

Long Wharf Flood Protection and Long Wharf Park Living Shoreline

Connecticut Association of Floodplain Managers Conference



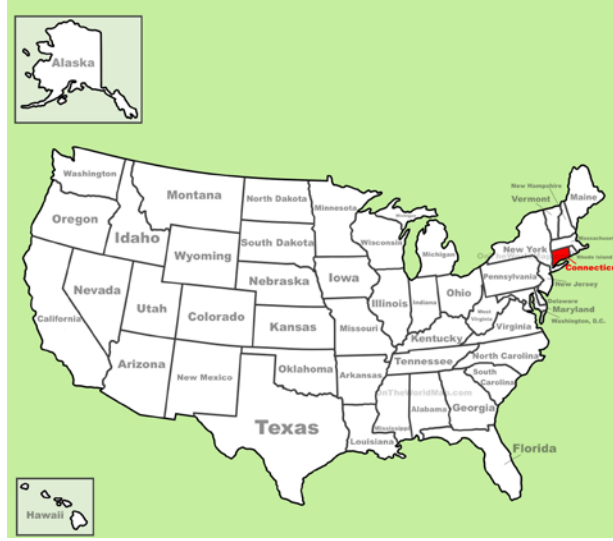
Hande McCaw, P.E.
10/24/2018

Project Area: Long Wharf District



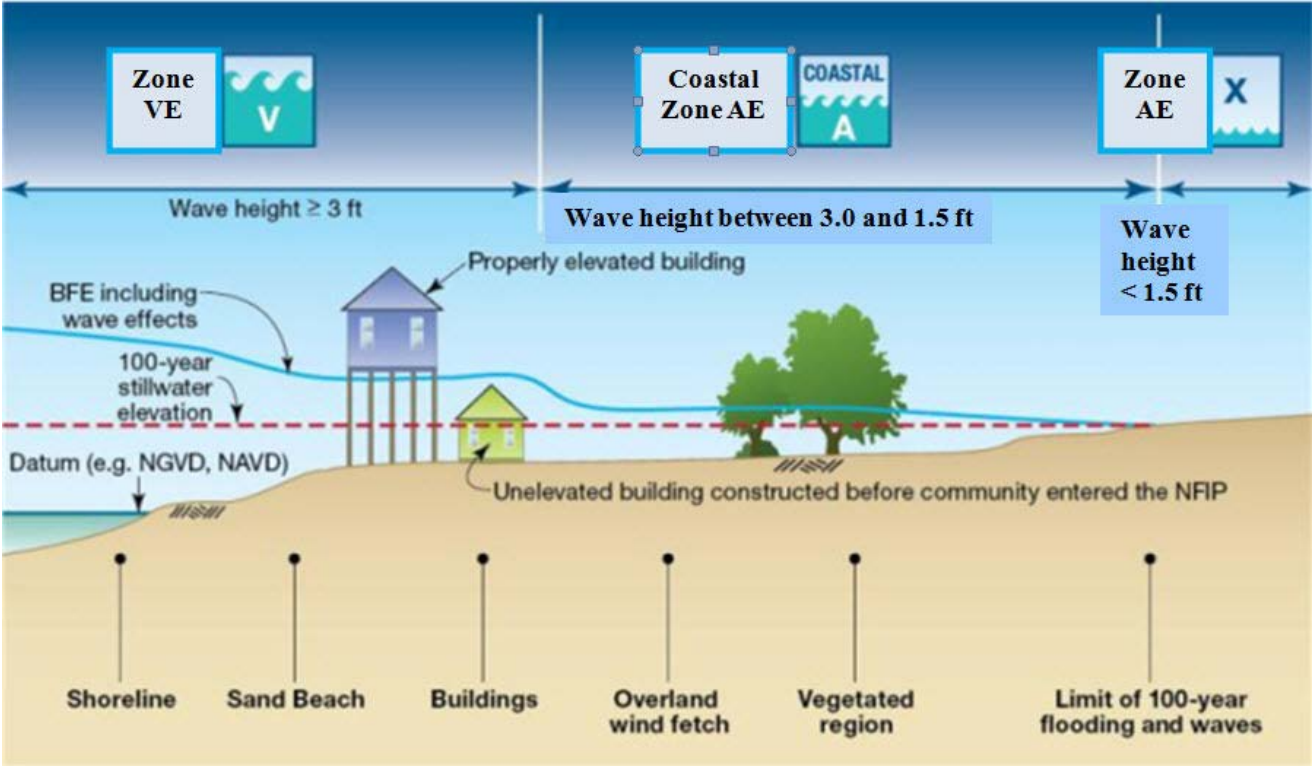
Historic Photograph of the Hurricane of 1938,
from photobucket, uploaded by blackstonelib

