

# Bank Street New London CT. Mapping & Design for Coastal Flood Events

**Document by:**  
**UConn's Community Research & Design Collaborative**  
**Director Associate Professor Peter Miniutti**

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

**Date: May 11, 2018**

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.

For additional information, please see:

[crdcuconn.wordpress.com](http://crdcuconn.wordpress.com)

[peteprojects.wordpress.com](http://peteprojects.wordpress.com)

or email Peter:

[peter.miniutti@uconn.edu](mailto:peter.miniutti@uconn.edu)

The logo for the University of Connecticut, featuring the word "UConn" in a bold, dark blue, sans-serif font.

# Contents of Today's Talk

## **1. UConn's Program of Landscape Architecture:**

- UConn's Community Research & Design Collaborative (CRDC)
- UConn's CRDC Role in New London Waterfront District Study with CIRCA

## **2. New London Project:**

- Bank Street Site and Projected Water Rise
- Some Evidence of Long-term Consequences of Flooding

## **3. Design Interventions**

- Some Simple Principles of Community Planning
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# Overview of CRDC

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- We promote and encourage academic-based collaborative research (service learning) with an emphasis on "real world" projects as they apply to sustainable development.



The faculty member from left to right: John Alexopoulos, Kristine Schwab, Mark Westa



The Fernridge Team from left to right: Ashleigh Bancel, Tyler Holmquist, Adjunct Instructor Natalie Miniutti, Associate Professor Peter Miniutti and Samantha Stewart.



The student member from left to right: Tao Wu, Pan Zhang, Jay Zheng, Anthony Madore



# Overview of CRDC

## Associate Professor Peter Miniutti:

- Director of UConn's CRDC
- BS degree from UMass in Environmental Design and  
MLA from Harvard University
- 20+ years @ UConn, tenured in 2000

*UConn Pete <https://peterminiutti.wordpress.com/>*

## UConn Pete's Homepage

*Associate Peter Miniutti's Teaching,  
Research and Travels*



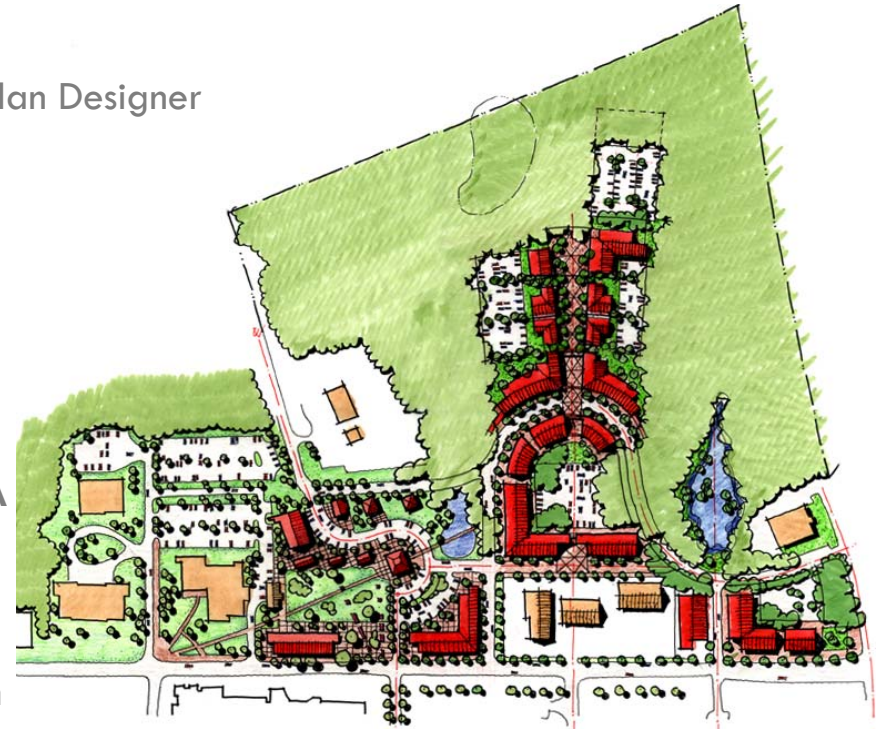
# Projects:

## Past Projects:

- **Downtown Storrs Mixed-Use Development** (Original Master Plan Designer working w/Vince McDermott of Milone & MacBroom)
- Lands of Unique Value East Lyme
- Eco-Tech Park for Bridgeport

## Miniutti Current Funded Research:

- **Sea Level Rise Studies for New London & Milford:** with CIRCA
- **Campus Master Plan** for: Talcott Mountain Science Center
- **Green infrastructure and Wayfinding Plan** for: Town of Putnam
- **Re-Design of Wolcott Park** for: Town of West Hartford
- **Creation of an Ecological Park** for: Town of Fairfield
- **Campus Master Plan** for: Lebanon Historic Society



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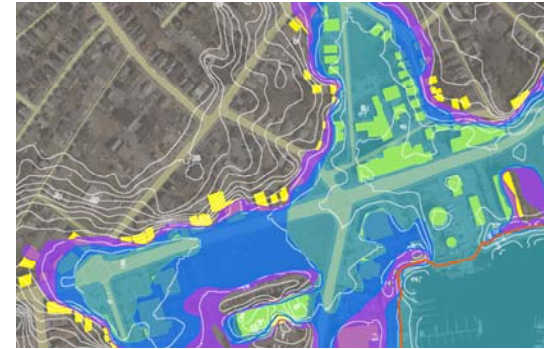
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# UConn's CRDC Role on New London Project

- Take CIRCA data on sea level rise and produce graphic plans and sections to clearly communicate the affects of projected water rise over time on the Bank Street area of New London.
- Develop a series of design/planning scenarios that will 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.
- Prioritize the array of design/planning scenarios by building consensus across populations, disciplines and agencies (local, regional, federal).
- Position/support the municipality in the attainment of grant funding.



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# Bank Street Site





## Bank Street Site





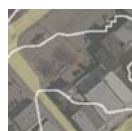
## Bank Street Site







Thames River



Aerial w/ structures,  
roads & contours



Structures  
affected by  
flood events



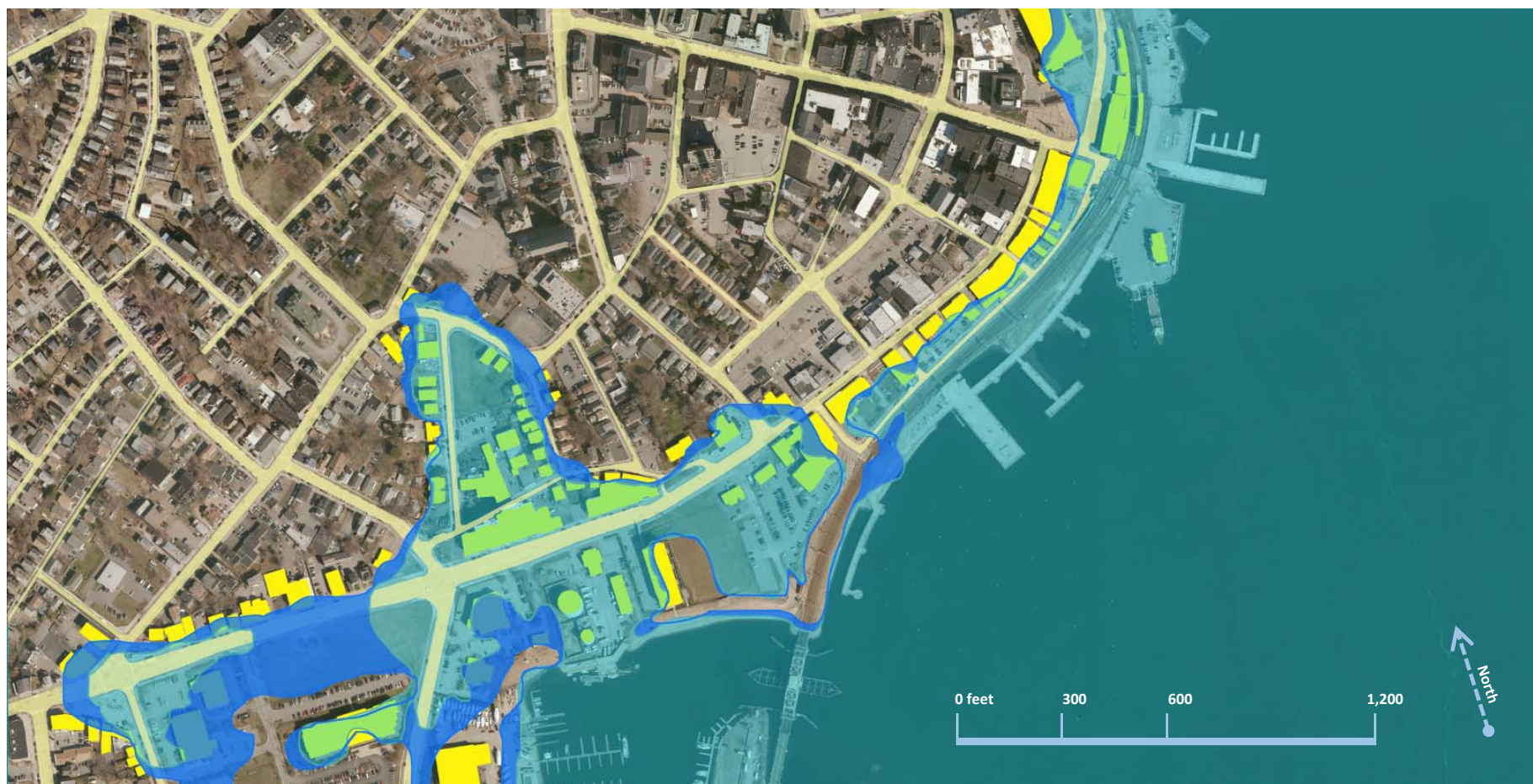
Inundated part  
of structure  
during flood  
events



