Tidewater Resilience SAME RMP

Lex Agnew

October 22, 2026

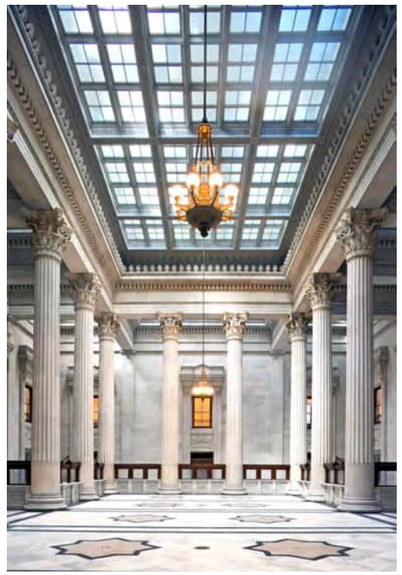
moffatt & nichol

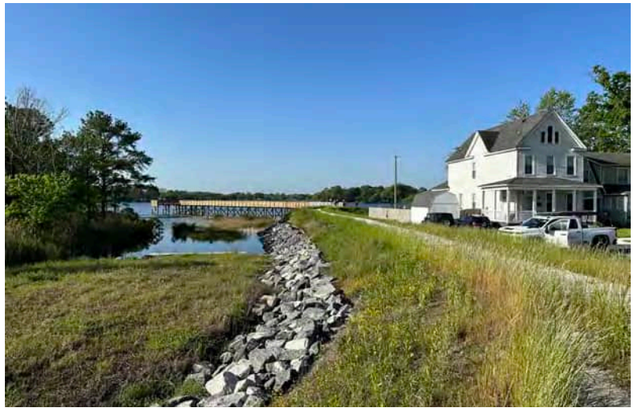
A Moffatt & Nichol Studio

moffatt & nichol

W &B

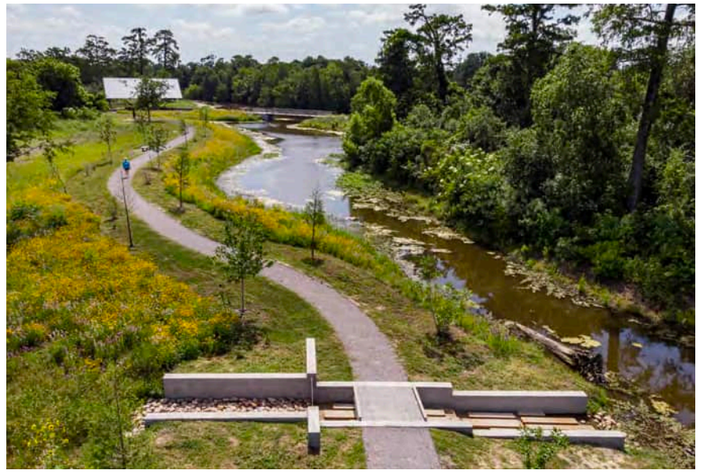
















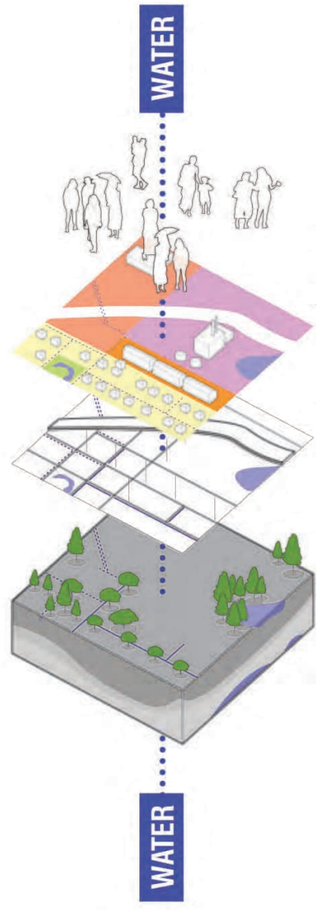
We are a community of designers who create architecture and environments sensitive to context, time, and place.

Approach & Process









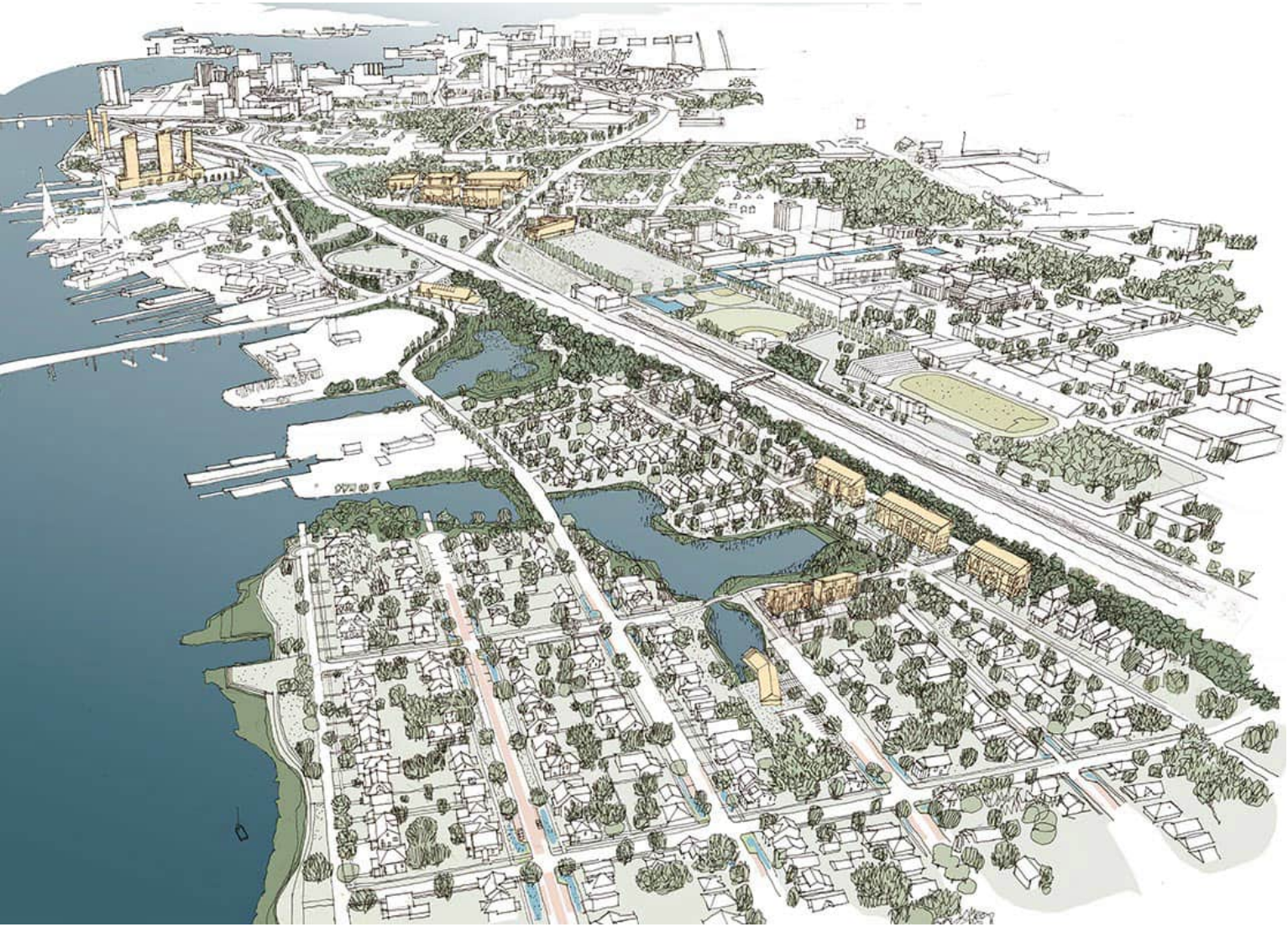
People, Culture & Land Use

Infrastructure & Networks

Land & Water

We collaborate with partners and communities all over the world.
Wherever we are, we work local.

Sketching & Planning





Design & Implementation



High Performance Landscapes & Public Spaces

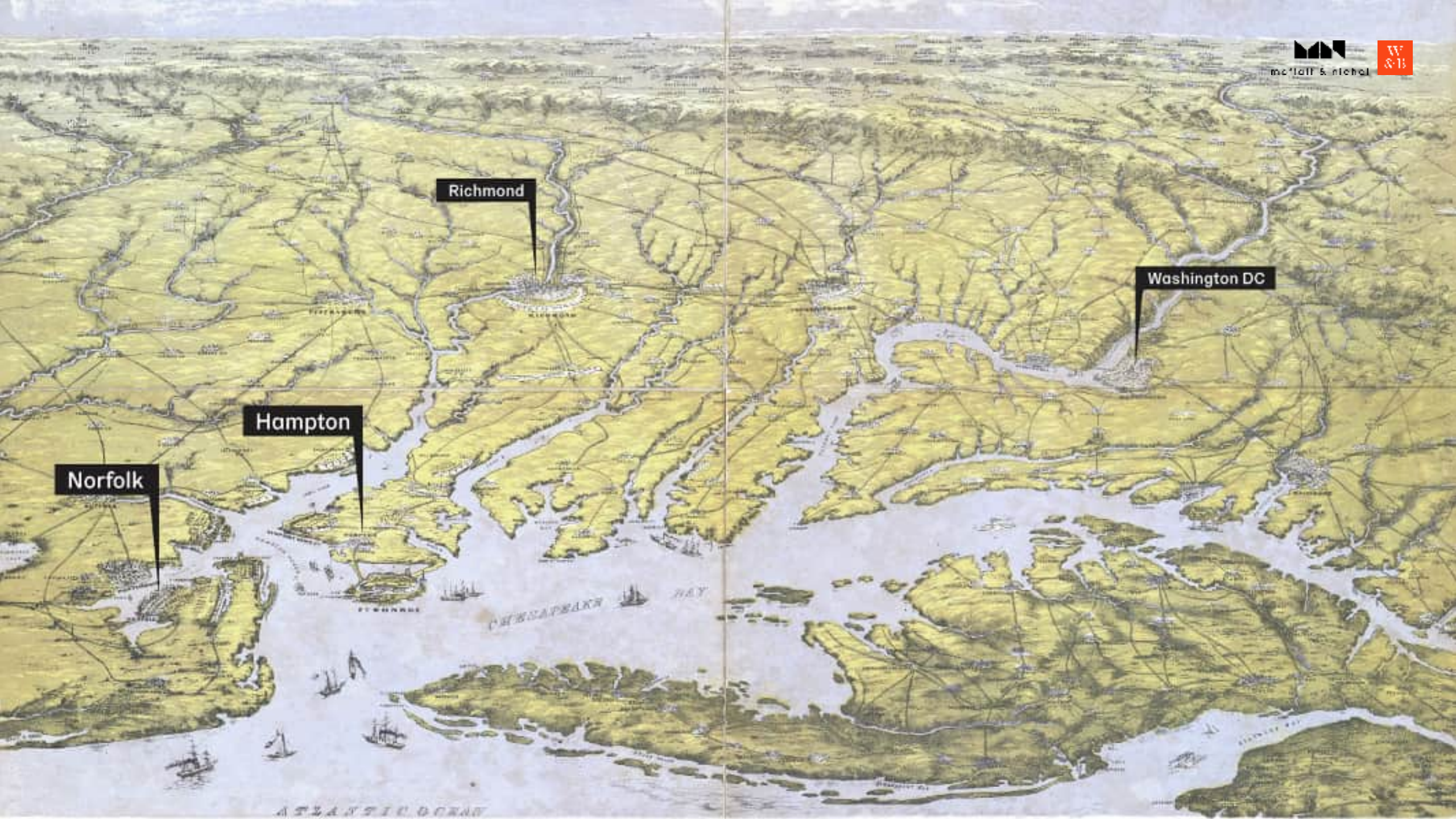
Gretna City Park





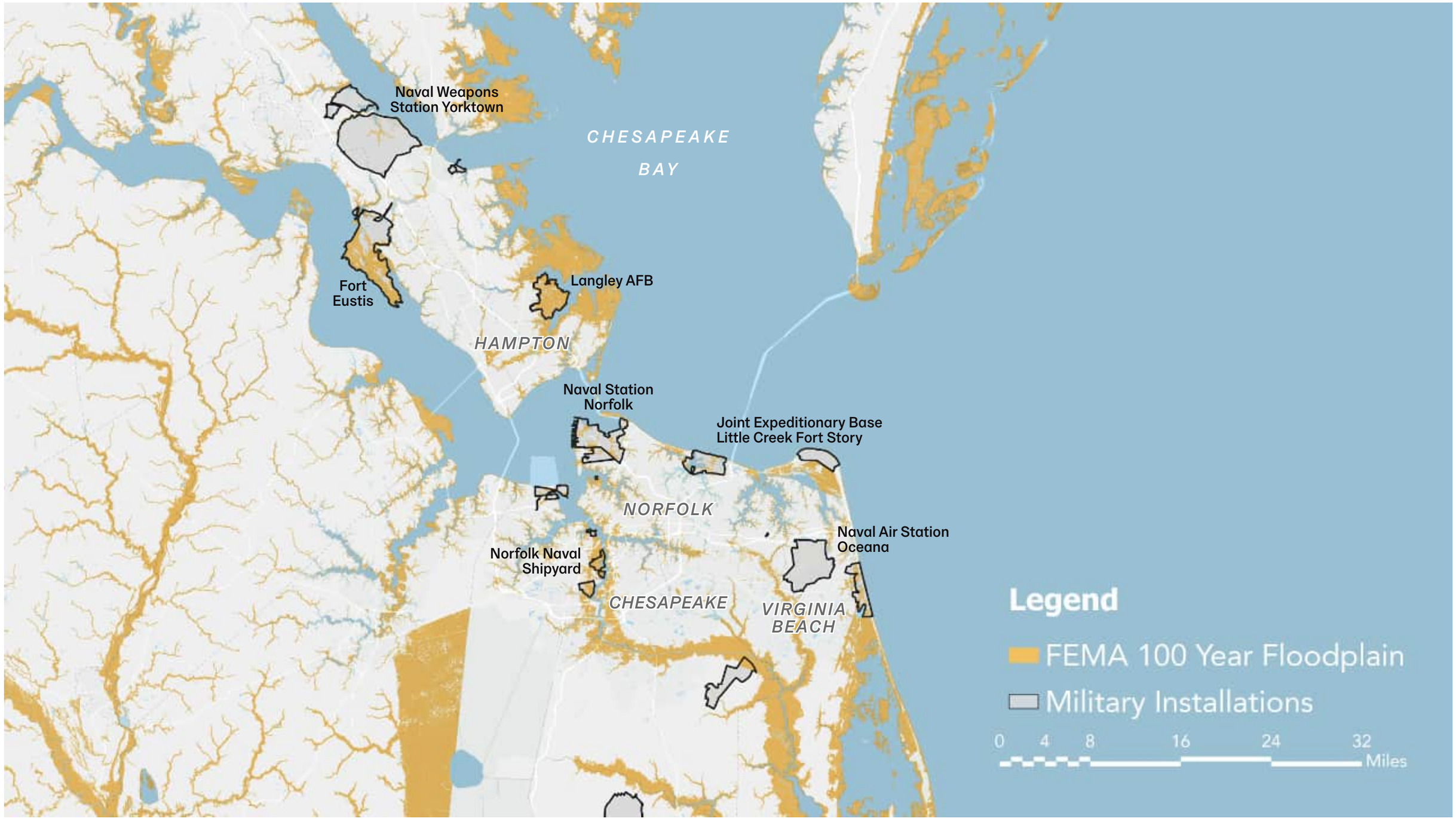
Tidewater




Richmond
Washington DC
Hampton
Norfolk
CHESAPEAKE BAY
ATLANTIC OCEAN

Tidewater Coastal Bases & Coastal Flood Risk

Floodplain & Military Bases



Dutch Dialogues® Virginia









"The Dutch Dialogues process underpins the entire Resilience Strategy... It was absolutely critical and transformational in helping us set a powerful vision for the city and change the narrative from doom and gloom to a vision of a globally important city doing critical work on the coast in a future where the sea is rising."

