RESILIENT BRIDGEPORT

National Disaster Resilience and Rebuild by Design Projects

Bridgeport, Connecticut

Final Environmental Impact Statement/ Environmental Impact Evaluation APPENDICES

August 2019

Prepared for

CONNECTICUT Department of Housing

Prepared by

WSP

APPENDIX H
Public Involvement and Response to Comments

Contents

Citizens Advisory Committee List

Citizen Advisory Committee

First	Last	Title	Category	Affiliation	Email
Maisa	Tisdale	President/CEO	Community Organization/Group	The Mary & Eliza Freeman Center for History and Community	mltconsulting@yahoo.com
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Tom	Santa	President and CEO	Business	Santa Energy	SantaT@SANTAENERGY.COM
Charles	Dowd		Business	Webster Bank Area Management	
Lauren	Coakley Vincent	President	Business	Downtown Special Services District	Lauren.dssd@infobridgeport.com
Kim	Morque	Vice Chair	Business	Downtown Special Services District	hello@infobridgeport.com; Kim@spinrep.com
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Kathleen	Maher	Executive Director	Community Organization/Group	Barnum Museum	kmaher@barnum-museum.org
Carl	McCluster		Religious Institution	Shiloh Baptist Church	pastormccl@gmail.com
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			Religious Institution	Iglesia Cristiana	
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		Chair	Government	Historic District Commission	
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Technical Advisory Committee List

Technical Advisory Committee

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Project Kick Off Meeting (#1) - October 18, 2017

RESILIENT BRIDGEPORT

RESILIENT BRIDGEPORT

PUBLIC INFORMATION MEETING

DATE: October 18, 2017; 6:00PM-8:00PM

LOCATION: Littlefield Recital Hall, Arnold Bernhard Arts & Humanities Center- 84 Iranistan Avenue, Bridgeport, CT 06604

PRINT NAME	TOWN / CITY	EMAIL	TELEPHONE	CHECK TO RECEIVE EMAIL NOTICES
Richard Baldwin	Rensselaer, NY	rbaldw / r[illegible]@ramboll.com	631-987-6710	✓
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Edgar Westerlund	NYC - Arcadis	edgar.westerlund@arcadis.com	646.246.0144	

RESILIENT BRIDGEPORT

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PUBLIC INFORMATION MEETING

DATE: October 18, 2017; 6:00PM-8:00PM

LOCATION: Littlefield Recital Hall, Arnold Bernhard Arts & Humanities Center- 84 Iranistan Avenue, Bridgeport, CT 06604

PRINT NAME	TOWN / CITY	EMAIL	TELEPHONE	CHECK TO RECEIVE EMAIL NOTICES
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John Santa				☐
~~TRANSFERBURGDORF~~	BPT.			☐
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RESILIENT BRIDGEPORT

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PUBLIC INFORMATION MEETING

DATE: October 18, 2017; 6:00PM-8:00PM

LOCATION: Littlefield Recital Hall, Arnold Bernhard Arts & Humanities Center- 84 Iranistan Avenue, Bridgeport, CT 06604

PRINT NAME	TOWN / CITY	EMAIL	TELEPHONE	CHECK TO RECEIVE EMAIL NOTICES
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LOCATION: Littlefield Recital Hall, Arnold Bernhard Arts & Humanities Center- 84 Iranistan Avenue, Bridgeport, CT 06604

PRINT NAME	TOWN / CITY	EMAIL	TELEPHONE	CHECK TO RECEIVE EMAIL NOTICES
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Public Information Meeting
October 18, 2017 6-8 PM
Littlefield Recital Hall

Attendance:
41 signed in – note some did not choose to sign in

Public Comments:
Goals and Objectives:
Which of these is most important? What other objectives do you see for your neighborhood?

- "Local job creation"
- "#1 and #4"
- "How do you measure health? Are measures in place?"
- "Safe connections to downtown"
- "Divide between economic classes"
- "Retail not safe to and desirable to residents"
- "Concerned about raising streets on historic homes"
- "Effect of standing water on insect population"
- "Show the Seaside Village pilot at next meeting"
- "Transportation connections to downtown and train station"
- "Strategies used by other states to assist flood insurance cost"
- "Agree- especially on #1- protection from flooding. I think this area is becoming more resilient."

How did Hurricane Sandy Affect You?

- "6 feet of water in basement cracked floor foundation"
- "Basement flooded- 247 Atlantic Street"
- "IRENE 150k in flood damage. SANDY 1m in flood damage- 285 Lafayette Street"
- "Transportation to get to work, hospitals, nursing homes"
- "4 feet of basement water- Seaside Village"
- "Rev Clayton- Broad/Gregory out of building since Sandy. Also chronic flooding."
- "Basement filled with water. House is 150 years old. Destroyed pointing on field stone foundation. Underground water shift under basement floor. Damage going on to present day!"

Resilience Hub Types:

- "Satellite Phone Connection"
- "Emergency Response Brigade Center (neighborhood based)"
- "I'd like to see the design center/resilience center be focused on collecting the data for subsidence and groundwater as outlined by Roelof Stroman from Deltares in Netherlands. I'd like this center to be a community driven data collection center."

Advertising:

Only in Bridgeport Website- Ran online ads October 4-18th (unlimited impressions)
WTNH Website- Three online ads ran October 4-18th for 500k impressions (193 people clicked)
La Voz- ¼ page print ad October 13th
WPKN- PSAs running week before and week of meeting
Groundworks Bridgeport canvased homes and businesses in the South End with door hangers

Concept Screening Meeting (#2) - December 12, 2017

RESILIENT BRIDGEPORT

RESILIENT BRIDGEPORT

PUBLIC INFORMATION MEETING

DATE: December 12, 2017; 5:30PM-7:30PM

LOCATION: New Vision International Ministries - 130 Gregory Street, Bridgeport, CT 06604

PRINT NAME	TOWN / CITY	EMAIL	TELEPHONE	CHECK TO RECEIVE EMAIL NOTICES
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King Rogers		" "		☐
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RESILIENT BRIDGEPORT

RESILIENT BRIDGEPORT

PUBLIC INFORMATION MEETING

DATE: December 12, 2017; 5:30PM-7:30PM

LOCATION: New Vision International Ministries - 130 Gregory Street, Bridgeport, CT 06604

PRINT NAME	TOWN / CITY	EMAIL	TELEPHONE	CHECK TO RECEIVE EMAIL NOTICES
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RESILIENT BRIDGEPORT

RESILIENT BRIDGEPORT

PUBLIC INFORMATION MEETING

DATE: December 12, 2017; 5:30PM-7:30PM

LOCATION: New Vision International Ministries - 130 Gregory Street, Bridgeport, CT 06604

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Resilient Bridgeport
Public Information Meeting & Workshop
December 12, 2017 5:30-7:30 PM
New Vision International Ministries
130 Gregory Street, Bridgeport, CT 06044

Meeting Attendance:
40 signed in

Public Comments:

How did you hear about this meeting?
- On email distribution list
- Facebook
- Door Hanger
- NRZ
- Church bulletin

Connections:
- Connection to Downtown, waterfront and multi-modal transportation system should be enhanced
    - Neighborhood too distinct from Downtown and from Seaside Park
    - Sidewalks are in disrepair
    - Did they say anything about bikes?
    - Too much congestion on local roads; exacerbated by on-street parking
    - Paths in Seaside Park and along waterfront should be integrated into the neighborhood pedestrian network and expanded by whatever flood risk reduction infrastructure is built
- South End needs a gateway
    - Entrances to neighborhood under highway and railroad are bleak
    - Land uses in transportation corridor zone not friendly to walking
- Public infrastructure could enhance community connectivity
    - More playgrounds needed
    - More services in the South End- Community and/or Emergency Center

Neighborhood Development:
- Significant opportunities to bring new businesses and residents to neighborhood without compromising neighborhood character and supporting local goals
    - Broad and Lafayette Streets provide greatest redevelopment sites
    - Reuse of abandoned factories would convert current non-productive and blighted eyesores into something providing value for neighborhood
    - Residential could be appropriate
        - Residential development should include efficiencies to support UB students
        - Residential development should take advantage of the high rents that could be achieved with water views
        - Another 1,000 housing units would bring vitality to the neighborhood and downtown
        - 60 Main Street is an early opportunity if flood risk can be reduced
    - Commercial could be appropriate
        - UB students currently have to go to Trumbull Mall for shopping
        - Restaurants would be perfect given University and waterfront

        - 30 University and sites like that near park would be great restaurant sites but that site is a cautionary tale since restaurants there keep failing
        - Boathouse in Seaside Park could be great destination restaurant
    - Development policy doesn't seem to be effectively enforced
    - Greater density is ok as long as the style and scale doesn't detract from neighborhood's historic character.
- Some land should be reserved for water management and leveraged as a community asset
    - Stormwater parks and retention areas could provide benefit during flood events and year round
    - Rain gardens integrated into development could bring park-like feel into neighborhood
    - Look to low-lying points in neighborhood for new pocket parks that could hold water during rain events

Public Realm Improvements:

- Seaside Park needs to be a bigger part of South End identity
    - Most travel through the arch to enter the park; all three entrances are important; Broad/Main and Iranistan entrances should be improved
    - If you hired a branding firm, the brand for Bridgeport would be "It's the Park City"
    - There's currently no public location that gives an elevated vantage point where you can see the breadth of the park; an elevated spot in the park could be great for stargazing and interacting with nature
    - Seaside should be the anchor of an outdoor recreation lifestyle in South End
- More and better managed street trees should permeate the South End, bringing the Park into the neighborhood
- Floodwalls or other flood risk reduction infrastructure should include public art and new public spaces
- Investment in public realm should be limited to those areas of the flood risk reduction infrastructure that touch the community
- More public activities and programming necessary for new public spaces

Resilience Hub:

- Could be used to bring energy to the area under I-95
- Stand-alone building
- Leveraged for broad community uses
    - Information
    - Learning
    - place to go for emergency
    - healthcare
    - engineering and design
- Engage students
    - Youth staffing
    - Volunteer/paid program for youth
    - Use students for data collection
    - STEM program with students
    - Afterschool program for children
- Senior Citizen's Center
- Urban Agriculture
    - Link to strong network of existing community gardens
    - Expand existing resources with a community farm

2017 Scoping Meeting (#3) - March 14, 2018

CONNECTICUT DEPARTMENT OF HOUSING TO HOLD A SCOPING MEETING FOR THE RESILIENT BRIDGEPORT ENVIRONMENTAL IMPACT STATEMENT

Please join us for the EIS Public Scoping Meeting:

DATE: Wednesday, March 14, 2018
TIME: 6:00 – 9:00 PM (presentation to start at 6:30 PM)
LOCATION: Arnold Bernhard Arts & Humanities Center (first floor) located at 84 Iranistan Avenue, Bridgeport, CT 06601

The Connecticut Department of Housing (CTDOH) and U.S. Department of Housing and Urban Development (HUD) invite the public to a Public Scoping Meeting on the Resilient Bridgeport Environmental Impact Statement (EIS). The EIS is being prepared in accordance with the National Environmental Policy Act of 1969 (NEPA) and the Connecticut Environmental Policy Act (CEPA) to analyze the potential environmental and social effects of alternatives being proposed to improve coastal and social resiliency and reduce flood risk to the south end of Bridgeport. The purpose of the meeting is to present information about the project and solicit comments on the project's purpose and need, preliminary alternatives, and areas of key environmental concern.

The Draft Scoping Document can be downloaded at https://resilientbridgeport.com.

To provide comments, please contact: David Kooris, Director of Resilience, Department of Housing, 505 Hudson Street, Hartford, CT 06106 or email info@resilientbridgeport.com.

Comments must be submitted by March 28, 2018 to be included in the Final Scoping Document. If you have special needs and require assistance at the meeting, please contact the project team by calling (860) 815-0299 no later than 5:00 PM on Friday, March 9, 2018.

Resilient Bridgeport
Public Hearing & Design Workshop
Wednesday, March 14, 2018 at 6 PM
Schelfhaudt Gallery, 84 Iranistan Avenue, Bridgeport

The Public Hearing will begin promptly at 6 PM with an open house and opportunity to speak one-on-one with project staff. A presentation on the Environmental Impact Statement (EIS) / Environmental Impact Evaluation (EIE) will begin promptly at 6:30 PM. Following the presentation, the public will have the opportunity to provide comments. After the hearing, attendees are encouraged to stay for a design update and public workshop.

Please feel free to spread the word of this Public Hearing & Design Workshop with your colleagues, friends and neighbors who share an interest in the future of Bridgeport's South End. All are welcome and encouraged to attend!

For more information about Resilient Bridgeport and to review the EIS Notice of Intent and Draft Scoping Document, please visit the project website www.resilientbridgeport.com.

If you have any special needs and require assistance at the meeting, please contact the project team by calling 860-815-0299 no later than 5 PM on Friday, March 9, 2018.

RESILIENT
BRIDGEPORT

Public Hearing & Design Workshop

March 14, 2018
6 PM - 9 PM

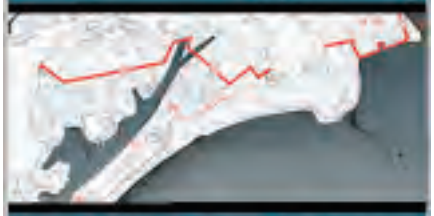
Schelfhaudt Gallery
84 Iranistan Avenue
Bridgeport, CT 06604

The Public Hearing will begin promptly at 6 PM with an open house and opportunity to speak one-on-one with project staff.

A presentation on the Environmental Impact Statement (EIS) / Environmental Impact Evaluation (EIE) will begin promptly at 6:30 PM. Following the presentation, the public will have the opportunity to provide comments.

After the hearing, attendees are encouraged to stay for a design update and public workshop.

www.ResilientBridgeport.com
info@resilientbridgeport.com



More Information >>

RESILIENT BRIDGEPORT

Public Hearing & Design Workshop

Wednesday, March 14, 2018
Schellhaudt Gallery
84 Iranistan Avenue, Bridgeport, CT

6:00 PM Open House
6:30 PM EIS/EIE Presentation
6:50 PM Public Comments
Design Presentation & Workshop to Follow
(Approximately 7:30 PM)

Join us for a presentation on the Environmental Impact Statement (EIS) / Environmental Impact Evaluation (EIE). Following the presentation, the public will have the opportunity to provide comments. After the hearing, please join us for a design update and public workshop.

For more information and to review the EIS Notice of Intent and Draft Scoping Document, please visit **www.ResilientBridgeport.com**

If you have any special needs and require assistance at the meeting, please contact the project team by calling (860) 815-0299 no later than 5 PM on Friday, March 9, 2018.

RESIDENT BRIDGEPORT

RESILIENT BRIDGEPORT

PUBLIC HEARING & DESIGN WORKSHOP

DATE: March 14, 2018 6 PM

LOCATION: Schelfhaudt Gallery, 84 Iranistan Avenue, Bridgeport, CT 06604

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Liz Swenson	Hartford	Elizabeth.Swenson@ct.gov	860-270-8054	
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RESILIENT BRIDGEPORT

RESILIENT BRIDGEPORT

PUBLIC HEARING & DESIGN WORKSHOP

DATE: March 14, 2018 6 PM

LOCATION: Schelfhaudt Gallery, 84 Iranistan Avenue, Bridgeport, CT 06604

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Carmen Nieves	Bridgeport	Senrz@gmail.com	203-727-9229	
Tammy Monnin	New Haven	tmonnin@pcparch.com	—	
Rebecca French	Waterford/UConnCIRCA	rebecca.french@uconn.edu	860 405 9228	

RESILIENT BRIDGEPORT

RESILIENT BRIDGEPORT

PUBLIC HEARING & DESIGN WORKSHOP

DATE: March 14, 2018 6 PM

LOCATION: Schelfhaudt Gallery, 84 Iranistan Avenue, Bridgeport, CT 06604

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Lisa Moragne	Bpt.	lismoragne@gmail.com	203 668 0877	

RESILIENT BRIDGEPORT

Public Hearing

March 14, 2018
Schelfhaudt Gallery, 84 Iranistan Avenue, Bridgeport, CT

SPEAKER SIGN-UP – PLEASE PRINT CLEARLY

Speakers will be called up in order during the comment period following the Environmental Impact Statement (EIS) / Environmental Impact Evaluation presentation. Speakers will be limited to three minutes each.

First Name	Last Name	Address	Affiliation
Carmen	Nieves		
Lydia	Silvas	seaside village	

Public Design Workshop Table Discussion Notes

March 14, 2018

University Avenue Table 1
Leader: Andrei Harwell
Notes: Jared Abraham

North Main St/University Avenue Termination

- "It's already blocked off [at the railroad], so won't make a difference."
- There was a general concern regarding traffic flow to 60 Main and the Broad/Main Street couplet.
- There was an acknowledgment that raising a street requires handrails, fences and lighting, and concern for what that might look like.

Olmstead Park

- There was a concern that a built out UB masterplan would result in less daylight in the park.
- "Will you be able to restore the grove in the [north side of the] park?"
- "University buildings would cast shadows on the park."

Curve Diagram ("Park City Scheme")

- "A continuity of the park is good."
- One community member expressed a want to incorporate public art in the re-design of University Avenue.
- There was little reaction to the proposed geometry of the University Avenue pedestrian walk.

Park Place

- The group preferred a gradual/sloped transition between a raised university Ave and the Park.
- "I'd rather see a slope up and a slope down."
- The group expressed a need for better programming in the park.
- "What draws people here, other than a walk in the Park?"
- The park and paths at the head of the park (former carriage gate) are used by residents for access to the park.
- "I go down the paths to the playground. I have a granddaughter."
- There were general questions about how the Conte site would interface with a raised University Avenue.

Other Questions

- "Are you separating the storm water and sewer system?"
- "What about utilities? Will electric, telephonic, etc. go underground?"
- The group sited existing flooding under the train tracks and asked how it might be addressed. "Will you add a pumping station?"
- General questions of funding and the scope of the work we were doing. Could it be used for park restoration? Utility upgrades? etc.
- "What do you think about the casino?"

- Questions about the storm-water Park. “How much water does the park manage?” “Where is the storm-water Park?”

University Avenue Table 2
Leader: David Waggoner
Notes: Daphne Agosin

North Main St/University Avenue Termination

- This table was inclined to terminate the vehicular access North of University Avenue in its intersection with Main St, understanding that this would allow for better access to the three houses located in the East sidewalk of Main, before Henry St.
- They were interested in a pedestrian access

Lafayette/Park

- This table was inclined to have some kind of vertical connection remain in Lafayette/Park, "at least pedestrian."

Curve Diagram ("Park City Scheme")

- People felt good about the curve diagram, as DW explained it allows for connections between important points of University Avenue and a perceptive connection to other parks north.

- Interest when this diagram is explained as a "Civic Gateway" making UB areas more approachable as connectors for pedestrians

Park Place

Questions:

- Public: Does the wall wrap around the arc of the park?
- DW: No, the elevation of the park towards the risk reduction barrier would respond to the historic plan of Olmsted—that is what the arc is about.

- A community member was interested in having a water feature in this area of the park.
- There was interest in integrating bike paths in this location.
- Henry Burke Statue: some concern on how to move it without losing its category of preservation.
- "the park is actually super used"
- "A way to maintain its relevance is to create virtual reality parks"
- "Enhance information system on the park"
- "Is there a possibility to relocate the trees that we take out?"

Comments on Resilience Hub:
Interest in using houses as info kiosks
Interest in the hub complementing health centers
*Some community members from this table took the survey to further think and respond from home.

Resilience Hub Table
Leader: Kelli Reinhardt
Notes: Megan Savage

Consensus: Physical space

Question:

- We have up to $1m- can you explain how the money works?

Kelli:
We have money to set it up, not to run programs forever. The money is one-time use. Need a partner to run/facilitate programs.

Comment:

- Physical building- place to get help, ask questions.
- Maybe we don't have programming now, but we could if a building was there.
- Don't see value in the virtual hub option.
- You need to use a space regularly to know where to go to get help in an emergency.
- Physical space to teach about resilience and human/environment relationship.
- The space needs to be a standalone from the University or Churches.
- When there is a disaster, people have this place to go to.
- Provide WIFI and phone services in case of emergency. Charging stations.
- Meeting place for people separated in times of emergency. Should be used so people know where to go prior to an emergency.
- Food, water, communication, get out.
- Cultural corridor, tourist spot, place to tell story.

Question:

- How long do we have?

Kelli: Construction completion by 2022.

Comment:

- Mixed use development.
- Cert training.
- Facility to house mobile hub.
- We need more signage for evacuation.
- Place for detour information during crisis.
- Innovation Center.
- A co-working space of resilience tech companies to test and work together could be valuable.
- This would be more valuable than a place for team designers.
- Rent out commercial/tech spaces- a way to fund building.
- Children's programs.
- Building needs to have generator.
- Mixed use space. Housatonic tried something like this.

Question:

- What is the next step?

Roni:
Next step for the Resilience Hub- need to have understand of needs/wants by early April.

Comment:

- Rent out for meetings and events.
- Swap out Housing Authority space across from Freeman Houses and use that space.
- Data monitoring program. Interested in getting the community involved in the monitoring efforts “citizen scientist”.
- Engage people directly- give people a voice to make change and not fear the water.
- Partnerships with people/agencies to use data.
- Need more resources than the University.

How to Comment

The Draft Scoping Document is available on:

https://resilientbridgeport.com

Comment During Tonight's Meeting

Submit Comments by Email:
info@resilientbridgeport.com

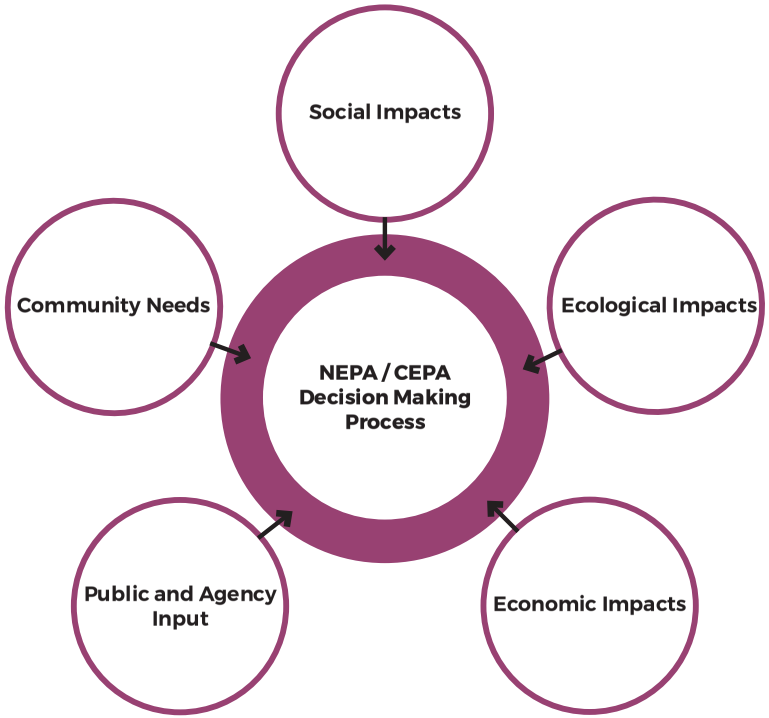
Fill Out Comment Card and Submit Tonight or by Mail to:

CT DOH
505 Hudson Street
Hartford, CT 06061-7106

Comments received by **March 28, 2018** will be considered and summarized in the Final Scoping Document, which will be posted on the project website https://resilientbridgeport.com/

NEPA / CEPA Process

National Environmental Policy Act / Connecticut Environmental Policy Act



We Are Here →

- **Notice of Intent**
- **Scoping / Public Hearing**
- **Prepare Draft EIS**
- **Release Draft EIS**
- **Public Comment/ Public Hearing**
- **Prepare and Issue Final EIS and Record of Decision**

Impact Categories

Natural Resources
- Ecology
- Floodplains
- Surface Waters
- Wetlands and Riparian Zones
- Coastal Resources

Cultural Resources
- Architectural Resources
- Archaeological Resources

Land Development
- Land Use and Zoning
- Noise and Vibrations
- Air Quality
- Visual and Aesthetic Resources
- Hazardous Materials
- Energy

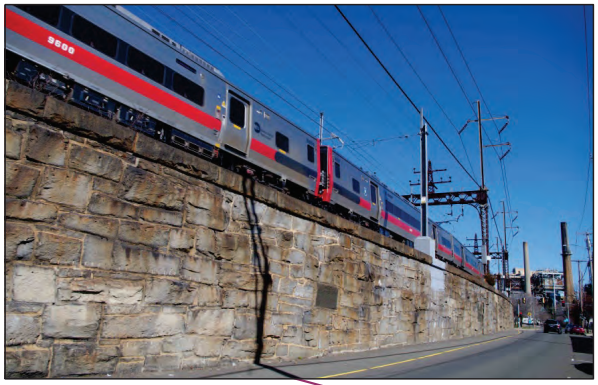
Socioeconomics
- Environmental Justice

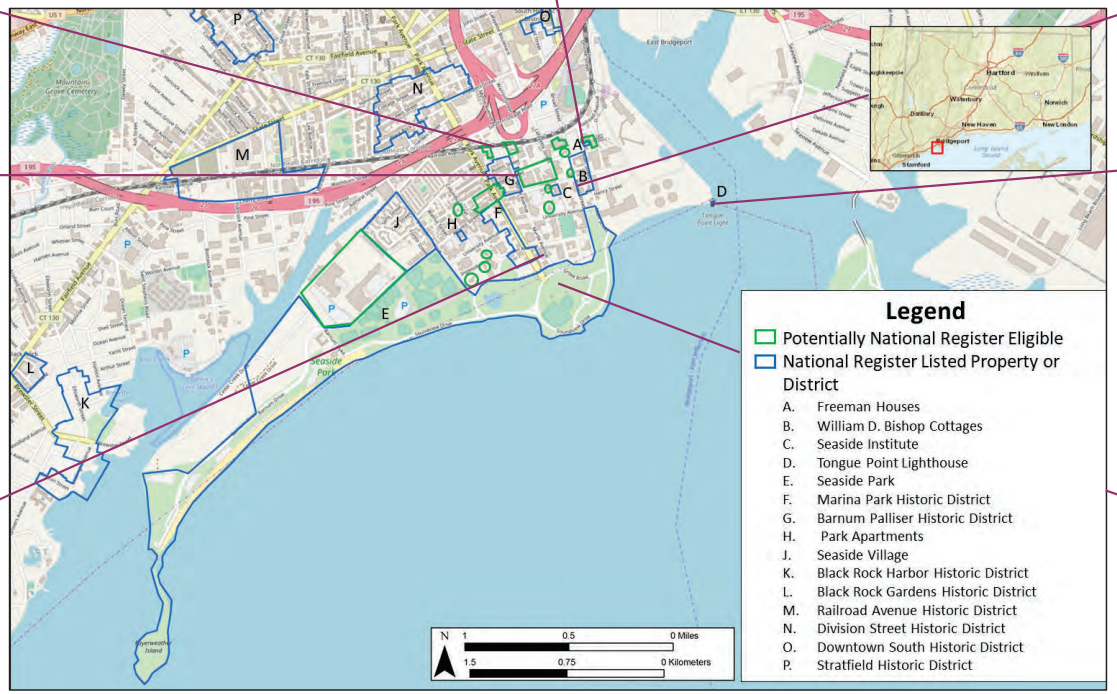
Community Facilities and Services
- Stormwater
- Utilities
- Transportation
- Open Space and Recreation

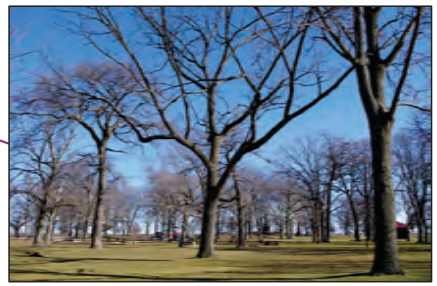
Indirect Effects and Cumulative Impacts

Section 106 Process and Historic Properties

Section 106 of the National Historic Preservation Act of 1966 requires federal agencies to consider the effects of their actions on historic properties (including standing structures, bridges, landscapes, and archaeological resources) that are listed or eligible for listing in the National Register of Historic Places.







Project Needs

RESILIENT BRIDGEPORT

Study Area

FEMA FIRM FLOOD ZONE

- VE Zone (waves above 3')
- 100 Year Floodplain (1% annual chance)
- 500 Year Floodplain (.2% annual chance)

SUPERSTORM SANDY INUNDATION

- Superstorm Sandy Inundation

Project Purpose

Purpose

Create a more resilient South End community, support its long-term viability, and improve health and safety for the community's vulnerable populations.

Principal targeted outcomes:

- **Lower the risk of acute and chronic flooding**
- **Provide dry egress during emergencies**
- **Educate the public about flood risks and sea level rise**

Goals and Objectives

Minimize Coastal and Inland Flood Risk

Enhance Connectivity (Resilient TOD)

Create a More Socially + Economically Resilient Community

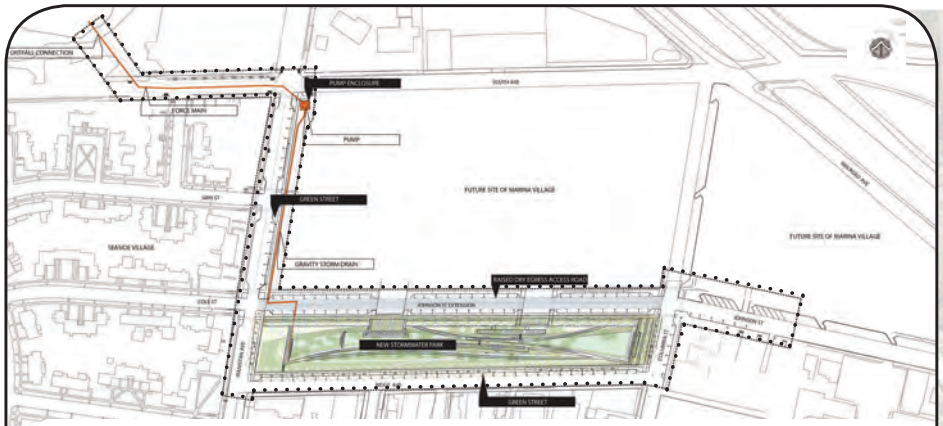
Implementable – Feasible and Constructible

Co-Benefits

The proposed project could deliver additional benefits to the community:

- **Unlock development or public realm opportunities**
- **Enhance connectivity between the South End and Downtown Bridgeport**
- **Improve existing open space amenities**
- **Build up the resilience of local energy systems**
- **Leverage public investment in ongoing resiliency efforts through coordination with local stakeholders**

Proposed Action



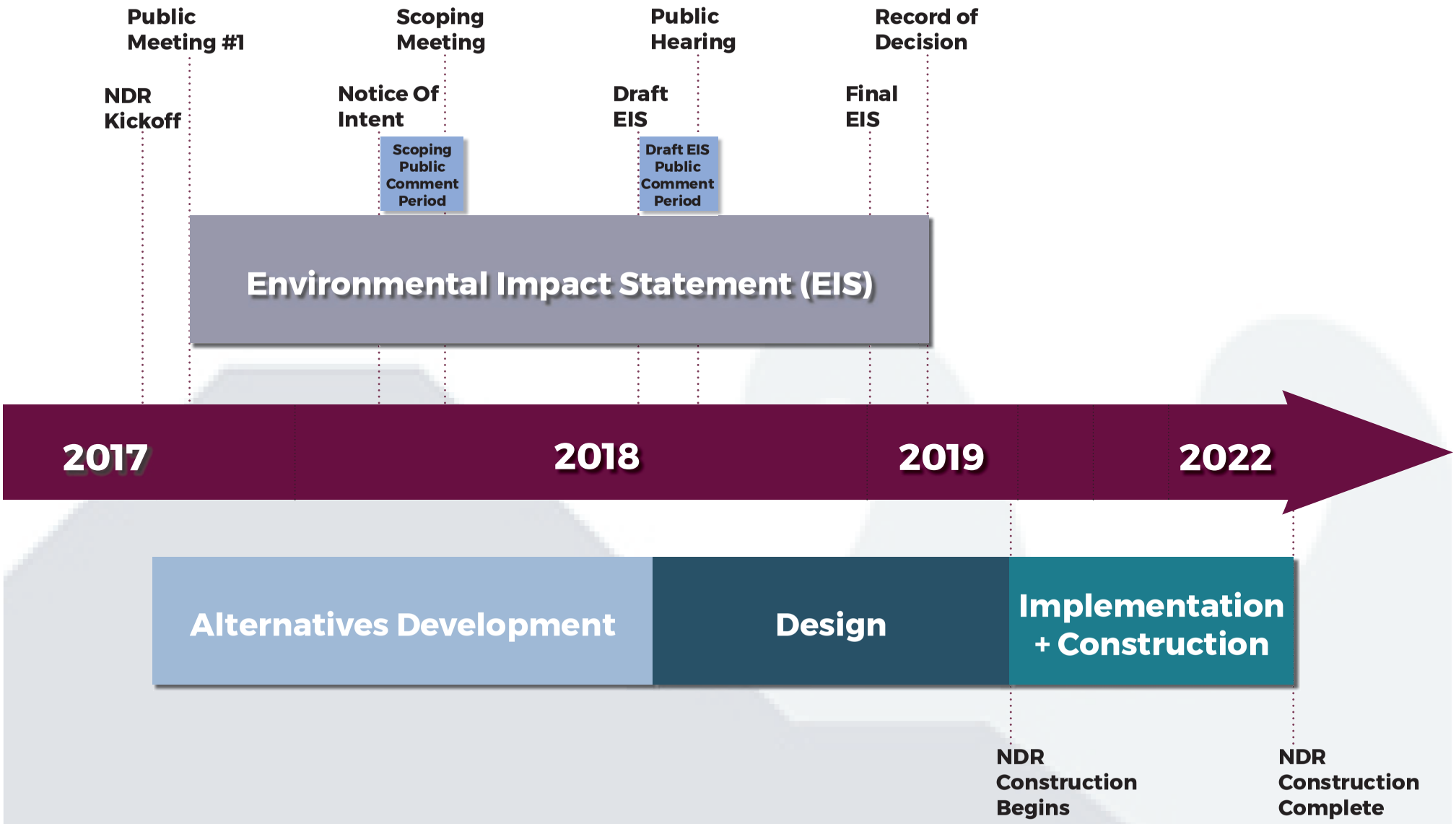
Stormwater Improvements and Dry Egress at Marina Village (RBD Pilot)

Flood Risk Reduction

- Study Area
- Edge Alignment
- Integrated Alignment
- Interior Alignment

I-95
Main St
Atlantic St
University Ave
Park Ave
Broad St
Iranistan Ave
Seaside Park
I-95

Schedule


Public Meeting #1
Scoping Meeting
Public Hearing
Record of Decision
NDR Kickoff
Notice Of Intent
Draft EIS
Final EIS
Scoping Public Comment Period
Draft EIS Public Comment Period
Environmental Impact Statement (EIS)
2017
2018
2019
2022
Alternatives Development
Design
Implementation + Construction
NDR Construction Begins
NDR Construction Complete

Alternatives Analysis Meeting (#4) - June 6, 2018

+3

RESILIENT BRIDGEPORT

RESILIENT BRIDGEPORT

PUBLIC HEARING & DESIGN WORKSHOP

DATE: ~~March 14, 2018 6 PM~~ DATE: June 6, 2018

LOCATION: Schelfhaudt Gallery, 84 Iranistan Avenue, Bridgeport, CT 06604

PRINT NAME	TOWN / CITY	EMAIL	TELEPHONE	CHECK TO RECEIVE EMAIL NOTICES
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RESILIENT BRIDGEPORT

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RESILIENT BRIDGEPORT

RESILIENT BRIDGEPORT

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LOCATION: Schelfhaudt Gallery, 84 Iranistan Avenue, Bridgeport, CT 06604

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HUÂN M. NGO	New Haven.	h-ngo@att.net	~~783~~ -624-4333	☐
Taylor Mayes	Hamden	taylor.mayes@uconn.edu	203-499-9295	☐
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Kai Xian	BBoRT	kstane@sunfer.com	(203) 394 8463	☐
Maris Dixon	Bpt	Chrystis@yahoo.com		☐
Rev. Elvin Clayton	Bpt	pastoreclayton2@sbcglobal.net	860-919-3194	☐
Lizzette Echevarria	Bridgeport	LEchevarria@opthc.org	203 696-3260 3382	☐
				☐
				☐
				☐
				☐
				☐

PRINT NAME	TOWN / CITY	EMAIL	TELEPHONE	RECEIVE EMAIL NOTICES
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Mark Dickey	Bpt		203-887-7311	

MEETING NOTES

JOB TITLE	Resilient Bridgeport – NDR Project
PROJECT NUMBER	52829
DATE	06 June 2018
TIME	6:00PM – 8:00 PM
VENUE	84 Iranistan Avenue, Bridgeport, CT
SUBJECT	Public Meeting #4
CLIENT	Connecticut Department of Housing
PRESENT	NDR Team: David Kooris (CTDOH), Hermia Delaire (CTDOH), Dan Kennedy (WSP), Megan Savage (WSP), Nicole Weymouth (WSP), Laura Toole (WSP), Jared Abraham (YUDW), Joseph Marrone (Arcadis), Roni Deitz (Arcadis), Ian Applegate (WSP), Daphne Agostin (YUDW), Katie Coleman (Arcadis), Christina Smith (Groundwork Bridgeport), Miranda Zhang (WSP), David Waggonner (WB), Kelli Reinhardt (WB), Tanner Burgdorf (Groundwork Bridgeport) Event was open to the public- see attached sign-in sheets.
DISTRIBUTION	NDR Team

1.0 QUESTIONS DURING PRESENTATION	**Action/comments**
• What level of rise in comparison with New Orleans? • 100 Year/500 Year difference? • Will gates be open? • What is the height of the wall? • What is a swale? • Will this project improve the sewer overflow in the sound? • Army core of Engineer involvement? • Price difference in alignments?	Record of Questions

WSP USA
500 Winding Brook Drive
Glastonbury, CT 06033

Tel.: +1 860 659-0444
Fax: +1 860 633-8117
www.wsp.com

• What's the impact on the West of South End? • Will Iranistan be raised?	
2.0 TABLE #1 DISCUSSION NOTES	
Development in front of UB North. Werner Gitt Projects. Bath house in Seaside Park is underutilized. More Art More Restaurants Example in Rome and Naples community projects. Fix critical points (park and train). Talk about the separation of the system. Maisa: We don't want the Western most alignment because we want to redevelop Main Street sidewalk into small markets. It's a perfect space for sidewalk/pedestrians, people with disabilities. UB students like to walk around there. The folks at the Cottages are concerned about a wall in front of them.	INFO
2.1 RECLAIM	
Wall BEHIND Main Street so we don't see so much industry Lights Churches: Downtown, "release of ancestors": walk through Main Street to the beach. (at 1AM) Sunset Ritual of passage	INFO
2.2 MAIN STREET/UNIVERSITY AVENUE	
As long as it's something that evokes the park, invites people to the park. Symbolic On top of superpower elastic tubes- pedestrian walkway Everyone would love a place to have a cup of coffee (PSEG at Main Street) Laurence Harvey Hubble- Little Liberia electrical power plug (and pull chain light sockets) inventor First woman landscape architect in Bridgeport- Elizabeth J Bullard (Lydia) A garden for her or small monument Little Liberia Event- pop-up (done before- murals) Inventors Rent to buy mechanism, DOH project to transition rent to ownership Historically, center of Little Liberia	INFO

Pocket Neighborhoods- housing, 3 story max, playground We are hoping to see *again* something uplifting Development, especially a neighborhood that transfer socio-economic situation Also, burial site- somewhere Main Street- would you add a tree lane instead of parking? Art workshop/housing redevelopment	
2.3 HISTORY	
Crown (curser?) Factory demonstrations of 1915 History: • Cottages because tenements at NY wanted something better • Workers housing • Class consciousness • PT Barnum • "ecosystem" of factories • Seaside Park Conversation on # of units for new development on Main Street / in South End There are examples of ushering people out of poverty right here in the south end	INFO
3.0 TABLE #2 DISCUSSION NOTES	
Main Street least pleasing alignment Singer Substation is already a wall Further East seems like a no brainer What is happening with 60 Main Dead ending Main Street sounds good to resident Leo's owner- the farther out the better Prefer ramp because of commercial property, but is willing to accept either option, can see the disadvantages to local property owners (three sisters) Mark and Ronda would prefer the dead end- they own middle sister	INFO

NEXT MEETING

FALL 2018

DEIS Public Hearing (#5) - February 26, 2019

RESILIENT BRIDGEPORT

RESILIENT BRIDGEPORT

PUBLIC INFORMATION MEETING

DATE: February 26, 2019 6:00PM-8:00PM

LOCATION: Schelfhaudt Gallery, Arnold Bernhard Arts & Humanities Center- 84 Iranistan Avenue, Bridgeport, CT 06604

PRINT NAME	TOWN / CITY	EMAIL	TELEPHONE	CHECK TO RECEIVE EMAIL NOTICES
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Alanna Kabel	HUD	alanna.c.kabel@hud.gov		
Jorge Cruz	BPT	jorgecruz0712@gmail.com	203 360-6276	
Tracey Arne Brown	Stamford	TBROWN@TABARCHITECT.COM		✓
Dean Mack	Bridgeport	Dean.Mack@Bridgeportct.gov	203 407 6698	✓
Liz Swenson	Dept Housing	Elizabeth.swenson@ct.gov		
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Clopha Deshotel	Bridgeport	cdeshotel@housatonic.edu	203 333-5019	
Mark Nickel	Bpt	Mark_[illegible]		
Vo Rodyum-Serg	Bpt.	vovaserg@yahoo.com		
Corey Sorzoo	New Haven	Cory.sorzoo@stantec.com	2034451648	
Larisa Sheremet	Bridgeport	lsheremet@factset.com	203 666-1685	
Katharina Zauber	Bpt	katharina_zauber@yahoo.com	908-884-6247	

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RESILIENT BRIDGEPORT

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PUBLIC INFORMATION MEETING

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PRINT NAME	TOWN / CITY	EMAIL	TELEPHONE	CHECK TO RECEIVE EMAIL NOTICES
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Richard E. Baldwin	"	"	203-449-9421	☐
HUÂN NGÔ	New Haven	"	"	☐
Yolanda Petrocelli	Bpt	Yomestiza@Gmail	8206477	☐
Niels Heilmann	BPT	niels.heilmann@gmail	(917) 608-7936	☐
Pauline Brooker	Bridgeport	——	360-422-0617	☐
Donna Mahon	HUD	donna.m.mahon@hud.gov	973-776-7260	☐
Victoria Brudz	New Haven	Vbrudz@mminc.com		☐
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Barbara Kelly	Bridgeport	bklobos@gmail.com	203.258.3183	☐
Jane Davila	Bridgeport	info@janedavila.com	203 722 3599	☐
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Carol B Earl	Bridgeport	Bancroft22@gmail	2-209-8035	☐
Mike Mahoney	B-Port		203.332.7177	☐
Shanna Melton	Bridgeport	Shatamel@gmail.com	(203)572-4937	☐
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RESILIENT BRIDGEPORT

RESILIENT BRIDGEPORT

PUBLIC INFORMATION MEETING

DATE: February 26, 2019 6:00PM-8:00PM

LOCATION: Schelfhaudt Gallery, Arnold Bernhard Arts & Humanities Center- 84 Iranistan Avenue, Bridgeport, CT 06604

PRINT NAME	TOWN / CITY	EMAIL	TELEPHONE	CHECK TO RECEIVE EMAIL NOTICES
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CAROLYN LIN	UCONN			☐
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RESILIENT BRIDGEPORT

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PRINT NAME	TOWN / CITY	EMAIL	TELEPHONE	CHECK TO RECEIVE EMAIL NOTICES
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RUSS BERNARD	Bpt			
Joanne C. FARRELL			203-366-5051	
Judy Tesla	Bpt		203-368-2102	
MARGUERITE Williams			203-522-0211	
MRS EFFIE RIDDICK				
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Jim Gilroy	BH	[illegible]@[illegible]	608-468-9551	
DIEGO CELIS	Bridgeport	celis_diego@yahoo.com	212-470-8437	
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KAI STARN	Seaside Village	kstarn@gmail.com	860-324-5972	
Pamela Soto	TPL	pamela.soto@tpl.org		

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PRINT NAME	TOWN / CITY	EMAIL	TELEPHONE	CHECK TO RECEIVE EMAIL NOTICES
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Doris Latorre	Bridgeport			
Vjorn	Bridgeport	Banjordan@yahoo.com		
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Steven Dutt	Bpt.	—	—	
Lou Fam[illegible]	BPT	[illegible]@optonline.net	203 965 4160	
[illegible]	Bpt	[illegible]	[illegible]	
FRANK BASLER	"	FRANK.BASLER@GMAIL	345-5682	
Don Miro	"	—		
Paul Yosatake	"	P41800@hotmail.com	203 913 4888	

RESILIENT BRIDGEPORT

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PRINT NAME	TOWN / CITY	EMAIL	TELEPHONE	CHECK TO RECEIVE EMAIL NOTICES
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RESILIENT BRIDGEPORT
Public Hearing

February 26, 2019

RESILIENT BRIDGEPORT

CONNECTICUT Department of Housing

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

Tonight's Agenda

Public Hearing

- Environmental Impact Statement Update and Findings
- Public Hearing: Floor open to public comments

Design Workshop

- Project Milestones
- Design Refinements
  - *University Avenue*
  - *Pump Stations and North/South Walls*
  - *Head of Park and Green Infrastructure*
  - *Resilience Center*

Environmental Impact Statement

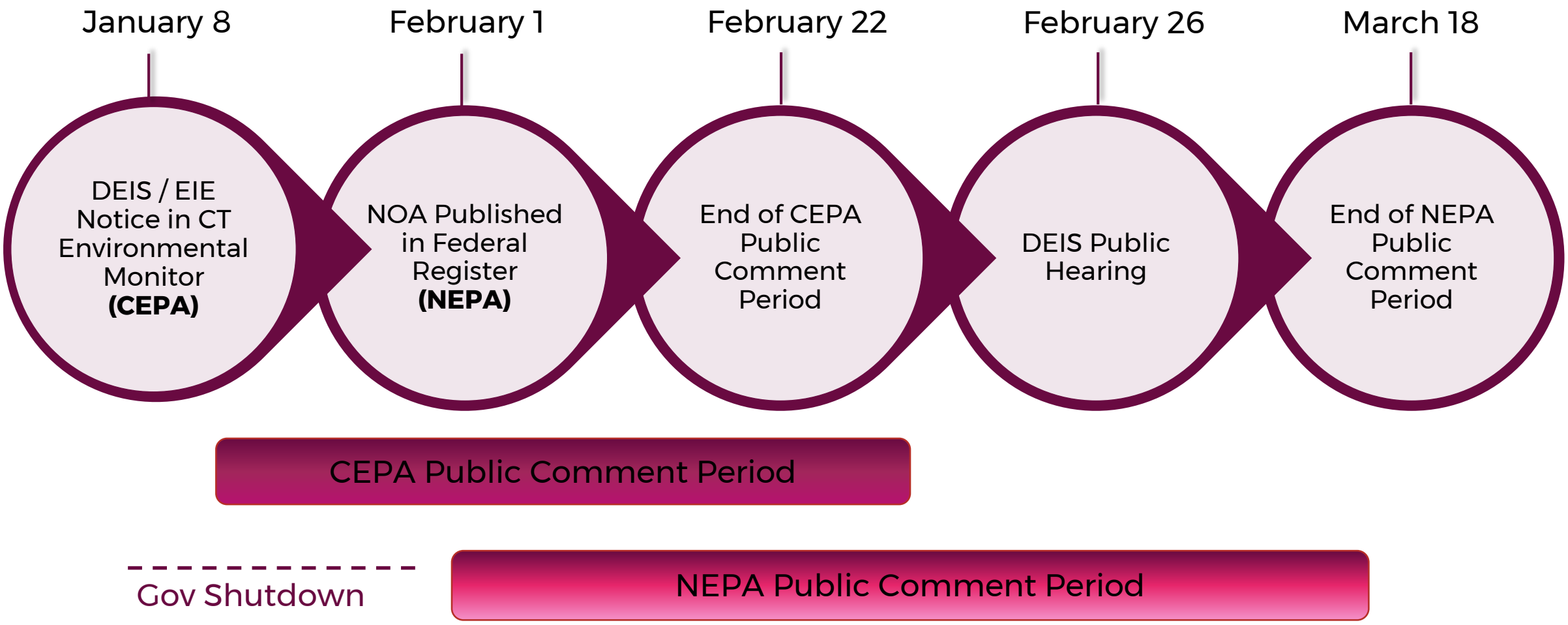
Update & Findings

Environmental Review Process

WE ARE HERE

- Notice of Intent
- Scoping / Public Hearing
- Prepare Draft EIS
- Release Draft EIS
- **Public Comment / Public Hearing**
- Prepare and Issue Final EIS and Record of Decision

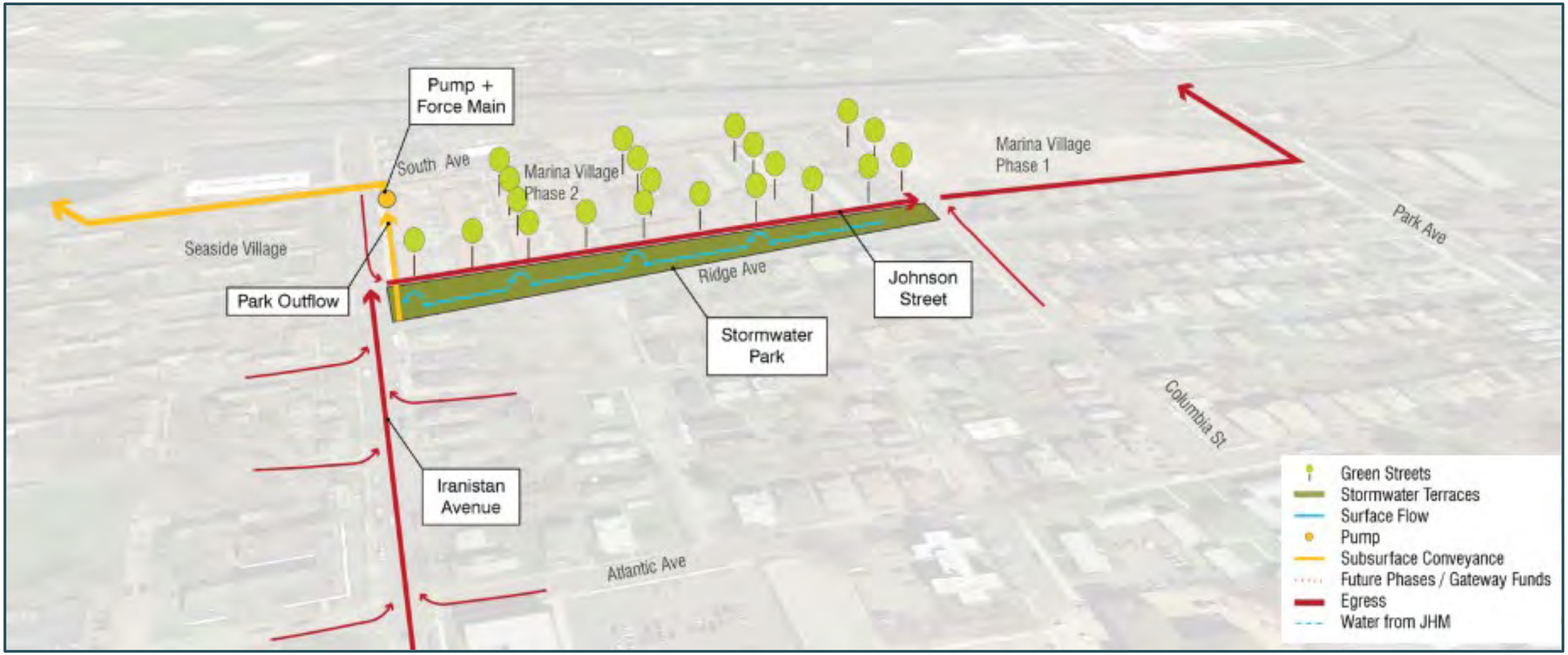
Public Comment Period



Draft EIS – Document Organization

- Chapter 1: Introduction
- Chapter 2: Purpose and Need
- Chapter 3: Concept and Alternatives Development
- Chapter 4: Affected Environment and Environmental Consequences
- Chapter 5: Cumulative Impacts
- Chapter 6: Consultation and Coordination
- References, List of Preparers, Glossary and Acronyms
- Appendices A through I

Proposed Action – RBD Pilot at Marina Village



Proposed Action – Flood Risk Reduction

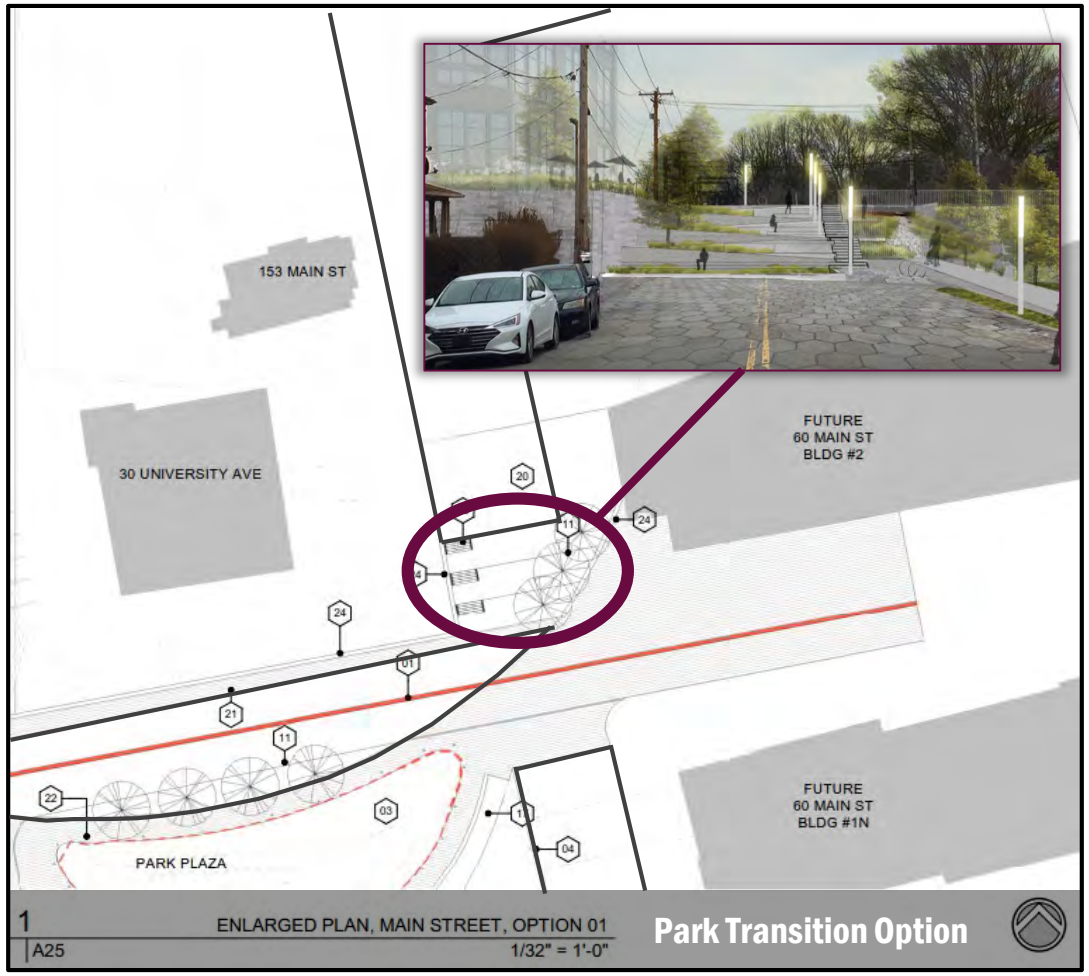
Alignment Options

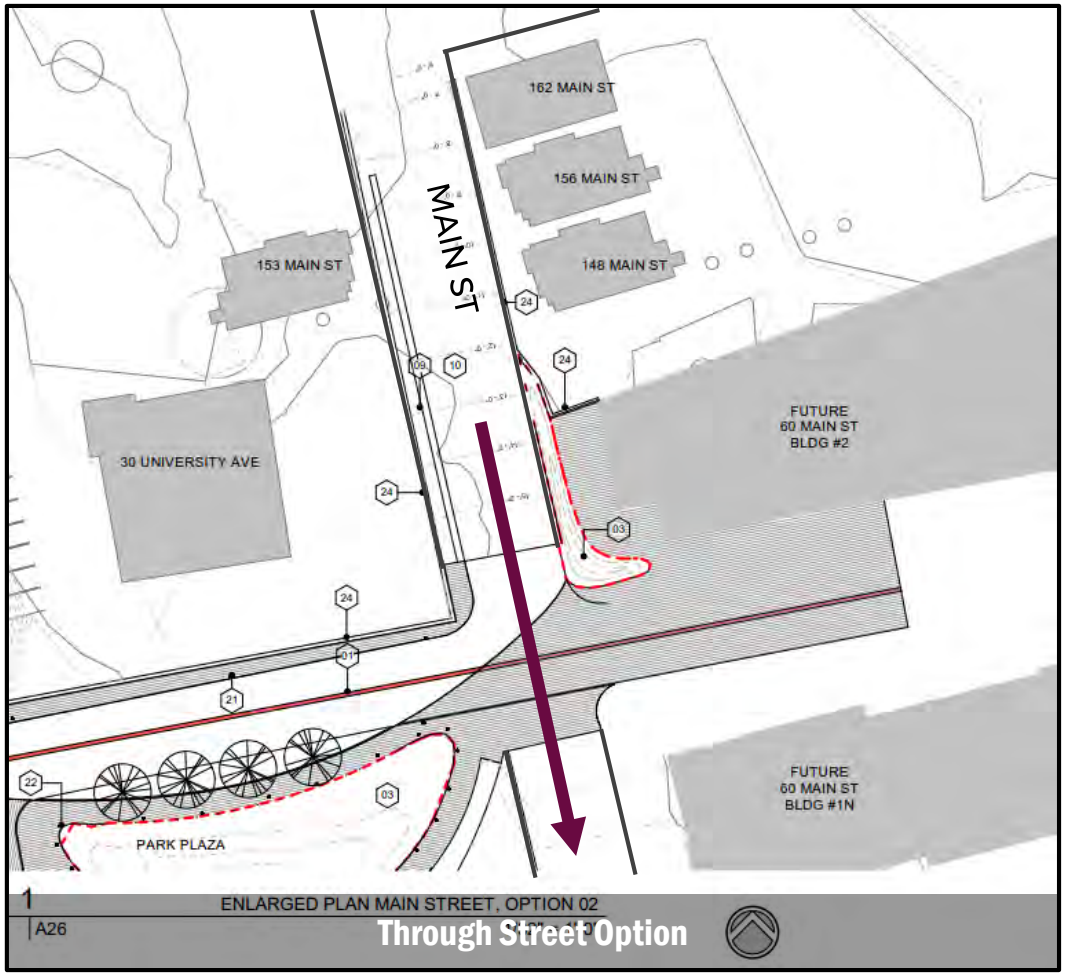
Western Alignment

Eastern Alignment

Proposed Action – Flood Risk Reduction

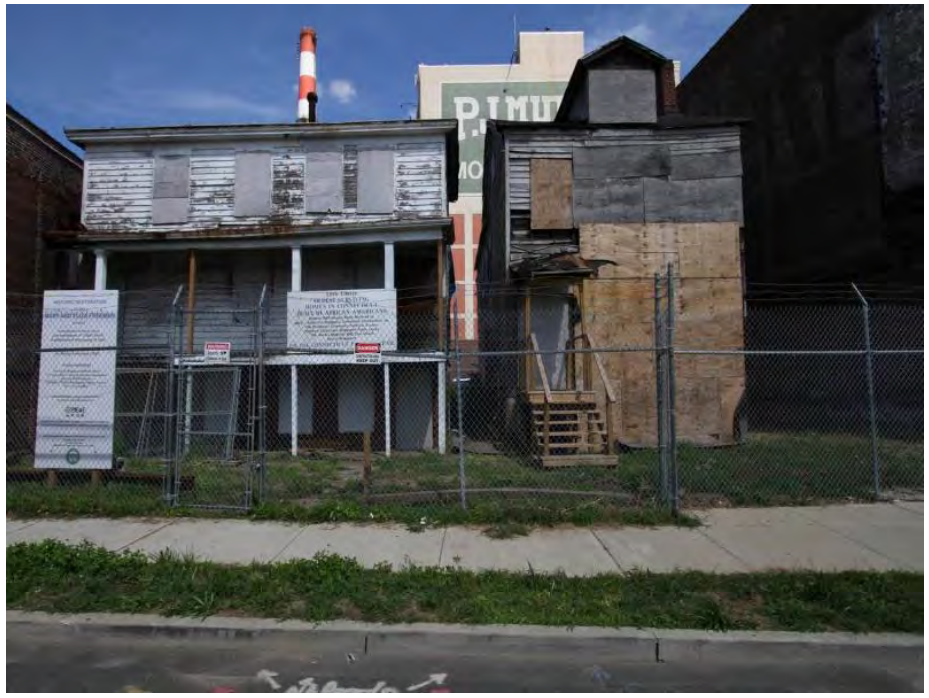
Main Street Options





Proposed Action - Resilience Center

North of University Avenue at Seaside Park



Freeman Houses

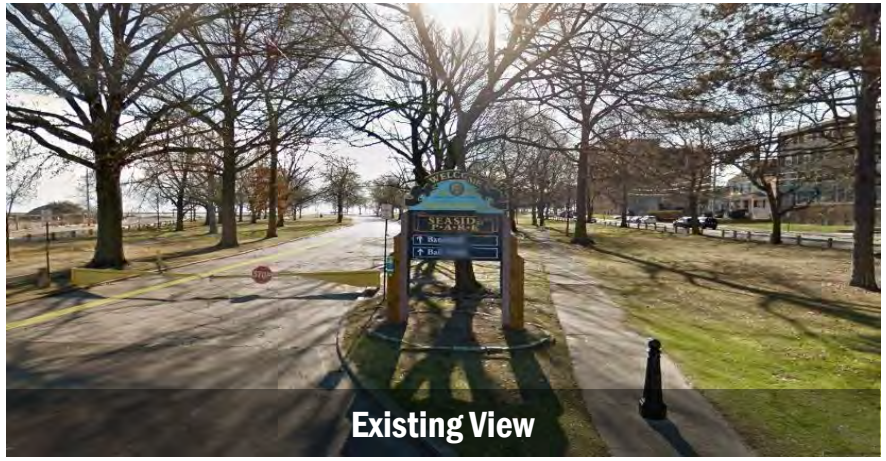
Environmental Consequences – Summary

Technical Resource Area	RBD Pilot		Flood Risk Reduction		Resilience Center	
Land Use, Zoning & Public Policy	No impact	Indirect	No impact	Indirect	No impact	No impact
Socioeconomics	Less than sig	Indirect	Temporary	Indirect	Temporary	No impact
Environmental Justice	Less than sig	Direct/Indirect	Visual	Indirect	Temporary	Direct/Indirect
Urban Design & Visual Resources	Less than sig	Direct/Indirect	Less than sig	Direct	Temporary	Direct
Cultural Resources	Archaeological	Indirect	Historic/Arch	Indirect	Archaeological	Direct
Hazardous Materials	Less than sig	Indirect	Less than sig	Indirect	Less than sig	No impact
Noise and Vibration	Less than sig	No impact	Less than sig	No impact	Temporary	No impact
Natural Resources	Less than sig	Direct/Indirect	Less than sig	Indirect	Temporary	No impact
Geology & Soils	Temporary	Indirect	Temporary	Indirect	No impact	No impact
Hydrology & Flooding	No impact	Direct	No impact	Direct	No impact	No impact
Water Resources	Temporary	Direct/Indirect	Temporary	Direct/Indirect	No impact	No impact
Coastal Zone	Temporary	Direct/Indirect	Temporary	Direct/Indirect	No impact	No impact
Infrastructure	Temporary	Direct	Temporary	Direct	Temporary	No impact
Community Facilities & Services	Temporary	Indirect	Temporary	Indirect	No impact	Direct/Indirect

Environmental Consequences – Urban Design

Potential Adverse Impacts

- Temporary adverse visual impacts during construction, and some obstructed views of Seaside Park


Existing View


View elevating University Avenue and a portion of Seaside Park

Potential Benefits

- New development in place of dilapidated buildings, improved aesthetics (parks), and beneficial impacts to the viewsheds


Existing View


View after the proposed Stormwater Park along Ridge Avenue

Environmental Consequences – Cultural Resources

Historic / Architectural Resources

Potential Adverse Impacts

- Potential temporary impacts to cultural resources during construction / excavation activities
- Adverse impact to Seaside Park due to redesign of entrance

Potential Benefits

- Protection of cultural and archaeological resources from future flooding events
- Contribution to funding of rehabilitation of Freeman Houses

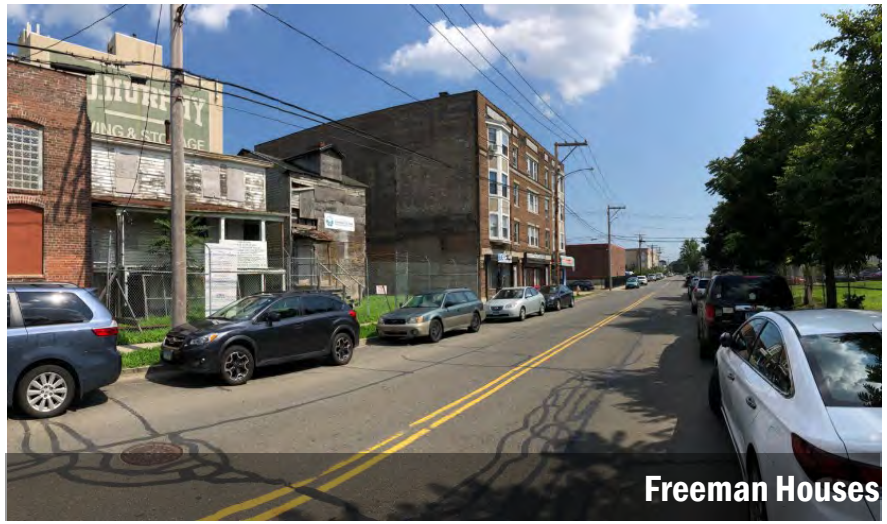
Archaeological Resources

- Area sensitive for archaeological resources
- Geotechnical testing can confirm presence

Mitigation

- Proposed measures for discussion with consulting parties


Seaside Park Entrance


Freeman Houses

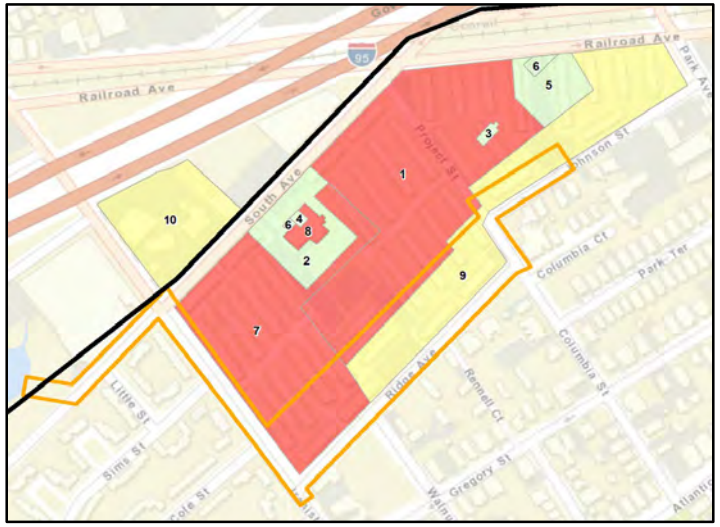
Environmental Consequences – Hazardous Materials

Potential Adverse Impacts

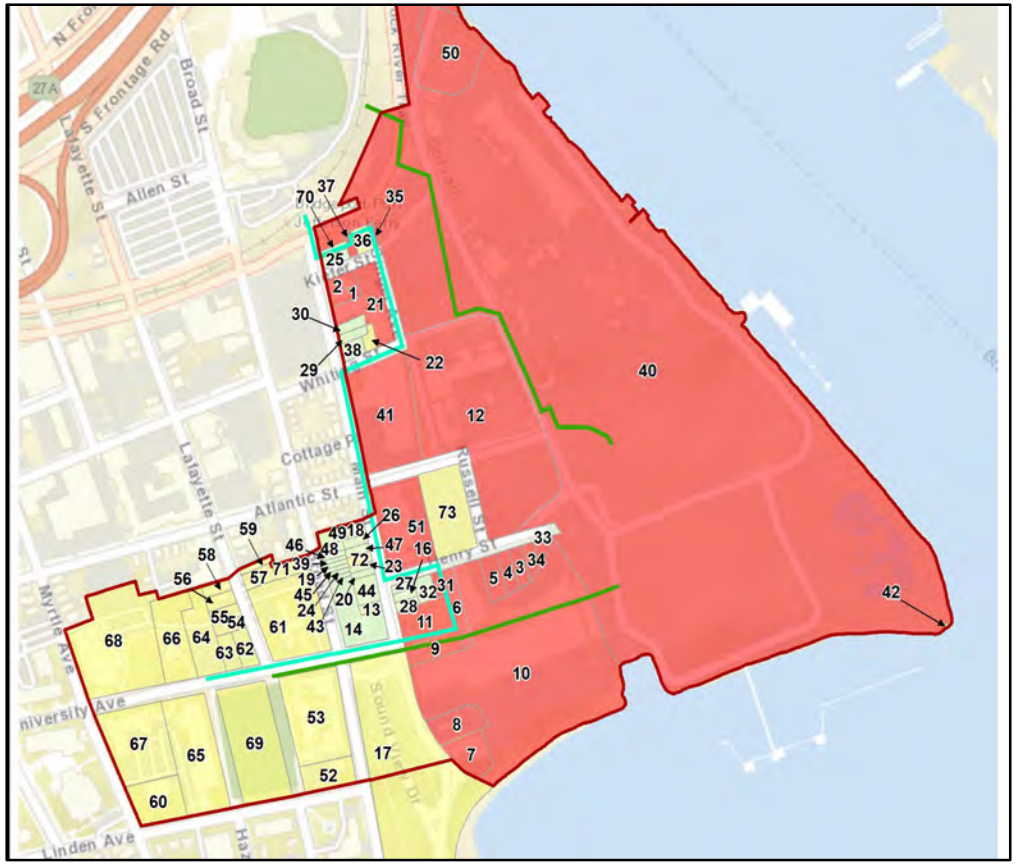
- Disturbance of land with moderate and high risk of contamination
- Temporary health risks to onsite workers and nearby public

Potential Benefits

- Indirect long-term benefits from removal and disposal of contaminated materials



RBD Pilot at Marina Village



Flood Risk Reduction Area

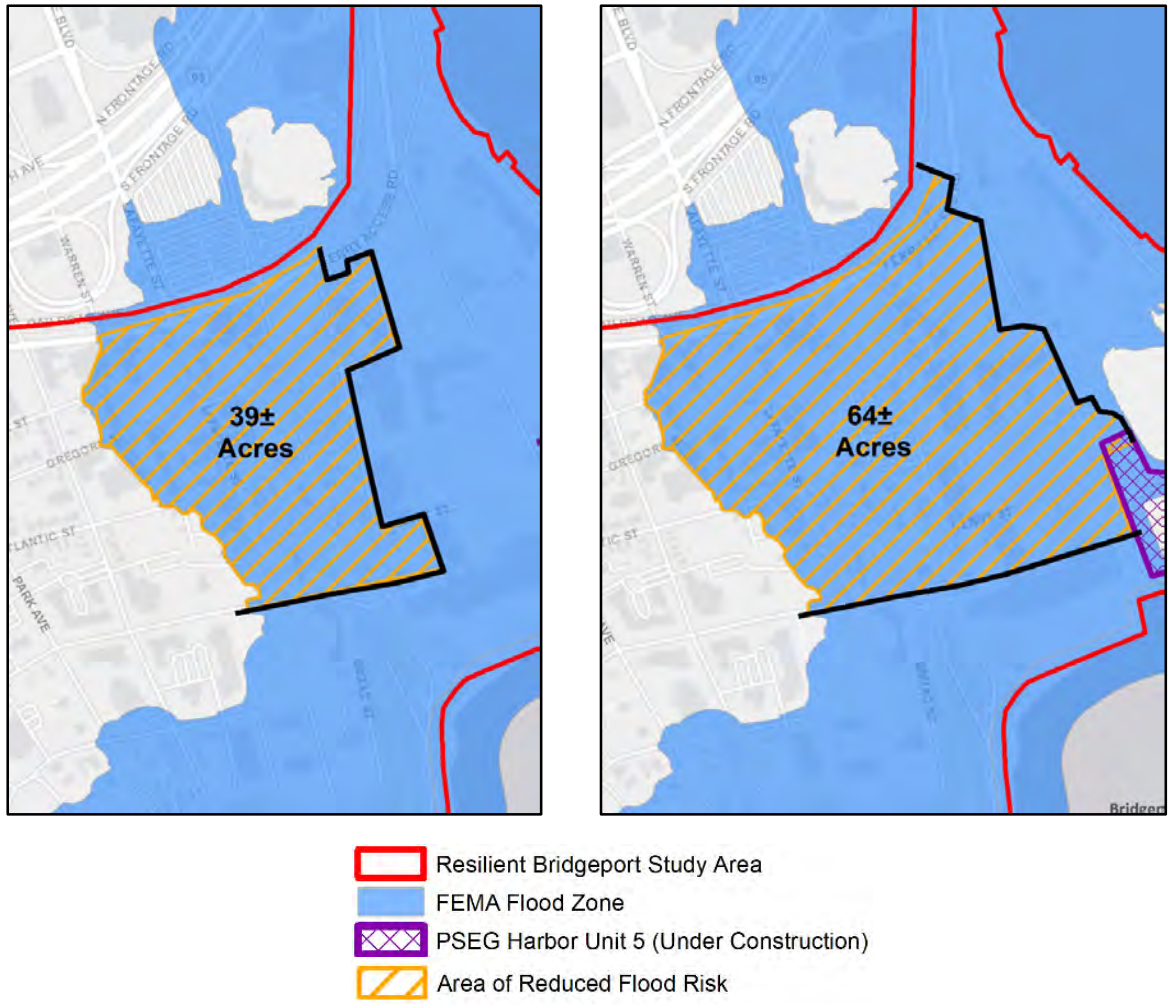
Environmental Consequences – Hydrology/Flooding/Coastal

Potential Adverse Impacts

- Temporary adverse impact to water quality during construction
- Temporary impacts during construction in Coastal Zone, and to coastal vegetation

Potential Benefits

- Reduced flooding risk area ranging from 39 to 64 acres
- Dry egress and stormwater improvements
- Reduced combined sewer overflow events
- Improved water quality
- Consistent with the Connecticut Coastal Management Act



Environmental Consequences – Construction

Potential Adverse Impacts

- Temporary impacts to air quality, noise, and transportation during construction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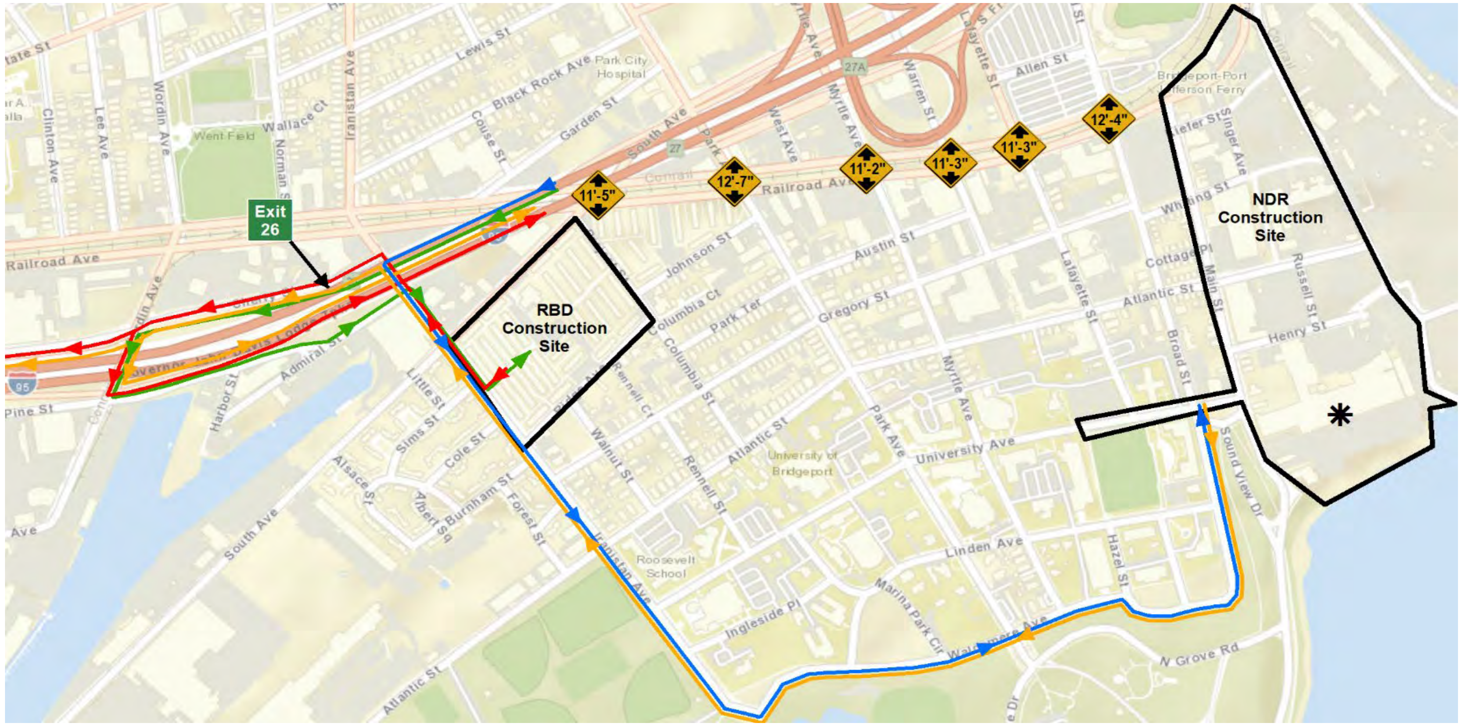
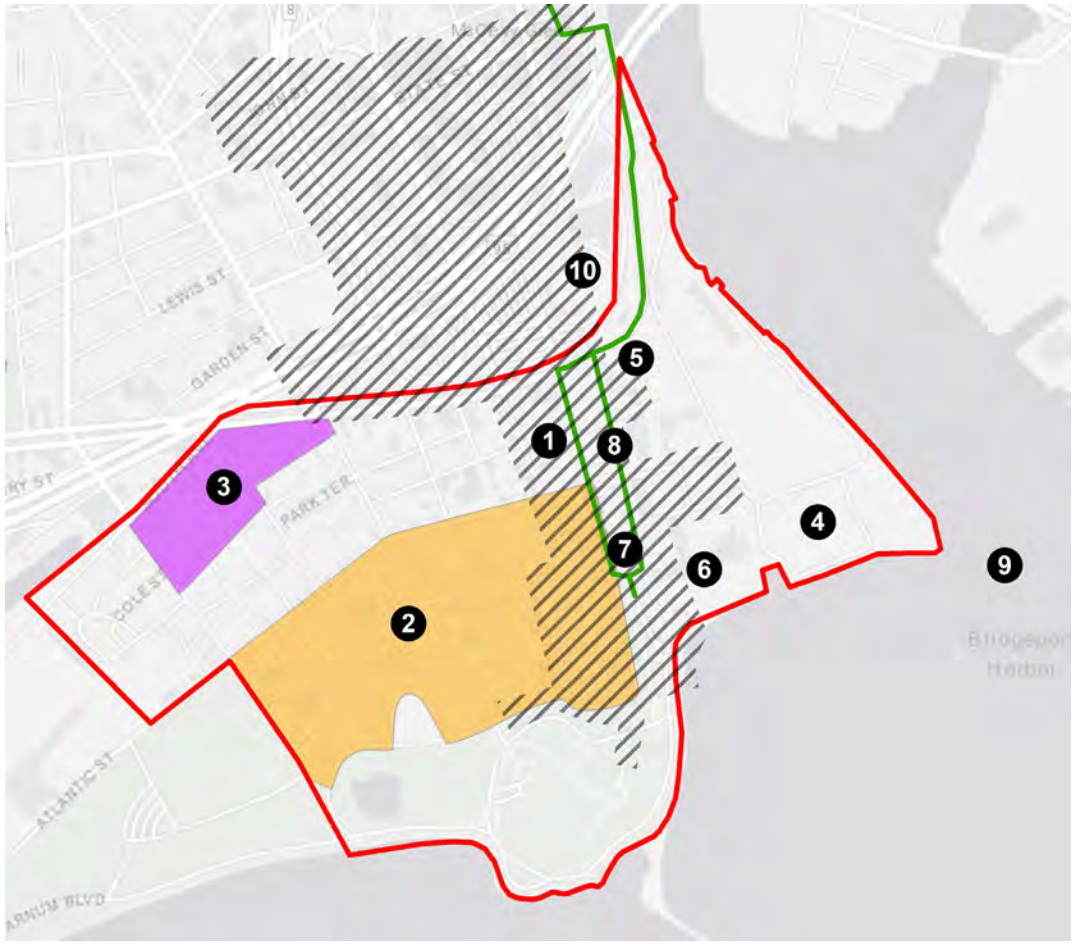
http://mediad.publicbroadcasting.net/p/wmky/files/styles/medium/public/201610/road_construction.jpg



Truck Haul Routes and Staging Areas

RESILIENT BRIDGEPORT

Environmental Consequences – Cumulative Impacts



Potential Adverse Impacts

- Cumulative construction impacts

Potential Benefits

- Various benefits to transportation, open space, visual resources, community facilities / public health,
- Indirect benefits to hydrology / flooding, land use, public safety, and visual resources.

Resilient Bridgeport Study Area	**Cumulative Project List**
WPCA Area H Project	1 - WPCA Area H Project
Former Marina Village	2 - University of Bridgeport Master Plan
University of Bridgeport	3 - Windward Development
Proposed Prequonnock Trail Extension	4 - PSEG Harbor Unit 5
1 Cumulative Project	5 - UI Pequonnock Substation Relocation
	6 - 60 Main Street Development
	7 - 30 University Avenue
	8 - Pequonnok River Trail Extension
	9 - Bridgeport Harbor Dredging
	10 - The Ballpark at Harbor Yard

Agency Coordination

CONNECTICUT
Department of Housing

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

SEAL OF THE DELAWARE TRIBE
LENNI LENAPE

CONNECTICUT
ENERGY
ENVIRONMENT

DELAWARE NATION
ANADARKO · OKLAHOMA

Department of Economic and
Community Development

Connecticut
still revolutionary

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY

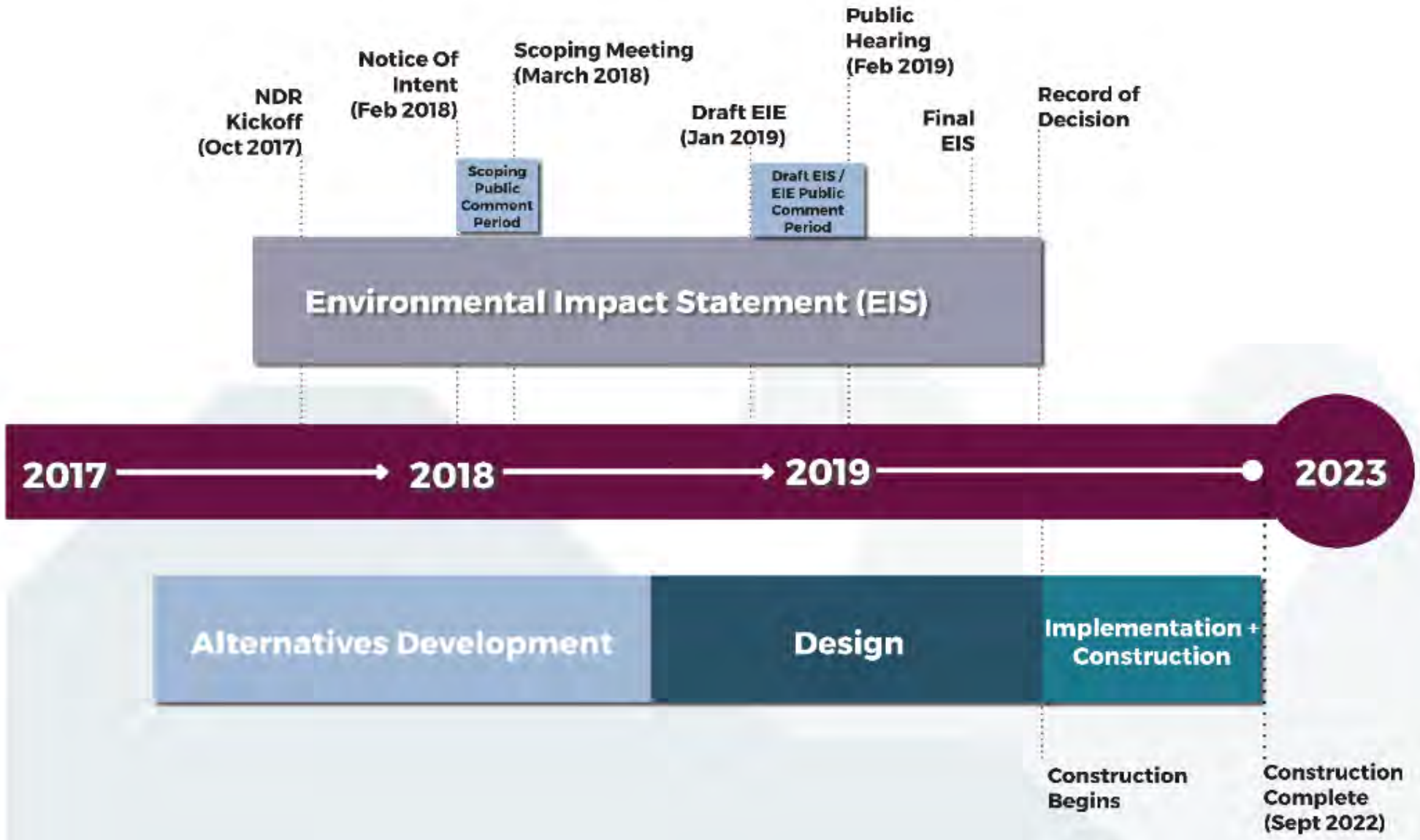
U.S.
FISH & WILDLIFE
SERVICE
DEPARTMENT OF THE INTERIOR

U.S. DEPARTMENT OF HOMELAND SECURITY

FEMA

US Army Corps of Engineers

Project Schedule



How to Comment on the DEIS

Comment during tonight's hearing

Submit comments by email

info@resilientbridgeport.com

Fill out Comment Card tonight or Mail to:

CT Department of Housing
505 Hudson Street
Hartford, CT 06016-7106
ATTN: Rebecca French

Comments received by close of business on **March 18, 2019** will be summarized and considered in the Final EIS.