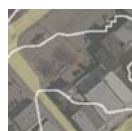
CIRCA 1%

**CIRCA Data for:**  
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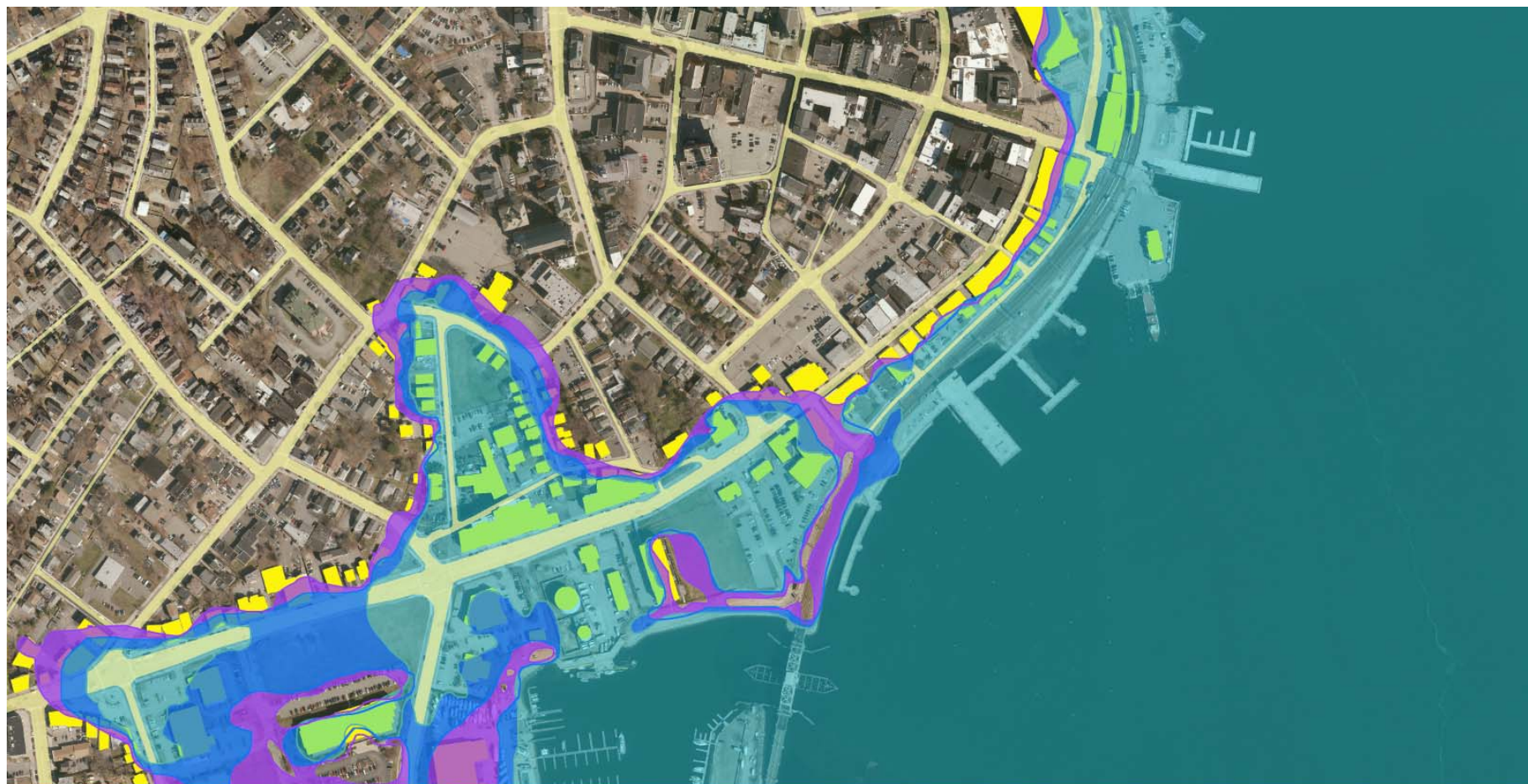


CIRCA 2050 Year

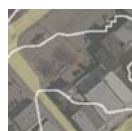
CIRCA 2100 Year

**CIRCA Data for:**  
2018 - 1% Flood Event  
2050 - 1% Flood Event





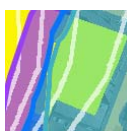
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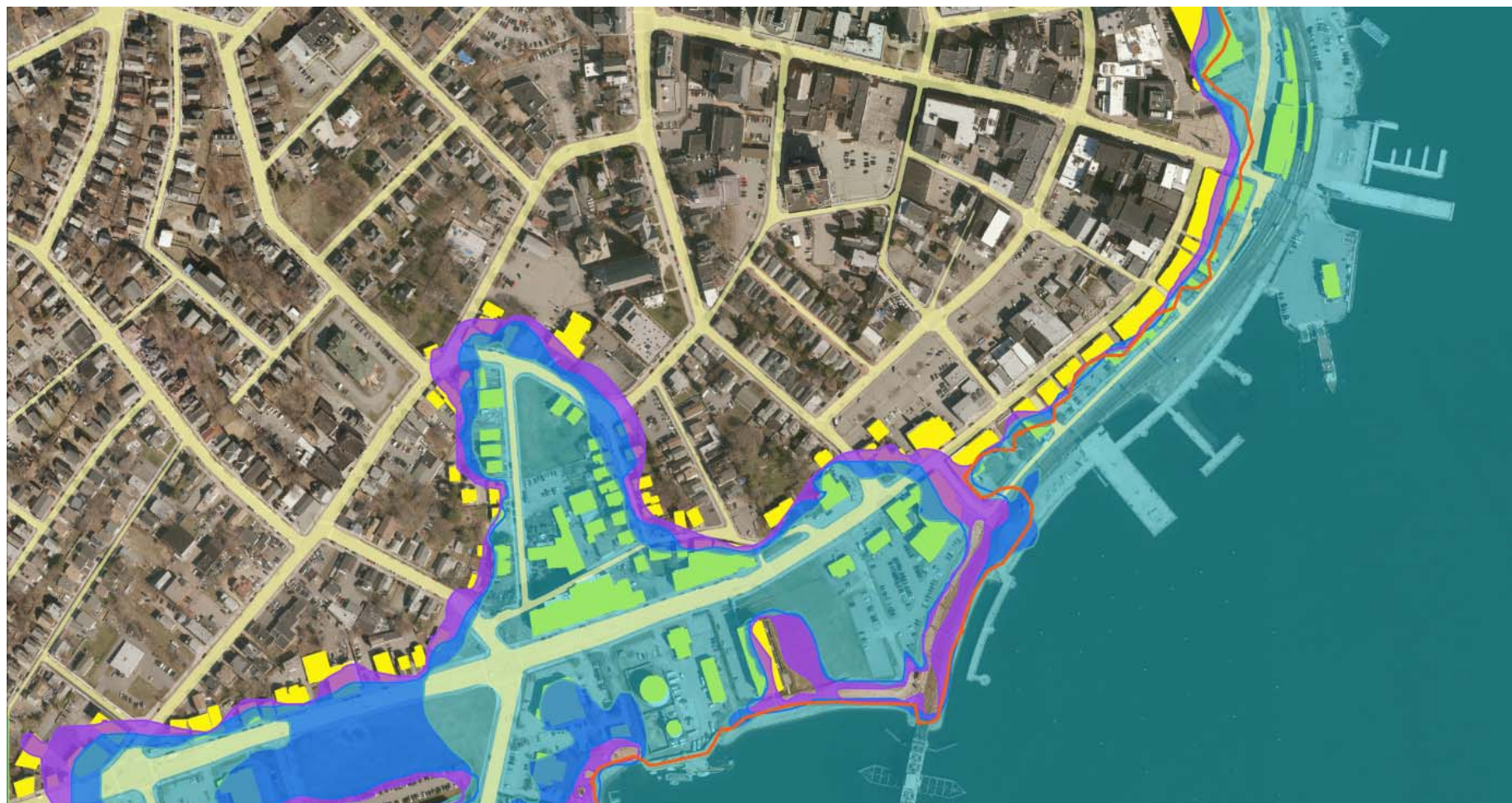
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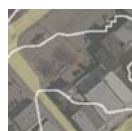
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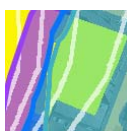
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CIRCA 2100 Year



W/ FEMA 100  
Year Data

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W/ FEMA 100 Year Data



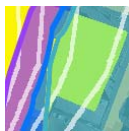
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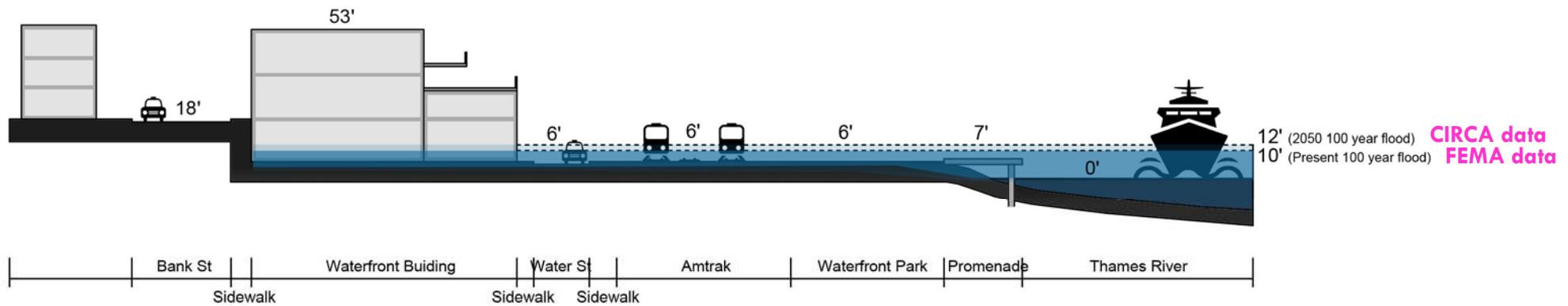
CIRCA 2100 Year



W/ FEMA 100  
Year Data

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# Bank Street Section



Existing Situation during Flood events

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## Bank Street Site



**Great Hurricane of 1938**

Boats and piers at New London, Conn., are a mess of broken wreckage after the hurricanes. 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 New England faced a cleanup job which took weeks.



## Bank Street Site



Light ship "Tulip", blown high and dry across New Haven railroad tracks in New London, Connecticut.

### Great Hurricane of 1938

Boats and piers at New London, Conn., are a mess of broken wreckage after the hurricanes. 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 New England faced a cleanup job which took weeks.

## Coastal Hazard Areas

NEW LONDON  
Waterfront  
park

The most destructive storm to hit Connecticut was the Great New England Hurricane of 1938. It's also known as the "Long Island Express" because it covered seven states in seven hours. It arrived in New London the afternoon of Wednesday, September 21, 1938.



A storm surge that occurred a short time before high tide pushed a wall of water directly into the Ocean Beach area damaging or destroying hundreds of summer cottages and buildings.



The wind and waves swept into the downtown waterfront in big and hard surges smashing, tearing and ripping apart the wharves and piers. Ships were destroyed or hurled on to land. The 1,000-ton lighthouse tender *Tulip* was driven into the shore and onto the railroad tracks. It took almost two weeks to haul the steamer off the tracks.



Devastation was caused by winds and floodwater but much damage was also due to a massive fire, which started on the waterfront and spread to Bank Street. (The front porch of the Shaw-Perkins mansion can be seen on the right in the photo.) Flames driven by 100-mph winds quickly threatened to burn through the entire downtown area. The spectacular blaze wiped out an area of about a quarter of a square mile and completely destroyed 14 buildings.

Although the harbor is protected from the Atlantic Ocean by the natural breakwaters of Long Island and Fishers Island, New London is still vulnerable to the potential destructive forces that can occur from tidal and riverine flooding, and hurricanes. Two of New London's four borders are subject to regular tidal inundation and many businesses and homes are in flood zones or flood-prone areas.

Hurricanes are intense cyclonic storms originating in the tropical Atlantic Ocean. They are characterized by low barometric pressures, winds of 75 miles per hour or greater, heavy clouds, torrential rain, tremendous waves and tidal surges. 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.

In 1984, in an effort to protect the City from future hurricane damage, a new Shaw's Cove Bridge, located just south of the Waterfront Park, was constructed in conjunction with the creation of a hurricane protection barrier. The stone riprap that is evident along the shore of the southern half of the Park was built as part of that effort.

