RESILIENT BRIDGEPORT
CLAIM THE EDGE, CONNECT THE CENTER

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The proposal combines natural and fortified solutions to facilitate more resilient forms of inhabitation in the places most at risk from severe storms. It asserts, too, that living and working along Connecticut's coastline and waterways is not only necessary, but that is possible to do so with an incremental and integrative approach that restores the environment, strengthens connectivity, enhances the regional economy, reduces long-term risk, and restores the centrality of the city's waterways and downtown to the city's identity.

In this way, Bridgeport can become a model for other cities along the Long Island Sound and throughout New England.

1 OVERVIEW

1.1 PROTOTYPE FOR THE REGION
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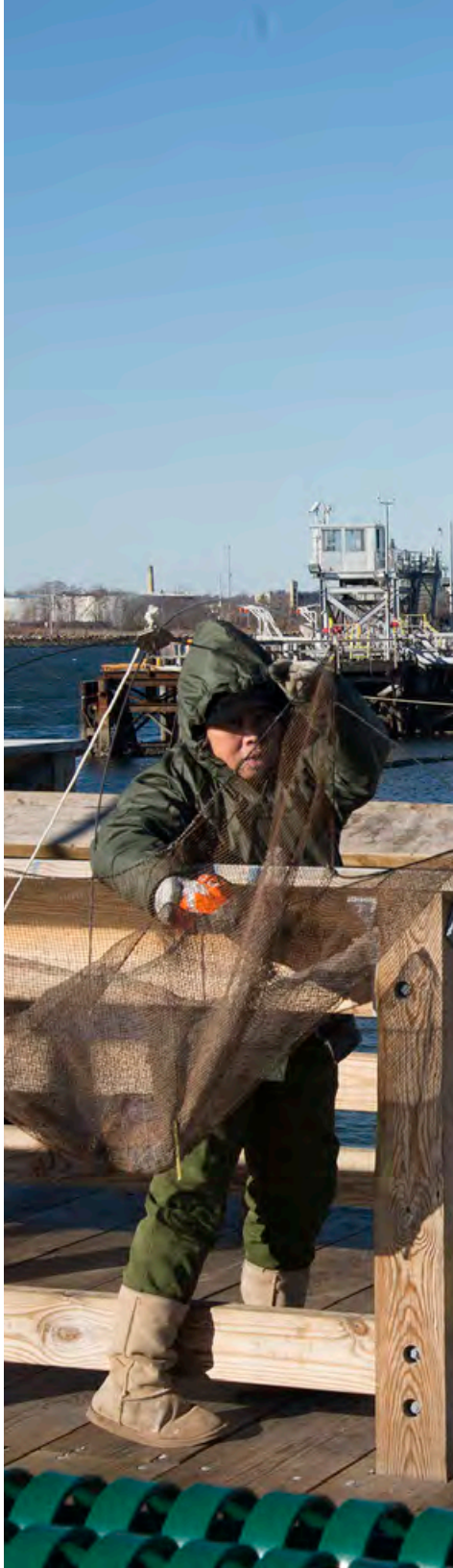


1.1 PROTOTYPE FOR THE REGION

Bridgeport is an opportunity to find strength at the water's edge and to reconnect the urban core to the city's neighborhoods.

A Place of Exchange

Stormwater flows from upland areas, bringing with it sediments, nutrients, and pollutants. Tides push in and out, and storm surge lifts the Long Island Sound's waters up and over coastal boundaries. The coastal ecology and economy exist because of the exchanges that are only possible at this juncture. Along the other axis, transportation infrastructure, utilities, and information networks link Bridgeport to regional markets and centers. Coastal hydrology, too, sweeps sediment and other materials along the coastline, constantly reshaping the line between land and water.

City of Peninsulas

At the most extreme, sea level rise and the influx of waters from the sound that are projected to inundate the coast periodically will reveal the geography of Bridgeport to consist of "peninsulas and islands," just as New Orleans or a Dutch polder can be characterized as a "bowl." Islands are the areas of high ground along the coast that will remain dry, while peninsulas are the upland areas bounded and defined by riparian corridors.

Urban Core

Bridgeport is one of the few urban areas in Connecticut that are poised to capture growth as baby boomers age out of suburban settings and millennials are forecasted to be less likely to desire suburban (or ex-urban) housing removed from downtown shops, amenities, and cultural activities. Focusing on Bridgeport as a prototypical de-industrialized mid-sized American city and what that city, its infrastructure, and its public realm might look like in the future is fundamental to the Resilient Bridgeport proposal.

A city central to the Long Island Sound

1.2 PRINCIPLES

Three basic principles underlie every project in the Resilient Bridgeport proposal.

Integration

The integration of multiple lines of defense and resilience provide redundancy and higher levels of safety. Berms, floodwalls, and surge gates provide critical surge protection, and are complemented by offshore breakwater reef and wetland systems. Intermediate and internal measures ranging from green infrastructure to hazard mitigation strategies such as home elevation improve overall resilience, as do resilience and design centers that also serve as catalysts for urban revitalization.

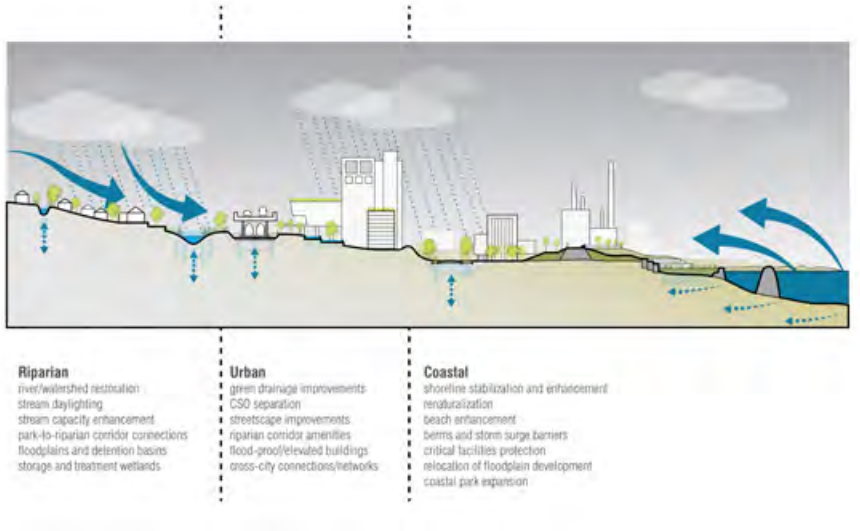
In times of storm, some of these centers double as shelters that are armored against floodwaters, winds, debris impacts, and other hazards. They provide continuity of operations for services such as communications, drinking water, power, heat, and wastewater.

Exchange

Facilitating the flow of materials and people along the coast is critical to the regional economy and ecology. Building extensive walls and floodgates will inhibit or obstruct flows, such as fish swimming upstream to spawn. A variegated edge that protects critical facilities but maintains and even enhances flows between land and water and along the coast will provide greater long-term benefits.

Identity

Connecting the city's residents to and along waterways and waterfronts restores the centrality of water to Bridgeport's identity. Further, doing so connects residents to local and regional ecologies and provides opportunities for improved quality of life and economic development.



Integrated Riparian, Urban, and Coastal Strategies

1.3 PROPOSAL

Integrated Strategies for Four Investment Areas

Resilient Bridgeport integrates riparian, urban, and coastal strategies to be implemented over the next thirty-five years. The design team has drawn and quantified Phase One projects in four economic development and environmental restoration zones: Black Rock Harbor, South End, Downtown Bridgeport, and throughout the Lower Pequonnock Watershed. These projects provide locations where innovations within the resilience framework can be tested and integrated with existing assets and planned infrastructure investments.

There are two project types: immediately practicable projects that can be constructed in the near term, and more advanced concepts that require a feasibility study or further planning to pave the way for development and implementation in the coming years.

Together, the strategies and projects that comprise the Resilient Bridgeport Framework are designed to:

Restore Ecology
Enhance habitats and both coastal and riparian ecosystems.

Install Green Infrastructure
Combine stormwater capture with filtration and streetscape improvements.

Direct & Divert Flood/Surge
Implement structural measures to protect against floodwaters.

Remove, Elevate, Mitigate
Make space for floodwaters with proven mitigation measures.

Support Enterprise & Development
Provide education, job-training, and sites for innovation and development.

Provide Housing & Community Services
Provide resources for transforming underserved neighborhooods.

Provide Implementation Mechanisms
Facilitate collaborative processes to achieve Resilient Bridgeport goals.

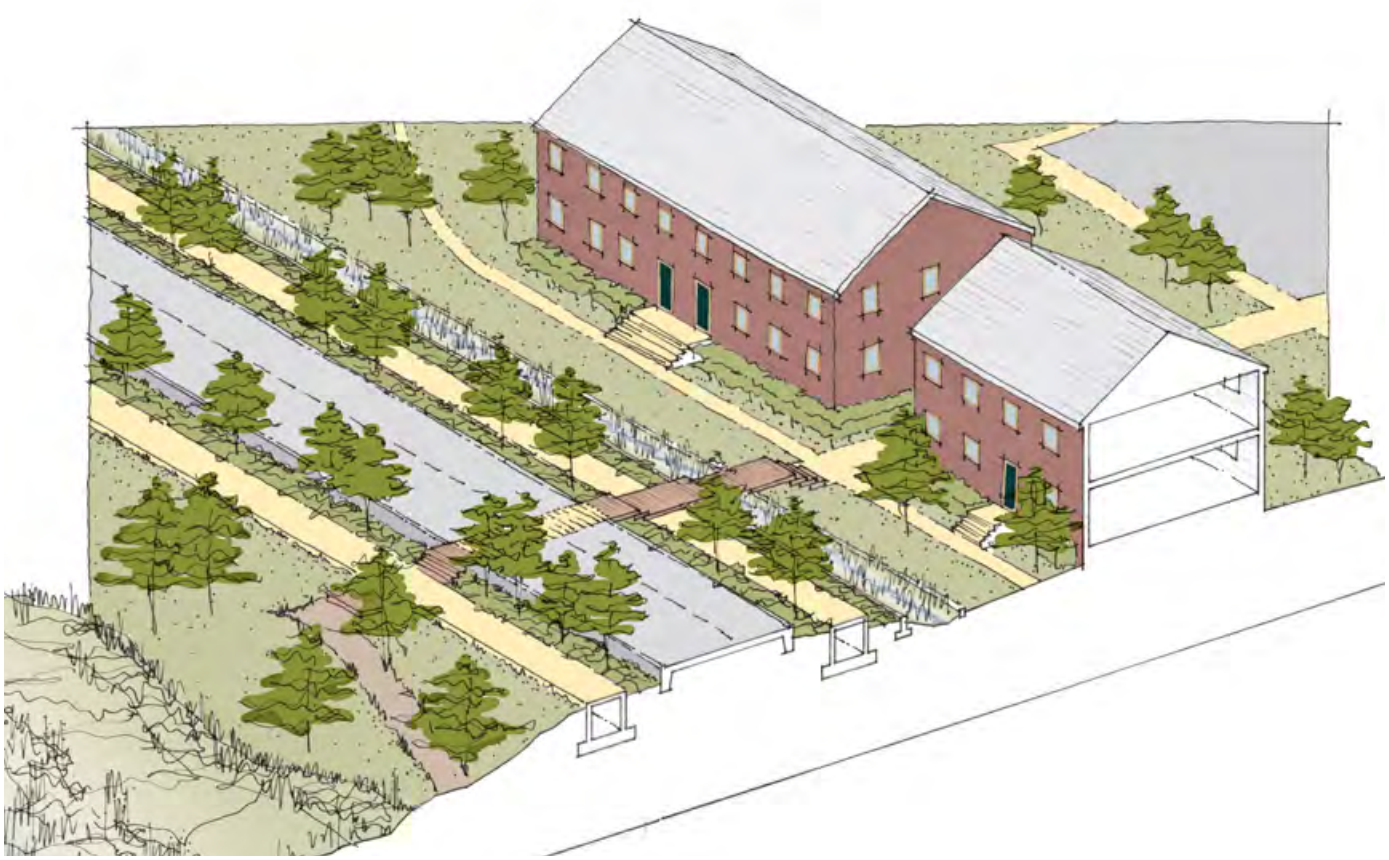
The Phase One proposals are located in four investment zones that define the city's most vulnerable areas:

South End

Along the land side of Olmstead's Seaside Park, a multipuprose berm protects the neighborhood with its historic buildings and developments including the University of Bridgeport, and continues west through the park and north towards Downtown. This new landscape feature, combined with an onshore treatment park and offshore living shoreline, adds value and creates opportunities in spatial as well as risk reduction terms. Resilience is embedded at the center of community here.

Black Rock Harbor

Technical innovations to protect the Eco-Industrial Park, including a later-phase Bridge with Integrated Surge Protection, set the next standard. The Elevated Infrastructure Corridor network is a key public investment with large stormwater and utility distribution benefits, the first step in a series of needed public and private adaptations. These include phased improvements for the P.T. Barnum housing complex up the corridor above the Offshore Treatment Park, and for the utilities and industrices that abut the harbor. This area is the battery that powers Downtown.



Projects for 2015

The proposal outlines 10 projects that can be implemented today using proven technologies.

Downtown

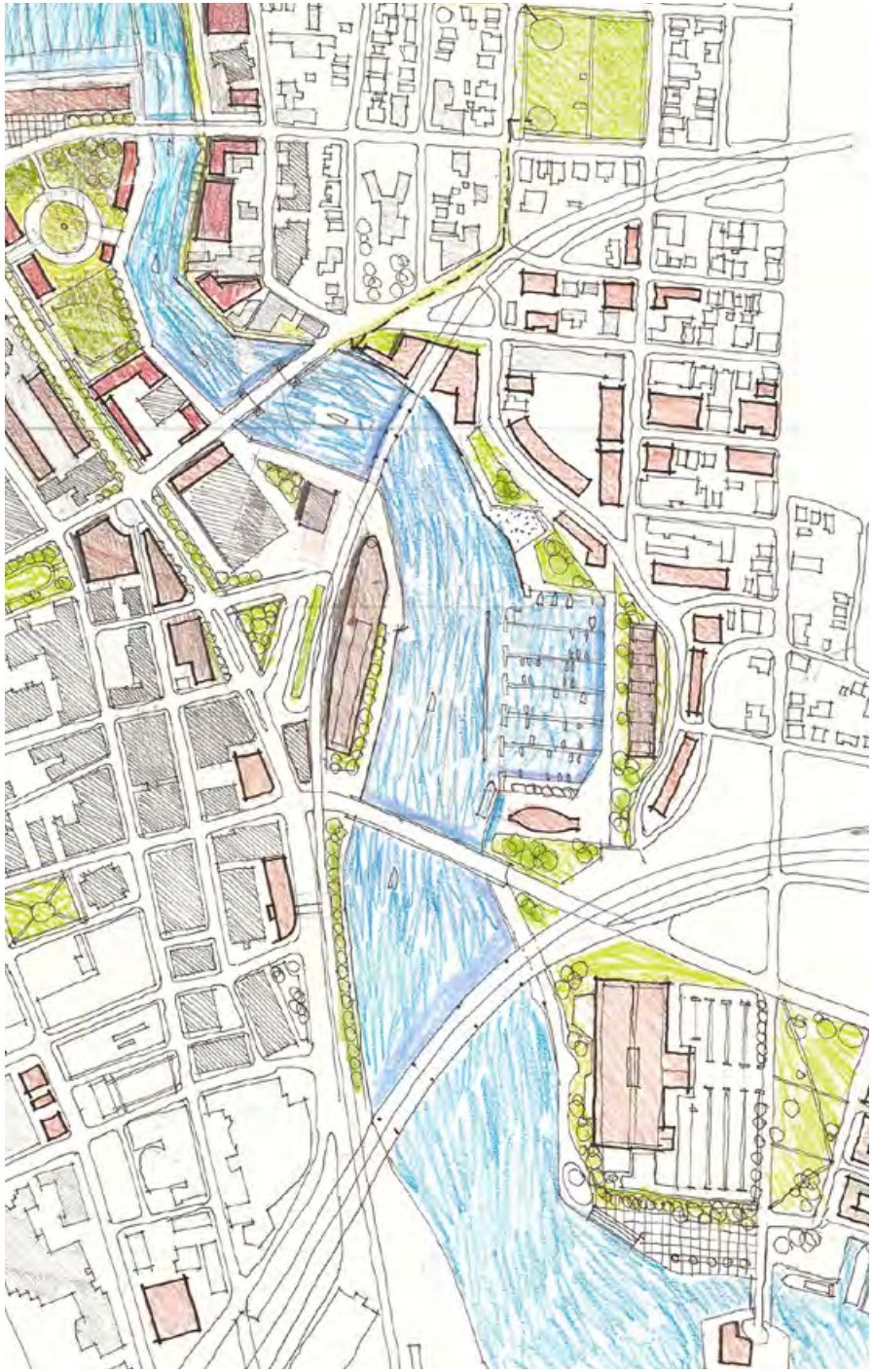
Cars, trucks, and trains pass through Downtown, the locus of Bridgeport's health and resilience. The ferry connects at the Port across the Sound to Long Island. Yet too few people stop and walk, shop or eat here. In an era of concurrent globalization and regionalism, given Bridgeport's proximity to Manhattan, and its centrality to the busy NYC-Boston corridor, there are many opportunities to attract and guide development in the city. Protection and connection are provided by a Waterside Promenade that coordinates and aligns with train platforms in current or shifted locations. Long term Northeast Corridor highway and rail system relocations need further study, though benefits to Downtown are evident. An Urban Design Center, operating in conjunction with universities will focus on smart adaptation strategies and implementation of the Resilient Bridgeport framework. Foremost is to give Bridgeport back its bridges, and to begin by rebuilding the Congress Street Bridge. This vital investment will regenerate commerce, the lifeblood of resiliency, by restoring the lost connection from the East Side and Washington Square to Downtown, marked by a new Congress Green where the bridge touches down at Middle Street.

Pequonnock

Rarely is a river so ripe for reclamation as the Pequonnock. Connecting water and park systems from the Olmsted-designed freshwater Beardsley Park to brackish Seaside Park catalyzes a string of improvements that nurture resilience. Conditions and locations needed for economically productive aquaculture are prioritized as room is given back to the flood plain. The network of East Side Green Streets mitigates runoff and pollution, demonstrating watershed benefits at neighborhood scale. Repetitive loss properties near the intersection of the river with US 1, where a marginal shopping center is built on top of the confluence with Island Brook, are targeted for reorganization, to allow daylighting the water system, commercial revitalization, upscaling and reorientation of development to the water, and the creation of a new upland entry for Bridgeport.

Plans and Feasibility Studies

An additional 5 plans and studies round out the Rebuild by Design proposal for Bridgeport.



OVERVIEW

Phase One projects are the basis for a comprehensive resilience framework with four key elements.

Hard Lines

Protective Infrastructure Links Communities

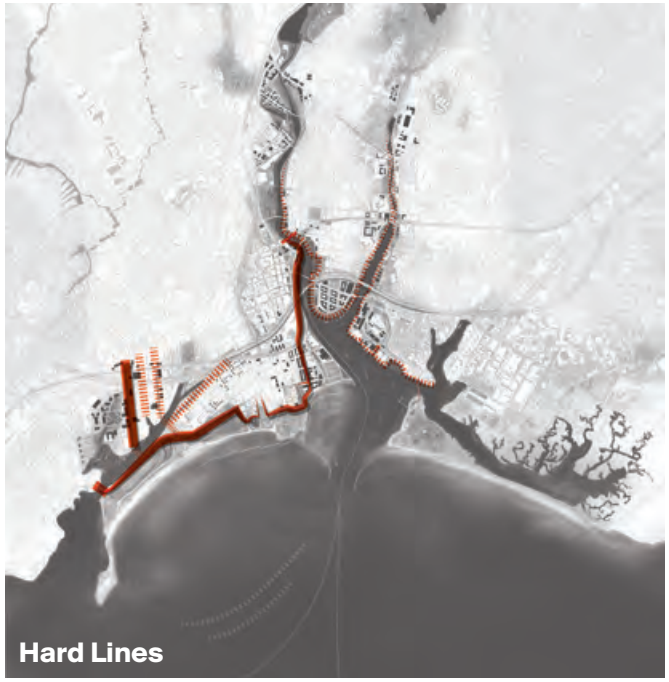
Natural and fortified solutions combine to create a stronger edge in the places most at risk during storms. Through multiple layers, the community finds safety, retains insurability, and thus gains opportunity. These living lines of defense extend and prolong habitation along waterfront edges, are integral with the topography, bathymetry, and geology of the coastal zone, and are designed for adaptation to changing situations.

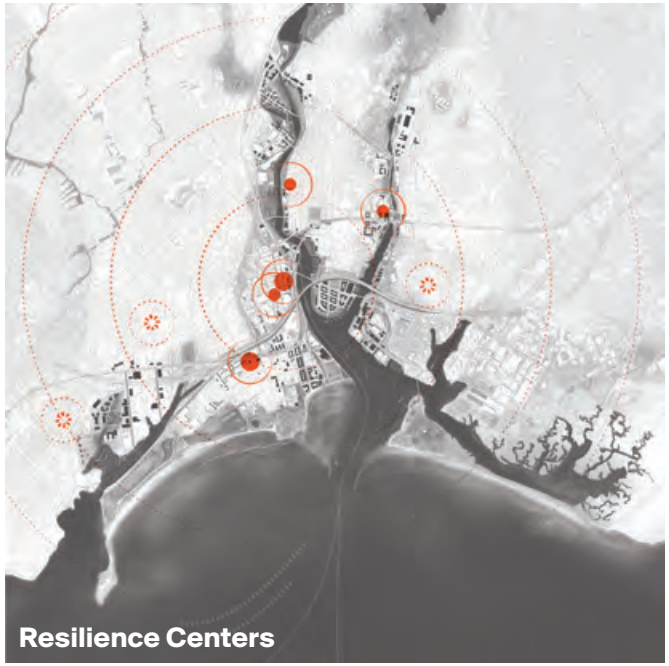
Soft Lines

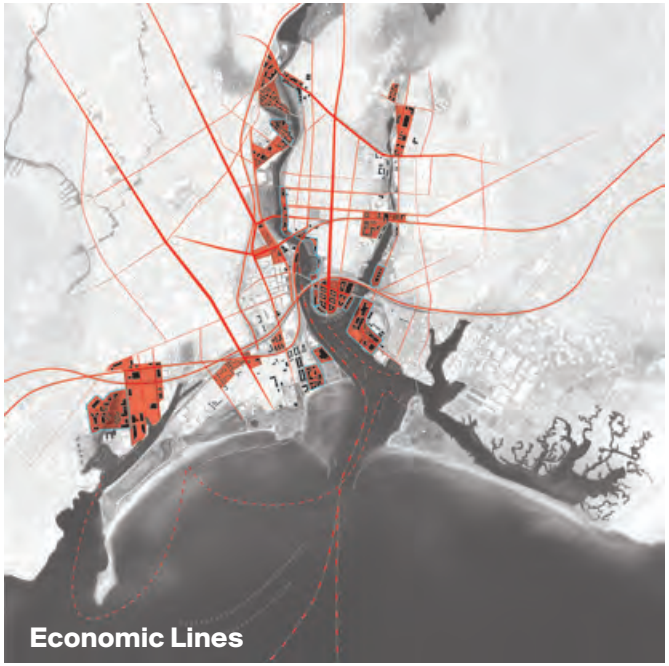
Pequonnock River, Inland Waterways, and Offshore Habitats

The Pequonnock River Watershed is an ideal area for integrative and comprehensive water-based planning for redevelopment.