Study Area

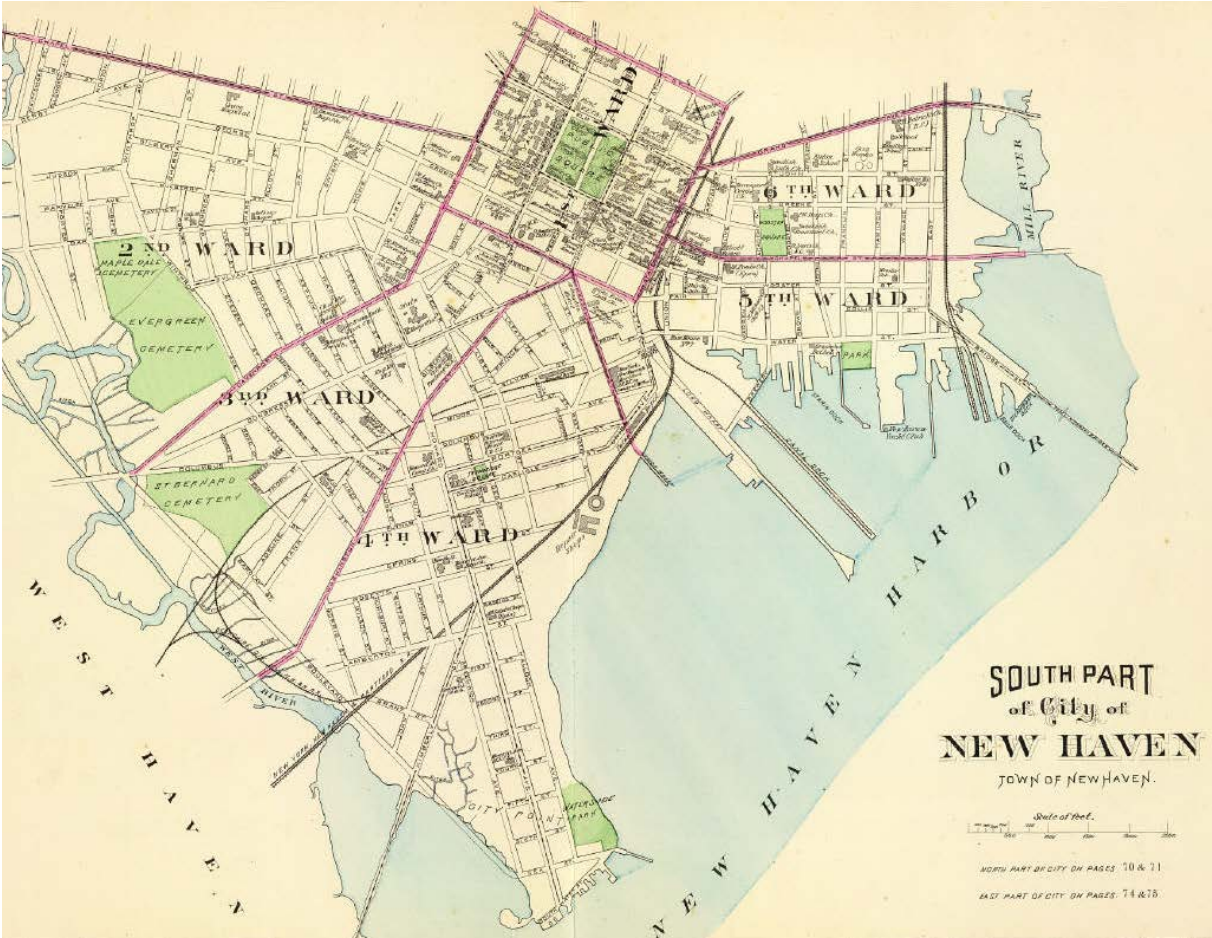


- Study area largely comprised of industrial and commercial use
- Metro-north and regional railyard forms the west/northwestern boundary of the study area
- I-95 and Long Wharf Drive frame the eastern border of the study area.

