Groton Long Point
Ad-hoc Resilience Committee
(GLPRC)

GLP Vulnerability & Resilience Planning

GLPA Public Forum

August 19, 2023

GLP Vulnerability & Resilience Planning

GLPA Public Forums

Saturday July 8: 9:30-11AM in Clark Hall
Provide project information and gather input from GLPA members

Saturday Aug 19: 9:30-11AM in Clark Hall
Present initial findings and gather feedback from GLPA members

Educate the community --> Gather Input & Feedback

GLPA Public Forum Agenda

9:30 - 9:45 Overview of the GLPRC

- What is the GLPRC Ad Hoc committee…. Who are the committee members
- Project Overview & Reason for Action
- Re-cap of Public Forum #1 held on July 8, 2023
- Re-cap of Interactive Session

9:45 – 10:30 GZA GeoEnvironmental & Coastal Ocean Analytics

- GLP Vulnerability & Resilience Plan – Progress & Timeline to Complete
- Overview of the Hazards
- Vulnerability Assessment Results
- Overview of Climate Adaptation Strategies
- Next Steps

10:30 – 11:00 GLPA Public Comments & Questions (open Mic approach)

- Address questions on the process, current status & timelines and the project objectives

11:00 Informal Interactive Session (GZA/COA and Public)

- Get feedback from attendees
  - Goal is not to get comments on individual homes but rather risk areas & areas of concern

What is the GLPRC ?

The GLPRC is an ad-hoc committee organized in the Fall of 2022 under the Planning Commission of the Groton Long Point Association (GLPA). Responsibilities of the GLPRC include:

1. Assess vulnerabilities and risks associated with climate change within the GLPA, from flooding and coastal storms (flooding, wave action, and wind damage);
2. Identify options for addressing vulnerable areas;
3. Prioritize risk mitigation based on cost of repair/replacement of area of vulnerability, cost of protection, and likelihood of damage;
4. Develop an action plan to implement selected options; and
5. Other activities as directed by the GLPA Board of Directors.

The GLPRC will make recommendations regarding mitigation and adaptation policies, as well as initiatives, to the GLPA Board of Directors for consideration and implementation by the GLPA.

Current members of the GLPRC are:

Jen Zick (Chair); Charles Primiano; Sam Acquaviva; Glenn Lussier; Stu Herlands; Kathleen Stevens; Karen Wolfskehl

Project Overview & Reason for Action

The GLP community is increasingly more vulnerable to the long term potential impacts of climate change including sea level rise, coastal flooding and catastrophic coastal weather events.

- 2023 CT DEEP Climate Resiliency Funding is available for **project planning, design and permitting**
- Application for the CT DEEP funds are due in Oct/Nov 2023 and **require a formal resiliency plan and project priorities.** As such…

- The GLPA Board, in cooperation with the Ad Hoc GLP Resilience Committee (GLPRC), has engaged **GZA GeoEnvironmental** with assistance from **Coastal Ocean Analytics** to conduct a vulnerability assessment and develop a climate resilience plan for the Association.
  - GZA is a reputable national firm with experience assisting many local communities with similar efforts.
  - GZA has been provided the results of the survey we conducted last fall for awareness of member sentiment and areas of concern.

July 8th Public Workshop #1 Recap

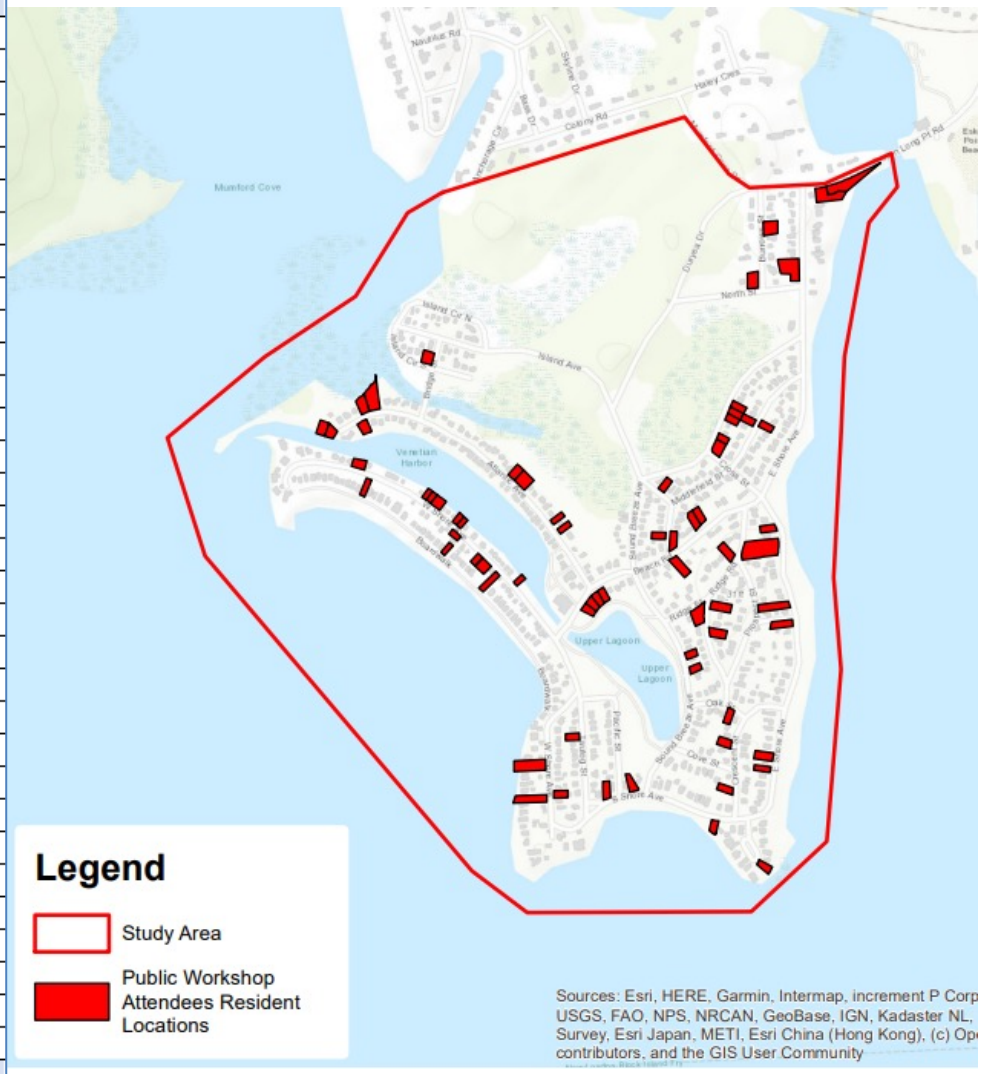
GLPRC

- Project Overview Expectations & Timelines
- Project Purpose & Reason for Action
- Introduced GZA Team

GZA

- GZA Experience
- Project Approach
- GLP Assets Overview
- Natural Hazards Overview
- Reviewed Fall-22 GLP Survey Results
- Open mic Q&A session
- Conducted Interactive Group Work Sessions

Row Labels	Count of ATTENDEE
Atlantic Ave	11
Beach Rd	13
Boardwalk	3
Bridge St	
Burrows St	3
Clubhouse Pt	1
Cove St	
Crescent St	2
Cross St	
East Shore Ave	7
Groton Long Point Rd	3
Island Ave	
Island Circle No	
Island Circle So	1
Middlefield	
Middlefield St	5
North St	
Oak St	1
Pacific St	
Peck St	1
Prospect St	
Rear Beach Rd	
Ridge Rd	5
Ridge St	1
Sound Breeze Ave	7
South Shore Ave	4
Tautog St	1
Tautog Street	
Venetian St	1
West Shore Ave	15
Weston Rd	
Windham	
Grand Total	**85**



GLP Vulnerability & Resilience Planning

July 8th Interactive Session

What did you tell us!!

