Resilience

PLANNING AT THE MUNICIPAL AND REGIONAL SCALE

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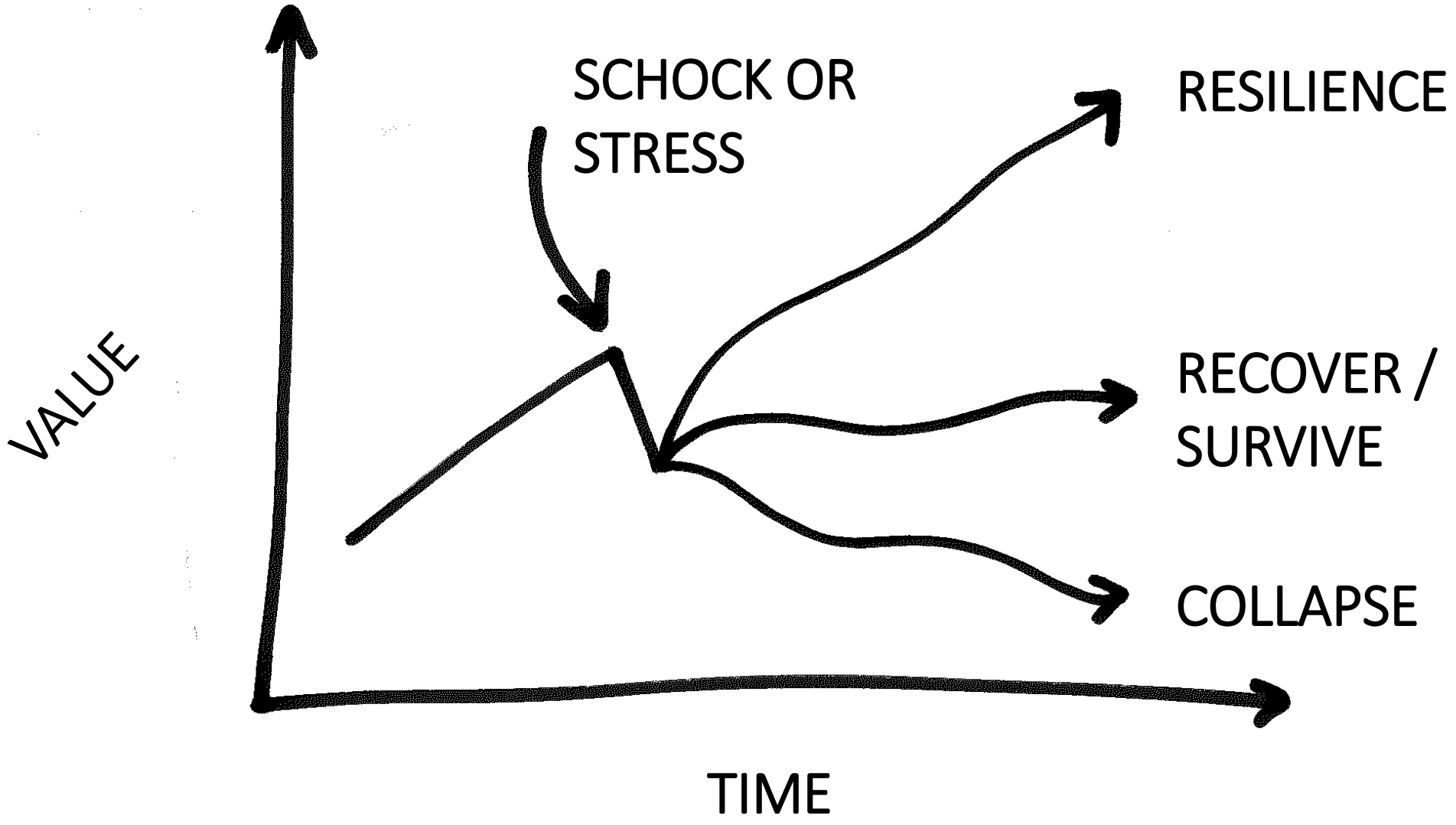
Is “Resilience” Just the New Planning Buzzword; Isn’t it the Same as “Sustainability” or “Adaptation”

“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”
- Our Common Future, World Commission on Environment and Development (Brundtland)

“Urban resilience is the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt, and grow no matter what kinds of chronic stresses and acute shocks they experience.”
- 100 Resilient Cities, Rockefeller Foundation

“Climate Adaptation is the adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.”
- Intergovernmental Panel on Climate Change


SCHOCK OR
STRESS
RESILIENCE
RECOVER /
SURVIVE
COLLAPSE
VALUE
TIME

Shocks and Stresses Vary by Community and Scale

Shocks / Acute

- Flooding
- Heat Wave
- Terrorist Attack
- Disease Outbreak

Stress / Chronic

- Housing Affordability
- Poor and Inequitable School Performance
- Economic Shifts (Unemployment, Commercial Vacancy)
- Outdated Infrastructure
- Fiscal Instability


PARK CITY SUP

REBUILD BY DESIGN

WB unabridged w/ Yale ARCADIS

LANDSCAPE TYPES

CONSTRAINED LAND, FEW TAXES

PHASE ONE PROJECTS

WATER CITY
WORK AND PLAY

Once known as the Arsenal of Democracy with materials brought in from the Sound, infrastructure developed along the waterways. Progressively activities abated, the city lost its connection to the rivers, turned its back on its prime asset and reason to be, the water system.

DOWNTOWN
BRIDGE AND PORT

Cars, trucks and trains pass through Downtown, the locus of Bridgeport's health and resilience. The ferry connects at the Port across the Sound to Long Island. Yet too few people stop and walk, shop or eat here. In an era of globalization and regionalism, given the centrality of Manhattan and the proximity of Bridgeport, development is nearly inevitable. Protection and connection are provided by a Waterside Promenade that coordinates and aligns with train platforms in current or shifted locations. Long term Northeast Corridor highway and rail system relocations need further study, though benefits to Downtown are evident. An Urban Design Center, operating in conjunction with universities will focus on smart adaptation strategies. Foremost is to give Bridgeport back its bridge, and rebuild Congress Street Bridge. This vital investment will regenerate commerce, the lifeblood of resiliency, by restoring the lost connection from the East Side and Washington Square to Downtown, marked by a new Congress Green at the foot of Middle Street.

