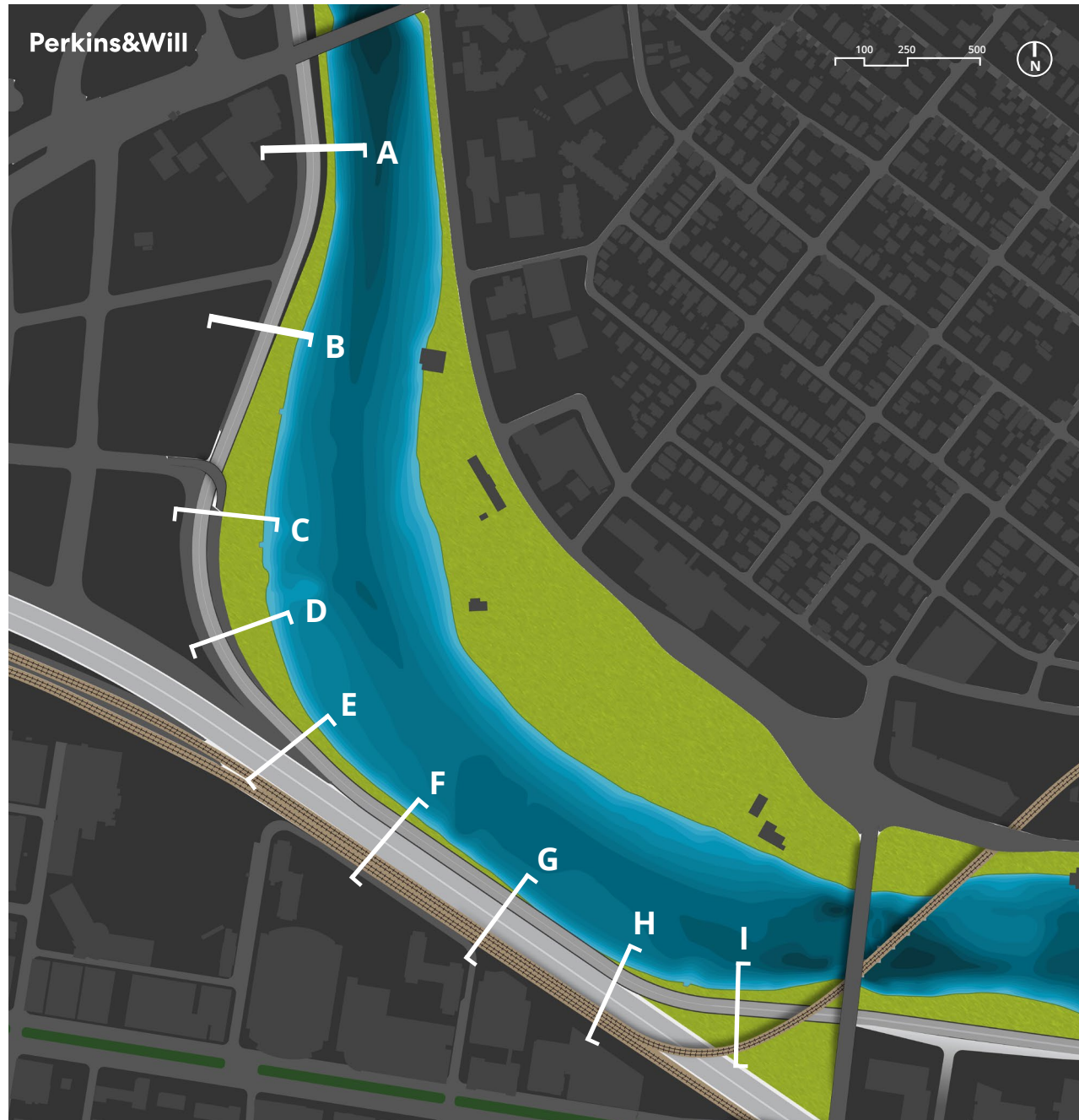
- Significant erosion issues along rip rap edge, mixed in with asphalt pavement
- Steep riverbanks & lack of plants with strong roots increase erosion issues
- Limited width to incorporate multi-modal pathways and stormwater treatment strategies
- High volumes of untreated pollution discharge directly into the river bed

Key

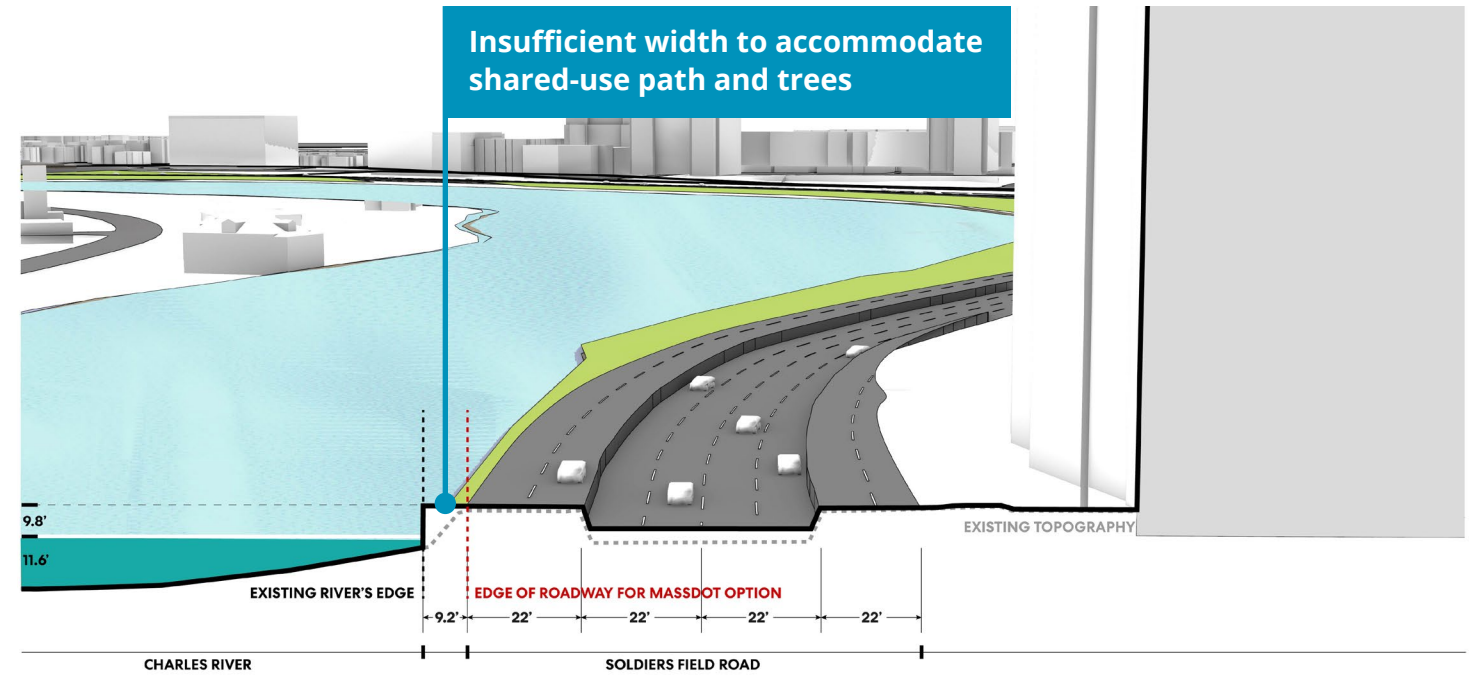
- Granite Retaining Wall
- Eroded Naturalized Edge
- Road Immediately Adjacent
- BSWC Outfalls



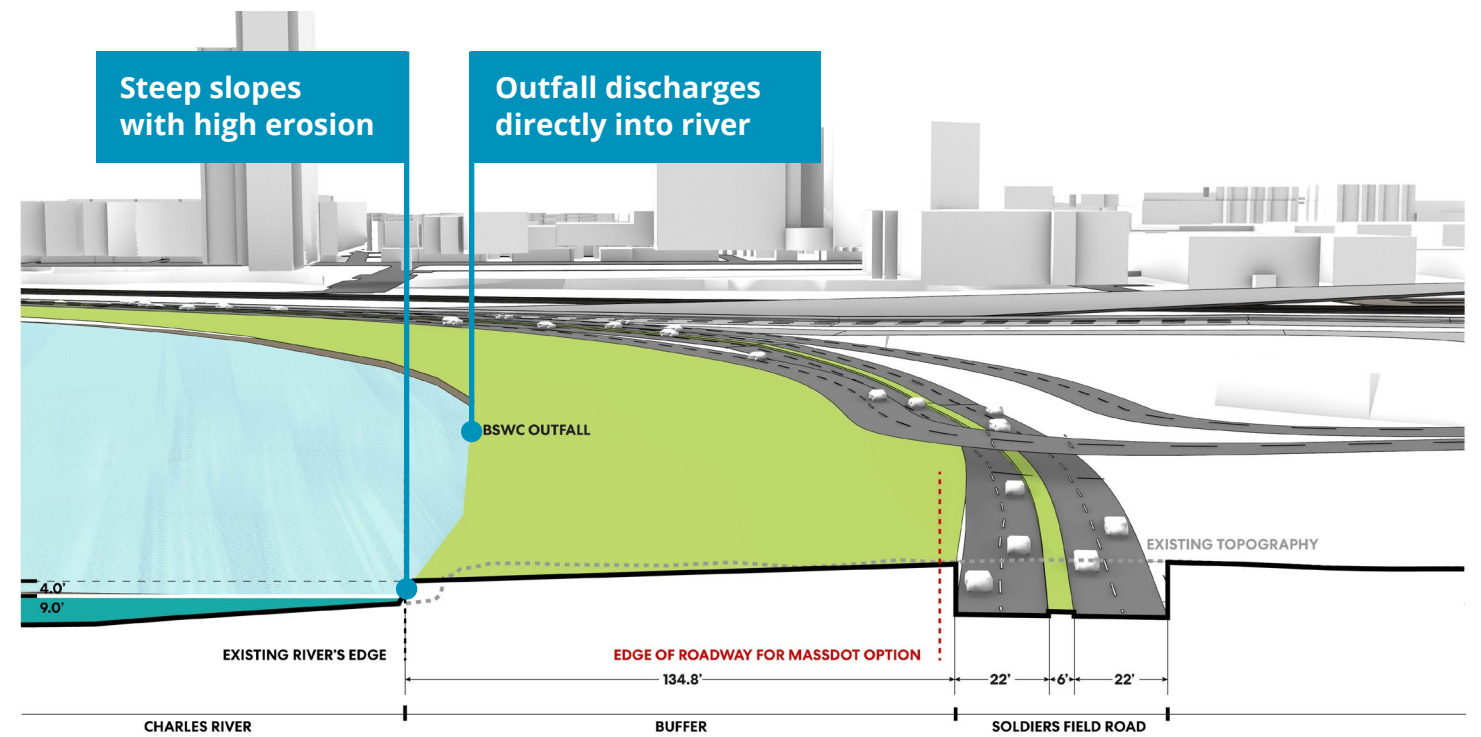
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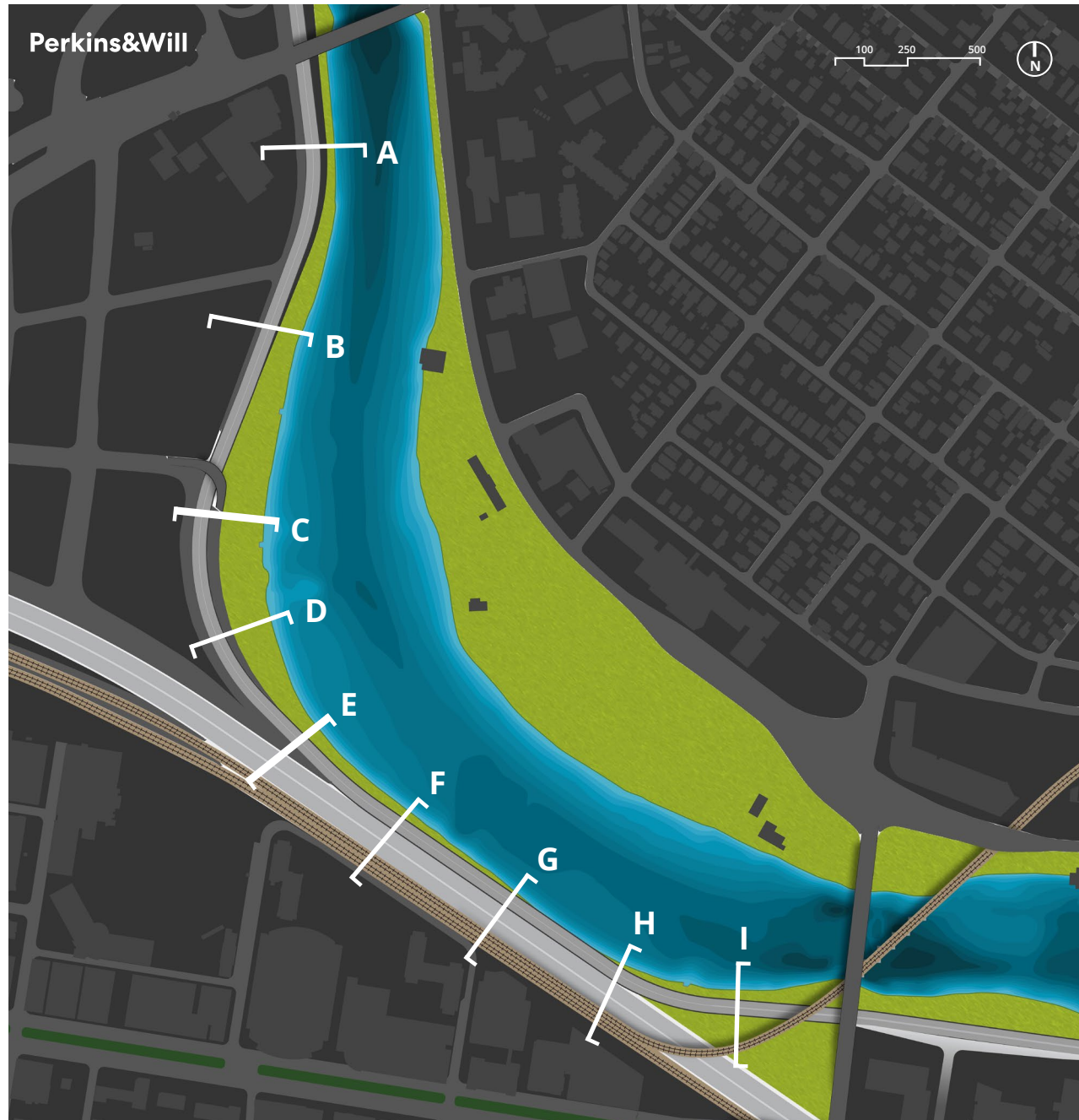
Plan