The Draft EIS Document is available on:

www.ResilientBridgeport.com

And at the following locations:

Bridgeport City Hall
45 Lyon Terrace
Bridgeport, CT 06604
(203) 576-7081

Bridgeport Public Library Main Branch
925 Broad Street
Bridgeport, CT 06604
(203) 576-7400

Bridgeport Public Library Black Rock Branch
2705 Fairfield Avenue
Bridgeport, CT 06605
(203) 576-7025

University of Bridgeport Magnus Wahlstrom Library
126 Park Avenue
Bridgeport, CT 06604
(203) 576-2388

RESILIENT BRIDGEPORT
Design Workshop

February 26, 2019

RESILIENT BRIDGEPORT

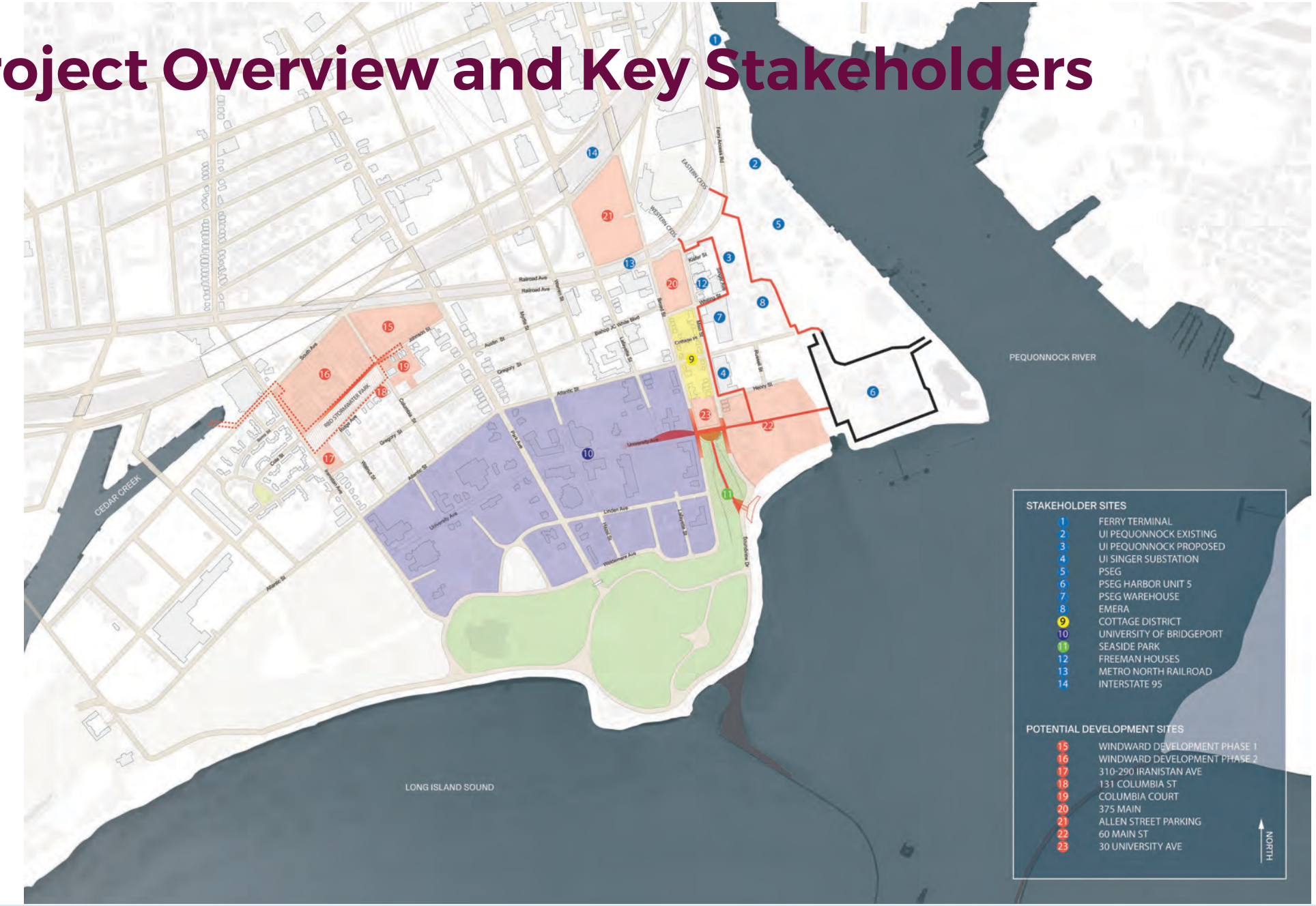
CONNECTICUT Department of Housing

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

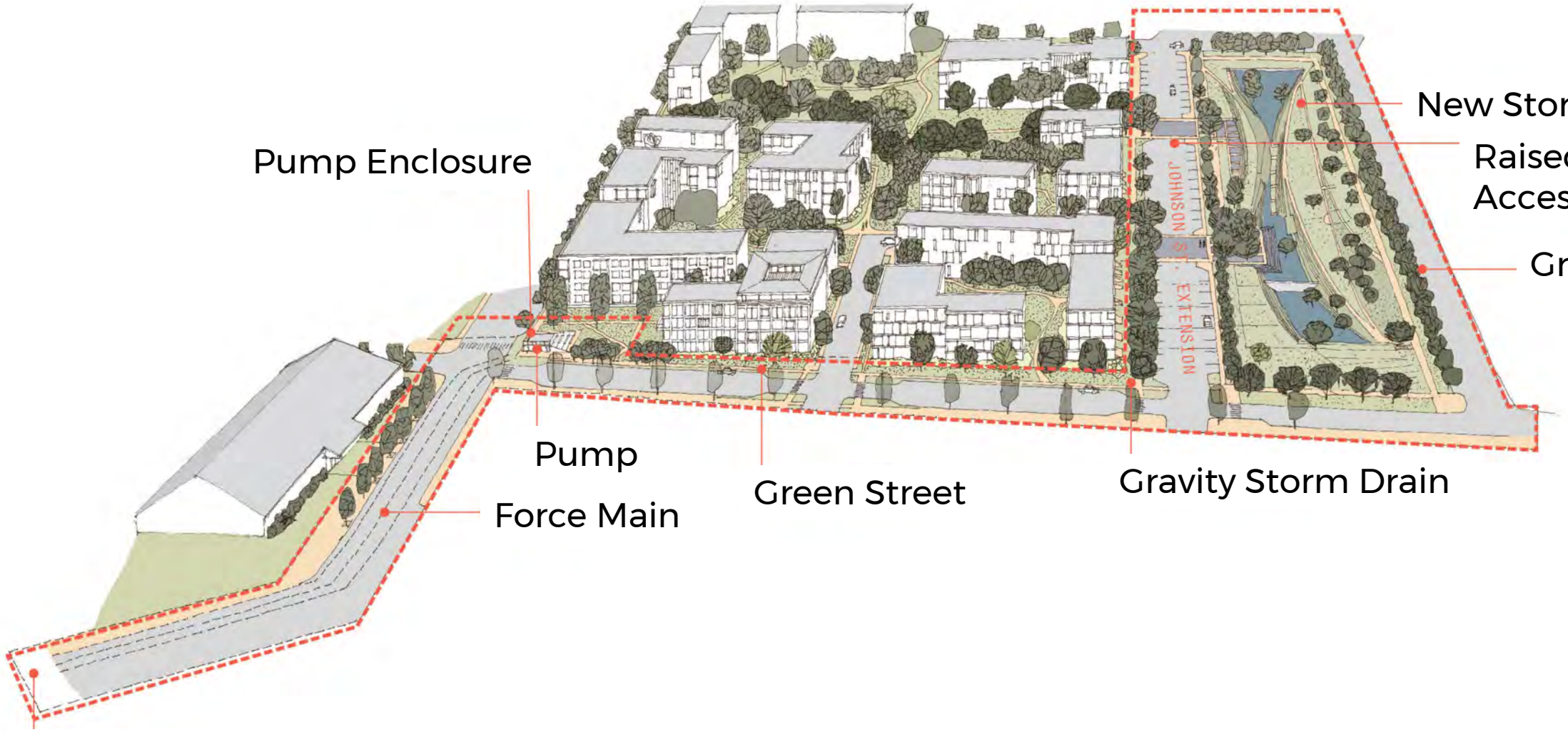
Project Milestones

- 30% Design Plans: Submitted
  - *Design Report and Construction Costing Underway*
- Draft Environmental Impact Statement Available for Public Review
  - *Connecticut Environmental Policy Act (CEPA) notification issued on Jan 8, 2019*
  - *National Environmental Policy Act (NEPA) notification issued on Feb 1, 2019*
  - *National Environmental Policy Act (NEPA) public hearing on Feb 26, 2019*
- Anticipated Bid: First Quarter 2020
- Construction Completion: 9/2022

Project Overview and Key Stakeholders



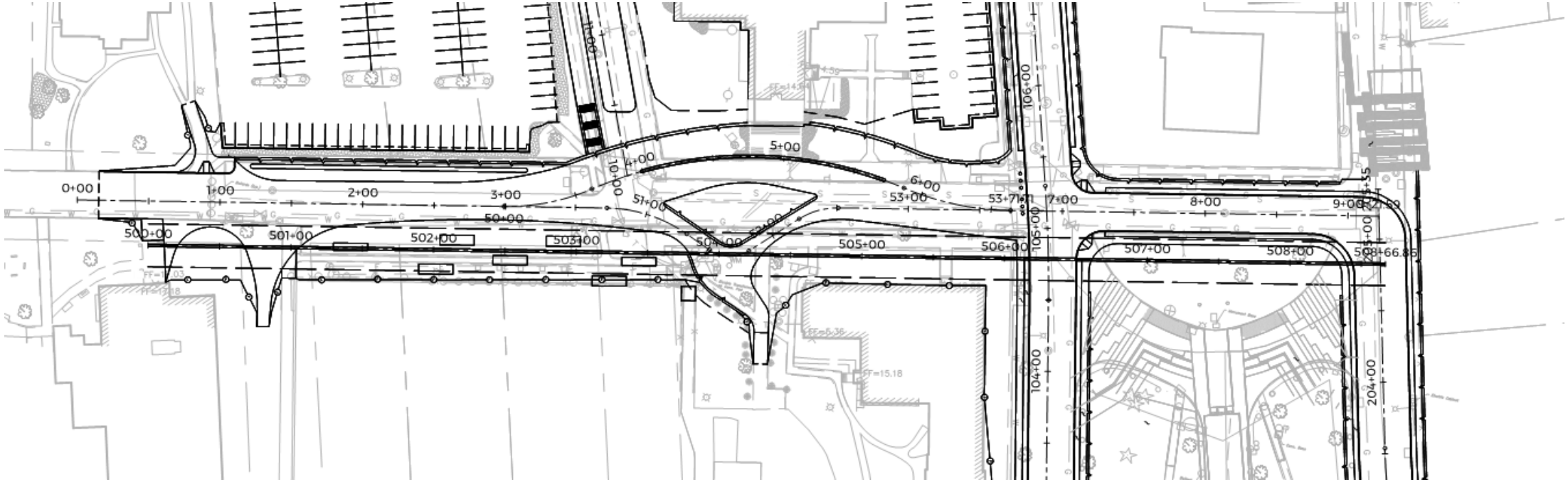
Rebuild By Design Stormwater Park



Design Refinements

University Avenue

University Avenue



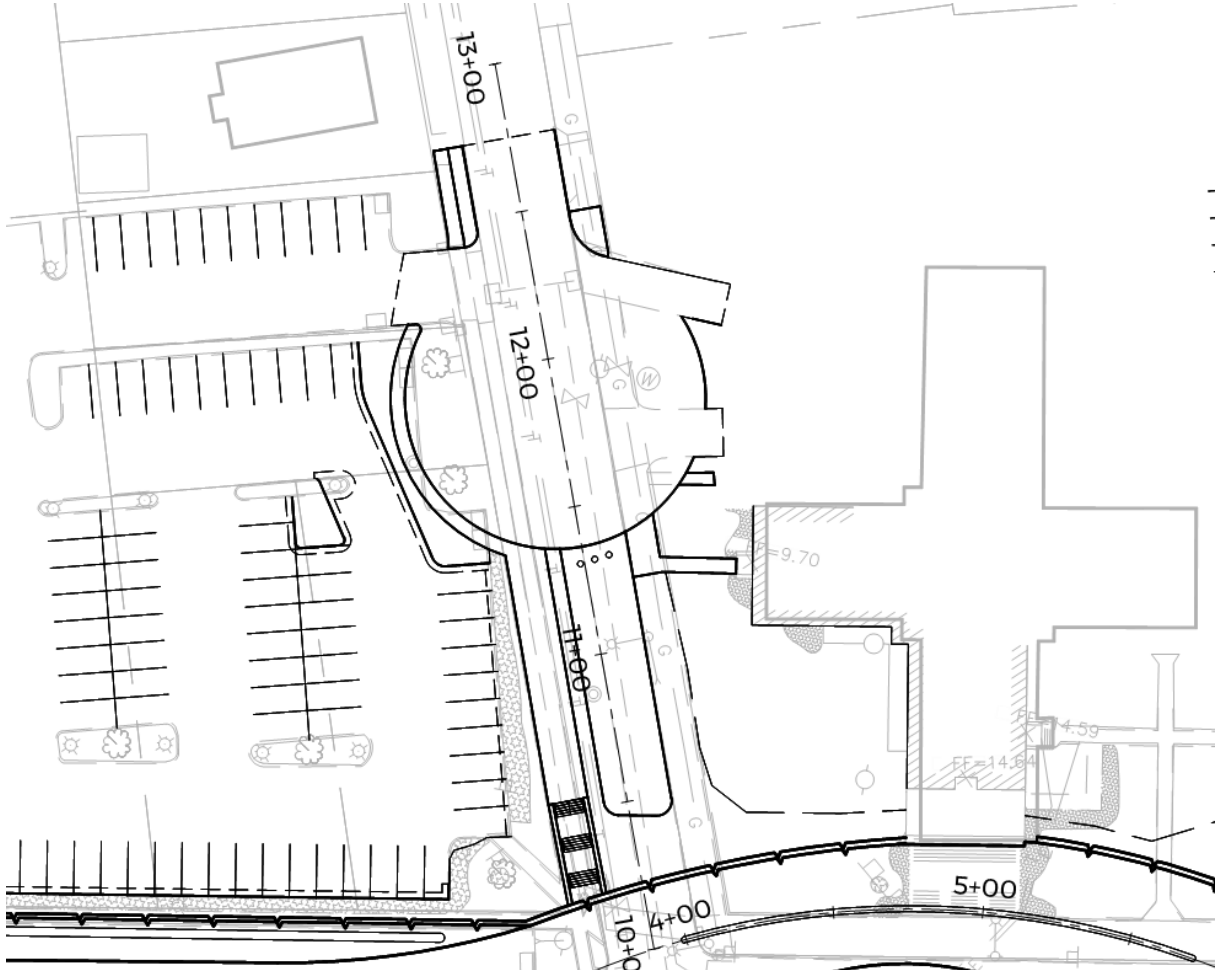
— Maintains emergency access

— Dry egress provided at elevation = 15 feet above sea level

— Coastal Flood Defense System elevation = 16 feet above sea level

— Vehicular traffic restricted west of Broad Street

Lafayette Street



- Terminate Lafayette Street north of University Avenue
- Maintain pedestrian access to University Avenue

Broad Street

— Ramp Broad Street to intersection with University Avenue at elevation = 18 feet

— Retaining walls to be constructed on both sides

— 5% maximum slope

Main Street

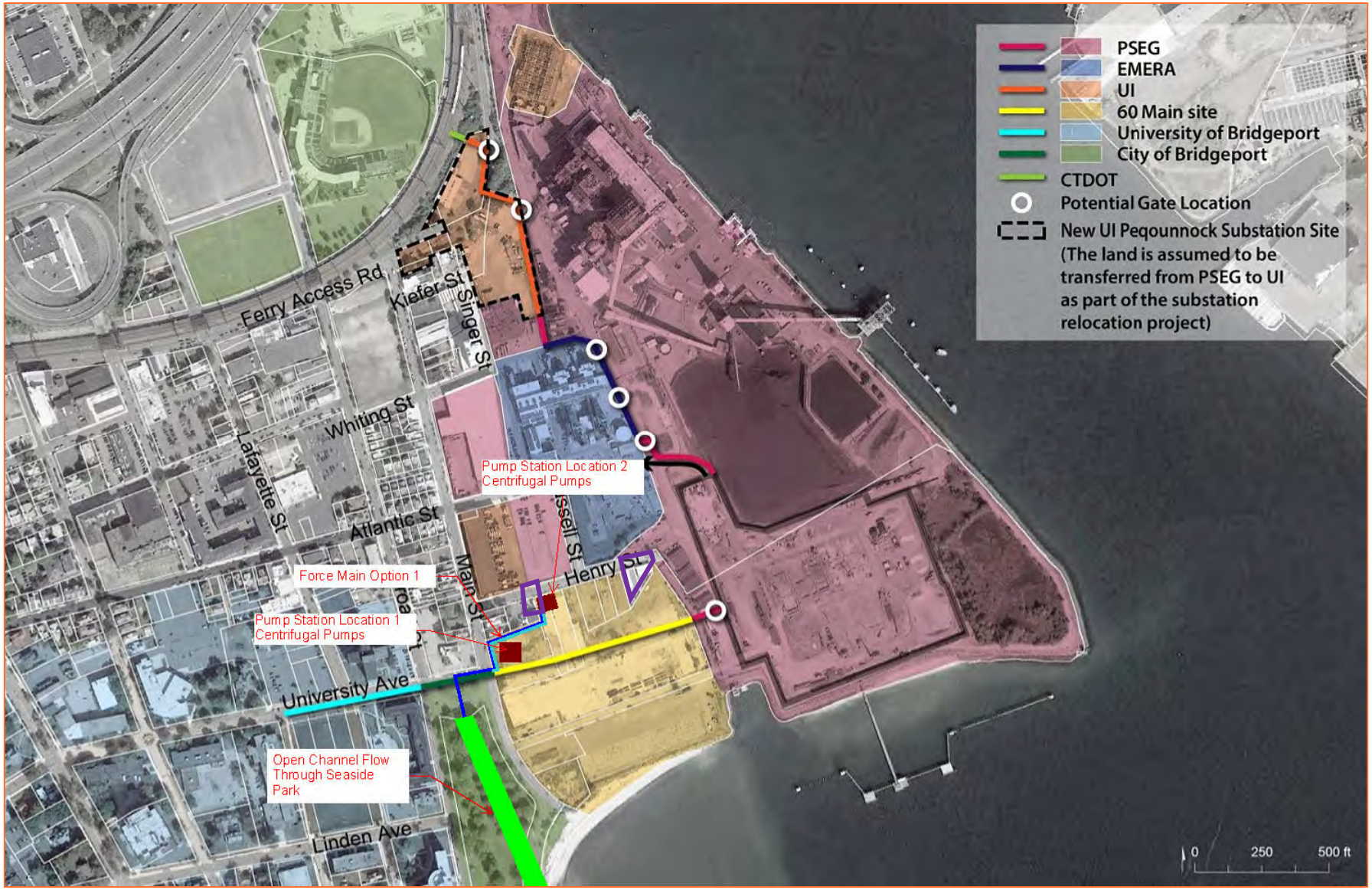
— Terminate Main Street north of University Avenue

— Ramp Main Street to intersection with University Avenue at elevation = 18 feet

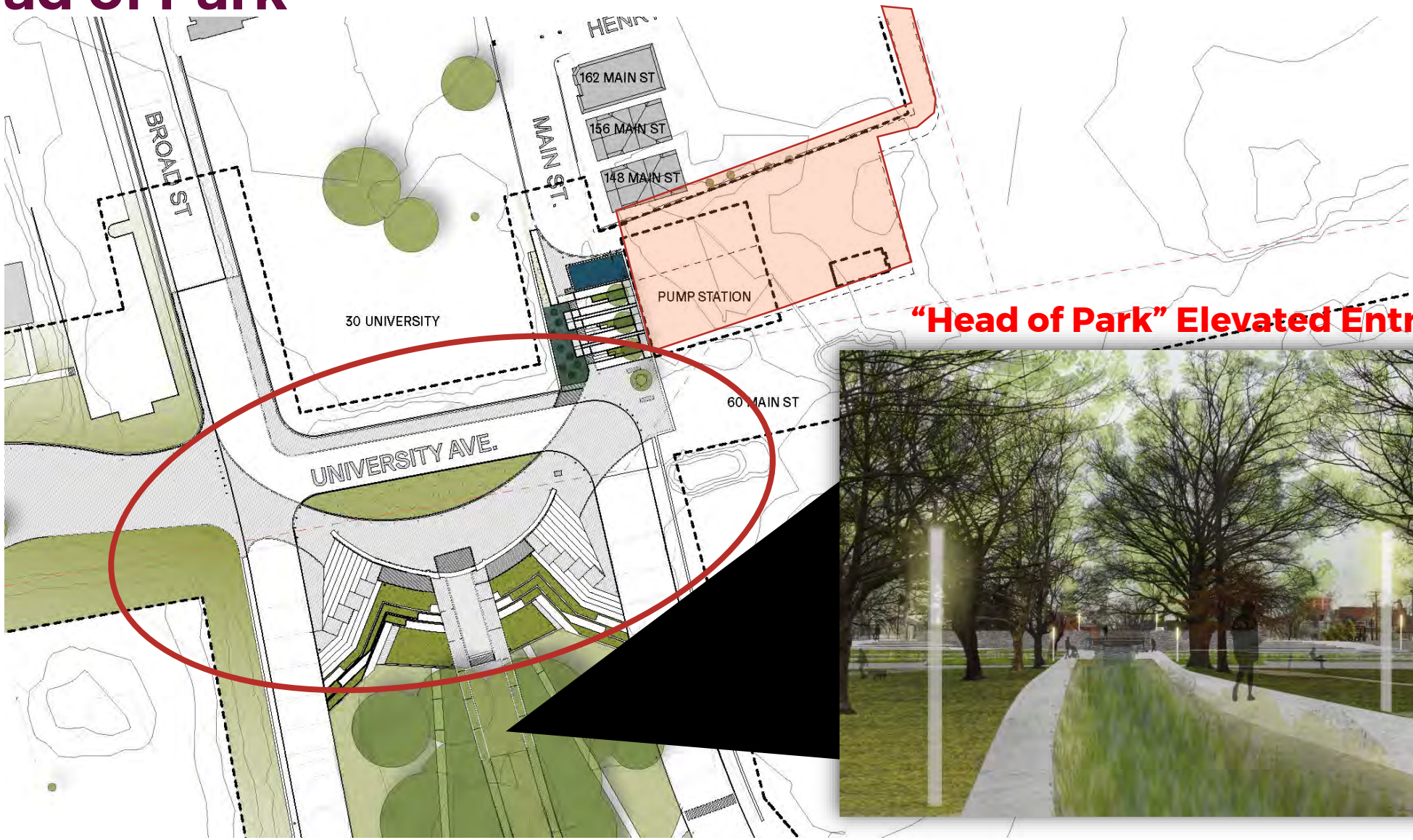
Stormwater

- Coordination with WPCA Area H separation project
  - *Minimize drainage across line of defense (i.e. separate Waldemere system)*
  - *Known stormwater lines under University Avenue*
  - *Modify Contract H documents to accept anticipated fill (greater than 10 feet)*
  - *Other Contract H coordination items (upsizing lines, backflow prevention)*
- Potential additional drainage improvements
  - *North/south flow connection*
  - *Tie pump station into existing drainage infrastructure*
    - Route, design criteria, acceptance of final product
- Potential green infrastructure
  - *Use of public land*

Pump Station Locations

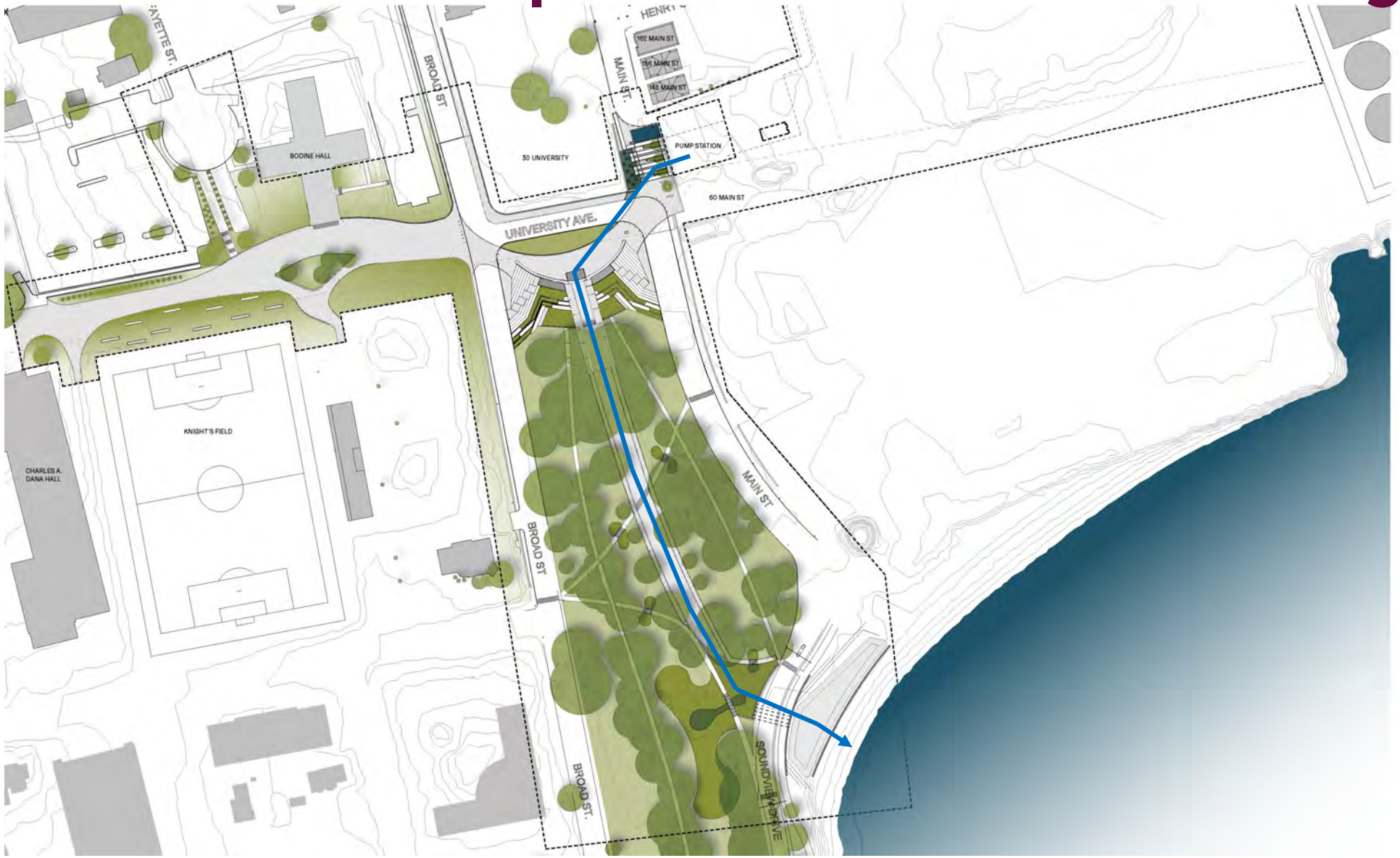


Pump Station Location Adjacent to University Avenue: Head of Park



"Head of Park" Elevated Entrance

Head of Park – Pump Station Overland Discharge



Head of Park


BROAD ST
MAIN ST
162 MAIN ST
156 MAIN ST
146 MAIN ST
30 UNIVERSITY
PUMP STATION
UNIVERSITY AVE.
60 MAIN ST
BROAD ST
MAIN ST
BROAD ST.
SOUNDVIEW DRIVE


BROAD ST
MAIN ST
162 MAIN ST
156 MAIN ST
146 MAIN ST
30 UNIVERSITY
PUMP STATION
UNIVERSITY AVE.
60 MAIN ST
BROAD ST
MAIN ST
BROAD ST.
SOUNDVIEW DRIVE


BROAD ST
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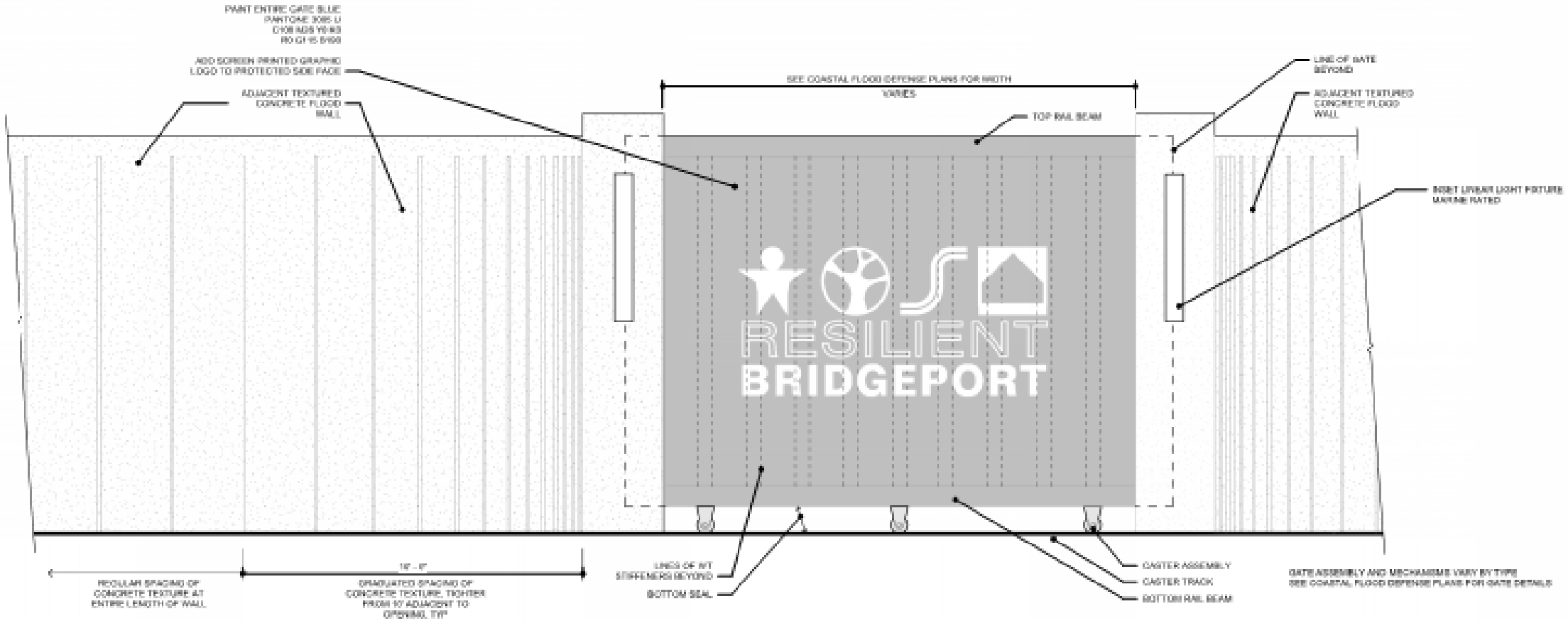
156 MAIN ST
146 MAIN ST
30 UNIVERSITY
PUMP STATION
UNIVERSITY AVE.
60 MAIN ST
BROAD ST
MAIN ST
BROAD ST.
SOUNDVIEW DRIVE

North-South Alignments

- Agreement/easements for Coastal Flood Defense System
- Gate locations
- Construction traffic control
- Utility crossings/connections
- Future flood plain changes (administered at City level)
- Emergency access through the Coastal Flood Defense System

Flood Gates


PAINT ENTIRE GATE BLUE
PANTONE 3085 U
ADD SCREEN PRINTED GRAPHIC
LOGO TO PROTECTED SIDE FACE
ADJACENT TEXTURED
CONCRETE FLOOD
WALL
SEE COASTAL FLOOD DEFENSE PLANS FOR WIDTH
VARIES
TOP RAIL BEAM
LINE OF GATE
BEYOND
ADJACENT TEXTURED
CONCRETE FLOOD
WALL
INSET LINEAR LIGHT FIXTURE
MARINE RATED
RESILIENT
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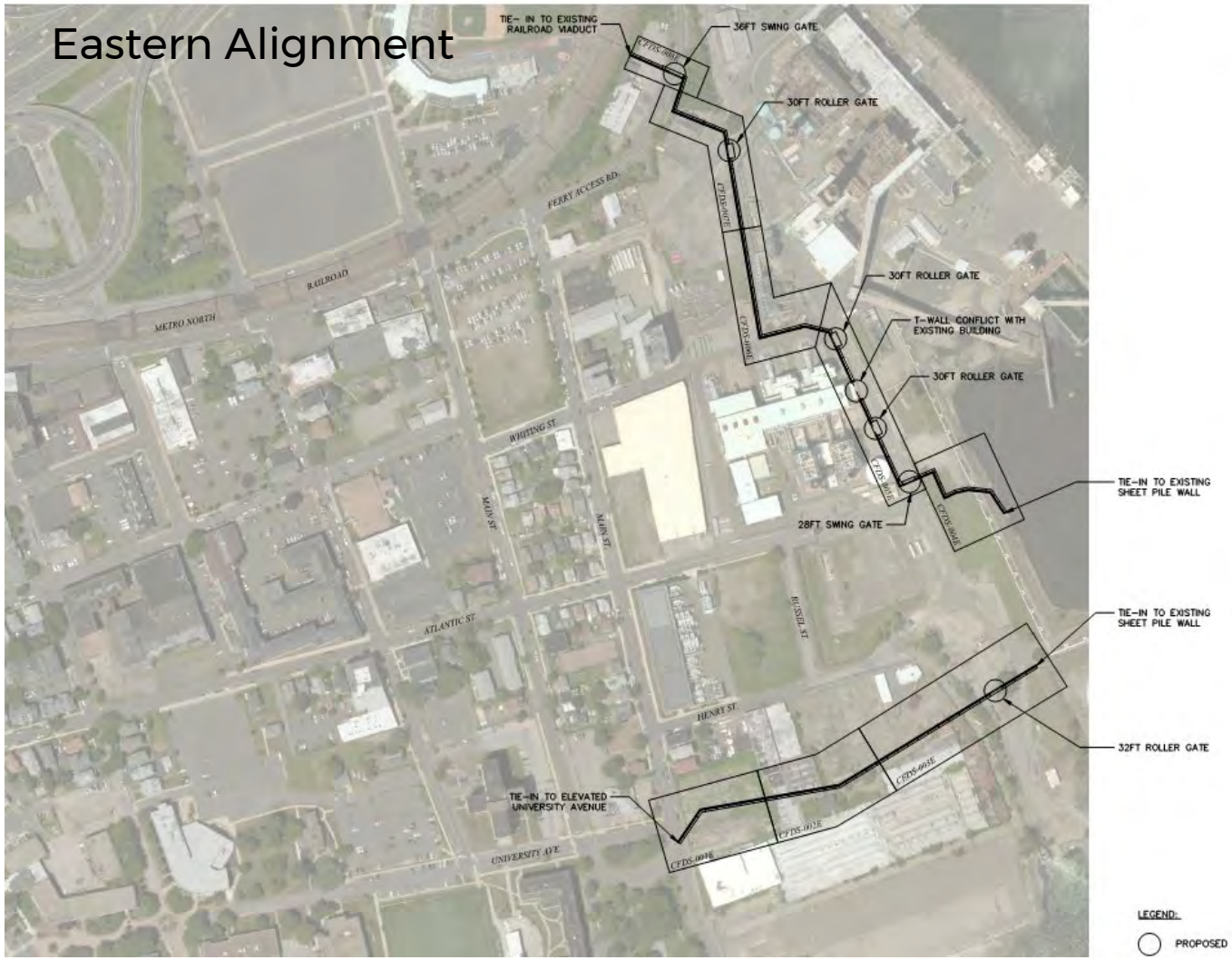
REGULAR SPACING OF
CONCRETE TEXTURE AT
ENTIRE LENGTH OF WALL
GRADUATED SPACING OF
CONCRETE TEXTURE, TIGHTER
FROM 10' ADJACENT TO
OPENING, TYP
LINES OF INT
STIFFENERS BEYOND
BOTTOM SEAL
CASTER ASSEMBLY
CASTER TRACK
BOTTOM RAIL BEAM
GATE ASSEMBLY AND MECHANISMS VARY BY TYPE
SEE COASTAL FLOOD DEFENSE PLANS FOR GATE DETAILS

North-South Alignments




P.J.MURPHY
MOVING & STORAGE
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Resilience Center

— Freeman Homes

— Resiliency Gateway

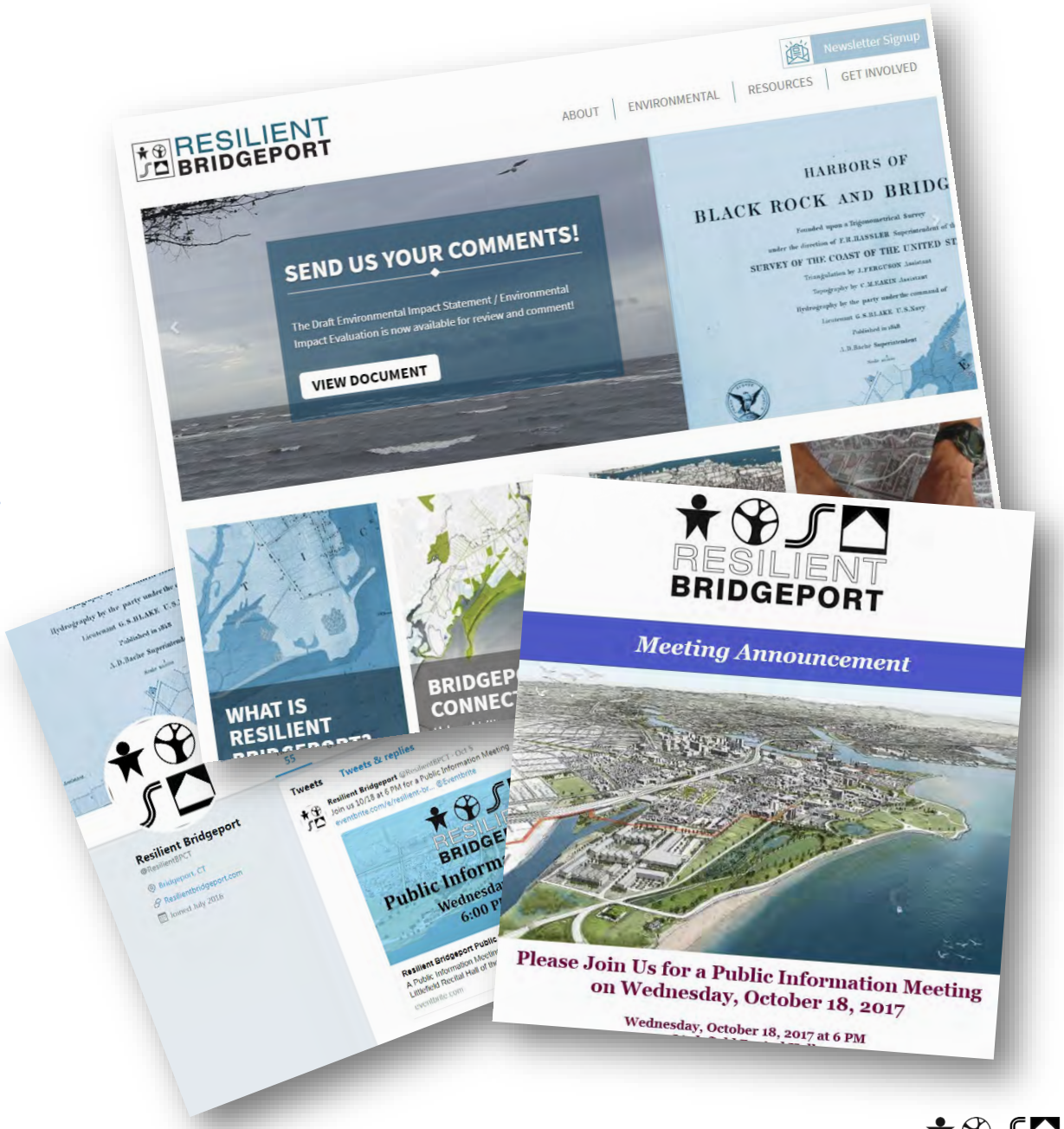
Next Steps

Next Steps

- Complete the Draft EIS Public Comment Period
  - *Public Hearing on Feb 26*
- Prepare the Final EIS
  - *Response to comments*
  - *Present refinements to design/program*
- Begin final design and implementation process
  - *Confirm alignment selection*
  - *Develop construction details*
  - *Finalize property easement requirements and work with property owners*
  - *Coordinate Resiliency Center planning*
- Continue to engage with community

Stay Involved

- Website: www.resilientbridgeport.com
- Email Announcements
  - *Sign-up today or on our website!*
- Email us: info@resilientbridgeport.com
- Follow us:
  - *Facebook.com/resilientbridgeport*
  - *Twitter: @ResilientBPCT*



Thank you!

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RESILIENT BRIDGEPORT: *
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National Disaster * February 26, 2019
Resilience and Rebuild *
by Design Projects *
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PUBLIC SCOPING HEARING

HELD BEFORE:

HERMIA DELAIRE, Hearing Officer

CHERYL S. DAMATO/COURT REPORTING SERVICE
CHERYL S. DAMATO, CERTIFIED COURT REPORTER
300 TOLL GATE ROAD
BERLIN, CONNECTICUT 06037
(860)828-8847

. . . The following is the Public Scoping Hearing in the Matter of: RESILIENT BRIDGEPORT, National Disaster Resilience and Rebuild by Design Projects, held before Hermia Delaire, Hearing Officer and Cheryl S. Damato, Certified Court Reporter in and for the State of Connecticut, held at the University of Bridgeport Arts & Humanities Building, 84 Iranistan Avenue, Bridgeport, Connecticut, at 6:14 p.m., on Tuesday, February 26, 2019.

Also present:

Dr. Rebecca French, Director of Resiliency, Department of Housing
Hermia M. Delaire, Program Manager, CDBG - Disaster Recovery Programs, Connecticut Department of Housing, Hearing Officer
Nicole Weymouth, Deputy Environmental Manager, WSP USA
Laura Toole, Senior Supervising Manager, Connecticut Public Involvement, WSP USA
Members of the public

THE HEARING OFFICER: Good evening, everyone. My name is Hermia Delaire and I am with the State of Connecticut Department of Housing. I am the Department of Housing's public hearing officer for tonight's hearing on the Draft for Environmental Impact Statement for the Resilient Bridgeport Projects.

We are about to see a presentation about the purpose and need, proposed action and environmental consequences for two projects proposed for the south end of Bridgeport; the Rebuild by Design project and the National Disaster Resiliency project. After that we are going to move onto the formal hearing of this program.

But first, I'm going to invite Dr. Rebecca French who is the Director of Resiliency for the Department of Housing. She has a few remarks that she would like to share with you regarding the NEPA which is the National Environmental Policy Act of 1969, and CEPA which is the Connecticut Environmental Policy Act.

Dr. French?

DR. REBECCA FRENCH: Really I'm just introducing myself. I am the new director for this program so I wanted everybody to know who I am.

I am the Director of Resilience. I am overseeing both the National Disaster Resilience Grants as well as the Rebuild by Design Grants that were both funded by the Community Development Block Grant Disaster Recovery programs as HUD.

And really, as Mia said this is the hearing for the Draft Environmental Impact Statement and we'll give more detail to overview of the agenda but tonight we're going to hear the agenda slide. We're going to give you an update and findings and then we're going to open the floor to public comments.

As Mia said after the public hearing formally concludes, we will go to a design workshop and that's going to start off with a presentation. We're going to give you an update on project milestones as well as design refinements, not all of which are in the Draft EIS. So you're

going to see additional information for advance design that happened after the development of the draft development EIS, and we're going to break out into the tables you see in the back. There's going to be on these different topics talk about the elevation of the road along University Avenue, pump station and the north/south flood walls, as well as head of park and green infrastructure components there and then the Resilient Center.

So again, you're going to get an overview of all these in the presentation, and then you can choose to have a more in-depth discussion at each of the tables in the design workshop. So hopefully it will give you many opportunities to provide input to us.

I'm so happy to see so many of you here. Thank you for your time and coming tonight, and with that I'm going to turn it over to Nicole Weymouth who is overseeing our Draft EIS development as part of my consulting team at WSP. Thanks.

MS. NICOLE WEYMOUTH: Thank you. So I'm going to give just a summary of the draft environmental impact statement which is available for public comment right now.

The DEIS was prepared to meet the requirements of both NEPA and CEPA. NEPA and CEPA are decision-making processes that evaluate social and ecological and economic impacts of Build Alternatives, factoring in community impacts and public and agency input.

The Notice of Intent to prepare the EIS was actually issued one year ago today as I discovered making my notes. We had a scoping hearing in March of 2018 and since that time, we've been developing the draft EIS that's available now. It was released for public comment on February 1.

Once we are done with the public comment period we will incorporate public and agency comments to prepare a final EIS and then a record of decision.

Just to show the milestone dates of the review period, we actually originally released the document for CEPA through the

Environmental Monitor and we hoped -- that was on January 8 hoping that the Federal Register would follow shortly. We had a bit of a delay because of the government shutdown so it wasn't until February 1 that there was a Federal Register notice formally made the document available to the public, the DEIS portion for NEPA.

We're having the public hearing obviously tonight and the comment period extends to March 18.

Just a quick overview of the document which is available on our website at Resilient Bridgeport dot com and there's a copy in the back of the room if you care to browse through it. And it starts obviously with an introduction chapter.

Chapter 2 is the purpose and need which really is very consistent with what we had gone over during the scoping meeting. We didn't change a lot of our original purpose and need.

Chapter 3, alternative development is a very important part of NEPA and CEPA and we identify for the different projects

potential alternatives. A lot of alternatives might be dismissed if they did not meet the purpose and need and others that are viable were carried forward to the DEIS.

Chapter 4 is really the bulk of the document. There are 16 different resource categories that we evaluated, the impacts and benefits of the proposed action.

And then Chapter 5 evaluates a cumulative impact from other projects in the area.

Finally we talk about the ongoing consultation coordination as part of the draft DEIS and there are appendices that provide a lot more detail as necessary.

I just want to quickly remind everyone that the proposed action that's talked about in this draft DEIS has three projects. One is the RBD pilot at Marina Village which is creating a storm water facility and elevating/extending Johnson Street through that park prior to it then being redeveloped as a separate project.

The second project is the Flood Risk

Reduction Project. That's over on the east side of the south end. That involves both coastal flood defense system and storm water management and green infrastructure.

In the DEIS we carry forward two alignment options. One is the western option which goes more through public land, some of it on Main Street, and then the further Eastern Alignment which is on private -- which will require easements on private property. Both of them -- both of these alignment options have the same elevated University Avenue.

Another option, two options is at the Main Street and University Avenue intersection. We looked at one option which would stop the Main Street, keep it at its current elevation. There would be a park transition option. That's going to be talked about a lot in more and more detail at the workshop if you want to learn more about that after this.

And the other option for Main Street would be to actually bring it up to

elevation to meet the new elevation of University Avenue and would continue it as a thru street.

The third project is the Resilient Center and that has two components. The "pocket park" north of University Avenue or what I was just talking about the Park Transition that will be talked about at the workshop, and then a contribution of funds toward the rehabilitation of the Freeman Houses.

This is a very quick snapshot of the environmental consequences in Chapter 4. As I said there are 16 different resource categories; land use, geology all through. Socioeconomic impacts as well that evaluated the impacts which you see in red, as well as the benefits in green from the three different projects.

The analysis addressed both the direct and indirect impact. Direct being those that are occurring at the same time and place, and indirect impacts being those that are caused by actions that are later in time or further reviewed from

distance, but are still reasonably foreseeable.

I'm just going to highlight a couple of these. As I said, the draft DEIS has the details and I'm available after this if there's specific questions you have about the contents of the DEIS. But the urban design section actually addresses to the visual environment as a result of proposed action. We know there will be some temporary impacts during construction and some long-term changes to the visual environment as a result of this project.

Some of the impacts such as obstructed views of Seaside Park or new pump houses might be considered adverse and others such as the added greenery at the storm water facility at Marina Village would be a benefit to the community.

The workshop is going to go into some more detail about the design elements that were not complete at the time of the draft DEIS.

Another important impact would be to cultural resources which include both

architectural and archaeological resources. We know there's a rich history in the South End that has to be considered.

The redesign of the entrance to Seaside Park would be considered an adverse impact to a National Register listed property and the funding of the Freeman House rehabilitation would be a benefit.

In addition, there are areas of archaeological sensitivity where construction would occur. The DEIS proposes some additional investigation and monitoring to ensure that archeological resources wouldn't be impacted during construction.

Parallel to the NEPA process that we're undergoing, we are performing the Section 106 of the National Historic Preservation Act. That requires consultation with the State Historic Preservation Office and other consulting parties. And that consultation is still ongoing to identify mitigation measures

and possibly prepare a Memorandum of Agreement or Programmatic Agreement to define those measures.

Based on the industrial history of this area, we know there's areas of moderate or high risk of hazardous material contamination. It's a consideration that varies based on the different alignments for the Coastal Flood Defense System. We reviewed a lot of existing sampling data and the DEIS outlines steps that can be taken to minimize risk to workers and the public during construction.

In the long term we considered there would be contaminating material that would be encountered that might be disposed of properly that would be an overall benefit to the area.

The area of Hydrology Flooding Coastal Resources. This is where we see the biggest benefit. This is sort of the purpose of this project. So we looked at where there's although there might be some temporary impacts of water quality during

construction following the project completion depending on the alignment options that we look at, there would be between 39 and 64 acres of land with reduced risk of flooding. The blue area shows a one percent annual chance floodplain.

In addition to the flood risk reduction, there is other benefits from dry egress at University Avenue and from the Johnson Street Extension. There is storm water improvements again at the RBD pilot on the east side and we would expect fewer CSO events, as well as other benefits.

There would be construction impacts obviously during the three-year construction period. Those are described in the various impact categories, whether air quality, noise, traffic. They would be expected to be minor and we would work with the City to identify ways to minimize those impacts and work with the community.

Chapter 5 is the cumulative impacts and that would -- we know that there's a

lot of projects besides this one that we're proposing that are ongoing in the immediate area, either right before, right after, at the same time.

We know that the University of Bridgeport has their own master plan. There's the development at Windward Development. There's 60 Main Street, the WPCA, Area H project, among other things. And so this chapter looks at the cumulative impacts and the benefits of the proposed action on top of those other projects.

I just want to highlight all the agency involvement that there has been and continues to be at both the local, state and federal level, the tribal nations. This will continue, actually beyond the NEPA process as we go into permitting and that sort of element and we would expect that some of the agencies would be commenting during this public period.

This just shows an overall schedule where we are. We're hoping to once we incorporate all the comments at the end of

the comment period and any new design refinements, we would be preparing a final environmental impact statement this spring looking to get a record of decision this summer. We're moving forward as quickly as we can in order to meet the overall project goal of getting construction complete by 2022, which is a requirement of the funding.

So before -- it's now time to hear from you. Before we open it up, I just want to remind you if you don't want to speak in front of this large crowd that's not a problem. We still will welcome your comments. Either you can comment at the back of the room there's comment cards; you can e-mail them all up until March 18; and however you would want to do that, we would welcome it. Thank you.

THE HEARING OFFICER: So as the department hearing officer, I am here to listen to any comments from members of the public who wish to offer their comments this evening.

A public hearing is a time for people

who are thoughts on the Draft EIS for both the NDR and RBD projects to put their thoughts on the record. I am here only to listen and will not be responding to your comments this evening. A response to all comments will be received in the final EIS.

To that end, there is a sign-up sheet for this hearing at the front desk so if you have not signed up, please feel free to do so. If you wish to speak and you have not signed up, like I said before, feel free to do so.

After we have heard from any elected officials that we have here this evening, we will then move onto members of the public. Each person will have three minutes to speak. I will signal when the two-minute mark has approached and then we will then ensure that everyone keeps to the time of three minutes.

The public hearing will conclude when all comments have been received.

You will see that we have a stenographer who will be available to

record this hearing.

We also have comment forms which will be part of the formal hearing for any records that are received this evening or any time during the public record period which ends on March 18. If you would like to record your comments in a more private setting, please see one of our staff members at the desk. They will provide you with a tape recorder and you will also have three minutes to have your comments heard and be part of the formal record.

Please when your name is called state your name clearly and any organization that you are affiliated with as you begin and if you have any written comments, please hand them over to the stenographer once you have completed your remarks.

At this time I'm going to pause and ask if we have any elected officials in the room who would like to have their comments be on the record at this time, please stand.

(No response.)

THE HEARING OFFICER: Hearing none,

we have a few individuals who have signed up and we are going to go in order of the way the individuals signed up.

We have the first person and if I did not pronounce your name correctly, please forgive me. It's my accent.

I have Niels Heilmann. Then we have followed by Horst Weber and then Monroe Hassell.

So the first individual to the microphone will be Niels Heilmann.

MR. HEILMANN: Hi. I would like to give my time or at least have Maisa Tisdale, president of the Freeman Center speak first.

THE HEARING OFFICER: Thank you.

MS. TISDALE: Hi. My name is Maisa Tisdale. I'm the president of the Mary and Eliza Freeman Center for History and Community.

As you saw on the board above, we were asked to participate as the Resilient Center for part of this program. I want to make it very clear that although we welcome the opportunity to serve as the

Resilient Center and, in fact, it's in keeping with our activities and with our mission, we do not -- we do not support the Western Alignment, not at all, not in any way, shape or form.

Now that the neighborhood is going to be made safe from flooding, I think it's really important that we take a look at the highest and best use of the land, especially the land on Main Street. That land needs to be brought back into circulation as an opportunity for community revitalization and development.

I see two major impediments for the development of Main Street. One is the PSEG warehouse that's at the corner of Whiting and Main. That lot now that the neighborhood won't flood should be made available through some mechanism for development. The insistance on putting a flood wall on Main Street running from Whiting in front of cottages that are on the National Register of Historic Places, along blocks that were part of historic Little Liberia, along blocks that have

archaeological fossils and artifacts related to the Paugussett Indians, it should not, it cannot happen. That neighborhood has borne more than its share of infrastructure and capital changes for the rest of the region and the rest of the city. We have to think about the value of the properties.

The Freeman Center recently received a $1 million grant which makes accessible another $600,000 on top of $50,000 that other grants, and nearly $100,000 that we raised in two months alone. We're willing to invest in making Main Street a cultural thoroughfare that invites both tourism and residents.

We are finally at the point where we can start planning the actual Freeman Center as opposed to just the restoration of the houses, and the Center is going to be a companion to the neighborhood culturally and invite the discussion of policy ongoing through time.

I also do not support the dead-ending of Main Street at University. I do

support the elevated Main Street that goes up and over and allows access to the park.

I think it's really important in this era of walls and borders not to create a barrier between the planned luxury housing that may or may not happen and the rest of the neighborhood. Those residents should be able to find their amenities and their needs met along Main Street as well. Thank you.

(Applause.)

THE HEARING OFFICER: Mr. Heilmann.

MR. HEILMANN: Thank you. So I'm just going to add no one knows more about this project -- I'm going to start actually by thanking Maisa and her board and all the community members with the progress that she just described as decades in the making of their hard work. And so to that end, I just want to add to what she said with a sort of commentary about the University Avenue egress for if it is in fact to be used as an egress for the luxury condominiums that are proposed. I just want to put into a little bit of

context that I think we have a really rare opportunity here where you have both an opportunity for economic development that as Maisa pointed out $2 million that have been raised both publicly and privately and create economic development that is not gentrification; and so I think that all that this project can do needs to be done to prioritize that over the needs of a possibly to-be-created luxury condominium and I just think that is really important and so I would ask that the group do anything in there -- anything -- for the engineers that's possible to be done to support the Freeman Center's vision for the entire area of Little Liberia. Thank you.

THE HEARING OFFICER: Thank you. Mr. Weber?

MR. WEBER: Thank you. It was already commented by the previous speaker.

MS. TOOL: Could you just come to the microphone please, and just repeat that for the record?

MR. WEBER: Thank you. My name is

Horst Weber and the previous speaker has pretty much covered my concerns.

THE HEARING OFFICER: Thank you. Next we have Monroe Hassell.

MR. HASSELL: Good evening all. My name is Monroe Hassell as she mentioned and I'm the vice president of the Board at Seaside Village Homes and we'd like to make the following statement.

Dear Dr. French: Our Board of Directors has prepared the following requests for public record for the Envionmental Impact Statement on the RBD/NDR projects.

The first section of our comments pertain specifically to Seaside Village and the Rebuild by Design Pilot Project. The second section deals with the NDR project and the South End as a whole.

Rebuild by Design Pilot Project. Seaside Village has acute and chronic flooding problems that are not being addressed by RBD and NDR. In addition to the complex sources that contribute to both our acute and chronic flooding

problems, we continue to face extremely unsanitary conditions -- last year we had conditions with E.coli and this is caused by our present ancient CSO system.

While we hope that the RBD pilot project will address and manage water for the proposed Windward Community and not contribute further storm water management issues in Seaside Village, nothing at all has been done to include or do the same for Seaside Village as part of this pilot project. This is a shame for many reasons, but primarily because our resident population numbers were included in the presentation to the RBD judging panel as part of the total number of people who would be helped by the award if it were granted to Bridgeport's South End.

Once again, we are left to our own resources. Therefore, in order to resolve and find funding for our flooding problems, we are requesting that as part of the EIS or in an accompanying document as part of this project, the following be provided:

A; a detailed list of the capital improvements and activities that we can use to leverage funding for the issues we face; and B, access to the information collected pertaining to the acute and chronic flooding in Seaside Village in a document that can assist us in our funding efforts.

Additionally, we are requesting the following adjustments or changes in the proposed RBD CSO separation project for Iranistan Avenue.

We request wider storm water and sewer pipes than currently planned, and a larger pumping station than planned as well.

These two requests are being made to accommodate an anticipated future CSO separation project and other storm water management projects we seek funding for.

NDR project. We would like the assistance of HUD and the State of Connecticut in creating a partnership between PSE and G and the community to develop flood hazard mitigation that

supports the Eastern Alignment. We are not in favor of the Western Alignment.

We want Main Street to be a designated historical corridor. Every block stretching from the railroad tracks to Long Island Sound is either already listed on the National Register of Historic Places or is within the boundaries of the historic Little Liberia neighborhood. It should be a cultural corridor with commercial development on the eastern side of the street. The Western Option permanently precludes that option.

We want to ensure the economic development of the South End as a cultural tourism destination that also offers amenities to residents, be it Seaside Village, the Cottages, Freeman Houses and other South End historic buildings. Sincerely, Seaside Village Board. Thank you.

THE HEARING OFFICER: Thank you.

(Applause.)

THE HEARING OFFICER: We also have

Miss Shanna Melton.

MISS MELTON: Hi everybody. I am not on the committee. I am Shanna. I am an artist and I just wanted to add my perspective to the conversation and I help with the Freeman Houses.

This letter is intended to add my voice to the conversation. Among the many wonderful attributes of Seaside Park is the fact that it is accessible and visible for most traveled roads in our city. A wall is a restriction. Without the visibility of the park, it creates a divide that changes the feeling of the neighborhood. Bridgeport does not need any more corners that are unattended or unsafe. The history of that area should be preserved. There should be shops and places to eat while you enjoy the park. Businesses need to make a point of bringing back the hot dogs and sodas and ice creams and ways of spending your days that have moved forward like salads and smoothies and fresh foods and markets.

There are a lot of ways to bring life

into the waterfront but blocking it still makes it feel unwelcoming and that is not what our community strives toward. Developing the area instead of closing it off would benefit the economy and the community. We see this is successful in places like Captain's Cove which is also in Bridgeport. If you look at the success of Bridgeport Art Trail, Black Wall Street, and the Bridgeport Arts Fest in addition to many events that our community supports, it is evident that our safe and joyful spaces need to be accessible and preserved.

If you go to most waterfront areas like ours you see benches, places to eat, community gardens, galleries and many other creative uses of the gift. There are better ways to make use of this space besides filling it with dirt and creating an invisible corner.

Community members, churches, we celebrate our ancestors. There are people who do yoga and pray, exercise, create and seek quiet at the Main Street end of the

park. Community members appreciate the beautiful trees and statues, playgrounds and boardwalks just as much as the beach. This allows them access without having to go to the opposite end which if you are walking is quite a distance. The park parallels downtown through the west end of Bridgeport and it is not fair to people who live beyond either point to have to travel so far to enjoy our park.

We pride ourselves in being a park city yet this proposal would seemingly take away from getting into it. The restoration of the Freeman Houses with the help of the community will be a great way to travel and experience our history, and to become a tool to heighten literacy rates in our City. We should keep it accessible, bright and welcoming to our community while making sure the community is safe.

I heard you about your pipes. That's real. The water is a passageway for The Underground Railroad and that entire area is a testament to the resilience of the

people who existed in that area before us. If we divided with these permanent structures people will lose the chance to fully experience the power of how triumphant this city is and it is important that we are intentional about being on the right side of history, because, you know, look at the amazing things that have happened in Weeksville, Brooklyn which is just like Little Liberia and absorb the potential of what can develop in our city. I am Shanna.

(Applause.)

THE HEARING OFFICER: Just a reminder if you have written comments, I'm going to ask you to hand it over to the stenographer. This actually concludes all the individuals we have listed on the form. I am going to open up to the audience. If there is anyone who feels impressed and they would like to offer comments now, you can please come up to the mike and do so.

MS. HILL: My name is Carolyn Hill. I am a relatively new resident to Seaside

Village, formerly of Stamford, embracing Bridgeport, and I support our Board in its request for the Eastern Alignment water pumping station. Just want to support that and make it known. Thank you.

(Applause.)

MR. BASLER: I am Frank Basler, B-a-s-l-e-r. Like Carolyn wanting to support what Monroe said. I am the president of Seaside Village. Especially the widening the pipe and increasing the capacity of the pumping station. I lost a car due to flooding earlier this year and the electrical system was totaled so. Thank you.

(Applause.)

MS. ROBINSON: Hi. My name is Gail Robinson and I'm also a resident of Seaside Village and I just want to support the Board's statement requesting a larger capacity for the pumping station so that it could accommodate a future CSO project which we're already in consultation with the City of Bridgeport regarding and we -- it's a very expensive project obviously

and a larger pumping station capacity could make the difference in terms of whether the City funds it and goes forward with it or not. But also we would like to see a larger diameter of pipes for both the sewer and the storm water so that we could, you know, link into it and, you know, that could also help us, you know, to get that CSO project which we really badly need.

You know, our combined sewer storm water system was put in in 1918 and, you know, it's limited in capacity and we end up with a lot of chronic flooding and it's that's only going to get worse with the sea rise and we have been flooded in Irene and Sandy. We deal with a lot of flooding and yet, you know, we just weren't included in anything that came up in either of these two projects and it's not a lot to ask. We just you know would like to see some accommodation to recognize our needs and to help us a little bit.

We're also in favor of the Eastern Alignment. The Western Alignment we're

very concerned about what it does to Main Street, what it does to places like Freeman Houses and, you know, the way it blocks off Main Street and it doesn't seem like the best solution and it sounds like a plan B and we just want to really support you on that; that we hope you get the Eastern Alignment. Thank you.

(Applause.)

MR. SERGIYENKO: Good evening. My name is Volodymyr Sergiyenko and I am a resident of Main Street. The one of the closest park to the Seaside Park and the water. So thank you everybody who came here. The reason is it's not because everyone should concern about own house, own needs and everybody talked about the preservation of the park; the development and future. Sandy came and this is the reason that we're here and who knows, in another ten, 15 years, the hurricane or flood is going to be twice wider and larger than right now. So I would appreciate if engineers will think ahead of time for the next not only 15, 20 years

for 50 years and build a nice retaining wall or barrier which won't block the park at the same time everybody can get access to the park and that will be really appreciated because my basement was totally flooded up to the first floor and it's a disaster. So if people got water and sewer line destroyed and everything, it's another disaster so at the same time we need to preserve the park so everybody can get to the park to get there. So we're requesting engineers to please build the project, please make sure in the next 20 years it won't happen again. Thank you so much.

(Applause.)

MR. CRUZ: Good evening. My name is George, Jorge Cruz. I am a member and elected official of the Democratic Committee of the South End, this area here. I am also a member of the neighborhood revitalization of the South End. I just want to say that I agree with everything that everyone has spoken here in terms of the Freeman Houses, the Little

Liberians, Seaside Village, but I want to come from a perspective of a man who grew up in Bridgeport and I grew up in PT Barnum, came here in 1962. For some reason we always ended up in Seaside Park and now that we've got this massive project coming, I just hope and pray it's not blocking the beach to anybody. Seaside Park is the crown jewel that I grew up with and we cannot block it to anyone and I hope and pray that it will also include some trees that they have been rooted out of there, crews have some trees for the wildlife and the birds and the trees so I can sit down under to be able to watch a baseball game. Again with this project that you're about to do to please consider that, too. Don't take the beauty away from Bridgeport. Let's beautify it. Let's all work together because Seaside Park to me is the crown jewel of the City and a lot of people look forward to coming to Seaside Park and we cannot block it in any way, shape or fashion.

When I grew up over here they didn't have those yellow gates that they have here. They close Seaside Park at eight o'clock at night. Before it was 24 hours a day. I could understand why they closed it because some years ago some violence was going on, but I hope and pray that some day they take those gates out of there and welcome everybody so we could be able to hang out at Seaside Park in the summer nights, nine, ten o'clock, midnight and enjoy the breeze coming from the beach because that is one of the most beautiful places to be that I grew up with and I would like to continue to enjoy that. Thank you.

MS. KELLY: Hi. My name is Barbara Kelly and I am a resident of the Cottages and that seems to be a little under represented here, so I would just like to voice my support for what was said already this evening. The Main Street, the western, what are you calling it the western alliance?

THE HEARING OFFICER: Alignment.

THE WITNESS: Yes, the Western Alignment. I just can't imagine what that would look like. You don't have the setback to create like the visual that you provided going into the park. You know, we have the berm and how green and beautiful it is and it's very wide. It's got a huge girth. You don't have that space over there to create that so in my mind I'm seeing a wall and that is -- that would be really a shame. It just doesn't seem to work but, in any case, I also want to support my neighbors at Seaside Village and how, you know, my heart is broken that you didn't get -- they didn't -- nobody paid any attention to Seaside Village. So it feels like the existing, those of us who are there and in existing housing and there's hundreds, hundreds of families, you know, that maybe are not being as represented as well in the proposals of this project as those who are the utilities or those who have, you know, these plans where some big money, big development is happening so, you know,

that's what I'm hearing as well. So thank you.

(Applause.)

MS. MAHER: Thank you so much. My name is Kathleen Maher, the executive director of Barnum Museum and I also serve although not in the capacity of a council member of the Connecticut SHPO.

I have had the privilege of coming to these meetings I think for about three years now and I've seen it grow and there's enormous dedication to it, but I also want to give a huge shoutout for the community members who have come to every single one of these meetings to make sure they've had their voices heard so this is important.

I would love to amplify what Maisa suggested about the Freeman Houses. Now is the time that that community needs to have a spotlight on it and recognize. It has struggled and assumed the burden of so many pressures from urban development and it has -- just in this last year, it has succeeded in getting national recognition,

something that is enormously important, not just in the Bridgeport community but to American history. This is for everyone and the shame of putting a wall -- I can't even believe we're talking about a wall -- a wall that's going to suffocate this section of a community is a little alarming, especially now. It's going to restrict national public flow of people moving back and forth and then cutting Main Street off again. I mean the ballpark already does it, right, so now we're going to have it done again. How is that going to be a place to celebrate the history and heritage of all of those people that came before us.

So I don't need to speak any more but I thought it was important that because I am the director of yet another national site in this community that we fully support the Freeman community and the community that really represents the Freeman Houses; and the work that you do, too, Shanna, so I thank you very much.

(Applause.)

MR. PETTWAY: Good evening. My name is Clifford Pettway and I grew up in the south end of Bridgeport in the Cottages and I remember at one time since the '70s at one time the south end of Bridgeport down at the entrance of Seaside Park was a very thriving community. We had so many restaurants and stores down there; Homer's, Kingsman Pub, County's, Alberto's just to name a few.

Back in 2011 I stayed there at the house during Hurricane Irene and I remember going outside that Sunday morning about 10:45 and looking down the street and saying "Hurricane Irene passed us by," and I just seen a stream of water coming down alongside the curb, and I went back in the house. I went back fifteen minutes later and the water was waist high. It happened just that fast. So me, myself, I don't know why they would put a wall on Main Street where it would be an eye sore for one thing and it would cut off another part of Main Street as Bluefish is right now where the Harboryard Arena as the lady

just mentioned. So I totally disagree with them putting a wall on Main Street. I think it's a poor decision on the part of everyone that's involved in it. That's all I have to say. Thank you.

(Applause.)

THE HEARING OFFICER: Anyone else who feels impressed to speak?

(No response.)

THE HEARING OFFICER: Seeing no one, as all the elected and appointed officials and members of the public have been heard, I, Hermia Delaire, call this hearing closed this evening. I want to remind everyone that public comments can be received through March 18. We thank you for attending this evening's public hearing on the Draft Environmental Impact Statement for the Resilient Bridgeport projects.

I would now turn you over and I'm going to ask everyone to please, if you can, let's stay for the second part of it, the program which will be the design workshop. I am going to hand you back

over to project manager, Dr. Rebecca French as she tells a little bit about what will happen in the second segment. I thank you.

(The public hearing was adjourned at 7:05 p.m.)

CERTIFICATE

I hereby certify that the foregoing 43 pages are a complete and accurate computer-aided transcription of my original Stenotype notes taken of the public scoping hearing in the Matter of: RESILIENT BRIDGEPORT: National Disaster Resilience and Rebuild by Design Projects, held before HERMIA DELAIRE, Hearing Officer, and before Cheryl S. Damato, Certified Court Reporter/Notary Public in and for the State of Connecticut, held at the University of Bridgeport Arts & Humanities Building, 84 Iranistan Avenue, Bridgeport, Connecticut, commencing at 6:14 p.m., on Tuesday, February 26, 2019.

_____
Cheryl S. Damato
Court Reporter-Notary Public

DEIS Public Workshop
(#6)
June 26, 2019

Resilient Bridgeport Public Information Workshop – Meeting Minutes

Workshop Overview

DATE	June 26, 2019
MEETING	Bridgeport Public Workshop
TIME	6:00 – 8:00pm
LOCATION	At the corner of Cottage Place and Whiting Street. Outdoor set up in the South end Bridgeport neighborhood
SCHEDULE OF EVENTS	6:00 PM – Attendees arrive and sign-in 6:05 PM – 8:00 PM – Attendees view display boards, virtual reality, and talk with the project team 6:35 PM – Walking tour begins on Main Street 8:00 PM – Event wrap-up
MEETING GOALS	• Share updates with residents on the Bridgeport Resilience Project • Depict the look and feel of a potential coastal flooding defense system along one block of Main Street • Show two alignment options under consideration for the area • Gather the public's feedback on possible façades for a coastal flooding defense system
SPONSOR	Connecticut Department of Housing (CTDOH) Supported by: Arcadis Waggonner & Ball WSP Yale Urban Design Workshop
ATTENDEES	Sixty attendees representing residents, home-owners, community members, and public officials attended the public workshop

Workshop Highlights

Pre-event Promotion

To promote the June 26 public workshop, a variety of promotional efforts were utilized.

- Two hundred door hangers were distributed around the neighborhood on Saturday, June 15, 2019, to houses, apartment buildings and businesses in the South end (see attachments)
- A series of five emails were sent to a list of 600+ stakeholders including residents and community groups
- The workshop was published on the Resilient Bridgeport website
- The workshop was advertised as a Facebook event and four Facebook and Twitter posts were published promoting the event

Event Materials

The project team created two Resilient Bridgeport fact sheets for workshop attendees (see attachments). One fact sheet was a Resilient Bridgeport project overview which featured the Main Street cross-section. The section fact sheet

featured the two possible alignment options under consideration, the New Eastern Alignment (Eastern-C) and the New Western Alignment (Russell-Main).

Workshop Stations

The workshop was divided into three stations for participants to visit, view, and ask questions about during the event. Attendees could move freely from each area to another. Each station had at least one project representative stationed nearby to explain, answer questions, and listen to attendee feedback. Below is information about each station:

- The first area featured alignment and cross-section display boards: Nicole Weymouth, from WSP led this station. Here attendees viewed the two alignment options New Eastern Alignment (Eastern-C) and the New Western Alignment (Russell-Main) and the two options for the Main Street cross-section if a costal flood defense system is installed on Main Street.
- The second area featured virtual reality: Joe Marrone, from Arcadis led this station. Two sets of virtual reality goggles were available for attendees. In these goggles attendees, could see the current view of Main Street, two potential flood conditions (100-year event and a 10-year event) without a coastal flood defense system in place, and five different views of a possible coastal flood defense system on Main Street, with five different form liner facades.
- The third area gathered feedback on wall façade preferences: Delia Makhetha, from WSP led this station. A sample form liner was on-hand for attendees to see and feel. There was also a display board with four images of facades for a coastal flood defense system if one is to be installed on Main Street. Attendees voted by placing a sticker next to one of the four images of the preferred form liner finishes. In total, 34 attendees voted on the form liner options. Option 3, a wavy finish was favored with 25 votes. Option 4, the grass finish, was the second favorite with five votes. Lastly, option 1 and 2, the wood finish and large line finish, each received two votes (see attachments).

Walking Tour

Kelli Reinhardt from Waggoner & Ball and Rich Pettinelli from WSP led a walking tour of the Main Street area where the potential coastal flood defense system may be installed. The walk began at 6:35 PM, and more than half of the workshop attendees participated. On the walking tour, Kelli Reinhardt and Rich Pettinelli provided attendees with information about the potential coastal flood defense system and answered attendee question.

Refreshments

An ice cream truck was hired for the event. Each attendee received an ice cream ticket and water ticket at registration. The weather on the evening of the June workshop was very warm, and attendees and the project team enjoyed the refreshing ice cream and water.

Attachments

- Promotional door hanger
- Sign-in sheets
- Event fact sheets (2)
- Alignment display boards (2)
- Cross-section display boards (2)
- Form liner voting board

Public Information Workshop

Wednesday, June 26, 2019
6:00 PM - 8:00 PM
Corner of Whiting St. & Main St.

Join us for a brief walking tour of the location of the coastal flood defense system in the South End. Virtual reality will be used to show the proposed flood barrier.

Exhibits of materials and treatments will be on display. Walking tour will begin at 6:30 PM and there will be an opportunity for public quesitons and comments. Refreshments will be served.

For more information about the Resilient Bridgeport project, please visit www.resilientbridgeport.com.

If you require special assistance to participate in this meeting, please contact the project's public involvement team at 603-851-8561 no later than 5:00 PM on Monday, June 24, 2019.

RESILIENT BRIDGEPORT

Reunión de Información Pública

Miércoles 26 de Junio de 2019

6:00 PM - 8:00 PM

Esquina de Whiting St. y Main St.

Únase a nosotros para un breve recorrido a pie por la ubicación del sistema de defensa de inundaciones costeras en el South End. La realidad virtual se utilizará para demostrar la barrera de inundación propuesta.

Exhibiciones de materiales y tratamientos estarán en exhibición. El recorrido a pie comenzará a las 6:30 p.m. y habrá una oportunidad para preguntas y comentarios

Para obtener más información sobre el proyecto Resilient Bridgeport, visite www.resilientbridgeport.com.

Si necesita asistencia especial para participar en esta reunión, comuníquese con el personal de participación pública del proyecto al 603-851-8561 no mas tarde que 5:00 p.m. del Lunes de Junio de 2019.

RESILIENT BRIDGEPORT

RESILIENT BRIDGEPORT

Resilient Bridgeport
Public Information Workshop
Date: June 26, 2019; 6:00 – 8:00 PM
Location: Main Street & Whiting Street, Bridgeport, CT 06604

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Vickie Holt	(203) 334-8588		☐
Cynthia Cohen	203-334-8588	Broc	☐
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			☐
			☐
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RESILIENT BRIDGEPORT

Resilient Bridgeport
Public Information Workshop
Date: June 26, 2019; 6:00 – 8:00 PM
Location: Main Street & Whiting Street, Bridgeport, CT 06604

PRINT NAME	TELEPHONE	EMAIL ADDRESS	CHCEK TO RECEIVE EMAIL NOTICES
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Bill Coleman (City of Bpt)	203-576-7221		☐
Lilliam Perez	203-690-6978	lilliamperez13@gmail.com	☑
Sixto Diaz	203-683-8975		☐
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RESILIENT BRIDGEPORT

Resilient Bridgeport
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Location: Main Street & Whiting Street, Bridgeport, CT 06604

PRINT NAME	TELEPHONE	EMAIL ADDRESS	CHCEK TO RECEIVE EMAIL NOTICES
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Susan Fazekas	203-330-9488	susanfazekas@optonline.net	✓
Jane Davila	203-722-3599	info@janedavila.com	✓
BERNICESTINE BAILEY			☐
NIELS HEILMANN	~~203~~-9176078436	nick.heilmann@gmail.com	☐
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Colleen Riddick-Arthur	" "	rabbit1206@Aol.com	☐
Wendy + Brian Lindquist	203/913-5615	wendy@lindquistlandscape.com	✓
Cara Pavlock	203-333-6600	cara.pavlock@mail.house.gov	✓
Mary L. Bruce	(203)993-9388		☐
Melody V Thurgood	(203)334-1659	131 - DTC	☐
Rev. Elvin Clayton	860-919-3194	pastoreclayton2@sbcglobal.net	✓
Tara Ross Dickey	(301)938-2051	almondBBR@gmail.com	✓

RESILIENT BRIDGEPORT

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Public Information Workshop
Date: June 26, 2019; 6:00 – 8:00 PM
Location: Main Street & Whiting Street, Bridgeport, CT 06604

PRINT NAME	TELEPHONE	EMAIL ADDRESS	CHCEK TO RECEIVE EMAIL NOTICES
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Don Lamberty	203 3190436	dtlamberty6@gmail.com	✓
~~Ms~~ Greg & Keiko Breland	203-266-1830	cgbreland@gmail.com	✓
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Beth Santos	2032187227	egsanta@westofsouthpat.com	
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Vin Aurelia	203 335 2005	varella@snet.net	✓
Vanessa Clayton	860-930-8843	claytonvanessa1@gmail.com	✓
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Daniel Donovan	203-395-4148	ddonovan@nyporwellan.net	✓

RESILIENT BRIDGEPORT

Resilient Bridgeport

Public Information Workshop

Date: June 26, 2019; 6:00 – 8:00 PM

Location: Main Street & Whiting Street, Bridgeport, CT 06604

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Richard Seres			☐
Maisa Tisdale			☐
			☐
			☐
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RESILIENT BRIDGEPORT

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PRINT NAME	TELEPHONE	EMAIL ADDRESS	CHCEK TO RECEIVE EMAIL NOTICES
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JOHN BREZINA		JDB295@YAHOO.COM	☐
Mark Dickey			☐
			☐
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Project Fact Sheet | June 2019

Source: Christian Abraham/ Hearst Connecticut Media

Source: Cathy Zuraw/ Hearst Connecticut Media

Source: WTNH

Source: CT Mirror

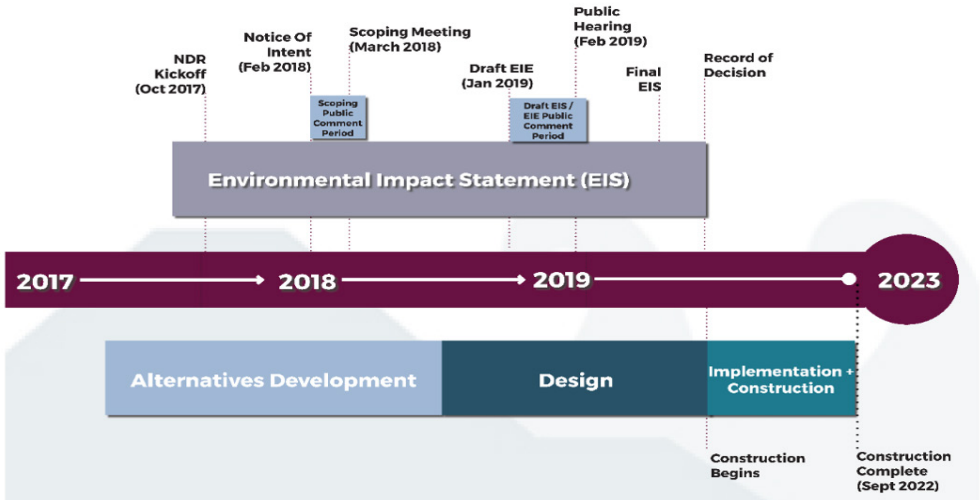
Chronic and Acute Flooding: Hurricanes are not the only source of flooding and disruption in Bridgeport. Intense rainstorms in the summer of 2016 caused significant flooding and showed the importance of addressing both chronic and acute flooding. Climate change will worsen the effects of these storms.

RESILIENT BRIDGEPORT

PROJECT OVERVIEW:

Resilient Bridgeport is a prototype for the region's coastal cities. Led by the State of Connecticut, it consists of a resilience strategy and pilot projects focused on protecting homes, businesses and infrastructure in the South End of Bridgeport from chronic and acute flooding in order to foster long-term prosperity in the neighborhood. Resilient Bridgeport is part of the Connecticut Department of Housing Sandy Recovery and National Disaster Resilience programs funded by the Federal Department of Housing and Urban Development Community Development Block Grant Disaster Recovery program under Public Law 113-2.

Project Schedule



The Resilient Bridgeport project is focused on strategy, planning, and design principles that:

- Provide communities in floodplain areas with opportunities to prepare and adapt in response to climate change and other environmental pressures.
- Improve connections between neighbors and between the city and region - these are especially critical during emergencies.
- Enable new development in coastal areas that is sustainable, safe, and supports the economic well-being of the entire city.
- Strengthen local ecosystems through water quality improvements, urban greenways, tree planting, habitat restoration, and shoreline enhancements.