D3

Congress Street Bridge and Green

D1 + 2

Downtown Loop and Floodwall

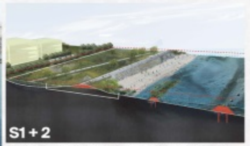
D4

Downtown Design Center and Community Development

ENGAGEMENT
SHARING STORIES

SOUTH END
PROTECTING THE COMMUNITY

Beginning at the back of Olmsted's Seaside Park, protecting the neighborhood with its historic buildings and developments including the University of Bridgeport, a multipurpose berm continues west through the park and north towards Downtown. This new landscape asset, combined with onshore treatment park and offshore living shoreline, adds value and creates opportunities in spatial as well as risk reduction terms. Resilience is embedded at the center of community here.



S1 + 2

Multifunctional and Integrated Protective Alignment and Living Shoreline: Constructed Breakwaters with Wetland

S3

Neighborhood Transformation Grant with Resilience Education and Community Center

PEQUONNOCK RIVER
CLAIM THE EDGE, PARK TO PARK

Rarely is a river so ripe for reclamation as the Pequonnock. Connecting water and park systems from Olmstead's freshwater Beardsley Park to brackish Seaside Park allows a string of improvements that nurture resilience. Conditions and locations needed for aquaculture are prioritized as room is given back to the flood plain. The network of East Side Green Streets mitigates runoff and pollution, demonstrating watershed benefits at neighborhood scale. Repetitive loss properties near the intersection of the river with US 1, where a marginal shopping center is built on top of the confluence with Island Brook, are targeted for reorganization, to allow daylighting the water system, commercial revitalization, upscaling and reorientation of development to the water, and creation of a new upland entry for Bridgeport.

P1

East Side Green Streets

P2

Lower Pequonnock Design and Implementation Plan

ABUNDANCE
AT THE WATER'S EDGE

BLACK ROCK HARBOR
POWERING THE CITY

Setting the next standard, technical innovations to protect the new generation Eco-Industrial Park are proposed and planned, including a later phase Bridge with Integral Barrier. The Elevated Infrastructure Corridor network is a key public investment with large storm water and utility distribution benefits, the first step in a series of needed public and private adaptations. These include phased improvements for the housing development up the corridor above the Offshore Treatment Park, for Black Rock, the battery that powers Downtown.

Manufacturing Innovation

B1

Elevated Infrastructure Corridor

B2

Offshore Outfall Park with Study for Onshore Mitigation and Neighborhood Transformation

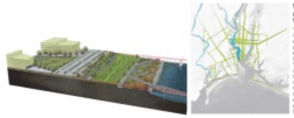
B3

Comprehensive Feasibility Study for Bridge with Integrated Surge Protection

CITY AT RISK
STORMS ON THE HORIZON

GROWTH

NEIGHBORHOOD REVITALIZATION AND ECONOMIC DEVELOPMENT



WATERSHED

CENTERS

Resilience, Education and Design

INTEGRATED LINES

PROTOTYPE FOR COASTAL CITIES

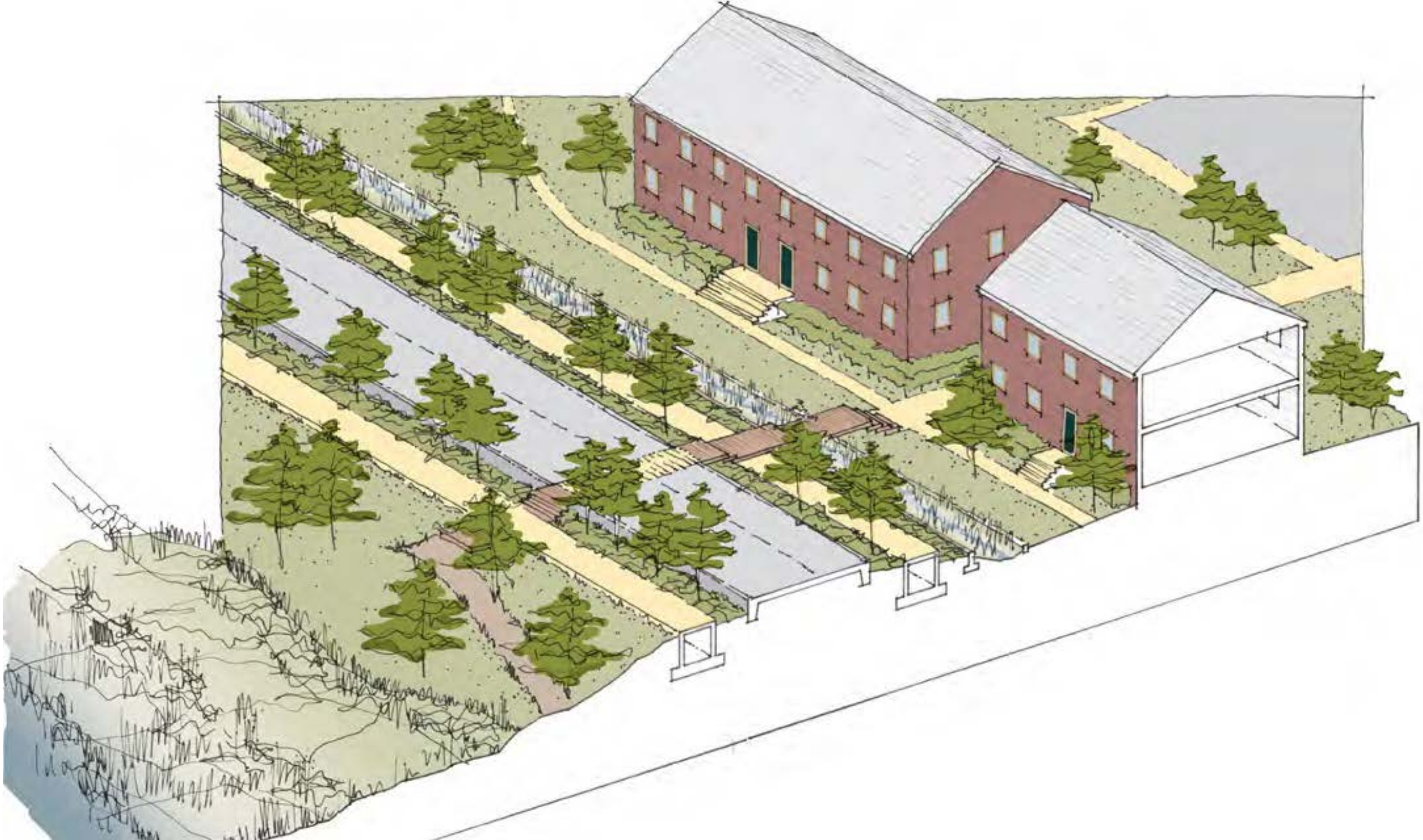
Learning from and working with nature is key to future safety and prosperity for neighborhoods and cities up and down coastal Connecticut.