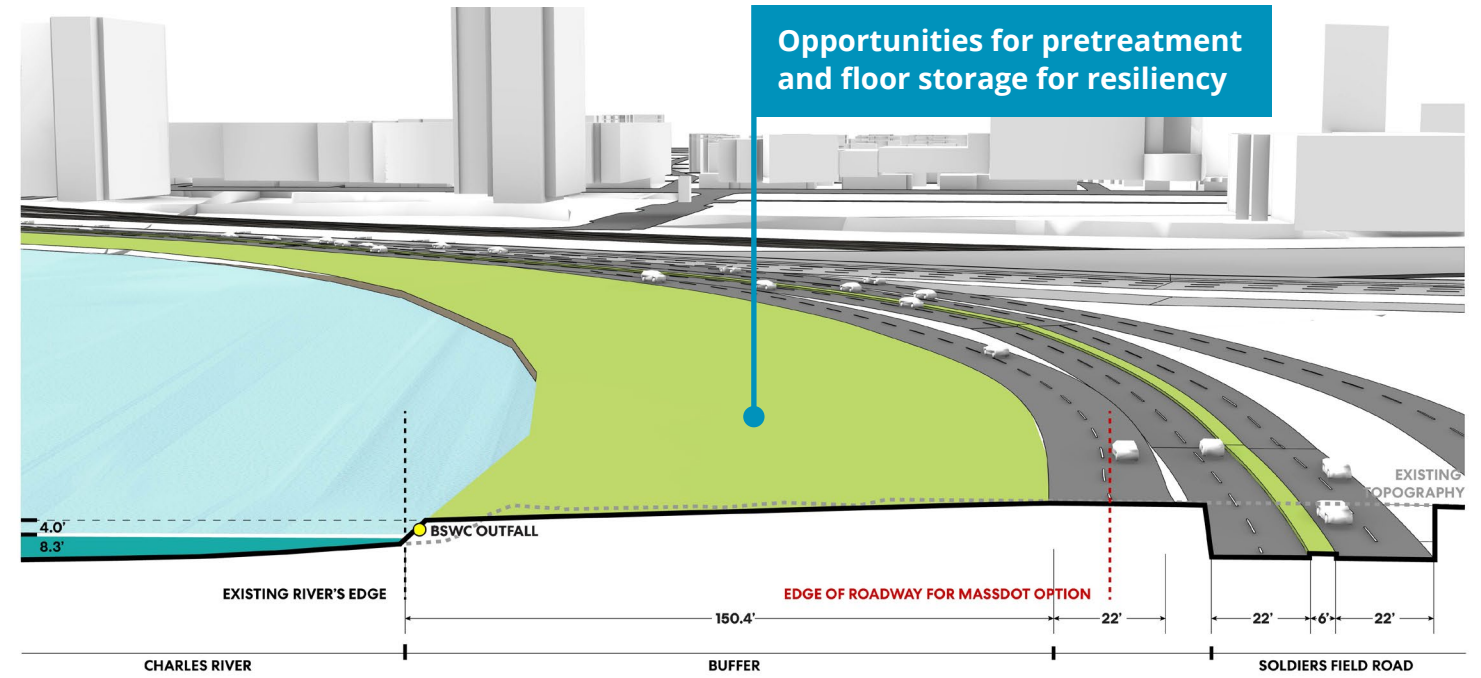
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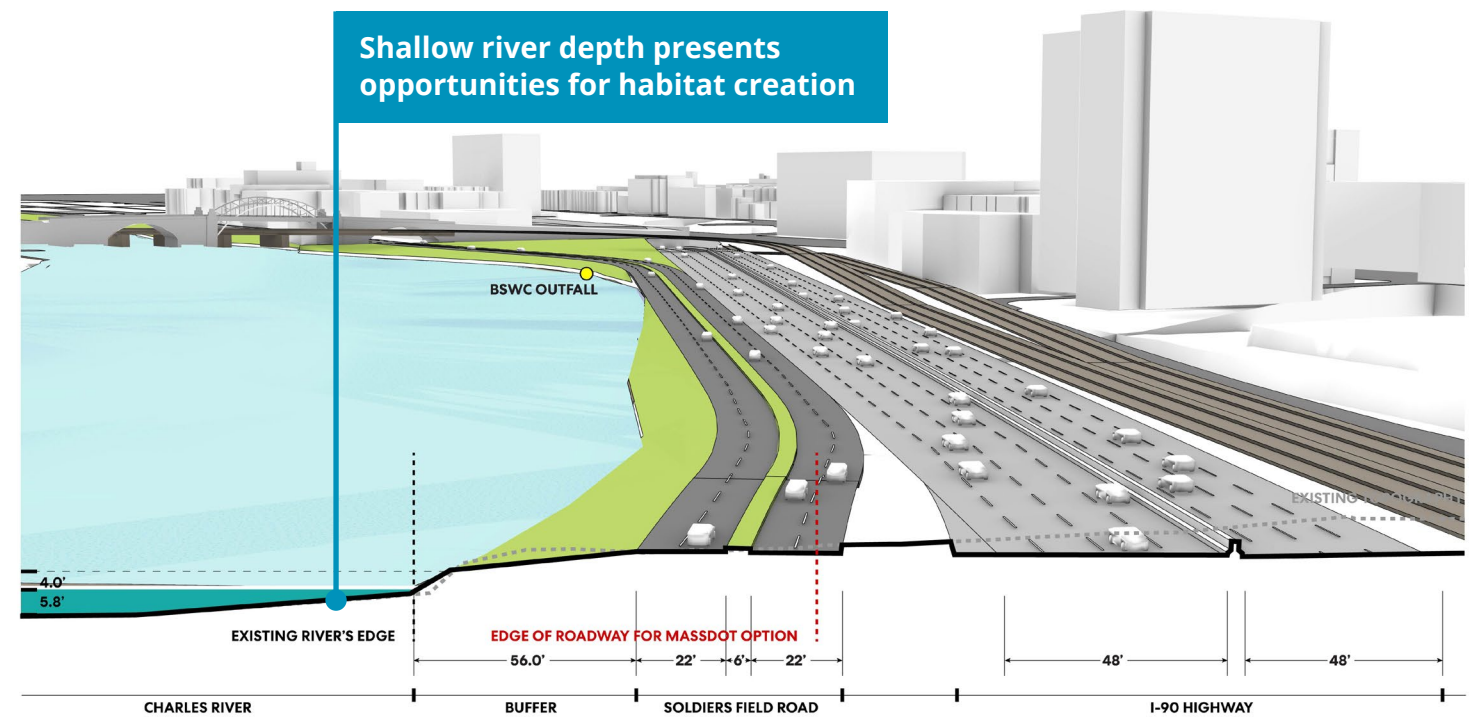
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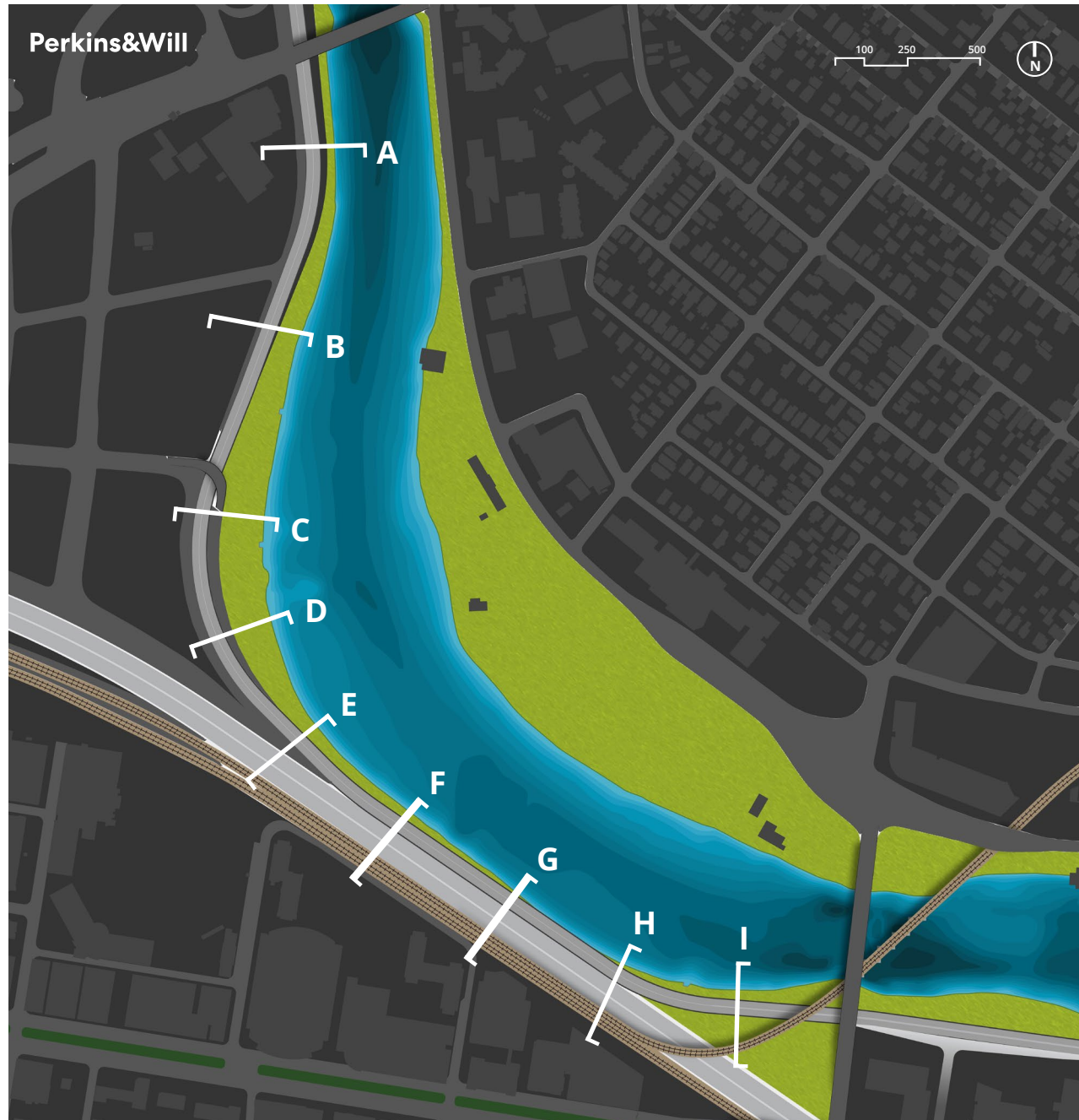
Plan



