



BANK STREET – SOUTH WATER STREET PROJECT New London, CT

Final Report

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Community Research & Design Collaborative
UConn Landscape Architecture Program



Connecticut Institute for Resilience
and Climate Adaptation



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CIRCA base data: Connecticut Institute for Resilience and Climate Adaptation
FEMA base data: Federal Emergency Management Agency

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UConn's Community Research & Design Collaborative (CRDC) is the umbrella organization for the outreach work of the landscape architecture faculty. Our mission is to be a regional leader in sustainable planning and design. We help our client's plan and design affordable, equitable, and ecologically healthy environments. Our mission is accomplished by providing our client's with objective, multi-disciplinary, state-of-the-art planning and design expertise. We promote and encourage academic-based collaborative research with an emphasis on "real world" projects as they apply to sustainable development.



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INTRODUCTION

Situated on the Thames River and Long Island Sound, the city of New London has been historically vulnerable to flooding, and sea level rise projections depict even worse scenarios.

This project is an effort by the University of Connecticut's Community Research & Design Collaborative (CRDC), with support from the Connecticut Institute for Resilience & Climate Adaptation (CIRCA), to assist the city of New London, Connecticut to develop a community-based resiliency plan focused on sea level rise for the year 2100. It works with the city's Mayor's Office and the Business Owners Association to develop a science-based design to mitigate negative impacts of sea level rise while spurring economic growth along South Water Street.



South Water Street is on the edge of the Thames River. The area is historically vulnerable to flooding due to its low-lying

The Role of CRDC

The CRDC was tasked to take CIRCA data on sea level rise, referenced by the recently introduced state-wide legislation on Climate Change Planning and Resiliency (Public Act 18-82), to graphically communicate the potential impacts of rising waters on the Bank Street area of New London. Based on this data, the CRDC team developed a series of design/planning scenarios envisioned to mitigate the negative consequences of sea level rise, while looking for opportunities to promote economic growth, create sustainable cultural/ natural systems and improve 'place-making/sense of place' of affected parts of the urban fabric.

This science guided approach began with the creation of three different design strategies. These were then presented to local officials and property owners to discuss potential solutions that would ensure a sustainable future for their community. Based on public input, designs were then revised, and a new meeting was held to ensure that multiple options were explored. The meetings were held to stimulate conversation with stakeholders, to ensure that consensus on a design was obtained, but also that concerns were expressed so that the proposed strategies aligned with the community's vision for the future.

Report Overview

The next five chapters go over the site inventory and analysis, the community engagement process, the proposed designs and the final outcomes. In the Flood Vulnerability section this report gives a brief overview of the history of the site and its current state, as it pertains to flood hazards. It goes on to describe future projections for sea level rise from 2018 to 2100 and beyond. In the Public Engagement Section, it goes over the meetings with the South Water Street business and property owners and addresses how the project sought to include the community in the design process. In the Proposed Design Section, this document depicts the three main designs proposed and alterations made based on public participation, it then moves on to the Final Design Section where it presents the design proposal that seems to best address the desires and needs of the Bank Street – South Water Street community. Finally, the report outlines future recommendations and the next steps needed for the implementation of the proposed final design.



FLOOD VULNERABILITY

Though there has been a lot of controversy over the future rate of sea level rise, and climate change in general, my experience of the past 4 years is that the science issues are the easy part of the problem. Determining how people want to adapt to the inevitable consequences have turned out to be much more of a challenge.¹

History and Current Conditions

Over the last 100 years, a total of eight hurricanes have hit the southern Connecticut shoreline (1903, 1938, 1944, 1954, 1960, 1972, 1985 and 1991). The strongest storms to hit the area so far have been Category 3 hurricanes with sustained winds of 110 to 130 mph.