Public Workshop #1 Input from Attendees: **FLOODING**

Where in Groton Long Point have you observed flooding?

- Beach Road
- West Shore
  - By Venetian Street
  - Beach Walk Area
- End of Atlantic Avenue at the boat ramp and storm sewer
- Venetian Harbor & Upper Lagoon
  - Beach Road, Atlantic Ave, West Shore
  - Public Safety Area
  - Playground Area
- Sound Breeze & South Shore
- Sound Breeze Ave.

To what extent has flooding affected your property?

- Water in the basement
- Increase in Flood Insurance
- Back and front yards
- Garages
- Beach erosion

Public Workshop #1 Input from Attendees: **HEAT**

To what extent has increasing temperatures (i.e., days over 90) affected your business or property?

- Increased drought conditions impacting gardens, farms
- Increased use of electricity and air conditioners
- Changes in forestry nearby
  - More invasives
  - Trees dying off due to diseases

With days over 90°F expected to increase by 2050, how would you increase the heat resilience?

- Increase shading areas
- Increase tree plantings
- Add misting fans
- Construct shade canopies on boardwalk combined with flood barriers

Public Workshop #1 Input from Attendees: **ADAPTATION**

What ideas would you like to see this study explore to increase the resiliency of the area to climate change?

- Marsh Preservation/Wildlife conservation
- Natural & nature-based features to address coastal erosion
- Sand replacement for beach restoration
- Seawalls and gate valves at Marina Breachway
- Sea walls / dredging to mitigate flooding from Inner & Upper Lagoon

With a predicted 1.7-foot rise in MSL expected by 2050, how would you increase the flooding resilience?

- Increase sea wall height
- Address beach erosion to create dunes at South Beach and reduce width of South Shore Road as a one-way street
- Stormwater management of drainage system/ more green infrastructure

GZA and COA Project Leadership Team

Samuel Bell, CFM – Day to Day Project Lead;
Resiliency Planner, Climate Adaption,
Funding Specialist

Wayne Cobleigh, CPSM– Public Outreach and Resilience Funding Lead

David M. Leone, PE, CFM – Principal in Charge;
Flood Vulnerability Assessment Co-Lead

**Jennifer O'Donnell, PhD– Principal Scientist;
Flood Vulnerability Assessment Co-Lead**

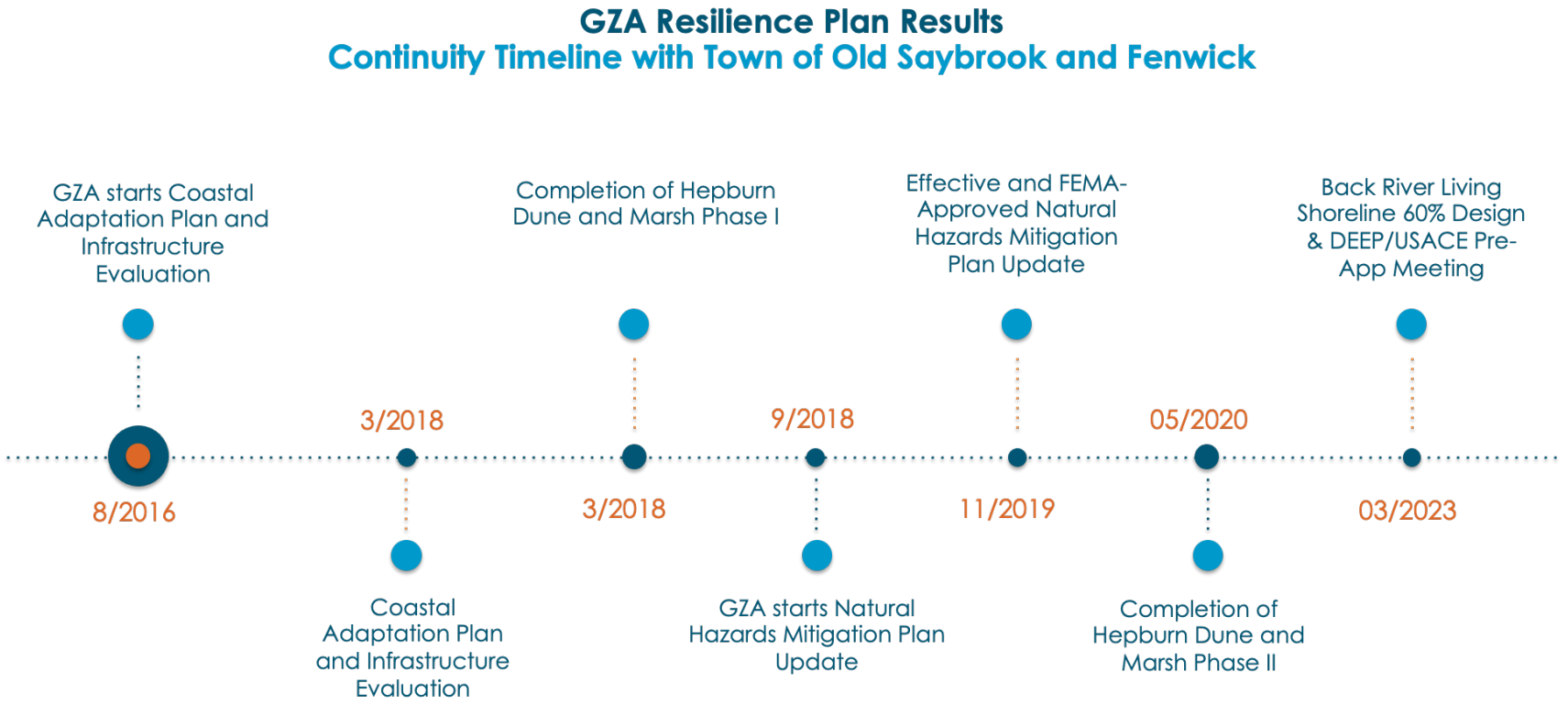
GLP Vulnerability & Resilience Plan – GZA Progress