Through targeted restructuring and rezoning of land uses within the watershed, opening up and reclaiming the Pequonnock River, as well as other impaired inland streams, risks will be reduced, development value increased, ecological functions improved, and Bridgeport revitalized.







Centers

Resilience Education and Design

Resilience education and design centers are located at key points where systems intersect, and where they can provide maximal benefits to the safety, ecology, social conditions, and economy of the neighborhoods where they are located and the city as a whole. Each of these projects is specific to the local conditions of landscape and neighborhood, but together establish prototypes for the New England coastline, so that the strength of these project concepts extends to neighboring communities such as Stamford and Norwalk, New Haven and New London.

Growth

Neighborhood Revitalization and Economic Development

Like other similarly-sized, post-industrial cities, Bridgeport faces many obstacles to revitalization with low employment rates, a stagnated housing market, and many blighted properties. Of the city's 12.9 square miles of parcel area, nearly a 1/4 are tax exempt. This and the city's boundaries establish the geographic constraints on the city's tax revenues, and necessitate more economic productivity throughout the city and especially along its waterfronts. The goal is a staged revitalization for Bridgeport and its communities, its economy, and its ecology through increased connection, innovation, production, and exchange.

Resilient Bridgeport

A comprehensive plan and process that integrates environmental and economic objectives.

Phase One Projects

South End

S.1 Multifunctional and Integrated Protective Alignment
- S.1.1 Multifunctional Berm
- S.1.2 Elevated Singer Street
- S.1.3 Feasibility Study for Onshore CSO Park

S.2 Living Shoreline: Constructed Breakwaters with Wetland

S.3 Neighborhood Transformation Grant with Resilience Education and Community Center

Black Rock Harbor

B.1 Offshore Outfall Park with Study for Onshore Mitigation and Neighborhood Transformation
- B.1.1 Offshore Outfall Park: Water Filtration Reef and Wetland
- B.1.2 Study for Onshore Mitigation and Neighborhood Transformation

B.2 Elevated Infrastructure Corridor

B.3 Comprehensive Feasibility Study for Bridge with Integrated Surge Protection

Downtown

D.1 Lower Floodwall (Connecting from RR to South End (Singer Street))

D.2 Upper Floodwall (North of RR to Congress St. Bridge)

D.3 Congress St. Bridge and Green

D.4 Downtown Design Center and Community Development

D.5 Bridgeport Transportation and Investment Plan

Pequonnock River

P.1 East Side Green Streets (East Main, Arctic, Barnum)

P.2 Lower Pequonnock Design and Implementation Plan
- P.2.1 Design and Implementation Plan from Beardsley Park to River Street
- P.2.2 Regional Watershed Planning Documentation
- P.2.3 Aquaculture and Fin-fish Economic Development and Industrial Redevelopment Study

10 Projects

5 Plans & Studies

1.4 WHY BRIDGEPORT?

The city is a sound place for investment and innovation.

History

The culture of innovation is strong here, with metalworking and textiles driving the Industrial Revolution, first flight in 1901, and contributions as the "Arsenal of Democracy" during World War II. The legacy of P.T. Barnum's election as Mayor in 1875 endures, and his designs for the city as a civic leader and entrepreneur guide development even today.

Diversity and Skills

There is a rich history of welcoming immigrants and talents, beginning with the founding of the International Institute of Bridgeport in 1918. There are over 70 languages spoken in Bridgeport, and a wealth of cuisines, religions, and cultures represented in the city's restaurants, people, and University of Bridgeport students.

Regional Connections

The city is a crossing point, and a multimodal transit hub within the Northeast Corridor: 35 million riders on the rail line, 54 million people on Interstate 95, and 1 million ferry passengers commuting across the Sound each year. There are diverse options for connecting to nearby communities, Boston, and New York City.

River Runs Through It

The system of regional greenway trails that connect neighborhoods along the Pequonnock and Yellow Mill Rivers is growing. The 2011 Parks Master Plan designed by Sasaki Associates forms the blueprint for extending parks and open space throughout the city.

Model City Initiatives

Bridgeport has a record of successful completion of award-winning model projects, including the remediation of the former Barnum Winter Headquarters to become a park; making affordable housing sustainable; community training workshops in environmental justice; and design awards for a fish ladder and streamside buffers along the rivers. The Eco-Industrial Park at Black Rock Harbor is a showcase for waste stream diversion and renewable energy projects.

Park City, City on the Water

Bridgeport exists at the juncture of coast and river.

1.5 TEAM, PROCESS, AND APPROACH

Gulf Coast experience, extensive community engagement, and an integrative approach.

Waggonner and Ball, **unabridged Architecture**, and the **Gulf Coast Community Design Studio** bring 24 years of combined experience living in, working with, and designing for disaster-affected communities along the Gulf Coast of the United States. **Yale University** and **ARCADIS** provide additional expertise in ecology, urban and landscape design, coastal engineering, and stormwater management, as well as specific knowledge of the Long Island Sound and the Northeast Atlantic region.

Process

At the city and regional scales, the team has mapped risks, assets, and land use to determine the value of varying forms of interventions along the Connecticut coast and densely settled I-95/Metro North Railroad Corridor. Interventions considered are for a variegated edge of hard and soft protection zones with multiple lines of defense providing higher levels of risk-reduction. A watershed-based planning approach yields an integrated resilience framework for coastal communities with similar geology and topography, while identifying key interventions for each landscape type and opportunities for economic development and environmental restoration. The team is testing the resilience framework at specific sites, finding ways to orient people to the landscape and flow of water. This framework suggests spaces and places that not only provide safety and services in times of storm but also instruct people on how to transition to a way of living and thriving with water.

For the design team, integrating the design process and community engagement efforts has allowed for the participation of diverse local and regional stakeholders in the development of a resilience framework for Bridgeport. Workshops with community partners, ongoing conversations with government officials, design charrettes with critical stakeholders, and a series of public open houses and educational activities with both youth and adults have been instrumental in shaping the focus and content of the design team's work. Each event has been an opportunity to share water management strategies and principles for resilient design with the community, to empower citizens to engage in the conversation about their city's future, and to build together towards a shared vision and implementation strategy.

Design Charrette

Discussing the Pequonnock at the All-Scales Workshop on 2/28.

Approach

Resiliency planning, like all efforts to plan for the future, is by definition speculative, balancing the present and preparing for the unknown. When faced with forecasting models of global warming, population growth and migration, fossil fuel decline, habitat degradation, or shifting economic trends, the variables overwhelm all formulae. The team also knows that cataclysmic events can change the model at any moment.

The team has seen predictions of rising seas and more frequent and severe weather events, from droughts to storms to deluge. The team has predictive models of surge elevations of 21 feet at the Connecticut coast by the year 2100. We see population projections for a Bridgeport with twice the current population by the same time. Railways predict ridership increases of 50% in the near future. We see utility companies planning to move from one fossil fuel to another while new co-generation efforts evolve. We saw predictions for information technology that made work commutes and educational campuses obsolete, while in fact commutes are slowing and campuses expand. We see that trends in demographics have validity for a generation or two at best. We see few trends toward a more egalitarian or supportive society. Few of the predictions we see today will become reality, and for those that do the timeframe is likely decades or even beyond this century. Yet planners must guess, we must provide a vision for the future that might be, as an inspiration and goal.

What We Have Not Done

The Bridgeport team has not used the worse climate and flood conditions predicted for the next century, although we modeled this as a scenario. We have suggested solutions that are immediately implementable, that are incrementally expandable, and that are based on a slightly more knowable prediction span (say 20-30 years). These solutions assume continuing monitoring with an enhanced feedback cycle, and that more improvements will take place over time, as new events unfold.

We have not asked that great or immediate investments be made in projects that involve entrenched regional political and financial structures that will take years to unwind even if some are essential. For example, even assuming automobile travel remains in its current form, the interstate will need to change. As it migrates away from the shoreline, we see a by-pass that will reunite Bridgeport as a major economic tool. Similarly the removal of raised rail traffic through the center of the city has been a common development phase for growing cities. The creation of an underground commuter rail, new stations, and a new light rail at-grade transit system have the potential to serve as tremendous economic engines that cannot be ignored. But for now those alterations are deferred. We present these only as visions of what perhaps should be, not as strategic investments for today. They however inform all strategies that are proposed.

We have not asked that grand plans be completed wholesale, in toto (even when in fact that might be the most cost effective or efficient way to proceed), and proposed instead an icremental approach that minimizes disruption to communities and viable industries, and that initiate projects over time to engender social and financial momentum.

What We Have Done

The Bridgeport Design Team has prepared a comprehensive resiliency plan for a coastal city that addresses water management from inland to sea, and integrates ecological resources with social resources and economic development.

We have devised structural, bio-dynamic, hydrogeological, and economic tools to resolve urban resiliency problems in infrastructure, housing, city planning, and habitat.

We have proposed a series of catalytic projects that use those tools in an incremental manner as part of an overall approach, that over time will create a safer, more ecologically responsive, energy efficient and economically vibrant Bridgeport. This will be a model city for New England and America with a strong downtown core, identified by cohesive neighborhoods, vibrant waterfronts, interlaced parks and waterways, and new economic opportunities.

2 FRAMEWORK FOR RESILIENCE

2.1 RISKS AND OPPORTUNITIES

2.2 INTEGRATION, EXCHANGE, AND IDENTITY

2.1 RISKS AND OPPORTUNITIES

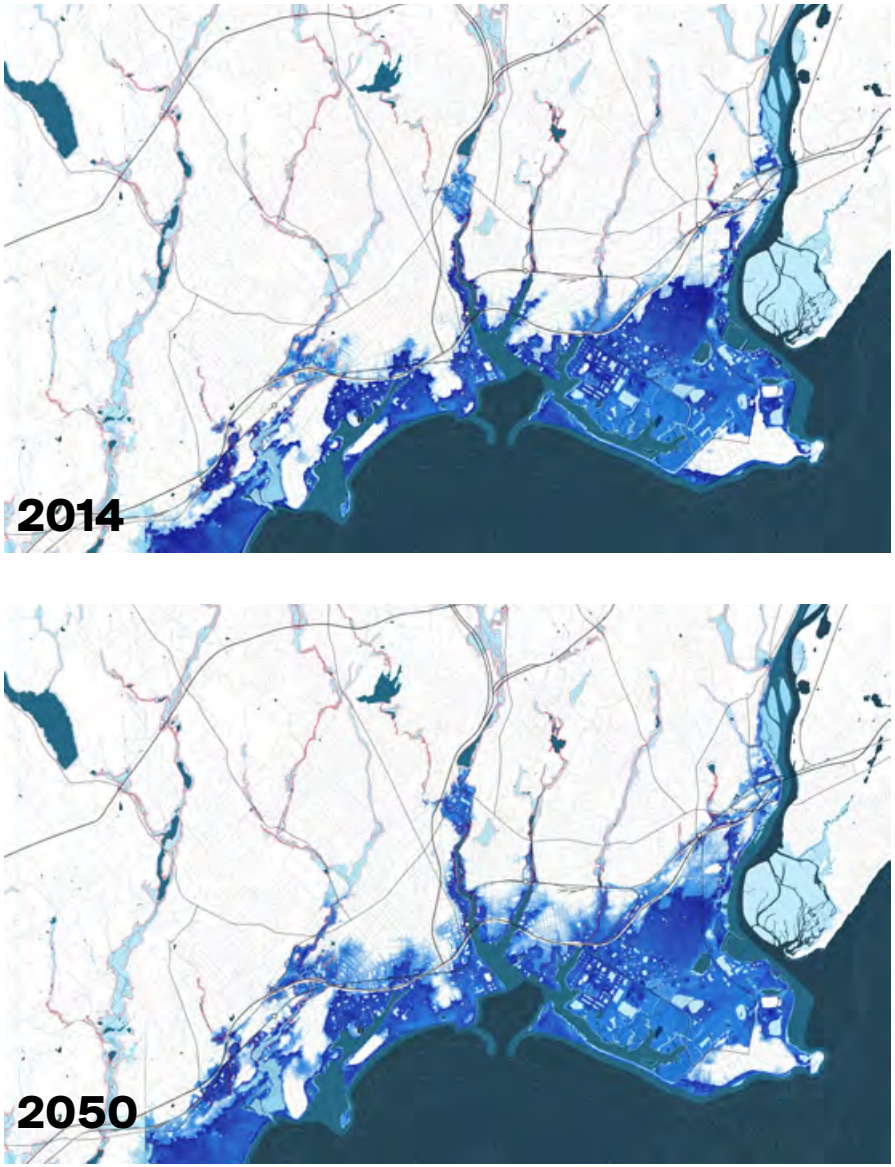
The top five hazards listed in the 2012 Bridgeport Climate Preparedness Workshops Findings Report are all related to water in excess as floodwater, or in shortage during times of drought.

Not unlike many other communities in the Northeast, Bridgeport is a land-constrained, property tax-dependent municipality. The City will be hard-pressed to limit development in floodplains or coastal impact areas unless its plans for development are supportive of a clear strategy to simultaneously add value and increase the productivity of the upland areas that remain. Any discussion of risk and opportunity must take these conditions into account.

Climate Change

What is at stake: without protection, by 2100, large swathes of low-lying land across the most populous and most dense city in Connecticut, with the greatest diversity of ethnic backgrounds, will flood regularly. The city has the most socially vulnerable population in the state, and more affordable housing than neighboring cities. Critical infrastructure will be inundated or inaccessible, including two power plants (coal and waste-to-energy), two wastewater treatment plants, two hospitals, plus a downtown financial center, hockey arena, ball park, university, and several theaters and concert venues. Transportation systems, including the Metro-North Rail and Interstate 95, will be regularly interrupted, and the one-week shutdown in 2012 from Hurricane Sandy will occur all too regularly. This will impact not only the 35 million riders of the rail line annually and the 54 million commuters each year that use the interstate to get to work and other services, but will cause broader disruptions to the food distribution and other critical networks.

The Emergency Operations Center activated 250 times in 2010, and 48,000 residents (20% of the population) are recommended or required to evacuate in severe storms.



Floodplain and Storm Surge

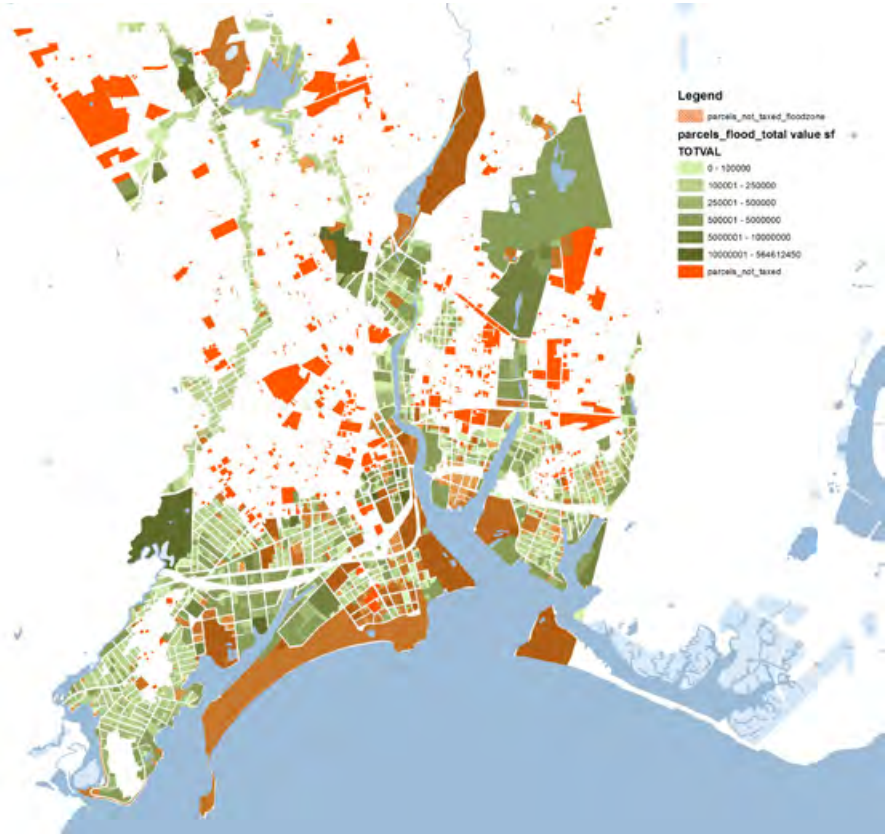
Modeled 100 year storm today and in 2050 with anticipated sea level rise of 2.19'.

Although Hurricane Sandy in 2012 was a merely a Category One storm when it came ashore in Connecticut, 6,000 residents of Bridgeport used the city's shelters.

Disruptions to regional supply chains and power interruptions caused serious complications for local industries. Sikorsky and other local industries have suffered from this, which is one of the reasons for the development of decentralized alternatives, including the solar array and the fuel cell projects. Ensuring the continuity of operations at the district scale is critical to maintaining industrial and commercial functions in the city.

Opportunities

Bridgeport provides clear opportunities to demonstrate resilience measures that allow for the continued inhabitation of the coastline, while protecting critical historic and infrastructural assets, enhancing the regional ecology and economy, and building the strength of the city's neighborhoods and urban core.



Value in the Flood Plain

There is close to $4 billion in assessed property value along with numerous critical assets and facilities ranging from power and sewage treatment plants to the University of Bridgeport located in the floodplain.

2.2 INTEGRATION, EXCHANGE, AND IDENTITY

Integration

Resiliency is increased with the integration of natural and engineered lines of defense. With all engineered structures there remains the possibility of failure. Where lives are at stake, it is necessary to create multiple lines of defense to accomodte uncertainties and changing conditions.

Outer Lines of Resilience

Creating a strong outer layer of defense is critical to reducing storm damage as it can reduce wave heights and wave energy protecting the land behind. Between the water and the engineered flood defense a natural buffer will improve the effectiveness of flood defenses and reduce their maintenance costs over the lifetime of the structures as high water levels and wave action are reduced.

The natural buffer or "living shoreline" provides several ecological functions. Between storms the buffer reduces wave energy, which slows rates of erosion and changes the pattern of sediment accumulation, creating habitats that are more favorable for species suited to low wave energy environments. In some places this buffer will allow beaches or marshes to develop. The shellfish, marsh grasses, and sea grasses that can then take root will improve water quality by trapping sediment and and taking up nutrients that would otherwise pollute the Sound, whille providing food and habitats to other species. The living shoreline will help remediate the pollution from the city's combined sewer overflows and urban run-off, and potentially effluent from wastewater treatment facilities as well.

Along with the environmental benefits of the living shoreline, building the outer layer of protection with living organisms such as mussels, oysters and other filter feeders provides an organic system that will be able to adjust to changing sea levels and environmental conditions, and that can repair and rebuild itself after a disturbance. This lessens the need for repeated repair and reinvestment after a storm.

The benefits to environmental quality and biodiversity improve environmental quality and have economic benefits because improved water quality supports regional fisheries and local tourism industries providing a potential for more economic development by providing the seeds with which to promote commercial shellfish aquaculture across the Sound.

Coastal Protection

Areas of high ground, such as the landfill seen in the background of this Black Rock Harbor picture, can be incorporated into coastal protection systems.

Living shorelines will add to the existing artificial breakwaters at the mouth of Bridgeport and Black Rock Harbors, which will soon be renovated by the Corps of Engineers. Bridgeport is fortunate to have two large natural buffers along its coast including Pleasure Beach and Wildlife Sanctuary protecting the East End and Seaside Park protecting the South End. These natural defenses reduce wave heights and wave energy when water levels rise above a normal high tide.

Pleasure Beach is a particularly strong asset because the barrier beach can move and migrate to adjust to new sea levels or storm regimes. However, there are certain areas that are vulnerable to a breach (despite the presence of groins) which could reduce the flood protection provided to low-lying areas in both Bridgeport and Stratford. This should be monitored and future dune construction or beach nourishment may be needed.

Seaside Park directly protects South End residents. The park, however, was damaged during Sandy and represented the largest single expense for the city following the storm. This damage was due in large measure to the lack of natural buffer between the concrete sea wall and the Sound. The wall remains vulnerable to erosion and future failure, despite the riprap placed at its base. To protect Seaside Park, it is necessary to focus on reducing wave impacts at the water's edge and reducing erosion rates. Longer term, modification of the park design (such as replacing the concrete boardwalk with a shell or gravel path) would reduce the vulnerability of the park.

Intermediate measures

Across the southern edge of the city an internal line of defense is proposed to protect against increasingly-common severe weather events. This line of defense will provide multiple benefits to the community between storms, and will be designed to double as a continuous pedestrian and bicycle path along the entire city waterfront from Black Rock Harbor to Pleasure Beach.

Improving the existing drainage system is important to avoid internal flooding and to manage stormwater in both ordinary and large storm events. Updating the city's drainage system is an expensive and time consuming process. The city is in the beginning stages of a $300 million project to separate their combined sewers. Given available resources the project will not be completed until around 2040. Green infrastructure along with improvements to engineered infrastructure provides a more flexible approach that can begin to reduce flooding issues in the short term. Targeted areas are where increasing infiltration and diversion of surface run-off will have the greatest impact on reducing the pressure on the aging combined sewer network and may be able to reduce the level of public investment required to address the

Coastal Buffers

Bridgeport's Seaside Park and other natural and man-made landforms along the coast buffer coastal neighborhoods against the direct wave action of the Long Island Sound.

issue of combined sewer overflows.

The installation of green infrastructure throughout the city also creates immediate co-benefits for individual neighborhoods by improving air and water quality, and reducing the urban heat island effect. More importantly increasing access to green spaces has been shown to be beneficial for public health by encouraging a more active lifestyle and improving environmental quality. Green infrastructure has also been shown to have a beneficial effect on property values in the adjacent parcels.

Internal Measures

The innermost layer of defense is constructed at the building scale. It is the last bastion against the storm. Shelters are armored against floodwaters, winds, debris impacts, and other hazards. A shelter is the place to go for safety when one's own house feels flimsy and insecure. Ideally, these are located outside of the flood zones, but in a city of peninsulas, like Bridgeport, where people may be cut off from help, they must create their own high ground through siting and design, and also by providing continuity of operations for services such as communications, drinking water, power, heat, and wastewater.

Exchange

The Long Island Sound is an estuary of national significance and historically was productive because of the unique conditions created by the rivers and estuaries that feed the Sound. This natural system is the framework for economic and social systems. Enhancing the exchanges between the ecological, social, and economic systems is improves the overall health and resiliency of the city.

Design for Resiliency

Flood protection structures offer places for social interaction and resources to serve the community. Green streets provide filtration for stormwater, bike lanes, and sidewalks for informal recreation as well as social connectivity. Aquaculture jobs at the water's edge recall the manufacturing of the past, but point to a more sustainable future for food production in cities. Higher density development along the waterfront revives awareness of waterways as prominent features within the city, and provides opportunities for social contact at common spaces, promenades, and restaurants along the edge.