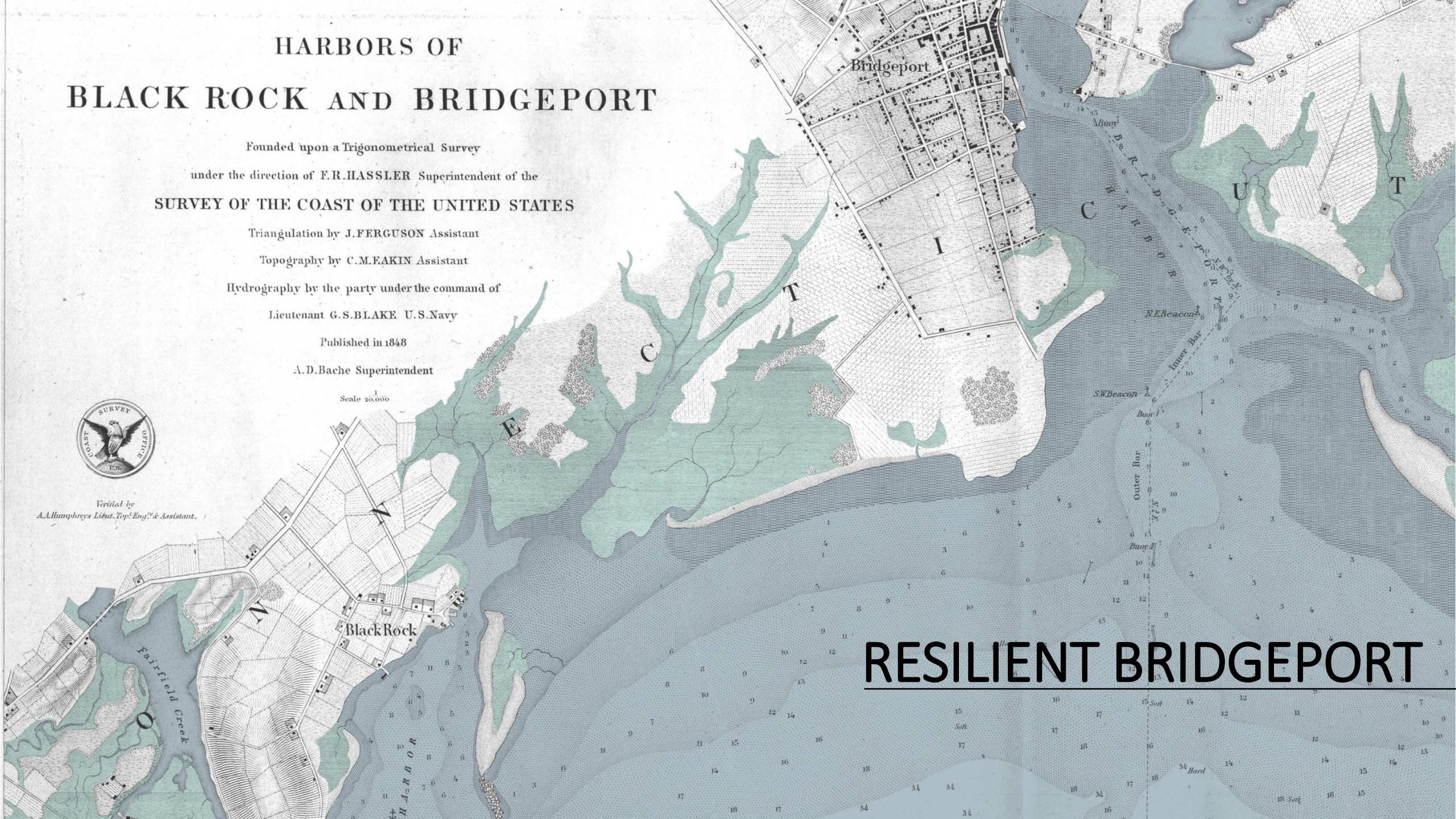
MODEL FOR THE SOUND

RESILIENT BRIDGEPORT
CLAIM THE EDGE, CONNECT THE CENTER

Thinking in time, working with space, we conceive combinations of natural and fortified solutions to facilitate more resilient forms of inhabitation in the places most at risk from sea level rise and severe storms.

Living and working in Bridgeport and along the Connecticut coastline and waterways can be done in ways that restore the environment, strengthen connectivity, enhance the urban and regional economy, reduce long term risk, restore the primacy of the city's coast and waterways, and stimulate downtown to make it central to the city's identity. To this end we have pursued innovation as a means to a goal, incrementalism, understanding that solving an identified problem will catalyze something else, and integration, so that all works together for the vitality and resilience of Bridgeport.