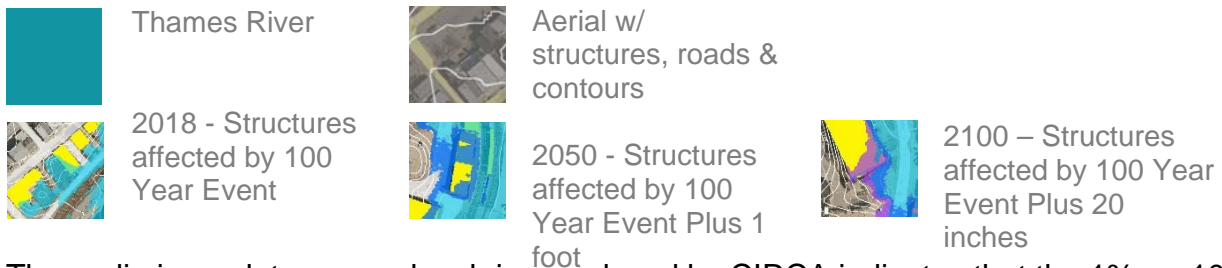
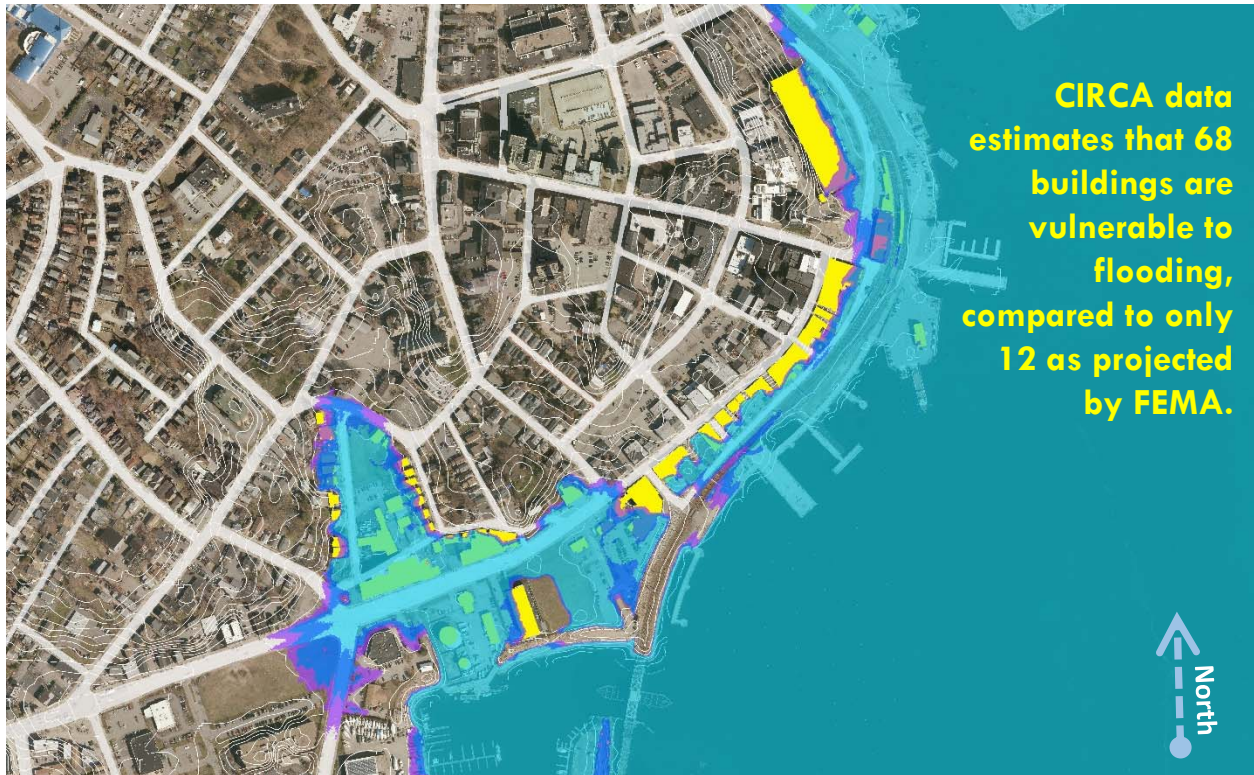


Great Hurricane of 1938

Boats and piers at New London, Conn., are a mess of broken wreckage after the hurricane. Fire at the height of the storm added to the terror and destroyed a quarter of a square mile of the business district, Sept. 12, 1938. Sights like this were common all along the coast, as New England faced a cleanup job which took weeks.