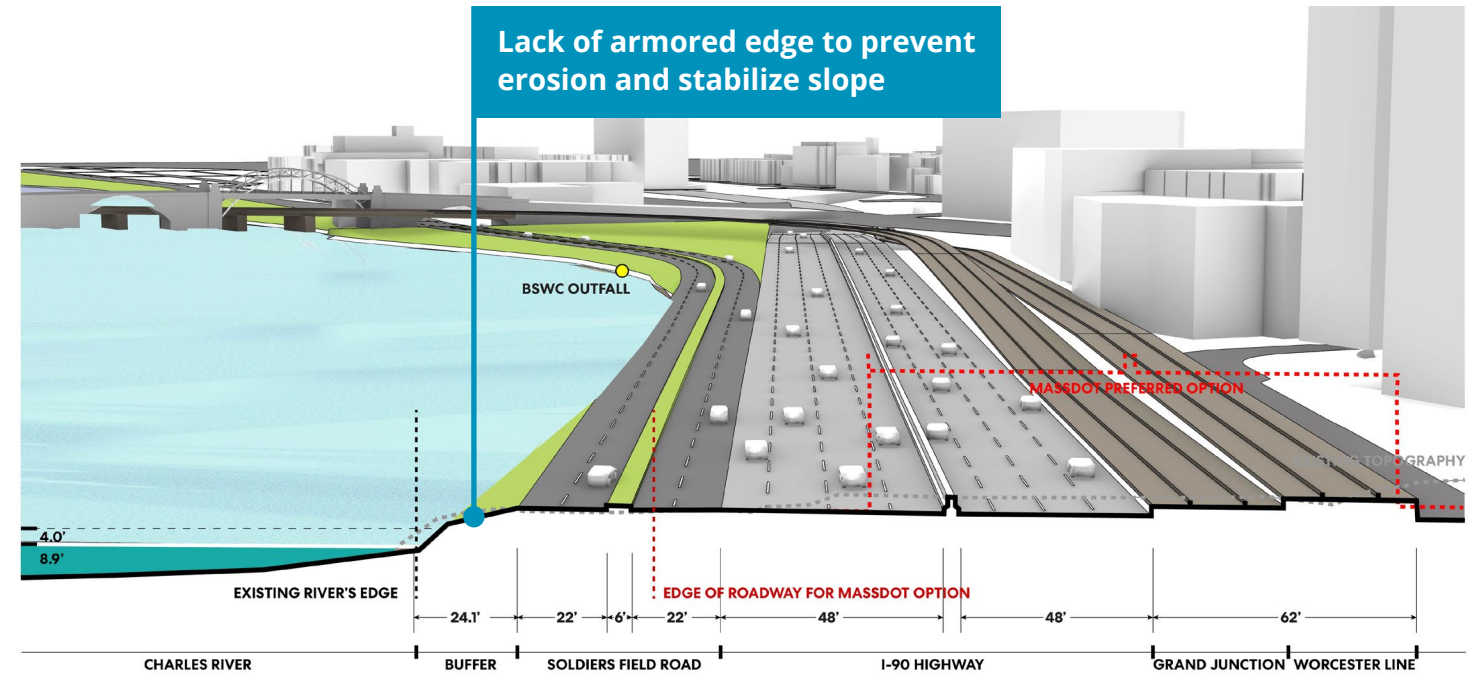
Section C



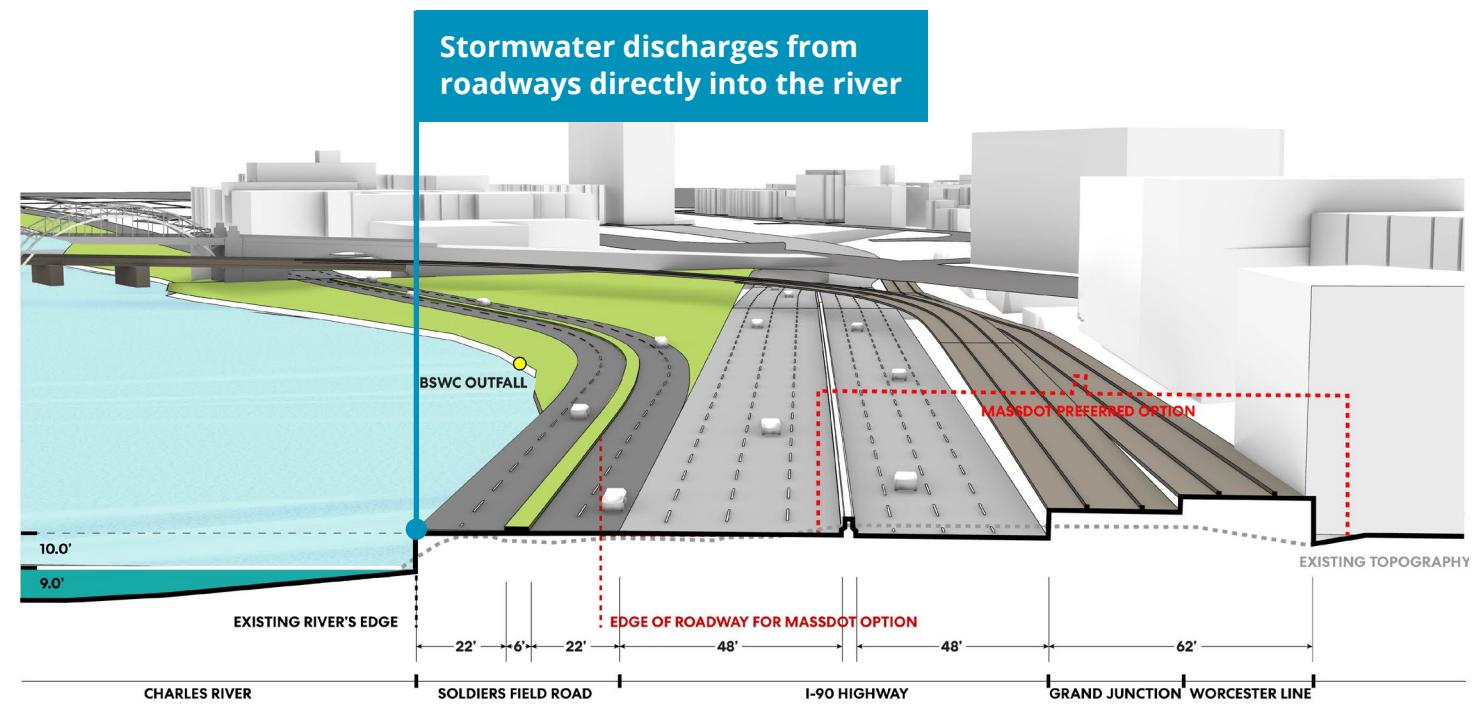
Section E



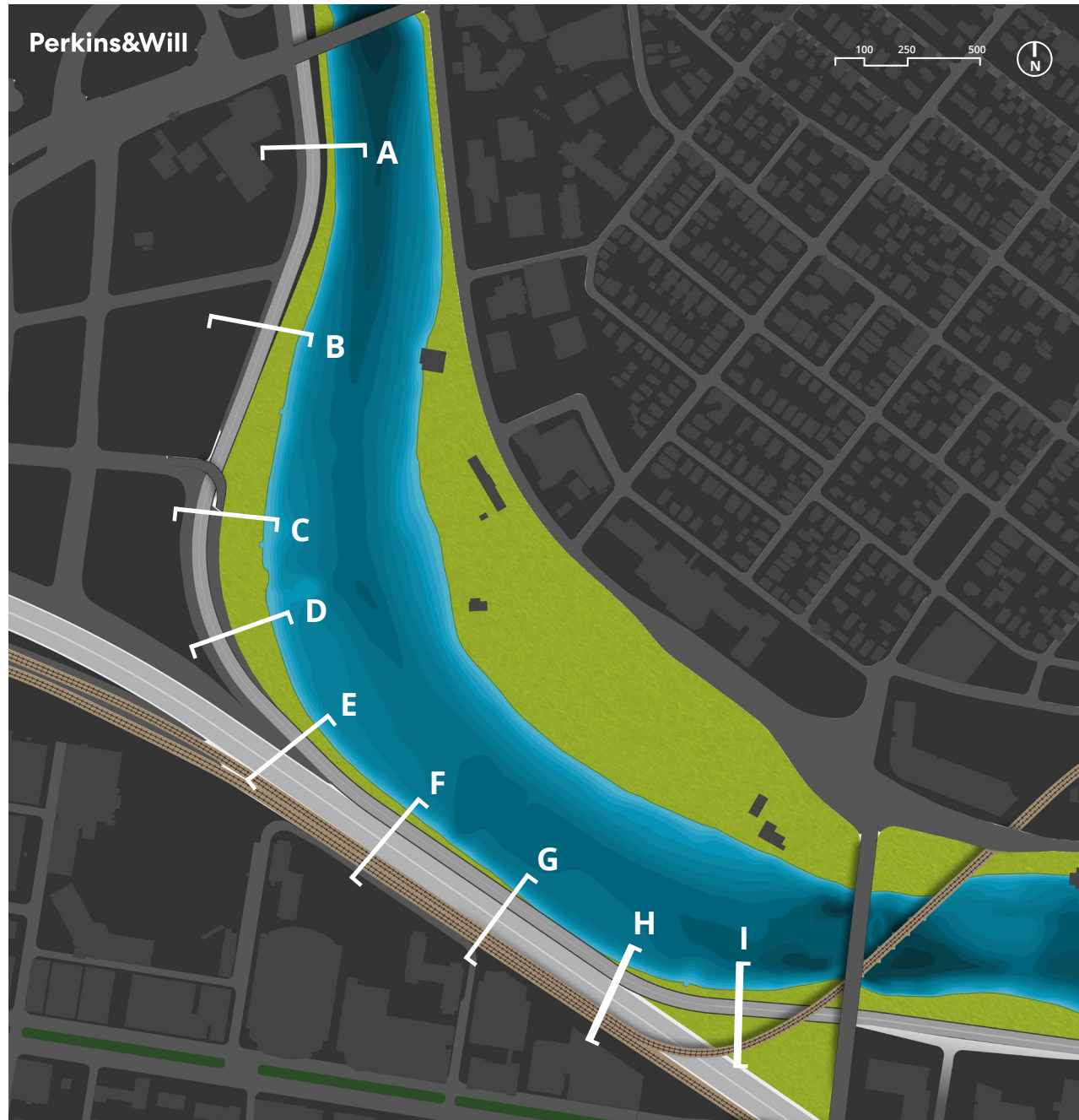
Plan



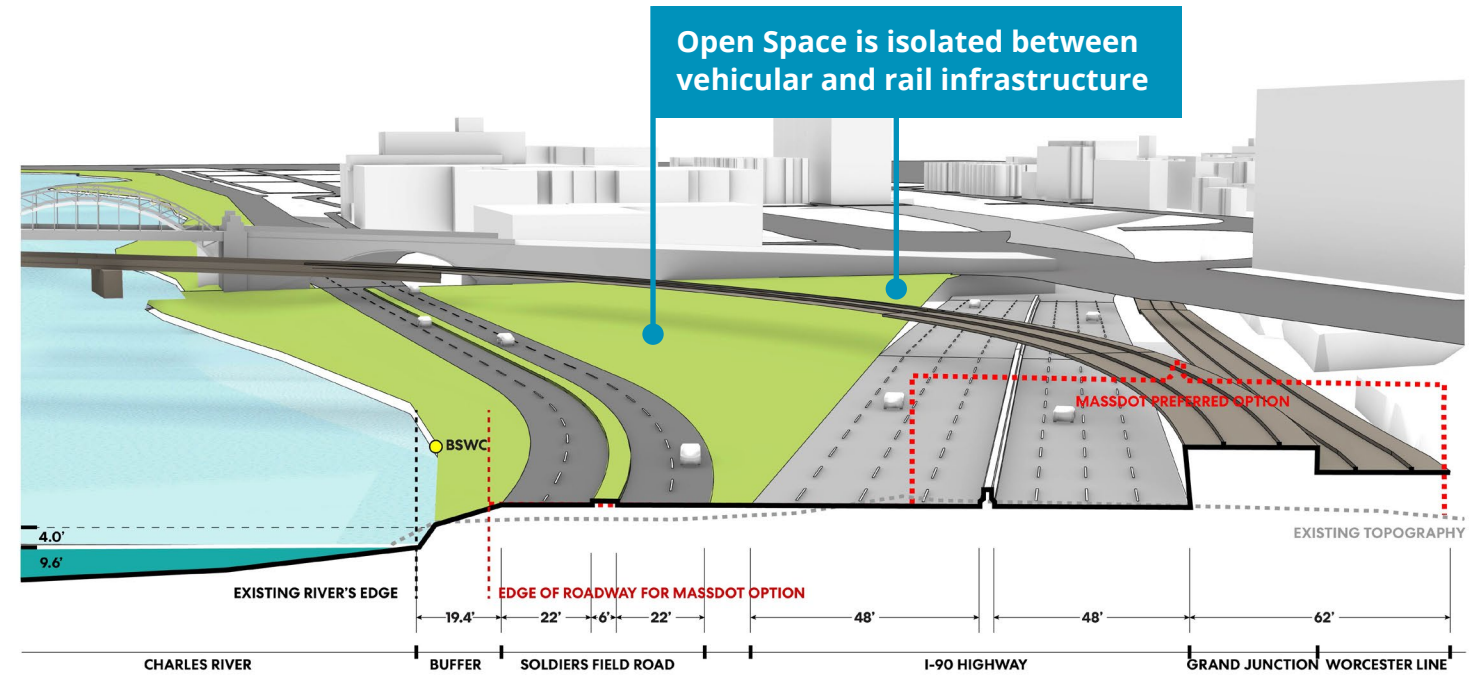
Section F



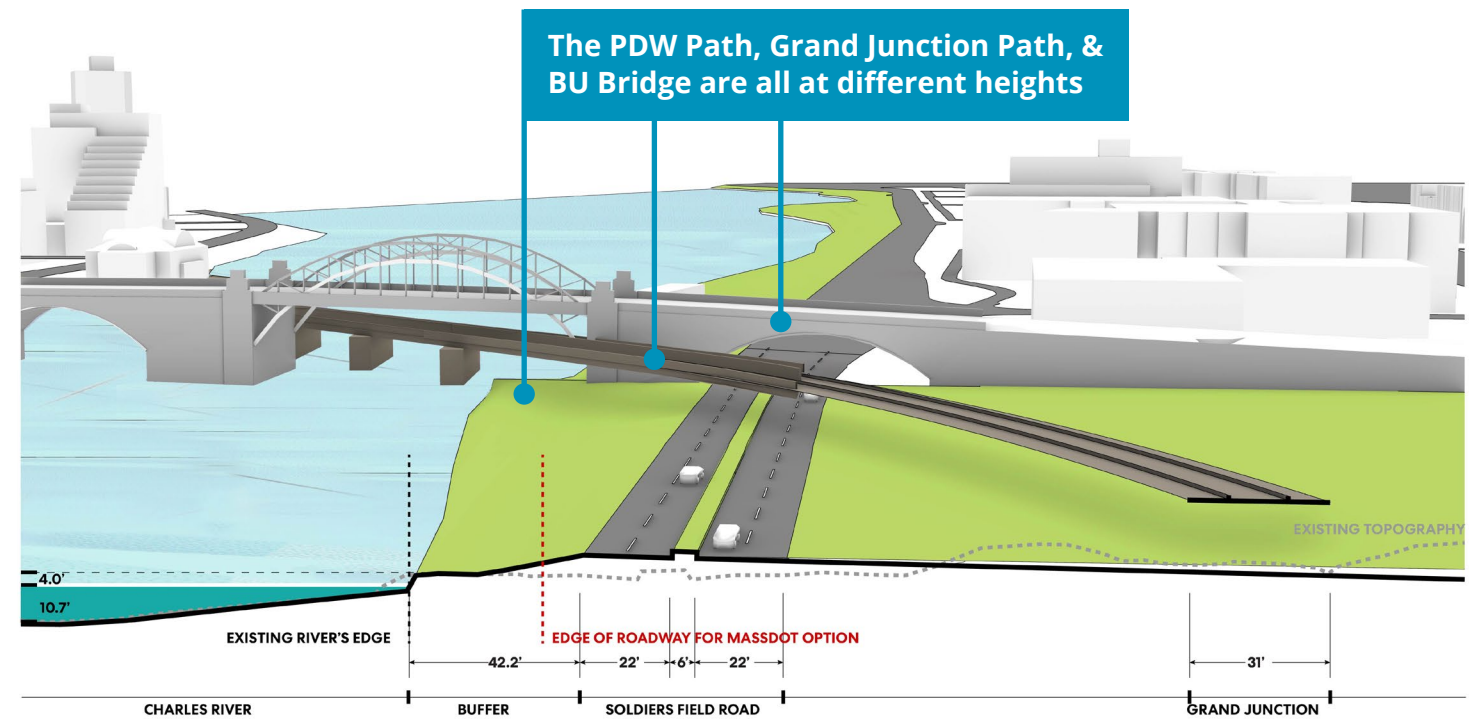
Section G



Plan



SECTION H



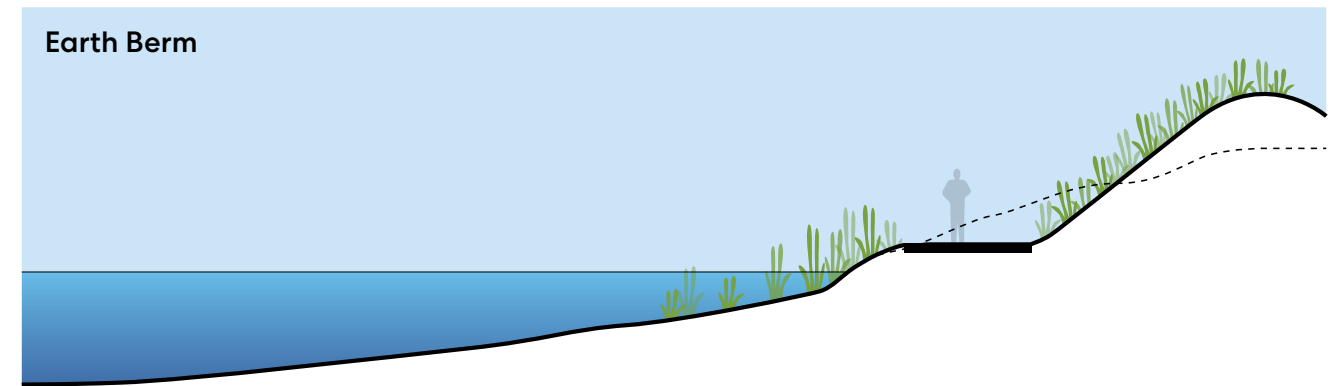
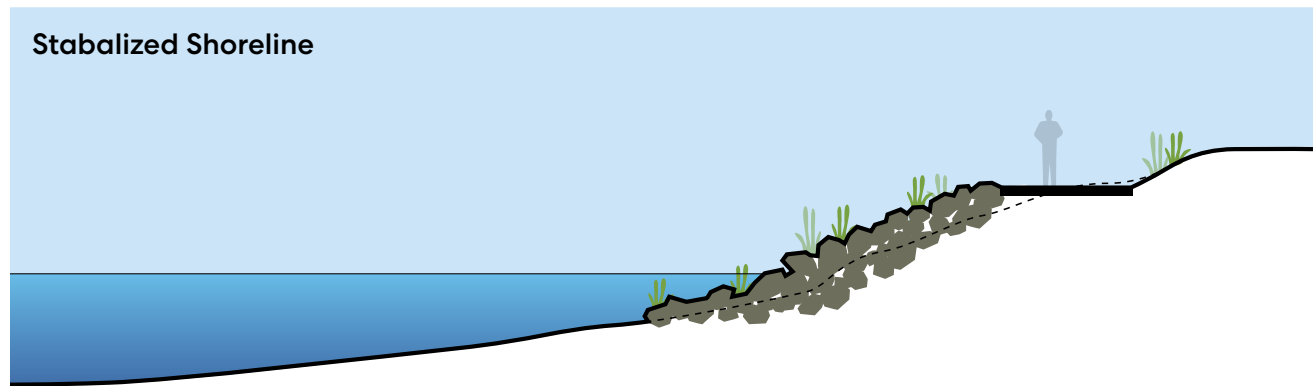
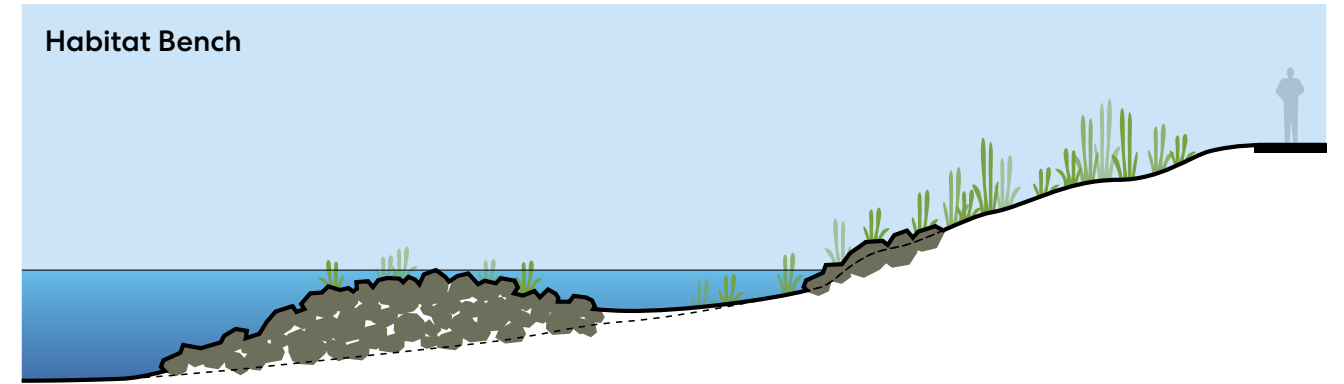
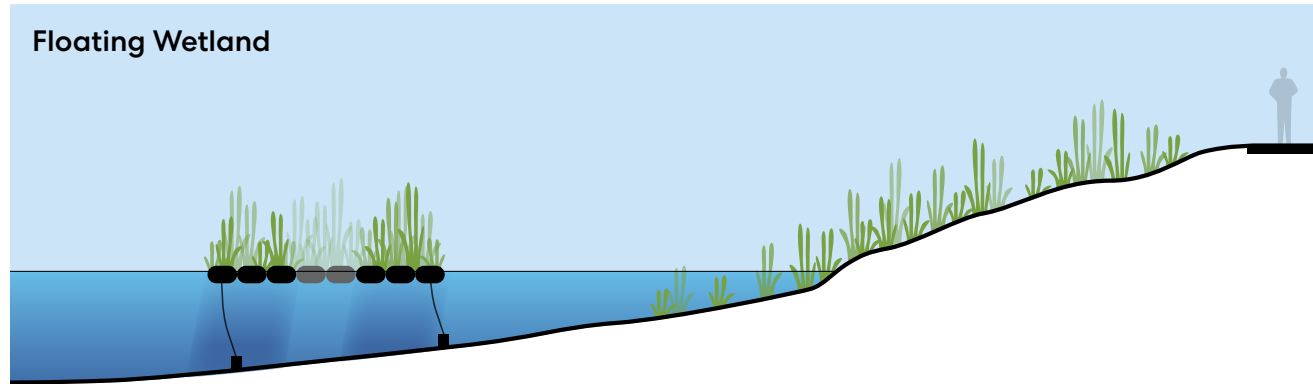
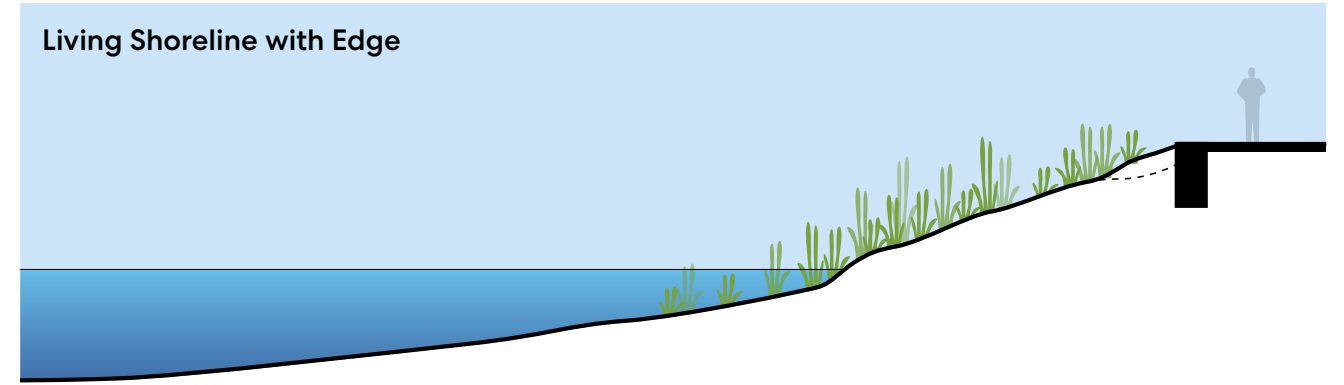
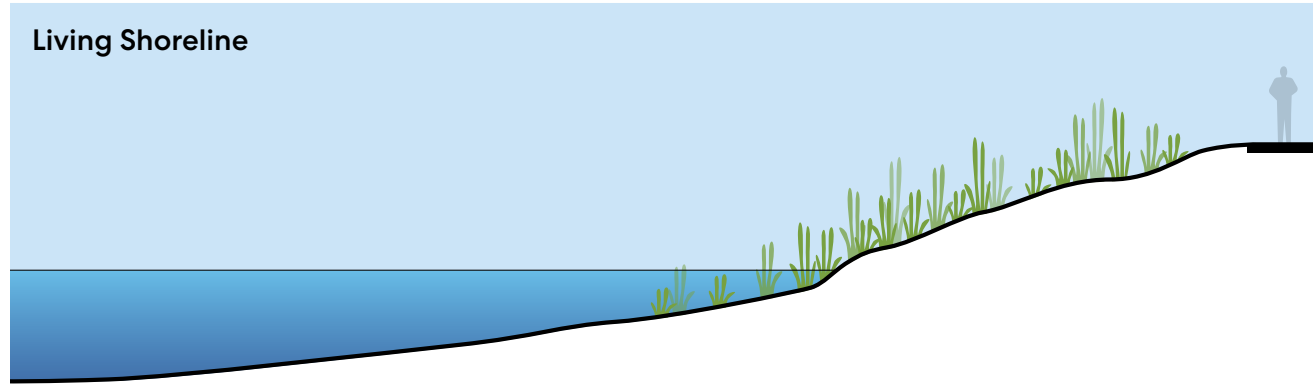
SECTION I

