



Natural Hazard Mitigation Plan Update

Town of Old Saybrook & Borough of Fenwick

February 7, 2024

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Senior Water Resources Engineer

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Water Resources Engineer

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Today's Meeting

- ✓ Introduce Planning Team
- ✓ Present Project Overview
- ✓ Review Planning Process
- ✓ Present Assets Inventory Update
- ✓ Provide Natural Hazard Characterization Update
- ✓ Vulnerability Assessment
- ✓ 2019 Mitigation Goals and Actions
- ✓ Discuss Next Steps

Second Public Meeting: May 15, 2024

Planning Team

Local Planning Team (Working Group)

Local Planning Team

Old Saybrook Zoning Enforcement Officer/ Town Planner	Chris Costa
Fenwick ZEO/Land Use Administrator	Marilyn Ozols
Old Saybrook Assistant Town Planner	Lynette Wacker
Fenwick Resident	Bruce Baird
Old Saybrook Planning Commission Liaison	Dennis Tulimieri

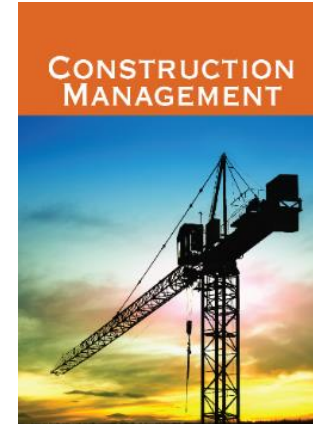
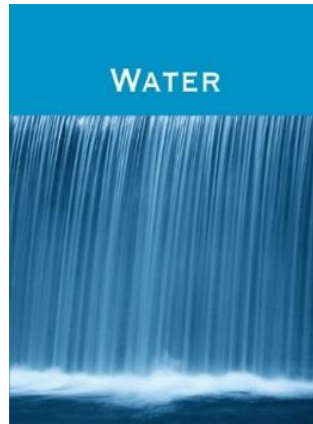
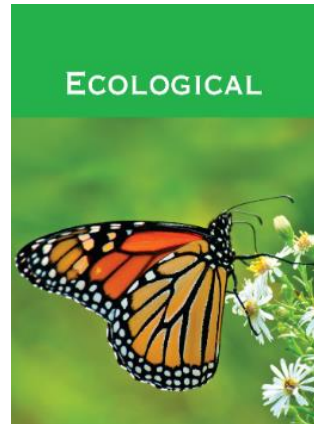
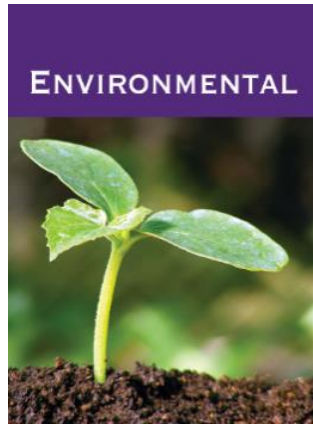
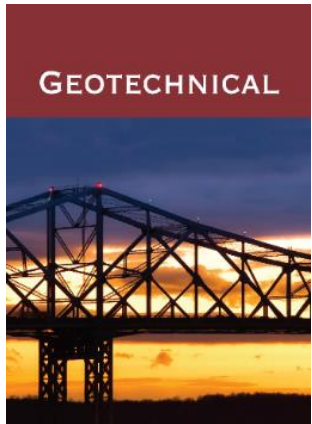
Local Planning Team (Working Group) Meetings

Planning Team Meetings	Date
Project Initiation Meeting	9/20/2023
Working Group Meeting	11/2/2023
Working Group Meeting	2/6/2024
Working Group Meeting	4/16/2024

Project Hazard Planning Consultant

About GZA

*Offices nationwide, Engineers, Scientists, Planners and Technical Specialists providing expert, risk-informed and pragmatic advice and solutions in the following **Core Service** areas....*



Project Overview

Other Related Studies

FEMA Region I Coastal Erosion Hazard Map NOAA 2012 Report NOAA 2017 Report NOAA 2022 Report Climate.gov Understanding Changes in Global Sea Level FEMA.gov

Find address or place

U.S. DEPARTMENT OF HOMELAND SECURITY **FEMA**

FEMA Region I Coastal Erosion Hazard Map

Use the map to explore the potential extent of coastal erosion hazards by the years 2030, 2050 and 2100 across New England. Coastal erosion hazard areas are estimated from both the long-term historical erosion rate and the impacts of future sea level rise (SLR). The SLR scenarios are published in three separate studies ([NOAA 2012](#), [NOAA 2017](#), and [NOAA 2022](#)) and the scenario used in each study is listed below.

The following five SLR scenarios were included in the study:

- High

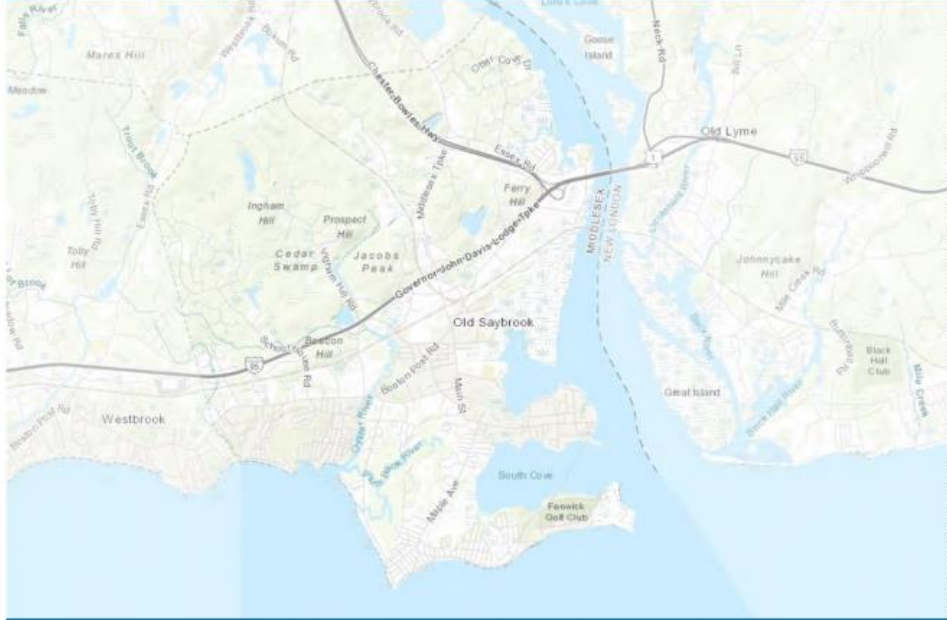
I agree to the above disclaimer

Continue

HAZARD MITIGATION PLANNING BACKGROUND

PURPOSE:

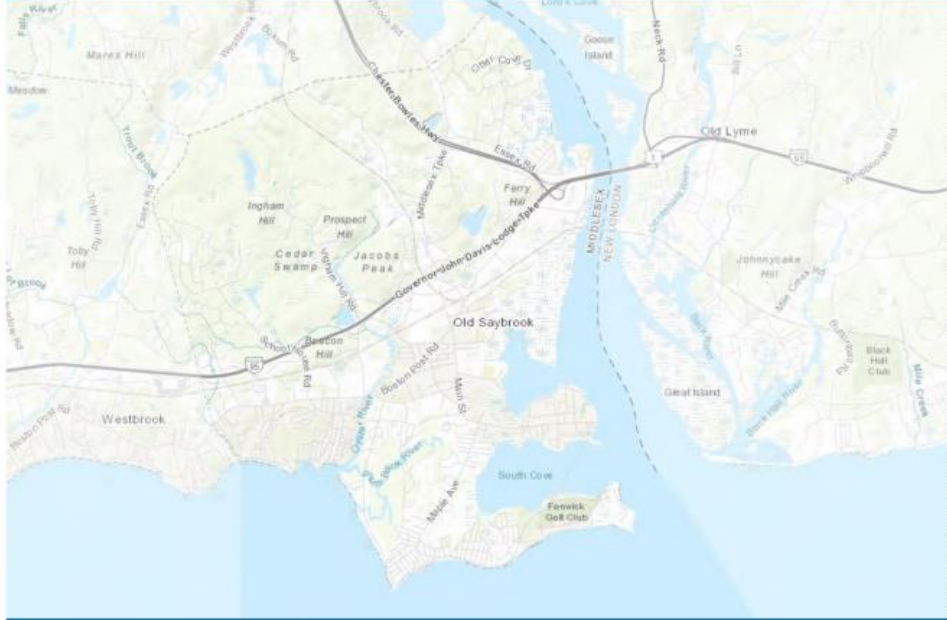
Hazard Mitigation planning is a proactive effort to identify actions that can reduce the dangers to life and property from natural hazard events, such as hurricanes, tornadoes, winter storms and earthquakes.

<p>GZA GeoEnvironmental, Inc. Known for excellence. Built on trust.</p>	
	<p>Town of Old Saybrook and Borough of Fenwick Natural Hazard Mitigation Plan Update</p> <p>Old Saybrook and Fenwick, Connecticut</p>
<p>Local Natural Hazard Mitigation Plan Update</p> <p>Prepared in accordance with the requirements presented in the 44 Code of Federal Regulations (CFR) Part 201.6, FEMA Local Mitigation Plan Review Guide and the Local Mitigation Handbook</p>	<p>Prepared by: GZA GeoEnvironmental, Inc.</p> <p>Prepared For: Town of Old Saybrook, Connecticut Land Use Department and Borough of Fenwick, Connecticut Building and Land Use Department</p> <p>October 2, 2019 (effective through October 1, 2024)</p>

HAZARD MITIGATION PLANNING BACKGROUND

REQUIREMENTS:

The [Federal Disaster Mitigation Act of 2000](#) requires all municipalities that wish to be eligible to receive FEMA funding for hazard mitigation grants, to adopt a local multi-hazard mitigation plan and update this plan in five year intervals.

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Natural Hazard Mitigation Plan Update



Planning Goals:

- ✓ Document progress made per the 2019 Plan Update
- ✓ Update Town (Old Saybrook and the Borough of Fenwick) asset inventory
- ✓ Characterize the natural hazards and climate-change effects
- ✓ Assess current and future hazard vulnerability
- ✓ Provide public education and outreach throughout the planning process
- ✓ Revise and develop strategies and actions to mitigate the hazard risks
- ✓ Adopt the Plan Update

Project Overview

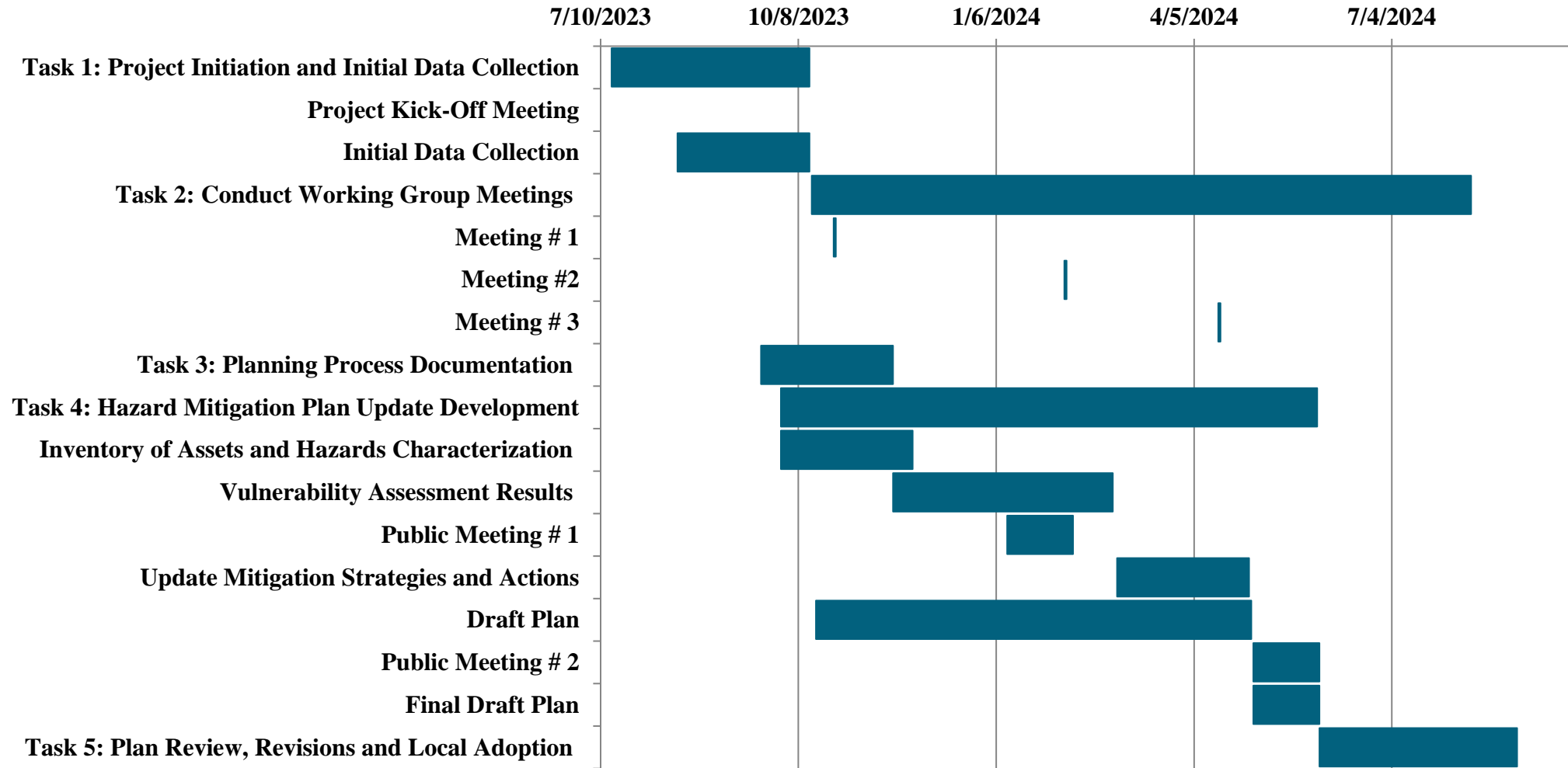
Planning Tasks:

1. Project Initiation
2. Conduct Working Group Meetings
3. Planning Process Documentation
4. Multi-Hazard Mitigation Plan Update Development
5. State and Federal Plan Review Revisions and Local Adoption