Distributing community centers throughout neighborhoods, instead of centralizing them at one spot, creates redundancy and greater contact between citizens, government, and community organizations. Resilience centers are part of an expanded network of exchange, with places to go for information, education, food, daycare and healthcare. These facilities should become part of the everyday life of the community so that people are not afraid to go there when storms threaten.

Internal measures

Both green infrastructure, such as these features on the Fairchild Wheeler Campus, and innovations in architectural design provide for greater levels of resilience.

Identity

Bridgeport's identity was once inextricable from its working waterfront. The exchanges between social, economic and ecological systems made places of commerce. As commerce relocated away from the waterfront to places shaped by automobiles and as industry became more mechanized and isolated the waterfront lost much of its importance. The project seeks to restore places of exchange that connect people to the water in multiple ways. Bridgeport's future identity can create new places to live, work and play along the water with integrated and resilient systems.

The new working waterfront identity is not the single-use industrial model of the past. The new identity is a complex multi-use waterfront connecting Downtown to the Pequonnock River and to the coast with intensified and continuous social, commercial and recreational spaces. Just as successful cities in the twentieth century have adapted industrial areas into multiuse cultural, educational, recreational, and commercial centers, Bridgeport's waterfronts can be made into intensified multiuse places suited for the twenty-first century. The new integrated layers of protection can increase the places of exchange and bring the waterfront to life ecologically as well as socially and economically. The Pequonnock River, which was once a living, natural system connecting the city to the sound, can once again become a key aspect of the city's identity. Bringing the river's edge to life with landscape and with social spaces will change the identity of the river from a sense of loss and neglect to one of life and care. The proposals for Bridgeport seek to create an identity that values water and makes places of exchange. Integrated lines of resilience are also places of social and ecological exchange, thereby re-creating Bridgeport's identity as a living waterfront.

Resilient Bridgeport inscribes a single, unbroken line connecting the Phase One projects to the city's existing waterfront assets, from Black Rock in the southwest, along the edge of the Sound and up the Pequonnock at Congress Street, to the coastal protection project underway at Steele Point Harbor in the East Side. Later phases will build on this line, and protect the East Side all the way to Pleasure Beach, where a new water taxi service will begin operations this summer, in place of one of the broken bridges in Bridgeport.

Securing the waterfront for public accessibility is a critical component of this plan, resulting in an 8-mile long necklace of green spaces, marinas, low-impact corridors and recreational trails, and opportunities for economic development. Ranging from historic neighborhoods to modern developments, traversing this waterfront edge brings people into contact with the best of Bridgeport.

Ash Creek

One of the beautiful places of ecological and social exchange that characterize the coastline where natural habitats are maintained. Ash Creek is central to the identity of the adjoining Black Rock neighborhood.

Water Assets

Bridgeport has a wide range of waterfront assets, and Resilient Bridgeport seeks to protect, enhance, and connect these assets so that the city's waterways and waterfronts are once again central to the city's identity.

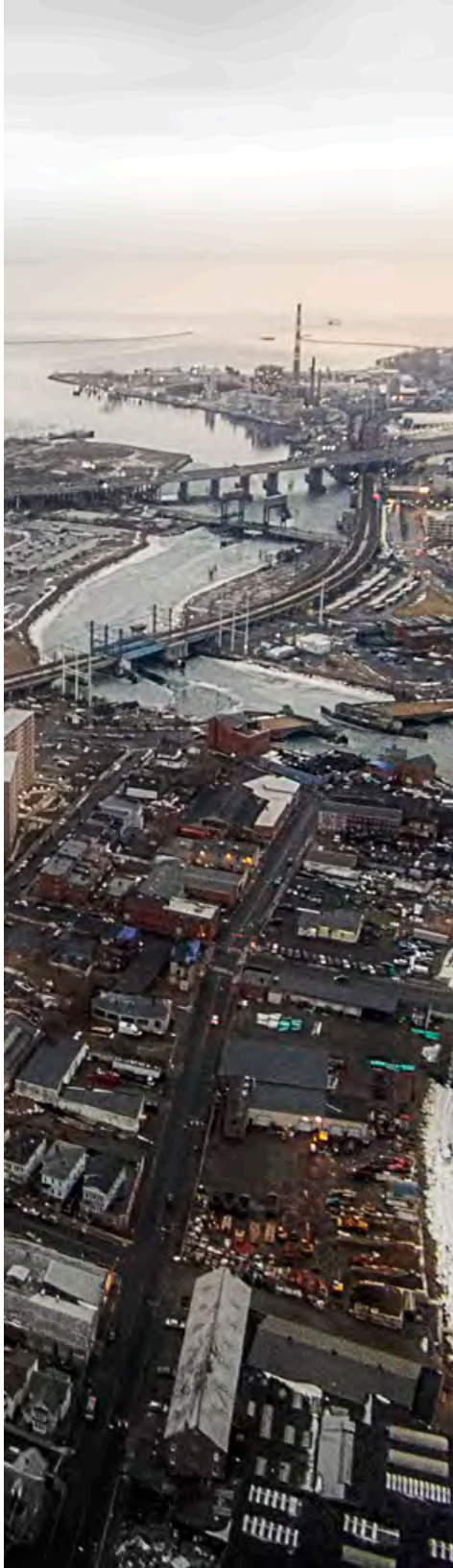
3 INVESTMENT AREAS

3.1 SOUTH END
Protecting the Community

3.2 BLACK ROCK HARBOR
Powering the City

3.3 DOWNTOWN
Connecting the Center

3.4 PEQUONNOCK
Claiming the Edge



3.1 SOUTH END

Protecting Assets and Transforming the Neighborhood

Bridgeport's South End is a place with both spectacular resources and extreme challenges. It is the home of the Frederick Law Olmsted-designed Seaside Park and numerous other buildings and districts recognized by the US Department of Parks and Historic Preservation to have national significance. The neighborhood is within a short walk to downtown, a Metro-North and Amtrak rail station, the beach, universities, YMCA, and numerous services and resources. There are several strong faith-based communities, a thriving University of Bridgeport, and active and engaged residents and other stakeholders with Marina Village, Seaside Village, the Freeman Homes and other historic sites. However, the closing of many area industries and the demolition of the notorious Father Panick Village public housing has left the community with expanses of crumbling buildings and vacant lots. The community also sends students to the State's worst performing schools and is part of a locally defined target area for comprehensive neighborhood transformation that has a poverty rate over 50%, an unemployment rate over 35%, a vacancy rate in residential properties of over 50%, and a concentration of crime. Our proposal protects the many assets in the South End and uses strategic investments to support the transformation initiative proposed by the Housing Authority of the City of Bridgeport and a host of local collaborators.

The South End is one of the most vulnerable parts of the city. The low peninsula is exposed to storm surge and at increasing risk due to sea level. It is occupied by over 8,000 people, including students, public housing residents, and othervulnerable populations. The neighborhood is host to industrial uses next door to historic homes, including grand mansions, tiny cottages, and the Freeman Homes. Sweeping views include Frederick Law Olmsted's Seaside Park and the exclamatory red and white striped smokestack of the coal plant. The South End offers the most vibrant contrasts in Bridgeport.

S.1 Multifunctional Berm

S.2 Living Shoreline

S.3 Neighborhood Transformation with Resilience Education and Community Center

The center of the neighborhood is Park Avenue, where showman and Mayor P.T. Barnum marched his horses and acrobats, elephants and sideshow performers. The street follows the ridge line to the double stone gateway at the entrance to Seaside Park. Park Avenue forms the locus of commercial services for the neighborhood, which have declined in recent years.

Neighborhood revitalization depends on knitting the fabric of he neighborhood back together. With a current population of 8,400 (including students at the University of Bridgeport), the one square mile area could support increased population if adequate coastal protections are put in place. Infill around the historic districts of Seaside Village, Barnum-Palliser, Railroad Avenue Industrial District, Cottage Development, and Marina Park in scale with the context can include three-story rowhouses and other multi-unit configurations, including apartment buildings and renovated mill structures along the edges and Park Avenue.

Multifunctional Berm

The addition of a berm provides coastal protection at an elevation of 17', which provides protection from a 100 year urge today, in contrast to the current elevation of Seaside Park at 3 to 5 feet, which is sufficient to protect against a near term 100 year surge. The height of the berm will be increased to 21 feet by the year 2050 to protect against the the anticipated 6' sea level rise. The berm is placed along the northern edge of the park to minimize the impact on the 1867 design of Olmsted's lyrical geometries, rolling greens, and groves of shade trees. Sections of the berm incorporate Waldemere Avenue atop the berm, plus sidewalks and bike paths. Geotubes filled with sand and soil form the basis of the berm structure, with sloped and stepped edges for access. The berm is customized to work around existing features - houses, trees, roadways – and thereby create safe development areas along the waterfront. The inland alignment of the berm also allows the elevation of the berm to be low relative to the surroundings because of the rapid ascent in elevation as one moves away from the waterfront.

Resilience Education and Community Center

The South End Resilience Center is proposed to be located on the high ridge of Park Avenue, and to employ technical solutions for high-performance construction that is elevated, floodproof, and self-sufficient. It protects the 12,600 residents and employees within the South End, and repairs the 'broken windows' at the gateway to the neighborhood. It is also visible from the rail line and interstate. The location within the South End increases access to many services, creating greater economic capacity within the neighborhood.

The Center provides a mix of uses to support 400 transformed public

Historic Assets at Risk

Seaside Village and the Olmsted-designed Seaside Park are two of the beloved historic assets that are at constant risk from floodwaters due to their location on the coast.

housing units at Marina Village and the rest of the South End, including uses such as a workforce training center, fresh food co-op, health care clinic, senior activities and child care. Possibilities include apprenticeships and vocational training for retrofitting buildings, weatherization, green stormwater infrastructure, flood-proofing, sustainable energy infrastructure, and environmental remediation. A shelter capacity of 1,500 people within the classrooms and lecture halls for emergencies is anticipated. The design proposal includes 35 one-bedroom units of elderly/disabled housing within the South End Resilience Center, built so residents can shelter in place. The complex creates a neighborhood hub with an active plaza and streetscape.

Features that promote self-sufficiency are critical to the center's success. For example net-zero energy use reduces demand so that emergency situations can be met with onsite solar energy and a recycled battery fuel cell, harvested rainwater keeps the toilets flushing and treats effluent, and secure communications ensures connectivity for building residents. It is a place where neighborhood's residents can recharge and make contact.

Neighborhood Transformation

The South End investment leverages the planned $150,000,000 redevelopment of public housing at Marina Village, severely damaged by Sandy by the Housing Authority of the City of Bridgeport. which is under a consent decree to replace all of the units of the demolished Father Panick Village public housing. The Authority has reached an agreement with Connecticut Legal Services and the Resident's Association to replace all 406 units of Marina Village Housing. HUD's Demo/Disposition order is the first step toward moving ahead with redevelopment. As new development and rehabilitation occur, tenants will be located to new homes. The capital structure for the project includes private equity from the developers (JHM Companies, POKO Partners, and Bridgeport Neighborhood Trust), FEMA funding, low-income tax credits, and Connecticut Housing Finance Authority bonds and Department of Housing loans. This will restore housing for the 1,200 or so residents of Marina Village, some displaced since Hurricane Irene. Physical redevelopment of Marina will be paired with assistance for homeowner improvements in the area and other support for mixed-income development.

Connection to Downtown

Along the eastern edge of the South End the landscape is reconfigured for water retention, protection of vital resources, and environmental safety.

A combined sewer overflow (CSO) Park will create a vegetated filtration system for combined sewer and stormwater outfalls, an important element in the protection of water quality for recreation at Seaside Park and for future aquaculture indus-

Opportunities

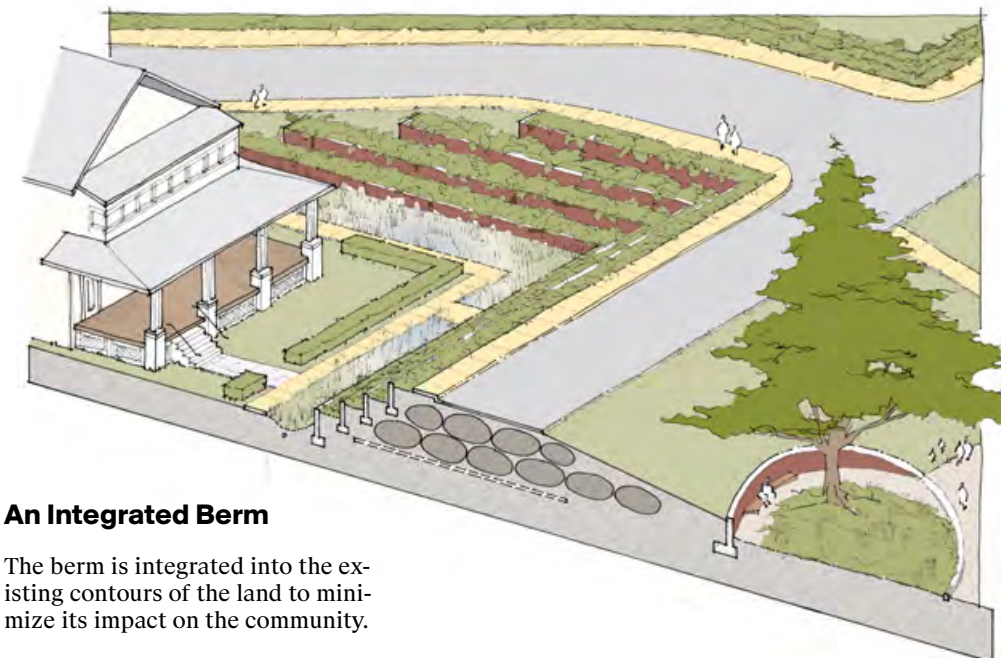
Vacant housing units and properties provide opportunities for transforming the neighborhood.

tries offshore. It also establishes a buffer between PSEG's coal-power peak demand plant, which is projected tobe replaced by gas-fired generation within this decade, thereby shrinking the plant's footprint from 50 acres to approximately 20 acres. Phytoremediation in areas adjacent to the park can assist in the removal of heavy metals caused by decades of coal storage and burning. A living shoreline for coastal protection just offshore will reduce wave energy and protect functions of this area, as well as provide a framework for oysters and other mollusks and fish species. Green streets funnel stormwater from the South End to the CSO Park for filtration before release. The City of Bridgeport anticipates pursuing grants from EPA, USDA Watershed Protection, DEEP revolving fund for clean water, and Long Island Sound Futures funding to acquire, construct, and restore this area, along the Nature Conservancy, of the Resilient Bridgeport coalition.

Singer Street Redevelopment creates a secure platform for continued industrial operations and new development along the eastern edge of the South End. The elevated roadway and smart utility corridor will serve as an evacuation route during emergencies, and as a conduit for utilities including potable water, sewer, stormwater, power, and communications. It also functions as an extension of the Seaside Park berm that connects to the proposed wontwon Floodwall in order to pride contiuous protection through the urban area. The proposed top level is at 17' elevation to protect the historic districts and structures. As for the berm, it will be raised to to 21' by 2050. Additional funding may be pursued through FTA and ConnDOT for evacuation routes.

Assets

Historic Seaside Park and a strong community are trademarks of the South End.



An Integrated Berm

The berm is integrated into the existing contours of the land to minimize its impact on the community.

S.1.1 MULTIFUNCTIONAL BERM

A berm integrated into the Seaside Park landscape that is designed for the current worst case 100 year Base Flood Elevation of 17'

- adaptable to meet future BFE standards rather than building to those standards today
- allows for overtopping without failure of system
- elimination of existing road and replacement with berm and bike path on top as a new connection through the South End neighborhood and Seaside Park
- slopes of 1:3 for ease of maintenance

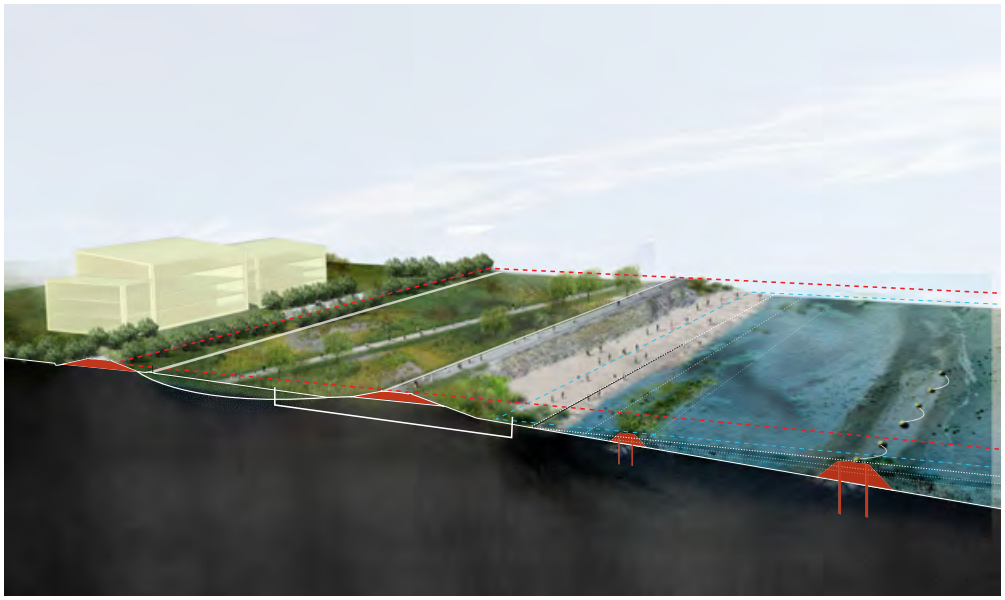
S.1.2 ELEVATED SINGER STREET

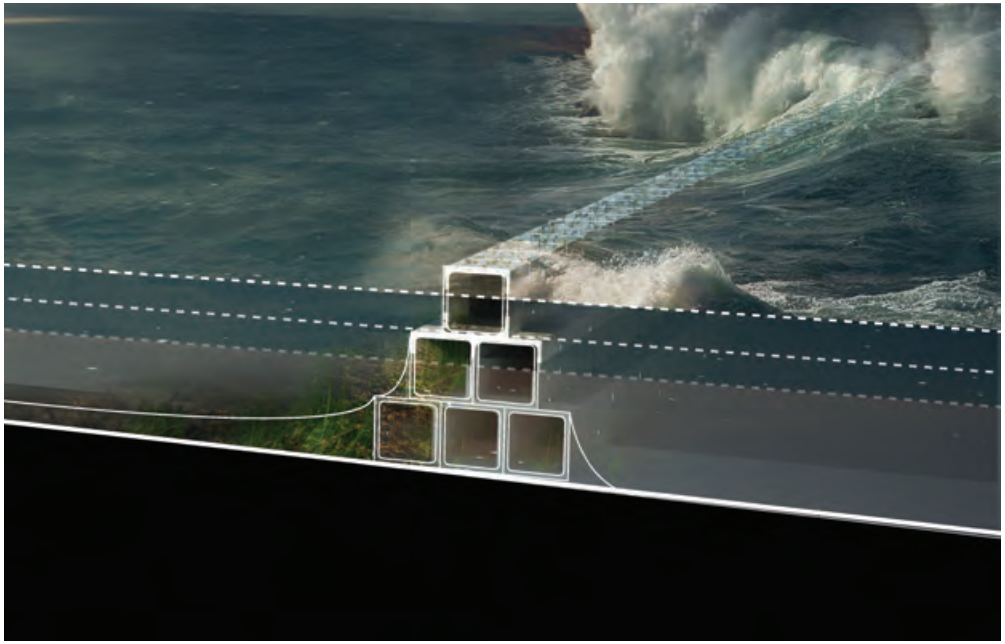
Elevation of current roadway by three feet with an integrated 4' floodwall on the water side protects historic assets

S.1.3 FEASIBILITY STUDY FOR ONSHORE CSO PARK

Explore possibility to integrate treatment park into buffer zone between industrial and residential areas

- study feasibility of redorectomg CSO outfall that currently drains into the Harbor
- develop concept for a multifunctional treatment park that doubles as a green corridor supporting adjacent mixed-use development





S.2 LIVING SHORELINE

Offshore breakwater structures along the South End waterfront that provide wave attenuation to allow for lower retaining heights of storm surge features in the South End, and to provide a reef structure to support aquatic wildlife

- building out the full alignment of the breakwaters alongside Seaside Park creates the potential to use the Living Shoreline as a water treatment corridor
- breakwater creates a low-energy environment on the land side which allows for wetland formation, counteracting the loss of wetlands due to sea level rise and development
- structures can be built using the re-use of clean dredge materials in geo-textile tubes, such as materials that are dredged from Bridgeport channels/harbors as well as nearby cities along the Sound
- The Living Shoreline is a cost-effective concept that has been studied and proven worldwide

Living Shoreline

Offshore breakwaters provide wave attenuation and ecological benefits.

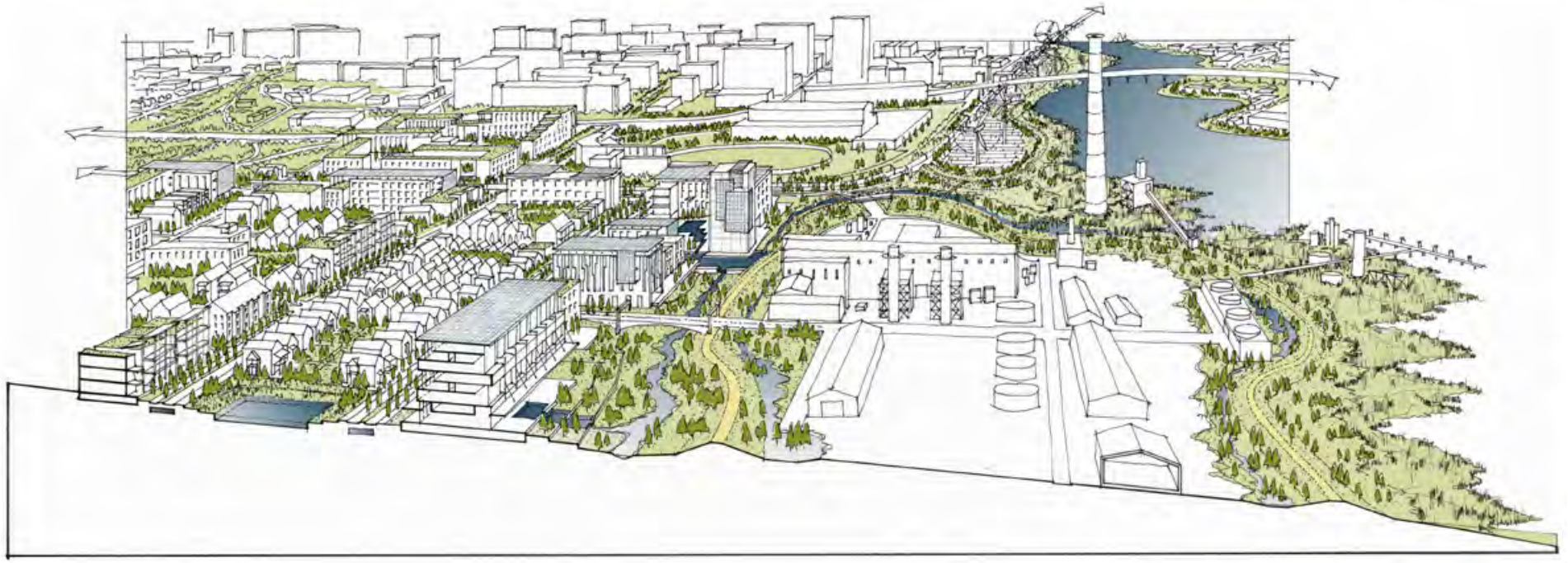
S.3 NEIGHBORHOOD TRANSFORMATION WITH RESILIENCE EDUCATION AND COMMUNITY CENTER

A resilience center that serves the neighborhood's 12,600 residents and workers with a wide range of community-driven programming, and as a catalyst for the transformation of the neighborhood at a key gateway to the area

- center provides uses ranging from workforce training and fresh food co-op to healthcare clinic, senior activities center, and child care
- during severe weather, center provides shelter capacity for 1,500 people, with services made more resilient through self-sufficient utilities
- provides a model for resilient architectural strategies
- leveraging of planned $150 million redevelopment of public housing at Marina Village, which was damaged during Hurricane Sandy

Shelter

The resilience center provides a place for neighborhood residents to evacuate to that is close to home, top left, while new development can be designed to allow for sheltering-in-place, bottom left.