74 Dead, 100 Missing in Western  
New London Digs Out from Debris  
AM 8:26 MAY/ 9/2018

CONNECTICUT  
LIS-FUND



Published by the Long Island Sound Lighthouse Park Program  
Connecticut Department of Environmental Protection

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## South Water Street



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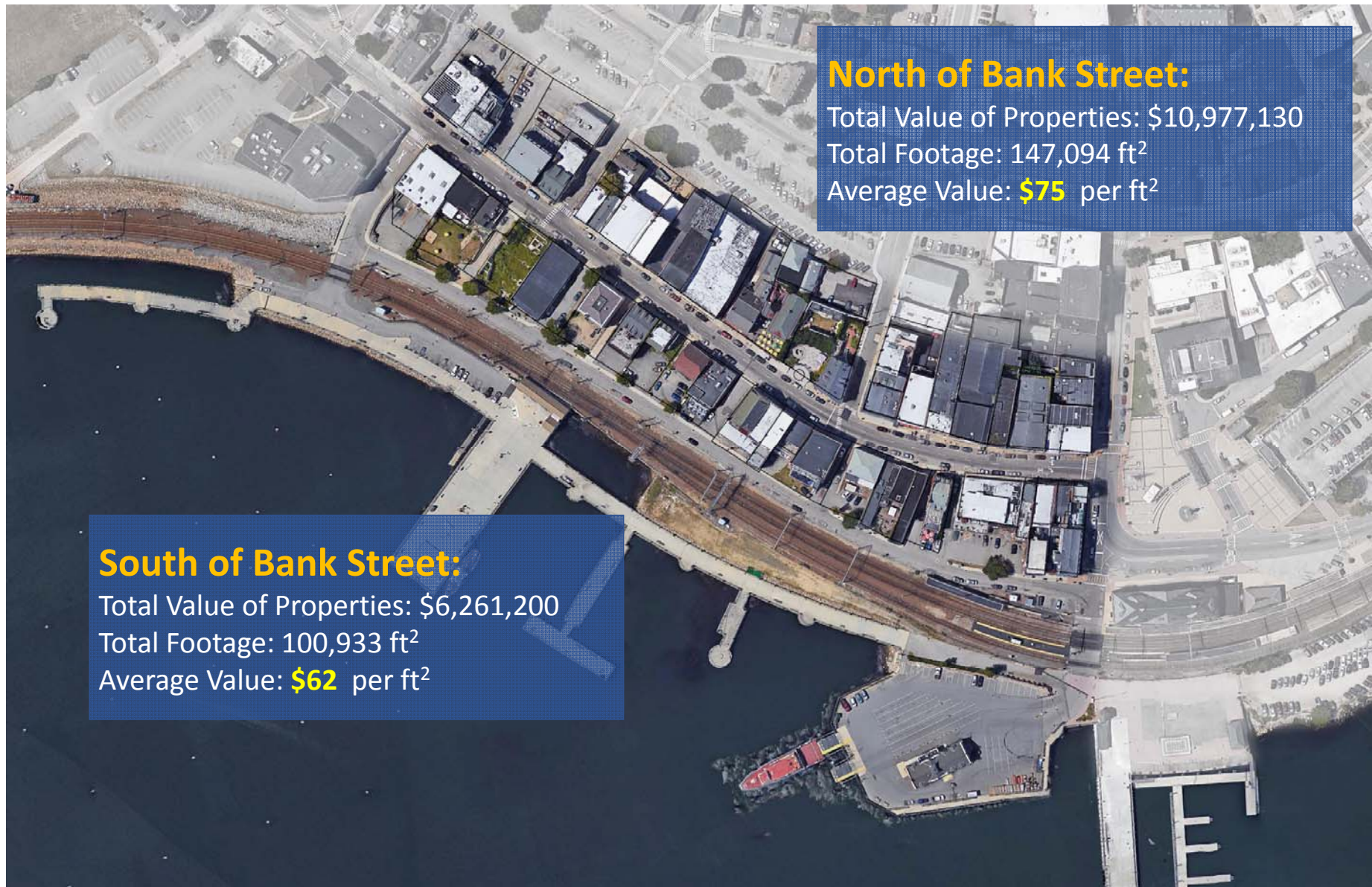
## South Water Street



## South Water Street







Property Value Analysis

# Some Evidence of Long-term Consequences of Flooding On South Water Street:

- The buildings between Bank Street and South Water Street treat their east facing property as a back-yard or service area. This is evident in both façade treatment and use of the land.
- By treating the east area as service, the businesses do not energize the street, therefore it becomes vacant, desolate and lonely experience to be on the street. There is no reason for the general public to venture down the street.
- The street itself functions as a service road vs. a civic expression of a safe, public and welcoming path and/or destination for residents and guests.

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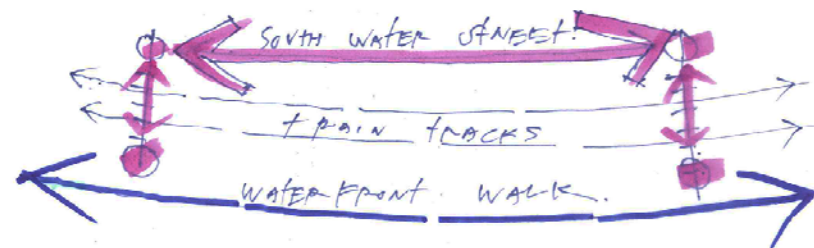
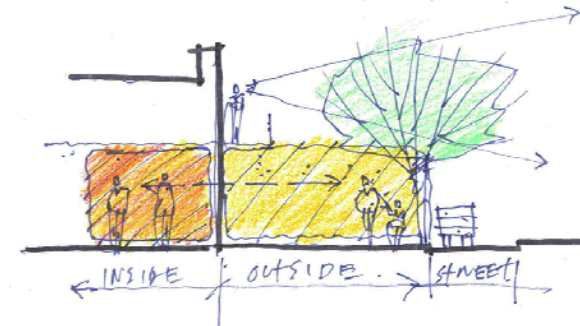
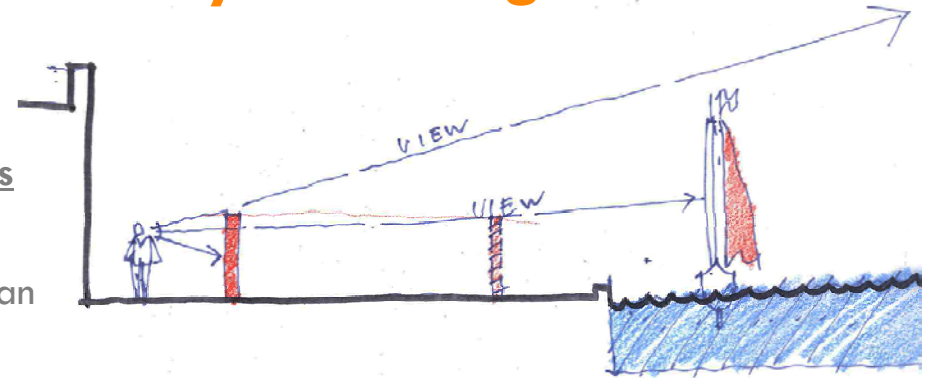
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- **Some Simple Principles of Community Planning**
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## Some Simple Principles of Community Planning:

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



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## General Model Location:

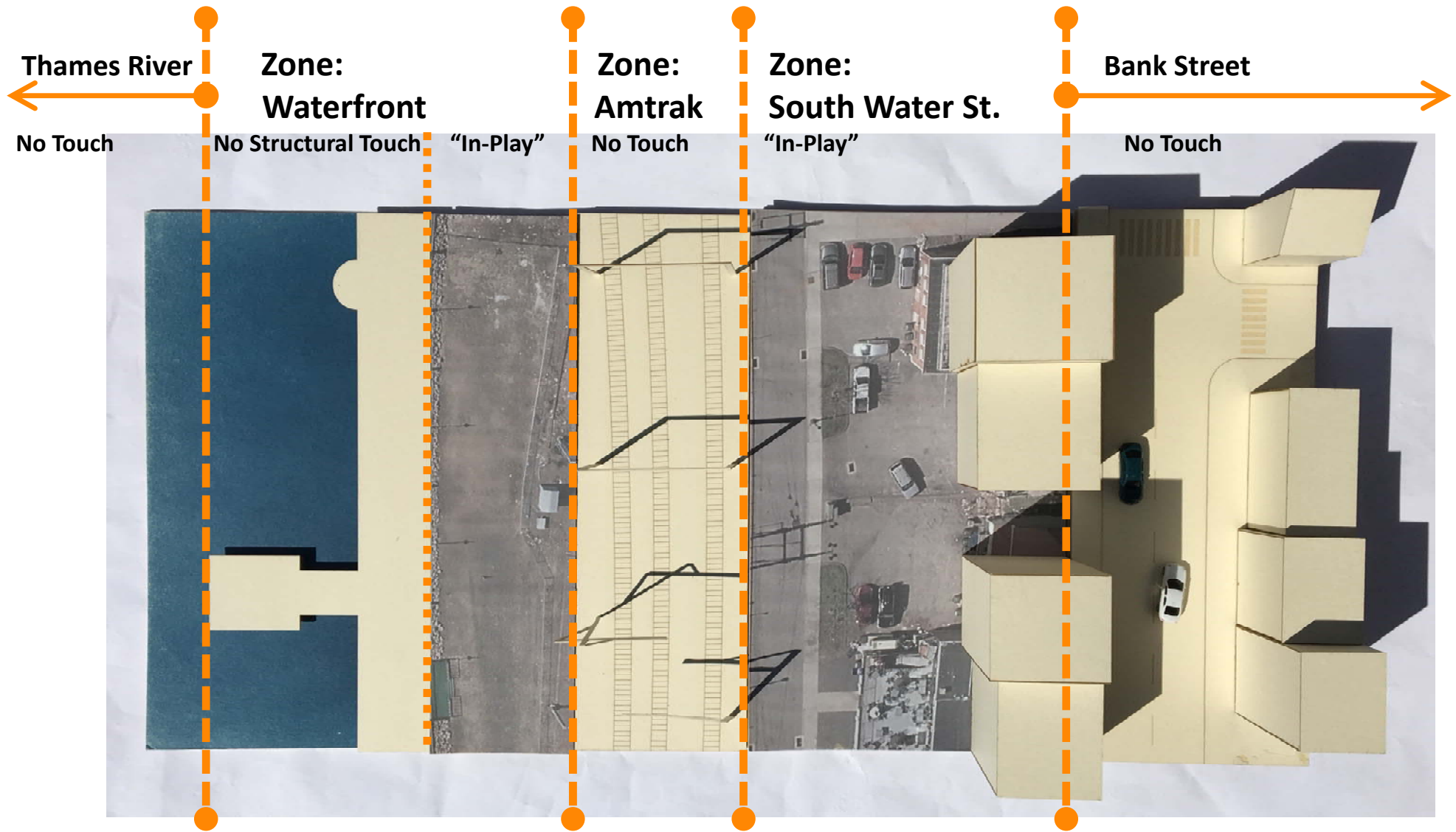




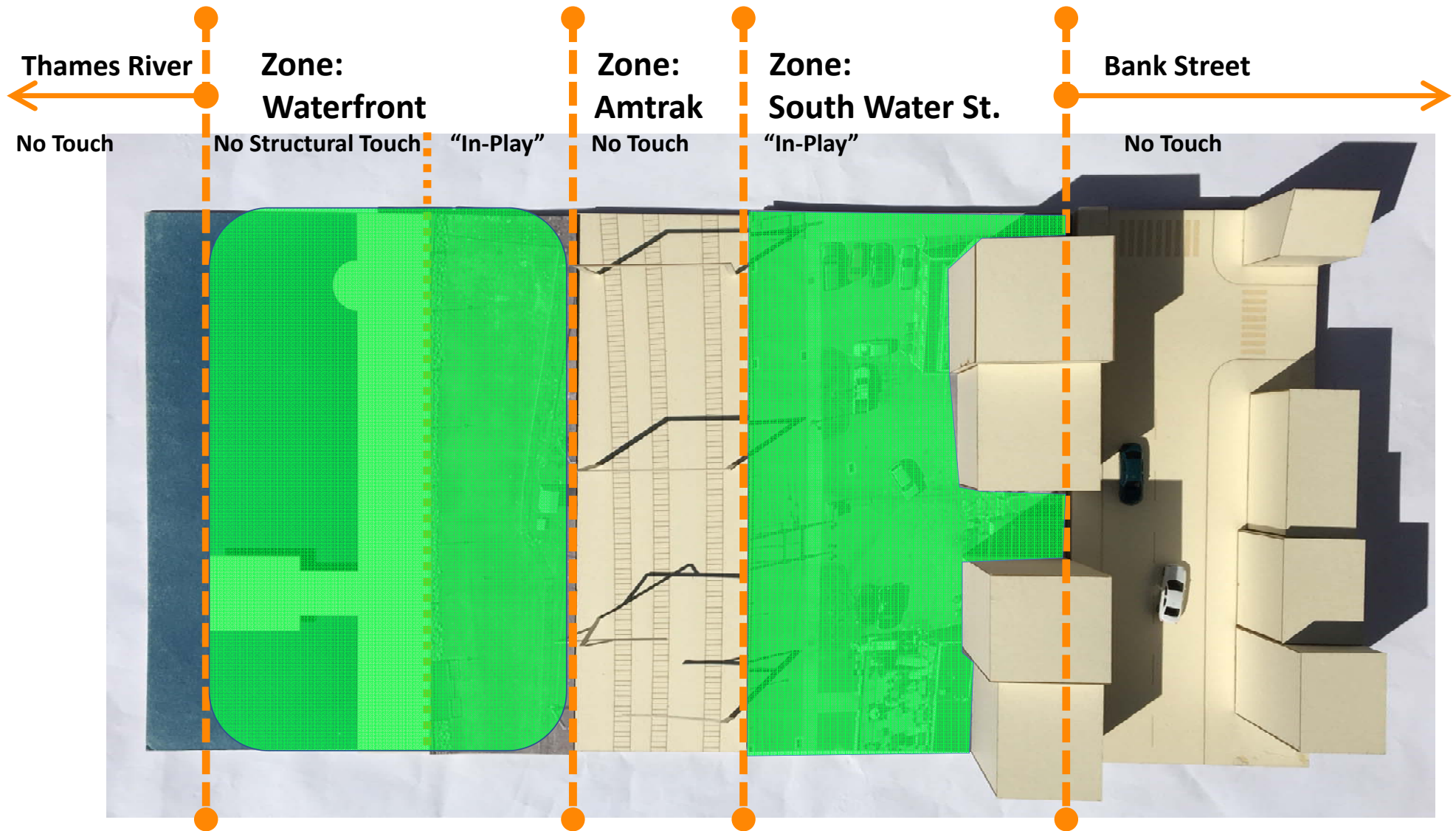
## Existing Conditions:



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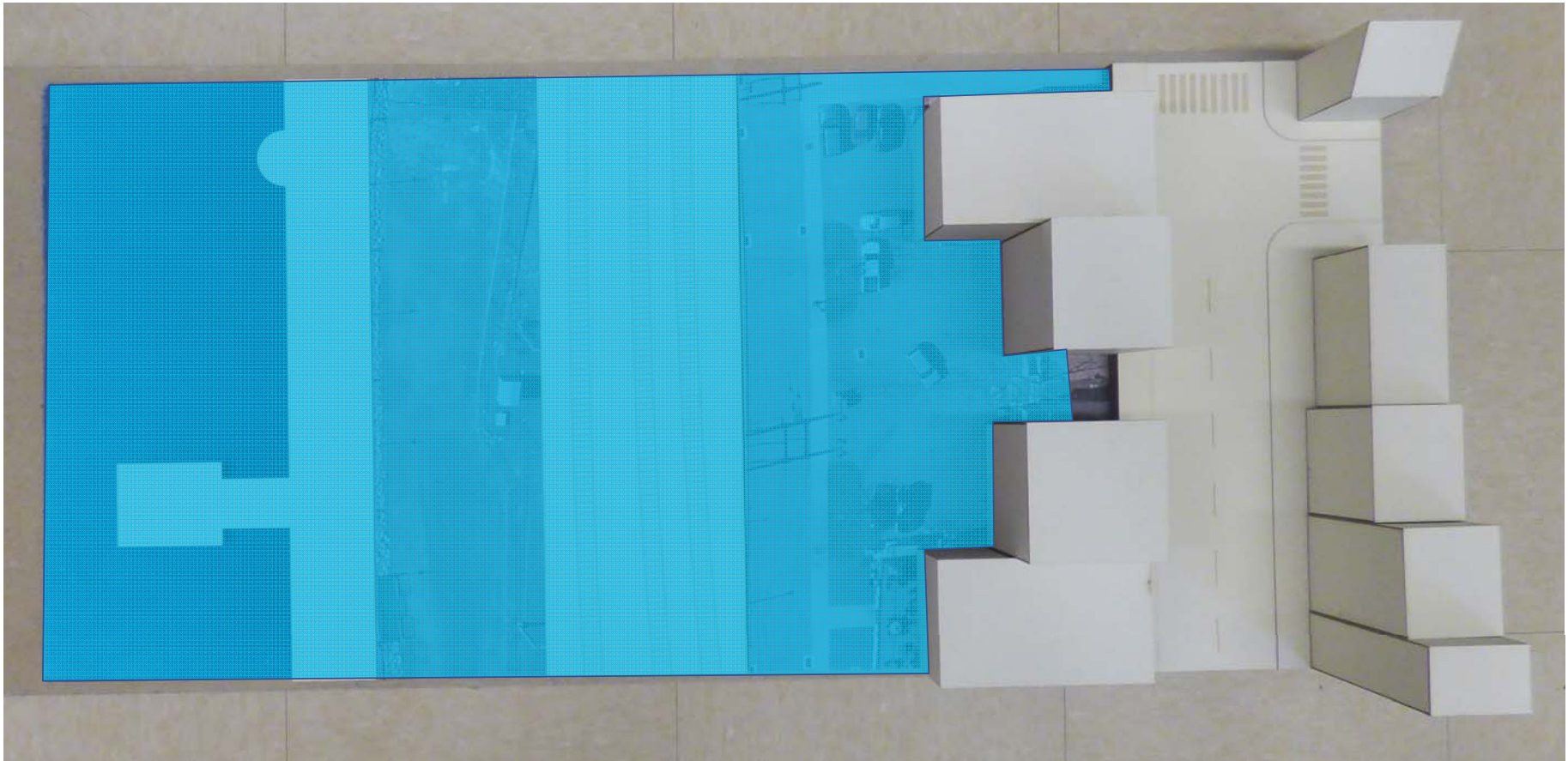