Strategies

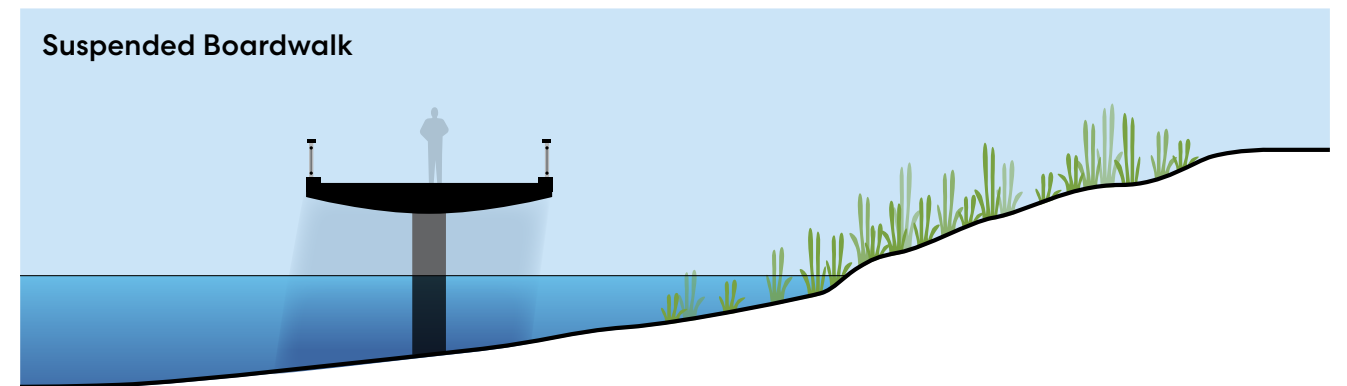
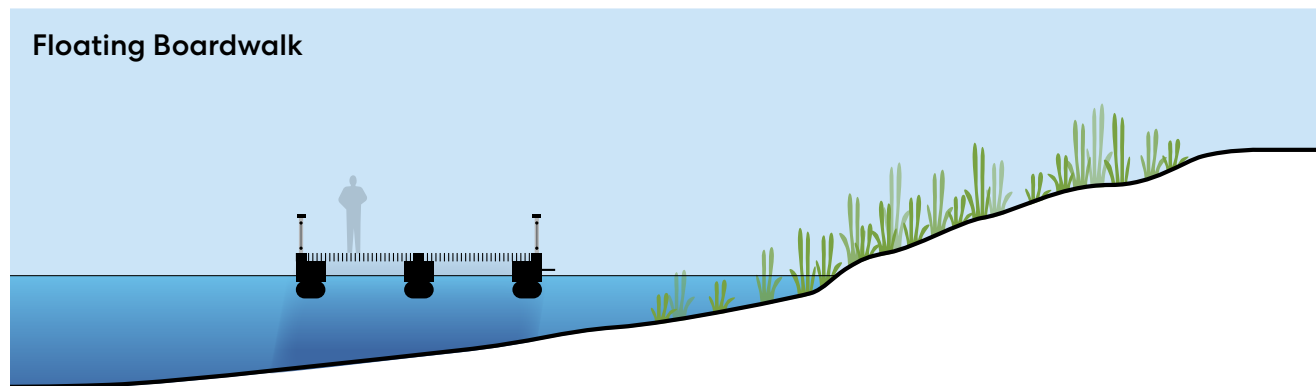
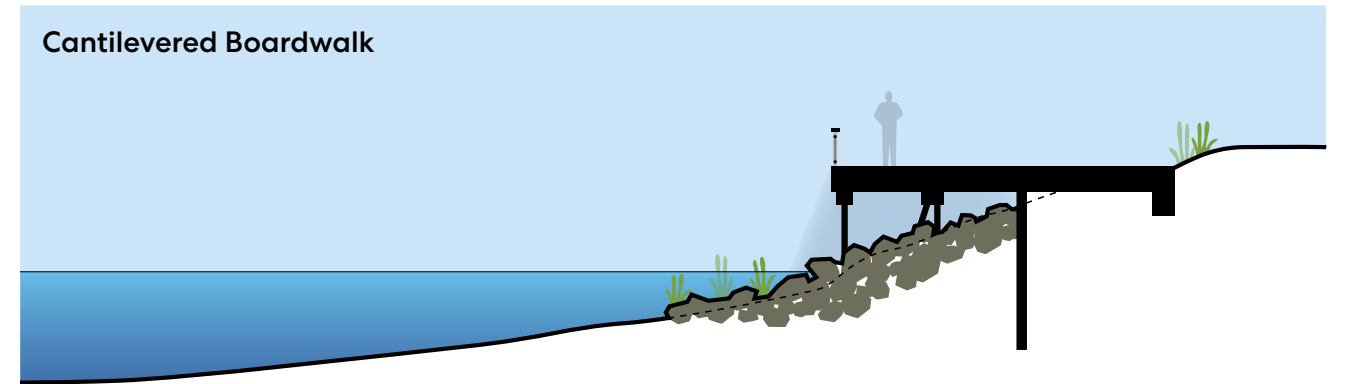
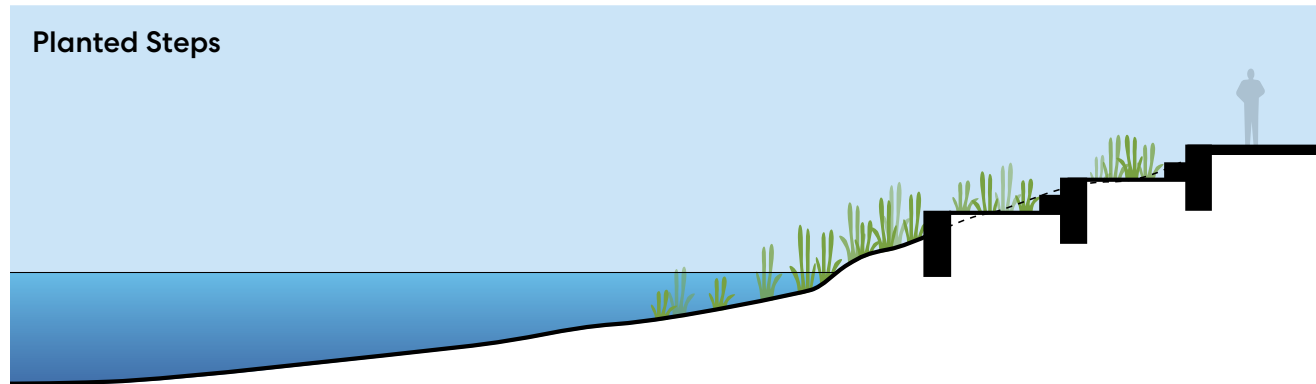
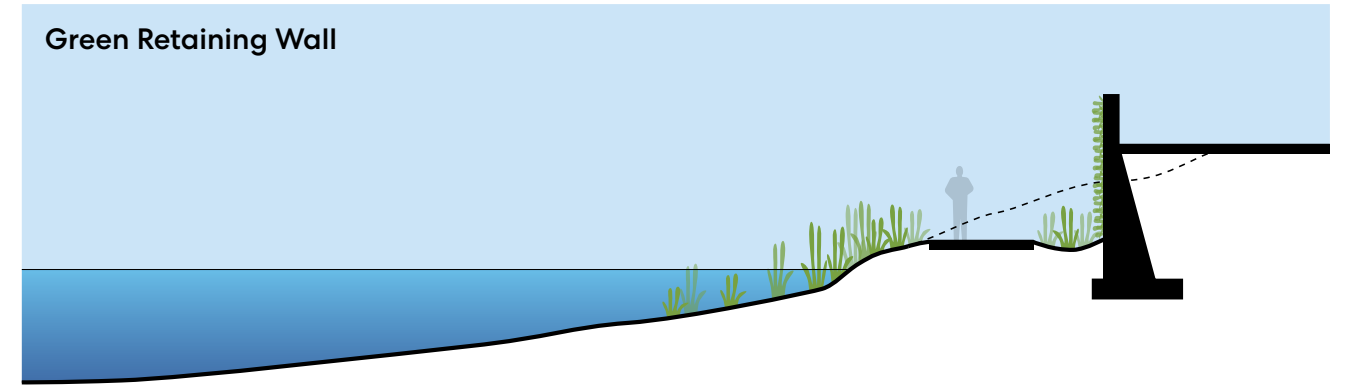
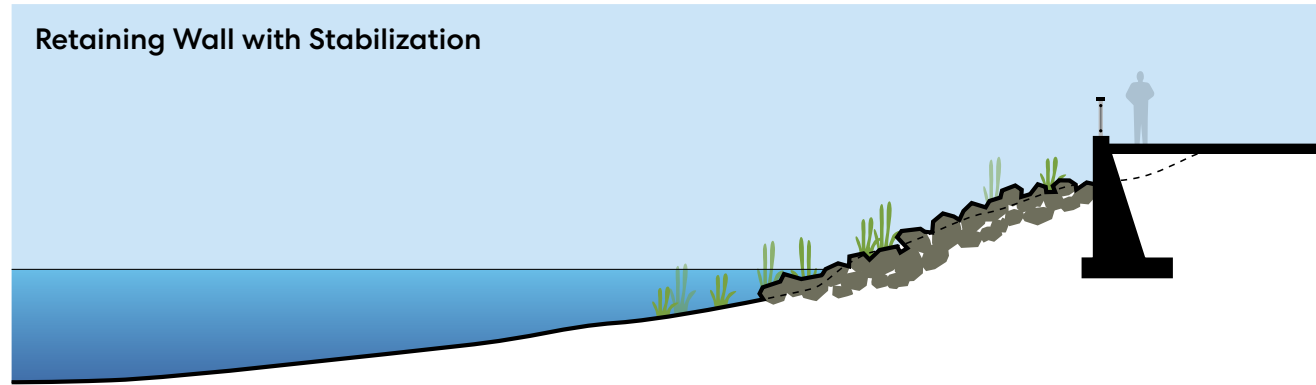
Tool Kit

- Create a toolkit of landscape strategies to create a living shoreline
- Understand the comparative benefits and impacts of each intervention
- Draw upon knowledge gained from preexisting examples and precedents

Naturalized Edges



Constructed Edges



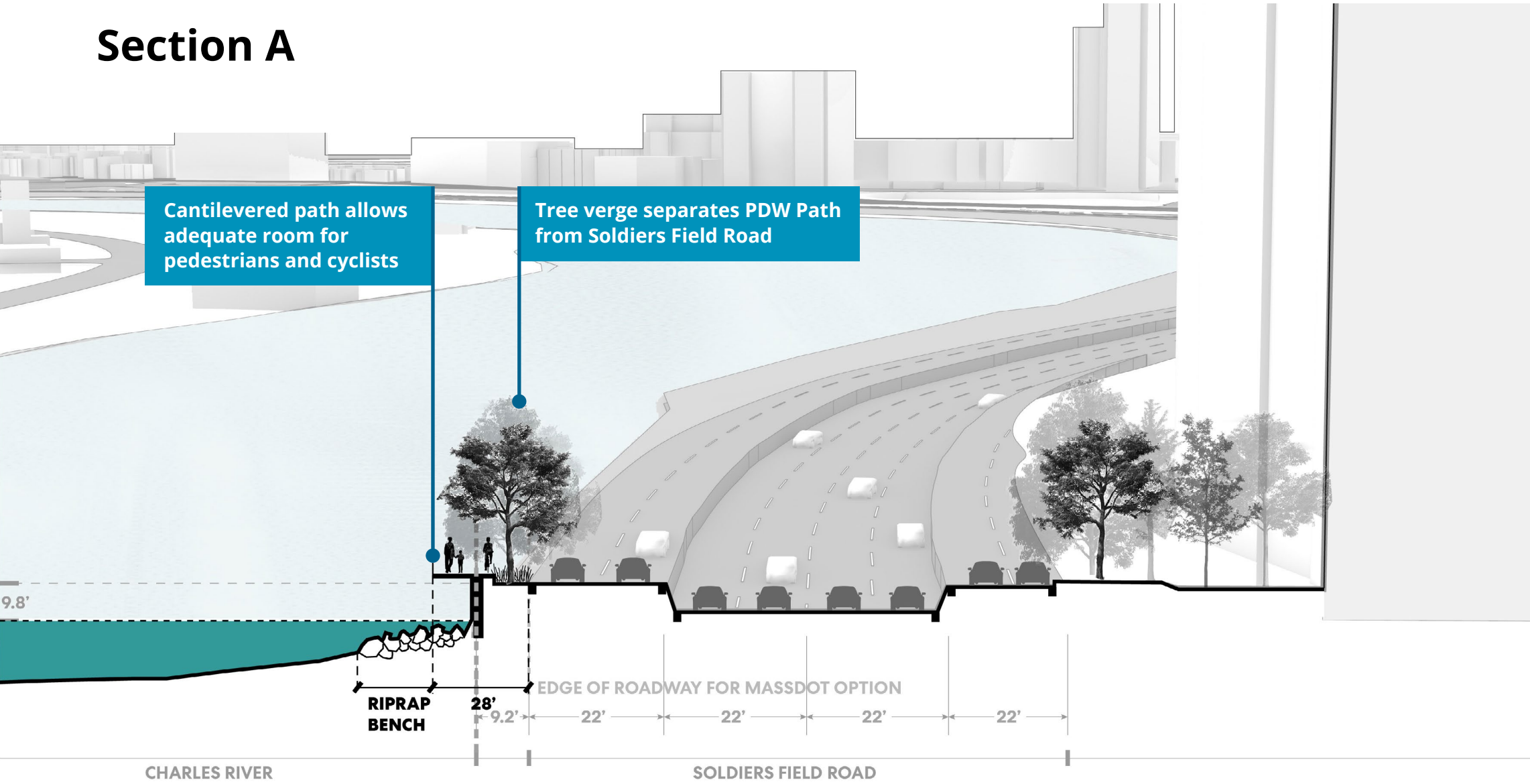
Exploration

Sections

- Propose a series of landscape systems that mitigate the impacts of pollution discharge and improve environmental conditions
- Address the impacts of climate change to create a resilient riverfront
- Re-imagine the river's edge as a natural living shoreline of rich and diverse ecosystems
- Introduce robust circulation systems and open spaces connecting surrounding communities to the riverfront

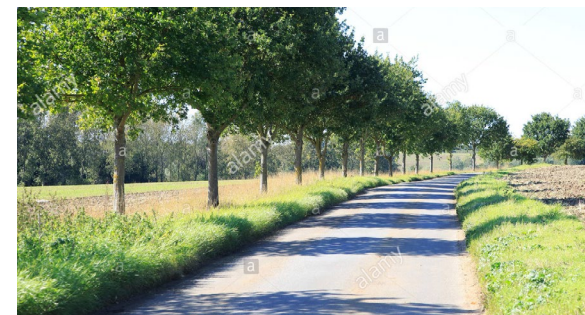
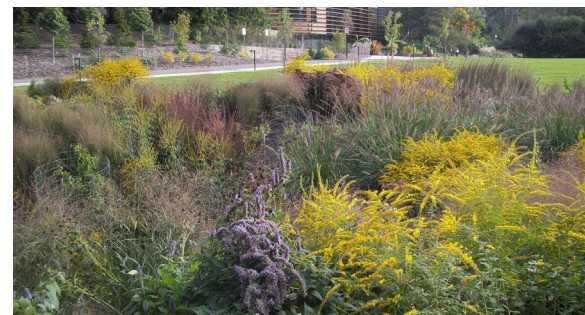
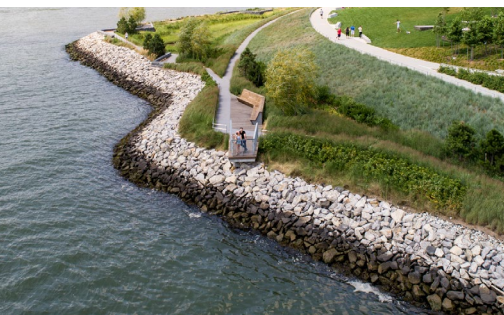
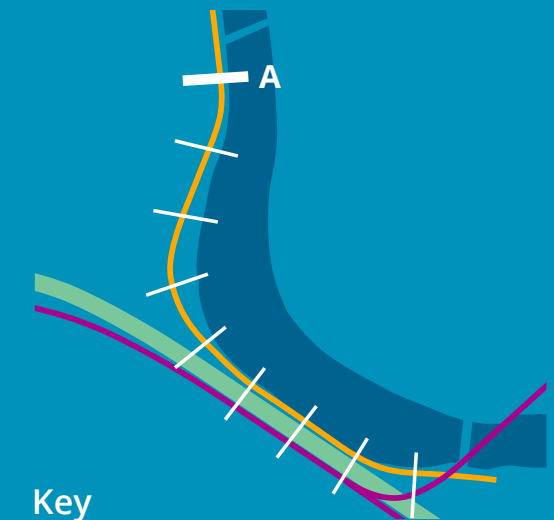
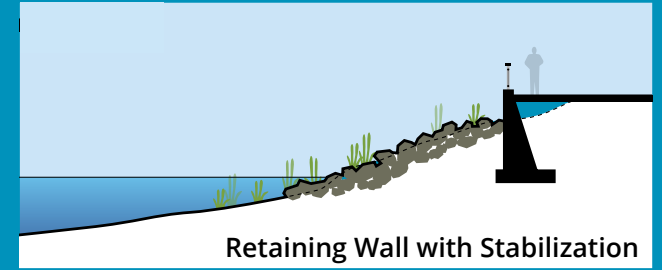
Exploration

Section A



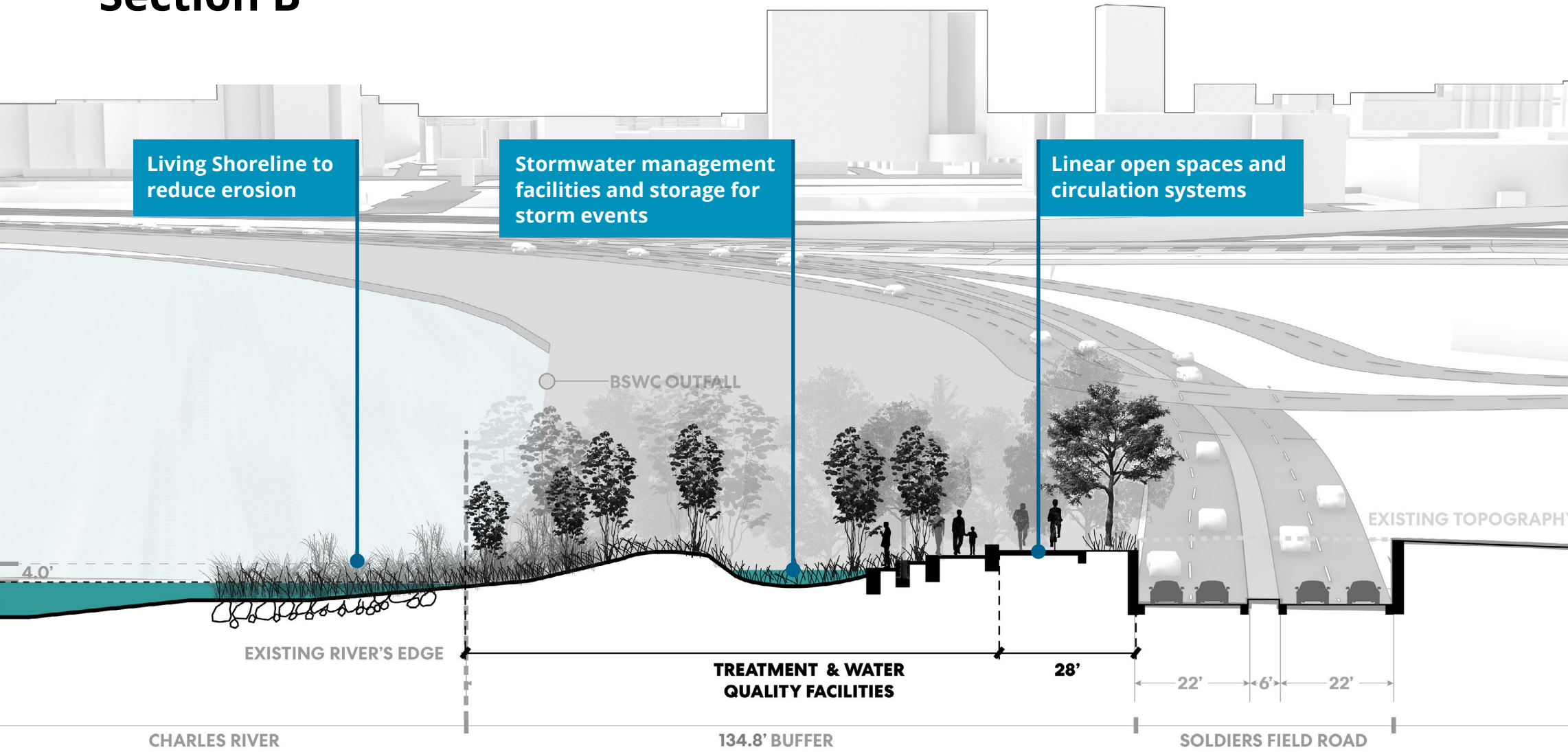
Strategies

Perkins&Will | cbt



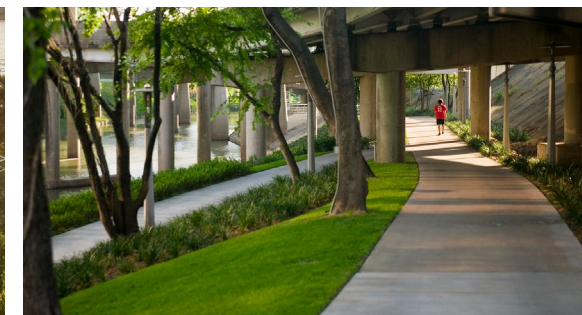
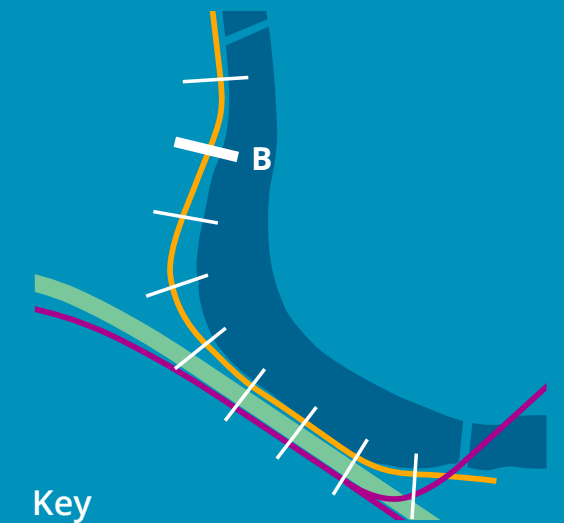
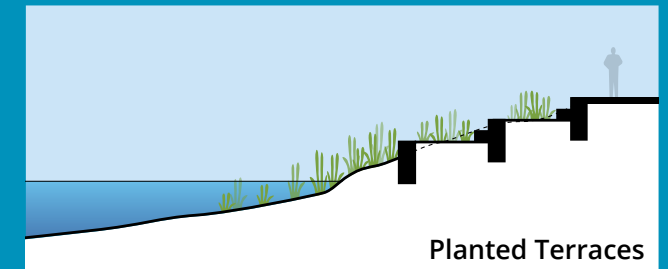
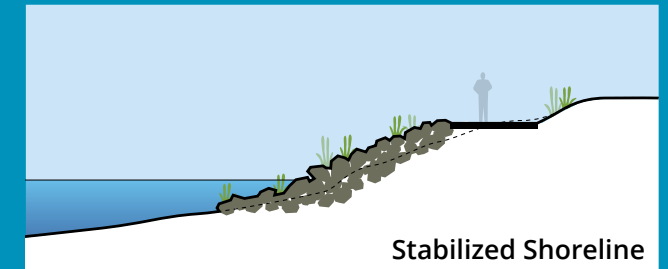
Exploration

