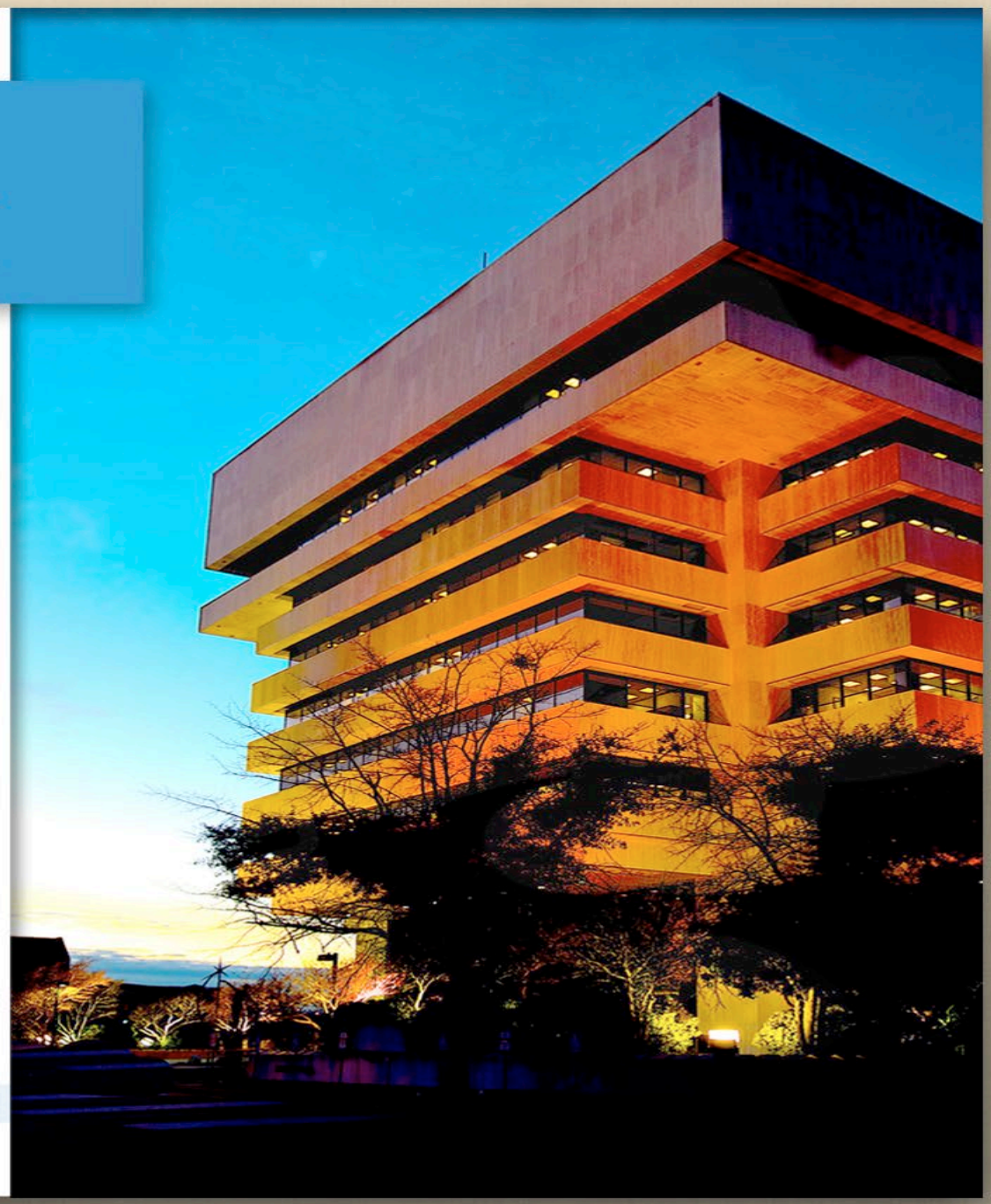
HAMPTON VA

Downtown, Phoebus, & Buckroe Water Plan

Deep Dive Presentation

RESILIENT HAMPTON

City Council
July 12, 2023



Introductions

Deep Dive Road Map

Living with Water Strategic Priority

Addressing coastal resiliency, reoccurring flooding, waterways, and environmental sustainability while enhancing our tax base and quality of life.

Address the challenge of flooding

Recognize & treat water resources as assets

Resilience is the bolstering of a community's **inherent strengths** in order to alleviate **chronic stresses** and enable recovery from **extreme events and shocks** in ways that make the community even **stronger than before**.

Living with Water Strategic Priority

- Shoreline protection
- Structural adaptation
- Stormwater system upgrades & maintenance

Address the challenge of flooding

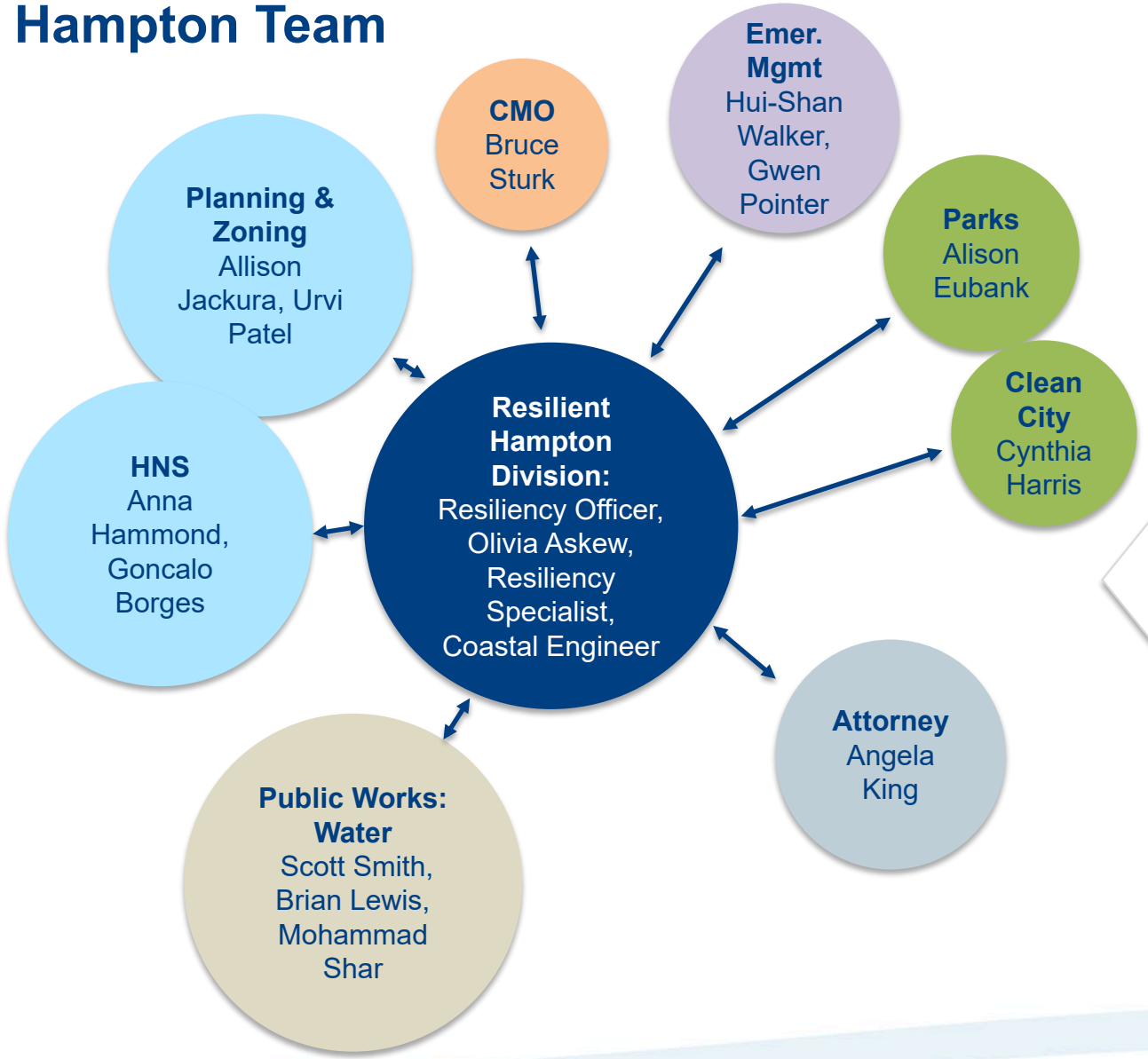
Recognize & treat water resources as assets

- Coastal place making
- Coastal dependent industry investment
- Waterway access

- Structural relocation
- Green infrastructure retrofits
- Low impact development
- Open space preservation
- Tree & habitat conservation
- Shoreline & habitat restoration

- Transportation corridor functionality
- Pedestrian, bicycle & transit connectivity and accessibility

Resilient Hampton Team



Partners

HAMPTON ROADS PDC PLANNING DISTRICT COMMISSION
NASA
VIMS WILLIAM & MARY VIRGINIA INSTITUTE OF MARINE SCIENCE
AMERICAN FLOOD COALITION
JOINT BASE LANGLEY-EUSTIS
Quantified Ventures
HAMPTON UNIVERSITY 1868
WETLANDS WATCH
CHESAPEAKE BAY FOUNDATION Saving a National Treasure
W&M VCPC
VIRGINIA TECH
OLD DOMINION UNIVERSITY
COLONIAL SWCD SOIL & WATER CONSERVATION DISTRICT

Deep Dive Road Map

1

Key Accomplishments Since January 2022

Projects & Programs

Key Accomplishment:
Leveraging Funding Sources

$1,575,017 from Va. Stormwater Local Assistance Fund (SLAF) – Mill Point Living Shoreline

$13,000,000 expected from FEMA Hazard Mitigation Grant Program (HMGP) – North Armistead Road Raising and Green Infrastructure

Key Accomplishment:
Pursuing Financial Incentives for Property Owners

VCAP (Virginia Conservation Assistance Program)

- Technical and financial assistance for Living Shorelines
- 80% of project cost, up to $30,000

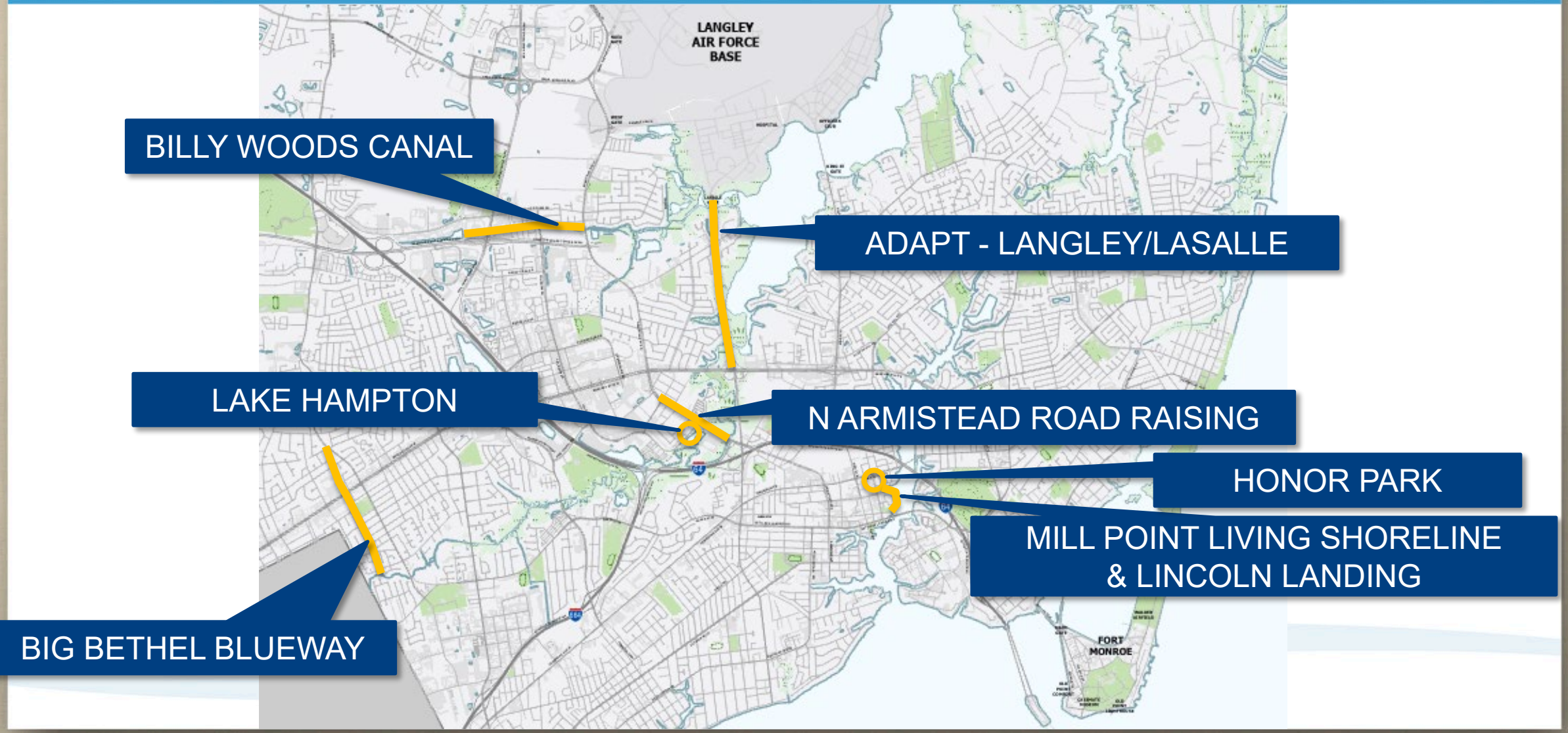
Key Accomplishment:
Implementing Environmental Impact Bond Projects

Lake Hampton
Under Construction

Big Bethel Blueway
Out for Bid

N Armistead Road Raising
90% Design

Key Accomplishment:
Project Design and Feasibility



Key Accomplishment:
Community-Led Design

Honor Park Resilience Park

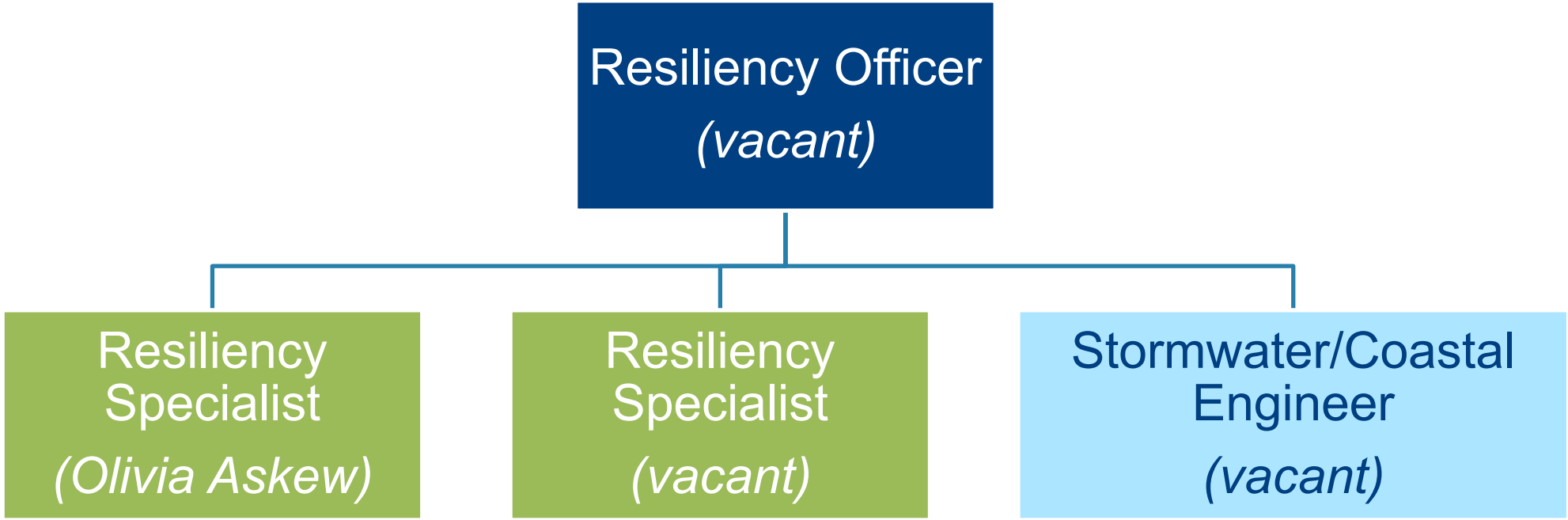
- 1 Stakeholder meeting
- 1 Community meeting
- 3 Day open-house

Water Plan

- 7 Community meetings
- 4 Neighborhood org. meetings
- Neighborhood canvasing
- 3 Day Design Workshop