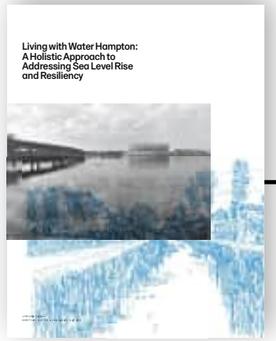
Katerina Oskarsson
Norfolk Office of Resilience

Catalyst for Tidewater Resilience

Dutch Dialogues Virginia → Resilient Hampton, Norfolk Resilience, to Chesapeake



Dutch Dialogues Virginia



Resilient Hampton



Langley JLUS



Newmarket Creek Water Plan



Environmental Impact Bond Pilot Projects



Downtown, Phoebus Buckroe Water Plan

Future Projects



Chesapeake Industrial Waterfront



Norfolk Resilience Strategy



NDRC Application



HUD NDR Ohio Creek Project

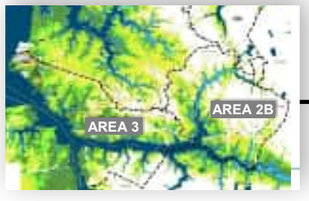


St. Paul's Blue Greenway

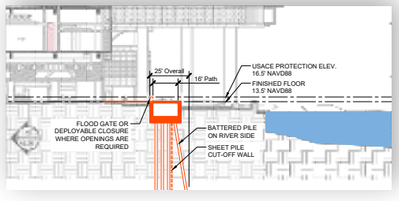


Freemason Bridge





Norfolk RVAR



USACE Workshops

USACE PED

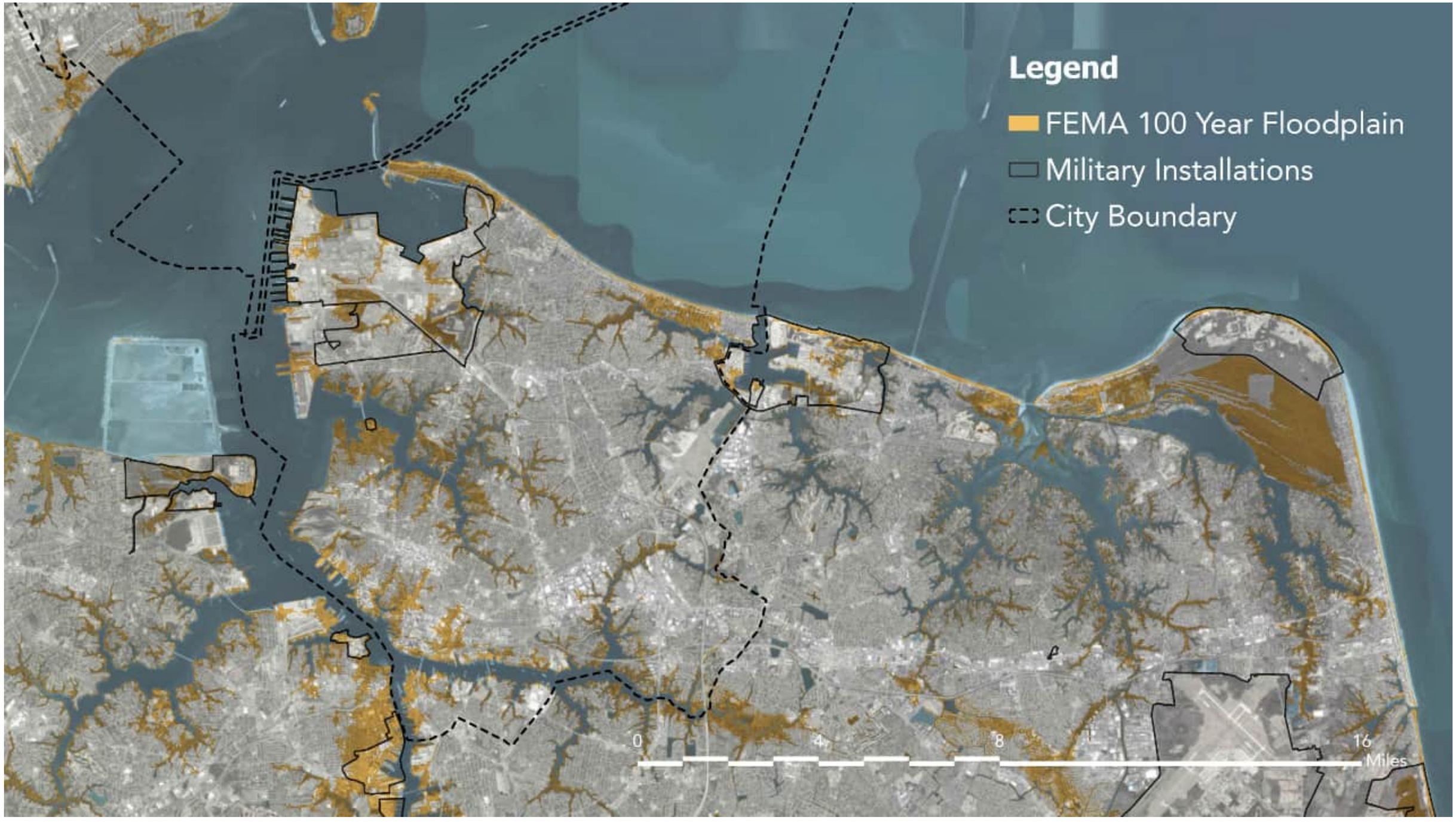
2015 2016 2017 2018 2019 2020 2021 2022 2023

Norfolk



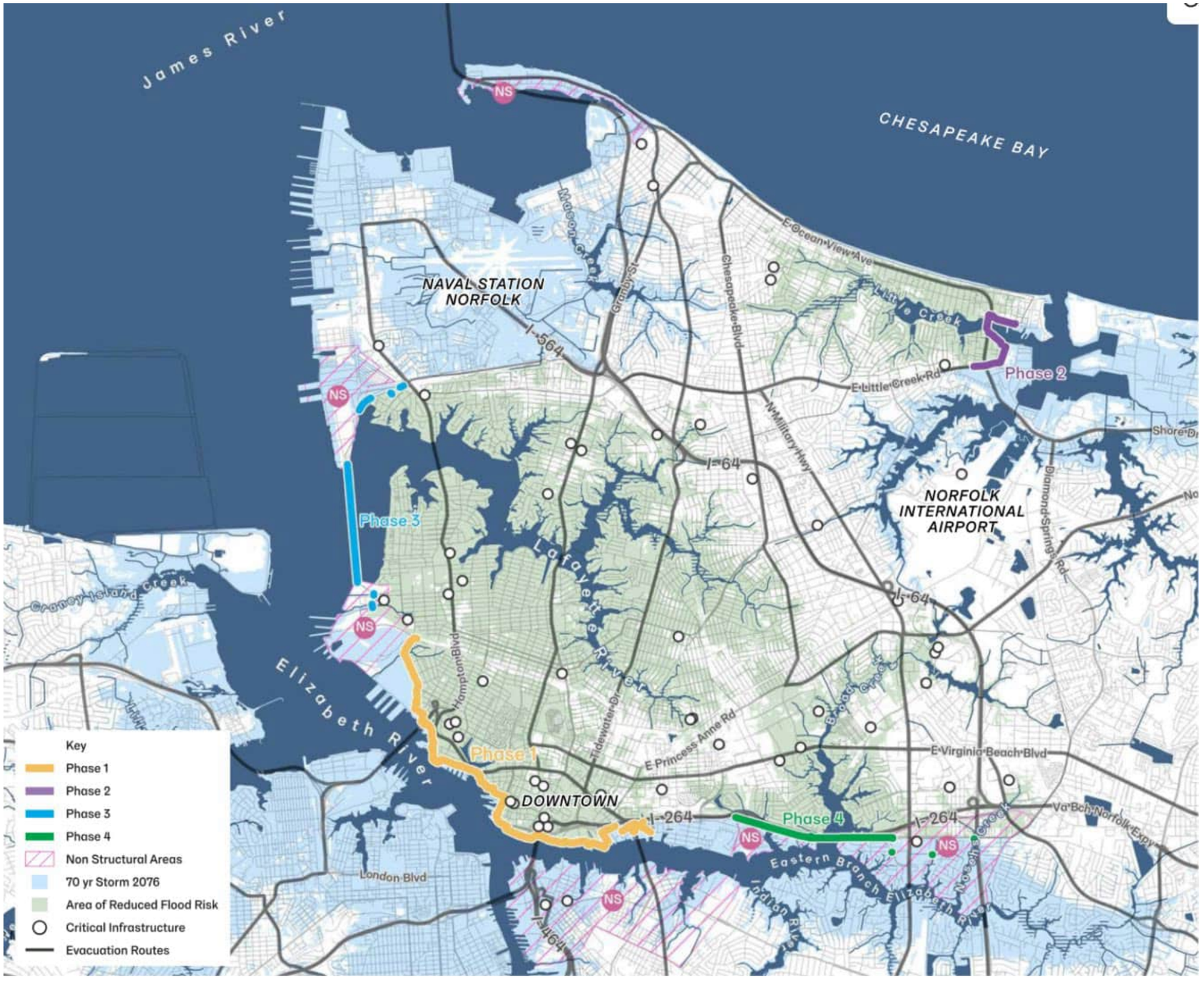
Norfolk

Floodplain & City Boundary



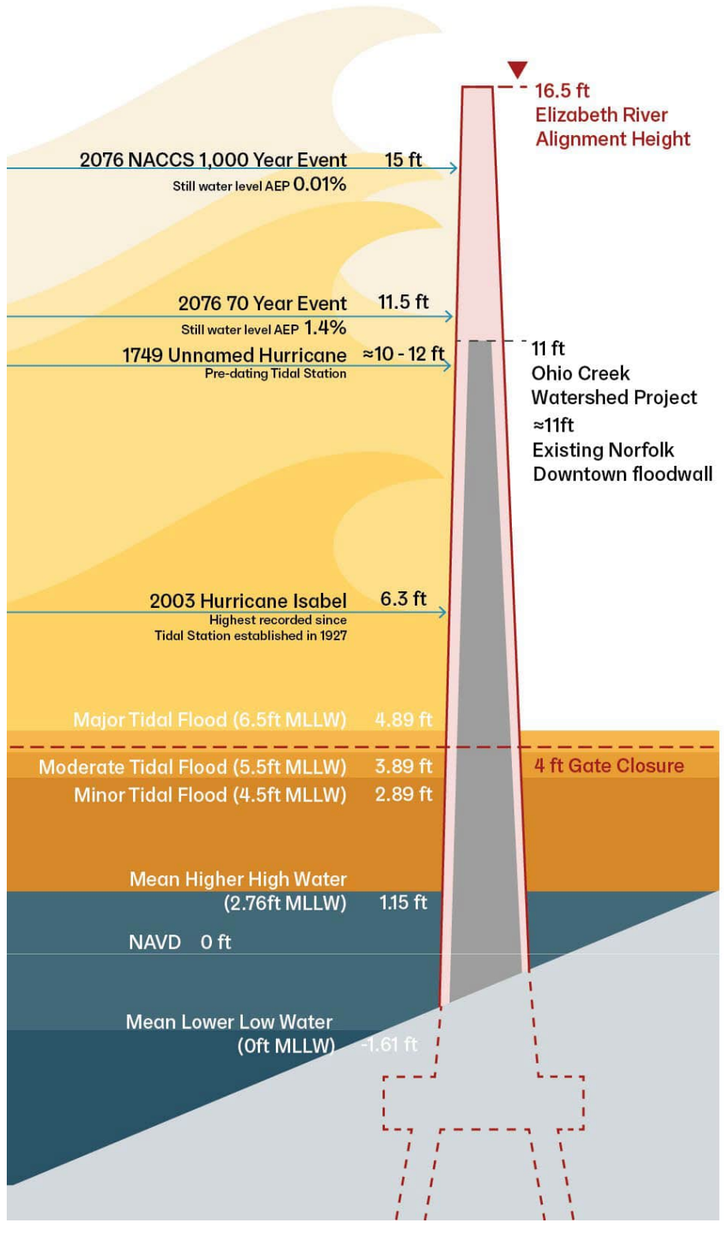
Coastal Storm Risk Management Project (CSRM)