Sect	DESCRIPTION	STATUS
1	Plan Overview	Draft Complete
2	Asset Data Collection & Inventory	Draft Complete
3	Hazards Characterization	Draft Complete
4	Climate Change Vulnerability Assessment	Draft Complete
5	Resilience & Adaptation Strategies & Measures	In process… Complete in Sep-23
6	Recommendations & Next Steps	In process… Complete in Oct-23

Vulnerability & Resilience Plan – Implementation

- **Planning, Design, Permitting → Implementation is a long term process**
- **GLPA must work to identify & address short term tactical actions while working to secure funding for long term projects and improvements**

Local Example



Permitted Projects in Groton Long Point

- **Rebuild Sand Spit Seawall (entrance to Venetian Harbor):** About 2/3's of the existing seawall has been rebuilt. Additional rebuild is required along 150' of the SW border and 150' along the NW border (on the Mumford cove side and the sound side). Permitted and will be rebuilt winter 23-24.

- **Bulkhead at Fire Lane:** A permit has been issued by the DEEP for rebuilding the bulkhead at the fire lane on West Shore. Plan to replace with galvanized steel sheathing. CIP item within 5 years

- **Redo Main Dock:** The GLPA has a permit to reconfigure main and the short dock into floating docks. This project was postponed several years ago due to cost which likely would be in the $400K to $500K range.

Pending Permit Work in Groton Long Point

- **Venetian Harbor (Inner Lagoon) Dredging:** The application to dredge the mid segment of Venetian Harbor to the main dock is being prepared. The dredge samples have been analyzed and have been found not acceptable for beach nourishment and most likely have to go to upland disposal. This will likely up the cost of the project. The ACOE has asked additional questions about the effect on fish and eel grass and the responses submitted. Timing of the project will depend on the permitting process.

Natural Hazards Overview

- Coastal flooding including storm surge and sea level rise
- Extreme precipitation, stormwater flooding, and riverine flooding
- Extreme Temperatures - Heat

Hazard Characterization: Intense Precipitation

Future Projections for Annual Total Precipitation 2005 to 2100

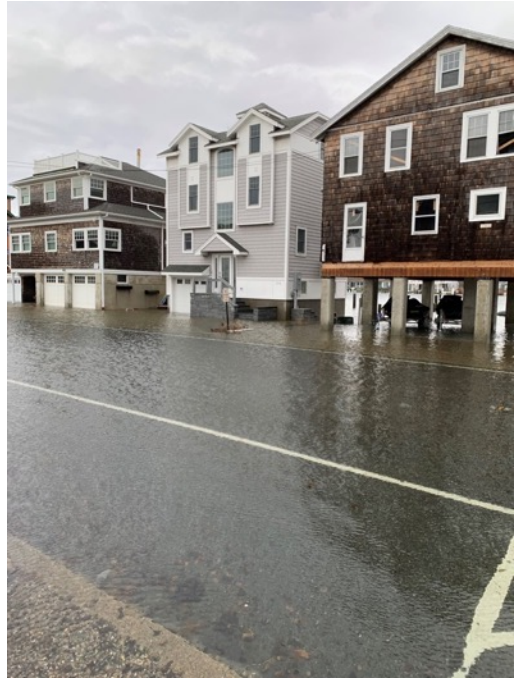
Hazard Characterization: Extreme Temperature - Heat

Future Projections for Average Daily Max Temp 2005 to 2100

Intense Precipitation

Increasing vulnerability to intense precipitation

- Total annual precipitation anticipated to increase by about 4 inches by 2050
- 100-year precipitation depth would increase by about 91% by 2040-2069 (from 6.6" to 12.5" in 24 hrs).



Extreme Temp / Heat

High vulnerability to increasing temperatures:

- Number of days with max temperature **above 90°F** are projected to **increase** by about **17 days** by **2050**; and
- Number of days with max temperature **less than 32°F** are projected to **decrease** by about **14 days** by **2050**.

Hazard Characterization: Coastal Flooding

CIRCA is the Connecticut Institute for Resilience and Climate Adaptation, UCONN Avery Point Campus, Groton, CT.

Over the course of a 30-year mortgage, this is the flood risk you may be exposed to:

The 10-year (10% Annual Chance) flood zone gives you a 96% chance of being flooded (or nearly guaranteed)

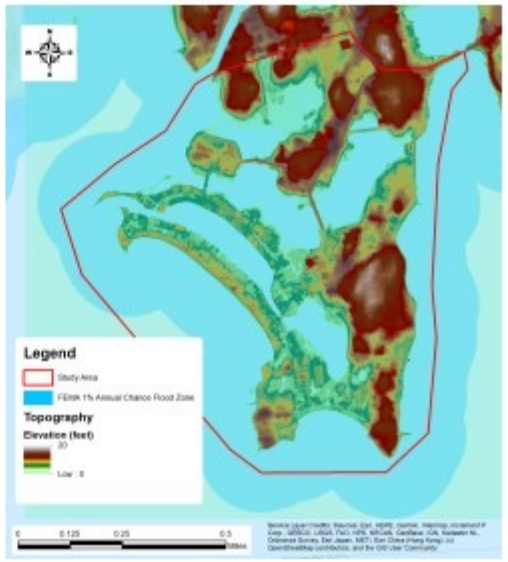
The 100-year (1% Annual Chance) flood zone gives you a 26% chance of being flooded or about a 1 in 4 chance of experiencing flood damage during your 30-year mortgage.

CIRCA 10% Annual Chance Flood Zone

CIRCA 2% Annual Chance Flood Zone

FEMA 1% Annual Chance Flood Zone

FEMA 1% Annual Chance Flood Zone & Topography



Footnote:

1. CIRCA is the Connecticut Institute for Resilience and Climate Adaptation, UCONN Avery Point Campus, Groton, CT
2. Over the course of a 30-year mortgage, this is the flood risk you may be exposed to:
   - The 50-year (2% Annual Probability) flood zone gives you a 45% chance of being flooded, and
   - The 100-year (1% Annual Probability) flood zone gives you a 26% chance of being flooded or about a 1 in 4 chance of experiencing flood damage during your 30-year mortgage.