Key Accomplishment:
Growing the Resilience Division

From a Division of 1 to a Division of 4



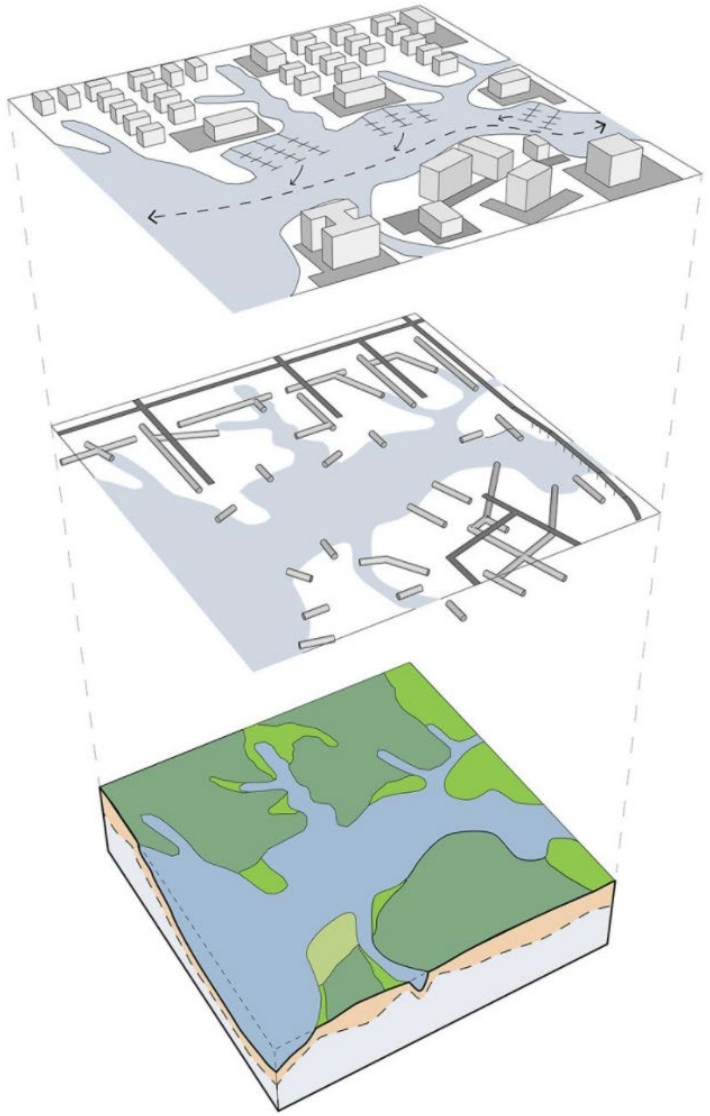
Deep Dive Road Map

Water Plan Purpose

Analyzes the landscape and challenges, both physical & social

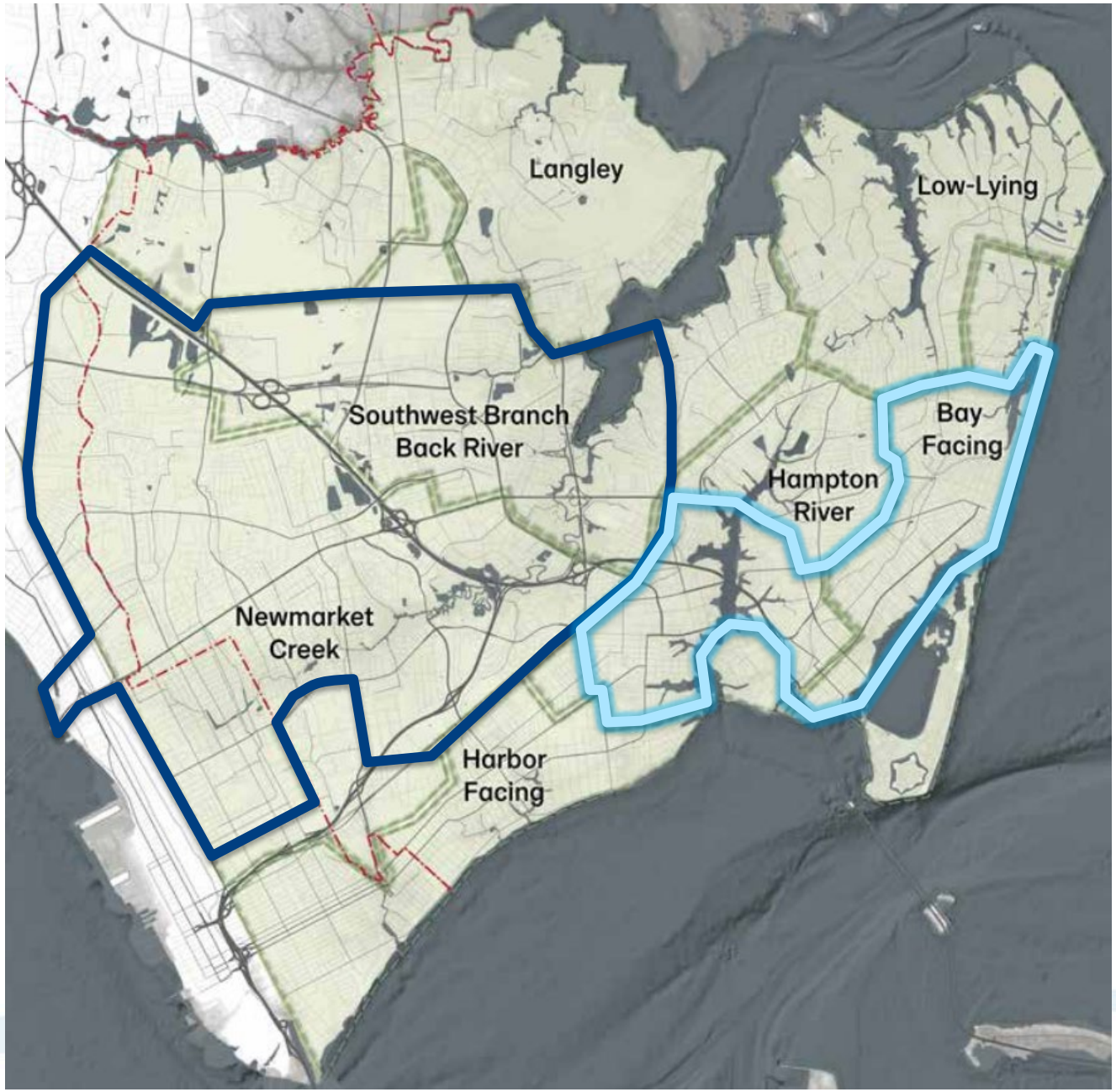
Establishes a vision for the future of the resilient watershed

Identifies & presents projects to achieve the vision

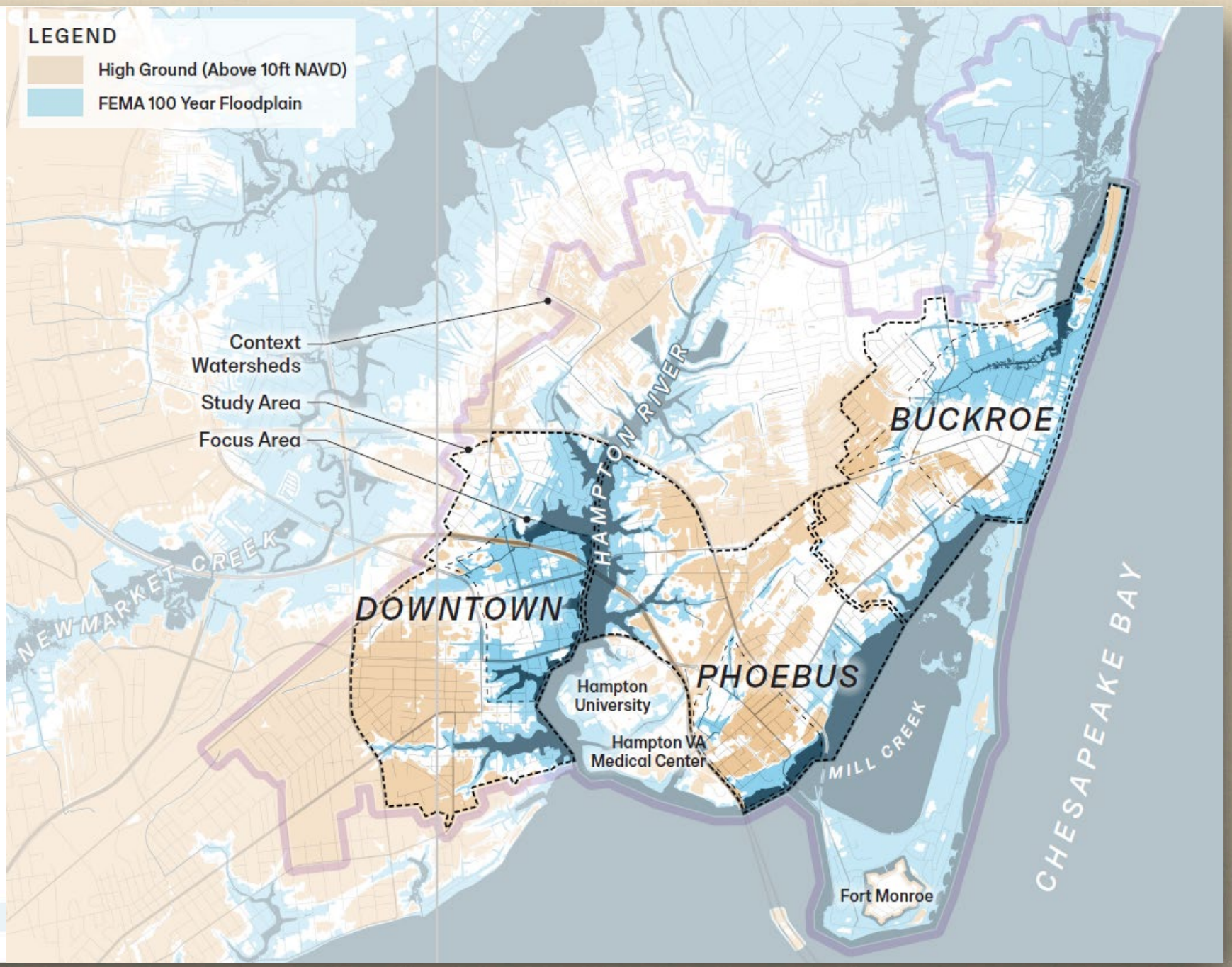


1. **Newmarket Creek Pilot Project Area Water Plan** *(implementing)*

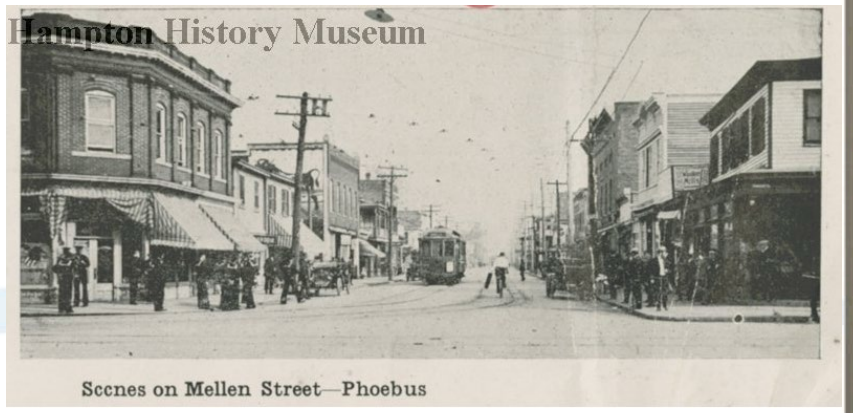
2. **Downtown Hampton, Phoebus, & Buckroe Water Plan**



Planning Areas



Downtown Hampton, Phoebus, & Buckroe



Images curtesy of Hampton History Museum

Planning Goals

Goal 1: Develop projects that ***mitigate existing impacts of flooding*** on public lands while prioritizing nature-based solutions to live with water.

Goal 2: Establish innovative, nimble, ***nature-based designs*** for coastal areas expected to be permanently inundated within the next **30-50 years**.

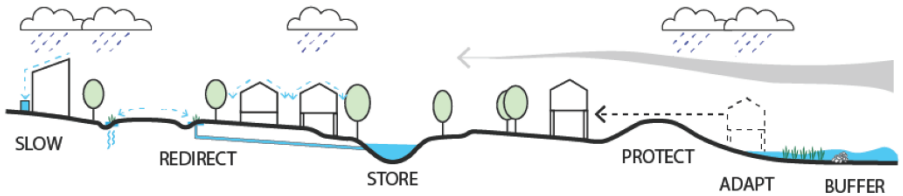
Goal 3: Plan for project ***benefits to be equitably distributed***, and to meet the needs of those who will be ***most impacted by climate change***.

Goal 4: Identify opportunities to invest in maintaining Hampton's coastal ***heritage*** by ***reconnecting*** people with ***water as an asset***, allowing people and nature to flourish side-by- side.

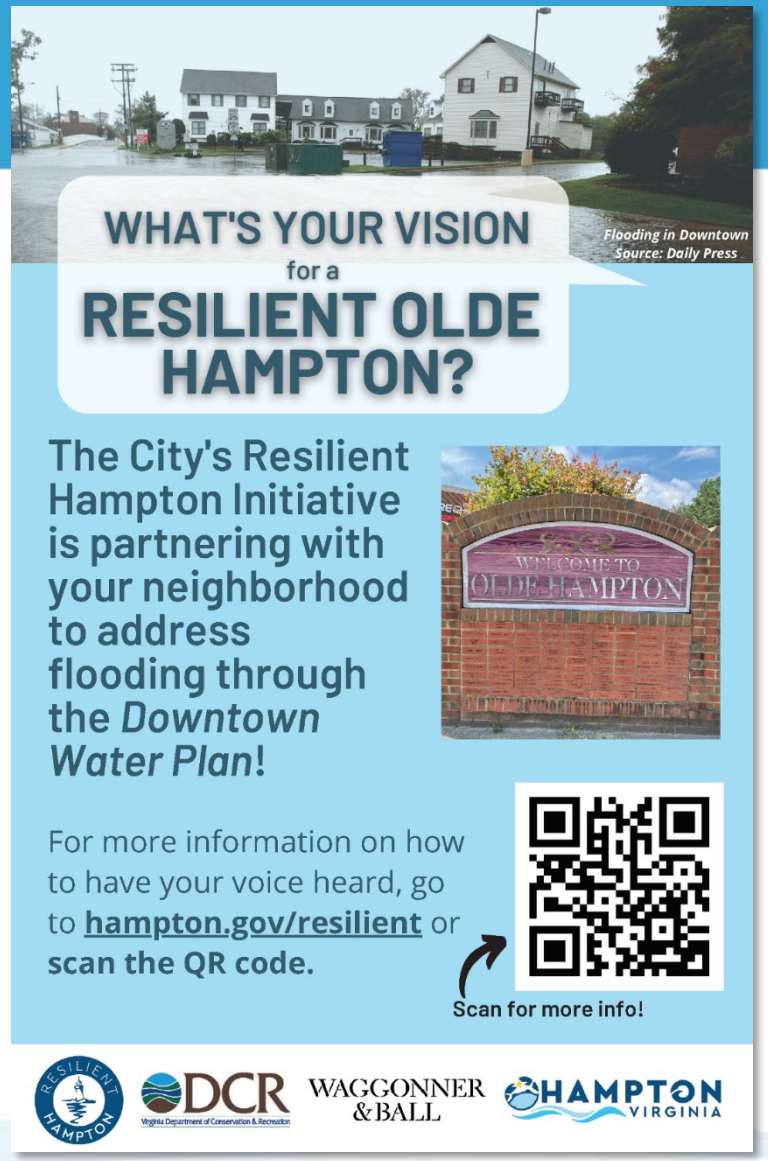
The Role of the Community

DOWNTOWN HAMPTON, PHOEBUS & BUCKROE
RESILIENCY PLAN

We're building resilience to flooding and the impacts of climate change in our watersheds.