FEMA Flood Insurance Rate Map








Historic Long Wharf



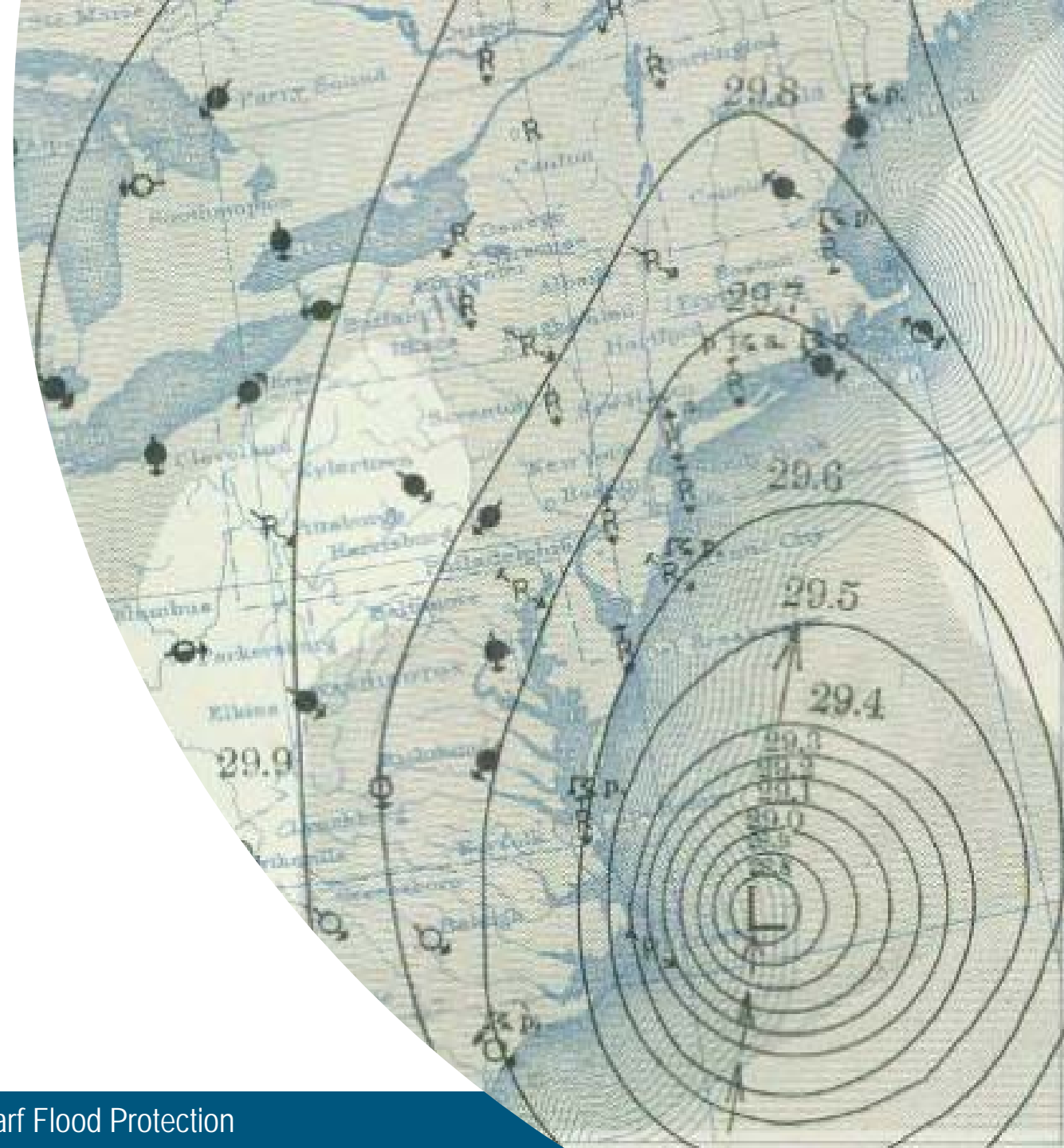
Sewer System

Sewer System

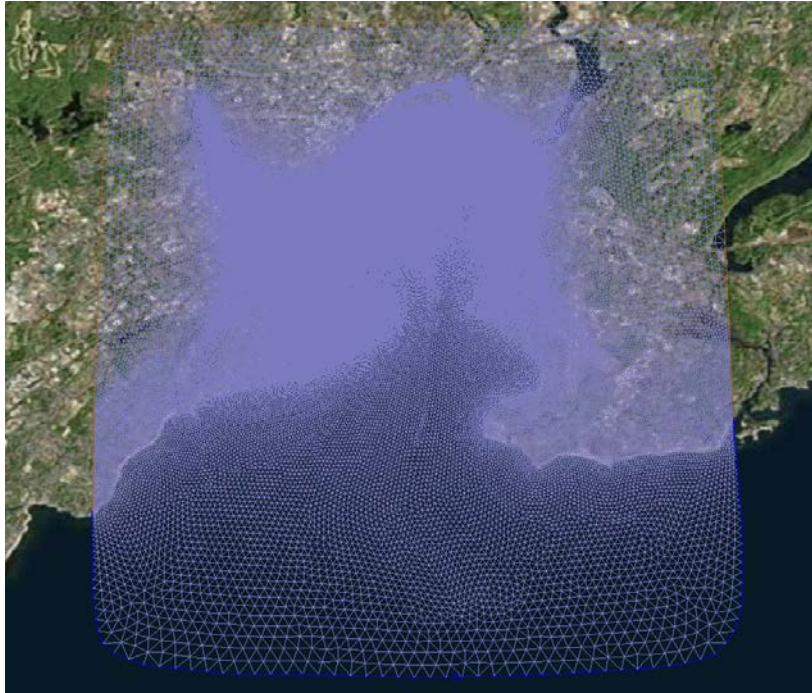
-  Sewer Volume
-  Leachate and Wastewater Discharge Source
-  CSO Tanks
-  Sewer Feature Point
-  Outfalls