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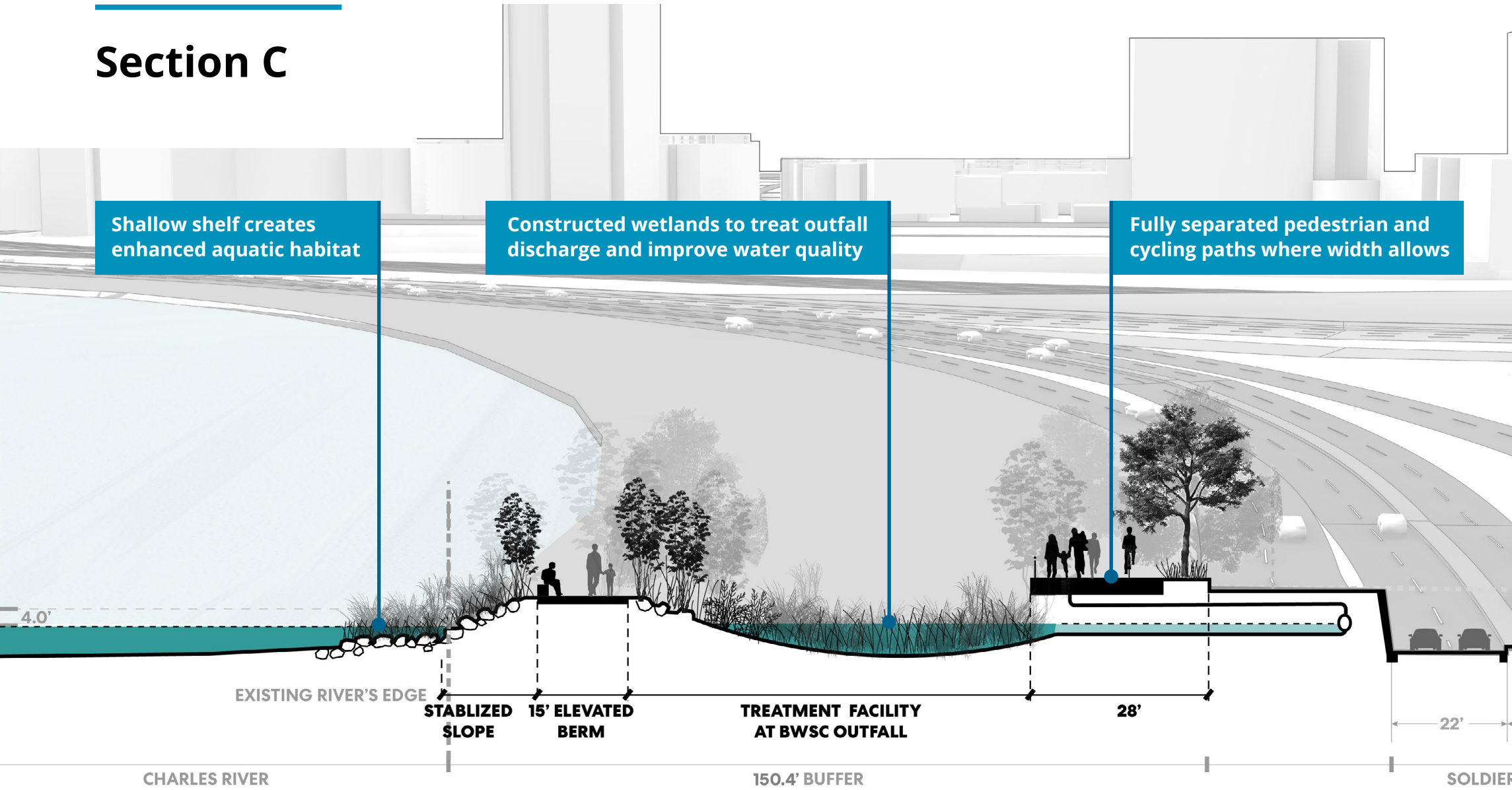
Strategies

Perkins&Will | cbt



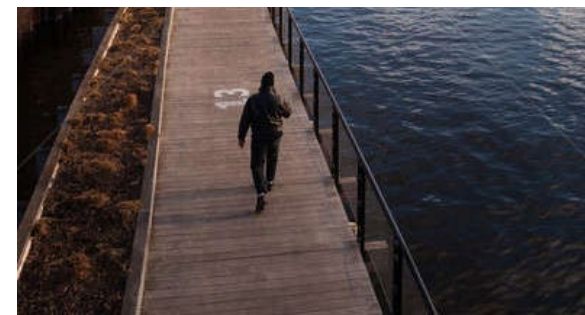
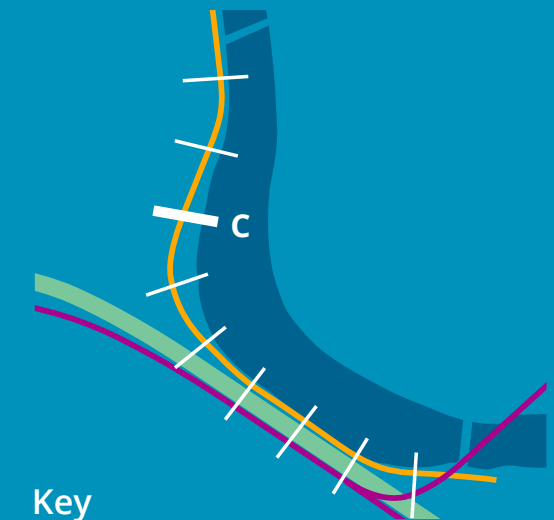
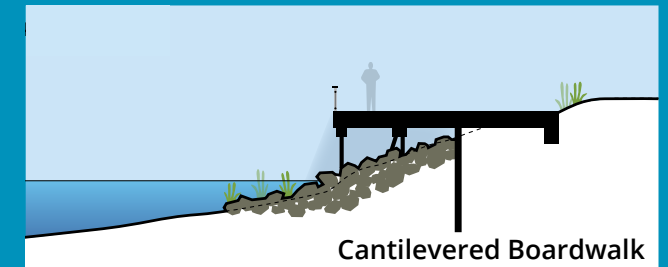
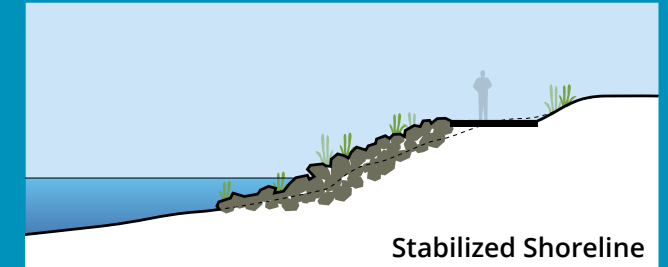
Exploration

Section C



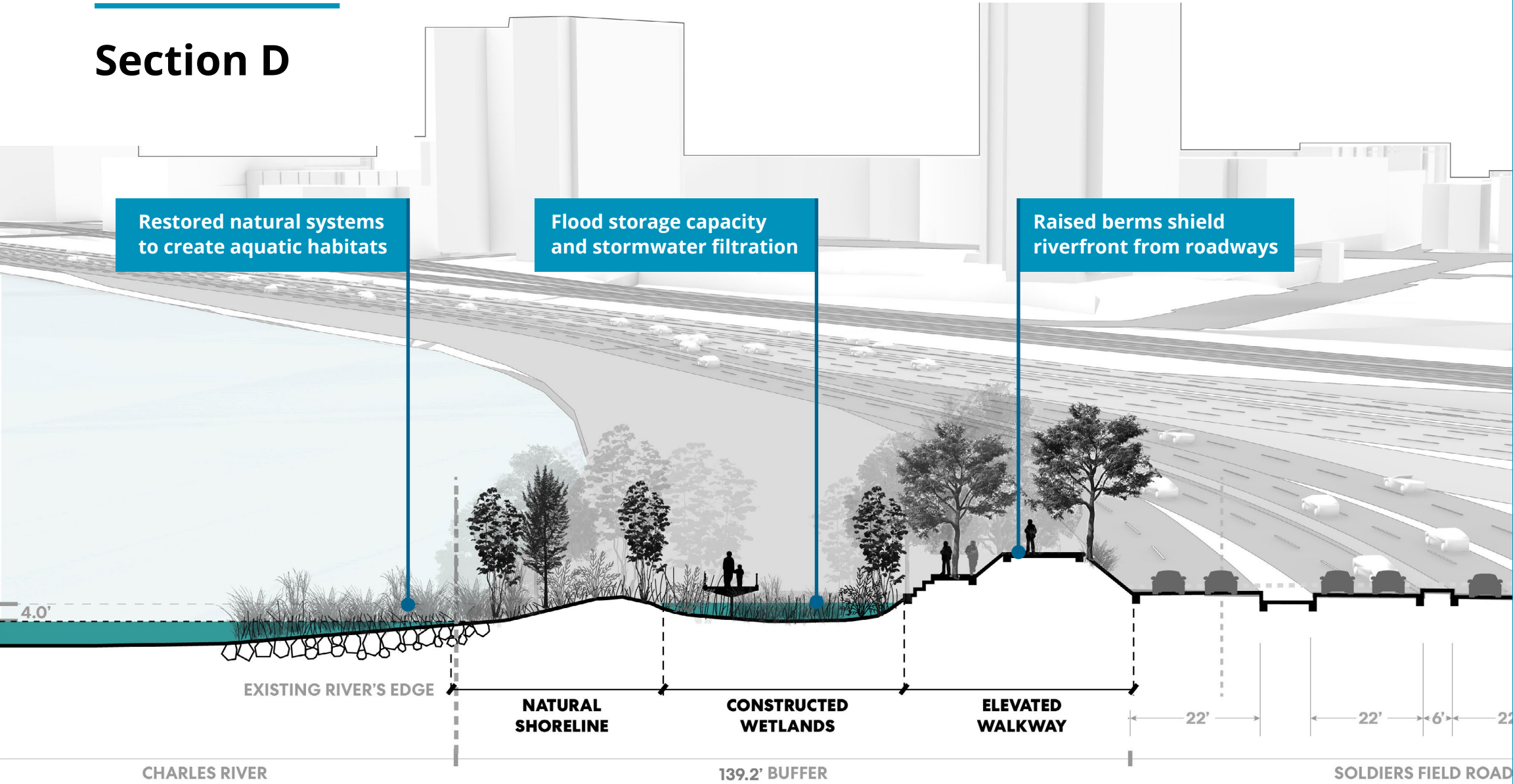
Strategies

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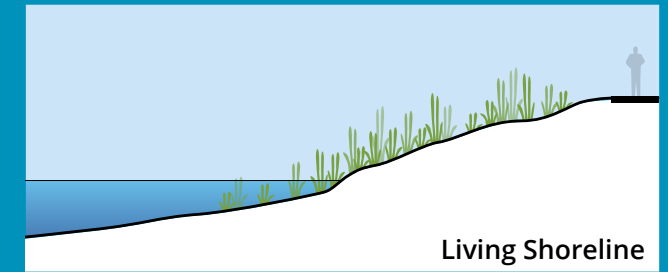
Exploration

Section D

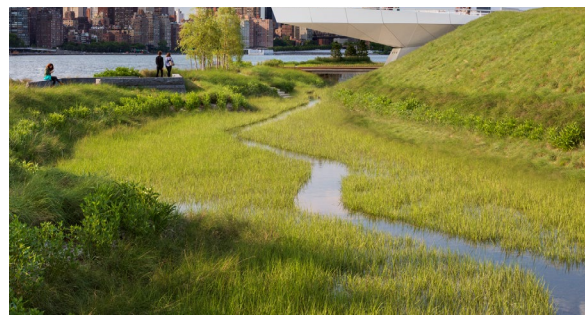
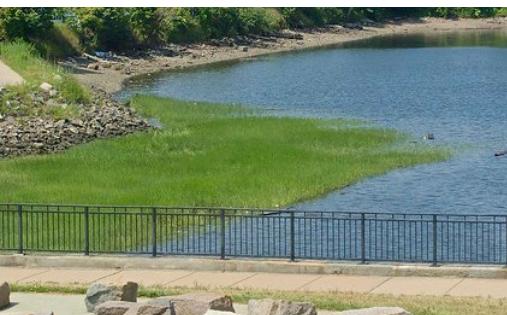
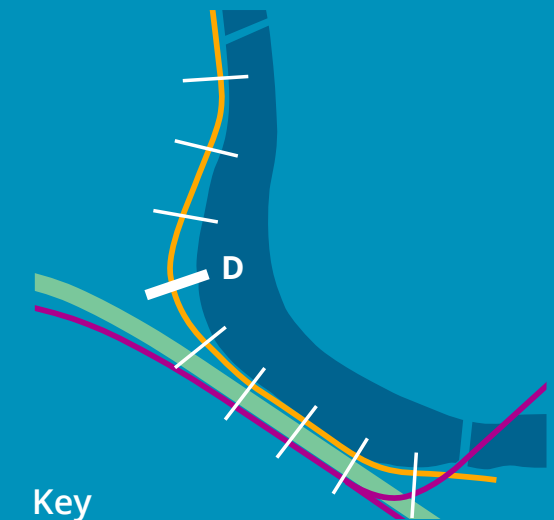
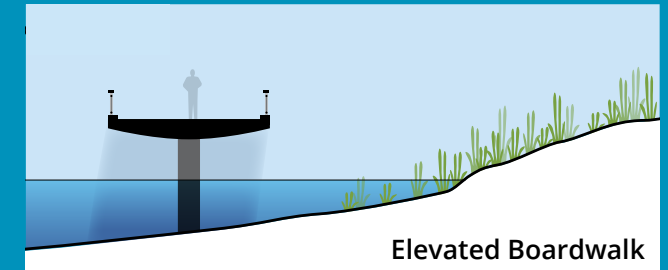


Strategies

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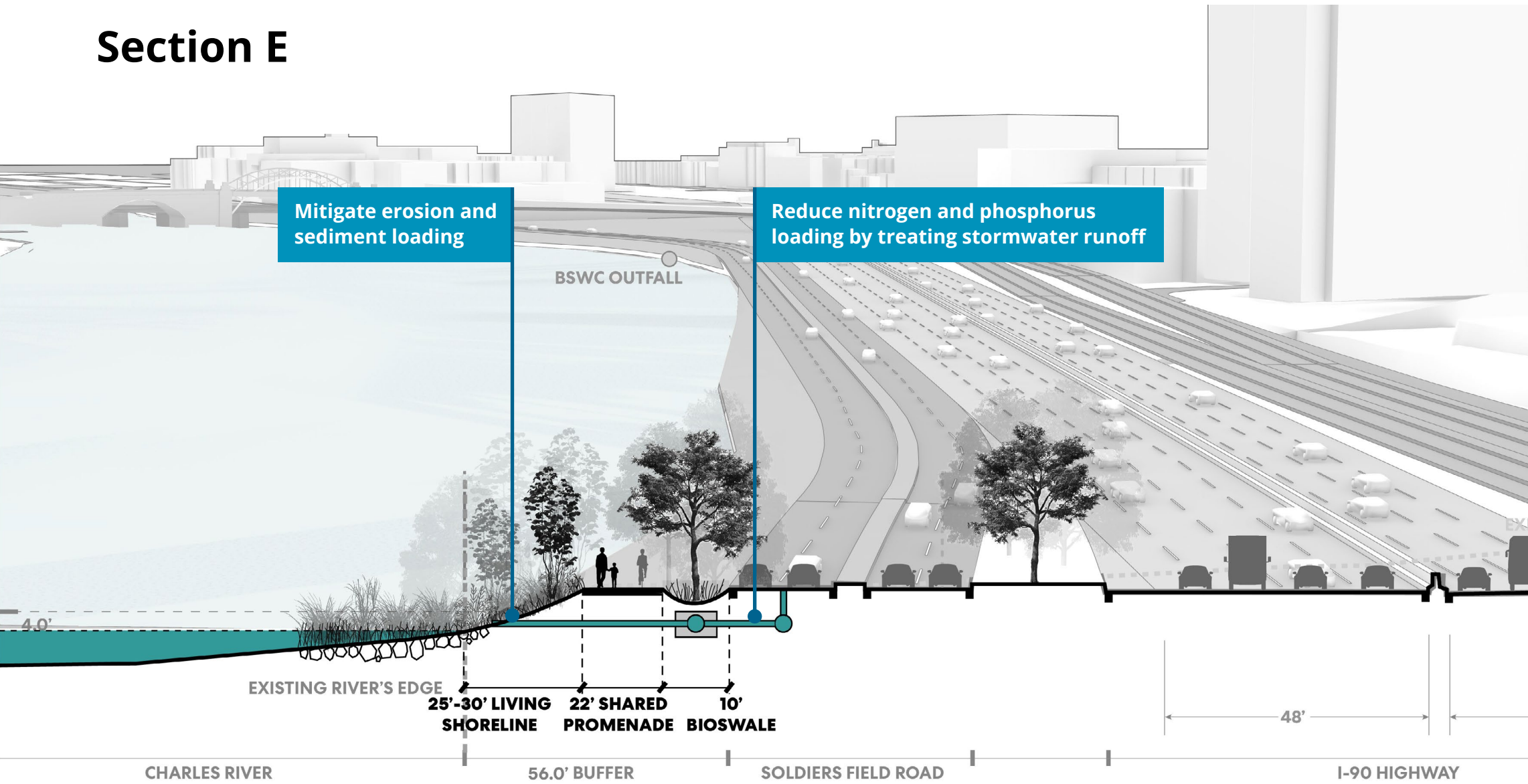