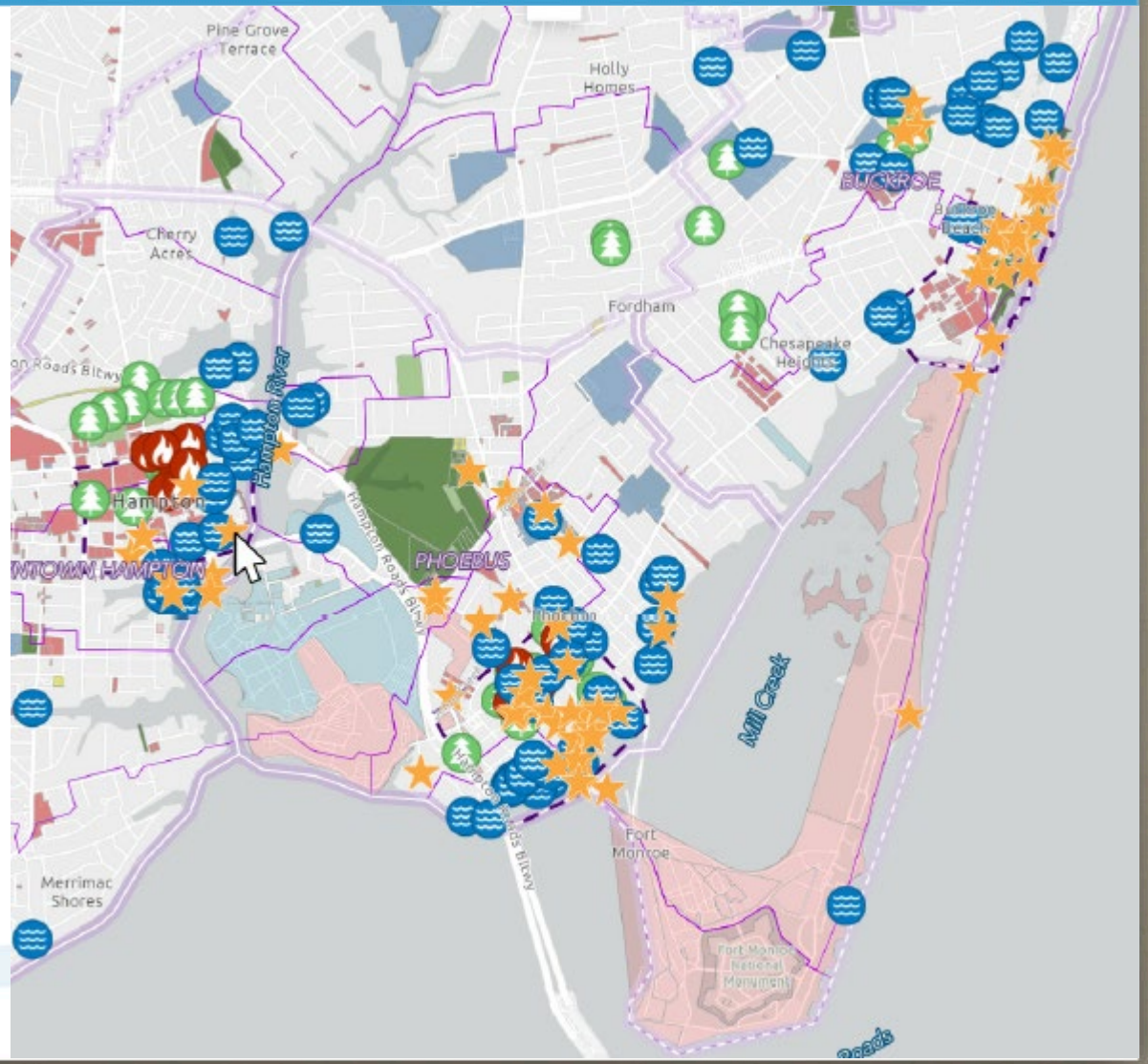
Get involved in developing the plan!



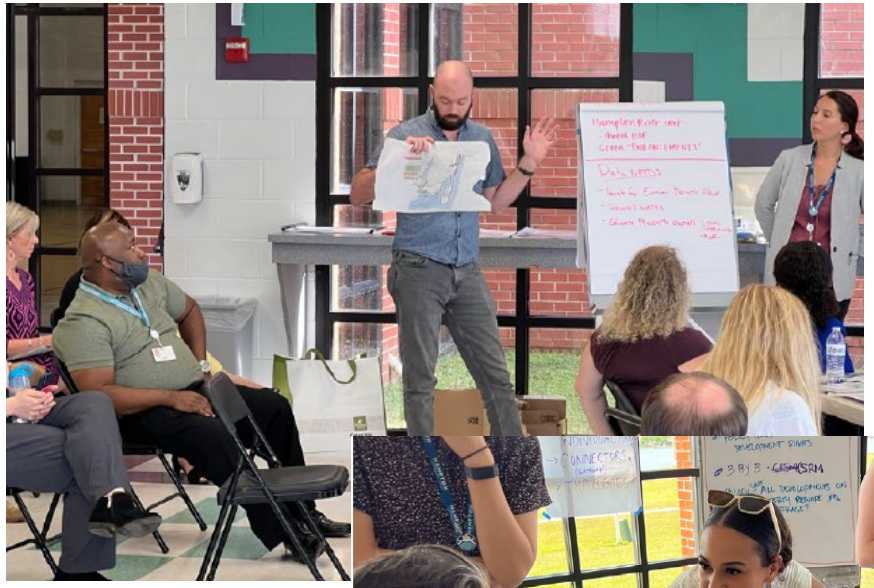
Community Knowledge = Data

We asked residents to tell us:

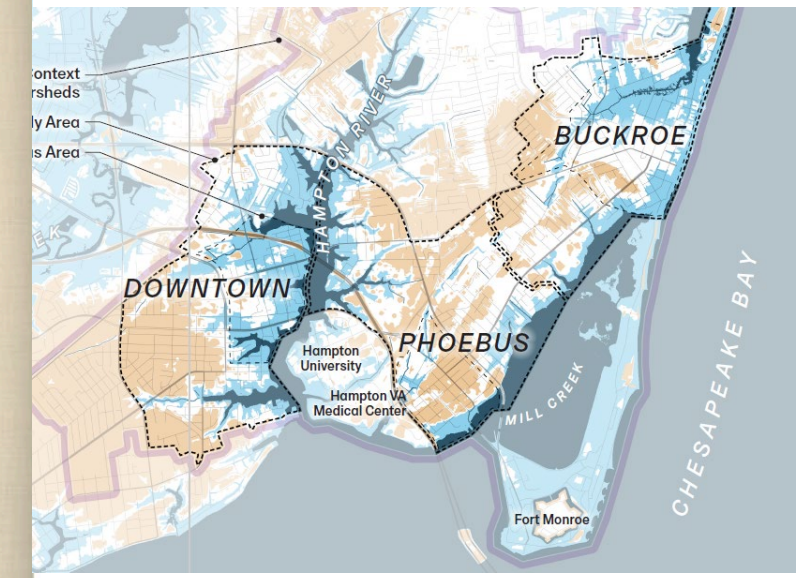
1. What are the community assets?
2. Where have you seen flooding?
3. Where does it get too hot?
4. Where could we plant more trees?