¹ James O'Donnell – CIRCA Executive Director

Sea Level Rise – Projections for the Future



The preliminary data on sea level rise produced by CIRCA indicates that the 1%, or 100-year storm events will likely be 2' higher than indicated by the current data utilized for flood insurance by FEMA. Moreover, the projections also show that FEMA's baseline data for 100-year storm events may represent the 20% likelihood, or 20-year storm event. Trends based on preliminary CIRCA data estimate that approximately 68 buildings along the Thames River will be vulnerable to flooding. This is a significant increase when compared to current FEMA projections, which estimate only 12 buildings in danger.

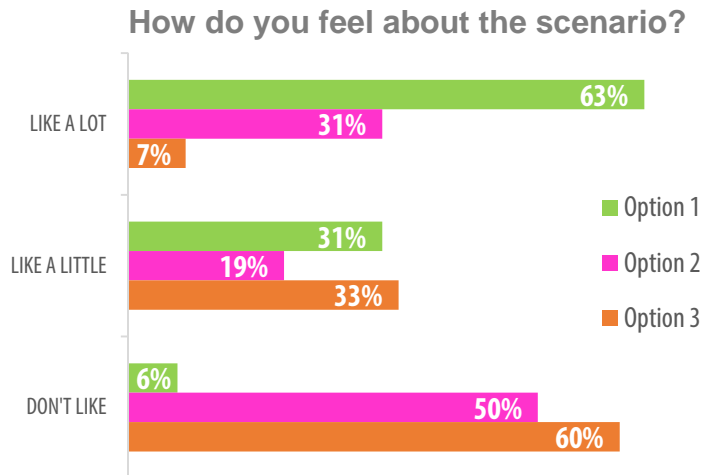
PUBLIC ENGAGEMENT PROCESS



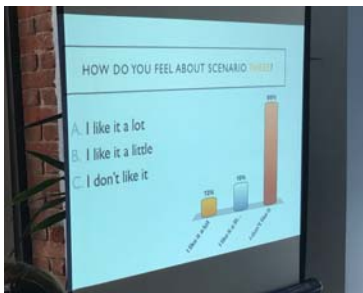
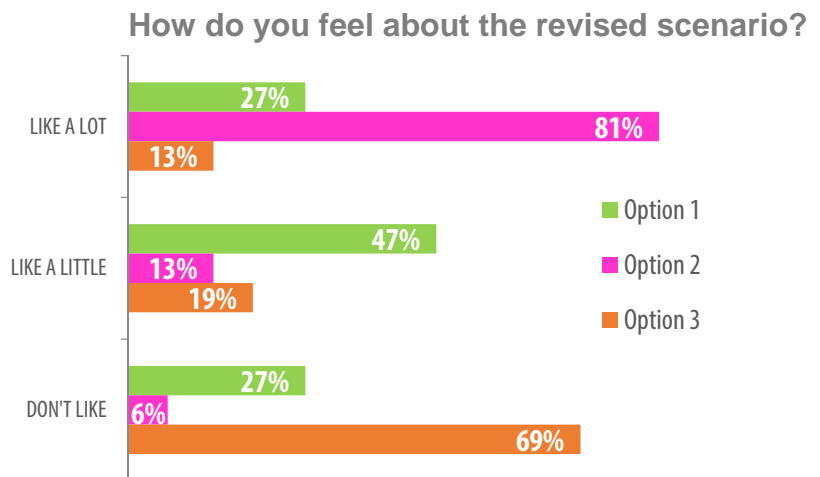
The entire design process was founded on public involvement. To do so an expert in public engagement and communication participated in the meetings as a moderator. After designs were presented the moderator made sure that property and business owners, and city officials, were heard. The process also included an anonymous voting system, so that those less vocal could express their preferences. Participants were asked to comment on the pros and cons of all the design options, and revisions to the design were made based on the input gathered.