Harvey's Beach

Plan Schedule



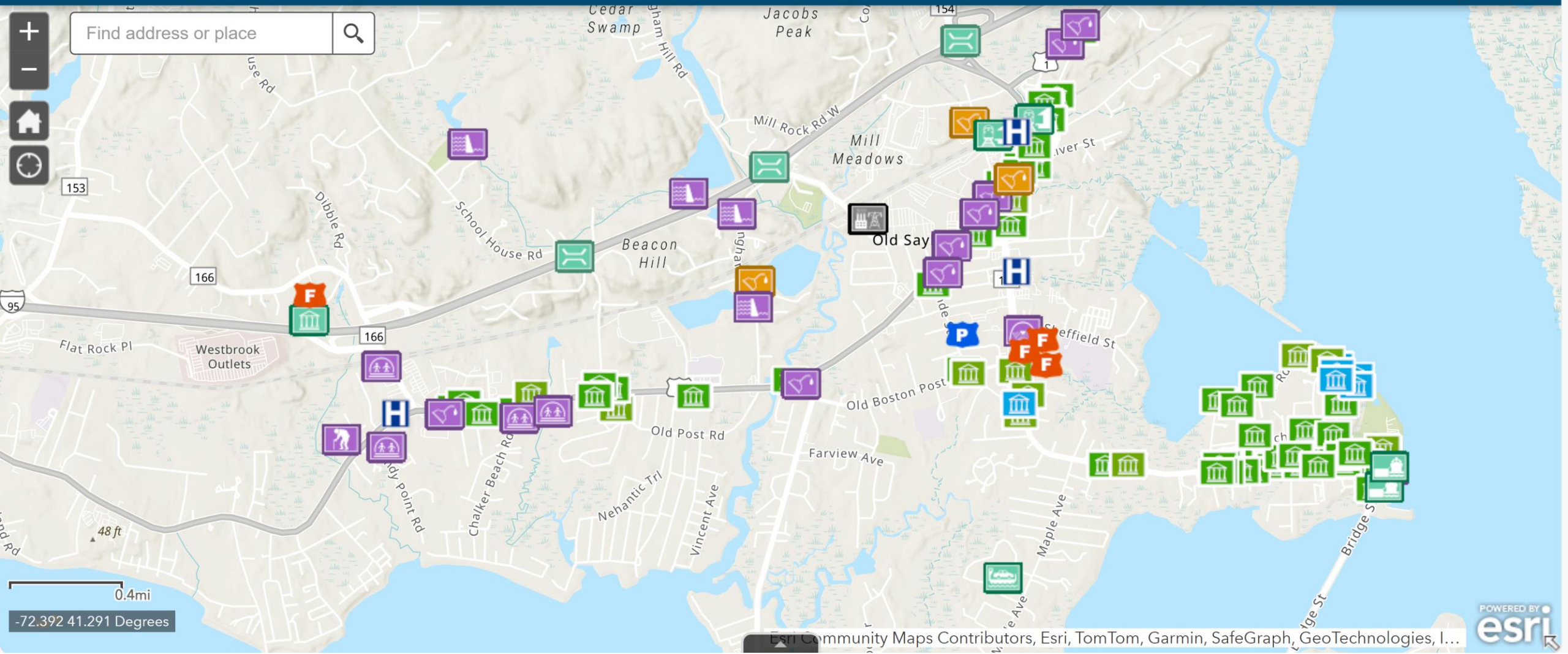
Project Approach: GIS Data Management

CT Old Saybrook Asset Inventory

A GZA GeoTool powered by ArcGIS



Find address or place



0.4mi

-72.392 41.291 Degrees

Esri Community Maps Contributors, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, I...



Planning Process

Planning Process

✓ Assess Risk:

- Community Demographics/Social Vulnerability
- Asset Inventory
- Natural Hazards Characterization
- Risk Assessment

✓ Mitigation Strategy and Actions

✓ Plan Adoption and Maintenance



Figure credit FEMA/Jenny Burmester – Aug 21, 2017

Plan Components

Table of Contents

	Quick Plan Reference Guide
p.3	Section 1: Introduction
P.7	Section 2: Planning Process
p.11	Section 3: Community Profile Overview
p.17	Section 4: Natural Hazard Risk Profile
P.27	Section 5: Natural Hazard Mitigation Strategies
P.39	Section 6: Regional and Intercommunity Considerations
P.43	Section 7: Plan Adoption and Implementation
	 Attachments:
	1: Community Profile Details
	2: Natural Hazard Details
	3: Natural Hazard Risk Details
	4: FEMA HAZUS-MH Simulation Results
	5. State and Federal Funding Sources
	6: Public Meeting Documentation
	7: References and Resources
	8: Key Contacts

Assets Inventory

2019 Plan Update Asset Categories and 2024 Updates

1. Essential Facilities
2. Lifeline Utility Systems
3. Hazardous Material Facilities
4. High Potential Loss Facilities
5. Transportation Systems
6. Support, High Occupancy and Vulnerable Populations
7. Natural Resources and Recreation Areas
8. Historic and Cultural Assets
9. Stormwater Infrastructure



2024 Plan Update Community Assets

CT_Old_Saybrook_Assets

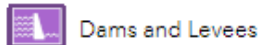
Essential Facilities

- Emergency Response Centers
- Designated Emergency Shelters
- Aviation
- Police Stations
- Fire Rescue and Ambulance
- Emergency Vehicle Garages
- Hospitals and Healthcare

Hazardous Material Facilities



High Potential Loss Facilities



Transportation Systems

- Administration
- Bridges
- Bus Facilities
- Ferry
- Piers Docks and Marinas
- Rail Station

Lifeline Utility Systems

Lifeline Utility Systems

- Emergency Comm. Systems
- Electric Power Transmission
- Heating Oil
- Natural Gas
- Potable Water Supply

Water Pollution Control Areas (WPCA)

- Chalker Beach
- Cornfield Park
- Cornfield Point
- Fenwood
- Great Hammock Beach
- Ingham Hill
- Indiantown
- Maple Avenue North
- Meadowood
- Oyster River East
- Plum Bank
- Saybrook Acres
- Saybrook Manor
- Saybrook Point
- Thompson

Support and High Occupancy and Vuln. Pop. Facilities

- Community Centers and other Rec. Facilities
- Fueling (Gas) Stations
- Grocery and Supply Stores
- Hotels and Inns
- Military
- Museums and Galleries
- Preschool and child care facilities
- Rehabilitation Nursing Home
- Religious Institutions
- Schools
- Theaters
- Town Administration Buildings

Natural Resource and Recreation Areas

- Athletic Fields
- Beaches
- Cemeteries
- Marsh
- Parks



Historic and Cultural Assets

- National Register Historic Property
- State Register Historic Property
- Locally Significant Property
- Other Significance

Essential Facilities

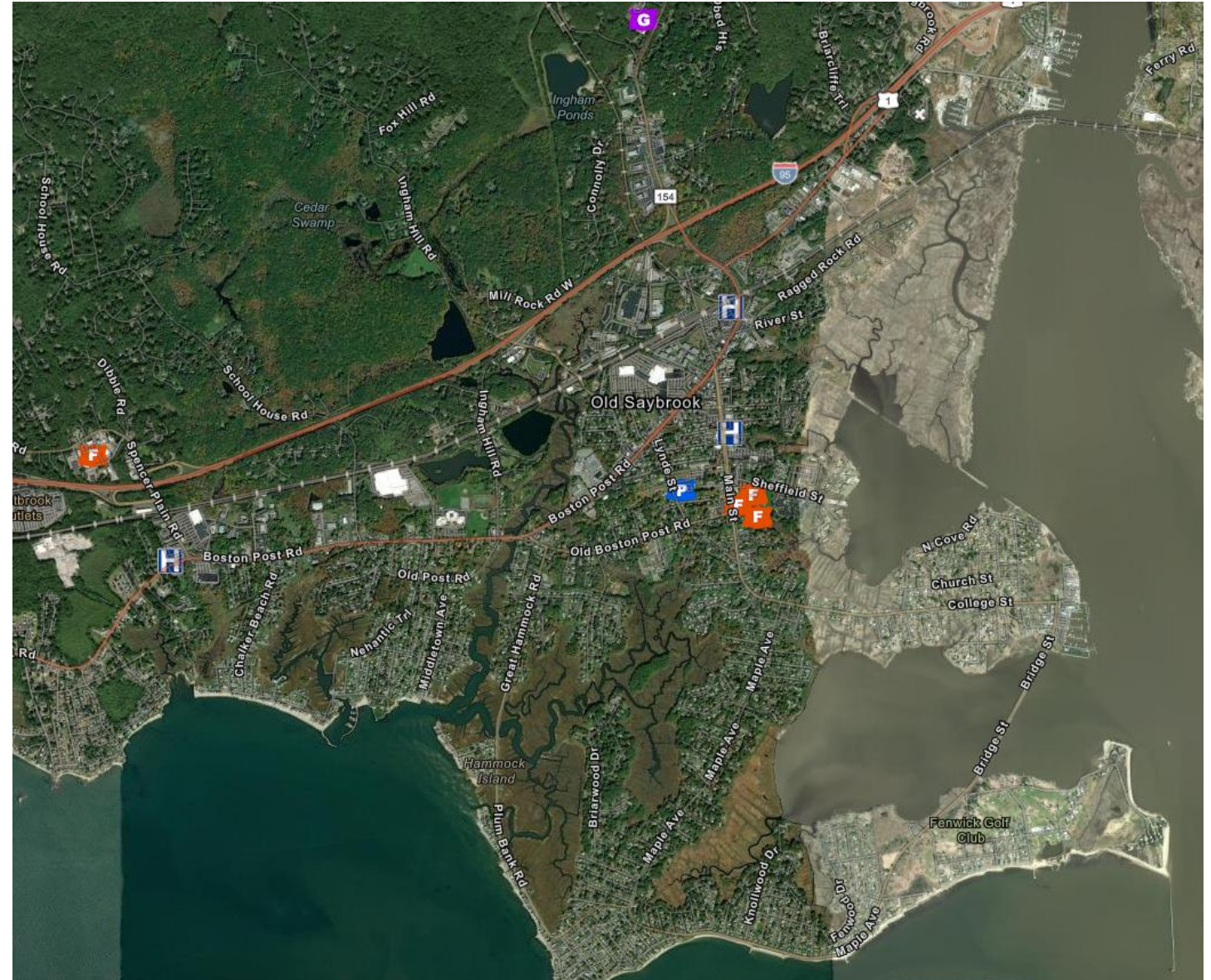
Site - Assets and Infrastructure

Essential Facilities

-  Emergency Response Centers
-  Designated Emergency Shelters
-  Aviation
-  Police Stations
-  Fire Rescue and Ambulance
-  Emergency Vehicle Garages
-  Hospitals and Healthcare

Essential Facilities:

- Hospitals: none
- Healthcare Facilities: 3
- Police Station: 1
- Fire Rescue and Ambulance: 2
- DPW Garage: 1
- Emergency Management: 2



Lifeline Systems

- Electric Power Generation
- Electric Power Transmission
- Natural Gas
- Heating Oil
- Potable Water Supply
- Wastewater Distribution
 - On-site septic
 - 15 Wastewater Districts
- Telecommunications



Lifeline Systems

Site - Assets and Infrastructure

Lifeline Utility Systems

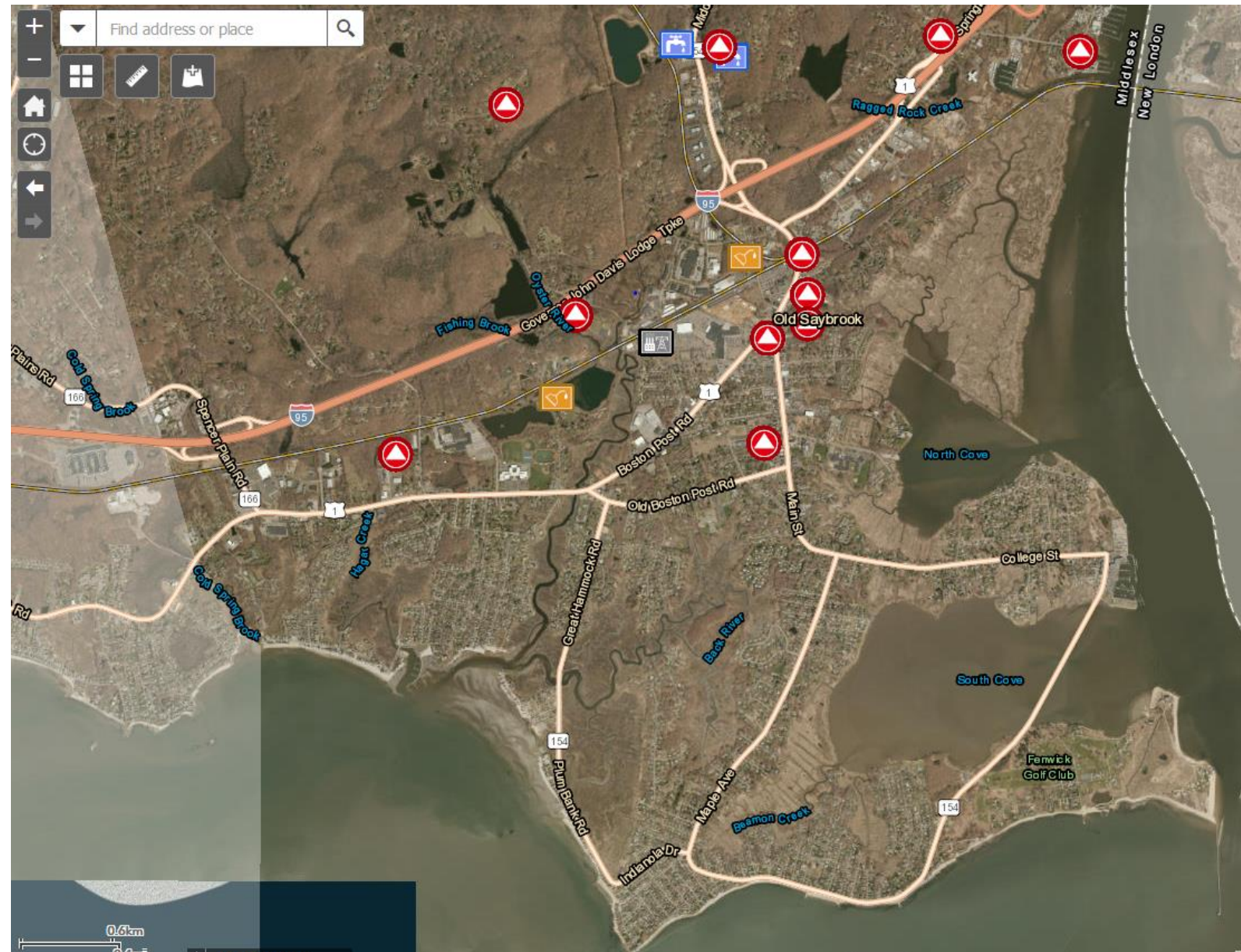
-  Emergency Comm. Systems
-  Electric Power Transmission
-  Heating Oil
-  Natural Gas
-  Potable Water Supply

Water:

- Connecticut Water Company
- Guilford Water System (wells and reservoirs)
- Water Supply Source: Holbrook Wellfield