RESILIENT BRIDGEPORT

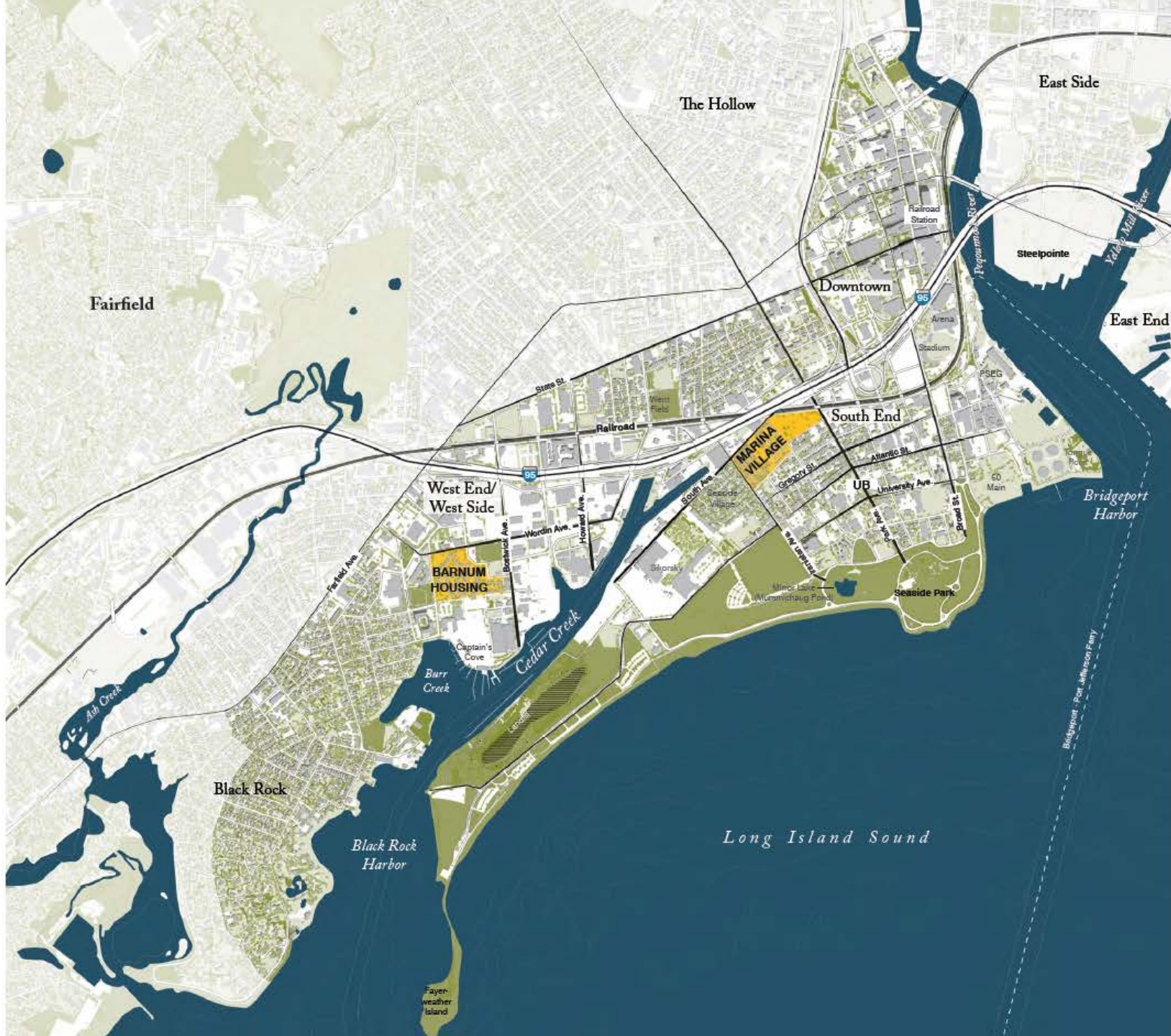
Study Area

Surrounded by water and bounded by **State Street, Fairfield Avenue, and downtown,** Bridgeport's low-lying South End, Black Rock Harbor, and Cedar Creek area host vibrant and diverse communities. This area is home to residential neighborhoods, multiple historic districts and landmarks, productive industrial facilities, educational institutions, regional transportation systems, and critical regional energy and wastewater infrastructure that face growing environmental challenges.

Investment zones for the Resilient Bridgeport project have been selected because of their vulnerability and unmet needs, historic character, and critical infrastructure in response to HUD's directive to:

- Reduce flood risk for the most vulnerable communities, particularly the public housing developments in the city's South End/Black Rock Harbor area.
- Address unmet recovery needs caused by Hurricane Sandy and other natural events in calendar years 2011, 2012, and 2013.
- Leverage significant match funding from the State of Connecticut and local funds.

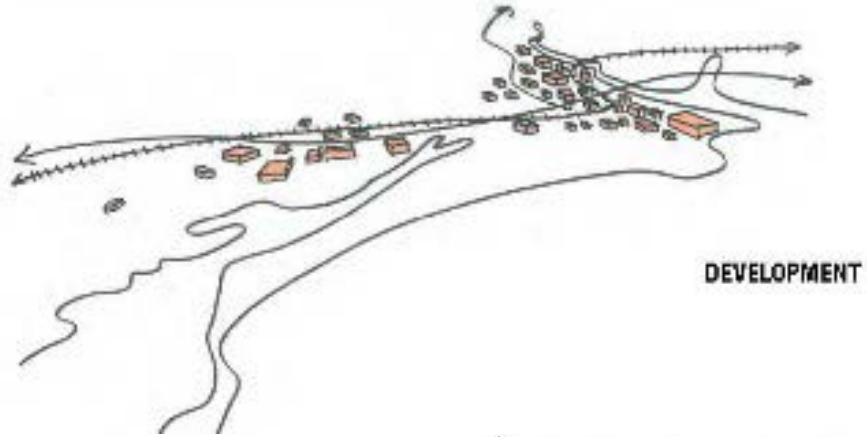
Sources
1. City of Bridgeport
2. Sanborn
3. National Hydrography Dataset