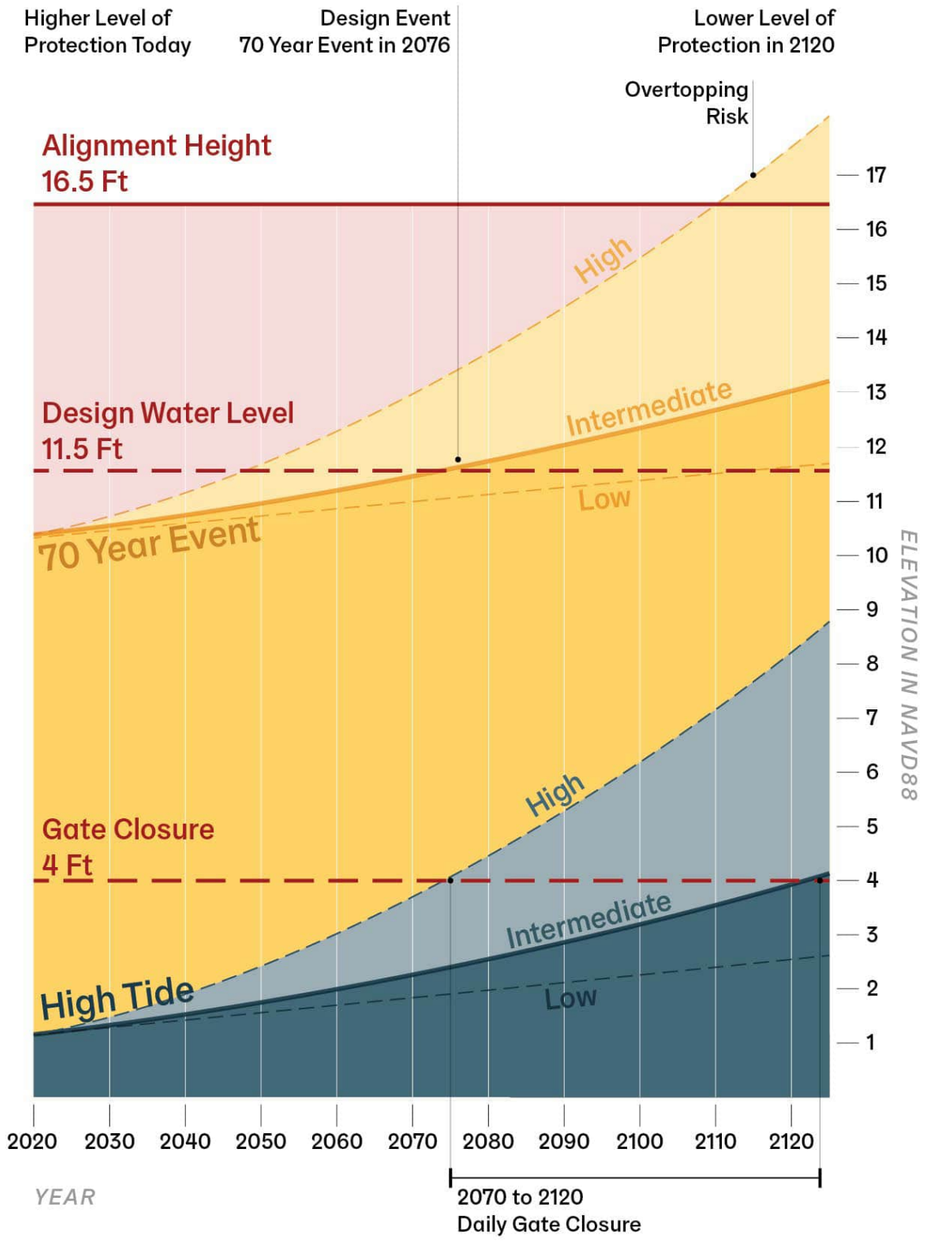
Norfolk VA



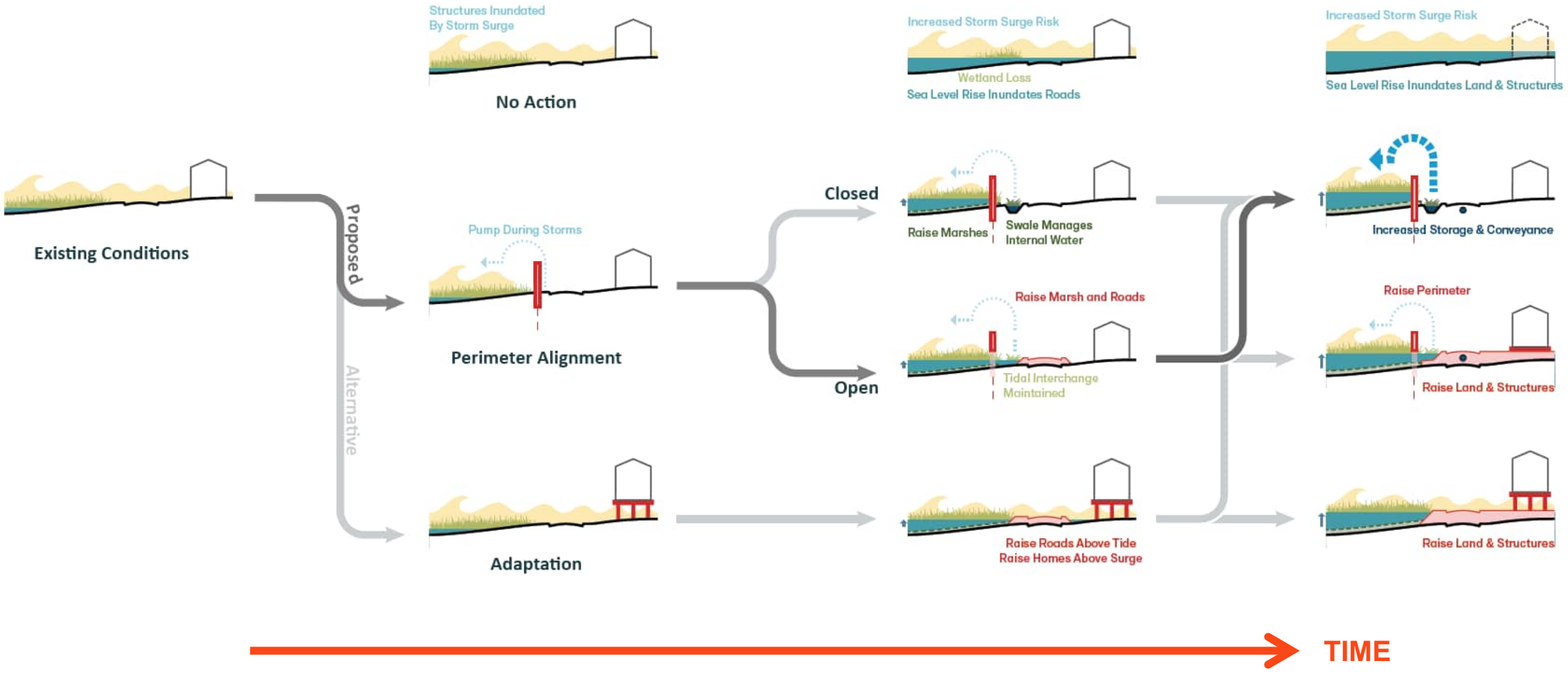
Visualizing Risk

Critical Datums and Sea Level Rise Norfolk





Adaptation Pathways



System Visualization

CSRM Norfolk



Urban Design

CSRM Norfolk



Urban Design

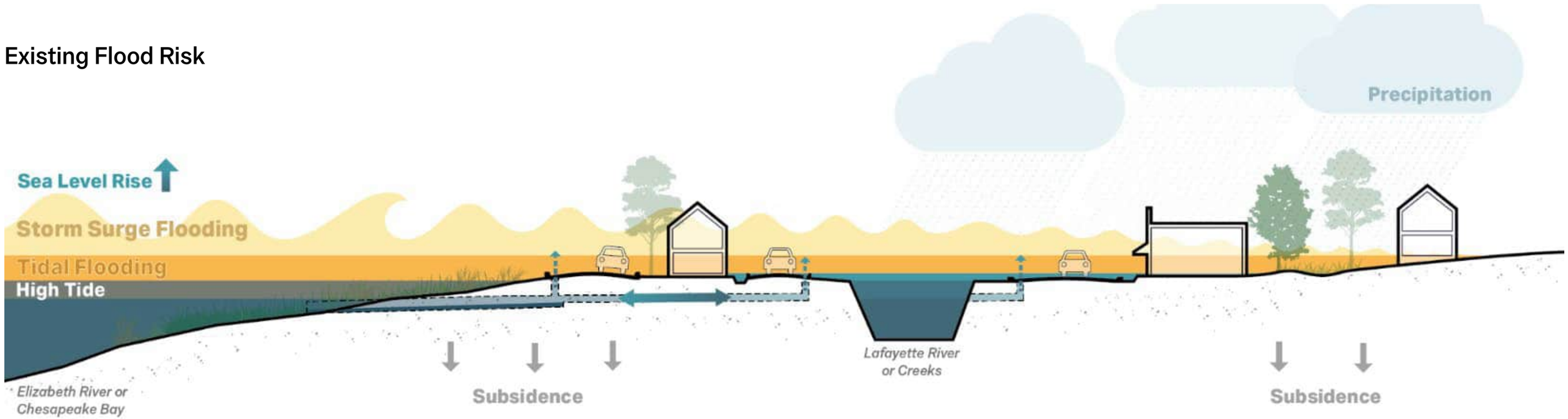
CSRM Norfolk



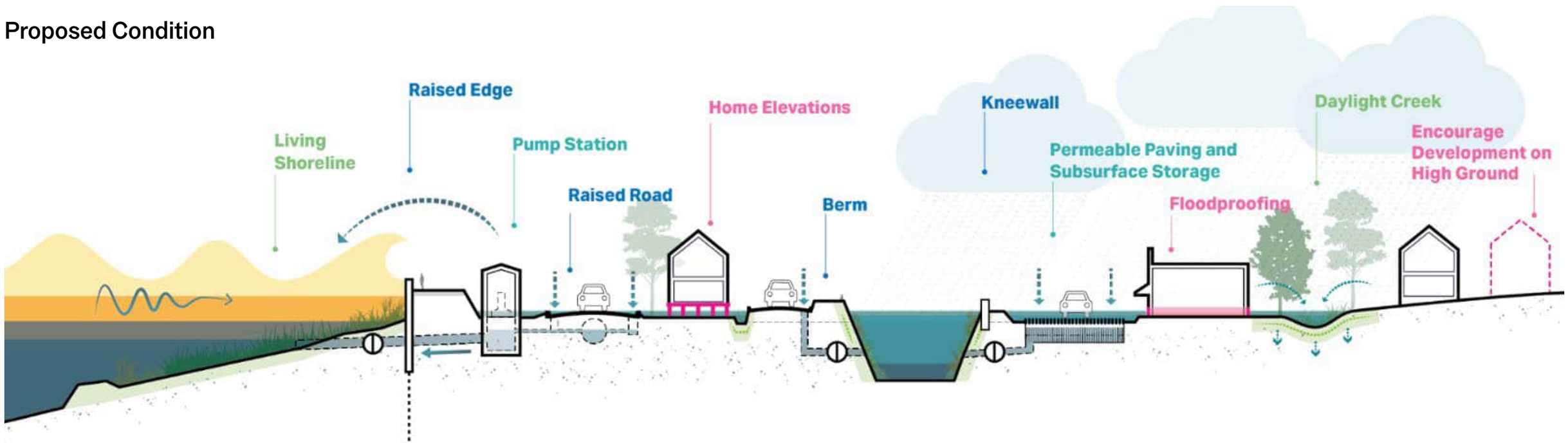
Multiple Lines of Defense

CSRM Norfolk

Existing Flood Risk



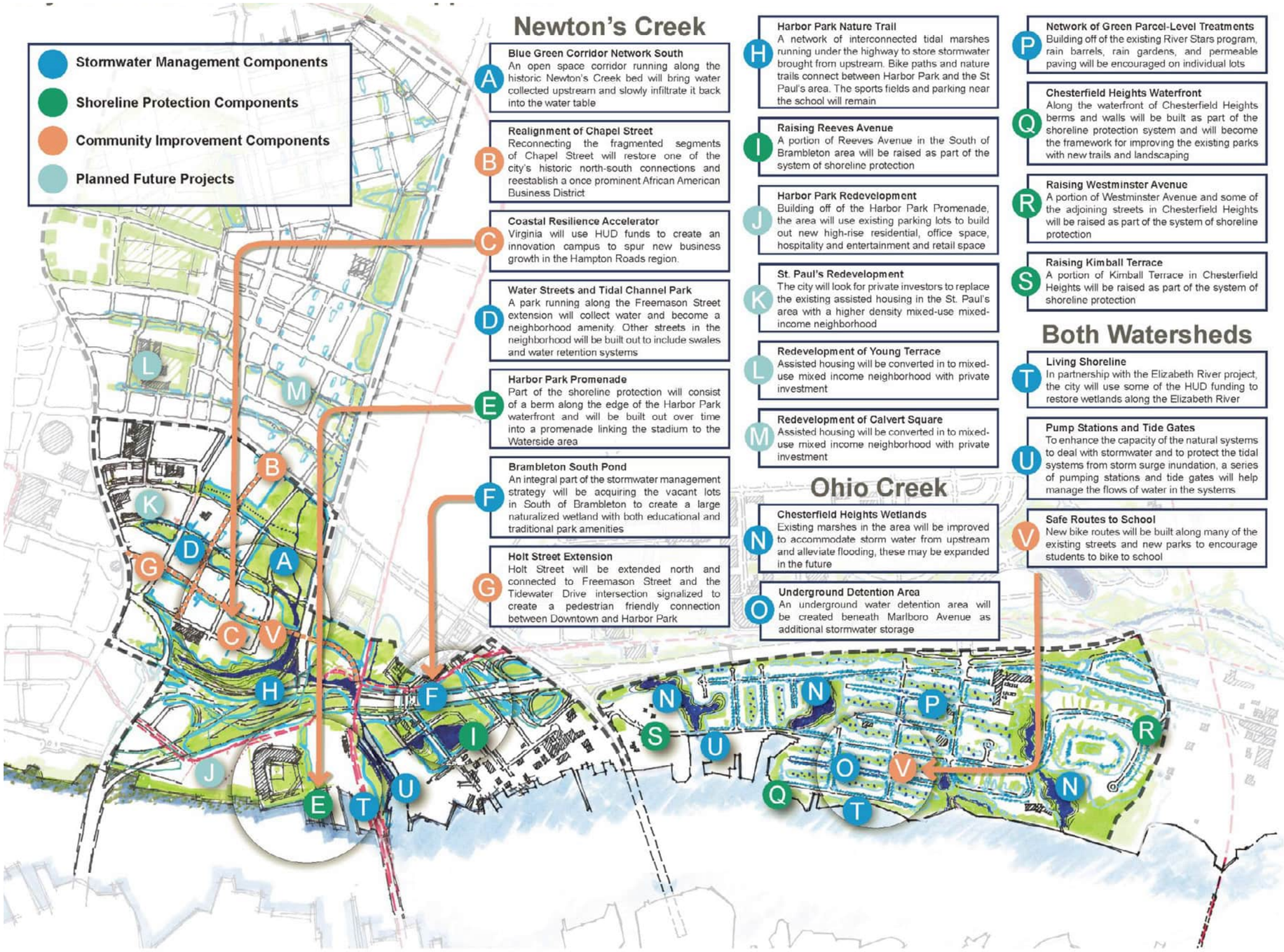
Proposed Condition



Ohio Creek Watershed Projects & Saint Pauls Blue Greenway



Original Sketch



Chesterfield Heights Ohio Creek Watershed



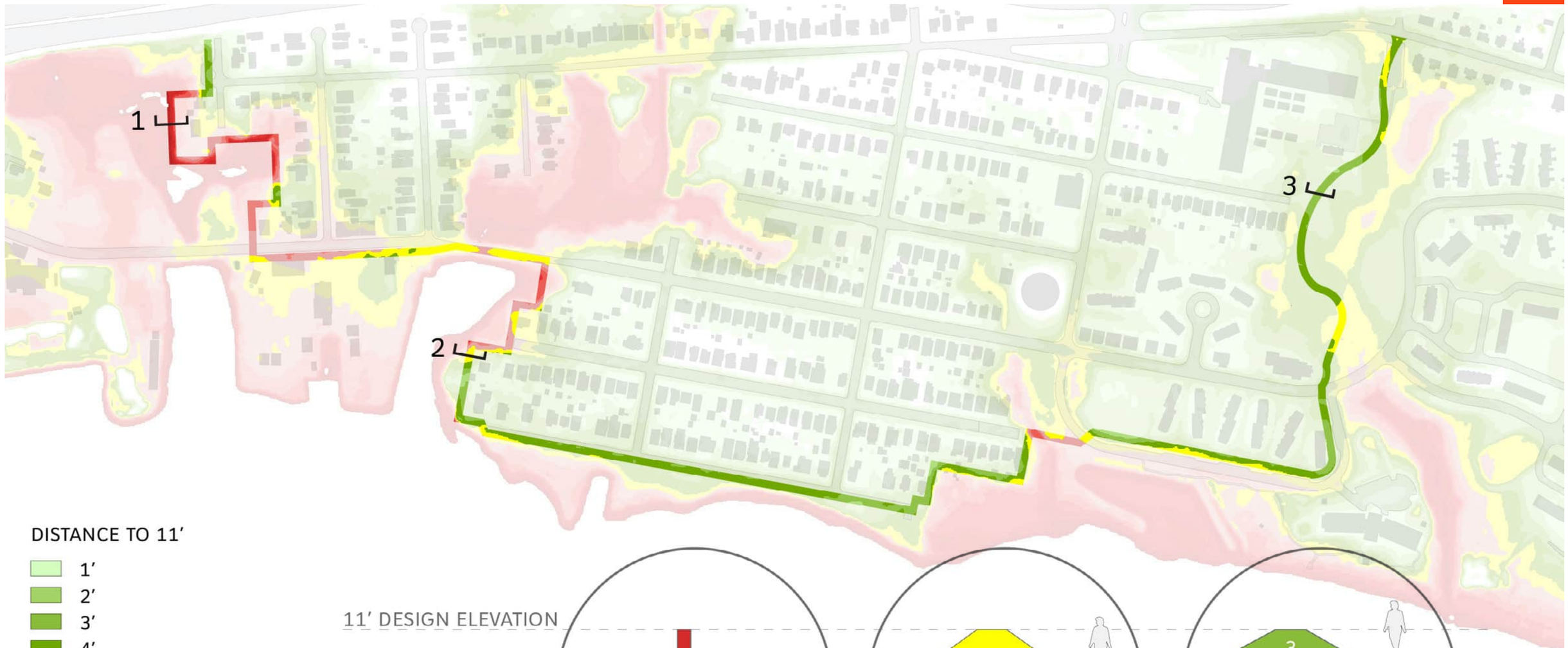
Project Area Map

Ohio Creek



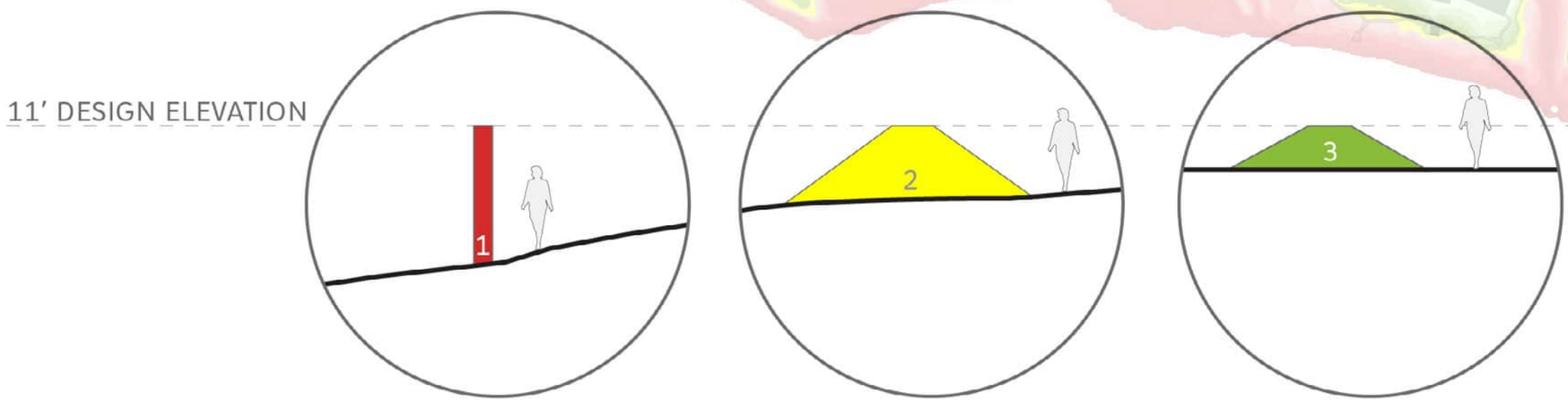

EXIT
NORFOLK
Christine Morris

Height of Coastal Protection



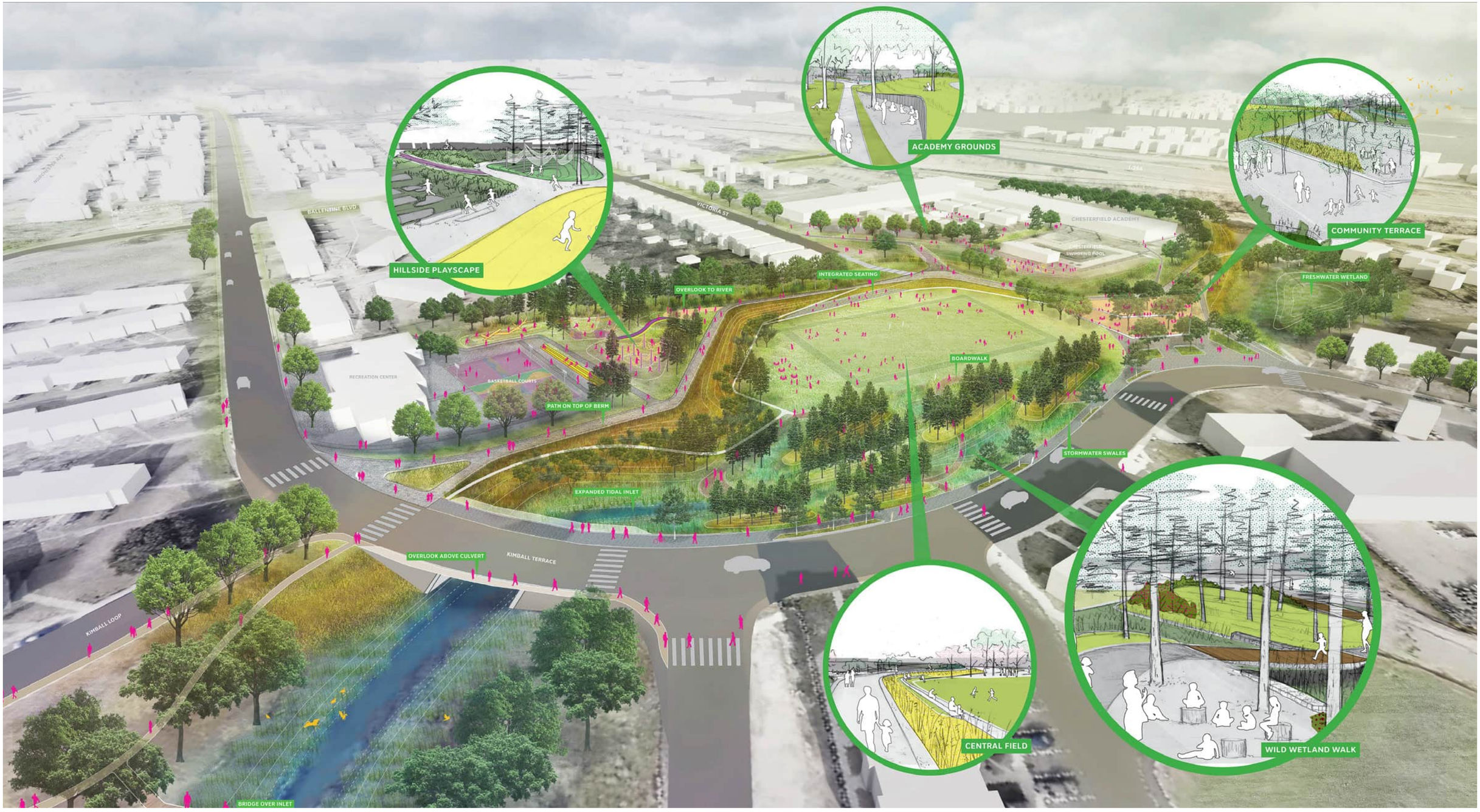
DISTANCE TO 11’

- 1’
- 2’
- 3’
- 4’
- 5’
- 6’
- 7’
- 8’
- 9’
- 10’
- 11’
- 12’