Input from 8.16.2018 meeting



Input from 10.04.2018 meeting

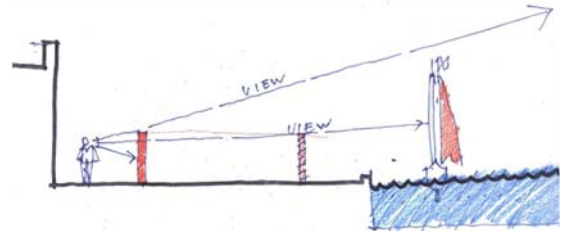


PROPOSED DESIGNS

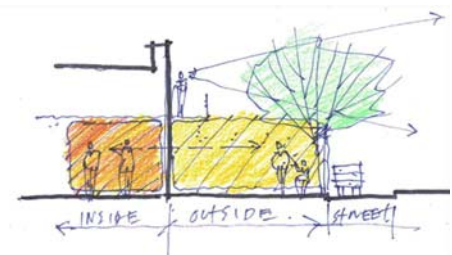
The proposed design should create or preserve settings for human activities that engage the mind and touch the heart, while allowing the original environment, both human and non-human, to sustain. We aim to create socially responsible landscapes which combine function with aesthetics.

The designs proposed are guided by three community planning principles:

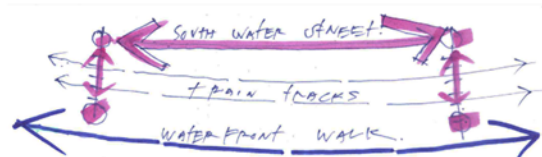
- **Do not block pedestrian views with landscape walls over 5' – 6' and in close proximity of the user.** High walls negate the concept of “defensible space” and can create a claustrophobic feeling in the user.



- **Building uses need to support the street level. The more uses in the buildings the better.** Roof tops and upper level balconies are great but do not substitute for street level activity.



- **Successful streets function as both memorable pathways and landmark type of destinations.** This is especially