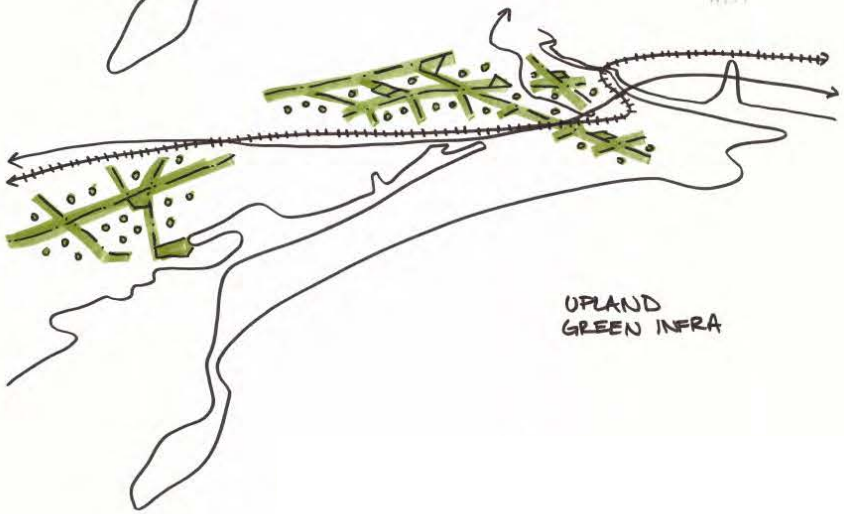
LEGEND

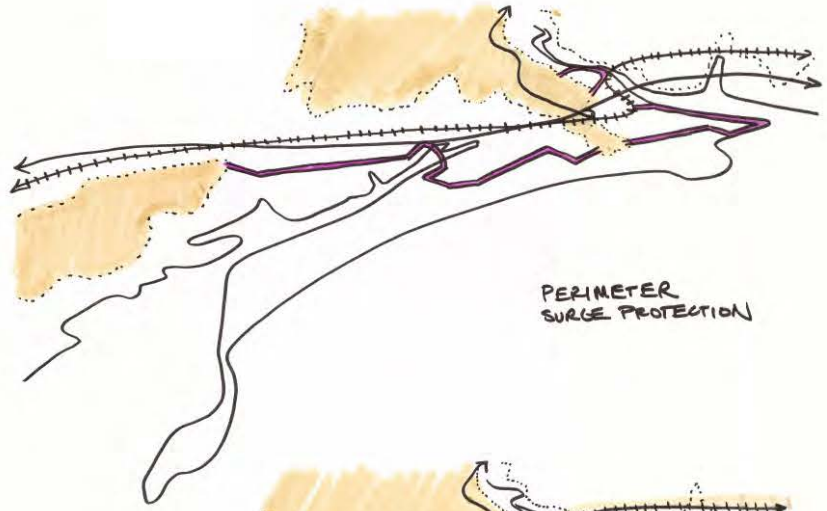
- Public Housing
- Impervious Surface
- Pervious Surface
- Park
- Tree Canopy
- Buildings & Structures
- Water
- Corridors