Vulnerability Assessment: Buildings & Structures

DRAFT

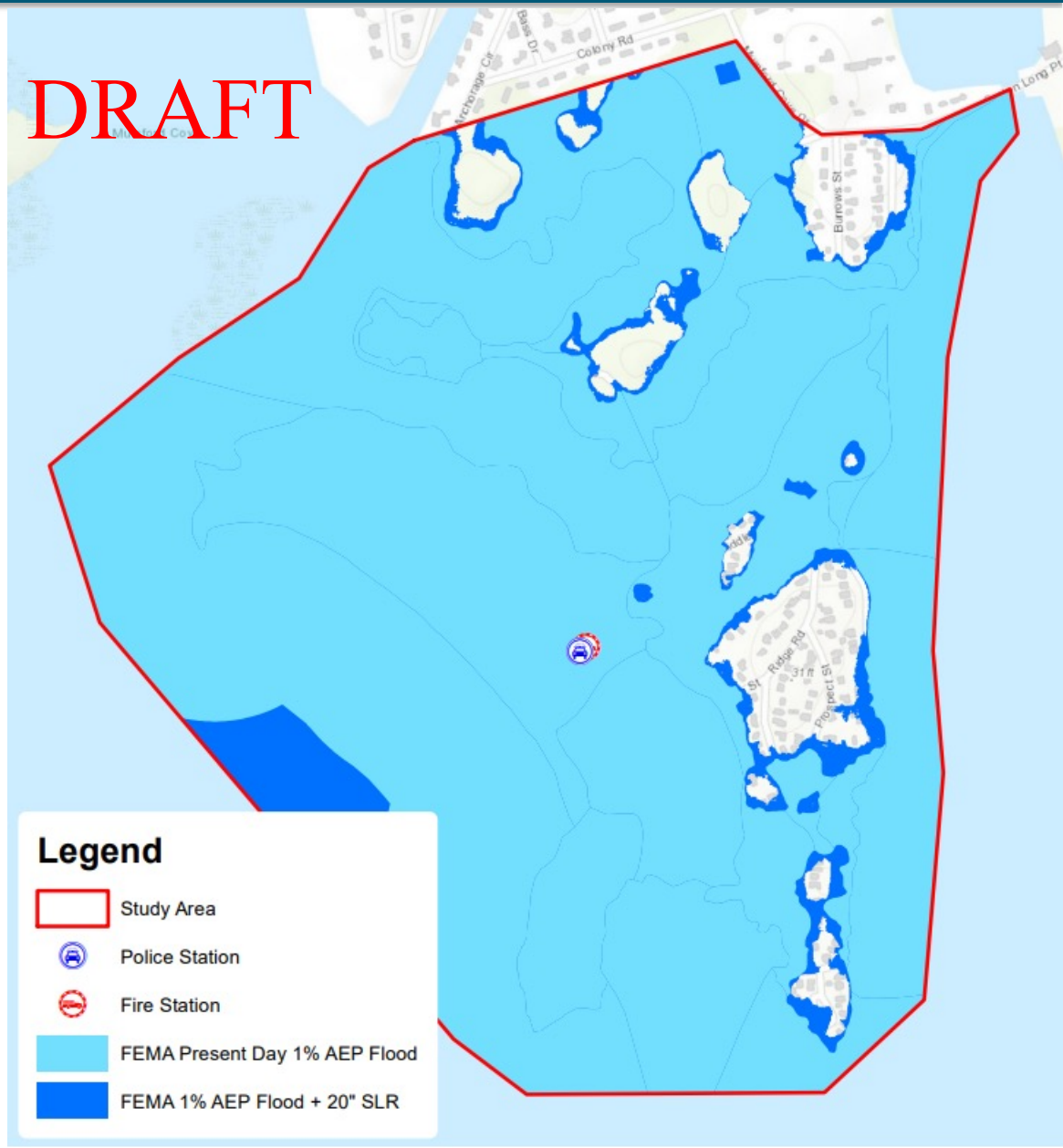
Current 10% Annual Chance Flood & 10% + 20” SLR (2050)

DRAFT

Current 1% Annual Chance Flood & 1% + 20” SLR (2050)

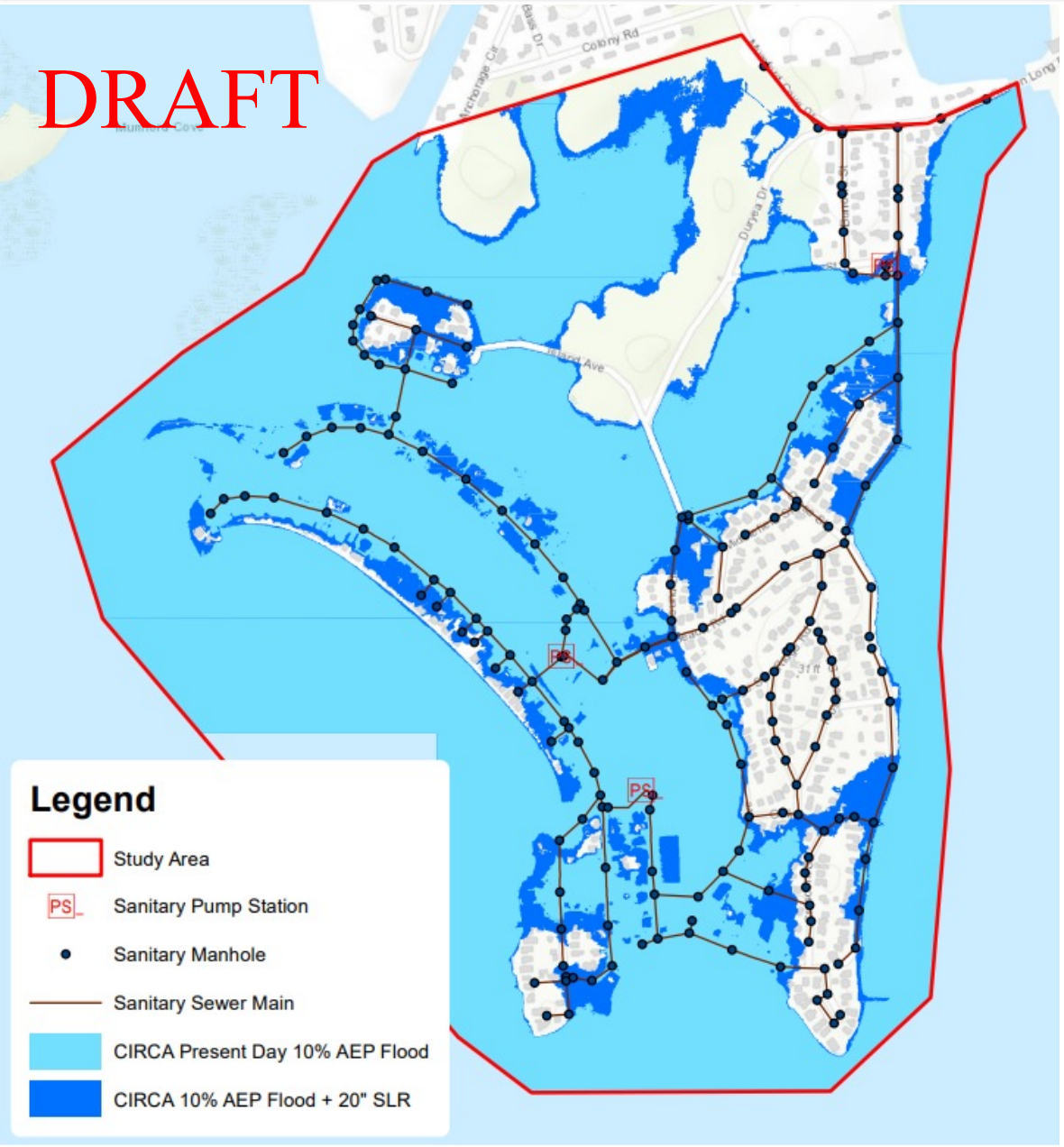
Vulnerability Assessment: Essential Facilities