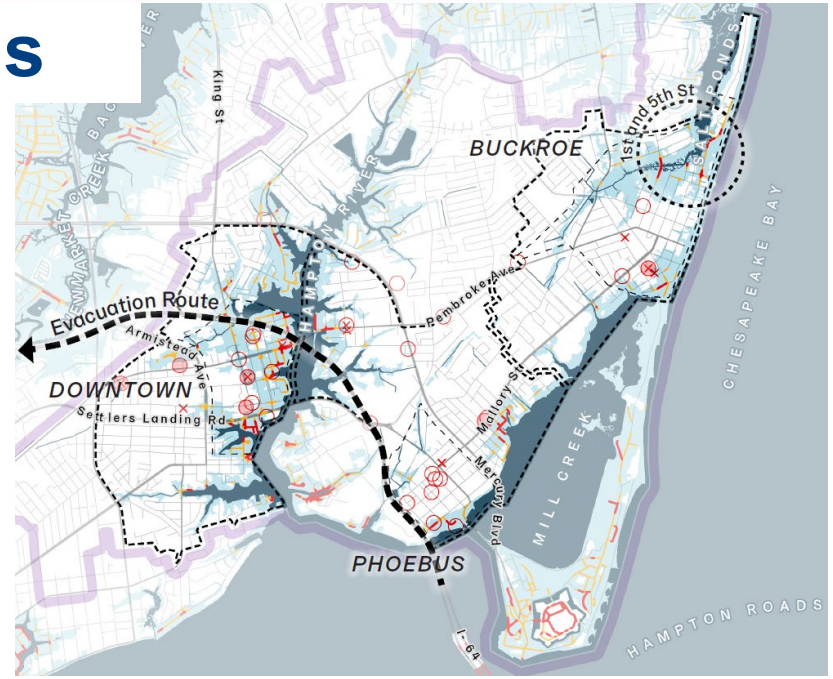


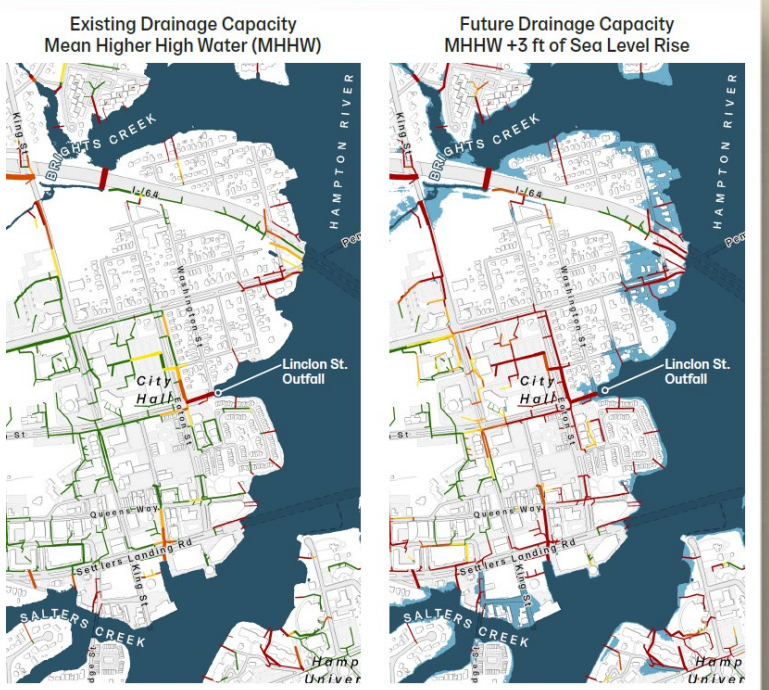
May 2022 Design Workshop

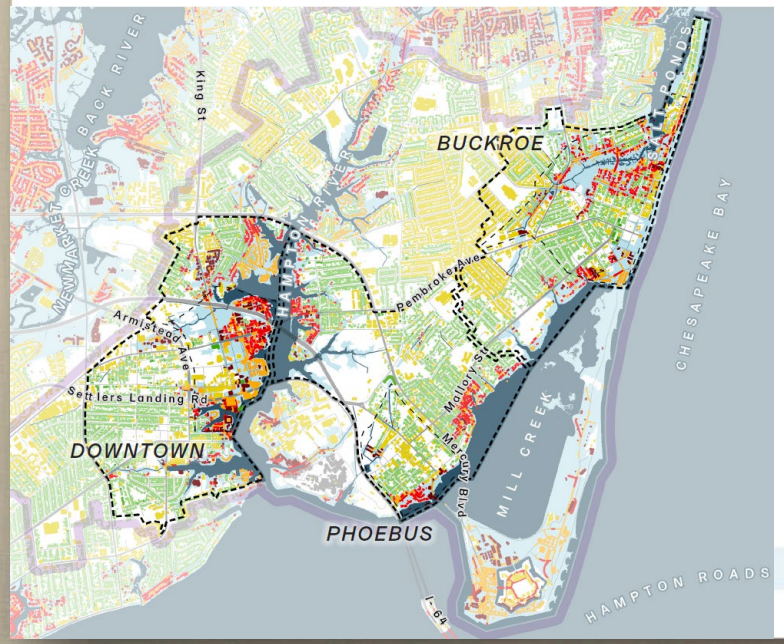


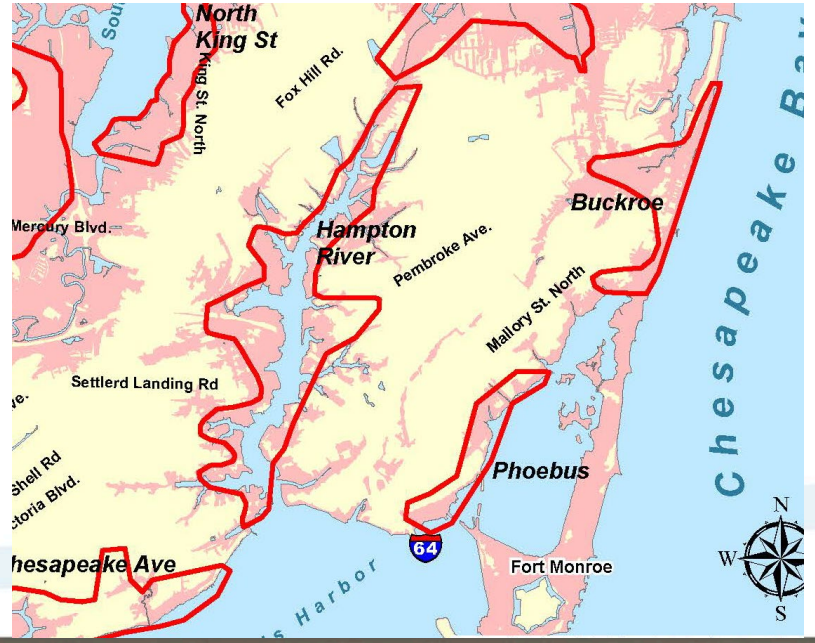
Layered Risk Analysis

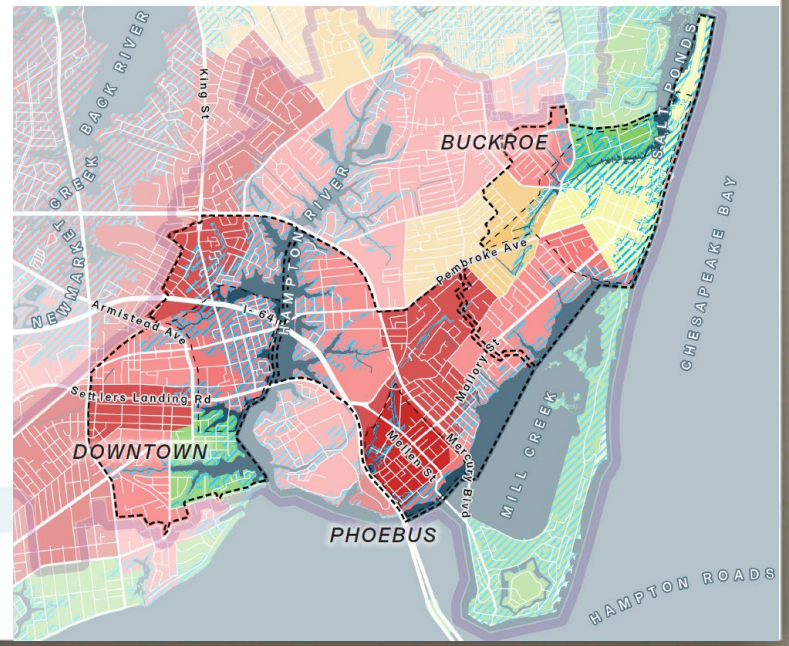




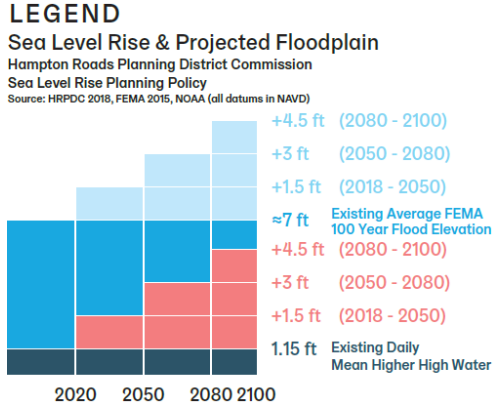


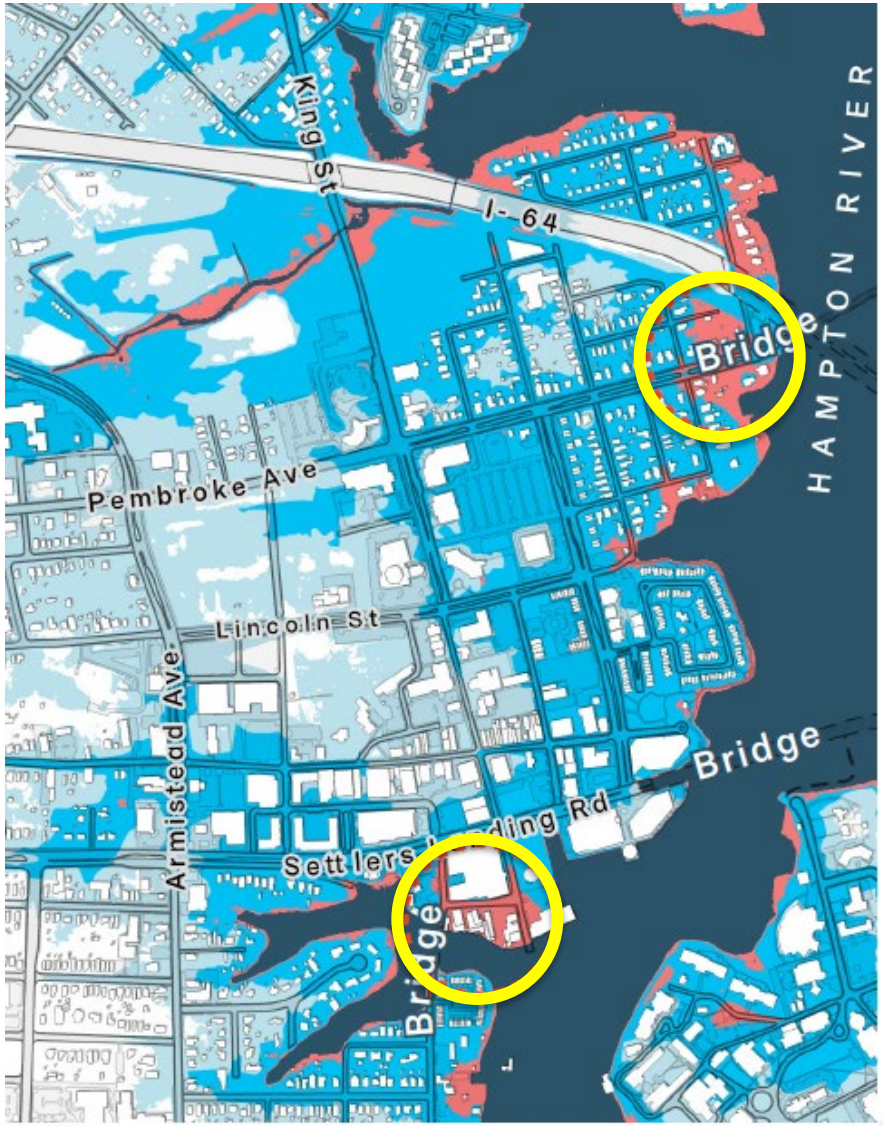




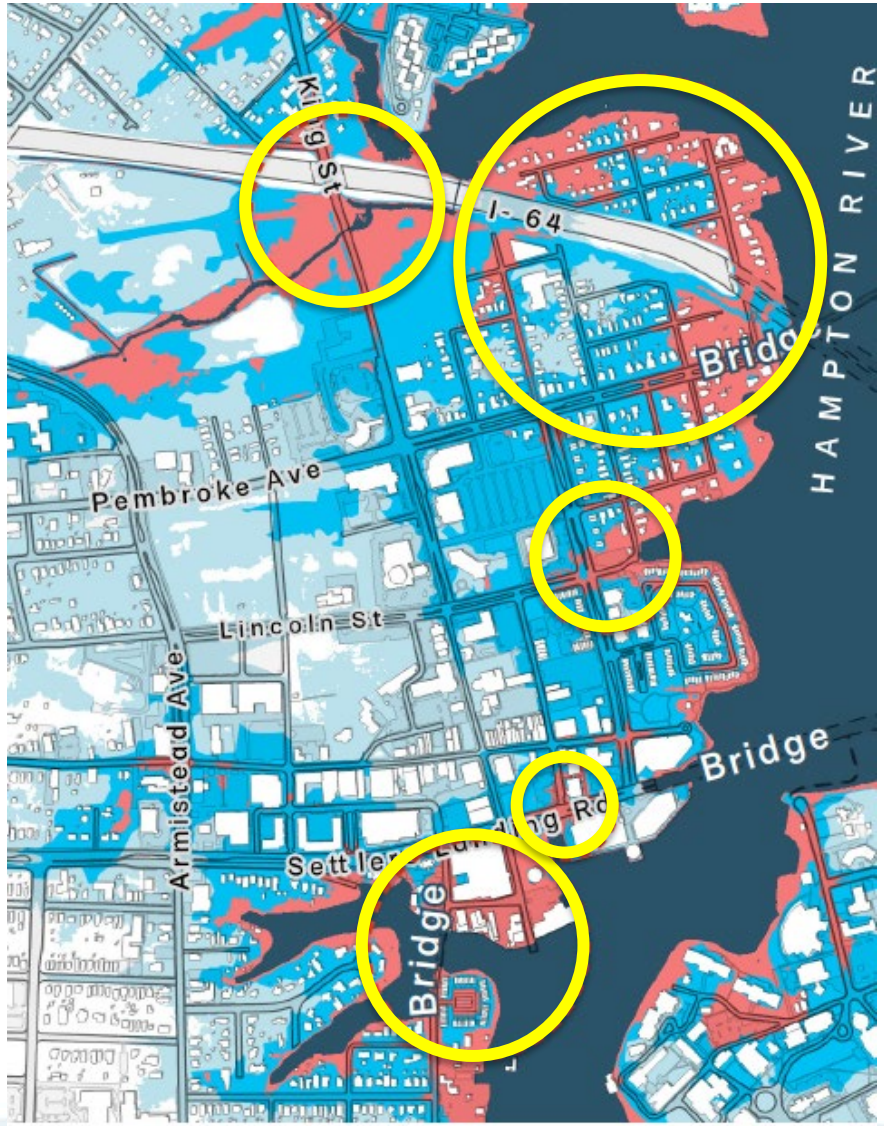


Projected Floodplain: Downtown



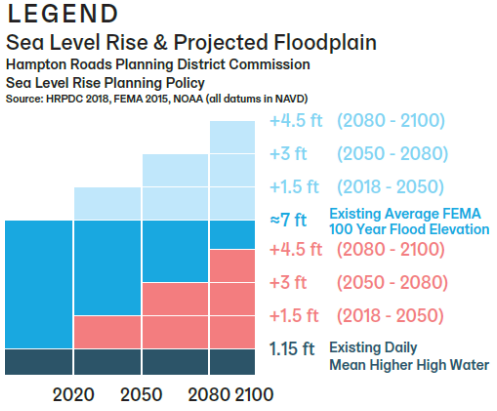


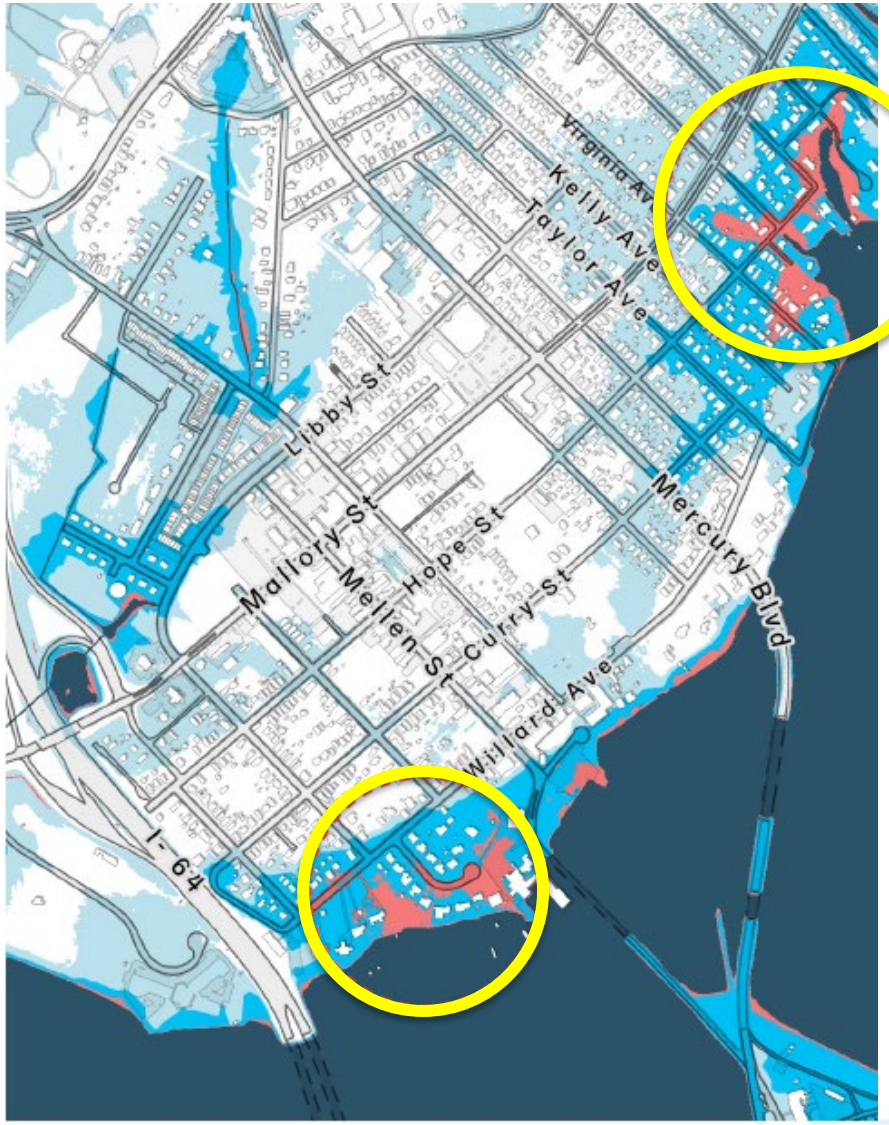
2050-2080 +3 ft



2080-2100 +4.5 ft

Projected Floodplain: Phoebus

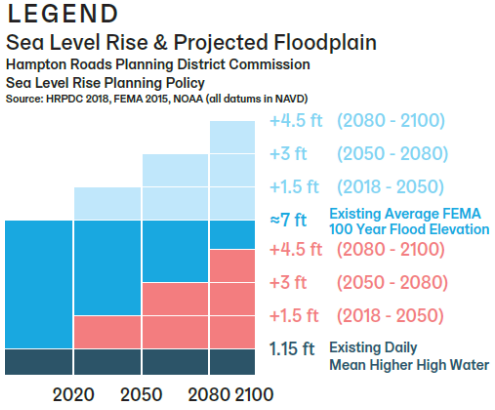




2050-2080 +3 ft

2080-2100 +4.5 ft

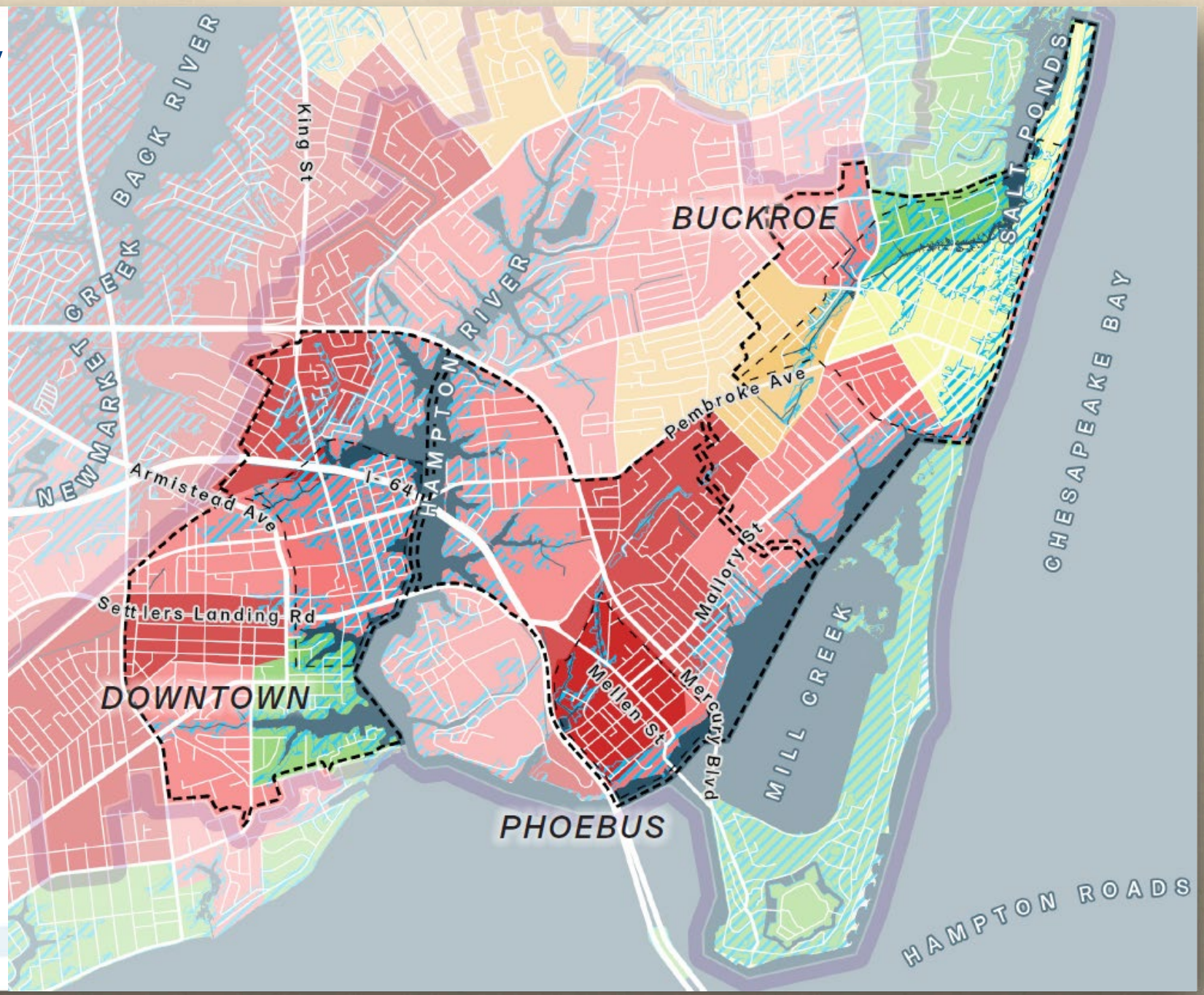
Projected Floodplain: Buckroe



2050-2080 + 3 ft

2080-2100 + 4.5 ft

Social Vulnerability



LEGEND

Social Vulnerability State Percentile

Source: CDC, 2020

- 80 to 100%
- 60 to 80%
- 40 to 60%
- 20 to 40%
- 0 to 20%

FEMA 100 Year Floodplain

Combined Risk Analysis

Legend

Buildings

Slab on grade or Basement
Built in the floodplain before 1974

Raised, Built Outside of the Floodplain
Or Built Inside of the Floodplain After 1974

Critical Infrastructure

Inundated by 4.5 ft of Sea Level Rise (2080 - 2100)

In the 100 Year Floodplain

Roads

Inundated by 3 ft of Sea Level Rise (2050 - 2080)

Inundated by 4.5 ft of Sea Level Rise (2080 - 2100)

Drainage Capacity

0% to 25% (Mostly Filled with Water)

25% to 50%

Surface Inundation

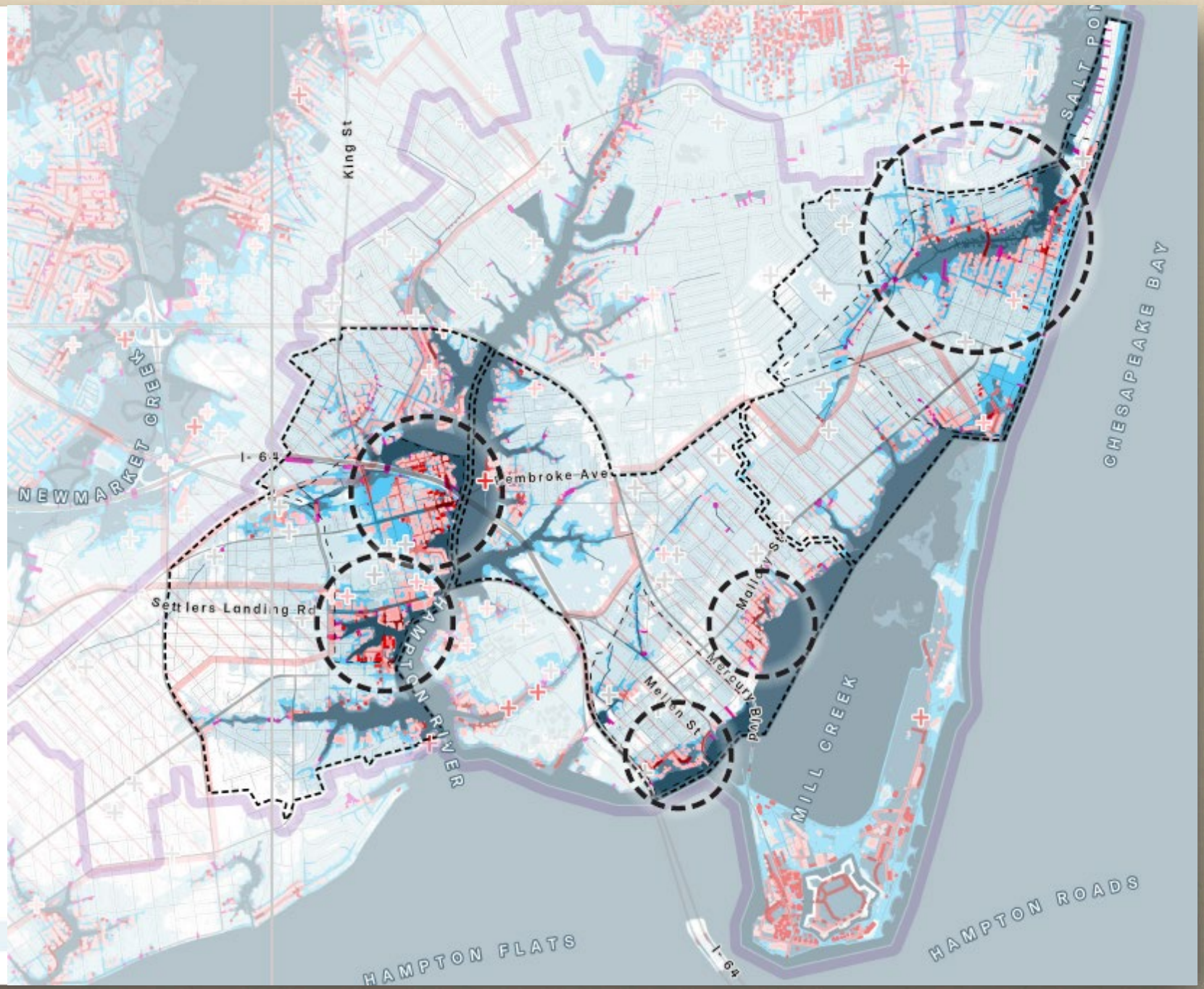
4.5 ft of Sea Level Rise (2080 - 2100)