source: SCAPE

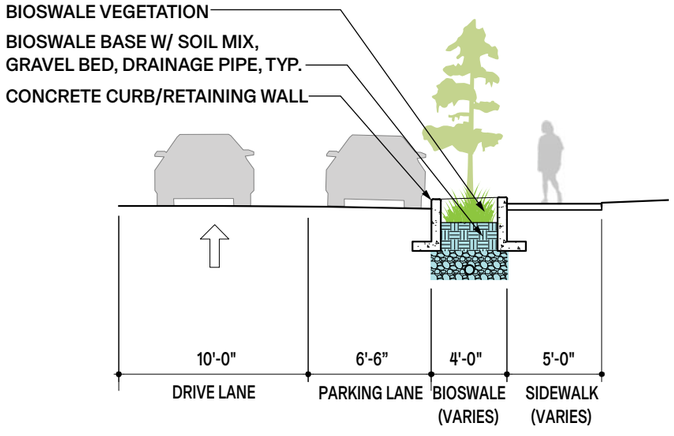
Grandy Resilience Park



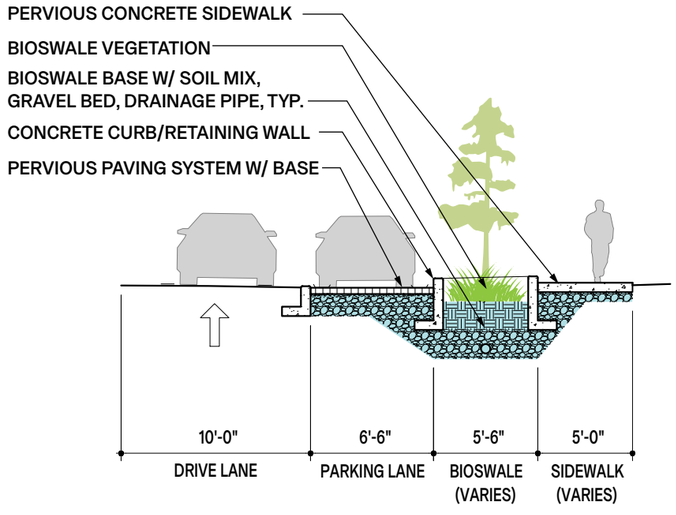
source: SCAPE

Street Retrofits

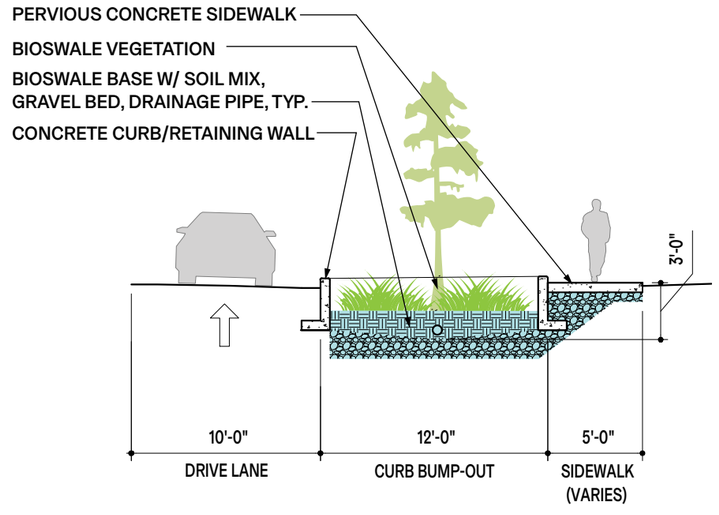
HUD NDRC Commonwealth of Virginia



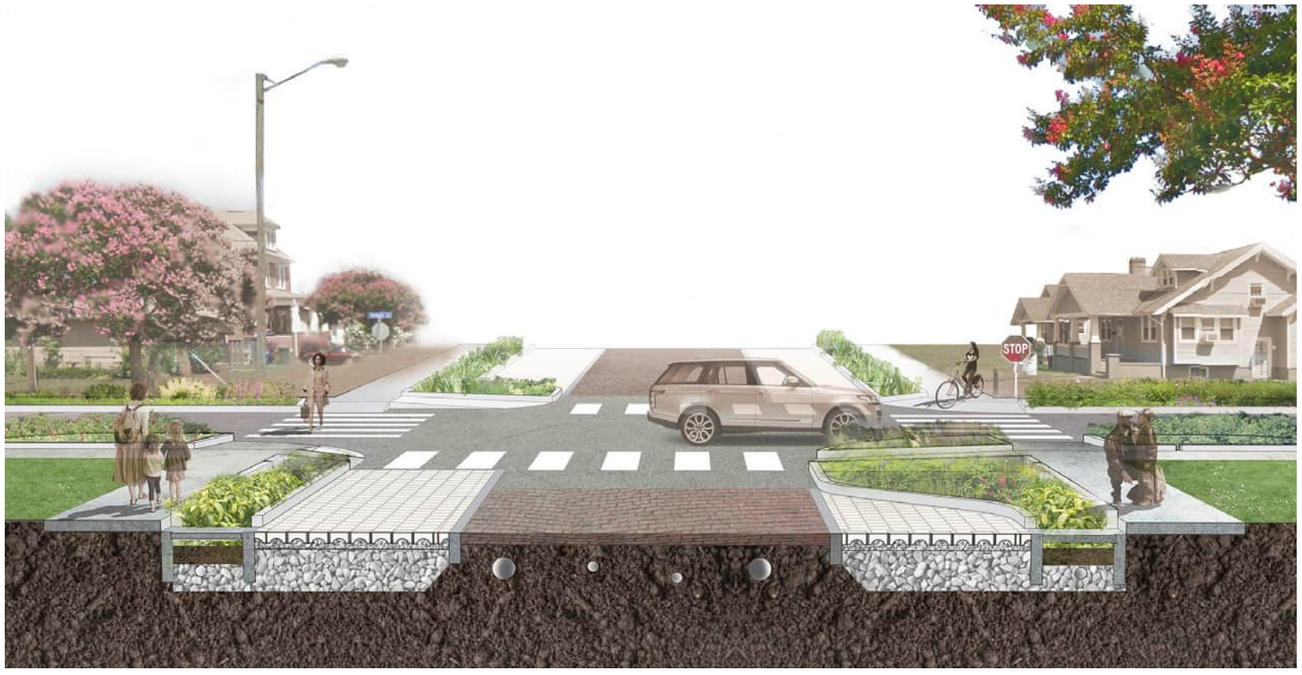
Typical Bioswale Section

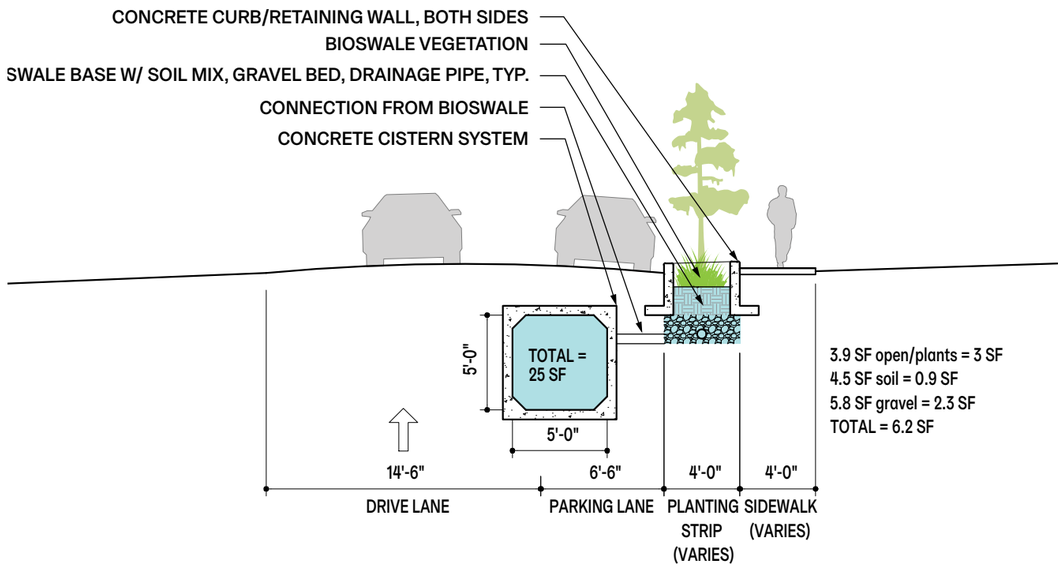


Typical Bioswale and Permeable Paving Section



Typical Corner Bumpout Section





Chesterfield Blvd Subsurface Cistern

Norfolk Ohio Creek











Ohio Creek Watershed Projects & Saint Pauls Blue Greenway



Saint Pauls Blue Greenway

Norfolk VA



Existing Site

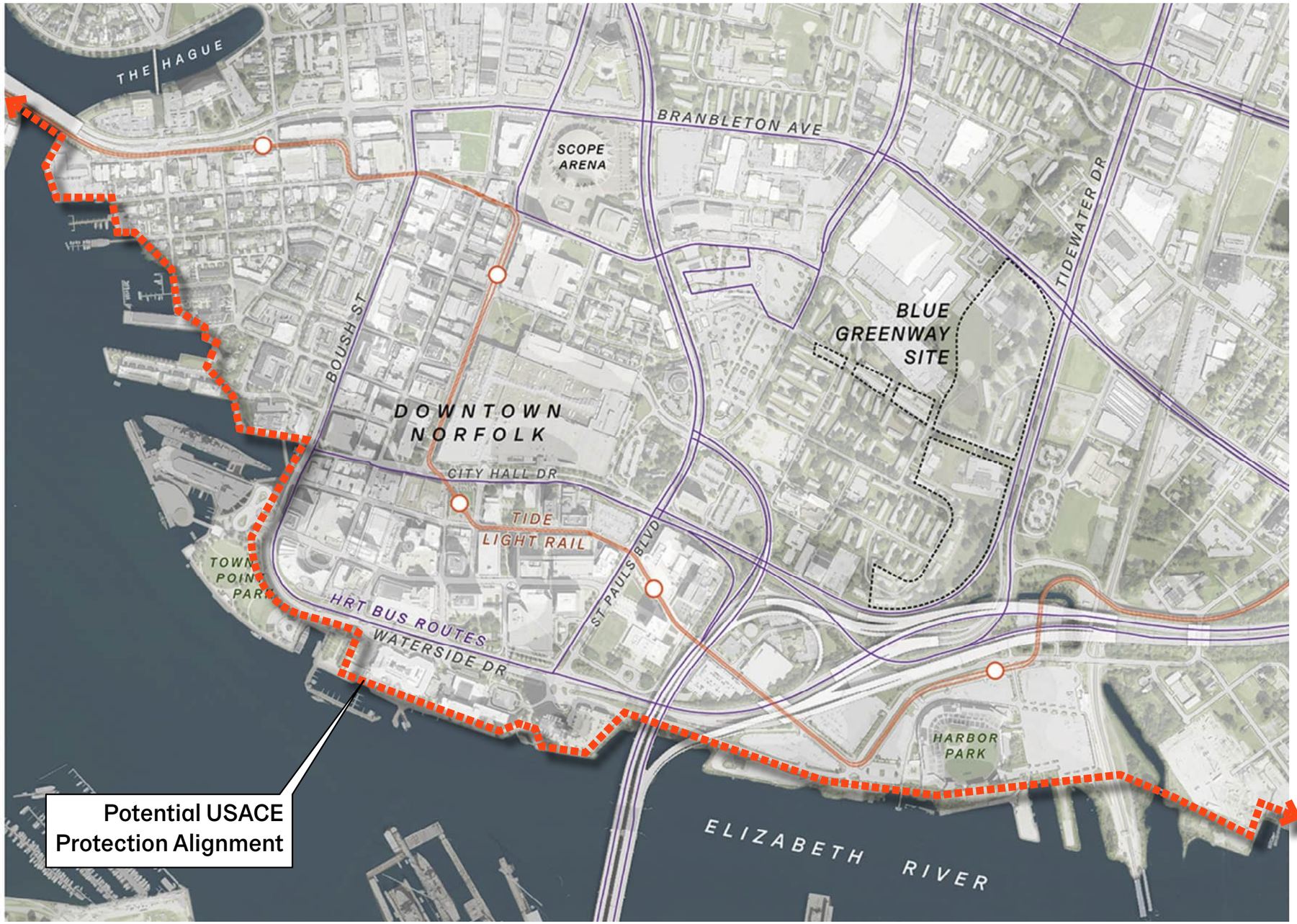


02/06/2024

St. Pauls Blue-Greenway Context

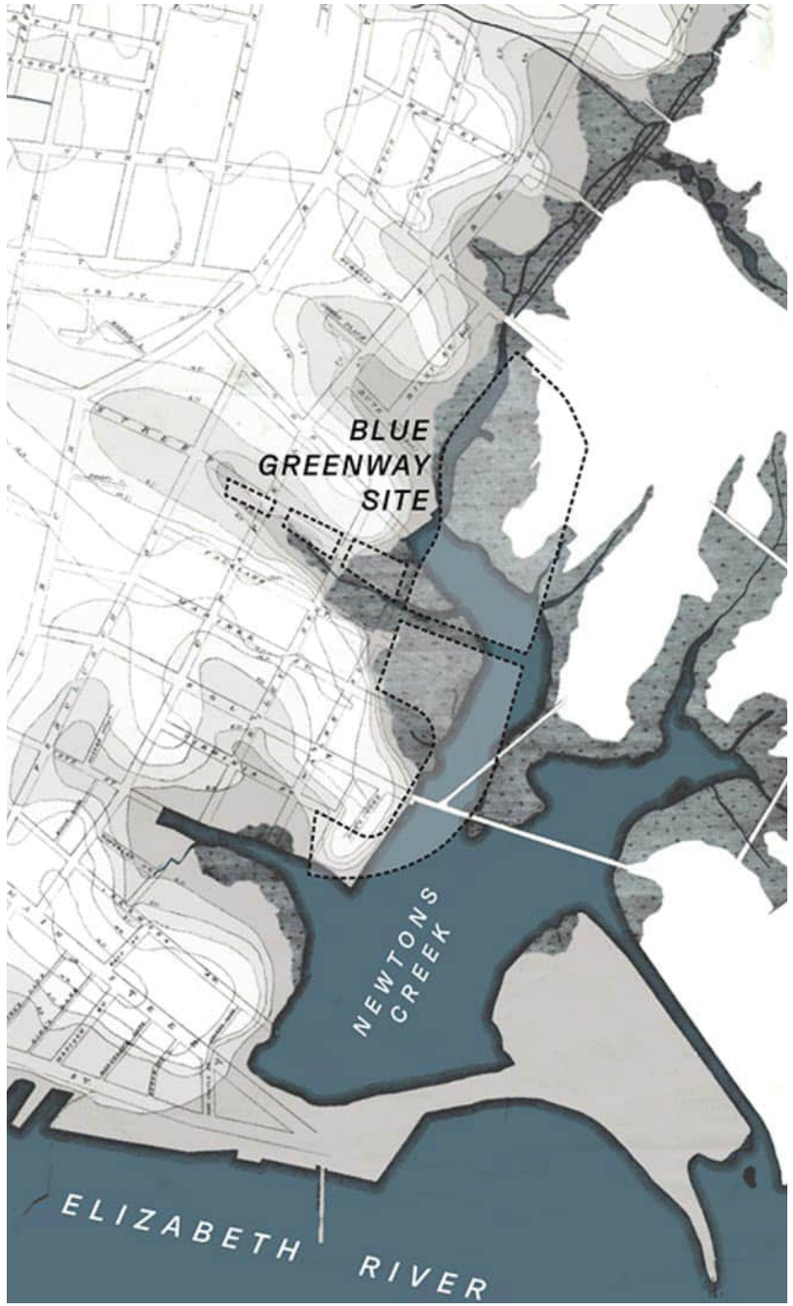
Site Context

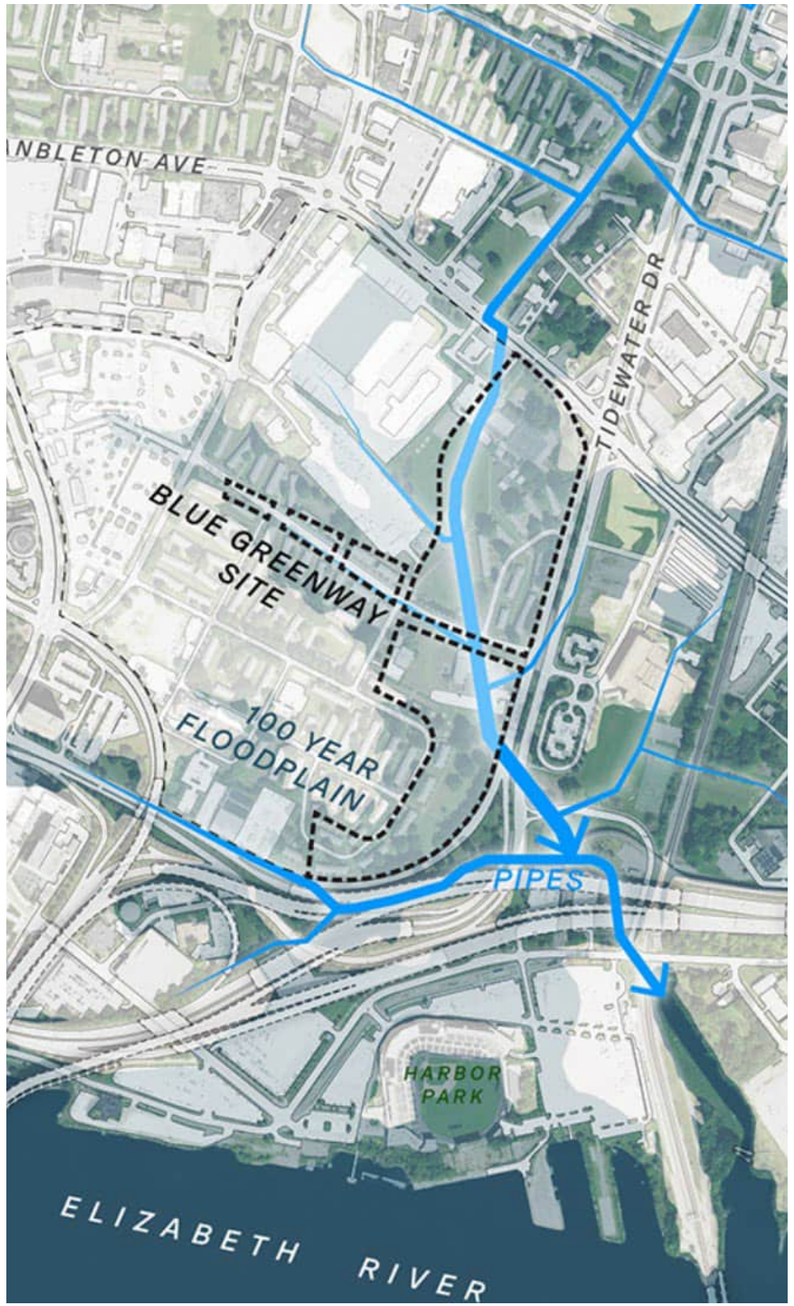
The St. Paul's Blue/Greenway project is located just east of downtown Norfolk in the Tidewater Gardens neighborhood. The broader area is a mix of institutional, commercial, and multi-family dwellings, much of which was developed in the mid-1900s, that forms a low-to medium-density urban environment. Several major connector roads surround the area, and the neighborhood has good access to public transportation such as the Hampton Roads Transit (HRT) bus stops and The TIDE light rail. The existing road network disconnected Tidewater Gardens from the larger city street grid with only a single east-west connection (Charlotte Street) between City Hall Avenue and Tidewater Drive.