Current 10% Annual Chance Flood & 10% + 20” SLR (2050)



Current 1% Annual Chance Flood & 1% + 20” SLR (2050)

Vulnerability Assessment: Sanitary System



Current 10% Annual Chance Flood & 10% + 20” SLR (2050)

Current 1% Annual Chance Flood & 1% + 20” SLR (2050)

Vulnerability Assessment: Stormwater System

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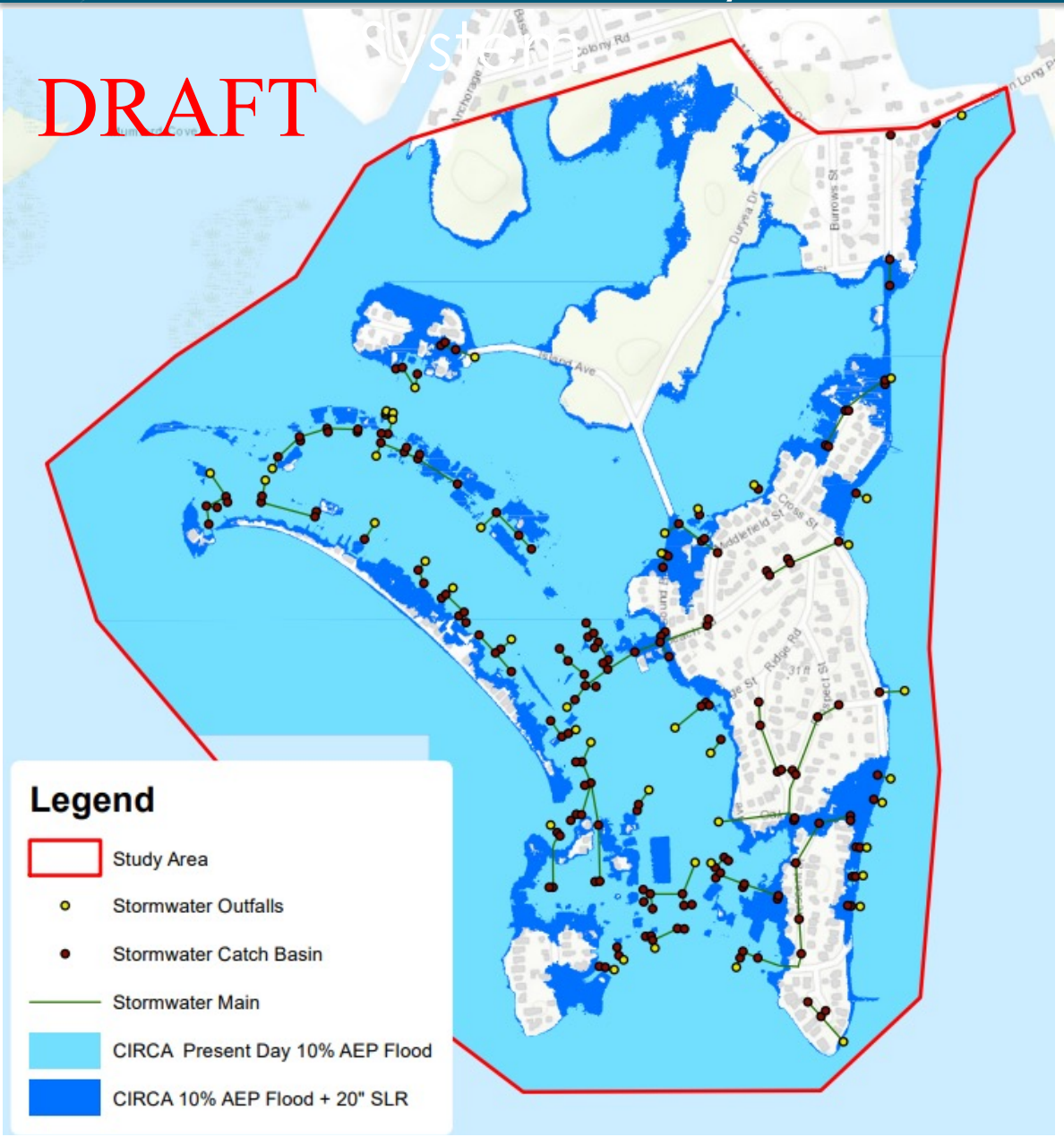

Current 10% Annual Chance Flood & 10% + 20" SLR (2050)

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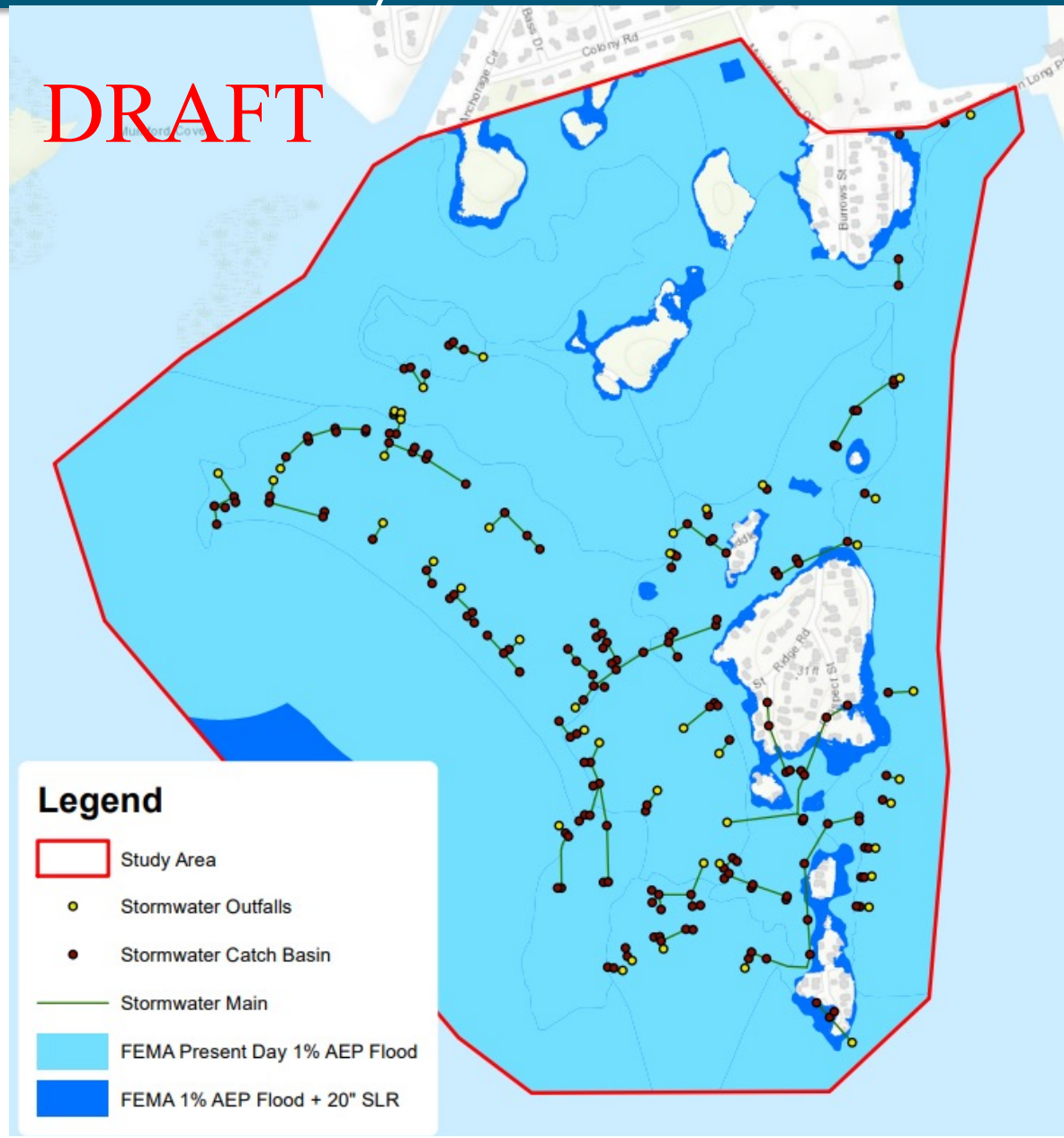

