



Resilient Mystic Stonington

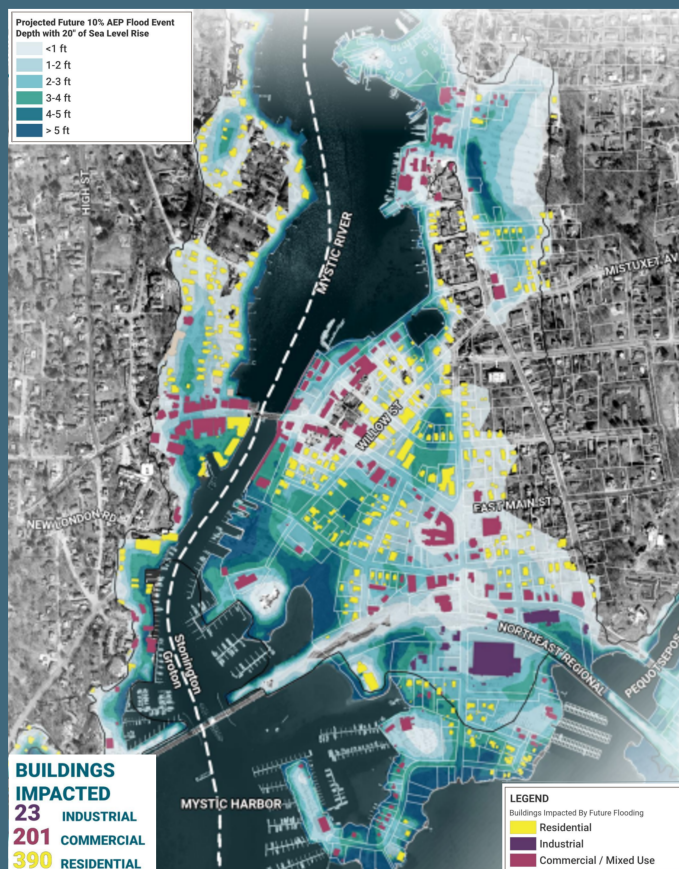
Fuss & O'Neill



Stonington

Project Site Overview

Mystic is a historic village spanning both Stonington and Groton. This project focused on the Stonington side of Downtown Mystic, with the study area extending from Mystic River and Mystic Harbor on the west to Williams Cove and the Pequotsepos River on the east, and north along Route 27 past the Mystic Seaport Museum. This highly urbanized district includes dense streetscapes, parking areas, shipyards, marinas, restaurants, shops, historic structures, and key facilities such as the railroad station and emergency services. Both the Mystic and Pequotsepos Rivers are tidally influenced, but circulation is limited by the Amtrak railroad and Route 1 Bridge. As a result, Downtown Mystic is already experiencing flooding during high tides and coastal storms, and faces increasing risks from sea level rise that threaten its historic character, transportation corridors, and community lifelines.



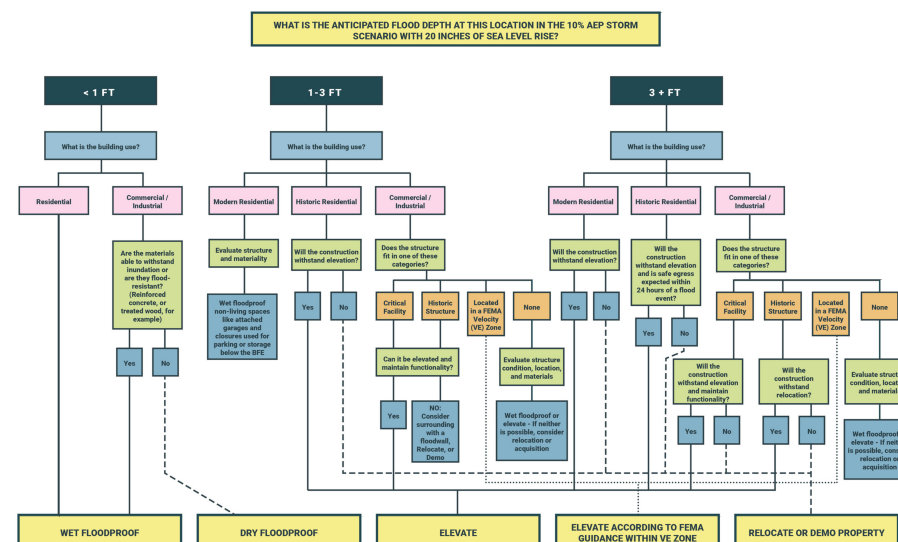
Map of future 10% AEP storm event with 20 inches of sea level rise

Project Objectives

- Develop a **long-term vision** for Mystic to “live with the water.”
- Implement **near-term flood mitigation** using nature-based and engineered solutions.
- **Elevate or relocate** vulnerable buildings and infrastructure out of flood-prone areas.
- Establish a **Route 1 Resilient Corridor** to ensure safe access and evacuation.
- Phase implementation to **maintain critical facilities, support infill development, and strengthen community connectivity.**

Recommendations and Implementation Plan

The Resilient Mystic team evaluated a number of district-wide and location-specific concepts for flood mitigation. District-wide concepts included adopting resilient zoning and building design standards, elevating buildings and critical systems, floodproofing levels below design flood elevation, and relocating vulnerable structures. The study team produced the below flow chart to assist the Town in decision-making among these options for the buildings in Downtown Mystic.



For more information visit: <https://resilientconnecticut.uconn.edu/resilient-stonington-mystic/>



Technical Analysis

To capture the complex dynamic processes of tides, storms, and waves, CIRCA generated a flood model to show the current and future flood conditions associated with coastal surge and tidal flooding, which included mapping the 10% and 1% annual exceedance probability (AEP) coastal flood events for current and projected future 10-inch and 20-inch sea level rise scenarios. Using the data produced by CIRCA, Fuss & O'Neill created maps showing the extents of flooding within the project area. Using GIS, the team identified the flood risks to structures, transportation, and other infrastructure. The full array of project maps can be found below in the final project report.

Concept Designs

Three alternatives to protect the WWTP from flooding were evaluated:



ALTERNATIVE	BENEFITS	CHALLENGES	ESTIMATED COSTS
Temporary (Deployable) Floodwall	<ul style="list-style-type: none">• Limited permitting process• Can be reused in another location	<ul style="list-style-type: none">• Does not protect to the FEMA 0.2% Annual Chance Flood• Ample storage space required when not in use• Must be deployed ahead of the flooding event (requires manpower and proper warning time)	\$970,000 to \$1.1million + tax
Semi-Permanent Floodwall	<ul style="list-style-type: none">• Protects to the FEMA 0.2% Annual Chance Flood• Potentially can be reused in another location (based on manufacturer recommendations)• Portions can potentially be left in place to prevent nuisance flooding	<ul style="list-style-type: none">• Storage space required when not in use• Must be deployed ahead of the flooding event (requires manpower and proper warning time)	\$2.5 million to \$3.5 million
Permanent Sheet Pile Floodwall and Floodgate	<ul style="list-style-type: none">• Protects to the FEMA 0.2% Annual Chance Flood• No storage space required• No deployment or advanced warning time required	<ul style="list-style-type: none">• Lengthier permitting process• Cannot be reused in another location	\$5.5 million to \$8.5 million

Stakeholder Engagement

- Monthly meetings with the project team
- Advisory Committee meetings
- “Roadshow” tabling events
- Three-day in-person Community Design Workshop featuring a walking tour and focus groups with key Town stakeholders
- Final presentation