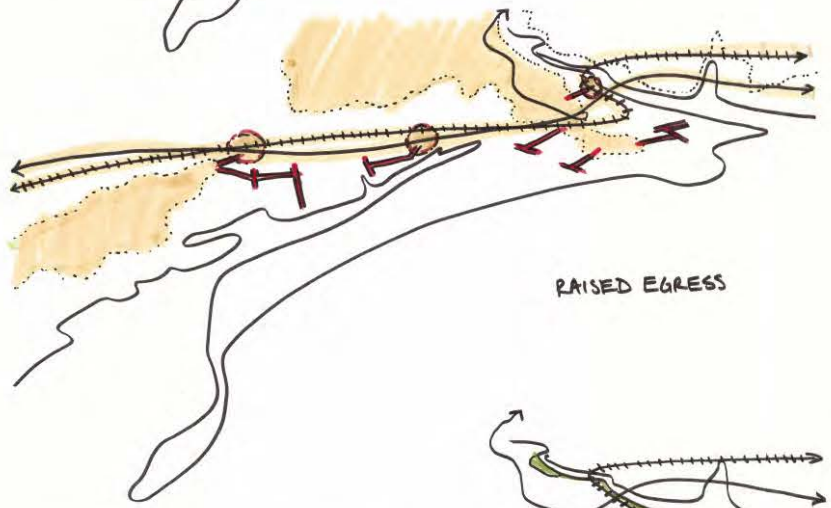
feet
0 500 1,000 2,000 3,000

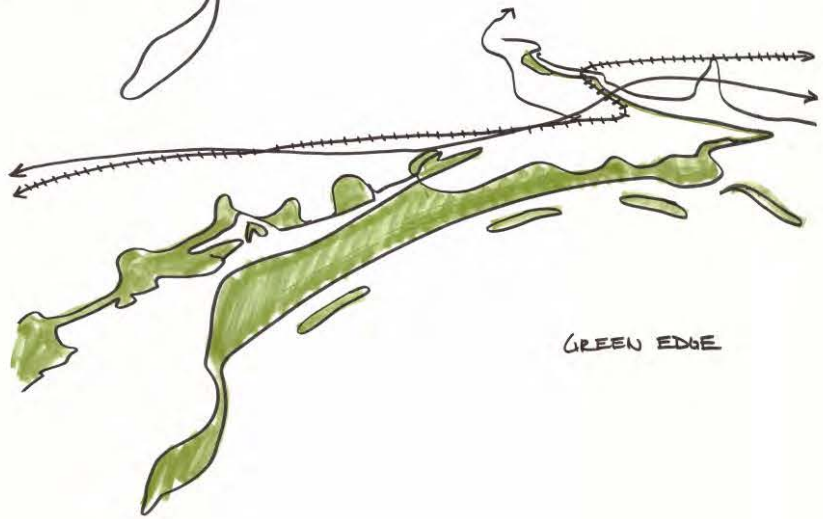

DEVELOPMENT

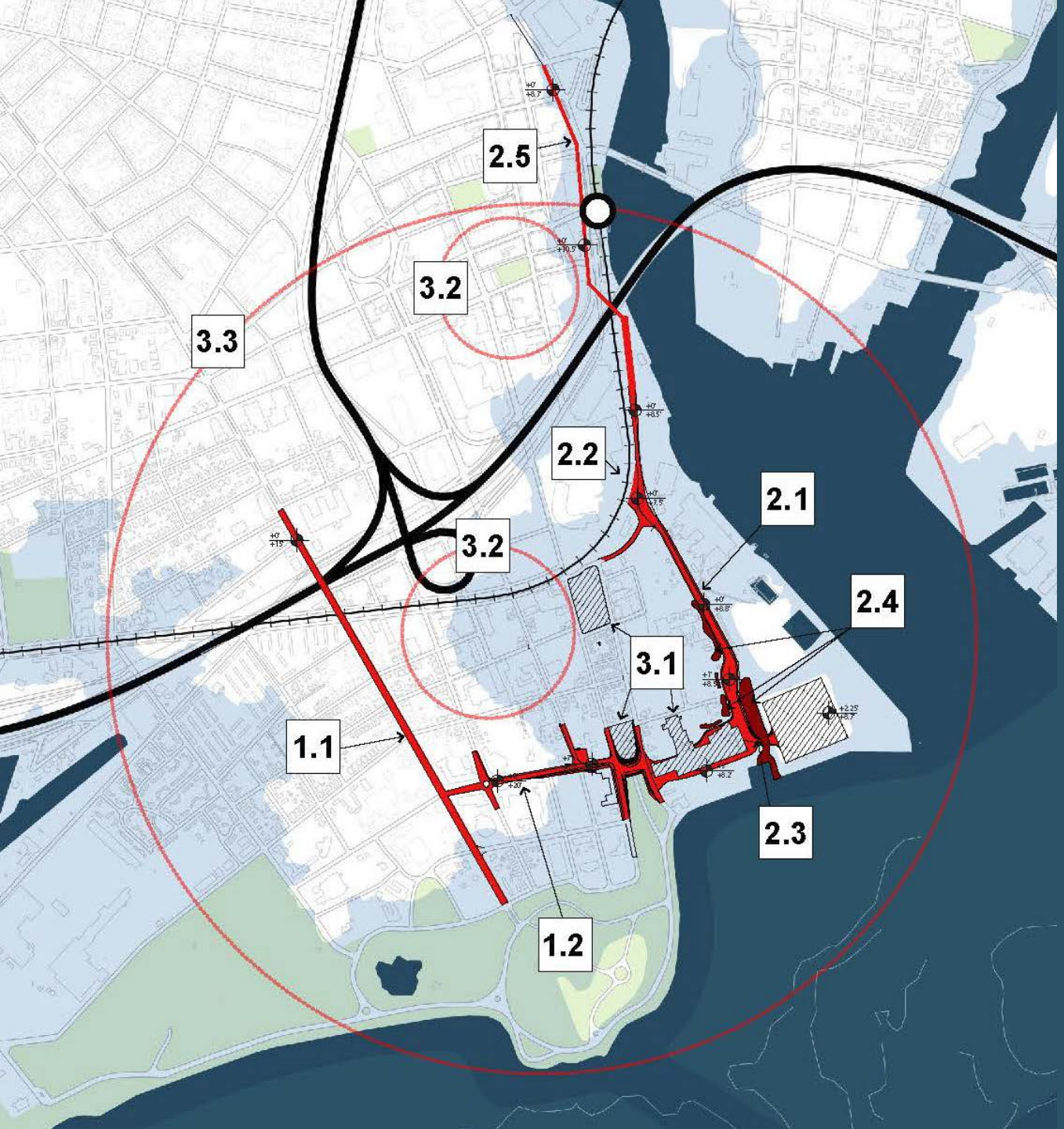

MICROGRIDS
·ELECTRIC
·THERMAL
·STORMWATER


UPLAND
GREEN INFRA


PERIMETER
SURGE PROTECTION


RAISED EGRESS


GREEN EDGE



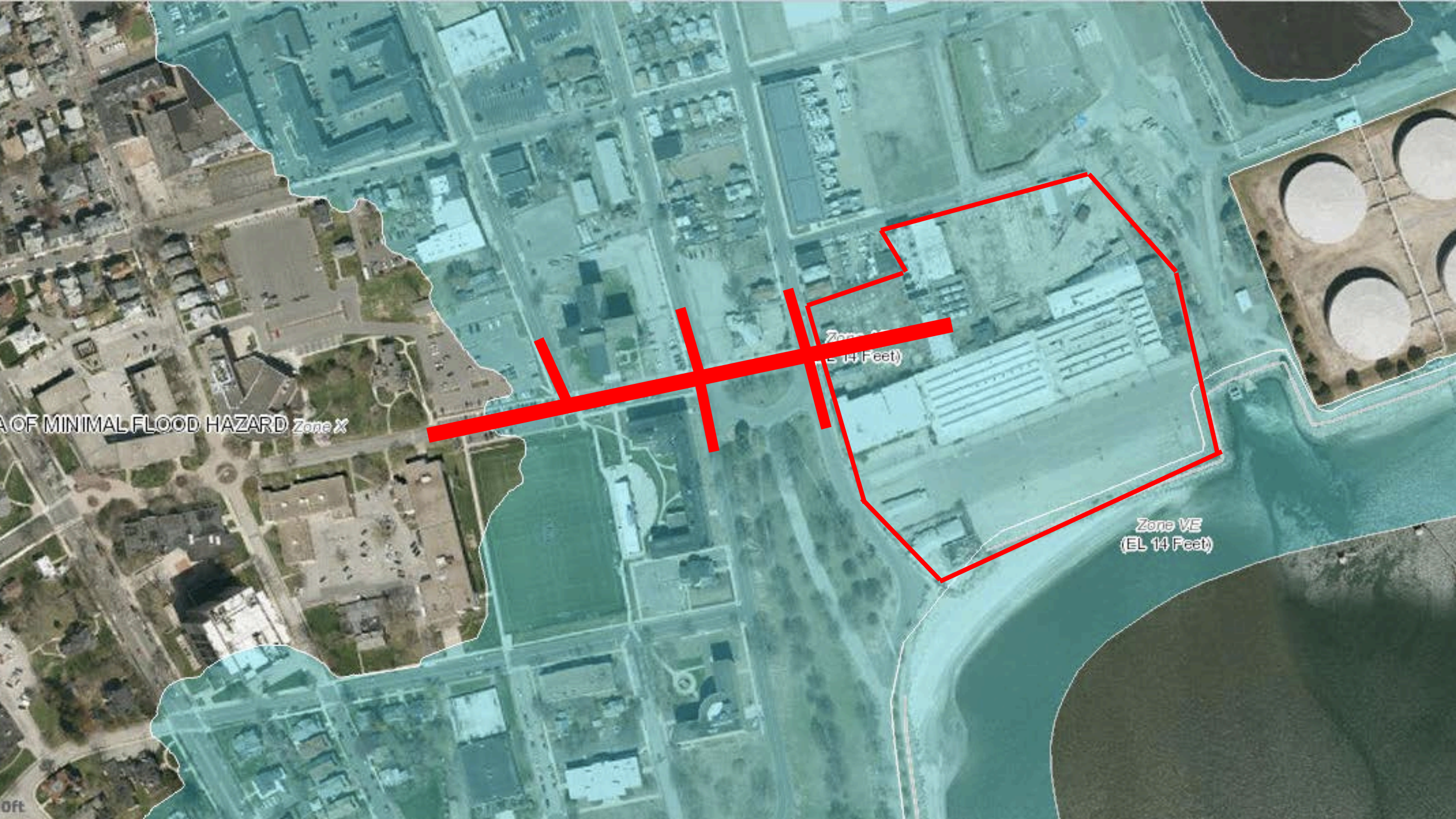
1 – University Avenue raised resilient corridor