New, Safer Development

Strengthening the coastal protection and water management infrastructure of the South End provides opportunities for safer forms of coastal inhabitation.

South End Transformed

The neighborhood, University of Bridgeport, and historic Seaside Park are protected with integrated lines of resilience, with improved connections to downtown. Orange lines diagrammtically indicate perimeter lines of defense.

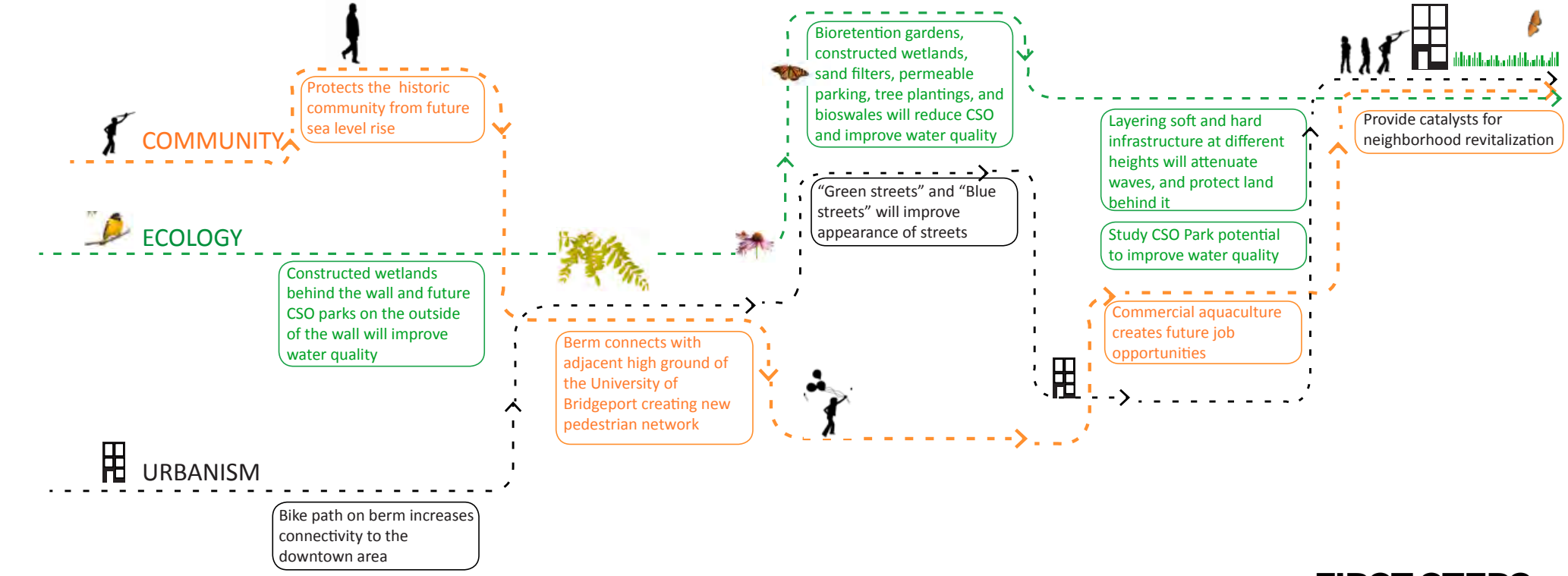
1 Raised infrastructure corridor along Singer Street

2 Berm along inland edge of Seaside Park

3 Develop green infrastructure

4 Living Shoreline and CSO Park Study

5 South End Resilience Center and Neighborhood Transformation



FIRST STEPS

3.2 BLACK ROCK HARBOR

Black Rock Harbor is a place for making and powering the city.

The Harbor is the most visually distinctive area in Bridgeport. It features the photogenic 1823 Black Rock Harbor Light on Fayerweather Island that protected mariners from the shoals by serving as a beacon to lead ships into Cedar Creek. It still guards the entrance today.

But while Cedar Creek remains an active hub for barges filled with fuel oil, waste materials, rock and gravel, the lands at its verge are low and susceptible to flooding. Private companies that rely on access to waterways and roads for their transfers and the City's Eco-Industrial park that specializes in sustainable processing and renewable energy generation are located here. Critical infrastructure is at risk including the waste-to-energy plant that processes 250,000 tons of garbage per day, a sewage treatment plant, a mattress recycling facility, and a fuel cell power generator. None of these are easy to relocate.

The following proposed projects are important to the overall Resilient Bridgeport plan as well as to providing access, accommodating sea level rise and storm surge, and maintaining services within this critical link between the neighborhoods and households of Bridgeport.

Offshore CSO Outfall Park

This is one of several locations in the city where storms cause the release of untreated raw sewage, up to 70 million gallons a year. The concept is fully proven, though performing this feat offshore offers an innovative twist. A well-designed reef and wetland structure can treat up to the annual 2-year rain event; currently, even a 0.2 year event leads to an combined sewer outfall (CSO) into Black Rock Harbor.

Recreational paths offer an opportunity to create an attractive waterfront for the Black Rock and West End/West Side communities, adjoining the popular Captain's Cove. It is also an opportunity for interpretive exhibits, especially in conjunction with the Aquaculture Science and Technology School nearby.

B.1 Offshore Outfall Park with Study for Onshore Mitigation and Neighborhood Transformation

B.2 Elevated Infrastructure Corridor

B.3 Comprehensive Feasibility Study for Bridge with Integrated Surge Protection

The project pairs an investment in an innovative offshore treatment wetland with a study for onshore mitigation and neighborhood transformation. Because CSOs are caused by excess runoff, addressing the root cause is of equal importance. Integrating possibilities for transforming the P.T. Barnum housing complex with green infrastructure and broader neighborhood objectives provides opportunities for finding innovative solutions that address multiple needs.

This effort is an immediate-term solution to address current conditions in Cedar Creek; to address storm surge in the future, other measures need to be taken and will be studied, such as B.3, below.

Elevated Infrastructure Corridor

Elevating roads and utility corridors are an innovative approach to address future sea level rise. This is the first step in creating a resilient Eco-Industrial Park, which is a centerpiece of the city's many sustainability initiatives. New stormwater drainage disconnects stormwater flows from the sewer system, dramatically reducing the potential for untreated sewage releases.

Implementation will begin with one street as a pilot, and eventually be extended to additional streets throughout the area so that all industries that become part of the Eco-Industrial Park eventually build to a higher safer level, which serves as a model for transitioning facilities in coastal flats to less susceptible elevations while remaining in place.

Comprehensive Feasibility Study for a Multi-functional Bridge with Integrated Surge Protection

As severe weather accelerates, there is an urgency to research the feasibility and technical function of a surge gate to reduce risks of future storm surge events in the Black Rock Harbor and bordering communities such as Black Rock and the South End. The result of this study will be the basis for the first multi-functional bridge with integrated surge protection in the US. The multifunctional bridge will become an attraction, a best practice of how the "human factor" is combined with structural protection through good design.

Three different alignments will be studied for the configuration of raised infrastructure along Black Rock Harbor. The study will determine the necessary level of flood protection for the inner harbor and vicinity. The flood gates will allow traffic in and out during normal operation, but will be closed to resist storm surge during severe weather. Curved gates beneath the walkway provide an aesthetic element to the structure. The sheet pile foundations are hidden to blend with the surroundings. Each gate can be lifted out for major maintenance, reducing interruptions to

Critical Infrastructure

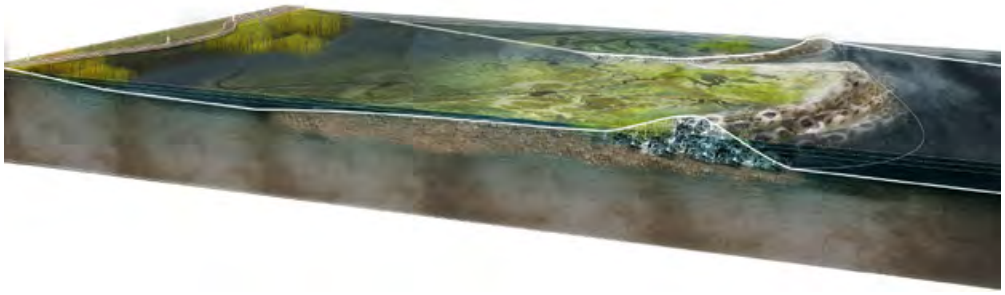
Black Rock Harbor is home to one of Bridgeport's sewage treatment plants, and also the popular Captain's Cove marina.

waterway traffic.

The bridge provides a connection to Seaside Park from the Black Rock community, and a direct link for the South End community to the nearby Fairfield Metro train station. The walkway bridge allows easy access to the gate surface for repairs. It also functions as an emergency route for pedestrian evacuation in the event of disasters.

A Place for Making, A Place for Innovation

Bridgeport's Eco-Industrial Park is a centerpiece in Bridgeport's many sustainability initiatives, especially in regards to power generation. The Aquaculture Science and Technology campus is also located adjacent to the harbor. Here students learn skills ranging from water quality analysis and kelp farming to boat-building.



B.1.1 OFFSHORE OUTFALL PARK

A pilot for reef and wetland structures that clean water in a working coastal landscape

- designed to treat up to the annual 2 year rain event, and some of the 70 million gallons of untreated raw sewage that are released each year, while cleaning water flowing through adjacent Cedar Creek even when it is not raining (currently, a 0.2 year event leads to a CSO into Black Rock Harbor)
- CSO treatment offshore is innovative, while being a relatively low cost measure with simple filter-feeder reef construction using dredged materials that allow for the formation of marsh in the low-energy area behind the reef structure
- improves aesthetics of waterfront area without impeding Captain's Cove boat traffic to and from marina
- provides educational opportunities for adjoining neighborhood and Aquaculture Science and Technology School

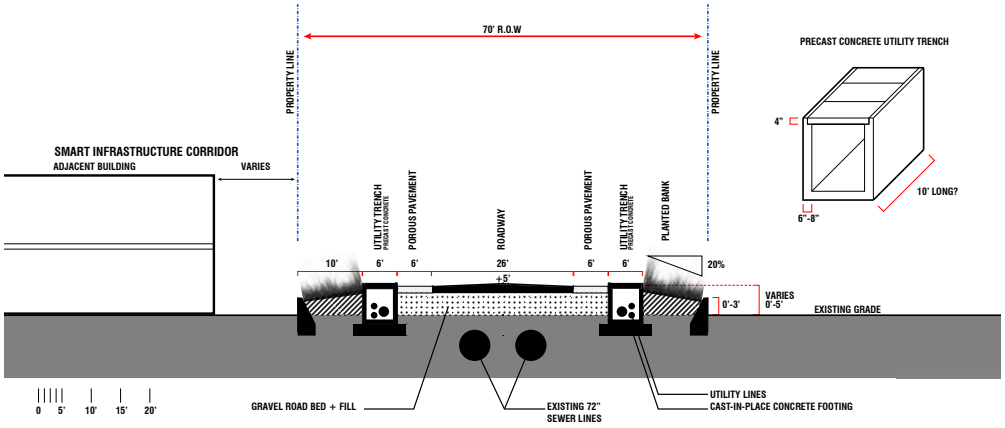
B.1.2 STUDY FOR ONSHORE MITIGATION AND NEIGHBORHOOD TRANSFORMATION

Development of a transition strategy for neighborhood transformation that integrates green infrastructure and hazard mitigation

- reorganize land use and related zoning to buffer current residential areas from elevated industrial uses, esp. P.T. Barnum Housing
- adapt infrastructure from grey to green systems

Creating Wetland Habitats

Reef structures double as breakwaters that allow for the formation of salt marshes.



B.2 ELEVATED INFRASTRUCTURE CORRIDOR

Bostwick Avenue pilot for a network of elevated street and utility corridors in the EcoIndustrial Park and surrounding areas

- innovative approach to adddress sea level rise in coastal flats
- lift road and utilities 3', integrating with existing road and drainage reconstruction initiatives
- new stormwater drainage pipe allows for disconnection of both public and private paved surfaces to reduce runoff, while serving as a best practice for the rest of the city
- potential for integration into broader surge protection alignment for Black Rock Harbor and the South End in later phases

B.3 COMPREHENSIVE FEASIBILITY STUDY FOR BRIDGE WITH INTEGRATED SURGE PROTECTION

A study is needed to assess all aspects relating to the protection of the Black Rock Harbor and adjoining communities in the future

- study will examine different measures for protecting Black Rock Harbor and water-related critical facilities that form the "Battery" that powers the city
- study will develop thorough benefit-cost analyses to compare alignment alternatives
- inovation in the concept of a multifunctional bridge with an integrated surge gate -- first of its kind in the US
- bridge will serve as pedestrian connection Seaside Park and the Black Rock community, and also provide a direct link to the nearby Fairfield Metro station
- study will examine design possibilities for enhancing the "human factor," including aesthetics and daily use of the structure

Innovative Surge Protection

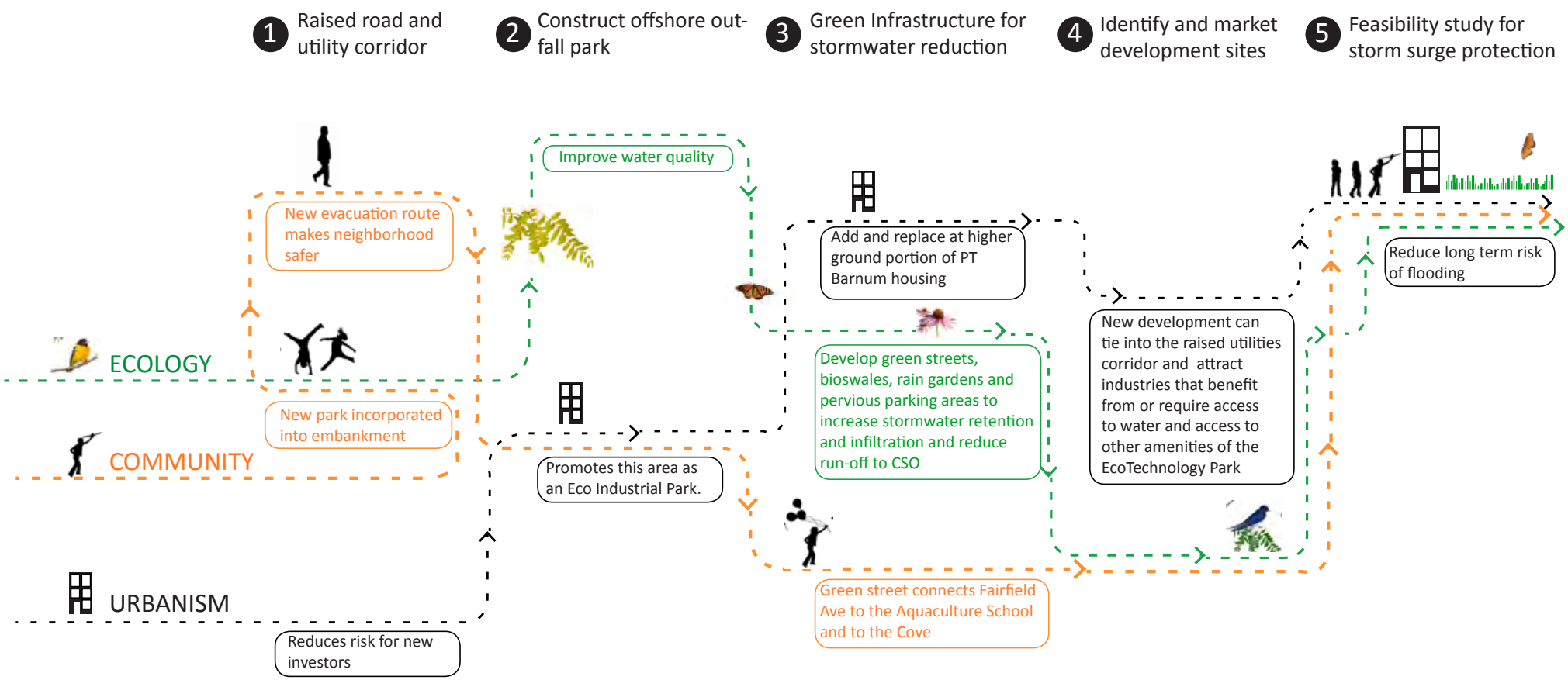
There are not yet any surge gates in the United States that are also designed to provide connectivity across water as a publicly-accessible bridge.

Elevated Infrastructure

An elevated street and utilities along the southern edge of Cedar Creek can double as flood protection with which to prevent storm surge from entering the low-lying areas of the South End.

Black Rock Harbor

Offhsore reef and wetland structures improve water quality year-round while the addition of a surge barrier at the mouth of the harbor provides critical assets and coastal neighborhoods with protection from storm surge.


1 Raised road and utility corridor
2 Construct offshore out-fall park
3 Green Infrastructure for stormwater reduction
4 Identify and market development sites
5 Feasibility study for storm surge protection
ECOLOGY
COMMUNITY
URBANISM
New evacuation route makes neighborhood safer
New park incorporated into embankment
Reduces risk for new investors
Improve water quality
Promotes this area as an Eco Industrial Park.
Add and replace at higher ground portion of PT Barnum housing
Develop green streets, bioswales, rain gardens and pervious parking areas to increase stormwater retention and infiltration and reduce run-off to CSO
Green street connects Fairfield Ave to the Aquaculture School and to the Cove
New development can tie into the raised utilities corridor and attract industries that benefit from or require access to water and access to other amenities of the EcoTechnology Park
Reduce long term risk of flooding

FIRST STEPS

3.3 DOWNTOWN

Downtown is the most critical piece of the city's resilience

All roads (and bridges, and tracks, and other systems) lead to the central business district. Downtown is the financial and governmental center of the city, where business decisions are made, where deals are struck, and where thousands of people could live and work.

As Downtown becomes more attractive to residents who value the convenience of walking to work, cultural attractions, and the train station, more services will coalesce here. Downtown is experiencing the beginnings of a renaissance – and it is the primary candidate for locating thousands of new residents over the next 75 years. Space for additional units and services must capitalize on the waterfront and the relatively steep topography that lifts downtown out of the floodplain.

Lower Floodwall

The Singer Street Redevelopment creates a secure platform for new development from the eastern edge of the South End to the railroad. The extension of the elevated Singer Street in S.1.2 to Downtown provides an elevated smart utility corridor that serves as an evacuation route and emergency acces to and from the South End during emergencies, and provides a new conduit for utilities including potable water, sewer and stormwater, power, and communications. The top of this corridor is initially set at 17' elevation to protect the historic districts and structures behind from sea level rise. Additional funding may be pursued through FTA and ConnDOT for evacuation routes, although this is not a state route.

Upper Floodwall

Continuing along the rail line to downtown and up to the Congress Street Bridge, the upper floodwall is a waterside promenade on two levels: a lower walkway to bring people into contact with the water's edge that includes mooring for ferries and visiting pleasure boats and a higher level to maintain access during emer-

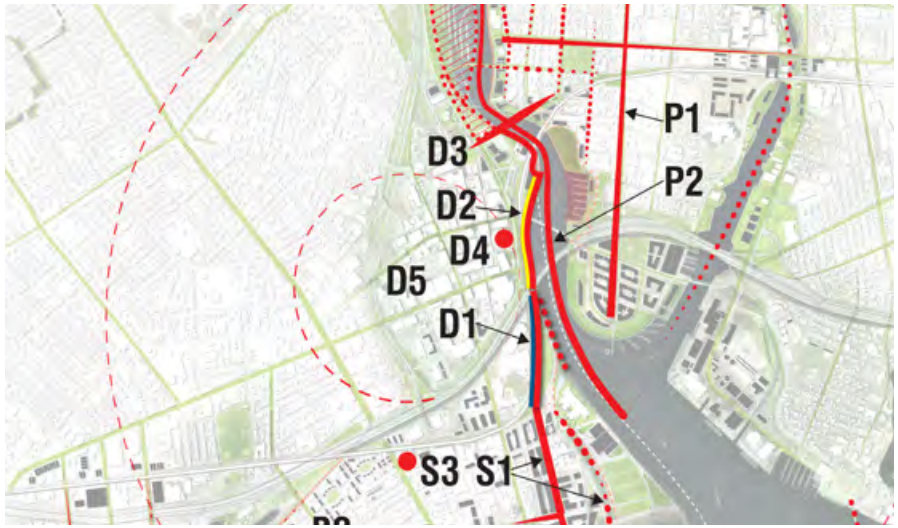
D.1 Lower Floodwall

D.2 Upper Floodwall

D.3 Congress St. Bridge and Green

D.4 Design Center and Community Development

D.5 Transportation and Investment Plan



gencies that links to the level of the station platforms and provides an unparalleled lookout onto the river and harbor. The project marries safety with economic development by incorporating places for new restaurants, attractions, and waterside amenities.

Congress Street Bridge and Green

Reconnecting the severed neighborhoods of Downtown and the East Side is a critical piece of Bridgeport's economic recovery. The Congress Street Bridge was frozen in an upright position in 1997 and finally removed in 2010. The bridge approaches lead to nowhere and businesses on both sides of the missing span continue to suffer from the 16-year interruption.

This proposal calls for a restored bridge for bicyclists, pedestrians, and vehicles. $1.8 million in funding was received for a pedestrian/bicycle link that would be lifted in and out with a crane at the times when waterborne commerce requires access to the Pequonnock River. Excluding vehicle crossings, however, would not restore the full capacity of this vital transportation link for both everyday use and connectivity during emergencies.

A full sevice bridge is necessary to connect Downtown with the original "suburb" of Washington Square Park, first set aside in 1851. The shaded square on the East Side will be balanced by a New England-style town green on the west side of the bridge at the terminus of Middle Street, providing a common open space for the State Superior Court, Fire House, and the Majestic Theatre. This landscape feature will encourage private development of vacant lots in this area, further activating the north edge of downtown.