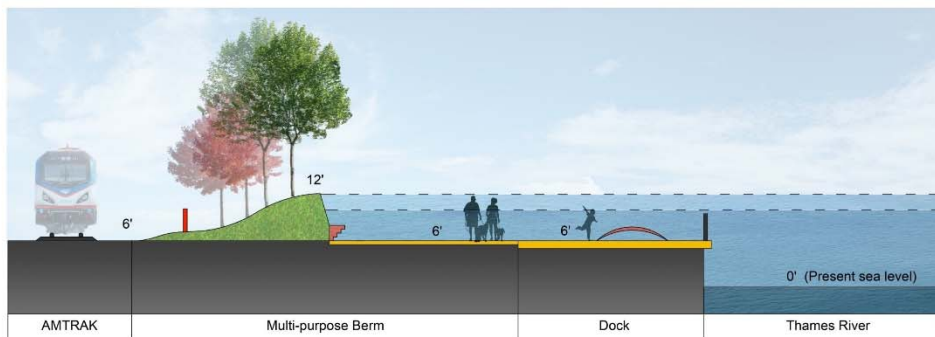
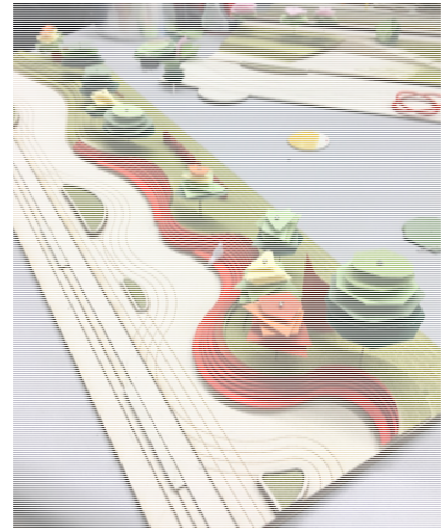
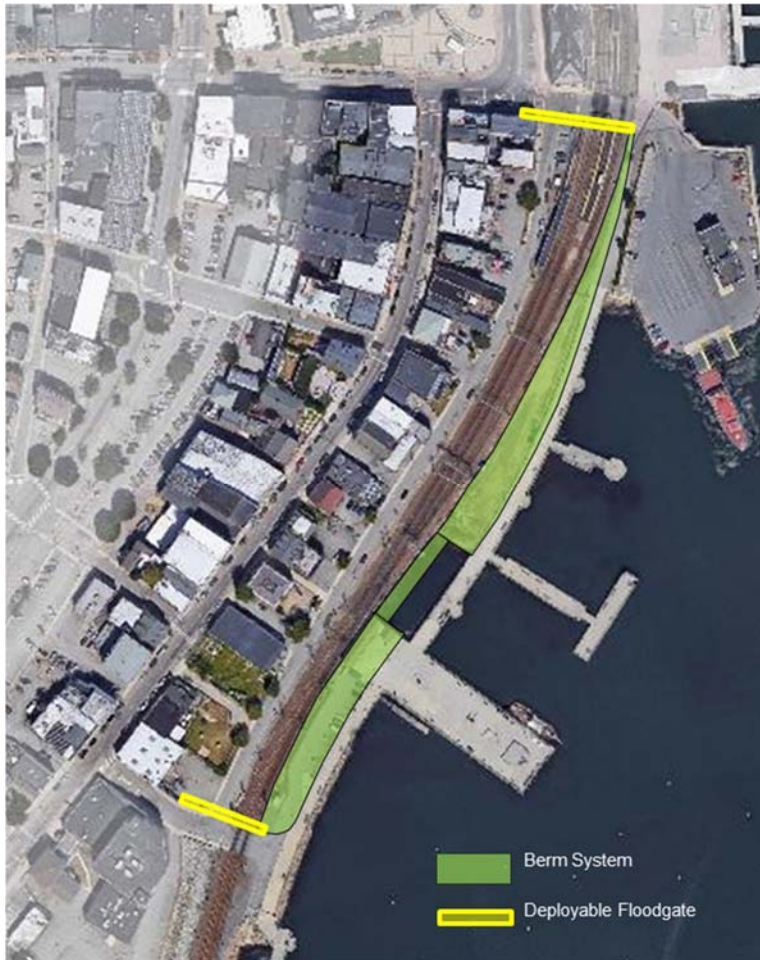


This project uses a **General Model** that serves as an illustrative section along South Water Street used to depict the proposed design concepts. It cuts through Bank Street and South Water Street all the way to the riverfront.

critical for South Water Street because it connects the two crossing over the tracks to the waterfront.

Design Option 1 - Improvements on Public Lands

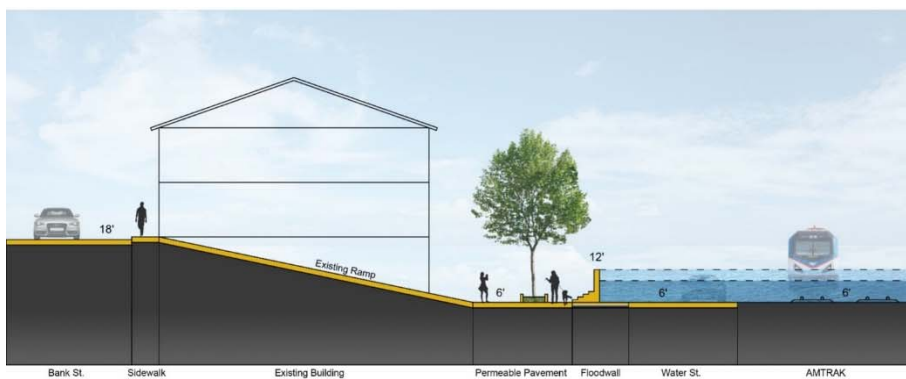
Option 1 proposed a series of berms/landforms running between the train tracks and river. It includes deployable gates to close the ends of the berm system. This alternative protects Amtrak, Water Street and buildings on eastside of Bank street from flood waters.