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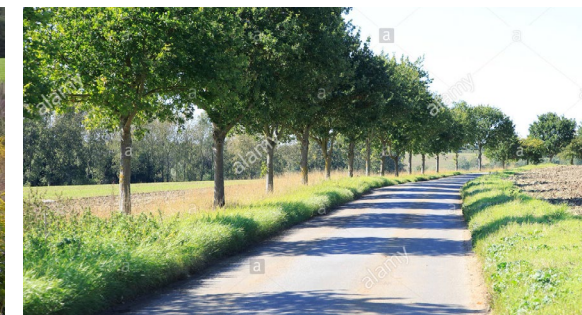
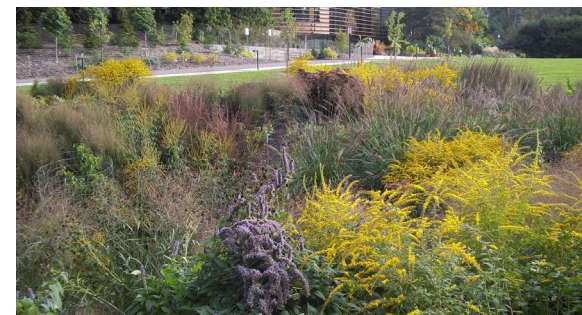
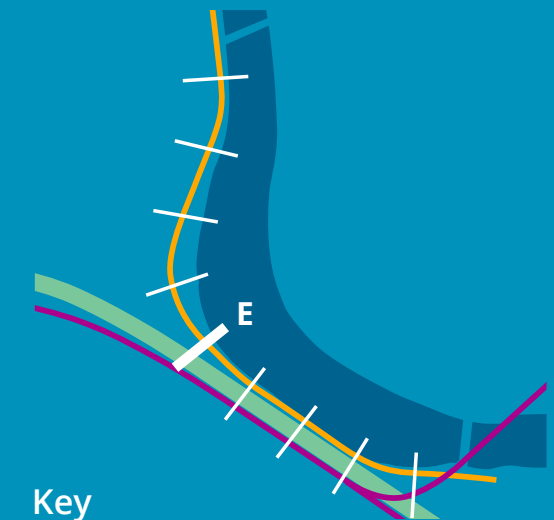
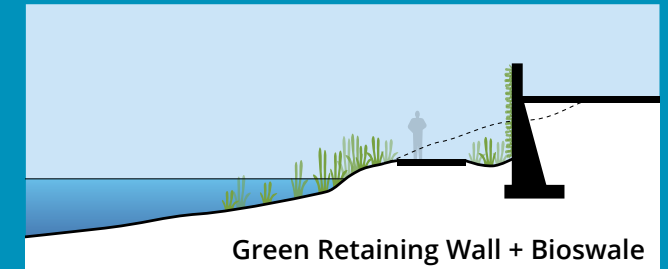
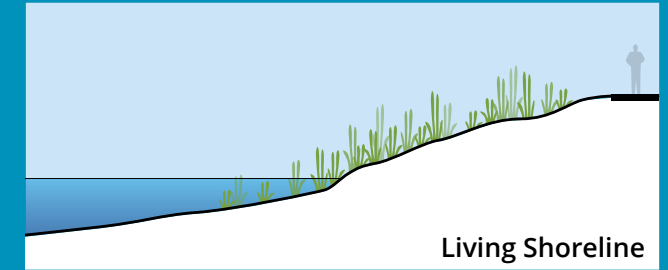
Exploration

Section E



Strategies

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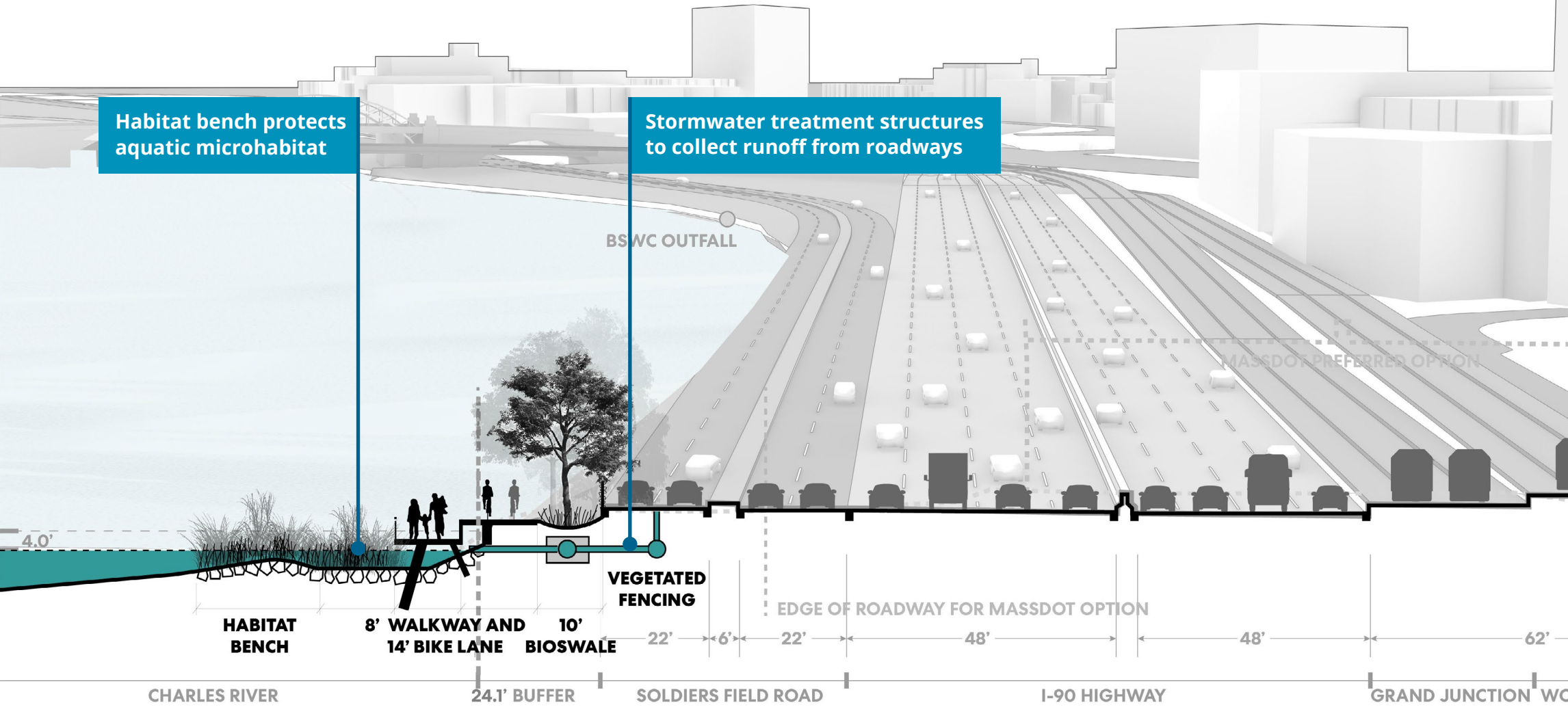


Exploration

Section F

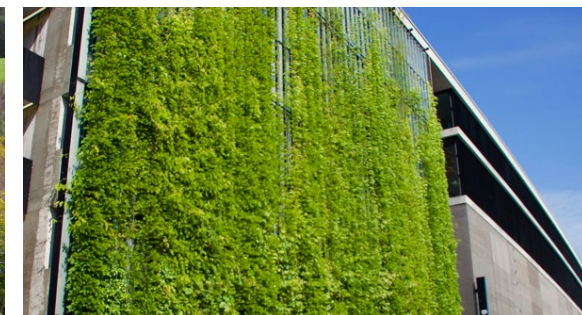
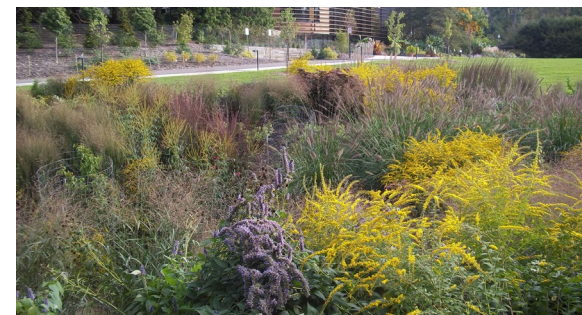
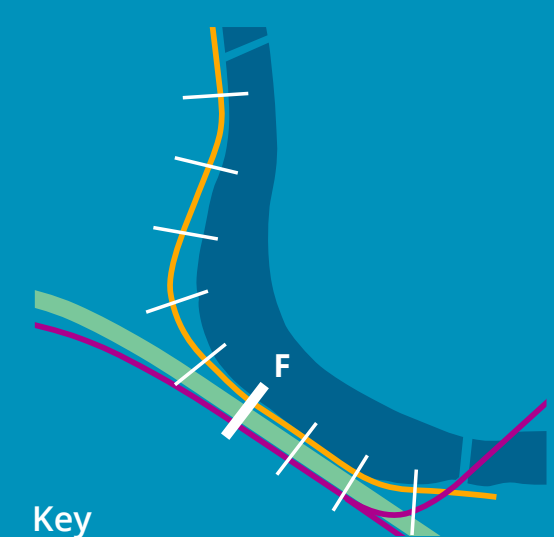
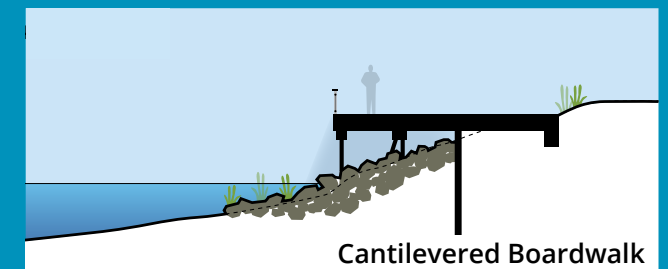
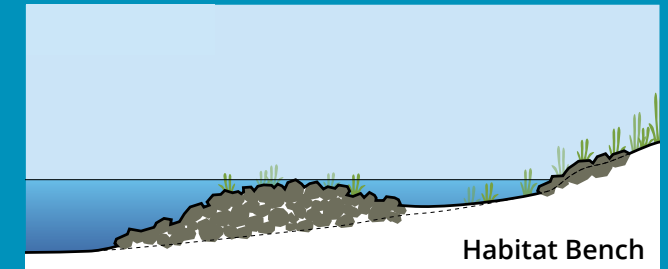
Habitat bench protects aquatic microhabitat

Stormwater treatment structures to collect runoff from roadways



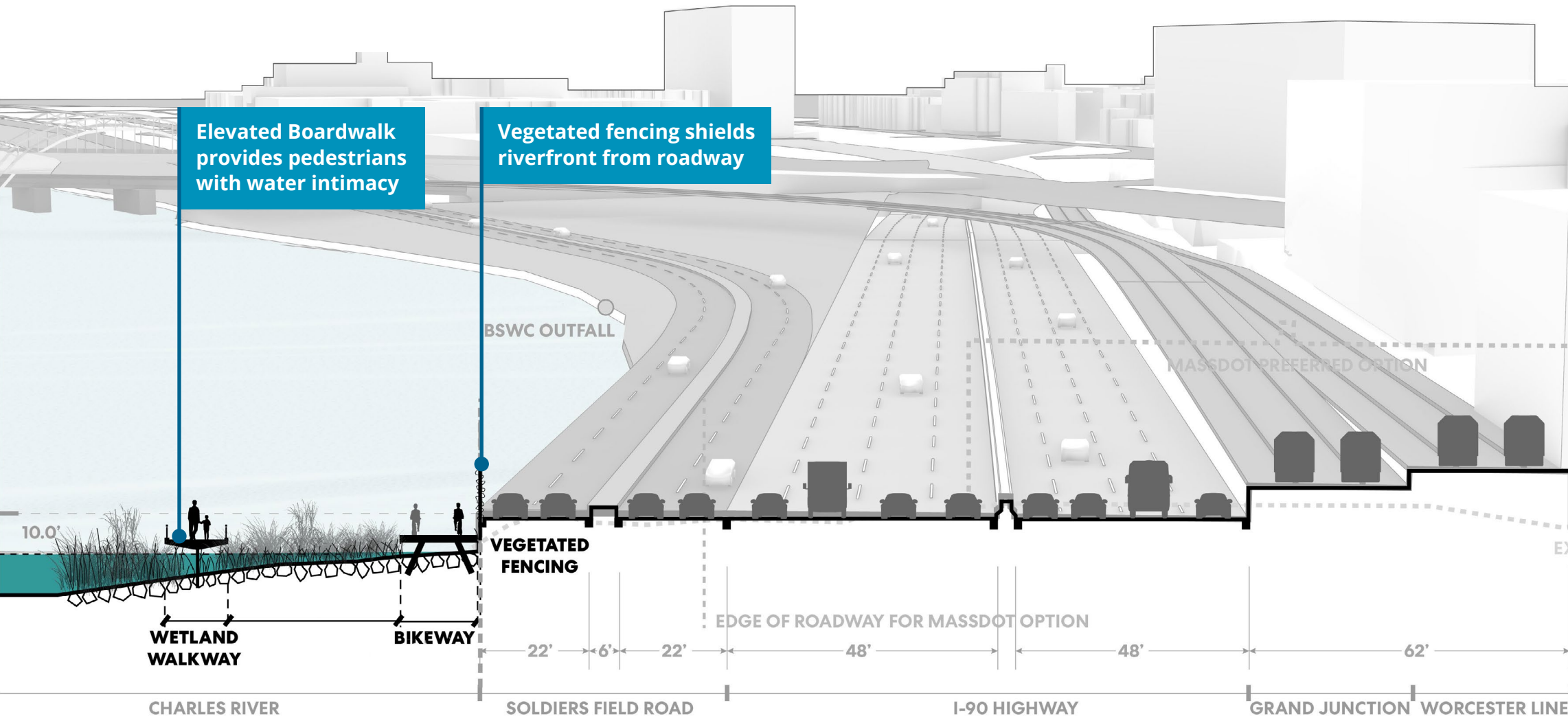
Strategies

Perkins&Will | cbt



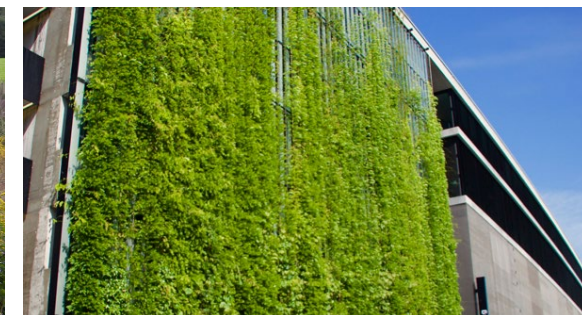
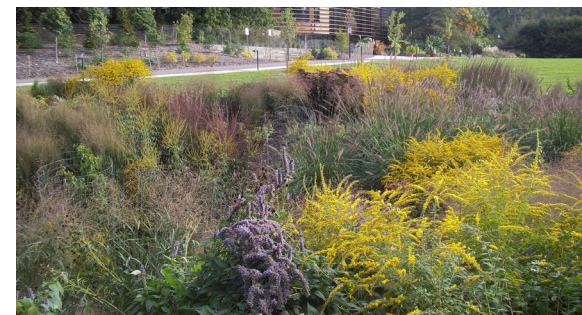
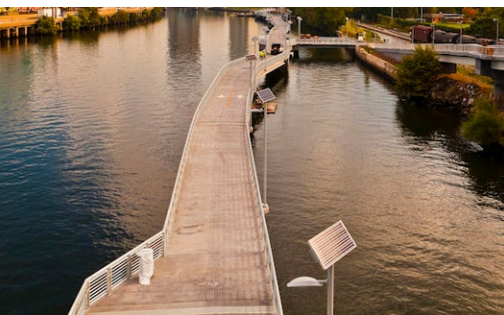
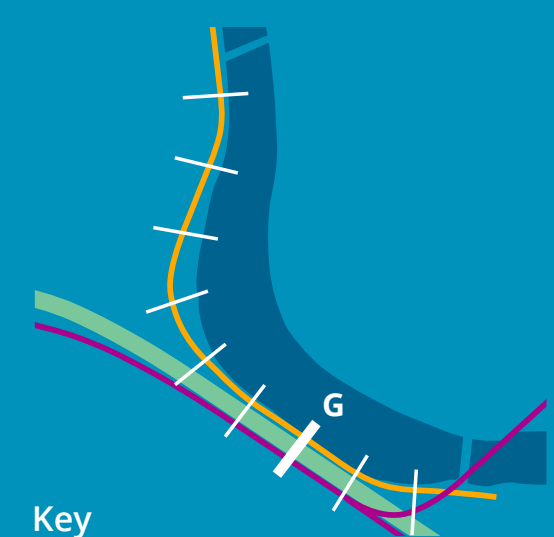
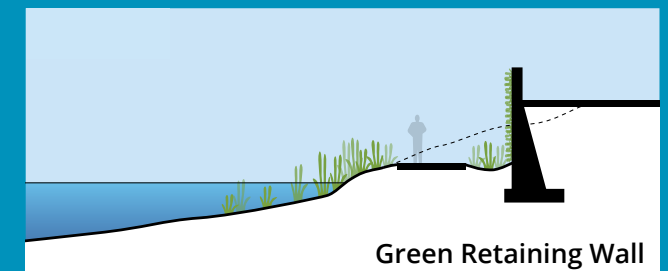
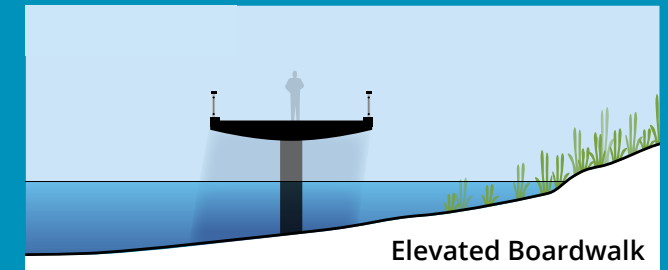
Exploration