CONNECTICUT Department of Housing

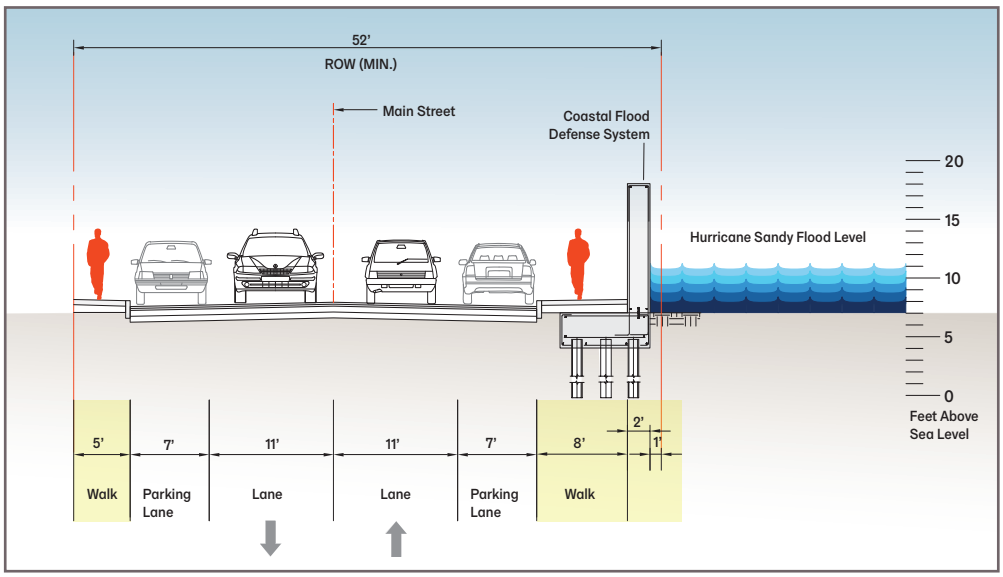
U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

PROPOSED FLOOD RISK REDUCTION STRUCTURE:

The potential flood risk reduction structure is one facet of this city-wide initiative to protect homes, businesses, and infrastructure in the South End of Bridgeport from chronic and acute flooding in order to foster long-term prosperity in the neighborhood.

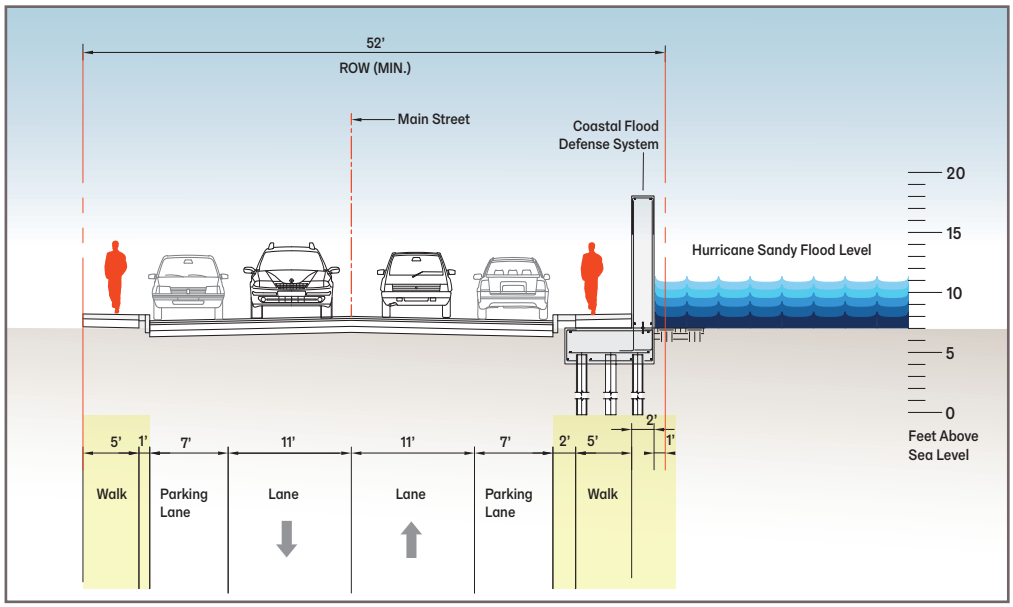
A portion of the flood risk reduction structure could be located on the east side of Main Street, for one block, from Atlantic Street to Whiting Street. There are several possible treatment options for this structure, which could give it a different look and feel depending on city and community input driving the final design. In addition, the project would include resurfacing of the roadway and sidewalk improvements, as well as tree planting on the west side of Main Street.

Main Street Cross-Section Option 1



Main Street
North of University - Looking North
No Snow Shelf

Main Street Cross-Section Option 2



Main Street
North of University - Looking North
Reduced Sidewalk Width- Minimal Snow Shelf

Connect with us!

www.resilientbridgeport.com

Facebook: @ResilientBridgeport

Twitter: @ResilientBPCT

RESILIENT BRIDGEPORT

PROPOSED COASTAL FLOOD RISK REDUCTION STRUCTURES:

The Connecticut Department of Housing is working with the stakeholders in the eastern South End of Bridgeport to find the best solution to reduce the risk of flooding in the area. Below are two coastal flood defense systems alignments being explored.

New Eastern Alignment

New Western Alignment

CONNECTICUT Department of Housing

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

Previous Resilient Bridgeport Meetings & Workshops

DEIS Public Hearing & Design Workshop
February 26, 2019

Public Information Meeting
June 6, 2018

Public Hearing & Design Workshop
March 14, 2018

Public Information Meeting & Workshop
December 12, 2017

Public Information Meeting
October 18, 2017

Groundwork Lecture
October 11, 2017

Resilient Strategies Exhibit
October 10, 2017

Pilot Project Development Workshops
April 12, 2017

Public Hearing
December 13, 2016

Project Alternatives Workshop
September 20, 2016

Unveiling of Draft Project Alternatives
July 23, 2016

What is Resilient Bridgeport?
July 21, 2016

Climate Change & Culture
June 10, 2016

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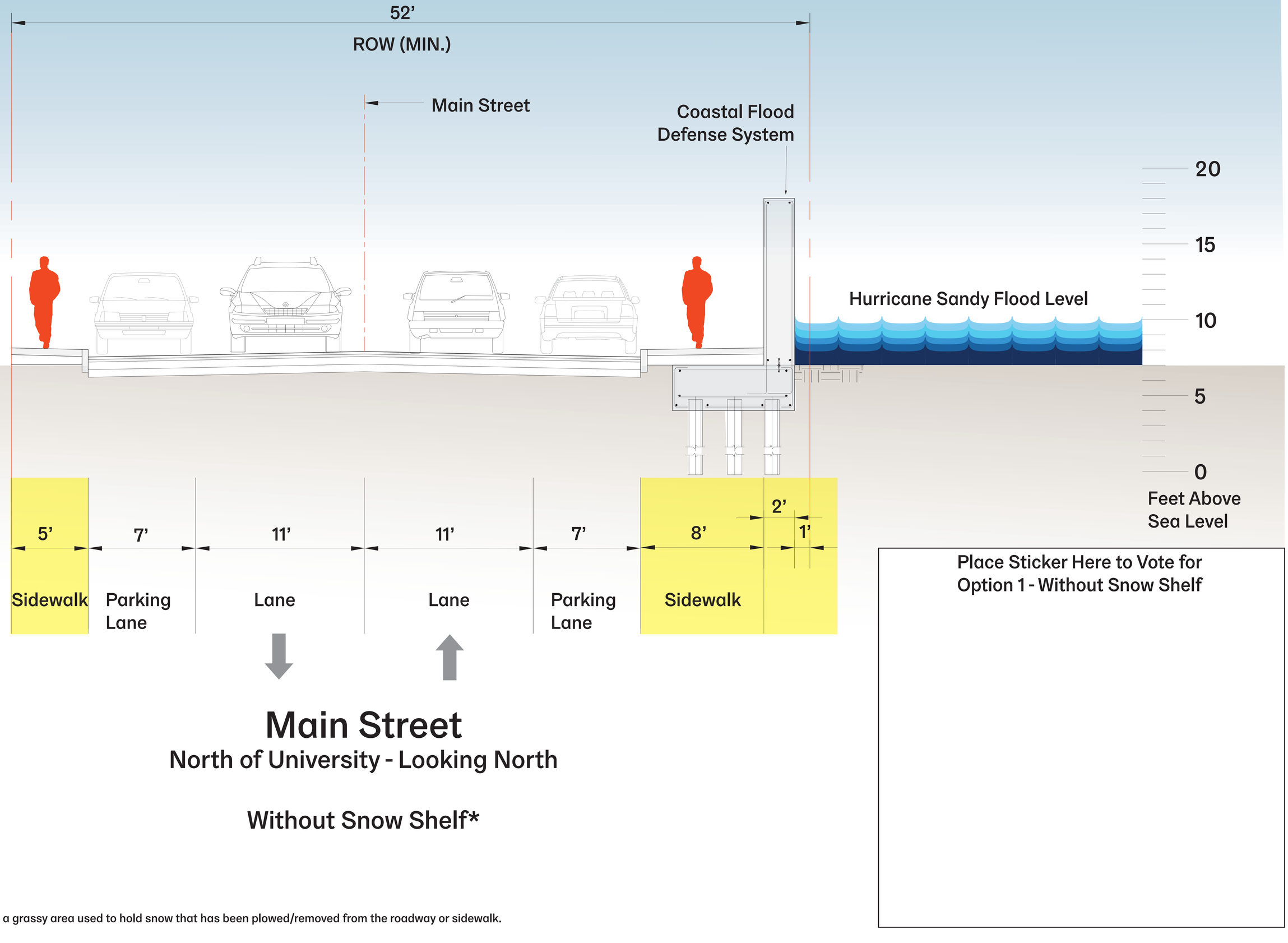
Eastern-C Alignment
Google Earth


Russell-Main Alignment
Google Earth
N

Main Street Cross-Section Option 1



Main Street

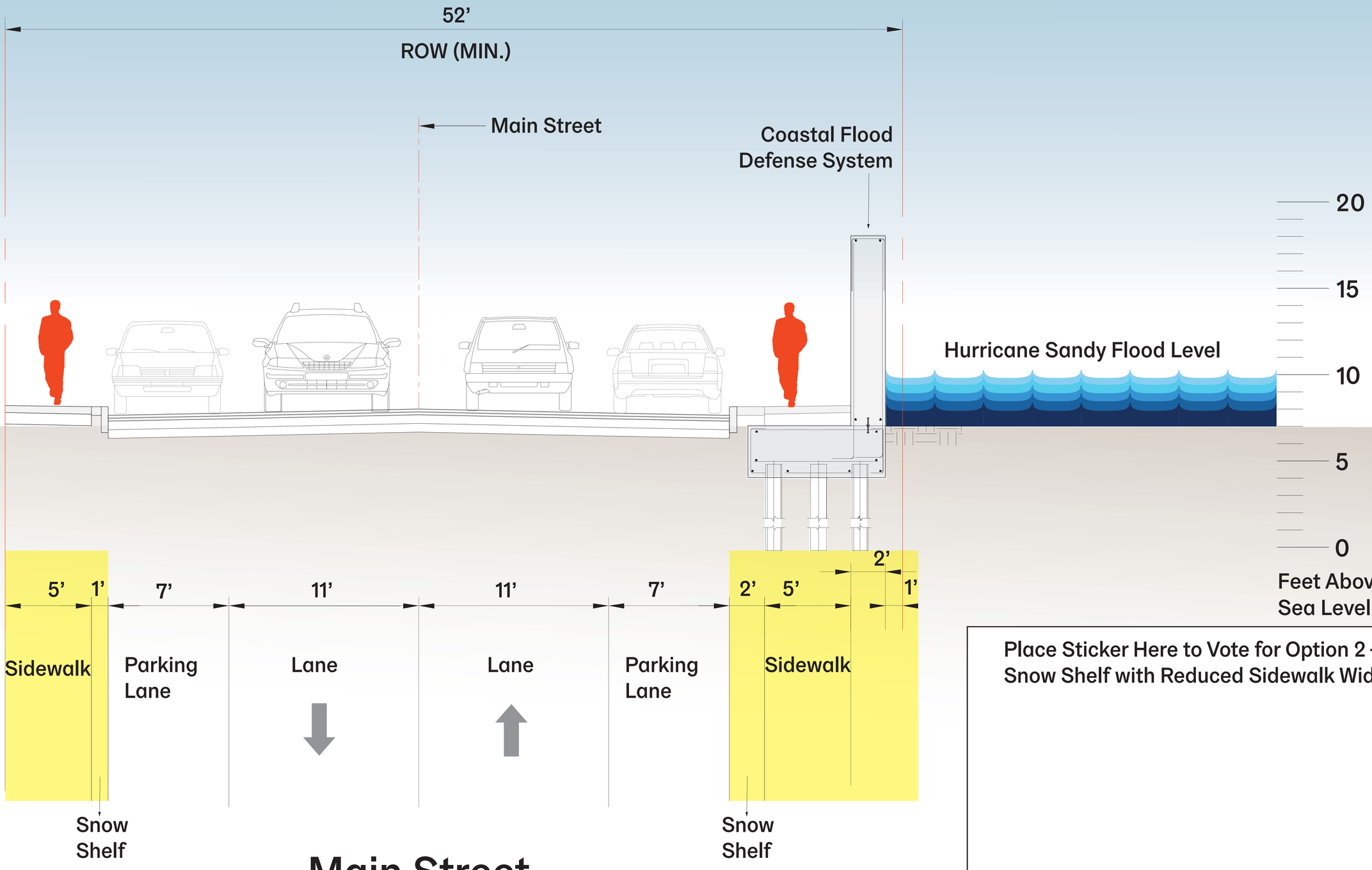
North of University - Looking North

Without Snow Shelf*

*A snow shelf is a grassy area used to hold snow that has been plowed/removed from the roadway or sidewalk.

Place Sticker Here to Vote for
Option 1 - Without Snow Shelf

Main Street Cross-Section Option 2



Main Street

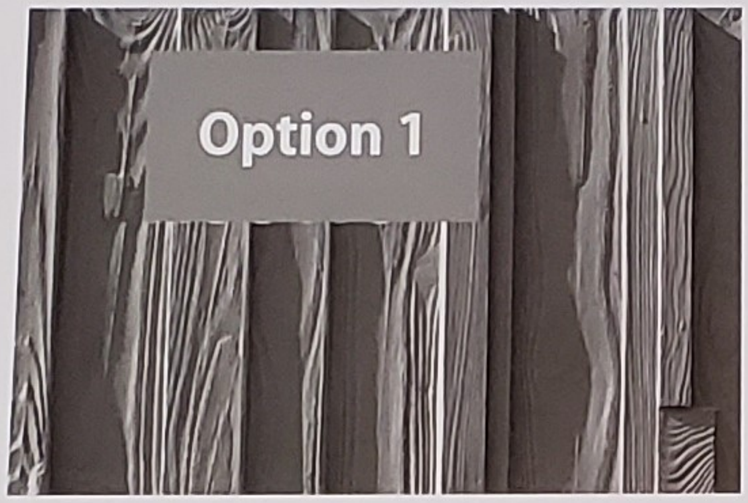
North of University - Looking North

Reduced Sidewalk Width
Minimal Snow Shelf*

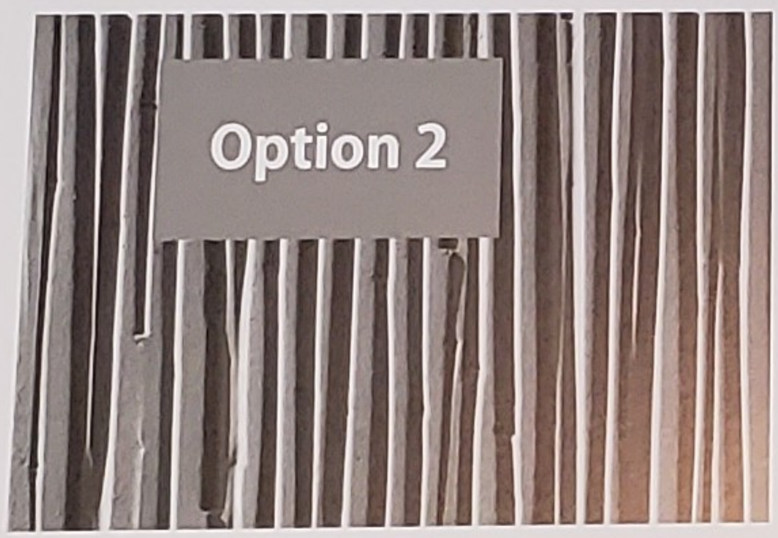
*A snow shelf is a grassy area used to hold snow that has been plowed/removed from the roadway or sidewalk.

Place Sticker Here to Vote for Option 2 -
Snow Shelf with Reduced Sidewalk Width

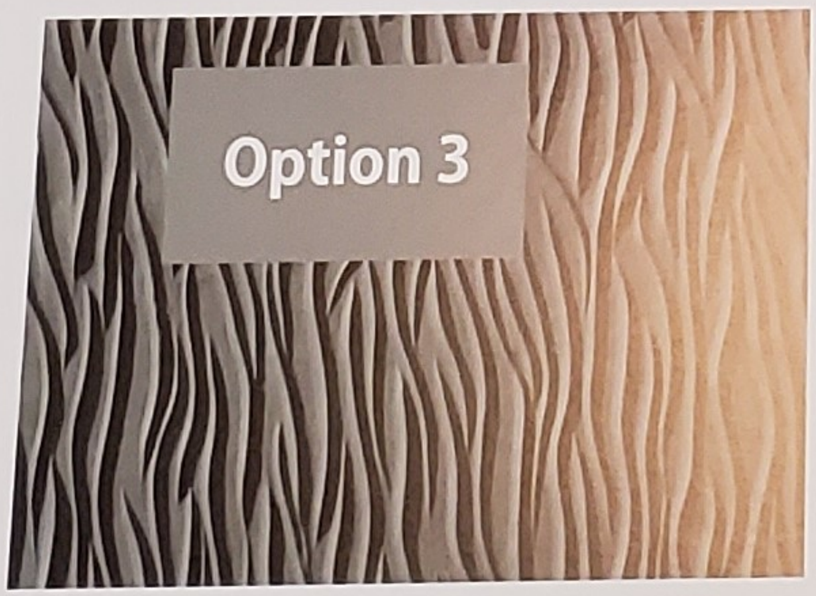
VOTE FOR YOUR FAVORITE PATTERN!



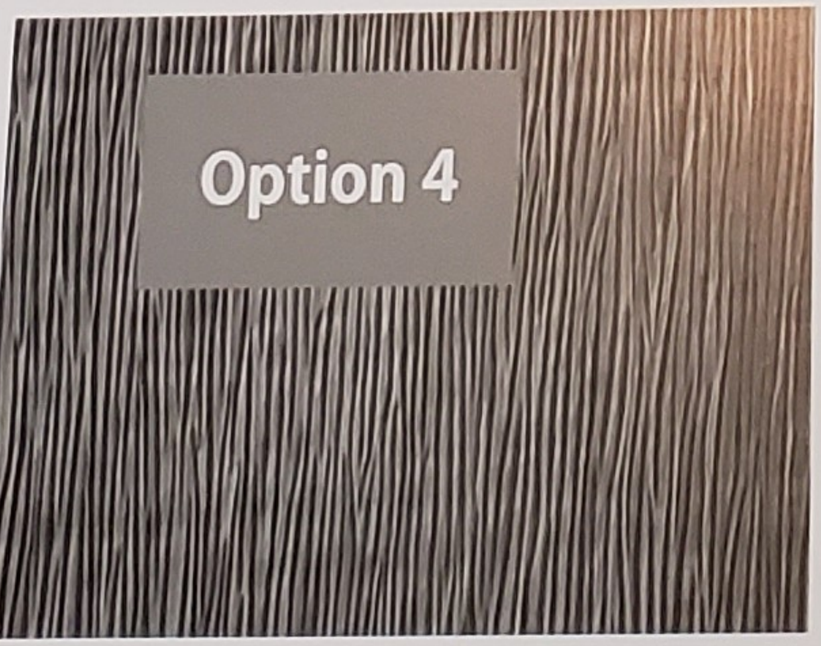
Place a sticker in this box to vote for **Option 1**



Place a sticker in this box to vote for **Option 2**



Place a sticker in this box to vote for **Option 3**



Place a sticker in this box to vote for **Option 4**

Results will be considered general style feedback.
Actual patterns and colors may vary.

RESILIENT BRIDGEPORT

Paid Advertisements and Other Marketing Material

PUBLIC NOTICES

Draft Environmental Impact Statement (DEIS) / Environmental Impact Evaluation (EIE) Notice for Resilient Bridgeport: Rebuild By Design and National Disaster Resilience Projects

Project Title: Resilient Bridgeport: Rebuild By Design and National Disaster Resilience Projects
Municipality where project is proposed: Bridgeport
Addresses of Project Locations: South End of Bridgeport, CT
Project Description: The State of Connecticut's Department of Housing (CTDOH) is the recipient of the U.S. Department of Housing and Urban Development (HUD) disaster recover grant funding and is the "Responsible Entity," as that term is defined by HUD regulations at 24 Code of Federal Regulations (CFR) Part 58.2(a)(7)(i). CTDOH has prepared a Draft Environmental Impact Evaluation (EIE) for the proposed Resilient Bridgeport: National Disaster Resilience and Rebuild by Design projects (Proposed Action). The disaster recovery grants are under HUD's Community Development Block Grant Disaster Recovery (CDBG-DR) National Disaster Resilience (NDR) and Rebuild by Design (RBD) programs as part of HUD's response to the devastation following Superstorm Sandy. The Proposed Action consists of three projects located within the South End of Bridgeport, Connecticut—the RBD Pilot Project at the former Marina Village public housing site, a Flood Risk Reduction Project on the east side of the South End, and a Resilience Center—that together would provide stormwater management, dry evacuation routes (dry egress), a coastal flood defense system, and resiliency education to the community.

The Connecticut Environmental Policy Act establishes environmental policy for the State of Connecticut and requires an EIE for any state action that could affect the natural environment. In addition, the Proposed Action is considered a "major federal action significantly affecting the quality of the human environment"; therefore, it must comply with the requirements of the National Environmental Policy Act of 1969 (NEPA). As such, this EIE will jointly serve as an EIS and will meet NEPA requirements. CTDOH has prepared this Draft EIS/EIE in accordance with the Council on Environmental Quality's Regulations for Implementing the Procedural Provisions of NEPA (40 CFR Parts 1500-1508) and HUD's Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities (24 CFR 58). Scoping for the Draft EIS / EIE formally began on February 27, 2018 when the Notice of Intent to Prepare an EIS was published in the Connecticut Environmental Monitor, which commenced a 30-day comment period to solicit public and agency input that lasted through March 28, 2018 and included a public scoping hearing on March 14, 2018.

The study area is situated within the South End neighborhood of the City of Bridgeport, a peninsula of the Connecticut coastal region located between Cedar Creek, the Long Island Sound, and Bridgeport Harbor. Overall, the study area is a cross section of the residential, institutional, utility, and recreational uses that define the South End neighborhood, all of which are susceptible to acute and chronic flooding conditions due to a combination of inadequate stormwater infrastructure in the area and its coastal location.

The purpose of the Proposed Action is to create a more resilient South End community, support its long-term viability, and improve health and safety for the community's vulnerable populations. The principal targeted outcomes follow:

* Lower the risk of acute and chronic flooding.
* Provide dry egress during emergencies.
* Educate the public about flood risks and sea level rise.

The Proposed Action will deliver additional benefits to the community, potentially unlocking development or public realm opportunities, enhancing connectivity between the South End and downtown Bridgeport (located north of the railroad and I-95), improving existing open space amenities, building up the resilience of local energy systems, and leveraging public investment in ongoing resiliency efforts through coordination with local stakeholders.

A public hearing will be held to solicit community feedback on the content of this DEIS on **February 12, 2019**, from 6:00 p.m. to 8:00 p.m. at the Schelfhaudt Gallery (84 Iranistan Avenue, Bridgeport, CT). The hearing will provide an opportunity for the public to submit comments on the DEIS orally and/or in writing. Comments on this DEIS will be recorded at the hearing. Those who do not wish to voice their comments publicly will be offered an opportunity to provide a private written or verbal comment at the meeting, or submit comments through the project website, email or by mail to CTDOH (see below).

In addition to the linked access to the DEIS provided below, the public can also view a copy of this DEIS at:

Bridgeport City Hall
45 Lyon Terrace
Bridgeport, CT 06604
(203) 576-7081

Bridgeport Public Library Main Branch
925 Broad Street
Bridgeport, CT 06604
(203) 576-7400

Bridgeport Public Library Black Rock Branch
2705 Fairfield Avenue
Bridgeport, CT 06605
(203) 576-7025

University of Bridgeport Magnus Wahlstrom Library
126 Park Avenue
Bridgeport, CT 06604
(203) 576-2388

Project Document Website at the Connecticut Department of Housing:
https://www.ct.gov/doh/cwp/view.asp?a=4513&q=588726
Comments on this DEIS will be accepted until the close of business on: February 22, 2019.
It should be noted that due to the ongoing Federal government shutdown, the required NEPA Notice of Availability for this DEIS cannot be published in the Federal Register concurrently with this Connecticut Environmental Monitor notice. Pursuant to NEPA, a required 45-day public comment period would commence upon the Notice of Availability's publishing in the Federal Register. As such, it is anticipated that the NEPA public comment period for the DEIS would extend beyond the CEPA deadline of February 22, 2019, the exact length of which is dependent upon the ability to publish in the Federal Register. This does not change the anticipated public hearing date of February 12, 2019. The DEIS would still be available for public review at the physical and digital locations provided above during that time.
Additional information about this project can be found online at:
https://www.ct.gov/doh/cwp/view.asp?a=4513&q=588726 **and** www.resilientbridgeport.com
Send your comments about this DEIS to:
Name: Rebecca French, Director of Resilience
Agency: Connecticut Department of Housing
Address: 505 Hudson Street, Hartford, CT 06106
Phone: (860) 270-8231
E-mail: Rebecca.French@ct.gov

PUBLIC NOTICES

LEGAL NOTICE

The Public Utilities Regulatory Authority (PURA) will conduct a public hearing at Ten Franklin Square, New Britain, Connecticut, on Tuesday, January 15, 2019, at 10:30 a.m., concerning Docket No. 13-01-32RE01 - Joint Application of Wind Colebrook South LLC and The Connecticut Light and Power Company for Review and Approval of a Proposed Renewable Power Purchase Agreement with Wind Colebrook South LLC - Interconnection Dispute. The hearing is for PURA to review the interconnection and pricing concerns raised by Wind Colebrook South LLC related to its Power Purchase Agreement with The Connecticut Light and Power Company dba Eversource Energy. Information on any cancellation or postponement of this hearing is available each day commencing from 7:30 am by calling PURA's offices at (860) 827-1553, option 4. Persons with disabilities may request accommodations in advance at (860) 418-5910 or deep.accommodations@ct.gov.

NOTICE OF SALE

Notice is hereby given pursuant to Connecticut State Lien Law, Prime Storage – Pepper Street Park, 551 Pepper Street, Monroe, CT 06468 intends to hold an auction of the goods stored in the following unit in default for non-payment of rent. The sale will occur as an online auction via www.StorageTreasures.com ENDING on 1.22.19 at 12pm.

#C4027 Jason Northrop Golf clubs, fishing poles, boxes

All property is being stored at the above self-storage facility. This sale may be withdrawn at any time without notice. Certain terms and conditions apply; CASH ONLY. Contact manager at 203-261-3377 or www.StorageTreasures.com for details.

ORDER OF NOTICE

STATE OF CONNECTICUT

DOCKET NUMBER: FBT-CV17-6067926-S : **SUPERIOR COURT**

WATER POLLUTION CONTROL AUTHORITY FOR THE CITY OF BRIDGEPORT : **J.D. OF FAIRFIELD**

VS. : **AT BRIDGEPORT**

DOROTHY MOSS, ET AL : **DECEMBER 6, 2018**

NOTICE TO EUGENE TODD MOSS, HEIR AND/OR BENEFICIARY OF THE ESTATE OF DOROTHY MOSS

Upon the complaint of the plaintiff in the above-entitled action, praying for reasons therein set forth, for a foreclosure of sewer use charges on the property known as: 181-183 BEARSLEY STREET, BRIDGEPORT, CONNECTICUT and possession of said premises, returnable to the above court on Tuesday, March 12, 2019, and upon a motion in said action for an order of notice, it appearing to and being found by the subscribing authority, that the identity and residence of the defendant named above is unknown to the Plaintiff, and that notice of the pendency of this action most likely to come to their attention is that hereinafter ordered: it is ORDERED, that notice of the pendency of this action be given to the said defendant by some proper officer or other person causing a true and attested copy of this order of notice to be published in the CONNECTICUT POST, a newspaper of general circulation in the Bridgeport, CT area, once a week for two successive weeks, commencing on or before February 4, 2019 and that return of such notice be made to the above-named court.

BY THE COURT (JENNINGS)
ALFRED J JENNINGS
JUDGE/ASS'T CLERK

EQUAL HOUSING OPPORTUNITY

Publisher's Notice

Connecticut's Comprehensive Fair Housing Act makes it unlawful to print or publish any notice, statement or advertisement, with respect to the sale or rental of a dwelling, that indicates any preference, limitation or discrimination, or any intention to make any such preference, limitation or discrimination based on race, color, creed, national origin, ancestry, sex, marital status, age, lawful source of income, familial status, physical or mental disability or sexual preference.

We will not knowingly accept any advertising for real estate which is in violation of the law. All persons are hearby informed that all dwellings advertised are available on an equal opportunity basis.

PROBATE NOTICES

Court of Probate,
District of Trumbull Probate Court

NOTICE OF HEARING

ESTATE OF James E. Perry, Of Monroe (18-00245)

Pursuant to an order of the Hon. T. R. Rowe dated January 2, 2019, a hearing will be held on an application for Sale of Real Estate as in said application on file more fully appears, at the Trumbull Probate Court, 5866 Main Street, Trumbull, CT 06611 on January 10, 2019 at 9:00 AM.

Did you know...

The National Cancer Institute notes that, while more research is necessary, small studies have indicated the potential benefits of cannabis in helping cancer patients overcome the pain associated with their disease. According to the NCI, a small study of 21 patients with chronic pain who combined vaporized cannabis with morphine experienced improved pain relief compared to patients who took only morphine. However, combining vaporized cannabis with oxycodone, a narcotic pain reliever and cough suppressant that is similar to morphine, did not produce significantly greater pain relief. In addition, two small studies indicated that delta-9-THC, the main active cannabinoid in marijuana, helped to relieve pain as well as nausea and vomiting. A second study indicated that delta-9-THC given in doses could provide pain relief similar to that provided by codeine, a pain-relieving drug derived from morphine. The NCI also cites a study that indicated a cannabis plant extract medicine effectively relieved pain when sprayed under the tongue of advanced cancer patients whose pain was not relieved by strong opioids alone. That study also indicated that some patients were able to continue to control their cancer-related pain without needing higher doses of the cannabis spray or higher doses of other pain medications they were taking.

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ELM CITY COMMUNITIES

Request for Proposals

Youth Development Program Services- Eastview and Fairhaven

Housing Authority City of New Haven d/b/a Elm city Communities is currently seeking Proposals for Youth Development Program Services at Eastview and Fairhaven. A complete copy of the requirement may be obtained from Elm City's Vendor Collaboration Portal https://newhavenhousing.cobblestonesystems.com/gateway beginning on **Monday, January 14, 2019 at 3:00 PM**

LEGAL NOTICE

The Public Utilities Regulatory Authority (Authority) will conduct a public hearing at Ten Franklin Square, New Britain, Connecticut, on **Thursday, January 17, 2019 at 9:30 a.m.** concerning Docket No. 18-11-14 - Application of RBH Project, 370 Asylum Street, Hartford, CT for Master Electric Service Metering. Pursuant to Connecticut General Statutes §§16-11 and 16-19ff, the hearing is for the Authority to review the a request for the installation of master metering within a housing project known as Teachers Corner Hartford located at 370 Asylum Street in Hartford, Connecticut. Information on any cancellation or postponement of this hearing is available each day commencing from 7:30 am by calling PURA's offices at (860) 827-1553, option 4. Persons with disabilities may request accommodations in advance at (860) 418-5910 or **deep.accommodations@ct.gov**.

LEGAL NOTICE

The Public Utilities Regulatory Authority (PURA) will conduct a public hearing at Ten Franklin Square, New Britain, Connecticut, on **Tuesday, January 15, 2019, at 10:30 a.m.**, concerning Docket No. 13-01-32RE01 - Joint Application of Wind Colebrook South LLC and The Connecticut Light and Power Company for Review and Approval of a Proposed Renewable Power Purchase Agreement with Wind Colebrook South LLC - Interconnection Dispute. The hearing is for PURA to review the interconnection and pricing concerns raised by Wind Colebrook South LLC related to its Power Purchase Agreement with The Connecticut Light and Power Company dba Eversource Energy. Information on any cancellation or postponement of this hearing is available each day commencing from 7:30 am by calling PURA's offices at (860) 827-1553, option 4. Persons with disabilities may request accommodations in advance at (860) 418-5910 or **deep.accommodations@ct.gov**.

PROYECTO DE DECLARACIÓN DE IMPACTO AMBIENTAL (DEIS) AVISO DE EVALUACIÓN DE IMPACTO AMBIENTAL (EIE) PARA BRIDGEPORT RESISTENTE: RECONSTRUCCIÓN POR DISEÑO Y PROYECTOS NACIONALES DE RESISTENCIA ANTE DESASTRES

Draft Environmental Impact Statement (DEIS)
Environmental Impact Evaluation (EIE)
Notice for Resilient Bridgeport:
Rebuild By Design and National Disaster Resilience Projects

Título del proyecto: Resilient Bridgeport (Bridgeport resistente): Reconstrucción por diseño y proyectos nacionales de resistencia ante desastres

Municipio donde se propone el proyecto: Bridgeport

Dirección de la ubicación del proyecto: South End of Bridgeport, CT

Descripción del proyecto: El State of Connecticut's Department of Housing (Departamento de Vivienda del Estado de Connecticut) (CTDOH, por sus siglas en inglés) recibe el subsidio por recuperación de desastres del Departamento de Vivienda y Desarrollo Urbano (HUD). Y es la "Entidad Responsable", según lo definen las normas de HUD en el 24 Código de Regulaciones Federales (CFR) Parte 58.2 (a) (7) (i). CTDOH ha preparado un Proyecto de Evaluación de Impacto Ambiental (EIE) para los proyectos propuestos Resistencia de Bridgeport: Resistencia Nacional ante Desastres y Proyectos de Reconstrucción por Diseño (Propuesta). Las subvenciones para la recuperación ante desastres son parte de los programas de Recuperación de Desastres Nacionales (NDR) y Reconstrucción por Diseño (RBD) de HUD de la Subvención Reservada para el Desarrollo Comunitario (CDBG-DR), como parte de la respuesta de HUD a la devastación que siguió a la Super tormenta Sandy. La propuesta consta de tres proyectos ubicados en el extremo sur de Bridgeport, Connecticut: el Proyecto piloto de RBD en el antiguo sitio de viviendas públicas de Marina Village, un proyecto de reducción de riesgo de inundación en el lado este del extremo sur y un centro de resistencia, que juntos facilitarían la gestión de aguas pluviales, rutas de evacuación seca (salida seca), un sistema de defensa de inundaciones costeras y educación de resistencia para la comunidad.

La Ley de Política Ambiental de Connecticut, establece una política ambiental para el Estado de Connecticut y requiere una EIE para cualquier acción estatal que pueda afectar el medio ambiente. Además, la Acción Propuesta es considerada una "acción federal importante, que afecta significativamente la calidad del medio ambiente humano"; por lo tanto, debe cumplir con los requisitos de la Ley de Política Ambiental Nacional de 1969 (NEPA).
Como tal, esta EIE servirá conjuntamente como una EIS y cumplirá con los requisitos de la NEPA. CTDOH ha preparado este Borrador de EIS / EIE, en concordancia con las Regulaciones del Consejo de Calidad Ambiental para la Implementación de las Disposiciones de Procedimiento de la NEPA (40 CFR Partes 1500-1508) y los Procedimientos de Revisión Ambiental de HUD para Entidades que Asumen Responsabilidades Ambientales de HUD (24 CFR 58). La redacción del borrador del EIS / EIE, comenzó formalmente el 27 de febrero de 2018, cuando se publicó el Aviso de Intención de Preparar un EIS en el Connecticut Environmental Monitor, que inició un período de comentarios de 30 días, para solicitar la opinión del público y de la agencia, que duró hasta el 28 de marzo, 2018, e incluyó una amplia audiencia pública el 14 de marzo de 2018.

El área de estudio está ubicada en el vecindario South End de la ciudad de Bridgeport, un área peninsular en la región costera de Connecticut, ubicada entre Cedar Creek, Long Island Sound y Bridgeport Harbor. En general, el área de estudio es una sección transversal que incluye zonas residenciales, institucionales, de servicios públicos y recreativos, que definen al vecindario South End. Todas esas zonas son susceptibles a situaciones de inundación aguda y crónica, debido a una combinación de infraestructura de aguas pluviales inadecuada en el área y su ubicación costera.

El propósito de la Propuesta es crear una comunidad más resistente en South End, apoyar su viabilidad a largo plazo y mejorar la salud y la seguridad de las poblaciones vulnerables de la comunidad. Los principales objetivos específicos son:

- Reducir el riesgo de inundaciones agudas y crónicas.
- Proporcionar vías de circulación secas durante emergencias.
- Educar al público sobre los riesgos de inundaciones y el aumento del nivel del mar.

La Acción propuesta brindará beneficios adicionales a la comunidad, lo que posiblemente facilitará el desarrollo o las oportunidades en el ámbito público, mejorando la conectividad entre el South End y el centro de Bridgeport (ubicado al norte del ferrocarril y la I-95), mejorando las instalaciones existentes en espacios abiertos, aumentando la resistencia de los sistemas de energía locales y aprovechando la inversión pública en los esfuerzos continuos de resistencia a través de la coordinación con las partes locales involucradas.

Una audiencia pública tendrá lugar, para solicitar comentarios de la comunidad sobre el contenido de este DEIS, el **12 de febrero de 2019,** desde las 6:00 p.m. a las 8:00 p.m. en la Galería Schelfhaudt (84 Iranistan Avenue, Bridgeport, CT). La audiencia brindará una oportunidad para que el público envíe comentarios sobre el DEIS de manera oral y / o por escrito. Los comentarios sobre este DEIS se registrarán durante la audiencia. A las personas que no deseen expresar públicamente sus comentarios, se les ofrecerá la oportunidad de hacerlos privados escritos o verbales en la reunión, o enviándolos a través del sitio web del proyecto, correo electrónico o por correo a CTDOH (ver más abajo).

Además del acceso al DEIS que se proporciona a continuación, el público también puede ver una copia de este DEIS en:

Bridgeport City Hall
45 Lyon Terrace, Bridgeport, CT 06604
203-576-7081

Bridgeport Public Library Main Branch
925 Broad Street, Bridgeport, CT 06604
203-576-7400

Bridgeport Public Library Black Rock Branch
2705 Fairfield Avenue, Bridgeport, CT 06605
203-576-7025

University of Bridgeport Magnus Wahlstrom Library
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Proyecto en la página web del Connecticut Department of Housing (Departamento de Vivienda de Connecticut):
https://www.ct.gov/doh/cwp/view.asp?a=4513&q=588726

Los comentarios sobre este DEIS se aceptarán hasta el cierre de actividades laborales del 22 de febrero de 2019.

Se debe tener en cuenta que, debido al cierre del gobierno federal en curso, la Notificación de Disponibilidad de NEPA requerida para este DEIS, no puede publicarse en el Registro Federal al mismo tiempo que esta notificación del Monitor Ambiental de Connecticut. De conformidad con la NEPA, un período de comentario público de 45 días requerido, comenzaría a partir de la publicación del Aviso de disponibilidad en el Registro Federal. Como tal, se anticipa que el período de comentarios públicos de la NEPA para el DEIS, se extendería más allá del plazo de CEPA del 22 de febrero de 2019, cuya duración exacta depende de la posibilidad de publicación en el Registro Federal. Esta circunstancia no cambia la fecha de audiencia pública, prevista para el 12 de febrero de 2019. El DEIS aún estaría disponible para revisión pública en las ubicaciones físicas y digitales que se proporcionaron anteriormente durante ese tiempo.

Se puede encontrar información adicional sobre este proyecto online en:
https://www.ct.gov/doh/cwp/view.asp?a=4513&q=588726 y en www.resilie

Envíe sus comentarios acerca de este DEIS, a:
Nombre: Rebecca French, Director of Resilience
Agencia: Connecticut Department of Housing
Dirección: 505 Hudson Street, Hartford, CT 06106
Teléfono: 860-270-8231
E-mail: **Rebecca.French@ct.gov**

Calling All Candidates, Peruse The Election Calendar

January 31, 2019 12 Comments

The Bright Light Of Safety At Trumbull Gardens

January 31, 2019 1 Comment

List Of Bridgeport Warming Centers

January 31, 2019 No Comments

Chief's Payout Swells To More Than $300K, After Taxes

January 29, 2019 14 Comments

"Let's Do This!" Moore Launches Fundraising Page For Mayor

January 28, 2019 10 Comments

Bradley Announces Bill To Increase Minority Teacher Hires

January 28, 2019 44 Comments

'Captain Traffic' Morgan Kaolian, Aerial Photographer Extraordinaire, Dies

January 28, 2019 6 Comments

Tony Raises The Barr In Underdog Campaign For Mayor

January 27, 2019 41 Comments

AJ-acked! Let's Be Friends–Chief Cashes Windfall For Job Time Owed, Moolah To Pay College Tuition

January 26, 2019 15 Comments

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

Notice of Availability of Draft Environmental Impact Statement (DEIS), Announcement of Public Hearing, and Early Notice of Public Explanation of a Proposed Activity in a 100-year Floodplain for the Resilient Bridgeport: Rebuild by Design and National Disaster Relief Projects in the City of Bridgeport,

Ad Order Number
0002434667

Customer Account
233680

Sales Rep.
jhudson

Order Taker
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Ordered By
MEGAN SAVAGE

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Customer Information
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USA

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EMail: savageml@pbworld.com

Ad Cost	Payment Amt	Amount Due
$1,665.92	$0.00	$1,665.92

Blind Box

Materials

Order Notes

Ad Number
0002434667-01

External Ad #

Pick Up Number
0002427314

Ad Type
Legal Liners

Ad Size
3 X 100 li

PO Number

Color
$0.00

Color Requests

Product and Zone	# Inserts	Placement
Connecticut Post	1	Public Notices

Note: Retail Display Ads May Not End in Identified Placement

Run Dates
2/ 1/2019

Product and Zone	# Inserts	Placement
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DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

Notice of Availability of Draft Environmental Impact Statement (DEIS), Announcement of Public Hearing, and Early Notice of Public Explanation of a Proposed Activity in a 100-year Floodplain for the Resilient Bridgeport: Rebuild by Design and National Disaster Relief Projects in the City of Bridgeport, Connecticut

SUMMARY: The State of Connecticut's Department of Housing (CTDOH) is the recipient of the U.S. Department of Housing and Urban Development (HUD) disaster recover grant funding and as the "Responsible Entity" defined by HUD regulations at 24 Code of Federal Regulations (CFR) Part 58.2(a)(7)(i), has prepared a Draft Environmental Impact Statement (DEIS) for the proposed Resilient Bridgeport: National Disaster Resilience and Rebuild by Design projects in Bridgeport, Connecticut (Proposed Action). The disaster recovery grants are under HUD's Community Development Block Grant Disaster Recovery (CDBG-DR) National Disaster Resilience (NDR) and Rebuild by Design (RBD) programs as part of HUD's response to the devastation following Superstorm Sandy. The Proposed Action consists of three projects located within the South End of Bridgeport—the RBD Pilot Project at the former Marina Village public housing site, a Flood Risk Reduction Project on the east side of the South End, and a Resilience Center—that together would provide stormwater management, dry evacuation routes (dry egress), a coastal flood defense system, and resiliency education to the community.

The Proposed Action is considered a "major federal action significantly affecting the quality of the human environment"; therefore, it must comply with the requirements of the National Environmental Policy Act of 1969 (NEPA). CTDOH has prepared a DEIS in accordance with the Council on Environmental Quality's Regulations for Implementing the Procedural Provisions of NEPA (40 CFR Parts 1500-1508) and HUD's Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities (24 CFR 58). In addition, the Connecticut Environmental Policy Act establishes environmental policy for the State of Connecticut and requires an Environmental Impact Evaluation (EIE) for any state action that could affect the natural environment. As such, the DEIS will jointly serve as an EIE and will meet Connecticut Environmental Policy Act requirements. The DEIS includes documentation of Section 106 of the National Historic Preservation Act and compliance with Executive Order 11988 (Floodplain Management).

This Notice of Availability commences a 45-day comment period to solicit public and agency input on the DEIS through March 18, 2019.

AVAILABILITY OF THE DEIS: Electronic copies of the DEIS are available for public review at the following websites: www.ResilientBridgeport.com and https://www.ct.gov/doh/cwp/view.asp?a=4513&q=588726. Copies of the DEIS will also be available for review at the following locations during regular business hours:

*** Bridgeport City Hall**
45 Lyon Terrace
Bridgeport, CT 06604
(203) 576-7081

*** Bridgeport Public Library Black Rock Branch**
2705 Fairfield Avenue
Bridgeport, CT 06605
(203) 576-7025

*** Bridgeport Public Library Main Branch**
925 Broad Street
Bridgeport, CT 06604
(203) 576-7400

*** University of Bridgeport Magnus Wahlstrom Library**
126 Park Avenue
Bridgeport, CT 0660
(203) 576-2388

PUBLIC COMMENT: Any person wishing to comment on the DEIS may do so. The public comment period will be 45 days. Comments and related material must be submitted on or before March 18, 2019. You may submit comments using any one of the following methods:

(1) Email: info@ResilientBridgeport.com
(2) Online: www.ResilientBridgeport.com
(3) Mail: Connecticut Department of Housing (CTDOH) c/o Rebecca French, Director of Resilience, 505 Hudson Street, Hudson, Connecticut, 06106. ATTN: Resilient Bridgeport
(4) Hand delivery: Same as mail address above, between 9:00 AM and 5:00 PM, Monday through Friday, except Federal holidays.

PUBLIC HEARING: A public hearing will be held on Tuesday, February 26, 2019 from 6:00 PM to 7:30 PM to hear a presentation on the project and provide an opportunity for oral comments (with a snow date for any weather-related cancellations scheduled for Thursday, February 28, 2019 from 6:00 PM to 7:30 PM). The public hearing will be held at 7 Middle Street, Bridgeport, Connecticut. The meeting facility is accessible to those with disabilities. Any individual who requires special accommodations, such as a sign language interpreter, accessible seating, or documentation in alternative formats, is requested to contact **the project team at 860-815-0299 or by e-mail at info@ResilientBridgeport.com** no later than 5 PM Thursday, February 15, 2019.

EARLY NOTICE OF ACTIVITY IN 100-YEAR FLOODPLAIN: This provides notice, pursuant to 24 CFR Part 55, that this proposed federally funded project would be located within the 100-year floodplain (the one-percent-annual-chance floodplain). CTDOH identified and evaluated practicable alternatives to locating the Proposed Action in the floodplain, and analyzed the potential impacts from the Proposed Action, as required by Executive Order 11988 (Floodplain Management), in accordance with HUD regulations at 24 CFR Part 55.20 Subpart C, *Procedures for Making Determinations on Floodplain Management and Protection of Wetlands.*

The Study Area encompasses approximately 380 acres. The majority of the Study Area (265 acres) is mapped within the coastal 'AE' or 'VE' floodplain zones based on the FEMA Flood Insurance Risk Maps. The purpose of the Proposed Action is to reduce flood risk in the South End of Bridgeport, CT, thereby protecting critical infrastructure, residences, and businesses from both acute and chronic future flood events. The project would reduce the area at risk of flooding by between 39 and 64 acres with the construction of the coastal flood defense system.

The three primary purposes for this notice are: 1). give an opportunity to people who may be affected by activities within the floodplains to express their concerns and provide information about these areas, 2) encourage commenters to offer alternative methods to serve the same project purpose, and methods to minimize and mitigate impacts, which may enhance Federal efforts to reduce the risks associated with the occupancy and modification of these special areas, 3) inform those who may be put at greater or continued risk that the Federal government will participate in actions taking place in floodplains.

DEPARTAMENTO DE VIVIENDA Y DESARROLLO URBANO
DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

Aviso de disponibilidad de borrador de declaración de impacto ambiental (DEIS), Anuncio de Audiencia pública, Notificación temprana de explicación pública sobre una actividad propuesta en una planicie de inundación de 100 años sobre resiliencia de Bridgeport, Reconstrucción por diseño y proyectos nacionales de ayuda para desastres en la ciudad de Bridgeport, Connecticut.

RESUMEN: El Departamento de Vivienda de Connecticut (Connecticut Department of Housing -CTDOH), es receptor de los fondos para la subvención de recuperación de desastres del U.S. Department of Housing and Urban Development -HUD (Departamento de Vivienda y Desarrollo Urbano) y en su condición de "Entidad responsable", tal como definida por las regulaciones de HUD contenidas en el Reglamento 24, del Código de Reglamentos Federales (CFR), Parte 58.2(a)(7)(i), ha preparado un borrador de declaración de impacto ambiental (DEIS) sobre resiliencia de Bridgeport: Proyectos nacionales de resistencia a desastres y reconstrucción por diseño en Bridgeport, Connecticut (Acción propuesta). Las subvenciones para la recuperación ante desastres se encuentran en los programas de Recuperación de Desastres Nacionales (NDR) y Reconstrucción por Diseño (RBD, por sus siglas en inglés) de HUD, siendo parte de la Community Development Block Grant Disaster Recovery (Paquete de Subvención para el Desarrollo Comunitario (CDBG-DR, por sus siglas en inglés) como parte de la respuesta de HUD a la devastación que siguió a la supertormenta Sandy.La acción propuesta consta de tres proyectos ubicados en el extremo sur de Bridgeport: el proyecto piloto RBD en el antiguo emplazamiento de viviendas públicas de Marina Village, un proyecto de reducción de riesgo de inundación en el lado este del extremo sur y un centro de resiliencia que juntos, facilitarán el control de aguas pluviales, rutas de evacuación seca (salida seca), un sistema de defensa de inundaciones costeras y educación de resiliencia ante desastres para la comunidad.

La acción propuesta se considera una "acción federal importante que afecta significativamente la calidad del medio ambiente humano"; por lo tanto, debe cumplir con los requisitos de la Ley de Política Ambiental Nacional de 1969 (NEPA). CTDOH ha preparado un DEIS de acuerdo con las Regulaciones del Consejo de Calidad Ambiental para la Implementación de las Disposiciones de Procedimiento de la NEPA (40 CFR Partes 1500-1508) y los Procedimientos de Revisión Ambiental de HUD para Entidades que Asumen Responsabilidades Ambientales de HUD (24 CFR 58). Además, la Ley de Política Ambiental de Connecticut, establece una política ambiental para el Estado de Connecticut y requiere una Evaluación de Impacto Ambiental (EIE) para cualquier acción estatal que pueda afectar el medio ambiente. En esa virtud, el DEIS servirá conjuntamente como un EIE y cumplirá con los requisitos de la Ley de Política Ambiental de Connecticut. El DEIS incluye la documentación de la Sección 106 de la Ley Nacional de Preservación Histórica y el cumplimiento de la Orden Ejecutiva 11988 (Gestión de las áreas de inundación).

Con este Aviso de disponibilidad se inicia un período de comentarios de 45 días para solicitar comentarios del público y de la agencia sobre el DEIS, hasta el 18 de marzo de 2019.

DISPONIBILIDAD DEL DEIS: Las copias electrónicas del DEIS están disponibles para revisión pública en los siguientes sitios web: www.ResilientBridgeport.com y https://www.ct.gov/doh/cwp/view.asp?a=4513&q=588726. Las copias del DEIS también estarán disponibles para su revisión en los siguientes lugares durante el horario laboral habitual:

- **Bridgeport City Hall**
  45 Lyon Terrace
  Bridgeport, CT 06604
  203-576-7081
- **Bridgeport Public Library Main Branch**
  925 Broad Street
  Bridgeport, CT 06604
  203-576-7400
- **Bridgeport Public Library Black Rock Branch**
  2705 Fairfield Avenue
  Bridgeport, CT 06605
  203-576-7025
- **University of Bridgeport Magnus Wahlstrom Library**
  126 Park Avenue
  Bridgeport, CT 0660
  203-576-2388

COMENTARIOS DEL PÚBLICO: Cualquier persona que desee comentar sobre el DEIS puede hacerlo. El periodo de comentarios públicos será de 45 días. Los comentarios y el material relacionado deben someterse antes del 18 de marzo de 2019. Se pueden enviar comentarios utilizando cualquiera de los siguientes métodos:

(1) Email: info@ResilientBridgeport.com

(2) Online: www.ResilientBridgeport.com

(3) Por correo: Connecticut Department of Housing (CTDOH) c/o Rebecca French, Director of Resilience, 505 Hudson Street, Hudson, Connecticut, 06106. ATTN: Resilient Bridgeport

(4) Entrega a mano: igual que la dirección de correo de arriba, entre las 9:00 AM y las 5:00 PM, de lunes a viernes, excepto los días feriados federales.

AUDIENCIA PÚBLICA: se llevará a cabo una audiencia pública el martes 26 de febrero de 2019 de 6:00 p.m. a 7:30 p.m., para escuchar una presentación sobre el proyecto y ofrecer una oportunidad para comentarios orales (si por nieve o cualquier evento relacionado con el clima, se cancelala audiencia, quedaría reprogramada para el jueves, 28 de febrero de 2019 de 6:00 PM a 7:30 PM). La audiencia pública tendrá lugar en el 7 Middle Street, Bridgeport, Connecticut. E local de la reunión es accesible para las personas con discapacidad. Cualquier persona que requiera servicios especiales, como un intérprete de lenguaje de señas, asientos accesibles o documentación en formatos alternativos, debe comunicarse con el equipo del proyecto al 860-815-0299 o por correo electrónico a info@ResilientBridgeport.com, a más tardar, el jueves 15 de febrero de 2019, a las 5 de la tarde.

NOTIFICACIÓNTEMPRANA DE UNA PROPUESTA DE ACTIVIDAD DE 100 AÑOS EN ÁREAS DE INUNDACIÓN: Por este medio se avisa, de conformidad con 24 CFR Parte 55, que este proyecto propuesto, financiado con fondos federales se ubicaría dentro del área de inundación de 100 años (área de inundación de probabilidad del uno por ciento anual). El CTDOH identificó y evaluó alternativas viables para ubicar la Acción propuesta en el área de inundación y analizó los impactos potenciales de la Acción propuesta, según lo exige la Orden ejecutiva 11988 (Gestión de las áreas de inundación), de acuerdo con las regulaciones de HUD en 24 CFR Parte 55.20 Subparte C, Procedimientos para hacer determinaciones sobre el manejo de la planicie de inundación y la protección de humedales.

El área de estudio abarca aproximadamente 380 acres. La mayoría del Área de Estudio (265 acres) está mapeada dentro de las zonas de inundación "AE" o "VE" costeras según los Mapas de Riesgo de Seguro de Inundación de FEMA. El propósito de la Acción propuesta, es reducir el riesgo de inundación en el extremo sur de Bridgeport, CT, protegiendo así la infraestructura crítica, las residencias y las empresas de inundaciones futuras agudas y crónicas. El proyecto reduciría el área en riesgo de inundación entre 39 y 64 acres, con la construcción del sistema de defensa de inundaciones costeras.

Hay tres propósitos principales para este aviso. 1) las personas que puedan verse afectadas por las actividades en las áreas de inundación y humedales y las que tienen interés en la protección del entorno natural, se les debe dar la oportunidad de expresar sus inquietudes y proporcionar información sobre estas áreas. 2) un adecuado programa de notificación pública puede ser una herramienta importante de educación pública. La difusión de información sobre áreas de inundación y humedales puede facilitar y mejorar los esfuerzos federales para reducir los riesgos asociados a la ocupación y modificación de estas áreas especiales. En tercer lugar, como una cuestión de justicia, cuando el gobierno federal determina que tomará acciones en áreas de inundación y humedales, se debe informar a quienes puedan estar en mayor o continuo riesgo.

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LEGAL NOTICES

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

Notice of Availability of Draft Environmental Impact Statement (DEIS), Announcement of Public Hearing, and Early Notice of Public Explanation of a Proposed Activity in a 100-year Floodplain for the Resilient Bridgeport: Rebuild by Design and National Disaster Relief Projects in the City of Bridgeport, Connecticut

SUMMARY: The State of Connecticut's Department of Housing (CTDOH) is the recipient of the U.S. Department of Housing and Urban Development (HUD) disaster recover grant funding and as the

RESILIENT BRIDGEPORT

Public Hearing & Design Workshop

Tuesday, February 26, 2019
Schellhaudt Gallery
84 Iranistan Avenue, Bridgeport, CT

6:00 PM Open House
6:20 PM DEIS/EIE Presentation
6:40 PM Public Comments
Design Presentation & Workshop to Follow
(Approximately 7:00 PM)

Join us for a presentation on the Draft Environmental Impact Statement (DEIS) / Environmental Impact Evaluation (EIE). Following the presentation, the public will have the opportunity to provide comments. After the hearing, please join us for a design update and public workshop.

For more information and to review the DEIS/EIE, please visit **www.ResilientBridgeport.com.**

If you have any special needs and require assistance at the meeting, please contact the project team by calling (860) 815-0299 no later than 5 PM on Friday, February 22, 2019.

RESILIENT BRIDGEPORT

Audiencia Pública y Taller de Diseño

Martes 26 de Febrero, 2019
Galería de Arte Schellhaudt
84 Iranistan Avenue, Bridgeport, CT

6:00 PM Se abren las puertas al público
6:20 PM Presentación del DEIS/EIE
6:40 PM Comentarios del Público Asistente
Presentación del Diseño y Taller Publico
(Aproximadamente a las 7:00 PM)

Esta cordialmente invitado a unirse a nosotros para una presentación preliminar sobre la Declaración de Impacto Ambiental (DEIS) / Evaluación de Impacto Ambiental (EIE). Después de la presentación, el público tendrá la oportunidad de presentar sus comentarios y hacer preguntas. Luego de la reunión, también lo invitamos a participar en un taller público y recibir información adicional sobre las actualizaciones de diseño del proyecto.

Para obtener mayor información y para revisar la documentación del DEIS / EIE, por favor visite **www.resilientbridgeport.com**

Si tiene alguna discapacidad o necesidad especial y requiere asistencia en la reunión, le pedimos que por favor se comunique con el equipo del proyecto llamando al (860) 815-0299 a más tardar a las 5:00 p.m. del día viernes 22 de febrero de 2019.

EIE Notices

After Scoping, an agency that wishes to undertake an action that could significantly affect the environment must produce, for public review and comment, a detailed written evaluation of the expected environmental impacts. This is called an Environmental Impact Evaluation (EIE).

The following EIE Notice has been submitted for publication in this edition.

1. Notice of EIE for Resilient Bridgeport: Rebuild By Design and National Disaster Resilience Projects

Municipality where project is proposed: Bridgeport

Address of Possible Project Location: South End of Bridgeport, CT

Project Description: The State of Connecticut's Department of Housing (CTDOH) is the recipient of the U.S. Department of Housing and Urban Development (HUD) disaster recover grant funding and is the "Responsible Entity," as that term is defined by HUD regulations at 24 Code of Federal Regulations (CFR) Part 58.2(a)(7)(i). CTDOH has prepared a Draft Environmental Impact Evaluation (EIE) for the proposed Resilient Bridgeport: National Disaster Resilience and Rebuild by Design projects (Proposed Action). The disaster recovery grants are under HUD's Community Development Block Grant Disaster Recovery (CDBG-DR) National Disaster Resilience (NDR) and Rebuild by Design (RBD) programs as part of HUD's response to the devastation following Superstorm Sandy. The Proposed Action consists of three projects located within the South End of Bridgeport, Connecticut—the RBD Pilot Project at the former Marina Village public housing site, a Flood Risk Reduction Project on the east side of the South End, and a Resilience Center—that together would provide stormwater management, dry evacuation routes (dry egress), a coastal flood defense system, and resiliency education to the community.

The Connecticut Environmental Policy Act establishes environmental policy for the State of Connecticut and requires an EIE for any state action that could affect the natural environment. In addition, the Proposed Action is considered a "major federal action significantly affecting the quality of the human environment"; therefore, it must comply with the requirements of the National Environmental Policy Act of 1969 (NEPA). As such, this EIE will jointly serve as an EIS and will meet NEPA requirements. CTDOH has prepared this Draft EIS/EIE in accordance with the Council on Environmental Quality's Regulations for Implementing the Procedural Provisions of NEPA (40 CFR Parts 1500-1508) and HUD's Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities (24 CFR 58). Scoping for the Draft EIS / EIE formally began on February 27, 2018 when the Notice of Intent to Prepare an EIS was published in the Connecticut Environmental Monitor, which commenced a 30-day comment period to solicit public and agency input that lasted through March 28, 2018 and included a public scoping hearing on March 14, 2018.

The study area is situated within the South End neighborhood of the City of Bridgeport (see linked Figures 1 and 2), a peninsula of the Connecticut coastal region located between Cedar Creek, the Long Island Sound, and Bridgeport Harbor. Overall, the study area is a cross section of the residential, institutional, utility, and recreational uses that define the South End neighborhood, all of which are susceptible to acute and chronic flooding conditions due to a combination of inadequate stormwater infrastructure in the area and its coastal location.

The purpose of the Proposed Action is to create a more resilient South End community, support its long-term viability, and improve health and safety for the community's vulnerable populations. The principal targeted outcomes follow:

- Lower the risk of acute and chronic flooding.
- Provide dry egress during emergencies.
- Educate the public about flood risks and sea level rise.

The Proposed Action will deliver additional benefits to the community, potentially unlocking development or public realm opportunities, enhancing connectivity between the South End and downtown Bridgeport (located north of the railroad and I-95), improving existing open space amenities, building up the resilience of local energy systems, and leveraging public investment in ongoing resiliency efforts through coordination with local stakeholders.

Project Maps:
Figure 1 – Project Areas Map
Figure 2 – Project Location Map

Comments on this EIE will be accepted until the close of business on: March 18, 2019. The comment period for the CEPA was extended to the end of the 45-day NEPA comment period, which commenced on February 1, 2019 with the publication of the notice in the Federal Register.

The public can view a copy of this EIE at:
Bridgeport City Hall
45 Lyon Terrace
Bridgeport, CT 06604
(203) 576-7081
Bridgeport Public Library Main Branch
925 Broad Street
Bridgeport, CT 06604
(203) 576-7400
Bridgeport Public Library Black Rock Branch
2705 Fairfield Avenue
Bridgeport, CT 06605
(203) 576-7025
University of Bridgeport Magnus Wahlstrom Library
126 Park Avenue
Bridgeport, CT 06604

(203) 576-2388

Project Document Website at the Connecticut Department of Housing:
https://www.ct.gov/doh/cwp/view.asp?a=4513&q=588726
Project Documents Direct Links:
DEIS / EIE Document Chapters
DEIS / EIE Document Appendices

There will be a public informational workshop for this EIE on:
DATE: **February 26, 2019**
TIME: 6:00 p.m. to 8:00 p.m.
PLACE: Schelfhaudt Gallery (84 Iranistan Avenue, Bridgeport, CT)
NOTES: This hearing serves as the public hearing required under NEPA. The public hearing will be followed by a design workshop where the public can provide further input into the design of the Resilient Bridgeport projects. The **snow date** for the public hearing and workshop is February 28, 2019.

Additional information about this project can be found online at:
https://www.ct.gov/doh/cwp/view.asp?a=4513&q=588726 **and** www.resilientbridgeport.com

Send your comments about this EIE to:
Name: Rebecca French, Director of Resilience
Agency: Connecticut Department of Housing
Address: 505 Hudson Street, Hartford, CT 06106
E-Mail: Rebecca.French@ct.gov

If you have questions about the public hearing, or where you can review this EIE, or similar matters, please contact:
Name: Rebecca French, Director of Resilience
Agency: Connecticut Department of Housing
Address: 505 Hudson Street, Hartford, CT 06106
E-Mail: Rebecca.French@ct.gov
Phone: 860-270-8231

Other information: N/A

The Following Scoping Notices have been submitted for review and comment.

1. Notice of Scoping for Resilient Bridgeport: National Disaster Resilience and Rebuild By Design Projects

Municipality where proposed project might be located: Bridgeport, CT

Addresses of Possible Project Locations: Marina Village (20 Ridge Avenue); University Avenue from Park Avenue to Main Street; portions of the area between Main Street to the west and the waterfront to the east and Ferry Access Road to the north and the waterfront to the south.

Project Description: The State of Connecticut, through the Department of Housing (DOH) is proposing to prepare an Environmental Impact Evaluation (EIE) to analyze the potential environmental and social effects of alternatives being proposed to improve coastal and social resiliency and reduce flood risk to the south end of Bridgeport. The proposed project was developed as part of Connecticut's application for assistance through the U.S. Department of Housing and Urban Development (HUD) under the Rebuild by Design (RBD) and National Disaster Resilience (NDR) competitions. The purpose of the project is to create a more resilient South End community, support its long-term viability, and improve health and safety for the community's vulnerable populations. The EIE will examine build alternatives with three parts – Flood Risk Reduction, a Resilience Hub and Stormwater Improvements and Dry Egress.

Draft Scope of Work: Click here or here to view the draft scope of work.

Project Map: Click here to view a map of the project area.

A **Public Scoping Meeting** will be held for this project at:
DATE: **Wednesday, March 14, 2018**
TIME: 6:00 – 9:00 pm. (Presentation to start at 6:30 pm)
PLACE: Arnold Bernhard Arts & Humanities Center (first floor) located at 84 Iranistan Avenue, Bridgeport, CT 06601

Purpose of Meeting: The Scoping Meeting will present information about the project and solicit comments on the project's purpose and need, preliminary alternatives, and area of key environmental concern.

Written comments from the public are welcomed and will be accepted until the close of business on: **Wednesday, March 28, 2018**

Comments may be emailed to:
info@resilientbridgeport.com (Please use the subject heading "EIE Comment")

If you have questions about the public meeting, or other questions about the scoping for this project, contact the project team by calling (860) 815-0299.

Response to Comments

Contents

Tables

Appendix H. Comments on the DEIS and Responses

The U.S. Department of Housing and Urban Development (HUD) and the Connecticut Department of Housing (DOH) released the Draft Environmental Impact Statement (DEIS) for the Resilient Bridgeport Projects to the public on February 1, 2019.[1] The public was provided opportunities to submit comments on the DEIS in several ways throughout the comment period. Written comments could be submitted via email, the project website, mail, comment cards provided at the public hearing, and/or through a stenographer available at the public hearing. HUD and CTDOH have considered the comments received on the DEIS. This appendix provides summaries of and responses to the substantive comments received on the DEIS.

Comments from the public focused on the coastal flood defense system alignment alternatives (with a preference for the Eastern option) and the design along Main Street, as well as protecting the historic resources of the community and maintaining access to Seaside Park. Many commenters supported accommodating future stormwater improvements at Seaside Village with the RBD Pilot Project. Agency comments were technical in nature, with a focus on permitting requirements, best management practices, and protection of natural quality.

The comments received on the DEIS and responses are organized into the following sections:

- Section 1: Responses to Public Comments – The Responses to Public Comments section contains summaries of the substantive comments received from the public and responses to those comments. Comments are organized by subject matter. When more than one commenter provided a similar comment, these comments were grouped and addressed together. This section also includes a table listing the commenters and the comment/response numbers associated with the submitted comments.
- Section 2: Responses to Agency Comments – The Responses to Agency Comments section contains summaries of the substantive comments received from the agencies and responses to those comments. Comments are organized by subject matter. This section also includes a table listing the commenters and the comment/response numbers associated with the submitted comments.
- Section 3: Public/Agency Comments – The Public/Agency Comments section contains the oral comments from the public hearing and copies of the written comments received from the public and agencies.

For additional information regarding public involvement, refer to Section 6.6.1.5 (DEIS Public Hearing and Design Workshop (#5)) of this FEIS.

[1] EIE published on Environmental Monitor on January 8, 2019.

Table H-1. **List of Commenters**

NAME	DATE &	COMMENT RECEIVED	COMMENT NUMBER	AFFILIATION
Aurelia, Vincent	2/26/2019	Comment Card	82, 83,84	Public – Seaside Village Resident
Bailey, Bernicestine	3/19/2019	Email	153, 154, 155, 156, 157, 158	Public – Resident
Basler, Frank	2/26/2019	Public Hearing	179	Public – Seaside Village Board (President)
Bisacky, Patricia	3/18/2019	Letter	54, 55	**Agency** – State of Connecticut, Department of Public Health Drinking Water Section (DWS)
Capinera, Angela	3/7/2019	Letter	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22	Public - Conservation Commission, Town of Stratford
Celis, Diego	3/14/2019	Email	85	Public – Seaside Village Resident
Cruz, Jorge	2/26/2019	Public Hearing	185, 186	Public - Resident
Cullen, Robert	2/22/2019	Letter	1191	Public – Resident
Faiz, Alexandra	3/18/2019	Email	41, 42, 43	Public - Resident
Fennelly, Faith	3/18/2019	Email	44, 45, 46, 47, 48, 49, 50	Public – Resident
Fernandez, Ulises	2/25/2019	Email	79, 80, 81	Public – Seaside Village Resident
Finidinisi, Vincent	3/11/2019	Letter	51, 52, 53	Public – PSEG Power Connecticut LLC
Gaglio, Anthony	3/18/2019	Letter	208, 209	Public – Viking Construction Inc.
Hassell, Monroe	2/26/2019	Public Hearing	166, 167, 168, 169, 170, 171, 172, 173, 174	Public – VP Board of Seaside Village/ Resident
Heilmann, Niels	3/18/2019	Email	148, 149, 164	Public – Bridgeport Generation Now/ Resident
Hill, Carolyn	2/26/2019	Public Hearing	178	Public – Seaside Village Resident
Huber, Sonya	3/18/2019	Email	150, 151, 152	Public – Director, Fairfield U. Low-Residency MFA Program
Humphries, John	3/18/2019	Email	139,140	Public – CT Roundtable on Climate and Jobs
Kelly, Barbara	2/26/2019	Public Hearing	187, 188	Public - Resident
Korshunova, Anna & Pershyn, Dmitry	2/24/2019	Email	1	Public – Seaside Village Resident
Kovac, Marcella	3/18/2019	Email	141, 142, 143, 144, 145, 146, 147	Public – Resident
Labadia, Catherine	3/18/2019	Letter	56, 57, 58, 59, 60	**Agency** – Connecticut Department of Economic and Community Development
LaBelle, Paige A.	3/18/2019	Email	76, 77, 78	Public- Resident
Maher, Kathleen	2/26/2019	Public Hearing & Letter	189, 200, 201, 202	Public – Executive Director, Barnum Museum / Resident
Martinez, Andrew	2/25/2019	Letter	73, 74, 75	Public - Resident
McClutchy, Todd	3/18/2019	Letter	203, 204	Public – JMM Group
McCormick, Sheila	2/25/2019	Email	38, 39, 40	Public - Resident

NAME	DATE &	COMMENT RECEIVED	COMMENT NUMBER	AFFILIATION
Melton, Shanna	2/26/2019	Public Hearing	176, 177	Public -Resident
Pettway, Clifford	2/26/2019	Public Hearing	190	Public - Resident
Raddant, Andrew	3/14/2019	Letter	86	**Agency –** U.S. Department of the Interior, Office of Environmental Policy and Compliance
Riese, Frederick	3/18/2019	Letter	87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123	**Agency –** Connecticut Department of Energy and Environmental Protection (CTDEEP)
Robinson, Gail	2/26/2019	Public Hearing	180, 181, 182, 183	Public – Seaside Village Resident
Schieb, John	3/18/2019	Email	61, 62, 63, 64, 65, 66, 67, 68	Public – Freeman Center
Sergiyenko, Volodymyr	2/26/2019	Public Hearing	184	Public - Resident
Slaughter, James	3/18/2019	Letter	205	Public – Park City Communities
Starn, Kai	2/26/2019	Comment Card	69, 70, 71, 72	Public -Seaside Village Resident
Tayloe-Moye, Denese	3/17/2019	Letter	206, 207	Public -Marina Village Resident Council (President)
Timmermann, Timothy	3/18/2019	Letter	135, 135, 136, 138	**Agency** – U.S. Environmental Protection Agency, Region 1
Tisdale, Maisa	3/18/2019	Email	23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36,37, 159, 160, 161, 162, 163	Public – Freeman Center
Weber, Horst	2/26/2019	Public Hearing	165	Public
Wigren, Christopher	3/18/2019	Letter	124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134	Public– CT Trust for Historic Preservation
Unknown- Seaside Village Board of Directors	2/20, 2019	Letter	192, 193, 194, 195, 196, 197, 198, 199	Public – Seaside Village Board of Directors

H.1 RESPONSE TO PUBLIC COMMENTS

H.1.1 Alternatives/Concepts Considered

C1-1 Many commenters stated their concern with the Western Alignment of the coastal flood defense system and their support for the Eastern Alignment. Specifically, commenters opposed the construction of a flood wall on Main Street. Some commenters felt that a flood wall on Main Street would result in a decrease in property values along the corridor in an already distressed neighborhood. Further, the flood wall along Main Street could potentially divide the South End neighborhood and would remove the possibility of developing properties on the east side of the street, which is essential in creating a vibrant and attractive streetscape. In addition, some commenters were concerned that the flood wall would severely harm the attractiveness of the streetscape and likely adversely affect the nearby historic resources including the Cottage District (located across the road on the west side of Main Street), the Freeman Houses, historic cottages in Little Liberia and properties that potentially have archaeological fossils and artifacts. Locating the flood wall further east, as in the Eastern Alignment, would address community needs by protecting the local historical and cultural access and maintaining existing access to the Long Island Sound via Main Street. (Comment Nos. 23, 40, 41, 44, 61, 72, 73, 75, 78, 79, 82, 128, 139, 141, 152, 153, 159, 161, 172, 182, 183, 189, 190, 197, and 200)

R1-1 CTDOH has been working with the various stakeholders to identify a preferred north-south alignment that would reduce the flood risk for the largest area of the South End and minimize impacts to the public realm. The north-south section of the coastal flood defense system for the Preferred Alternative (Alternative 1) presented in this FEIS is a variation of the Eastern Alignment from the DEIS and would provide the greatest geographic extent of coastal flood risk reduction as well as meet the objectives of the project; however, it entails construction on private property owned by PSEG, Bridgeport Energy and the future UI Pequonnock Substation site, which will require easements for construction and maintenance. Per direction from HUD, those easements cannot be executed until after the completion of the environmental review process, but at this time the CTDOH believes that Alternative 1 best meets the needs of the project and is responsive to public comment in support of the Eastern Alignment presented in the DEIS. Preferred Alternative 1 would avoid impacts to the historic Cottage District and maximize benefits by reducing flood risk for the largest area and providing dry egress to utilities (see Section 3.3.4 of this FEIS for additional explanation). The Western Alignment in the DEIS that impacted two blocks along Main Street is described in this FEIS in Chapter 3 Concept and Alternatives Development, but it is not carried forward for further evaluation in this FEIS.

Explanation of Change from Western and Eastern Alignment Options in DEIS to Evaluation of Four Alternatives and Preferred Alternative in the FEIS. The DEIS included a Western and an Eastern option for the north-south section of the alignment of the coastal flood defense system of the Flood Risk Reduction project. These two options also bounded the area between them where the alignment could also have been placed based on negotiations with private property owners and feedback from the public on the DEIS (see Figure 3-14 in this FEIS). Based on feedback from these stakeholders and public comment on the DEIS, four

alternative alignments within the area bounded by the Eastern and Western options in the DEIS were brought forward for further evaluation in this FEIS (see Figure 3-20, 3-21, 3-22 and 3-23 in this FEIS). Alternative 1 was selected as the Preferred Alternative and largely follows the Eastern alignment from the DEIS with small changes to where it crosses between the Bridgeport Energy/PSEG and 60 Main Street/PSEG property lines. There is no alternative alignment in the FEIS that follows the Western alignment option from the DEIS due to public comment on the DEIS from the community regarding its impacts to Main Street and a finding of adverse effect to the William D. Bishop Cottage Development Historic District (Cottage District) by the State Historic Preservation Office. Alternative 4 is now the western-most option being evaluated in this FEIS. It remains largely in the public right-of-way, but differs from the Western option alignment in the DEIS by reducing the impact to the Cottage District and Main Street by moving the alignment east one block to Russell Street between Henry Street and Atlantic Street. There is no public street east of Main Street between Whiting Street and Atlantic Street and therefore the Alternative 4 alignment remained along the eastern sidewalk of Main Street for this one block. The coastal flood defense system section along Main Street would have been designed to blend in with the neighborhood to the extent possible with options presented to the public at the June 26, 2019 informational meeting. Alternative 4 was not selected as the Preferred Alternative due to its remaining impact to Main Street and the Cottage District. Alternatives 2 and 3 show options that move the alignment off of Main Street by crossing private property to the east. They avoid impacts to Main Street and the Cottage District, but they do not provide as many benefits (less total area protected and no dry egress for all energy infrastructure in the study area as Alternative 1) and were, therefore, not selected as the Preferred Alternative for the north-south section of the coastal flood defense system for the Flood Risk Reduction project.

C1-2 Main Street should not dead end at University Avenue. Commenters are against the closing of Main Street to vehicular traffic at University Avenue. They felt that Main Street should ramp up to University Avenue on both sides. Dead-ending Main Street (again) and compressing the street with a barrier will diminish the natural patterns of public flow and ultimately suffocate the already burdened neighborhood. (Comment Nos. 24, 45, 62, 83, 142, 149, 154, 201)

R1-2 It has been determined based on further design that vehicular access along Main Street cannot continue across University Avenue. Elevating Main Street would maintain the existing street network, but would result in an elevated road in front of four houses located north of University Avenue on Main Street, severely impacting access to those existing houses. Section 3.3.4.3 of the Concept and Alternatives Development chapter of this FEIS (Chapter 3) has been updated to include figures demonstrating the impacts to the houses. In addition, in a letter dated May 7, 2019, the Connecticut State Historic Preservation Office (CTSHPO) determined that terminating vehicular access on Main Street at University Avenue is preferable to ramping Main Street, as it would not result in adverse impacts on the four houses mentioned above. Access to Seaside Park and the waterfront via Main Street would be maintained for pedestrians and cyclists via stairs and an ADA-accessible ramp. Vehicular access would continue via Broad Street, that runs parallel to Main Street one block to the east and Main Street would continue south of University Avenue.

C1-3 The Through-Street Option for Main Street is important to generate the kind of through traffic that is conducive to revitalization. Making Main Street a dead-end would discourage future redevelopment, and as testimony during the public hearing demonstrated, is strongly discouraged by members of the community. Although raising the street over the flood barrier would block the ground floor of the three historic structures close to Henry Street, the decision to eliminate the through-street alternative needs to be reconsidered carefully for its impact on the larger neighborhood. Perhaps other solutions could be explored for those three buildings. (Comment No. 128)

R1-3 The option to terminate vehicular access on Main Street at University Avenue, with the addition of a proposed landscaped area and pedestrian ramp, could encourage future redevelopment of residential and mixed uses by creating a park amenity that is ADA-accessible by pedestrian and bicycle. The CTDOH welcomes further feedback on how to design this space to best meet the needs of the community. Broad Street will remain a vehicular through-street and could be used for future redevelopment as well. Based on comments from the State Historic Preservation Office in a letter dated May 7, 2019 (see Comment R1-2), the through-street option with a ramp for Main Street would be considered an adverse effect on the historic Cottage District and, therefore, SHPO's preference was for the no through-street option that would avoid that impact.

C1-4 The Freeman Center supports the Eastern Alignment and rejects the construction of the flood wall on Main Street. Once the neighborhood is protected from flooding, Main Street from the railroad tracks to the Long Island Sound can be the site of long overdue mixed-use development (residential and commercial) that highlights the neighborhood's unique historical architecture and social history, and serves as a gateway to Seaside Park. (Comment No. 31)

R1-4 As discussed in Section 3.3.4 of this FEIS, the preferred alignment of the coastal flood defense system is Alternative 1, which is similar to the Eastern Alignment in the DEIS and would have no coastal flood defense system on Main Street. Three additional alternatives (Alternatives 2, 3 and 4) are evaluated in this FEIS for the routing of the north-south section between 60 Main Street and the CTDOT New Haven Line railroad viaduct (See R1-1), but were not selected as the Preferred Alternative. The proposed coastal flood defense system is essential to the protection of the historic Freeman Houses, the historic Cottage District and other residential, industrial, and commercial properties in the South End neighborhood from acute and chronic flooding. The design of the coastal flood defense system is being designed to meet FEMA accreditation standards and would remove 64 acres of property under the Preferred Alternative and between 53 and 44 acres of property in Alternatives 2, 3 and 4 from the 100-year floodplain through a FEMA accreditation process and remapping. In addition to protecting existing homes and businesses from flooding with greatly reduced insurance costs, removing this property from the floodplain allows for dry evacuation routes and access for emergency vehicles to neighborhoods before, during and after storms making a safer neighborhood for residential and commercial properties.

C1-5 The Freeman Center chooses the option showing Main Street going uphill, over the barrier, and continuing into Seaside Park. This is being proposed for Broad Street; why not Main Street? Main Street should remain a through street. (Comment No. 34)

R1-5 It is possible to ramp Broad Street up to University Avenue because there would be less of an elevation change at that point than at Main Street and because the adjacent properties (30 University Avenue and University of Bridgeport's Bodine Hall) are already planned to be redeveloped so they can be raised to meet the new Broad Street elevation. Elevating Main Street would impede access to existing homes and have an adverse effect on the setting of the historic Cottage District, according to the State Historic Preservation Office in a letter dated May 7, 2019. See R1-2, response to C1-2.

C1-6 Various alternatives/routes for the Project were very briefly discussed in the DEIS, "Section 3.2.2.1, Alternatives Considered, but Eliminated from Further Consideration." PSEG requests that CTDOH consider these alternatives again and in more depth. The other alternatives are more practical and do not implicate safety and access issues that are inherent in the proposed Eastern alignment. (Comment No. 51)

R1-6 Based on analysis in the DEIS and further discussion with PSEG regarding safety and access, Alternative 1 (a variation of the Eastern Alignment) is presented as the Preferred Alternative alignment for the coastal flood defense system in this FEIS. Alternative 1 would provide an access and evacuation route to the PSEG Harbor Unit 5 power plant, the to-be-constructed Pequonnock Substation, and the Bridgeport Energy power plant when the flood barrier gates are closed during storm conditions, in addition to providing flood protection to residential homes and businesses in the South End. As such, in the view of the CTDOH, Alternative 1 would provide the greatest safety and access to PSEG's assets and to the surrounding neighborhood. As described in Comment Response R1-1, three additional alternatives are evaluated in this FEIS, but were not selected as the Preferred Alternative in part because they do not provide dry egress to PSEG Harbor Unit 5.

C1-7 Regarding the Rebuild by Design (RBD) Pilot Project, which includes the stormwater park, the extension of Johnson Avenue, and the separation of the sewer lines, including the installation of the new pumping station to pump the stormwater into Cedar Creek, Seaside Village would like to tie into the system when our systems are separated. (Comment No. 69)

R1-7 Comment Noted. CTDOH is coordinating with the Bridgeport WPCA on any plans for sewer separation in the area of Seaside Village.

C1-8 It was very disappointing to learn on February 25, only after the public hearing closed, that one of the alternative treatments for Main Street had been eliminated by the design team and that design work for the Head of the Park area of Seaside Park had proceeded far beyond that presented in the draft EIE document. The purpose of the EIE process is to provide the public with an opportunity to comment on various alternatives so that the project can continue in harmony with public needs and wishes. To withdraw alternatives from consideration and continue with design work before the public has had a chance to offer comments is inconsistent with this purpose. The design team must be prepared to reconsider seriously any and all decisions it has made since the draft document was issued in light of public comments. (Comment No. 124)

R1-8 Due to the scheduling requirements of the NDR funding, CTDOH has continued design through the NEPA process. The CTDOH is responding to public comments to the DEIS

here and in public workshops and meetings. Continuing design during the NEPA process has also allowed CTDOH to provide improved visualizations of alternatives to better communicate impacts of the project to the public. Both a through-street ramped option and an option that terminates Main Street to vehicular traffic at University Avenue were considered in the DEIS as part of the preliminary design work. Further analysis of the through-street ramp option demonstrated that elevating Main Street to meet University Avenue would result in restricting access to four historic houses on Main Street and resulted in a finding of adverse effect to the historic neighborhood by the CTSHPO in a letter dated May 7, 2019 (see Comment Response R1-2); therefore, in response to state agency comments and impacts to the community, it was no longer a viable option that would meet the project purpose and need.

C1-9 Was a trench (canal) considered in the planning or is a wall the only option? (Comment No.157)

R1-9 A trench is not a feasible option due to the presence of utilities and other considerations. In addition, a trench or canal would not prevent flooding in the South End due to coastal storm surge, which is part of the project's purpose.