Downtown Design Center

Downtown is the center of government and business, so locating additional resources for the implementation of resilience planning is desirable here. The Design Center will be a place for design professionals to continue implementing projects; provide technical assistance for moving, retrofitting, elevating, and floodproofing structures; and to build capacity within the city to modify policies to promote resilience. The Center will provide a stopping point for visitors and a meeting point for public officials, neighborhood residents, academics, students, and planning professionals.

One potential site is on the ground floor of the City Trust Building, with 1929 Art Deco-style offices recently converted into modern apartments (although other downtown sites may be considered as long as they are outside of the 2100 projected flood and surge zone). The Center would include the following program elements:

- Mapping of the City of Bridgeport, incorporating all current available information materials and displaying images of the en-

Downtown Bridgeport

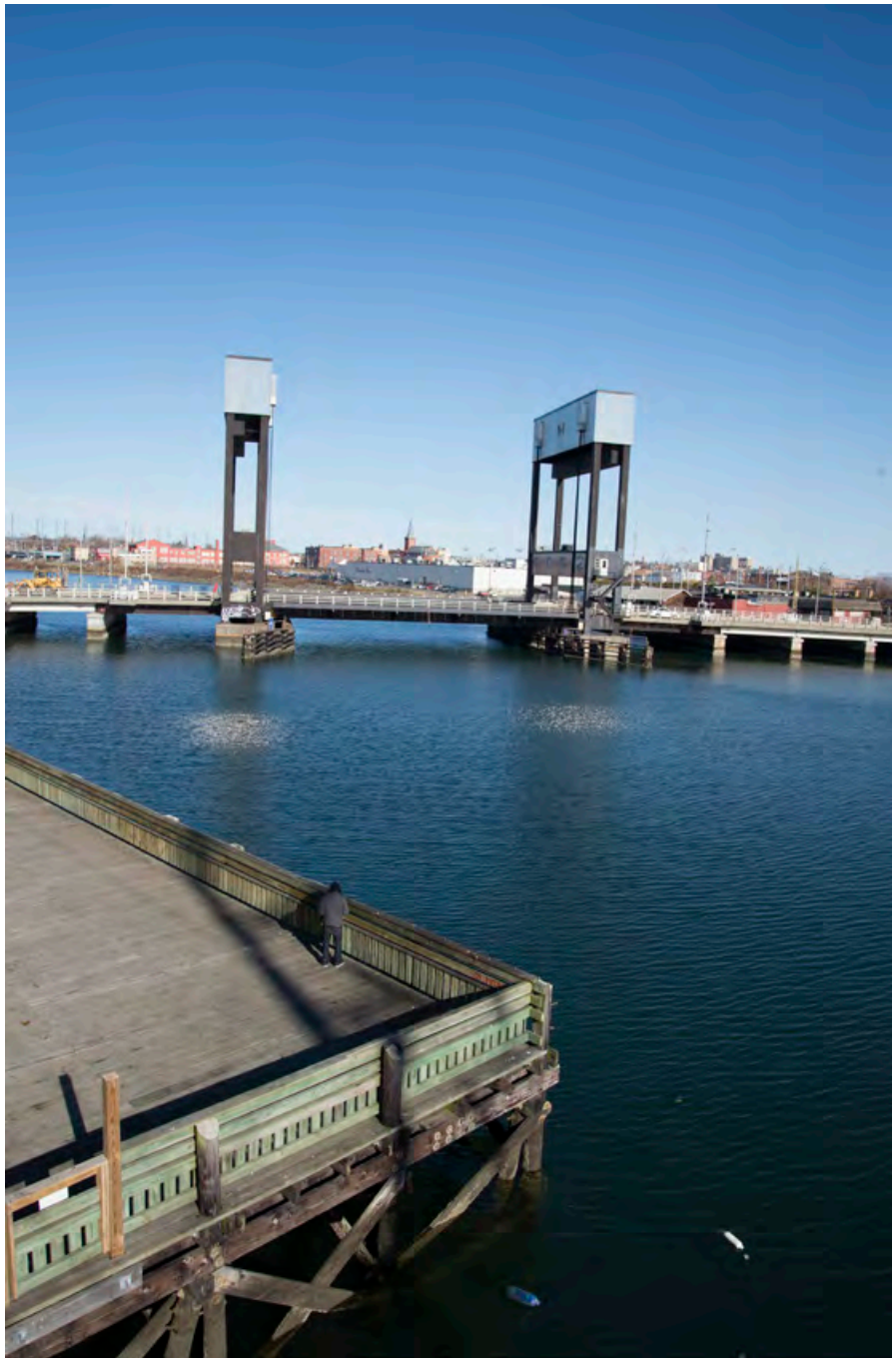
tire city or specific neighborhoods through arrays of wall monitors and computer kiosks. This information could be used generically as a guide to local attractions, restaurants, wayfinding, etc, as well as for the professional and academic pursuit of resilient design and planning.

- Exhibition spaces for display of materials pertaining to resilience tools and techniques (floodproofing, wall sections, rainwater harvest, solar energy, etc) and current development issues and projects.
- A flexible 80-seat hall for formal public meetings and presentations.
- Conference Room for meetings with property owners, neighborhood groups, etc.
- Workspace for 10 staff members, case managers, interns, and a director.
- Loft bedroom space for six students, interns, or travelling fellows.
- Support space – restrooms, showers, janitor, kitchen, and storage space.
- To encourage pedestrian and bicycle use, parking for 250 and renting facilities would be available for commuting and recreation. The proposed City Trust site is within 450' of the train station, and includes a parking garage for 295 cars.

This center will provide public education and community capacity-building services, as well as an off-campus design center to assist property owners directly. Although it will work closely with the City of Bridgeport, it could be operated by two universities: the University of Connecticut Landscape Program, and Yale Urban Design Workshop. Long-term operational funding for this non-profit will be from the universities, and from foundation grants.

Transportation and Investment Plan

Recognizing that the region's rail and highway infrastructure is both vulnerable to coastal storm impact and impedes evacuation between coastal and inland neighborhoods, these large aging systems will need to be addressed. As both the highway and the rail cut across the City of Bridgeport, they consume acres of potentially developable land, much of which is outside of the floodplain and represents opportunities to strengthen the urban fabric in resilient ways. Additionally, the rail takes a circuitous route through the city, adding significant travel time to those navigating the Northeast Corridor. Any travel time savings between New York and Bridgeport would bring this city closer to the orbit of the economic driver that New York is, and increase the likelihood of spillover activity and back office locations.



A rail realignment could simultaneously reduce travel between Boston and NYC providing benefit to all of New England, increase rail utilization reducing carbon emissions from transportation, increase economic prospects for Bridgeport by bringing it closer to Stamford and New York City, free up land for economic development in and around downtown in upland areas outside of the flood plain, and remove a barrier to evacuation during times of disaster between lowland and upland neighborhoods of the city.

The design team convened a spirited discussion of the future of transportation during the All-Scales Workshop to identify the scope of the problem, but appropriate solutions will require more time and careful study.

The Phase One request is to fund a Transportation and Investment Plan. DOT funding for major projects is allocated until approximately 2050, so there are no short-term projects. A strategy which looks at the future configuration of Interstate-95, the Amtrak line, and how existing infrastructure might be reconfigured for local access will consider the drawbacks of relocation, but also the benefits: the interstate alone occupies 85 acres of downtown.

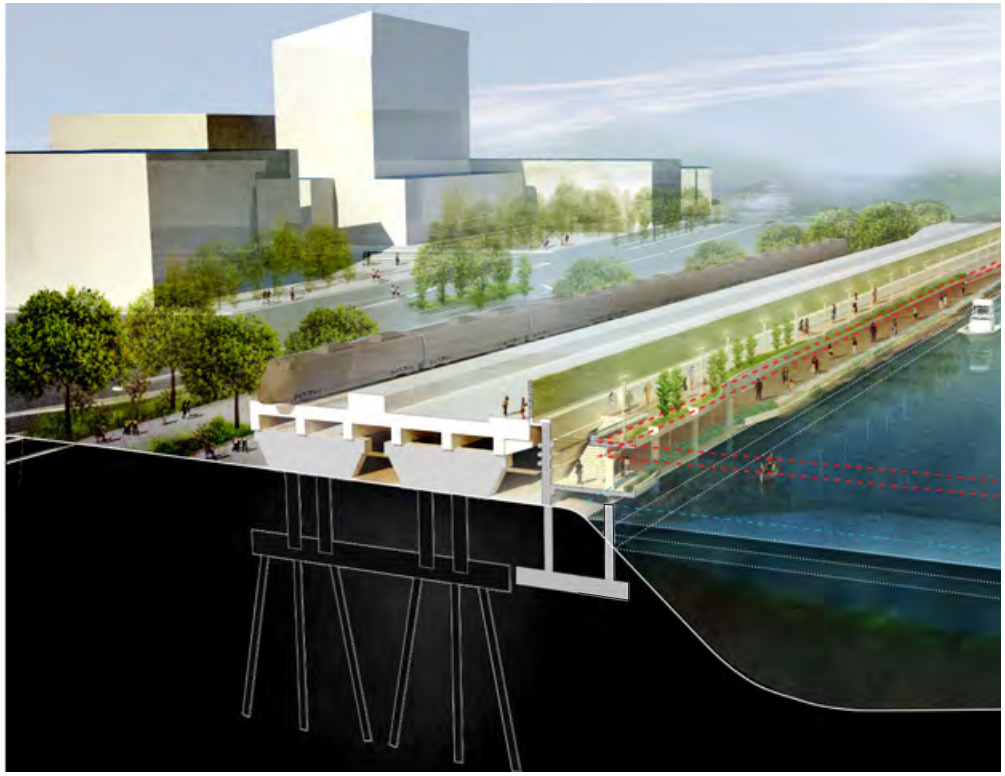
The plan will also examine the use of Transit Centers as an existing network of state-owned resources which may be modified to provide shelter during crises, as long as they do not interfere with service during normal periods.

The parking garage adjacent to the train station, for example, forms an excellent shelter location. Its unusual design, with flat floors and exterior walls, creates the ideal base for a temporary shelter that addresses another concern of evacuees -- the desire to remain with their pets, their possessions, and their families. Often, their most valued possession is their vehicle, so keeping it with them is critical during the evacuation period.

Transit Shelters need a hardened core to keep people safe during the event, modified to add sliding hurricane shutters over the existing ventilation windows. At each level, restrooms and showers are added to serve a capacity of approximately 200 people per floor. The corner towards the public plaza becomes a visual reminder of the fluidity of resilience, and the changes it petitions our cities to make.

A solar canopy providing 0.8MW energy will ensure uninterruptible power, and a rainwater collection tank will maintain wastewater service. A backup communication base station makes this a dependable hub, and extends wifi for the area. A bridge connects the garage to the upper level of the train platform, ensuring safe passage even in flood conditions.

Critical Transit Lines Along the Downtown Water's Edge



D.1 LOWER FLOODWALL

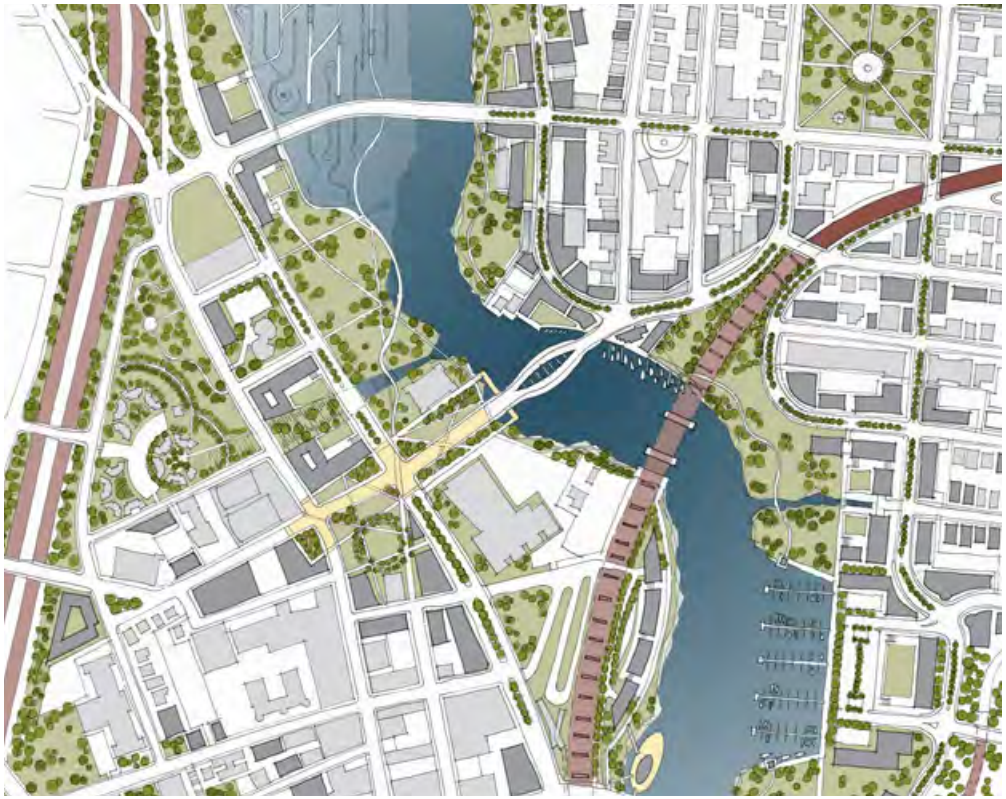
A protective floodwall elevated to 17’ that connects from the elevated Singer Street in the South End to the existing railroad station downtown

- level of protection provided is for the current 100-year Base Flood Elevation
- floodwall is designed with integrated high promenade, which allows for continuous public access along the riverfront

D.2 UPPER FLOODWALL

An extension of the Lower Floodwall, also at the 21’ elevation, from the railroad station to Congress St.

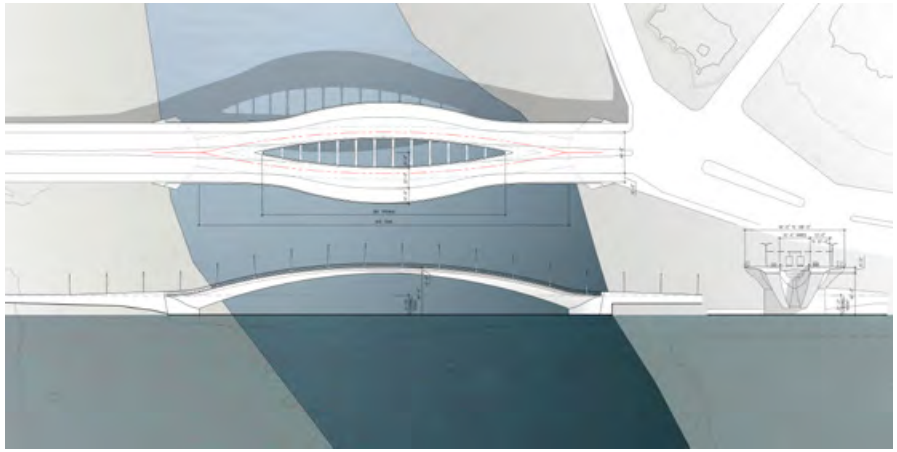
- level of protection provided is for the current 100-year Base Flood Elevation + anticipated sea level rise for 2050, which provides the highest leveel of protection for the city’s urban core
- Provides continuous line of protection that facilitates development along the riverfront
- features both high and low promenades, as shown in the rendering, above left, that reconfigures the river’s edge to encourage public inhabitation and commercial activity along the waterfront



D.3 CONGRESS ST. BRIDGE AND GREEN

Re-establishment of a critical link between Downtown and East Side neighborhoods

- restores pedestrian and automobile connections across the Pequonnock at important juncture at the urban core
- replacement bridge was allocated for $40 million federal dollars in 2010, but project stalled
- two designs were developed and cost estimated; a recreation of the concrete and steel bascule bridge and a slender, arching steel bridge with generous pedestrian and bicycle lanes



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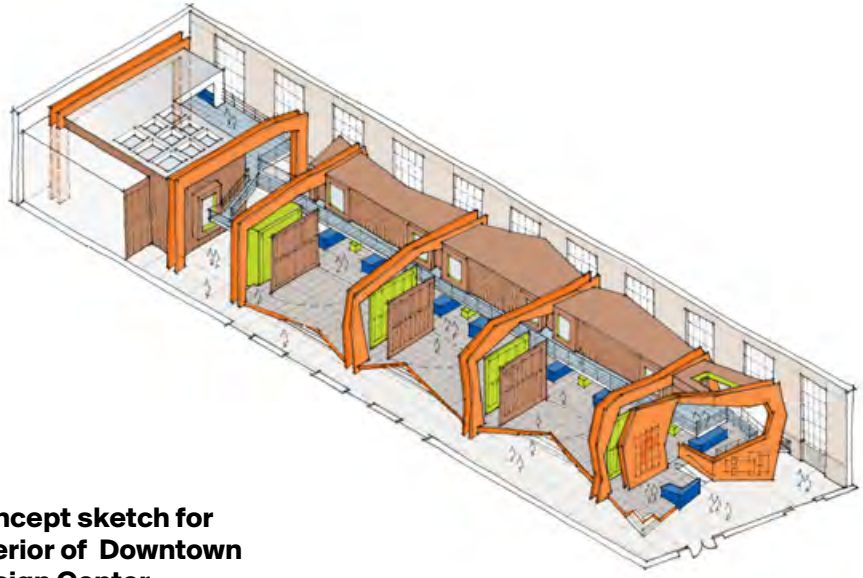


Concept sketch for interior of Downtown Design Center

D.4 DOWNTOWN DESIGN CENTER AND COMMUNITY DEVELOPMENT

A center for facilitating implementation of the Resilient Bridgeport framework, for design education, and resilience research

•continues the community-engaged design process initiated by Rebuild by Design, with collaboration of institutions of higher learning

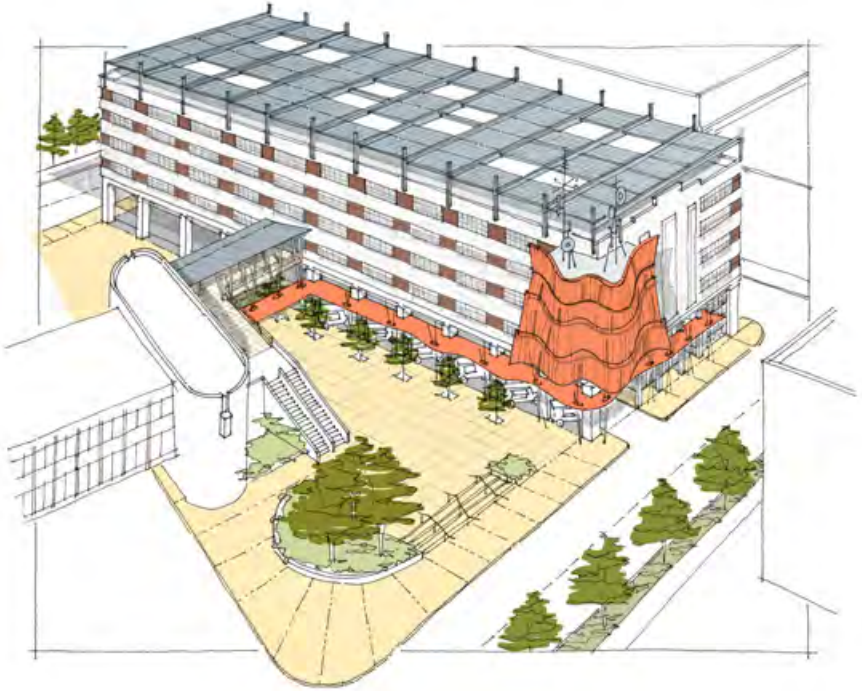
• manages a high-production program for resiliency improvements and rehabilitation

• researches and develops cost-effective strategies for resilient construction

• develops and supports a network of neighborhood-based resiliency services and shelters facilitated by a small grant program

• located in a rehabbed downtown building to serve as catalyst for downtown redevelopment

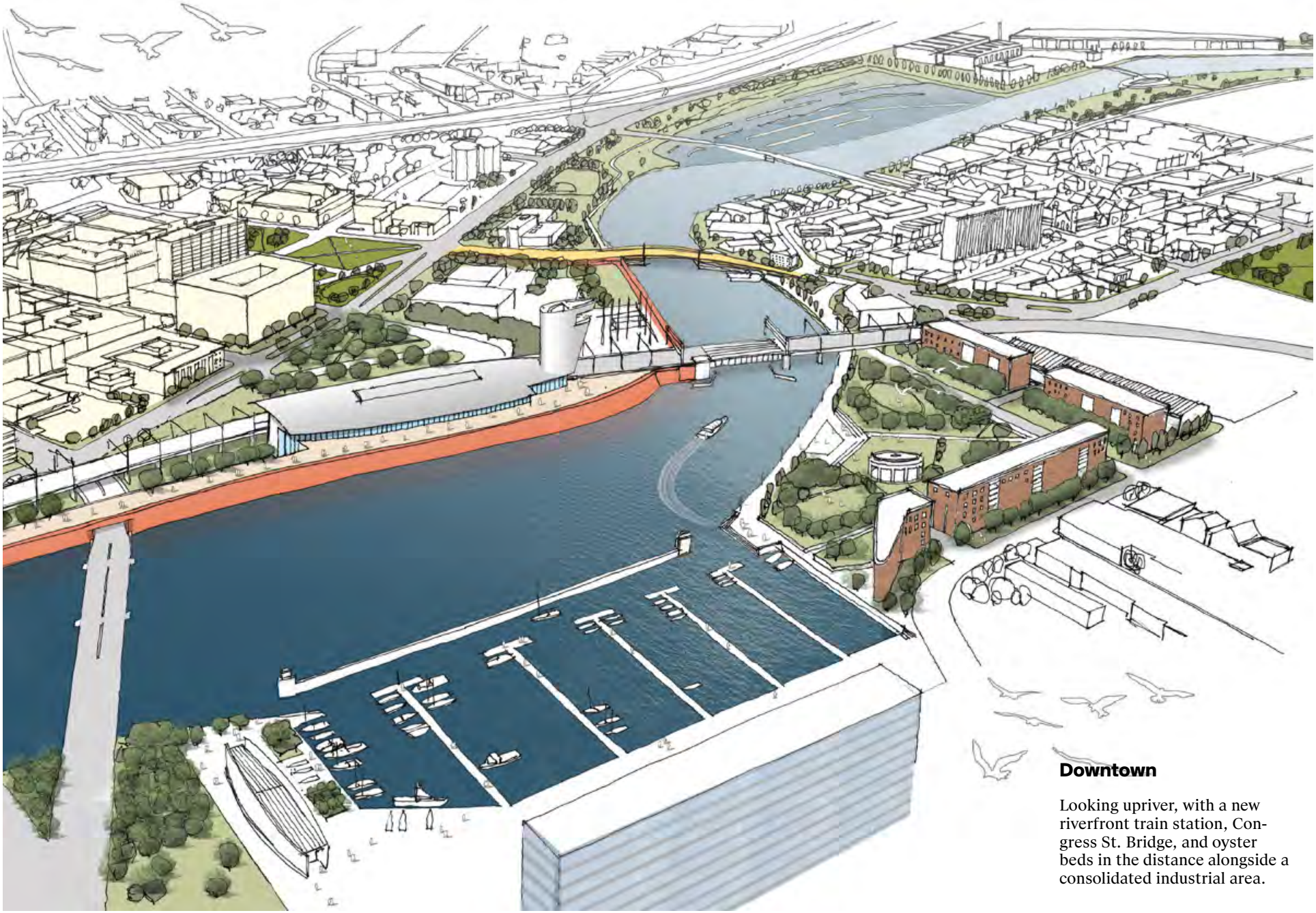
Precedent: Gulf Coast Community Design Studio