Section G



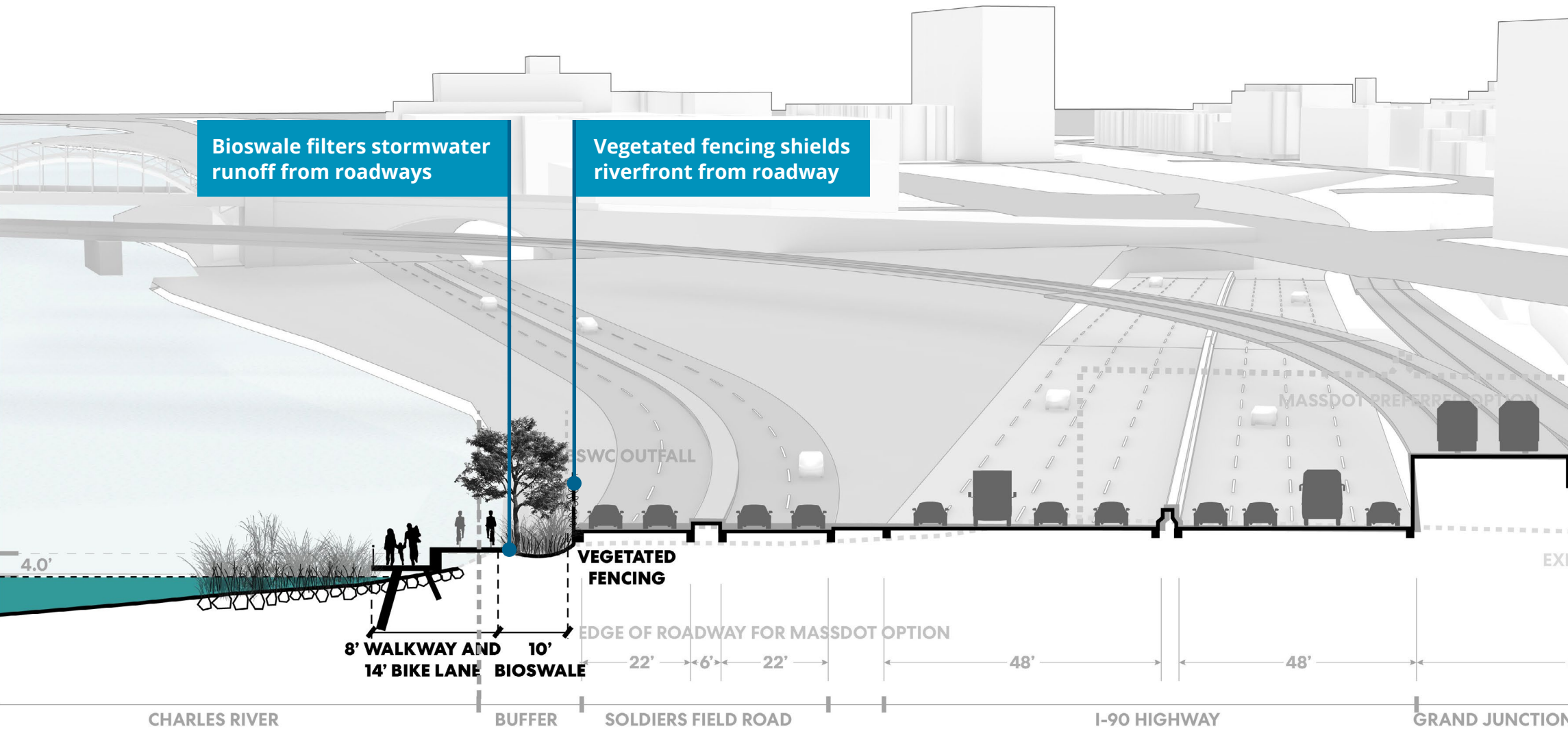
Strategies

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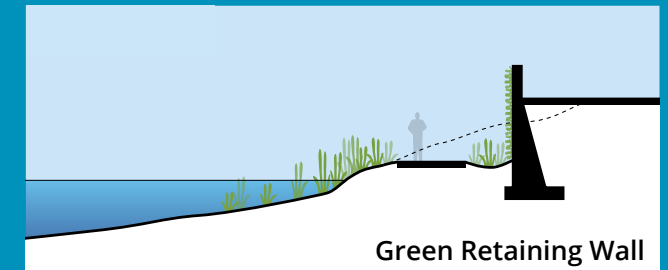
Exploration

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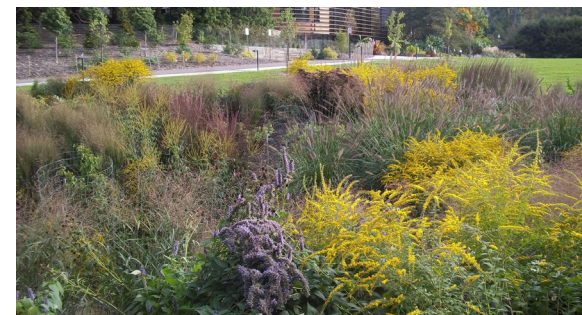
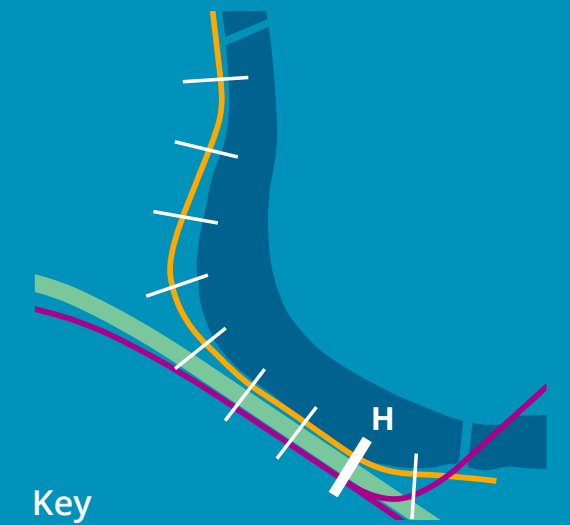
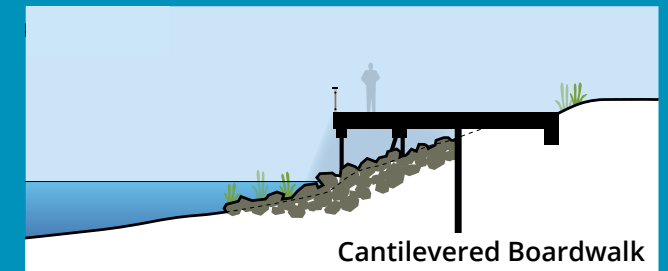


Strategies

Perkins&Will | cbt

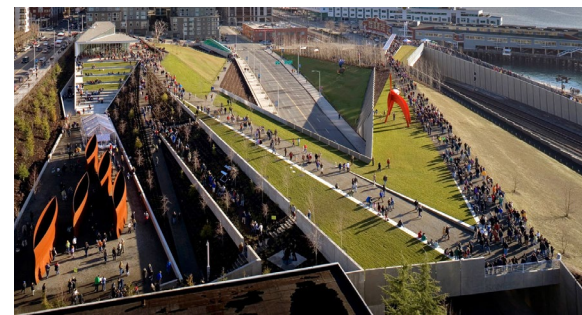
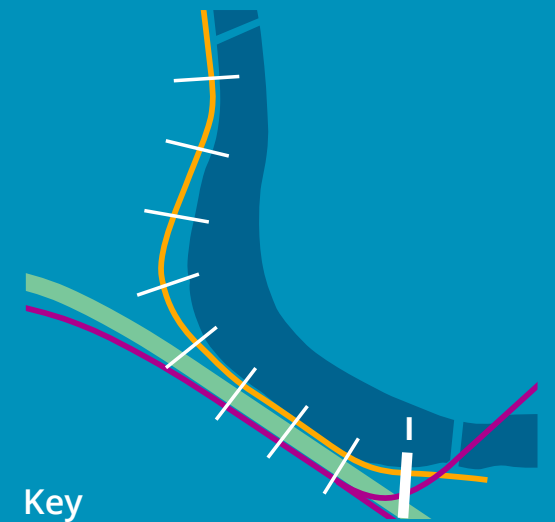
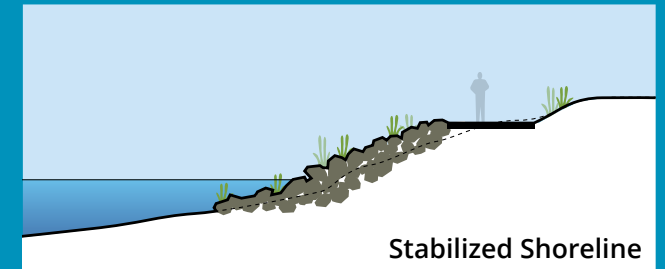
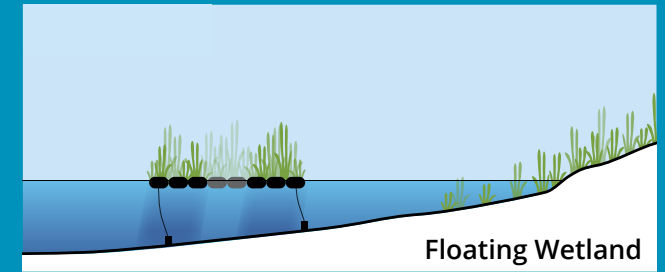
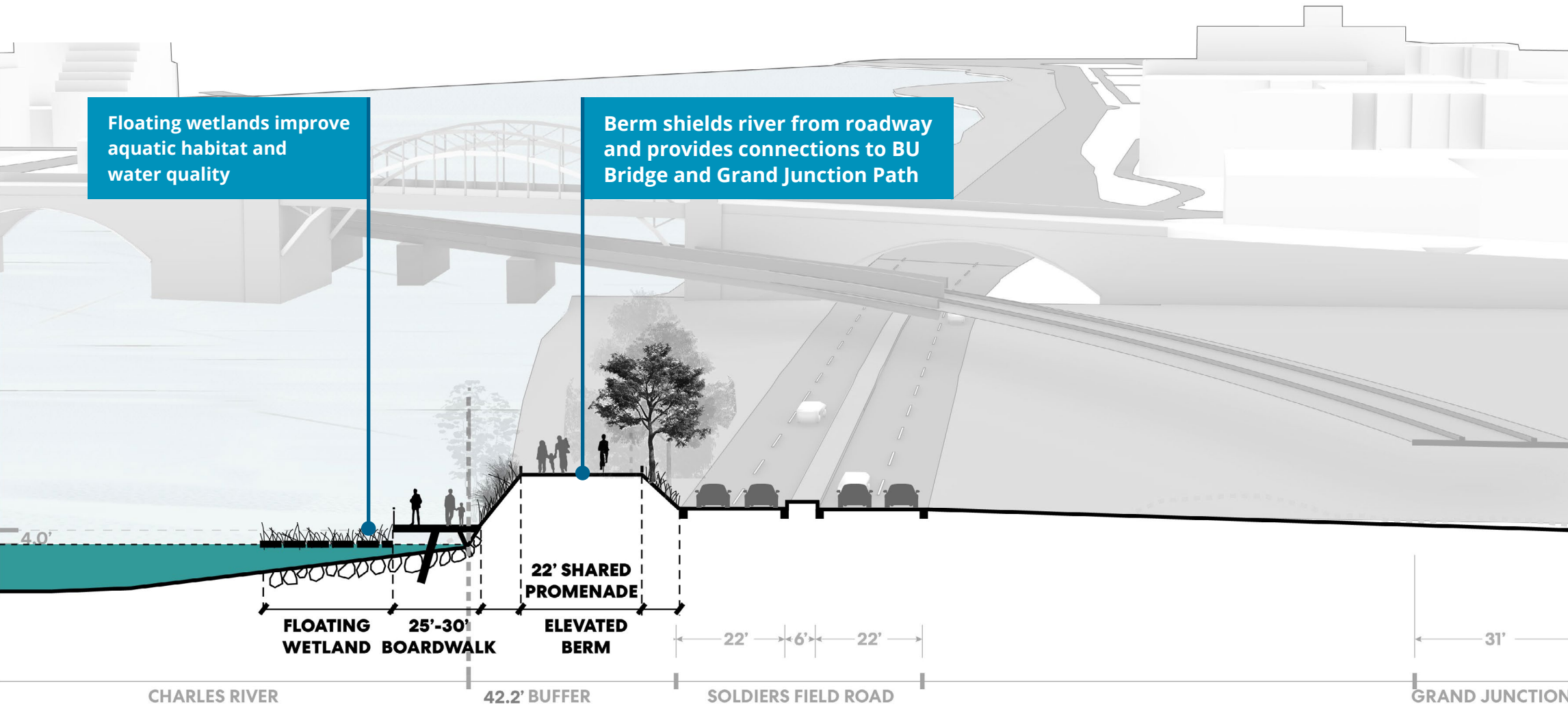


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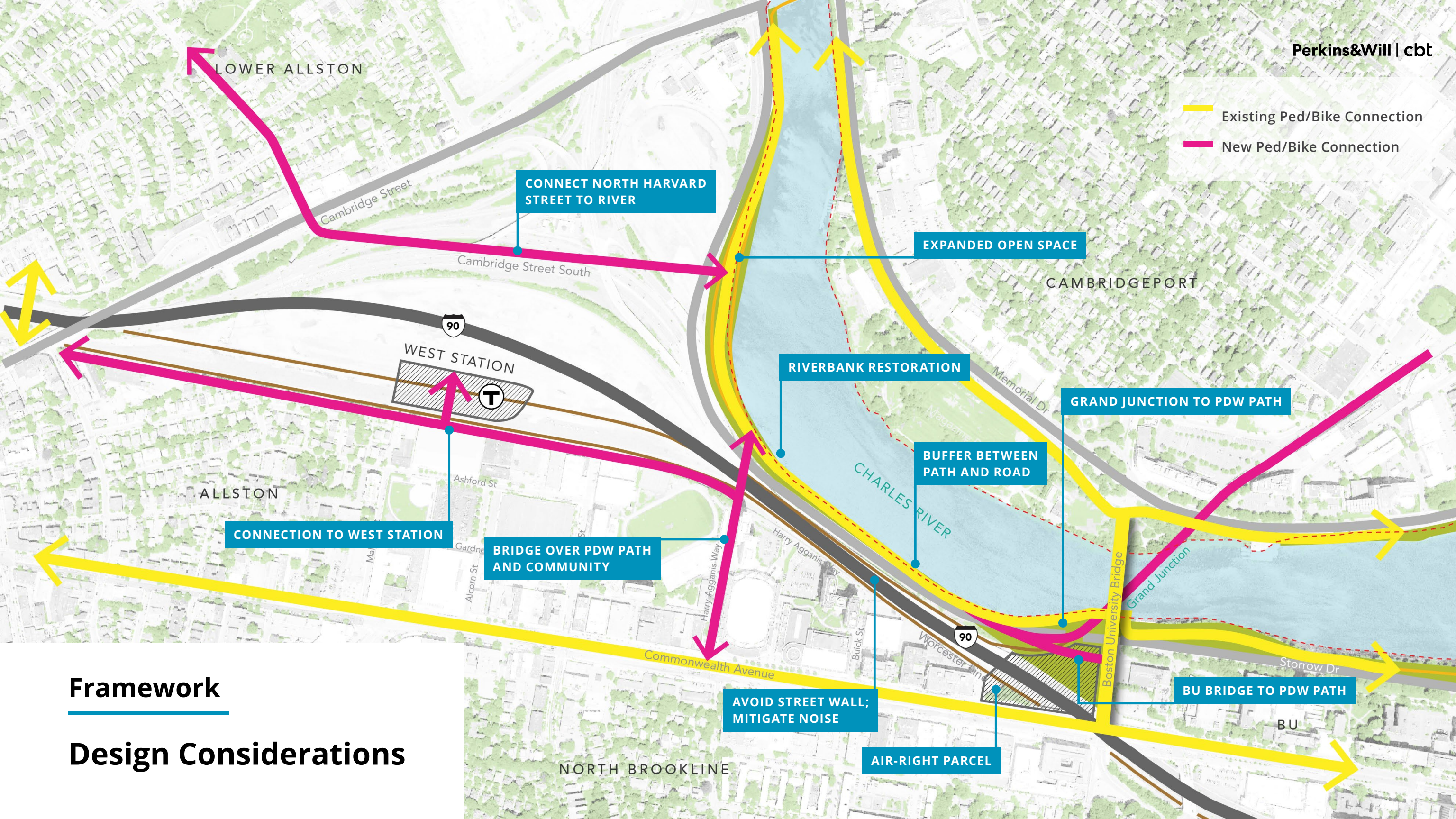
Exploration