Existing 100 Year Floodplain

Projected 100 Year Floodplain
With 4.5 ft of Sea Level Rise (2080 - 2100)

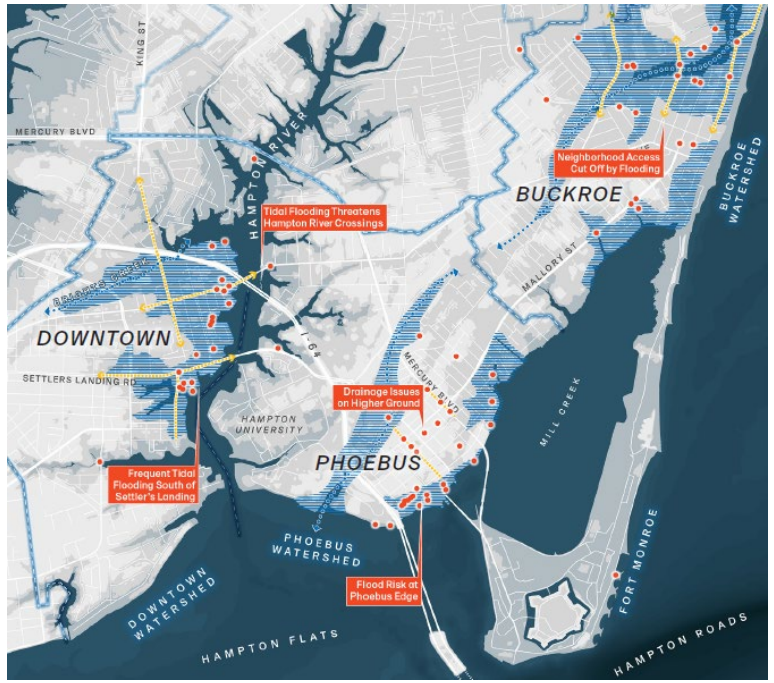
CDC Social Vulnerability

Most Vulnerable 50%



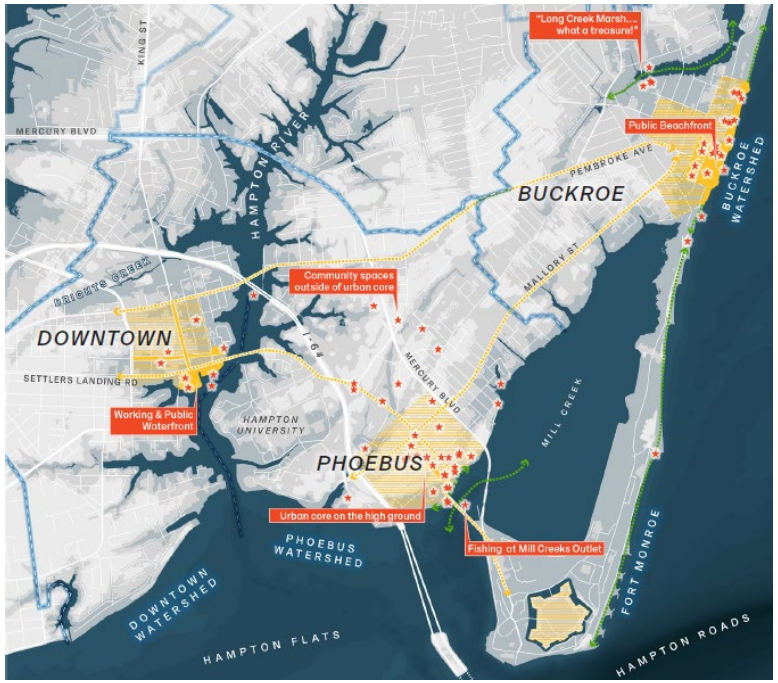
Observations and Analysis

Flooding



Heat & Tree Canopy

Community Assets



Resiliency Vision

Uplands & Lowlands

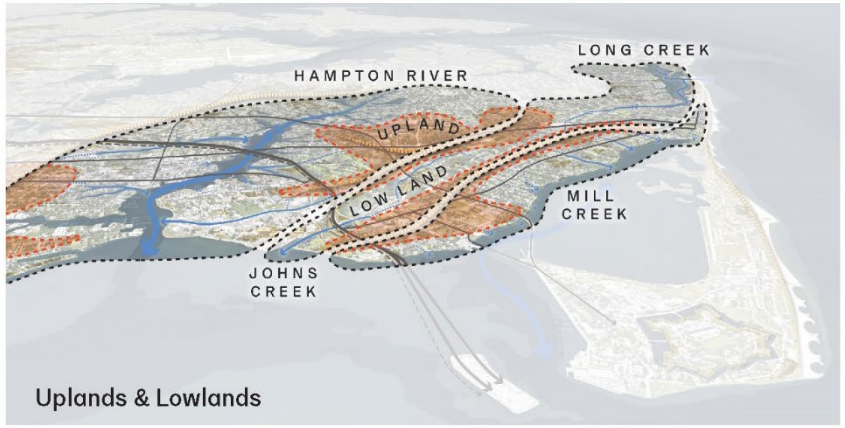
Restored room for the river alongside environmentally sensitive development.

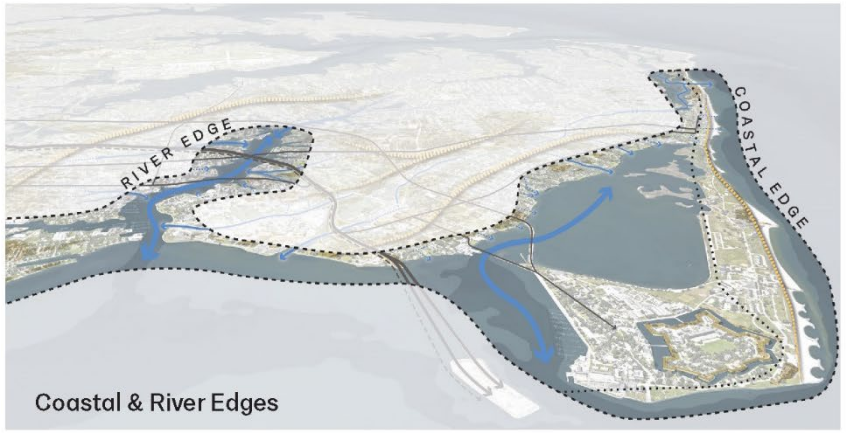
Coastal & River Edges

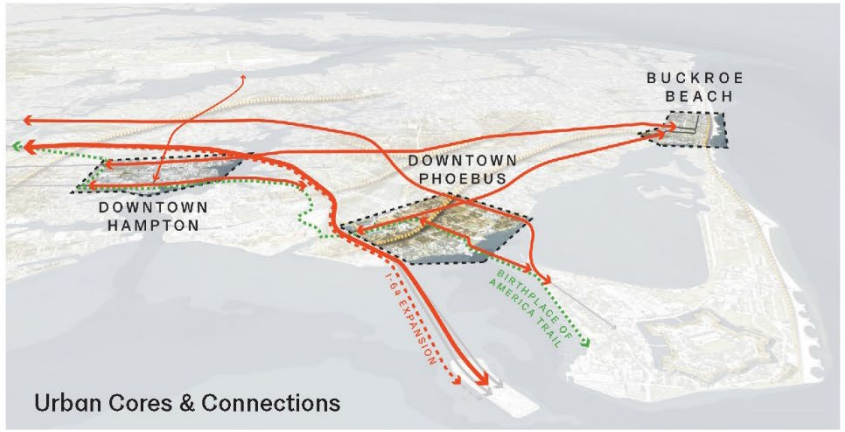
An integrated approach to shoreline protection that prioritizes ecosystem health and water access.

Urban Cores & Connections

Seamless connections between Hampton's urban waterfront centers.

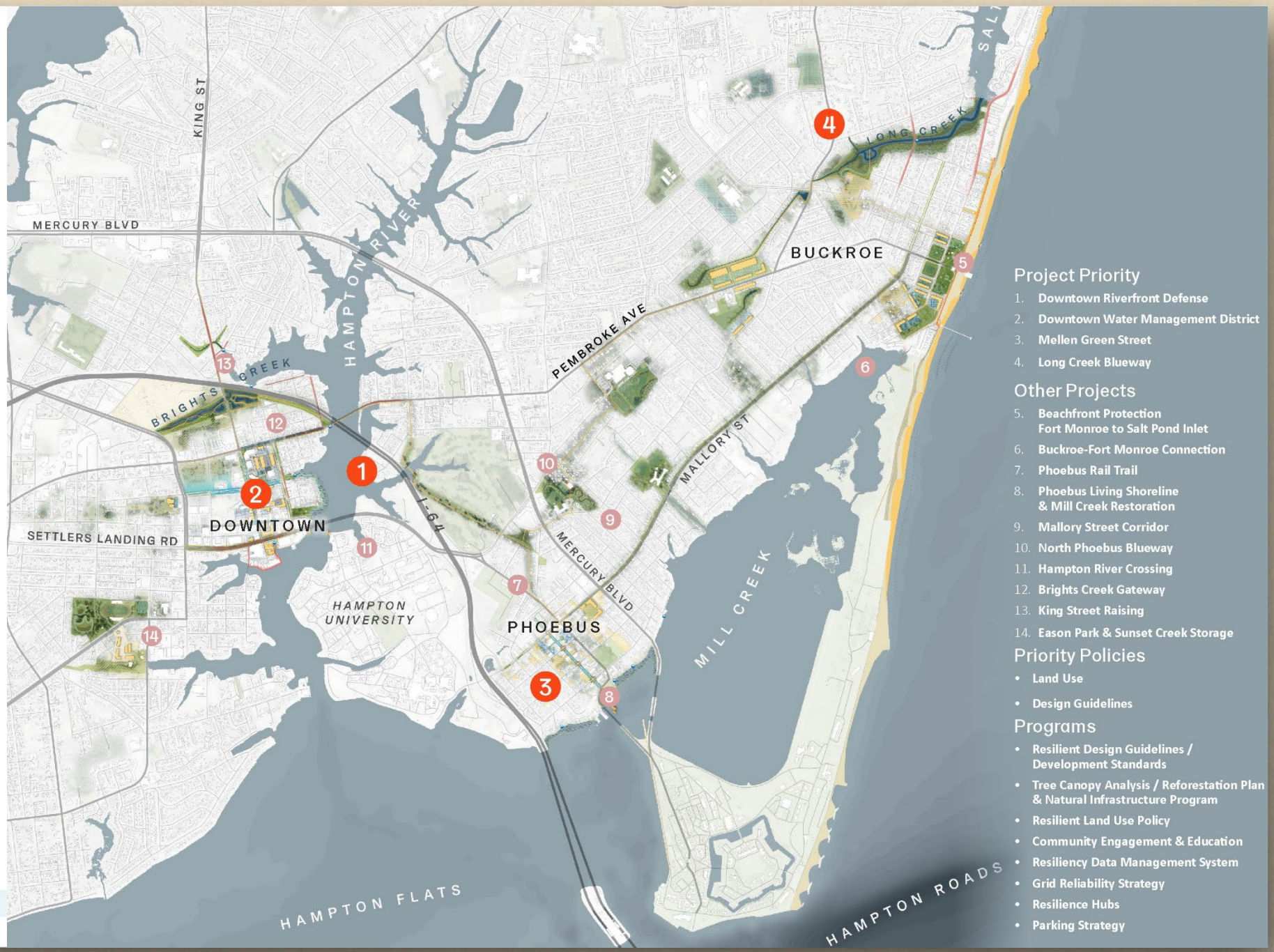






Opportunities

Projects & Programs



Project Priority

1. Downtown Riverfront Defense
2. Downtown Water Management District
3. Mellen Green Street
4. Long Creek Blueway

Other Projects

5. Beachfront Protection Fort Monroe to Salt Pond Inlet
6. Buckroe-Fort Monroe Connection
7. Phoebus Rail Trail
8. Phoebus Living Shoreline & Mill Creek Restoration
9. Mallory Street Corridor
10. North Phoebus Blueway
11. Hampton River Crossing
12. Brights Creek Gateway
13. King Street Raising
14. Eason Park & Sunset Creek Storage

Priority Policies

- Land Use
- Design Guidelines

Programs

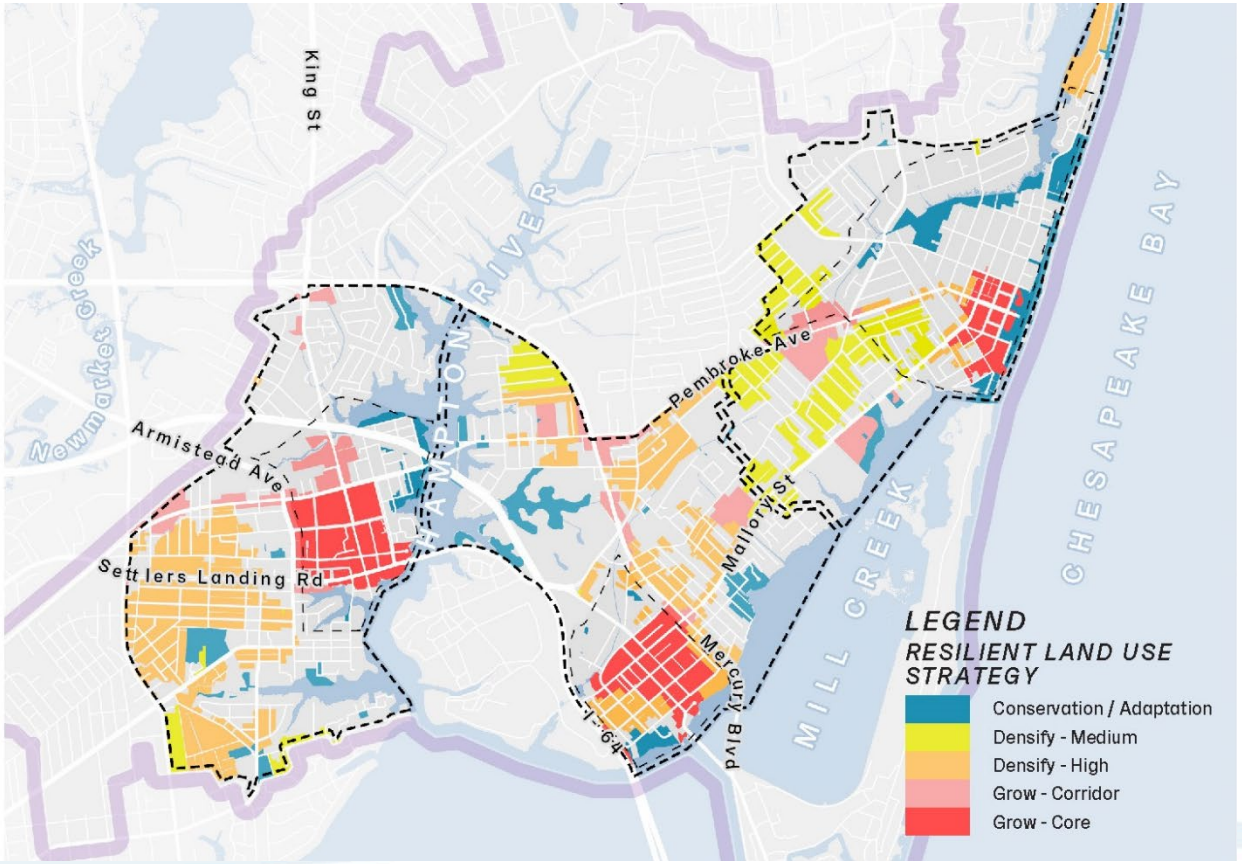
- Resilient Design Guidelines / Development Standards
- Tree Canopy Analysis / Reforestation Plan & Natural Infrastructure Program
- Resilient Land Use Policy
- Community Engagement & Education
- Resiliency Data Management System
- Grid Reliability Strategy
- Resilience Hubs
- Parking Strategy