Past & Future

Saint Pauls Blue Greenway

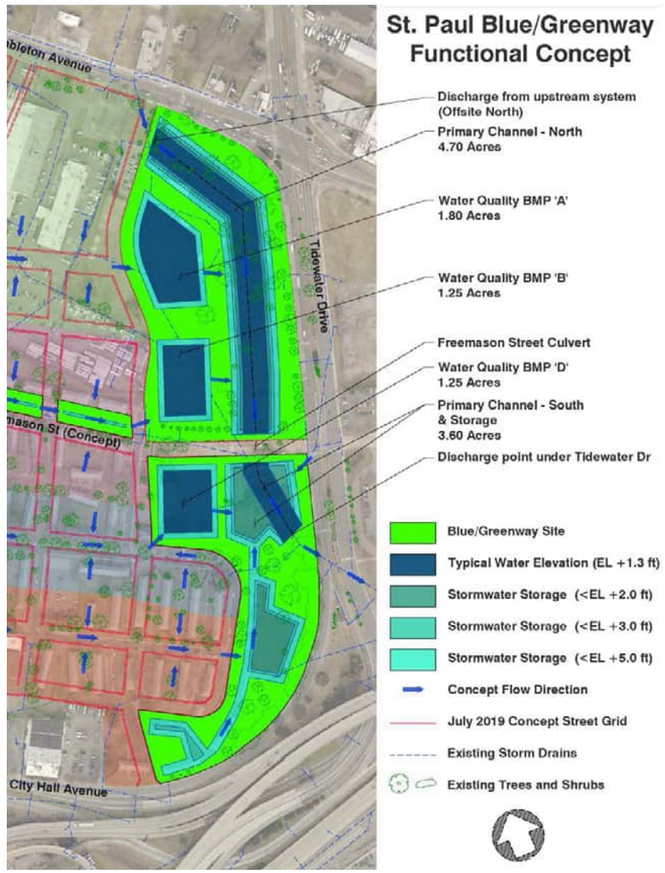






Functional Concept Design to Vision

Design Process



Quality + Quantity Volumes

MOFFATT & NICHOL



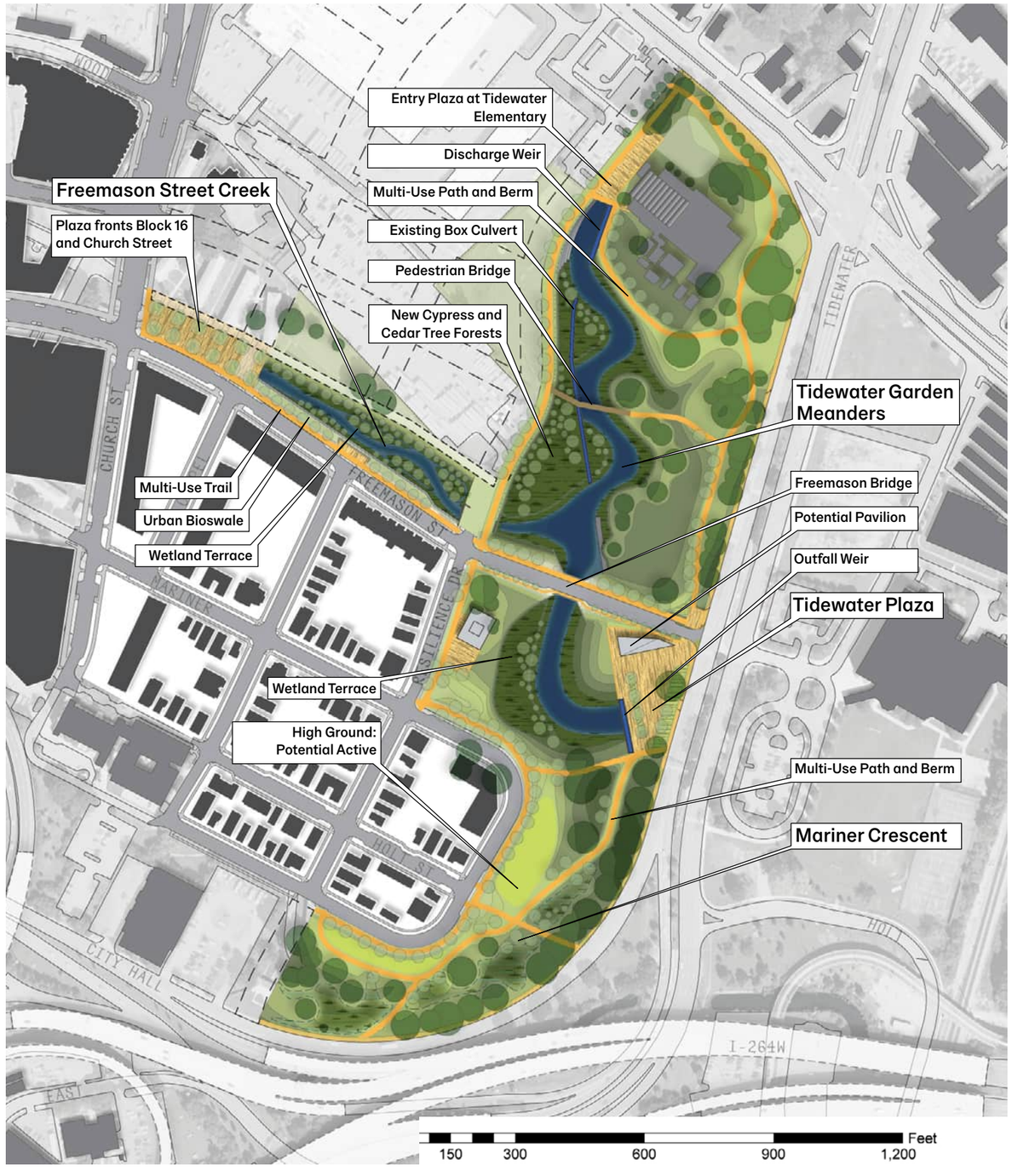




Ecology + Recreation

St. Paul's Blue-Greenway

Vision





1.3 ft NAVD
Permanent Pool



+1 ft



+3 ft



+5 ft

Saint Pauls Blue Greenway

Norfolk VA





North Weir

Saint Pauls Blue Greenway





View Looking South from North Plaza and Weir

02/06/2024

Pavilion

Saint Pauls Blue Greenway



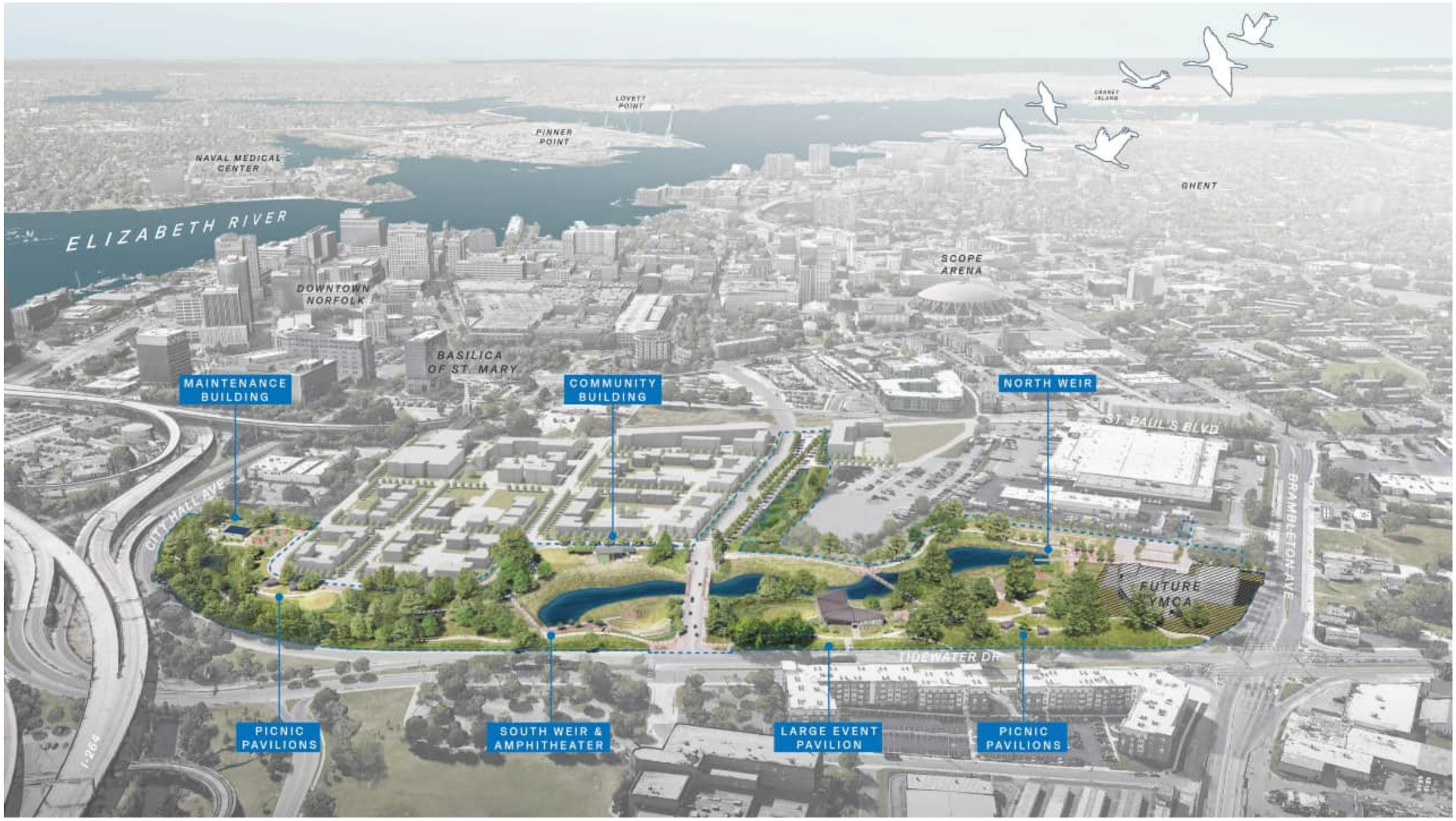
Expressive Cast in Place Concrete Bridge