12' (2050 100 year flood) CIRCA DATA
10' (Present 100 year flood) FEMA DATA

Design Option 2- Improvement on Public/Private Lands

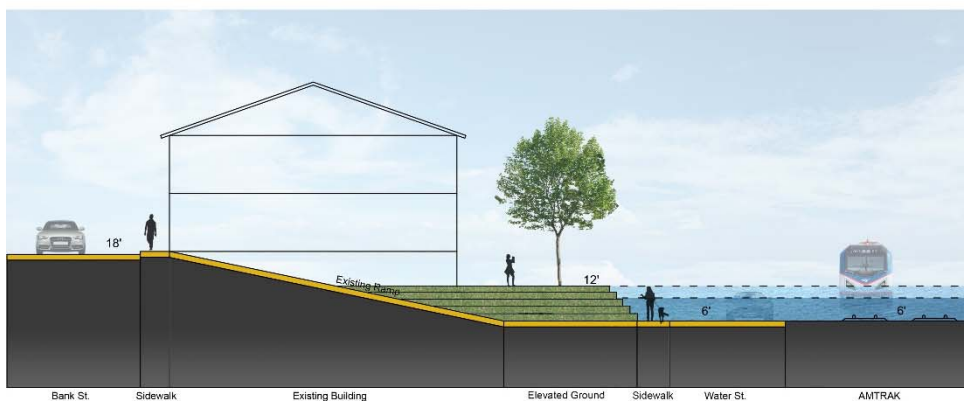
In this option the design proposed that South Water Street be elevated 3' with a 3' glass wall added to the elevated plane, to protect both the street and buildings on the eastside of Bank Street from flood waters.



12' (2050 100 year flood) CIRCA DATA
10' (Present 100 year flood) FEMA DATA

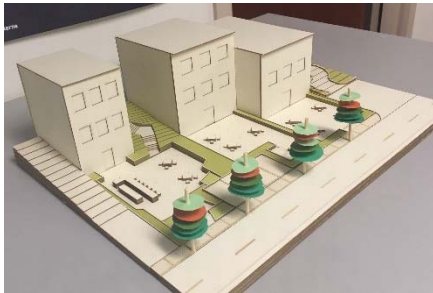
Design Option 3- Improvement on Private Lands

In this design proposal, the back of the buildings, facing South Water Street, are filled by 6'. This is intended to protect buildings on the eastside of Bank Street from flood waters. In some cases, the first floor would have to be converted to basement space.



FINAL DESIGN

UConn's studies depict conceptual ideas and are not intended to be authoritative regarding proposed development or preferred mitigations regarding sea level rise. Further study and coordination between interested parties will be required to further refine these concepts toward a viable proposal.



The final design further revises Design Option 2, based on requests gathered from the public engagement process during the second meeting. The community requested the incorporation of aspects of Design Option 1, so that a park is created on the edge between Amtrak and the Thames River, connecting the area to the river and creating a leisure space that would draw the community to South Water Street.

RECOMMENDATIONS AND NEXT STEPS

In order to elevate South Water Street, the project should expand to include the area to the east of the site, where Union Station is located. Grading will need to be done on the connections between State Street and Water Street so that the elevation of the road effectively addresses potential water rise. With that said, Union Station, a historic building siting just outside of the studied site, has come to our attention as particularly vulnerable structure that should be addressed in order to ensure the success of the plan. Additional studies on stormwater management and green infrastructure should also be produced to compliment the project. Finally, the community will need to support to secure funds for the construction of the final design.