C1-10 I do not understand the rationale behind a "barrier" / "flood control" / "wall" that only goes through certain parts of the City and skirts the major plants that spend millions of dollars, or maybe billions, of dollars trying to maintain their infrastructure and also skirts the area of Captain's Cove, which is also highly prone to flooding. (Comment No. 7)

R1-10 The scope of the project is limited due to the funding sources as well as the Project Purpose and Need. Although the Captain's Cove area was studied as part of the State's application for the Rebuild by Design (RBD) Competition, the project area was further focused for the RBD Pilot (which was required by the U.S. Department of Housing and Urban Development to focus on public housing in the South End) and per the State's grant from the National Disaster Resilience Competition. CTDOH has been working closely with the owners of the utilities and power plants in the South End for the past several years. This FEIS evaluates the potential impacts from four different north-south alignments of the coastal flood defense system that would meet the Purpose and Need of flood protection from storm surge and address chronic flooding to protect different combinations of utility facilities, but which also require agreements (easements) with different private property owners. The Preferred Alternative's alignment for the north-south section of the coastal flood defense system (Alternative 1) provides dry egress to PSEG's Harbor Unit 5 power plant and encloses the new UI Pequonnock Substation site, the UI Singer Substation and the Bridgeport Energy power plant inside the coastal flood defense system. The other three alternatives evaluated in this FEIS require fewer agreements with private property owners to move forward and are routed in such a way to limit the number of agreements, but they do not provide as much protection to the utilities as the commenter noted. The PSEG Harbor Unit 5 (officially opened July 29, 2019) has local flood protection as it is elevated out of the floodplain. The new Pequonnock Substation is also planned to be elevated above the floodplain. However, neither location has dry egress.

C1-11 The Freeman Center has secured approximately $1.7 million in funding to invest in the restoration of the houses and continues to raise more. We propose creating a cultural heritage corridor consisting of the restored Freeman Houses, the Freeman Center (a new Little Liberia museum, education, and heritage travel destination), and (with help from government and private partners) a mixed-use development that would encompass 375 Main St. (owned by the Bridgeport Housing Authority) and 280 Main St. (the PSEG warehouse at Main & Whiting). (Comment No. 33)

R1-11 Comment noted. Note that State funded or initiated projects for housing, which is considered a critical action, in a floodplain needs to have dry routes for access to and evacuation of those properties and must be elevated above the 500-yr floodplain plus 2 feet of freeboard to account for sea level rise. Currently 375 Main Street and 280 Main Street are in the floodplain and do not have dry egress. Without the implementation of the Resilient Bridgeport coastal flood defense system, there are only limited and more locally impacting ways to provide dry egress to these properties that would not have met the project Purpose and Need of providing all residents in the project area with flood protection (see Chapter 3 of this FEIS).

H.1.2 Connectivity

C2-1 Among the many wonderful attributes of Seaside Park is the fact that it is accessible and visible for most traveled roads in our city. A wall is a restriction. Without the visibility of the park, it creates a divide that changes the feeling of the neighborhood. Bridgeport does not need any more corners that are unattended or unsafe. The history of that area should be preserved. There should be shops and places to eat while you enjoy the park. (Comment No. 175)

R2-1 The coastal flood defense system would maintain the public access to Seaside Park. It would not prevent anyone from entering the park. Broad Street would continue to be ramped up and over the elevated University Avenue, allowing for vehicular access to the Park. Pedestrians and bicycles would be able to continue up and over University Avenue at the intersection of Main Street and University Avenue through stairs and ADA-accessible ramps as well as on the ramped sidewalks and road of Broad Street. Main Street would terminate for vehicles only at the intersection of University Avenue and Main Street. South of University Avenue vehicles coming from Broad Street would be able to turn left onto the elevated University Avenue and then right onto Main Street going south. The elevation of University Avenue would reduce some views of the Park, but would also result in new expansive views of the Park and Long Island Sound along the elevated University Avenue area between Broad and Main Streets. CTDOH is working closely with CTSHPO and consulting parties to ensure the history of the area is preserved. CTDOH is open to continued community input into the design of the elevated University Avenue and the entrance to Seaside Park between Broad and Main Streets to ensure the State is building a safe space for the community.

H.1.3 Design

C3-1 The Freeman Center requests that a detailed report, including drawings, be issued to the public showing how the Palliser Townhouses will be impacted before a final decision is made. (Comment Nos. 36, 150)

R3-1 A drawing has been added to this FEIS in Section 3.3.4 and has been shared with the Freeman Center to demonstrate that there would be limited impact to the townhouses by the elevation of Broad Street. The sidewalk in front of the houses would remain at the existing elevation and a grass buffer would slope up to meet the need road elevation. At least one property owner from the Palliser Townhouses attended a public information workshop on June 26, 2019 and were consulted on the design of the ramped area of Broad Street where it would face their home. Homeowners in the project area will continue to be invited to public meetings and workshops to work with the CTDOH to design this area to best meet the needs of the property owners and community.

C3-2 Provide more information about the impact of the wall's placement so that residents can see the final structure. (Comment No. 151)

R3-2 Additional drawings will be made available to the public as design continues. In addition, a workshop was held on June 26, 2019 at the corner of Main Street and Whiting Street that presented cross-sections of the potential coastal flood defense system along a block of Main Street (under Alternative 4 only), an example of the material to be used, and allowed participants to view different design options for the coastal flood defense system through a virtual reality tool.

H.1.4 General Comments

C4-1 What does the CTDOH have to do with this and why is this going to Hartford if this involves Bridgeport? (Comment No. 2)

R4-1 As described in Section 1.1.2 of this FEIS, the projects are funded by the Federal U.S. Department of Housing and Urban Development (HUD) Community Development Block Grant Disaster Recovery Rebuild by Design and National Disaster Resilience programs under a congressional appropriation for Hurricane Sandy. The State of Connecticut applied for these funds and the CTDOH has been designated the responsible entity by HUD in managing these grants and preparing this EIS. The CTDOH is working closely with the government of the City of Bridgeport, residents and community members, businesses and other stakeholders to design the projects that will be implemented in the City of Bridgeport's South End. Rebuild by Design funds are for the stormwater park, pump station and elevated Johnson Street Extension in the Marina Village/Windward Apartments housing development site and National Disaster Resilience program funds are for the Flood Risk Reduction Project (coastal flood defense system and green and grey infrastructure) and Resilience Center in the eastern side of the South End.

C4-2 Why is a group from Delaware involved? (Comment No. 3)

R4-2 The Delaware Tribe of Indians and Delaware Nation of Oklahoma are federally recognized tribal nations with an interest in this area due to their history.

C4-3 Why does Bridgeport get to be the test case when I've had my share of driving through flooded streets in New Haven, Norwalk, Stratford, and even Fairfield? (Comment No. 6)

R4-3 The Community Development Block Grant Disaster Recovery grants had limitations on the communities eligible for the funding. Grant funding limited HUD in selecting only the City of Bridgeport to participate in the Rebuild by Design competition. For the National Disaster Resilience Competition program, the State of Connecticut was limited to working only in areas still recovering from Hurricane Sandy, which was determined by HUD to be Fairfield and New Haven counties. The State applied for funds for pilot projects in both Bridgeport and New Haven that best met the grant's eligibility requirements as well as funds for a regional resilience plan for Fairfield and New Haven Counties. When Connecticut was announced as a competition winner, grant funding availability and requirements limited HUD to selecting the project in Bridgeport and the regional resilience plan for funding under the competition. The pilot projects in Bridgeport address flooding challenges that are common to multiple coastal communities in the state and lessons learned from these projects can be shared with neighboring communities. The regional resilience plan, now called Resilient Connecticut, will plan projects to address flooding challenges in multiple coastal communities. Resilient Connecticut is funded by the CTDOH through a Memorandum of Agreement with the University of Connecticut, Connecticut Institute for Resilience and Climate Adaptation (CIRCA). Learn more about Resilient Connecticut at https://resilientconnecticut.uconn.edu/. You can learn more about the National Disaster Resilience Competition here: https://www.hudexchange.info/programs/cdbg-dr/resilient-recovery/

C4-4 Once the neighborhood is protected from flooding, Main Street from the railroad tracks to the Long Island Sound can be the site of long overdue mixed-use development (residential and commercial) that highlights the neighborhood's unique historical architecture and social history, and serves as a gateway to Seaside Park. (Comment No. 32)

R4-4 Comment noted. It is part of the project's purpose and need to create opportunities to address larger economic and community efforts that support resiliency in the long term by greatly reducing the risk of flooding and designing a coastal flood defense system that would be eligible to remove the flood protected area from the floodplain, thereby creating a safer South End for residential and commercial properties.

H.1.5 General Support

C5-1 Upon reviewing the document, [the JMM Group] strongly support[s] the State of Connecticut Department of Housing ("DOH") in its efforts to implement three resiliency strategies that will provide stormwater management, dry evacuation routes (dry egress), a coastal flood defense system, and resiliency education to the City of Bridgeport. (Comment No. 203)

R5-1 Comment noted.

C5-2 [The Park City Communities] feel that CTDOH's Draft EIE/EIS effectively addresses the need to protect residents and property from future storm surge events. The main component of the RBD plan involves utilization of the southern 2.5 acres of the Marina Village property that will be transformed into a stormwater retention park separated by a new Johnson Street extension for dry egress by residents and emergency vehicles. We hope to remain an integral partner in the planning and execution of the resiliency efforts that will go a long way to support the continued growth of the South End. (Comment No. 205)

R5-2 Comment noted.

C5-3 The Marina Village Resident Council would like to express their full support of the State of Connecticut Department of Housing ("DOH") in their efforts to implement the resiliency objectives of the National Disaster Resilience ("NDR") and Rebuild by Design ("RBD") disaster. (Comment No. 206)

R5-3 Comment noted

C5-4 The Marina Village Resident Council has reviewed CTDOH's Draft Environmental Impact Statement/Environmental Impact Evaluation for the resilient effort and feel that it effectively addresses our need for safety by lowering the risk of future flooding, providing dry egress during emergencies, and educating the public about flood risks and sea level rise. (Comment No. 207)

R5-4 Comment noted.

C5-5 [Viking Construction] feel[s] that the proposed strategies effectively address the need to protect residents and property from future storm surge events. (Comment No. 208)

R5-5 Comment noted.

H.1.6 Historic Resources

C6-1 Clearly show and explain the impact that changing Broad Street into a ramped roadway will have on the historic Palliser Townhouses on Broad Street near University Avenue. Broad Street will become a ramped roadway taking traffic up onto University Avenue, which will be raised. Broad Street has historic homes near the park at 256-270 Broad Street. What will the elevations be near these houses? What will the impact of the ramped roadway be? There are no drawings provided. (Comment Nos. 25, 35, 46, 63, 143)

R6-1 Elevating Broad Street to meet University Avenue was not found to adversely impact any of the historic Palliser townhouses within the Cottage District. A drawing has been added to Section 3.3.4 of this FEIS to demonstrate how the end of the ramped Broad Street would transition between the vacant property line of 30 University to the Palliser townhouse properties, including a preliminary design for the sidewalks in that area. Property owners and the public will continue to be consulted on how to design that transition to best meet the needs of the property owners and community.

C6-2 Protect all historic and cultural assets now and in the future. All historic elements in the South end should be taken into account and preserved. In order to breathe life into the South End, safeguard the vitality of all neighborhoods and champion this new, modern landscape as a dynamic and thriving place for all members of the Bridgeport community. Commenters strongly urged the consideration of the barrier alignment that honors the Freeman House neighborhood and fully respects the cultural and historic heritage of this nationally significant site. (Comment Nos. 26, 47, 64, 144, 155, 202)

R6-2 A benefit of the project is the protection of historic resources from future flooding events and sea level rise. Both the national historic landmarks of the Freeman Houses and the Cottage District homes are in a floodplain. These structures have not been elevated above the base flood elevation and are therefore highly vulnerable to flooding. All roads leading to these homes are also in the floodplain and therefore there is no dry evacuation or dry access routes (a.k.a. dry egress) during storm events. The coastal flood defense system would be designed to meet FEMA accreditation standards so that these homes and evacuation and access routes are protected by the proposed coastal flood defense system and the risk of flooding is greatly reduced. Further, as a result of the coastal flood defense system, it is anticipated that FEMA would amend their flood maps removing these properties from the 100-year floodplain, which would potentially negate the need for flood insurance. FEMA recommends that homeowners behind flood barriers maintain flood insurance, but it will be highly discounted due to the significant reduction in the risk of flooding to those homes. The Preferred Alternative (Alternative 1) includes an impact to Seaside Park with the elevation of University Avenue but CTDOH is working with CTSHPO and consulting parties to minimize the impacts and improve conditions at that area of the park. A Programmatic Agreement is being developed with the CTSHPO to determine mitigation measures for impacts to historic resources for the Preferred Alternative (see draft in Appendix C of this FEIS).

C6-3 As a homeowner of a historical property, extremely concerned about the negative impact of the western alignment plan which proposed to build a wall on Main Street. It will not only impact historical properties, but will also limit any possibility of economic development and growth on Main Street. (Comment No. 74)

R6-3 The Preferred Alternative's north-south section of the coastal flood defense system (Alternative 1) would protect the Cottage District and Freeman Houses and other residential, industrial, and commercial properties in the South End neighborhood from flooding. This flood protection will significantly lower flood insurance costs for homeowners and businesses, as discussed in Comment Response R6-2. As discussed in Comment Response R1-1, four alternatives for the north-south section of the coastal flood defense system have been evaluated in this FEIS. The Preferred Alternative (Alternative 1) and Alternatives 2 and 3 would avoid impacts to Main Street. Alternative 4 would impact one block of Main Street, which is less of an impact than the Western Alignment in the DEIS.

C6-4 The RBD Pilot does not address directly the serious flooding problems at Seaside Village, a National Register listed enclave. (Comment No. 125)

R6-4 Under the Federal Register Notice 79 FR 62182 published October 16, 2014 awarding the Rebuild by Design funds to the State of Connecticut, the State was directed as follows, "at a minimum, the pilot project must reduce flood risk to public housing in the City's South End/Black Rock Harbor area" in order to support HUD's affordable housing goals. The only public housing in these neighborhoods at that time was Marina Village. Although the Seaside Village floods regularly and resides in the floodplain, the amount of funding awarded of $10 million was only sufficient to address this minimum requirement by HUD for Marina Village's flood risk. It is CTDOH's understanding that there is a proposal prepared by the Bridgeport WPCA to separate the combined sewer to remove storm flow from the Seaside Village area sewer infrastructure that will help to address the problem. The CTDOH will continue to coordinate with Bridgeport WPCA on that sewer separation project in conjunction with the RBD Pilot project at the Marina Village site.

C6-5 The Flood Risk Reduction project also will have serious effects on the landscape of Seaside Park in the historic entry area at Soundview Drive between Broad and Main streets. (Comment No. 130)

R6-5 The design would minimize impacts to trees in this area of the park and a landscaping plan would be developed to address new plantings. CTDOH is consulting with the State Historic Preservation Office and local historians on design plans for the park.

C6-6 The 30 percent designs proposed for the Head of the Park area, while still preliminary, raise concerns about how sensitive the project will be to the historic landscape of Seaside Park. (Comment No. 131)

R6-6 A workshop was held at Seaside Park on May 9, 2019 as part of Section 106 consultation to address impacts of the project to this historic Seaside Park. Consultation with the Connecticut State Historic Preservation Office and consulting parties on the history of the park will continue through the design process to avoid, minimize and mitigate adverse impacts to the park. A draft Programmatic Agreement is included with this FEIS with proposed mitigation for Seaside Park (see Appendix C).

C6-7 It would be more appropriate for the new elements to defer more to the historic landscape, rather than calling attention to themselves so loudly. (Comment No. 132)

R6-7 Comment noted.

C6-8 For Seaside Park itself, modern interventions should deflect attention away from themselves as much as possible and toward the historic landscape. (Comment No. 133)

R6-8 Comment noted.

C6-9 Rehabilitation of the Freeman Houses to accommodate a resilience center would provide much-needed repairs and give the houses a viable and a community use that is consistent with their significance and with fundraising and program planning currently underway by the Mary and Eliza Freeman Center, which owns the houses. The Connecticut Trust strongly supports this proposed action. (133)

R6-9 Comment noted.

C6-10 We want to ensure the economic development of the South End as a cultural tourism destination that also offers amenities to residents, be it Seaside Village, the Cottages, Freeman Houses and other South End historic buildings. (Comment Nos. 174, 199)

R6-10 That is consistent with the project's purpose statement. The Proposed Action would reduce the risk of flooding to the historic buildings in the South End. The coastal flood defense system would be designed to meet FEMA accreditation standards, which would likely result in a remapping of the floodplain and removal of these properties from the 100-year floodplain, creating a safer area for residential and commercial properties.

C6-11 The restoration of the Freeman Houses with the help of the community will be a great way to travel and experience our history, and to become a tool to heighten literacy rates in our City. We should keep it accessible, bright and welcoming to our community while making sure the community is safe.

R6-11 The Preferred Alternative in this FEIS includes contributing funds to the Freeman Houses as part of the Resilience Center project. The Preferred Alternative greatly reduces the risk of flooding for the Freeman Houses and would provide dry evacuation and access routes to this property and the surrounding neighborhood during flood events. The coastal flood defense system maintains public access to all public amenities in the South End, including Seaside Park.

H.1.7 Neighborhood and Community Cohesion

C7-1 Do not construct (on purpose or by accident) a berm/barrier as high as the train tracks that closes in black and brown people, working and immigrant families, retirees, young and first-time homeowners on one side of Main Street; while luxury condos, a marina and the University of Bridgeport are on the other. (Comment Nos. 27, 48, 65, 145, 163)

R7-1 The Preferred Alternative for the coastal flood defense system would not be as high as the train tracks. It would be approximately 8' tall where it meets the rail viaduct. It would be 9 feet above grade along the north-south section (Alternative 1). At its highest point above the natural grade at Seaside Park, it would be 11 feet above grade, since the entrance to Seaside Park is the lowest point in the neighborhood. Under current conditions, residents of the South End can be trapped from safe evacuation and emergency vehicles cannot access homes and businesses during storm events due to the low-lying and flooded streets. The coastal flood defense system would protect the homes and businesses of community members and allow for safe evacuation and access during storm events.

The design of the coastal flood defense system maintains access for everyone to Seaside Park at all times. Access to Seaside Park would continue on Main Street at University Avenue for pedestrians and bicycles through ADA-accessible ramps. It would only be closed to vehicular traffic at that intersection. Broad Street would be ramped up and over University Avenue and open to cars, cyclists and pedestrians. The north side of University Avenue at Main Street would become a "pocket park" as part of the Resilience Center.

University Avenue would be elevated allowing for public access along that route at all times. Gates along the coastal flood defense system are planned for road crossings in the north-

south portion and would only be closed during storm conditions to stop flood waters from entering the neighborhood, although most of the gates would be on private property owned by utilities in the Preferred Alternative (Alternative 1). Portions of University of Bridgeport property would be both inside and outside the area protected by the coastal flood defense system. The coastal flood defense system would cross through the middle of the 60 Main Street property.

C7-2 All Bridgeport residents must have easy and equal access to Seaside Park and the Long Island Sound. Seaside Park should not be cut off from access. (Comment Nos. 28, 49, 66, 146, 156)

R7-2 Under the Proposed Action, access to Seaside Park would be maintained for everyone at all times. See Comment Response R7-1.

C7-3 Direct and easy access to Seaside Park is the foremost attraction. The proposed western alignment may not impact my walk to the park, but it would wall off enough of my neighbors to make this letter necessary. Pushing through flawed plans that will destroy the quality of life for long-time residents is unjust and clashes against the sense of community involvement that the city has been fostering over the last year. (Comment No. 42)

R7-3 The north-south section of the coastal flood defense system in the Preferred Alternative (Alternative 1) does not impact Main Street. None of the proposed alternatives would block off any residential areas in the neighborhood. Public access to Seaside Park would be maintained at all times to pedestrian and vehicular access via Broad Street and pedestrian and bicycle access via Main Street. Road crossings in the north-south section of the coastal flood defense system would have gates that would only be closed during storm events to prevent flood waters from entering the neighborhood. See Comment Response R7-1.

C7-4 Although unlocking new development or public realm opportunities is listed in the draft EIE as an additional benefit rather than a principal goal, it must be remembered that the point of the resiliency projects as a whole is to make the South End more viable as a community in light of changing climate conditions. (Comment No. 127)

R7-4 Comment noted.

C7-5 Strongly condemn the proposed western alignment that would damage and destroy a local and national treasure - Little Liberia (Freeman Houses). The proposed western alignment would result in gentrification (the luxury apartments) and promote corporate interests (PSEG) (Comment No. 148)

R7-5 The Freeman Houses are located on Main Street north of Whiting Street. The alignment of the coastal flood defense system was designed to provide flood protection to the Freeman Houses. As discussed in Comment Response R1-1, the Preferred Alternative in this FEIS is a variation of the Eastern Alignment from the DEIS and would be located several blocks east of the Freeman Houses. The land uses to the east of the coastal flood defense system include a few industrial uses, but primarily the PSEG property. Public access to Seaside Park would be maintained at all times for vehicles and pedestrians via Broad Street and pedestrians and bicycles via Main Street. See Comment Response R7-1

C7-6 It is really important that we take a look at the highest and best use of the land, especially the land on Main Street. That land needs to be brought back into circulation as an opportunity for community revitalization and development. I see two major impediments for the development of Main Street. One is the PSEG warehouse that is at the corner of Whiting and Main Streets. That lot, now that the neighborhood will not flood, should be made available through some mechanism for development. (Comment Nos. 160, 161)

R7-6 CTDOH has been working with the utility stakeholders regarding the land adjacent to Main Street. The Preferred Alternative (Alternative 1) and Alternative 2 would be located east of the PSEG warehouse located at 280 Main Street, Alternative 3 would cut through the lot in question, immediately east of the warehouse, and Alternative 4 would be located west of the lot, on the east side of Main Street. These four alternatives are all evaluated in this FEIS. The development of private property is beyond the scope of this project.

C7-7 The Freeman Center recently received a $1 million grant which makes accessible another $600,000 on top of $50,000 that other grants, and nearly $100,000 that we raised in two months alone. We are willing to invest in making Main Street a cultural thoroughfare that invites both tourism and residents. We are finally at the point where we can start planning the actual Freeman Center as opposed to just the restoration of the houses, and the Center is going to be a companion to the neighborhood culturally and invite the discussion of policy ongoing through time. (Comment No. 162)

R7-7 Comment noted. The Proposed Action includes funding towards the Freeman Center as part of the Resilience Center.

C7-8 I am concerned about the University Avenue egress for the luxury condominiums that are proposed [at 60 Main Street]. I think we have a really rare opportunity here where you have both an opportunity for economic development, $2 million that have been raised both publicly and privately and create economic development that is not gentrification; and so I think that everything needs to be done to prioritize that over the needs of a possibly to-be-created luxury condominium. The design team should do anything possible to support the Freeman Center's vision for the entire area of Little Liberia. (Comment No. 164, 165)

R7-8 The Proposed Action includes contributing funds to the Freeman Houses as part of the Resilience Center project. The Flood Risk Reduction Project would protect the Freeman Houses and other historic resources in the South End from flooding as well as allow for the development at 60 Main Street. 60 Main Street has received funding from the Connecticut Department of Economic and Community Development to clean up this brownfield site. Any future development of housing at the site must have dry egress, per State policy.

C7-9 If you go to most waterfront areas like ours you see benches, places to eat, community gardens, galleries and many other creative uses of the gift. There are better ways to make use of this space besides filling it with dirt and creating an invisible corner. (Comment No. 176)

R7-9 It is necessary to elevate a small portion of Seaside Park in order to create the coastal flood defense system to protect the neighborhood from future storm events. The location of the coastal flood defense system was selected to minimize impacts to the park and surrounding

neighborhood (see Chapter 3 of this FEIS). The CTDOH welcomes input from community members to ensure the design meets the communities' expectations of a creative use of the space by attending workshops and information sessions for Resilient Bridgeport. Residents can learn of these opportunities through ResilientBridgeport.com or find us on Facebook and Twitter.

C7-10 I would appreciate if engineers will think ahead of time for the next not only 15-20 years, but for 50 years and build a nice retaining wall or barrier which will not block the park and at the same time allow everybody to get access to the park. (Comment No. 184)

R7-10 The design does consider sea level rise and the increased risk of flooding over the next 50 years. It is necessary to elevate a small portion of Seaside Park in order to create the coastal flood defense system to protect the neighborhood from future storm events. Public access to Seaside Park would be maintained for everyone. See Comment Response R7-1 for more details.

C7-11 Do not block the beach at Seaside Park to anybody. (Comment No. 185)

R7-11 The project would not block the beach. Public access to Seaside Park would be maintained for everyone at all times. See Comment Response R7-1.

C7-12 Seaside Park is the crown jewel that I grew up with and we cannot block it to anyone and I hope that it will also include some trees that have been rooted out of there. There should be some trees for the wildlife and the birds as well as trees so I can sit down under to be able to watch a baseball game. (Comment No. 186)

R7-12 Public access to Seaside Park would be maintained for everyone at all times. A landscaping plan would be developed during final design to both minimize impacts to existing trees and create a viable planting plan for the area of the park that is impacted. A draft Programmatic Agreement is included with this FEIS with proposed mitigation of the impacts to Seaside Park (see Appendix C).

C7-13 I cannot imagine what the Western Alignment would look like. Since there is not a large amount of space, like at Seaside Park, it would only be a wall, which would be a shame. (Comment No. 187)

R7-13 The preference of the CTDOH is to avoid impacts to Main Street where possible. The Alternative 1 alignment of the north-south section of the coastal flood defense system was selected as the Preferred Alternative in part because it did not impact Main Street (see Comment Response R1-1). The Resilient Bridgeport design team will work to create a more visually appealing structure for any portion of the coastal flood defense system along streets in view of the public.

C7-14 Why on earth is one end of Seaside Park going to be completely blocked off? Isn't the purpose of the Park to improve the quality of life, as you so highly talk about on the website? Won't this stop people from walking and exercising in the Park, or is this the subliminal intent? What about all of the people who live near the entrance? Won't they be blocked in? (Comment Nos. 8, 9)

R7-14 The flood risk reduction project would not block off one end of Seaside Park. Public access to Seaside Park would be maintained for everyone at all times. See Comment Response R7-1.

C7-15 I want to support my neighbors at Seaside Village. It feels like the existing housing are not being represented as well in the proposals for this project. (Comment No. 188)

R7-15 Due to the source of the funding (HUD) the focus is on public housing (Marina Village) (See Comment Response R6-4 for more details on federal guidance for the RBD Pilot Project). The RBD pilot project would provide some benefit to Seaside Village by managing chronic flooding in the area and the Bridgeport WPCA has indicated that a stormwater separation project is under review for the area that would help address local flooding in that community.

H.1.8 Project Cost

C8-1 Funding sources are our biggest concern. Unfortunately, if any of these projects will cause any property tax or any other pay increase that will be painful for us and we would say no to these projects. (Comment No. 1)

R8-1 As described in Section 1.1.2 of this FEIS, the construction of the projects are funded by two federal grants from the U.S. HUD Community Development Disaster Recovery and National Disaster Resilience programs.

C8-2 Who is funding all of this, the meetings, paying University of Bridgeport for the space, the website, the materials to promote this? (Comment No. 5)

R8-2 Funding for the meetings, website, and materials is paid for by federal funds under the Federal U.S. Department of Housing and Urban Development Community Development Block Grant National Disaster Resilience Program under a congressional appropriation for Hurricane Sandy disaster recovery further described in Section 1.1.2 of this FEIS.

H.1.9 Public Involvement

C9-1 Who wrote the website? The language runs in circles and in some cases is clearly misleading. The opening line I read was, "today, water ponds in low-lying areas." It's a scientific fact from the beginning of human observation that water always follows the path of least resistance. Water has always "ponded" in low-lying areas and will always "pond" in low-lying areas whether one lives in Connecticut or anywhere else in the world. (Comment No. 4)

R9-1 The website is managed by the consultant team contracted to CTDOH for design and engineering of the Resilient Bridgeport projects. The language is meant to provide an introduction to the public on the issues that the projects aim to address. Although it is simplistic to say that water ponds in low lying areas, the discussion on that section of the website gets to the point that in order to address the chronic flooding conditions in the

South End, the lowest lying areas must be elevated, protected or have flood waters removed through better drainage and pumps.

H.1.10 Purpose and Objectives

C10-1 Revitalize Main Street via Coastal Resiliency: (1) Preserve the integrity of Freeman Houses and potential for neighboring diverse revitalization of Main Street; (2) Reconnect Main Street to Downtown; (3) Slope Main Street up to University Avenue (not Broad with its more Historic Homes; (4) Proper gateway to Seaside Park and residential development; and (5) Keep wall off Main Street. (Comment No. 68)

R10-1 (1) The coastal flood defense system is designed to provide flood protection to the historic resource of the Freeman Houses and to avoid any adverse impact on these historic properties. Further, Freeman Houses are proposed in the Preferred Alternative to house the Resilience Center, which was intended to preserve and reuse an existing structure. (2) It is beyond the scope of this grant from HUD for climate resiliency to address reconnection of Main Street to downtown. Main Street is discontinued between South Frontage Road and Ferry Access Road. (3) Elevating Main Street would maintain the existing street network, but would result in an elevated road in front of four houses located north of University Avenue on Main Street and obstruct direct views of the Seaside Park. Locating a ramp in front of these homes also causes an additional adverse effect to the historic setting of the Cottage District and therefore the State Historic Preservation Office, in a letter dated May 7, 2019, supported the option of closing Main Street to vehicular traffic at Main and University, which avoided the impact to those homes. (4) Access to Seaside Park is maintained at all times for everyone. See Comment Response R6-2 for more details. (5) The Preferred Alternative for the north-south section of the coastal flood defense system (Alternative 1) does not impact Main Street. Of the three additional alternatives evaluated, but not selected as the Preferred Alternative, in this FEIS only Alternative 4 would impact Main Street and for that alternative, the coastal flood defense system alignment would be along Main Street for only one block between Whiting and Atlantic Streets. This was a change from the Western Alignment option in the DEIS in response to public comment.

H.1.11 Safety

C11-1 Won't this [Project] increase crime? (Comment No. 10)

R11-1 There is no reason to expect this project would increase crime. Access would be maintained, usage would continue and the design could include adding lighting to the entrance to Seaside Park. CTDOH welcomes community input to ensure the project creates safe spaces for the public.

C11-2 How are emergency vehicles supposed to respond? How are the huge fire trucks supposed to turn around with a wall? Fire hydrants? What happens to those? What if an ambulance can't get through to someone having a heart attack in the Park because of that wall? (Comment No. 12)

R11-2 CTDOH consulted with the Bridgeport fire department regarding requirements for turning radius and access. The design would incorporate those requirements to ensure emergency vehicles continue to have access to residences. There would be no change to fire hydrants since Main Street would be maintained at its current elevation. Vehicular access to Seaside Park is maintained through a ramp on Broad Street allowing for emergency vehicles, including ambulances, to enter the park crossing over the flood barrier along University Avenue. The north-south section of the coastal flood defense system Preferred Alternative (Alternative 1) would allow emergency response vehicles to access all of the utilities in the area as well even when gates are closed during storms.

H.1.12 Schedule

C12-1 Connecticut must ask Congress for more time. We ask the State of Connecticut to join New York and New Jersey in requesting more time from Congress to properly resolve conflicting stakeholder issues and adjust plans. Do not short-cut the planning process. Once massive, expensive capital infrastructure is built; decisions cannot be reversed. An extension will allow the community to all come together to map a plan that will protect and promote our residents, our history, and our future. (Comment Nos. 30, 37, 43, 140, 158)

R12-1 The schedule is dictated by the HUD funding sources and cannot be extended without an act of Congress. The State of Connecticut keeps our congressional delegation aware of the status of this federal funding, but the project must move along assuming the end of the project cannot be moved. The extensive community engagement process for this project will continue throughout the project's design, engineering and construction to incorporate input from the community and address concerns.

H.1.13 Socioeconomics

C13-1 Yes, protect the neighborhood from floods, storms and sea level rise, but take the time to do it right. Protect future economic revitalization, property values, and the quality of life for current residents. Build with equity and social justice. (Comment Nos. 29, 50, 67, 147)

R13-1 By reducing the risk of acute and chronic flooding in the South End of Bridgeport, the Proposed Action would improve conditions for the environmental justice populations. The coastal flood defense system is being built to meet FEMA accreditation standards with the goal of remapping the area protected by the coastal flood defense system out of the 100-year floodplain that would allow for highly discounted flood insurance for homeowners and businesses due to the significantly decreased risk of flooding. Low flood insurance results in savings for homeowners and businesses and would therefore have a direct economic benefit to those community members in addition to avoiding costs of future flood damage.

C13-2 Among JHM's greatest concerns, is the population of public housing residents currently living in the South End that will remain vulnerable to future flood events if this plan is not put into action. JHM is currently working in conjunction with the Housing Authority of the City of Bridgeport to provide replacement housing for the Marina Village public housing complex whose existing, obsolete units

present immediate health and safety threats for their inhabitants. Residents continue to live in these types of conditions because new, quality affordable housing units are scarce in Bridgeport. The Draft EIE/EIS effectively addresses the need to protect residents and property from future storm surge events. The main component of the RBD plan involves utilization of the southern 2.5 acres of the Marina Village property that will be transformed into a stormwater retention park separated by a new Johnson Street extension for dry egress by residents and emergency vehicles. (Comment No. 204)

R13-2 Comment noted.

C13-3 As you know, the city faces a shortage of quality affordable housing and we are very interested in supporting projects that address this issue, such as Resilient Bridgeport, which makes new development in the South End possible by reducing the threat of future flooding. (210)

R13-3 Comment noted

H.1.14 Traffic

C14-1 [Will this project cause] traffic congestion? (Comment No. 11)

R14-1 As described in Section 4.13.3 of this FEIS, an analysis of traffic showed that there would be no adverse impact to congestion as a result of stopping traffic at Main Street and University Avenue. During construction, the increased truck traffic and temporary road closures is not anticipated to result in a significant adverse impact to traffic in the study area. A Traffic Management Plan (TMP) would be developed in order to minimize impacts on existing traffic patterns.

H.1.15 Utilities

C15-1 A number of companies and utilities have operated in the South End for hundreds of years. The Project should be prepared to encounter various underground utility lines (known and unknown). The Project should take appropriate health and safety and construction measures to identify and deal with these lines without interrupting residential and commercial use in the South End. (Comment No. 53)

R15-1 The contractor will develop a site-specific health and safety plan prior to initiating any soil boring program or construction activities. A utility mark-out will be completed prior to initiating subsurface work, and proposed locations will be cleared by a private utility contractor. If clearance cannot be obtained through the private utility contractor, the top 5 feet of material (the zone where underground utility lines would most likely be encountered) will be cleared manually with the use of a high-pressure vacuum truck.

H.1.16 Water Resources

C16-1 Wider stormwater and sewer pipes than currently planned for should be installed so that Seaside Village could link into the RBD Pilot Project in the future and we could get that CSO project which we really badly need. Pump station and pipe capacity on Iranistan Avenue should be designed to

allow future connection of Seaside Village for stormwater management. We strongly urge that the project accommodate the requests from the Board of Directors of Seaside Village-that information that will assist Seaside Village in developing its own stormwater management system be provided. (Comment Nos. 38, 70, 76, 80, 84, 126, 170, 179, 181, 195)

R16-1 It is the CTDOH's understanding that a plan by the Bridgeport WPCA's to separate the combined sewer system of Seaside Village is currently under review. CTDOH is coordinating with the Bridgeport WPCA on their project.

C16-2 Multiple commenters supported the Seaside Village Board's statement requesting a larger capacity for the pumping station of the RBD Pilot Project so that it could accommodate a future CSO project which they are already consulting the City of Bridgeport about. (Comment Nos. 39, 71, 77, 81,126, 179, 180, 195)

R16-2 The Resilient Bridgeport team will work with the Bridgeport WPCA to assess the feasibility of increasing the design pump station capacity to assist in addressing chronic flooding concerns in the area of the Rebuild by Design pilot project. CSO separation is required in advance of pumping any stormwater through the RBD Pilot project stormwater system.

C16-3 The EIE recognizes that the "chronic flooding issues are the result of both an aged and combined storm water sewer system." The EIE proposes certain stormwater protections and enhancements. PSEG recommends that the Project ensure that additional steps and caution be implemented to ensure that the existing stormwater sewer system is not over-taxed or further degraded. (Comment No. 52)

R16-3 Comment noted. Consideration of the existing stormwater sewer system is part of the design process.

C16-4 The only resident involved in keeping the Yale Rain Garden in Seaside Village alive after two hurricanes and resident opposition. The Seaside Village got short-changed in the Resilient Bridgeport project, because it is worse off now, with the threat of the Windward development that will bring more residents across the avenue and will increase our flooding problems tenfold. So, instead of solving our problem, it got aggravated. (Comment No. 85)

R16-4 The stormwater facility that is part of the Resilient Bridgeport project has been designed to accommodate stormwater from the Windward development and would not increase flooding to Seaside Village.

H.2 RESPONSE TO AGENCY COMMENTS

H.2.1 State of Connecticut Department of Public Health and Drinking Water (DWS)

C17-1 The subject project is not in a public drinking water supply source water area, but it is within the public water supply service area of the Aquarion Water Company Main System (AWC, PWSID #CT0150011). The Department of Housing should consult with the AWC on the locations of existing public drinking water infrastructure. (Comment No. 54)

R17-1 Coordination is being undertaken with the Aquarion Water Company in order to identify and protect existing public drinking water infrastructure within the Study Area that may be impacted as a result of the Proposed Project, including during construction and operational activities. As described in Section 4.11 of this FEIS, any recommendations from the Aquarion Water Company regarding the protection of public drinking water infrastructure would be implemented to the maximum extent practicable.

C17-2 It is recommended that the CTDOH coordinate with the AWC to ensure that the proposed action is implemented in a manner that is compatible with the public drinking water infrastructure. (Comment No. 55)

R17-2 Coordination is being undertaken with the Aquarion Water Company.

H.2.2 Connecticut Department Of Economic and Community Development (DECD)

C18-1 In regards to the RBD Pilot project, SHPO has previously commented on the demolition and new construction of the Former Marina Village, with a finding of no historic properties affected. However, the proposed RBD work is adjacent to the National Register of Historic Places listed Seaside Village Historic District (NR# 90001424). The proposed scope includes regrading (not elevating) of adjacent streets, construction of a new street, Johnson Street Extension, installation of new storm drains and pump, and creation of a storm water park, located to the southeast of the district. The proposed scope for this section of the project will have no adverse effects to historic properties. (Comment No. 56)

R18-1 Comment noted.

C18-2 Both of the proposed alternatives constitute an adverse effect to historic properties, with particular concern given to the raising of University Avenue, which will negatively impact the entrance to Seaside Park, listed in the National Register under Criteria B and C as a "well-preserved Post-Civil War park landscape" and "an important work of 19th-century civil engineering."(57)

R18-2 Comment noted.

C18-3 The Western Option would also adversely impact the William Bishop Cottage Development Historic District, listed under Criteria B and C as "one of Bridgeport's first extensive tract developments, a community planned especially to provide an Innovative housing scheme for lower-income workers." Therefore, SHPO's Preferred Alternative is the Eastern Option, which would avoid the adverse impact to the William Bishop Cottage Development, and potential archaeological resources in the vicinity of the Freeman Houses. (Comment No. 58)

R18-3 Comment noted. As described in Comment Response R1-1, CTDOH has been working with stakeholders to identify an alignment of the coastal flood defense system that can be implemented and would eliminate or minimize impacts to the Cottage District. The Preferred Alternative (Alternative 1) and Alternatives 2 and 3 would not impact Main Street. Alternative 4, would limit impacts to one block of Main Street between Atlantic and Whiting Streets.

C18-4 SHPO expects additional consultation in accordance with Section 106 of the National Historic Preservation Act to minimize or mitigate the adverse effect in regards to Seaside Park, potential effects to the Freeman Houses regarding vibrations during construction of the flood wall, additional information regarding design of the flood barrier where it is proposed to be integrated into the railroad viaduct, and an archaeological assessment plan for the area of potential effect (APE). The creation of a Resilience Center, would directly impact the Mary and Eliza Freeman Houses, listed under Criterion A "as the last two houses to survive of "Little Liberia," a settlement of black freedmen in this area that began in 1831 and reached its apogee just prior to the outbreak of the Civil War." The properties are proposed to "operate as a community center, a central location for resilience information dissemination, and a location that could store supplies to assist the community with recovery efforts during or after storm events." This use has the potential to help preserve the structures, as they are currently unoccupied. However, an additional portion of the Resilience Center would be to create an "open-air landscaped site, including green infrastructure improvements, near the entrance to Seaside Park at University Avenue." More information is needed to evaluate the effect to both Seaside Park and the Freeman Houses, including design schema. (Comment Nos. 59, 60)

R18-4 Comment noted. Consultation has continued and the process for further review by SHPO and consulting parties will be memorialized in a Programmatic Agreement. A draft of the Programmatic Agreement is included with the FEIS (see Appendix C).

H.2.3 U.S. Department of the Interior, Office of Environmental Policy and Compliance

C19-1 No comment on the DEIS. (Comment No. 86)

R19-1 Comment noted.

H.2.4 Connecticut Department of Energy and Environment (DEEP)

C20-1 DEEP is fully supportive of the proposed stormwater improvements at the Marina Village site. (Comment No. 87)

R20-1 Comment noted.

C20-2 The use of the existing Outfall E to Cedar Creek Reach as the discharge point for the stormwater from the raingarden appears to be a logical choice as an outfall. As mentioned on page 4.11-20 for the currently unused Outfall C, the redevelopment of Outfall E for the proposed purpose would require an NPDES Permit from Water Permitting and Enforcement Division of DEEP. (Comment No. 88)

R20-2 Comment noted. NPDES permit will be obtained and the FEIS has been updated to reflect this comment.

C20-3 Depending on whether any work will be necessary below the coastal jurisdiction line of Cedar Creek Reach, a Structures, Dredging and Fill Permit could be required from the Land and Water Resources Division of DEEP. (Comment No. 89)

R20-3 Comment noted. This comment has been noted in the FEIS.

C20-4 The impacts of the redeployment of Outfall E for the raingarden discharge would be expected to be minor in comparison to the benefits of the improved stormwater management following construction of the stormwater park basin. (Comment No. 90)

R20-4 Comment noted.

C20-5 As with the larger Flood Risk Reduction Project, a Flood Management Certification will be required for this project as state and federal funds are being utilized for modifications of a drainage system located within a mapped FEMA floodplain. (Comment No. 91)

R20-5 Comment noted.

C20-6 Discussion on page 4.8-14 refers generically to protective measures to be undertaken to safeguard the grove of sycamores at Marina Village and the existing street trees along South Street. Good intentions are often not enough to protect trees at construction sites from being damaged or killed. Consideration should be given to penalties or incentives in the construction contracts to provide financial motivation to promote the survival of these trees through the construction period and perhaps for one growing season after project completion. (Comment No. 92)

R20-6 A detailed landscaping and construction protection plan will be developed as part of the final design and requirements for the contractor will be noted. As noted in Section 4.8.4 of this FEIS, the contractor's contract requirements will require strict adherence to the construction protection plan.

C20-7 The EIS/EIE makes numerous references to Marina Village using terms such as 'the site of the former Marina Village'. While the eastern portion of the complex has been demolished, most of Marina Village is still intact and occupied. The repeated references to Marina Village in the past tense are a curious recurring wording throughout the document. (Comment No. 93)

R20-7 This wording was chosen to reflect the ongoing redevelopment of the site. It has been revised to "Marina Village/Windward Apartments" throughout this FEIS.

C20-8 The floodwall, berm and, to the extent it is relied upon to keep floodwaters out of the project area, the raised portion of University Avenue, will be considered for regulatory purposes as a dam and will require a Dam Safety Permit pursuant to Connecticut General Statutes (C.G.S.) section 22a-403. (Comment No. 94)

R20-8 Comment noted.

C20-9 Flood Management Certification will not be required for the construction of the flood defense system, the Dam Safety Permit application must demonstrate compliance with the factors for consideration under the Flood Management Program. Specifically, the project must demonstrate that it is in the public interest, will not injure persons or property and complies with the National Flood Insurance Program. (Comment No. 95)

R20-9 Comment noted.

C20-10 Another consideration for the Flood Risk Reduction Project is the State policy for floodplain development set forth in C.G.S. section 25-68d(b)(4) which requires any action within a floodplain to demonstrate that "The proposal promotes long-term, non-intensive use of the floodplain and has utilities located to discourage floodplain development." There is at least a potential conflict between the proposed Flood Risk Reduction Project and this State policy. (Comment No. 96)

R20-10 The CTDOH will work with FEMA through the accreditation process to remap the area as a Zone X "area protected by a levee." This will allow for land uses that are consistent with current zoning and master plans. The project team will continue discussions with CTDEEP to address these considerations in the permitting process.

C20-11 In view of the level of risk to persons and property that could ensue should the proposed floodwall and/or berm fail, the proposed combined structure would be considered and regulated as a high hazard dam. The flood wall, berm or other levee must satisfy the highest of the following criteria: (1) be accredited by FEMA to withstand the 100-year tidal flood plus the amount of freeboard required by FEMA so that the area behind the levee can be designated as "area protected by a levee" or (2) the design needs to provide protection up to the 500-year coastal flood, factoring in sea level rise. (Comment No. 97)

R20-11 The project's design intent is to meet these requirements. See response R20-10.

C20-12 The project applicant will need to submit documentation to FEMA showing that the proposed floodwall meets the requirements of Title 44 of the Code of Federal Regulations Section 65.10 (44 CFR 65.10) in order to obtain "levee certification". (Comment No. 98)

R20-12 The project's design intent is to meet these requirements. See response R20-10.

C21-13 Dam Safety application must address potential adverse impacts to structures located outside the berm. (Comment No. 99)

R20-13 Comment noted.

C20-14 The underground utilities and their intersections with the floodwall will require special attention during the design process. The floodwall and berm shall be designed so as to prevent seepage under the flood retarding structure. (Comment No. 100)

R20-14 Seepage has been evaluated in accordance with industry standard practice and the design intent is to meet FEMA and State requirements.

C20-15 At least as of the February 26 public hearing, the question of the alignment for the proposed floodwall was still not settled. As expressed at that hearing, there was a strong public preference for the eastern wall alignment, and that alignment also appeared to be the preference of the planning team. The eastern alignment is certainly preferable in terms of the acreage and facilities protected. (Comment No. 101)

R20-15 The Preferred Alternative for the alignment of the north-south section of the coastal flood defense system is Alternative 1, which closely follows the Eastern alignment option noted by the comment, with minor modifications based on feedback from private property owners. See Comment Response R1-1.

C20-16 The exact location of the pump station(s) is not a substantial regulatory concern of DEEP due to their limited footprint and the probability that they will not impact any resources under our jurisdiction. However, as covered later in the discussion of necessary project permits, the potential need for permits to cover the emissions from these facilities, and also the pumphouse for the Rebuild by Design project, is one that needs more attention. (Comment No. 102)

R20-16 The design and specifications of the proposed pumphouse is still being finalized, such that annual emission quantities for air pollutants cannot be determined at this time. If, during the design process, it is found that the proposed pumphouse would not comply with relevant air quality regulatory thresholds, the appropriate permits would be obtained. Ultimately, the proposed pumphouse would be designed and operated in compliance with all local, State, and Federal air quality emissions criteria and requirements, such that no adverse air quality impacts are anticipated.

C20-17 According to discussion on page 4.8-17, it was an open question at the time of EIS/EIE preparation as to whether tidegates would be incorporated at the stormwater outfalls. Given the emission of the drainage improvements, tidegates would certainly be useful on any outfalls not directly connected to a pumping station in order to keep rising coastal waters on the proper side of the floodwall. The incorporation of tidegates, or the rationale for why they are not needed, should be addressed in the FEIS, including some analysis of how the inclusion or lack of tidegates would affect the frequency of operation of the pumphouses and the efficiency of their operation. (Comment No. 103)

R20-17 The intent is to have tide gates or other backflow prevention measures incorporated into the system in accordance with applicable FEMA guidelines. This is addressed in Section 4.11 of this FEIS.

C20-18 As of the writing of the EIS/EIE, neither the purpose nor the location of the Resilience Center had been determined. In all probability, the construction and operation of the Resilience Center will not involve any regulatory or resource issues under the purview of DEEP. For this reason, and the lack of any specific details about the center, these comments will not cover that aspect of the Resilient Bridgeport proposal. (Comment No. 104)

R20-18 Comment noted.

C20-19 Page 4.8-10 of the EIS/EIE notes the filing of a request for review of potential impacts to State-listed species for the proposed project and site. By letter of March 11, 2019 to Jessica Denzler of Arcadis, your project team has been informed that no negative impacts to State-listed species are anticipated as a result of the proposed activities. The presence of a peregrine falcon at the Pequannock River Metro-North bridge was the species of greatest interest to the NDDB program as to potential impacts but, given that the nearest project activity would be the northernmost terminus

of the floodwall, which is approximately 1,700' from the Metro-North bridge, no impacts to the peregrine falcon are anticipated. (Comment No. 105)

R20-19 Comment noted.

C20-20 A list of federal, state and local permits is given on page 4.16-14 of the EIS/EIE. It is unclear what the fifth and sixth permit entries in the State section correspond to. These are listed as CT DEEP L WRD General Permit Registration Form and CT DEEP L WRD Long Island Sound. (Comment No. 106)

R20-20 These permits have been clarified in the FEIS.

C20-21 The other State permits given on Page 4.16-14 are accurate, with the caveat that the Permit for Diversion of Waters of the State would be needed only if an area of 100 acres or more drains to a common point. For instance, if any of the pumphouses or outfalls will individually receive stormwater from 100 or more acres, a diversion permit would be necessary for that discharge. (Comment No. 107)

R20-21 Comment noted. This has been clarified in Section 4.17.5 of this FEIS.

C20-22 The pump house engines may require New Source Review Permits if the potential-to-emit (PTE) of any individual air pollutant exceeds 15 tons per year. As an alternative, the engines may operate as emergency engines under section 22a-174-3b(e) of the Regulations of Connecticut State Agencies if they will not exceed 300 hours per year of operation and will maintain records to document their hours of operation and the sulfur content of their fuel. Pump manufacturers must certify their pollution emissions rates to EPA for the operation of their equipment in conformance with their O&M specifications. Thus, DEEP cannot provide firm guidance on the qualification for the emergency exemption or, alternatively, the potential need for a New Source Review Permit, in the absence of specific information on the pumps which will be employed. (Comment No. 108)

R20-22 The design and specifications of the proposed pumphouse is still being finalized, such that annual emission quantities for air pollutants cannot be determined at this time. If, during the design process, it is found that the proposed pumphouse would not comply with relevant air quality regulatory thresholds, the appropriate permits would be obtained. Ultimately, the proposed pumphouse would be designed and operated in compliance with all local, State, and Federal air quality emissions criteria and requirements, such that no adverse air quality impacts are anticipated.

C20-23 Any engines that have a PTE of less than 15 tons per year are not subject to permitting. (Comment No. 109)

R20-23 Comment noted.

C20-24 Page 4.12-10 mentions that the construction work connected with this project could result in the displacement of urban wildlife from construction activity and street tree removal. This point does not specifically mention a problem that has occurred at other construction projects in urban

environments. The street drainage work in particular could cause problems with rodents moving out of pipes and drainage basins and into the neighborhood. (Comment No. 110)

R20-24 Comment noted.

C20-25 Integrated pest management plans should be developed to address the potential for rats and other rodents to be disturbed and mobilized by construction work. (Comment No. 111)

R20-25 Comment noted. A reference to this plan has been added to Section 4.8.4 of this FEIS.

C20-26 Section 4.6 of the EIS/EIE contains an extensive inventory of properties within the study area which have had historic involvement with hazardous materials or which may present some risk of encountering contaminants. The proposed mitigation and best management practices listed in section 4.6.4 are appropriate given the historic uses of the properties in the study area and the identified potential contaminants of concern. (Comment No. 112)

R20-26 Comment noted.

C20-27 Individual potential release areas should be evaluated separately, as opposed to characterizing the general soil quality in the specific areas of the project. (Comment No. 113)

R20-27 The characterization is presented for the purposes of public review. Details are provided in the FEIS appendices.

C20-28 It is unclear if polluted soil will be reused as part of the project. Any potential reuse of polluted soil must be conducted consistent with DEEP's remediation standard regulations, meet applicable criteria, and be coordinated with the DEEP Remediation Division. (Comment No. 114)

R20-28 Comment noted. CTDOH and the contractor would work with the CTDEEP Remediation Division related to any potential reuse of polluted soil to ensure that it is consistent with CTDEEP guidance. If polluted soil is reused, it will be placed above the water table, capped by clean soil or pavement so as to eliminate direct exposure to the polluted soil and prevent erosion.

C20-29 Reused polluted soil must be placed above the water table, not be subject to erosion, and must not create an arbitrary landform. In the event that PCBs are present, the DEEP PCB Unit should be consulted regarding any specific characterization requirements. (Comment No. 115)

R20-29 Comment noted.

C20-30 Page 4.12-11 mentions limited removal of parkland vegetation along the northeastern border of Seaside Park. The FEIS would benefit from a more concrete description of the vegetative or landscaping losses expected to occur in Seaside Park and the plans for mitigation or replacement thereof. (Comment No. 116)

R20-30 Section 4.8.3 of this FEIS presents the potential tree impacts in Seaside Park. A more detailed landscaping plan is being developed as part of final design but it will not be part of the FEIS.

C20-31 A comprehensive table of contents at the beginning of the document would help readers navigate through this extensive report rather than having to look for the breaks in the pagination sequence to identify where a new section is and then what its content consists of. (Comment No. 117)

R20-31 A comprehensive table of contents has been added to the FEIS.

C20-32 For figure 4.10-5 on page 4.10-13, an understanding of this map would benefit from some discussion in the text to define what constitutes a 'pier street' and a 'connector street'. (Comment No. 118)

R20-32 Text has been added to Section 4.10 of the FEIS.

C20-33 The reference to this figure (figure 4.10-5) on the preceding page refers to it as figure 4.11-5 rather than figure 4.10-5. (Comment No. 119)

R20-33 Text has been revised.

C20-34 Page 4.10-19 mentions the intersection of University Avenue and Atlantic Avenue. In fact, these two streets do not intersect. The text should probably say, in reference to Box A, the intersection of University Avenue and Lafayette Street. (Comment No. 120)

R20-34 Text has been revised.

C20-35 The text at the bottom of page 4.13-7 mentions six floodgates to be provided for the eastern floodwall alignment, but then lists only four locations. If any of these four locations would host multiple floodgates, adding that detail in the listing would be helpful. (Comment No. 121)

R20-35 The current design would include between 5 and 8 flood gates, depending on the alternative (the Preferred Alternative would have 7 gates). The text will be revised accordingly.

C20-36 The percentage increase in area protected by the eastern wall alignment as compared to the western wall alignment at the bottom of page 4.10-14 is given as 39%. In fact, the eastern alignment protects 64% more acreage than the western alignment. (Comment No. 122)

R20-36 Text has been revised and compares the four alternatives evaluated in the FEIS.

C20-37 On pp. 4.13-9 and 4.13.10, the statement is made on the latter page that "Although UI does not directly supply residences with electricity in the study area, it owns and operates the Pequannock Substation, ... " In fact, United Illuminating is the retail electric supplier in the South End and in all of Bridgeport and does directly serve the customers in the study area. (Comment No. 123)

R21-37 Text has been revised.

H.2.5 U.S. Environmental Protection Agency, Region 1

C21--1 We recommend that the current discussion in the DEIS (Section 4.11.1.2, p.4.11-4) be expanded in the FEIS to specify which regulatory permits (e.g., Clean Water Act (CWA) Section 404, NPDES, Rivers and Harbors Act, Section 10, etc.) will be required for specific project components and

whether project proponents will need to obtain new permits or modifications of existing permits. (Comment No. 135)

R21-1 Regulatory permits are being identified for project components and have been identified in Section 4.11.1 of this FEIS.

C21-2 We recommend that the FEIS clarify whether the discharge through Outfall E will require a new NPDES permit, or instead be regulated through modification of an existing NPDES permit. (Comment No. 136)

R21-2 It is expected a modification of an existing NPDES permit would be required. The FEIS text in Section 4.11.3 has been revised to clarify this.

C21-3 We note that the federal regulatory requirement for a CWA Section 404 permit is not restricted to "inland" wetlands or watercourses, as indicated in the DEIS (Section 4.8.1.2 on page 4.8-3). (Comment No. 137)

R21-3 Text in Section 4.8.1.2 has been revised.

C21-4 The DEIS (Section 4.8.3.2, p. 4.8-14; Section 4.11.3.2, p. 4.11-18) discusses potential ecological impacts from repair and recommissioning work at Outfall E. The proposed direct discharge of untreated sediments and sludge from the work area would be likely to cause or contribute to a violation of water quality standards. We recommend that the FEIS consider practicable alternatives for disposal of contaminated sediments and sludge from Outfall E (other than direct discharge to Cedar Creek Reach). We recommend that collection and disposal (at an appropriate upland facility) of contaminated sediments and sludge be considered. (Comment No. 138)

R21-4 The majority of soil generated during drilling activities will be characterized and properly disposed at an offsite facility. Contaminated sediments and sludge from Outfall E will also be characterized for offsite disposal. Trench excavations would be re-used to the extent possible, based on the investigation and/or waste characterization results.

Table H-2. Relevant Indicator Bacteria Standards for Ambient Saltwater Water Quality

DESIGNATED USE	CLASS	INDICATOR	CRITERIA
Shellfishing – Direct Consumption	SA	Fecal coliform	Geometric Mean < 14/100ml 90% of Samples < 31/100ml
Shellfishing – Indirect Consumption	SB	Fecal coliform	Geometric Mean < 88/100ml 90% of Samples < 260/100ml
Recreation – Designated Swimming	SA, SB	*Enterococci*	Geometric Mean < 35/100ml Single Sample Max < 104/100ml
All Other Recreational Uses	SA, SB	*Enterococci*	Geometric Mean < 35/100ml Single Sample Max < 500/100ml

RESILIENT BRIDGEPORT

COMMENT FORM

The Connecticut Department of Housing is interested in your comments on the Resilient Bridgeport Project's Draft Environmental Impact Statement / Environmental Impact Evaluation. Please complete this form and email to info@resilientbridgeport.com or return it by mail. (Form is self-addressed. Postage is required).

Please list any comments you may have regarding the project's purpose and need, proposed action, areas of key environmental concern, and proposed mitigation measures:

1) I am against the Western Alignment There should be NO WALLS on MAIN STREET.

2) I am against the closing of MAIN Street at University. MAIN STREET should Ramp up to University on both sides

3) Pump and pipe capacity on Iranistan should be designed to allow Future Connection of Seaside Village.

~~For CommentSense:~~

82 1. I am against the Western Alignment. There should be no walls on Main Street.

83 2. I am against the closing of Main Street at University. Main Street should ramp up to University on both sides.

84 3. Pump and pipe capacity on Iranistan should be designed to allow future connection of Seaside Village.

Name: Vincent Aurelia

Affiliation: Seaside Village Board / PARKSIDE PROPERTIES OWNER 344 MAIN ST

Email Address: VArrella@snet.net

Address: 150 ALSACE ST. BRIDGEPORT, CT 06604

The DEIS/EIE documents can be reviewed on the project website – www.resilientbridgeport.com. Comments must be received by close of business on Monday, March 18, 2019 to be addressed in the Final Environmental Impact Statement / Environmental Impact Evaluation.

Weymouth, Nicole

From: Savage, Megan L.
Sent: Tuesday, March 19, 2019 10:15 PM
To: Weymouth, Nicole
Cc: Toole, Laura
Subject: Fwd: Comments on the Draft Environment Impact Study (DEIS) / Environmental Impact Evaluation (EIE) for the South End of Bridgeport, CT

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From: bemcleo@attglobal.net <bemcleo@attglobal.net>
Sent: Tuesday, March 19, 2019 9:52:33 PM
To: info@resilientbridgeport.com; rebecca.french@ct.gov
Subject: Comments on the Draft Environment Impact Study (DEIS) / Environmental Impact Evaluation (EIE) for the South End of Bridgeport, CT

Dear Ms. French:

I attended the public hearing on Tuesday, February 26th on Iranistan Avenue re: the proposed study, evaluation, and resolution to address flooding (past and future) in the South End.

I offer the following feedback to the draft:
my sentiment from the hearing, which is reinforced even more as we reach the deadline for feedback, is

153 • that there should not be a flood wall on Main Street;
154 • that Main Street should not be dead-ended at any point;
155 • that all of the historic elements in the South end be taken into account and preserved;
156 • that Seaside Park should not be cut off from access by the rest of Bridgeport.

157 Was a trench (canal) considered in the planning or is a wall the only option? We do not need walls in an area, that historically was a thriving viable community.

We understand that flooding is a severe potential problem that can create loss at great cost, etc. and that we must do whatever we can to prevent it from happening.
158 The State needs more time to determine the best option to take (not necessarily those already presented). Please consider extending the time. I do not feel that this has been vetted enough by stakeholders even though it has been a while in getting to this stage.

Sincerely,

Bernicestine Bailey

people who existed in that area before us. If we divided with these permanent structures people will lose the chance to fully experience the power of how triumphant this city is and it is important that we are intentional about being on the right side of history, because, you know, look at the amazing things that have happened in Weeksville, Brooklyn which is just like Little Liberia and absorb the potential of what can develop in our city. I am Shanna.

(Applause.)

THE HEARING OFFICER: Just a reminder if you have written comments, I'm going to ask you to hand it over to the stenographer. This actually concludes all the individuals we have listed on the form. I am going to open up to the audience. If there is anyone who feels impressed and they would like to offer comments now, you can please come up to the mike and do so.

MS. HILL: My name is Carolyn Hill. I am a relatively new resident to Seaside

Village, formerly of Stamford, embracing Bridgeport, and I support our Board in its request for the Eastern Alignment water pumping station. Just want to support that and make it known. Thank you.

(Applause.)

MR. BASLER: I am Frank Basler, B-a-s-l-e-r. Like Carolyn wanting to support what Monroe said. I am the president of Seaside Village. Especially the widening the pipe and increasing the capacity of the pumping station. I lost a car due to flooding earlier this year and the electrical system was totaled so. Thank you.

179

(Applause.)

MS. ROBINSON: Hi. My name is Gail Robinson and I'm also a resident of Seaside Village and I just want to support the Board's statement requesting a larger capacity for the pumping station so that it could accommodate a future CSO project which we're already in consultation with the City of Bridgeport regarding and we -- it's a very expensive project obviously

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

Raul Pino, M.D., M.P.H.
Commissioner

Ned Lamont
Governor

Susan Bysiewicz
Lt. Governor

Drinking Water Section

March 18, 2019

Rebecca French
Director of Resilience
State of Connecticut
Department of Housing
505 Hudson Street
Hartford, CT 06106

Re: Notice of EIE Resilient Bridgeport: Rebuild by Design and National Disaster Resilience Projects

Dear Ms. French:

54 The Department of Public Health Drinking Water Section's (DWS) Source Assessment and Protection Unit has reviewed the above Notice of Scoping. The subject project is not in a public drinking water supply source water area, but it is within the public water supply service area of the Aquarion Water Company Main System (AWC, PWSID #CT0150011). The Department of Housing should consult with the AWC on the locations of existing public drinking water
55 infrastructure. It is recommended that the DOH coordinate with the AWC to ensure that the proposed action is implemented in a manner that is compatible with the public drinking water infrastructure.

Sincerely,

Patricia Bisacky
Environmental Analyst 3
Drinking Water Section

Cc: Daniel Lawrence, Aquarion Water Company

Phone: (860) 509-7333 • Fax: (860) 509-7359
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410 Capitol Avenue, P.O. Box 340308
Hartford, Connecticut 06134-0308
www.ct.gov/dph
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From: Savage, Megan L.
To: French, Rebecca; Weymouth, Nicole
Cc: Toole, Laura
Subject: Fwd: Comments Regarding Project Draft
Date: Thursday, March 7, 2019 12:07:18 PM

From: Angela Capinera/ Your Mind in Bloom, LLC <yourmindinbloom@yahoo.com>
Sent: Thursday, March 7, 2019 12:00:29 PM
To: Admin
Subject: Comments Regarding Project Draft

Ms. French,

I am writing in regards to the Resilient Bridgeport's proposed version of what appears to be a wall in Bridgeport. I have had a few people reach out to me to ask me questions about this as I am involved with the local environmental community in the Greater Bridgeport area.

2 My first question, and no disrespect to yourself, but what does the CT Department of Housing have to do with this and why is this going to
3 Hartford if this involves Bridgeport? Also, why is a group from Delaware
4 involved? Who wrote the website? The language runs in circles and in some cases is clearly misleading. The opening line I read was, "today, water ponds in low-lying areas". It's a scientific fact from the beginning of human observation that water always follows the path of least resistance. Water has always "ponded" in low-lying areas and will always "pond" in low-lying areas whether one lives in Connecticut or anywhere else in the world.

5 Another question, who is funding all of this, the meetings, paying University of Bridgeport for the space, the website, the materials to
6 promote this? Why does Bridgeport get to be the test case when I've had my share of driving through flooded streets in New Haven, Norwalk, Stratford, and even Fairfield?

7 I have spent and spend a lot of time walking Seaside and the surrounding area as it has a gorgeous vista and I enjoy the water and scenery. I don't understand the rationale behind a "barrier"/ "flood control"/ "wall" that only goes through certain parts of the City and skirts the major plants that spend millions of dollars, or maybe billions, of dollars trying to maintain their infrastructure and also skirts the area of Captain's Cove, also highly prone to flooding.

8 Also, why on earth is one end of Seaside Park going to be completely blocked off? Isn't the purpose of the Park to improve the quality of life, as you so highly talk about on the website? Won't this stop people from walking and exercising in the Park, or is this the subliminal intent? What

about all of the people who live near the entrance? Won't they be blocked in? Won't this increase crime? Traffic congestion? How are emergency vehicles supposed to respond? How are the huge fire trucks supposed to turn around with a wall? Fire hydrants? What happens to those? What if an ambulance can't get through to someone having a heart attack in the Park because of that wall? What then? One life for the sake of what?

What happens if the wall doesn't work and it still floods? What are people supposed to do? What's going to happen to their houses? The Eliza Freeman Houses? History is just going to be swept away, or people just just don't care about history anymore?

What is this wall going to be made out of? Water is the strongest element on Earth due to it's chemical composition and my experience with contractors is they like the use the cheapest materials available. Right now everyone in Connecticut is paying $12 on home insurance because pyrrhite was used to build houses in the greater Hartford area and the foundations are crumbling. The homeowners have no help and little recompense. Are you going to personally guarantee something like this is not going to happen?

I spent many years building with Habitat for Humanity in the 1990s when the City of Bridgeport put up concrete barriers thinking they were going to solve all of the crime problems. They were a nightmare and did nothing. I remember driving around trying to find locations and running into those barriers and having to circumnavigate them to get to where I was going. I wonder how many people died waiting for help because those barriers were there.

Then there is the drainage/ catch basin idea. Nature has already created everything we need for natural drainage control. Unfortunately, we don't listen and don't research. There is a grass called spartina, there is the fragmites that are native to Connecticut and that maintain a species biodiversity of 24 species, there are ribbed mussels, oysters, there are trees, there are native grasses that can be planted.

I don't know who put all of the rocks at Seaside Park that edge the water now. However, all of the natural plants have been stripped away. If the initiative was taken to put in grasses that aren't European grasses, grow ribbed mussels and oyster beds, spartina, and other native species, I guarantee you within 5 years you will have a greatly improved environmental impact and a greatly improved flooding situation. You can grow them in and outside of the park.

As for the streets, the City of Bridgeport gave United Illuminating carte blanche to cut down trees. Now the impact is being felt. There are plenty of tree species that are fully adapatable to urban environments. If you want a list, I am happy to provide one or you can contact the National

18 Arbor Day Foundation and they will gladly assist you. Additionally, downtown New Haven surrounding Yale University, has storm water run-off drains that are pleasingly aesthetic to the area and do not interfere with pedestrian or vehicle traffic. Have you researched these? Perhaps the University of Bridgeport would prefer these over pipes and walls? They have shrubbery and grating. Before you begin more piping and more

19 basins, look around and see what other areas have done. Give property owners plants that they can plant in their yards or on the medians or their curbs that will sop up the water before they hit the streets. Butterfly bushes are most excellent for this. Wouldn't twenty thousand of these be cheaper and much prettier and improve the quality of life over pipes? You plant them and they are very low maintenance and meanwhile they prevent flooding, even for houses as they suck in water before it can go into basements. Their roots are shallow, they don't crack foundations, and they are beautiful to look at and provide support for many species of animals. I have three planted in my own yard for this very reason and I am always looking for more. I have no problems with floods or pooling water.

20 The website speaks of safety. It's been proven in study after study that the more trees and wildlife you have that it improves everything from mental health to property values. I don't understand how "retrofitting" sewer pipes does this. Stratford has spent millions on this exact same thing and the same areas still flood. Even in Petra, Jordan, the ancient Romans created a magnificent sewer system and the area still floods when hit with winter rains because the system can't catch everything.

21 The website also talks about "green" areas with the water being channeled into them. I'm confused. I thought you wanted all of the water to go out? All I can think of is bugs and more bugs. Don't you want to attract birds to eat the bugs? Maybe a wildlife sanctuary? Maybe a skate park, a possible "recreational area", since the one was taken down in Seaside. Maybe a combination of the two?

22 This plan has a lot of vague language and unanswered questions and smells of corruption. This can be much better thought out and better solutions can be found.

Thank you for your time. Have an awesome day.

Many Blessings! Have an awesome day!
Sincerely,

Angela Capinera

- 2016 & 2017 Honoree The President's Volunteer Award
- Town of Stratford Conservation Commissioner
- Small Business Owner
- Community Activist and Volunteer CT Justice of the Peace

Come join me:
Phone: 1-203-414-5176
www.facebook.com/AngelaCapinera
www.facebook.com/YourMindinBloom
LinkedIn: Angela Capinera
www.twitter.com/YourMindinBloom
www.yourmindinbloom.wordpress.com

From: Savage, Megan L.
To: French, Rebecca; Weymouth, Nicole
Cc: Toole, Laura
Subject: FW: Resilient Bridgeport Contact
Date: Thursday, March 14, 2019 10:27:36 AM
Attachments: image001.png

Good morning,

I received the comment below this morning. I am not sure if it is in response to the DEIS or just something he wanted to bring to our attention.

Thank you,

Megan Savage
Communications and Public Involvement Coordinator

Phone: 860-815-0299
Mobile: 860-457-8985
Email: megan.savage@wsp.com

WSP USA
wsp.com

From: Diego Celis [mailto:info@resilientbridgeport.com]
Sent: Thursday, March 14, 2019 10:17 AM
To: info@resilientbridgeport.com
Subject: Resilient Bridgeport Contact

You have a Contact form filled on resilientbridgeport.com, details are as below:

Name: Diego Celis

Email:paisa61@gmail.com

85 **Message:**As the only resident involved in keeping the rain garden alive after 2 hurricanes and resident opposition , I personally feel Seaside Village got short-changed inthe deal that got the Resilient Bridgeport going -because of the Yale rain garden- As it stands, we're worse off now, with the threat of the Winward development that will bring more residents across the avenue and will increase our flooding problems tenfold. So instead of solving our original problem, it got aggravated.

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This e-mail was sent from a contact form on Korin Law (http://199.199.50.129/korinlaw)

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This e-mail was sent from a contact form on Resilient Bridgeport (http://resilientbridgeport.com)

for 50 years and build a nice retaining wall or barrier which won't block the park at the same time everybody can get access to the park and that will be really appreciated because my basement was totally flooded up to the first floor and it's a disaster. So if people got water and sewer line destroyed and everything, it's another disaster so at the same time we need to preserve the park so everybody can get to the park to get there. So we're requesting engineers to please build the project, please make sure in the next 20 years it won't happen again. Thank you so much.

(Applause.)

MR. CRUZ: Good evening. My name is George, Jorge Cruz. I am a member and elected official of the Democratic Committee of the South End, this area here. I am also a member of the neighborhood revitalization of the South End. I just want to say that I agree with everything that everyone has spoken here in terms of the Freeman Houses, the Little

Liberians, Seaside Village, but I want to come from a perspective of a man who grew up in Bridgeport and I grew up in PT Barnum, came here in 1962. For some reason we always ended up in Seaside Park and now that we've got this massive project coming, I just hope and pray it's not blocking the beach to anybody. 185

Seaside Park is the crown jewel that I grew up with and we cannot block it to anyone and I hope and pray that it will also include some trees that they have been rooted out of there, crews have some trees for the wildlife and the birds and the trees so I can sit down under to be able to watch a baseball game. Again with this project that you're about to do to please consider that, too. Don't take the beauty away from Bridgeport. Let's beautify it. Let's all work together because Seaside Park to me is the crown jewel of the City and a lot of people look forward to coming to Seaside Park and we cannot block it in any way, shape or fashion. 186

When I grew up over here they didn't have those yellow gates that they have here. They close Seaside Park at eight o'clock at night. Before it was 24 hours a day. I could understand why they closed it because some years ago some violence was going on, but I hope and pray that some day they take those gates out of there and welcome everybody so we could be able to hang out at Seaside Park in the summer nights, nine, ten o'clock, midnight and enjoy the breeze coming from the beach because that is one of the most beautiful places to be that I grew up with and I would like to continue to enjoy that. Thank you.

MS. KELLY: Hi. My name is Barbara Kelly and I am a resident of the Cottages and that seems to be a little under represented here, so I would just like to voice my support for what was said already this evening. The Main Street, the western, what are you calling it the western alliance?

THE HEARING OFFICER: Alignment.

February 22, 2019

Dear Ms. Rebecca French, Director of Resilience,

I write to add comment to the topic of resiliency in the South End of Bridgeport, CT. I understand some attention is at long-last occurring through the Rebuild by Design and National Disaster Resilience projects. I live on Alsace Street in Seaside Village, and I have been here since 1999. So, I can account for twenty years' worth of experience in terms of area flooding and public health hazard.

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I can generally describe the experience as worsening, and I mean that apart from the two storm surges that inundated our streets and filled our basements to their ceilings during Sandy and Irene [storms or hurricanes]. The water table has continued to rise, over the decades, to the point now that I have two sump pumps in my basement which are active weekly all year round. I think the City sealed the sewer lines with some kind of lining too, and though that benefits them in terms of processing costs I feel it contributed to our water table rise. My pumps put the water out from the building about ten feet, only to have the water seep down to the foundation again and so it goes, an endless cycle of a large cluster of buildings mutually futilely pumping. This has increased our utility bills, and I feel it is a collective civil engineering or infrastructure issue that has been pawned off as an independent issue for each property to deal with.

Somewhere between four to eight times a year, mere thunderstorms in the city will flood the Alsace Street from out of the sewers to cover the street with septic water. I attach a picture I recently took of one of those floods covering Alsace Street with eight inches of such water. This public health menace is in addition to the weekly household garbage pick-ups that do not use drip pans in the trucks. I also include a picture of the puddles they leave behind every twenty feet every Friday all year long. This liquid too is septic. I assume that squeezing the water content out of the garbage that will be incinerated also benefits the city. Yes, for at least a decade and counting, my street is defiled by my own municipality with septic trash liquids and septic flood liquids that makes the Street resemble that of a city during the Middle Ages.

I appreciate your time, your public service, and your consideration.

Sincerely,

Robert Cullen

147 Alsace St.

Bridgeport, CT 06604

From: Savage, Megan L.
To: Weymouth, Nicole
Cc: Toole, Laura
Subject: Fwd: Response to Bridgeport Flood Wall Proposal
Date: Monday, March 18, 2019 9:51:26 PM

Get Outlook for Android

From: A Faiz <alphaomegastrategies@gmail.com>
Sent: Monday, March 18, 2019 7:23:53 PM
To: info@resilientbridgeport.com; rebecca.french@ct.gov
Subject: Response to Bridgeport Flood Wall Proposal

Dear Ms. French:

41 As a Downtown Bridgeport resident, I want to voice my deep concern about the proposed western alignment for a new flood wall. Rising sea levels are indeed a reality, and I'm relieved to see that the State has initiated discussions before a large-scale disaster happens in our largest city.

42 I am happy to spend over four hours commuting each weekday in order to have access to the unique treasures of this city. Direct and easy access to Seaside Park is the foremost attraction. The proposed western alignment may not impact my walk to the park, but it would wall off enough of my neighbors to make this letter necessary. Pushing through flawed plans that will destroy the quality of life for long-time residents is unjust and clashes against the sense of community involvement that the city has been fostering over the last year.

43 Also, I have been reading about the Freeman Center project and its promising potential to create a national treasure within our city. Allowing people to visit such a tourist site within an easy stroll of an expansive waterfront view is what any state dreams of. I urge the State to ask Congress for an extension so that we can all come together to map a plan that will protect and promote our residents, our history, and our future.

Respectfully yours,
Alexandria Faiz
323 Fairfield Avenue
Apartment 504
Bridgeport, CT 06604

From: Savage, Megan L.
To: Weymouth, Nicole
Cc: Toole, Laura
Subject: Fwd: South end flood remediation plan
Date: Monday, March 18, 2019 9:49:34 PM

Get Outlook for Android

From: Faith Fennelly <faithfennelly@gmail.com>
Sent: Monday, March 18, 2019 5:47:48 PM
To: info@resilientbridgeport.com; rebecca.french@ct.gov
Cc: Maisa L. Tisdale; Marcella Kovac
Subject: South end flood remediation plan

Dear Rebecca

My name is Faith Fennelly and I have spent the last year lovingly restoring one of the historic townhouses on broad street (#262). I have been a resident of the south end for over 6 years and I care deeply about the history and the future of our neighborhood. I want to make sure that the new flood berm plans incorporate feedback from the south end community and reflect the best interest of our diverse community. I am writing this evening to state that I stand with the freeman centers position on the following points:

44 • **No flood wall on Main Street. No Western Alignment.**

45 • **Don't dead end Main Street at University Avenue.**

46 • **Clearly show and explain the impact that changing Broad Street into a ramped roadway will have on the historic Palisser Townhouses on Broad near University.**

47 • **Protect all historic and cultural assets now and in the future.**

48 • **Don't construct (on purpose of by accident) a berm/barrier as high as the train tracks that closes in black and brown people, working and immigrant families, retirees, young & first-time homeowners on one side of Main St.; while luxury condos, a marina and UB are on the other.**

49 • **All Bridgeporters must have easy and equal access to Seaside Park and the Long Island Sound.**

50 • **Yes, Protect the neighborhood from floods, storms and sea level rise, but take the time to do it right. Protect future economic revitalization, property values, and the quality of life for current residents. Build with equity and social justice.**

Please do not hesitate to reach out to me with any questions or concerns. My cell is 12033312120

Thank you

Faith Fennelly

From: Savage, Megan L.
To: French, Rebecca; Weymouth, Nicole
Cc: Toole, Laura
Subject: FW: Regarding RBD project in Bridgeport 2019
Date: Monday, February 25, 2019 12:05:52 PM

From: Ulises Fernandez [mailto:ulifer59@gmail.com]
Sent: Monday, February 25, 2019 12:03 PM
To: info@resilientbridgeport.com
Subject: Regarding RBD project in Bridgeport 2019

Dear Ms French

I hail from Seaside Village at 77 Forest ST and as I work in Manhattan, regretfully, I will not be able to attend the RBD meeting tomorrow.

In order to address our chronic flooding in Seaside Village, I would like to request, if at all possible:

79 - We have a preference for the Eastern Alignment for the planned berm.

80 - A possible widening of stormwater and sewer pipes than currently planned

81 - A larger pumping station than is planned.

As I'm sure you receive many emails, this is meant to be short but nevertheless, I appreciate any assistance possible.

Thank you for your time.

Uli Fernandez

March 11, 2019

Ms. Rebecca French
Director of Resilience
Connecticut Department of Housing
505 Hudson Street
Hartford, CT 06106

Re: Comments on Draft Environmental Impact Statement/Environmental Impact Evaluation, dated January 2019

Dear Ms. French:

PSEG Power Connecticut LLC ("PSEG") has reviewed the Draft Environmental Impact Statement/Environmental Impact Evaluation, dated January 2019 ("EIE") and submits the following general comments on the project described in the EIE (the "Project"):

51 (1) Alternatives. Various alternatives/routes for the Project were very briefly discussed in "Section 3.2.2.1 Alternatives Considered, but Eliminated from Further Consideration" of the EIE. PSEG requests that DOH consider these alternatives again and in more depth. The other alternatives are more practical and do not implicate safety and access issues that are inherent in the proposed Eastern alignment.

52 (2) Stormwater. The EIE recognizes that the "chronic flooding issues are the result of both an aged and combined stormwater sewer system." The EIE proposes certain stormwater protections and enhancements. PSEG recommends that the Project ensure that additional steps and caution be implemented to ensure that the existing stormwater sewer system is not over-taxed or further degraded.

53 (3) Underground Utility Lines. A number of companies and utilities have operated in the South End for hundreds of years. The Project should be prepared to encounter various underground utility lines (known and unknown). The Project should take appropriate health and safety and construction measures to identify and deal with these lines without interrupting residential and commercial use in the South End.

Thank you for the opportunity to submit these comments for the Project's review and consideration.

Very truly yours,

Viking Construction, Inc.

March 18, 2019

Rebecca A. French, Ph.D.
State of Connecticut
Department of Housing
505 Hudson Street
Hartford CT 06106

RE: **Notice of EIE for Resilient Bridgeport: Rebuild By Design and National Disaster Resilience Projects**

Dear Ms. French:

Viking Construction, Inc., the general contractor for the Marina Village redevelopment and also local business within the City of Bridgeport, supports the Connecticut Department of Housing in the implementation of the National Disaster Resilience ("NDR") and Rebuild by Design ("RBD") disaster recovery grants. As explained in DOH's Draft Environmental Impact Evaluation, the South End neighborhood is susceptible to chronic flooding conditions due to a combination of inadequate stormwater infrastructure and its coastal location. It is our understanding that three projects located within the South End including the RBD pilot project at the former Marina Village public housing site, a flood risk reduction project on the east side of the South End, and a resilience center—that together would provide stormwater management, dry evacuation routes (dry egress), a coastal flood defense system, and resiliency education to the community. We feel that the proposed strategies effectively address the needed to protect residents and property from future storm surge events. 208

As you know, the city faces a shortage of quality affordable housing and we are very interested in supporting projects that address this issue, such as Resilient Bridgeport, which makes new development in the South End possible by reducing the threat of future flooding. Marina Village is one of the earliest developed public housing projects in the region which was severely damaged during Hurricane Sandy. We look forward to working with the JHM Group of Companies on planning and development initiatives that correct the mentioned chronic flooding issues, creating more sustainable housing options in Bridgeport's South End neighborhood. 209

Sincerely,

Anthony Gaglio
President

Affirmative Action, Equal Opportunity Employer
1387 Seaview Avenue, Bridgeport, CT 06607 TEL (203) 353-0260 / FAX (203) 353-0750
www.vikingconstruction.net

Horst Weber and the previous speaker has pretty much covered my concerns.

THE HEARING OFFICER: Thank you. Next we have Monroe Hassell.

MR. HASSELL: Good evening all. My name is Monroe Hassell as she mentioned and I'm the vice president of the Board at Seaside Village Homes and we'd like to make the following statement.

Dear Dr. French: Our Board of Directors has prepared the following requests for public record for the Envionmental Impact Statement on the RBD/NDR projects.

The first section of our comments pertain specifically to Seaside Village and the Rebuild by Design Pilot Project. The second section deals with the NDR project and the South End as a whole.

166 Rebuild by Design Pilot Project. Seaside Village has acute and chronic flooding problems that are not being addressed by RBD and NDR. In addition to the complex sources that contribute to both our acute and chronic flooding

problems, we continue to face extremely unsanitary conditions -- last year we had conditions with E.coli and this is caused by our present ancient CSO system. 167

While we hope that the RBD pilot project will address and manage water for the proposed Windward Community and not contribute further storm water management issues in Seaside Village, nothing at all has been done to include or do the same for Seaside Village as part of this pilot project. This is a shame for many reasons, but primarily because our resident population numbers were included in the presentation to the RBD judging panel as part of the total number of people who would be helped by the award if it were granted to Bridgeport's South End. 168

Once again, we are left to our own resources. Therefore, in order to resolve and find funding for our flooding problems, we are requesting that as part of the EIS or in an accompanying document as part of this project, the following be provided:

169 A; a detailed list of the capital improvements and activities that we can use to leverage funding for the issues we face; and B, access to the information collected pertaining to the acute and chronic flooding in Seaside Village in a document that can assist us in our funding efforts.