Section I



Connectivity Framework

- Existing Ped/Bike Connection
- New Ped/Bike Connection



LOWER ALLSTON

CONNECT NORTH HARVARD STREET TO RIVER

EXPANDED OPEN SPACE

CAMBRIDGEPORT

RIVERBANK RESTORATION

GRAND JUNCTION TO PDW PATH

CONNECTION TO WEST STATION

BRIDGE OVER PDW PATH AND COMMUNITY

BUFFER BETWEEN PATH AND ROAD

Framework

Design Considerations

AVOID STREET WALL; MITIGATE NOISE

AIR-RIGHT PARCEL

BU BRIDGE TO PDW PATH

NORTH BROOKLINE

BU



Framework

Existing Riverfront



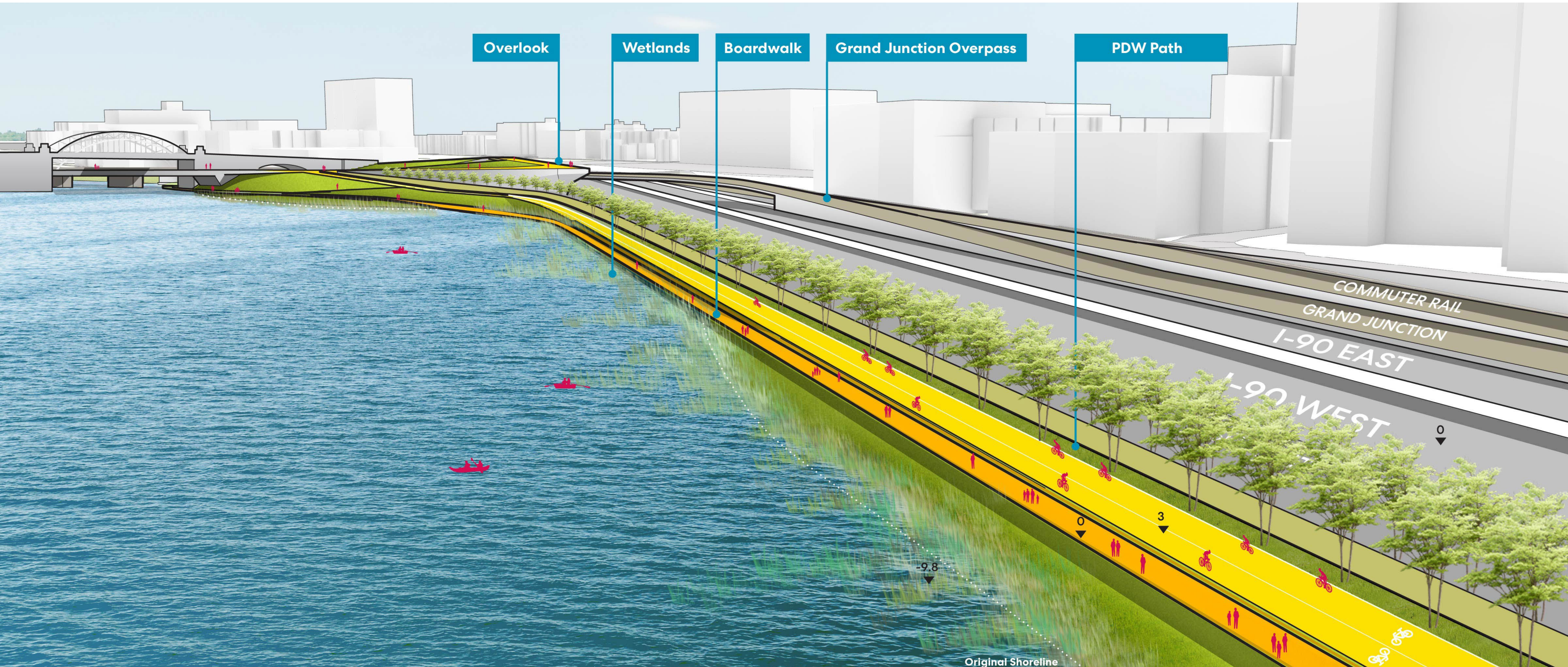
Framework

Proposed Riverfront

BU Bridge Open Space



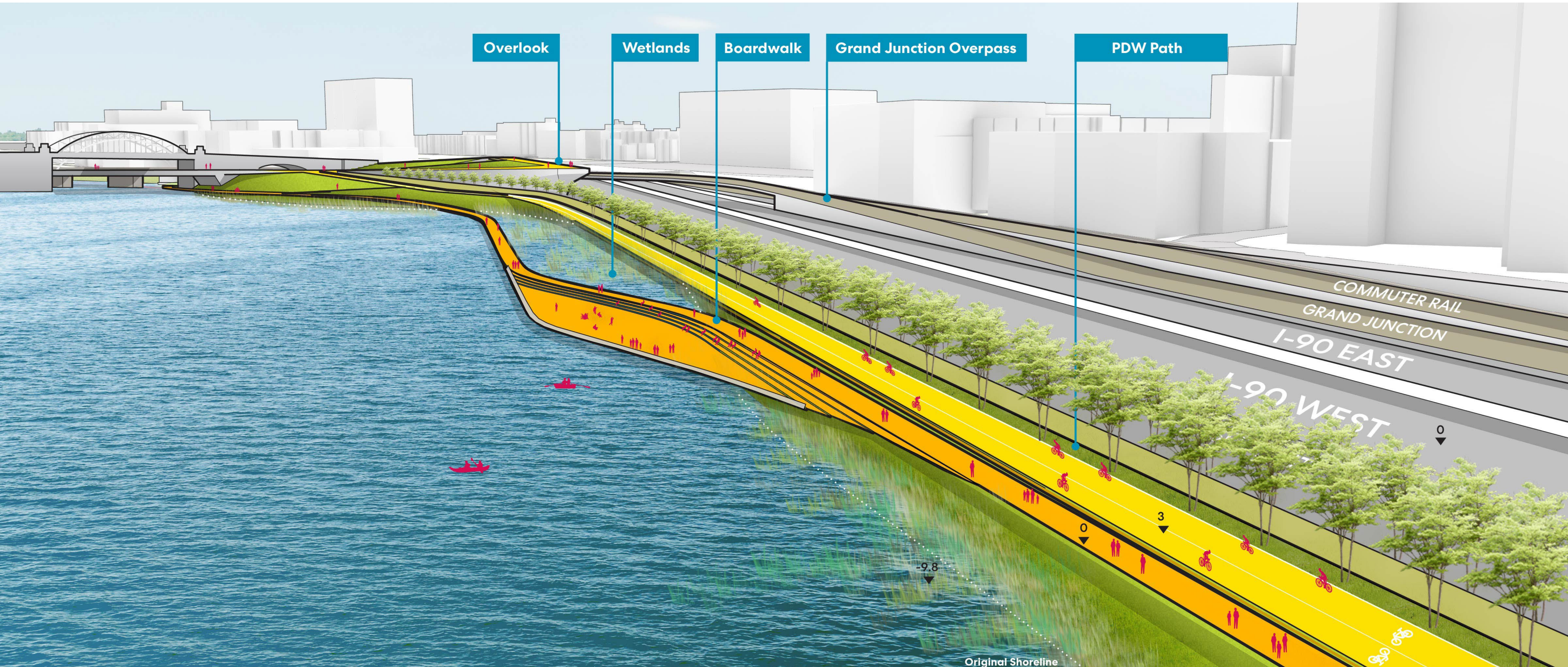
Throat Condition | Alternative 1A



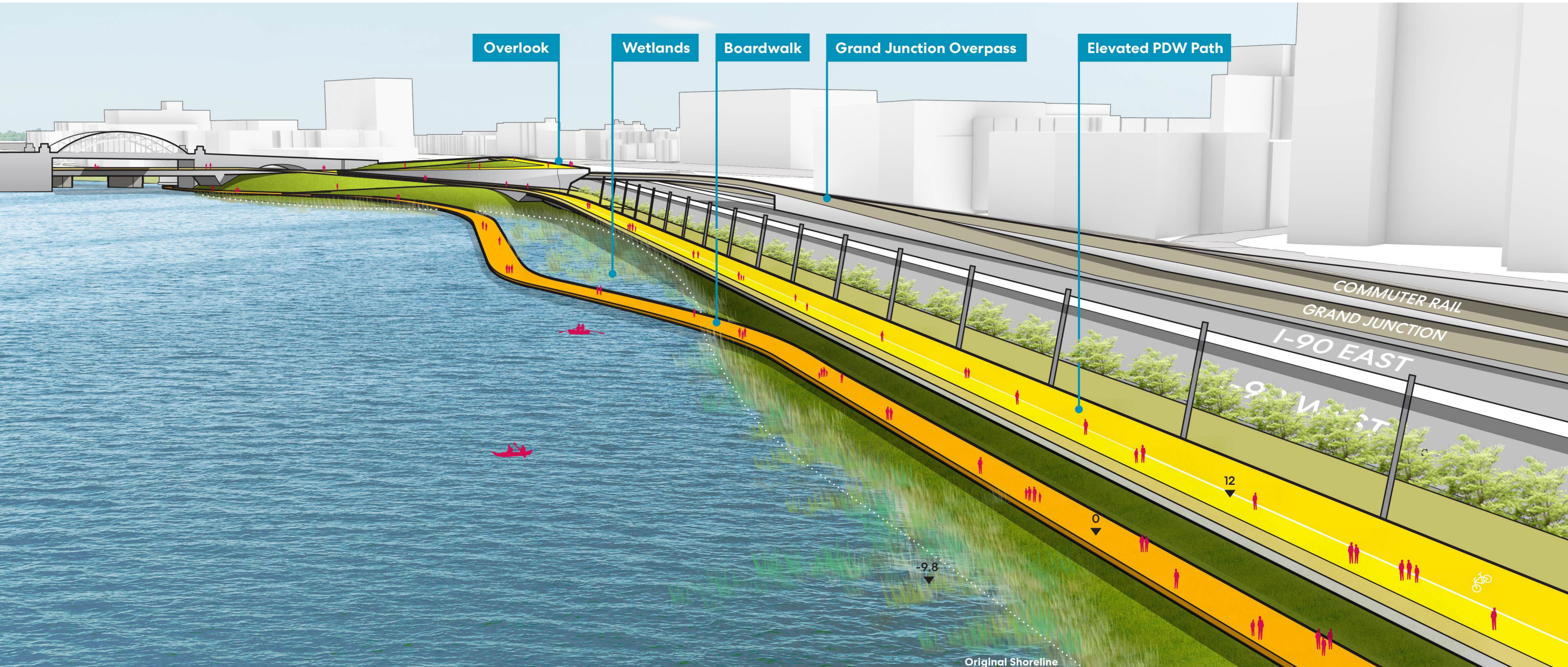
Throat Condition | Alternative 1A



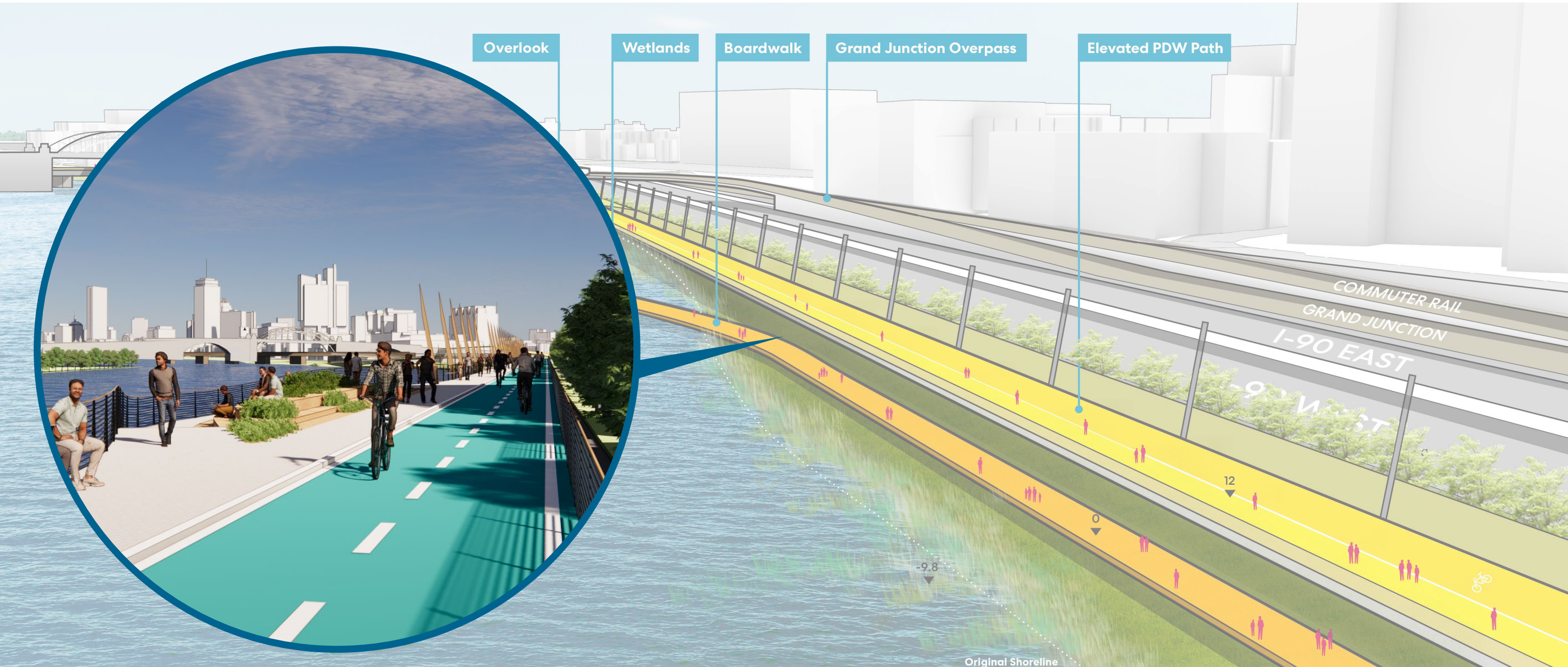
Throat Condition | Alternative 1B



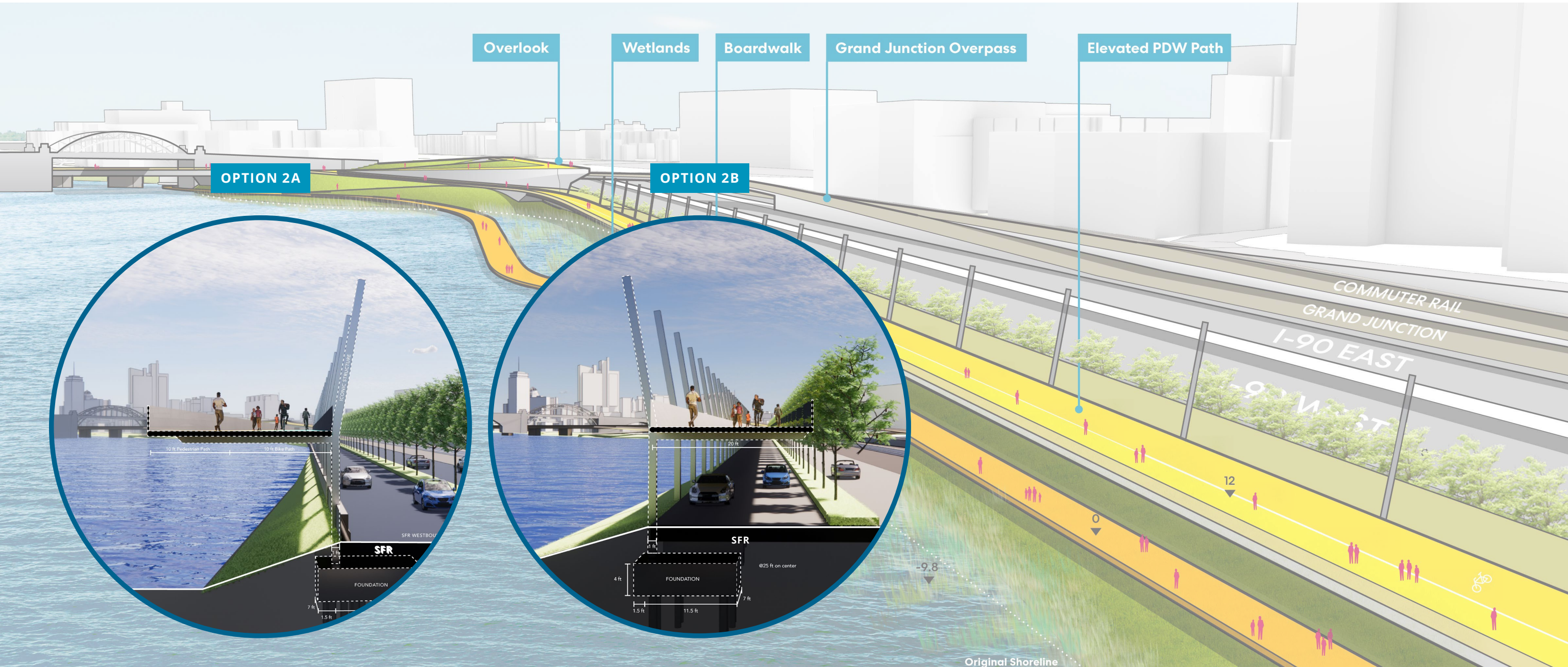
Throat Condition | Alternative 2



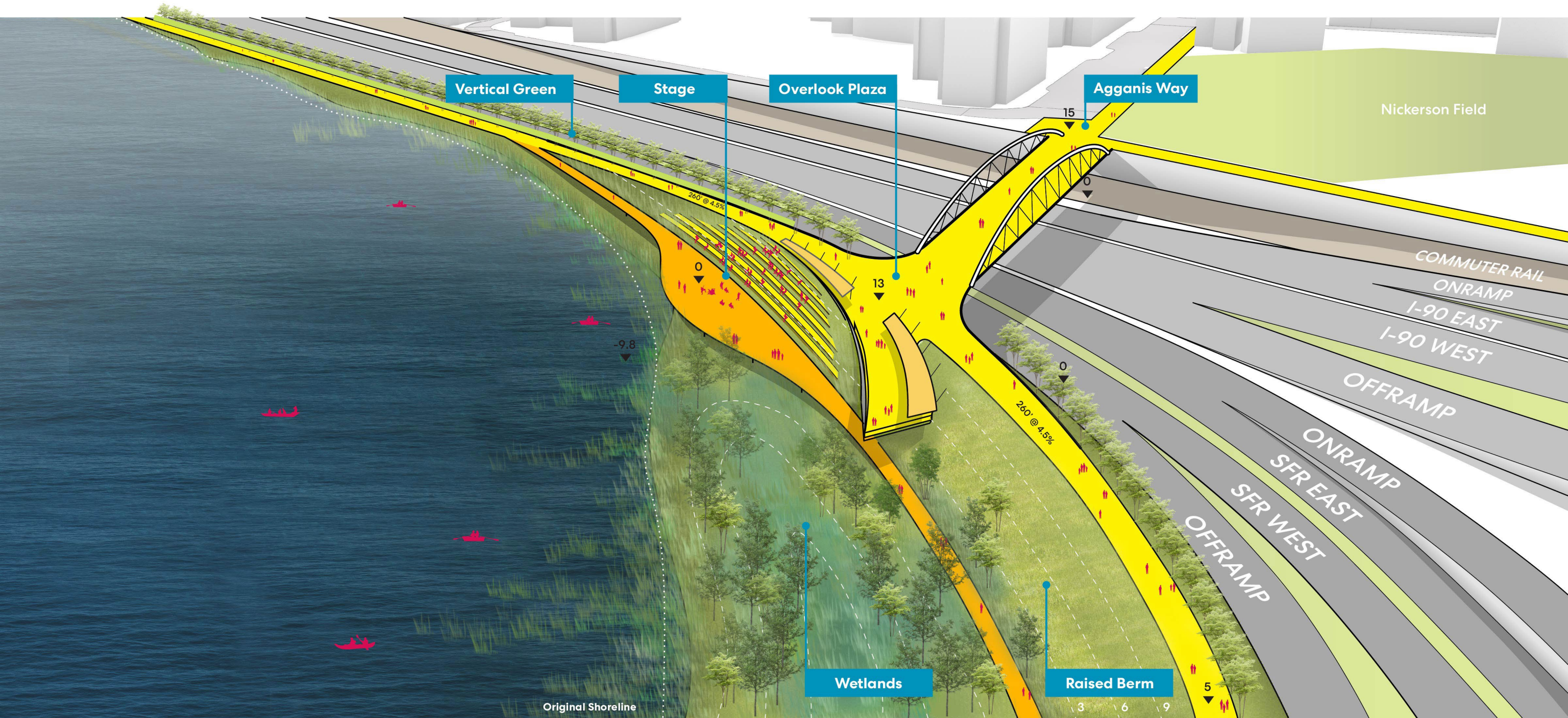
Throat Condition | Alternative 2



Throat Condition | Alternative 2



Agganis Connection



Agganis Connection | MASSDOT Option

NICKERSON FIELD

AGGANIS FOOTBRIDGE UNDER VIADUCT

I-90 ON VIADUCT

HARRY AGGANIS WAY



Agganis Connection | All At-Grade Option

NICKERSON FIELD

AGGANIS FOOTBRIDGE OVER I-90

VIEWS TO CHARLES & CAMBRIDGE

HARRY AGGANIS WAY



Next Steps

- **Transparency in process:** put all the variables, constraints, details on the table
- **Trans-disciplinary approach:** Instead of a siloed approach, holistic approach of a systems approach for a shared benefit
- **Ownership:** Amongst all stakeholders, City agencies have the opportunity to champion and create a unifying platform
- **Advocacy and Funding:** Allocating a committee and funds to support stakeholder groups to participate in the planning process

A nighttime cityscape featuring a prominent skyscraper with a glowing top and a large, illuminated dome. The foreground shows a highway with long-exposure light trails from cars, and a bridge structure is visible on the left. The sky is dark blue with some clouds.

Q & A

KATE DINEEN

A BETTER CITY

CLOSING REMARKS

A wide-angle photograph of a busy city street at dusk. The street is filled with cars, their lights blurred by motion. In the background, several tall buildings are visible, including one with a prominent dome. A large, bright yellow billboard is mounted on a building to the right. A teal banner with the text 'CLOSING REMARKS' is overlaid on the upper portion of the image.

An aerial night photograph of a city, likely Boston, showing a river (the Charles River) winding through the urban landscape. The city lights are illuminated, and there are prominent light trails from traffic on a major highway (I-93) running through the center. The overall scene is a vibrant, high-angle view of a densely populated urban area at dusk or night.

THANK YOU

A



BETTER

CITY