## Areas of Intervention:





## 2050 CIRCA Flood Event @ Elevation 12



# How to Fix Things @ Waterfront Zone



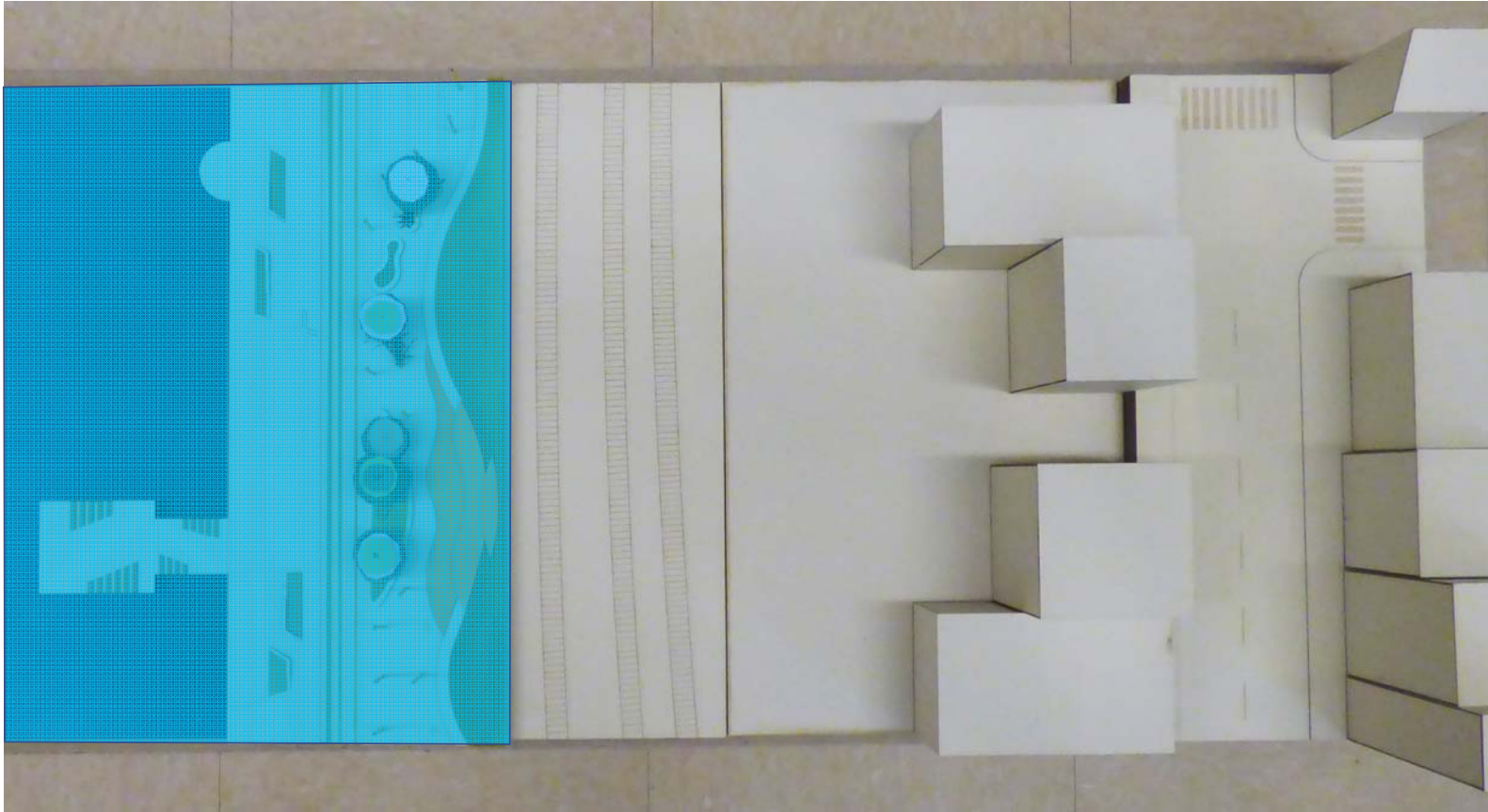


## How to Fix Things @ Waterfront Zone: Idea 1

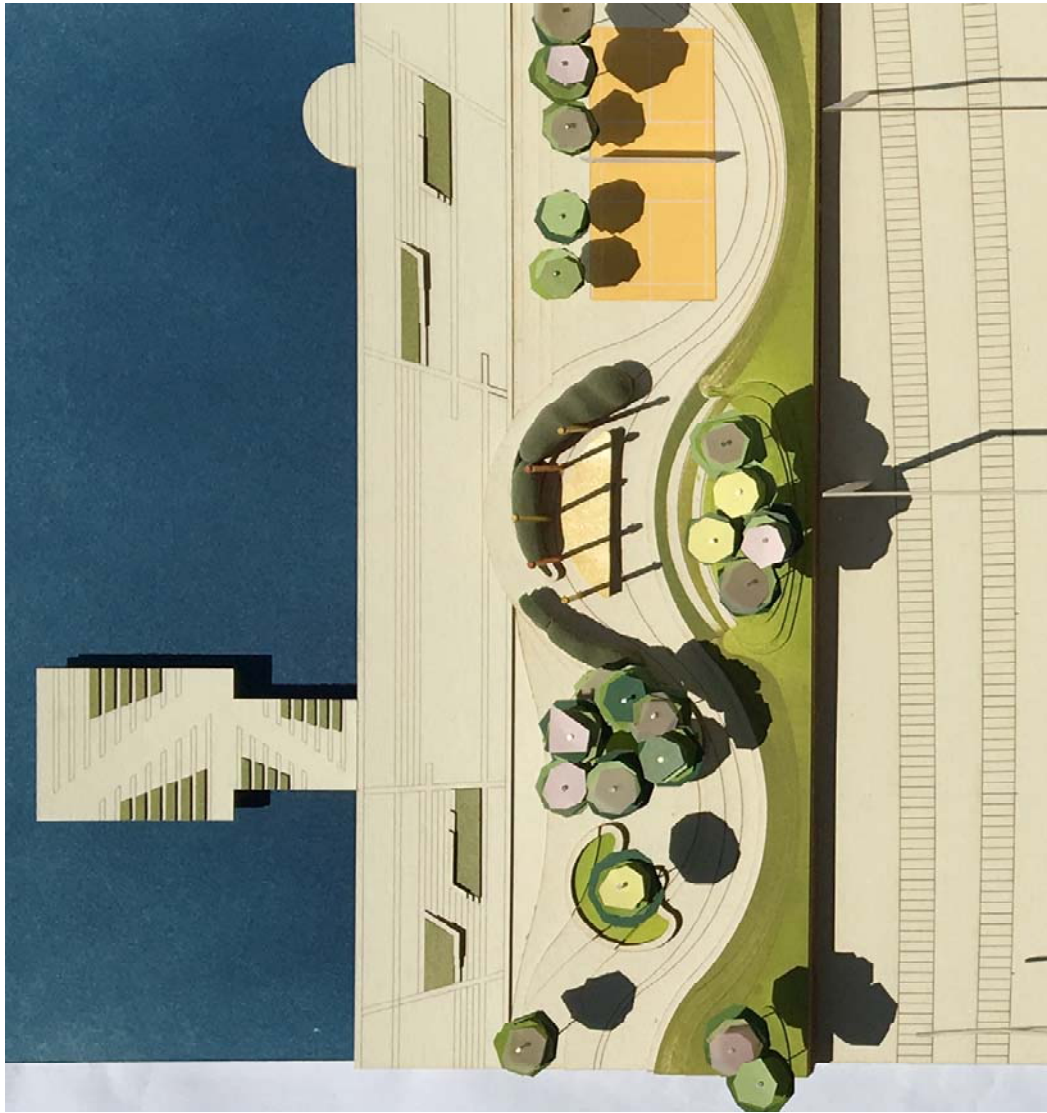




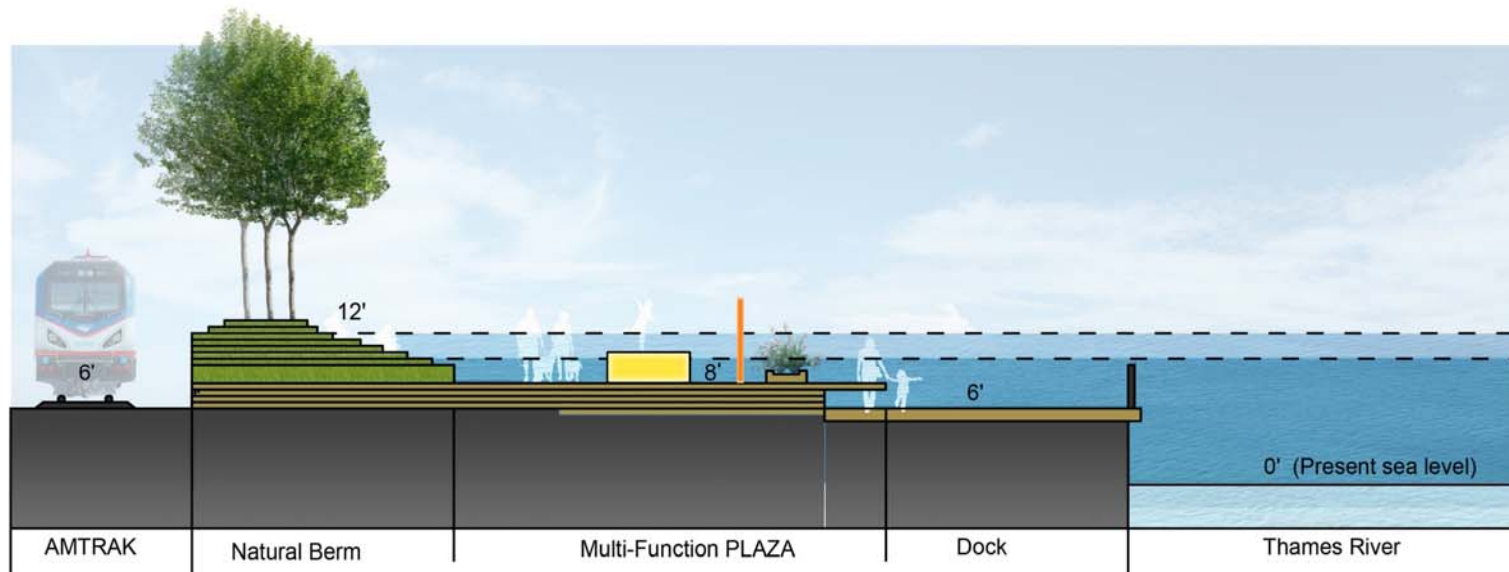
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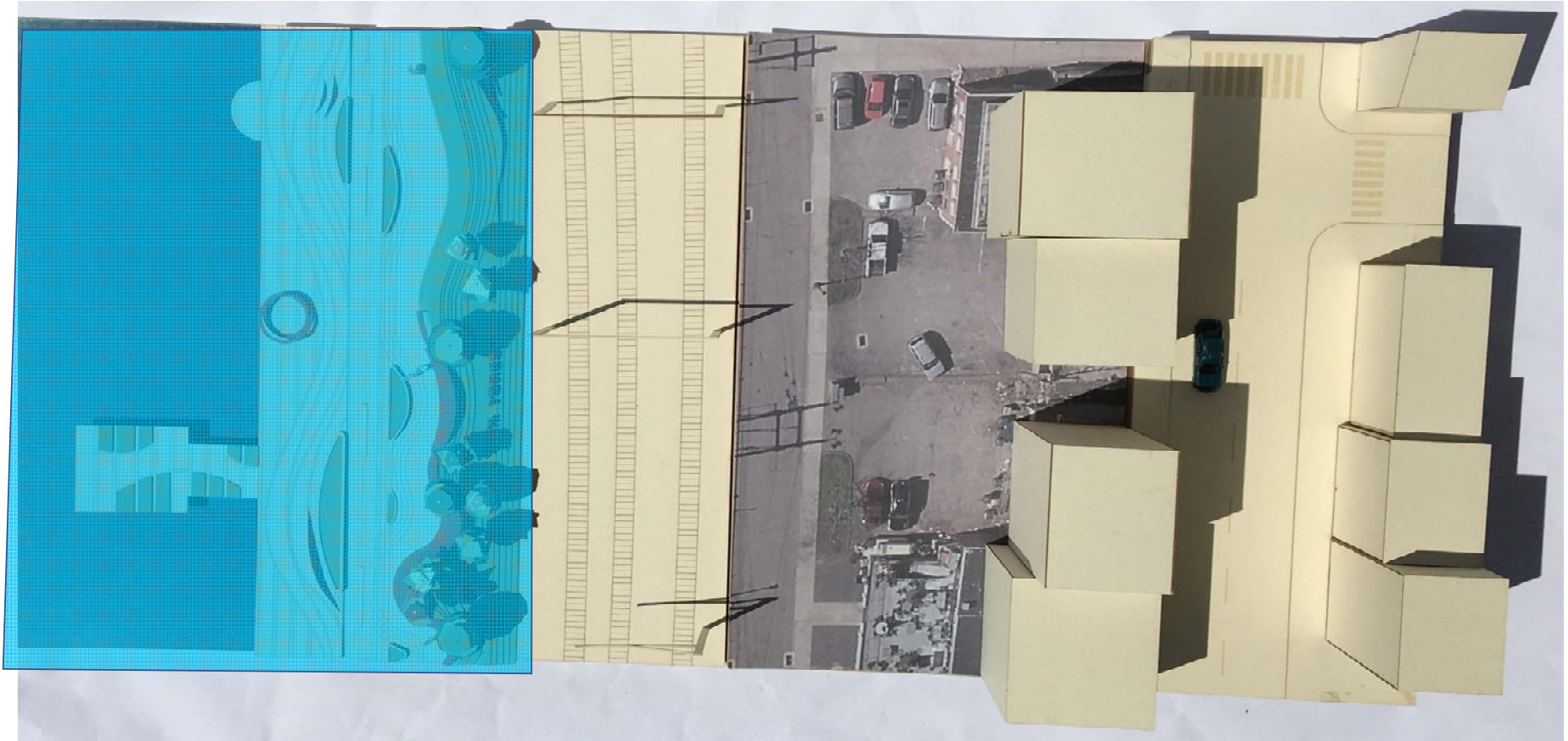
12' (2050 100 year flood) CIRCA DATA  
10' (Present 100 year flood) FEMA DATA