170 Additionally, we are requesting the following adjustments or changes in the proposed RBD CSO separation project for Iranistan Avenue.

We request wider storm water and sewer pipes than currently planned, and a larger pumping station than planned as well.

These two requests are being made to accommodate an anticipated future CSO separation project and other storm water management projects we seek funding for.

171 NDR project. We would like the assistance of HUD and the State of Connecticut in creating a partnership between PSE and G and the community to develop flood hazard mitigation that supports the Eastern Alignment.

172 supports the Eastern Alignment. We are not in favor of the Western Alignment.

173 We want Main Street to be a designated historical corridor. Every block stretching from the railroad tracks to Long Island Sound is either already listed on the National Register of Historic Places or is within the boundaries of the historic Little Liberia neighborhood. It should be a cultural corridor with commercial development on the eastern side of the street. The Western Option permanently precludes that option.

174 We want to ensure the economic development of the South End as a cultural tourism destination that also offers amenities to residents, be it Seaside Village, the Cottages, Freeman Houses and other South End historic buildings. Sincerely, Seaside Village Board. Thank you.

THE HEARING OFFICER: Thank you.

(Applause.)

THE HEARING OFFICER: We also have

From: French, Rebecca
To: Weymouth, Nicole; jeff.olszewski@stantec.com
Subject: FW: Comment on Resilient Bridgeport Plan
Date: Monday, March 18, 2019 1:50:25 PM
Attachments: image001.png

Rebecca A. French, Ph.D.
Director of Resilience
Department of Housing
State of Connecticut

E-mail: Rebecca.French@ct.gov
Phone: 860-270-8231
Cell: 860-381-9372

From: Niels Heilmann [mailto:niels.heilmann@gmail.com]
Sent: Monday, March 18, 2019 1:47 PM
To: info@resilientbridgeport.com; French, Rebecca <Rebecca.French@ct.gov>
Subject: Comment on Resilient Bridgeport Plan

Hello Ms French and Team,

148 I'd like to comment on the proposal and strongly condemn the proposed western alignment that would damage and destroy a local and national treasure.

As you are aware, Little Liberia was one of approximately seven pre-civil war free communities of color that acted as depots of the Underground Railroad. Of the seven, it is the only one that is salvageable and has original standing structures. As such, it is a treasured piece of history not just to Bridgeport but to of national significance.

After decades of grassroots preservation activity, the nation is finally paying attention. With nearly $2 million raised from private and public funds, including private donations from all over Fairfield and Westchester counties, the dream of a economically vibrant Little Liberia project, inclusive of, but not limited to the Freeman Houses, is coming to fruition. Let's pause to think about this. It's a rare opportunity for economic development that is not gentrification, but honors the rich African American and Native American history of the area.

The proposed western alignment would cut this momentum off just as it's getting going. It

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would continue a long and ugly tradition of kicking our African American history to the curb in favor of a gentrification project of luxury houses and a polluting corporate interest. We also believe main street must remain contiguous to Seaside Park.

As Maisa Tisdale said in her remarks at the public hearing, if the state can't stand up for the rights of the people, who can? We are relying on you not to allow the western alignment to be the latest in a history of pillaging the legacy of Little Liberia in favor of gentrification (the luxury apartments) and corporate interests (PSEG).

Sincerely,
Niels Heilmann
Treasurer, Bridgeport Generation Now

support the elevated Main Street that goes up and over and allows access to the park.

I think it's really important in this era of walls and borders not to create a barrier between the planned luxury housing that may or may not happen and the rest of the neighborhood. Those residents should be able to find their amenities and their needs met along Main Street as well. Thank you.

(Applause.)

THE HEARING OFFICER: Mr. Heilmann.

MR. HEILMANN: Thank you. So I'm just going to add no one knows more about this project -- I'm going to start actually by thanking Maisa and her board and all the community members with the progress that she just described as decades in the making of their hard work. And so to that end, I just want to add to what she said with a sort of commentary about the University Avenue egress for if it is in fact to be used as an egress for the luxury condominiums that are proposed. I just want to put into a little bit of

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context that I think we have a really rare opportunity here where you have both an opportunity for economic development that as Maisa pointed out $2 million that have been raised both publicly and privately and create economic development that is not gentrification; and so I think that all that this project can do needs to be done to prioritize that over the needs of a possibly to-be-created luxury condominium and I just think that is really important and so I would ask that the group do anything in there -- anything -- for the engineers that's possible to be done to support the Freeman Center's vision for the entire area of Little Liberia. Thank you.

THE HEARING OFFICER: Thank you. Mr. Weber?

MR. WEBER: Thank you. It was already commented by the previous speaker.

MS. TOOL: Could you just come to the microphone please, and just repeat that for the record?

MR. WEBER: Thank you. My name is

people who existed in that area before us. If we divided with these permanent structures people will lose the chance to fully experience the power of how triumphant this city is and it is important that we are intentional about being on the right side of history, because, you know, look at the amazing things that have happened in Weeksville, Brooklyn which is just like Little Liberia and absorb the potential of what can develop in our city. I am Shanna.

(Applause.)

THE HEARING OFFICER: Just a reminder if you have written comments, I'm going to ask you to hand it over to the stenographer. This actually concludes all the individuals we have listed on the form. I am going to open up to the audience. If there is anyone who feels impressed and they would like to offer comments now, you can please come up to the mike and do so.

MS. HILL: My name is Carolyn Hill. I am a relatively new resident to Seaside

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Village, formerly of Stamford, embracing Bridgeport, and I support our Board in its request for the Eastern Alignment water pumping station. Just want to support that and make it known. Thank you.

(Applause.)

MR. BASLER: I am Frank Basler, B-a-s-l-e-r. Like Carolyn wanting to support what Monroe said. I am the president of Seaside Village. Especially the widening the pipe and increasing the capacity of the pumping station. I lost a car due to flooding earlier this year and the electrical system was totaled so. Thank you.

(Applause.)

MS. ROBINSON: Hi. My name is Gail Robinson and I'm also a resident of Seaside Village and I just want to support the Board's statement requesting a larger capacity for the pumping station so that it could accommodate a future CSO project which we're already in consultation with the City of Bridgeport regarding and we -- it's a very expensive project obviously

From: French, Rebecca
To: Weymouth, Nicole; jeff.olszewski@stantec.com
Subject: FW: Flood wall in Bridgeport"s south end
Date: Monday, March 18, 2019 3:59:38 PM
Attachments: image001.png

Rebecca A. French, Ph.D.
Director of Resilience
Department of Housing
State of Connecticut

E-mail: Rebecca.French@ct.gov
Phone: 860-270-8231
Cell: 860-381-9372

From: Sonya Huber [mailto:indigomission@gmail.com]
Sent: Monday, March 18, 2019 3:57 PM
To: French, Rebecca <Rebecca.French@ct.gov>; info@resilientbridgeport.com
Subject: Flood wall in Bridgeport's south end

Dear Dr. French,

150 I am writing about the Draft Environmental Impact Statement for the flood wall being built in
151 Bridgeport's South End. I support the leaders of the Freeman Center organization in asking for
more details about the proposed flood wall including drawings. I join others in asking for more
information about the impact of the wall's placement so that residents can see the final structure.
152 It sounds as though a wall on Main Street will end up separating the neighborhood in two. I am in
favor of the Eastern alignment along the PSEG property, which I feel is only fair since the PSEG
location is already quite a prominent eyesore. Give the number of questions and the impact that
these structures will have on the economic and cultural life of the community, I think asking for
drawings and a bit more time from Congress is only fair.

Sincerely,

Sonya Huber

--

* * * * * * * * * *
Sonya Huber
Director, Fairfield U. Low-Residency MFA Program
Nonfiction Editor, Dogwood
122 Donnarumma
1073 N. Benson Road
Fairfield, CT 06824

(using gmail as reply to university emails; feel free to reply to either address)

BOOKS
New: Pain Woman Takes Your Keys and Other Essays from a Nervous System
The Evolution of Hillary Clinton
The Backwards Research Guide for Writers
Cover Me: A Health Insurance Memoir
Opa Nobody

From: French, Rebecca
To: Weymouth, Nicole; jeff.olszewski@stantec.com
Subject: FW: Comment on Resilient Bridgeport DEIS/EIE
Date: Monday, March 18, 2019 1:50:35 PM
Attachments: image001.png

Rebecca A. French, Ph.D.
Director of Resilience
Department of Housing
State of Connecticut

E-mail: Rebecca.French@ct.gov
Phone: 860-270-8231
Cell: 860-381-9372

From: John Humphries [mailto:john.humphries1664@gmail.com]
Sent: Monday, March 18, 2019 1:46 PM
To: info@resilientbridgeport.com
Cc: French, Rebecca <Rebecca.French@ct.gov>
Subject: Comment on Resilient Bridgeport DEIS/EIE

Dear Dr. French;

139 I am writing to support selection of the Eastern Alignment of the flood wall proposed for the South End of Bridgeport. I believe this alignment better addresses the needs of the local community by protecting the local historical and cultural assets and maintaining equal access to the Sound. It would be most unfortunate for this major infrastructure project designed to protect and improve Bridgeport's future in the face of climate change to reinforce, if not exacerbate, historical inequities.

I believe that PSEG's concerns about having the flood wall positioned on their property should not trump the concerns of local residents. The State of Connecticut should give greater weight to the voices of its citizens than the demands of a wealthy corporation.

140 Recognizing that NY and NJ have requested more time to appropriately resolve stakeholder concerns, I encourage CT to join with these other states in making that request.

Thank you for your consideration of these comments.

When I grew up over here they didn't have those yellow gates that they have here. They close Seaside Park at eight o'clock at night. Before it was 24 hours a day. I could understand why they closed it because some years ago some violence was going on, but I hope and pray that some day they take those gates out of there and welcome everybody so we could be able to hang out at Seaside Park in the summer nights, nine, ten o'clock, midnight and enjoy the breeze coming from the beach because that is one of the most beautiful places to be that I grew up with and I would like to continue to enjoy that. Thank you.

MS. KELLY: Hi. My name is Barbara Kelly and I am a resident of the Cottages and that seems to be a little under represented here, so I would just like to voice my support for what was said already this evening. The Main Street, the western, what are you calling it the western alliance?

THE HEARING OFFICER: Alignment.

187

THE WITNESS: Yes, the Western Alignment. I just can't imagine what that would look like. You don't have the setback to create like the visual that you provided going into the park. You know, we have the berm and how green and beautiful it is and it's very wide. It's got a huge girth. You don't have that space over there to create that so in my mind I'm seeing a wall and that is -- that would be really a shame. It just doesn't

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seem to work but, in any case, I also want to support my neighbors at Seaside Village and how, you know, my heart is broken that you didn't get -- they didn't -- nobody paid any attention to Seaside Village. So it feels like the existing, those of us who are there and in existing housing and there's hundreds, hundreds of families, you know, that maybe are not being as represented as well in the proposals of this project as those who are the utilities or those who have, you know, these plans where some big money, big development is happening so, you know,

From: Savage, Megan L.
To: French, Rebecca; Weymouth, Nicole
Cc: Toole, Laura
Subject: FW: Some comments on RBD/NDR projects from Seaside village residents
Date: Monday, February 25, 2019 9:33:57 AM

-----Original Message-----
From: Dmitry Pershyn [mailto:dmitrypershyn@gmail.com]
Sent: Sunday, February 24, 2019 11:45 AM
To: info@resilientbridgeport.com
Subject: Some comments on RBD/NDR projects from Seaside village residents

Dear Rebecca !

Being a part of Seaside Village Leaseholders (Bridgeport), we decided to make some comments on the letter we received recently.

1 In your letter you didn't mention any funds sources. And this is our biggest concern. Unfortunately if any of these projects will cause any property tax or any other pay increase that will be painful for us and we would say NO to these projects.

With best wishes.

Anna Korshunova and Dmitry Pershyn

907 South ave Bridgeport CT residents.

From: Savage, Megan L.
To: Weymouth, Nicole
Cc: Toole, Laura
Subject: FW: Flood Wall
Date: Monday, March 18, 2019 4:44:56 PM
Importance: High

I am going to stop sending Rebecca duplicates when she is copied on the original.

From: Marcella Kovac [mailto:split@thebananaland.com]
Sent: Monday, March 18, 2019 4:43 PM
To: info@resilientbridgeport.com; rebecca.french@ct.gov
Subject: Flood Wall
Importance: High

Hello, this is Marcella Kovac, resident and homeowner in the South End of Bridgeport.

My family and I have resided there for 7 years and owned our home for 5.

I apologize for not being able to attend the recent community gatherings, but I have a 1 year old and 3 businesses which prevent me from attending in many cases.

Regardless, I've been keeping up with progress as best as I can and wanted to share that I / we stand in alignment with the Freeman Center for the following:

141 • **No flood wall on Main Street. No Western Alignment.**

142 • **Don't dead end Main Street at University Avenue.**

143 • **Clearly show and explain the impact that changing Broad Street into a ramped roadway will have on the historic Palisser Townhouses on Broad near University.**

144 • **Protect all historic and cultural assets now and in the future.**

145 • **Don't construct (on purpose of by accident) a berm/barrier as high as the train tracks that closes in people of color, working and immigrant families, retirees, young & first-time homeowners on one side of Main St.; while luxury condos, a marina and UB are on the other.**

146 • **All Bridgeporters must have easy and equal access to Seaside Park and the Long Island Sound.**

147 • **Yes, Protect the neighborhood from floods, storms and sea level rise, but take the time to do it right. Protect future economic revitalization, property values, and the quality of life for current residents. Build with equity and social justice. CT must ask Congress for more time.**

Thank you for hearing us.

All the best,
Marcella

The Bananaland
162 Elm Street
Floor 3
Bridgeport, CT 06604
203-244-8345
thebananaland.com

Connecticut
still revolutionary

Department of Economic and Community Development
State Historic Preservation Office

March 18, 2019

Ms. Rebecca French
Director of Resilience, CTDOH
505 Hudson Street
Hartford, CT 06106
ATTN: Resilient Bridgeport

Subject: Draft Environmental Impact Statement/Environmental Impact Evaluation
Resilient Bridgeport: National Disaster Resilience and Rebuild by Design Projects
Bridgeport, Connecticut

Dear Ms. French:

The Connecticut State Historic Preservation Office (CT SHPO) has reviewed the referenced Draft Environmental Impact Statement (DEIS) as it pertains to activities in Connecticut proposed by the U.S. Department of Housing and Urban Development, which has delegated authority to the Connecticut Department of Housing (CTDOH). The stated purpose of the project is to, "to create a more resilient South End community, support its long-term viability, and improve health and safety for the community's vulnerable populations" including "Lower the risk of acute and chronic flooding, Provide dry egress during emergencies, [and] Educate the public about flood risks and sea level rise." SHPO further understands that the proposed activities consists of three actions, namely:

- Rebuild by Design (RBD) Pilot Project at the former Marina Village public housing site (to provide stormwater management and dry egress)
- Flood Risk Reduction Project on the east side consisting of a coastal flood defense system to reduce risk from acute storm events (i.e., severe or intense) and a combination of natural/green and fortified/gray infrastructure solutions, and
- Resilience Center to educate and facilitate increased resiliency within the community.

The DEIS does not identify a preferred alternative, but does identify two alternatives that meet the stated purpose and need for the project. SHPO understands that CTDOH will select an alternative (the Selected Alternative) in a Record of Decision. This office appreciates the opportunity to provide comments at this early stage of planning to inform future considerations with the understanding that additional consultation with this office under Section 106 process outlined in the National Historic Preservation Act, as amended, will be followed during future environmental review processes.

56 In regards to the *RBD Pilot program*, SHPO has previously commented on the demolition and new construction of the Former Marina Village, with a finding of no historic properties affected. However, the proposed RBD work is adjacent to the National Register of Historic Places listed Seaside Village Historic District (NR# 90001424). The proposed scope includes regrading (not elevating) of adjacent streets, construction of a new street, Johnson Street Extension, installation of new storm drains and pump, and creation of a stormwater park, located to the southeast of the district. The proposed scope for this section of the project will have no adverse effects to historic properties.

Connecticut still revolutionary | Department of Economic and Community Development
State Historic Preservation Office

Regarding the Flood Risk Reduction Project, both alternatives propose raising a portion of University Avenue, from Lafayette Street running east to Main Street, which is directly adjacent to the entrance of Seaside Park (NR# 82004373). The *Eastern Option* includes construction of a flood wall with flood gates at main road crossings, running east across the southern parcel boundary of 60 Main Street, to the sheet pile wall of the proposed PSEG Harbor Unit 5, then north along the western border of Emera's Bridgeport Energy's property, and finally terminate at the CTDOT New Haven Line railroad viaduct. This former New York, New Haven and Hartford Railroad line is potentially eligible for listing in the National Register under Criteria A and C, and includes numerous structures and features, including railroad viaduct retaining walls, catenary structures, and bridges at Park and Myrtle Avenues and Warren, Lafayette, and Broad Streets, as well as the under-grade railroad bridge (known as Bridge 43.21), located 600 Main Street. The *Western Option* would also consist of construction of a flood wall with flood gates at main road crossings, running east across a portion of the southern parcel boundary of 60 Main Street, but would turn north at Henry Street, then west along Henry Street, then north along the eastern side of Main Street to Singer Avenue, then turning east along the western boundary of the proposed Pequonnock Substation, and finally to the CTDOT New Haven Line railroad viaduct. This *Option* would be directly adjacent to the William Bishop Cottage Development Historic District (NR# 82004388). Both *Options* are within 250 feet of the individually listed Mary and Eliza Freeman Houses (NR# 99000110). Additionally, both options would involve ground disturbance in areas deemed to be have an elevated potential for containing intact archaeological deposits from both the historical and prehistorical areas, including prehistoric burial sites.

57 Both of the proposed alternatives constitute an adverse effect to historic properties, with particular concern given to the raising of University Avenue, which will negatively impact the entrance to Seaside Park, listed in the National Register under Criteria B and C as a "well-preserved Post-Civil War park
58 landscape" and "an important work of 19th-century civil engineering." However, the Western Option would also adversely impact the William Bishop Cottage Development Historic District, listed under Criteria B and C as "one of Bridgeport's first extensive tract developments, a community planned especially to provide an Innovative housing scheme for lower-income workers." Therefore, SHPO's Preferred Alternative is the *Eastern Option*, which would avoid the adverse impact to the William Bishop
59 Cottage Development, and potential archaeological resources in the vicinity of the Freeman Houses. This office expects additional consultation in accordance with Section 106 of the Nation Historic Preservation Act to minimize or mitigate the adverse effect in regards to Seaside Park, potential effects to the Freeman Houses regarding vibrations during construction of the flood wall, additional information regarding design of the flood barrier where it is proposed to be integrated into the railroad viaduct, and an archaeological assessment plan for the area of potential effect (APE).

60 Finally, the third proposed action, the creation of a *Resilience Center*, would directly impact the Mary and Eliza Freeman Houses, listed under Criterion A "as the last two houses to survive of "Little Liberia," a settlement of black freedmen in this area that began in 1831 and reached its apogee just prior to the outbreak of the Civil War." The properties are proposed to "operate as a community center, a central location for resilience information dissemination, and a location that could store supplies to assist the community with recovery efforts during or after storm events." This use has the potential to help preserve the structures, as they are currently unoccupied. However, an additional portion of the Resilience Center would be to create an "open-air landscaped site, including green infrastructure improvements, near the entrance to Seaside Park at University Avenue." More information is needed to evaluate the effect to both

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Seaside Park and the Freeman Houses, including design schema. SHPO looks forward to additional consultation to determine the potential effects.

CT SHPO appreciates the opportunity to review and comment upon this important planning document pursuant to the National Environmental Policy Act. We look forward to additional information regarding the decision-making process, with particular respect to the potential impacts to historic properties once an alternative has been selected. This office will continue to work with CTDOH to ensure regulatory compliance of Resilient Bridgeport. For additional information, please contact Marena Wisniewski, Environmental Reviewer, at (860) 500-2357, or marena.wisniewski@ct.gov.

Sincerely,

Catherine Labadia
Deputy State Historic Preservation Officer

From: Savage, Megan L.
To: French, Rebecca; Weymouth, Nicole
Cc: Toole, Laura
Subject: FW: Public Hearing for Resilient Bridgeport
Date: Monday, February 25, 2019 9:37:23 AM

From: Labelle, Paige (GE Corporate) [mailto:paige.labelle@ge.com]
Sent: Monday, February 25, 2019 9:01 AM
To: info@resilientbridgeport.com
Subject: Public Hearing for Resilient Bridgeport

Good morning Ms. French,

I am a resident of Seaside Village and I am unable to attend to the meeting on Tuesday for the Public Hearing for Resilient Bridgeport. I understand that I am able to share my thoughts with you regarding some of the projects going on.

Rebuild by Design Pilot Project

Regarding the sewer separation project for Iranistan Avenue, I am in favor of the following:

76 • Wider stormwater and sewer pipes than currently planned for be installed.

77 • A larger pumping station than currently planned for be installed.

NDR Project

78 I am in favor of the Eastern Alignment seawall.

Please let me know if you have any questions.

Best,

Paige

Paige A. LaBelle
Legal Administrator, Corporate Global Law & Policy

T +1 203 229 3579 M + 1 203 581 4765

General Electric Company
901 Main Avenue
The Towers at Merritt River
Norwalk, CT 06851

that's what I'm hearing as well. So thank you.

(Applause.)

MS. MAHER: Thank you so much. My name is Kathleen Maher, the executive director of Barnum Museum and I also serve although not in the capacity of a council member of the Connecticut SHPO.

I have had the privilege of coming to these meetings I think for about three years now and I've seen it grow and there's enormous dedication to it, but I also want to give a huge shoutout for the community members who have come to every single one of these meetings to make sure they've had their voices heard so this is important.

I would love to amplify what Maisa suggested about the Freeman Houses. Now is the time that that community needs to have a spotlight on it and recognize. It has struggled and assumed the burden of so many pressures from urban development and it has -- just in this last year, it has succeeded in getting national recognition,

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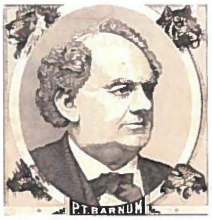
something that is enormously important, not just in the Bridgeport community but to American history. This is for everyone and the shame of putting a wall -- I can't even believe we're talking about a wall -- a wall that's going to suffocate this section of a community is a little alarming, especially now. It's going to restrict national public flow of people moving back and forth and then cutting Main Street off again. I mean the ballpark already does it, right, so now we're going to have it done again. How is that going to be a place to celebrate the history and heritage of all of those people that came before us.

So I don't need to speak any more but I thought it was important that because I am the director of yet another national site in this community that we fully support the Freeman community and the community that really represents the Freeman Houses; and the work that you do, too, Shanna, so I thank you very much.

(Applause.)

The BARNUM MUSEUM



February 26, 2019

TO: Rebecca French
Director of Resilience
CT Dept. of Housing
505 Hudson Street
Hartford, CT 06106
Rebecca.French@ct.gov

RE: **Resilient Bridgeport Public Hearing**
Schelfhaudt Gallery
Arnold Bernhard Arts and Humanities Center
84 Iranistan Avenue, Bridgeport, CT

My thanks for the opportunity to be a voice for the Bridgeport community on the Resilient Bridgeport project, and additional thanks for the recent invitation to assist as a consultant on critical NEPA and Section 106 issues. It is an honor to serve in these capacities.

Attending multiple meetings, workshops and community sessions over the years, I am inspired to witness the fierce dedication of the CT Department of Housing/ National Disaster Resilience and Rebuild by Design Project facilitators and I extend gratitude for their empathic work to ensure the South End neighborhood of the City of Bridgeport is respected through this important mitigation initiative.

As this project grew out of the massive impact on Bridgeport's shoreline from Super Storm Sandy in 2012, I would be remiss not to mention two previous Bridgeport storm anomalies that caused major damage. The Barnum Museum, a Nationally Significant Historic Site was struck by an EF 1 tornado in 2010 and Hurricane Irene in 2011. Sandy was the trifecta of natural disasters which impacted the City and the landmark site, and no one is more committed to disaster readiness and resiliency than the Barnum Museum. Although Resilient Bridgeport map-lines fall mere feet below the Museum's footprint, the Museum remains vehemently determined to ensure our community, our natural environment, and our built assets are protected for future generations.

Over time, the cultural fabric of Bridgeport has evolved, yet, the heritage of Bridgeport's history and legacies of Bridgeport families have deep roots. The South End of this historic City is a remarkable example of an American narrative that speaks to growth, struggles, resiliency and triumphs over time, change and challenges. From the Olmsted & Vaux Seaside Park landscape to the glorious vestiges of the Freeman Houses (one of the United States of America's most import historic landmarks), the South End is a public repository of our collective past and an open archive for those seeking enrichment and knowledge. The community serves as a formidable steward of this place and this ever-deepening history which is unique and irreplaceable.

As Resilient Bridgeport identifies very specific flood-risk reduction zones and lines are being drawn as to where protective barriers will be installed, it is critical that the needs of the community are paramount in decisions. Alignment zones will gravely impact the health and well-being of the South End community and potentially negatively affect the vibrancy of the Freeman House neighborhood.

200 The Eastern Alignment provides optimal protection to the community and equally respects the efficiencies of smart urban planning, current revitalization initiatives, historic preservation responsibilities, and recognizes community integrity and worth. These are the values that need to
201 guide all final decisions. Dead-ending Main Street (again) and compressing the street with a barrier will diminish the natural patterns of public flow and ultimately suffocate the already burdened neighborhood.

202 In order to breathe life into the South End, safeguard the vitality of all neighborhoods and champion this new, modern landscape as a dynamic and thriving place for all members of the Bridgeport community, I strongly urge the consideration of the barrier alignment that honors the Freeman House neighborhood and fully respects the cultural and historic heritage of this nationally significant site.

Testimony respectfully submitted,

Kathleen Maher
Executive Director
Barnum Museum
kmaher@barnum-museum.org

February 25, 2019

To Whom it May Concern:

73 I am writing to you regarding the proposed flood remediation plan for Bridgeport's South End Neighborhood. Upon careful review of the plan I would like to express my opposition to the western alignment of the proposed plan and my support for the eastern alignment.

74 As a homeowner of a historical property in the South End, I am extremely concerned about the negative impact of the western alignment plan which proposed to build a wall on Main Street. This not only would adversely affect historical properties on Main street, but will also limit any possibility of
75 economic development and growth on Main street. Additionally, this will severely decrease property values of the adjacent properties leading to a ripple effect in an already distressed neighborhood that has yet to recuperate from the 2008 recession.

This can all be avoided through the implementation of the eastern alignment which represents the least intrusive plan.

If you have any further questions I can be reached at 203.658.4256.

Best,

Andrew Martinez, MSW PhD

378 Atlantic St.
Bridgeport, CT 06606

JHM GROUP OF COMPANIES

1266 E Main Street, Suite 601
Stamford CT, 06902
Telephone: (203) 348-2644

March 18, 2019

Rebecca A. French, Ph.D.
Department of Housing
State of Connecticut
505 Hudson Street
Hartford CT 06106

RE: **Notice of EIE for Resilient Bridgeport: Rebuild By Design and National Disaster Resilience Projects**

Dear Ms. French:

203 On behalf of The JHM Group of Companies ("JHM") we appreciate of the opportunity to review and comment on the Draft Environmental Impact Statement/Environmental Impact Evaluation for the resiliency objectives of the National Disaster Resilience ("NDR") and Rebuild by Design ("RBD") disaster recovery grants. Upon reviewing the document, we strongly support the State of Connecticut Department of Housing ("DOH") in its efforts to implement three resiliency strategies that will provide stormwater management, dry evacuation routes (dry egress), a coastal flood defense system, and resiliency education to the City of Bridgeport. As explained in the EIE, the South End neighborhood is susceptible to chronic flooding conditions due to a combination of inadequate stormwater

204 infrastructure and its coastal location. Among JHM's greatest concerns, is the population of public housing residents currently living in the South End that will remain vulnerable to future flood events if this plan is not put into action.

JHM is currently working in conjunction with the Housing Authority of the City of Bridgeport to provide replacement housing for the Marina Village public housing complex whose existing, obsolete units present immediate health and safety threats for their inhabitants. Residents continue to live in these types of conditions because new, quality affordable housing units are scarce in Bridgeport. The Draft EIE/EIS effectively addresses the needed to protect residents and property from future storm surge events. The main component of the RBD plan involves utilization of the southern 2.5 acres of the Marina Village property that will be transformed into a stormwater retention park separated by a new Johnson Street extension for dry egress by residents and emergency vehicles. JHM has participated in regular planning with RBD and is excited to remain an active participant in the efforts of the initiative.

By way of leveraging public investment in the ongoing resiliency efforts through coordination with local stakeholders like JHM, the proposed plan will unlock development opportunities and improve existing open space amenities, building up the resilience of local energy systems. JHM looks forward to the progression of the resiliency plans that will eliminate heath disparities in our community and achieve health equity. If you should require any additional information, or have questions please feel free to contact me at (203) 595-5172 or via e-mail at todd@groupjhm.com.

Sincerely,

Todd D. McClutchy

From: Savage, Megan L.
To: French, Rebecca; Weymouth, Nicole
Cc: Toole, Laura
Subject: Fwd: RBD/NDR - EIS
Date: Monday, February 25, 2019 6:38:03 PM

From: Sheila McCormick <sheilamac76@me.com>
Sent: Monday, February 25, 2019 6:35:07 PM
To: info@resilientbridgeport.com
Cc: MaryAnn Provey; Ulises Fernandez; Carolyn Graham
Subject: RBD/NDR - EIS

Dear Ms French,
We are unable to attend the Public Hearing for Resilient Bridgeport on 2/26/19.
We understand these comments will be recorded for the RBD/NDR EIS.
We are residents of Seaside Village.
We are in favor of:
38 Wider stormwater & sewer pipes than currently planned for.
39 A larger pumping station than currently planned for.
40 Eastern Allignment.
Thank you.

Sheila and John McCormick
76 Forest St
Bridgeport CT 06604

Sent from my iPad

Miss Shanna Melton.

MISS MELTON: Hi everybody. I am not on the committee. I am Shanna. I am an artist and I just wanted to add my perspective to the conversation and I help with the Freeman Houses.

This letter is intended to add my

175 voice to the conversation. Among the many wonderful attributes of Seaside Park is the fact that it is accessible and visible for most traveled roads in our city. A wall is a restriction. Without the visibility of the park, it creates a divide that changes the feeling of the neighborhood. Bridgeport does not need any more corners that are unattended or unsafe. The history of that area should be preserved. There should be shops and places to eat while you enjoy the park. Businesses need to make a point of bringing back the hot dogs and sodas and ice creams and ways of spending your days that have moved forward like salads and smoothies and fresh foods and markets.

There are a lot of ways to bring life

into the waterfront but blocking it still makes it feel unwelcoming and that is not what our community strives toward. Developing the area instead of closing it off would benefit the economy and the community. We see this is successful in places like Captain's Cove which is also in Bridgeport. If you look at the success of Bridgeport Art Trail, Black Wall Street, and the Bridgeport Arts Fest in addition to many events that our community supports, it is evident that our safe and joyful spaces need to be accessible and preserved.

176 If you go to most waterfront areas like ours you see benches, places to eat, community gardens, galleries and many other creative uses of the gift. There are better ways to make use of this space besides filling it with dirt and creating an invisible corner.

Community members, churches, we celebrate our ancestors. There are people who do yoga and pray, exercise, create and seek quiet at the Main Street end of the

park. Community members appreciate the beautiful trees and statues, playgrounds and boardwalks just as much as the beach. This allows them access without having to go to the opposite end which if you are walking is quite a distance. The park parallels downtown through the west end of Bridgeport and it is not fair to people who live beyond either point to have to travel so far to enjoy our park.

We pride ourselves in being a park city yet this proposal would seemingly take away from getting into it. The restoration of the Freeman Houses with the help of the community will be a great way to travel and experience our history, and to become a tool to heighten literacy rates in our City. We should keep it accessible, bright and welcoming to our community while making sure the community is safe.

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I heard you about your pipes. That's real. The water is a passageway for The Underground Railroad and that entire area is a testament to the resilience of the

people who existed in that area before us. If we divided with these permanent structures people will lose the chance to fully experience the power of how triumphant this city is and it is important that we are intentional about being on the right side of history, because, you know, look at the amazing things that have happened in Weeksville, Brooklyn which is just like Little Liberia and absorb the potential of what can develop in our city. I am Shanna.

(Applause.)

THE HEARING OFFICER: Just a reminder if you have written comments, I'm going to ask you to hand it over to the stenographer. This actually concludes all the individuals we have listed on the form. I am going to open up to the audience. If there is anyone who feels impressed and they would like to offer comments now, you can please come up to the mike and do so.

MS. HILL: My name is Carolyn Hill. I am a relatively new resident to Seaside

MR. PETTWAY: Good evening. My name is Clifford Pettway and I grew up in the south end of Bridgeport in the Cottages and I remember at one time since the '70s at one time the south end of Bridgeport down at the entrance of Seaside Park was a very thriving community. We had so many restaurants and stores down there; Homer's, Kingsman Pub, County's, Alberto's just to name a few.

Back in 2011 I stayed there at the house during Hurricane Irene and I remember going outside that Sunday morning about 10:45 and looking down the street and saying "Hurricane Irene passed us by," and I just seen a stream of water coming down alongside the curb, and I went back in the house. I went back fifteen minutes later and the water was waist high. It happened just that fast. So me, myself, I don't know why they would put a wall on Main Street where it would be an eye sore for one thing and it would cut off another part of Main Street as Bluefish is right now where the Harboryard Arena as the lady

190

just mentioned. So I totally disagree with them putting a wall on Main Street. I think it's a poor decision on the part of everyone that's involved in it. That's all I have to say. Thank you.

(Applause.)

THE HEARING OFFICER: Anyone else who feels impressed to speak?

(No response.)

THE HEARING OFFICER: Seeing no one, as all the elected and appointed officials and members of the public have been heard, I, Hermia Delaire, call this hearing closed this evening. I want to remind everyone that public comments can be received through March 18. We thank you for attending this evening's public hearing on the Draft Environmental Impact Statement for the Resilient Bridgeport projects.

I would now turn you over and I'm going to ask everyone to please, if you can, let's stay for the second part of it, the program which will be the design workshop. I am going to hand you back

United States Department of the Interior
OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
15 State Street – 8th Floor
Boston, Massachusetts 02109-3572

March 14, 2019

9043.1
ER 19/0027

Rebecca French, Director of Resilience
Connecticut Department of Housing
505 Hudson Street
Hartford, CT 06106

Subject: **Draft Environmental Impact Statement (DEIS)**
Resilient Bridgeport
National Disaster Resilience and Rebuild by Design Projects
Bridgeport, Connecticut

Dear Ms. French:

The U.S. Department of the Interior (Department) has reviewed the Draft Environmental Impact Statement (DEIS) for Resilient Bridgeport, National Disaster Resilience and Rebuild by Design Projects. The Department has no comment on the DEIS. 86

Thank you for the opportunity to review and comment on the DEIS. Please contact me at (617) 223-8565 if I can be of assistance.

Sincerely,

Andrew L. Raddant
Regional Environmental Officer

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

79 Elm Street • Hartford, CT 06106-5127 www.ct.gov/deep Affirmative Action/Equal Opportunity Employer

March 18, 2019

Rebecca French, Director of Resilience
Connecticut Department of Housing
505 Hudson Street
Hartford, Connecticut 06106

RE: Resilient Bridgeport
National Disaster Resilience and Rebuild by Design Projects
Draft Environmental Impact Statement/ Environmental Impact Evaluation
January 2019

Dear Ms. French:

Thank you for the opportunity to review the above-referenced document and to provide these comments. As described in the Draft EIS/EIE, the proposed action consists of three separate components: 1) the Rebuild by Design project to provide improved stormwater management and dry egress to the Marina Village housing site, 2) a Flood Risk Reduction project on the east side of the South End consisting of a flood defense system to reduce the risk from acute coastal storm events, and 3) a Resilience Center to educate the public about resiliency and serve the public during storm events. DEEP has previously provided scoping comments dated April 3, 2018 on this project. For your convenience, as well as to avoid substantial repetition, these comments are attached to the current submittal.

As was pointed out at the February 26, 2019 public hearing/ design workshop at University of Bridgeport, substantial design work has occurred since the time that the EIS/EIE was prepared. Much of the discussion in the EIS/EIE is conceptual or generic in nature. As such, details including the location of the flood defense system, the number and location of pumphouses, and the routing of stormwater conveyance remained to be determined as of the time the EIS/EIE went to print. DEEP's comments will therefore address area resources and project impacts in a manner consistent with the level of detail and specificity contained in the EIS/EIE.

Rebuild by Design Improvements at Marina Village

87 DEEP is fully supportive of the proposed stormwater improvements at the Marina Village site. Upgrades to the inadequate and undersized stormwater drainage system in this area will reduce the frequency of localized flooding and of surface discharges of combined stormwater/sanitary flows. The proposed 2.5-acre stormwater park will provide for retention and infiltration of a significant portion of stormwater, in addition to the aesthetic and recreational benefits it will offer. The provision of dry egress through the extension of Johnson Street and the raising thereof will be a major public safety improvement both for the residents and for emergency, city and utility personnel who must access the area during flood events. All of these benefits will improve life for area residents both of the future Windward development or the existing Marina

Village, whichever is the case at and after project implementation, as well as benefiting other proximal residents of nearby streets.

88 The use of the existing Outfall E to Cedar Creek Reach as the discharge point for the stormwater from the raingarden appears to be a logical choice as an outfall. As mentioned on page 4.11-20 for the currently unused Outfall C, the redevelopment of Outfall E for the proposed purpose would require an NPDES Permit from Water Permitting and Enforcement Division of
89 DEEP. In addition, depending on whether any work will be necessary below the coastal jurisdiction line of Cedar Creek Reach, a Structures, Dredging and Fill Permit could be required
90 from the Land and Water Resources Division of DEEP. In any case, the impacts of the redeployment of Outfall E for the raingarden discharge would be expected to be minor in comparison to the benefits of the improved stormwater management following construction of the
91 stormwater park basin. As with the larger flood risk reduction project, a Flood Management Certification will be required for this project as state and federal funds are being utilized for modifications of a drainage system located within a mapped FEMA floodplain.

92 Discussion on page 4.8-14 refers generically to protective measures to be undertaken to safeguard the grove of sycamores at Marina Village and the existing street trees along South Street. Good intentions are often not enough to protect trees at construction sites from being damaged or killed. Consideration should be given to penalties or incentives in the construction contracts to provide financial motivation to promote the survival of these trees through the construction period and perhaps for one growing season after project completion.

93 The EIS/EIE makes numerous references to Marina Village using terms such as 'the site of the former Marina Village'. While the eastern portion of the complex has been demolished, most of Marina Village is still intact and occupied. The repeated references to Marina Village in the past tense are a curious recurring wording throughout the document.

Flood Risk Reduction Project

94 The floodwall, berm and, to the extent it is relied upon to keep floodwaters out of the project area, the raised portion of University Avenue, will be considered for regulatory purposes as a dam and will require a Dam Safety Permit pursuant to Connecticut General Statutes (C.G.S.) section 22a-403. In accordance with C.G.S. section 22a-403(b), Flood Management Certification
95 is not required when a Dam Safety Permit is required. Although a Flood Management Certification will not be required for the construction of the flood defense system, the Dam Safety Permit application must demonstrate compliance with the factors for consideration under the Flood Management Program. Specifically, the project must demonstrate that it is in the public interest, will not injure persons or property and complies with the National Flood Insurance Program.

96 Another consideration for the Flood Risk Reduction Project is the State policy for floodplain development set forth in C.G.S. section 25-68d(b)(4) which requires any action within a floodplain to demonstrate that "The proposal promotes long-term, non-intensive use of the floodplain and has utilities located to discourage floodplain development". There is at least a potential conflict between the proposed Flood Risk Reduction Project and this State policy. This will require the eventual project proponent/ applicant to demonstrate why the proposed action is consistent with this State policy.

97 In view of the level of risk to persons and property that could ensue should the proposed floodwall and/or berm fail, the proposed combined structure would be considered and regulated as a high hazard dam. The floodwall, berm or other levee must satisfy the highest of the following criteria: (1) be accredited by FEMA to withstand the 100-year tidal flood plus the amount of freeboard required by FEMA so that the area behind the levee can be designated as "area protected by a levee" or (2) the design needs to provide protection up to the 500-year coastal flood, factoring
98 in sea level rise. The project applicant will need to submit documentation to FEMA showing that the proposed floodwall meets the requirements of Title 44 of the Code of Federal Regulations Section 65.10 (44CFR 65.10) in order to obtain "levee certification". For more information or questions on Flood Management, please contact the Jeff Caiola with the Land and Water Resources Division at 860-424-4162.

99 Also, be advised that the Dam Safety application must address potential adverse impacts to structures located outside the berm. In addition, there are several potential pitfalls with building a flood control levee in a developed area. Existing storm and sanitary sewers and other
100 underground utilities are located under the proposed floodwall. The underground utilities and their intersections with the floodwall will require special attention during the design process. The floodwall and berm shall be designed so as to prevent seepage under the flood retarding structure. For Dam Safety Permit information, please contact Peter Spangenberg at (860) 424-3870 or Chuck Lee at (860) 424-3716.

101 At least as of the February 26 public hearing, the question of the alignment for the proposed floodwall was still not settled. As expressed at that hearing, there was a strong public preference for the eastern wall alignment, and that alignment also appeared to be the preference of the planning team. The eastern alignment is certainly preferable in terms of the acreage and facilities protected. DEEP understands that the selection of an alignment for the floodwall is, in large measure, to be determined by the ability of the project sponsors to obtain the necessary easements from the private property owners (for the eastern alignment) or from the City of Bridgeport (for the western alignment).

Also not determined as of the date of the public hearing was the number and location of pump stations to be constructed to pump stormwater which collects on the 'wrong' side of the
102 floodwall and discharge it on the 'right' side of the wall. The exact location of the pump station(s) is not a substantial regulatory concern of DEEP due to their limited footprint and the probability that they will not impact any resources under our jurisdiction. However, as covered later in the discussion of necessary project permits, the potential need for permits to cover the emissions from these facilities, and also the pumphouse for the Rebuild by Design project, is one that needs more attention.

103 According to discussion on page 4.8-17, it was an open question at the time of EIS/EIE preparation as to whether tidegates would be incorporated at the stormwater outfalls. Given the mission of the drainage improvements, tidegates would certainly be useful on any outfalls not directly connected to a pumping station in order to keep rising coastal waters on the proper side of the floodwall. The incorporation of tidegates, or the rationale for why they are not needed, should be addressed in the FEIS, including some analysis of how the inclusion or lack of tidegates would affect the frequency of operation of the pumphouses and the efficiency of their operation.

Resilience Center

104 The EIS/EIE highlights a Resilience Center as the third component of the Resilient Bridgeport project. As of the writing of the EIS/EIE, neither the purpose nor the location of the resilience center had been determined. In all probability, the construction and operation of the resilience center will not involve any regulatory or resource issues under the purview of DEEP. For this reason, and the lack of any specific details about the center, these comments will not cover that aspect of the Resilient Bridgeport proposal.

Natural Diversity Data Base

105 Page 4.8-10 of the EIS/EIE notes the filing of a request for review of potential impacts to State-listed species for the proposed project and site. By letter of March 11, 2019 to Jessica Denzler of Arcadis, your project team has been informed that no negative impacts to State-listed species are anticipated as a result of the proposed activities. The presence of a peregrine falcon at the Pequonnock River Metro-North bridge was the species of greatest interest to the NDDB program as to potential impacts but, given that the nearest project activity would be the northernmost terminus of the floodwall, which is approximately 1,700' from the Metro-North bridge, no impacts to the peregrine falcon are anticipated.

Permits and Approvals

106 A list of federal, state and local permits is given on page 4.17-14 of the EIS/EIE. It is unclear what the fifth and sixth permit entries in the State section correspond to. These are listed as CT DEEP LWRD General Permit Registration Form and CT DEEP LWRD Long Island Sound.

107 The other State permits given on Page 4.17-14 are accurate, with the caveat that the Permit for Diversion of Waters of the State would be needed only if an area of 100 acres or more drains to a common point. For instance, if any of the pumphouses or outfalls will individually receive stormwater from 100 or more acres, a diversion permit would be necessary for that discharge.

108 Also, as mentioned earlier, the pumphouse engines may require New Source Review Permits if the potential-to-emit (PTE) of any individual air pollutant exceeds 15 tons per year. As an alternative, the engines may operate as emergency engines under section 22a-174-3b(e) of the Regulations of Connecticut State Agencies if they will not exceed 300 hours per year of operation and will maintain records to document their hours of operation and the sulfur content of their fuel. Pump manufacturers must certify their pollution emissions rates to EPA for the operation of their equipment in conformance with their O&M specifications. Thus, DEEP cannot provide firm guidance on the qualification for the emergency exemption or, alternatively, the potential need for a New Source Review Permit, in the absence of specific information on the pumps which will be employed. James Grillo of the DEEP Air Management Bureau can be contacted at (860) 424-3570

109 in this regard. Any engines that have a PTE of less than 15 tons per year are not subject to permitting, however there may be federal rules that may apply to the operation of the pumphouse engines.

Rodent Control Plan

110 Page 4.12-10 mentions that the construction work connected with this project could result in the displacement of urban wildlife from construction activity and street tree removal. This point does not specifically mention a problem that has occurred at other construction projects in urban environments. The street drainage work in particular could cause problems with rodents moving out of pipes and drainage basins and into the neighborhood. Recent mild winters have helped

111 rodent populations to more successfully overwinter, thereby increasing their numbers. An integrated pest management plans should be developed to address the potential for rats and other rodents to be disturbed and mobilized by construction work and to become a nuisance in the community.

Hazardous Materials

112 Section 4.6 of the EIS/EIE contains an extensive inventory of properties within the study area which have had historic involvement with hazardous materials or which may present some risk of encountering contaminants. The proposed mitigation and best management practices listed in section 4.6.4 are appropriate given the historic uses of the properties in the study area and the identified potential contaminants of concern. The City must ensure that any excavated materials are properly managed.

113 Individual potential release areas should be evaluated separately, as opposed to characterizing the general soil quality in the specific areas of the project. If pollution is determined to be the result of a discharge, spill, etc., additional evaluation of the extent of the contamination, extent of removal, and disposal requirements may be required.

114 It is unclear if polluted soil will be reused as part of the project. Any potential reuse of polluted soil must be conducted consistent with DEEP's remediation standard regulations, meet
115 applicable criteria, and be coordinated with the DEEP Remediation Division. In addition, any reused polluted soil must be placed above the water table, not be subject to erosion, and must not create an arbitrary landform. In the event that PCBs are present, the DEEP PCB Unit should be consulted regarding any specific characterization requirements.

Seaside Park Landscaping

116 Page 4.12-11 mentions limited removal of parkland vegetation along the northeastern border of Seaside Park. The Final EIS would benefit from a more concrete description of the vegetative or landscaping losses expected to occur in Seaside Park and the plans for mitigation or replacement thereof.

Comments for Final EIS

In view of the fact that a final version of the EIS/EIE will be prepared, a number of admittedly minor points are noted below which would benefit the subsequent FEIS if addressed.

117 First and foremost, a comprehensive table of contents at the beginning of the document would help readers navigate through this extensive report rather than having to look for the breaks in the pagination sequence to identify where a new section is and then what its content consists of.

118 For figure 4.10-5 on page 4.10-13, an understanding of this map would benefit from some discussion in the text to define what constitutes a 'pier street' and a 'connector street'. The lack
119 of these definitions compromises the value of this figure. Also, the reference to this figure on the preceding page refers to it as figure 4.11-5 rather than figure 4.10-5.

120 Page 4.10-19 mentions the intersection of University Avenue and Atlantic Avenue. In fact, these two streets do not intersect. The text should probably say, in reference to Box A, the intersection of University Avenue and Lafayette Street.

121 The text at the bottom of page 4.13-7 mentions six floodgates to be provided for the eastern floodwall alignment, but then lists only four locations. If any of these four locations would host multiple floodgates, adding that detail in the listing would be helpful.

122 The percentage increase in area protected by the eastern wall alignment as compared to the western wall alignment at the bottom of page 4.10-14 is given as 39%. In fact, the eastern alignment protects 64% more acreage than the western alignment.

123 In the discussion of electric and gas utilities on pp. 4.13-9 and 4.13.10, the statement is made on the latter page that "Although UI does not directly supply residences with electricity in the study area, it owns and operates the Pequonnock Substation, …." In fact, United Illuminating is the retail electric supplier in the South End and in all of Bridgeport and does directly serve the customers in the study area.

Thank you again for the opportunity to review the draft EIS/EIE for the Resilient Bridgeport project. Best wishes to you as you proceed with the planning and development of these component actions. Feel free to contact me at (860) 424-4110 or at Frederick.riese@po.gov should you have any questions concerning these comments.

Respectfully yours,

Frederick L. Riese

Frederick L. Riese
Senior Environmental Analyst

Attachments: (1)

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

79 Elm Street • Hartford, CT 06106-5127 www.ct.gov/deep Affirmative Action/Equal Opportunity Employer

To: Hermia Delaire, Program Manager, CDBG Disaster Recovery Programs
Department of Housing, 505 Hudson Street, Hartford CT 06106

From: Linda Brunza- Environmental Analyst **Telephone:** 860-424-3739

Email: Linda.Brunza@ct.gov

Date: 4/3/2018

Subject: Scoping Notice for Resilient Bridgeport: National Disaster Resilience and Rebuild by Design Projects

The Department of Energy and Environmental Protection (DEEP) has received the Notice of Scoping by the Department of Housing for the National Disaster Resilience Projects in Bridgeport. An Environmental Impact Evaluation will be completed to analyze the potential environmental and social effects of the projects being proposed to improve coastal and social resiliency. The following comments are submitted for your consideration.

Flood Management

The proposed activities that will be undertaken under the Rebuild by Design pilot project must be certified as being in compliance with flood and stormwater management standards and receive approval from DEEP, (i.e., the 2.5 acre stormwater park, reconstruction of Johnson & Columbia Streets, and stormwater improvements along Iranistan Avenue). These standards are specified in section 25-68d of the Connecticut General Statutes (CGS) and section 25-68h-1 through 25-68h-3 of the Regulations of Connecticut State Agencies (RCSA). A Dam Safety Permit will be required for the Flood Risk Reduction component of the project which includes the construction of floodwalls and landscape berms (levees). In accordance with section 22a-403(b) of the CGS, Flood Management Certifications are not required when a Dam Safety permit is required. Although a flood management certification will not be required for the construction of the levees, the Dam Safety permit application must demonstrate compliance with the factors for consideration under the Flood Management program. Specifically, the project must demonstrate that it is in the public interest, will not injure persons or property and complies with the National Flood Insurance Program.

State policy regarding floodplain development is articulated in section 25-68d (b)(4) of the CGS: "*The proposal promotes long-term non-intensive floodplain uses and has utilities located to discourage floodplain development.*" In order to be certified, a proposal must be determined to be a non-intensive use of the floodplain. The determination of whether a specific proposal is considered non-intensive requires examination of numerous factors including, but not limited to, the existing state of the floodplain and its natural resources, the types of uses proposed for the floodplain area, the design of the entire proposal and the extent of encroachment into the floodplain, and the availability of alternatives to siting within the floodplain. Construction of the levees does not promote long term non-intensive floodplain uses as defined by the statute. Therefore, this aspect of the project does not meet section 25-68(b)(4) of the CGS and is considered an intensive use of the floodplain. Normally, this would require an exemption from the flood statutes; however, since a

dam safety permit is required, flood management certification is not needed. Therefore the criteria for flood management certification will be addressed through the dam safety application.

With regard to the proposed high hazard dam to meet flood management certification requirements and dam safety design storm requirements, levees must satisfy the highest of the following criteria: (1) be accredited by FEMA, to withstand the 100-year tidal flood plus the amount of freeboard required by FEMA so that the area behind the levee can be designated as "area protected by a levee" and (2) the design needs to pass the 500-year coastal flood factoring in sea level rise. For more information or questions on Flood Management, please contact the Jeff Caiola with the Land and Water Resources Division at 860-424-4162.

Also, be advised that the Dam Safety application must address potential adverse impacts to structures located outside the berm. In addition, there are several potential pitfalls with building a flood control levee in a developed area. Existing storm and sanitary sewers and other underground utilities are located under the proposed levee. The underground utilities and their intersections with the levee will require special attention during the design process. The levee shall be designed so as to prevent seepage under the flood retarding structure. For Dam Safety permit information, please contact Peter Spangenberg at 860-424-3870 or Jennifer Perry at 860-424-3802.

Coastal Management
The proposed project is within Connecticut's coastal boundary as defined by section 22a-94 of the CGS and is subject to the provisions of sections 22a-90 through 22a-112 of the Connecticut Coastal Management Act (CCMA). Prior to a Federal action, including the granting of funds directly affecting the coastal zone, a determination of the consistency of such action with Connecticut's approved Coastal Management Program must be made pursuant to 15 CFR 930. For further information concerning coastal consistency reviews, contact the office at 860-424-3019. Coastal consistency review forms can be downloaded from the DEEP website: Coastal Consistency, Federal and State.

Coastal management concerns which must be addressed in future phases of the project planning process are: avoidance or mitigation of potential flooding threats, particularly for any residential-type uses that might be proposed within the coastal flood hazard area; displacement of existing water-dependent uses, if any such uses exist and do not adversely affect coastal resources, by non water-dependent uses; the potential mobilization of pollutants in contaminated soils at former/current waterfront industrial sites; and appropriate use of urban retrofit stormwater best management practices, wherever possible.

The project, or portions thereof, can be considered to be a municipal improvement according to section 8-24 of the CGS. Therefore, a Coastal Site Plan Review, in accordance with sections 22a-105 through 22a-109 of the CGS, must be included in the review by the local planning commission.

Before a building permit can be granted for this project, the local building inspector must certify that the Coastal Site Plan Review requirements pursuant to sections 22a-105 through 22a-109 of the CGS have been met.

If local planning and zoning approvals, variances or building permits are required for this project, the Coastal Site Plan Review requirements of sections 22a-105 through 22a-110 of the CGS would be applicable. In accordance with section 22a-109(b), minor additions to or alterations of existing

buildings may be exempt from these requirements. The municipal planning and zoning commission or designated zoning official should be consulted regarding this matter.

Water Diversion
Part of the Resilient Bridgeport project includes addressing how stormwater flows in the South End. Any collection and discharge of runoff, including stormwater drainage or skimming flood flows, from a watershed area of 100 acres or greater; relocation, retention, detention, bypass, channelization, piping, culverting, ditching, or damming of waters where the drainage tributary to such waters is 100 acres or greater; or the transfer of water from one distribution system to another where the combined maximum withdrawal from any source supplying the system or interconnected systems exceed 50,000 gallons during any 24-hour period, may require a permit from the Land and Water Resources Division for the diversion of waters of the State pursuant to section 22a-368 of the CGS and section 22a-377(c)-1 of the RCSA. For further information please contact Jeff Caiola with the Land and Water Resources Division at 860-424-4162.

Threatened and Endangered Species
The Natural Diversity Database maps represent the approximate locations of species listed by the State, pursuant to section 26-306 of the CGS, as endangered, threatened or of special concern. The maps are a pre-screening tool to identify potential impacts to state listed species. Portions of this project fall within one of these areas. The applicant is required to submit a *Request for Natural Diversity Data Base (NDDB) State Listed Species Review Form* (DEEP-APP-007) and all required attachments, including maps, to the NDDB for further review. Additional information concerning NDDB reviews and the request form may be found on-line at: NDDB Requests.

Stormwater During Construction
Stormwater discharges from construction sites where one or more acres are to be disturbed, regardless of project phasing, require a permit from the Permitting & Enforcement Division. The *General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities* (DEEP-WPED-GP-015) will cover these discharges. For projects disturbing five or more acres, registration describing the site and the construction activity must be submitted to DEEP prior to the initiation of construction. A stormwater pollution control plan, including measures such as erosion and sediment controls and post construction stormwater management, must be prepared. A goal of 80 percent removal of total suspended solids from the stormwater discharge shall be used in designing and installing post-construction stormwater management measures. The general permit also requires that post-construction control measures incorporate runoff reduction practices, such as LID techniques, to meet performance standards specified in the permit.

The construction stormwater general permit dictates separate compliance procedures for Locally Approvable projects and Locally Exempt projects (as defined in the permit). Locally Exempt construction projects disturbing over 1 acre must submit a registration form and Stormwater Pollution Control Plan (SWPCP) to DEEP. Locally Approvable construction projects with a total disturbed area of one to five acres are not required to register with DEEP provided the development plan has been approved by a municipal land use agency and adheres to local erosion and sediment control land use regulations and the *CT Guidelines for Soil Erosion and Sediment Control*. Locally Approvable construction projects with a total disturbed area of five or more acres must submit a registration form to DEEP. This registration shall include a certification by a Qualified Professional who designed the project and a certification by a Qualified Professional or regional Conservation District who reviewed the SWPCP and deemed it consistent with the requirements of the general

permit. The SWPCP for Locally Approvable projects is not required to be submitted to DEEP unless requested. For further information, contact the division at 860-424-3018. A copy of the general permit as well as registration forms may be downloaded at: *Construction Stormwater GP*.

Thank you for the opportunity to review this project. These comments are based on the reviews provided by relevant staff and offices within DEEP during the designated comment period. They may not represent all applicable programs within DEEP. Feel free to contact me if you have any questions concerning these comments.

cc: Robert Hannon, DEEP/ Office of Policy, Planning and Program Development
Jeff Caiola, DEEP/ Land & Water Resources
Jennifer Perry, DEEP/ Dam Safety
Peter Spangenberg, DEEP/ Dam Safety
Robin Blum, DEEP/ Natural Diversity Database

Village, formerly of Stamford, embracing Bridgeport, and I support our Board in its request for the Eastern Alignment water pumping station. Just want to support that and make it known. Thank you.

(Applause.)

MR. BASLER: I am Frank Basler, B-a-s-l-e-r. Like Carolyn wanting to support what Monroe said. I am the president of Seaside Village. Especially the widening the pipe and increasing the capacity of the pumping station. I lost a car due to flooding earlier this year and the electrical system was totaled so. Thank you.

(Applause.)

MS. ROBINSON: Hi. My name is Gail Robinson and I'm also a resident of Seaside Village and I just want to support the Board's statement requesting a larger capacity for the pumping station so that it could accommodate a future CSO project which we're already in consultation with the City of Bridgeport regarding and we -- it's a very expensive project obviously

180

and a larger pumping station capacity could make the difference in terms of whether the City funds it and goes forward with it or not. But also we would like to see a larger diameter of pipes for both the sewer and the storm water so that we could, you know, link into it and, you know, that could also help us, you know, to get that CSO project which we really badly need.

181

You know, our combined sewer storm water system was put in in 1918 and, you know, it's limited in capacity and we end up with a lot of chronic flooding and it's that's only going to get worse with the sea rise and we have been flooded in Irene and Sandy. We deal with a lot of flooding and yet, you know, we just weren't included in anything that came up in either of these two projects and it's not a lot to ask. We just you know would like to see some accommodation to recognize our needs and to help us a little bit.

182

We're also in favor of the Eastern Alignment. The Western Alignment we're

183

very concerned about what it does to Main Street, what it does to places like Freeman Houses and, you know, the way it blocks off Main Street and it doesn't seem like the best solution and it sounds like a plan B and we just want to really support you on that; that we hope you get the Eastern Alignment. Thank you.

(Applause.)

MR. SERGIYENKO: Good evening. My name is Volodymyr Sergiyenko and I am a resident of Main Street. The one of the closest park to the Seaside Park and the water. So thank you everybody who came here. The reason is it's not because everyone should concern about own house, own needs and everybody talked about the preservation of the park; the development and future. Sandy came and this is the reason that we're here and who knows, in another ten, 15 years, the hurricane or flood is going to be twice wider and larger than right now. So I would appreciate if engineers will think ahead of time for the next not only 15, 20 years

Weymouth, Nicole

From: Savage, Megan L.
Sent: Monday, March 18, 2019 9:50 PM
To: Weymouth, Nicole
Cc: Toole, Laura
Subject: Fwd: Bridgeport Coastal Resiliency and the potential to revitalize Main Street in the South End
Attachments: Bridgeport South End Main Street diagram.pdf

Get Outlook for Android

From: John Scheib <jscheib@ncarchitects.com>
Sent: Monday, March 18, 2019 6:12:49 PM
To: info@resilientbridgeport.com; rebecca.french@ct.gov
Subject: Bridgeport Coastal Resiliency and the potential to revitalize Main Street in the South End

Good Afternoon Rebecca,

I greatly echo sentiments that have been expressed by the Freeman Center regarding the DEIS/EIE for the pivotal South End of Bridgeport. As an architect and planner, I am a visual person, so I have attached a diagram that I hope can serve as the start of an alternative that accomplishes many goals important to the community.

They are as follows:

FREEMAN CENTER POSITION

- **No flood wall on Main Street. No Western Alignment.**
- **Don't dead end Main Street at University Avenue.**
- **Clearly show and explain the impact that changing Broad Street into a ramped roadway will have on the historic Palisser Townhouses on Broad near University.**
- **Protect all historic and cultural assets now and in the future.**
- **Don't construct (on purpose of by accident) a berm/barrier as high as the train tracks that closes in black and brown people, working and immigrant families, retirees, young & first-time homeowners on one side of Main St.; while luxury condos, a marina and UB are on the other.**
- **All Bridgeporters must have easy and equal access to Seaside Park and the Long Island Sound.**
- **Yes, Protect the neighborhood from floods, storms and sea level rise, but take the time to do it right. Protect future economic revitalization, property values, and the quality of life for current residents. Build with equity and social justice. CT must ask Congress for more time.**

Thank you,

John D. Scheib, Jr., AIA, LEED AP BD+C
Principal

NORTHEAST
COLLABORATIVE
ARCHITECTS

Middletown, CT
Newport, RI
Washington, DC

500 Plaza Middlesex
Middletown, CT 06457

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Fax: 860-347-4075

68

REVITALIZE MAIN STREET VIA COASTAL RESILIENCY

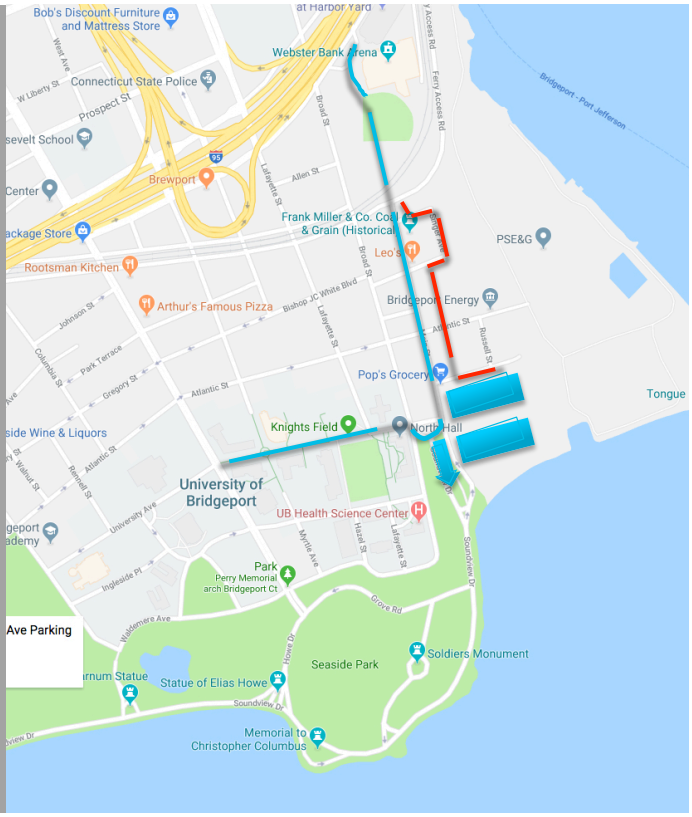
Preserve Integrity of Freeman Houses And Potential for Neighboring Diverse Revitalization on Main Street

Reconnect Main Street to Downtown

Slope Main Street up to University (Not Broad with its more Historic Homes)

Proper Gateway to Seaside Park and Residential Development

Keep Wall off Main Street



very concerned about what it does to Main Street, what it does to places like Freeman Houses and, you know, the way it blocks off Main Street and it doesn't seem like the best solution and it sounds like a plan B and we just want to really support you on that; that we hope you get the Eastern Alignment. Thank you.

(Applause.)

MR. SERGIYENKO: Good evening. My name is Volodymyr Sergiyenko and I am a resident of Main Street. The one of the closest park to the Seaside Park and the water. So thank you everybody who came here. The reason is it's not because everyone should concern about own house, own needs and everybody talked about the preservation of the park; the development and future. Sandy came and this is the reason that we're here and who knows, in another ten, 15 years, the hurricane or flood is going to be twice wider and larger than right now. So I would appreciate if engineers will think ahead of time for the next not only 15, 20 years

184

for 50 years and build a nice retaining wall or barrier which won't block the park at the same time everybody can get access to the park and that will be really appreciated because my basement was totally flooded up to the first floor and it's a disaster. So if people got water and sewer line destroyed and everything, it's another disaster so at the same time we need to preserve the park so everybody can get to the park to get there. So we're requesting engineers to please build the project, please make sure in the next 20 years it won't happen again. Thank you so much.

(Applause.)

MR. CRUZ: Good evening. My name is George, Jorge Cruz. I am a member and elected official of the Democratic Committee of the South End, this area here. I am also a member of the neighborhood revitalization of the South End. I just want to say that I agree with everything that everyone has spoken here in terms of the Freeman Houses, the Little

PARK CITY COMMUNITIES
James A. Slaughter
Interim Executive Director
150 Highland Avenue
Bridgeport, CT 06604
T#. (203) 337-8900
TDD#. 1-800-545-1833 Ext. 226
www.parkcitycommunities.org

The Housing Authority of the City of Bridgeport has changed its name!

March 18, 2019

Rebecca A. French, Ph.D.
State of Connecticut
Department of Housing
505 Hudson Street
Hartford CT 06106

RE: **Notice of EIE for Resilient Bridgeport: Rebuild By Design and National Disaster Resilience Projects**

Dear Ms. French:

The Housing Authority of the City of Bridgeport d/b/a Park City Communities, Inc. ("PCC") is working in collaboration with The JHM Group of Companies ("JHM") and with support from the City to provide replacement housing for the Marina Village public housing complex. The primary purpose of this revitalization project is to eliminate the blighted structures and develop safe, resilient residences for those whose existing, obsolete units present immediate health and safety threats for their inhabitants. As part of this effort, we are also coordinating our development plans with the objectives of the National Disaster Resilience ("NDR") and Rebuild by Design ("RBD") disaster recovery grants being implemented by the Connecticut Department of Housing ("DOH"). We feel that DOH's Draft EIE/EIS effectively addresses the needed to protect residents and property from future storm surge events. The main component of the RBD plan involves utilization of the southern 2.5 acres of the Marina Village property that will be transformed into a stormwater retention park separated by a new Johnson Street extension for dry egress by residents and emergency vehicles. We hope to remain an integral partner in the planning and execution of the resiliency efforts that will go a long way to support the continued growth of the South End.

205

As you know, the city faces a shortage of quality affordable housing and we are very interested in supporting projects that address this issue, such as Resilient Bridgeport, which makes new development in the South End possible by reducing the threat of future flooding. PCC and its affiliates are committed to developing much needed affordable rental units in the South End of Bridgeport and provide replacement housing associated with the redevelopment of Marina Village, one of the earliest developed public housing projects in the region which has been severely damaged during Hurricane Sandy. Rebuilding and revitalizing Bridgeport is vital to helping the city realize its full long-term economic potential and achieving that goal must remain a priority.

Sincerely,

James Slaughter
Executive Director

RESILIENT BRIDGEPORT

COMMENT FORM

The Connecticut Department of Housing is interested in your comments on the Resilient Bridgeport Project's Draft Environmental Impact Statement / Environmental Impact Evaluation. Please complete this form and email to info@resilientbridgeport.com or return it by mail. (Form is self-addressed. Postage is required).

Please list any comments you may have regarding the project's purpose and need, proposed action, areas of key environmental concern, and proposed mitigation measures:

My first request pertains specifically to the Rebuild by Design (RBD) Pilot Project which includes the storm water park, the extension of Johnson Avenue, and the separation of the sewer lines, including the installation of the new pumping station to pump the stormwaters into Cedar Creek.

Seaside Village would like to tie into this system when our systems are separated.

I'm requesting the following changes in the proposed RBD Sewer separation for Iranistan be made:

A) Wider stormwater and sewer pipes than currently planned.
B) A larger pumping station than currently planned.

My second request is to support the eastern alignment.

Name: KAI STARN

Affiliation: Seaside V.

Email Address: kstarn@gmail.com

Address: 16 Little St, BPORT 06604

The DEIS/EIE documents can be reviewed on the project website – www.resilientbridgeport.com. Comments must be received by close of business on Monday, March 18, 2019 to be addressed in the Final Environmental Impact Statement / Environmental Impact Evaluation.

For CommentSense:

69 My first request pertains specifically to the Rebuild by Design (RBD) Pilot Project which includes the stormwater park, the extension of Johnson Avenue, and the separation of the sewer lines, including the installation of the new pumping station to pump the stormwater into Cedar Creek.

Seaside Village would like to tie into the system when our systems are separated.

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70 A. Wider stormwater and sewer pipes than currently planned
71 B. A larger pumping station than currently planned.

72 My second request is to support the eastern alignment.

Marina Village Resident Council
C/o Denese Taylor-Moye
380 Iranistan Avenue
Bridgeport, CT 06604

March 17, 2019

Rebecca A. French, Ph.D.
Department of Housing
State of Connecticut
505 Hudson Street
Hartford CT 06106

RE: **Notice of EIE for Resilient Bridgeport: Rebuild By Design and National Disaster Resilience Projects**

Dear Ms. French,

206 On behalf of the Marina Village Resident Council, as their President, I am writing this letter to express our full support of the State of Connecticut Department of Housing ("DOH") in their efforts to implement the resiliency objectives of the National Disaster Resilience ("NDR") and Rebuild by Design ("RBD") disaster recovery grants. As you know many of our residents have been forced to remain living in unsafe storm damaged conditions after hurricane sandy due to a shortage of quality affordable housing options in Bridgeport. We are determined to see that the residents of the Marina Village live in communities that are well-designed and sustainable.

207 We have reviewed DOH's Draft Environmental Impact Statement/Environmental Impact Evaluation for the resilient effort and feel that it effectively addresses our need for safety by lowering the risk of future flooding, providing dry egress during emergencies, and educating the public about flood risks and sea level rise. Additionally, our residents have participated in regular meetings on site with the Developer and Park City Communities, in order for residents to remain well informed and educated about every aspect of the Marina Village redevelopment project, including the proposed Johnson Street extension. We are excited to see resiliency plans progressing and are committed to working with the developer in seeing the construction plans move forward.

Sincerely,

Marina Village Resident Council, President
Denese Taylor-Moye

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
5 POST OFFICE SQUARE, SUITE 100
BOSTON, MA 02109-3912

March 18, 2019

Rebecca French
Director of Resilience, CTDOH
505 Hudson Street
Hartford, CT 06106

RE: Draft Environmental Impact Statement for the National Disaster Resilience and Rebuild by Design Projects, Bridgeport, Connecticut (CEQ# 20180328)

Dear Ms. French:

The U.S. Environmental Protection Agency (EPA) has reviewed the Connecticut Department of Housing Draft Environmental Impact Statement (DEIS) for the Resilient Bridgeport National Disaster Resilience and Rebuild by Design Projects in Bridgeport, Connecticut. Our review was conducted pursuant to our responsibilities under the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508), and our NEPA review authority under Section 309 of the Clean Air Act.

The purpose of the project is to lower the risk of flooding and provide dry egress during flood related emergencies in the coastal South End region of Bridgeport, Connecticut. The proposed stormwater management, flood risk reduction, and coastal defense measures will also be combined with efforts to educate the public about flooding risk and sea level rise. The project will help address chronic flooding problems related to rainfall and tidal inundation, and to reduce the likelihood of power outages that affect the Bridgeport area. The project development process led by the Connecticut Department of Housing obtained local stakeholder input regarding the design and development of the three components of the project.

Based on our review of the DEIS we have several recommendations for your consideration as you work to develop the Final Environmental Impact Statement (FEIS) for the project. Our comments are related to regulatory permits necessary for the proposed work and measures to avoid or minimize water quality impacts.

Necessary Permits

135 We recommend that the current discussion in the DEIS (Section 4.11.1.2, p. 4.11-4) be expanded in the FEIS to specify which regulatory permits (e.g., Clean Water Act (CWA) Section 404, NPDES, Rivers and Harbors Act, Section 10, etc.) will be required for specific project components and whether project proponents will need to obtain new permits or modifications of existing permits. We recommend that the FEIS clarify whether the discharge through Outfall E

136 will require a new NPDES permit, or instead be regulated through modification of an existing NPDES permit.

137 Furthermore, we note that the federal regulatory requirement for a CWA Section 404 permit is not restricted to "inland" wetlands or watercourses, as indicated in the DEIS (Section 4.8.1.2 on page 4.8-3). This terminology appears to be taken from the State of Connecticut's inland wetlands protection program. Federal CWA Section 404 permits are required for activities in both tidal and non-tidal waters of the United States, including tidal and non-tidal wetlands.

Contaminated Sediment

138 The DEIS (Section 4.8.3.2, p. 4.8-14; Section 4.11.3.2, p. 4.11-18) discusses potential ecological impacts from repair and recommissioning work at Outfall E. The proposed direct discharge of untreated sediments and sludge from the work area would be likely to cause or contribute to a violation of water quality standards. We recommend that the FEIS consider practicable alternatives for disposal of contaminated sediments and sludge from Outfall E (other than direct discharge to Cedar Creek Reach) to avoid and minimize adverse water quality and benthic impacts. We recommend that collection and disposal (at an appropriate upland facility) of contaminated sediments and sludge be considered.

Effective October 22, 2018, EPA will no longer include ratings in our comment letters. Information about this change and EPA's continued roles and responsibilities in the review of federal actions can be found on our website at: https://www.epa.gov/nepa/epa-review-process-under-section-309-clean-air-act.

EPA appreciates the opportunity to review this DEIS. If you have any questions regarding our comments, please contact me at (617) 918-1025 or timmermann.timothy@epa.gov.

Sincerely,

Timothy Timmermann, Director
Office of Environmental Review

From: Savage, Megan L.
To: Weymouth, Nicole
Cc: Toole, Laura
Subject: Fwd: Freeman Comments on the Flood Wall and Barrier
Date: Monday, March 18, 2019 9:50:58 PM

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From: Maisa L. Tisdale
Sent: Monday, March 18, 7:13 PM
Subject: Freeman Comments on the Flood Wall and Barrier
To: rebecca.french@ct.gov, Resilient Bridgeport

Dear Friends:
Our comments on the Draft Environment Impact Study (DEIS) / Environmental Impact Evaluation (EIE) are summarized below. The Freeman Center shared them with other stakeholders, South End residents, and Bridgeporters outside the South End, all of whom have an interest in access to Seaside Park and/or the viability of the Freeman Houses, as well as historic homes and cultural resources in the Little Liberia footprint.

FREEMAN CENTER POSITION

- **No flood wall on Main Street. No Western Alignment.**
- **Don't dead end Main Street at University Avenue.**
- **Clearly show and explain the impact that changing Broad Street into a ramped roadway will have on the historic Palisser Townhouses on Broad near University.**
- **Protect all historic and cultural assets now and in the future.**
- **Don't construct (on purpose of by accident) a berm/barrier as high as the train tracks that closes in black and brown people, working and immigrant families, retirees, young & first-time homeowners on one side of Main St.; while luxury condos, a marina and UB are on the other.**
- **All Bridgeporters must have easy and equal access to Seaside Park and the Long Island Sound.**
- **Yes, Protect the neighborhood from floods, storms and sea level rise, but take the time to do it right. Protect future economic revitalization, property values, and the quality of life for current residents. Build with equity and social justice. CT must ask Congress for more time.**

DETAILS

1) The Flood Wall . The DEIS shows 2 main alignments (locations) for the flood wall: 1) The Western Alignment, part of which is on the sidewalk of Main St. from Whiting to Henry (across from the historic Bishop Cottages); and 2) The Eastern Alignment, on utility land (mostly PSEG's) closer to the harbor.

- **The Freeman Center supports the Eastern Alignment and rejects the construction of the flood wall on Main Street.**

Once the neighborhood is protected from flooding, Main Street from the railroad tracks to the Long Island Sound can be the site of long overdue mixed use development (residential and commercial) that highlights the neighborhood's unique historical architecture & social history, and serves as a gateway to Seaside Park.

33 The Freeman Center has secured approximately $ 1.7 million in funding to invest in the restoration of the houses and continues to raise more. We propose creating a cultural heritage corridor consisting of the restored Freeman houses, the Freeman Center (a new Little Liberia museum, education, and heritage travel destination), and (with help from government and private partners) a mixed use development that would encompass 375 Main St. (owned by the Bridgeport Housing Authority) and 280 Main St. (the PSEG warehouse at Main & Whiting).

Main Street's Cultural Heritage Corridor would be designed by an architectural collaborative consisting of the Freeman Center's current architectural team, known for the historic restoration of iconic American buildings, and architects who recently won international acclaim for the design of a new, national historic site. A flood wall on Main Street will be detrimental to the economic sustainability of the Freeman Houses, end the hope of revitalizing Main Street, leave Main Street homes facing a wall.

2) <u>The Elevated Roadway at Main Street and University Avenue.</u> It will be as high as the railroad tracks with traffic driving on top. Main Street will dead end at University. This barrier with or without trees and grass will prevent through traffic from reaching the park. There will be a walkway on Main to the road on top for pedestrians and bikes.

34 · **The Freeman Center chooses the option showing Main Street going uphill, over the barrier, and continuing into Seaside Park. This is being proposed for Broad. Why not Main. Main Street should remain a through Street.**

3) <u>Broad Street</u>. Broad Street will become a ramped roadway taking traffic up onto
35 University Avenue, which will be raised. Broad Street has historic homes near the park at
36 256-270 Broad Street. What will the elevations be near these houses? What will the impact of the ramped roadway be? There are no drawings provided.

· **The Freeman Center requests that a detailed report, including drawings, be issued to the public showing how the Palliser Townhouses will be impacted before a final decision is made.**

37 **4) <u>More Time. Ask Congress for more time</u>.** Yes, identifying additional options and negotiating with PSEG as well as homeowners on Main and Broad might require time. We ask the State of CT to join New York and New Jersey in requesting more time from Congress to properly resolve conflicting stakeholder issues and adjust plans. Don't short-cut the planning process. Once massive, expensive capital infrastructure is built; decisions cannot be reversed. Extend the deadline.

Maisa L. Tisdale, President/CEO
The Mary & Eliza Freeman Center for History and Community
(203) 895-2469 cell
www.freemancenterbpt.com

Mailing address:

1019 Main Street, Suite 210
Bridgeport, CT 06604

more

we have a few individuals who have signed up and we are going to go in order of the way the individuals signed up.

We have the first person and if I did not pronounce your name correctly, please forgive me. It's my accent.

I have Niels Heilmann. Then we have followed by Horst Weber and then Monroe Hassell.

So the first individual to the microphone will be Niels Heilmann.

MR. HEILMANN: Hi. I would like to give my time or at least have Maisa Tisdale, president of the Freeman Center speak first.

THE HEARING OFFICER: Thank you.

MS. TISDALE: Hi. My name is Maisa Tisdale. I'm the president of the Mary and Eliza Freeman Center for History and Community.

As you saw on the board above, we were asked to participate as the Resilient Center for part of this program. I want to make it very clear that although we welcome the opportunity to serve as the

159 Resilient Center and, in fact, it's in keeping with our activities and with our mission, we do not -- we do not support the Western Alignment, not at all, not in any way, shape or form.

160 Now that the neighborhood is going to be made safe from flooding, I think it's really important that we take a look at the highest and best use of the land, especially the land on Main Street. That land needs to be brought back into circulation as an opportunity for community revitalization and development.

161 I see two major impediments for the development of Main Street. One is the PSEG warehouse that's at the corner of Whiting and Main. That lot now that the neighborhood won't flood should be made available through some mechanism for development. The insistance on putting a flood wall on Main Street running from Whiting in front of cottages that are on the National Register of Historic Places, along blocks that were part of historic Little Liberia, along blocks that have

archaeological fossils and artifacts related to the Paugussett Indians, it should not, it cannot happen. That neighborhood has borne more than its share of infrastructure and capital changes for the rest of the region and the rest of the city. We have to think about the value of the properties.

162 The Freeman Center recently received a $1 million grant which makes accessible another $600,000 on top of $50,000 that other grants, and nearly $100,000 that we raised in two months alone. We're willing to invest in making Main Street a cultural thoroughfare that invites both tourism and residents.

We are finally at the point where we can start planning the actual Freeman Center as opposed to just the restoration of the houses, and the Center is going to be a companion to the neighborhood culturally and invite the discussion of policy ongoing through time.

163 I also do not support the dead-ending of Main Street at University. I do

su port the elevated Main Street that goes up and over and allows access to the park.

I think it's really important in this er of walls and borders not to create a ba rier between the planned luxury housing th t may or may not happen and the rest of th neighborhood. Those residents should be able to find their amenities and their ne ds met along Main Street as well.

Th nk you.

context that I think we have a really rare opportunity here where you have both an opportunity for economic development that as Maisa pointed out $2 million that have been raised both publicly and privately and create economic development that is not gentrification; and so I think that all that this project can do needs to be done to prioritize that over the needs of a possibly to-be-created luxury condominium and I just think that is really important and so I would ask that the group do anything in there -- anything -- for the engineers that's possible to be done to support the Freeman Center's vision for the entire area of Little Liberia. Thank you.

THE HEARING OFFICER: Thank you. Mr. Weber?

165 MR. WEBER: Thank you. It was already commented by the previous speaker.

MS. TOOL: Could you just come to the microphone please, and just repeat that for the record?

MR. WEBER: Thank you. My name is

CT·TRUST FOR HISTORIC PRESERVATION

18 March 2019

Rebecca French, Director of Resilience
Connecticut Department of Housing
505 Hudson Street, Hartford, CT 06106
via email: info@resilientbridgeport.com

Subject: Resilient Bridgeport: National Disaster Resilience & Rebuild by Design projects

Dear Ms French:

The Connecticut Trust for Historic Preservation has followed the resilience projects in Bridgeport with great interest. Bridgeport's South End is a remarkable historic community with a richness of historic resources that include industrial sites from the 19th and 20th centuries, diverse historic housing; developments initiated by P. T. Barnum; government-built emergency worker housing from World War I; Seaside Park, an early work by Frederick Law Olmsted and Calvert Vaux; and remnants of Little Liberia, a once-thriving antebellum community of free African-Americans and others.

As you know, the South End has suffered disinvestment for decades, caused by industrial decline and suburbanization. However, the most serious threat to the neighborhood comes from the rising water levels associated with climate change. Any revitalization efforts that seek to address local economic and social issues will be futile without also addressing the threats of flooding and impaired access which have transformed the neighborhood's waterfront location from an asset to a severe liability.

With that background in mind, the Connecticut Trust offers these comments on the draft Environmental Impact Evaluation (EIE) for Resilient Bridgeport: National Disaster Resilience and Rebuild by Design projects.

124 **General comments**
It was very disappointing to learn on February 25, only *after* the public hearing closed, that one of the alternative treatments for Main Street had been eliminated by the design team and that design work for the Head of the Park area of Seaside Park had proceeded far beyond that presented in the draft EIE document. The purpose of the EIE process is to provide the public with an opportunity to comment on various alternatives so that the project can continue in harmony with public needs and wishes. To withdraw alternatives from consideration and continue with design work before the public has had a chance to offer comments is inconsistent with this purpose. The design team must be prepared to reconsider seriously any and all decisions it has made since the draft document was issued in light of public comments.

125 **Proposed Action: RBD Pilot at Marina Village**
Sadly, the RBD Pilot does not address directly the serious flooding problems at Seaside Village, a National Register listed enclave immediately across Iranistan Avenue from the Marina Village site. We strongly urge that the project accommodate the requests from the Board of Directors of Seaside Village—that information that will assist Seaside Village in developing its own stormwater management system be provided, and that the pumping station and any stormwater

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126 and sewer pipes constructed as part of the RBD Pilot be sized to accommodate future stormwater management for Seaside Village.

Proposed Action: Flood Risk Reduction

127 Although unlocking new development or public realm opportunities is listed in the draft EIE as an additional benefit rather than a principal goal, it must be remembered that the point of the resiliency projects as a whole is to make the South End more viable as a community in light of changing climate conditions. That is, the stated primary goals of reducing flooding and providing emergency egress are made *for the purpose of* enabling the preservation of the existing community in the South End and allowing revitalization and new development, public and private, that will enhance that community. Decision making should keep that goal in mind.