PROJECT & PROGRAMS

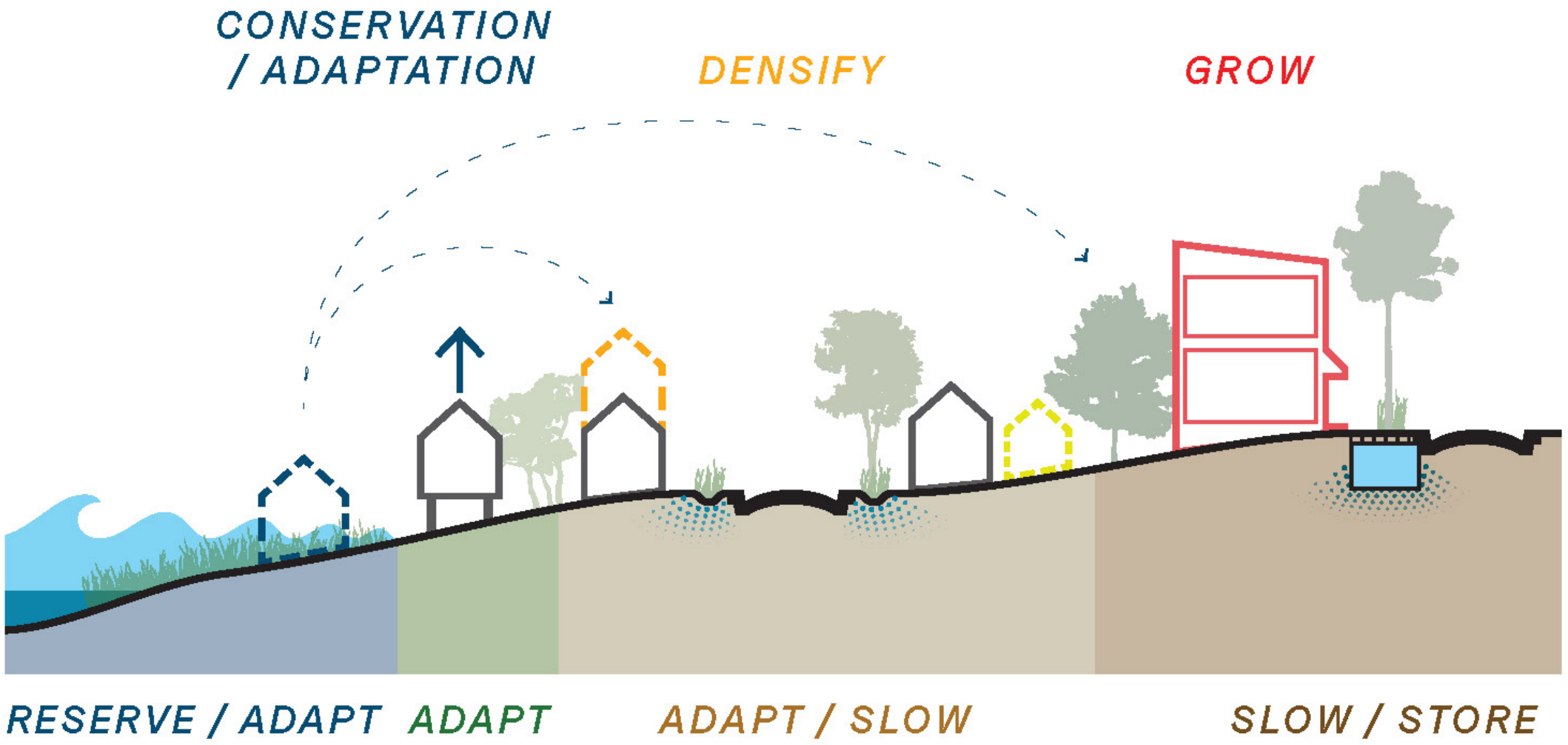
Scale	Name	Cost	1 to 5 years	5 to 10 years	10+
CITY-WIDE	**Resilient Land Use Policy**	$	■		
	Resilient Design Guidelines/Development Standards	$	■		
	Adaptation Zones Program	$$$	■	■	
	Grid Reliability Strategy	$		■	
	Parking Strategy & Policy	$		■	
	Resiliency Data Management System	$		■	
	Tree Canopy Analysis	$		■	
	Resilience Hubs	$$		■	
	Community Engagement & Education	$	■		
NEIGHBORHOOD	**Downtown Waterfront Defense**	$$$$	■	■	■
	Downtown Water Management District	$$$	■	■	
	Mellen Street Green Street	$$		■	
	Long Creek Blueway	$$$$	■	■	■
	Beachfront Protection – Fort Monroe to Salt Ponds Inlet	$$$$	■	■	■
	Brights Creek Gateway	$$$$		■	
	Phoebus Rail Trail	$		■	
	Old North Hampton – Creek Connection & Development	$$		■	
	North King Street Raising	$$		■	
	Mallory Street Corridor	$$			■
	North Phoebus Blueway	$$			■
PARCEL	**RAIN Grant Demonstration Projects**	$	■	■	■
	Eason Stormwater Park	$$		■	
	Phoebus Living Shoreline & Mill Creek Restoration	$		■	
	Hampton River Crossing	$$			■

Priority Policy:
Resilient Future Land Use Strategy

Design Strategy	Land Use	Cores & Corridors	Future Policy
Reserve / Adapt	Rural Density Residential Low Density Residential		Conservation / Adapt
Reserve / Adapt Adapt Adapt / Slow All	Public / Semi Public Open Space		Conservation / Adapt
Adapt / Slow	Rural Density Residential Low Density Residential	Urban Core or Major Corridor	Densify - Medium
Slow / Store	Rural Density Residential Low Density Residential		Densify - Medium
Adapt / Slow	Medium Density Residential	Urban Core or Major Corridor	Densify - High
Slow / Store	Medium Density Residential		Densify - High
Adapt Adapt / Slow Slow / Store	Mixed Use Business/Industrial Commercial	Major Corridor	Grow - Corridor
Adapt Adapt / Slow Slow / Store	Mixed Use Business/Industrial Commercial Public / Semi Public	Urban Core	Grow - Core



Priority Policy:
Resilient Future Land Use Strategy

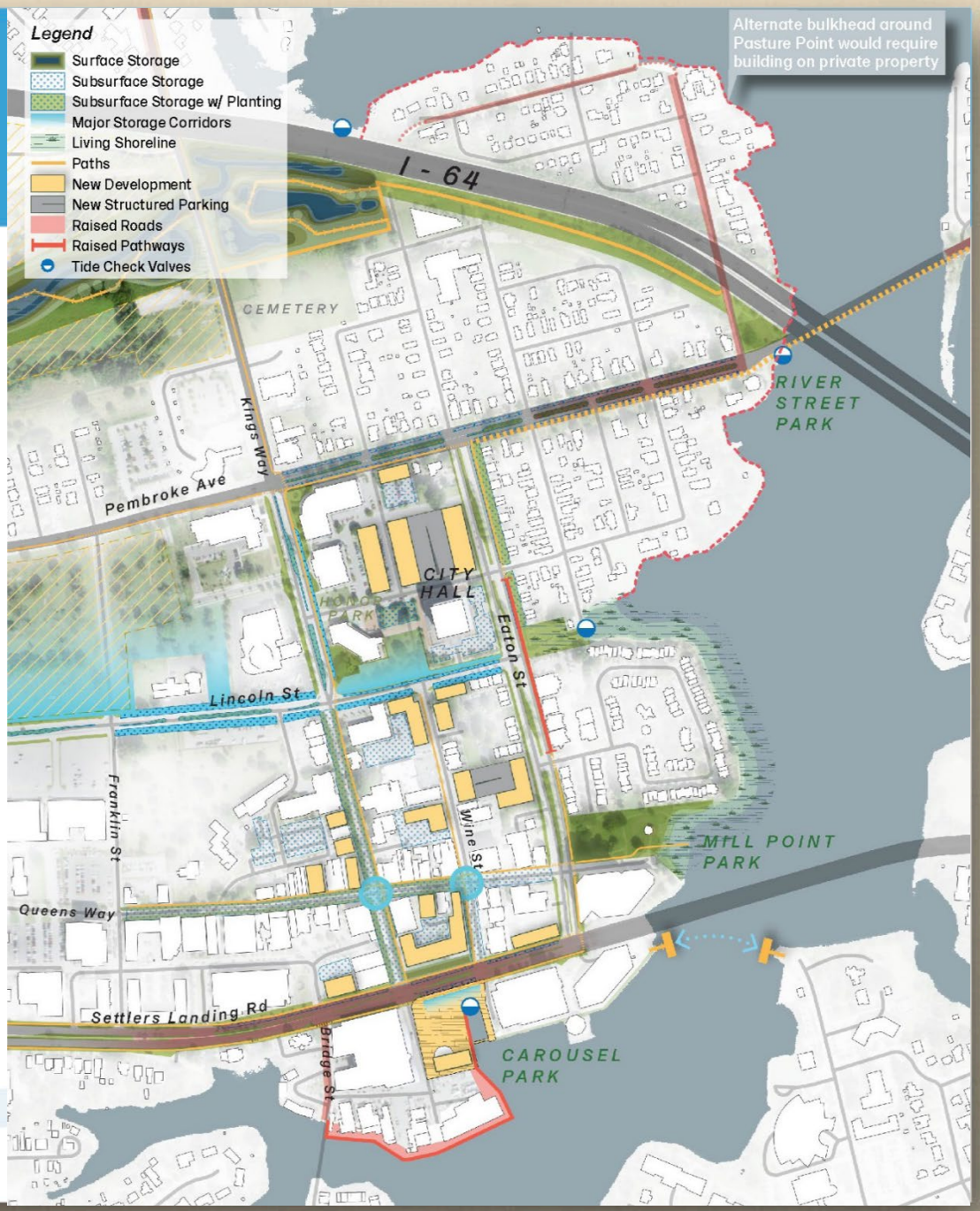


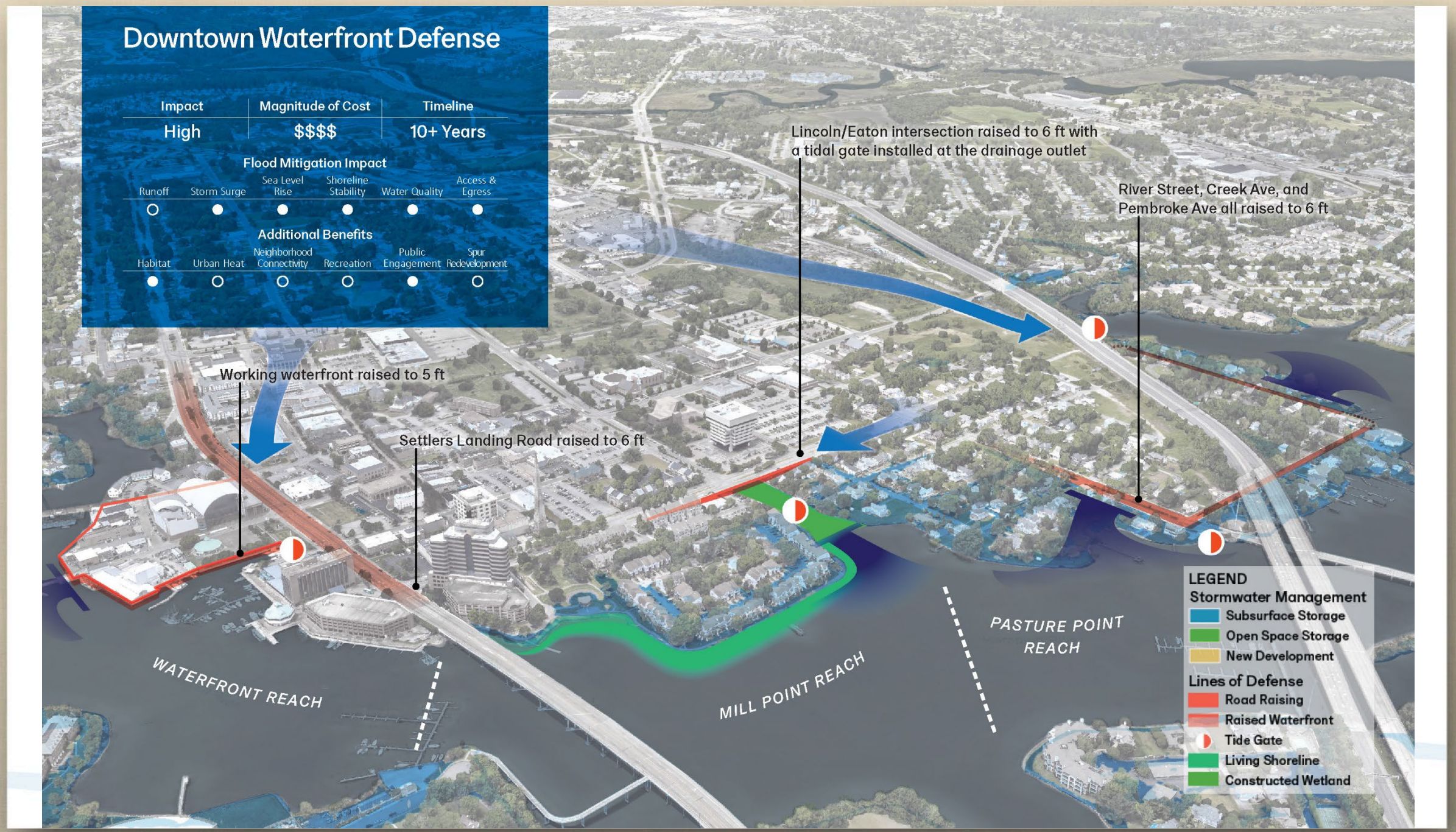
Policy Takeaways

- Integrate future flooding risks and sea level rise into long range/comprehensive planning (Hampton 2040)
  - Growing/densifying in areas of less risk
  - Conserving/adapting in areas with increasing risk
- Resilience analysis for discretionary decisions
- Consider how future development should incorporate resiliency
  - Resilient development standards & design guidelines, adaptation strategies

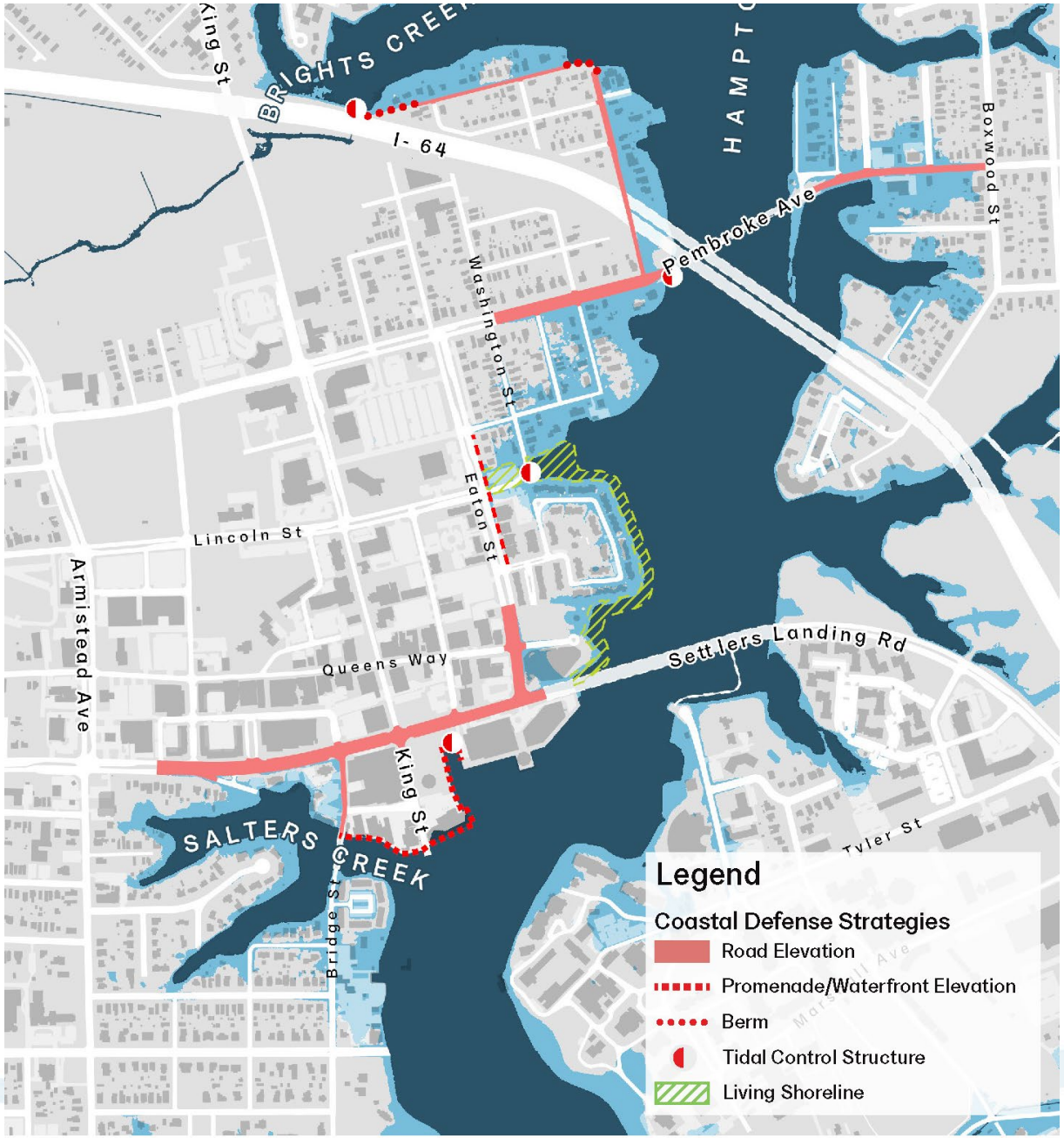
Downtown Priority Projects

- Waterfront Defense
  - Road and sidewalks raisings
  - Elevated bulkhead
  - Tidal control structures
- Water Management
  - Green infrastructure
  - Integrated BMPs
    - Sub-surface storage, tree cells