D.5 TRANSPORTATION AND INVESTMENT PLAN

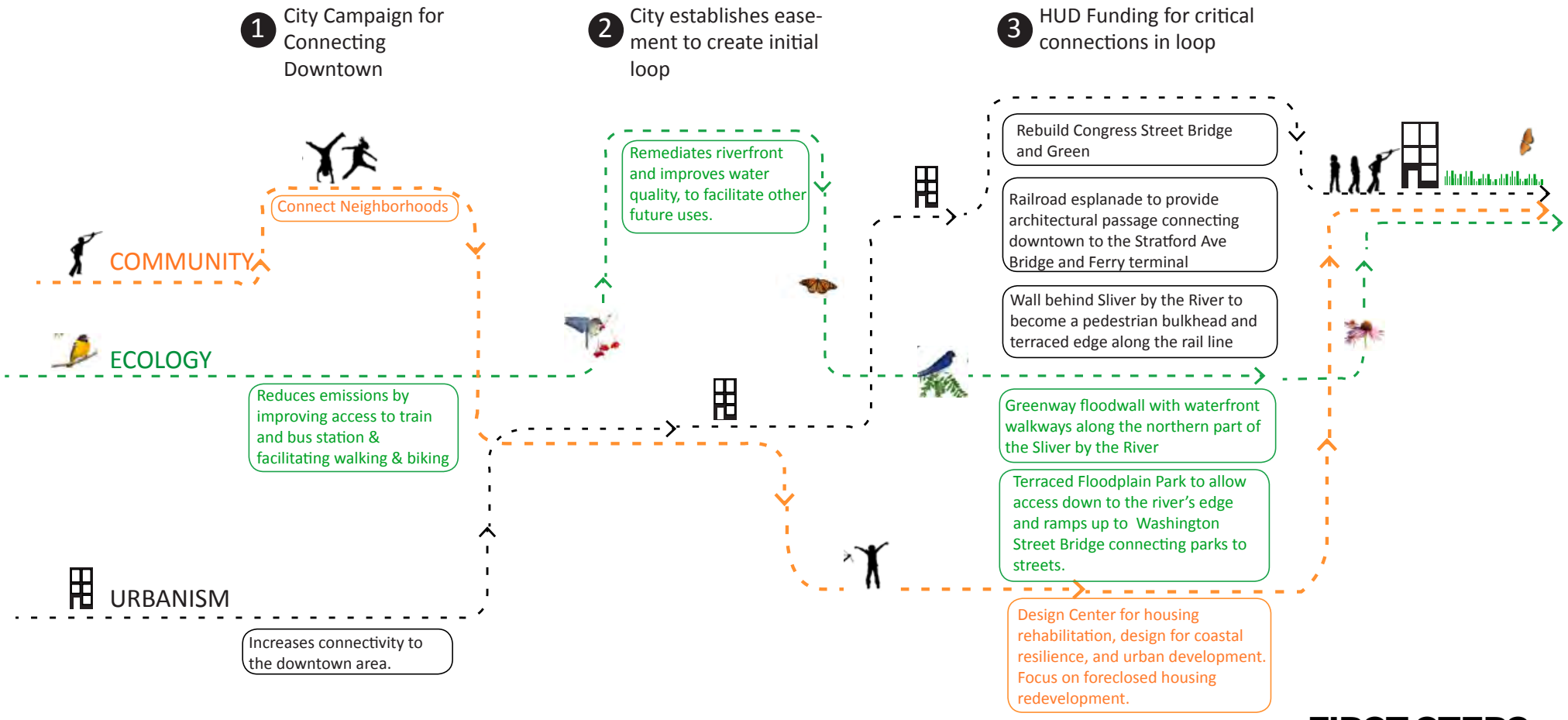
A plan for reimagining the future of transit in Bridgeport, including the possibility of publicly-owned parking garages serving also as resilience centers.

- review and catalog current and projected regional transportation system.
- focus and remap as relevant current and projected system and alternatives.
- assess impacts on Bridgeport and environs
- develop and assess alternatives for multi-modal transportation hub/station.
- plan development of the station area, with connections to and through new infrastructure, Downtown, East Side and South End.
- identify priority properties for development.
- identify network and systems for future and locations of key elements.
- identify long-term opportunities for redevelopment with rail and highway alternatives.
- identify mid-term targets for enhanced economic and environmental performance of Downtown
- develop design and implementation plan for parking garage resilience center



Downtown

Looking upriver, with a new riverfront train station, Congress St. Bridge, and oyster beds in the distance alongside a consolidated industrial area.


1 City Campaign for Connecting Downtown
2 City establishes ease-ment to create initial loop
3 HUD Funding for critical connections in loop
Connect Neighborhoods
COMMUNITY
ECOLOGY
URBANISM
Reduces emissions by improving access to train and bus station & facilitating walking & biking
Increases connectivity to the downtown area.
Remediates riverfront and improves water quality, to facilitate other future uses.
Rebuild Congress Street Bridge and Green
Railroad esplanade to provide architectural passage connecting downtown to the Stratford Ave Bridge and Ferry terminal
Wall behind Sliver by the River to become a pedestrian bulkhead and terraced edge along the rail line
Greenway floodwall with waterfront walkways along the northern part of the Sliver by the River
Terraced Floodplain Park to allow access down to the river's edge and ramps up to Washington Street Bridge connecting parks to streets.
Design Center for housing rehabilitation, design for coastal resilience, and urban development. Focus on foreclosed housing redevelopment.

FIRST STEPS

3.4 PEQUONNOCK

The Pequonnock River runs from the Town of Monroe -- approximately 15 miles north -- through the city of Bridgeport and down to the harbor in the southwestern portion of Connecticut and out into Long Island Sound. Land use within the watershed varies from undeveloped or lightly-developed areas near the headwaters in Monroe, portions of which serve as a backup drinking water supply; to low- and medium-density residential and commercial uses through Trumbull and the northern portions of Bridgeport; and finally to downtown and former industrial and manufacturing uses near the mouth of the river at Bridgeport Harbor. Multiple towns and over 15,000 acres of land fall within the Pequonnock River watershed.

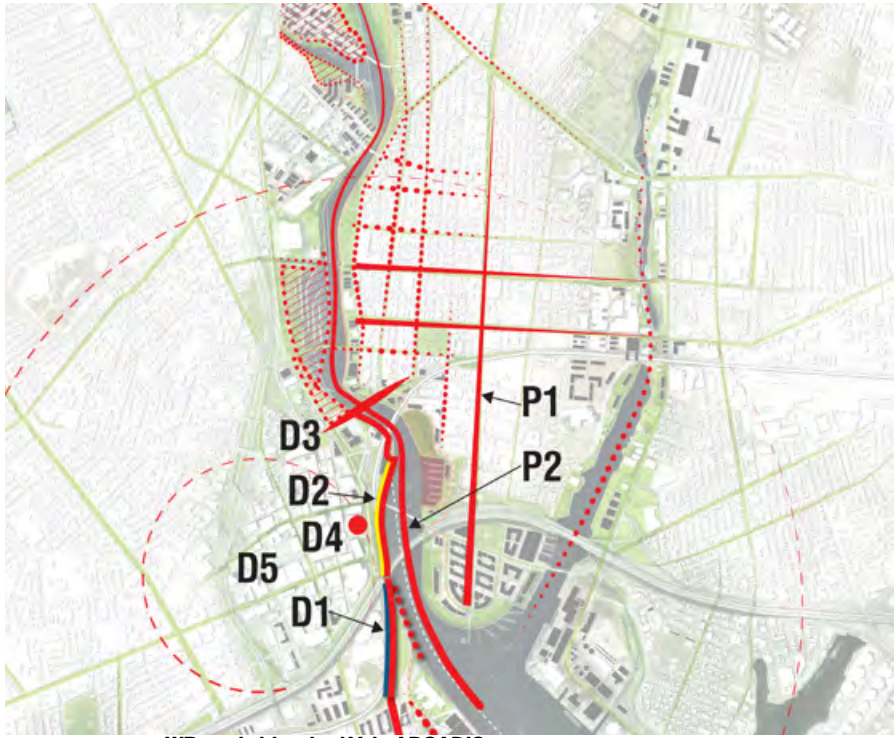
Historical land uses, including heavy industry and manufacturing, impact the quality of the water, which currently does not meet minimum standards for recreation or habitat for fish, or other aquatic life, and wildlife along approximately 80% of the Pequonnock River. Urbanization patterns and post-industrial brownfield sites and contamination along with multiple combined sewer outfalls continue to impact water quality. Adverse impacts on this river and within its watershed area -- including the addition of impervious surfaces, soil compaction, and vegetation removal in sensitive watershed areas -- have broader ecological implications and exacerbate stormwater runoff issues. These changes to the built environment reduce water interception, evapotranspiration, and infiltration and increase the quantity and lower the water quality of runoff. Inadequate handing of runoff loads by conventional infrastructure places Bridgeport at greater risk for receiving polluted water which not only has ecological implications, but impacts human health and well-being as well.

The river is tidal through most of the city, including the industrialized areas south and east of Boston Avenue and including Island Brook Avenue down to the River Street Bridge. The river transitions into freshwater above Bunnell's Pond dam. In fact, the park and dam in Glenwood Park are pivotal for the city. Thus, the location of Beardsley Park, an Olmsted-designed park, crucially links the upper freshwater suburban and rural portion with the lower estuary

P.1 East Side Green Streets

East Main, Arctic, Barnum

P.2 Lower Pequonnock Design and Implementation Plan



WB unabridged w/ Yale ARCADIS

below the dam-med portion of the Pequonnock. The Beardsley Zoo and Park function as a portal to the city where the regional community visits for park and zoo programming. Originally, fish made their way up into the watershed but the dam and other obstructions have deterred fish passsage. A recently constructed fish ladder creates some opportunities for alewife and other fish to move upstream.

The communities of the Greater Bridgeport Planning Region are working to implement a regional bikeway plan, Pequonnock Valley to the Sound, which includes the development of a continuous 16-mile multi-use trail from the Newtown/ Monroe town line to Bridgeport's Water Street Dock. Much of the trail follows the abandoned and inactive Housatonic Railway line and the Pequonnock River Greenways and recreational trails, however, the trail is currently obstructed by Highway 1 and Chopsey Hill Road.

Resilient Bridgeport recognizes the value of the Pequonnock as a confluence of multiple natural and man-made systems that can become a model for adaptive urban ecosystem design that benefits the social (recreational, educational), economic (sustainable business, aquaculture, and design center), and environmental (remediation of the riparian watershed to improve the health of the river) aspects of the Long Island Sound and enhance the quality of life and the wildlife that rely upon them.

East Side Green Streets

Downstream flooding along the Pequonnock is tied to upstream impervious surfaces, storm events and tidal action. The dominant land use within the Pequonnock floodplain in Bridgport is industry, though many industries have left and what is left behind are vast industrial brownfield sites. Neighborhoods surrounding the Pequonnock have limited access to the riverfront. Part of the proposal is to recapture riverfront along the Lower Pequonnock River through redevelopment efforts following the lead of the recently redeveloped Knowlton Street Park brownfield site. We are proposing to build on these redevelopment catalyst sites along the water with green streets that can tie infill and rehabilitated housing within the neighborhoods to the east of the Pequonnock back down to the river corridor, and serve as a catalyst for broader economic development.

Lower Pequonnock Design and Implementation Plan

The proposal includes the development of a plan that reenvisions the entire length of the Lower Pequonnock.

A large interconnected park and connected bike path system is seen as a critical connector linking Olmstead's Beardsley Park to the north to Seaside Park along the harbor via remediated brownfield sites along the Pequonnock to Sound. To phase these proposed redevelopment strategies we plan to catalogue property ownership and explore opportunities to reorganize and redevelop commercial and industrial zone around US Highway 1, converting property owners to shareholders.

Alongside the goal of initiating flood plain excavation strategies and programs to decrease risk, improve ecology, and enhance aquaculture for water quality treatment, we are also seeking to reconnect Bridgeport to its upland watershed neighborhoods. To do so, we propose a new and enhanced fish ladder connecting over the existing dam and a complementary native fish hatchery with alewife and american eel introduced to help promote fish migration upstream. Establishing viable habitats in Bridgeport will put pressure on upstream

Bunnell's Pond

The Pequonnock River has a scenic quality in Beardsley Park at the northern end of Bridgeport that disappears rapidly beyond the dam at the lower end of Bunnell's Pond, which poses a challenge to fish swimming upstream, despite the addition of a fish ladder that is visible in the mid-ground.

communities to reduce obstructions and improve fish habitat. To support this agenda, we are proposing to model the Pequonnock River watershed including interactions of coastal surge, urban stormwater, and river flows. We will evaluate and propose strategic daylighting projects for the Pequonnock River and Island Brook as well as the inland buried river, the Ox Brook combined with proposals for dry feet and wet feet development types. Our watershed study is intended to help towns coordinate around habitat improvement as well as to promote proactive land use changes including opportunities for transfers, using sending and receiving zones. The daylighting proposals will be combined with approaches to improve hydrologic function and to explore energy generation and capture from flowing waters. Along with the watershed study, we will develop an ecological assessment of the larger urban riparian system to establish a baseline of the current species and related health of the river. Building on this we propose to create ecological design and adaptive management design guidelines to facilitate long term adaptive management. We will work with each municipality to establish a Watershed Overlay District in each town along the river from Monroe to Trumbull to Bridgeport. Finally, to complement the aquaculture and fishery production, we propose to develop a fin-fish economic development and industrial waterfront redevelopment study to define locations and potential economic values of fisheries. The aquaculture and fisheries components provide added value within the Beardsley Park system, where plans for future access and educational participation are in place including demonstration projects for schools in the region (e.g. Fairchild-Wheeler Inter-district Magnet High School Biology/ Zoology concentration, Bridgeport Aquaculture High School, Trumbull Agri-science/Biotechnology Regional High School, Discovery Magnet Middle School, local colleges and universities, etc.). The location of Beardsley Park provides easy access for all of the surrounding municipalities via the highway system and the Rail to Trail Project, which encourages pedestrian-friendly and complete streets designs. The proposals that we are making all complement and build on the current infrastructure development and the scale of the policies and projects currently underway in this Bridgeport region and in the Pequonnock River Watershed.

The plan will also include proposals for a combination of new neighborhood types with both “dry feet” and “wet feet” housing developments combined with parklands, greenways, and daylighting strategies to reactivate the riverfront. These new neighborhoods will have ready access to shared recreational and public amenities along the water. At the same time, these neighborhoods can adapt to flooding and promote both infiltration and ecological function. We propose to evaluate existing commercial and industrial establishments with a goal of generating development plans for a commercial zone along US Highway 1/Boston Avenue to Route 8 and sending some of the big box development within the floodplain to other locations to facilitate daylighting and excavation for improved hydrology, increased water retention volumes, and aquaculture.

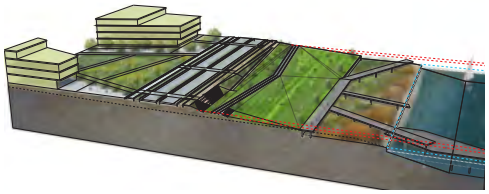
Abandoned Riverfront

The Pequonnock was once a thriving industrial corridor.

P.1 EAST SIDE GREEN STREETS

Revitalization through Green Infrastructure investments in the East Side

- Barnum, Arctic and East Main Street are the first of a network of streets to be reconstructed
- curb extensions, urban bioswales and tree vaults will detain, filter and infiltrate stormwater
- runoff interception will reduce street flooding and improve water quality in downstream water bodies
- green streets create attractive shaded corridors that connect neighborhood residents down to the riverfront



P.2 LOWER PEQUONNOCK DESIGN AND IMPLEMENTATION PLAN

A plan to redevelop the river as a critical ecological, industrial, and cultural resource for the city.

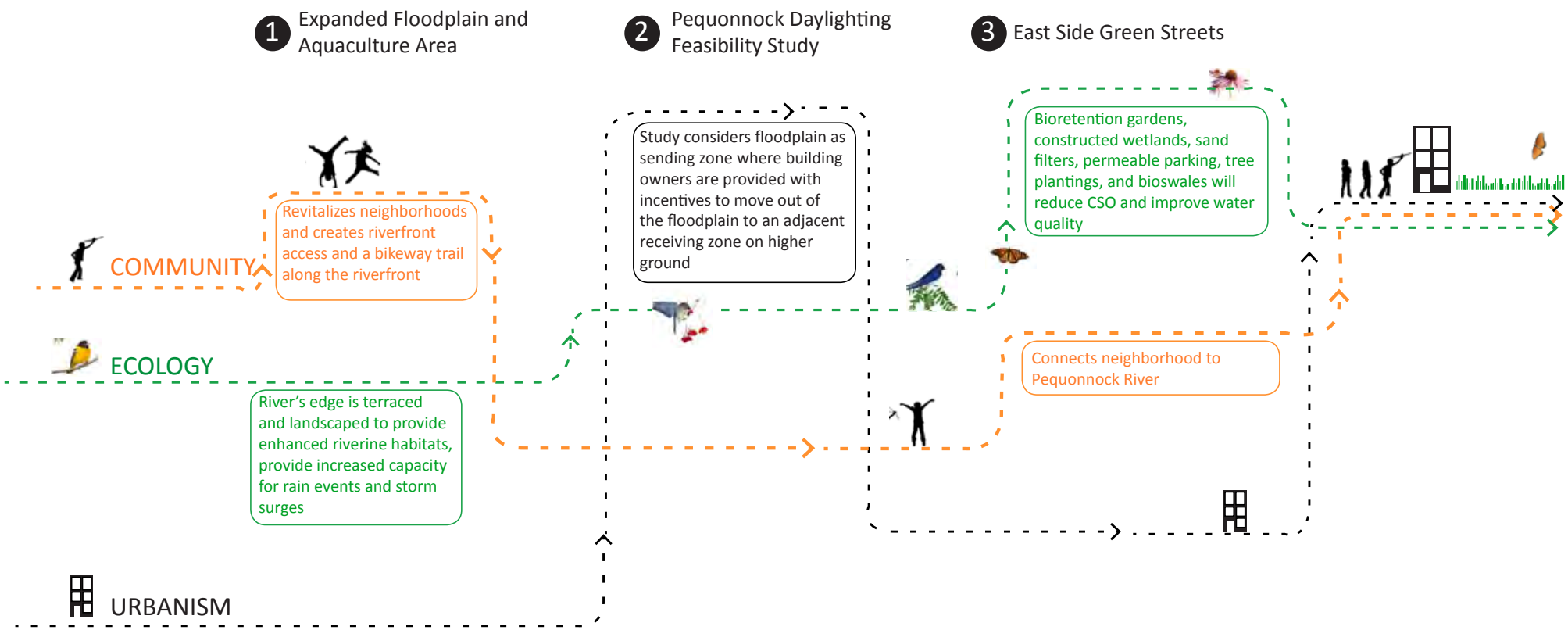
P.2.1 Design and Implementation Plan from Beardsley Park to River Street

P.2.2 Regional Watershed Planning Documentation

P.2.3 Aquaculture and Fin-fish Economic Development and Industrial Redevelopment Study

Island Brook Junction
Potential to daylight parts of the Pequonnock that are now buried in a culvert and to incorporate new mixed-use development along revitalized waterways

Reclaiming the River
View looking downstream
towards the Long Island Sound


1 Expanded Floodplain and Aquaculture Area
2 Pequonnock Daylighting Feasibility Study
3 East Side Green Streets
COMMUNITY
ECOLOGY
URBANISM
Revitalizes neighborhoods and creates riverfront access and a bikeway trail along the riverfront
River's edge is terraced and landscaped to provide enhanced riverine habitats, provide increased capacity for rain events and storm surges
Study considers floodplain as sending zone where building owners are provided with incentives to move out of the floodplain to an adjacent receiving zone on higher ground
Bioretention gardens, constructed wetlands, sand filters, permeable parking, tree plantings, and bioswales will reduce CSO and improve water quality
Connects neighborhood to Pequonnock River

FIRST STEPS

4 IMPLEMENTATION

4.1 COST BENEFIT ANALYSIS

4.2 IMPLEMENTATION COALITIONS

4.3 FUNDING SOURCES

4.4 INTEGRATION WITH EXISTING INITIATIVES

4.1 COST BENEFIT ANALYSIS

This review provides a high-level estimate of the costs of project components, and to the extent possible, the quantifiable benefits of those same interventions. The team used FEMA's CBA toolkit Damage Frequency Assessment module for a preliminary benefit cost review. Factors for building, contents, and displacement costs have been included, along with anticipated loss of electrical utility and evacuation costs. Casualties have been calculated, but not included in the review ratio. Also not included in the CBA were the costs associated with emergency management. We know, however, that during Hurricanes Irene and Sandy the city alone provided over $3.2 and $3.6 million respectively in public assistance. The review has been conducted using both the FEMA standard discount rate of 7% and Rebuild by Design's recommended rate of 5%.

Bridgeport presents a number of unique challenges and it was an explicit decision of the project team to pursue only projects that had immediate co-benefits to the community beyond reducing physical damages, loss of function, casualties, and emergency management costs that are typically calculated by FEMA in a CBA. Proposed projects provide co-benefits in terms of improved environmental quality, long-term economic development potential, or improved connectivity and cohesion (reviewed in the figure below). In some cases these may overshadow the flood risk reduction benefits in the short term. Because many of these benefits do not lend themselves easily to quantification, we consider this cost benefit analysis to be conservative. Furthermore, the methodology used did not fully capture project-level costs and benefits, so for example the fact that Bostwick Avenue (where the elevated utility corridor is to be sited) is in a very poor condition and needs to be replaced within the next five years is not captured in this analysis.

Cost Benefit Analysis

The full review of assumptions and the data used are provided in the supporting materials; however, a few key assumptions used for this analysis include:

- A project horizon of 50 years
- Constructed protective alignment would provide protection to the 2000 year flood event
- Constructed protective alignment would reduce losses to half of the 100 year flood event after the level of protection is breached.
- Interrupted electricity service costs ($131/day) were assumed to last for 45 days following a 100-year event and 130 days following a 500-year event
- Seven days of evacuation for a 100-year event and 14 days for a 500-year event
- All land uses in the floodplain assumed to be either commercial or residential
- Used constant 2014 prices
- A building replacement value of $100 per sq ft. for residential & commercial properties

Analysis of the parcel level data available for Bridgeport also required several intermediate assumptions including:

- Exclusion of buildings that shared the same address, build-

ings without a building elevation or building value (assumed to indicate a vacant lot), buildings which did not have square footage data (assumed to be vacant), structures outside of the 100-year floodplain and excluded all P.O. boxes.