128 Therefore, the Eastern Alignment for the flood barrier is very much to be preferred. Locating the new flood barrier well to the east of Main Street will allow future redevelopment of properties on both sides of the street, which is essential to creating a vibrant and attractive streetscape. Conversely, running a flood wall immediately along the street edge—i.e., the Western Alignment—would remove the possibility of putting properties on the east side of the street to good use and severely harm the attractiveness of the streetscape.

129 Similarly, the Through-Street Option for Main Street is important to generate the kind of through traffic that is conducive to revitalization. Making Main Street a dead-end would discourage future redevelopment, and as testimony during the public hearing demonstrated, is strongly discouraged by members of the community. Although raising the street over the flood barrier would block the ground floor of the three historic structures close to Henry Street, the decision to eliminate the through-street alternative needs to be reconsidered carefully for its impact on the larger neighborhood. Perhaps other solutions could be explored for those three buildings.

130 The Flood Risk Reduction project also will have serious effects on the landscape of Seaside Park in the historic entry area at Soundview Drive between Broad and Main streets—what the draft EIE calls the Head of the Park area.

Although original plans for Seaside Park do not exist, early maps and views included in Appendix C of the EIE do indicate that the Head of the Park area has existed in substantially its present configuration since very early in the park's existence, as far back as the 1860s and '70s. The draft EIE calls this area is one of the most intact sections of historic landscape within Seaside Park. As a longstanding historic designed landscape that is individually listed on the National Register, this section of park should be altered only with the greatest care. At the very least, a landscape architect with demonstrated knowledge of Frederick Law Olmsted's work and demonstrated experience in sensitive rehabilitation of historic Olmsted (or Olmsted-related) landscapes must be brought into the team to guide design work in this area.

131 As presented on February 25, the 30 percent designs proposed for the Head of the Park area, while still preliminary, raise concerns about how sensitive the project will be to the historic landscape of Seaside Park. It proposes extensive hardscape and many hard-edged, angular forms. One might argue that this design is intended to distinguish the new work from the historic landscape as called for in the Secretary of the Interior's Standards, but the idea of distinguishing by means of drastic differences in design vocabulary is a simplistic interpretation of the

132 Standards. In a case like this it should be possible to make that distinction in a subtler manner. It would be more appropriate for the new elements to defer more to the historic landscape, rather than calling attention to themselves so loudly.

Presenters on February 25 also seemed to suggest that highly visible design interventions had been chosen specifically to meet the principal goals of educating the public about resiliency

133 measures. While this educational goal is important to this and future resiliency efforts, there are many places to fulfill it across the three projects under study. For Seaside Park itself, modern interventions should deflect attention away from themselves as much as possible and toward the historic landscape.

Proposed Action: Resilience Center

134 As the only surviving antebellum structures from Little Liberia, the Freeman Houses are among the most important historic resources in the South End, as is recognized by their National Register designation. Rehabilitation of the Freeman Houses to accommodate a resilience center would provide much-needed repairs and give the houses a viable and a community use that is consistent with their significance and with fundraising and program planning currently underway by the Mary and Eliza Freeman Center, which owns the houses. The Connecticut Trust strongly supports this proposed action.

Conclusion

The proposed Resilient Bridgeport: National Disaster Resilience & Rebuild by Design projects documented in the draft Environmental Impact Evaluation have the potential to make a significant difference for the historic resources of Bridgeport's South End. More important, the projects have the potential to pave the way for revitalization and redevelopment that will significantly improve life for the people of the South End. With full participation of citizens and other stakeholders, and full attention to their input, the proposed actions have the potential to make the South End a safer and better place to live.

Very truly yours,

Christopher Wigren
Deputy Director
cwigren@cttrust.org

SEASIDE VILLAGE
BRIDGEPORT CONNECTICUT
BUILT IN 1917 • CO-OP SINCE 1953
43 Sims Street | Bridgeport, CT 06604 | (203) 690-1308 | seasidevillageoffice@gmail.com

February 20, 2019

Ms.Rebecca French
Director of Resilience
Connecticut Department of Housing
505 Hudson Street, Hartford, CT 06106

RE: Seaside Village Public Comments for the record for the RBD/NDR Environmental Impact Statement (EIS)

Dear Ms. French:

Our Board of Directors has prepared the following requests for public record for the Environmental Impact Statement on the RBD/NDR projects. The first section of our comments pertain specifically to Seaside Village and the Rebuild by Design Pilot Project. The second section deals with the NDR project and the South End as whole.

Rebuild by Design Pilot Project

192 Seaside Village has acute and chronic flooding problems that are not being addressed RBD or NDR. In addition to the complex sources that contribute to both our acute
193 and chronic flooding problems, we continue to face extremely unsanitary (e coli) conditions caused by our CSO system. While we hope that the RBD pilot project will address and manage water for the Windward community and not contribute further stormwater management issues in SV, nothing at all has been done to include or do the same for Seaside Village as part of this pilot project. This is a shame for many reasons, but primarily because our resident population numbers were included in the presentation to the RBD judging panel as part of the total number of people who would be helped by the award if it were granted to Bridgeport's South End.

194 Once again we are left to our own resources. Therefore, in order to resolve and find funding for our flooding problems, we are requesting that as part of the EIS or in an accompanying document as part of this project the following be provided:

a. A detailed list of the capital improvements and activities that we can use to leverage funding for the issues we face.
b. Access to the information collected pertaining to the acute and chronic flooding in SV in a document that can assist us in our funding efforts.

195 Additionally, we are requesting the following adjustments/changes in the proposed RBD CSO separation project for Iranistan Avenue be made:

a. Wider stormwater and sewer pipes than currently planned for be installed and
b. A larger pumping station than currently planned for be installed as well.

These two requests are being made to accommodate an anticipated future CSO separation project and other stormwater management projects we seek funding for.

NDR Project

196 We would like the assistance of HUD and the State of Connecticut in creating a partnership between PSEG *and the community* to develop flood hazard
197 mitigation that supports the Eastern Alignment. We are not in favor of the Western Alignment.

198 We want Main Street to be a designated historical corridor. Every block stretching from the RR tracks to LI Sound is already listed on the National Register of Historic Places. It should be a cultural corridor with commercial development on the eastern side of the street. ***The Western Option permanently precludes that option.***

199 We want to ensure the economic development of the South End as a cultural tourism destination that also offers amenities to residents. (SV, Cottages, Freeman Houses and other South End historic buildings.)

Sincerely,

President

SV Board of Directors

APPENDIX I
CEPA Documentation

Contents

Appendix I. CEPA Documentation

Table I-1. Cross-Reference Between CEPA Environmental Impact Evaluation Requirements and Resilient Bridgeport FEIS

CEPA EIE REQUIREMENT	RESILIENT BRIDGEPORT FEIS SECTION
Description of the Proposed Action	Section 1.3, Proposed Action Section 3.2.2, RBD Pilot Project Alternatives Section 3.3.4, Alternatives Carried Forward for Evaluation in this FEIS: Coastal Flood Defense System Section 3.3.5.2, Resilience Center, Project Alternatives
Purpose and Need	Chapter 2, Purpose and Need
Alternative Analysis	Chapter 3, Concept and Alternatives Development
Existing Environment and Impact Evaluations:	Chapter 4, Affected Environment and Environmental Consequences
Traffic	Section 4.13.3, Transportation
Air Quality	Sections 4.16, Air Quality & Greenhouse Gas Emissions
Noise	Section 4.7, Noise and Vibration
Water Resources	Sections 4.11, Water Resources and Water Quality
Wetlands	Section 4.8, Natural Resources
Water Quality	Sections 4.11, Water Resources and Water Quality
Groundwater Quality	Sections 4.11, Water Resources and Water Quality
Coastal Resources	Section 4.12, Coastal Zone Management
Endangered, Threatened, or Special Concern Species or Habitat	Section 4.8, Natural Resources
Fish and Wildlife, Habitats, and Ecosystems	Section 4.8, Natural Resources
Historic Sites, Districts, and Archeologically Sensitive Areas	Section 4.5, Cultural Resources
Visual Resources (aesthetic and scenic resources)	Section 4.4, Urban Design and Visual Resources
Agricultural Lands and Soils	Section 4.9, Geology and Soils
Pesticides, Toxic or Hazardous Materials	Section 4.6, Hazardous Materials
Energy (Use and Conservation)	Section 4.13.2, Utilities Section 4.13.3, Transportation Section 4.16, Air Quality & Greenhouse Gas Emissions
Public Health and Safety	Section 4.14, Community Facilities and Public Services
Consistency with State Environmental Equity Policy	Section 4.3, Environmental Justice
Consistency with Adopted Municipal and Regional Plans	Section 4.1, Land Use, Zoning and Public Policy
Consistency with State Plan of Conservation and Development	Section 4.1, Land Use, Zoning and Public Policy
Consistency with Connecticut Coastal Management Act	Section 4.12, Coastal Zone Management
Cumulative Impacts	Chapter 5, Cumulative Impacts
Construction Related Impacts	Section 4.7, Noise and Vibration Section 4.13.3, Transportation Section 4.16, Air Quality & Greenhouse Gas Emissions
Unavoidable Adverse Environmental Impacts	Section 4.17, Summary of Environmental Consequences
Irreversible and Irretrievable Commitment of Resources	Section 4.17, Summary of Environmental Consequences
Summary of Mitigation Measures	Section 4.17, Summary of Environmental Consequences
Cost Benefit Analysis	Appendix I
Potential Certificates, Permits, and Approvals	Section 4.17, Summary of Environmental Consequences
Conclusions	Section 4.17, Summary of Environmental Consequences
References	Chapter 7, References

Resilient Bridgeport Benefit Cost Analysis, Methodology Report

(April 21, 2017)

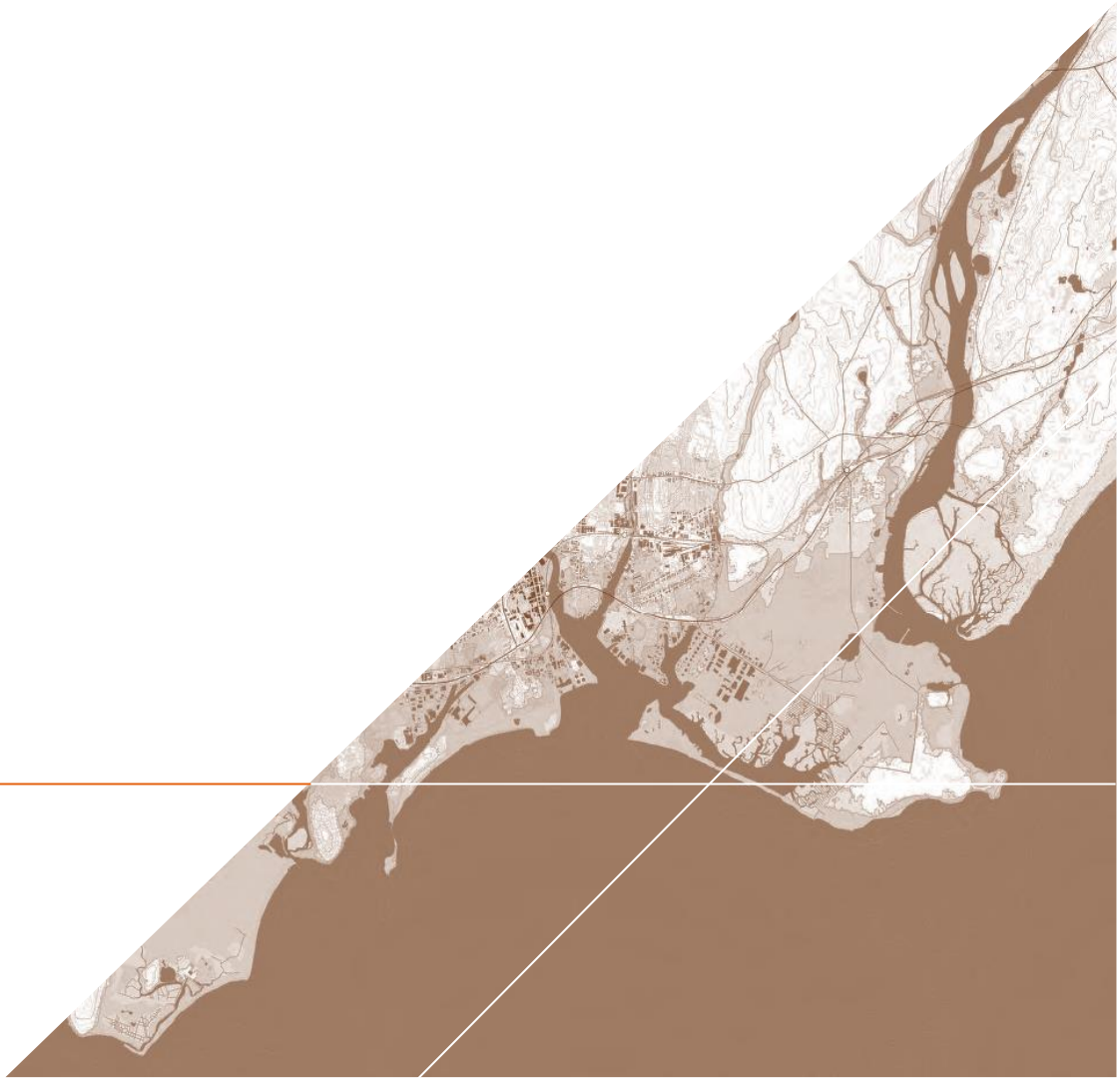
ARCADIS Design & Consultancy for natural and built assets

RESILIENT BRIDGEPORT

BENEFIT COST ANALYSIS

METHODOLOGY REPORT

April 21, 2017



BENEFIT COST ANALYSIS

Methodology Report

Macy Fricke, CFM
Management Consultant

Edward Fernandez, CFM
Senior Management Consultant

Hugh Roberts, PE
Associate Vice President

Prepared for:

Connecticut Department of Housing

Prepared by:

Arcadis U.S., Inc.

Our Ref.:

LA003323.0000

Date:

April 21, 2017

VERSION CONTROL

Issue	Revision No	Date Issued	Page No	Description	Reviewed by
001	Rev. 1			Draft	E. Fernandez
002	Rev. 2			Draft	H. Roberts
003	Rev. 3			Final Draft	E. Fernandez

CONTENTS

TABLES AND FIGURES

APPENDICES

ACRONYMS AND ABBREVIATIONS

ARC: American Red Cross

BCA: Benefit Cost Analysis

BCAR: BCA Re-Engineering Report

BCR: Benefit Cost Ratio

BEA: Bureau of Economic Analysis

BLS: Bureau of Labor Statistics

BRV: Building Replacement Value

CDC: Centers for Disease Control

CRV: Contents Replacement Value

CSRV: Contents-to-Structure Ratio Value

CSO: Combined sewer overflow

CSS: Combined sewer system

DDF: Depth-Damage Function

DEEP: Connecticut Department of Energy and Environment

DEM: Digital Elevation Model

DOH: Connecticut Department of Housing

EPA: U.S. Environmental Protection Agency

EIS: Environmental Impact Statement

FAA: Federal Aviation Administration

FEMA: Federal Emergency Management Agency

FIS: Flood Insurance Study

FIRM: Flood Insurance Rate Map

FFE: First Floor Elevation

GCP: Gross city product

GDP: Gross domestic product

GIS: Geographic Information System

HUD: United States Department of Housing and Urban Development

LiDAR: Light Detection and Ranging

MEP: Mechanical/Engineering/Plumbing

NACCS: North Atlantic Coast Comprehensive Study

NAICS: North American Industry Classification System

NAVD88: North American Vertical Datum of 1988

NDR: National Disaster Resilience

NOAA: National Oceanic and Atmospheric Administration

NPV: Net present value

NRCS: Natural Resources Conservation Service

OMB: United States Office of Management and Budget

PTSD: Post-traumatic stress disorder

RBD: Rebuild by Design

SAM: Social Accounting Matrix

SF: Square Feet

SLR: Sea Level Rise

TM: Technical Manual

UDV: Unit Day Value

USACE: U.S. Army Corps of Engineers

WTP: Willingness to Pay

1 INTRODUCTION

During Tropical Storm Irene (Federal Emergency Management Agency [FEMA] Major Disaster Declaration [DR] -4023) and Hurricane Sandy (DR-4087), floodwaters from Long Island Sound inundated roadways, critical infrastructure, businesses, and homes in low-lying areas, directly affecting the South End's residents and businesses. Following the devastation from Hurricane Sandy, the U.S. Department of Housing and Urban Development (HUD) launched Rebuild by Design (RBD) to inspire innovative community and policy-based resilience solutions to protect cities most vulnerable to intense weather events.

HUD awarded the Connecticut Department of Housing (DOH) $10 million to reduce flood risk for the most vulnerable public housing stock in Bridgeport through continued planning and evaluation of long-term resiliency strategies, as well as designing a RBD pilot project aimed at alleviating acute and chronic flooding in the South End neighborhood. To this end, the Resilient Bridgeport Team, led by Waggonner & Ball with Arcadis, Yale Urban Design Workshop and Reed Hilderbrand Landscape Architects, has developed an innovative and multifaceted RBD project in the South End to provide benefits to the neighborhood by means of dry egress and stormwater management.

The Resilient Bridgeport Team completed a benefit cost analysis (BCA) to evaluate the RBD project at its current level of design as part of the design process. The BCA assesses resiliency, social, environmental, and economic benefits that will result from the implementation of the RBD project. In accordance with HUD Notice: CPD-16-06, the BCA uses federally accepted standard figures and methods to assess project benefits.

This appendix serves to provide a detailed description of the BCA methods summarized in the BCA Report, and includes the following principle sections:

- **Section 1 Introduction** includes a BCA overview.
- **Section 2 RBD Project Description** summarizes the RBD project and project costs.
- **Section 3 Resiliency Benefits** includes detailed methodologies used to determine resilient redevelopment and dry egress benefits.
- **Section 4 Value Added** describes in detail the methods used to evaluate social, environmental, and economic benefits.
- **Section 5 Sensitivity Analysis** includes a describes how analysts approached BCA assumptions and the discount rate.
- **Section 6 Double Counting** describes how analysts approached potentially overlapping benefits in the BCA.
- **Section 7 Benefit Cost Analysis Results** presents BCA findings.
- **Section 8 Economic Impact Analysis** is a detailed description of the methodology used to evaluate economic impacts of project implementation.

To facilitate HUD's review of the BCA Summary Report and BCA Methodology Report, analysts completed two crosswalks:

1. **Appendix A: HUD Crosswalk** summarizes the pilot project's benefits, costs, and BCA methods.
2. **Appendix B: BCA Crosswalk** relates CPD Notice 16-06 requirements to report sections.

1.1 Benefit Cost Analysis Overview

A benefit cost analysis (BCA) helps inform sound decision making related to public infrastructure investment. BCA benefits represent the present value of the total expected annual losses avoided and value added over the RBD project's useful life. The BCA accounts for:

- Probabilities of flood events and losses
- Project useful life
- Time value of money (discount rate)

Resiliency benefits are future losses prevented or reduced by the RBD project. Analysts estimate losses avoided for certain modeled flood scenarios, then apply the annual probability of occurrence to losses at each flood scenario to determine expected annual losses avoided. Probability of occurrence refers to the percent chance of an expected flood event being met or exceeded in any given year.

$$Annual\ Resiliency\ Benefits = \sum_{s=1}^{s=4} Expected\ Losses\ Avoided \times Annual\ Probability\ of\ Occurence$$

Where:

S = annual flood event scenario

Analysts project and discount annual benefits and project life-cycle costs[1] over the RBD project's useful life (50 years) using a 7 percent discount rate to find the present value of project benefits. The project useful life is the estimated amount of time the project will be effective. The discount rate determines the time value of money; in other words, the discount rate accounts for the fact that monetary value tomorrow will not be as much as it is in the present. The Office of Management and Budget (OMB) mandates the discount rate to be 7 percent, but HUD also considers a 3 percent discount rate for review per HUD Notice: CPD-16-06.

The BCR is the project's total present value of benefits divided by the project's total present value of life-cycle costs. NPV is the difference between the present value of a project's total benefits and the present value of a project's total life-cycle costs. Both the NPV and BCR inform the RBD project's cost effectiveness and ensure the project is fiscally beneficial.

$$Net\ Present\ Value = Present\ Value\ of\ Project\ Benefits - Present\ Value\ of\ Project\ Costs$$

$$Benefit\ Cost\ Ratio = \frac{Present\ Value\ of\ Project\ Benefits}{Present\ Value\ of\ Project\ Costs}$$

This BCA presents benefits and costs in 2016 dollars. The sections below describe the RBD project and the detailed methods analysts used to determine annual resiliency benefits and value added benefits that Bridgeport will realize once it implements the pilot project.

[1] Project life cycle costs include direct capital costs and operations and maintenance cost over the life of the project.

2 REBUILD BY DESIGN PILOT PROJECT

Through stakeholder meetings, community engagement, mapping, and modeling, the RBD project team has come to understand the different impacts that chronic and acute flooding have on the community, and the risks posed by climate change and sea level rise (SLR). Though the primary intent of the RBD project is to reduce these impacts on the project area, the project team has also designed the project to serve as a proof of concept for broader resilience principles within Bridgeport and the region. The project and the collaboration that it requires will result in the demonstration of best practices for agencies and private entities. It is intended to provide a precedent for future development, as well as encourage the adoption and implementation of updated local policies, zoning regulations, and building code standards by the City of Bridgeport.

Further, the State of Connecticut has committed to developing and implementing a set of resilience performance standards for the RBD project. The State will coordinate the standards developed or the project with those that are being developed for the National Disaster Resilience (NDR)-funded infrastructure of similar nature being implemented in the South End of Bridgeport. Overtime, these performance standards will be refined based on the outcomes of the RBD project and South End NDR project so that they can continually be applied to any future development projects throughout the State.

The RBD project will extend Johnson Street to provide dry egress for future Mariana Village residents out of the FEMA 500-year flood zone, as well as future SLR conditions of 3 feet. The Johnson Street Extension will incorporate green infrastructure, such as bioswales, to divert surface runoff away from the combined sewer system and into a multifunctional stormwater park. Stormwater park components such as terraced basins and underground storage features will retain, delay, and improve the quality of stormwater runoff. Community gathering spaces, play equipment and courts, and walkways in the stormwater park will provide space for community programs, environmental education, and passive and active recreation. The park component will also include new flora and fauna.

The stormwater park will collect surface water, which will be gravity drained to a new pump station located at the southeast corner of South Avenue and Iranistan Avenue. A new underground force main will pump the flow to an existing outfall at Cedar Creek, the Little Regulator Outfall. By removing stormwater from the combined sewer system, a reduced load will be routed to the wastewater treatment plant on the west side of Bridgeport. Similarly, bringing additional stormwater to the head end of Cedar Creek will improve flushing and overall ecological function of the creek. RBD project costs include direct capital costs, as well as operation and maintenance (O&M) costs over the project useful life. **Table 1** summarizes the total value of each cost category. Refer to **Appendix D: Rebuild by Design Pilot Project Cost Estimates** for a detailed description of project costs.

Table 1. Summary of RBD Project Costs

Cost Category	Costs (7 Percent Discount Rate)	Costs (3 Percent Discount Rate)
Capital Costs	$ 8,200,000	$ 8,200,000
Annual O&M Costs	$ 75,000	$ 75,000
Present Value O&M Costs	$ 1,035,060	$ 1,912,620
Total Project Costs	**$ 9,235,060**	**$ 10,112,620**

2.1 Project Timeline

It is anticipated that the RBD project will be completed by the end of 2021. The project has not yet been permitted, but preliminary permitting requirements have been identified and additional permit requirements may be identified during the development of an Environmental Impact Statement (EIS). An aggregated EIS to include both the RBD project and the Bridgeport resilience projects is being funded through the State of Connecticut's National Disaster Resilience Grant award. The State is currently concluding a public procurement process that will result in a consultant team being engaged under contract to complete the Environmental Impact Statement and other tasks designed to move forward the projects funded by both RBD and NDR.

Concurrent to this procurement process, the State's existing consultant team is also advancing the project to a 30% design stage. It is expected that environmental review, preliminary design, and permitting will continue into the last quarter of 2018 and construction will commence in early 2019 and continue into the middle of 2021. A Notice of Intent to Prepare an EIS as required under 24 CFR Part 58.55 is anticipated to be published in the Federal Register in September 2017 thereby launching the public scoping process. **Table 2** below delineates the major milestones for project completion including remaining design and engineering work, permitting, bidding, and construction.

Table 2. RBD Project Milestone Timeline

Activity Milestone	Start Date	End Date
CDBG-DR Action Plan Substantial Amendment	February 2017	June 2017
30 Percent Design Completion	February 2017	June 2017
Resilience Strategies Finalization	December 2016	June 2017
Environmental Impact Statement	June 2017	July 2018
Final Design Documents	July 2017	November 2018
Project Permitting	October 2017	November 2018
RBD Project Construction	November 2018	September 2021

3 RESILIENCY BENEFITS

Resiliency benefits are the result of the RBD project's expected effectiveness at protecting against future flooding impacts. Resiliency benefits are related to resilient redevelopment or dry egress. These benefits are the largest category of benefits quantified for the RBD project. Resilient redevelopment benefits include direct physical damages, displacement costs, mental stress and anxiety, and lost productivity. Dry egress benefits include loss of road service, injuries and fatalities (**Table 3**). The BCA estimates these losses as probabilistic outcomes of flood risk from acute and chronic flood events. This BCA evaluates losses at the 10-precent, 2-percent, 1-percent, and 0.2-percent annual chance flood event, sourced from the Fairfield County Flood Insurance Study (FIS). Analysts calculate resiliency benefits for current or future Marina Village buildings.

Table 3. Resiliency Benefits Matrix

Benefit Category	Measurable Benefit/Metric	Stormwater Park	Johnson Street Extension		Marina Village Redevelopment
			Green Infrastructure	Raised Road	
Resilient Redevelopment	Physical Damages				X
	Displacement Costs				X
	Mental Stress and Anxiety				X
	Lost Productivity				X
Dry Egress	Fatalities			X	
	Injuries			X	
	Loss of Roadway Service			X	

The stormwater park and John Street Extension's green infrastructure contribute to reduced flood risk during chronic flood events, resulting in resiliency benefits. Acute flood events are more severe and result in greater flood impacts; therefore, resiliency benefits for acute flood events inherently capture benefits of lesser magnitude events. As such, analysts have not conducted a separate analysis.

3.1 Resilient Redevelopment

Marina Village, the site of a former public housing development and the future home of a mixed income residential development, is the focal point of the RBD project. The Resilient Bridgeport Team designed project components to benefit the future mixed income redevelopment by reducing stormwater flooding impacts and providing dry egress out of the FEMA 500-year flood zone plus SLR. Because Connecticut building code requires dry egress from the 500-year flood zone for critical developments (e.g., public housing developments), the Johnson Street Extension of the RBD project serves as a catalyst for the resilient redevelopment of the site.

The BCA captures the benefits of the resilient redevelopment by evaluating the flood impacts that would otherwise occur within Marina Village, as well as the economic benefits realized after the redevelopment of the site. The following section describe the methods used to evaluate losses avoided due to resilient

redevelopment. Section **5.2.3 Economic Revitalization** describes the economic revitalization methodology.

3.1.1 Direct Physical Damages – Buildings and Contents

Resilient redevelopment will reduce the risk of direct physical damage to the future development on the Marina Village site by reconstructing buildings to the 500-year flood elevation. Direct physical damages include the degradation and destruction of property and are quantified through monetary losses. The BCA categorizes property loss as both structural damage (i.e., damage that applies to real property) and content damage (i.e., damage to personal property or inventory).

Analysts evaluate property losses using Depth Damage Functions (DDFs) developed by the United States Army Corps of Engineers (USACE); DDFs relate the flood depth at a structure to an expected percent damage for structures and contents. This percent damage is applied to a building or contents replacement value to estimate monetary loss. Analysts calculate property damage results using building data as of 2015 and RS Means 2016 replacement cost values.

3.1.1.1 Depth Damage Functions

Analysts calculated expected property losses associated with the Fairfield County FIS flood scenarios using standardized depth-damage functions (DDFs) specific to the characteristics and occupancy of a structure. A DDF correlates the depth, duration, and type of flooding to a percentage of expected damage to a structure and its contents, including inventory. The USACE produces DDFs that analysts can use to model direct physical damages. Following Hurricane Sandy, the USACE developed DDFs specific to the Northeast for coastal flooding in a report titled the North Atlantic Coast Comprehensive Study (NACCS). As this information contains the most current and best available data, analysts used these functions to evaluate direct physical damages. **Figure 1** provides a sample depth damage relationship from the USACE NACCS.

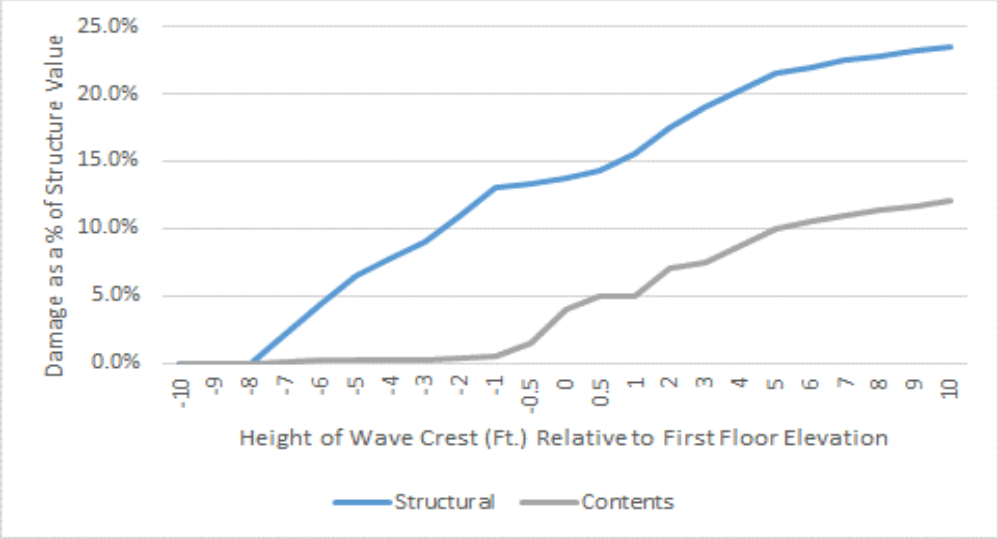


Figure 1. Expected Structural and Contents Damage from Inundation, NACCS Urban High Rise Prototype. Damage at negative flood depths accounts for impacts to mechanical, electrical, and plumbing systems that may be located at or below grade.

3.1.1.2 Data Sources

BCA analysts utilized the following data sources to calculate expected structure, contents, and inventory losses avoided:

- **City of Bridgeport Tax Assessor Data (2015):** Attributes from this dataset used in the direct physical damage analysis include: square footage, number of stories, building elevation, and building use. This dataset also provided building footprints.
- **RS Means Building Construction Cost Data (2016):** This publication provides location-specific building replacement square foot costs for 160 building occupancy types. Using RS Means, analysts calculated building replacement square foot costs for the various structure types in Bridgeport.
- **USACE North Atlantic Coast Comprehensive Study (NACCS) Physical Depth Damage Function Summary Report (2015):** Following Hurricane Sandy, the USACE collected empirical data to estimate the damages that would occur from future events. This report produced damage functions for residential, non-residential, and public property. Analysts used DDFs from this study to estimate direct physical damages.
- **USACE West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction Study (2014):** This study conducted by the USACE produced contents-to-structure ratio values (CSRVs) for residential and non-residential structures. CSRVs are a percentage of the total building replacement values, and analysts used CSVR's determine total contents replacement values for structures in the project area. While produced for a separate region, analysts determined this study to be the best and most recent data available for use with the DDFs.
- **Connecticut Department of Energy and Environmental Protection Digital Elevation Model (2011):** A Department of Energy and Environmental Protection (DEEP) digital elevation model (DEM) is a model of the ground surface, and provides the ground elevation for structures. The DEM is a raster layer of high-resolution ground elevation data based on information from bare-earth LiDAR elevation data collected and compiled during December 2006 and Spring/Summer 2004.
- **Fairfield County Flood Insurance Study (2013):** provides flood elevations for the 10 percent, 2 percent, 1 percent, and 0.2 percent flood events. Analysts use flood elevations to approximate flood depths inside structures.

3.1.1.3 Approach

Analysts completed the following six steps to conduct the direct physical damages analysis.

1. Develop Asset Inventory

Analysts identified benefitting structures (e.g., the redevelopment of Marina Village) and gathered building attributes necessary for analysis, such as number of stories, area, and building use, from Bridgeport's tax assessor data (**Table 4**). Analysts used the attributes of the Marina Village building stock prior to demolition as it is the best available data at the time of analysis; analysts assumed the redevelopment of Marina Village will be a similar style and density multi-family housing complex. Analysts merged building footprints and parcel level data using the unique identification number.

Table 4. Building Attributes

Attribute	Analysis Use
Parcel ID	Key location identifier specific to a parcel
Unique ID	Key location identifier specific to a building
Address	Key location identifier
Living Area	Used in square footage analysis and replacement value calculation
Land Occupancy Description	Building use
Land Use Description	Secondary identifier of building use
Number of Stories	Used in square footage analysis

Ground Elevation

Structure grade elevation is an essential field used to estimate the approximate flood depth within structures. To determine the structure grade elevation, analysts extracted the average elevation within a structure footprint from the DEEP DEM.

2. Map Building Use to Depth Damage Functions, Replacement Values, and Hazus Occupancy Types

Buildings may be classified according to both construction features (type) and use (occupancy); analysts use these classifications to determine further information about the structure. For example, BCA analysts mapped land occupancy descriptions to classifications used by RS means to estimate replacement value for a structure. Analysts completed the following mappings based on land occupancy descriptions:

- Land occupancy description to USACE NACCS DDFs. Refer to **Appendix C: Depth Damage Functions** for a listing of land occupancies and damage functions.
- Land occupancy description to contents/inventory value shares described in the USACE Lake Pontchartrain Study to assign the appropriate CSRV's. Refer to **Appendix E: Occupancy Mapping** for the full mapping scheme
- Land occupancy description to Hazus occupancy classes to estimate a replacement value for structures, as well as apply the appropriate business interruption time multipliers, one-time disruption costs, and for certain uses, the percent owner occupancy. Refer to **Appendix E: Occupancy Mapping** for the full mapping scheme.

3. Conduct Square Footage Analysis

Damages must be assessed based on the square footage within a certain number of stories NACCS identifies for each DDF.[2] The number of stories analysed by the DDF is related to the structure type and the expected location and value of mechanical, electrical, and plumbing (MEP) in buildings. A significant portion of a building's value is captured in such assets; damage costs to these assets can therefore be disproportionate to those of other assets. Urban high rise damage functions, for example, analyse damages as a percent of the square footage of the first ten floors given the NACCS assumption that MEP assets are located within the basement or first floor of the structure.

[2] U.S. Army Corps of Engineers. North Atlantic Coast Comprehensive Study (NAACS). http://www.nad.usace.army.mil/CompStudy

To calculate the structure square footage for the analysis, analysts multiplied the square footage per floor by the DDF's number of stories identified by NACCS (**Table 5**) or the total number of stories, whichever is less, for each structure. Analysts use the analysis square footage to calculate the building and contents replacement value, as described in the next steps.

Table 5. USACE NACCS, Number of Stories per Depth Damage Function

DDF No.	Building Types	Stories (for Analysis)
1A-1	Apartment 1-Story, No Basement	1
1A-3	Apartment 3-Story, No Basement	3
2	Commercial Engineered	2
3	Commercial Non-Engineered	1
4A	Urban High Rise	10
4B	Beach High Rise	10
5A	Residential 1-Story, No Basement	1
5B	Residential 2-Story, No Basement	2
6A	Residential 1-Story, With Basement	1
6B	Residential 2-Story, With Basement	2
7A	Building on Open Pile Foundation	1
7B	Building on Pile Foundation with Enclosures	1

Source: North Atlantic Coast Comprehensive Study: Resilient Adaptation to Increasing Risk. Physical Depth Damage Function Summary Report. January 2015.

4. Determine Building and Contents Replacement Value

Building replacement values (BRVs) and Contents Replacement Values (CRVs) are necessary to place a value on expected damage to buildings. Analysts used RS Means 2016 Square Foot Costs to estimate the BRV.

Building Replacement Value

The BCA Re-engineering Guide defines the BRV as, "the building replacement value for a specific component of the building, expressed in dollars".[3] Analyst used RS Means square foot costs to estimate building replacement values for each Hazus occupancy class[4]. RS Means is a construction cost estimating resource published each year often used by engineers to evaluate different construction cost possibilities. RS Means square foot costs capture labor and material costs, and other information such as city cost

[3] Federal Emergency Management Agency. Benefit Cost Analysis Re-engineering Guide. Full Flood Data. 2009. Located at: http://www.fema.gov/media-library-data/20130726-1738-25045-2254/floodfulldata.pdf
[4] Hazus occupancy classes represent a certain building type based on use, and the FEMA Hazus-MH Flood Technical Manual applies an average square footage to each occupancy class. This average square footage was used to choose the appropriate replacement value per square foot from the RS Means cost data book.

indexes, productivity rates, crew composition, and contractors overhead and profit rates are also available. Analysts used the appropriate RS Means city cost indices of 1.12 for residential uses and 1.09 for commercial uses to accommodate construction conditions in Bridgeport. **Table 6** shows the BRV values determined from RS Means with the city cost index increase for Fairfield County. The building replacement value represents the cost to repair or rebuild damaged buildings in current dollars.

Contents Replacement Value

The USACE NACCS does not include content replacement ratios, therefore analysts used the next best available data. The CRV is based on the contents-to-structure ratio values (CSRV) for residential and non-residential structures from data obtained through surveys in the *West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction Study (***Table 6***).*[5] To calculate the CRV, analysts multiplied the total BRV by the appropriate CSRV, mapped to the Hazus occupancy class. Because the contents values are based on percentages, they increase coincident with an increase in the BRV and do not need to be updated to Bridgeport specific values.

Table 6. Replacement Values

Hazus Occupancy Code	Occupancy Code Description	BRV	CSVR	CRV
RES1	Single Family Dwelling	$130.34	0.69	$89.93
RES2	Mobile Home	$125.17	1.14	$142.70
RES3A	Multi Family Dwelling - Duplex	$107.23	0.69	$73.99
RES3B	Multi Family Dwelling – 3-4 Units	$206.99	0.69	$142.82
RES3C	Multi Family Dwelling – 5-9 Units	$206.99	0.69	$142.82
RES3D	Multi Family Dwelling – 10-19 Units	$197.06	0.69	$135.97
RES3E	Multi Family Dwelling – 20-49 Units	$191.07	0.69	$131.84
RES3F	Multi Family Dwelling – 50+ Units	$184.55	0.69	$127.34
RES4	Temporary Lodging	$192.14	0.69	$132.57
RES5	Institutional Dormitory	$220.99	0.69	$152.49
RES6	Nursing Home	$224.80	0.69	$155.11
COM1	Retail Trade	$127.17	1.19	$151.33
COM2	Wholesale Trade	$123.23	2.07	$255.09
COM3	Personal and Repair Services	$148.21	2.36	$349.78
COM4	Business/Professional/Technical Services	$183.48	0.54	$99.08
COM5	Depository Institutions	$276.60	0.54	$149.36
COM6	Hospital	$394.26	0.54	$212.90
COM7	Medical Office/Clinic	$223.50	0.54	$120.69
COM8	Entertainment & Recreation	$233.01	1.70	$396.13
COM9	Theaters	$195.78	0.54	$105.72

[5] USACE. 2014. West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction Study – Final Integrated Feasibility Study Report and Environmental Impact Statement. November.

Hazus Occupancy Code	Occupancy Code Description	BRV	CSVR	CRV
COM10	Parking	$82.52	0.54	$44.56
IND1	Heavy	$140.17	2.07	$290.16
IND2	Light	$123.23	2.07	$255.09
IND3	Food/Drugs/Chemicals	$189.91	2.07	$393.10
IND4	Metals/Minerals Processing	$189.91	2.07	$393.10
IND5	High Technology	$189.91	2.07	$393.10
IND6	Construction	$123.23	2.07	$255.09
AGR1	Agriculture	$123.23	N/A	N/A
REL1	Church/Membership Organizations	$197.03	0.55	$108.36
GOV1	General Services	$157.02	0.55	$86.36
GOV2	Emergency Response	$262.05	1.50	$393.07
EDU1	Schools/Libraries	$210.99	1.00	$210.99
EDU2	Colleges/Universities	$185.28	1.00	$185.28

5. Determine Flood Depth

Analysts subtracted grade elevations from the FEMA defined 10 percent, 2 percent, 1 percent, and 0.2 percent flood elevations to determine the expected flood depths in structures. The USACE NACCS DDFs account for expected first floor elevation (FFE) by occupancy type and age, as well as the presence of mechanical, electrical, and plumbing (MEP) located in the basement. Since the DDFs incorporate these building attributes, it is not necessary to account for FFE in the asset inventory. To determine the flood depths, analysts obtained the flood elevation within a building footprint for each flood scenario, and subtracted the average grade elevation from the respective flood elevations to obtain a flood depth for each flood scenario.

6. Estimate Percent Damage and Monetary Losses

As previously mentioned, DDFs are a relationship between the depth of floodwater in a structure and the percent of flood damage. Once BCA analysts established the expected flood depth for each flood scenario, they applied the DDF to estimate the percent of structural or contents damage; this percentage is applied to a structure's BRV or CRV to produce a physical loss value in dollars. Analysts applied the annual probability of each flood scenario to expected flood impacts to calculate annual benefits (**Table 7**). Ultimately, benefits represent the present value of the sum of expected annual avoided damages over the project useful life.

Table 7. Direct Physical Damage Results

Flood Scenario (Percent Annual Chance Event)	Loss Category		Total Direct Physical Damages
	Building Losses	Contents Losses	
10 Percent	$2,007,510	$2,326,120	$4,333,630
2 Percent	$3,285,290	$4,620,570	$7,905,860
1 Percent	$4,003,460	$5,792,100	$9,795,560
0.2 Percent	$6,171,770	$9,453,250	$15,625,020
Annualized Losses Avoided	*$318,840*	*$401,850*	*$16,772,570*

3.1.1.4 Assumptions

BCA analysts made the following assumptions to account for uncertainties and limitation of the analysis:

- The USACE NACCS DDFs account for underground vulnerabilities by applying a percent damage for negative flood depths.
- The NACCS DDFs did not provide percent loss for all flood depth intervals for all occupancies, and provided no percent loss above ten feet of flood depth. As such, analysts developed trend interpolations based on the preceding three available flood depths for missing DDFs. A similar approach was used for flood depth gaps below zero flood depth, using averages between flood depths, where available.
- The DDFs do not assume complete loss beyond 50 percent damage, as is often assumed for use with benefit cost analyses, as well as substantial damage determinations. Further, the analysis does not consider the impacts of codes and standards in restoration. As such, direct physical damage costs may be conservatively low.
- Benefits begin the year Marina Village redevelopment is complete, which is 2023.
- The RBD project life-cycle costs do not include the costs associated with the redevelopment of the Marina Village site. In Connecticut, activities such as the construction of public housing in the floodplain are considered a “critical activity.” Critical activities are regulated to the 500-year flood elevation when applying to the Department of Energy and Environment Protection for a Flood Management Certification.[6] These costs are not included in the analysis, since they are activities associated with the minimum standards per the Regulations of Connecticut State Agencies and not an additional expense to develop to a higher standard.
- Analysts assume the redevelopment of Marina Village will be a similar style and density multi-family housing complex. As such, analysts consider the number of future population and units within the site to be similar. The analysis does not consider an increase in development or population density, resulting in a conservative analysis.

3.1.2 Displacement Costs

Residents of impacted structures may experience displacement costs during the time when a building becomes uninhabitable due to flood damage. Relocation costs are associated with moving a household or a business to a new location and resuming business in that new location. Relocation costs are derived from

[6] Sections 25-68h-1 through 25-68h-3, Regulations of Connecticut State Agencies

displacement time, which is derived from DDFs that relate a depth of flooding to an amount of time a structure is not usable. The overall approach taken to evaluate relocations costs is:

1. Identify flood depths and damage expected at the 10 percent, 2 percent, 1 percent, and 0.2 percent annual chance flood event
2. Determine expected displacement time based on flood depth and building use
3. Calculate relocation costs

3.1.2.1 Data Sources

BCA analysts used the following data sources when evaluating displacement costs:

- **Hazus-MH 3.2 One-time Disruption Cost Defaults:** Hazus provides national one-time relocation costs per square foot based on Hazus occupancy class. These costs are provided in 2006 dollars and have been normalized to 2016 dollars based on inflation. Refer to **Appendix F: Additional Benefit Cost Analysis Resources** for Hazus-MH 3.2 manual excerpts.
- **US Census Bureau American Community Survey 5-Year Estimates (2014):** provided the percent owner occupancy by census block for residential uses. Analysts used Hazus-MH 3.2 default values for commercial structures as local figures were not readily available.
- **Hazus-MH 3.2 Percent Owner Occupancy Defaults:** Hazus provides percent owner occupancy for non-residential uses by Hazus occupancy class (local value not available).
- **Direct Physical Damages:** Flood impacts were modeled for different flood scenarios to determine which structures are expected to flood and the depth of flooding within the structure (see **2.2.1 Direct Physical Damages – Buildings and Contents**).
- **FEMA BCA Toolkit 5.3:** Depth displacement tables were not provided with the USACE NACCS DDFs used in the direct physical damage analysis, therefore analysts extracted displacement tables from the BCA Toolkit to determine displacement time for structures based on flood depth.
- **Local Rental Rates:** Analysts researched local rent rates within the project area and applied these rates by occupancy. An online survey of varied sizes and types of residential spaces currently available for rent within the South End established local residential rental rates. Local commercial rental rates were obtained in the same manner as residential rental rates. Analysts used Loopnet to obtain commercial rental values, and Trulia, and Zillow to conduct the residential survey (all online real estate services).

3.1.2.2 Approach

1. Identify Impacted Structures: The direct physical damages analysis identified structures expected to be impacted at the 10 percent, 2 percent, 1 percent, and 0.2 percent annual chance flood events.

2. Identify Impacted Square Footage: For structures that are expected to experience less than ten feet of flooding, the total impacted square footage is the area of the first floor. Analysts use the total square footage of the first two floors when a structure experiences more than ten feet of flooding.

3. Identify and Apply Percent Owner Occupied by Occupancy: For residential uses, census block level data provided the percent owner occupied. Analysts assigned all non-residential uses default percent owner occupancy obtained from Hazus-MH 3.2.

4. Identify Rental Rates by Occupancy: Analysts categorized available rental units by commercial and residential uses for the project area, and then calculated an average rent price per square foot per year for each use. The results of this analysis indicate that the average annual price per square foot for commercial properties in 2016 is $10.05, and the average annual price per square foot for residential properties in 2016 is $13.13. Analysts converted these values to an average price per square foot per day for use in the relocation cost calculation outlined below.

5. Evaluate Displacement Time: The estimated flood depth within each structure is correlated to USACE depth displacement tables to estimate displacement time for each modeled flood scenario.

6. Process Relocation Costs: Analysts processed relocation costs to building occupants based on occupancy type.[7] Displacement costs, or relocation costs, are a product of percent damage, impacted square footage, disruption costs per occupancy, rental costs, displacement time, and percent owner occupied. Analysts applied the probability of each flood scenario to expected impacts to calculate annual benefits (**Table 8**).

$$Relocation\ costs = If\ percent\ damage\ is$$
$$> 10\ percent: Impacted\ floor\ area \times (1 - percent\ owner\ occupied) \times disruption\ cost$$
$$+ percent\ owner\ occupied \times (disruption\ cost + rental\ cost \times displacement\ time)]$$

Table 8. Relocation Costs Avoided

Flood Scenario (Percent Annual Chance Event)	Relocation Costs
10 Percent	-
2 Percent	$18,180
1 Percent	$53,770
0.2 Percent	$124,300
Annualized Losses Avoided	*$1,150*

3.1.2.3 Assumptions

- Relocation costs are only calculated for floors expected to be directly impacted by floodwaters. There are times when the entire structure will be displaced because of flood impacts. As a result, this approach produces conservative results.
- Depth displacement tables used in the analysis do not consider flooding below grade. Utilities and other critical assets may lie below grade. When these areas flood, occupants may be displaced, even if flood waters do not reach above the first floor. The analysis does not capture such displacement.
- The depth displacement tables do not extend beyond 16 feet of flood depth. As such, analysts assume displacement periods for flood depths above 16 feet match the time for displacement at 16 feet.

[7] It is important to note that this equation incorporates only owner-occupied structures when calculating displacement values. The reason for this is that a renter who has been displaced would likely cease to pay rent to the building owner of the damaged property, and instead would pay rent to a new landlord. As such, the renter could reasonably be expected to incur no new rental expenses. Conversely, if the damaged property is owner-occupied, then the owner will have to pay for new rental costs in addition to any existing costs while the building is being repaired. This model assumes that it is unlikely that an occupant will relocate if a building is slightly damaged (less than 10% structure damage).

3.1.3 Mental Stress and Anxiety

Natural disasters threaten or cause loss of health, social, and economic resources, which leads to psychological distress.[8] Research indicates that individuals who experience significant stressors, such as property damage or displacement, are more likely to experience symptoms of mental illness, Post-Traumatic Stress Disorder (PTSD), and higher levels of stress and anxiety after a disaster.[9] Post-Hurricane Sandy research demonstrates there was a measurable spike in mental stress disorders after the event, including PTSD, anxiety, and depression.[10] As mental health issues increase after a disaster, it is expected that mental health treatment costs will also increase. The pilot project is expected to reduce flood impacts to homes and public transportation, and thus reduce risk of mental stress and anxiety post-disaster.

FEMA developed standard values to estimate the treatment costs of mental stress in a post- disaster situation, if a person has personally experienced damage to their residence. The following section describes FEMA's method to evaluate mental stress and anxiety impacts after a flood event.

3.1.3.1 Data Sources

- **FEMA's Final Sustainability Benefits Methodology Report (2012):** This report provides a method to calculate the cost of mental stress and anxiety treatment.
- **Direct Physical Damages:** Analysts use flood depths from Section **2.1.1 Direct Physical Damages – Buildings and Contents** to identify impacted buildings and population.
- **US Census Bureau American Community Survey (ACS) (2014) 5-Year Estimates:** This source provided population by census block.

3.1.3.2 Approach

The principle resource used to conduct the analysis is FEMA's Final Sustainability Benefits Methodology Report that accompanies the FEMA BCA Toolkit. Mental health treatment costs are measured using three factors: cost, prevalence, and course. Prevalence is the percentage of people who experience mental health problems after a disaster event, and course is the rate at which mental health symptoms reduce or increase over time. Cost is the cost of treatment to those who seek it. Analysts completed the following steps to estimate the expect cost of mental health treatment for each flood scenario.

1. Population Analysis

To analyze human impacts for each building, analysts must distribute the total population in the project area to each residential building. To do so, analysts distributed the population (from the 2014 ACS) to each building based on the ratio of a residential building's total square footage to the total residential square footage in the census block that contains the building.

[8] Hobfoll, S.E. 1989. Conservation of resources: A new attempt at conceptualizing stress. American Psychologist. 44:513–524. [PubMed: 2648906].
[9] Rhodes, J., Chan, C.,Pacson, C., Rouse, C.E., Waters, M., and E. Fussell. 2010.. The Impact of Hurricane Katrina on the mental and physical health of low-income parents in New Orleans. Am J Orthopsychiatry. April; 80(2): 237-247.
10 Beth Israel Medical Center data indicate a 69% spike in psychiatric visits in November 2012. Healthcare Quality Strategies Inc. reviewed Medicare claims before and after Hurricane Sandy in select communities in New Jersey and found that PTSD was up 12.2%, anxiety disorders were up 7.8%, and depression or proxy disorders were up 2.8%.

2. Determine Prevalence Rate and Course

FEMA's Final Sustainability Benefits Methodology Report[11] uses prevalence percentages and mental health expenses from Schoenbaum (2009) to derive a standard value for mental stress and anxiety costs. Prevalence percentages are adjusted over different time periods: mild to moderate impacts will reduce over time as treatment is provided, while severe mental health problems may persist much longer, possibly never being fully resolved.[12] **Table 9** provides a summary of prevalence considering course over four different time periods.[13] The FEMA methodology only captures mental health impacts for the first 30 months because prevalence rates after this period are not available.

Table 9. Mental Health Prevalence Rates After a Disaster

Time after Disaster	Severe	Mild/Moderate
7-12 months	6%	26%
13-18 months	7%	19%
19-24 months	7%	14%
25-30 months	6%	9%

Source: FEMA Updated Social Sustainability Methodology Report

3. Establish Treatment Cost

Schoenbaum provides an estimate of treatment costs in an ideal scenario where all needs are met. FEMA contends that treatment costs from the study must be adjusted to consider only those with mental health problems who will actively seek out treatment (41 percent).[14] FEMA uses the following steps to adjust total treatment costs from Schoenbaum for a percentage of individuals who seek treatment and for prevalence.

$$Cost\ per\ person\ seeking\ treatment = Treatment\ cost\ per\ person^{15} \times 0.41 \times prevalence$$

This methodology is applied to each time period, adjusting for prevalence. Analysts normalized the values provided by FEMA's Final Sustainability Benefits Methodology Report (2012) using the Consumer Pricing Index (CPI) Inflation Calculator,[16] and the costs for both severe and mild/moderate mental health problems over each time period are added together to provide a total treatment cost of $ 2,707 for 30 months. **Table 10** provides a summary of treatment costs in current dollars.

11 FEMA. 2012. Final Sustainability Benefits Methodology Report. August 23.
12 Schoenbaum, Michael; Butler, Brittany; Kataoka, Sheryl; Norquist, Grayson; Springgate, Benjamin; Sullivan, Greer; Duan, Naihua; Kessler, Ronald; and Kenneth Wells. 2009. Promoting Mental Health Recovery After Hurricanes Katrina and Rita: What Can Be Done at What Cost. Archives of General Psychiatry, Vol. 66, #8, August.
13 FEMA. 2014. Updated Social Benefits Methodology Report. December 18.
14 Wang, Philip S., MD, DrPH; Lane, Michael, MS; Olfson, Mark, MD, MPH; Pincus, Harold A., MD; Wells, Kenneth B., MD, MPH; Kessler, Ronald C., PhD. 2005. Twelve-Month Use of Mental Health Services in the United States: Results from the National Comorbidity Survey Replication. Archives of General Psychiatry, v. 62, June.
A., MD; Wells, Kenneth B., MD, MPH; and Ronald C. Kessler, PhD. 2005. Twelve-Month Use of Mental Health Services in the United States: Results from the National Comorbidity Survey Replication. Archives of General Psychiatry, v. 62, June.
15 Schoenbaum, Michael; Butler, Brittany; Kataoka, Sheryl; Norquist, Grayson; Springgate, Benjamin; Sullivan, Greer; Duan, Naihua; Kessler, Ronald; Wells, Kenneth. 2009. Promoting Mental Health Recovery After Hurricanes Katrina and Rita: What Can Be Done at What Cost. Archives of General Psychiatry, Vol. 66, #8, August 2009.
16 U.S. Bureau of Labor Statistics. Undated. CPI Inflation Calculator. [web page] Located at: http://www.bls.gov/data/inflation_calculator.htm.

Table 10. Cost of Treatment[17] After a Disaster (30 Month Duration), Per Person Expected to Seek Treatment

Time after Disaster	Severe	Mild/Moderate	Total per person
7-12 months	$ 220.00	$ 691.27	$ 911.27
13-18 months	$ 256.66	$ 451.98	$ 708.64
19-24 months	$ 256.66	$ 372.22	$ 628.88
25-30 months	$ 218.89	$ 239.28	$ 458.17
Total			**$ 2,707**

Source: FEMA Updated Social Sustainability Methodology Report

4. Identify Impacted Population and Calculate Costs

Analysts consider the total number of residents in Marina Village projected post-development that experience flooding during a 0.2 percent annual chance event as impacted. The cost per person was applied to the total number of Marina Village residents expected to be impacted by flooding. Per FEMA methodology, analysts do not annualize benefits; rather, benefits at the design level of protection (the 0.2 percent annual chance flood event) are incorporated into the BCR as a one-time benefit: **$1,050,280**.

3.1.3.3 Assumptions

- Research is limited to 30 months after a disaster; therefore, estimated losses avoided are limited to this period. Mental health avoided losses beyond two and a half years after a disaster, though expected, are not valued in this analysis.
- Benefits are calculated for only 41 percent of the impacted population because research indicates that only that portion of the population with mental health issues can be expected to seek treatment. This significantly lowers the calculated treatment costs and does not consider the full costs to society.
- The analysis does not consider population growth.
- The value of treatment is a national figure and does not consider local costs.

3.1.4 Lost Productivity

FEMA's standard values for mental health impacts also include lost productivity due to mental stress and anxiety. Historical impacts indicate that mental health issues will increase after a disaster, and this, paired with research related to lost productivity due to mental illness, indicates that economic productivity can be impacted by an increase in mental health issues post-disaster.[18] A study of 19 countries by the World Health Organization showed a lifetime 32 percent reduction in earnings for respondents with mental illness.[19] Implementation of the RBD project will help reduce the number of stressors caused by natural disasters, thereby reducing mental health impacts. Fewer mental health impacts will reduce lost work productivity.

17 Costs normalized to 2015 dollars using the CPI calculator located at: http://data.bls.gov/cgi-bin/cpicalc.pl?cost1=623.63&year1=2008&year2=2015
[18] Insel, Thomas. Assessing the Economic Costs of Serious Mental Illness. American Journal of Psychiatry. 165:6 June 2008. / Kessler et al. Individual and Societal Effects of Mental Disorders on Earnings on the United States: Results from the National Comorbidity Survey Replication. American Journal of Psychiatry. 165:6. June 2008.
[19] Levinson, et al. 2010. Associations of Serious Mental Illness with Earnings: Results from the WHO World Mental Health Surveys. British Journal of Psychiatry. August; 197(2): 114–121. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2913273

3.1.4.1 Data Sources

- **FEMA's Final Sustainability Benefits Methodology Report (2012):** This report provides a method to calculate the cost of lost productivity after a flood event.
- **US Census Bureau American Community Survey (2014) 5-Year Estimates:** Analysts use the average number of workers per household and persons per household from this data source to determine the number of impacted workers.
- **Direct Physical Damages:** Analysts use flood depths from Section **2.1.1 Direct Physical Damages – Buildings and Contents** to identify impacted buildings and population.
- **Structure Population:** provides the number of people expected to reside in impacted buildings.

3.1.4.2 Approach

FEMA's Final Sustainability Benefits Methodology Report that accompanies the FEMA BCA Toolkit is the primary resource used to estimate lost productivity.

1. Determine the Value of Work Productivity

Analysts first established the value of work productivity per FEMA's methodology:

$$Loss\ of\ Work\ Productivity = (EC_{NA} \times H_{NA}) \times 25.5\%$$

Where:

EC_{NA}: Average Employment Compensation

H_{NA}: Average Number of Hours Worked per Day

FEMA references Levinson et al (2010)[20] in which research was conducted using the World Health Organization's Mental Health Surveys in 19 countries; the study found that individuals in the United States with mental health illnesses experience as much as a 25.5 percent reduction in earnings. The national average for employment compensation in March 2015 was $33.49 per hour.[21] This, multiplied by the average number of hours worked per day (6.9),[22] produces a daily U.S. value of $231.08. Thus, a 25.5 percent reduction in earnings would equal a loss of $58.90 daily, or $1,767 per capita, monthly.

2. Determine Prevalence Rates

Analysts apply $1,767 to the amount of time lost productivity is expected to occur, 30 months. Prevalence factors from Schoenbaum (2009) are used to adjust the value of productivity loss over 30 months, to account for the fact that only a portion of the population will experience mental health impacts post-disaster. The prevalence factor is based on severe mental health issues because there is insufficient literature to document the impacts of mild/moderate mental health issues on productivity.[23] Accounting for prevalence, the value of work productivity for 30 months is **$3,394** per capita, monthly.

20 Levinson, et al. 2010. Associations of Serious Mental Illness with Earnings: Results from the WHO World Mental Health Surveys. British Journal of Psychiatry. August; 197(2): 114–121. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2913273

21 Employer Costs for Employee Compensation. March 2015. United States Department of Labor, Bureau of Labor Statistics.

22 Average week hours of overtime of all employees. Web page. Located at: http://www.bls.gov/news.release/empsit.t18.htm

23 FEMA. 2014. Updated Social Benefits Methodology Report. December 18.

3. Identify Impacted Population

Analysts consider the total population in residential buildings that experience flooding during a 0.2 percent annual chance event as impacted. Population data and the average number of persons per household (2.72) determined the number of households projected to be in the Marina Village redevelopment. Analysts apply the average number of workers per household in Bridgeport (1.35 workers) to the number of households impacted to determine the number of wage earning residents who will experience flooding. The total lost productivity share per worker for 30 months ($3,394) is multiplied by to the number of wage-earning residents who will experience flooding to value productivity losses avoided. Analysis results are **$653,610**; analysts incorporate benefits into the BCR in the same fashion as mental stress and anxiety benefits.

3.1.4.3 Assumptions

- Analysts assumed that the average number of workers per household and the average number of persons per household for Bridgeport is applicable to the project area.
- Value is provided for the first 30 months only because there is insufficient literature available to analyze longer periods of time.
- Prevalence rates are based on severe mental issues because there is insufficient literature related the impacts of mild or moderate mental health problems on work productivity. Thus, analysts consider results as conservative.
- The analysis does not account for population growth.

3.2 Dry Egress

Dry egress is a development practice in Connecticut that requires critical developments, such as public housing, located within the 500-year floodplain, to have a means of evacuation, as well as route for emergency vehicles, constructed to the 500-year flood elevation plus 2 feet.[24] Elevated roads also prevent residents from being stranded during flood events, reduce flood damage, reduce the need for water rescues, and increase public safety. The RBD project will provide dry egress for the Marina Village redevelopment site, as well as a shorter route to access dry egress for Seaside Village residents and adjacent properties. Dry egress will be constructed to the 500-year flood elevation plus 3 feet to account for future SLR. The BCA captures the benefits of dry egress by evaluating the value of road service and avoided casualties.

3.2.1 Loss of Roadway Service

Transportation assets and systems in the South End may flood during both acute and chronic events. Loss of roadway service is a function of the per-hour value of time, detour route, and number of vehicles evacuating. Analysts focused on the future residents of the Marina Village redevelopment that will benefit from dry egress.

24 “A Guide for Higher Standards in Floodplain Management”. Association of State Floodplain Managers. October 2010.

3.2.1.1 Data Sources

- **FEMA Benefit-Cost Analysis Re-Engineering (BCAR) Development of Standard Economic Values:** provides a standard value of detour lost time per vehicle.
- **The New England Hurricane Evacuation Study (2016):** provides the average number of vehicles per household and Bridgeport specific evacuation rates.
- **Fairfield County FIS and Flood Insurance Rate Map:** This data is overlaid with buildings to determine potential evacuation routes.
- **Direct Physical Damages:** Analysts used flood depths for each structure to identify impacted buildings and residents.

3.2.1.2 Approach

This FEMA methodology is centered around the value of time, which is described in FEMA's Benefit Cost Analysis Re-Engineering Guide, Development of Standard Economic Values report. In summary, analysts evaluate additional travel time needed for an alternative travel route because floodwaters inundate a roadway. The following equation characterizes roadway loss of service:

$$Roadway\ Loss\ of\ Service = \left[\left((UpPD \times ER) \times VpH \times VT\right) \times DT\right] \times TV$$

Where:

UpPD: Number of Units per Property Description

ER: Expected Evacuation Rate

VpH: Average Number of Vehicles per Household

VT: Vehicle Trips to Evacuate

DT: Delay Time

TV: Hourly Value of Time per Vehicle

1. Evaluate Evacuation Routes and Determine Delay Time

Analysts reviewed the FEMA flood zones and found floodwaters would inundate future Marina Village resident's evacuation route during a 2 percent annual chance flood event. When no alternative route is available, FEMA uses a delay time of 12 hours as a standard value.[25]

2. Identify Impacted Population and Evacuating Vehicles

Analysts apply the average vehicles per household sourced from the New England Hurricane Evacuation Study (2016) to the total the number of households projected to be in Marina Village, determined in Section **2.1.4 Lost Productivity**. Analysts factor evacuation rates into the analysis to account for residents that choose to shelter in place. Analysts assumed vehicles trips during an evacuation scenario to be one.

[25] FEMA Supplement to the Benefit-Cost Analysis Reference Guide (2011). Page 5-14. http://www.fema.gov/media-library-data/1396549910018-c9a089b8a8dfdcf760edcea2ff55ca56/bca_guide_supplement__508_final.pdf

3. Determine the Value of Lost Time

To place a monetary value on lost roadway service, analysts normalized and applied FEMA's value of lost time to the total number of evacuating vehicles: $32.09 per hour.[26] **Table 11** summarizes flood impacts to road service by flood scenario.

Table 11. Loss of Road Service Results by Flood Scenario

10 Percent Annual Chance Event	2 Percent Annual Chance Event	1 Percent Annual Chance Event	0.2 Percent Annual Chance Event	Annual Losses Avoided
-	$82,650	$82,650	$82,650	$10,910

Losses remain consistent across each flood event because the once floodwaters inundate the roadway residents may no longer use the road, regardless of an increase in flood elevation.

3.2.1.3 Assumptions

- Analysts assume one person per each evacuating vehicle, therefore results are conservative.
- FEMA's Supplement to the Benefit-Cost Analysis Reference Guide states that "For road or bridge losses that do not have detours, the number of daily trips should be based on the number of one-way trips, and the delay time should be 12 hours per one-way trip."
- The analysis does not account for population growth.

3.2.2 Casualties

Casualties, which include loss of life and injuries, are an unfortunate risk inherent to hazard events. Flood events are considered some of the most frequently occurring natural hazards, contributing to 44 percent of natural hazard-related fatalities worldwide.

The approach chosen to estimate reduced fatalities within the future Marina Village redevelopment is based on a study completed by the Brno University of Technology in 2013.[27] Through this approach, analysts consider the number of fatalities expected at different flood scenarios. Additional data required to supplement the Brno approach include standard life safety values from the Federal Aviation Administration (FAA): the FAA's Willingness to Pay value for one fatality is $5.8 million.

Casualties also includes injuries related to identified flood events. In October 2014, the CDC published another report titled "Nonfatal Injuries 1 Week after Hurricane Sandy." The report suggests that 10.4 percent of residents in the inundation zone were injured within the first week after Hurricane Sandy, mostly during attempts to evacuate or navigate and clean up debris.

3.2.2.1 Data Sources

- **US Census Bureau ACS 5-Year Estimate:** provides the population expected to reside in the Marina Village redevelopment; estimates are based on building square footage and total population within a census block.
- **The New England Hurricane Evacuation Study (2016):** provides local evacuation rates.

[26] Normalization in this report refers to the process of converts past dollar values to current dollar values using the CPI inflation calculator.
[27] Brazdova, M. and J. Riha. 2014. A simple model for the estimation of the number of fatalities due to floods in central Europe. Nat Hazards Earth Syst Sci. 14. June 12.

- **Federal Aviation Administration (FAA) values:** The Federal Aviation Administration (FAA) categorizes injuries and fatalities as shown in **Table 12**. FEMA has acknowledged the validity of these life safety values and permits their use in benefit cost analyses.
- **CDC injury rates:** The CDC report from October 2014 titled "Nonfatal Injuries 1 Week after Hurricane Sandy" estimates 10.4 percent of residents in the inundation zone were injured within the first week of Hurricane Sandy.
- **Brno University of Technology fatality risk methodology:** the approach is based on three main factors: materials loss, population preparedness, and warning.

3.2.2.2 Injuries

To quantify the value of injuries, analysts developed the below equation based on the CDC study titled "Deaths Associated with Hurricane Sandy". Analysts assumed that all injuries reduced are FAA AIS1 minor injuries. This injury category is the lowest value within the FAA study ($13,590[28]) allowing for a conservative analysis of injuries associated with a flood event.

$$Value\ of\ Injuries = \left(Population \times (1 - Evacuation\ Rate)\right) \times 10.4\% \times \$13{,}590$$

Table 12. FAA Category Levels and Values[29]

Injury Category	Description of Injury	Fraction of WTP Value of Life (Percent)	WTP Value (2008 Dollars)
AIS 1	Superficial abrasion or laceration of skin; digit sprain; first-degree burn; head trauma with headache or dizziness (no other neurological signs).	0.20	$12,000
AIS 2	Major abrasion or laceration of skin; cerebral concussion (unconscious less than 15 minutes); finger or toe crush/amputation; closed pelvic fracture with or without dislocation.	1.55	$90,000
AIS 3	Major nerve laceration; multiple rib fracture (but without flail chest); abdominal organ contusion; hand, foot, or arm crush/amputation.	5.75	$334,000
AIS 4	Spleen rupture; leg crush; chest-wall perforation; cerebral concussion with other neurological signs (unconscious less than 24 hours).	18.75	$1,088,000
AIS 5	Spinal cord injury (with cord transection); extensive second- or third- degree burns; cerebral concussion with severe neurological signs (unconscious more than 24 hours).	76.25	$4,423,000
AIS 6	Injuries, which although not fatal within the first 30 days after an accident, ultimately result in death.	100	$5,800,000

[28] Normalized to current dollars using the Consumer Price Index inflation calculator.
[29] Revised Departmental Guidance: Treatment of the Value of Preventing Fatalities and Injuries in Preparing Economic Analyses. Located at: https://www.faa.gov/regulations_policies/policy_guidance/benefit_cost/media/Revised%20Value%20Of%20Life%20Guidance%20Feburary%202008.pdf

Source: Revised Departmental Guidance: Treatment of the Value of Preventing Fatalities and Injuries in Preparing Economic Analyses.

3.2.2.2.1 Approach

1. Identify Impacted Population

Analysts consider the number of residents in Marine Village that experience flooding during the 0.2 percent annual chance event and did not evacuate as the impacted population.

2. Estimate and Value Injuries

Analysts apply 10.4 percent to the total impacted population, then the value of injury to determine the monetary cost of injuries. The CDC report *Nonfatal Injuries 1 Week after Hurricane Sandy* found the rate of injuries among impacted persons to be 10.4 percent.[30] **Table 13** summarizes the results of the injury analysis.

Table 13. Injury Analysis Results

Percent Annual Chance Event	Value of Injuries
10 Percent	-
2 Percent	$146,990
1 Percent	$244,510
0.2 Percent	$548,380
Annual Injuries Avoided	*$6,480*

3.2.2.2.2 Assumptions

- The results are based on historical data from a CDC survey conducted 5 to 12 months after Hurricane Sandy. The timing of the evaluation, coupled with the fact that the data is only available for one event, increases uncertainty. Nevertheless, the study performed is in an area like the project area, which means that conditions under which the survey was completed are largely transferable. The survey is thus an appropriate source from which to transfer expected results.
- Injuries reported are only for a one-week period following Hurricane Sandy. The analysis does not account for injuries sustained while repairing damages from Sandy more than one week following the event.
- Estimated injuries are all considered minor; the BCA does not account for moderate or serious injuries.
- The BCA evaluates people with multiple injuries the same as people with only one injury.
- The analysis does not include people in buildings that do not experience flooding, and neither are injuries sustained because of road damage and closures.
- The BCA does not consider worker and transient populations.
- The BCA does not account for population growth.

[30] CDC report titled "Nonfatal Injuries 1 Week after Hurricane Sandy," October 2014, page 1. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6342a4.htm

3.2.2.3 Fatalities

Most existing methodologies that estimate fatalities use two groups of characteristics: hydraulic characteristics such as water depth, rate of water rising, flow velocities, wind, and temperature; and by area characteristics including factors such as population density, land use, warning systems, and vulnerability of the population.[31] Arcadis analysts considered material loss, population preparedness, rate of water rise, and warning capabilities. This approach is the most appropriate because it accounts both for event damage characteristics and the community's capacity to prepare for and react to flood events, both of which relate to vulnerability.

3.2.2.3.1 Approach

The Brno University of Technology approach is based on three main factors: material loss (in dollars), population preparedness, and warning. The equation presented below expresses the relationship of these factors. There are additional factors that are important to consider in estimating the loss of life in a natural hazard event. Nevertheless, factors such as debris, climatic conditions, water quality, and time of day, were not available for analysis due to a lack of data.

The equation for fatality estimates:

$$LOL = 0.075 \times D^{0.384} \times (P + 2)^{-3.207} \times (W + 2)^{-1.017}$$

Where:

LOL: Loss of Life

D: Material Loss ($)

P: Population Preparedness (aggregated population preparedness factors)

W: Warning (factor-based)

1. Determine D, W, and P Factor

(i) D Factor

The D factor (material loss) consists of building damage and contents loss, which analysts estimated in direct physical damages analysis. For the purposes of this analysis, analysts evaluated only structure and contents damage for residential structures for the appropriate flood scenarios. Analysts assumed these losses reflect both the destructive ability of the event and the number of endangered inhabitants. The analysis does not consider damage to constructed assets, such as roads or utility systems. The values used as D in the formula are listed in **Table 14.**

[31] Jonkman, S.N. and J.K. Vrijling. 2002. Loss of life models for sea and river floods. Flood Defence. Wu et al. (eds) Science Press, New York Ltd.

Table 14. Expected Material Loss (D) Values by Percent Annual Chance Flood Event

Percent Annual Chance Flood Event	Expected Material Loss
10 Percent	$4,333,630
2 Percent	$7,905,860
1 Percent	$9,795,560
0.2 Percent	$15,625,020

(ii) P Factor

The P Factor (population preparedness) expresses the preparedness of the community for flood management and resiliency, and it reflects the population's general awareness of flooding and required preparations. Analyst determined this value by rating eight sub-factors on a scale of -1 to 1 (**Table 16**).

The evaluation of the P sub-factors is based on existing conditions within the project area community. The flood knowledge held by the public in Bridgeport greatly increased after Hurricanes Sandy and Irene. Analysts evaluated the P sub-factors to determine the below ratings for P1 to P8. Because of the frequency and amount of flood prevention and awareness activities present in Bridgeport, analysts assumed that the same P subfactors apply for all four flood scenarios. Analysts found the final P Factor using the equation below, where P is the aggregated preparedness score presented in **Table 15**. **Table 16** describes P subfactors.

$$P = \frac{1}{8} * \sum_{i=1}^{8} Pi$$

Table 15. P Values

P Subfactor	Factor Description	Existing Conditions Evaluation
P_1	Flood awareness and general knowledge of hazards	1
P_2	Flood memory	1
P_3	Existing flood documentation	1
P_4	Understanding of activities and behavior during floods	0
P_5	Initiatives and activities of flood committees	0
P_6	Response to hydrological forecast	0.5
P_7	Response to flood warning	0
P_8	Evacuation and rescue activities	1
Aggregated Preparedness		**2.125**

Table 16. P Factor Descriptions

P_i	Score				
	-1.0	-0.5	0.0	0.5	1.0
P_1	No flood awareness or knowledge about flood hazard, sometimes ignorance	Poor awareness, underestimation of flood hazard	Common flood awareness	Fair knowledge about flood hazards obtained mostly from the media	Excellent knowledge about flood hazards via the media, education, training, etc.
P_2	Area never flooded, no experience with flooding	Area flooded decades ago, poor records concerning flood losses	Area flooded decades ago, good records concerning the risks	Flooding still in the memory of the population	Personal experience with flooding
P_3	Flood extent maps or flood management plans not available	Existing flood extent maps are outdated	Flood extent maps drawn up based on current hydrologic data, but only poor flood management plans exist	Flood extent maps drawn up, flood management and evacuation plans available	Flood extent maps drawn up, updated digital versions of flood management and evacuation plans available
P_4	Individuals have no idea about actions to take during floods	Limited (vague) understanding of what to do during floods	General understanding of what to do before and during a flood	Quite good knowledge of flood management plans and corresponding activities	Perfect knowledge of flood management plans and understand of what to do in the event of flooding, good preparedness
P_5	No flood committee established	Flood committee established but not trained, only equipped with flood fighting facilities	Flood committee established and generally trained, poorly equipped with flood-fighting facilities	Only moderately experienced but trained committee with standard flood fighting facilities	Experienced and well-trained flood committee equipped with flood-fighting facilities
P_6	No response to hydrological forecast, no understanding or belief	Poor understand of hydrological forecast and poor response	Approximate understanding of forecast and adequate response	Fair understanding of hydrological forecast and good response	Very good understanding of hydrological forecast and very good response
P_7	No response to warning, no idea about warning procedures and response	Only poor response to warning, warning system not trusted	Adequate response	Good response to warning	Immediate and fast response to warning
P_8	Rescue system does not exist, no staff or equipment available	Organized rescue system does not exist, volunteer basis, no trained staff available with randomly acquired equipment	Poorly organized but functioning rescue system, basic rescue equipment of adequate quality	Functioning rescue system, trained staff with equipment of fair quality	Efficiently functioning rescue system, well-trained, experienced and well-equipped personnel

(iii) W Factor

The W factor (warning) includes factors that influence warning of the community that an event is forecasted. The contributing factors include a hydrological forecast, the type of warning system employed, the speed of flooding, and the rate of water level rise; as these factors are somewhat based on the frequency and

extent of flooding, analysts evaluate the W Factor for each flood scenario. **Table 17** shows the scale of sub-factors.

Table 17. W Factor Descriptions

W_i	Score				
	-1.0	-0.5	0.0	0.5	1.0
W_1	No hydrologic forecast, forecast not possible (e.g. at small catchments)	Only vague and general forecast	General forecast for medium size catchment	Hydrologic forecast provided in a standard way by hydrologic services	Reliable hydrologic forecast based on contemporary technical and modelling techniques
W_2	Flood may arrive within several tens of minutes	Flood arrives faster than 45 min	Flood arrives within several hours	Flood arrives within 1 day	Flood arrives within several days
W_3	Warning system does not exist	Poorly designed and functioning warning system	Only moderately reliable warning system	Fully functioning traditional warning system	Sophisticated warning system including digital online alarm systems
W_4	Water rises at a rate of several meters per hour (floods in 1998, 2009)	Water level rise about 1 m per hour (small catchments in 2013)	Rate of several meters per day	About 1 m per day (floods in 1997, 2002)	Water level rise of several meters over several days

For factor W4, water rise rates are based on event data. **Table 18** provides evaluations for W_1 to W_4 values for each flood scenario. The aggregated effect of Factor W was evaluated using the equation below, here W is the sub-factor score.[32]

$$W = \frac{1}{4} * \sum_{i=1}^{4} Wi$$

Table 18. W Values

W Subfactor	Subfactor Description	Existing Conditions (10 Percent)	Existing Conditions (2 Percent)	Existing Conditions (1 Percent)	Existing Conditions (0.2 Percent)
W_1	Reliability of hydrological forecast	0.5	0.5	0.5	0.5
W_2	Speed of flood arrival	1.0	1.0	1.0	0.5
W_3	Warning system	1.0	1.0	1.0	0.5
W_4	Rate of water level rise	0.0	0.0	0.0	-0.5
Aggregated Warning Factor Score (W Factor for each flood scenario)		**1.38**	**1.38**	**1.38**	**0.25**

32 Brazdova, M. and J. Riha. 2014. A simple model for the estimation of the number of fatalities due to floods in central Europe. Nat Hazards Earth Syst Sci. 14. June 12.

2. Value Loss of Life

Loss of life is estimated for each flood scenario by placing all determined factor values (D, P, and W) into the previously mentioned equation.

For example, the calculation to determine the number of casualties in the 1 percent annual chance event scenario includes:

D Value = $1,608,409,580
P Value = 2.13
W Value = 1.38

$$0.79 = 0.075 * \$1{,}608{,}409{,}580^{0.384} * (2.13 + 2)^{-3.207} * (1.38 + 2)^{-1.017}$$

Analysts apply Federal Aviation Administration's (FAA) Willingness to Pay values for a fatality ($5.8 million) to value loss of life.

Table 19. Estimated Fatalities Avoided by Flood Scenario

Percent Annual Chance Event	Estimated Fatalities	Value of Lost Life
10 Percent	0.08	$564,290
2 Percent	0.10	$710,820
1 Percent	0.11	$771,800
0.2 Percent	0.13	$923,370
Annual Fatalities Avoided	-	*$80,210*

3.2.2.3.2 Assumptions

- The analysis does not account for road and non-structural asset damages.
- Loss of life post-disaster can be affected by many factors not considered in this methodology, including the financial and physical health of the population, mental stress and anxiety, and other factors.
- Fatalities may not be calculated on a per-structure basis due to the nature of P values, which consider the flood preparedness characteristics of the whole study area population.
- The analysis does not account for population growth.

4 VALUE ADDED BENEFITS

Beyond improving Bridgeport's flood resiliency by reducing acute and chronic flood impacts to public housing and residents, the RBD project intends to foster community cohesion, generate economic opportunities, improve the natural environment, and stimulate redevelopment through growth, prosperity, awareness, and beauty. Analysts consider added value benefits, in addition to resiliency benefits, when comprehensively analyzing increased community resilience: Investment in increased flood resilience may foster commercial and residential redevelopment, in turn, promoting a more diverse and healthy economy. A resilient environment can provide protective services that stabilize and contribute to improved air and water quality, and may also help improve resident's health. Community gathering space provides an opportunity for increased social interactions and cohesion, creating additional networks for support during and after disaster events.

Value added benefits include social, environmental, and economic revitalization benefits resulting from the RBD project. These benefits include:

- Social benefits in the form of recreational value;
- Aesthetic benefit generated from making the surroundings more desirable for businesses and residents;
- Environmental benefits in the form of reduced energy use, air pollution, water pollution, and carbon dioxide emissions; and,
- Economic revitalization benefits related to added commercial space.

Table 20 relates RBD project elements to value added benefit categories.

Table 20. Value Added Benefit Matrix

Benefit Category		Measurable Benefit/Metric	Stormwater Park						Johnson Street Extension				Marina Village Redevelopment
			Trees	Shrubs	Green Space	Sidewalks	Playground	Basketball Courts	Trees	Shrubs	Bio-Retention	Sidewalks	
Value Added Benefits	Social	Recreation			X	X	X	X					
		Aesthetic	X	X	X	X	X	X	X	X	X	X	
	Environmental	Water Quality (CSO)			X						X		
		Ecosystem Services	X	X	X				X	X	X		
	Economic	Revitalization											X

4.1 Social Benefits

Urban parks and green space help improve the quality of life and social sustainability of cities by providing recreation opportunities and aesthetic enjoyment, promoting physical health, contributing to psychological well-being, enhancing social ties, and providing opportunities for education.[33] The RBD project's multifunctional stormwater park will be a new public amenity in the neighborhood, and includes basketball courts, a playground, sidewalks, green open spaces, and passive seating areas. The new stormwater park will provide opportunity for residents to participate in recreation activities, environmental education, and community programs, thereby enhancing their health and well-being, increasing social capital[34] and improving the quality of life in the greater community.[35]

4.1.1 Recreation Benefits

Recreation benefits quantify the consumer value of increased outdoor recreation expected to occur after completion of the new stormwater park. There are federally approved methods to quantify the value of new outdoor recreation opportunities: the low value method is based on FEMA's Final Sustainability Benefits Methodology Report, and assigns a value per square foot of recreational space. The high value method uses United States Army Corps of Engineers (USACE) Unit Day Values to value an increase in recreation activity. The medium method is the average results of high and low estimated benefits.

4.1.1.1 Data Sources

- **FEMA's Final Sustainability Benefits Methodology Report (2012):** provides a recreational value per acre of space. Refer to **Appendix F: Additional Benefit Cost Analysis Resources** for a summary of FEMA's standard values.
- **USACE Economic Guidance Memorandum, 16-03, Unit Day Values for Recreation for Fiscal Year 2016 (2015):** provides a daily recreational value by type of recreation activity.
- **RBD Project Design Drawings:** provide the total area of park features.

4.1.1.2 Approach

Analysts implemented two federal methods to evaluate the stormwater parks recreation benefits. These methods are described in detail below.

4.1.1.2.1 FEMA: Low Value Method

FEMA generates an annual recreational value per unit area using nationwide, rural, and urban willingness to pay studies.[36] Analysts normalized[37] and converted FEMA's standard annual recreational value per acre to current dollars per square foot: $0.13. Analysts apply this value to the total area of new park amenities to estimate the annual recreational value. **Table 21** summarizes results of the low value method by park feature.

33 Zhou, X. and M.P. Rana. 2011. Social benefits of urban green space. A conceptual framework of valuation and accessibility measurements. Management of Environmental Quality: An International Journal.
34 Gomez, E., Baur, J.W.R., Hill, E., and S. Georgiev. 2015. Urban Parks and Psychological Sense of Community. Journal of Leisure Research.
35 Lestan, K.A., Erzen, I., and M. Golobic . 2014. The Role of Open Space in Urban Neighbourhoods for Health-Related Lifestyle. 2014. International Journal of Environmental Research and Public Health. June
[36] FEMA uses the benefit transfer methodology to apply the results of previously conducted primary studies to another geography.
[37] Normalization in this context refers to converting past dollar values to current dollar values using the Consumer Price Index (CPI) Inflation Calculator: http://www.bls.gov/data/inflation_calculator.htm.