2 – Earthen berm, greenway, and outfall park

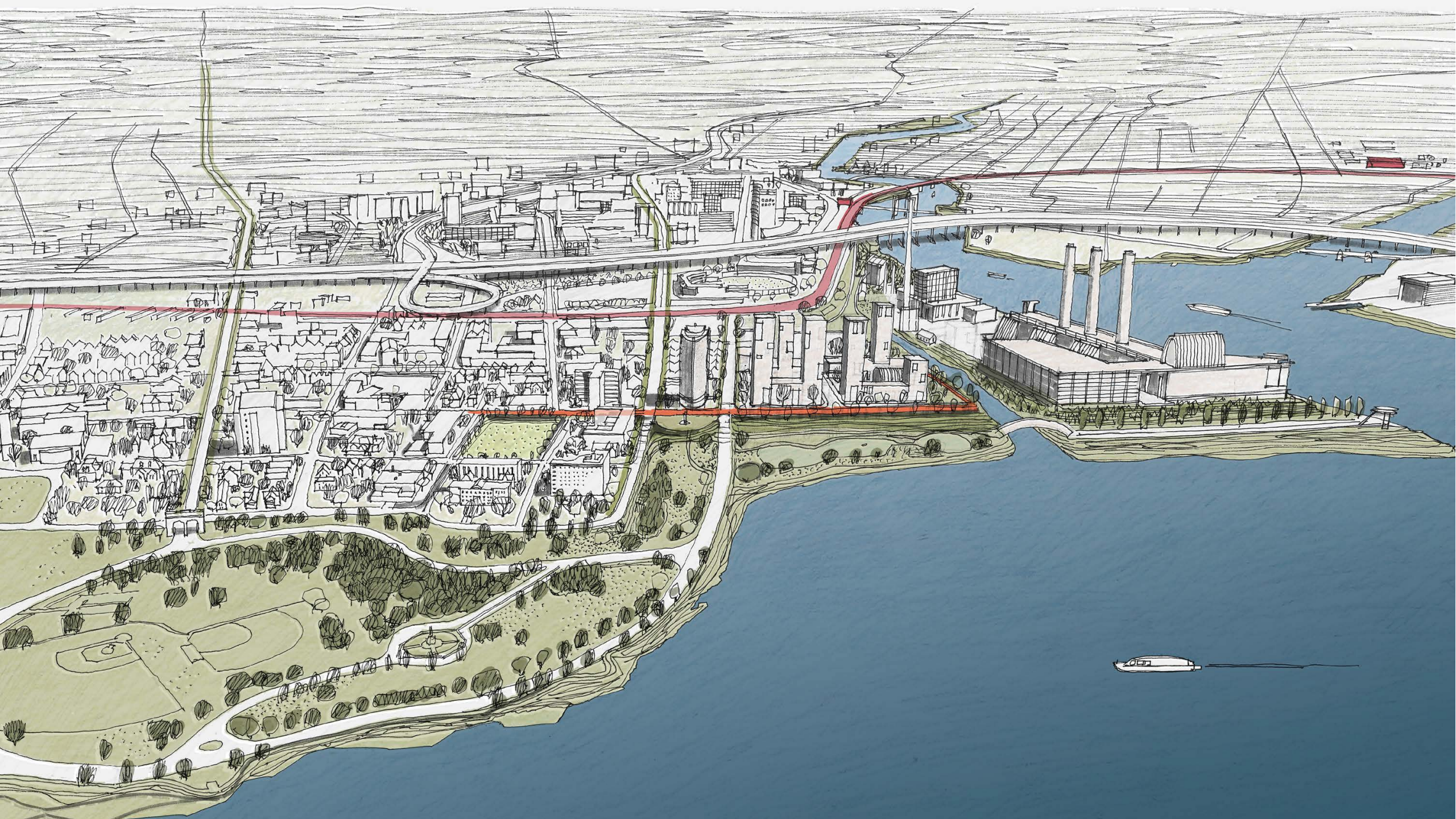
3.1 – Floodplain design guidelines

3.2 – Community Resilience Design Center

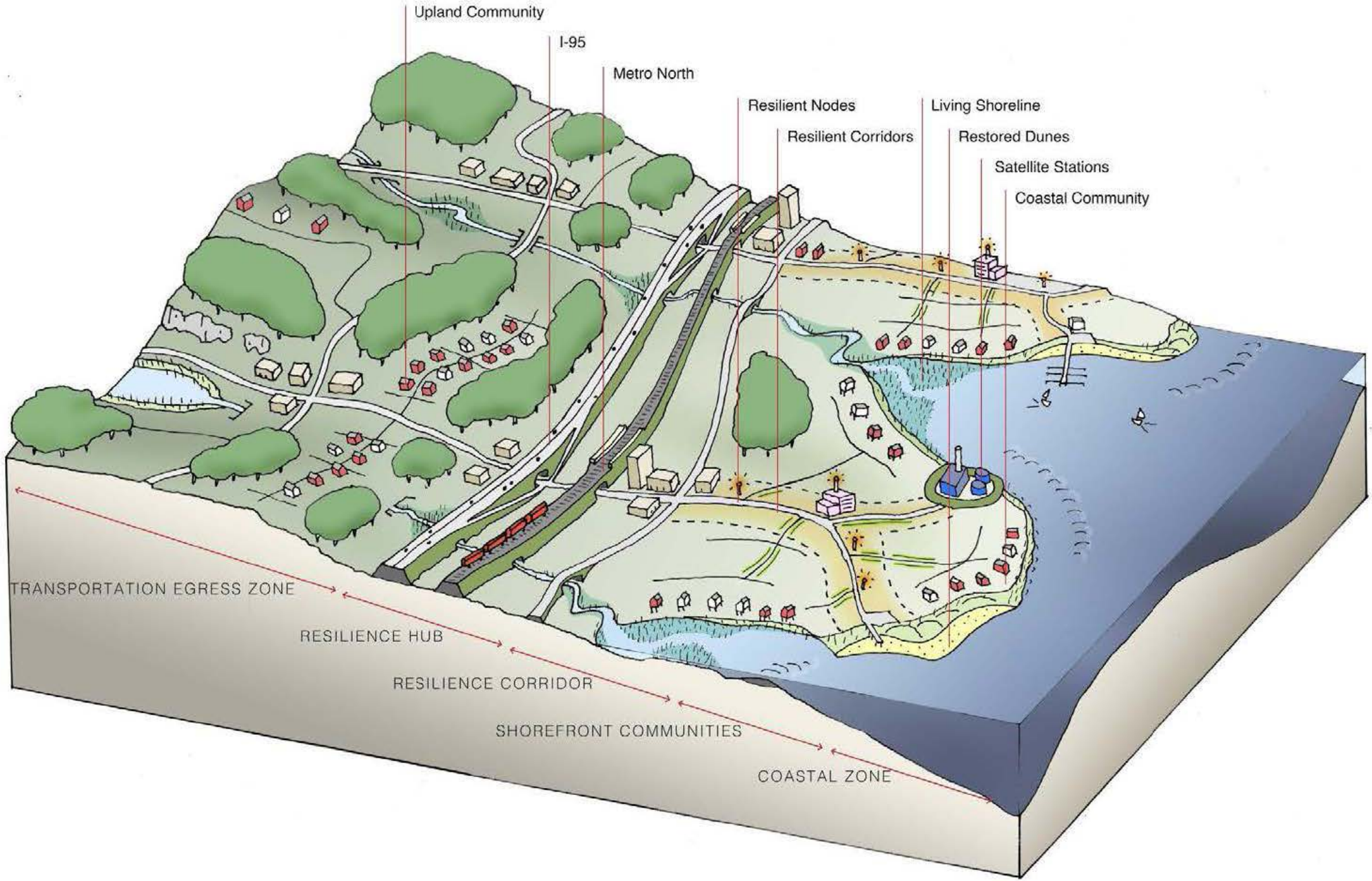
3.3 – District energy study

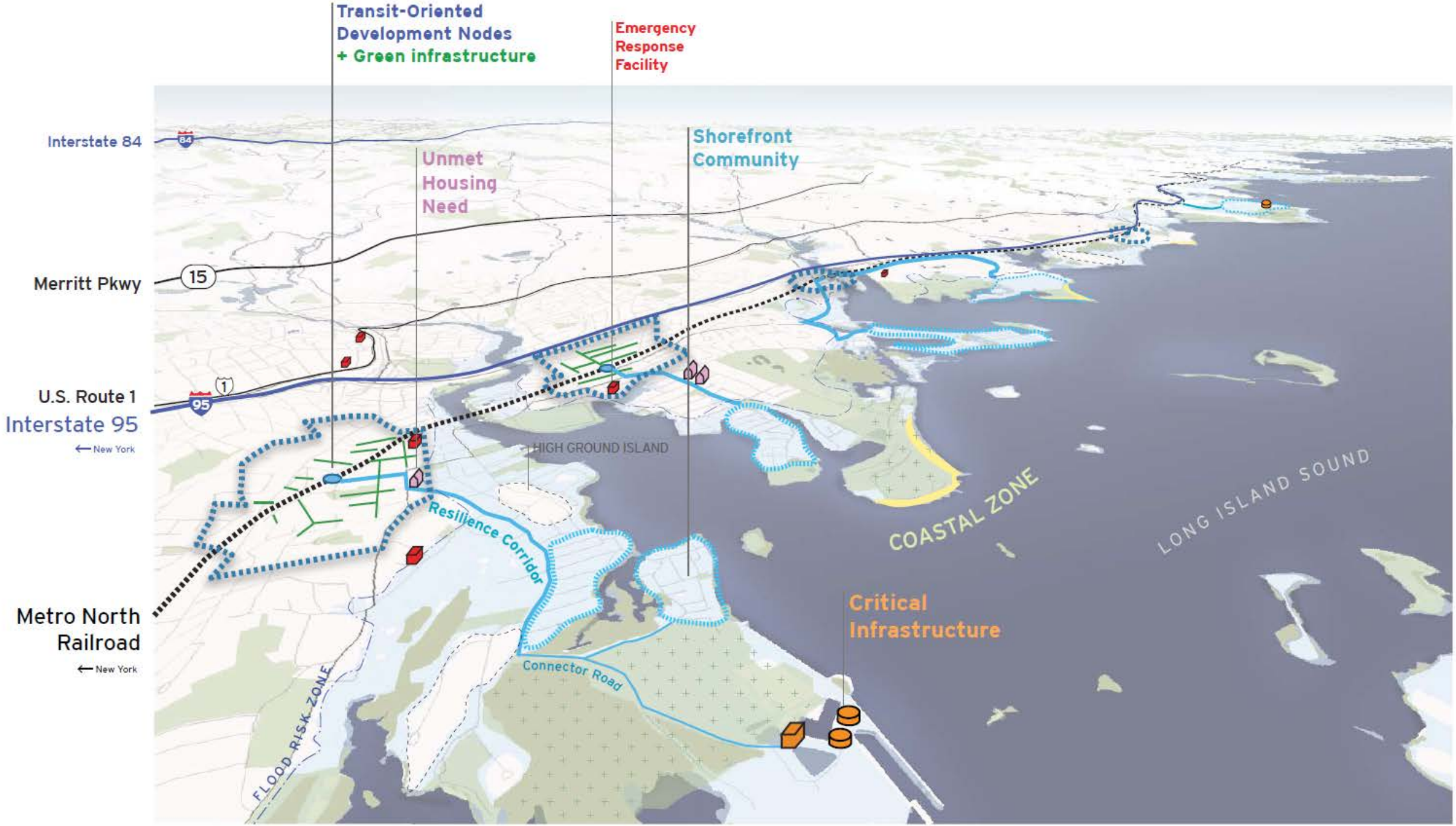

A OF MINIMAL FLOOD HAZARD Zone X
Zone VE
(EL 14 Feet)


A OF MINIMAL FLOOD HAZARD Zone X
Zone AE
(EL 14 Feet)
Zone VE
(EL 14 Fee



CONNECTICUT CONNECTIONS


Upland Community
I-95
Metro North
Resilient Nodes
Resilient Corridors
Living Shoreline
Restored Dunes
Satellite Stations
Coastal Community
TRANSPORTATION EGRESS ZONE
RESILIENCE HUB
RESILIENCE CORRIDOR
SHOREFRONT COMMUNITIES
COASTAL ZONE


Transit-Oriented
Development Nodes
+ Green infrastructure
Emergency
Response
Facility
Interstate 84
Unmet
Housing
Need
Shorefront
Community
Merritt Pkwy
15
U.S. Route 1
Interstate 95
New York
HIGH GROUND ISLAND
Resilience Corridor
COASTAL ZONE
LONG ISLAND SOUND
Metro North
Railroad
New York
Critical
Infrastructure
Connector Road
FLOOD RISK ZONE

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