## How to Fix Things @ Waterfront Zone: Idea 2



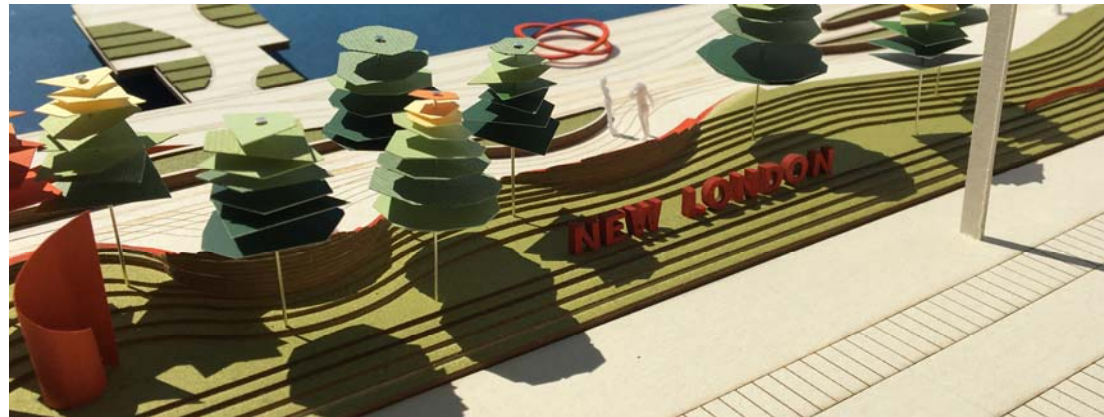
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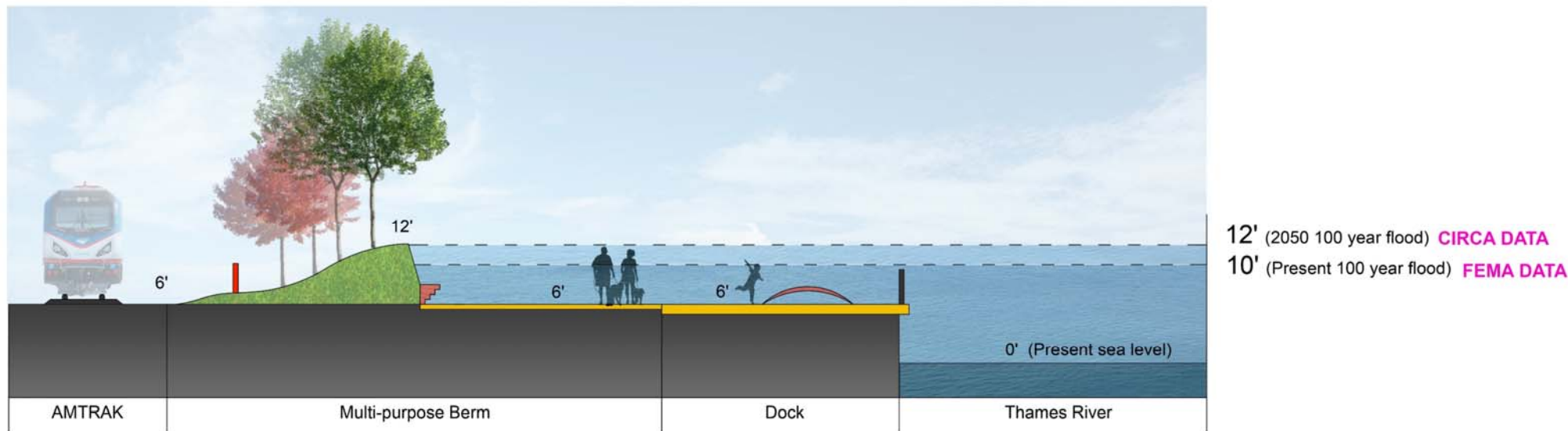


**Landscape Solution Type A:** A series of berms/landforms running between the train tracks and river. Will need a method (movable gates, etc.) to 'close' the ends of the berm system. This protects Amtrak, Water Street and buildings on eastside of Bank street from flood waters.





## How to Fix Things @ Waterfront Zone: Idea 2



Section of Solution Type A

## How to Fix Things @ Building Zone: Idea 1



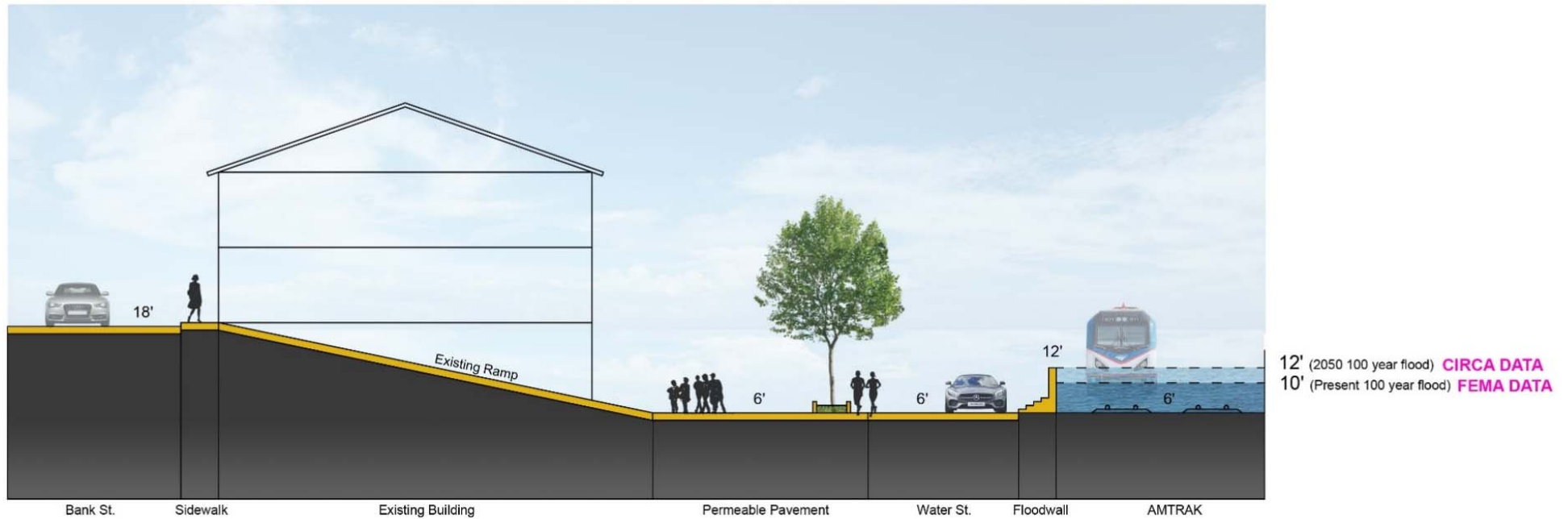




## How to Fix Things @ Building Zone: Idea 1



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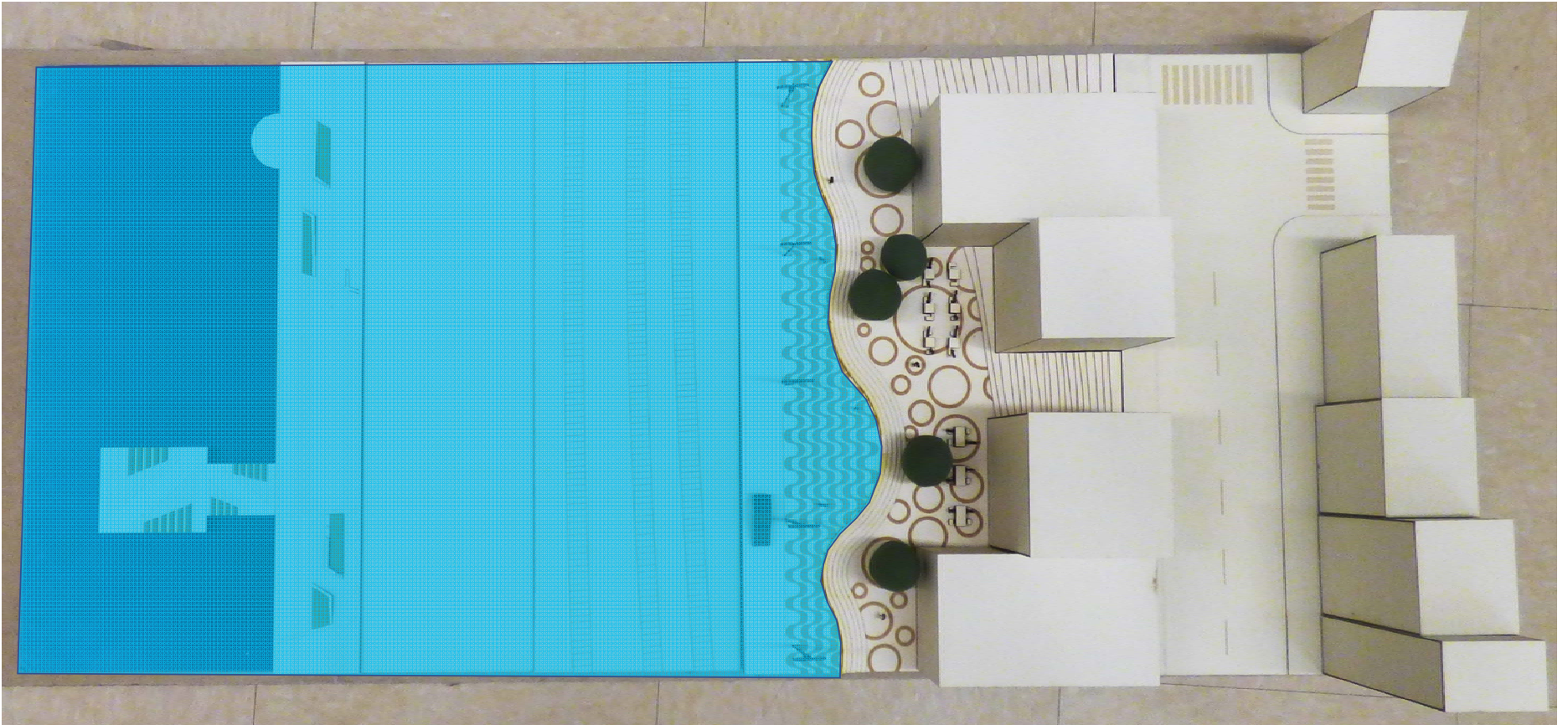