Coastal Flood Hazard Evaluation



GZA High Resolution Numerical Flood Models



Model Domain

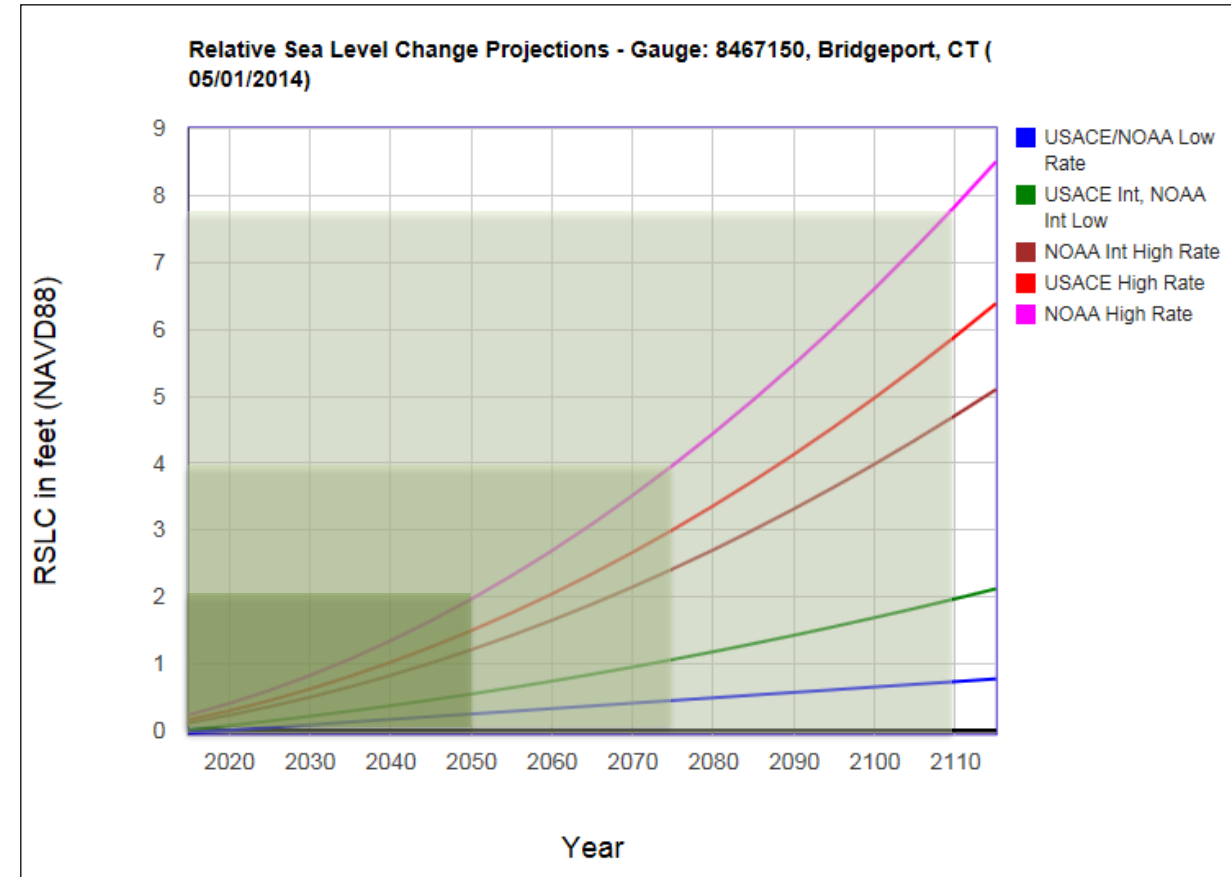


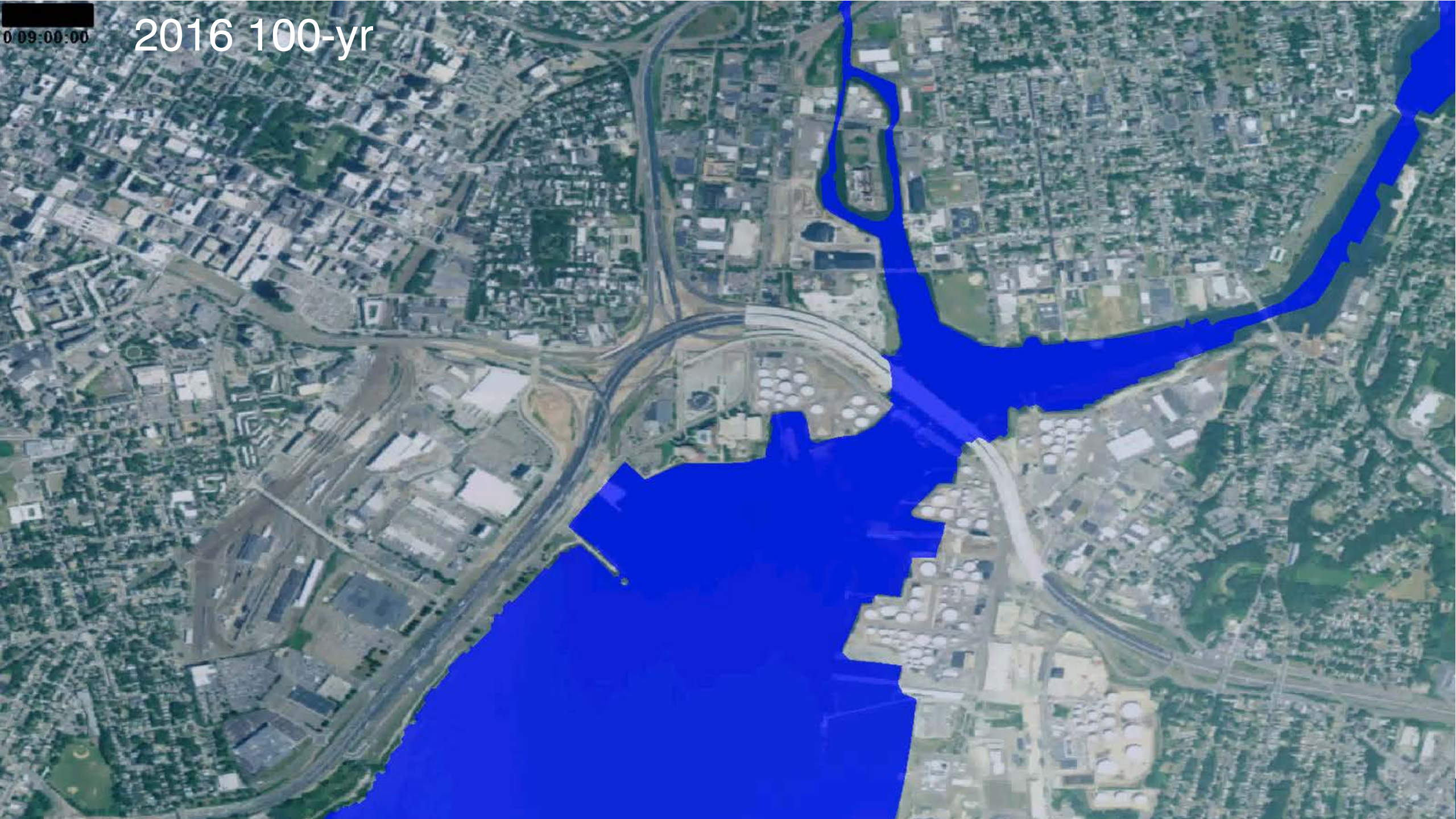
High Resolution Mesh at Long Wharf

GZA FLOOD RISK EVALUATION

- Normal (Non-Storm) Conditions
Tides + Sea Level Rise
- Extreme Flood Conditions
Storms + Sea Level Rise
 - Storms (100 yr and 500 yr)
 - Sea Level Rise (High, Intermediate and Low estimates)
- Impacts of Flood Inundation, Waves

USACE and NOAA Sea Level Rise Scenarios:

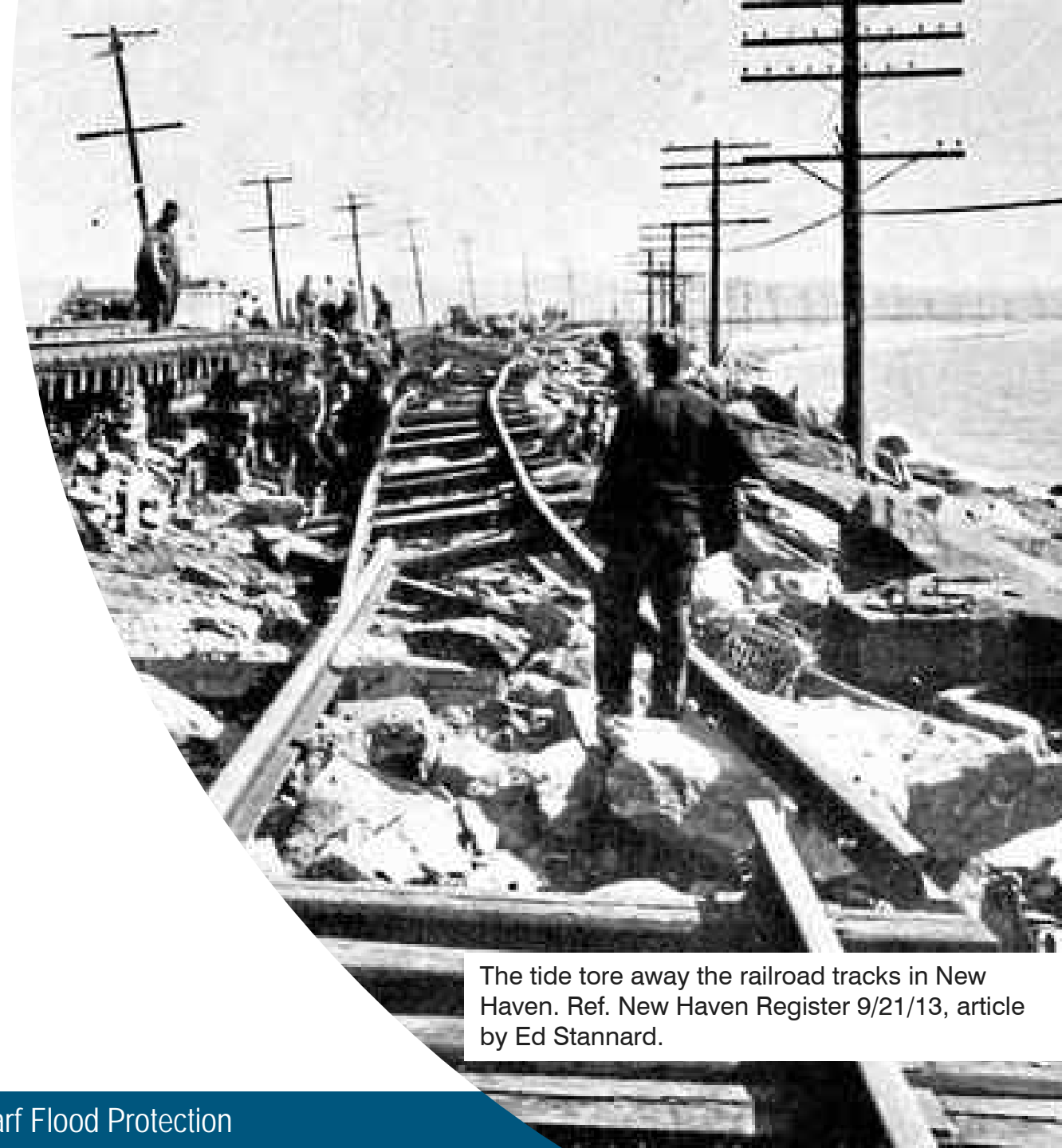




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2016 100-yr

Coastal Flood Hazard Mitigation



The tide tore away the railroad tracks in New Haven. Ref. New Haven Register 9/21/13, article by Ed Stannard.

Area 3 Flood Inundation Entry Points

- Two I-95 Underpasses
- I-95 Low Areas
- Brewery Street



Flood Mitigation Approaches

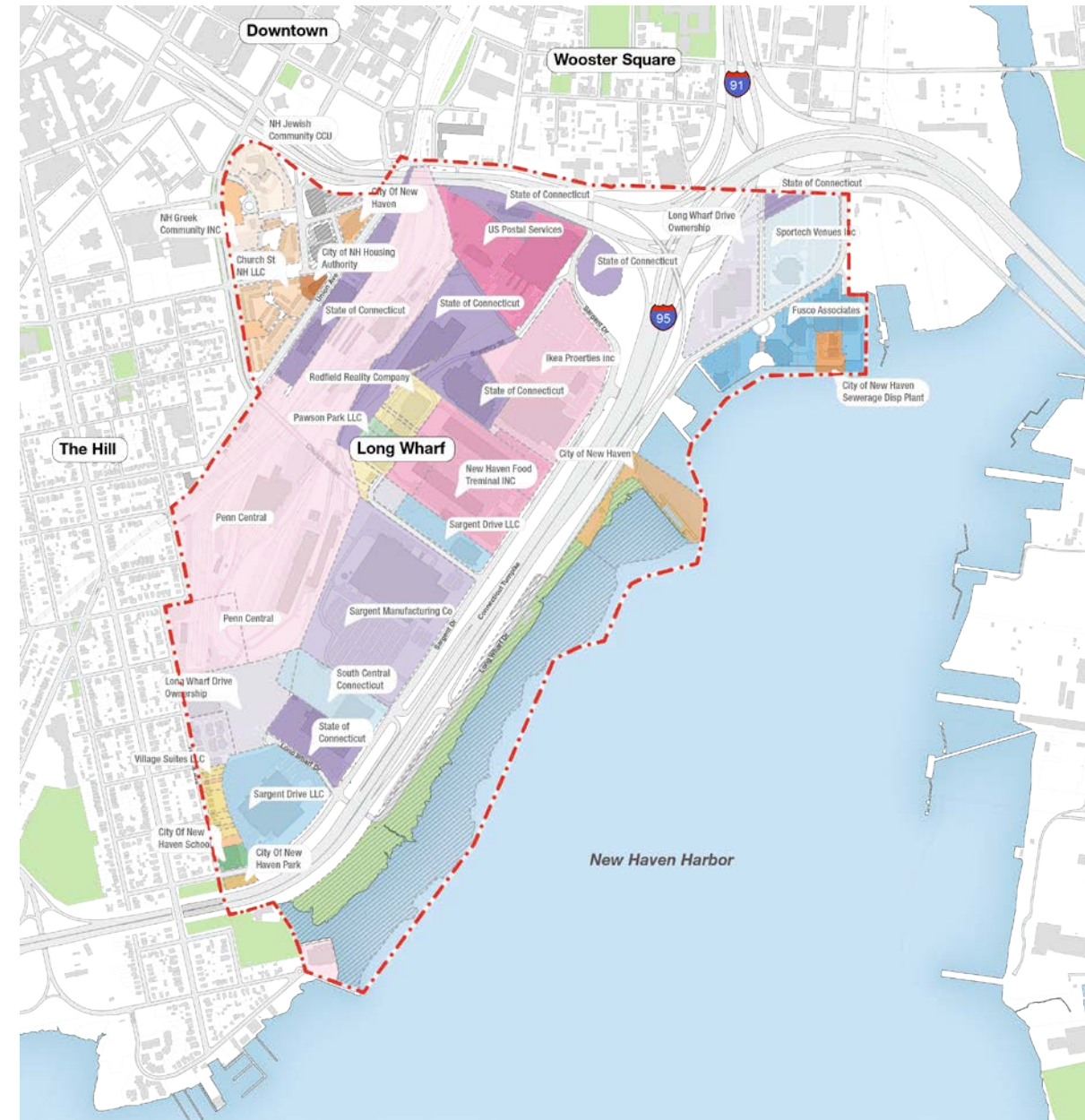
Flood Mitigation Approach: Alt. 1 Property Scale Deployable Flood Protection

Strategy: Accommodate

Approach: Property-managed flood protection. Relies upon temporary, building-scale flood protection measures and Emergency Flood Response Plans. Future compliance with Building Codes and NFIP Regulations (Significant Damage/Improvement).