Current 1% Annual Chance Flood & 1% + 20" SLR (2050)

Vulnerability Assessment: Transportation System

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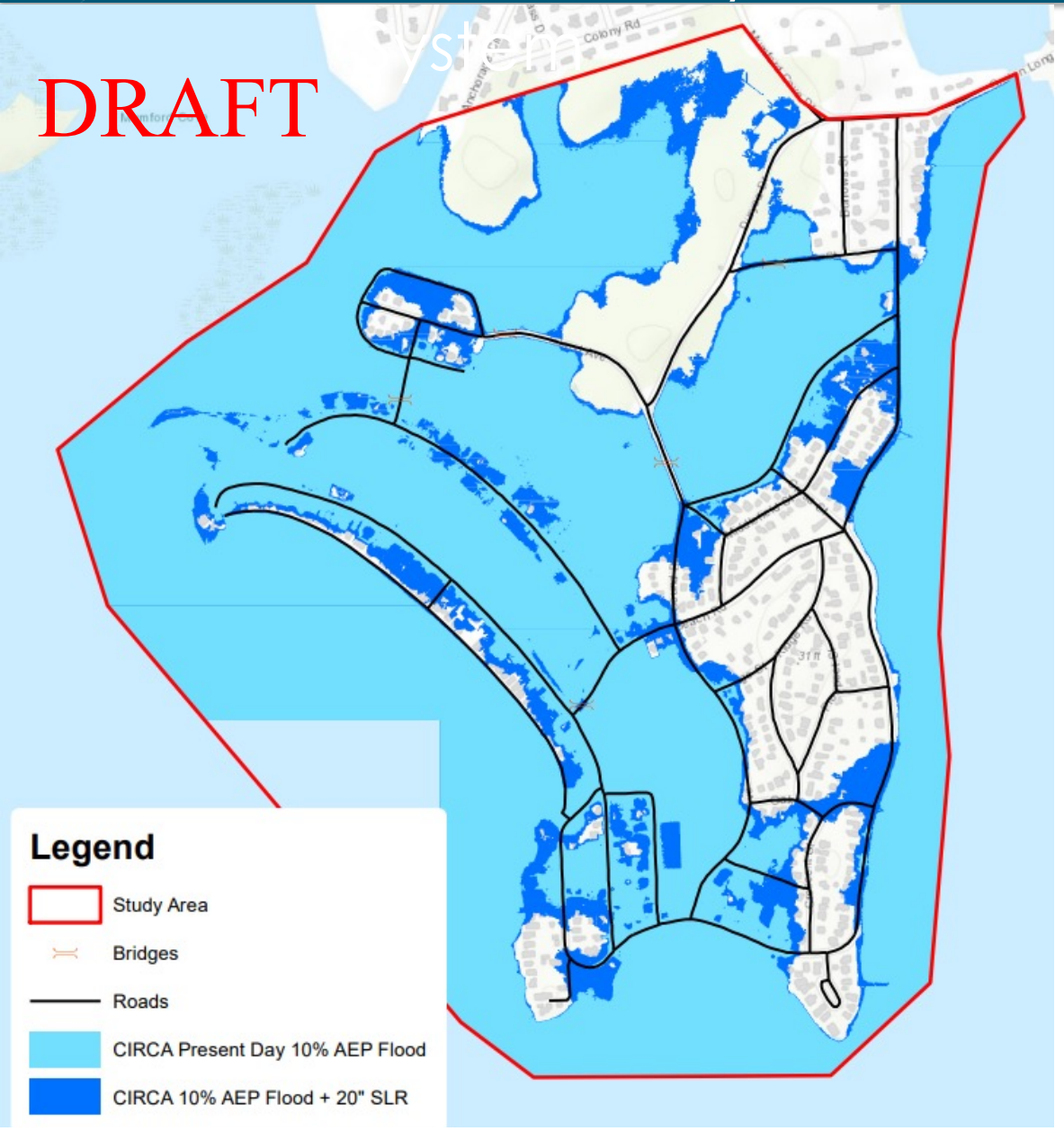

Current 10% Annual Chance Flood & 10% + 20” SLR (2050)