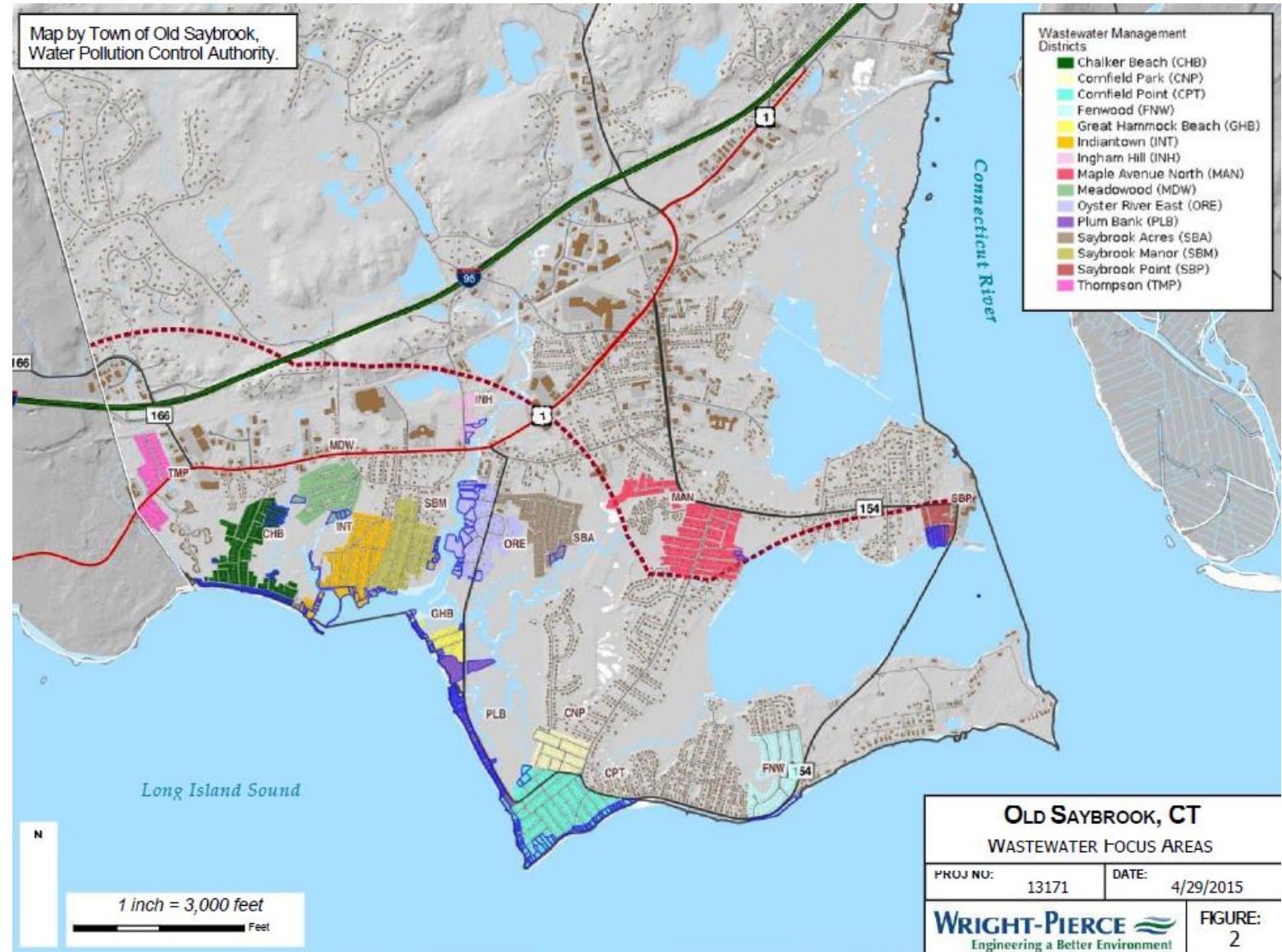
Electrical:

- Eversource
- Overhead transmission
- Two Substations: Bokum Road and Elm Street



Decentralized Wastewater Management







- 15 Wastewater Districts
- 1900 parcels
- 10 of 15 districts upgrades
- 5 remaining are most vulnerable



Transportation Systems

Site - Assets and Infrastructure

Transportation Systems

-  Administration
-  Bridges
-  Bus Facilities
-  Ferry
-  Piers Docks and Marinas
-  Rail Station

Six (6) I-95 (Connecticut Turnpike) bridges:







- I-95 Bridge over School House Road
- I-95 Bridge over Elm Street
- I-95 Bridge over Middlesex Turnpike
- I-95 Bridge over Springbrook Road
- I-95 Bridge over Essex Road
- I-95 Bridge over Route



Transportation Systems

Site - Assets and Infrastructure

Transportation Systems

-  Administration
-  Bridges
-  Bus Facilities
-  Ferry
-  Piers Docks and Marinas
-  Rail Station

Five (5) State bridges:







- Raymond E. Baldwin Bridge over the Connecticut River
 - Route 1 Bridge over the Oyster River
 - Causeway Middle Bridge over South Cove (Route 154)
 - Causeway North Bridge over South Cove (Route 154)
 - Causeway South Bridge over South Cove (Route 154)
- Key Local Roadways



Transportation Systems

Site - Assets and Infrastructure

Transportation Systems

-  Administration
-  Bridges
-  Bus Facilities
-  Ferry
-  Piers Docks and Marinas
-  Rail Station

Eight (8) Town bridges:

- Great Hammock Road Bridge over Back River
- Ingham Hill Road Bridge over Amtrak
- Nehantic Trail Bridge over Hager Creek
- Plum Bank Road Bridge over Plum Bank Creek
- School House Road Bridge over Amtrak
- Sequassen Avenue Bridge over Crab Creek (in Borough of Fenwick)
- Spencer Plain Rd Bridge over I-95
- Spencer Plain Road Bridge over Amtrak



Transportation – Key Federal and State Roadways

1 Key Federal Roadway

- Interstate 95 (Connecticut Turnpike)

4 Key State Roadways – 18 Total

- 3 State Interstate I-95 Route 9 (Chester Bowles Highway)
- Route 1 (Boston Post Road)
- Route 154 (Main Street and College St.; Bridge Street and Maple Ave.; Indianola Dr.; Plum Bank Rd. and Great Hammock Rd.; South Cove Causeway)
- Route 166 (Spencer Plain Road)



Transportation – Key Local Roadways













Key Local Roadways:

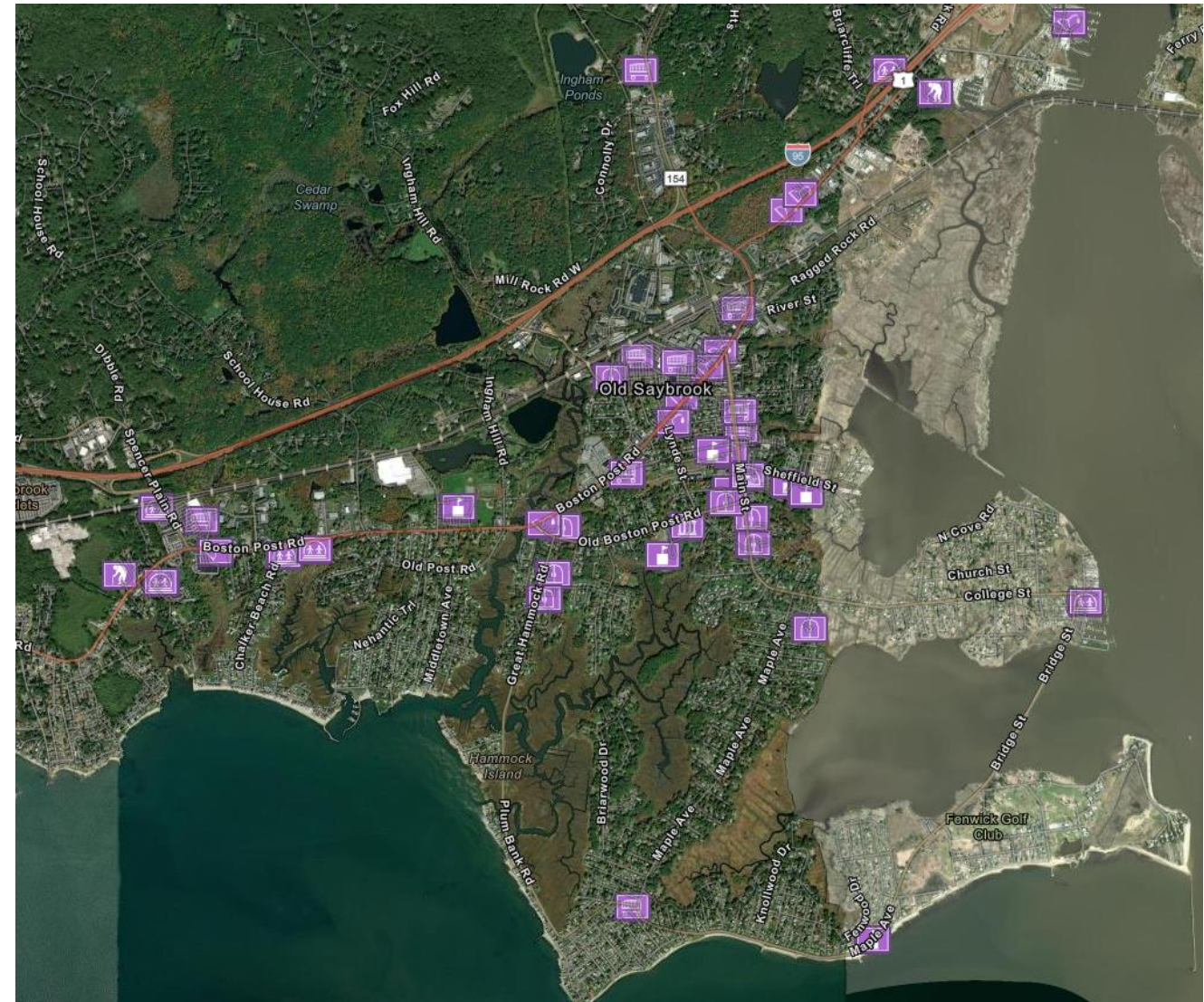
- Essex Road
- Ferry Road
- Springbrook Road
- Elm Street
- Lynde Street
- Pennywise Lane
- Sheffield Street
- Old Boston Post Road
- Chalker Beach Road
- Niabang Avenue
- Sequassan Avenue
- Sea Lane
- Baum Avenue

Support, High Occupancy and Vulnerable Population

Site - Assets and Infrastructure

Support and High Occupancy and Vuln. Pop. Facilities

-  Community Centers and other Rec. Facilities
-  Fueling (Gas) Stations
-  Grocery and Supply Stores
-  Hotels and Inns
-  Military
-  Museums and Galleries
-  Preschool and child care facilities
-  Rehabilitation Nursing Home
-  Religious Institutions
-  Schools
-  Theaters
-  Town Administration Buildings



Natural/Ecological Resources

Site - Assets and Infrastructure

Natural Resource and Recreation Areas

- Athletic Fields
- Beaches
- Cemeteries
- Marsh
- Parks

Community Facilities Open Space



Site - Old Saybrook GIS Planimetrics

ENVIRONMENTAL

Coastal Access



Fish Ladders



Vernal Pools



Vernal Pools 2015



Vernal_Pools_URA



Field mapped wetland boundaries



Critical Habitats



Inland Wetlands



Inland Wetlands URA



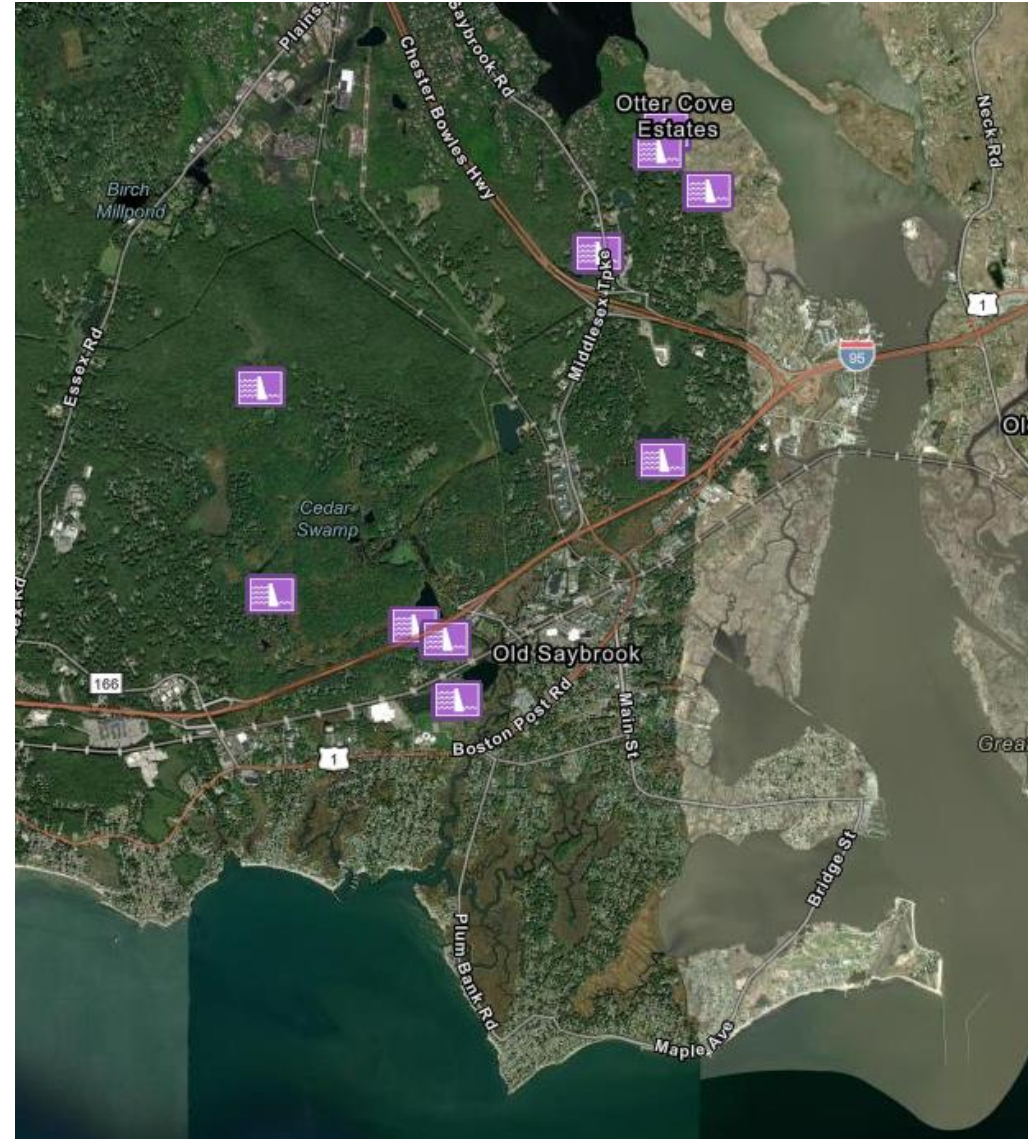
Tidal Wetlands



High Loss Potential Facilities: Dams

High Loss Potential Facilities:

- Dams: 10



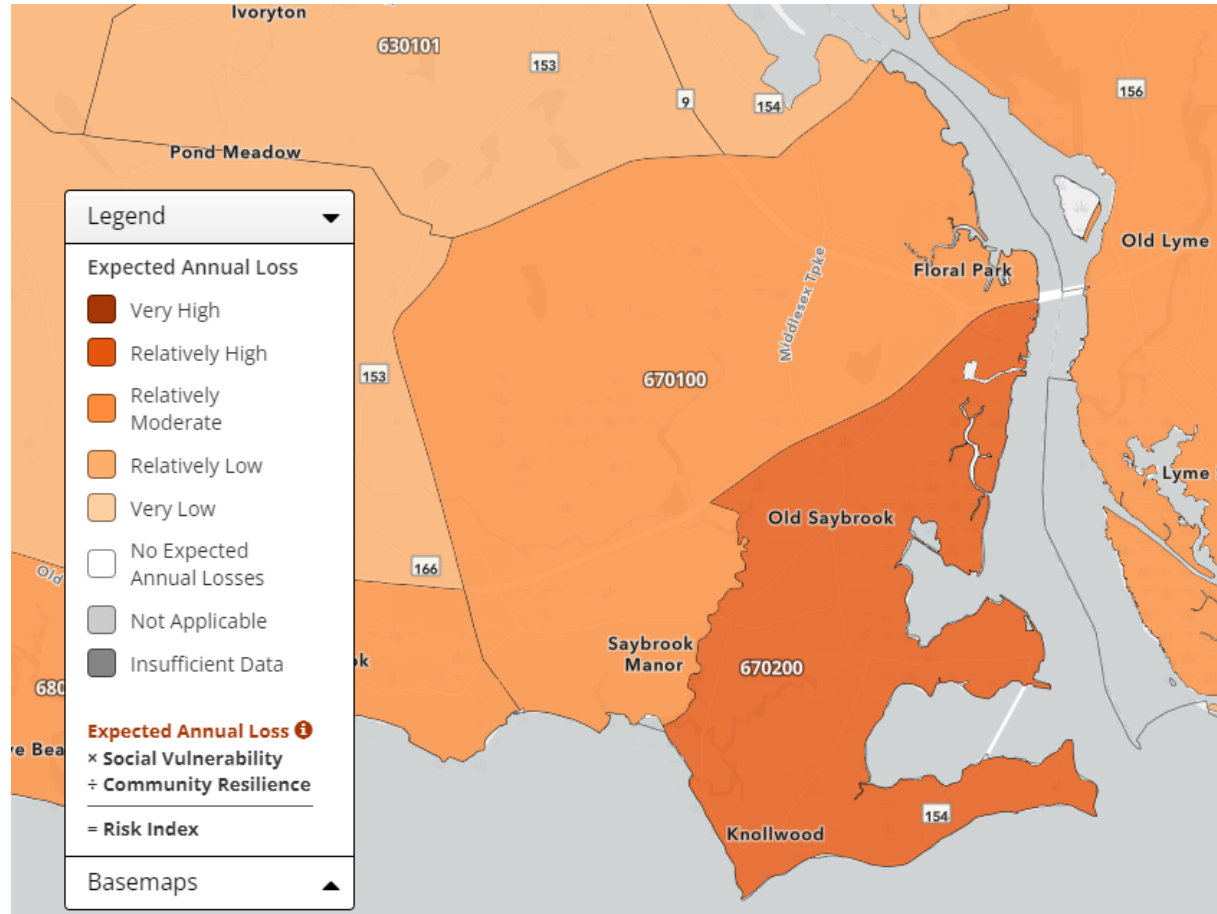
Natural Hazards

2019 Plan Update Natural Hazard Categories (same for 2024)

- 19 natural hazards identified as applicable to Town
- Four hazard categories:
 - ✓ Severe Weather Hazards
 - ✓ Climate-Related Hazards
 - ✓ Geologic Hazards
 - ✓ Secondary Hazards

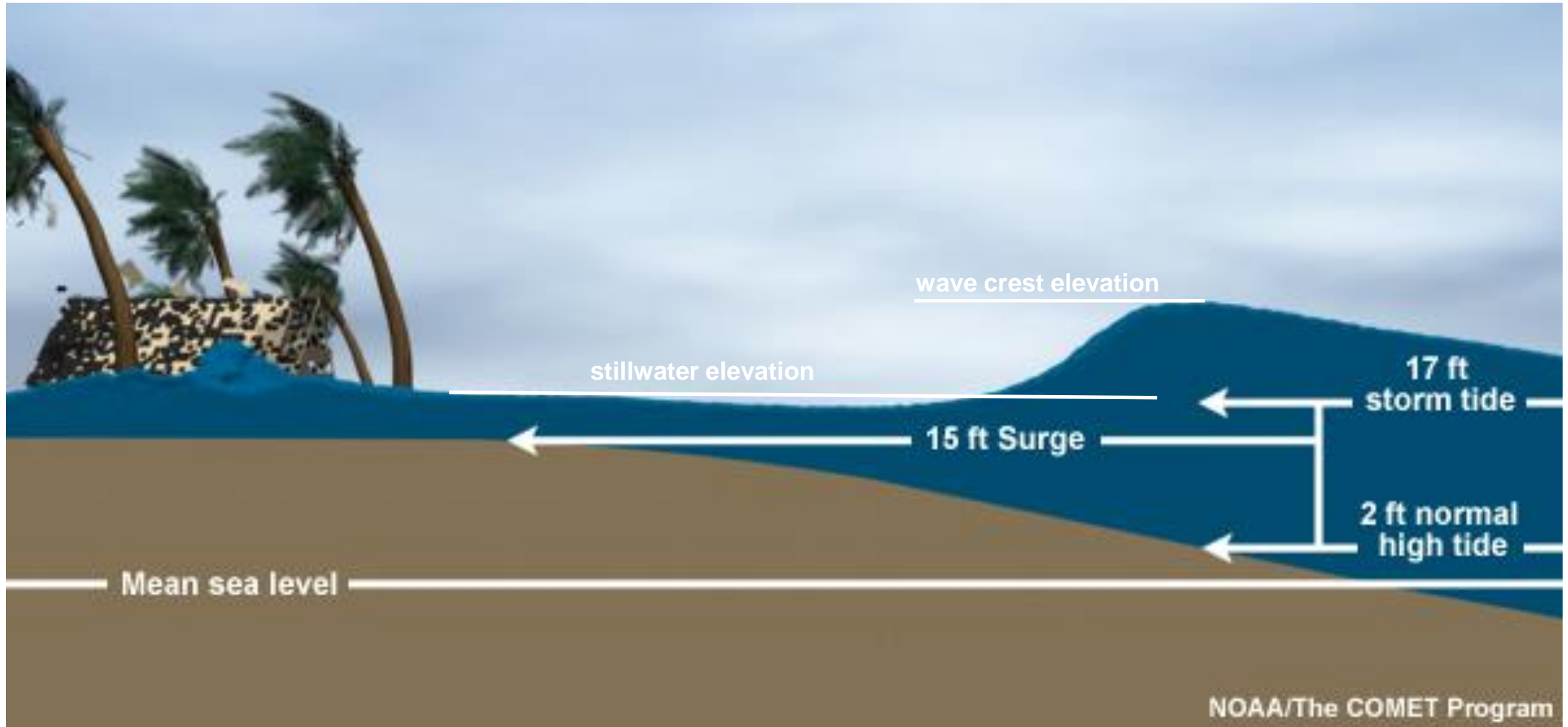
Severe Weather Hazards:	
Severe Wind:	Hurricanes/Tropical Storms
	Thunderstorms
	Tornadoes
Lightning	
Intense Rainfall	
Hail	
Flood:	Storm Surge
	Sea Level Rise
	Urban Drainage Flooding
Severe Winter Weather	
	Snowfall
	Ice Storms
Climate-Related Hazards:	
Extreme Temperature:	Heat
	Cold
Drought	
Wildfire	
Geologic Hazards:	
Earthquake	
Landslides	
Tsunami	
Secondary Hazard:	
Dam Failure	

Natural Hazards



Hazard Type	Annualized Frequency
Avalanche	--
Coastal Flooding	3.8 events per year
Cold Wave	0.2 events per year
Drought	0 events per year
Earthquake	0.128% chance per year
Hail	3.4 events per year
Heat Wave	0.8 events per year
Hurricane	0.4 events per year
Ice Storm	2.9 events per year
Landslide	0 events per year
Lightning	31.6 events per year
Riverine Flooding	1.2 events per year
Strong Wind	4.4 events per year
Tornado	0 events per year
Tsunami	n/a
Volcanic Activity	--
Wildfire	0.002% chance per year
Winter Weather	7.4 events per year

Coastal Flooding



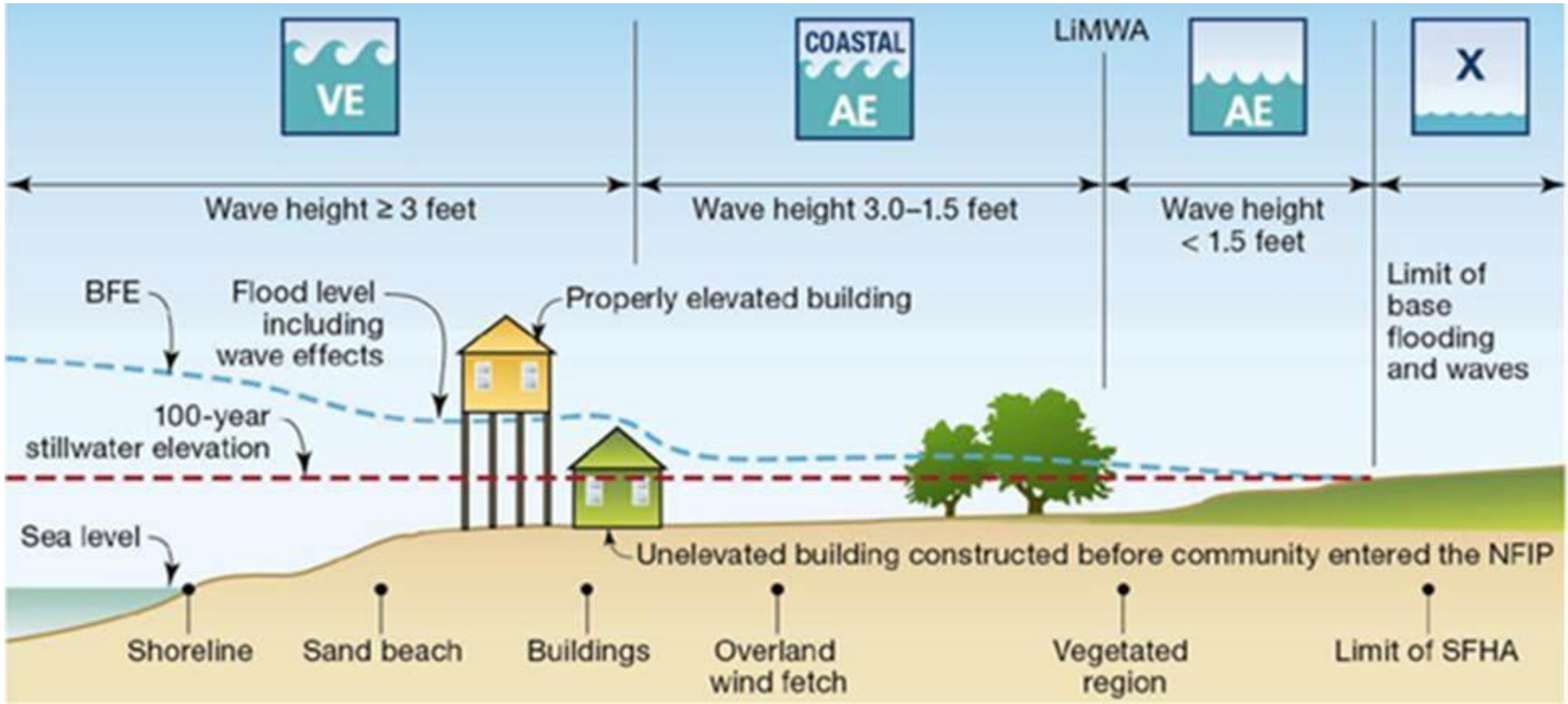
GEOGRAPHICAL FACTORS

STORM FACTORS

FEMA Flood Insurance Rate Map: Base Flood



FEMA Flood Hazard Zones



FEMA Flood Insurance Rate Map: Base Flood



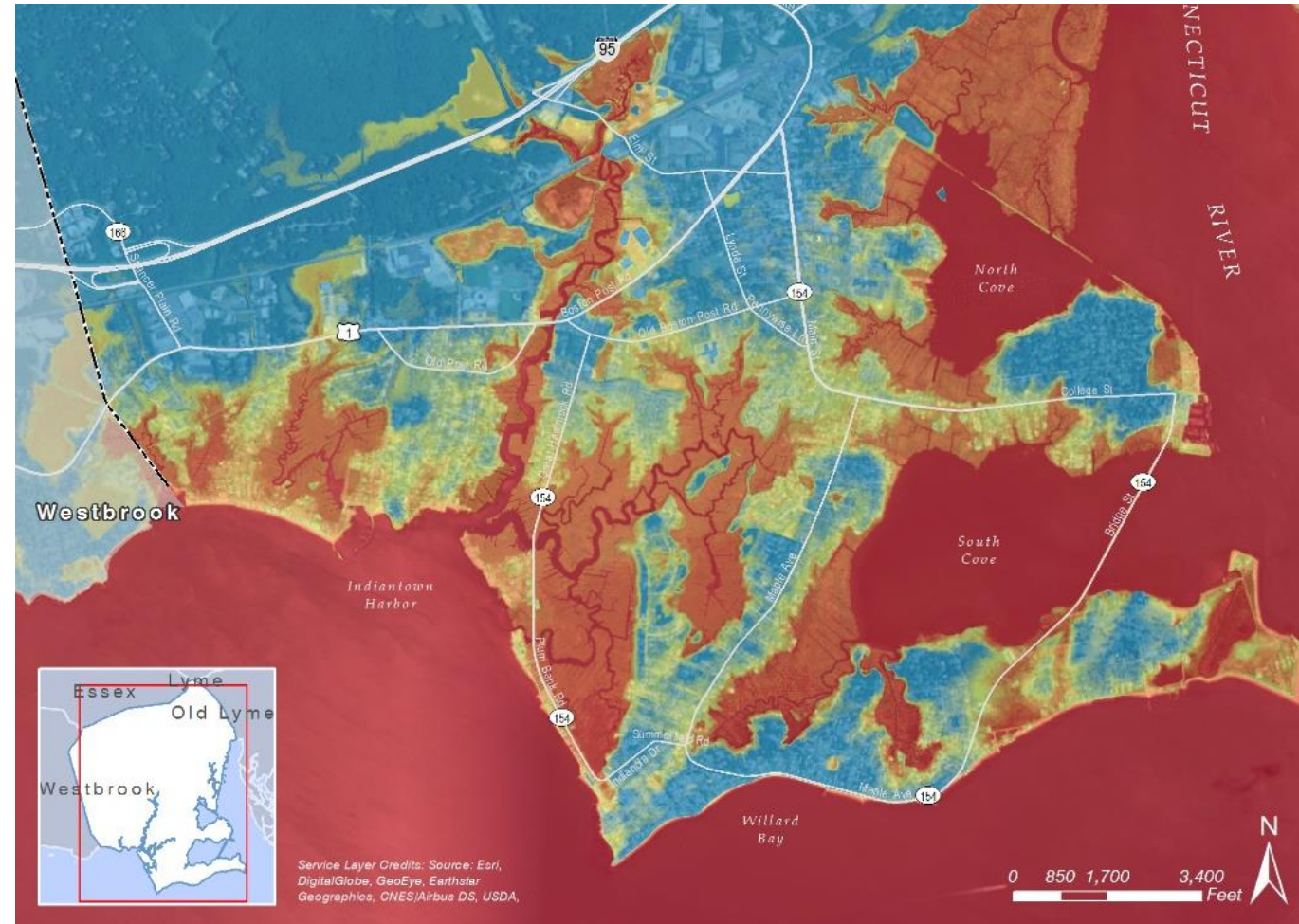
GZA High Resolution Modeling – 2016 100-yr