Components:

- Deployable flood protection measures
- Emergency Flood Response Plans
- Storage Facility
- Operations and Training



Flood Mitigation Approaches

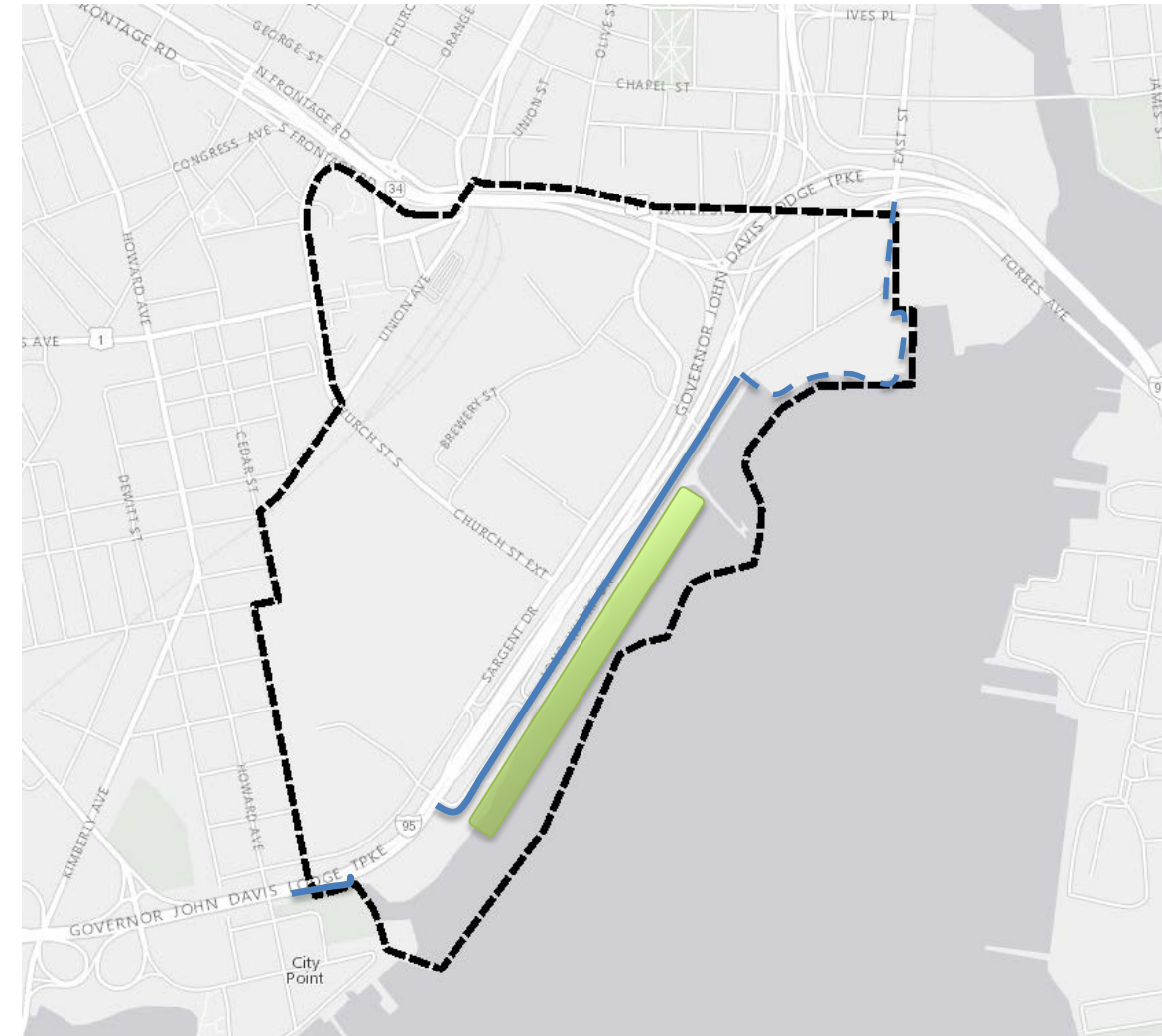
Flood Mitigation Approach: Alt. 2 Municipal Scale
Permanent/Temporary Flood Protection

Strategy: Accommodate and Protect

Approach: This alternative utilizes a permanent floodwall along Long Wharf Drive in combination with temporary flood protection at the northern end of Long Wharf Drive. Enhanced Long Wharf Park. Living Shoreline.

Components:

- Permanent Flood Wall along Long Wharf Drive
- Permanent Flood Wall along I-95 (Long Term)
- Temporary Flood Protection (end of Long Wharf Drive and at wall entrances)
- Emergency Flood Response Plan
- Storage Facility
- Operations and Training
- Stormwater management