- If a structure had neither BFE nor elevation, the flood depth was assumed to be zero; however, the structures were not excluded as there are still benefits associated with a 0' flood depth due to the presence of a basement. However, this should be reviewed in the next iteration to understand if this is overly conservative.

- For structures within the benefiting zone and in the floodplain that did not have a BFE associated with the 100-year flood, the BFE was assumed to be 13' as this was the average for all structures.

- If no stories were listed, it was assumed to be 1 story.

- Basements were assumed.

- Square footage was determined by multiplying the first floor square footage by the number of stories to calculate rental losses.

Our analysis has assumed a reference situation where large-scale multi-year public infrastructure projects are not completed within the next 50 years to protect the South End, Black Rock and downtown against rising flood risks. We believe this is consistent with the pace of large-scale public infrastructure investments given recent constraints and the reality of very limited private funding sources available to augment public investment.

Interviews over the past several months have revealed that the lack of flood defenses and increasing flood insurance rates is already having a strong negative impact on the already strained real estate market in the South End. Without outside intervention to ensure the safety of these homes, it is reasonable to assume conditions could continue to decline as flooding becomes more frequent and premiums rise.

Coastal flooding issues and rising groundwater tables are also exacerbated by aging sewer infrastructure. While the city has plans to upgrade and fully separate the combined sewer and drainage network to come into compliance with federal regulations, this costly endeavor (estimated to cost upwards of $300 million) is not expected to be completed until 2040. Without the strategic green infrastructure investments proposed it is reasonable to assume that the city will be required to invest in the full cost of the upgrade. And while that work is being completed, combined sewer overflows would continue to degrade water quality and prevent recreational and commercial uses in the city waterways. Furthermore, we believe it is reasonable to assume that given the high cost of this long-term upgrade, very limited resources would be available for additional improvements such as using treatment wetlands to further improve water quality, enhancing streetscapes with green infrastructure, or redesigning parks to retain and mitigate stormwater run-off.

We also considered in our reference scenario that without intervention the area of wetlands and shellfish beds would continue to diminish. As sea levels rise coastal ecosystems, such as saltwater marshes, can loose area of viable habitat and therefore

shrink overtime if suitable migration corridors are not in place. As Bridgeport has already experienced, the loss of these fringing ecosystems creates a spiral of worsening water quality. While overall trends have been positive nationally in improving water quality, the legacy pollution and continued industrial activity in Bridgeport create a very challenging environment for natural recruitment. Without specific interventions to restore these ecosystems, it is not unreasonable to assume that they could diminish in area due to the stress of climate change. Without active intervention along Pleasure Beach, for example, it is likely that another breach could occur in the barrier island, which would change the wave action and tidal range in the estuary behind it. These changes could then have a cascading effect on the wildlife refuge behind it as marshes retreat and shrink to adjust to the new wave environment.

While Bridgeport is protected by natural barriers such as Pleasure Beach and Seaside Park in the South End, it is very likely that without the construction of protective living shorelines their capacity as natural buffers would diminish. In the case of Seaside Park, the damage to the park assets such as the concrete walkway and breakwater represented the single biggest expense for the city following Sandy and it is reasonable to assume that these damages would only continue to increase without the proposed living shoreline.

It is reasonable to assume that without a holistic and comprehensive intervention such as the one facilitated by the Rebuild by Design process, many of these problems would be addressed in a piecemeal way without consideration for (or opportunity) to integrate multiple concerns and implement more effective and efficient solutions. Integration of flood protection, green infrastructure, neighborhood transformation, and recreational amenities into coastal and riparian strategies allows all of these problems be addressed in a more cost-effective and sustainable way. For example, without the concerted interventions proposed to simultaneously reduce sewer overflows, filter urban run-off with constructed wetlands, improve water clarity and reduce nutrient loading with living reefs to it is reasonable to assume it would take many more years (if not decades) before local fisheries and beaches would be restored to historic conditions. However, this process can accelerate that progress and facilitate the rebuilding of a strong, local fishing industry and attractive natural beaches that are an anchor for the city's tourism industry.

Many of these benefits are difficult to quantify and model and therefore were not included in the cost benefit analysis; however, they would provide substantial contributions to the benefits of flood protection that are captured in the BCA.


Scoring
3 Critical
2 Very beneficial
1 Beneficial
0 Neutral
-1 Negative
-2 Very Negative
-3 Highly Detrimental
? Impacts unknown
Environmental benefits
Ecosystem services
Energy efficiency
Water quality
Air quality
Carbon emissions
Economic benefits
Strengthens municipal tax base
Creates synergies with other sectors
Direct effect on local economy
Competitiveness through specialization
Property values (non-flood protection)
Social benefits
Identity & social cohesion
Affordable housing
Recreational value
Protects cultural & historic sites
Strengthens human capital
Project
South End
Neighborhood Transformation Grant with Resilience Education
Living Shoreline: Constructed Breakwaters with wetlands
Multifunctional and Integrated Protective Alignment
P'q River
East Side Green Streets
Lower Pequonnock Design & Investment Plan
Black Rock
Offshore and Onshore Park
Elevated Infrastructure Corridor
Bridge with Integrated Surge protection (feasibility study)
Downtown
Floodwall
Congress Street Bridge & Green
Downtown Design Center & Community Development Plan
Bridgeport Transportation and Investment Plan

4.2 IMPLEMENTATION COALITIONS

South End

S.1 Multifunctional and Integrated Protective Alignment

The City of Bridgeport and Greater Bridgeport Regional Council will lead this work. As the proposal will protect and impact key historic, economic and community resources, implementation of the work will be multidisciplinary with expertise from housing and marine science to parks and historic preservation. Key local participants along with the WB unabridged team include the Nature Conservancy, the University of Bridgeport, the South End Neighborhood Revitalization Zone (a local planning entity that represents residents and stakeholders in the South End), the Downtown Special Services District, Amtrak, Metro-North, the Yale Urban Design Workshop, Yale Urban Ecology and Design Lab (that has constructed rain gardens in the area) and Long Island Sound Futures. The initiative will work in cooperation and with support from the USACE, Connecticut Department of Energy and Environmental Protection (DEEP), EPA, USDA, US Fish and Wildlife, the National Parks and Historic Preservation, the State of CT Historic Preservation and Museum Division, FedDOT and ConnDOT, It is anticipated that part of this initiative will be to build a "Friends of Seaside Park" organization that will work with the City to make this internationally significant attraction more sustainable.

S.2 Living Shoreline

This element will be integrated into the Multifunctional and Integrated Protective Alignment described above.

S.3 Neighborhood Transformation with South End Resilience Education and Community Center

Housing Authority of the City of Bridgeport (HACB) with experienced LIHTC developers JHM Companies, POKO Partners, the WB unabridged Team, and the CDC, Bridgeport Neighborhood Trust working with HACB's People Partners, which is a consortium of service providers united by a partnership agreement similar to that formed for the HACB's P. T. Barnum Housing Complex, which recently was recognized with the HUD Secretary's Award for Public-Philanthropic Partnership including the following local service providers: New Haven Home Recovery (NHHR), Fairfield County Community Foundation (FCCF), the Metis Association, Child First, Bridgeport Child Advocacy Coalition (BCAC), Bridgeport Board of Education, The Coastal YMCA, Bridgeport Daycare, Hill Neighborhood House (NHN), The WorkPlace/ Career Resources, Action for Community Development (ABCD), the Housatonic Community College and the Bridgeport Area Youth Ministry (BAYM). This partnership will provide resident outreach and communication, research and identification of Best Practices, case management assessment, personal counseling and coaching, individual family action plans and supportive services program management and coordination for each MV household member. Support is also requested from HUD, FEMA, the Economic Development Administration, Department of Labor, Department of Health and Human Services and USDA.

Black Rock Harbor

B.1 Offshore Outfall Park with Study for Onshore Mitigation and Neighborhood Transformation

The City of Bridgeport, the Housing Authority of the City of Bridgeport and the BlackRock NRZ will lead this neighborhood transformation initiative with services provided by the WB unabridged Team working with the Design Center (Project D.4), Bridgeport Neighborhood Trust, and other regional stakeholders such as the Nature Conservancy and Long Island Sound Futures in cooperation with USACE, Connecticut Department of Energy and Environmental Protection (DEEP), EPA, ASDA, US Fish and Wildlife, FedDOT and ConnDOT.

B.2 Elevated Infrastructure Corridor

These elements will be implemented in conjunction with the planning for the above item B.1 with the same team.

B.3 Comprehensive Feasibility Study of Bridge with Integrated Surge Protection:

These elements will be implemented in conjunction with the planning for the above item B.2 with the same team.

Downtown

D.1 Lower Floodwall (Connecting from RR to South End (Singer Street)

This project will be integrated with S.1 and include the same management and stakeholders.

D.2 Upper Floodwall (North of RR to Congress St. Bridge)

This project will be integrated with S.1 and D.1 and include the same management and stakeholders.

D.3 Congress St. Bridge + Green

City of Bridgeport will select an experienced bridge designer with a proven track record of cost-effective implementation in cooperation with FedDOT and ConnDOT. This project will be coordinated closely with the implementation coalition for item D.2 and its constituents as well as the East End Neighborhood Revitalization Zone (NRZ), the community planning and stakeholder group on the east end of the bridge, which has been isolated from downtown since the span failed.

D.4 Downtown Design Center and Community Development

Bridgeport Neighborhood Trust, UConn Landscape Architecture Program, the WB unabridged Team, and Yale Urban Design Workshop in cooperation with City of Bridgeport, ConnDOT, FEMA and HMGP. A new 501 (c) (3) non-profit organization will be formed with a board of directors representing local professional schools, philanthropic organizations and the community. It will be a sister organization to the Bridgeport Neighborhood Trust and share administrative functions with this established community development corporation allowing it to move quickly to scale. The community design initiatives of the UConn Landscape Architecture Program and the Yale Urban Design Workshop will provide partnerships with experienced practitioners and opportunities for research, internships and student engagement.

D.5 Bridgeport Transportation and Downtown Investment Plan

The City of Bridgeport with the Bridgeport Neighborhood Trust, the newly established Design Center and the Greater Bridgeport Regional Council will secure the services of a firm with transportation expertise to work with the WB unabridged Team to undertake this study and build the necessary coalition for its implementation. The initiative will work with the CT Main Street Center, the Downtown Special Services District, and the myriad groups and individuals directly impacted by regional and local transportation arteries in and through Bridgeport. It will build on the Regional Transportation Plan.

Pequonnock River

P.1 East Side Green Streets (East Main, Artic, Barnum)

Greater Bridgeport Regional Council (GBRC) with the City of Bridgeport, The WB unabridged Team, the Design Center, UConn Landscape Program and Yale Urban Design Workshop. These projects will be implemented in conjunction with the planning and design initiative described below in P.2. They will build on Yale Urban Ecology and Design Lab research on rain gardens in the South End. This active initiative will yield immediate improvements in the quality of life, water quality and storm protection as well as facilitate community stakeholder engagement in long-term planning and provide a platform for university and community based innovation in water management.

P.2 Lower Pequonnock Design and Implementation Plan

Greater Bridgeport Regional Council (GBRC) Pequonnock River Initiative -- this operating coalition was established in 2010 and includes the City of Bridgeport and the Towns of Monroe and Trumbull. It will coordinate work with technical and process experts, the WB unabridged Team, the Design Center, UConn Landscape Program, Yale Urban Design Workshop, the Nature Conservancy, and Long Island Sound Futures in cooperation with USACE, Connecticut Department of Energy and Environmental Protection (DEEP), EPA, ASDA, US Fish and Wildlife, US DOT and ConnDOT to develop an integrated multi-jurisdictional planning and design solutions. This initiative will include waterfront and floodplain parks, sending and receiving zones, a feasibility study for daylighting , adjoining land uses, redevelopment, fish passage, and power production: thereby requiring a truly interdisciplinary and cooperative team approach. It will build on the NY & CT Sustainable Communities Initiative and the Coastal Resilience for Long Island Sound studies.

4.3 FUNDING SOURCES

Many of the proposed projects in the proposal build upon ongoing projects in Bridgeport and are well aligned with existing investment priorities for the city. Below are a few of the most significant projects, which strongly shaped the proposed Resilient Bridgeport project phasing. A number of projects are well underway that will reduce coastal vulnerability, such as the Steel Pointe Harbor road and utilities elevation project, repair of the breakwaters at the mouth of Bridgeport Harbor, and restoration work on Pleasure Beach. In these instances the team made a decision to focus in Phase One on areas that had not received similar investments. All projects selected for Phase One complement existing (or pending) investments (for example funding for Marina Village housing redevelopment or previously received funding to rebuild the Congress Street Bridge) and attempt to capitalize on the window of opportunity to steer those investments in a more sustainable direction.

Awarded Projects

Funding Source/Agent	Amount	Project	Status
City of Bridgeport & Fish and Wildlife Service	$5,000,000 + $909,000	Demolition of 37 properties on barrier beach, renaturalization and restoration of Pleasure Beach. Increasing recreational access with water taxi	Awarded and work underway
Department of Transportation	$310,000	Emergency erosion control and bank stabilization under the train station	Awarded and work completed
Army Corps of Engineers	$2,000,000	Repair of harbor breakwaters	Awarded and work underway
Department of Transportation TIGER grant	$11,000,000	Steel Pointe project including elevation of roadways, burying utilities, and construction of harborside boardwalk and bike path linking downtown & east end	Awarded and work underway
Greater Bridgeport Regional Council	$90,000	Facilitating Bridgeport's application to join the Community Rating System (CRS) as part of a regional group, providing enhanced flood protection city-wide	Awarded and work underway
USDA Emergency Watershed Protection Program – Floodplain Easement	$1,200,000	Purchasing easements within the floodplain to construct living shorelines	Awarded but project timeline is uncertain
Brownfields Revolving Loan Fund	$350,000		Awarded
Federal Highway Administration (FWHA) – Congestion Mitigation Air Quality (CMAQ) Grant	$1,800,000	Reconstructing a pedestrian crossing on Congress Street bridge	Awarded but project timeline is uncertain
Federal Emergency Management Agency	$3,016,427.61	Repair of damage to public housing buildings and the University of Bridgeport, protective measures, and debris removal	Partially awarded (eligibility review for some projects is still in progress)
Bridgeport Housing Authority, JHM Companies, & CFHA	$150,000,000	Marina Village Housing redevelopment	Awarded
Total Amount Invested or Awarded:	**$52,823,271**		

Pending Grants or Projects

The following funding streams have been identified as a high priority for the project team and are well aligned with the project goals. This is just a small subset of the potential funding sources for these projects; however, these funding sources have been identified either by the city or the design team as priorities over the coming months.

Hurricane Sandy Coastal Resilience Competitive Grant Program (NFWF/DOI)	$1,348,868	Coastal resiliency planning, emphasizing opportunities to address areas of shared risk, implement green infrastructure and facilitate marsh migration.	Application Submitted
Brownfields Area-Wide Planning Grant	$200,000		Application Submitted
Recreation and Natural Heritage Trust Program		Application for acquisition of property to expand recreational areas and access to waterfront.	Application in development
Long Island Sound Futures Fund (National Fish and Wildlife Foundation & Long Island Sound Study)	~$150,000	Program aligned with several project proposals, including living shorelines, wetlands and shellfish restoration projects, and green infrastructure interventions.	Application in development
NOAA Coastal Wetlands Conservation Grant	~$200,000	Application to restore and enhance wetlands and acquire marsh migration corridors.	Application in development
New England Interstate Water Pollution Control Commission	$23,000	Green infrastructure and low-impact development potential to reduce pressure on Long Island Sound Stewardship sites.	Application in development
Total amount requested	**$1,921,868**		

4.4 INTEGRATION WITH EXISTING INITIATIVES

The team grounded the design work within the context of current initiatives in Bridgeport.

City As Partner

The City of Bridgeport was engaged from the beginning with the Rebuild By Design team. Mayor Bill Finch and the Director of Planning and Economic Development, David Kooris, were eager to work with the design team. Along with other city personnel, the Mayor and David Kooris have been involved almost daily in the decision-making process and are well informed regarding the direction of the design proposal. The city's understanding of the project was apparent in a recent community meeting when David Kooris explained Rebuild By Design in general and the Resilient Bridgeport Plan in particular. His explanation was as good as any of the design team could have done and better as far as the community is concerned. It was good to have the project explained by the city staff and to show such complete collaboration between the city and the design team.

The city leadership understands the potential of Rebuild By Design to benefit the City of Bridgeport. This understanding was made clear from the start. In an early meeting David Kooris was asked if the city was willing to be a key partner in the project coalition. With a thoughtful and strategic response, David Kooris asked, "Is your team willing to be a partner with the city?" By turning the question around he put the challenge to the design team to fully consider the needs of the city. In addition he communicated that he wanted the design team and the city to work in full collaboration. Such a strong partnership has been a solid framework for the work and promises to lead to the successful implementation of the project proposals.

David Kooris was also well aware of the potential confusion that the Rebuild By Design effort might have on the ongoing work of the city if not well coordinated. In particular he needed to align the planning work with an important but complicated Bridgeport neighborhood – the South End Neighborhood. From the start the South End has been seen as a primary focus of the design team for several reasons: first, the South End had extensive flooding from Sandy; second, much of the city's industry is in the South End; third, there are two Bridgeport Housing Authority sites in the South End that are in the process of being redeveloped; and finally, the city already had some ideas about flood protection for the South End. The timing of Rebuild By Design coincided with the city's plan to work with the residents of the South End to produce an updated Neighborhood

Mayors Exchange

The design team joins the Deputy Mayor of Amsterdam, Carolien Gehrels, at a meeting with Bridgeport's Mayor Bill Finch and Rebuild By Deisgn's Henk Ovink for a discussion on resilience and urbanism in January.

Revitalization Zone (NRZ) Plan. David asked that the design team participate in the South End NRZ planning process, which at first was expected to start with a community workshop on February 8th. However, early in the process it became apparent to the city and some members of the community that issues with NRZ leadership first needed to be resolved. The procedure to change NRZ leadership took time so the meeting planned for February 8th was postponed to March 8th. Changing the NRZ meeting required the design team to revise their community engagement plan to hold a series of community workshops in February ahead of the NRZ planning workshop.

In addition to the South End NRZ plan there are two other on-going city efforts that are important for Rebuild By Design. These are the city's high profile initiative called BGreen 2020, and the city's Emergency Operations Center's effort to create Neighborhood Disaster Plans.

The BGreen 2020 Initiative is a ten-year plan that charts the course for Bridgeport's government, businesses, and residents to rebuild its economy as a resilient, efficient, and green community. The BGreen 2020 Plan was created through collaboration between a number of city departments and over 150 stakeholders from the community and the private sector. Since its creation in 2010, the BGreen 2020 initiative has been instrumental in mobilizing community efforts. The BGreen Plan has lead to the establishment of the Bridgeport Office of Sustainability. This office continues to bridge efforts of multiple city departments, public sector, and non-profit partners to achieve goals outlined in the BGreen 2020 document. In 2013 the BGreen Progress Report indicated a 5% reduction in greenhouse gas emissions since 2010.

Along with the city, the Bridgeport Housing Authority (BHA) is another partner that has been working with the design team from the beginning. BHA's recently appointed Executive Director, Sharon Ebert, like David Kooris, sees the opportunity that Rebuild By Design brings to Bridgeport. Sharon brings several valuable assets to the BHA. She is trained as an architect and has worked with housing and community redevelopment for many years. She has a successful record in transforming public housing and overseeing capital major projects using mixed-finance. In addition, she has a pragmatic and progressive approach that is needed to reform BHA. She understands the BHA's poor reputation in the community and is working to make sure the agency is more responsive to residents. She is able to be a good critic of the BHA's development projects that are in process and she is looking for better ways to develop in order to meet the needs of families, while ensuring long-term resilience.

The Bridgeport Housing Authority owns and manages almost 2600 units of housing. This challenging building stock includes properties that are functionally obsolescent and deteriorating. Therefore the Authority would like to replace up to half of the units within the next two decades. Funding for this scale of redevelopment is very challenging in a small state such as Connecticut that only had enough tax credits to fund 347 units statewide in 2013. Therefore the strategy developed for this proposal describes ways to extend the life of existing projects and to reduce the cost of redevelopment as well as to build the comprehensive services required for transformation. The BHA has two developments included in the Resilient Bridgeport proposal: Marina Village in the South End and P.T. Barnum Apartments in Black Rock/West End.

South End Neighborhood Revitalization Workshop

Design team members participated as facilitators and presenters during a city planning workshop for the South End neighborhood, one of the four Phase One investment areas in the Resilient Bridgeport proposal.

IMPLEMENTATION

Marina Village is located on the west side of the South End neighborhood. Residents like living in this development and the South End. They find the community to provide a high quality of life. Before Sandy, when the development was fully occupied, there were 389 households. About half of the units (unfortunately including most of the renovated units) had to be evacuated due to interior water damage from a combination of flooding and roof damage from the storm's wind. With the revised flood maps most of the remaining occupied units are in a flood zone. The redevelopment plan for Marina Village is shaped by the Authority's goal to rebuild 200 public housing units as part of a mixed-income development on Housing Authority-owned land in the South End and to move the remaining 189 public housing units to other sites in the South End.

The BHA has a current proposal for replacement housing for a portion of Marina Village that includes the controversial Broad Street development. The site has been vacant for over two decades following the demolition of Father Panick Village. It is currently being designed for construction of 78 units. The debate regarding the site is complicated, with several viewpoints. Affordable housing advocates in the community have been critical of the housing authority for years for reducing the number of housing units in the South End and see the unbuilt project as evidence of this. Some neighborhood residents are against the Bridgeport Housing Authority developing the site and recently have added the fact that the site is in a flood zone as reason to build market-rate instead of subsidized housing. Residents of Marina Village prefer their current units that are configured as townhouses to the proposed raised apartment block type. The housing authority has their own questions about building in this location. Typically the construction cost of affordable housing is more than its market value. However, in the case of the Broad Street site the ratio of cost to value is around four to one, bringing into question whether the current approach to the project is the most appropriate.

P.T. Barnum Apartments are home to the P.T. Barnum Partnership of the Fairfield County Community Foundation, which received one of 10 national 2013 HUD Secretary's Awards for Public-Philanthropic Partnerships. This multidisciplinary initiative is tackling the severe challenges of a vulnerable population in this 360-unit development that enjoys proximity to the Aquaculture Science and Technology School but is isolated from other residential neighborhoods and locally considered to be housing of last resort. Safety is hampered by a plan that isolates courtyard spaces and inhibits wayfinding. The buildings were modified from apartment blocks to stacked townhomes that are elevated just above the flood plain in an area that is designated in the Resilient Bridgeport proposal to

Marina Village Housing

The design team has worked closely with the Bridgeport Housing Authority to integrate resilience strategies from the Resilient Bridgeport proposals into housing replacement initiatives.

incorporate green infrastructure and stormwater retention features in the mid-term. The near-term proposal is to remove two building to increase onsite water retention and to construct a boardwalk to facilitate occupancy and/or evacuation in storm events along with a connection to adjacent raised utilities. Managed relocation and redevelopment will occur in the intermediate future as funding is available for replacement units.