Vulnerability Assessment

Coastal Flooding Vulnerability

- High vulnerability to coastal flooding due to coastal setting and topography
- Experienced extensive flood impacts during the Hurricane of 1938
- More recently during Sandy and Irene



Examples of Coastal Flooding Vulnerability

- ✓ Impacted Communities








Examples of Coastal Flooding Vulnerability

- ✓ Impacted Essential Facilities
- ✓ Evacuation Impacts
- ✓ Shelter Impacts



Examples of Coastal Flooding Vulnerability

✓ Impacted Lifeline Systems





-  Emergency Comm. Systems - Cell Towers
-  Electric Power Transmission
-  Heating Oil
-  Natural Gas
-  Potable Water Supply

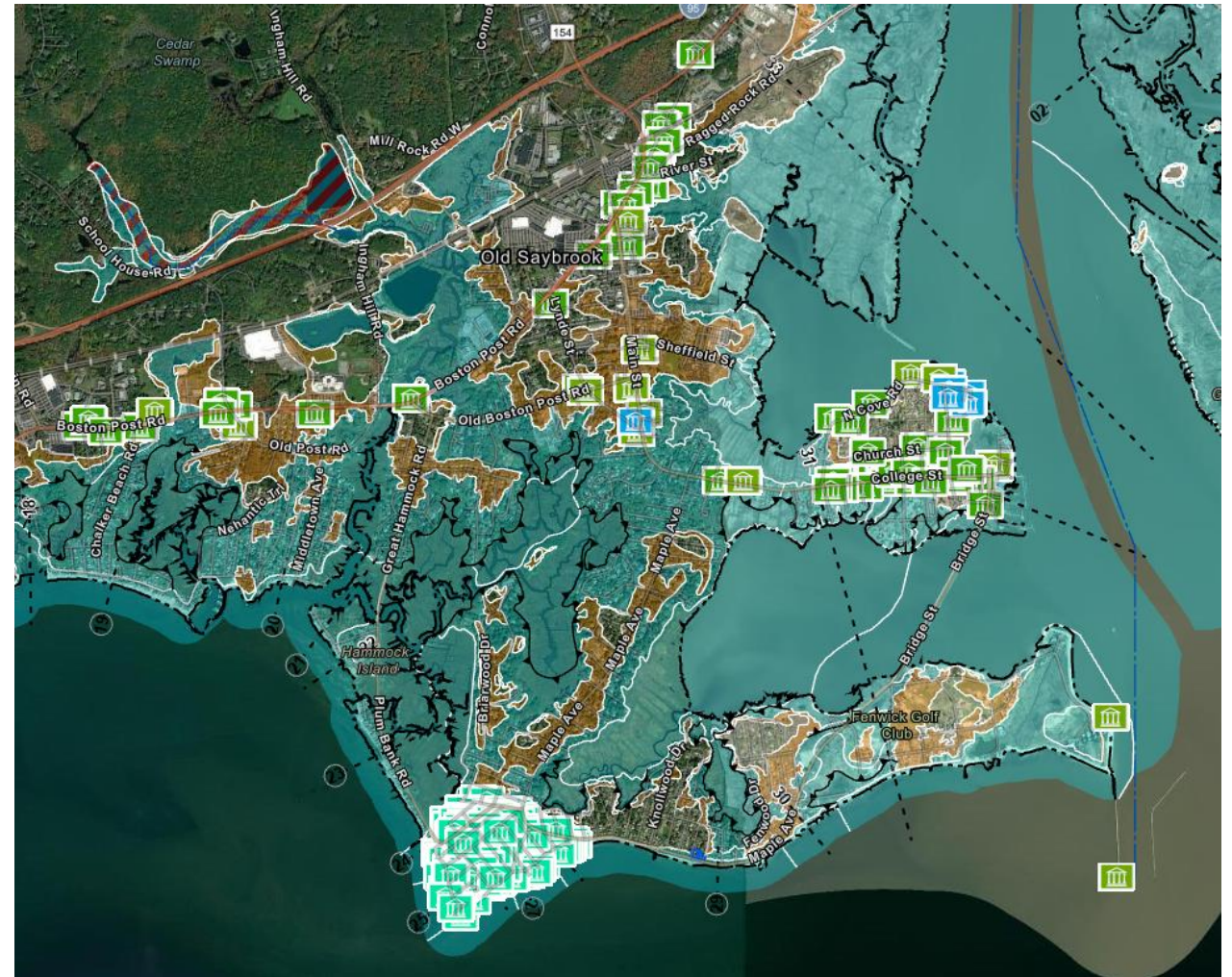


Examples of Coastal Flooding Vulnerability

✓ Historic Structures

Type of Historic Property	Total Number	Total Number in VE/V Zone	Total Number in AE/A Zone
National Register Federal Historic Properties	17	3	3
State Register Historic Properties	76	1	17
Locally Significant Historic Properties	236	2	38
Other Significance	6	None	None
Total	335	6	58

-  National Register Historic Property
-  State Register Historic Property
-  Locally Significant Property
-  Other Significance



Examples of Coastal Flooding Vulnerability

✓ Roadways and Bridges

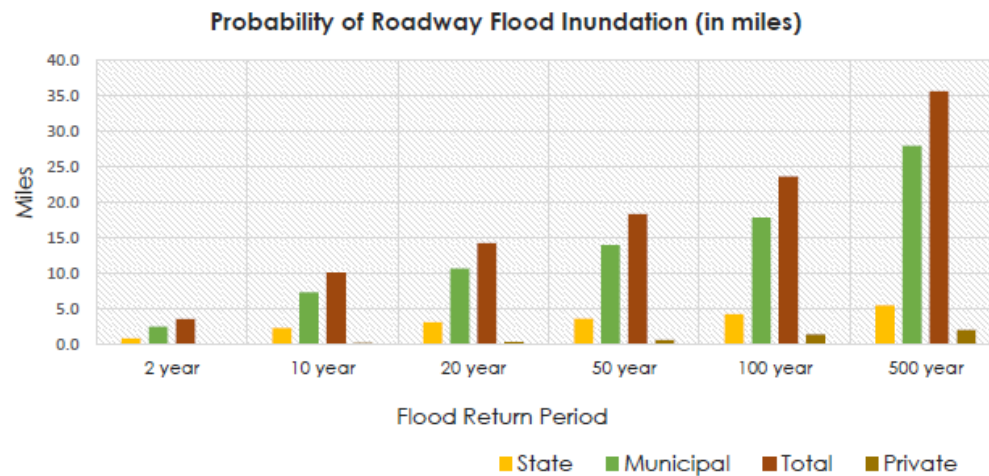


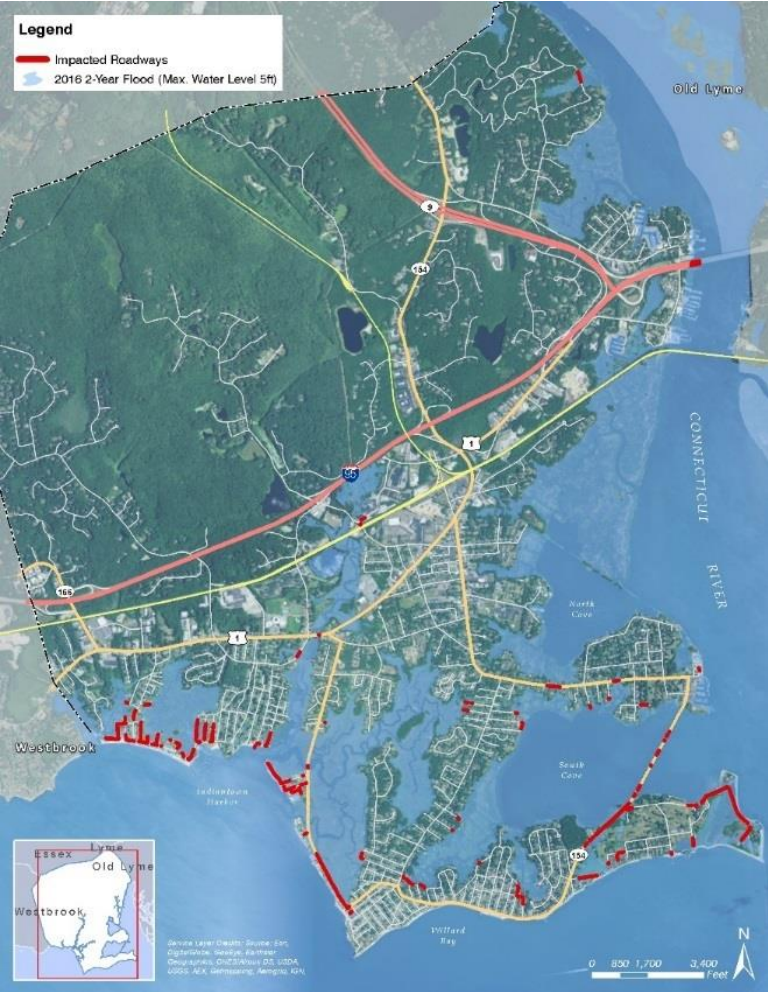
Table 4-14: Probability of Roadway Flood Inundation (in percentage) Due to Coastal Flooding under the Current Flood Risk

	2-year	10-year	20-year	50-year	100-year	500-year
State	2.9%	7.4%	9.6%	11.3%	13.1%	16.9%
Municipal	3%	8.5%	12.4%	16.2%	20.6%	32.3%
Private	3.6%	10.5%	15%	23.7%	50.4%	71.4%
Total	+/-4 miles	+/-10 miles	+/-14 miles	+/-18.5 miles	+/-24 miles	+/-36 miles

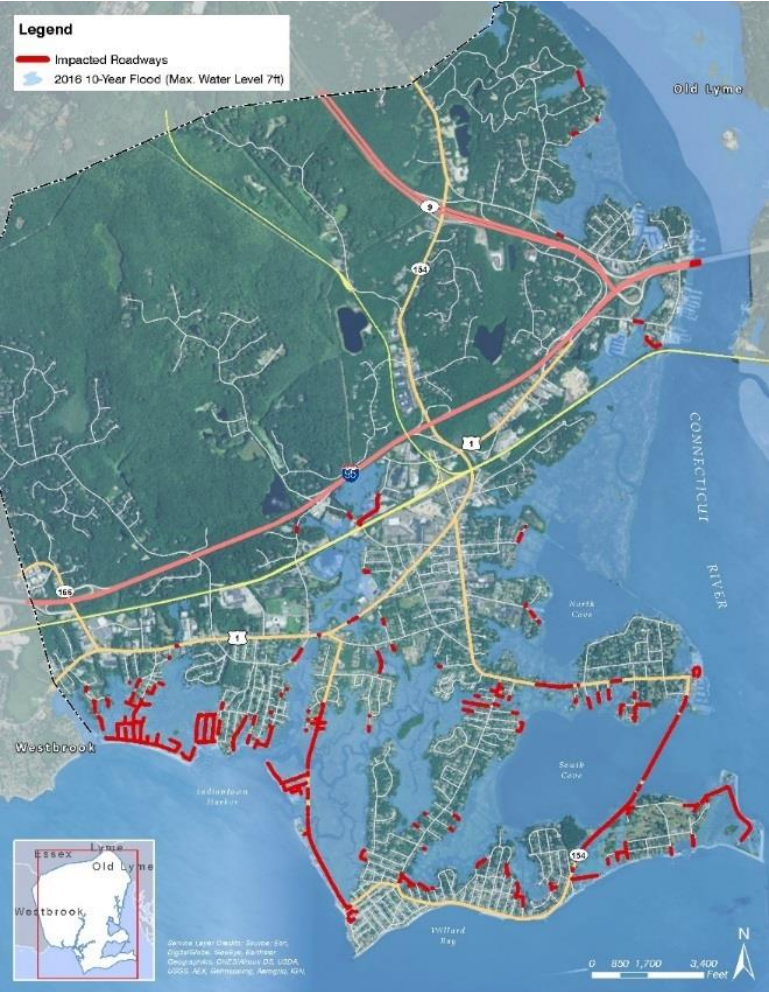


Town-wide Roadway Impacts

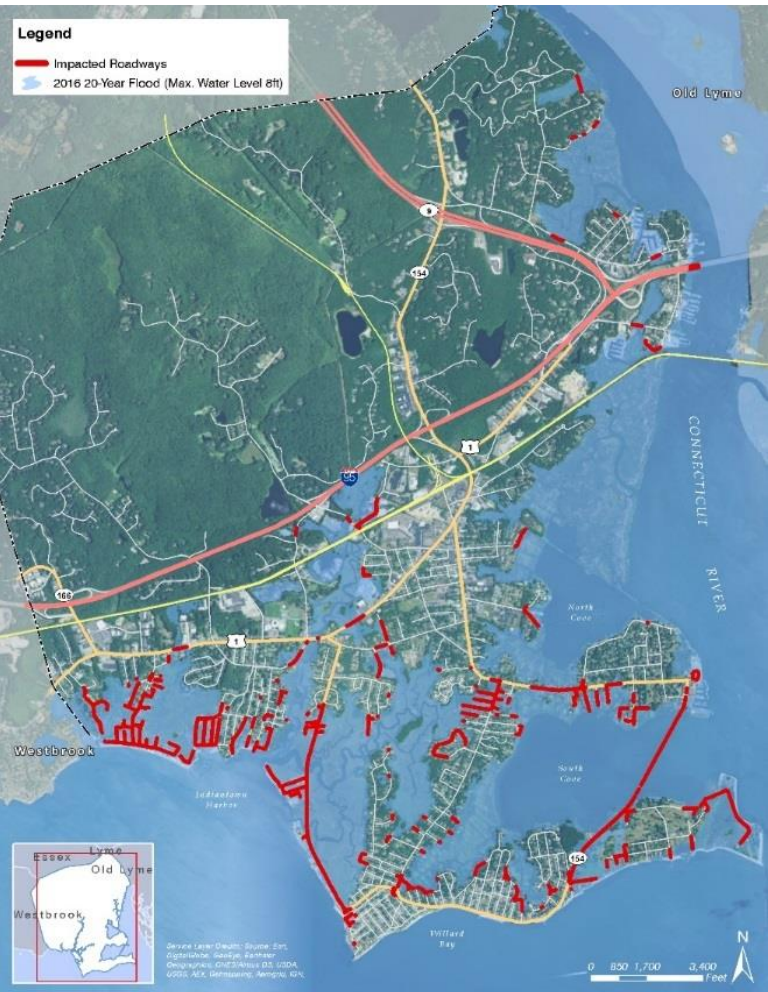
2-Year (2016)