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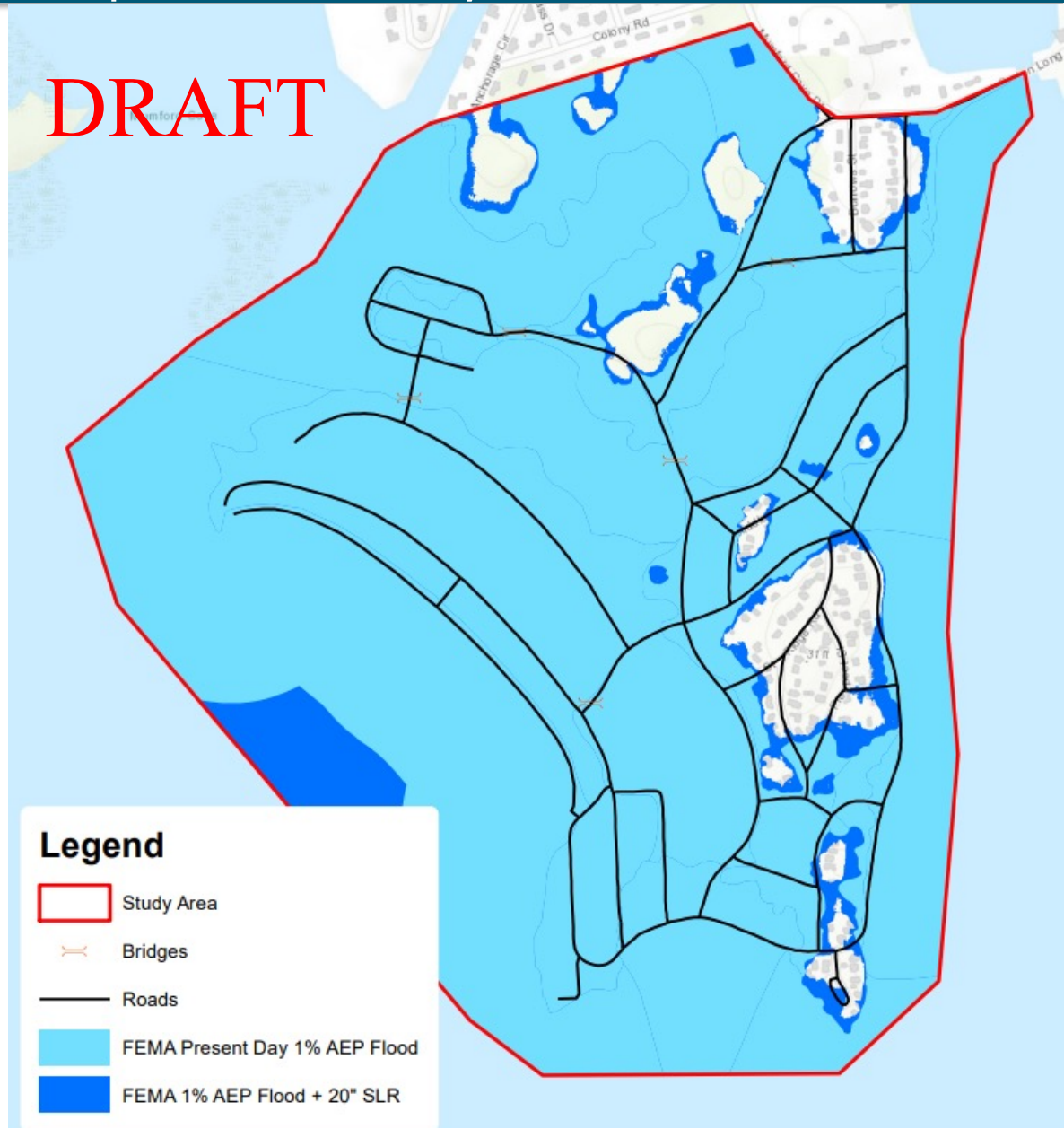

Current 1% Annual Chance Flood & 1% + 20” SLR (2050)

Vulnerability Assessment: Natural & Recreational Areas

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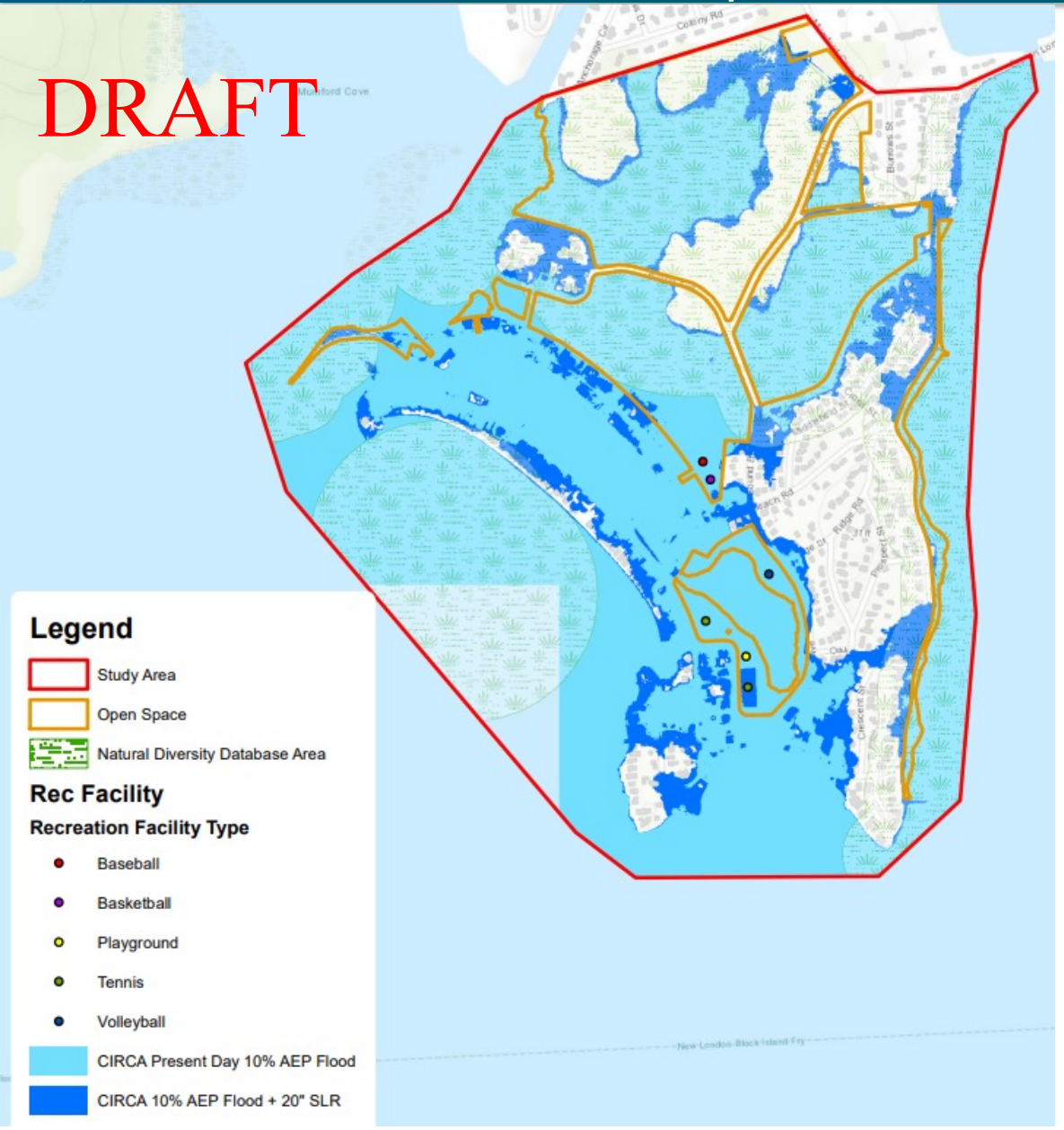