Flood Mitigation Approaches

Flood Mitigation Approach: Alt. 3 Municipal Scale Temporary Flood Protection

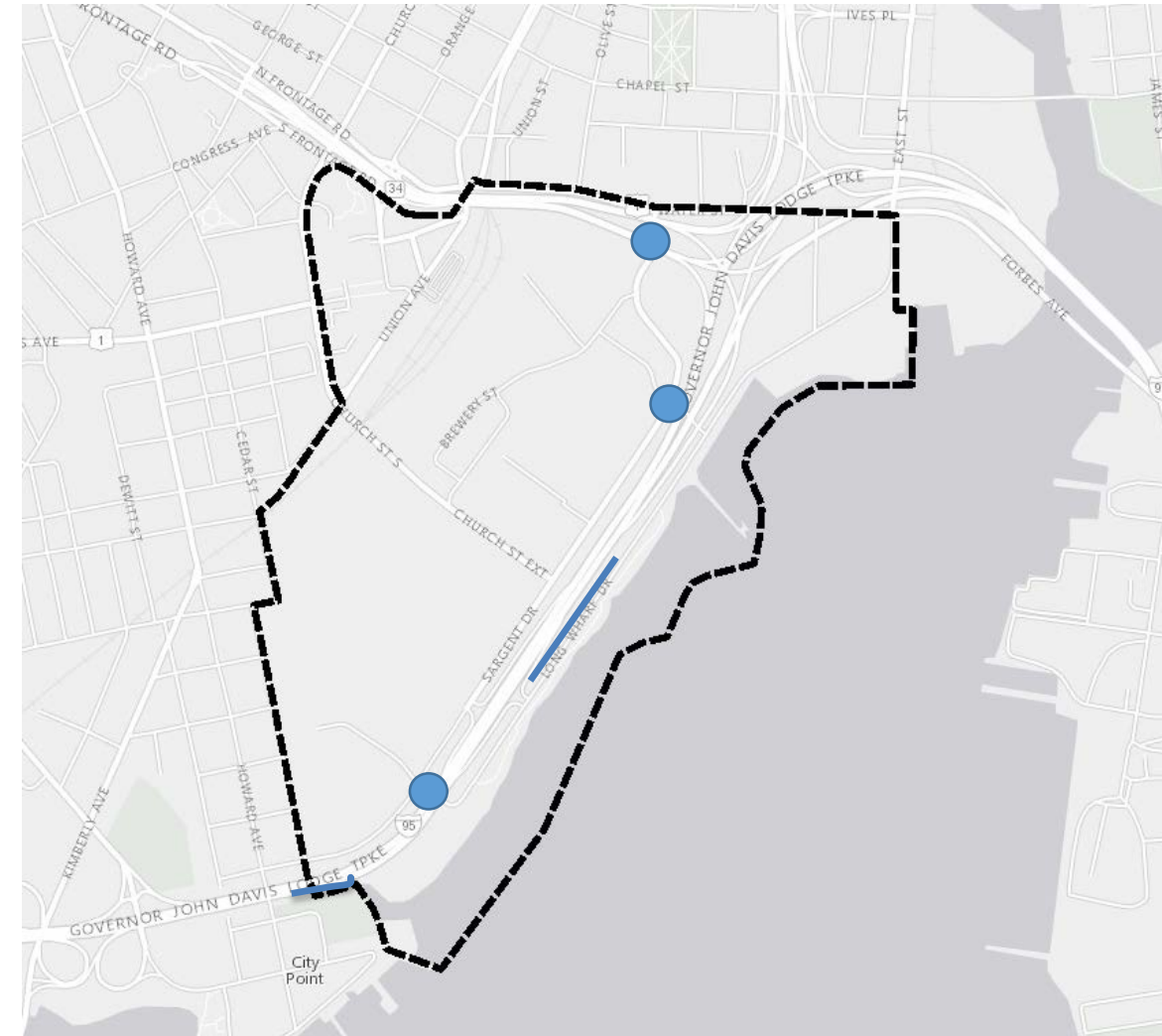
Strategy: Accommodate

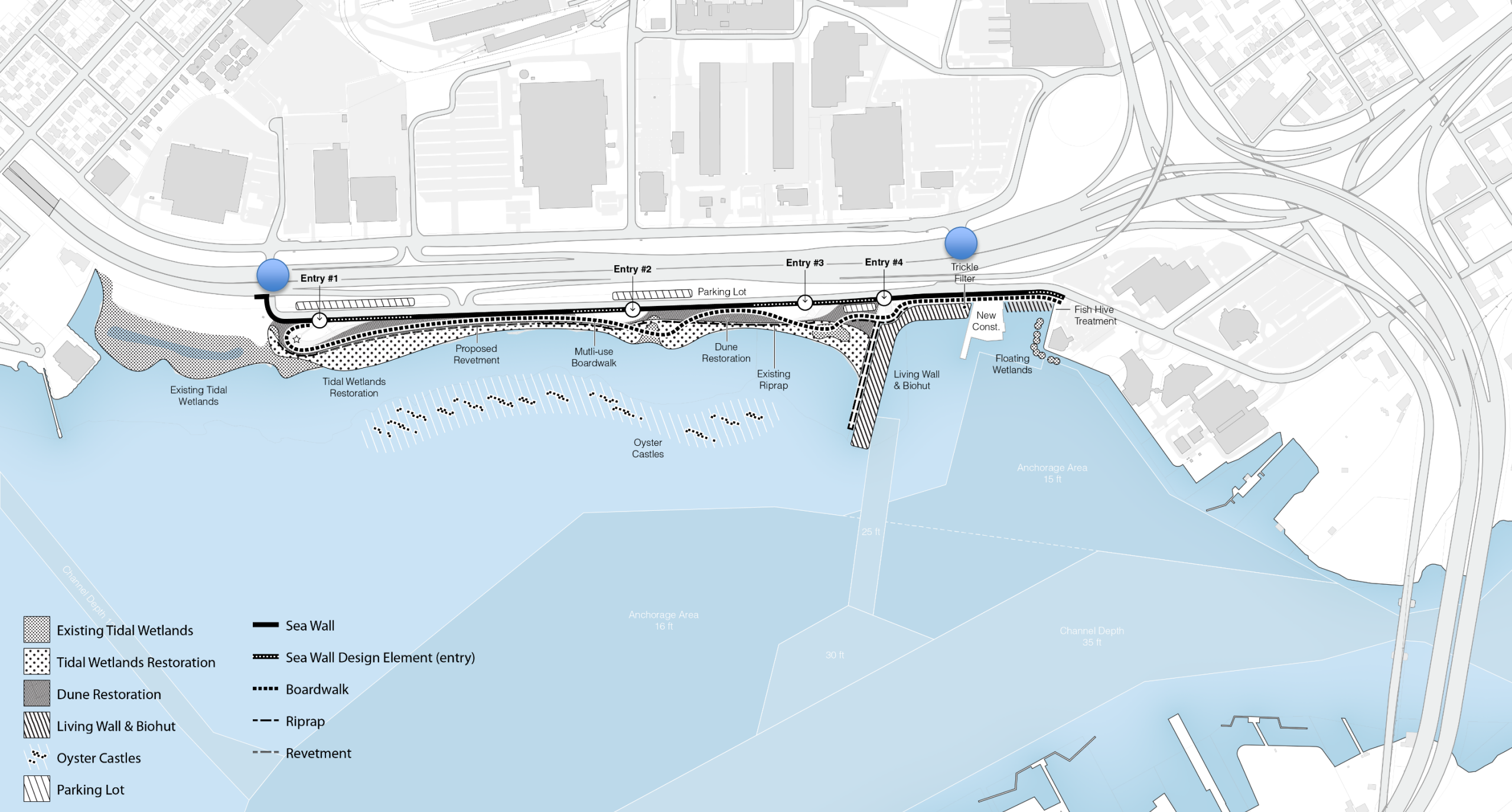
Approach: Municipally-managed flood protection. Relies upon Interstate 95 as a flood levee. Provides flood protection of: 1) Interstate 95; and 2) Long Wharf structures (north of Interstate 95).