100% Design



Saint Pauls Blue Greenway

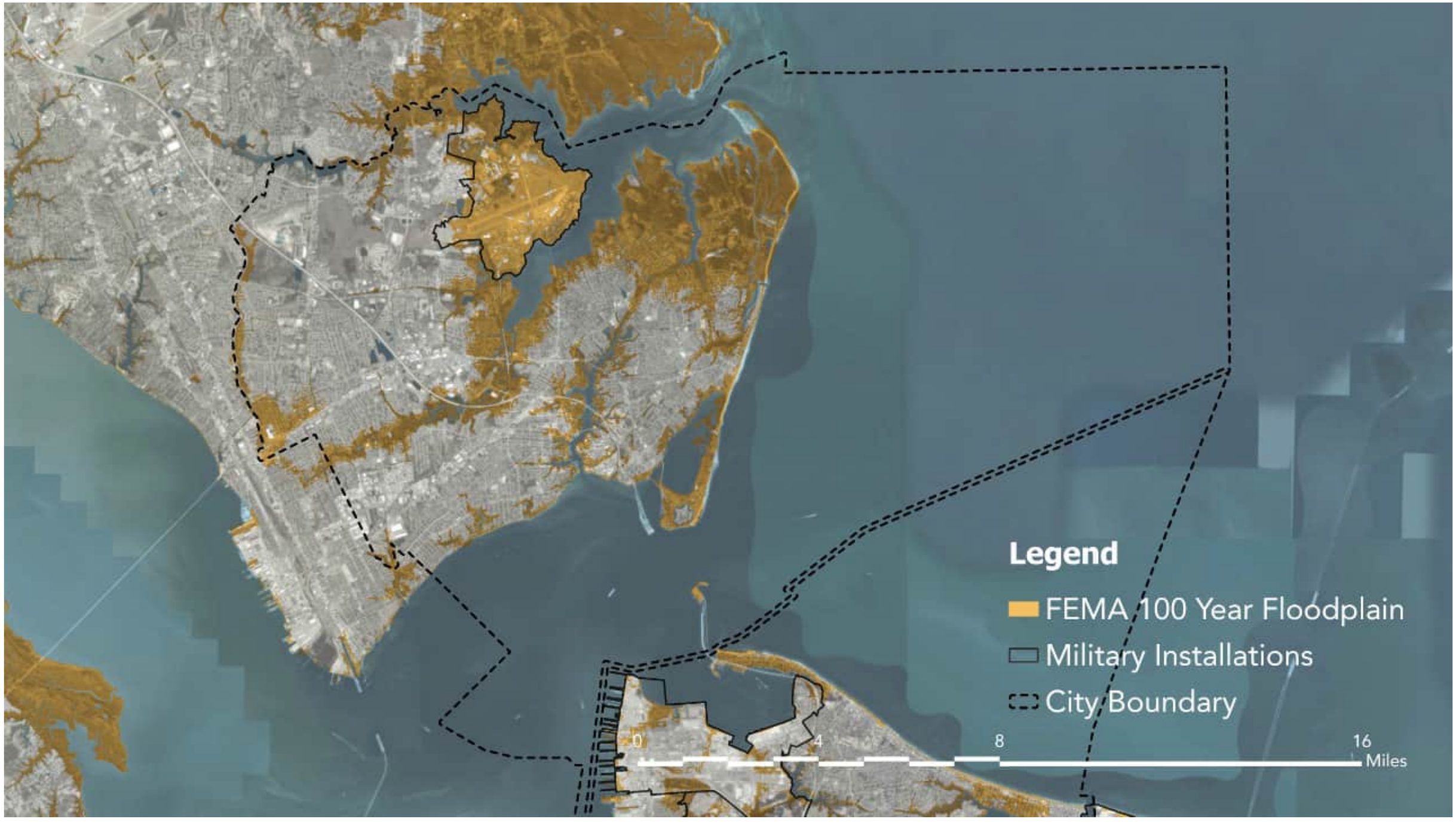
Norfolk VA



Hampton

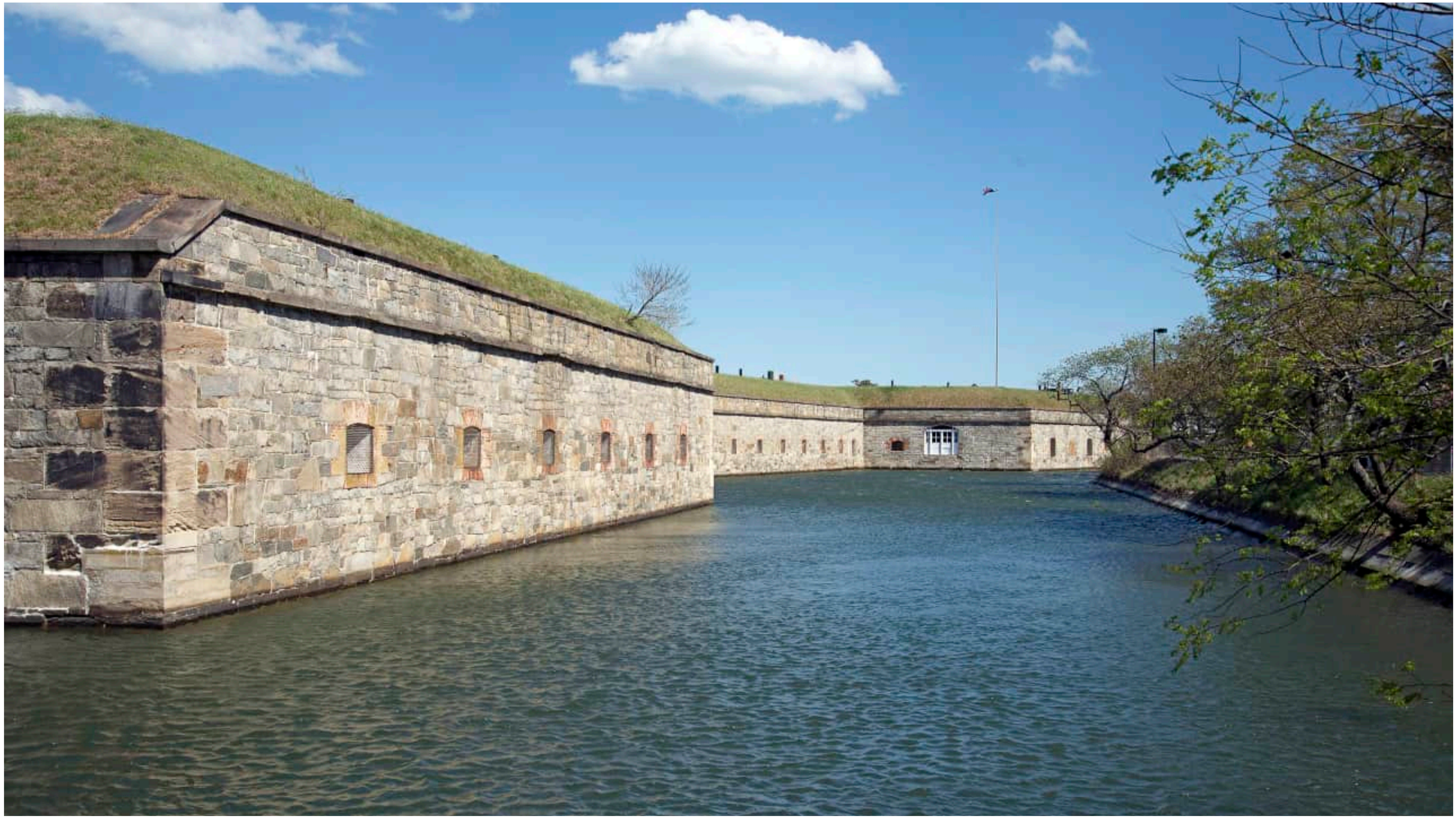
Hampton

Floodplain & City Boundary



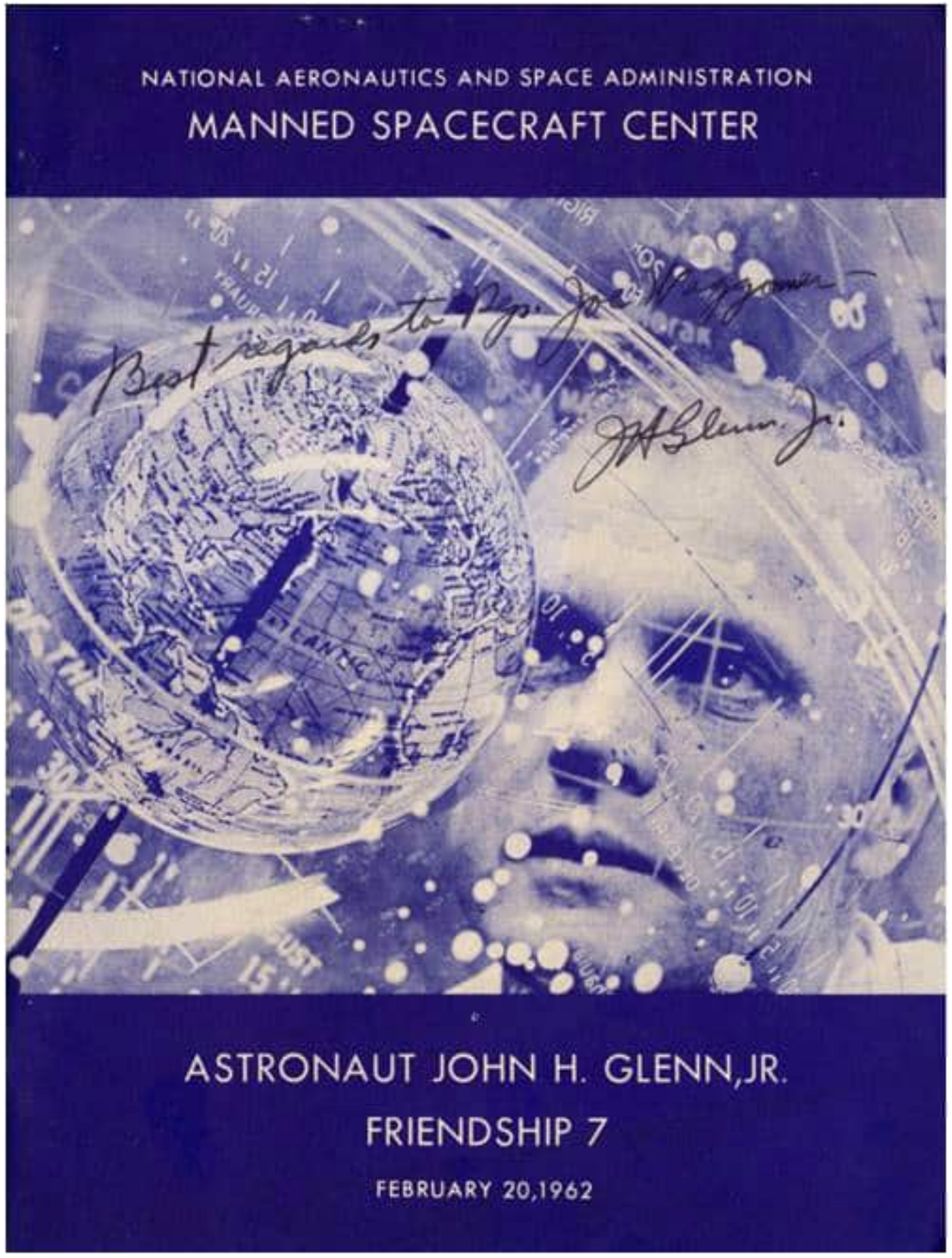
History

Fort Monroe



NASA Langley Research Center

Resilient Hampton





Newmarket Creek

Coastal



Newmarket Creek

Inland



Newmarket Creek Flooding

Inland



Tributary Ditches

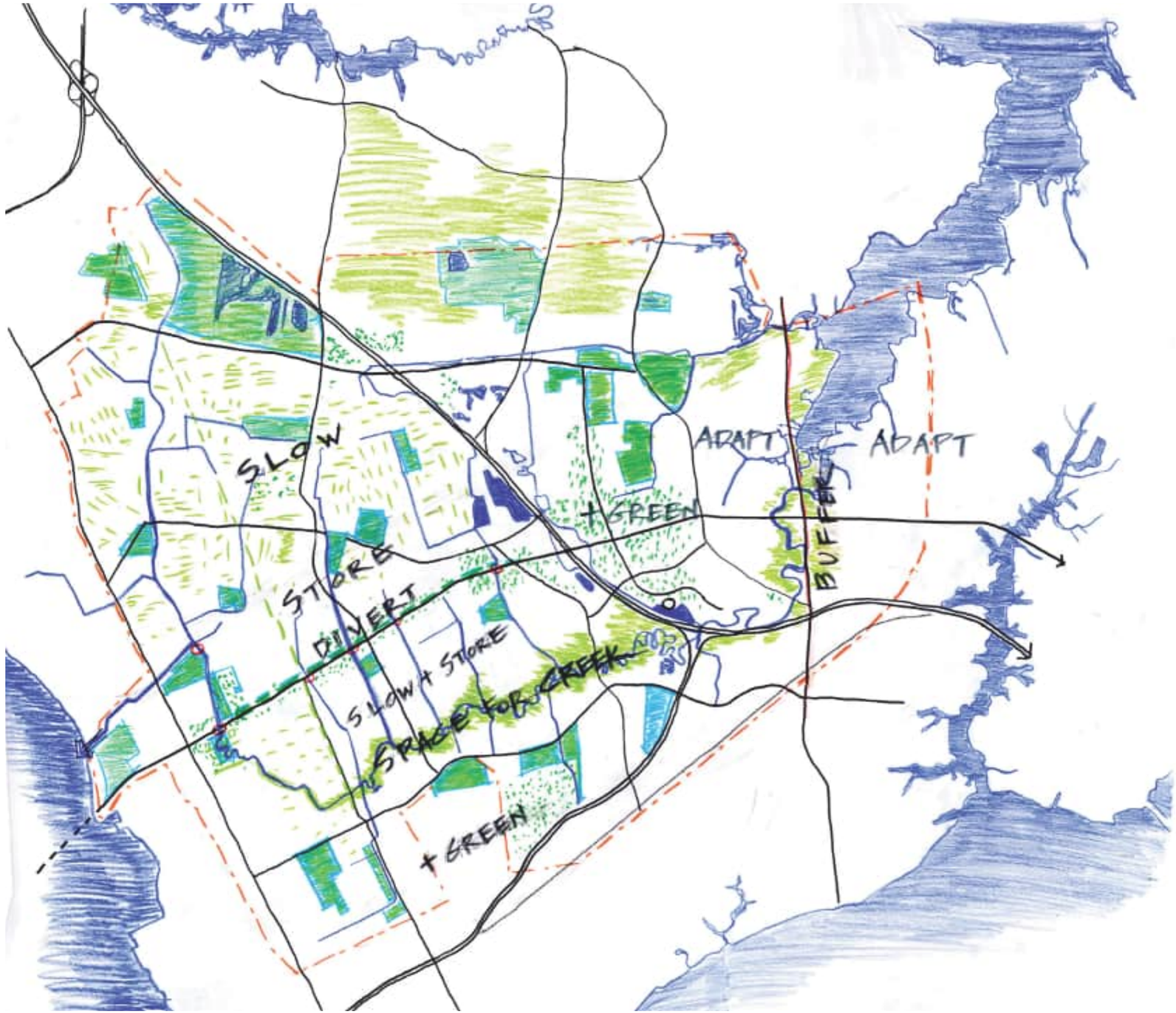
Inland



Newmarket Pilot Project Design Workshop

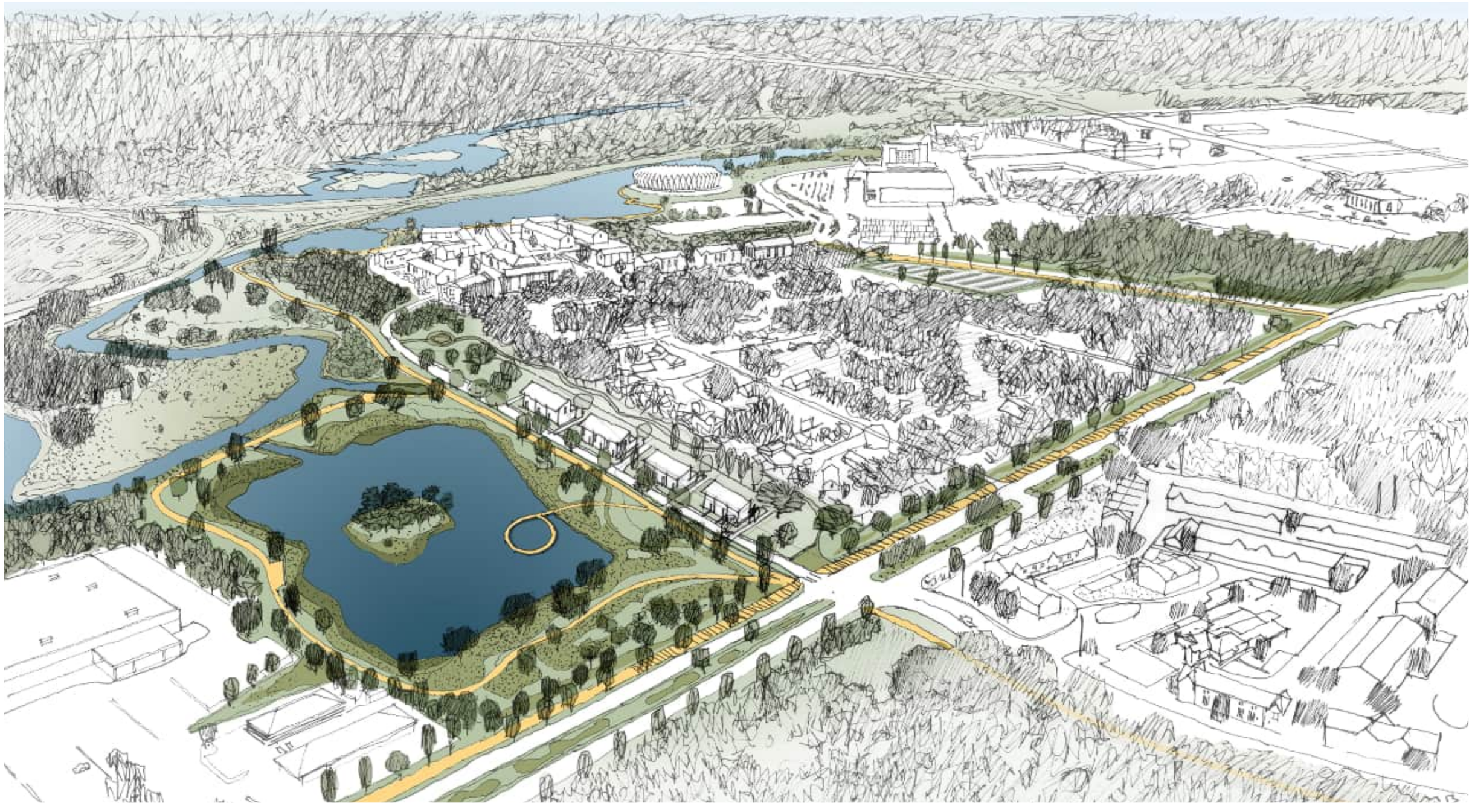
Resilient Hampton




SLOW
STORE
DIVERT
SLOW + STORE
SPACE FOR CREEK
+ GREEN
+ GREEN
ADAPT
ADAPT
BUFFER

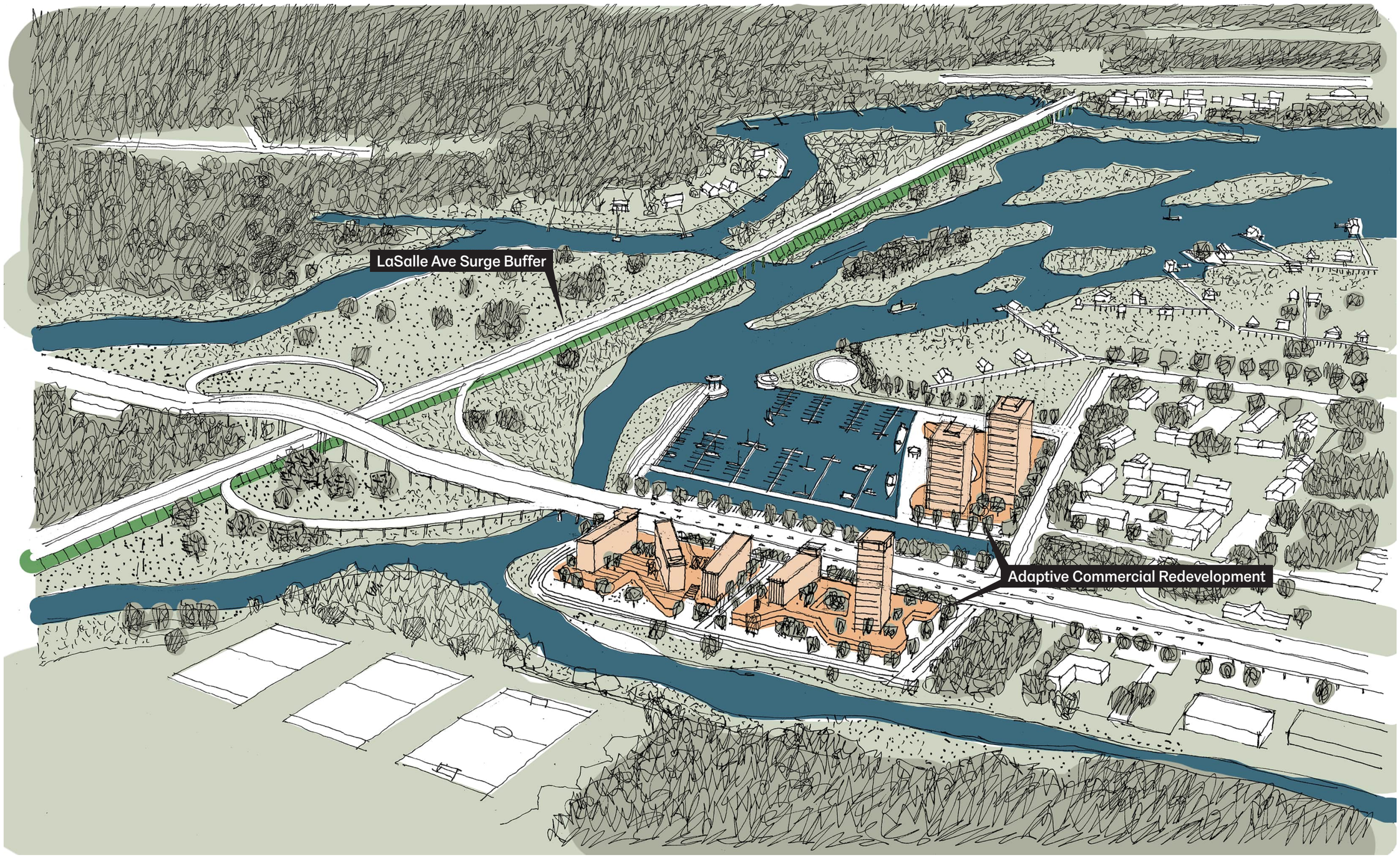
Lake Hampton

Resilient Hampton