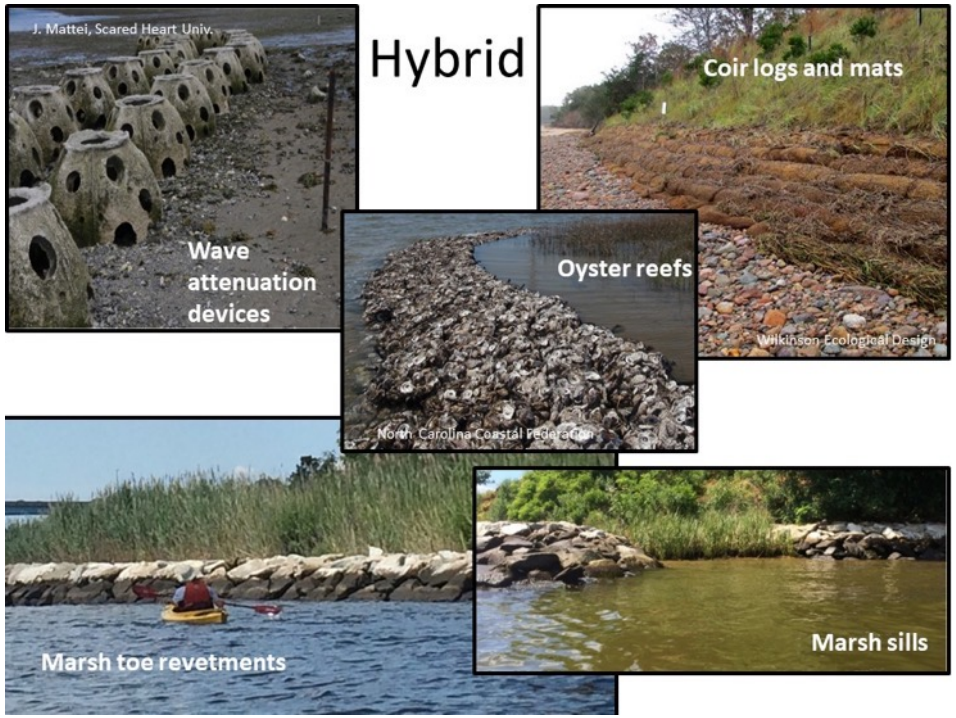
Current 10% Annual Chance Flood & 10% + 20" SLR (2050)

DRAFT

Current 1% Annual Chance Flood & 1% + 20" SLR (2050)

Flooding

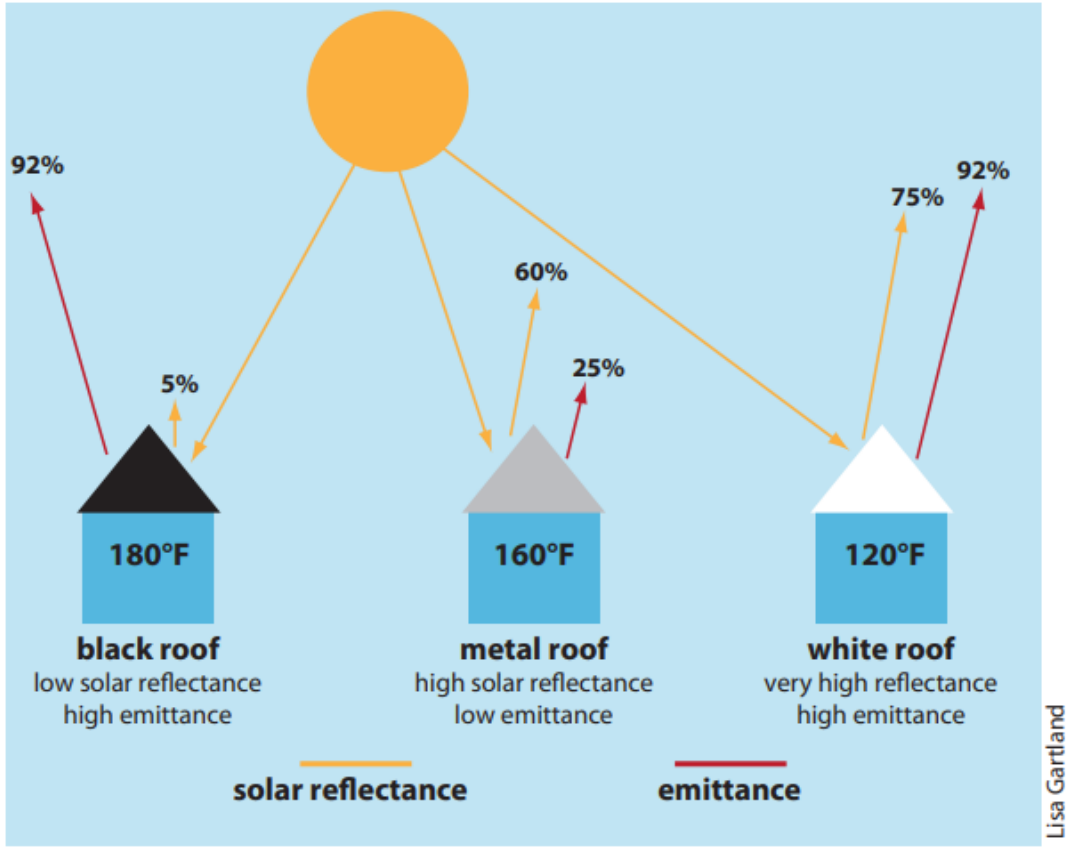
- Resilience Strategies
  - Protect
  - Accommodate
  - Retreat (not applicable to study area)
- Policies, Plans and Procedures (i.e., non-structural measures)
- Physical Projects:
  - Structural
  - Natural and Nature-Based Features (e.g., Living Shorelines)



Temperature

- Increased public education about heat health risks, side effects, and heat-health awareness.
- Non-structural long-term or people-based strategies (e.g., scheduling outdoor activities to cooler times of the day).
- Add cooling measures such as cooling centers, splash parks, pools, etc.
- Increase vegetation, tree cover, or awnings and canopies
- Require construction with heat-resistant materials or materials that reduce heat island effects such as "cool" pavements.

Figure 5: Example of Combined Effects of Solar Reflectance and Thermal Emittance on Roof Surface Temperature[4]



EPA 2008

Next Steps

- Complete Vulnerability Assessment
- Develop Adaptation Strategies & Actions
- Prepare Recommendations for Adaptation Strategies & Actions
- Identify State and Federal Funding Opportunities
- Develop Qualitative Ranking Criteria for Prioritizing Adaptation Strategies & Actions
- Prioritize Adaptation Strategies & Actions
- Prepare Draft Plan

GLP Vulnerability & Resilience Planning

Community Comments & Questions