Components:

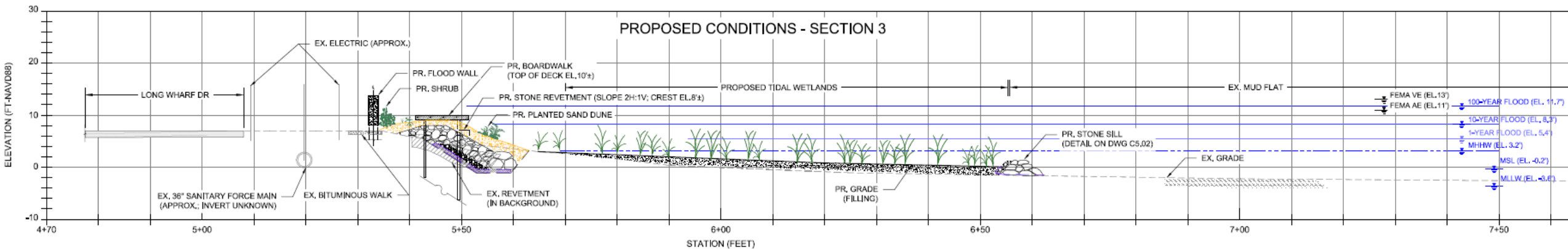
- Deployable flood protection measures at 2 Interstate 95 underpasses;
- Deployable flood protection at Brewery Street; and
- Permanent flood walls at select locations along Interstate 95.

Alternative 3A: Temporary flood protection measures at 2 Interstate 95 underpasses only – protects against current 100-year recurrence interval flood. Alternative 3B: Temporary flood protection along I-95 instead of permanent walls





Long Wharf Flood Protection/Natural Resource Enhancement

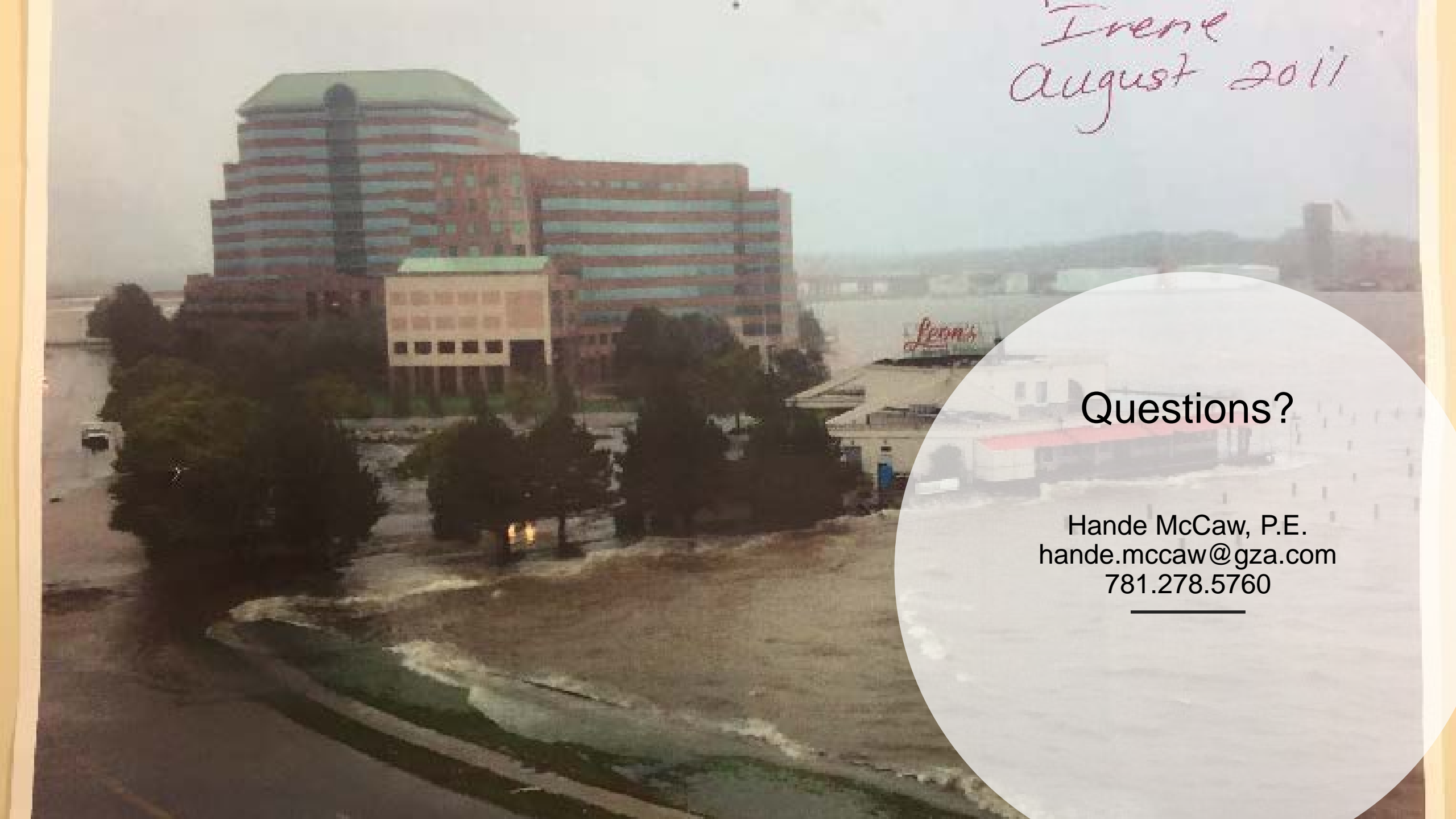


Long Wharf Flood Protection/Natural Resource Enhancement



Long Wharf Flood Protection/Natural Resource Enhancement





Irene
August 2011

Questions?

Hande McCaw, P.E.
hande.mccaw@gza.com
781.278.5760