Table 21. Stormwater Park Low Annual Recreation Benefit

Park Feature	Square Feet	Annual Recreation Benefit
Playground	11,613	$1,510
Basketball	9,152	$1,190
Sidewalks	6,334	$820
Green Open Space	38,069	$4,950
Total	**65,168**	**$8,470**

4.1.1.2.2 USACE: High Value Method

The USACE produces Unit Day Values (UDV)[38] based on expert or informed opinion and judgement to estimate the average willingness to pay for recreation resources. Analysts calculate recreation benefits by applying the UDV to a park feature's expected useful life. The Federal government generates standardized average estimated useful life values that analysts used for the analysis.[39] UDVs provide a range of possible recreation values based on activity type, general or specialized recreation. Analysts used the lowest value available for general recreation ($3.90) to produce conservative estimates. **Table 22** provides results of the high value method by park feature.

Table 22. Stormwater Park High Annual Recreation Benefit

Park Feature	Expected Useful Life (Years)	Annual Recreation Benefit
Playground	10	$14,240
Basketball	25	$35,590
Sidewalks	50	$71,180
Green Open Space	100	$142,350
Total	**185**	**$263,350**

4.1.1.2.3 Medium Value Method

Analysts found the medium recreation benefit value by averaging the results of the low and high value methods (**Table 23**).

Table 23. Stormwater Park Medium Annual Recreation Benefit

Park Feature	Low Benefit Value	High Benefit Value	Medium Benefit Value
Playground	$1,510	$14,240	$7,870
Basketball	$1,190	$35,590	$18,390
Sidewalks	$820	$71,180	$36,000
Green Open Space	$4,950	$142,350	$73,650
Total	**$8,470**	**$263,350**	**$135,910**

38 United States Army Corps of Engineers. 2016. Economic Guidance Memorandum, 16-03 Unit Day Values for Recreation for Fiscal Year 2016. Located at: http://planning.usace.army.mil/toolbox/library/EGMs/EGM16-03.pdf

39 Fannie Mae. Instructions for Performing A Multifamily Property Conditions Assessment. Appendix F. Estimated Useful Life Tables. Located at: https://www.fanniemae.com/content/guide_form/4099f.pdf

4.1.1.3 Assumptions

- The results of previously conducted studies are applicable to the project area. The FEMA annual recreation value relies on studies that are limited in scope, but FEMA considers these studies applicable nationwide. This approach does not consider location-specific factors known to impact the results of recreation studies, such as population density, age, and income distribution.[40]

4.1.2 Aesthetic Benefits

The RBD project will integrate concepts of green infrastructure into the Johnson Street Extension; thoughtful "green street" design coupled with the new stormwater park will create a more appealing project area to existing and future residents. This attention to aesthetic detail may create a positive effect for residential property and the local economy. One measurable example of an aesthetic benefit that can contribute to this positive effect is attractive views and willingness to pay for these views. The benefits of increased aesthetic amenities, including attractive views, may be quantified through hedonic pricing demonstrated in the housing market, and on a standard value-per-square foot basis.

4.1.2.1 Data Sources

- **FEMA's Final Sustainability Benefits Methodology Report (2012):** provides an aesthetic value per acre of space. Refer to **Appendix F: Additional Benefit Cost Analysis Resources** for a summary of FEMA's standard values.
- **United States Department of Agriculture (USDA) Northeast Community Tree Guide: Benefits, Costs, and Strategic Planting (2007):** provides annual aesthetic value per tree.
- **RBD Project Design Drawings:** provide the total area of park features and total number of new trees.

4.1.2.2 Approach

FEMA's Final Sustainability Benefits Methodology Report uses the benefit transfer methodology[41] to convert results of hedonic pricing studies to a nationwide annual aesthetic value per acre. Analysts normalized this value to 2016 dollars and converted it to square feet; this value is $0.04 per square foot annually. Analysts apply this value to the total area of the new multiuse stormwater park to value aesthetic benefits. **Table 24** summarizes aesthics benefits by project element and feature.

Table 24. Summary of Aesthetic Benefits by Project Element

Project Element	Feature	Square Feet	Annual Aesthetic Benefit
Stormwater Park	Playground	11,613	$470
	Basketball	9,152	$370
	Sidewalks	6,334	$250

[40] Brander, L.M. and M.J. Koetse. 2011. The Value of Urban Open Space: Meta-analyses of contingent valuation and hedonic pricing results. Journal of Environmental Management. 92 (2011) 2763-2773. October

41 The benefit transfer method applies the results of previously conducted primary studies to another geography.

Project Element	Feature	Square Feet	Annual Aesthetic Benefit
	Paving	26,645	$1,070
	Green Open Space	38,069	$1,520
	Shrubs	2,740	$110
Johnson Street Extension	Shrubs	4,720	$190
	Bio-retention	9,372	$380
	Sidewalks	9,334	$370
	Paving	10,286	$410
	Total	**128,265**	**$5,130**

New trees may also increase the aesthetic quality of the surrounding area. The U.S. Forest Service's Northeast Community Tree Guide (2007) provides an annual asethetic value per public tree ($32.84). Analysts normalized this value to 2016 dollars ($38.44), and applied it to the total number of added trees to generate annual benefits. **Table 25** summarizes the annual aesthetic benefit of new trees.

Table 25. Annual Aesthetic Benefits of New Trees

Project Element	Number of Trees	Annual Aesthetic Benefit
Stormwater Park	81	$3,110
Johnson Street Extension	66	$2,540
Total	**147**	**$5,650**

4.1.2.3 Assumptions

- Analysts assumed that the results of previously conducted studies, used by FEMA to determine standard values, are transferable to the project area. FEMA values are based on studies FEMA considers to be applicable nationwide. Research indicates that higher population density results in a considerable increase in the value of urban parks and open space.[42] The analysis does not capture increased value in urban areas due to the use of FEMA standard figures.
- The Northeast Community Tree Guide provides values for small, medium, and large tree. Analysts assumed that the added trees are fully developed medium-sized trees; therefore, the benefits calculated pertain to medium trees.
- The USDA's Northeast Community Tree Guide accounts for tree morbidity over time (33.95 percent); therefore, it is not included as a separate function in the calculation.

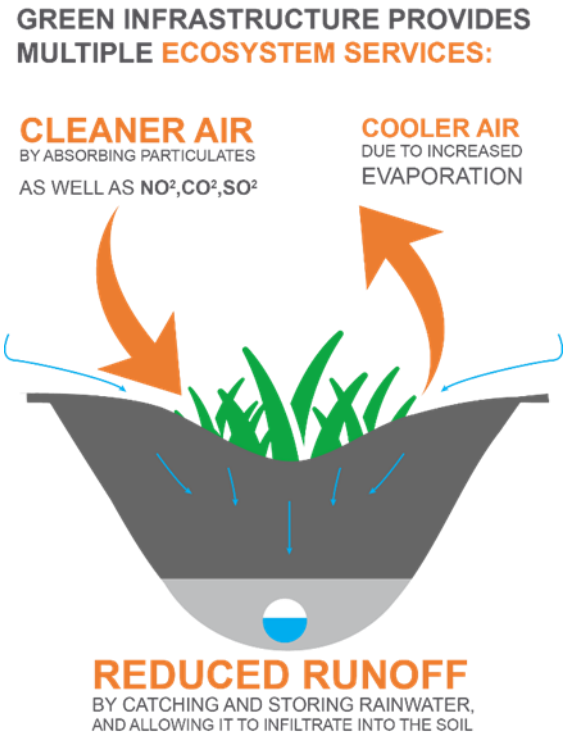
[42] Brander, L.M. and M.J. Koetse. 2011. The Value of Urban Open Space: Meta-analyses of contingent valuation and hedonic pricing results. Journal of Environmental Management. 92 (2011) 2763-2773. October

4.2 Environmental Benefits

The RBD project proposes to add new natural vegetation that will produce a range of environmental benefits, also known as ecosystem goods and services. Ecosystem goods and services provided by natural vegetation may be quantified to estimate their economic benefit to society. Such benefits can be categorized through measures such as carbon sequestration, air pollutant reduction, energy savings, increase in water quality, and pollination. The RBD also implements stormwater management measures that will reduce water treatment needs and environmental impact of CSO events. Environmental benefits are grouped into two categories based on valuation methods: those associated with the ecosystem goods and services and those associated with reduction CSO events.

4.2.1 Ecosystem Goods and Services

Natural capital is the world's stock of natural assets, such as soil, air, water, and all living things that provide a good or service that benefits society. For example, natural capital, such as forests and soils, provide the ecosystem service of filtering water independent of treatment plants.



Ecosystem services are grouped into four broad categories:[43]

- **Provisioning services:** produce physical materials that society uses such as minerals, gases, and living things;
- **Regulating services:** create and maintain a healthy environment such as climate stability and flood protection;
- **Supporting services:** maintain conditions for life such as habitat and genetic diversity; and,
- **Cultural services:** provide meaningful human interaction with nature including spiritual, recreational, aesthetic, educational, and scientific uses. Sections **3.1.1 Recreation Benefits** and **3.1.2 Aesthetic Benefits** describe the methods used to evaluate these benefits.

4.2.1.1 Data Sources

- **FEMA's Final Sustainability Benefits Methodology Report (2012):** provides an annual ecosystem service value per acre of green space. Refer to **Appendix F: Additional Benefit Cost Analysis Resources** for a summary of FEMA's standard values.
- **United States Department of Agriculture (USDA) Northeast Community Tree Guide: Benefits, Costs, and Strategic Planting (2007):** provides annual environmental benefit values per tree.
- **RBD Project Design Drawings:** provide the total area of green space and number of new trees.

[43] Earth Economics. 2015. Earth Economics Ecosystem Valuation Toolkit. [Web page] Located at: http://esvaluation.org/ecosystem-services/

4.2.1.2 Approach

Table 26 summarizes the approach taken to develop a benefit value per vegetative unit.

Table 26. Approach Summary by Vegetative Type

Vegetation Type	Approach
Tree	Annual benefits per tree are sourced from the USDA's Northeast Community Tree Guide (2007).
Vegetation	Annual benefits per vegetative square foot are sourced from FEMA's Final Sustainability Report (2012).

Analysts normalized benefits values to 2016 dollars and converted FEMA's values to square feet (**Table 27**). These values are applied to the area of new vegetation or total number of new trees to estimate environmental benefits (**Table 28** and

Table 29).

Table 27. FEMA's Annual Environmental Ecosystem Service Values

Ecosystem Service	Value per Square Foot	Value per Tree
Regulating Services		
Climate Regulation	$0.0003	$0.94
Water Retention/Flood Hazard Reduction	$0.0072	$10.57
Air Quality	$0.0050	$7.88
Energy Savings	-	32.72
Support Services		
Erosion Control	$0.0016	-
Pollination	$0.0072	-
Total Environmental Ecosystem Service Value	**$0.1937**	**$52.11**

Table 28. RBD Project Elements Contributing Ecosystem Services

Project Element	Vegetative Unit	Count / Area
Johnson Street Extension	Trees	66
	Shrubs	4720
	Bio-Retention	9,372
Stormwater Park	Trees	81
	Shrubs	2,740
	Green Space	38,069

Table 29. Annual Ecosystem Service Benefits provided by the RBD Project

Ecosystem Service	Johnson Street Extension			Stormwater Park			Total
	Street Trees	Shrubs	Bio-Retention	Trees	Shrubs	Green Space	
Climate Regulation	$62	$2	$3	$76	$1	$12	$160
Water Retention/Flood Hazard Reduction	$698	$34	$68	$856	$20	$275	$1,950
Air Quality	$520	$24	$47	$638	$14	$192	$1,440
Erosion Control	-	$8	$15	-	$4	$61	$90
Pollination	-	$34	$67	-	$20	$272	$390
Energy Savings	$2,160	-	-	$2,650	-	-	$4,810
Total	**$3,439**	**$101**	**$200**	**$4,221**	**$58**	**$813**	**$8,830**

4.2.1.3 Assumptions

- The Northeast Community Tree Guide provides values for small, medium, and large tree. Analysts assumed that the added trees are fully developed medium-sized trees; therefore, the benefits calculated pertain to medium trees.
- The USDA's Northeast Community Tree Guide accounts for tree morbidity over time (33.95 percent); therefore, it is not included as a separate function in the calculation.
- The results of previously conducted studies are applicable to the project area. FEMA values are based on studies FEMA considers to be applicable nationwide.

4.2.2 Combined Sewer Overflow Reduction

A significant added benefit of the RBD project is the ability to retain stormwater. The City of Bridgeport currently uses a combined sewer system. When rain events occur, the City's sewer system can become overwhelmed and untreated wastewater can spill into nearby waterways as a relief mechanism to avoid damaging property or treatment plants; this is commonly referred to as a CSO event. The RBD project proposes to implement a stormwater management features that will capture flow, preventing it from entering the combined sewer system and contributing to CSO events. This water quality benefit is not captured in ecosystems services benefits, therefore requiring a separate analysis.

4.2.2.1 Data Sources

- **Bridgeport Long Term Control Plan:** provided information needed to derive a damage cost.
- **RBD Project Modeling:** provided total CSO reduction volume.

4.2.2.2 Approach

CSOs have a major impact on water quality and pose significant health and safety risks. Bridgeport is acting to meet water quality requirements under the Clean Water Act. The City has developed a Long-Term Control Plan to reduce the frequency of CSO events. The Plan reveals it will cost the City $384,900,000

over 30 years to reduce CSO output by 43 million gallons. Given this information, analysts generated a damage cost for CSO abatement: $0.29 per gallon per year. Analysts modeled CSO reduction at the RBD design event (25-year Natural Resources Conservation Service [NRCS] rainfall event), and applied the damage cost to the total volume of CSO reduction to estimate water quality benefits (**Table 30**).

Table 30. Annual Water Quality Benefits

25 Year NRCS event	Volume (gallons)	Annual Water Quality Benefit
Volume Reduction in CSOs at Outfall	620,000	$3,300

4.2.2.3 Assumptions

- The assessment accounts for runoff that will be retained by the stormwater park and green street's bio-retention features, as well as additional system capacity to manage flow.

4.3 Economic Revitalization

The resilient redevelopment of Marina Village includes added commercial space that will generate economic revitalization benefits. These benefits can be measured through anticipated added economic output and employment compensation. Output is the value of industry production, and employment compensation includes wages and benefits for employees.

4.3.1 Data Sources

- **FEMA's Hazus-MH 3.2:** provides a method to estimate economic losses and gains and provides national output and employment compensation values per square foot.

4.3.2 Approach

Phase I of Marine Village redevelopment includes 10,000 square feet of new commercial space. Analysts normalized Hazus' output per square foot per day and employment compensation per square foot per day, and used the equation below calculate the economic benefits of added commercial space. **Table 31** summarizes annual economic revitalization benefits.

$$Added\ Output\ per\ Year = Added\ Annual\ Output\ or\ Employment\ Compensation\ per\ Square\ Foot \times Added\ Space\ (SF)$$

Table 31. Economic Revitalization Benefits

	Marina Village Phase 1	Annual Economic Output
Commercial (square feet)	10,000	$5,400

4.3.3 Assumptions

- The analysis does not account for inflation over time, nor does it consider business turnover, vacancy rates, and changes in future land use for the analysis area.
- Analysts assume revitalization efforts will be successful

5 SENSITIVITY ANALYSIS

The relationship between BCA inputs and outputs requires certain assumptions. To ensure the BCA captures and describes uncertainty related to inputs and outputs, analysts performed a sensitivity analysis. By evaluating a variety of different model inputs, BCA analysts could identify the most appropriate values for use in the analysis and understand how assumptions impact BCA results, and thereby any decisions that may be based on BCA findings. This section provides an understanding of how a change in an uncertain variable will impact the present value of project benefits or costs, and the resulting BCR.

5.1 Analysis Uncertainties, Assumptions, and Limitations

Analysts estimated low, medium, and high benefits when more than one Federal method or value was available to evaluate a project benefit, or when uncertainties result in an alternative assumption in methodology or the use of a different methodology. This BCA report illustrates the range of benefits as low, medium, and high benefit scenarios for the pilot project's recreation and direct physical damage benefits and provides an indication of the differing variables or approaches for these benefits. Analysts limited low, medium-, and high- benefit scenarios to varying Federally approved BCA methods or values; this BCA does not explore the use of values or methods that are not accepted by Federal agencies. **Table 32** presents variable approaches explored during analysis.

Table 32. Summary of Uncertain Variables and Alternative Approaches

Benefit	Variable Approaches	Solution
Direct Physical Benefits	The BRV and CRV can have a significant impact on the monetary value of property loss. Analysts generated low-, medium-, and high- replacement values using 2016 RS Means Square Foot Costs to understand how the replacement value may impact BCA results.	Low Estimate: Economy BRV per square foot: $110.10
		Medium Estimate: Average BRV per square foot: $130.34
		High Estimate: Custom BRV per square foot: $169.74
Recreation Benefits	Analysts can calculate recreational benefits using different methods, such as willingness to pay values related to a specific recreation activity or a value per square foot of recreation space.	Low Estimate: FEMA value per square foot
		Medium Estimate: Average of low and high estimate
		High Estimate: USACE Unit Day Values

5.2 Discount Rates

The discount rate captures social "opportunity costs" (the maximum worth of an input feature as assessed among practical alternative uses), and provides an interpretation of the present value of expected annual

benefits and costs. In other words, the discount rate attempts to measure the present value of future benefit, and always assumes that future benefit is of lower value than present benefit.

OMB Circular A-94: Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs requires a discount rate of 7 percent. The Federal government last updated this discount rate in the OMB Circular A-94 in 1992. Sources of literature, such as the article *Discount Rate* published by the Association of State Floodplain Managers, emphasize the uncertainty surrounding discount rates. It can also be useful to analyze discount rates used by other federal agencies. The Government Accountability Office (GAO) is a congressional agency that determines its own discount rate policy. The GAO uses the yield of United States Treasury debt with a maturity of the duration of the Project.[44] Appendix C of OMB Circular A-94 (Revised in January of 2015), states that the 30-year interest rate is 1.4 percent.[45] Furthermore it states that, "Programs with durations longer than 30 years may use the 30-year interest rate in calculating the discount rate."

To analyze the potential impact of assumptions surrounding discount rates, analysts compared the present value of project benefits and costs using two different discount rates recommended by OMB Circular A-94 (7 percent) and HUD Notice: CPD-16-06 (3 percent). **Table 33** summarizes the range of benefits individually using both discount rates, as well as the BCR for each benefit scenario.

Table 33. Summary of Benefit Range and Present Value

Benefit	Bound	Estimated Annual Benefit	Present Value of Benefits	BCR
Discount Rate: 7 Percent				
Direct Physical Damages	Low	$673,630	$8,667,050	1.32
	Medium	$720,690	$9,272,460	1.57
	High	$817,070	$10,512,500	1.91
Recreation	Low	$8,470	$119,240	1.32
	Medium	$135,910	$1,910,160	1.57
	High	$263,350	$3,701,080	1.91
Discount Rate: 3 Percent				
Direct Physical Damages	Low	$673,630	$16,678,350	2.16
	Medium	$720,690	$17,843,370	2.64
	High	$817,070	$20,229,640	3.24
Recreation	Low	$8,470	$247,030	2.16
	Medium	$135,910	$3,292,180	2.64
	High	$263,350	$7,611,340	3.24

[44] Page 4. Located at: http://www.floods.org/PDF/WhitePaper/ASFPM_Discount_%20Rate_Whitepaper_0508.pdf
[45] Web page. Located at: https://www.whitehouse.gov/sites/default/files/omb/memoranda/2015/m-15-05.pdf

6 DOUBLE COUNTING

Duplication of benefits, or "double-counting," may occur when two projects or methodologies of similar purpose have overlapping benefits. Analysts identified and removed double counting from the evaluation to maintain its integrity. Benefits may duplicate because:

1. Benefits calculated in the analysis may duplicate each other if there is overlap in the underlying values used to quantify losses avoided or value added.
2. Bridgeport has implemented or plans to implement a project in the same area with overlapping benefits.

Table 34 identifies potential double counting along with a description of how analysts managed or removed these duplications.

Table 34. Summary of Double-Counting Approach

Benefit	Potential Duplication	Resolution of Duplication
Resiliency Benefits		
Road Service and Casualties	The primary objective of dry egress is to provide residents with a means to evacuate before and after a flood event. There are two benefits associated with dry egress: continuity of road service, valued through lost time, and avoided casualties, valued using the FAA's WTP for life and injuries. In theory, residents that choose to evacuate would not be exposed to the risk of injury or loss of life. Similarly, residents that choose to shelter in place do not benefit from avoided time lost. Therefore, analysts must take care to identify the appropriate population for each analysis.	Analysts used local evacuation rates to address potential overlapping benefits: casualties were estimated for the population not expected to evacuate, and continuity of road service was estimated for the population expected to evacuate before a storm event.
Relocation	Relocation costs may be a double-counting with shelter needs. The relocation approach assumes that all displaced individuals will require alternative living quarters, thus capturing the costs of individuals that may opt or need to go to a shelter.	The BCR does not include costs associated the shelter needs to avoid any possible duplication. Instead, the BCA reports provides estimated population expecting to require public shelter in the case of an event for the benefit of the reader.
Social Benefits		
Recreation	In the future, Bridgeport may implement projects that improve the quality of Seaside Park. Such improvements may impact park visitation and may duplicate recreation benefits for different park sites.	The BCA calculates recreation benefits by unit of stormwater park elements to ensure that the benefits calculated are specific to RBD project only.
Health	Surveys used to determine consumer surplus values for recreation benefits may inherently include a health benefit component. Thus, recreation consumer surplus values may be duplicative with health benefits related to recreation.	The BCA report describes health benefits of recreation space in a quantitative manner, but analysts did not calculate monetary values to be included in the benefit-cost ratio to avoid any risk of double-counting benefits.

7 BENEFIT COST ANALYSIS RESULTS

The BCA finds the RBD project cost effective in each benefit scenario (**Table 36**), indicating the project is a sound investment of public resources.

*The NPV of the RBD project is **$5.4 million**, and the BCR using a 7 percent discount rate is **1.57**.*

The RBD project is expected to provide a range of resiliency, social, environmental, and economic benefits totaling to **$14.6 million** in today's dollars, compared to an overall investment of **$9.2 million**, both at a 7 percent discount rate (**Table 35** and **Table 1**). ***Resilient redevelopment benefits*** comprise 60 percent of the project's overall benefits, while ***social benefits*** comprise 13 percent of the project's overall benefits (**Figure 2**). The BCA reveals the RBD project will reduce acute and chronic flood impacts to future Marina Village development and residents, as well as provide a range of social, environmental, and economic benefits to the South End.

Table 35. Annual and Present Value Benefits for the Medium Benefit Scenario

Benefit	Annualized Benefit	Present Value (7 Percent Discount Rate)	Present Value (3 Percent Discount Rate)
Resiliency Benefits			
Resilient Redevelopment			
Direct Physical Damages	$ 720,690	$ 9,272,460	$ 17,843,370
Displacement	$ 1,150	$ 14,800	$ 28,470
Mental Stress and Anxiety	-	$ 1,050,280	$ 1,050,280
Lost Productivity	-	$ 653,610	$ 653,610
Dry Egress Value			
Evacuation / Roadway Loss of Service	$ 10,910	$ 149,370	$ 270,120
Casualties	$ 86,690	$ 1,115,390	$ 2,146,390
Value Added Benefits			
Social Value			
Recreation Benefits	$ 135,910	$ 1,910,160	$ 3,929,180
Aesthetic Benefits	$ 5,130	$ 71,660	$ 142,700
Environmental Value			
Ecosystem Goods and Services Benefits	$ 8,830	$ 126,030	$ 279,090
CSO Reduction Benefits	$ 3,300	$ 45,630	$ 85,070
Economic Value			
Economic Revitalization Benefits	$ 5,400	$ 69,480	$ 133,700
Total Project Benefits	**$978,010**	**$14,478,870**	**$26,561,980**

Table 36. Benefit Cost Ratio by Benefit Scenario

Scenario	Low Benefit Cost Ratio	Medium Benefit Cost Ratio	High Benefit Cost Ratio
7% Discount Rate			
RBD Project	1.32	1.57	1.91
3% Discount Rate			
RBD Project	2.16	2.64	3.24

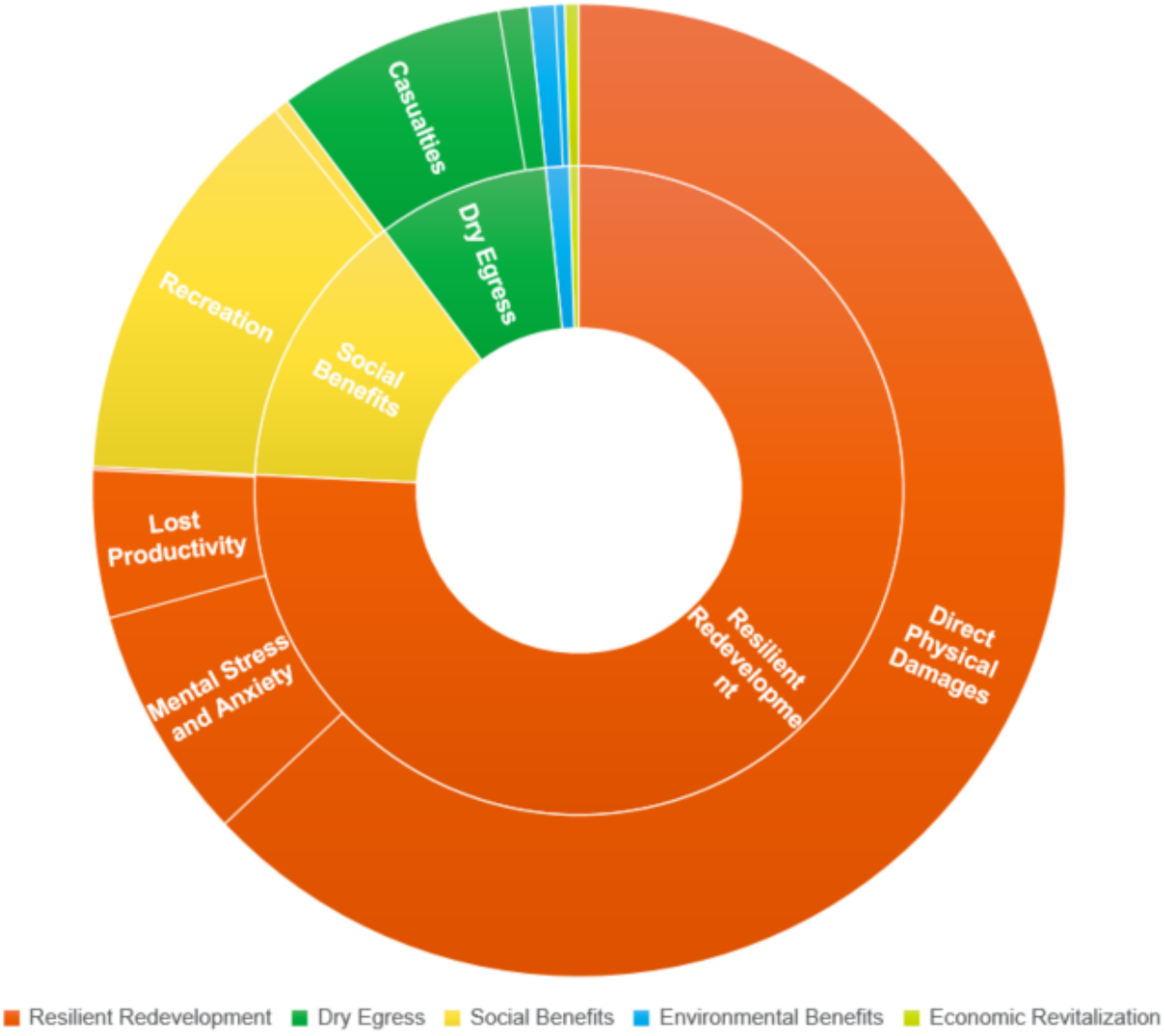


Figure 2. Distribution of RBD Project Benefits, Medium Benefit Scenario

Table 37. Annual and Present Value Benefits for the Low Benefit Scenario

Benefit	Annualized Benefit	Present Value (7 Percent Discount Rate)	Present Value (3 Percent Discount Rate)
Resiliency Benefits			
Resilient Redevelopment			
Direct Physical Damages	$ 673,630	$ 8,667,050	$16,678,350
Displacement	$ 1,150	$ 14,800	$ 28,470
Mental Stress and Anxiety	-	$1,150,430	$1,150,430
Lost Productivity	-	$715,940	$715,940
Dry Egress Value			
Evacuation / Roadway Loss of Service	$ 10,910	$ 149,370	$ 270,120
Casualties	$ 86,690	$ 1,115,390	$ 2,146,390
Value Added Benefits			
Social Value			
Recreation Benefits	$ 8,470	$ 119,240	$ 247,030
Aesthetic Benefits	$ 5,130	$ 71,660	$ 142,700
Environmental Value			
Ecosystem Goods and Services Benefits	$ 8,830	$ 126,030	$ 279,090
CSO Reduction Benefits	$ 3,300	$ 45,630	$ 85,070
Economic Value			
Economic Revitalization Benefits	$ 5,400	$ 69,480	$ 133,700
Total Project Benefits	**$803,510**	**$12,245,030**	**$21,877,300**

Table 38. Annual and Present Value Benefits for the High Benefit Scenario

Benefit	Annualized Benefit	Present Value (7 Percent Discount Rate)	Present Value (3 Percent Discount Rate)
Resiliency Benefits			
Resilient Redevelopment			
Direct Physical Damages	$ 817,070	$ 10,512,500	$ 20,229,640
Displacement	$ 1,150	$ 14,800	$ 28,470
Mental Stress and Anxiety	-	$1,150,430	$1,150,430
Lost Productivity	-	$715,940	$715,940
Dry Egress Value			
Evacuation / Roadway Loss of Service	$ 10,910	$ 149,370	$ 270,120
Casualties	$ 86,690	$ 1,115,390	$ 2,146,390
Value Added Benefits			
Social Value			
Recreation Benefits	$ 263,350	$ 3,701,080	$ 7,611,340
Aesthetic Benefits	$ 5,130	$ 71,660	$ 142,700
Environmental Value			
Ecosystem Goods and Services Benefits	$ 8,830	$ 126,030	$ 279,090
CSO Reduction Benefits	$ 3,300	$ 45,630	$ 85,070
Economic Value			
Economic Revitalization Benefits	$ 5,400	$ 69,480	$ 133,700
Total Project Benefits	**$1,201,830**	**$17,672,320**	**$32,792,900**

8 ECONOMIC IMPACT ANALYSIS

In addition to the benefits of increased resiliency from reduced future disaster loss, project expenditures for construction are expected to stimulate economic activity within Bridgeport and Fairfield County. This economic impact evaluation is accessory to the RBD project; the intent is to evaluate the expected economic benefits generated by project construction in the form of employment, labor income, value added, and sales and revenues (output).

8.1 Project Description

The RBD project includes two main elements: the Johnson Street Extension and a multiuse stormwater park. The Johnson Street Extension will provide dry egress and incorporate green infrastructure, such as bioswales, to divert surface runoff from the combined sewer system and into the multifunctional stormwater park. The 2.5 acre stormwater park will include terraced basins, underground storage features, community gathering space, and recreational features. Flow from the stormwater park will be pumped via a new force main to an existing outfall. Analysts used the cost estimates for the Johnson Street Extension and force main to conduct the economic impact analysis (EIA); detailed cost estimates for the stormwater park were not available at the time of analysis.

8.2 IMPLAN Software and Results

This methodology presents the approach used to model economic impacts for project expenditures. Generally, analysts evaluate the cost of each proposed project element using IMPLAN modeling software to determine the economic impacts that will result from the change in the local economy directly related to project expenditures. IMPLAN software provides economic data and modeling to users for assessing the economic impacts of project implementation in all industry sectors, with the intent of predicting how projects or policies interact with and shape the economy. Analysts used IMPLAN Version 3.1 software, an input-output system that uses a combination with social accounting matrices (SAMs) and economic multipliers to estimate the result of changes or activities in an economic region. SAMs provide a complete picture of the economy and generate multipliers to measure the impacts from one activity for a given sector throughout the entire economy. Analysts used the 2015 Fairfield County Package for the economic impact analysis, which includes the economic profile for each zip code. and **Table 40** below describes the IMPLAN analysis report outputs and types of relationships reported. Each result category presented in **Table 39** is reported in terms of relationships measured, displayed in **Table 40**.

Table 39. Economic Impact Analysis Result Outputs

Analysis Result	Definition
Output	The value of industry production, which varies by industry. For example, the output of the service sector is measured in sales, hospital output is measured in the total service package that a patient receives during their entire length of stay, and output for non-profit organizations is based on the cost of production or the expenses that the organization must incur to operate.
Labor Income	The expected combined income of employment in each industry sector generated by project implementation expenditures. Including wages and benefits for employees and proprietor income.
Value-Added	Measure of the project's contribution to Gross Domestic Product (GDP).
Employment	All jobs (full-time, part-time, and temporary) that are created or lost as a result of an economic activity in the year of the activity.

Table 40. Economic Impact Analysis Relationships Measured

Analysis Result	Definition
Direct Effects	Represents the initial impacts that occur as a result of an economic activity.
Indirect Effects	The impact of direct economic effects on supporting industries, such as those that provide equipment and materials.
Induced Effects	The response to a direct effect that occurs through re-spending of income.

8.3 Approach

Outlined below is the approach to estimate economic impacts of project.

1. Compare project estimates with IMPLAN industries

IMPLAN has a total of 440 economic industries, derived from the North American Industry Classification System (NAICS). To run IMPLAN, analysts must choose the economic industry expected to be impacted by a project related activity, and estimate how much that industry will change (in dollars). Evaluating the economic impact of mitigation measures requires analysts to choose economic industries necessary for project design, construction, and maintenance and divide project costs appropriately among those industries. **Table 41** displays the project elements and corresponding economic industries chosen by analysts.

Table 41. Expenditures used in the Economic Impact Analysis

IMPLAN Industry	Planning and Design	Johnson Street Extension	24" RCP	Force Main	Maintenance
30 Stone mining and quarrying	$-	$20,480	$-	$-	$-
31 Sand and gravel mining	$-	$-	$11,040	$-	$-
36 Other nonmetallic materials	$-	$45,080	$-	$-	$-
51 Water, sewage, and other systems	$-	$126,400	$-	$254,240	$-
58 Construction of other new nonresidential structures	$-	$-	$49,600	$-	$-
62 Maintenance and repair construction of nonresidential structures	$-	$42,960	$-	$-	$75,000
64 Maintenance and repair construction of highways, streets, and bridges	$-	$94,520	$-	$-	$-
58 Construction of other new nonresidential structures	$-	$116,880	$-	$106,960	$-
157 Asphalt paving and manufacturing	$-	$163,680	$-	$-	$-
208 Concrete pipe manufacturing	$-	$-	$54,320	$226,800	$-
213 Cut stone and stone product manufacturing	$-	$50,440	$-	$-	$-
326 Street lighting fixtures manufacturing	$-	$64,680	$-	$-	$-
445 Commercial and industrial machinery and equipment rental	$-	$276,560	$172,280	$-	$-
449 Architectural, engineering, and related services	$1,100,000	$-	$-	$-	$-
507 Commercial and industrial machinery and equipment	$-	$35,560	$-	$-	$-

2. Populate IMPLAN model

Analysts created an IMPLAN model and populated the software with appropriate project costs listed in Step 1.

3. Review IMPLAN outputs

Analysts reviewed outputs generated from IMPLAN software for appropriateness. The IMPLAN analysis software evaluates the relationships between employment, labor income, economic output, and value added to GDP three ways: 1) direct impacts, which include industries directly related to mitigation activities; 2) indirect impacts, which include industries that support directly impacted industries; and 3) induced impacts, or benefits created through employee spending.

8.4 Assumptions

Analysts made the below assumptions to run the IMPLAN model accurately.

- Project planning and design will take place from 2016 through 2018. The costs of planning and design are distributed across those three years as described in the project budget.
- Project expenditure inputs are assigned the year of activity completion, IMPLAN outputs are adjusted to 2017 dollars.
- Project construction will occur between 2018 and 2022. Analysts allocated the costs of project construction, including materials, labor, and equipment, equally across those four years to account for temporal differences in project expenditures.
- Analysts applied IMPLAN's Local Purchase Percentage, calculated from the study area's SAM, to all industry sectors. This assumes that a certain percentage of an industry will be purchased locally, discounting commodities or services that are imported from outside of the study area which therefore have no impact on the local economy.

The following caveats apply to the results of the economic impact analysis, and should be considered when evaluating results:

- These results display the expected economic effect of the proposed project on the entirety of Fairfield County.
- The project is in the first stages of planning; the analysis must be considered as preliminary and can be refined as more project details are realized.
- Employment generated by analyzed project expenditures include all full-time, part time, and temporary positions.
- IMPLAN does not account for price elasticities or changes in consumer/industry behavior based on a direct effect, such as changes in spending patterns within sectors not related to project expenditures directly.
- The results presented are those that are associated with the years the project is implemented, and are not projected into the future.

8.5 Results

Analysis results indicate that the Johnson Street Extension and force main, will result in:

- 10 JOBS DIRECTLY RELATED TO THE ACTIVITIES LISTED IN THE **APPROACH**.
- 4 JOBS CREATED IN SUPPORTING INDUSTRIES.
- 5 JOBS CREATED THROUGH EMPLOYEE SPENDING.
- 19 JOBS CREATED TOTAL, WITH $1.8 MILLION IN LABOR INCOME (THIS INCLUDES EMPLOYEE WAGES AND BENEFITS AND PROPRIETOR INCOME).

The top three industries expected to be impacted by project implementation include the ***construction industry, the engineering and architectural services industry, and the water system industry***. As a whole, the project is expected to generate ***$3.7 million in industry production***, creating ***$2.4 million in value added*** (GDP) for Fairfield County.

Figure 3 below offers the results of the economic impact analysis, organized by project activity. These results are presented in percentages to show the contributions that each makes to the whole impact.

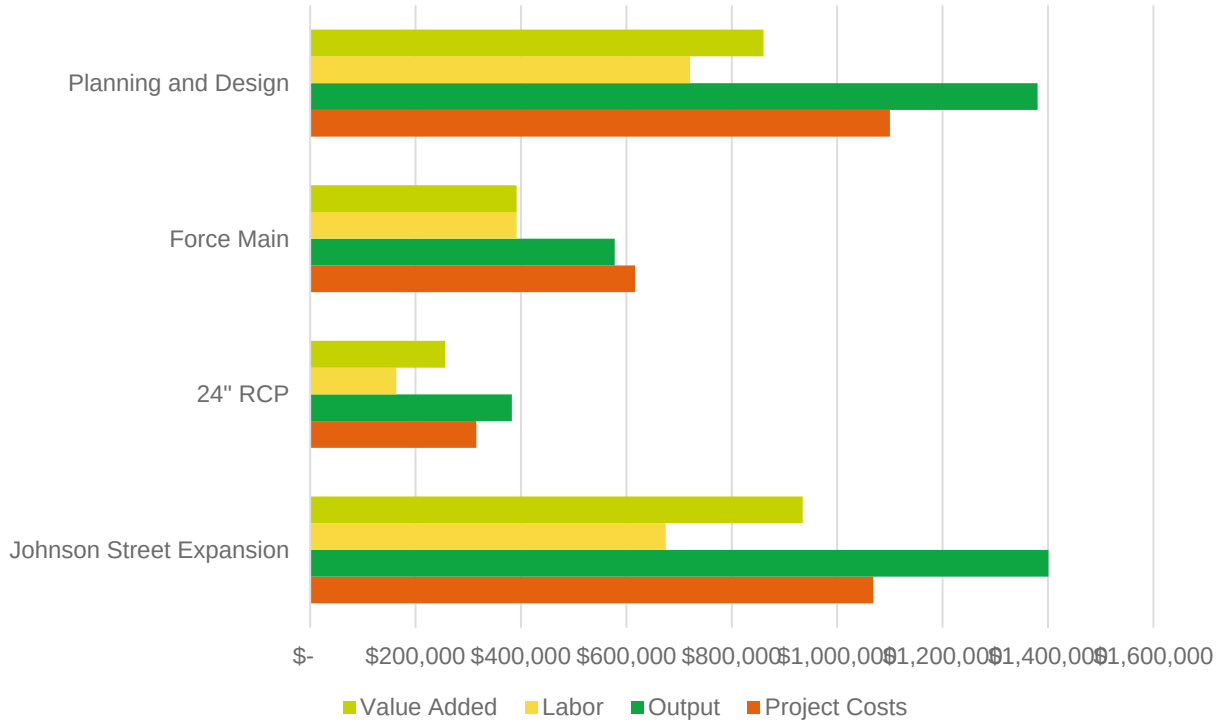


Figure 3. Economic Impact Results by Activity, Presented as Percentages

Design Strategies Report 2B, Resilient Bridgeport: Benefits

(February 28, 2018)

28 FEBRUARY 2018
DESIGN STRATEGIES REPORT 2B

Resilient Bridgeport: Benefits

Design Team

Led by Waggonner & Ball Architecture/Environment, the design team brings together architects, landscape architects, urban designers, engineers, and ecologists to provide an integrated approach to the development of a resilience strategy for Bridgeport.

Waggonner & Ball Architecture / Environment is a design and planning practice based in New Orleans, close to the Mississippi River and the Gulf of Mexico. Waggonner & Ball designs environments and transformational strategies, from civic buildings to innovative district and regional plans across the United States. **Arcadis** is a global engineering and design consultancy that provides expertise in hydraulic modeling, ecology, economic analysis, civil engineering, and infrastructure design, with an office in New York City.

ALL IMAGES IN THIS REPORT ARE CREDITED TO THE RESILIENT BRIDGEPORT TEAM LED BY WAGGONNER & BALL ARCHITECTURE/ENVIRONMENT, UNLESS OTHERWISE NOTED.

COVER PHOTO: MAY 31, 2015, THE SEASIDES, MARCELLA KOVAC

DESIGN STRATEGIES REPORT 2B

Resilient Bridgeport: Benefits

Contents

1 Introduction

Following the devastation from Hurricane Sandy, the United States Department of Housing and Urban Development (HUD) launched Rebuild by Design (RBD) to inspire innovative community and policy-based resilience solutions to protect cities most vulnerable to intense weather events. HUD awarded the Connecticut Department of Housing (DOH) $10 million through the Rebuild by Design (RBD) competition to reduce flood risk for the most vulnerable public housing stock in the City of Bridgeport's South End and Black Rock Harbor areas. This funding is for the planning and development of resilient strategies and implementation of a pilot project.

The resilient strategies are a comprehensive, multi-layered approach to reduce flood risk, enhance quality of life, and inspire economic revitalization. The five strategies work together, addressing distinct aspects of acute and chronic flood risk. The Restore the Edge strategy creates or enhances natural systems that provide natural flood protection, as well as habitat and resource production, among other ecosystem services. The Adapt to Rising Seas strategy is an integrated flood protection system that will protect against flooding from Long Island Sound and rising seas. The Delay and Convey Stormwater strategy addresses chronic flooding from normal to heavy rainfall events, and separates portions of Bridgeport's stormwater system from the combined sewer system. The Access and Egress strategy provides Bridgeport's residents with dry egress out of high risk flood areas, and is intended to spur redevelopment and economic activity by enhancing connections between people, businesses, and the coast. The Make Power Local strategy supports the creation of district scale microgrids to provide backup power for critical facilities and support sustainable energy production. The project team has designed the resilient strategies to be a proof of concept for broader resilience principles within Bridgeport and the region. The goal is to ultimately develop, prioritize, and implement a long-term flood protection strategy for Bridgeport through these five primary layers.

Following the development of the resilience strategies, the project team went through a design process to select a pilot project. The RBD pilot project will serve as a catalyst for resilience initiatives, and provide flood risk reduction for the future residents of the Marina Village housing complex. More specifically, the RBD pilot project is a system that integrates both green and grey water retention features that center on the Marina Village redevelopment site. In the upland portion of the project area, Johnson Street will be extended, providing dry egress for future Marina Village residents out of the current FEMA 500-year floodplain considering a future SLR condition of 3 feet. Additionally, a shorter route to access dry egress will be available to Seaside Village residents. Johnson Street Extension will also improve east-west

neighborhood connectivity from Park Avenue to Iranistan Avenue and will incorporate green infrastructure to divert surface runoff away from the combined sewer system and into a multiuse "stormwater park." Upland stormwater park from Marina Village development diverts 44,000 CF of water from the combined sewer system for a 1-year storm event; 56,000 CF for a 2-year storm event; 93,000 CF for a 10-year event; and 109,000 CF for a 25-year event.

To release funds, HUD requires a benefit cost analysis (BCA) for the pilot project as a condition to release project funds. As such, the Resilient Bridgeport Team developed a benefit analysis framework to analyze the resilient design strategies and pilot project. This framework considers a wide range of economic, social, and environmental factors to produce a comprehensive understanding of the benefits and impacts of the resilient strategies and RBD pilot project. The project team used the resilient strategies benefits analysis, contained herein, to inform the selection of a pilot project, and the RBD pilot project BCA informs sound public investment.

This document serves to provide a detailed description of resilient strategies benefits and summarize the benefit analysis framework implemented to evaluate the resilient strategies and RBD pilot project. This Benefits Report includes the following principle sections:

- **Introduction** includes an overview of Resilient Bridgeport strategies and the benefit analysis framework
- **Resilient Bridgeport Strategies Benefit Analysis** describes the current risk context and benefits associated with each resilient strategy. Subsections are categorized by benefitting community assets, and describe each strategy's benefits within the category.
- **Resilient Strategies Benefit Analysis Detailed Approach** summarizes the methodology used to evaluate resilient strategies.

Resilient Bridgeport Strategies

The Resilient Bridgeport Team formulated five strategies, working in harmony to address various aspects of resilience, that are comprehensive approaches to reduce flood risk and achieve a more resilient Bridgeport. **Restore the Edge** restores or enhances wetland habitats and coastlines to connect the natural systems of Long Island Sound, as well as preserves and enhances historic parks and creates new amenities that serve the City of Bridgeport and greater region. **Adapt to Rising Seas** is a flood protection system that is

integrated with the landscape to reduce flood risk and improve ecology. **Delay and Convey Stormwater** is a system of grey and green stormwater features to capture stormwater runoff to reduce flood risk and improve water quality. **Access and Egress** includes roadway improvements to provide dry egress, enhance access to the coast, and spur economic reinvestment. **Make Power Locally** implements thermal loops, microgrids, and sustainable energy sources to diversify power options within the City.

Resilient Bridgeport Benefit Analysis Framework

A benefit analysis helps inform sound decision making related to public infrastructure investment by identifying strategic areas for investment that maximize return on investment. Thus, analysts completed benefit analyses to inform resilient design strategies development, justify the implementation of the resilient strategies, and inform the Rebuild by Design (RBD) pilot project. The benefit analysis framework described herein is consistent between the resilient strategies and RBD pilot project, including the methods and figures used to complete the analyses. In accordance with HUD Notice: CPD-16-06, the framework uses federally accepted standard figures and methods to assess project benefits. Sources include Federal Emergency Management Administration (FEMA), the United States Army Corps of Engineers (USACE), the Federal Aviation Administration (FAA), the Environmental Protection Agency (EPA), and other published sources.

Within the framework, benefits fall into two broad categories: resiliency benefits and value added benefits. Resiliency benefits consist of estimated flood impacts to structures, roads, the economy, and residents that the resilient strategies or RBD pilot project will reduce. Value added benefits consists of additional benefits beyond flood protection, such as environmental, aesthetic, and recreational benefits.

As stated above, the resilient strategies benefit analysis informed the selection of a RBD pilot project. The analysis provides a broad understanding of the benefits of each strategy, which the project team used to bring to focus initiatives that provided the greatest benefit to the City of Bridgeport. Following the selection of a pilot project, analysts translated the resilient strategies benefit analysis to the RBD pilot project BCA through refinement of the pilot project's scope, design, schedule, and budget. Refer to the **Benefit Cost Analysis Summary Report** for the RBD pilot project BCA results, and the **Benefit Cost Analysis Methodology Report** for detailed descriptions of the methods and figures used to evaluate benefits. The following sections provide the outputs of the resilient strategies benefits analysis, as well as describes the approach taken to reach analysis outputs.

2 Resilient Bridgeport Strategies Benefit Analysis

The purpose of the resilient strategies benefit analysis is to explore the benefits of each strategy to inform the selection of a pilot project. To complete the resilient strategies benefits analysis, analysts first gained an understanding of the resilient strategies' goals and objectives, defined benefits, and identified benefitting community assets. To define benefits, analysts translated strategy goals and objectives to specific benefits, and grouped them with community assets. Community assets are categorized as:

- **People:** Bridgeport's residents benefitting from the resilient strategies
- **Environment:** Natural areas or systems benefitting from the resilient strategies
- **Economy:** Commercial structures and businesses that will benefit from the resilient strategies
- **Infrastructure/ Structures:** Built assets that will benefit from flood protection and increased connectivity

To evaluate the potential impact of the resilient strategies, analysts determined the number of benefitting community assets. Then, they described benefits to community assets for each resilient strategy. Following this step, analysts quantified certain benefits identified by the project team, making different analysis assumptions to quantify the monetary value of benefits. Quantifiable benefits are either: annualized flood impacts avoided (losses avoided) or annual value added (ecosystem services).

The following subsections provide analysis results, organized as follows:

- **Resilient Bridgeport Benefits Summary:** summarizes value added benefits for each strategy and the total number of community assets reaping resiliency benefits from the resilient strategies
- **Risk Context:** provides the reader context to the benefits described in detail following this section
- **People:** describes expected benefits to the residents of Bridgeport
- **Environment:** details expected environmental benefits
- **Economy:** provides a description of benefits to the local economy
- **Infrastructure/ Structures:** describes benefits to structures, critical facilities, and infrastructure

Resilient Bridgeport Strategies Benefit Summary

Each resilient design strategy contributes to resilience by protecting against acute or chronic flood risk, or by reducing social and economic vulnerability through value added benefits, such as increasing connectivity, providing opportunities to build social cohesion, or diversifying the local economy through revitalization. Table 1 summarizes the number of people, commercial structures, structures, and key infrastructure expected to experience resiliency benefits and lists the value added benefits expected to occur due to implementation of the resilient strategies. A subsection for People, Environment, Economy, Infrastructure/Structures follows this table, and each section describes the resilient strategies' benefits.

Table 1. Resilient Strategies Benefits Summary Table

Resilience Design Strategies		Resiliency Benefits (Vulnerable Assets Protected)				Value Added Benefits			
		People	Economy*	Structures**	Infrastructure***	People	Environment	Economy	Infrastructure
Restore the Edge: Strengthen and Provide Access to the Coast	Preserve and enhance historic parks, restore wetland habitats and coastlines, connect to systems of the Long Island Sound, and create a new set of accessible amenities and infrastructure that serves the city and the region.	3,176	13	362	9	• Improved health • Enhanced recreational and educational opportunities	• Improved water and sediment quality • Improved air quality • Climate regulation • Restored and enhanced ecological habitats; 270 acres of new or enhanced natural space generates $8.8 million in annual ecosystem services	• Revitalization • Increased property values • Cost savings • Poverty alleviation • Tourism and recreation	-
Adapt to Rising Seas: Provide Surge Protection	Create a line of defense that is integrated in the landscape, improves connections and ecology, and anchors redevelopment, phase implementation to provide both immediate and long-term value, and develop new mechanisms for funding and operations.	2,798	39	419	28	• Improved health • Enhanced recreational and educational opportunities	• Improved air quality • Climate regulation • Protecting inland vegetation and habitats from saltwater storm surge	• Revitalization • Increased property values • Poverty alleviation	-
Delay and Convey Stormwater: Enhance Stormwater Capture and Discharge	Integrate retention strategies into urban landscape, catching and holding where it falls, structure flows of water to nurture habitats, and improve flushing and estuarine conditions, improve groundwater management to stabilize soils, and reduce basement flooding and other	5,710	72	668	42	• Improved health	• Improved water and sediment quality • Improved air quality • Climate regulation • Reduction in existing CSO volume (37,437,000 gallons) by 95 percent (35,565,150 gallons) results in $10 million in annual benefits	• Revitalization • Increased property values • Cost savings	-

Resilience Design Strategies		Resiliency Benefits (Vulnerable Assets Protected)				Value Added Benefits			
		People	Economy*	Structures**	Infrastructure***	People	Environment	Economy	Infrastructure
	damage and risks associated with groundwater.								
Access and Egress: Improve Access and Development Opportunity	Enhance access between coastal neighborhoods, habitats, and coastline, ensure emergency access and egress, strengthen or create distinct identities that link to land and water resources, histories, people, and businesses that can enhance social cohesion and spur economic development with new and existing infrastructure.	3,632	33	516	45	• Improved health • Enhanced recreational and educational opportunities	• Restored and enhanced ecological environments generate ecosystem services	• Revitalization	• Improved transit system
Make Power Locally: Create Distributed Utility Networks	Support expansion of thermal loop to reuse waste heat, support development of district-scale microgrids to provide backup power for critical facilities, support development of sustainable energy production, and connect new energy systems with new forms of transport, including electric shuttles.	-	-	-	Assets benefitting have not yet identified	• Improved health	• Improved water and sediment quality • Improved air quality • Climate regulation	• Revitalization • Cost savings • Poverty alleviation	-

***Number of commercial structures protected**

****Number of structures protected out of the total number of structures in the study area, 1,490**

*****Refer to Table 8 for a full listing of assets protected**

Risk Context

Two sets of factors contribute to flood risk and vulnerability within Bridgeport: flood hazards and social/ economic vulnerability. Exposure of vulnerable assets to acute and chronic flooding creates a scenario where the City's most vulnerable populations and distressed economic assets are at risk of experiencing flood impacts during heavy rainfall and surge events. The below details existing flood hazards and the socioeconomic status in the South End.

Flood Risk Context

Bridgeport is uniquely vulnerable to the impacts of storms and flooding due to its low elevation, existing stormwater infrastructure, and population demographics in low-lying areas. The South End neighborhood was constructed on a peninsula and partly on former wetlands that were filled in during the 19th and 20th centuries. The historic development of the peninsula protruded south from the mainland towards Long Island Sound, and at its center, Park Avenue, an important street in the City, ran north from the coast along a higher ridge line. As regions west of the peninsula were filled to make more developable land, natural drainage patterns were disrupted, and filled land was constructed close to sea level.

Residential development constructed in these low-lying areas has long been prone to chronic flooding, from even modest storm events. In the last 6 years, two major storms have impacted Bridgeport – Tropical Storm Irene and Hurricane Sandy. Both caused massive damage and major flooding, and forced thousands of people to evacuate. It is estimated that Hurricane Sandy alone caused over $38 million worth of damage to buildings and contents within the project area. Storms of Sandy's caliber inundate low-lying areas with storm surge flooding at depths of 5 to 6 feet.[1] Bridgeport is not only affected by acute flooding caused by storms, but also by chronic stormwater flooding which occurs on an annual basis. The topography of the South End combined with a high groundwater table, low elevation, and inadequate stormwater drainage, causes sidewalks and roads to flood after even a minor rainfall event. Because Bridgeport has a combined sewer system, these floods can expose residents to untreated wastewater, creating a public health hazard. As sea levels rise, the chronic flooding problem is expected to worsen dramatically.

[1] FEMA MOTF Hurricane Sandy Impact Analysis. https://www.arcgis.com/home/item.html?id=307dd522499d4a44a33d7296a5da5ea0.

Social Vulnerability

The other set of factors affecting Bridgeport's vulnerability is the social demographics in the South End and the city. Bridgeport was founded as an industrial city, but in recent decades that industry has been declining, leading to a depressed local economy. The South End, especially, faces great economic hardship. The neighborhood has some of the highest unemployment rates and lowest median salaries in Connecticut, and there is a noticeable lack of economic development and job opportunities in the neighborhood.[2] Approximately 42 percent of the population of the South End is below the national poverty level, and the median household income is $24,304. Even within Bridgeport that level of poverty is disproportionate; an estimated 16 percent of the population is below the poverty level city-wide.[3] These factors contribute to making the South End extremely socially vulnerable in the event of a flood.

People

Though there are many intricacies to social dynamics in Bridgeport, the city's resident's share a heightened social vulnerability, which presents a significant opportunity to pursue resiliency solutions which benefit the entire community. Through the implementation of the resilience strategies, Bridgeport's residents will take advantage of mental and physical benefits in both personal and professional realms. Specifically, locals will experience a reduction in displacement time and costs, injuries and fatalities, mental stress and anxiety, and lost productivity, and an increase in health, recreational and educational opportunities and shelter.

Resiliency Benefits (Losses Avoided)

Reduction in Displacement Time and Costs

1. Displacement time and costs account for the damages people face when they are forced to evacuate their homes or businesses. Displacement time is the duration from the initial damage to the structure until it can be reoccupied, while displacement costs are comprised of a one-time displacement cost in addition to the accrual of monthly rent for the span of the displacement.[4] Through providing

ADAPT TO RISING SEAS ANNUAL BENEFIT: $105,000

[2] https://www.census.gov/programs-surveys/acs/
[3] http://www.city-data.com/city/Bridgeport-Connecticut.html
[4] FEMA, 2011. FEMA Benefit-Cost Analysis Re-engineering (BCAR). https://www.hudexchange.info/course-content/ndrc-nofa-benefit-cost-analysis-data-resources-and-expert-tips-webinar/FEMA-BCAR-Resource.pdf

direct protection and enhancing water conveyance systems in modeling and making use of the natural resilience of green infrastructure, the combined effects of the resilient design strategies including **Adapt to Rising Seas**, **Restore the Edge**, and **Delay and Convey Stormwater** will reduce the number of evacuations and help displaced households and businesses recover more expediently.

Reduction in Injuries and Fatalities

1. Fatalities and injuries are an unfortunate risk inherent to hazard events. One significant benefit offered by the project is the reduction in risk of injuries and fatalities during flood events. With an overall reduction in flooding frequency and intensity, there will also be a reduction in injuries and fatalities. Several of the resilience design strategies used in this project will work together to contribute to a reduction in flooding. The **Delay and Convey Stormwater**, **Restore the Edge**, and **Adapt to Rising Seas** strategies each play a role in reducing flood risk.

ADAPT TO RISING SEAS ANNUAL BENEFIT: INJURIES: $74,000; FATALITIES: $162,000

2. Easy access to dry egress is essential for the safety of any community. In the event of a flood, residents must be able to quickly and safely evacuate the neighborhood and get to higher ground. Emergency services such as ambulances and firetrucks also need a way into the neighborhood to help stranded or injured residents. The **Access and Egress** strategy will ensure that the neighborhood has dry egress and well-designed signage for easy navigation before, during, and after a flood event.

Reduction in Mental Stress and Anxiety

1. Natural disasters may threaten health, social, and economic wellbeing, which leads to psychological distress. Prevalence rates of mild and moderate mental illnesses tend to be higher in post-disaster periods.[5] This increases mental health care costs and burdens individuals and society. Additionally, living in a neighborhood with frequent flooding can be a source of constant stress to residents, who may worry about when the next flood will occur. The combined effects of the **Delay and Convey Stormwater**, **Adapt to Rising Seas**, and **Restore the Edge** strategies will reduce the frequency of

ADAPT TO RISING SEAS ANNUAL BENEFIT: $160,000

[5] FEMA, 2012. Final Sustainability Benefits Methodology Report.

floods in Bridgeport, and will reduce flooding intensity when they do occur. These reductions will improve stress levels and overall mental health in the community.

2. The **Access and Egress** strategy will improve wayfinding and urban design in the neighborhood which can help reduce day-to-day stress related to navigation and stress in the event of an emergency. During a flood or other event, improved urban design can make it easier for residents to evacuate and reach safety.

Reduction in Lost Productivity

1. Severe weather is a common detriment to productivity as it is the foremost cause of power outages nationwide.[6] Modernizing the grid and increasing grid resilience through the **Make Power Locally** strategy can help maintain and improve the local continuity of services even during extreme events for both critical and noncritical infrastructure.[7]

ADAPT TO RISING SEAS
ANNUAL BENEFIT: $99,000

2. There is a definite relationship between mental stress impacts and disasters, which takes a societal and economic toll through the costs of treatment and the cost of lost productivity. Green infrastructure measures implemented through the **Delay and Convey Stormwater**, **Restore the Edge** and **Adapt to Rising Seas** strategies help protect against flood damage and disasters and therefore reduce mental health impacts. Fewer mental health impacts will reduce lost work productivity, as quantified by FEMA's standard Value of Lost Time at $1,600 a month, which can also have a significant and long-lasting economic impact.[8]

Shelter Needs

1. During a flood event, residents may need to seek shelter if they cannot access their homes. Even though homes may not be damaged, people will be displaced if they are evacuated or cannot physically access their property by foot, vehicle, or transit due to flooded roadways and transit systems. The **Access and Egress** strategy will improve the accessibility of shelters in the neighborhood, and will ensure that there are safe routes to reach them.

[6] Executive Office of the President, 2013. https://energy.gov/sites/prod/files/2013/08/f2/Grid%20Resiliency%20Report_FINAL.pdf
[7] Crabtree, Misewich, Ambrosio, Clay, DeMartini, James, Lauby, Mohta, Moura, Sauer and Slakey, 2011. Integrating renewable electricity on the grid. https://www.aps.org/policy/reports/popa-reports/upload/integratingelec.pdf
[8] FEMA, 2012. Final Sustainability Benefits Methodology Report.

Value Added Benefits

Improved Health

1. Human health is related to the condition of the environment, and can derive benefits from well-functioning natural processes. As green infrastructure captures and treats rainwater where it falls, the **Restore the Edge** design strategy can help lessen the harmful effects of polluted urban runoff in rivers, lakes and coastal waters.[9] Furthermore, wetlands can help mitigate human health problems resulting from primarily nitrogen and phosphorus nutrient pollution due to unchecked algae growth.[10]

2. Implementing the **Make Power Locally** strategy through wind, solar, hydroelectric, geothermal, biomass, fuel cell, and combined heat and power (CHP) energy systems would lower the total air emissions associated with existing local generation mix dominated by coal-and natural gas-fired power plants.[11] The impact of the generation of fossil fuel electricity in the United States on health represents an estimated annual economic expenditure of $361.7 to $886.5 billion, or 2.5-6.0% of the national GDP.[12] The industry's associated air and water pollution from coal and natural gas plants is tied to breathing problems, neurological damage, heart attacks and cancer.[13] Through the direct reduction of emissions and related diseases, local and renewable power improves environmental quality and thus advances public health.

3. The **Delay and Convey Stormwater** design strategy will reduce human health risks related to combined sewer overflows (CSOs). CSOs cause untreated wastewater to be released to surface waters, and sometimes flood streets and sidewalks. This creates opportunities for humans to encounter harmful bacteria, which can cause serious illnesses. CSOs are especially dangerous in areas with public beaches; the US EPA estimates that CSOs, in combination with separate sewer overflows (SSOs) cause at least 5,576 illnesses every year at beaches across the country.[14] The total

[9] American Rivers, the Water Environment Federation, the American Society of Landscape Architects and ECONorthwest, 2012. Banking On Green: A Look at How Green Infrastructure Can Save Municipalities Money and Provide Economic Benefits Community-wide. https://www.asla.org/uploadedFiles/CMS/Government_Affairs/Federal_Government_Affairs/Banking%20on%20Green%20HighRes.pdf

[10] Conathan, Buchanan, and Polefka, 2014. The economic case for restoring coastal ecosystems. *Center for American Progress & Oxfam America, Washington, DC*. https://www.americanprogress.org/wp-content/uploads/2014/04/CoastalRestoration_report.pdf

[11] Benefits of Renewable Energy Use, 2013. http://www.ucsusa.org/clean-energy/renewable-energy/public-benefits-of-renewable-power#.WW5QjYjythE

[12] Machol and Rizk, 2013. Economic value of US fossil fuel electricity health impacts. *Environment international*. http://www.sciencedirect.com/science/article/pii/S0160412012000542

[13] Benefits of Renewable Energy Use, 2013.

[14] Banking on Green, 2012.

number of illnesses caused by exposure to bacteria from CSOs is likely much higher, since the above number does not consider inland areas or non-beaches.

4. The **Adapt to Rising Seas**, **Restore the Edge** and **Access and Egress** strategies will provide new outdoor recreation space to the neighborhood and improve access to facilitate biking and walking. Urban green space is associated with a variety of social benefits ranging from increased recreational and educational opportunities and aesthetic enjoyment, regulated psychological well-being, promoted physical health and enhanced social ties.[15] Regular exercise strongly influences an individual's health. Physical activity can reduce cardiovascular problems, diabetes and certain types of cancers, while blood pressure can be lowered in natural settings.[16] Equal access active-use green areas have been shown to substantially contribute to the overall quality of life.[17]

Enhanced Recreational and Educational Opportunities

1. Through the preservation, restoration and enhancement of historic parks, wetland habitats and coastlines, the **Restore the Edge** strategy improves accessibility and makes the resulting environments more conducive to recreational and educational activities. Schools and local organizations can play an active role in the stewardship of these native habitats, which can act as a stimulus for community involvement. Restoring these areas along the coast also provides habitat for fish, birds and other wildlife of commercial and recreational importance, which in turn supports nature-based opportunities for further engagement.[18] Additionally, properly managed green infrastructure and bioretention and infiltration practices can improve community livability through benefit local aesthetics across shoreline, parks and pathways.[19] Complementing this coastal restoration, the **Adapt to Rising Seas** strategy provides new and improved park space, bicycle, and pedestrian trails, as well as community gathering and recreational spaces that will give local populations and visitors a number of opportunities to participate in a variety of activities such as walking, jogging, bicycling, and playground use. The **Access and Egress** strategy will improve wayfinding through urban design elements and access to bike paths which will enhance recreational and educational opportunities. The strategy will also create opportunities for community

[15] Zhou, X. and M.P. Rana. 2011. Social benefits of urban green space. A conceptual framework of valuation and accessibility measurements. Management of Environmental Quality: An International Journal.
[16] Zhou, X. and M.P. Rana. 2011. Social benefits of urban green space.
[17] Lestan, K.A., Erzen, I., and M. Golobic . 2014. The Role of Open Space in Urban Neighbourhoods for Health-Related Lifestyle. 2014. International Journal of Environmental Research and Public Health. June
[18] Ruckelshaus, Guannel, Arkema, Verutes, Griffin, Guerry, Silver, Faries, Brenner and Rosenthal, 2016. Evaluating the benefits of green infrastructure for coastal areas: Location, location, location. Coastal Management. http://www.tandfonline.com/doi/pdf/10.1080/08920753.2016.1208882?needAccess=true&
[19] Gallet, 2011. The Value of Green Infrastructure: A Guide to Recognizing Its Economic, Environmental and Social Benefits. Proceedings of the Water Environment Federation. http://www.cnt.org/sites/default/files/publications/CNT_Value-of-Green-Infrastructure.pdf

engagement through bike tours, such as a student bike ride through the watershed that the design team organized.

Environment

Due to the city's natural capital and industrial history, Bridgeport's environment plays a vital role in connecting the local population, economy and infrastructure, and therefore has a significant opportunity to act as a catalyst in achieving regional benefits. Implementing the resiliency strategies will improve water, sediment and air quality, regulate the climate and restore and enhance ecological habitats.

Value Added Benefits

Improved Water and Sediment Quality

1. The offshore and estuarial ecological habitats central to the **Restore the Edge** strategy support the establishment of species which directly improve water quality. Kelp thrives in acidic ocean waters though naturally lowering dissolved acid, nitrogen and phosphorus while giving off oxygen, creating a more habitable environment for a variety of organisms.[20] Oysters greatly benefit estuary ecology through filtering water containing algae as well as inert and polluting sediments.[21] Local Menhaden fish schools filter feed on phyto- and zooplankton in water treatment plant outfall, helping to clean the water further.[22] A greater number of species can prospectively benefit from Restoring the Edge, though these examples are representative of the cascade of benefits that can be derived through improved water quality.

DELAY AND CONVEY STORMWATER
ANNUAL BENEFIT: $10 MILLION

2. The **Make Power Locally** strategy represents an efficient and sustainable use of water resources. In contrast to fossil fuels, which substantially impact water resources, wind and solar energy require

[20] National Oceanic and Atmospheric Administration. *Seaweed in the Spotlight.* http://www.nmfs.noaa.gov/aquaculture/homepage_stories/paul_allen_grant.html
[21] South Carolina Department of Natural Resources. *Ecology of Oysters, Oyster Growth, and Water Quality.* http://score.dnr.sc.gov/ktmlpro10/files/uploads/riverlab.pdf
[22] Food and Agriculture Organization of the United States. *Brevoortia tyrannus Species Fact Sheet.* http://www.fao.org/fishery/species/2094/en

limited amounts of water and do not pollute or strain supplies in competition with other important water needs such as agriculture or drinking water systems.[23]

3. The **Delay and Convey Stormwater** and **Restore the Edge** strategies confront the significant challenge of stormwater runoff in urban areas. Water that falls on impervious surfaces picks up pollutants and enters the sewer system where it is then either treated or transferred into the environment. When a heavy rainfall event occurs, large volumes of stormwater can exceed the capacity of the system and result in overflows that release untreated wastewater into Long Island Sound. Green infrastructure features collect stormwater runoff and allow it to infiltrate the ground or evaporate. Not only do they reduce the need for stormwater treatment, but they also contribute to fewer and lesser overflow events and can filter land-based pollutants associated with contaminated soil on former industrial land.[24]

4. Through the establishment of wetlands, the **Restore the Edge** strategy helps mitigate the negative impact of nutrient pollution as it contaminates drinking water and contributes to eutrophication and the extent of coastal "dead zones". The absorption of anthropogenic nitrogen can help lessen the extent of its damage to ecosystem productivity, biodiversity, recreation and the availability of clean water.[25]

Improvement in Air Quality

1. Air pollution is a significant and expensive urban problem that reduces the health of urban residents. Criteria air pollutants (nitrogen dioxide, sulfur dioxide, particulate matter, and ozone) impose a variety of health impacts, such as increased risk of bronchitis, asthma, and emphysema.[26] Natural vegetation such as existing forests and wetlands, stormwater wetlands, stormwater tree trenches, bioswales and rain gardens can absorb these air pollutants and reduce health risks in the surrounding population. The green stormwater retention and conveyance features of the **Delay and Convey Stormwater** strategy, the living shoreline elements of the **Adapt to Rising Seas** strategy, the green infrastructure components of the **Restore the Edge** strategy and the renewable energies in the **Make**

[23] Benefits of Renewable Energy Use, 2013.
[24] Ruckelshaus, Guannel, Arkema, Verutes, Griffin, Guerry, Silver, Faries, Brenner and Rosenthal, 2016. Evaluating the benefits of green infrastructure for coastal areas: Location, location, location. *Coastal Management*. http://www.tandfonline.com/doi/pdf/10.1080/08920753.2016.1208882?needAccess=true&
[25] Conathan, Buchanan, and Polefka, 2014. The economic case for restoring coastal ecosystems.
[26] US Environmental Protection Agency. *Criteria Air Pollutants*. https://www.epa.gov/sites/production/files/2015-10/documents/ace3_criteria_air_pollutants.pdf

Power Locally strategy all improve air quality through the uptake and deposition of particulate matter or avoidance of pollutant emissions.[27]

Climate Regulation

1. Carbon dioxide emissions vary greatly by the source of electricity generation, which has significant repercussions on the climate. Natural gas emits between 0.6 and 2 pounds of carbon dioxide equivalent per kilowatt-hour (CO2E/kWh) while coal emits between 1.4 and 3.6 pounds of CO2E/kWh. The renewable energies produce fractions of these numbers; wind emits 0.02 to 0.04 pounds of CO2E/kWh, solar 0.07 to 0.2, geothermal 0.1 to 0.2, and hydroelectric 0.1 and 0.5.[28] Popular in Connecticut due to the local manufacturing base, fuel cells are a transitional alternative that utilize natural gas feedstock but emit between 0.9 and 1.0 CO2E/kWh or just over half that (0.5 to 0.7 CO2E/kWh) when used to anchor a CHP system. Taken altogether, electricity generation represents over a third of U.S. carbon dioxide emissions, of which 68 percent is attributed to coal-fired power plants, followed by natural gas-fired power plants, which contribute 30 percent of emissions.[29] The **Make Power Locally** strategy would utilize renewable energy sources which produce little to no global warming emissions.[30] Furthermore, the green infrastructure central to the **Adapt to Rising Seas** and **Restore the Edge** strategies helps lower ambient air temperatures, decrease the energy needed to warm and cool buildings, diverts stormwater from wastewater treatment, in turn reducing energy used to treat stormwater, all of which results in reduced carbon dioxide emissions.[31] Furthermore, coastal environments can contribute to climate regulation as they act as highly effective sinks increasing carbon sequestration.[32]

Restored and Enhanced Ecological Habitats

1. Coastal environments have an ability to self-sustain and adapt to changes in the climate with minimal human involvement.[33] Rebuilding the native coastal environment and the wetlands, beaches, dunes and low-lying coastal woodlands that

RESTORE THE EDGE ANNUAL BENEFIT: $8.8 MILLION

[27] Gallet, 2011. The Value of Green Infrastructure: A Guide to Recognizing Its Economic, Environmental and Social Benefits. *Proceedings of the Water Environment Federation*. http://www.cnt.org/sites/default/files/publications/CNT_Value-of-Green-Infrastructure.pdf
[28] Benefits of Renewable Energy Use, 2013.
[29] U.S. Energy Information Administration, 2017. https://www.eia.gov/tools/faqs/faq.php?id=77&t=11
[30] Benefits of Renewable Energy Use, 2013.
[31] Center for Neighborhood Technology. *The Value of Green Infrastructure.* http://www.cnt.org/sites/default/files/publications/CNT_Value-of-Green-Infrastructure.pdf
[32] Conathan, Buchanan, and Polefka, 2014. The economic case for restoring coastal ecosystems.
[33] Ruckelshaus, Guannel, Arkema, Verutes, Griffin, Guerry, Silver, Faries, Brenner and Rosenthal, 2016. Evaluating the benefits of green infrastructure for coastal areas: Location, location, location. Coastal Management.

historically dominated the shoreline supports the establishment and maintenance of diverse terrestrial and aquatic ecosystems. The **Restore the Edge** strategy can attract historically displaced species, and in particular, four species that represent the great diversity and resilience of the Connecticut shorelines: Oysters, Bluefish, Horseshoe Crab and Red Knot. Restoring and enhancing the physical landscape can help increase species diversity in the process of supporting the entire community of organisms.[34] Furthermore, as the provision of ecosystem services provided by lower trophic level species is linearly dependent on habitat size and quality, new or enhanced natural space can generate ecosystem services (Table 2).[35]

Table 2. Summary of Ecosystem Services (2016 dollars)

Ecosystem Service	Wetland	Riparian
Provisioning Services		
Food	$131,300	$118,800
Fiber/Raw Materials	$55,000	-
Water Supply	$21,400	-
Regulating Services		
Hurricane Storm Hazard Risk Reduction	$390,700	
Waste Reduction and Filtration/Water Quality	$71,700	$828,600
Climate Regulation	$21,000	$39,800
Water Retention/Flood Hazard Reduction	$523,400	$780,900
Air Quality	-	$41,900
Support Services		
Nutrient Cycling	$51,800	-
Habitat	$16,100	$162,800
Biological Control	-	$31,900
Erosion Control	-	$2,230,800
Cultural Services		
Recreation/Tourism	$47,400	$2,957,900
Aesthetic Value	$168,800	$113,200
Biodiversity	$11,100	-
Total Ecosystem Service Value	**$1,509,700**	**$7,306,600**

2. The **Access and Egress** strategy will integrate built infrastructure with the natural environment through the sustainable redevelopment of existing sites for residential, commercial and eco-industrial purposes. Eco-industrial parks will facilitate the transfer of green technologies, use of

[34] Jordan, Peters and Allen, 1998. Ecological restoration as a strategy for conserving biological diversity. https://link.springer.com/article/10.1007/BF01867377
[35] Dobson, Lodge, Alder, Cumming, Keymer, McGlade, Mooney, Rusak, Sala, Wolters and Wall, 2006. Habitat loss, trophic collapse, and the decline of ecosystem services. *Ecology*.

resource-effective methods and reuse of waste energy and materials, which will lessen the impact on the surrounding environment and contribute to the restoration and enhancement of ecosystems.[36]

3. The **Adapt to Rising Seas** strategy will protect inland vegetation and habitats through buffering storm surge that might otherwise inflict extensive damage. Research indicates that each mile of vegetation that exists can reduce the height of storm surge by one foot.[37]

Economy

As a historically industrial city, Bridgeport presents a substantial opportunity to establish a more resilient future through its economy. The resiliency strategies will provide a benefit in the reduction in business interruption, while value-added benefits will include economic revitalization, increased property values, cost savings, poverty alleviation, and increased tourism and recreation.

Resiliency Benefits (Losses Avoided)

Reduction in Business Interruption

1. Business interruption costs are associated with revenue, sales, and jobs that are impacted because of a flood event which interrupts the operations of a business, or the temporary removal of a piece of real estate, from the market. Business interruption impacts are classified as direct, indirect, and induced, and model the effects of local business closures throughout a greater region. This analysis assumes that businesses which experience interruption because of flood impacts are eventually able to return to business as usual. Several resilience design strategies will work together to minimize business disruptions and prevent major revenue loss. The **Delay and Convey Stormwater** and **Adapt to Rising Seas** strategies will reduce the overall frequency and intensity of flooding, leading to fewer instances of service interruption. Installation of green infrastructure and flood barriers will

ADAPT TO RISING SEAS ANNUAL BENEFIT: $396,000

[36] UNIDO, 2017. Eco-industrial parks: creating shared prosperity and safeguarding the environment. https://www.unido.org/news/press/eco-industrial-parks.html

[37] NOAA. Understand – Conserving Coastal Wetlands for Sea Level Rise Adaptation. https://coast.noaa.gov/applyit/wetlands/understand.html

protect the neighborhood from stormwater flooding and coastal flooding, both day-to-day and during storm events.

2. Besides direct flooding effects that can damage inventory, power outages are a major threat to continuity of services. Costs associated with power outages for businesses can include lost output and wages, spoiled inventory, inconvenience, and startup costs after the outage ends. Renewable energies are typically less prone to large-scale failure as they are characteristically distributed and modular.[38] The **Make Power Locally** strategy distributes energy generation over a larger geographic area, therefore providing resilience to localized severe weather events that might threaten more centralized systems and cut off power at a large scale.

Value Added Benefits

Revitalization

1. The **Make Power Locally** strategy will involve transitioning to a microgrid energy distribution system, as well as utilizing more energy from renewable sources. Both of those factors will contribute to revitalizing the local economy. The community would be less reliant on imported fuels such as coal and natural gas.[39] Instead, utility fees would go back to local energy producers and distributors.

2. Installation of surge protection measures in the **Adapt to Rising Seas** strategy and green infrastructure measures through the **Delay and Convey Stormwater** strategy can act as a revitalizing aesthetic improvement to neighborhoods if the project includes urban design considerations. Redevelopment of grey infrastructure can transform the neighborhood, spurring economic growth. The economic benefits of revitalization efforts may be measured through the anticipated addition of economic output and the creation of labor income.

3. Increasing navigability and accessibility through the **Access and Egress** strategy can make neighborhoods more appealing to the establishment of businesses. Strategic and attractive urban design will draw consumers to the neighborhood and potentially increase revenue for businesses.

[38] Benefits of Renewable Energy Use, 2013.
[39] Benefits of Renewable Energy Use, 2013.

4. The redevelopment and restoration of Bridgeport's waterfront as described in the **Restore the Edge** strategy will realize immediate short-term economic impacts due to project spending. Broader, longer term economic stimulus can persist as areas rehabilitated with coastal and near-shore habitat infrastructure experience an increase in consumer spending, recreation and tourism.[40] Additionally, healthier coastal ecosystems could lead to the revitalization of Bridgeport's commercial fishing and aquaculture industries, such as oyster farming or kelp farming.

Increased Property Values

1. Several of the resilience design strategies for this project will work together to increase property values in Bridgeport. The **Delay and Convey Stormwater** and **Adapt to Rising Seas** strategies will reduce the frequency and intensity of floods in the neighborhood, which could increase the desirability of the neighborhood and therefore property values. Businesses may be more likely to move to the neighborhood while residents would be more likely to stay. The health of coastal ecosystems is also linked with property values. The **Restore the Edge** strategy will increase recreation space and make aesthetic improvements along the shoreline, making neighborhoods near the water more desirable.[41] The **Access and Egress** strategy will also contribute to property value increases. Through redevelopment of underutilized sites and increasing overall neighborhood safety, the South End will become a more attractive place to live. New transit options like bike paths, shuttles, and driverless vehicles will make the neighborhood more accessible and more convenient for commuters.

Cost Savings

1. Several resilience design strategies will result in major cost savings for the city and region. Research shows that restoring coastal ecosystems and wetlands leads to a reduction in nitrogen pollution in surface water, which has a huge cost saving impact. Across the country, wetlands remove approximately 5.8 million metric tons of nitrogen, resulting in a savings of over $12.76 billion.[42] The natural infrastructure elements that comprise the **Restore the Edge** strategy are associated with cost-effectiveness, not only through nitrogen pollution reduction, but also through a decrease in long term maintenance costs.[43] Healthy coastal wetlands drastically improve local sediment and water quality, which reduces pollution and management costs.

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[40] Edwards, P. E. T., A. E. Sutton-Grier, and G. E. Coyle. "Investing in nature: restoring coastal habitat blue infrastructure and green job creation." *Marine Policy* 38 (2013): 65-71.
[41] Conathan, Buchanan, and Polefka, 2014. The economic case for restoring coastal ecosystems.
[42] Conathan, Buchanan, and Polefka, 2014. The economic case for restoring coastal ecosystems.
[43] World Business Council for Sustainable Development, 2017. http://www.wbcsd.org/Clusters/Water/Natural-Infrastructure-for-Business/Resources/Incentives-for-Natural-Infrastructure

2. Green infrastructure implementation has potential for cost savings when compared with grey infrastructure. The **Delay and Convey Stormwater** strategy will implement green infrastructure in the community to tie into the existing grey infrastructure system. According to an EPA case study, implementing green infrastructure can save millions of dollars in capital costs over the lifetime of the project.[44]

3. The use of microgrids and renewable energy in the **Make Power Locally** strategy will result in large cost savings for Bridgeport residents and the city itself. After the initial capital investment required to install renewable energy systems and microgrid technology, there will be very little, if any, maintenance required.[45]

Poverty Alleviation

1. Coastal restoration projects in the **Restore the Edge** strategy create a range of job and career opportunities, including planning and design, implementation and construction, and operations and monitoring. According to a study by Oxfam and the Center for American Progress, projects to rehabilitate coastal wetlands can help residents out of poverty through job creation.[46] Ecosystem restoration work can create up to 39 jobs for every $1 million invested in the project.[47] In the South End of Bridgeport, where 42% of residents are below the national poverty level, those new jobs would be of huge importance. Beyond construction and maintenance jobs, there is also potential for the creation of jobs in revived industries, such as oyster and kelp farming, as well as tourism.

2. The **Make Power Locally** design strategy has the potential to create many new jobs in the region. Renewable energy sources generally require significant labor to construct and install, meaning more jobs are created. Compared with traditional energy sources like coal and natural gas, renewable energies create more jobs per unit of electricity generated.[48] Jobs will also be created for microgrid construction and maintenance.

3. Implementation of surge protection measures, such as those described in the **Adapt to Rising Seas** strategy, would require unskilled and skilled labor; labor that may be filled by otherwise unemployed

[44] US Environmental Protection Agency. The Economic Benefits of Green Infrastructure; A Case Study of Lancaster, PA. https://www.epa.gov/sites/production/files/2015-10/documents/cnt-lancaster-report-508_1.pdf
[45] Kwasinski, Weaver and Balog, 2016. Microgrids and other local area power and energy systems.
[46] The Center for American Progress and Oxfam America. *The Economic Benefits of Restoring Coastal Ecosystems.* https://www.oxfamamerica.org/static/media/files/CoastalRestoration-factsheet.pdf
[47] Conathan, Buchanan, and Polefka, 2014. The economic case for restoring coastal ecosystems.
[48] Union of Concerned Scientists, 2013. Benefits of Renewable Energy. http://www.ucsusa.org/clean-energy/renewable-energy/public-benefits-of-renewable-power#.WW_CG4QrKM8

laborers. Benefits captured in this section include the avoided cost of social services that the government would have to provide if the same people were unemployed.