10-Year (2016)



20-Year (2016)



Town-wide Roadway Impacts

50-Year (2016)



100-Year (2016)

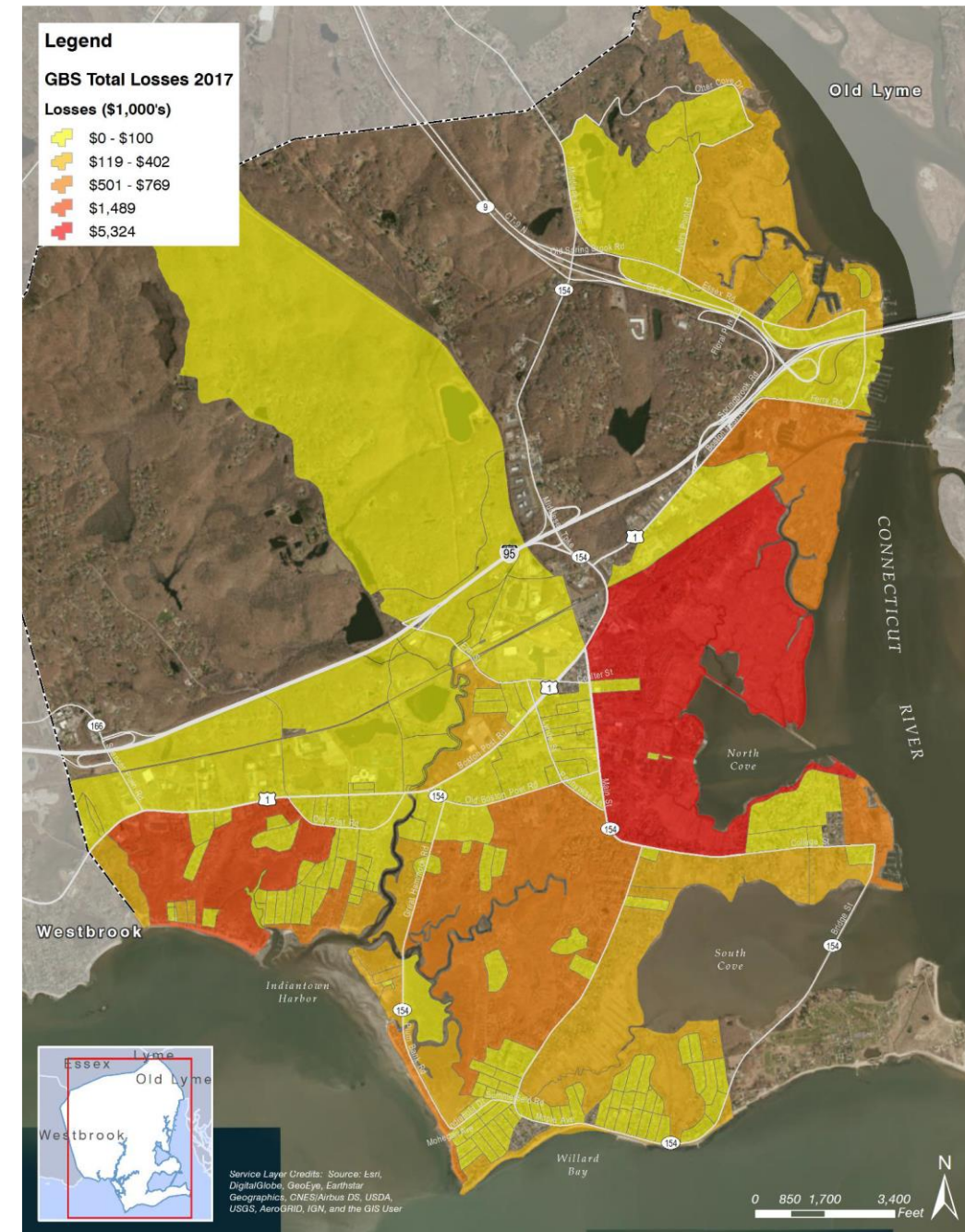


500-Year (2016)



Examples of Coastal Flooding Vulnerability

- ✓ Economic Loss (Average Annualized Loss)
- ✓ Muni Bond Rating



Examples of Coastal Flooding Vulnerability

✓ Property Damage



*Flooding within the Chalker Beach Neighborhood during Hurricane Sandy in 2012
(from CT Mirror File Photo February 7, 2014)*

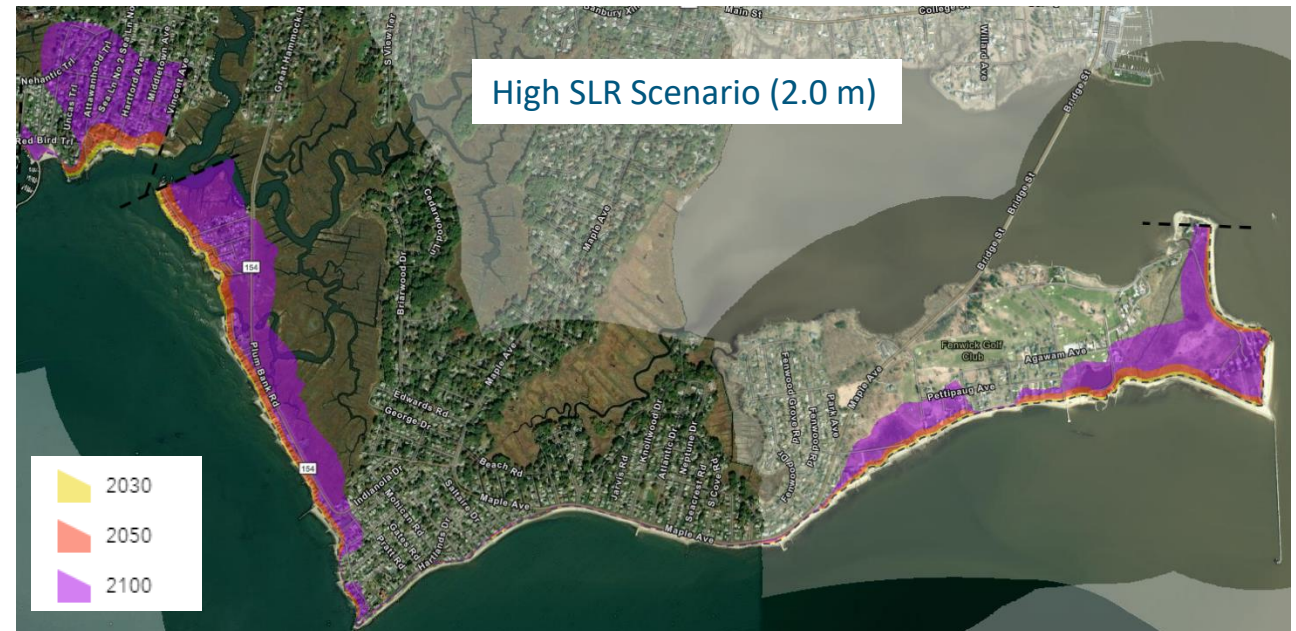
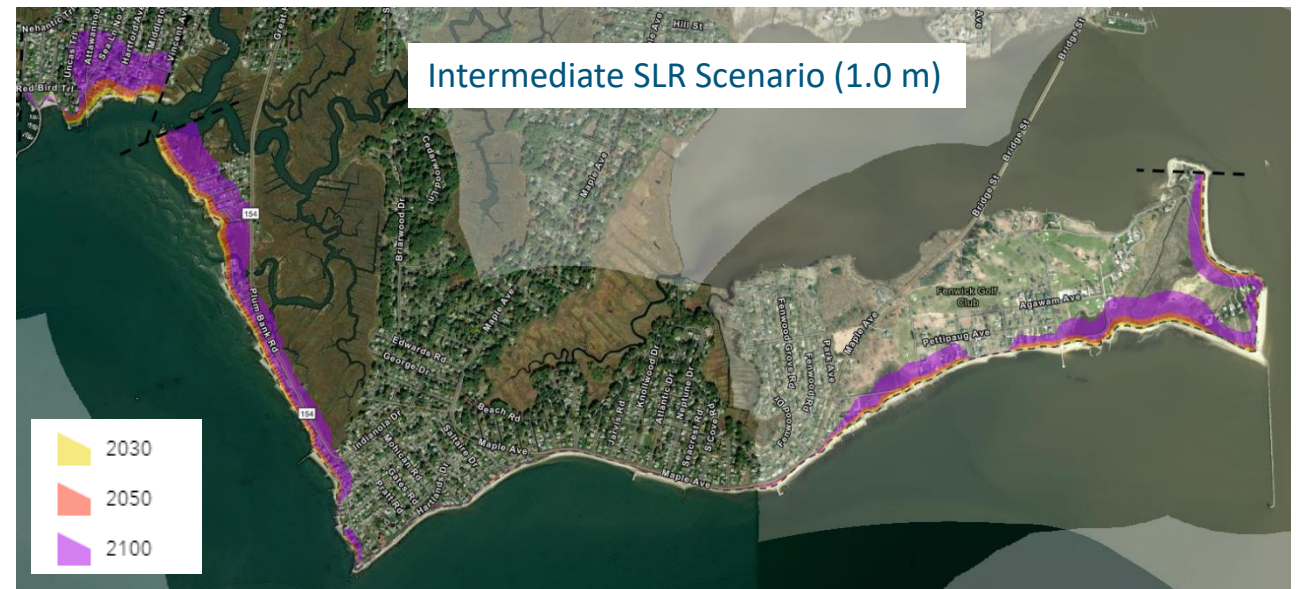


*Dock and Dine on Saybrook Point one week after Sandy
image from <https://gardendaze.wordpress.com/2012/11/09/storm-sandy-one-week-later-old-saybrook-ct/>*