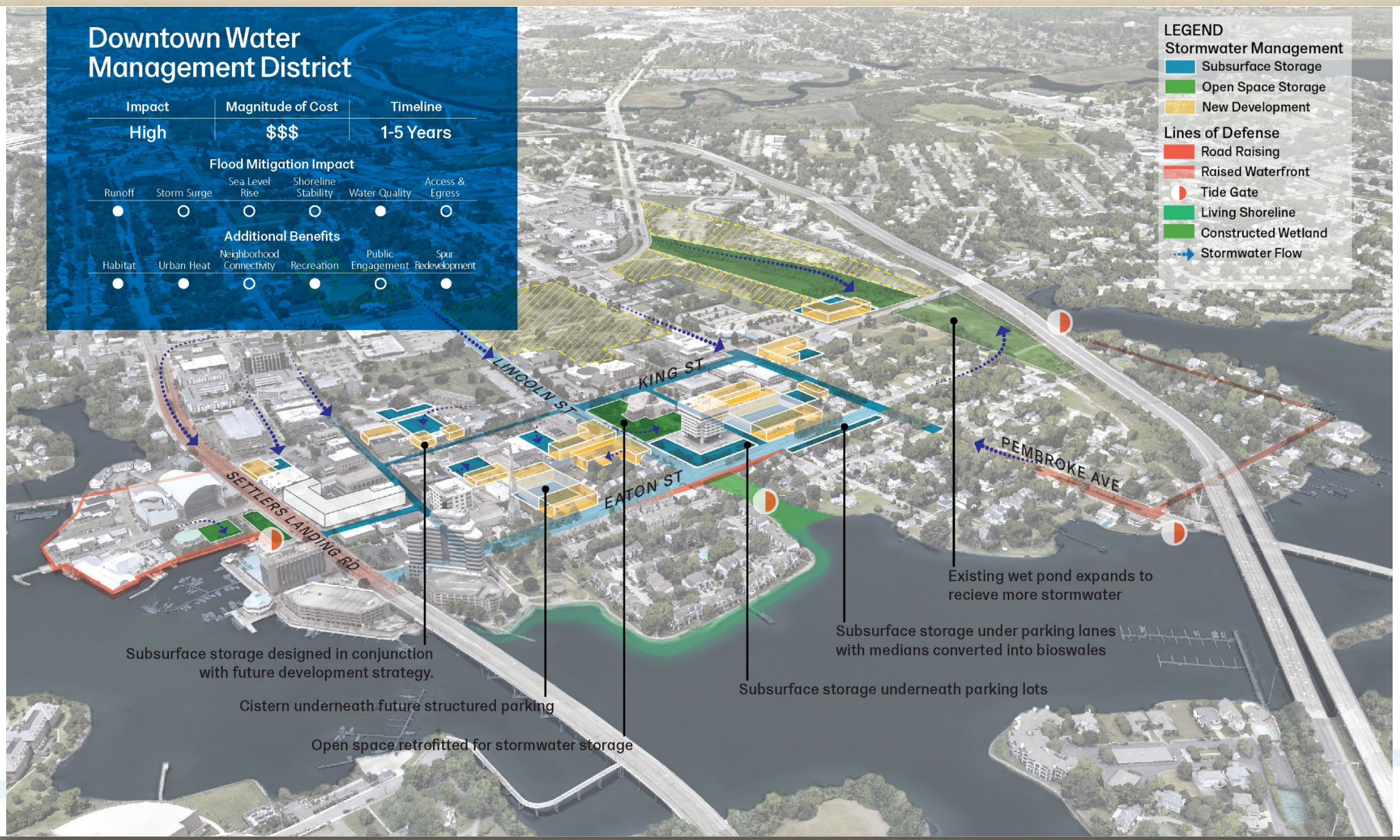

Downtown Waterfront Defense
Impact
High
Magnitude of Cost
$$$$
Timeline
10+ Years
Flood Mitigation Impact
Runoff
Storm Surge
Sea Level Rise
Shoreline Stability
Water Quality
Access & Egress
Additional Benefits
Habitat
Urban Heat
Neighborhood Connectivity
Recreation
Public Engagement
Spur Redevelopment
Lincoln/Eaton intersection raised to 6 ft with a tidal gate installed at the drainage outlet
River Street, Creek Ave, and Pembroke Ave all raised to 6 ft
Working waterfront raised to 5 ft
Settlers Landing Road raised to 6 ft
WATERFRONT REACH
MILL POINT REACH
PASTURE POINT REACH
LEGEND
Stormwater Management
Subsurface Storage
Open Space Storage
New Development
Lines of Defense
Road Raising
Raised Waterfront
Tide Gate
Living Shoreline
Constructed Wetland

Settlers Landing Road Raising

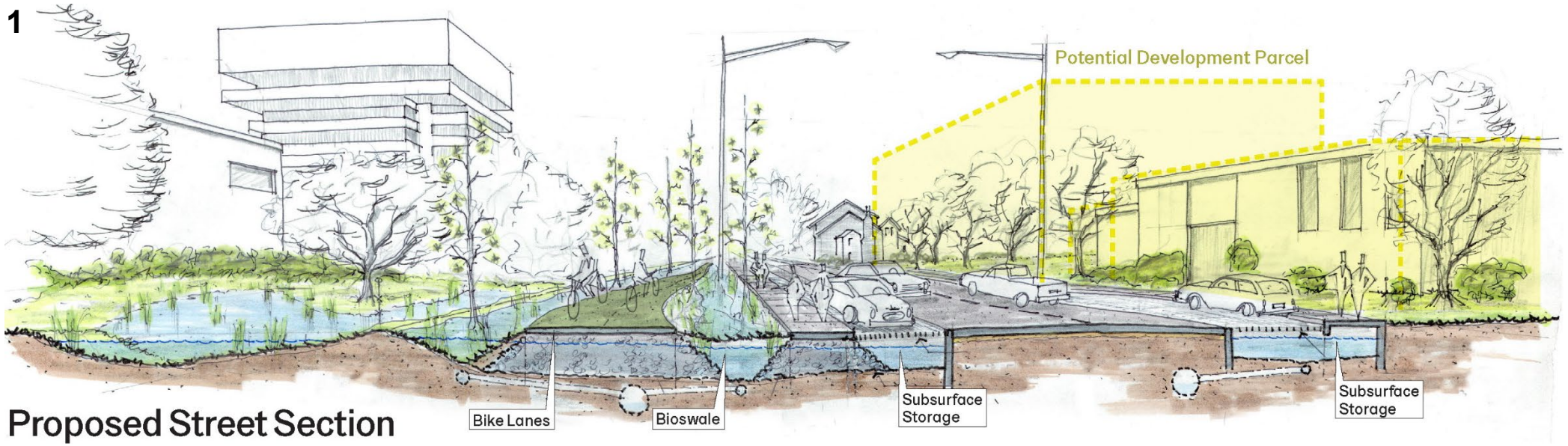


EXISTING

PROPOSED


Downtown Water Management District
Impact
High
Magnitude of Cost
$$$
Timeline
1-5 Years
Flood Mitigation Impact
Runoff
Storm Surge
Sea Level Rise
Shoreline Stability
Water Quality
Access & Egress
Additional Benefits
Habitat
Urban Heat
Neighborhood Connectivity
Recreation
Public Engagement
Spur Redevelopment
LEGEND
Stormwater Management
Subsurface Storage
Open Space Storage
New Development
Lines of Defense
Road Raising
Raised Waterfront
Tide Gate
Living Shoreline
Constructed Wetland
Stormwater Flow
LINCOLN ST
KING ST
EATON ST
SETTLERS LANDING RD
PEMBROKE AVE
Subsurface storage designed in conjunction with future development strategy.
Cistern underneath future structured parking
Open space retrofitted for stormwater storage
Subsurface storage underneath parking lots
Subsurface storage under parking lanes with medians converted into bioswales
Existing wet pond expands to recieve more stormwater

1



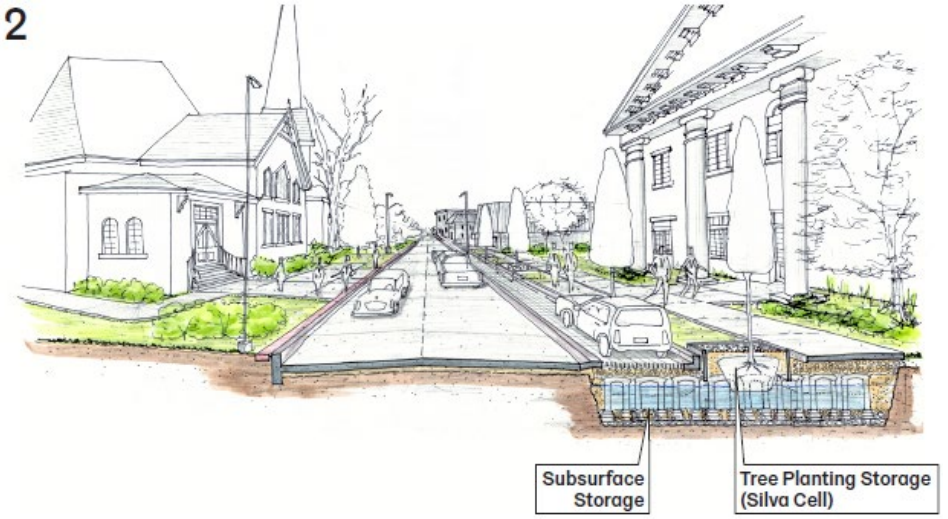
Proposed Street Section

Drive Lanes Consolidate to One Side

Median & Bike Lanes Move to One Side of the Street Expanding Right of Way & Green Spaces

Existing Street Section

2



Downtown Takeaways

- Combined projects create a system of tidal flood mitigation
  - Targeted elevation of 6 ft NAVD
  - Nuisance flooding will still exist > adaptation methods at the waterfront edges
- Maintain critical access into/out of Downtown
- Integrated stormwater management to enable redevelopment
- Build off of existing resiliency efforts in Downtown

Mellen Green Street Demonstrations

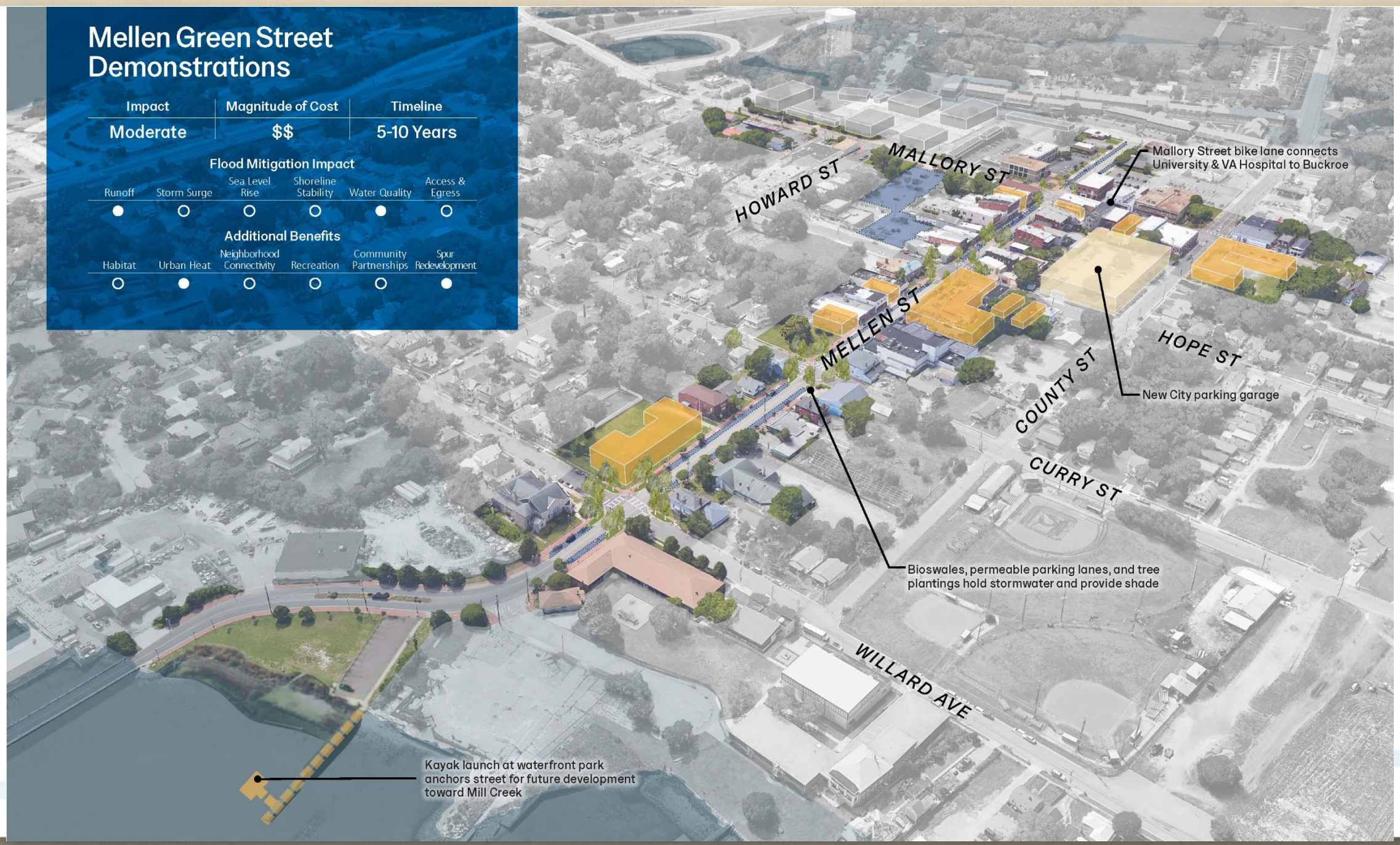
Impact	Magnitude of Cost	Timeline
Moderate	$$	5-10 Years

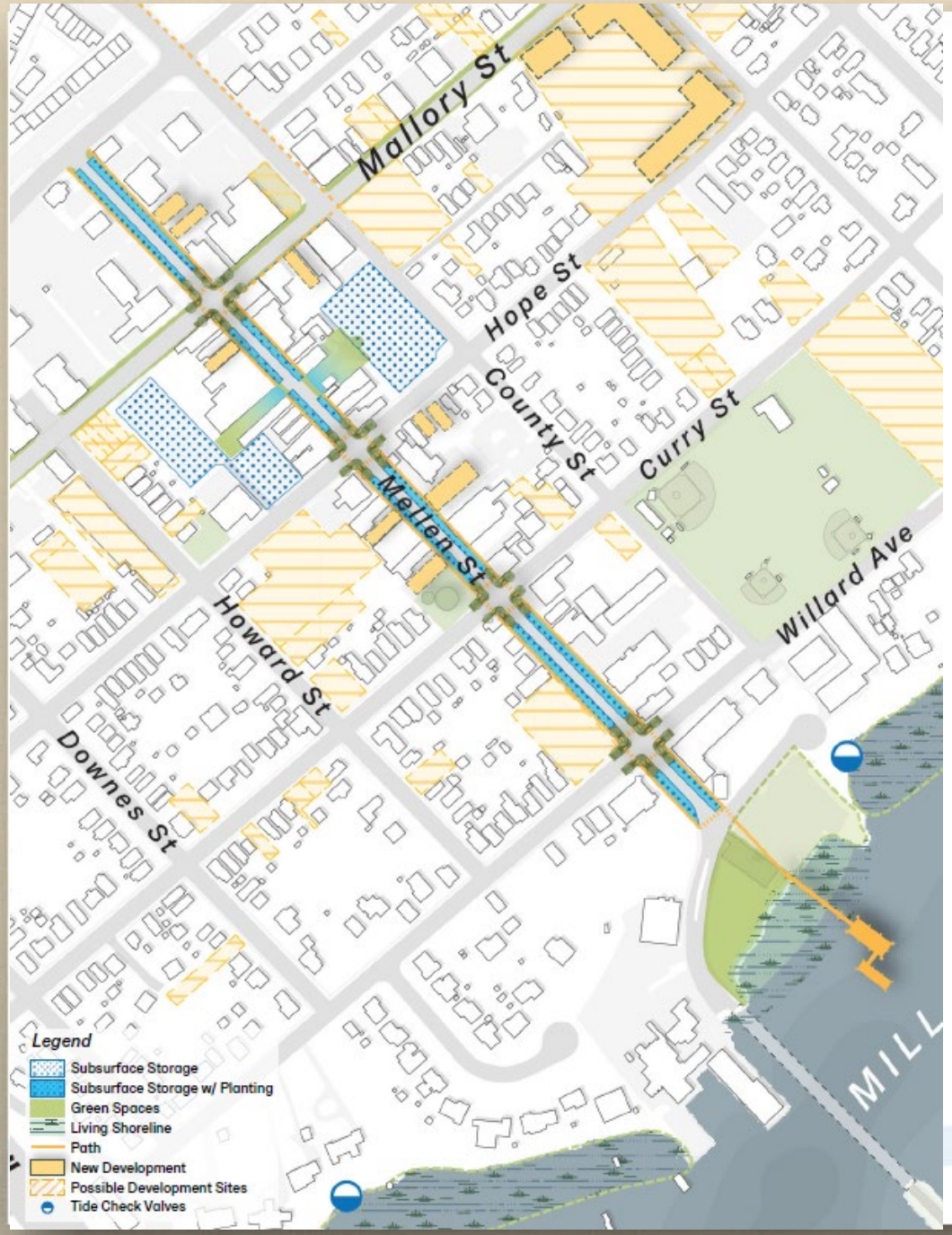
Flood Mitigation Impact

Runoff	Storm Surge	Sea Level Rise	Shoreline Stability	Water Quality	Access & Egress
●	○	○	○	●	○