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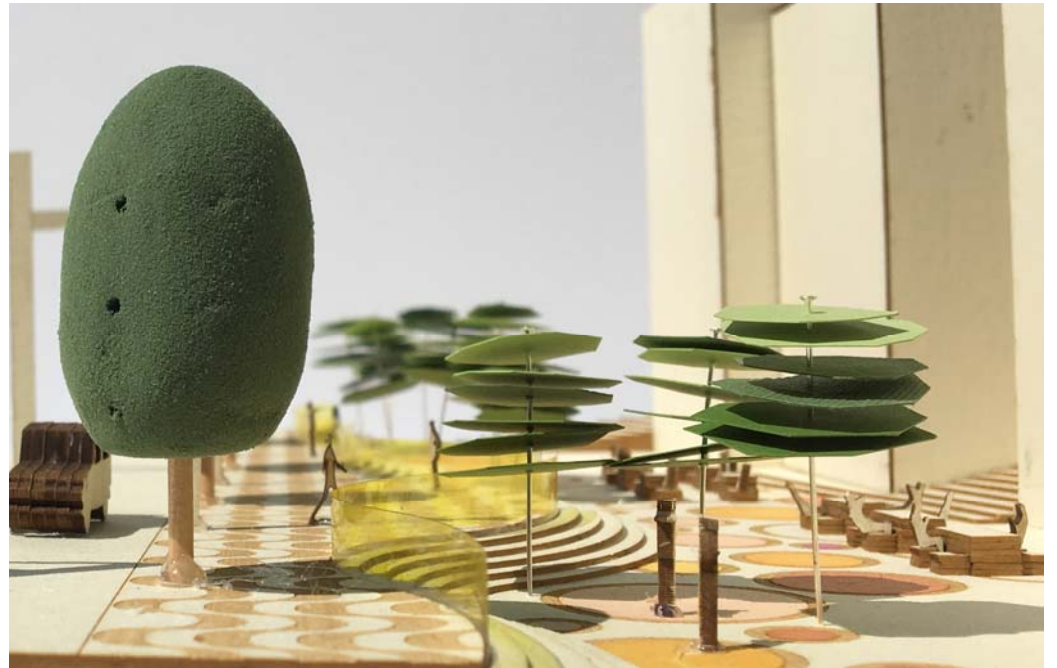
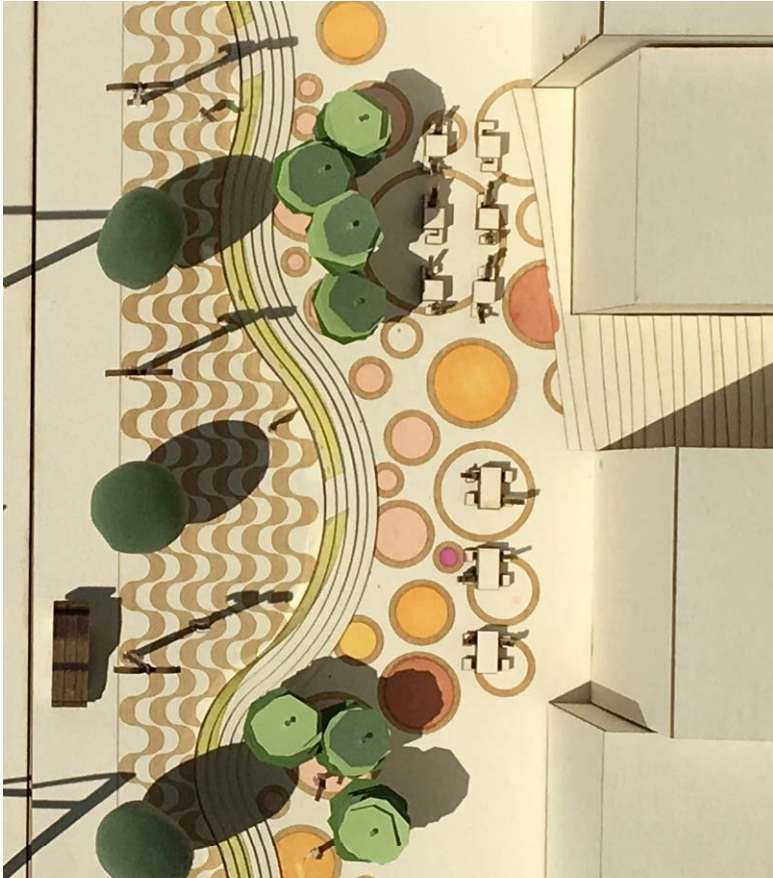




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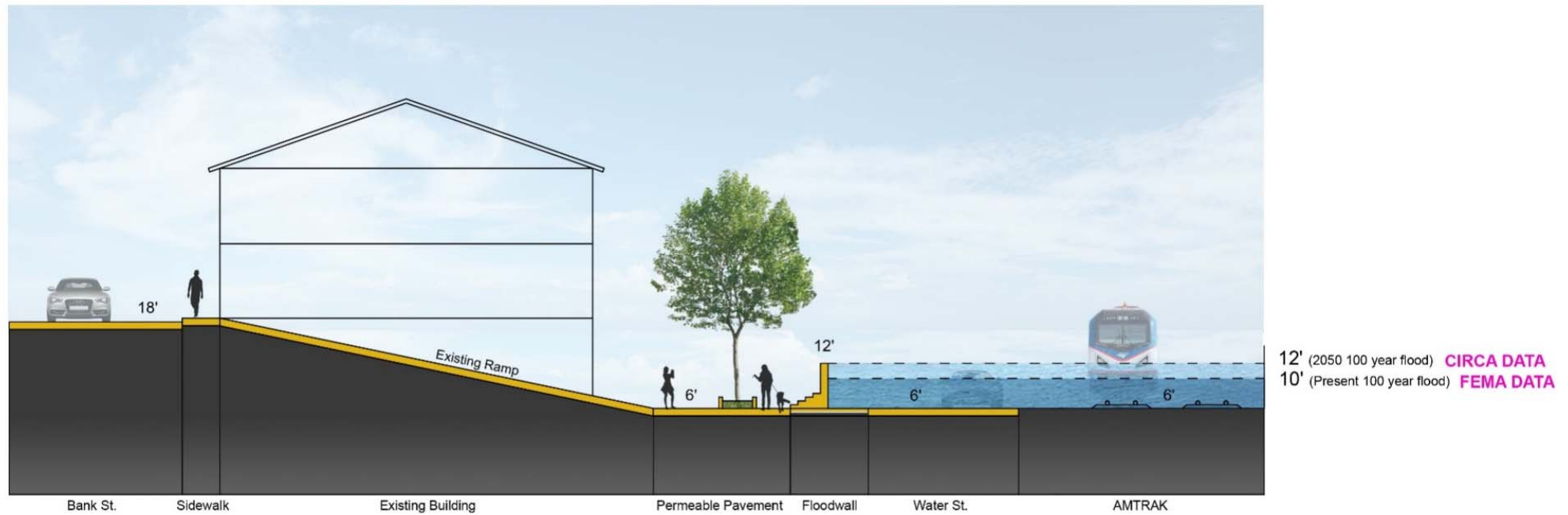


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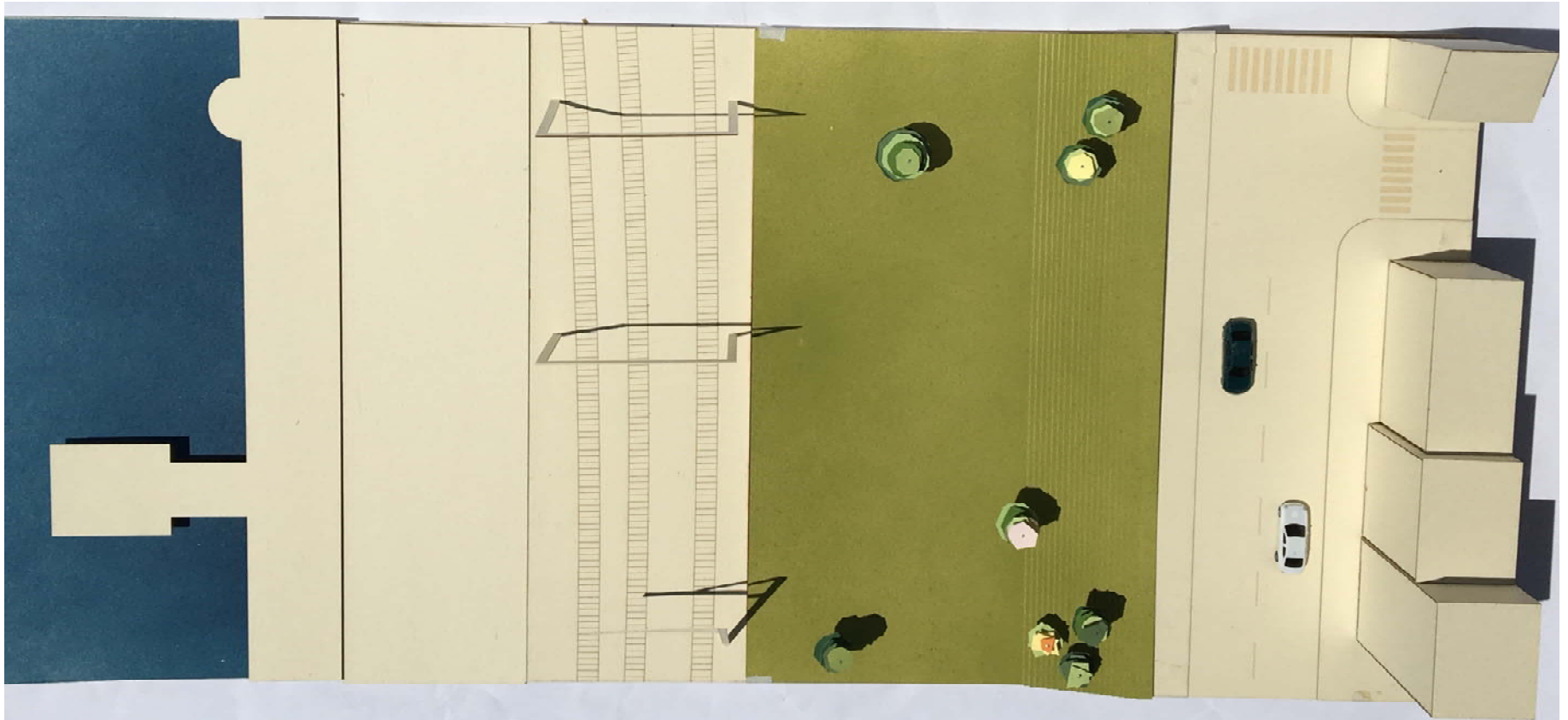


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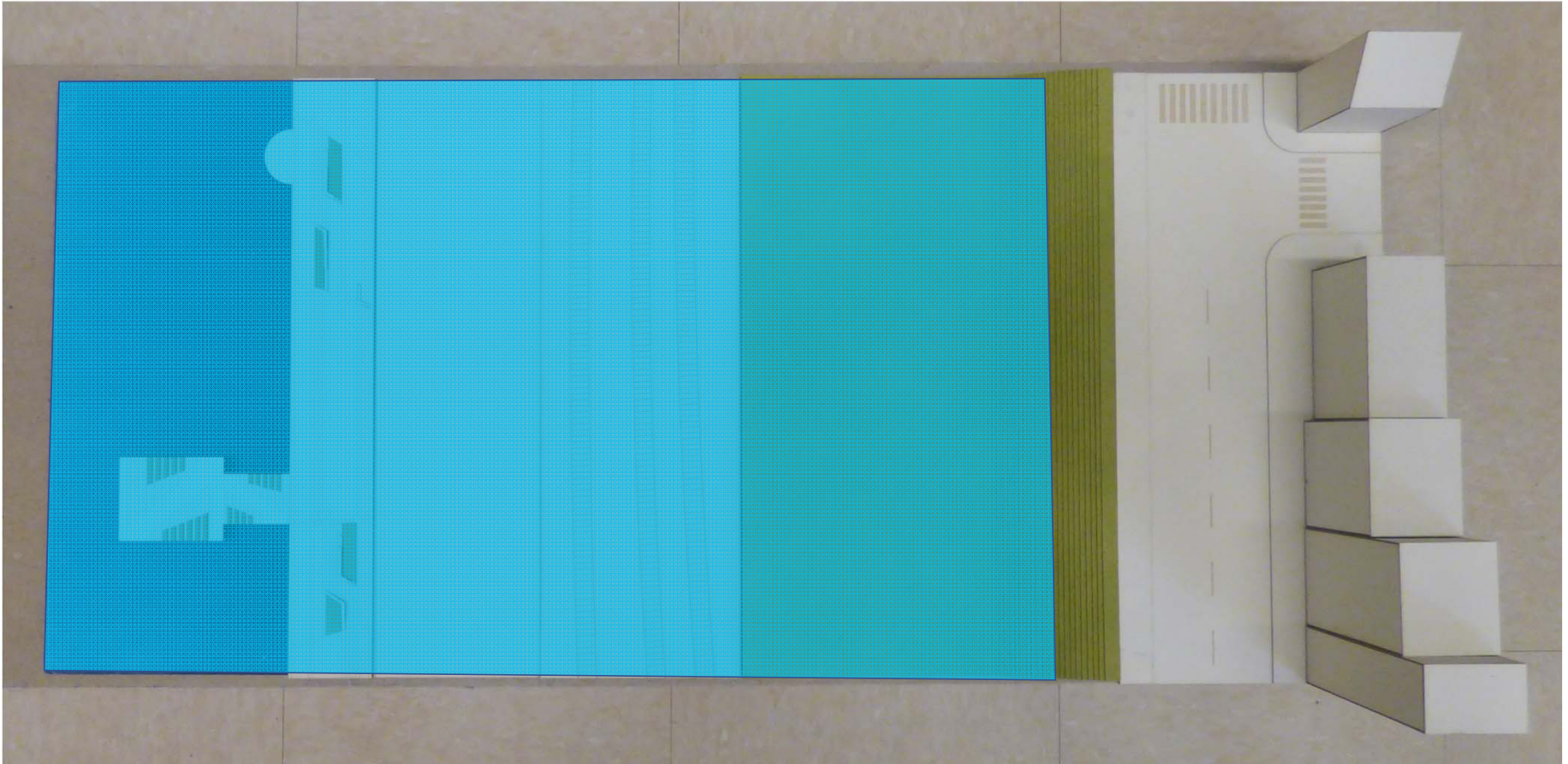