Examples of Coastal Flooding Vulnerability

✓ Shoreline Change

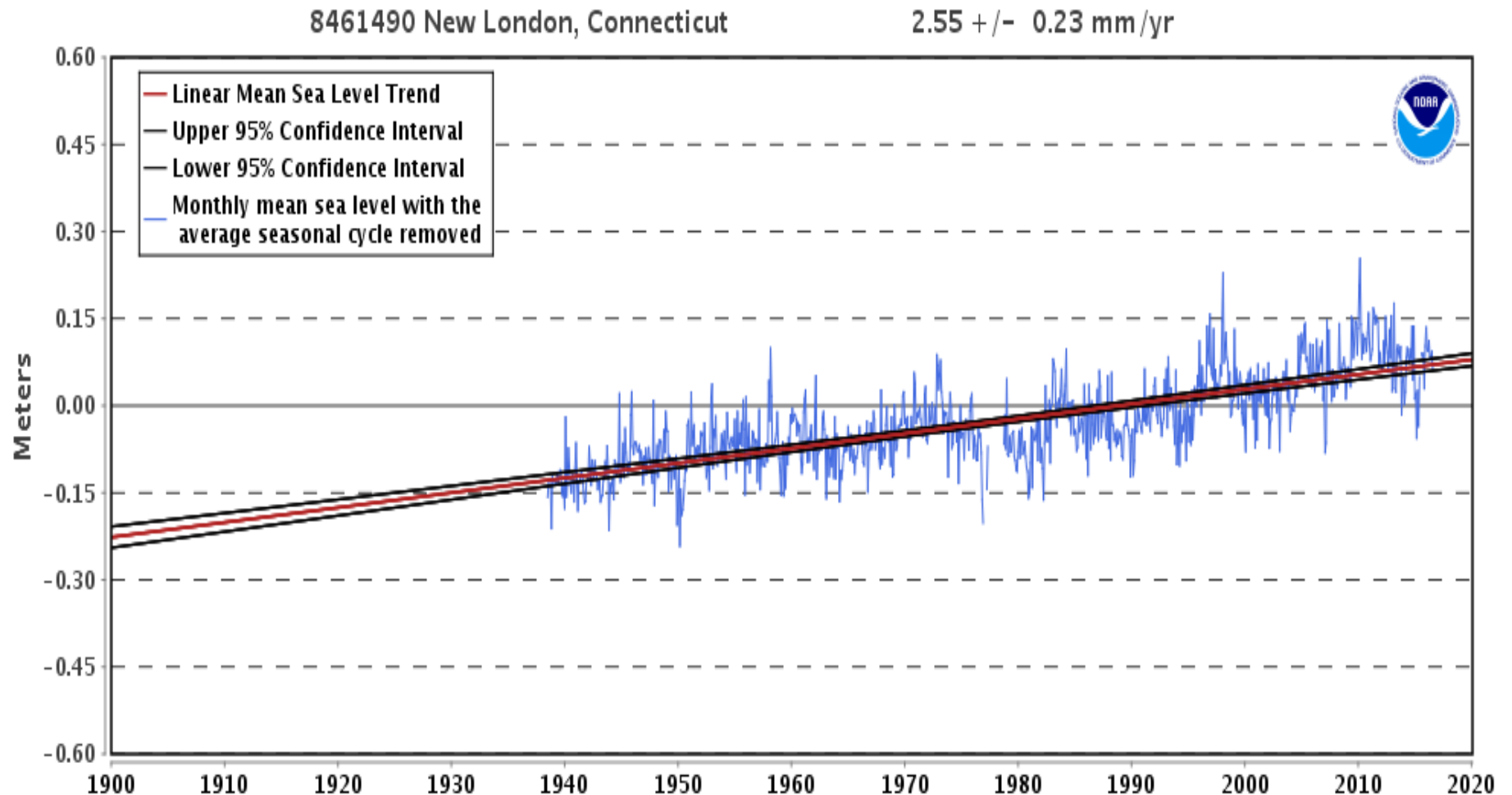
FEMA Coastal Erosion Hazard Maps



Climate Change Effects

Observed Rate of Relative Sea Level Rise Near Old Saybrook

2.55 +/- 0.23 mm/yr



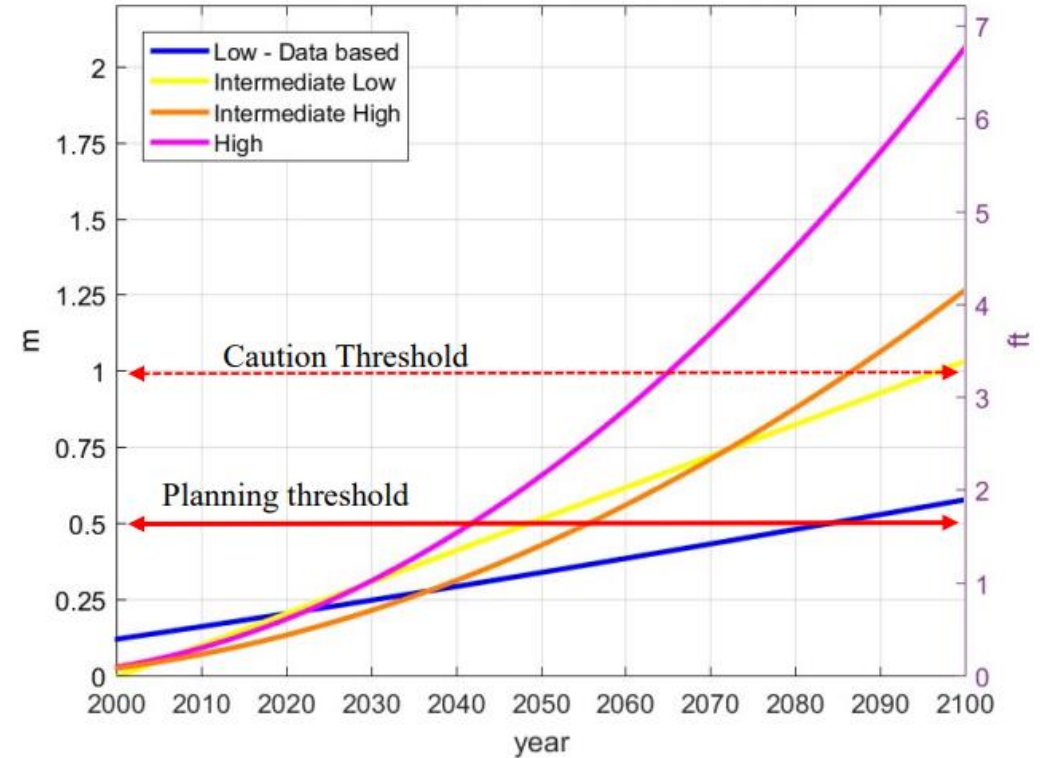
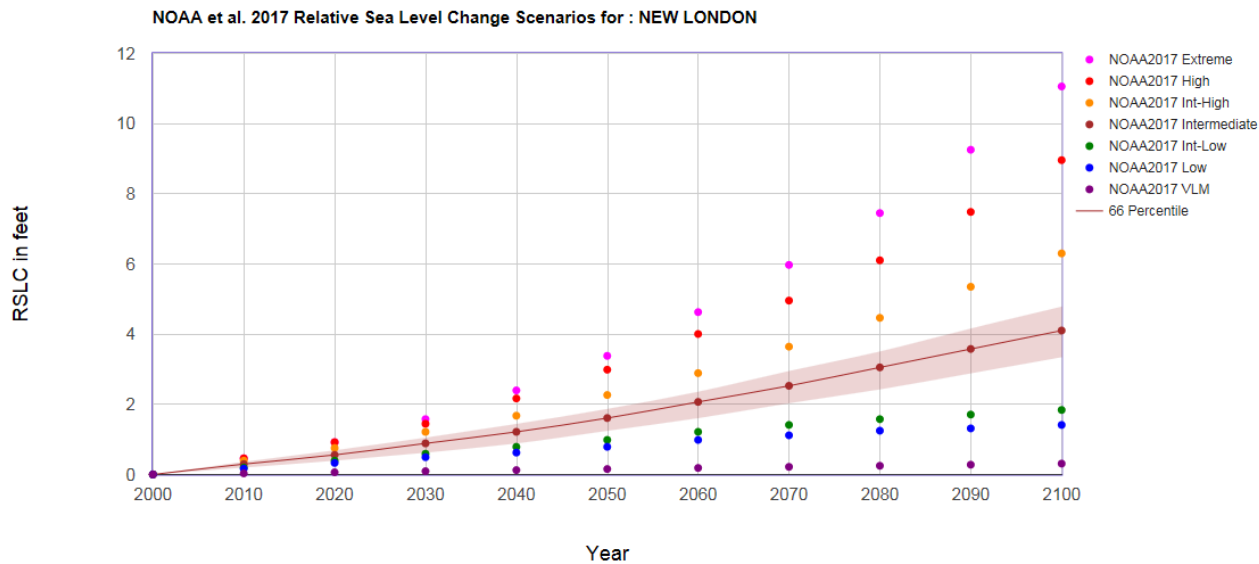
Climate Change Effects

Projected Sea Level Rise Near Old Saybrook:

2040: 0.05 to 1.23 feet

2065: 0.24 to 2.96 feet

2100: 0.5 to 6.46 feet



Planning Implications of Sea Level Rise

State of Connecticut Guidance and Regulation:

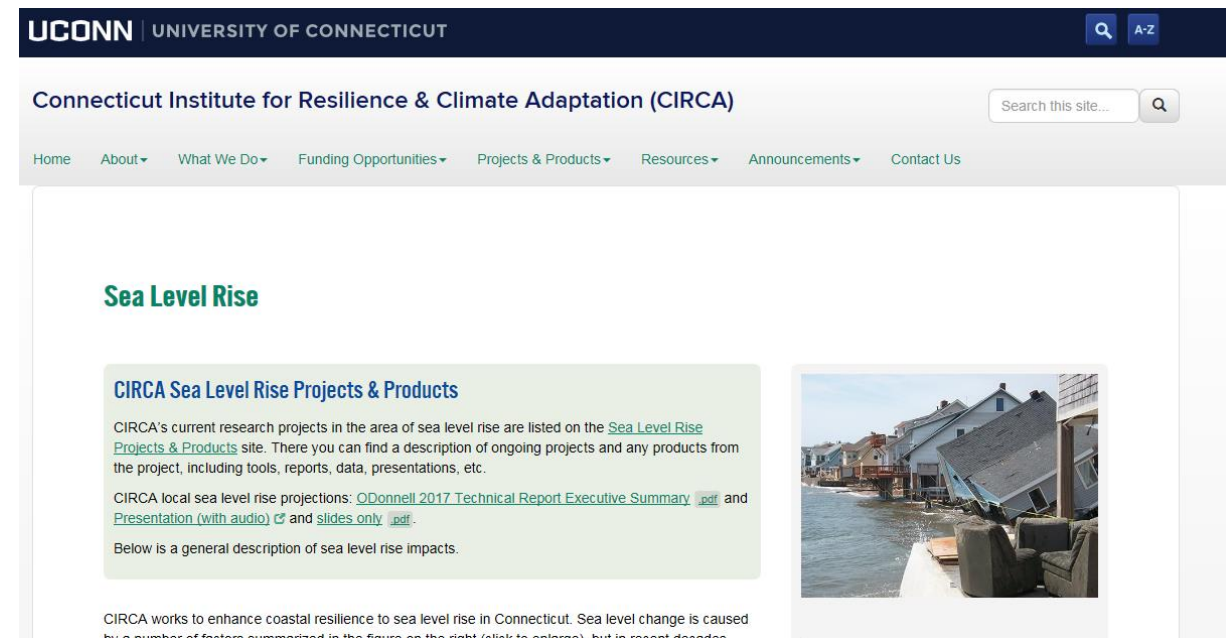
- PA 12-101
- PA 13-179

Must Consider RSLC:

- Plans of Conservation and Development
- Hazard Mitigation Plans
- Coastal Management
- Inconsistencies in definition of sea level rise
- Does not consider structure criticality

State Guidance: UCONN/CIRCA:

- Mid-range Planning 1.7 feet by 2050
- Long Term – be aware 3.38 feet by 2100
- Updated every decade



The screenshot shows the UCONN/CIRCA website. The header includes the UCONN logo and 'UNIVERSITY OF CONNECTICUT'. Below the header is the 'Connecticut Institute for Resilience & Climate Adaptation (CIRCA)' title and a search bar. A navigation menu includes links for Home, About, What We Do, Funding Opportunities, Projects & Products, Resources, Announcements, and Contact Us. The main content area features a 'Sea Level Rise' section with a sub-heading 'CIRCA Sea Level Rise Projects & Products'. The text describes current research projects and provides links to technical reports and presentations. A photograph on the right shows a flooded residential area with debris.

Sea Level Rise

CIRCA Sea Level Rise Projects & Products

CIRCA's current research projects in the area of sea level rise are listed on the [Sea Level Rise Projects & Products](#) site. There you can find a description of ongoing projects and any products from the project, including tools, reports, data, presentations, etc.

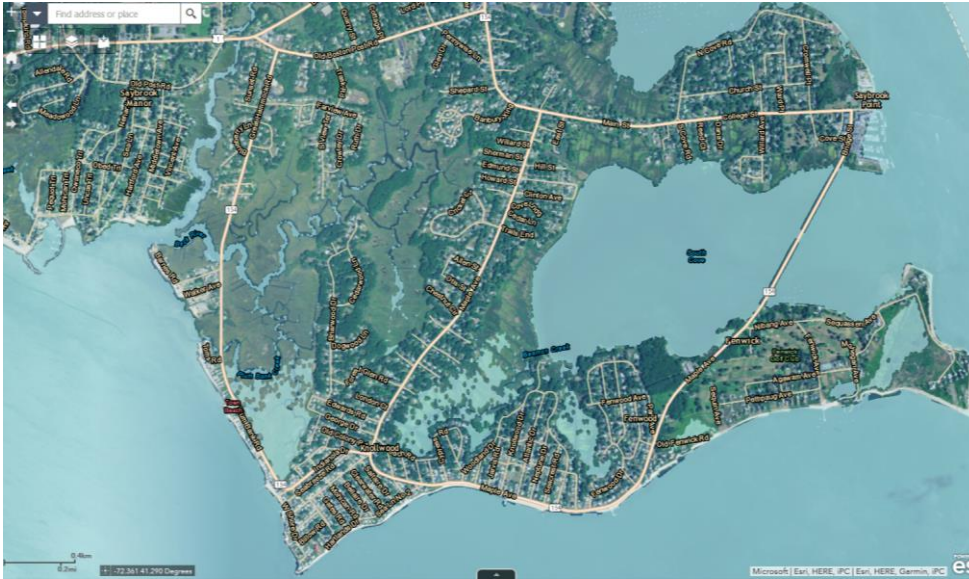
CIRCA local sea level rise projections: [ODonnell 2017 Technical Report Executive Summary .pdf](#) and [Presentation \(with audio\) &](#) [slides only .pdf](#).

Below is a general description of sea level rise impacts.

CIRCA works to enhance coastal resilience to sea level rise in Connecticut. Sea level change is caused by a number of factors summarized in the figure on the right ([click to enlarge](#)), but in recent decades

Sea Level Rise Effects (Mean High Tide)

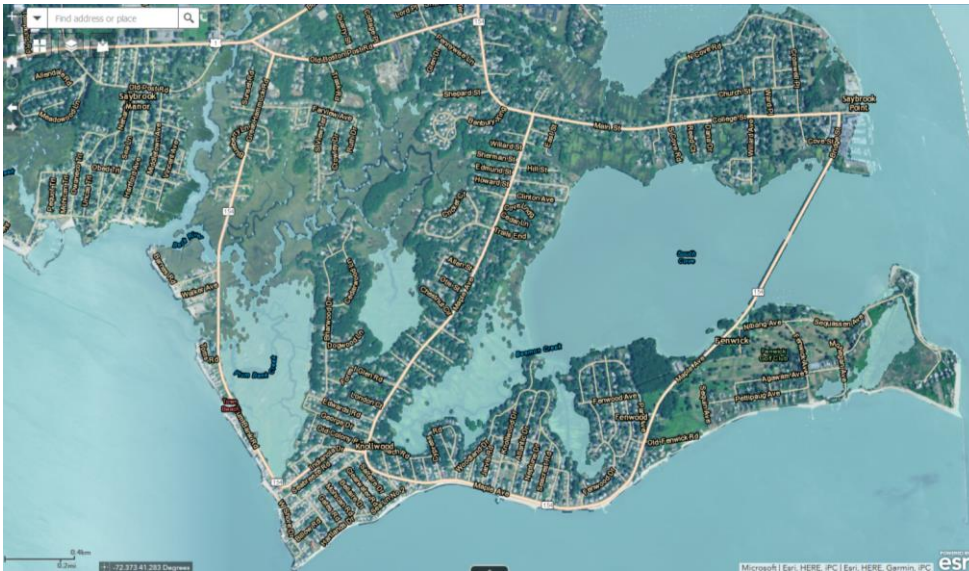
2017



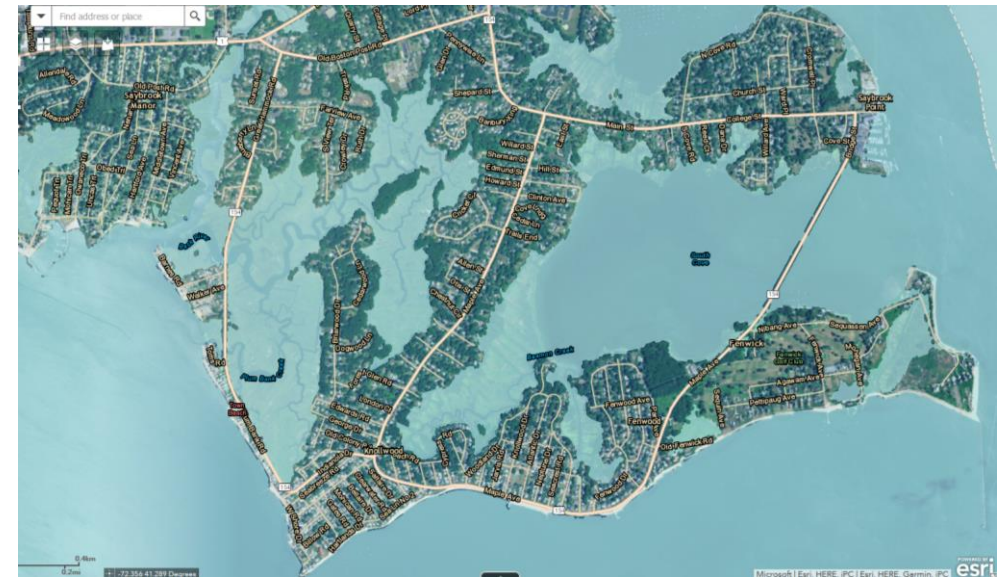
2041



2066



2116



Implications of Sea Level Rise

1. Increased frequency, extent and depth of coastal flood inundation
2. Larger wave effects
3. Increased rate of shoreline erosion
4. Long term effects on salt marshes
5. Increased amount of property damage and economic losses
6. Long term effects to economic development
7. Long term reduction to Muni Bond Rating
8. Loss of future real estate tax revenue



Street flooding in Chalker Beach following Sandy)(mage from <https://ctmirror.org/>)