Additional Benefits

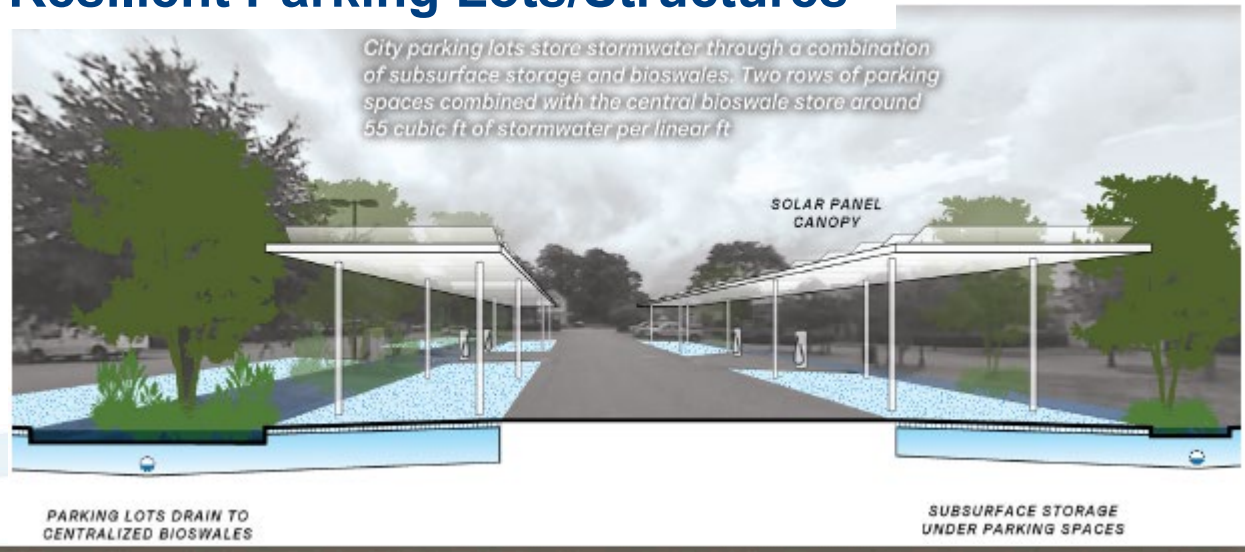
Habitat	Urban Heat	Neighborhood Connectivity	Recreation	Community Partnerships	Spur Redevelopment
○	●	○	○	○	●





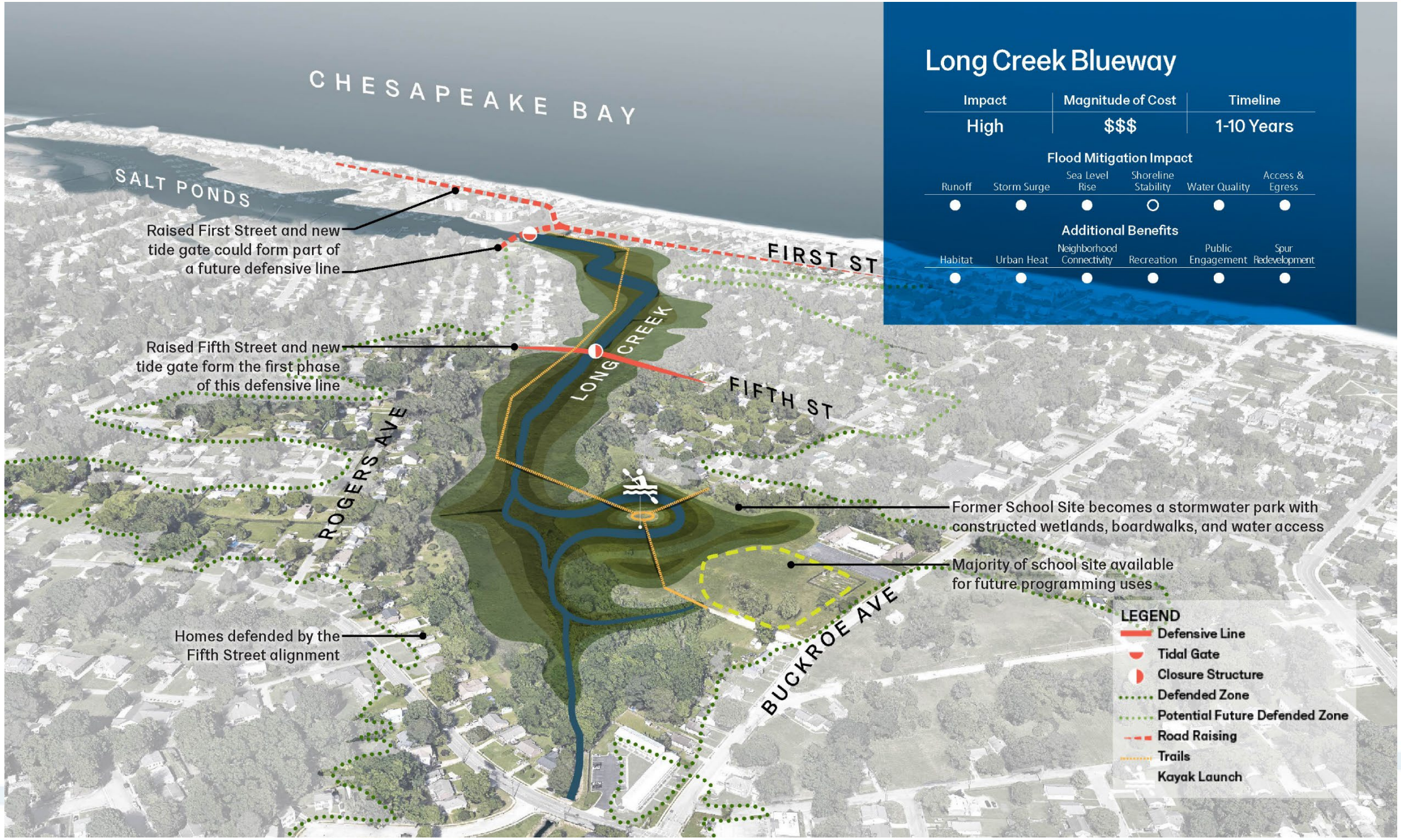
Integrated Stormwater

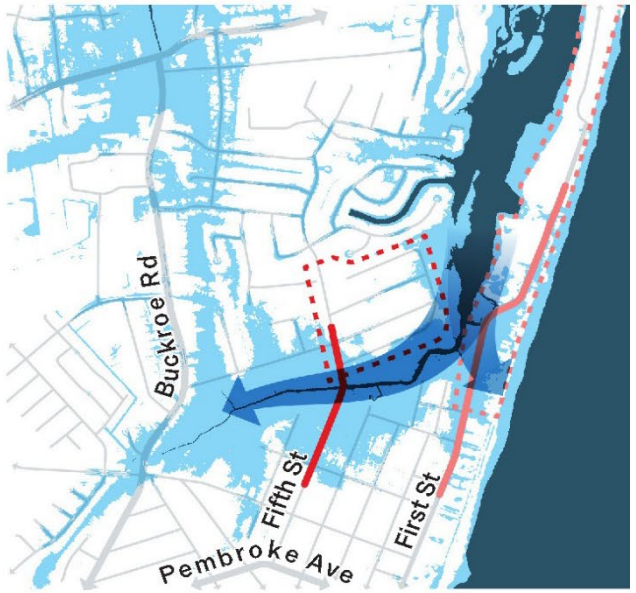
Resilient Parking Lots/Structures



Phoebus Takeaways

- Less risk of tidal flooding than Downtown or Buckroe
- Capitalize and enhance character of Phoebus with replicable demonstration projects
- Existing neighborhood and grassroots support for resiliency efforts
  - Phoebus Living Shoreline


CHESAPEAKE BAY
SALT PONDS
Raised First Street and new tide gate could form part of a future defensive line
FIRST ST
LONG CREEK
Raised Fifth Street and new tide gate form the first phase of this defensive line
FIFTH ST
ROGERS AVE
Former School Site becomes a stormwater park with constructed wetlands, boardwalks, and water access
Majority of school site available for future programming uses
BUCKROE AVE
Homes defended by the Fifth Street alignment
Long Creek Blueway
Impact
High
Magnitude of Cost
$$$
Timeline
1-10 Years
Flood Mitigation Impact
Runoff
Storm Surge
Sea Level Rise
Shoreline Stability
Water Quality
Access & Egress
Additional Benefits
Habitat
Urban Heat
Neighborhood Connectivity
Recreation
Public Engagement
Spur Redevelopment
LEGEND
Defensive Line
Tidal Gate
Closure Structure
Defended Zone
Potential Future Defended Zone
Road Raising
Trails
Kayak Launch



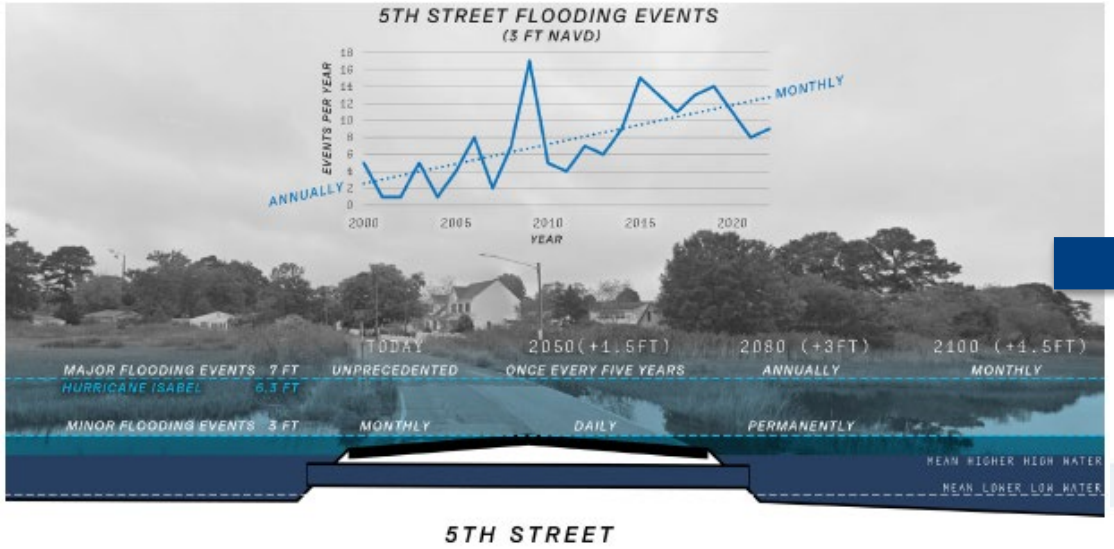
Road Flooding and Disconnected Neighborhoods

Lines of Defense Options

First Street (Existing)

First Street Raising Option

Fifth Street (Existing)



Fifth Street Raising Option

Former Buckroe School Site

Potential Living with Water Park and Boardwalk

Buckroe Takeaways

- Ensure critical access to neighborhoods that already experience regular nuisance flooding
- Layer storm surge defense for inland neighborhoods
- Reduce flood risk for repetitive loss properties
- Creating a network of trails along Long Creek to enhance recreational opportunities
  - Partnership with Hampton City Schools

Water Plan Takeaways

Unified Vision

- Protecting and adapting our historic urban waterfront cores
- Creating inspiring neighborhood connections to the water
- Implementing holistic, resilient design strategies for the future of Hampton

Deep Dive Road Map

3

Where we're headed

Future directions

Challenges

Next Steps
Water Plan Schedule

- July 13th: Community Engagement
  - Two meetings (mid-day & evening)
  - Additional community engagement ongoing through July
- July 20th: Planning Commission Briefing
- August 17th: Planning Commission Public Hearing
- September 13th: City Council Public Hearing

Next Steps
Water Plan Community Engagement

- Additional Community Meetings

- Briefing to Boards and Commissions
  - Planning Commission
  - Wetlands Board
  - Neighborhood Commission
  - Youth Commission

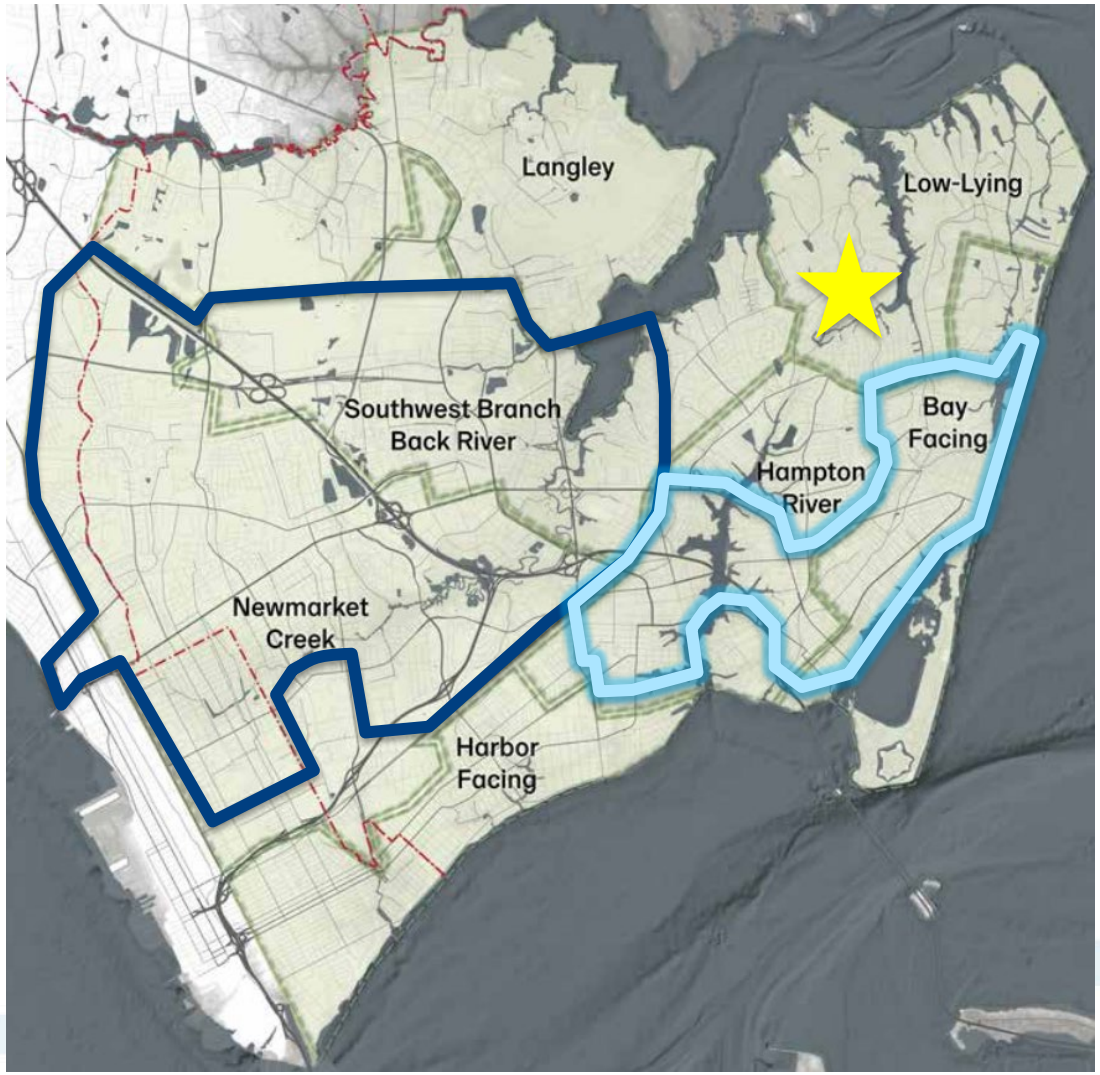
Next Steps
Policy for Community Plan

- Incorporate recommended policies and items for deeper analysis into community plan
  - Future Land Use
  - Infrastructure Investments
  - Etc.

Next Steps
Existing Project Implementation

- Unprecedented amount of federal funding available for resiliency projects
- Challenges
  - Local grant matching funds *(sometimes waived for disadvantaged communities)*
  - Priority given to shovel-ready projects
    - Need consistent funding to create a pipeline of projects to leverage grant money *(EIB has been critical)*

Next Steps
Continued Resiliency Planning



Key Takeaways & Questions

1. Staff recommends pursing the projects, programs, policy outlined in the plan
2. Staff is seeking Council concurrence on the projects, programs, and policy presented in the plan

HAMPTON VA

Thank you!

resilient@hampton.gov

hampton.gov/resilient

Olivia Askew, Resiliency Specialist
Scott Smith, Senior Civil Engineer / Project Manager
Rami Diaz, Waggoner & Ball