## How to Fix Things ??

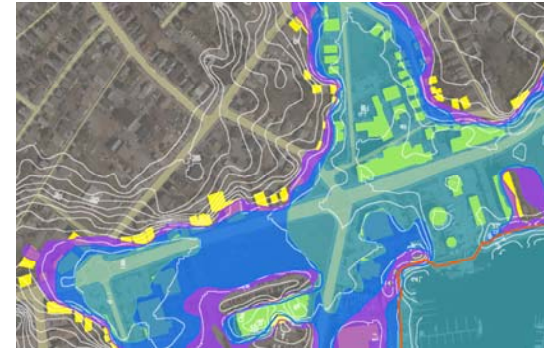


## How to Fix Things ??



# UConn's CRDC Role on New London Project

- Take CIRCA data on sea level rise and produce graphic plans and sections to clearly communicate the affects of projected water rise over time on the Bank Street area of New London.
- Develop a series of design/planning scenarios that will 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.
- Prioritize the array of design/planning scenarios by building consensus across populations, disciplines and agencies (local, regional, federal).
- Position/support the municipality in the attainment of grant funding.





# UConn's CRDC Role on New London Project

In summary our goal is to:

Develop a design that mitigates 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.

Thank you.

**Options for New London:**

To direct future growth, we see the following potential scenarios for the Downtown Bank Street properties:

**A Landscape Solution:** A series of berms/landforms running between the train tracks and river. Will need a method (movable gates, etc.) to 'close' the ends of the berm system. This protects Amtrak, Water Street and buildings on eastside of Bank street from flood waters.

**The Mayor's Solution:** A continuous wall running between Water Street and the train tracks. Will need a method (movable gates, etc.) to 'close' the ends of the wall system. This idea was proposed by the Mayor at one of our meetings. This protects Water Street and buildings on eastside of Bank street from flood waters.

**The Sole Proprietary Solution:** Each building is treated independently of all other entities. This approach leaves Amtrak and Water Street vulnerable to flood waters.

**The Retreat Solution:** Let the water come in and remove the limited number of buildings that are susceptible to regular flooding. This creates a new "waterfront" and the buildings to the west of Bank street become waterfront properties. This idea was discussed during a meeting with Jim, Peter and Tao.

We will be building physical models of these four scenarios (along with permutations that come up) as well as developing matrices of the strengths and weaknesses of each scenario. We are confident that we will build consensus throughout the community on how to move forward given the seriousness of the future/current forces of water coming up from the Thames river and down from the hill New London is built on.







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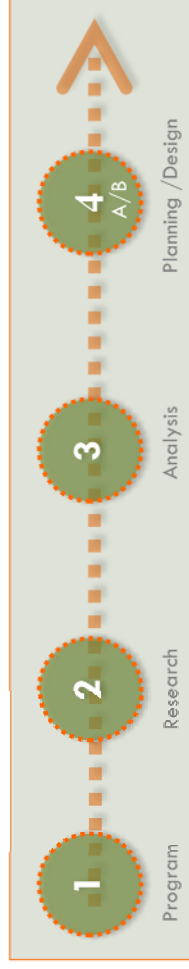


UConn's Connecticut Institute for Resilience & Climate Adaptation (CIRCA) is providing the resources for this study with no cost to the city. CIRCA will also provide the most accurate and detailed information on the effects of current and future sea level rise on coastal municipalities.

This study will employ The Lands of Unique Value (LUV) methodology. The LUV methodology inventories and analyzes all existing site features (natural and cultural), then prepares a visionary plan of all proposed land uses. This inclusive, community based methodology determines the most logical and reasonable locations for future land uses, balancing conservation, preservation and sustainable development. The LUV methodology uses a 'pro-sensible development' attitude. Associate Professor Peter Miniutti (PM), Director of UConn's CRDC, will have the primary responsibility for organizing, coordinating and implementing the proposed study.

### CRDC's Four-Step Planning/Design Process

an inclusive pluralistic approach that builds consensus within the chosen community



Next phases could include:

- grant acquisition
- development of construction documents
- other

(The scope of this agreement includes Phases 1 – 4)

**Phase 1 - Program (Development):** The Program defines client needs and describes how UConn's CRDC will meet client needs. Information provided from the client and representatives of the client will serve as the basis for determining the program.

**Phase 2 - Research:** This Phase is characterized as "fact-finding" of natural and cultural characteristics of the site. The maps generated in this phase serve as an inventory. Data is collected from a number of sources including client, site reconnaissance, site photography from ground level and bird's eye views (drone), public agencies and planning offices.

**Phase 3 - Analysis:** This Phase lends meaning to the facts collected in Phase 2. The goal of the analysis phase is to translate the inventory maps into maps that identify opportunities and constraints in relationship to the Program Statement.

**Phase 4 - Planning/Design:** Conceptual studies are prepared to explore design alternatives, which take advantage of site opportunities and mitigate site constraints. These early studies are kept simple and diagrammatic to clearly explain the conceptual ideas as they relate to the site and program. As the “conceptuals” evolve, they are subjected to a comparative analysis for positive and negative attributes and net-yields. Unsuitable schemes are rejected or modified, promising concepts are improved, and other approaches suggested by reviews are added to the array of ‘contenders’. Where feasible, all plan concepts will be delineated and compared. The most appropriate plan will be developed into a schematic drawing. The final products will include:

- Annotated Illustrative Schematic Design Plan showing:
  - Buildings with potential additions/improvements
  - Streets and open space with Place-making elements
  - Green infrastructure and locations of future tides and river surges
- Cross-section(s) from Bank street to the Thames River
- Perspective(s) comparing existing conditions to proposed design
- 3-d model
- Matrices/documents aligning the proposed Schematic Design with existing and future grant opportunities

**Schedule:**

**February/March 2018:**

- Project kick-off with a series of individual meetings and/or survey with interested parties to collect information on the current “state of affairs” as well as short/long term planning goals.
  - Field reconnaissance to develop a comprehensive photographic inventory
  - Develop Program Statement (Phase 1 product)
  - Develop Inventory Maps (Phase 2 products)
  - Draft of Summary Analysis (Phase 3 product)

**March/April 2018:**

- Development of conceptual studies leading to the final Schematic Design
  - Series of meetings and/or workshops to build consensus as studies progress
  - Draft of appropriate agencies and grants
  - Finalize Summary Analysis (Phase 3 product)

**May 2018**

- Finalize all deliverable products. Submit.

# UConn's Role on Project

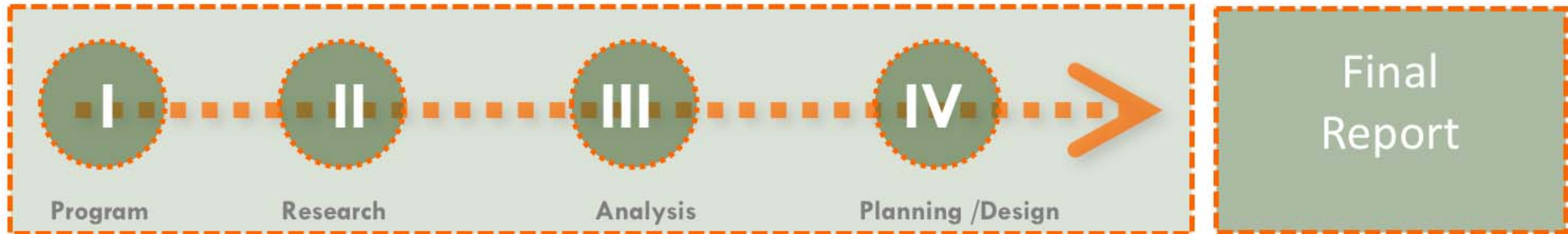
- **Facilitate** communication within the client group as well as with the general public/town officials (if needed).
- Build **consensus** among all participants during the creation of the Master Plan.
- **Create** a series of design interventions that will culminate in a long term, phased Master Plan package.

Landscape architecture is the creation of meaningful and memorable exterior spaces.



# UConn's CRDC

## Four-Step Design Process



### Tentative Schedule:

Date:	Meeting:	Attendees:	Comments:
Done	Informational	Jonathan & Christine	Building & Site surveys, discuss schedule
Done	Series of informal meetings & site visits	TBD	Collect & review mapping/Site Analysis
4.19.2018	Design Charrette	Students, staff, etc.	UConn will provide: (1) Program Statement, (2) Site Model, (3) Mapping, (4) Design kit
In 2± weeks	Review Charrette results & discuss implications	Same as the Charrette	PowerPoint presentation by UConn with discussion
TBD	Master Plan presentation	Same as the Charrette	PowerPoint presentation by UConn with discussion
TBD	Series of informal meetings	TBD	Master Plan coordination
TBD	Final presentation	Same as the Charrette	Discussion
TBD	Final package		

# Bank Street Downtown New London

and impending sea level rise. The overriding goal of this study is to leverage future granting opportunities to best serve you and the Bank street environs. UConn's Connecticut Institute for Resilience & Climate Adaption (IRC) is providing the resources for this study with the cost of the city. New London's Bank Street location was chosen, in part, due to its development pattern of a city of architecture and reuse of space and its role in the city. Project of course will be a Master Plan aligned with current and future granting opportunities. We want to put you in an advantageous position to obtain grant funding for your property.

*For this study to succeed, we need to know your thoughts, good and bad, on what you view as your biggest challenges and best opportunities at your Bank Street locale.*



Questions? Please contact Peter @  
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