Strategies and Actions



Hazard Mitigation
Strategies & Actions

Mitigation Strategy Approach

1. Hazard Risk Mitigation Goals

2. Hazard Mitigation Implementation and Progress

3. Existing Hazard Mitigation Capabilities

4. Hazard Risk Mitigation Measures/Actions

2019 Mitigation Goals

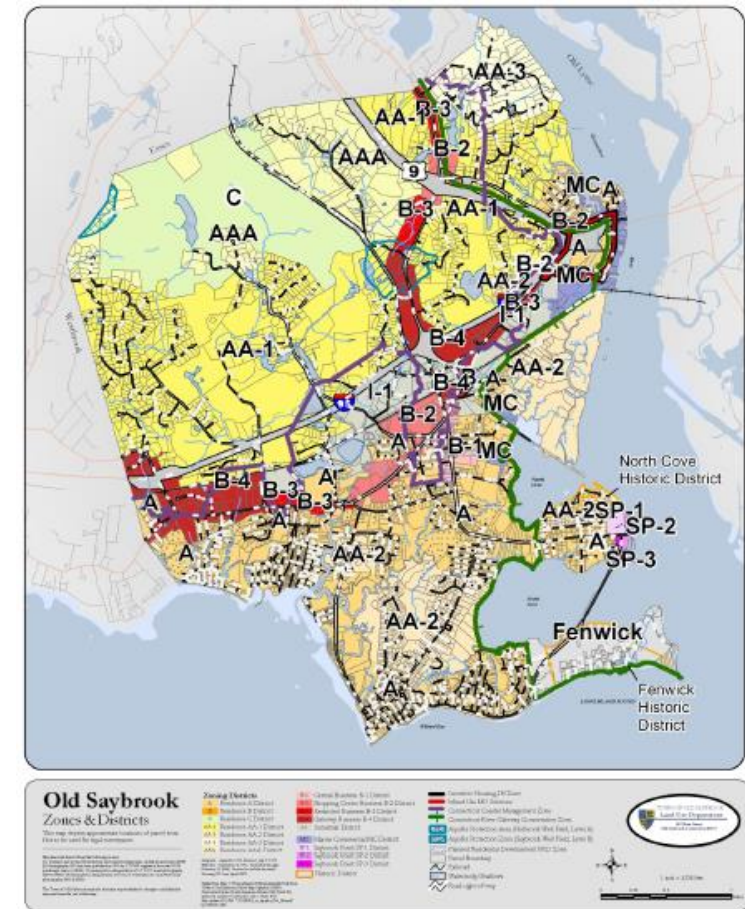
1. Promote Implementation of sound Floodplain Management and Other Natural Hazard Mitigation Principals on a State and Local Level;
2. Implementation of Effective Natural Hazard Mitigation Projects on a State and Local Level
3. Increase Research and Planning Activities for the Mitigation of Natural Hazards on a State and Local Level
4. Develop a Resiliency Strategy For Historic Resources
5. Increase and Promote Response Preparedness

2024 DRAFT Mitigation Goals

1. The prioritization of addressing coastal flooding issues including sunny day and storm event high tides
2. Addressing the most vulnerable areas, such as low-lying infrastructure and maintaining emergency access
3. Identifying responsibilities for advanced planning and response/repair of damages between the Town and the State
4. Promoting resilience strategies for multiple resource categories (historic, residential, etc.)

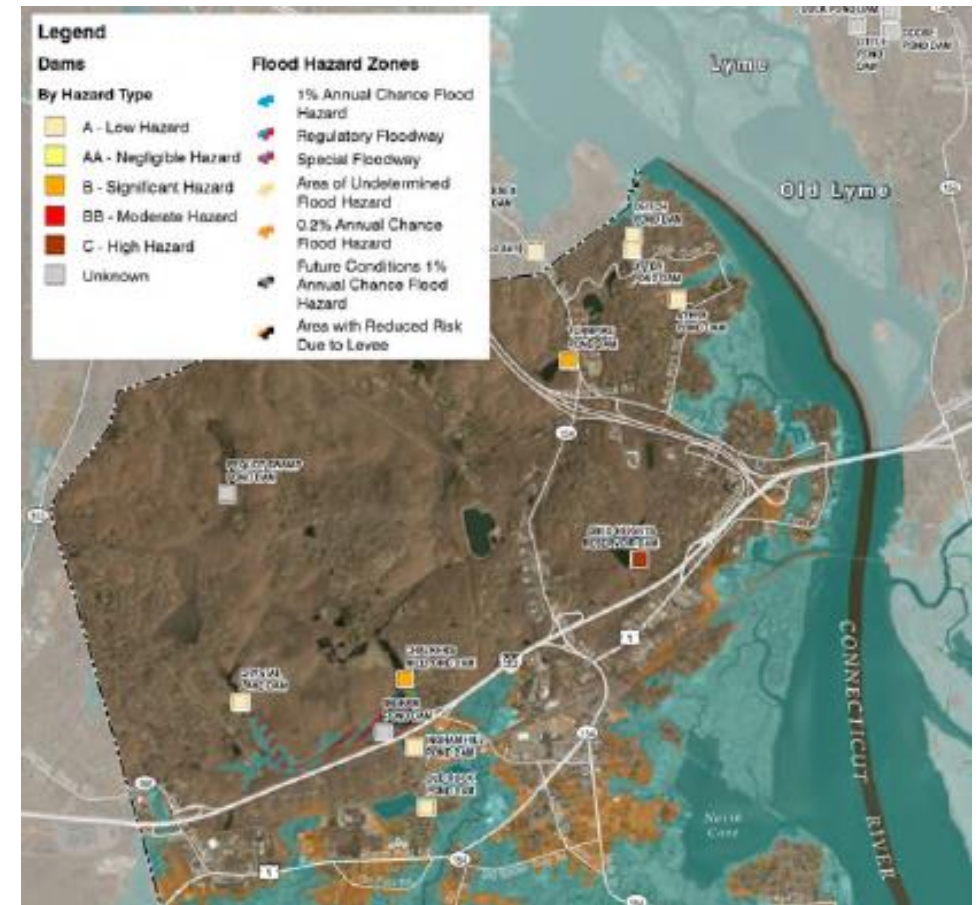
2019 Multiple Hazards Mitigation Capabilities

- ✓ Design Standards (i.e. enforcement of State Building & Fire Codes)
- ✓ Local Emergency Operations Plan
- ✓ Land Use Regulations: Subdivision and Zoning Regulations
- ✓ Preparedness & Recovery Webpages
- ✓ Centralized Public Safety Dispatch/CT Alert Emergency Notification System
- ✓ Emergency Generators
- ✓ Group Homes Permitting
- ✓ Geographic Information Systems
- ✓ Electronic & Paper Records Preservation



2019 Severe Weather Hazards: Flood Related Hazards Mitigation **Capabilities**

- ✓ Participation in the National Flood Insurance Program (NFIP)
- ✓ Dam Emergency Action Plans
- ✓ Design Standards (Flood Regulatory Enforcement)
- ✓ Stormwater Management
- ✓ Water Quality Monitoring
- ✓ Street Sweeping and Leaf Removal
- ✓ Local Sea Level Rise Committee

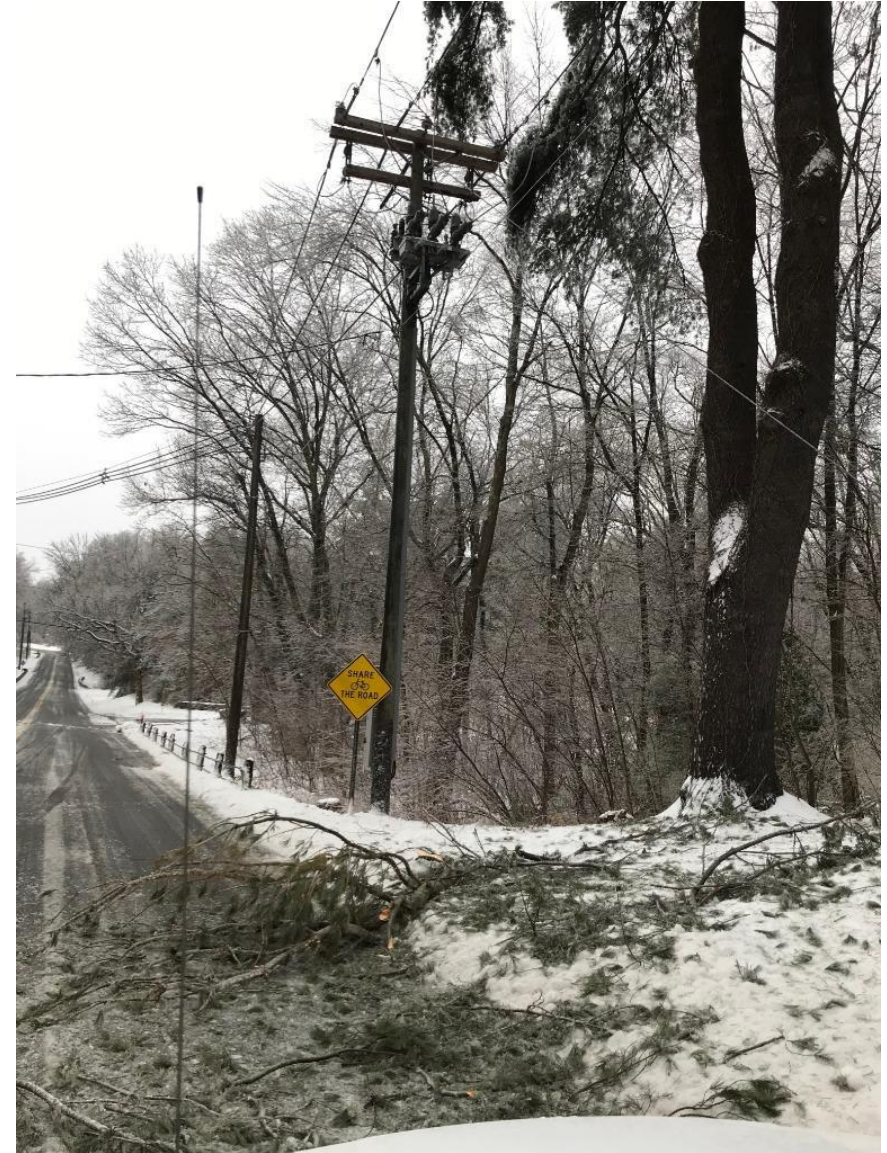


2019 Severe Weather Hazards: Wind and Winter Weather Mitigation **Capabilities**

- ✓ Mandatory Wind Code Compliance
- ✓ Tree Trimming
- ✓ Roadway Treatments

2019 Climate Related Hazards: Fire Related Hazards Mitigation **Capabilities**

- ✓ Permits Required for Outdoor Burning
- ✓ Fire Hydrant Regulations
- ✓ Subdivision Review



2019 Multiple Hazards **High Priority Actions**

- ✓ **Neighborhood Mitigation:** Establish a neighborhood working group to organize beach and neighborhood associations to engage these stakeholders in:
 - 1) Long-term retreat from very high vulnerability areas, including the beaches;
 - 2) Land acquisition for: a) future voluntary relocation; b) expansion of tidal marsh; c) conservation land, including beach-front property;
 - 3) Process for developing perimeter flood protection berms, including easements or land acquisitions, and responsibility for maintenance & operation during flooding;
 - 4) the possibility of using perimeter flood protection berms as public greenways.

2019 Multiple Hazards **High Priority Actions**

- ✓ **Cooperative Agreements for Shelters** : Prepare supporting documentation and encourage the BOS to establish agreement for shelters that can provide specialized services throughout the region.
- ✓ **Street Tree Program:** Implement a tree hazard management program to encourage appropriate planting and maintenance practices to minimize future storm damage to buildings, utilities and streets.

2019 Flood Related Hazards **High Priority Actions**

- ✓ **Develop a roadway improvement plan** to identify specific projects, project costs and funding mechanisms.
- ✓ **Pursue grant funding** for engineering, design, construction (as needed) for Near-Term Roadway Improvement Candidates including:
 - 1) Elm Street underpass and roadway toward culvert over Oyster River;
 - 2) Main and College Streets in the low-lying areas b/w Maple Ave. and Saybrook Point;
 - 3) Sections of Rt. 1/ Boston Post Road at lower elevations near and adjacent to the Oyster River;
 - 4) Sequassen Ave.; and
 - 5) sections of Maple Ave.

2019 Flood Related Hazards **High Priority Actions**

Develop conceptual plans and prioritization for pursuing engineering, design and construction funding of roadways identified in the 2014 HMP Update including:

- 1) Banbury Crossing;
- 2) South Cove Causeway;
- 3) South Cove Causeway;
- 4) Plum Bank RD and Salt Meadow RD near Cornfield Pt.;
- 5) Shetucket Trail;
- 6) Fourth & Sunset Avenues;
- 7) Old Post RD (eastern end);
- 8) Shetucket Trail-to-Bellaire DR;
- 9) Owenco, Obed & Nehantic Trails;
- 10) Mohican & Red Bird Trails;
- 11) Bokum-to-Barley Hill Road;
- 12) Dwayne to Kitteridge Hill RD;
- 13) Rock Ridge DR to Dibble RD;
- 14) Niabang Ave. at Route 154;
- 15) Sequassen Ave; and
- 16) Day DR to Acorn Dr (Westbrook).

2019 Flood Related Hazards **High Priority Actions**

- ✓ **Emergency Response and Evacuation Planning.**
- ✓ **Flood Protection.** Provide flood protection for at-risk Essential and Life-line Facilities.
- ✓ **Develop program to maintain existing groins and sea walls.**
- ✓ **Develop a Town-wide and regional beach nourishment plan.** Include an evaluation the technical feasibility of constructing dunes and berms into the plan.
- ✓ **Coordinate with USACE relative to proposed, future dredge projects and re-use of dredge materials for Town beach nourishment, salt marsh maintenance and restoration projects.**
- ✓ **Create a re-development plan for Saybrook Point** that requires measures to achieve compliance with flood regulations as well as addresses sea level rise.

2019 Flood Related Hazards **High Priority Actions**

- ✓ **PROTECTION OF PRIVATE PROPERTY.** Protect homes, on an individual property basis, using methods available under the existing flood regulations and ordinances (such as elevating houses).
- ✓ **HISTORIC PROPERTIES.** Provide flood mitigation guidance to property owners that is consistent with Historic District Regulations.
- ✓ **STORMWATER.** Analyze the existing stormwater infrastructure under precipitation only and combined coastal flood-precipitation events.
- ✓ Every 10-years, update future coastal flood risk overlay maps and sea level rise projections.

2019 Climate Related Hazards **High Priority Actions**

- ✓ **Conduct a Town-wide and Borough-wide study of ground and surface water capacity as it relates to planning for droughts.**
- ✓ **Coordinate with the CWC on public education and public service announcements in anticipation of and during times of drought.**
- ✓ **Firefighting Infrastructure Analysis:** Evaluate existing firefighting infrastructure to identify needs for improvement to cover gaps in availability.

Next Steps

1. Conduct Vulnerability Assessment
2. Update Mitigation Strategy and Actions
3. 2nd Public Meeting – May 15, 2024
 - Vulnerability Assessment Results
 - Updated Mitigation Strategy & Actions
4. Provide Draft Natural Hazards Mitigation Plan Update for review

Thank you for attending!

Questions? Comments?

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