LaSalle Avenue at Newmarket Creek

Resilient Hampton



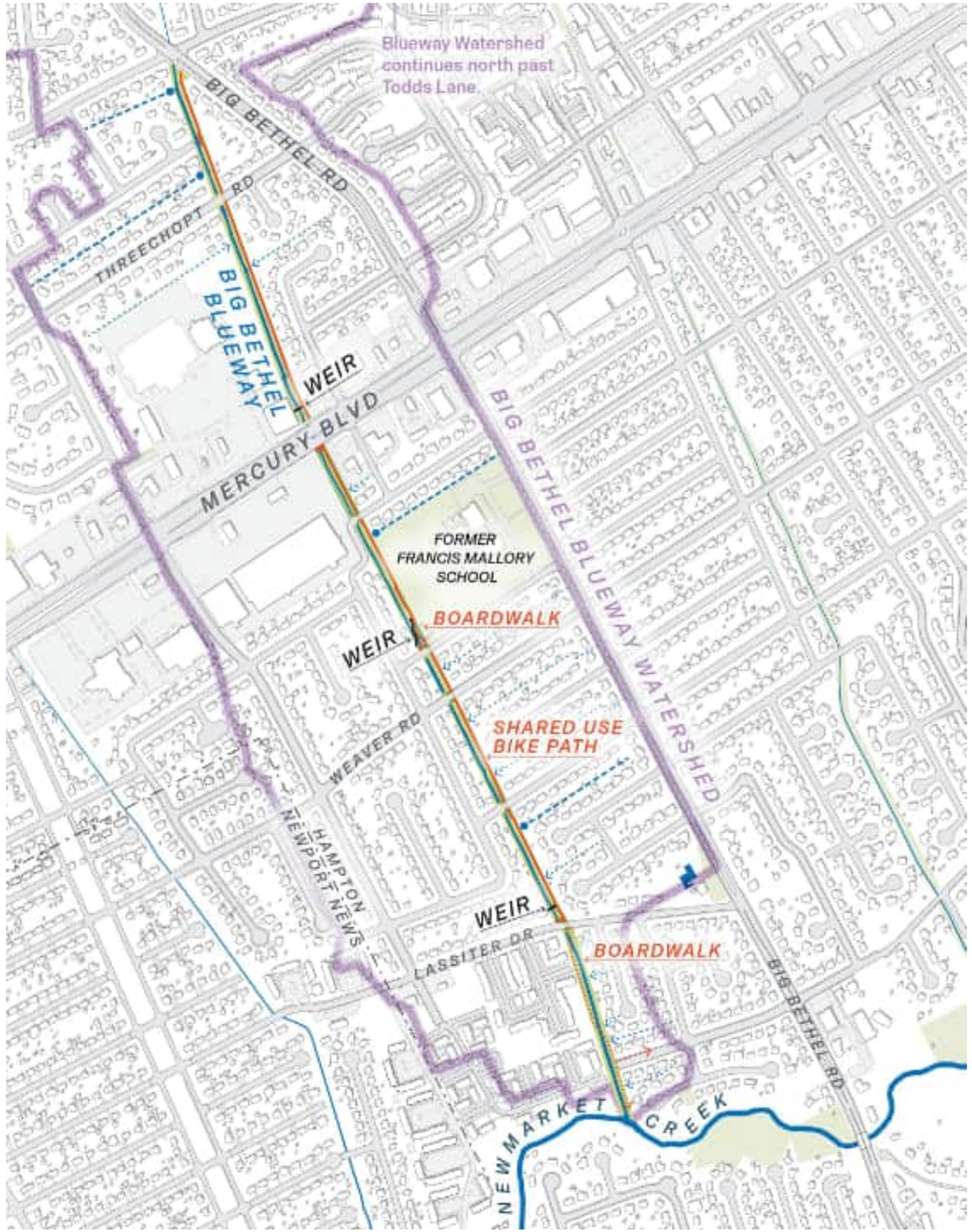
Newmarket Creek Loop & Pilot Projects

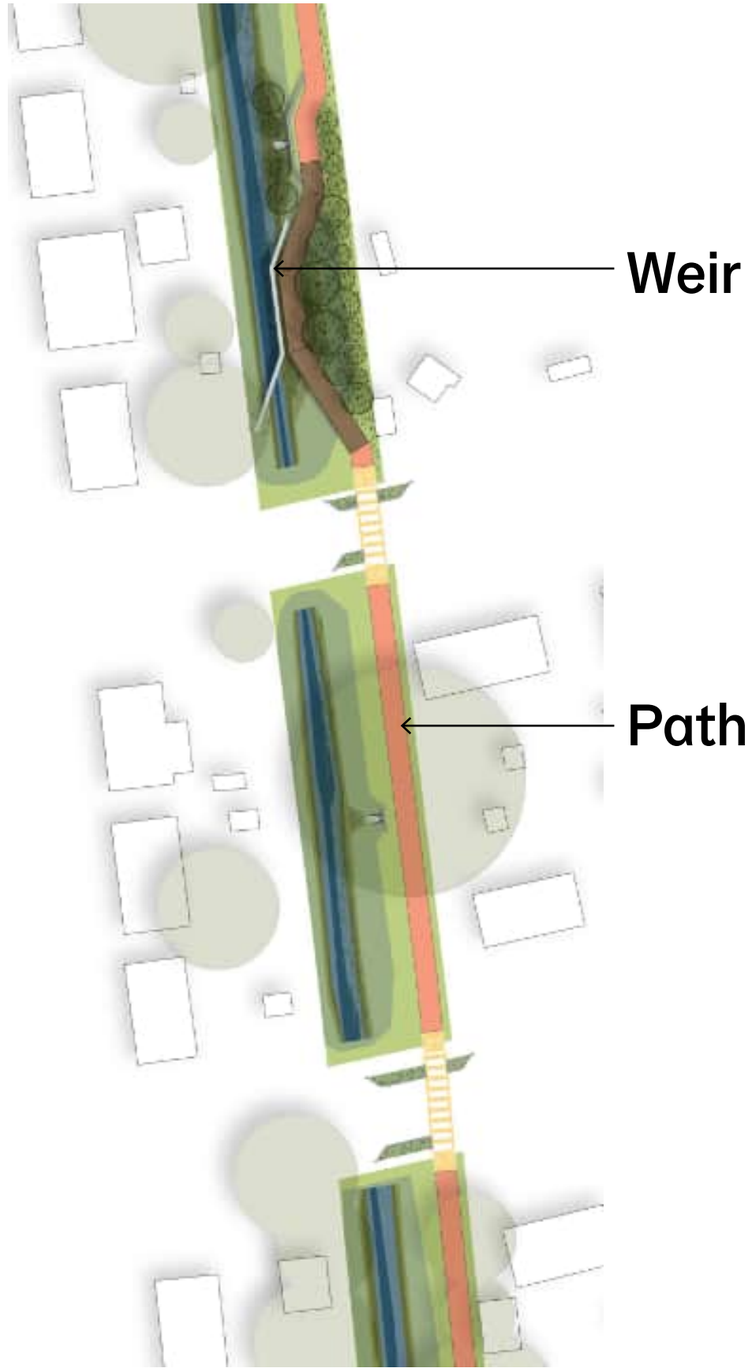
Hampton VA



Big Bethel Blueway

Newmarket Creek





Weir

Big Bethel Blueway



Path

Big Bethel Blueway



Lake Hampton and North Armistead Road Raising

New Market Creek



Lake Hampton

New Market Creek



North Armistead Road Raising

New Market Creek



Lake Hampton

New Market Creek



Questions

moffatt & nichol


MIRABEAU
WATER GARDEN

Mirabeau Water Garden History







Defining the Question



Ancient Barrier Islands



Mirabeau Water Garden



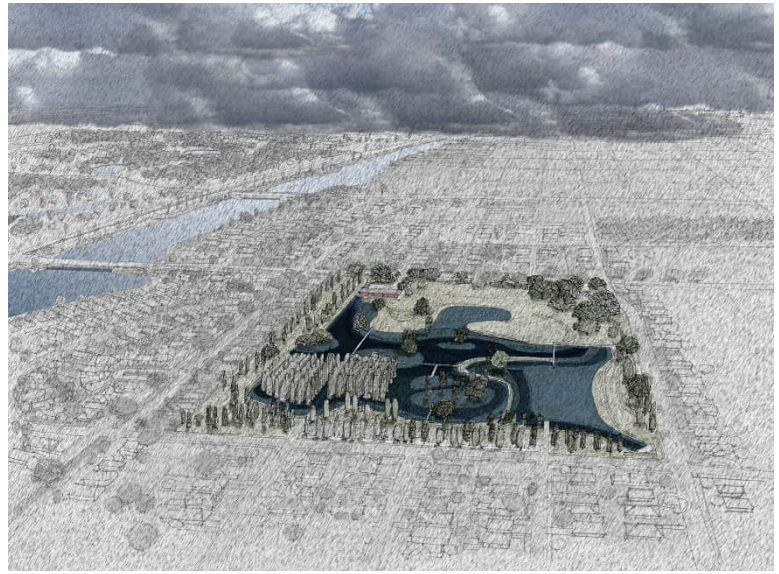
Functional Concept



Dry Condition