Tourism and Recreation

1. The **Restore the Edge** design strategy has significant potential to create recreational spaces and attract tourism. Aside from the aesthetic value of healthy wetlands and rehabilitated public parks, birds and other animal species living on the shore can attract birdwatchers or other naturalists. Wildlife watching generates a positive economic impact in multiple ways, through entrance and permit fees, and wages earned by guides, drivers and staff, while also creating opportunities for engagement in other tourism activities.[49]

Infrastructure/Structures

Bridgeport's infrastructures and structures will gain greater resilience through direct and indirect benefits. The implementation of the resilience strategies will result in a reduction in direct physical damages and an increase in functional resilience, while value-added benefits will contribute to greater redundancy of complementary approaches, and an improved transit system.

Resiliency Benefits (Losses Avoided)

Reduction in Direct Physical Damages

1. Natural and built infrastructure can both contribute to a reduction in direct physical damages. Surge protection through the **Adapt to Rising Seas** strategy can reduce the risk of physical damage due to coastal flooding. In addition, the potential of coastal habitats to provide direct defense through reducing erosion and flooding is well documented in literature.[50] Through green infrastructure and stormwater improvements, the **Delay and Convey**

ADAPT TO RISING SEAS ANNUAL BENEFITS: $2.5 MILLION IN BUILDING LOSS PREVENTED AND $2.6 MILLION IN BUILDING CONTENTS LOSSES PREVENTED

[49] Tapper, 2006. Wildlife watching and tourism: a study on the benefits and risks of a fast growing tourism activity and its impacts on species.
[50] Ruckelshaus, Guannel, Arkema, Verutes, Griffin, Guerry, Silver, Faries, Brenner and Rosenthal, 2016. Evaluating the benefits of green infrastructure for coastal areas: Location, location, location.

Stormwater strategy reduces the risk of physical damage due to stormwater-related flooding. The **Restore the Edge** strategy will support coastal areas as an effective line of defense against storm surge as they provide protection from inundation for landward areas. These environments provide benefits to the U.S. economy which range from $250 and $51,000 per hectare per year, cumulatively worth approximately $23 billion in storm protection annually.[51]

Reduction in Loss of Critical Services

1. FEMA defines a critical, or essential, facility as one for which "even a slight chance of flooding is too great a threat."[52] Disaster events may disrupt **critical facilities** such as fire, EMS, and police stations, hospitals, public utilities, and storage of critical records, and **public services** such as electric, potable water, and wastewater services. Rising sea levels contribute to flooding risks from disaster events, increasing the likelihood that critical facilities will be inundated or damaged. The **Delay and Convey Stormwater** strategy aims at the avoidance of the loss of function of infrastructure and creates functional resilience for critical and non-critical facilities alike. The **Access and Egress** strategy will also help to ensure the continuity of emergency services by improving access to dry egress throughout the community.

Value Added Benefits

Provision of Power

1. Installing microgrid power distribution technology as described in the **Make Power Locally** strategy will have the benefit of adding redundancy to the neighborhoods power supply. Microgrids can be designed to remain functional even when the larger utility power supply is down.[53] In this way, a combination of microgrids and renewable energy can act as a back-up power supply during flooding events and other natural disasters. Furthermore, renewable energies, such as wind power, geothermal, solar, and hydroelectric can guarantee a steady energy supply to a community indefinitely.[54] Estimates of the technical potential of each renewable energy source are based on their overall availability given certain technological and environmental constraints. In 2012, NREL found that together, renewable energy sources have the technical potential to supply 482,247 billion kilowatt-hours of electricity annually. This amount is 118 times the amount of electricity the nation

[51] Conathan, Buchanan, and Polefka, 2014. The economic case for restoring coastal ecosystems. Center
[52] FEMA, Critical Facilities and Higher Standards Fact Sheet. https://www.fema.gov/media-library-data/1436818953164-4f8f6fc191d26a924f67911c5eaa6848/FPM_1_Page_CriticalFacilities.pdf
[53] NREL, 2012. Microgrids: So Much More Than Backup Energy https://www.nrel.gov/news/features/2012/1980.html
[54] Conserve Energy Future, 2017. What is Renewable Energy? http://www.conserve-energy-future.com/advantages-and-disadvantages-of-renewable-energy.php

currently consumes. In this way, the **Make Power Locally** strategy will ensure that Bridgeport has a reliable energy source in the long term.

Improved Transit System

1. An efficient and modern public transit system is invaluable to cities. New modes of transportation offered through the **Access and Egress** strategy, such as bike paths, shuttles, and driverless vehicles will make the neighborhood more accessible and convenient day-to-day. Residents will have more options for commuting, increasing the accessibility of a greater extent of possible job opportunities.

3 Resilient Strategies Benefit Analysis Detailed Approach

In harmony, the resilient design strategies will reduce flood risk and increase resilience in Bridgeport. Analysts completed a benefits analysis to understand the benefits expected to occur due to the implementation of the design strategies. The magnitude of these benefits is measured based on the number of people, structures, infrastructure, and businesses benefitting and the area of new or enhanced natural space created. Table 1 summarizes the results of this analysis. Analysts completed the analysis by evaluating the monetary value of certain benefits for three of the strategies. The **Benefit Analysis Results** section summarizes these results, and the methodology to complete the resilient strategies benefits analysis is available below.

Benefit Analysis Results

The resilient strategies are expected to provide a range of resiliency, economic, environmental, and social benefits as described in the **Resilient Bridgeport Strategies Benefit Analysis** section. Based on the three scenarios in which analysts calculated the monetary value of benefits, Table 3 demonstrates that the **Delay and Convey Stormwater** strategy generates the most annual benefits. However, these are solely water quality benefits. Similarly, the environment benefits the most from the **Restore the Edge** strategy, with a few ecosystem services benefitting residents. Even though **Adapt to Rising Seas** annual benefits are the least between the three scenarios, the built, social, and economic systems of the South End benefit, as made evident in Table 4. Table 4 demonstrates flood impacts expected to be avoided for three flood scenarios due to implementation of the recommended flood protection alignment.

Table 3. Quantified Benefits (2016 dollars)

Resilient Strategy	Annual Benefits
Restore the Edge	$8.8 million
Adapt to Rising Seas	$6.1 million
Delay and Convey Stormwater	$10 million

Adapt to Rising Seas Results

Table 4 summarizes flood impacts avoided due to the recommended flood protection alignment. Results are presented at one-time losses avoided per flood scenario and as annualized benefits. Analysts calculate annual benefits by applying the annual probability of occurrence to losses at each flood scenario, then

summing the results. Probability of occurrence refers to the percent chance of an expected flood event being met or exceeded in any given year.

Direct physical damages, or building and contents losses, are the largest benefit category, followed by human impacts, to include: mental stress and anxiety, lost productivity, injuries, fatalities, and relocation costs. This reveals that the built environment will benefit most from the flood protection system, followed by residents, then the local economy. Nevertheless, business interruption impacts are limited to lost income due to the business being closed for a period, and do not include reverberating impacts throughout the economy, such as direct, indirect, and induced effects;[55] therefore, business interruption impacts are likely a conservative estimate.

Table 4. Summary of Losses Avoided due to Adapt to Rising Seas (Results are presented in the thousands)

Flood Scenario	**Loss Category** (Results are presented in the thousands)								Total
	Building Losses	Contents Losses	Relocation Costs	Business Interruption	Mental Stress and Anxiety	Lost Productivity	Injuries	Fatalities	
10 percent	$11,923	$11,406	$517	$852	$690	$430	$318	$1,077	$27,213
2 percent	$36,735	$41,285	$1,407	$3,104	$2,620	$1,631	$1,208	$1,712	$89,702
1 percent	$58,151	$69,388	$2,498	$24,827	$3,830	$2,384	$1,766	$2,067	$164,911
Annualized Benefits	$2,508	$2,660	$105	$396	$160	$99	$74	$162	$6,164

Analysis Steps

This section details the approach taken to define resilient strategy benefits, measure benefitting community assets, and quantify certain benefit scenarios. Analysts implemented FEMA's approach to evaluating resiliency benefits and ecosystem services to determine the economic value of the following scenarios:

1. Ecosystem services to be provided by new or enhanced natural area created by the **Restore the Edge** strategy

[55] Direct effects represent the initial impacts that occur because of an economic activity. Indirect effects are the impact of direct economic effects on supporting industries, such as those that provide equipment and materials. Induced effects are the response to a direct effect that occurs through re-spending of income.

2. Water quality benefits to be realized by CSO reduction due to the **Delay and Convey Stormwater** strategy

3. Losses avoided due to the protection provided by the **Adapt to Rising Seas** strategy

Primary resources analysts utilized to complete the analysis include:

Methodology:

- **FEMA's Final Sustainability Benefits Methodology Report (2012):** provides an ecosystem service value per acre of space, as well as the method to evaluate Lost Productivity and Mental Stress and Anxiety.
- **FEMA Benefit-Cost Analysis Re-Engineering (BCAR) Development of Standard Economic Values (2011):** details the methodology to evaluate Direct Physical Damages, Displacement Costs, and Business Interruption.
- **Brno University of Technology fatality risk methodology:** the approach to evaluate fatalities is based on three main factors: materials loss, population preparedness, and warning.

Data:

- **US Census Bureau ACS 5-Year Estimate:** provides the population within the study area.
- **City of Bridgeport Tax Assessor Data (2015):** Attributes from this dataset used in the analysis include: square footage, number of stories, building elevation, and building use. This dataset also provided building footprints.
- **Connecticut Department of Energy and Environmental Protection Digital Elevation Model (2011):** A Department of Energy and Environmental Protection (DEEP) digital elevation model (DEM) is a model of the ground surface, and provides the ground elevation for structures. The DEM is a raster layer of high-resolution ground elevation data based on information from bare-earth LiDAR elevation data collected and compiled during December 2006 and Spring/Summer 2004.
- **Fairfield County Flood Insurance Study (2013):** provides flood elevations for the 10 percent, 2 percent, and 1 percent. Analysts use flood elevations to approximate flood depths inside structures.

- **CDC injury rates:** The CDC report from October 2014 titled "Nonfatal Injuries 1 Week after Hurricane Sandy" estimates 10.4 percent of residents in the inundation zone were injured within the first week of Hurricane Sandy.
- **Bridgeport Long Term Control Plan:** provided information needed to derive a combined sewer overflow event damage cost.

The steps of the benefits analysis are broken down as follows: define benefits, assess benefitting community assets, and evaluate quantifiable benefits.

Define Benefits

Analysts researched existing literature to gather information on the benefits of natural and hard flood protection measures, green infrastructure, and local power networks. Research informed the categorization and description of resilient strategy benefits. The matrix below summarizes benefits, and the **Resilient Bridgeport Strategies Benefits Summary** section describes benefits by community asset, then by benefit category and strategy.

Table 5. Resilient Strategies Benefits Matrix

Benefit	Restore the Edge	Adapt to Rising Seas	Delay and Convey Stormwater	Access and Egress	Make Power Locally
People					
Reduction in Displacement Time and Costs	X	X	X		X
Reduction in Injuries and Fatalities	X	X	X	X	
Reduction in Mental Stress and Anxiety	X	X	X	X	
Reduction in Lost Productivity	X	X	X		X
Improved Health	X	X	X	X	X
Enhanced Recreational and Educational Opportunities	X	X			
Shelter Needs		X			

Benefit	Restore the Edge	Adapt to Rising Seas	Delay and Convey Stormwater	Access and Egress	Make Power Locally
Environment					
Improved Water and Sediment Quality	X		X		X
Improvement in Air Quality	X		X		X
Climate Regulation	X	X			X
Restored and Enhanced Ecological Habitats	X				
Economy					
Reduction in Business Interruption		X	X		X
Revitalization	X	X	X	X	X
Increased Property Values	X	X	X	X	
Cost Savings					X
Poverty Alleviation	X	X			X
Tourism and Recreation	X				
Infrastructure/Structures					
Reduction in Direct Physical Damages	X	X	X		
Reduction in Loss of Critical Services			X		X
Improved Transit System				X	

Assess Benefitting Community Assets

To better understand the magnitude of benefits, analysts measured the number of community assets benefitting from each strategy. The following subsection describes the process to generate these numbers.

1. Develop Asset Inventory

The asset inventory is a GIS database of building, parcel, and population data per structure. Analysts gathered data listed in Table 6, and merged building footprints and parcel level data using the parcel identification number. Analysts distributed the total population in each census block group to each residential building to complete the inventory. To do so, analysts distributed the population (from the 2014

ACS) to each building based on the ratio of a residential building's total living area to the total residential living area in the census block that contains the building.

Table 6. Summary of Asset Inventory Data and Data Sources

Attribute	Analysis Use	Data Source
Parcel ID	Key location identifier specific to a parcel	City of Bridgeport Tax Assessor Data (2015)
Unique ID	Key location identifier specific to a building; used to manage data	Assigned by analyst
Address	Key location identifier	City of Bridgeport Tax Assessor Data (2015)
Living Area	Used in population analysis	City of Bridgeport Tax Assessor Data (2015)
Land Occupancy Description	Building use, used in population analysis	City of Bridgeport Tax Assessor Data (2015)
Land Use Description	Secondary identifier of building use	City of Bridgeport Tax Assessor Data (2015)
Census Block Group	Use in population analysis	US Census Bureau American Community Survey 5-Year Estimates (2014)

2. Define Benefitting Area

The project team identified appropriate benefitting areas for each strategy to determine the number of community assets benefitting from each strategy. Figure 1 provides an example benefitting area, and demonstrates the recommended alignment of the surge protection measures. Analysts used this alignment to estimate the number of structures, businesses, and residents that the recommended surge protection measures will protect. Table 7 summarizes the approach taken to define the benefitting area for each resilient strategy.

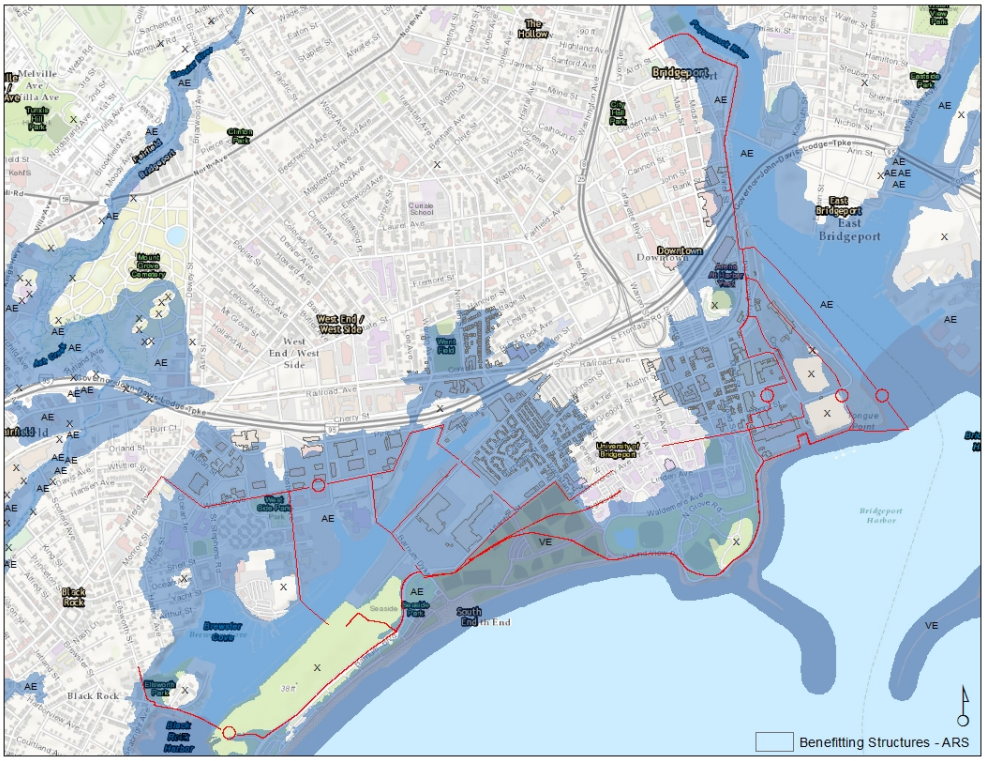


Figure 1. Recommended Alignment of Surge Protection

3. Measure Benefitting Assets

The last step was to identify the structures and residents within a benefitting area using the asset inventory (Table 7, Column 2 and 3). The building use code provided data to identify commercial structures within the asset inventory benefitting from a strategy (Table 7, Column 5). GIS layers of community assets, such as schools, medical facilities, fire stations, police stations, etc., enabled analysts to identify benefitting infrastructure (Table 7, Column 4, and detailed in Table 8). Analysts performed quality assurance and quality control of benefitting infrastructure using Google Earth. Table 7 and Table 8 summarize the outcome of this analysis, and demonstrates that the **Delay and Convey Stormwater** strategy benefits the most people, businesses, and structures, followed by the **Access and Egress** and **Adapt to Rising Seas** strategies.

Table 7. Summary of Benefitting Community Assets and Benefitting Area Methodology

Strategy	People	Structures	Infrastructure	Economy	Benefitting Area
Restore the Edge	3,176	362	9	13	The benefitting area is a 0.25-mile buffer around the proposed location of strategy elements.
Adapt to Rising Seas	2,798	419	28	39	The benefitting area is the A flood zones within the recommended alignment.
Delay and Convey Stormwater	5,710	668	42	72	The benefitting area is the A flood zones in the South End.
Access and Egress	3,632	516	45	33	The benefitting area is the South End because the strategy implements and connects measures throughout the project area.

Table 8. Summary of Benefitting Community Infrastructure

Category	Restore the Edge	Adapt to Rising Seas	Delay and Convey Stormwater	Access and Egress
National Register of Historic Places	Park Apartments	David Perry House	Park Apartments	Park Apartments
	Seaside Park	Seaside Institute	Seaside Park	Seaside Park
	Tongue Point Lighthouse	Mary and Eliza Freeman Houses	David Perry House	David Perry House
			Seaside Institute	Seaside Institute
			Mary and Eliza Freeman Houses	Mary and Eliza Freeman Houses
City of Bridgeport Historic Districts	Black Rock Harbor	Cottage Development	Black Rock Harbor	Cottage Development

Category	Restore the Edge	Adapt to Rising Seas	Delay and Convey Stormwater	Access and Egress
		Seaside Village	Cottage Development	Seaside Village
		Division Street	Seaside Village	Division Street
		Railroad Avenue	Division Street	Railroad Avenue
		Marina Park	Railroad Avenue	Marina Park
		Downtown South	Marina Park	Downtown North and South
			Downtown North and South	
Recreation	Wordin Park	Went Field	Ellsworth Park	West Side Park
	Seaside Park / Barnum Field		Went Field	Longfellow Park
	Ellsworth Park			Park City Plaza
	Seabright Park			Wordin Park
	St. Marys by the Sea			Went Field
				Waterfront Park
				Waterstreet Park
Religious		Walters Memorial Zion Church	Walters Memorial Zion Church	Walters Memorial Zion Church
		Cathedral of Praise	Cathedral of Praise	Cathedral of Praise
			Church of God	Church of God
Transportation		Bridgeport Train Station	Bridgeport Train Station	Bridgeport Train Station
		Jefferson Ferry	Jefferson Ferry	Jefferson Ferry
Critical and Essential Facilities		Bridgeport Port Authority	Bridgeport Port Authority	Bridgeport Port Authority
		Bridgeport Harbor	Bridgeport Harbor	Bridgeport Harbor

Category	Restore the Edge	Adapt to Rising Seas	Delay and Convey Stormwater	Access and Egress
		Generating Station	Generating Station	Generating Station
			Bridgeport Fire Department Engine Company 7 and Ladder 11	Bridgeport Fire Department Engine Company 7 and Ladder 11
			Division of Criminal Justice - Juvenile Matters & Detention Center	Division of Criminal Justice - Juvenile Matters & Detention Center
			Post Office: 120 Middle Street	Post Office: 120 Middle Street
Education		University of Bridgeport	University of Bridgeport	University of Bridgeport
		Columbus Elementary School	Columbus Elementary School	Columbus Elementary School
		New Beginnings Family Academy	New Beginnings Family Academy	New Beginnings Family Academy
		The University School	The University School	The University School
		Bridgeport Hope School	Bridgeport Hope School	Bridgeport Hope School
			Maplewood Elementary and High School	Maplewood Elementary and High School
			Longfellow Elementary School	Longfellow Elementary School
			Bridgeport Regional	Bridgeport Regional

Category	Restore the Edge	Adapt to Rising Seas	Delay and Convey Stormwater	Access and Egress
			Vocational Aquaculture Center	Vocational Aquaculture Center
Entertainment		Webster Bank Arena	Webster Bank Arena	Webster Bank Arena
		Harbor Yard Sports Complex	Harbor Yard Sports Complex	Harbor Yard Sports Complex
		Barnum Museum	Barnum Museum	Barnum Museum
			Fayerweather Yacht Club	
Industrial		Sikorsky Bridgeport Heliport	Sikorsky Bridgeport Heliport	Sikorsky Bridgeport Heliport
		Santa Energy	Santa Energy	Santa Energy
		Wheelabrator Bridgeport	Wheelabrator Bridgeport	Wheelabrator Bridgeport
			Captains Cove Heliport / Seaport	Captains Cove Heliport / Seaport
Community Center		Southwest Community Health Center	Southwest Community Health Center	Southwest Community Health Center
			Gary Cooks Memorial Center	Gary Cooks Memorial Center
Total	**9**	**28**	**42**	**45**

Evaluate Quantifiable Benefits

The project team identified three scenarios where adequate data was available to estimate the monetary benefits of specific elements for certain strategies. These three scenarios include:

1. Ecosystem services to be provided by new or enhanced natural area created by the **Restore the Edge** strategy
2. Water quality benefits to be realized by CSO reduction due to the **Delay and Convey Stormwater** strategy
3. Losses avoided due to the protection provided by the **Adapt to Rising Seas** strategy.

This section describes the approach taken to quantify benefits.

Restore the Edge

Restore the Edge proposes to create wetlands and riparian habitat that will produce a range of environmental benefits, also known as ecosystem goods and services. Ecosystem goods and services provided by natural vegetation may be quantified to estimate their economic benefit to society. To determine the monetary value of ecosystem services, analysts calculated the area of new or enhanced wetlands or riparian habitat, and applied FEMA's standard annual ecosystem service values to the total area. Analysts found that **270 acres** of new or enhanced natural areas will generate **$8.8 million in annual ecosystem service benefits**.

Delay and Convey Stormwater

CSOs have a major impact on water quality and pose significant health and safety risks. Bridgeport is acting to meet water quality requirements under the Clean Water Act. The City has developed a Long-Term Control Plan to reduce the frequency of CSO events. The Plan reveals it will cost the City $384,900,000 over 30 years to reduce CSO output by 43 million gallons. Given this information, analysts generated a damage cost for CSO abatement: $0.29 per gallon per year. Analysts modeled CSO output at the design event (25-year Natural Resources Conservation Service [NRCS] rainfall event) to generate CSO existing conditions: 37,437,000 gallons. It is expected the **Delay and Convey Stormwater** strategy will reduce CSO volume by 95 percent: 35,565,150 gallons. Analysts applied the damage cost to the total volume of CSO reduction to estimate water quality benefits. Results reveal the annual benefit of CSO abatement is **$10 million**.

Adapt to Rising Seas

The recommended flood protection alignment will reduce the risk of direct physical damage to structures and contents, business interruption, and negative impacts to residents caused by flooding from the Long Island Sound. As such, analysts used FEMA approved methods to estimate benefits of flood protection. Detailed methodologies are available in the **Benefit Cost Analysis Methodology Report**; therefore, methodologies are summarized below. Analysis parameters include:

- **Risk context:** The flood source is Long Island Sound, and the Fairfield County Flood Insurance Study provides flood elevations for the 10, 2, and 1 percent annual chance flood event. The analysis considers structures and residents located in the flood zones within the recommended alignment.
- **Project design:** It is assumed the flood protection system will protect against the 1 percent annual chance flood event.
- **Time horizon:** The analysis does not consider sea level rise or population growth over time.

The subsections below summarize the approach for each resiliency benefit, and Table 4 summarizes results.

Direct Physical Damages – Buildings and Contents

Direct physical damages include the degradation and destruction of property, and are quantified through monetary losses. The BCA categorizes property loss as both structural damage (i.e., damage that applies to real property) and content damage (i.e., damage to personal property or inventory). BCA analysts can predict flood impacts by modeling expected damages of hypothetical storms. Thus, analysts calculated expected losses avoided for the 10, 2, and 1 percent annual chance flood events, sourced from the Fairfield County Flood Insurance Study.

BCA analysts calculated direct physical damages using standardized depth-damage functions (DDFs) specific to the characteristics and occupancy of a structure. A DDF correlates the depth, duration, and type of flooding to a percentage of expected damage to a structure and its contents, including inventory. Following Hurricane Sandy, the USACE developed DDFs specific to the North Atlantic region in a report titled the North Atlantic Coast Comprehensive Study (NACCS); analysts used these functions to evaluate direct physical damages. Steps to complete the direct physical damage analysis are listed below.

1. Determine Replacement Value: BCA analysts assigned building replacement values (BRVs) and contents replacement values (CRVs) based on building use. BRV is based on RSMeans 2016 Square Foot

Costs, and CRV is based on a contents-to-structure ratio values (CSRV) from the West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction Study.[56]

2. Determine flood depth: BCA analysts compared flood elevations from the FIS to grade elevations to determine a flood depth at each structure. The NACCS DDFs consider first floor elevations, therefore analysts use ground elevation rather than first floor elevations when estimating flood depth.

3. Estimate Percent Damage and Monetary Losses: Once BCA analysts established the expected flood depth for each flood scenario, they applied the DDF to estimate the percent of structural or contents damage. The DDF relates 1-foot depth increments to a percent of structural or contents damage, which is applied to a structure's BRV or CRV to produce a physical loss value in dollars. Analysts applied the probability of each flood scenario to expected impacts to calculate annual benefits. Ultimately, benefits represent the present value of the sum of expected annual avoided damages over the project useful life.

Displacement Costs

Residents of impacted structures may experience displacement costs during the time when a building becomes uninhabitable due to flood damage. Relocation costs are associated with moving a household or a business to a new location and resuming business in that new location. Relocation costs are derived from displacement time, which is derived from DDFs that relate a depth of flooding to an amount of time a structure is not usable.

Displacement costs, or relocation costs, are a product of percent damage, impacted square footage, disruption costs per occupancy, rental costs, displacement time, and percent owner occupied.

$$\begin{aligned} Relocation\ costs = {} & If\ percent\ damage\ is \\ & > 10\ percent: Impacted\ floor\ area\ \times\ (1 - percent\ owner\ occupied) \\ & \times\ disruption\ cost \\ & + percent\ owner\ occupied \\ & \times\ (disruption\ cost + rental\ cost\ \times\ displacement\ time)] \end{aligned}$$

Analysts identified structures experiencing flood impacts at different flood scenarios and determined the total flooded floor area. Census block level data provided the percent owner occupied for residential structures and Hazus-MH 3.2 provided default owner-occupancies for non-residential uses. Analysts used Zillow and Loopnet to develop location specific rental costs for residential and non-residential structures. Flood depths estimated in the direct physical damage analysis are correlated to USACE displacement

[56] USACE. 2014. West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction Study – Final Integrated Feasibility Study Report and Environmental Impact Statement. November.

DDFs to estimate displacement time for each flood scenario. Analysts processed relocation costs to building occupants based on occupancy type.[57] Analysts applied the probability of each flood scenario to expected impacts to calculate annual benefits.

Business Interruption

Business interruption is lost business income because of an event that interrupts the operation of a business, or the removal of a piece of real estate from the market as a result of disaster impacts. Business interruption time is a proportion of the displacement time, which is based on the business type and extent of damage. Analysts use Business Interruption Multipliers found in the Hazus-MH Flood TM to determine business interruption time for impacted buildings. Lost business income is a product of the net income of commercial business per day or the daily rental rate and the number of days of business interruption.

Mental Stress and Anxiety

The principle resource used to conduct this analysis is FEMA's Final Sustainability Benefits Methodology Report that accompanies the FEMA BCA Toolkit. Mental health treatment costs can be measured using three factors: cost, prevalence, and course. Prevalence is the percentage of people who experience mental health problems after a disaster event, and course is the rate at which mental health symptoms reduce or increase over time. Cost is the cost of treatment to those who seek it.

FEMA's Final Sustainability Benefits Methodology Report[58] uses prevalence percentages and mental health expenses from Schoenbaum (2009) to derive a standard value for mental stress and anxiety costs. Schoenbaum provides an estimate of treatment costs in an ideal scenario where all needs are met. FEMA contends that treatment costs from the study must be adjusted to consider only those with mental health problems who will actively seek out treatment (41 percent).[59] FEMA uses the following steps to adjust total treatment costs from Schoenbaum for a percentage of individuals who seek treatment and for prevalence.

[57] It is important to note that this equation incorporates only owner-occupied structures when calculating displacement values. The reason for this is that a renter who has been displaced would likely cease to pay rent to the building owner of the damaged property, and instead would pay rent to a new landlord. As such, the renter could reasonably be expected to incur no new rental expenses. Conversely, if the damaged property is owner-occupied, then the owner will have to pay for new rental costs in addition to any existing costs while the building is being repaired. This model assumes that it is unlikely that an occupant will relocate if a building is slightly damaged (less than 10% structure damage).

[58] FEMA. 2012. Final Sustainability Benefits Methodology Report. August 23.

[59] Wang, Philip S., MD, DrPH; Lane, Michael, MS; Olfson, Mark, MD, MPH; Pincus, Harold A., MD; Wells, Kenneth B., MD, MPH; Kessler, Ronald C., PhD. 2005. Twelve-Month Use of Mental Health Services in the United States: Results from the National Comorbidity Survey Replication. Archives of General Psychiatry, v. 62, June.
A., MD; Wells, Kenneth B., MD, MPH; and Ronald C. Kessler, PhD. 2005. Twelve-Month Use of Mental Health Services in the United States: Results from the National Comorbidity Survey Replication. Archives of General Psychiatry, v. 62, June.

$$Cost\ per\ person\ seeking\ treatment = Treatment\ cost\ per\ person^{60} \times 0.41 \times prevalence$$

Once an appropriate treatment cost was determined, the cost per person was applied to the total number of residents that are expected to be impacted by flooding.

Lost Productivity

FEMA's standard values for mental health impacts also include lost productivity due to mental stress and anxiety. Historical impacts indicate that mental health issues will increase after a disaster, and this, paired with research related to lost productivity due to mental illness, indicates that economic productivity can be impacted by an increase in mental health issues post-disaster.[61] FEMA's Final Sustainability Benefits Methodology Report that accompanies the FEMA BCA Toolkit is the primary resource used to estimate lost productivity. Analysts first established the value of work productivity per FEMA's methodology:

$$Loss\ of\ Work\ Productivity = (EC_{NA} \times H_{NA}) \times 25.5\%$$

Where

EC_{NA}: Average Employment Compensation

H_{NA}: Average Number of Hours Worked per Day

FEMA references Levinson et al (2010)[62] in which research was conducted using the World Health Organization's Mental Health Surveys in 19 countries; the study found that individuals in the United States with mental health illnesses experience as much as a 25.5% reduction in earnings. Using the above equation, analysts found the value of work productivity to be $1,767 per capita, monthly.

Analysts apply $1,767 to the amount of time lost productivity is expected to occur, 30 months. Prevalence factors from Schoenbaum (2009) are used to adjust the value of productivity loss over 30 months, to account for the fact that only a portion of the population will experience mental health impacts post-disaster. The prevalence factor is based on severe mental health issues because there is insufficient literature to document the impacts of mild/moderate mental health issues on productivity.[63] Accounting for prevalence, the value

60 Schoenbaum, Michael; Butler, Brittany; Kataoka, Sheryl; Norquist, Grayson; Springgate, Benjamin; Sullivan, Greer; Duan, Naihua; Kessler, Ronald; Wells, Kenneth. 2009. Promoting Mental Health Recovery After Hurricanes Katrina and Rita: What Can Be Done at What Cost. Archives of General Psychiatry, Vol. 66, #8, August 2009.

61 Insel, Thomas. Assessing the Economic Costs of Serious Mental Illness. American Journal of Psychiatry. 165:6 June 2008. / Kessler et al. Individual and Societal Effects of Mental Disorders on Earnings on the United States: Results from the National Comorbidity Survey Replication. American Journal of Psychiatry. 165:6. June 2008.

62 Levinson, et al. 2010. Associations of Serious Mental Illness with Earnings: Results from the WHO World Mental Health Surveys. British Journal of Psychiatry. August; 197(2): 114–121. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2913273

63 FEMA. 2014. Updated Social Benefits Methodology Report. December 18.

of work productivity for 30 months is $3,394 per capita. This value is applied to the number of wage-earning residents who will experience flooding to value productivity losses avoided.

Casualties

Casualties, which include loss of life and injuries, are an unfortunate risk inherent to hazard events. Flood events are considered some of the most frequently occurring natural hazards, contributing to 44% of natural hazard-related fatalities worldwide. The approach chosen to estimate reduced fatalities within the project area is based on a study completed by the BRNO University of Technology in 2013.[64] Through this approach, analysts consider the number of fatalities expected at different flood scenarios. Additional data required to supplement the BRNO approach include standard life safety values from the Federal Aviation Administration (FAA): the FAA's Willingness to Pay value for one fatality is $5.8 million. Casualties also includes injuries related to identified flood events. In October 2014, the CDC published another report titled "Nonfatal Injuries 1 Week after Hurricane Sandy." The report suggests that 10.4% of residents in the inundation zone were injured within the first week after Hurricane Sandy, mostly during attempts to evacuate or navigate and clean up debris.

Injuries

To quantify the value of injuries, analysts developed the below equation based on the CDC study titled "Deaths Associated with Hurricane Sandy". It is assumed that all injuries reduced are categorized as FAA AIS1 minor injuries. This injury category is the lowest value within the FAA study ($13,590) allowing for a conservative analysis of injuries associated with a flood event.[65] The US Census Bureau American Community Survey provided the population in the study area. The impacted population is considered those that experience greater than one foot of flooding.

$$Value\ of\ Injuries = (Population) \times 10.4\% \times \$13{,}590$$

Fatalities

The BRNO University of Technology approach is based on three main factors: material loss (in dollars), population preparedness, and warning. The relationship of these factors is expressed in the equation presented below. There are additional factors that are important to consider in estimating the loss of life in a natural hazard event. Nevertheless, factors such as debris, climatic conditions, water quality, and time of day, were not available for analysis due to a lack of data.

[64] Brazdova, M. and J. Riha. 2014. A simple model for the estimation of the number of fatalities due to floods in central Europe. Nat Hazards Earth Syst Sci. 14. June 12.
[65] Value normalized to 2016 dollars.

The equation for fatality estimates is presented below:

$$LOL = 0.075 \times D^{0.384} \times (P + 2)^{-3.207} \times (W + 2)^{-1.017}$$

Where:

LOL: Loss of Life

D: Material Loss ($)

P: Population Preparedness (aggregated population preparedness factors)

W: Warning (factor-based)

D Factor: The D factor (material loss) consists of building damage and contents loss; both values are determined through the approach described in estimating direct physical damages. For the purposes of this analysis, only structure and contents damage for residential structures are evaluated for the appropriate flood scenarios. Analysts assumed these losses reflect both the destructive ability of the event and the number of endangered inhabitants. Damage to constructed assets, such as roads or utility systems, are not considered.

P Factor: The P Factor (population preparedness) expresses the preparedness of the community for flood management and resiliency, and is intended to reflect the population's general awareness of flooding and required preparations. This value is determined by rating eight sub-factors on a scale of -1 to 1. Because of the frequency and amount of flood prevention and awareness activities present in Bridgeport, analysts assumed that the same P sub-factors apply for all flood scenarios.

W Factor: The W factor (warning) includes factors that influence warning of the community that an event is forecasted. The contributing factors include a hydrological forecast, the type of warning system employed, the speed of flooding, and the rate of water level rise; as these factors are somewhat based on the frequency and extent of flooding, the W Factor is evaluated for the identified flood scenarios. For factor W4, water rise rates were determined based on event data.

Loss of life is then obtained by placing all determined factor values (D, P, and W) into the previously mentioned equation. The benefits associated with avoiding these fatalities can be calculated using Federal Aviation Administration (FAA) Willingness to Pay values for a fatality ($5.8 million).

RESILIENT
BRIDGEPORT

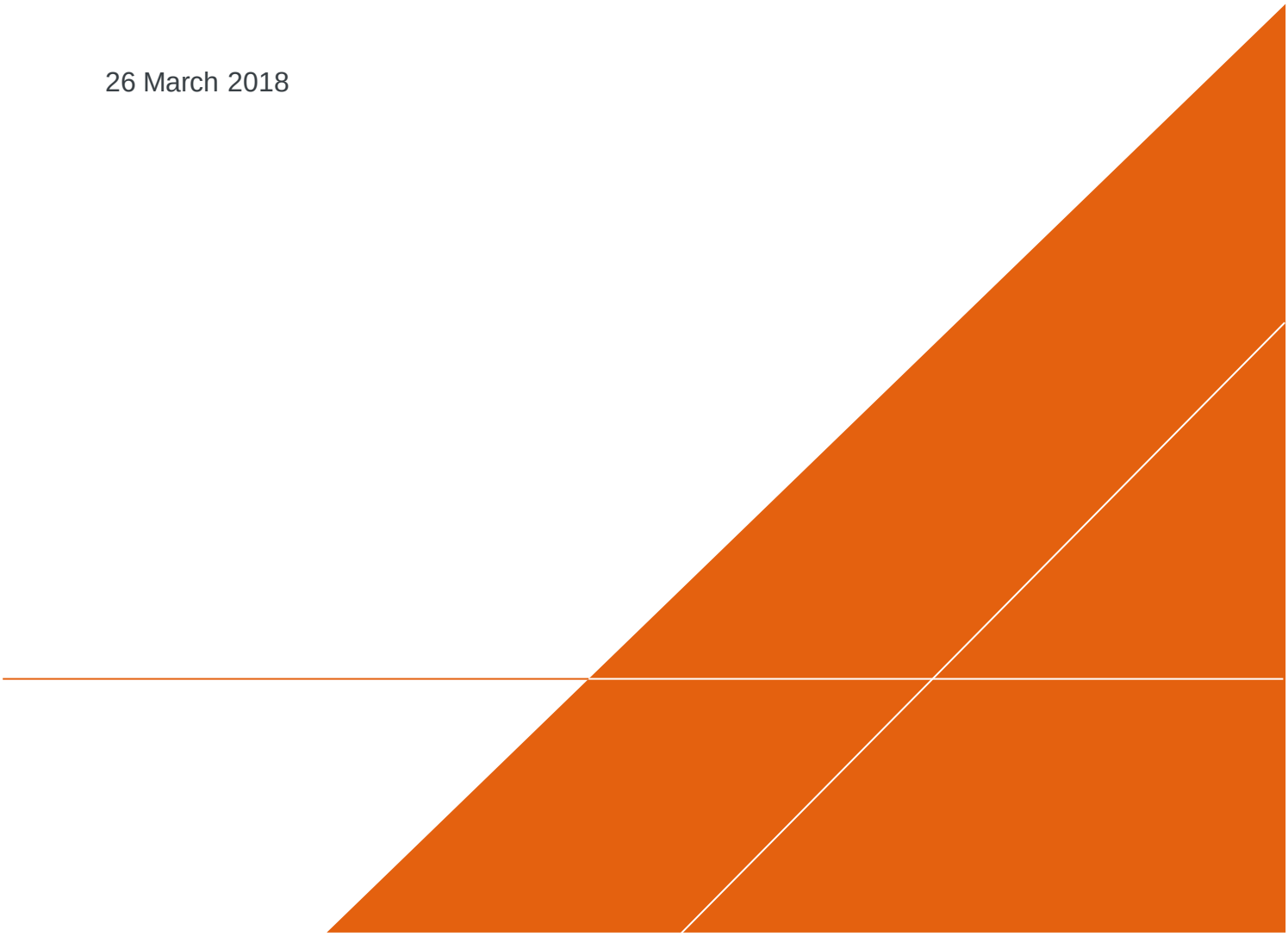
Resilient Bridgeport Benefits Summary
(March 26, 2018)

ARCADIS Design & Consultancy for natural and built assets

RESILIENT BRIDGEPORT

BENEFITS SUMMARY

26 March 2018



BENEFITS SUMMARY

Project Identification And Benefit Synopsis

Prepared for:
Connecticut Department of Housing

Prepared by:
Arcadis U.S., Inc.

Our Ref.:
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March 26, 2018

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CONTENTS

TABLES

FIGURES

1 INTRODUCTION

The Connecticut Department of Housing (CT DOH) was awarded $10 million to Bridgeport, Connecticut to reduce flood risk for the most vulnerable public housing stock in Bridgeport – specifically to continue planning and evaluation of long-term resilience strategies, as well as to design a pilot project aimed at alleviating acute and chronic flooding in Bridgeport's South End. This document aims to quantify and qualify the benefits that can be realized in each neighborhood within the South End by implementing aspects of the long-term strategy, as presented in the Resilient Bridgeport Design Strategies document. This document serves also aims to synthesize the processes used in determining the benefits of the potential future projects and summarize the individual neighborhood benefits provided that would offer the greatest return on investment (ROI). This summary document supplements the **Benefits Report** and includes the following principal sections:

- **Section 2: Overall Strategy Objectives** includes a description of the overall strategy objectives and outcomes for the Resilient Bridgeport long-term strategy
- **Section 3: Benefit Analysis Summary and Overview** briefly identifies the project benefits captured, a description of the individual benefits, and the sources used to develop these methodologies.
- **Section 4: Neighborhood Targets and Benefits Analysis** provides a synopsis of project neighborhoods, strategy elements to be utilized, and the benefits gained from implementing the strategy layers in each neighborhood.
- **Section 5: Project Benefit Calculation Assumptions** describes the assumptions made by the benefits analyst and provides a first order benefit estimate.

It is important to note that this first order benefits summary is largely based on existing conditions, and all calculations documented herein are based on the alignments and conceptual drawings illustrated in the Resilient Bridgeport Design Strategies document. This document does not explore other potential project opportunities, and, if the strategies or sub-projects were to change, the benefits would need to be recalculated. Moreover, the analysis assumes that the entire risk reduction system (starting in Downtown, continuing south to South End East, heading west to South End West, and circling around Black Rock / West Side to tie into Fairfield Avenue) would be realized in order for the benefits of flood risk reduction to be realized. This not only includes the flood defense elements, such as floodwalls and levees, but also the necessary interior drainage improvements to manage any overtopping, seepage, and contributions from groundwater.

2 OVERALL STRATEGY OBJECTIVES

The resilient strategies are a comprehensive, multi-layered approach to reduce flood risk, enhance quality of life, and inspire economic revitalization. These five strategies work together, addressing distinct aspects of acute and chronic flood risk, and include:

- **Restore the Edge**, which aims to create or enhance natural systems that provide flood risk reduction and ecosystem services;
- **Adapt to Rising Seas**, which aims to develop an integrated flood risk reduction system that will reduce risk from coastal flooding from Long Island Sound and rising seas;
- **Delay and Convey Stormwater**, which aims to addresses chronic flooding from rainfall events, as well as separate portions of Bridgeport's stormwater system from the combined sewer system;
- **Access and Egress**, which aims to provide Bridgeport's residents with dry egress out of high risk coastal flood areas and is intended to spur redevelopment and economic activity by enhancing connections between people, businesses, and the coast;

- **Make Power Local**, which supports the creation of district scale microgrids to provide backup power for critical facilities and support sustainable energy production.

The Project Team has designed the resilient strategies to be a proof of concept for broader resilience principles within Bridgeport and the region. The goal is to ultimately develop, prioritize, and implement a comprehensive, long-term strategy for Bridgeport through these five primary layers that would result in substantial flood risk reduction for the South End and facilitate economic revitalization.

3 BENEFIT ANALYSIS SUMMARY

As part of the long-term strategy design process, the Project Team has completed a benefit analysis to evaluate the Resilient Bridgeport strategy at its current level of design in each neighborhood. The benefit analysis assesses resilience, social, environmental, and economic benefits that will result from the implementation of each neighborhood's project implementation.

The Project Team considered two broad categories in the benefit development: Resilience Benefits and Added Value Benefits. Resilience Benefits consist of estimated flood impacts to structures, roads, and the population. Value Added Benefits consist of additional benefits beyond flood protection, such as environmental, aesthetic and recreational benefits. **Table 1** below provides a breakdown of benefit categories, benefits calculated, and description of the benefit.

Table 1. Summary of Resilience and Added Value Benefits

Benefit Category	Benefits Captured	Description
Resilience Benefits		
Resilient Redevelopment		
Direct Physical Damages	- Structure Damage - Content Loss	Analysts applied USACE depth-damage functions (DDFs) to structures in the project area. DDFs consider the type of structure, replacement values, and expected flood depth within the structure to estimate the dollar value of contents loss or structure damage.
Displacement Costs	- Relocation Costs	Displacement occurs as a direct result of the threat and impact of flood events. Displacement within this BCA is a function of direct physical damage and flood depth and is based on FEMA and USACE source material.
Mental Stress and Anxiety	- Mental Health Costs	Natural disasters threaten or cause the loss of health, social, and economic resources, which can lead to psychological distress. Methodologies used to calculate expected benefits for mental stress are a product of expected flood depth and damage to people's homes.
Loss of Productivity	- Lost Work Productivity	Loss of productivity can occur during and after a storm event. Analysts expect that the long-term strategy will reduce the number of stressors caused by natural disasters, thereby reducing mental health impacts and lost work productivity.

Resilient Bridgeport, Benefits Summary – Rebuild by Design Analysis

Benefit Category	Benefits Captured	Description
Dry Egress		
Evacuation/ Roadway Loss of Service Impacts	- Additional Time Travelled in Miles	Analysts used a FEMA methodology to evaluate the loss of function of a roadway which serves as an evacuation route with no available detour. This methodology is based on the number of vehicles, additional travel time, and additional miles travelled, and is modified per FEMA guidance to reflect an evacuation scenario.
Casualties	- Loss of Life - Injuries	Casualties are an unfortunate risk inherent to hazard events. Methodologies to estimate avoided casualties are based on flood depth and damage to homes and are based on FEMA approved methods, as well as a study by the United States Center for Disease Control (CDC) post-Hurricane Sandy.
Value Added		
Social Value		
Recreation Benefits	- Increased Recreation Opportunity	Recreational benefits are based on added public amenities. There is willingness to pay values associated with these amenities for both recreational benefit and aesthetic values. Analysts used federally approved willingness to pay values to estimate recreation benefits.
Aesthetic Benefits	- Increased Willingness to Pay	Benefits are based on added public amenities and increased natural vegetation. Analysts used FEMA's Final Sustainability Benefits Methodology Report to value the aesthetic benefit of specific park improvements and USDA values to estimate aesthetic benefits of trees
Environmental Value		
Ecosystem Goods and Services Benefits	- Water Quality - Air Quality - Climate Regulation - Energy Savings	Green spaces, trees, and shrubs benefits include improved water and air quality, and support climate regulation. There are several ways to quantify environmental benefits provided by natural vegetation depending upon the good or service being evaluated.
Combined Sewer Overflow Reduction Benefits	- CSO Reduction	A benefit of this project is the ability to retain stormwater, preventing it from entering the combined sewer system, and ultimately entering Long Island Sound untreated. By increasing the ability to store and treat stormwater more systematically, Bridgeport will see an added benefit of lower frequency CSO events.
Economic Value		
Economic Revitalization Benefits	- New Employment - Economic Outcome	Economic gains are based on the estimated addition of commercial space. Analysts utilized methods based on FEMA's Hazus-MH 3.2 software and local economic data.

The first order benefits analysis presented herein focused primarily on the Resilience Benefits in each neighborhood, as these benefits can be captured without a fully designed project in mind. These benefits still provide a clear understanding of the potential losses and damages that could be prevented should the current strategy be pursued. While preliminary "Value Added" benefits were included in the analysis based on the generalized makeup of the five primary layers and the available preliminary conceptual information (e.g., amount of new wetlands that would be created), a thorough analysis requires a greater level of detail regarding specific square footages of measures to be implemented (i.e. number of new trees that would be planted, square footage of new sidewalk that would be added, amenities that could be incorporated into flood risk reduction structures, etc.). A more robust discussion about these benefits is presented in the **Benefits Report**, and a first order calculation is presented herein.

It also should be noted that though Value Added benefits are important to capture, as those benefits comprised approximately 15 percent of the overall benefits calculated within the RBD Pilot Project analysis. The initial analysis of Value Added Benefits described within is intended to principally represent their likely contribution to total benefits, but these benefits should be evaluated further as design of projects within the long-term strategy advance.

The benefits generated for this analysis are illustrated herein in two ways: annualized benefits and present value of benefits. To obtain annualized Resilience Benefits, the benefits analysis evaluates losses avoided for certain, expected flood events and normalizes those results to communicate risk, which is the product of flood-related loss and annual probability of exceedance.[1,2] Similarly, to calculate the present value of those benefits, the Project Team applied a discount rate to annual benefits expected over the life of the project (50 years). The benefits analysis for the Bridgeport Strategy includes a discount rate to account for the fact that investors and federal agencies value cost savings in several decades' time at a lower rate than cost savings today. The Federal Office of Management and Budget (OMB) requires a discount rate of 7 percent, but HUD also considers a 3 percent discount rate for review per HUD Notice: CPD-16-06. Accordingly, both 7 percent and 3 percent are considered.

4 COST OVERVIEW

To translate the benefits analysis into a benefit-cost analysis (BCA), a project cost is needed to compare to the benefits. Costs incorporated into the BCA would need to include all project life-cycle costs, or costs incurred over the life of the project. Such costs include capital costs and operations and maintenance (O&M) costs. In an effort to quantify a capital cost that could be justified in each region, net present value was calculated.[3] The same respective discount rate that was employed in calculating the benefits was used when calculating the justified cost (i.e., 3 and 7 percent). In addition, the project was assumed to have a capital expenditure in year 0, and then a consistent, annual O&M cost equal to 3 percent of the capital expenditure over the project useful life (i.e., in years 1-50). From there, the capital cost in year 0 and the O&M were annualized based upon the net present value of the benefits. It is important to note that, for the purposes of this first order calculation, it was assumed that all construction would take place in year 0 and escalation and inflation were not considered. In addition, this capital cost is intended to provide an overall range of the level of investment that could be justified in each neighborhood based upon the Resilience and Value Added Benefits calculated for the long-term strategy.

[1] Annual exceedance probability refers to the percent chance of an expected flood event being met or exceeded in any given year.

[2] It is important to note that anticipated sea level rise (SLR) projections were used only in the development of dry egress benefits as the design elevation of the roadway is at or above the 500-year flood elevation plus projected SLR.

[3] Justified, for the purposes of a benefit cost analysis (BCA), means that the benefit cost ratio (BCR) is equal to 1 and therefore the benefits are equal to the investment over the project's design life

Additional benefits could be realized based upon new additions to the scope of the long-term strategy, which, in turn, would justify higher capital expenditures.

A discussion of the adequacy of the anticipated capital cost per neighborhood to implement the long-term strategy is presented herein. However, it is important to note that this exercise did not attempt to cost the long-term strategy that is illustrated in the Resilient Bridgeport Design Strategies Report. At this current stage of conceptual design, there is limited information regarding existing conditions and technical analyses to produce a first cost estimate that could be confidently used for future planning and costing exercises. Rather, as design of the long-term strategy is advanced, cost estimates should be developed based upon updated information. For reference, parametric costs for program elements is shown in Table 2, and, for additional information on these elements please, see the **Costing Report.**

Table 2: Parametric Unit Costs Summary (numbers extracted from Costing Report)

Measure	Unit*	Low Estimate (USD)	High Estimate (USD)
Levee	LF	1,050	2,500
Floodwall	LF	3,500	9,500
Timber Bulkhead	LF	3,500	4,300
Steel Bulkhead	LF	6,000	10,000
Living Shoreline	LF	900	7,000
Street Raising	LF	2,050**	
Storm Surge Barrier	EA	55	150
Oyster Reef (100-ft wide)	LF	3,000	3,500
Wetlands	AC	30,000	84,000
Bioretention Plantings (soil and seed)	CY	25	30
Rain Gardens	SF	45	50
Permeable Pavement	SF	7	10
Engineered Soil	CY	45	50
Detention Pond	SF	6	7
Generic Plantings	SF	20	25
Generic Trees	EA	300	350

**Note: LF = Linear Foot, EA = Each, SF = Square Foot, AC = Acre, and CY = Cubic Yard.*

*** Only one estimate for street raising was employed*

5 NEIGHBORHOOD BENEFITS AND COST CALCULATIONS

To supplement the benefit analysis that was completed for the Bridgeport, Connecticut long-term strategy, the Project Team has also parsed out a first order benefits analysis for four neighborhoods contained within the strategy (Figure 1): 1) Black Rock / West Side; 2) South End East; 3) South End West; and, 4) Downtown.

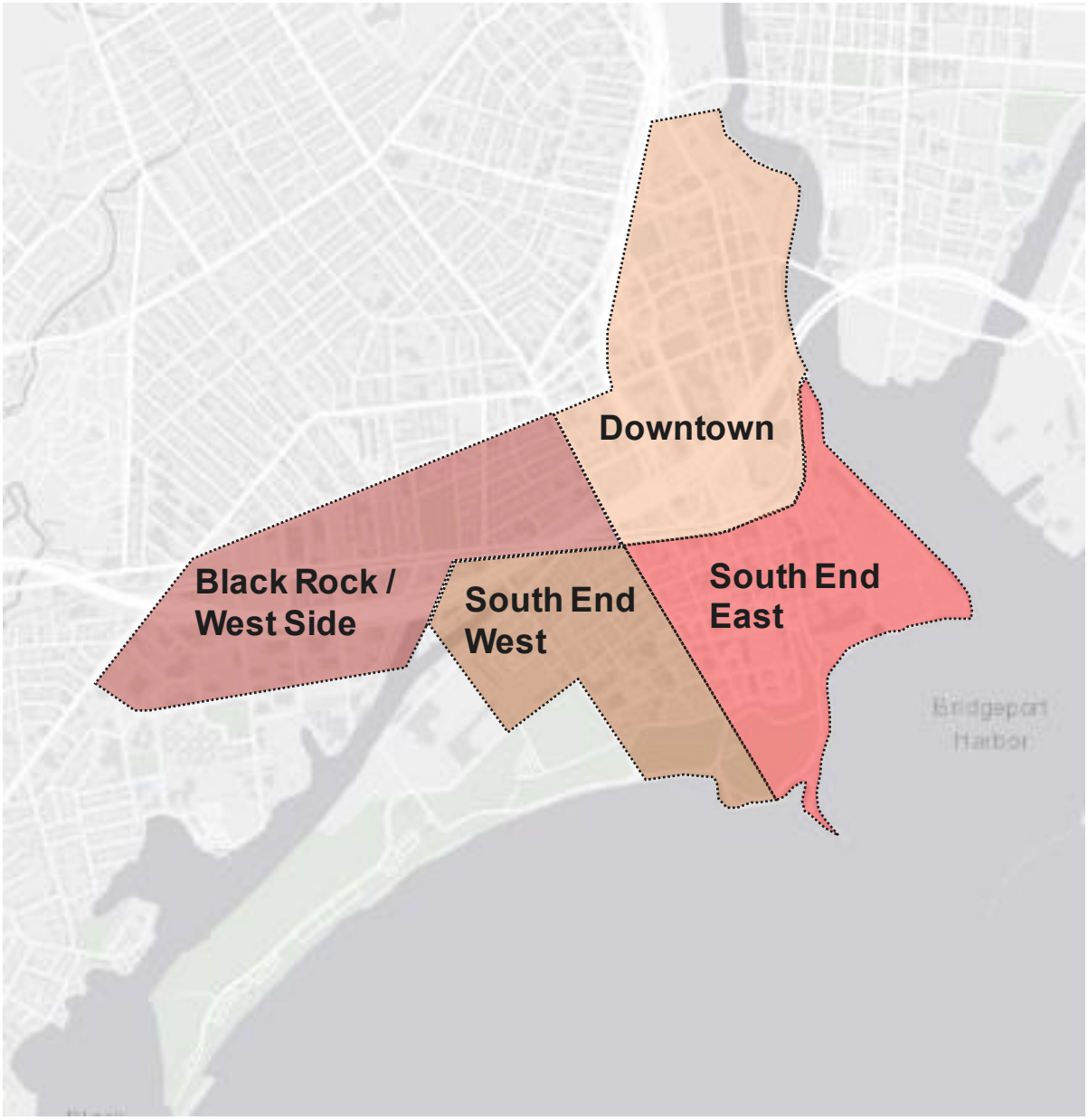

Figure 1: Neighborhood Boundaries for Benefits Analyses

Black Rock / West Side

A summary of the Resilience and Value Added Benefits are presented in Table 3. Based on the benefitting region and the first order benefits analysis, a project with a present value of approximately 3.6 – 6.6 million 2018 USD could be justified.[4] Using an annual O&M of 3% of the capital project and a 50-year project life, this equates to a first cost of approximately 2.5 to 3.7 million 2018 USD (for a discount rate of 7 and 3 percent, respectively).

The majority of the Resilience Benefits for Black Rock / West Side are based on an assumption that a series of measures, largely a raised road that would run from Cedar Creek to Fairfield Avenue, would be implemented. However, based upon the area plans in the Resilient Bridgeport Design Strategies document, as well as parametric costs from the Costing Report, the Project Team believes that projects, like those outlined in the long-term strategy, would not be cost beneficial at this time; a BCR less than 1.0 is expected in this area based on the current neighborhood conditions and general expected costs associated with the types of strategies proposed.

Table 3. Summary of Resilience and Value Added Benefits – Black Rock / West Side

Benefit	Annualized Benefit (USD)	Present Value (7% Discount Rate) (USD)	Present Value (3% Discount Rate) (USD)
Resilience Benefits			
Resilient Redevelopment			
Direct Physical Damages	150,900	2,083,100	3,883,700
Displacement	1,200	17,200	32,100
Mental Stress and Anxiety	2,500	36,500	65,800
Lost Productivity	1,500	22,700	41,000
Dry Egress Value			
Evacuation / Roadway Loss of Service	7,200	99,300	185,200
Casualties	1,100	15,700	29,200
Value Added Benefits			
Social Value			
Recreation Benefits	2,300	31,100	57,900
Aesthetic Benefits	1,100	14,600	27,200
Environmental Value			
Ecosystem Goods and Services Benefits	71,800	990,900	1,847,500
CSO Reduction Benefits	800	11,400	21,300
Economic Value			
Economic Revitalization Benefits	18,400	253,300	472,200
Total Project Benefits	**258,800**	**3,575,800**	**6,663,200**

[4] "Justified" means the project, as described in the Resilient Bridgeport long-term strategy, would have a BCR equal to 1. A BCR equal to 1 is necessary to justify the public expenditure.

South End West (RBD)

A summary of the Resilience and Value Added Benefits are presented in Table 4. Based on the benefitting region and the first order benefits analysis, a project with a present value of approximately 18 – 34 million 2018 USD could be justified.[5] Using an annual O&M of 3% of the capital project and a 50-year project life, this equates to a first cost of approximately 13 to 19 million 2018 USD (for a discount rate of 7 and 3 percent, respectively).

The majority of the Resilience Benefits for South End West are based on an assumption that a series of measures, largely comprising floodwalls near industrial areas and levees/berms in Seaside Park, would be implemented. Based upon the area plans in the Resilient Bridgeport Design Strategies document, parametric costs from the Costing Report, as well as the information the Project Team currently has about site conditions, it is possible that the project is justifiable from a benefit cost basis. However, the project in South End East (i.e., the NDRC grant funded portion of Resilient Bridgeport) should be tracked closely, as many of the key takeaways regarding subsurface conditions and constructability will be similar in the South End West and will impact both the technical and cost feasibility of implementing the long-term strategy.

Table 4. Summary of Resilience and Value Added Benefits – South End West (RBD)

Benefit	Annualized Benefit (USD)	Present Value (7% Discount Rate) (USD)	Present Value (3% Discount Rate) (USD)
Resilience Benefits			
Resilient Redevelopment			
Direct Physical Damages	1,100,200	15,183,100	28,306,900
Displacement	8,800	120,800	225,300
Mental Stress and Anxiety	36,800	544,100	982,600
Lost Productivity	22,900	338,600	611,500
Dry Egress Value			
Evacuation / Roadway Loss of Service	7,700	106,500	198,600
Casualties	16,900	233,900	436,100
Value Added Benefits			
Social Value			
Recreation Benefits	5,900	81,100	151,200
Aesthetic Benefits	1,000	13,700	25,500
Environmental Value			
Ecosystem Goods and Services Benefits	92,600	1,278,400	2,383,500
CSO Reduction Benefits	800	11,400	21,300
Economic Value			
Economic Revitalization Benefits	10,200	141,400	263,700
Total Project Benefits	**1,303,800**	**18,053,000**	**33,606,100**

[5] "Justified" means the project, as described in the Resilient Bridgeport long-term strategy, would have a BCR equal to 1. A BCR equal to 1 is necessary to justify the public expenditure.

South End East (NDRC)

A summary of the Resilience and Value Added Benefits are presented in Table 5. Based on the benefitting region and the first order benefits analysis, a project with a present value of approximately 44 – 81 million 2018 USD could be justified.[6] Using an annual O&M of 3% of the capital project and a 50-year project life, this equates to a first cost of approximately 31 to 46 million 2018 USD (for a discount rate of 7 and 3 percent, respectively).

The majority of the Resilience Benefits for South End East are based on an assumption that a series of measures, largely comprising floodwalls encompassing the Energy Corridor and a raised road along University Avenue, would be implemented.[7] Based upon the area plans in the Resilient Bridgeport Design Strategies document, as well as parametric costs from the Costing Report, the Project Team believes that, from a benefit cost basis, it is possible to justify the implementation of the risk reduction measures and drainage infrastructure improvements to realize the long-term strategy.

Table 5. Summary of Resilience and Value Added Benefits – South End East (NDRC)

Benefit	Annualized Benefit (USD)	Present Value (7% Discount Rate) (USD)	Present Value (3% Discount Rate) (USD)
Resilience Benefits			
Resilient Redevelopment			
Direct Physical Damages	2,778,500	38,344,900	71,489,200
Displacement	56,200	775,700	1,446,200
Mental Stress and Anxiety	120,500	1,783,700	3,221,200
Lost Productivity	75,000	1,110,000	2,004,700
Dry Egress Value			
Evacuation / Roadway Loss of Service	6,800	93,600	174,500
Casualties	55,600	766,800	1,429,600
Value Added Benefits			
Social Value			
Recreation Benefits	5,100	69,800	130,200
Aesthetic Benefits	1,000	14,400	26,900
Environmental Value			
Ecosystem Goods and Services Benefits	57,400	792,500	1,477,400
CSO Reduction Benefits	800	11,400	21,300
Economic Value			
Economic Revitalization Benefits	1,400	19,900	37,100
Total Project Benefits	**3,158,300**	**43,782,700**	**81,458,300**

[6] "Justified" means the project, as described in the Resilient Bridgeport long-term strategy, would have a BCR equal to 1. A BCR equal to 1 is necessary to justify the public expenditure.

[7] Benefits calculated include PSEG, Emera and United Illuminating Company ("UI")

Downtown

A summary of the Resilience and Value Added Benefits are presented in Table 6. Based on the benefitting region and the first order benefits analysis, a project with a present value of approximately 17 – 31 million 2018 USD could be justified.[8] Using an annual O&M of 3% of the capital project and a 50-year project life, this equates to a first cost of approximately 12 to 17 million 2018 USD (for a discount rate of 7 and 3 percent, respectively).

The majority of the Resilience Benefits for Downtown are based on an assumption that a series of measures, largely comprising surge risk reduction features to be determined at a later stage of design, would be implemented. Based upon the area plans in the Resilient Bridgeport Design Strategies document, parametric costs from the Costing Report, as well as the information the Project Team currently has about site conditions, it is possible that the project is justifiable from a benefit cost basis. However, the project in South End East (i.e., the NDRC grant funded portion of Resilient Bridgeport) should be tracked closely, as many of the key takeaways regarding subsurface conditions and constructability will be similar in Downtown and will impact both the technical and cost feasibility of implementing the long-term strategy.

Moreover, whether the project has a BCR greater than or equal to 1 is also dependent upon the flood risk reduction measures implemented – for example, a levee typically costs less to implement than a floodwall. These cost considerations versus site conditions should be evaluated as the design of the long-term strategy advances.

Table 6. Summary of Resilience and Value Added Benefits – Downtown

Benefit	Annualized Benefit (USD)	Present Value (7% Discount Rate) (USD)	Present Value (3% Discount Rate) (USD)
Resilience Benefits			
Resilient Redevelopment			
Direct Physical Damages	1,139,100	15,720,800	29,309,500
Displacement	38,600	532,400	992,600
Mental Stress and Anxiety	0	0	0
Lost Productivity	0	0	0
Dry Egress Value			
Evacuation / Roadway Loss of Service	200	2,200	4,000
Casualties	0	0	0
Value Added Benefits			
Social Value			
Recreation Benefits	1,100	15,800	29,500
Aesthetic Benefits	200	3,000	5,500
Environmental Value			
Ecosystem Goods and Services Benefits	18,500	255,100	475,500
CSO Reduction Benefits	800	11,400	21,300
Economic Value			
Economic Revitalization Benefits	6,500	89,800	167,400
Total Project Benefits	**1,205,000**	**16,630,400**	**31,005,300**

[8] "Justified" means the project, as described in the Resilient Bridgeport long-term strategy, would have a BCR equal to 1. A BCR equal to 1 is necessary to justify the public expenditure.

Summary

A summary table that documents the justified first cost and the present value of benefits is presented below. Overall, to implement the long-term strategy, a first cost of 59-86M USD could be justified to obtain benefits between 83-153M USD. Based upon the area plans in the Resilient Bridgeport Design Strategies document, as well as parametric costs from the Costing Report, the Project Team believes that it is best to prioritize investments in the South End West, South End East, and Downtown neighborhoods. While it may be possible to implement the risk reduction measures, drainage infrastructure improvements, and ecological enhancements, additional funds are likely needed to support the full build-out of the long-term strategy.

Table 7. Summary of Justified First Cost and Present Value of Benefits per Neighborhood

Neighborhood	Justified First Cost (M USD)		Present Value of Benefits (M USD)	
	7% Discount Rate	3% Discount Rate	7% Discount Rate	3% Discount Rate
Black Rock Harbor / West Side	3	4	3.6	6.6
South End West (RBD)	13	19	18	34
South End East (NDRC)	31	46	44	81
Downtown	12	17	17	31
Total	**59**	**86**	**83**	**153**

6 ASSUMPTIONS

The following assumptions have been made in order to determine the Study Area benefit calculations:

- **Resilience Benefits** are based on structures identified within the floodplain up to the 1% Annual Chance (100 Year) Event. The calculated losses avoided do not take into account any structures located within the 0.2% Annual Chance (500 Year) Event.
- **Value Added Benefits** are based on square footages and alignments of amenities identified within the Bridgeport, Connecticut Strategy document.
- **Resilience Benefit: Dry Egress -** This FEMA methodology is centered around the value of time, which is described in FEMA's Benefit Cost Analysis Re-engineering Guide, Development of Standard Economic Values report. In summary, analysts evaluate additional travel time needed for an alternative travel route because floodwaters inundate a roadway. Analysts reviewed the FEMA flood zones to determine whether the project area residents would have an evacuation route available that would not be inundated during a 100-year flood event. Analysts found there is no evacuation route in this scenario. When no alternative route is available, FEMA uses a delay time of 12 hours as a standard value.
- **Social Value: Recreation –** To calculate this value and remain conservative, analysts used the low value methodology described within the RBD Pilot Project Benefit Cost Analysis Methodology Report. This methodology uses a 0.13 per square foot multiplier to calculate recreational benefits. Additionally, recreational benefits were calculated using existing parks and stormwater parks only because projects have not yet been fully developed and estimates of square footages to be added per amenity have not yet been determined.
- **Social Value: Aesthetic –** To calculate this value and remain conservative, analysts used square footages of the properties contained within the floodplain and considered to be "impacted" should the Resilient Bridgeport floodwall alignment strategy be utilized. Furthermore, a value of 0.04 per square foot was used to determine an increase in property value for these impacted properties based on information contained within the FEMA Final Sustainability Report.
- **Environmental Value: CSO Reduction -** The City has developed a Long-Term Control Plan to reduce the frequency of CSO events. The Plan reveals it will cost the City 384,900,000 over 30 years to reduce CSO output by 43 million gallons. Given this information, analysts generated a damage cost for CSO abatement: 0.29 per gallon per year. Analysts modeled CSO reduction and applied the damage cost to the total volume of CSO reduction to estimate water quality benefits.
- **Environmental Value: CSO Reduction –** For the purposes of this analysis, the CSO reduction benefits have been evenly divided by the four neighborhoods to prevent duplication of benefits.
- **Environmental Value: Ecosystem Goods and Services –** To calculate this value, analysts assumed that all wetland and riparian areas surrounding the project area including Black Rock Harbor and Bridgeport Harbor area would be repaired and restructured. While Added Value Benefits can also be captured for certain additions (trees, parks, green spaces, etc.) and subtractions (reduction in impervious surfaces), analysts did not have the necessary information to complete this in-depth analysis as projects within the strategy have not yet been defined and scoped.
- **Economic Value: Economic Revitalization -** Waggonner & Ball assisted with the generation of building square footage calculations to support this benefits calculation. For each region, building

footprint square footage was pulled directly from the area plan drawings and represents only one potential build-out scenario. The values used are highly conceptual and based off very broad assumptions about redevelopment potential:

- South End West: assumes 2 stories of commercial on the current Sikorsky Site, 1 story elsewhere
- South End East: assume 1 story of commercial in mixed use buildings
- Downtown: assumes a mix of 1 story and 3 stories of commercial space. As there were no buildings added in the denser blocks of downtown, it was assumed no new building was taller than 3 stories.
- Black Rock / West Side: assumes 1 story of commercial; however, some of the new footprints are located on site where there is currently an active business or warehouse. The Project Team anticipates this zone transitioning to the eco-technology park.

Present Value – Present value calculations assume a first cost in year 0 and 50 identical periods for annual operation and maintenance costs over the assumed design life of the project.

ARCADIS Design & Consultancy for natural and built assets

APPENDIX J

8-Step Decision-Making Process for Executive Order 11988

EXECUTIVE ORDER 11988 - FLOODPLAIN MANAGEMENT

8-STEP DECISION-MAKING PROCESS FOR EXECUTIVE ORDER 11988

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

COMMUNITY DEVELOPMENT BLOCK GRANT - DISASTER RELIEF (CDBG-DR) PROGRAM

Resilient Bridgeport: National Disaster Resilience and Rebuild by Design Projects

Step 1: Determine whether the proposed action is located in the 100-year floodplain (or a 500-year Floodplain for critical actions) or wetlands.

The proposed federally-funded action (Resilient Bridgeport: National Disaster Resilience and Rebuild by Design Projects) is located within the 1 percent annual chance storm event, or 100-year floodplain. Approximately 265 acres of land within the Study Area are included within the FEMA 100-year flood zone, coastal AE zone (FEMA Flood Insurance Rate Maps (FIRM)). Of this, the Proposed Action would directly impact between approximately 4.1 acres of floodplain through the construction of a stormwater facility, placement of a coastal flood defense system with associated internal drainage management strategies, and development of a Resilience Center. Although stretches of estuarine and marine wetland are likely to occur along the study area's coastline and a small amount of freshwater emergent wetland is present at the southeastern corner of the study area, no wetlands would be impacted by the Proposed Action.

The three primary purposes for this notice are: 1) give an opportunity to people who may be affected by activities within the floodplains to express their concerns and provide information about these areas, 2) encourage commenters to offer alternative methods to serve the same project purpose, and methods to minimize and mitigate impacts, which may enhance Federal efforts to reduce the risks associated with the occupancy and modification of these special areas, 3) inform those who may be put at greater or continued risk that the Federal government will participate in actions taking place in floodplains.

Executive Order (EO) 11988 within HUD Regulations 24 CFR Part 55 details floodplain management. The purpose of EO 11988 is "to avoid to the extent possible the long and short term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative." An evaluation of direct and indirect impacts associated with construction, occupancy, and modification of the floodplain is required.

Currently the project has not started. Based on the activity being proposed, the project does not meet the exceptions at 24 CFR 55.12, and an 8-step analysis of the direct and indirect impacts associated with the construction, occupancy, and modification of the floodplain. This analysis will consider impacts to the floodplain, along with concerns for loss of life and property.

Step 2: Notify the public for early review of the proposal and involve the affected and interested public in the decision-making process.

The proposed federally-funded action (Resilient Bridgeport: National Disaster Resilience and Rebuild by Design Projects) is

located within the 100-year floodplain. The purpose of the Proposed Action is to reduce flood risk in the South End of Bridgeport, CT, thereby protecting critical infrastructure, residences, and businesses from both acute and chronic future flood events; therefore, per 24 CFR 55.2(b)(10)(i)(A)(2), early notice and public review of a proposed activity in a 100-year floodplain was published in local newspapers on February 1, 2019 as part of the Notice of Availability of the DEIS for a 45-day public comment period. Although the public did provide comments on the DEIS, no comments were received from the public regarding the early notice. Copies of the publications are provided in Appendix H of the FEIS.

In addition, notice was submitted to the United States Department of Housing and Urban Development (HUD), the Federal Emergency Management Agency (FEMA), the United States Environmental Protection Agency (EPA), the Connecticut Department of Energy and Environmental Protection (CTDEEP), the Connecticut State Historic Preservation Office (CTSHPO), the United States Army Corps of Engineers (USACE), the United States Fish and Wildlife Services (USFWS), the Connecticut Department of Transportation (CTDOT), the Delaware Nation, Oklahoma, the Delaware Tribe of Indians, the Mashantucket Pequot Tribal Nation, the Mohegan Tribe, and the Narragansett Indian Tribe.

Step 3: Identify and evaluate practicable alternatives to locating in the Floodplain or wetland.

The proposed federally-funded action (Resilient Bridgeport: National Disaster Resilience and Rebuild by Design Projects) is located within the 100-year floodplain. The purpose of the Proposed Action is to reduce flood risk in the South End of Bridgeport, CT, thereby protecting critical infrastructure, residences, and businesses from both acute and chronic future flood events. Due to the nature of the project, the Proposed Action is located within the floodplain.

Each project under the Proposed Action underwent an alternatives evaluation process through which alternatives selection criteria were developed and then used to comparatively screen potential alternatives (described in Chapter 3, Concept and Alternatives Development). Based on the analysis in the DEIS, a Preferred Alternative for each project under the Proposed Action was selected and is analyzed in the FEIS.

An iterative process of team workshops, public events, and stakeholder meetings guided the selection of the RBD Pilot Project. The original RBD Competition award was to reduce flood risk for the most vulnerable public housing stock in the city and to leverage other funding. A Substantial Amendment to the Action Plan served to identify the pilot project that would be constructed using RBD funds to "reduce flood risk to public housing in the City's South End / Black Rock Harbor area."[1] The primary objective of this project is to reduce the risk from chronic storm water flooding in the most vulnerable public housing stock in the city, Marina Village, and the surrounding neighborhood rather than from the acute flooding from coastal storm surge that occurs during extreme events.

The Flood Risk Reduction Project would include a combination of measures within eastern South End that would reduce the flood risk within the project area from future coastal surge and chronic rainfall events. The measures could include creating raised streets, coastal flood defense, landscaped berms, and both green and gray stormwater internal drainage management strategies. For the Proposed Action, raised streets were considered to provide dry egress and flood risk reduction when incorporated into a full coastal flood defense system. During the alternatives analysis, individual streets were examined for effectiveness for providing dry egress. However, for a raised street to provide dry egress, all or part of the street to be raised needs to be in the floodplain prior to raising. Of the raised street options considered only raising University Avenue with additional measures for stormwater management emerged as a viable alternative meeting the projects purpose and need. The alternatives screening process for the coastal flood defense system first

[1] Federal Register notice 79 FR 62182.

determined a general approach to the system, then identified potential flood reduction elements, screened potential alignment options against selected criteria, and then evaluated an envelope of alignment options in the DEIS. An envelope of north-south alignment options were evaluated in the DEIS, bound by an eastern and western option as the outer limits.

The Preferred Alternative (Alternative 1) and three additional alignment alternatives for the coastal flood defense system of the Flood Risk Reduction Project are carried forward for evaluation in the FEIS:

- Alternative 1: As with all alternatives, the Preferred Alternative would elevate University Avenue across the entrance to Seaside Park and meet 60 Main Street. The Preferred Alternative would continue across the site parallel to the shoreline to the eastern border, where it would turn south for a short distance before crossing to the east into PSEG's property and connecting to the elevated podium for PSEG's newly built Harbor Unit 5 (HU5) perimeter sheet pile wall. HU5 would provide the southeast corner of the coastal flood defense system, which would extend north from HU5's access road ramp on the northwest corner of the perimeter wall. The alignment would connect from the ramp over to Bridgeport Energy's eastern border north of Atlantic Street. This arrangement would provide dry egress to HU5 via Atlantic Street. The alignment would continue along the eastern border of Bridgeport Energy's site until it reaches the Pequonnock Substation relocation site, where it would continue north along the eastern property line of the site across Ferry Access Road with a northern tie-in at the elevated CTDOT New Haven Line railroad viaduct.
- Alternative 2: Alternative 2 would only partially pass through the 60 Main Street site before turning north to the east side of 57 Henry Street to meet up with Russell Street. The alignment would then follow the Bridgeport Energy property line to the east until Singer Avenue, then hug the western edge of the future UI Pequonnock Substation site before crossing Ferry Access Road and tying in the CTDOT New Haven Line railroad viaduct.
- Alternative 3: Alternative 3 would only partially pass through the 60 Main Street site before turning north to the east side of 57 Henry Street and would continue across Henry Street along the east side of Russell Street to Atlantic Street. The alignment would briefly run west along the north side of Atlantic Street before turning north along the eastern edge of the PSEG property, which is currently occupied by a brick warehouse, then crossing Whiting Street and continuing in the public right-of-way along the eastern edge of Singer Avenue. The alignment would hug the western edge of the future UI Pequonnock Substation site before crossing Ferry Access Road and tying in the CTDOT New Haven Line railroad viaduct.
- Alternative 4: Alternative 4 would reside primarily within the urban fabric of the South End community. The alignment would turn north within the 60 Main Street site to the east side of 57 Henry Street and would continue across Henry Street along the east side of Russell Street. After turning west at Atlantic Street, the alignment would continue on the east side of Main Street for one block between Atlantic and Whiting Streets heading north before turning east to Singer Avenue. Thereafter, the alignment would hug the western edge of the future site of the UI Pequonnock Substation, cross Ferry Access Road and tie in at the elevated CTDOT New Haven Line railroad viaduct.
- Under the No Action Alternative there would be no measures to address either coastal storm surge or rainfall flood risk reduction. In addition, there would be no measures to educate the public about flood risks or sea level rise.

All alternatives would be located within the 100-year floodplain, directly impacting a similar amount of land within the floodplain. The Preferred Alternative would remove the largest amount of area from risk from flooding (64 acres) and would provide dry egress to multiple utilities, as well as future development at 60 Main Street.

Considering the objectives, conceptual considerations, funds allocated, and community response, the following three Resilience Center sample projects were developed to test their feasibility, with each exploring a different scale of intervention:

- Decentralized network of data collection and information sharing stations aiming to encourage the community to associate with physical conditions throughout the community.
- Interior renovation of an existing building serving as a centralized place for the community to congregate.
- New building to serve as a centralized place for the community to congregate.

Based on the Action Plan for the National Disaster Resilience components of the Proposed Action, the Resilience Center is would fund the construction /rehabilitation of a primary and satellite design center connecting the South End East to downtown Bridgeport and unifying the Rebuild by Design effort to build a resilient Bridgeport.

The decentralized network option was eliminated from further consideration as it did not include a "community center." The options to provide a Resilience Center within an existing building or new building require identification of a sub-recipient. The Mary and Eliza Freeman Center for History and Community is a located on Main Street and has been designated to "America's 11 Most Endangered Historic Places" list by National Trust for Historic Preservation. The project would donate money to The Mary and Eliza Freeman Center to fund renovations of a community space within the Freeman Houses complex that would provide a location in the South End that would operate as a community center, a central location for resilience information dissemination, and a location that could store supplies to assist the community with recovery efforts during or after shock events. The Freeman Houses are located within the 100-year floodplain and the Resilient Bridgeport projects would help to reduce the vulnerability from future flooding events. In order to properly serve the South End community during future storm events, the Resilience Center would need to be located within or near the flood prone area. The project would also construct open-air landscaped site, including green infrastructure improvements, north of University Avenue at Main Street near the entrance to Seaside Park as part of the South End East Resilience Network.

Refer to Chapter 3 of the FEIS for detailed descriptions of each of the alternatives.

Step 4: Identify potential direct and indirect impacts associated with the occupancy or modification of floodplains and wetlands that could result from the proposed action.

The HUD-funded CDBG-DR program is intended to fund a broad range of activities to recover from declared disasters. The eligible activities include recovery efforts involving infrastructure and prevention of further damage. HUD's regulations limit what actions can be considered under the CDBG-DR program. Descriptions of the potential impacts to floodplain from the proposed action and alternatives are described below:

- RBD Pilot Project: temporary construction impacts; dry egress provided to future Windward Development, improving east-west neighborhood connectivity, and reduced flooding during chronic storm events
- Flood Risk Reduction Project: temporary construction impacts; dry egress provided to 60 Main Street, PSEG's Harbor Unit 5 and coastal flood defense to the Bridgeport Energy site and new Pequonnock Substation site; reduced flood risk to approximately 64 acres of land currently within the 100-year floodplain.
- Resilience Center: limited temporary construction impacts (no impacts to floodplains associated with the rehabilitation of the Freeman Houses)

Since the Study Area already is fully developed, many of the traditional approaches for minimizing and avoiding floodplain identified in the procedures of implementation of EO 11988 are not applicable to this Project. Best Management Practices (BMPs), good housekeeping practices, and adherence of any special conditions imposed by jurisdictional agencies will be utilized to minimize impacts to the floodplain and to restore and preserve natural and beneficial floodplain values after construction.

Refer to Chapter 4, Section 4.10 of the FEIS for detailed environmental impact analysis and mitigation measures for each of the projects and alignment alternatives as it pertains to floodplains.

Step 5: Where practicable, design or modify the proposed action to minimize the potential adverse impacts to lives, property, and natural values within the floodplain, and restore and preserve the natural and beneficial values served by floodplains and wetlands.

The proposed federally-funded action (Resilient Bridgeport: National Disaster Resilience and Rebuild by Design Projects) is located within the 100-year floodplain. The purpose of the Proposed Action is to reduce flood risk in the South End of Bridgeport, CT, thereby protecting critical infrastructure, residences, and businesses from both acute and chronic future flood events. Due to the nature of the project, none of the Build Alternatives are located outside of the floodplain. Based on the scope of the project, and the topography of the Study Area, the Proposed Action includes dry egress, stormwater management, and a coastal flood defense system to be constructed within floodplains. While a range of alternatives and options were considered to present varying degrees of flood risk reduction versus resulting environmental impacts, the Preferred Alternative would maximize the area of reduced flood risk, provide dry egress to the most number of facilities and provide the highest benefit to the community.

Step 6: Reevaluate the alternatives.

The purpose of the Proposed Action is to reduce flood risk in the South End of Bridgeport, CT, thereby protecting critical infrastructure, residences, and businesses from both acute and chronic future flood events; therefore, no reevaluation or redesign to avoid floodplains was completed. Based on the project purpose, and the resulting floodplain impacts (and other environmental resources impacts) from the Proposed Action, the Connecticut Department of Housing (CTDOH) has determined that the RBD Pilot Project, Alternative 1 of the Flood Risk Reduction Project, and the Resilience Center is the Preferred Alternative, and will minimize any potential adverse impacts through the use of BMPs, mitigation measures and adherence of any special conditions imposed by jurisdictional agencies.

Step 7: Issue findings and a public explanation.

A final public notice will be published in accordance with 24 CFR Part 55 for a minimum 30-day comment period. The notice shall state the reasons why the project must be located in the floodplain, provide a list of alternatives considered, and all mitigation measures to be taken to minimize adverse impacts and preserve natural and beneficial floodplain values. All comments received during the comment period will be responded to and fully addressed prior to funds being committed to the proposed project, in compliance with Executive Order 11988 or 24 CFR Part 55.

Step 8: Implement the Proposed Action

Step Eight is implementation of the proposed action. BMPs, mitigation measures and adherence of any special conditions imposed by jurisdictional agencies, will be incorporated into the proposed project to minimize any potential adverse impacts and to restore and preserve natural and beneficial floodplain values where possible. Implementation of the proposed action will require additional local and state permits, which could place additional design modifications or mitigation requirements on the project.