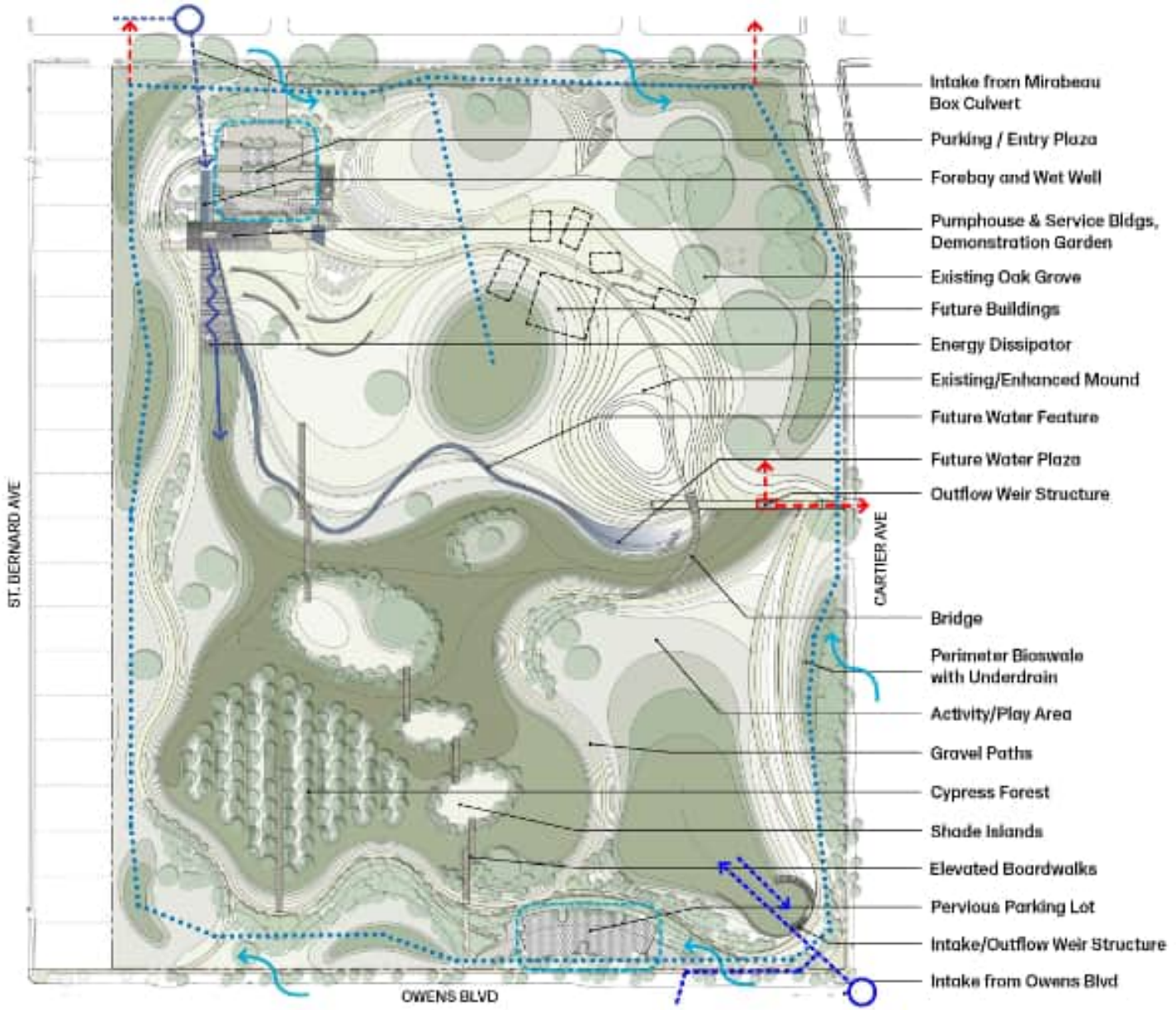


2-year Storm



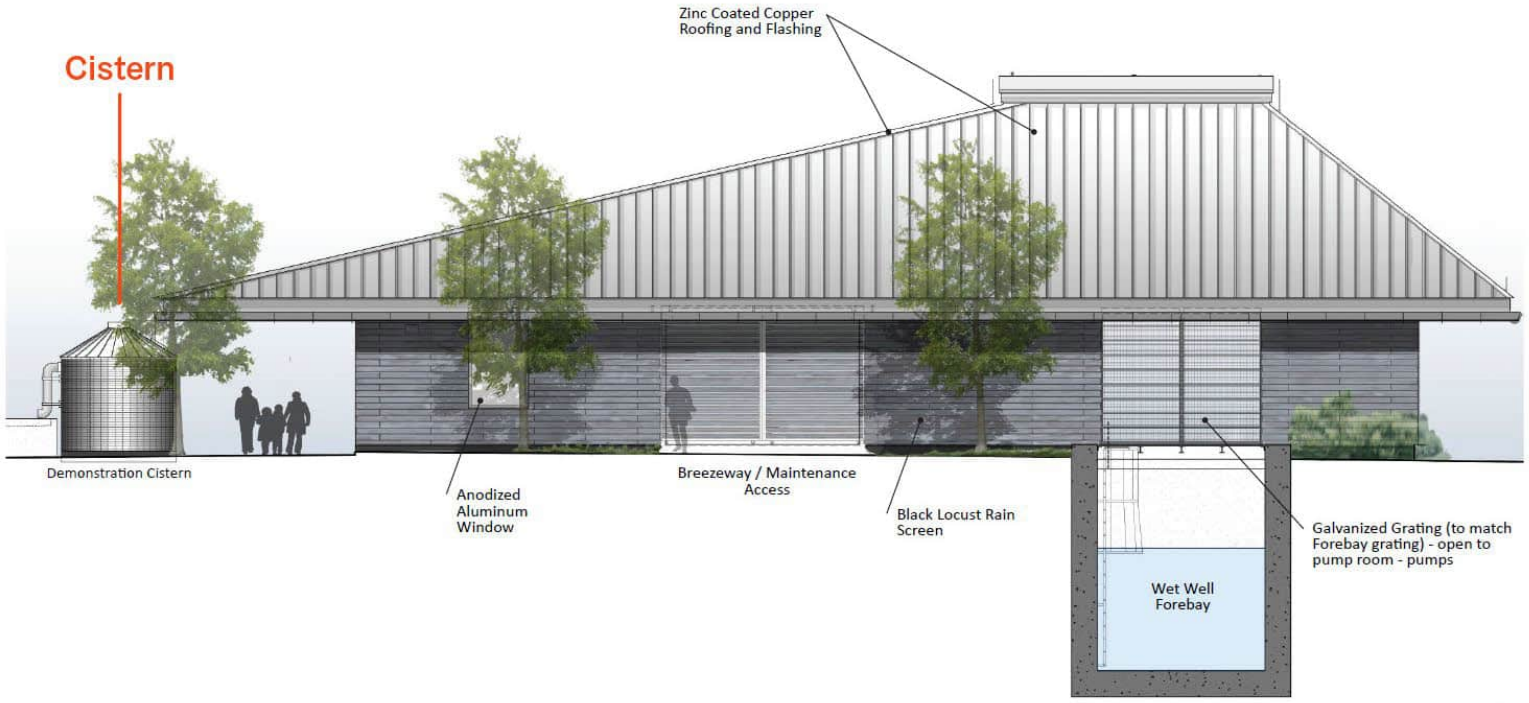
10-year Storm

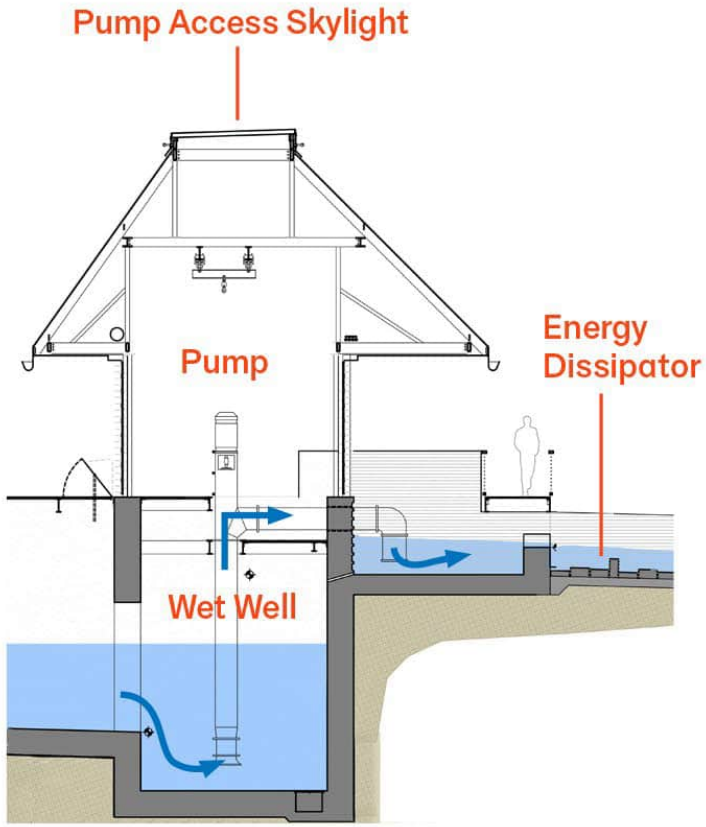
Site Plan


Intake from Mirabeau Box Culvert
Parking / Entry Plaza
Forebay and Wet Well
Pumphouse & Service Bldgs, Demonstration Garden
Existing Oak Grove
Future Buildings
Energy Dissipator
Existing/Enhanced Mound
Future Water Feature
Future Water Plaza
Outflow Weir Structure
Bridge
Perimeter Bioswale with Underdrain
Activity/Play Area
Gravel Paths
Cypress Forest
Shade Islands
Elevated Boardwalks
Pervious Parking Lot
Intake/Outflow Weir Structure
Intake from Owens Blvd
ST. BERNARD AVE
CARTIER AVE
OWENS BLVD



Pump House Architecture





Stormwater Energy Dissipation