Regional Partners

There are two organizations at the regional scale that are doing relevant work. The Greater Bridgeport Regional Council (GBRC) is the Regional Planning Agency for Bridgeport and the surrounding communities and is responsible for the Regional Transportation Plan. GBRC projects that are relevant to Rebuild By Design include: NY & CT Sustainable Communities Initiative, which integrates housing, economic development, transportation, and environmental planning through partnerships in New York and Connecticut; Coastal Resilience for Long Island Sound, in conjunction with the Nature Conservancy, GBRC, along with other regional planning agencies, which is helping to implement an interactive tool to help cities and towns better predict and plan for coastal flooding along the coast of Long Island Sound; Pequonnock River Initiative, which was formed in 2010 as a partnership between the City of Bridgeport and the Towns of Monroe and Trumbull to develop a plan for the Pequonnock River watershed; and Brownfield, a tool to identify and track any properties that maintain official brownfield status. In addition, in 2007, the GBRC prepared the Regional Natural Hazard Mitigation Plan (RNHMP), which was adopted by the six municipalities of the Greater Bridgeport planning region. The RNHMP makes the communities eligible for certain mitigation project grants administered and provided by the Federal Emergency Management Administration (FEMA). The 2007 Plan expired in January, 2012, necessitating an update. The planning effort is being completed by the GBRC, in coordination with the Connecticut Department of Energy and Environmental Protection, and is funded by a grant from FEMA. The goals of hazard mitigation plan are to reduce the loss life and property damage caused by extreme natural hazard events, including coastal and inland flooding, storm surge from tropical storms and hurricanes, high speed winds from tornados and thunder storms, and severe winter storms, and make our communities more resilient to these events as well as to sea level rise and climate change.

The other regional organization that is doing relevant resilient work is The Nature Conservancy. The Nature Conservancy for Connecticut takes a leadership role around issues of climate change and community resiliency. In fall of 2011, a partnership was formed between the City of Bridgeport, Greater Bridgeport Regional Council, The Nature Conservancy, Clean Air Cool Planet, and The Regional Plan Association to address risks of climate change. The partnership's focus was on increasing awareness of risks associated with extreme weather and natural and climate-related hazards and assessing the risks, strength and vulnerabilities within the City of Bridgeport. The Nature Conservancy ran the Bridgeport Climate Preparedness Workshop in 2012, engaging community stakeholders in order to facilitate education, planning, and ultimately implementation of priority adaptation actions.

Primary Coalition Partners

Ongoing conversations with the Nature Conservancy and the Greater Bridgeport Regional Council have been the basis for forming some of the key partnerships in the Resilient Bridgeport implementation coalition.

BGreen 2020 Progress Report Release

Resilient Bridgeport integrates with existing initiatives such as Bridgeport's BGreen 2020 plan.

5 COMMUNITY ENGAGEMENT

5.1 OBJECTIVES AND OUTCOMES

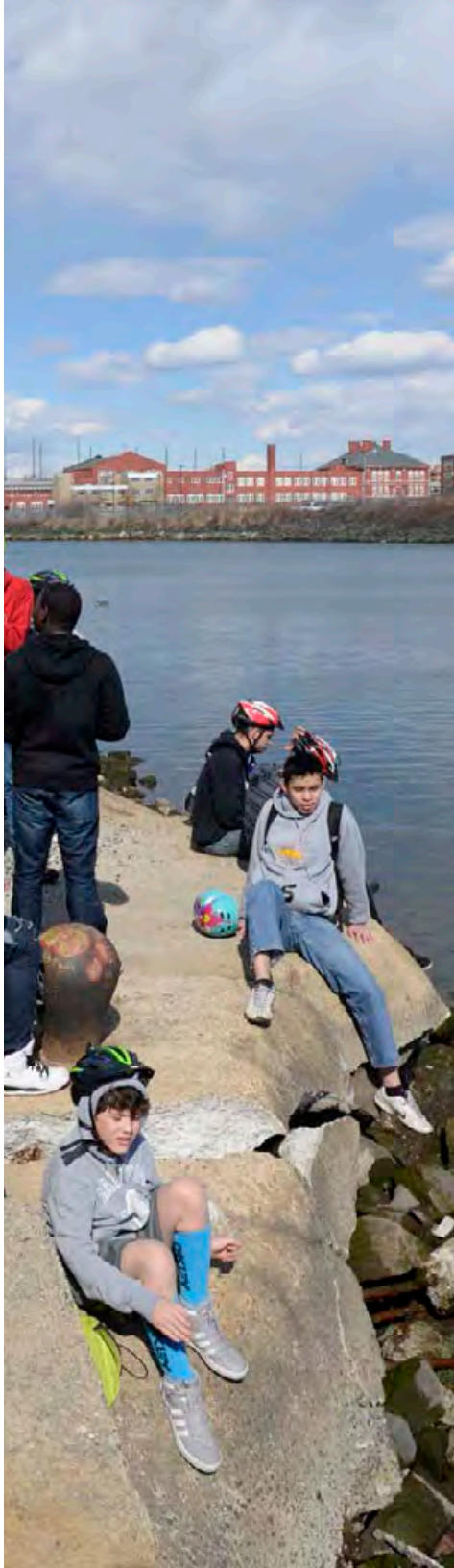
5.2 COMMUNITY WORKSHOPS

5.3 AGENCY AND MUNICIPAL PRESENTATIONS

5.4 ALL-SCALES WORKSHOP

5.5 COMMUNITY OPEN HOUSES

5.6 CITYMAKING! BRIDGEPORT



5.1 OBJECTIVES AND OUTCOMES

Community engagement occurred at three scales: regional, city and neighborhood.

The goals were to: 1) increase public awareness of risk, resilience, and Rebuild by Design; 2) get input from leaders, stakeholder and residents to formulate a strong, well-integrated Rebuild by Design proposal; 3) contribute to ongoing efforts to incorporate resiliency measures into existing policy and; 4) educate leaders, professionals and the public about resilient design strategies.

The participatory activities included five community workshops, two state and regional agency meetings, the Resilient Bridgeport All-Scales Workshop, two community open houses, and four community activities that engaged youth and others. Although most of the meetings were held downtown and in the South End, the focus area was much wider.

Summary of input from community meetings

Flood protection: The community values the South End's historic neighborhoods and is looking to the city to provide flood protection. Many families have lived in the South End for generations, and acknowledge the increasing strength and decreasing interval between storms.

Emergency preparedness: Residents have post-disaster needs but are not satisfied with the city's communication and recovery performance. They are hesitant to leave their homes and neighborhoods because of crime, and afraid to stay because access to emergency services will be curtailed. Education about storm dynamics and hazards, as well as the options available, is important, especially to the 25% of the community that struggles with English as a second language.

Transportation improvements: The South End has problems with road access and with safe pedestrian movement. Park Avenue is valued but needs improvements, especially in flood conditions. Other streets lead to pockets of crime and abandoned sites. Although there is good bus service, transportation to services -- such as fresh food, daycare, health clinic -- requires transfers on two buses.

Housing improvements: Residents are aware of future housing developments but are not optimistic that the developments will improve the housing opportunities for the community. There is an urgency to rebuild and a desire to add program elements to serve the public housing and the neighborhood. The community hopes to continue to participate in decisions about housing in the South End, through an open and transparent process.

Community Identity: The elements of this city that exert a claim on residents' memories are the smokestack of the PSEG plant, Seaside Park, the historic cottage district, Seaside Village, and the many Victorian-era buildings throughout the South End and downtown. Many of these are at risk, in new and future floodplains of the city. Without them, there would be less of a historic city fabric.

5.2 COMMUNITY WORKSHOPS

Mercy Learning Center
February 4, 2014

Participants: women from low-income households

The workshop presented basic aspects of emergency preparedness to the entire group. The participants were then divided into four tables of around 18 people per table to complete a questionnaire and to do an activity in which the women selected cards with various items that could be part of an emergency plan. The questionnaire included information about the impact of storms on households, transportation, housing and communication preferences and suggestions for neighborhood improvements. Members of the group all had experienced both Sandy and more than one winter storm that led to power outages. Highlights of feedback are: 1. communication during storms is lacking and leads to confusion; 2. Even though they all come from low-income households most of them own automobiles, explaining that it is difficult to live and work in Bridgeport without an automobile; 3. None of the over 50 participants went to a shelter after one of the storms, explaining that they either stayed in their house without power or went to a family or friend's house. The primary reason they gave for not using shelters was safety. Either they did not want to leave their belongings to be stolen or they felt unsafe in a shelter. It is important to note that most of the women at Mercy Learning Center are immigrants, speak Spanish, and worry about their immigration status.

Bridgeport Housing Authority Partners
February 19, 2014

Participants: representatives of social service organizations that work with Bridgeport Housing Authority residents

The workshop presented Rebuild By Design in general and summarized the Bridgeport project. The group was then divided into three tables and worked around maps. Most of the participants are part of PT Partnership, which is a recently organized coalition of service providers that works with the Bridgeport Housing Authority, and who have a grant to better coordinate their efforts. We met in the community center at the PT Barnum Housing Development. The PT Barnum neighborhood is in a flood zone and has other building and site problems such as the wastewater treatment plant across the street that call into question the long term use of the site for public housing. Highlights of feedback are: 1. Coordinated services are needed and

Mercy Learning Center Workshop

are already showing positive effects; 2. Households have challenges with childcare and transportation; 3. Several low-income neighborhoods have food access problems, especially the East End neighborhood.

University of Bridgeport Students

February 19, 2014

Participants: University of Bridgeport students and faculty advisors

The workshop presented Rebuild By Design in general and summarized the Bridgeport project. The group was then divided into two tables and worked around maps. Each participant introduced herself or himself, explaining their background, their experience living in Bridgeport and suggestions for resiliency. The group was well informed about resiliency at the global scale and very interested in the various resilience strategies for Bridgeport. Highlights of feedback are: 1. The students think that the city does a poor job of communicating and inviting the university to be part of city activities; 2. The students have adjusted to being in a place that has a reputation for being unsafe, but have found that they are actually able to walk in safety; 3. Bridgeport could benefit from being better oriented to the university as far as housing and commerce is concerned; 4. the entrance into campus on Park Avenue is affected by poorly maintained houses and by blight in Marina Village.

Marina Village Residents

February 19, 2014

Participants: Marina Village Residents and advocates

The meeting was a regularly scheduled residents meeting and the speaker before the Rebuild By Design presentation was an impassioned advocate for Marina Village to not be torn down. This shaped the discussion and gave great insight into the community commitment to Marina Village and its important history. Highlights of feedback are: 1. There is a long history of families staying in Marina Village; 2. Residents express frustration with maintenance; 3. The type of housing, which is townhouse with all units having their own front door, is preferred and \redevelopment efforts should learn from the good aspects of the current site.

South End Neighborhood Revitalization Zone Planning Workshop

March 8, 2014

Participants: South End residents, city staff, and local design professions

The workshop was organized by the city to get residents in the community involved in the South End Neighborhood Revitalization plan. David Kooris ran the meeting and after presenting background information for the South End provided the Rebuild By Design team the opportunity to present the parts of the Resilient Bridgeport proposal that are most relevant to the South End. The group was especially interested in the flood control measures presented. The group was divided into three tables with local design professionals and Rebuild By Design team members helping to facilitate and visualize the ideas of residents.

Highlights of feedback that are rele-

vant to Rebuild By Design are:

1. The historic neighborhoods of Seaside Village and the Cottages are highly valued by the community;

2. The community is looking to the city to provide flood protection in order to protect and preserve the historic neighborhoods;

3. The notion of a Broad Street connection to downtown is agreed upon;

4. The baseball park and arena are seen as more of a traffic and parking problem than an asset that brings business. This is because there is no retail near the baseball stadium;

5. Park Avenue is valued but needs improvement;

6. A good walking street that serves as a pedestrian-friendly corridor connecting east to west is needed;

7. The University of Bridgeport is seen by the community as being a good neighbor but the community doesn't expect the university to do much in regard to neighborhood revitalization.

Broad Engagement

The design team engaged a wide range of stakeholders through structured meetings, one-on-one conversations, workshops, and presentations on a broad array of topics relevant to the development of a resilience framework for the city.

5.3 AGENCY AND MUNICIPAL PRESENTATIONS

State and regional agency meeting

January 16, 2014

Participants: State and regional agency representatives, New Haven Planning Director, Bridgeport City staff, Bridgeport Housing Authority

The City of Bridgeport took the lead in organizing a meeting of state and regional agencies. The meeting was held at the University of Bridgeport and included around 30 participants. The design team did a brief presentation. Most of the time was spent on obtaining input from state and regional agencies. The represented agencies included, CT DEEP, Conn DOT, EPA, HUD, Bridgeport Housing Authority, FEMA, and CT Department of Housing. The meeting strengthened the partnership between the city and the design team and connected the Rebuild By Design work to ongoing state programs and potential funding.

Bridgeport Neighborhood Trust Conversation

February 21, 2014

Participants: Bridgeport housing organizations, lenders, financing officials, and lawyers

Bridgeport Neighborhood Trust invited the design team to present at their monthly convening of local housing agencies and financing organizations.

The group is concerned about sharing changing flood maps and growing flood zones, and about the uncertain viability of waterside neighborhoods. They believe that changes to flood insurance will cause an exodus of moderate and low-income homebuyers. Realtors have lost several sales in the South End, as debt to income ratios became unworkable when flood insurance was factored in.

Wells Fargo has a specific program for down payment assistance in the South End, contributing up to $5000.00 as a grant. The buyer does not have to receive their mortgage through Wells Fargo to be eligible.

Habitat for Humanity concentrates on neighborhoods, and they do not build basements in flood zones. They elevate. The City gives them lots for $1.00 to get the property back on the tax rolls. The East Side and East End are primary neighborhoods, but are plagued by crime. People want to hear hammers instead of gunshots.

Maxine Streeter lives near Park and Capitol, and knows that her house built on top of a buried river. Home inspector Ray sees a lot of inland flooding at Boston Avenue, and it concerns him.

Mayors Exchange

January 16, 2014

Participants: Deputy Mayor of Amsterdam, Bridgeport and New Haven officials, business leaders, and the general public

Synergies between Bridgeport and Amsterdam were the focus of a lecture and discussion on January 29 at the Bijou Theatre in Bridgeport. The first-ever indoor theatre for motion pictures was the site of a fast-paced introduction to the inventive and collaborative nature of the Dutch. Rebuild by Design's Henk Ovink spoke of the Dutch multi-layered strategy for planning, protection, and disaster response, and to the spiraling cost

of damages. Innovations in coastal protection and living with water are fundamental to the prosperity of the Netherlands, where 26% of the country's land mass is below sea level, and an additional 50% at sea level.

Deputy Mayor of Amsterdam, Carolien Gehrels, presented the systems, powers, and values that encourage collaboration and diversity within the Dutch economy. A tradition of creativity mixed with Calvinism led to canal houses, not palaces, and to artists celebrating the milkmaid rather than the king. Dutch society encourages all citizens to take responsibility for the environment, and the physical infrastructure facilitates this, leading to tremendous gains in public transit use, bicycle commuting, and air quality.

Ger Baron, Program Manager at the Amsterdam Economic Board, spoke to the process of developing a smart city. Three requirements – open data, open connectivity, and an open smart grid – support innovation in the digital age. The Board orchestrates living laboratories for metropolitan solutions in three neighborhoods, to measure and monitor everything from traffic to effluents so that companies can test applications and products, and create business out of better services.

Transforming a city into a vibrant and open platform for people to prosper doesn't happen overnight -- it took Amsterdam 40 years of targeted investment. For Bridgeport and other communities along the Connecticut coast, disasters like Hurricane Sandy are opportunities to better understand the needs of their residents and to make smarter long-term investments that strengthen the city, its quality of life, infrastructure, economy, and ecology.

Mayors Exchange

The deputy mayor of Amsterdam, Carolien Gehrels, and Bridgeport's Mayor Bill Finch. Deputy Mayor Gehrles visited the cities of New Haven and Bridgeport for a day in January in order to discuss issues relating to resiliency and the transformation of cities.

5.4 ALL-SCALES WORKSHOP

Design

The largest participatory activity was the Resilient Bridgeport All-Scales Workshop. The program of the workshop was two full days of design with over 60 participants. The participants were the Rebuild By Design team with invited design professionals, along with participants with the following affiliations: Bridgeport Mayor, Bridgeport Planning and Econ. Development , Bridgeport Environmental Projects Coordinator , Bridgeport Housing Authority, Bridgeport Neighborhood Trust, The Nature Conservancy, Greater Bridgeport Regional Council, Bridgeport Regional Business Council, Bridgeport Chamber of Commerce, Trust for Public Land, Yale Masters in Environmental Science, School of Forestry, City of Stamford Planning Department, CT Coalition for Environmental Justice, Jonathan Rose Companies, Bridgeport Emergency Management and Homeland Security, Bridgeport Health Department, Greater Bridgeport Transit, Freeman Center, Bridgeport Regional Aquaculture Science & Technology Education Center, PSEG Power CT, O&G, HUD, EPA, CT Dept of Housing, Conn DOT, CT DEEP, American Planning Association, Royal Netherlands Embassy, GBRC CTAC.

The workshop was held in a storefront in downtown Bridgeport and was open to the public. The workshop was followed up by an open house so that the public could provide feedback on the output. The workshop divided up into topical tables: shoreline protection, improvements and development along the Pequonnock River, stormwater improvements, housing, transportation, Marina Village, Resilience Center programming, and City Identity. The workshop integrated ideas from the various topics to develop design proposals. The workshop both advanced the design proposals and strengthened the coalition for the project.

Working with Stakeholders

The workshop was an opportunity to draw with stakeholders such as local industry representatives and residents at the same table.

All-Scales Workshop and Open House

February 27 through March 1. Two-and-a-half days to share, learn, draw, revise, and discuss Rebuild by Design proposals, with invited designers and planners joining stakeholders ranging from federal, state, and local government officials to Bridgeport residents at the table.

5.5 COMMUNITY OPEN HOUSES

All-Scales Open House
March 1, 2014

Following the All-Scales workshop a public open house with a presentation was held. The participants included city and community leaders, many of the stakeholders involved in the project, community members and activists. The mayor addressed the participants and outlined the challenges and opportunities in the implementation of the Rebuild By Design proposals.

South End Open House
March 8, 2014

The open house was held in conjunction with the South End Neighborhood Revitalization Zone Planning Workshop. The workshop was held at Roosevelt School cafeteria in the South End and the open house was put up in an entry corridor so that people participating in the open house could see the Rebuild By Design work, ask questions and provide input. Design team members presented the Resilient Bridgeport framework and served as design facilitators throughout the workshop.

South End Workshop and Open House

The design team joined city planning officials for a full-day neighborhood revitalization planning workshop in the South End.

5.6 CITYMAKING! BRIDGEPORT

The Van Alen Institute worked with the Rebuild By Design team to organize a series of activities that raised community awareness and engaged different groups in design.

River Walk
February 22, 2014

This was a planning session in which city residents involved in the planning of the Citymaking! Event could join design team members and city officials on a walk along the Pequonnock. It was an opportunity for a conversation between the participants on the history, function, and present-day uses of the river.

Bike Ride and Youth Design Workshop
March 8, 2014

A group of Bridgeport teenagers joined design team members and cycling activists for a bike ride along the Pequonnock. Older participants talked about the bustling waterfront that the Pequonnock once had. This was followed by a design workshop in which the teens learned how to make sectional drawings, and used their newly-learned skills to develop designs for the river, taking into account the programming, land uses, and hydrological issues discussed earlier during the bike ride.

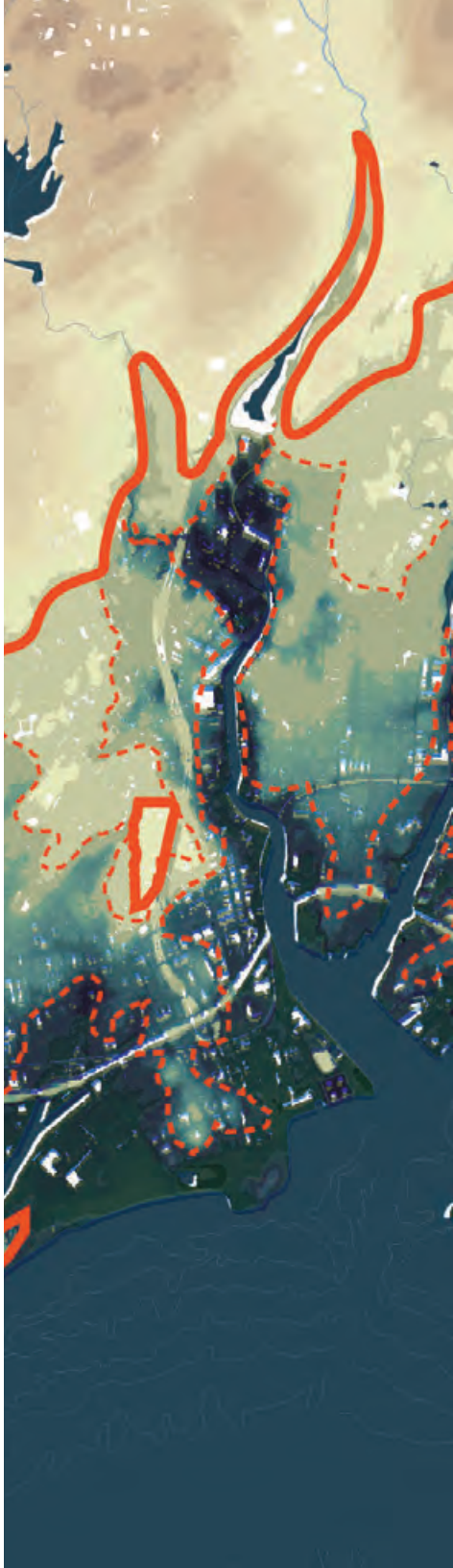
Citymaking! Event
March 15, 2014

A wide range of activities were available to the general public. Design team members again led a group of participants on a bike ride along the Pequonnnock, providing for more valuable exchange about the role of the river in the lives of residents. Artists and cycling activists provided a clinic on bike repairs and bike art, and community design facilitator James Rojas led a collaborative workshop in which residents used simple modeling techniques to propose their visions for the riverfront.

Sharing Stories on Bike Rides and at Citymaking! Bridgeport


PARK CITY SUP
Huskies

BRIDGEPORT ATLAS
THE SOUND AND THE CITY



NORTHEAST REGIONAL CORRIDOR

Legend

- *NEC REGIONAL RAIL STOP*
- *NEC REGIONAL RAIL CORRIDOR*

LONG ISLAND SOUND PROTOTYPE

Legend

- *METRO-NORTH STOPS*
- *RAIL INFRASTRUCTURE*
- *FERRY ROUTES*
- *ECONOMIC NETWORK*
- *POPULATION DENSITY*
- *GREEN INFRASTRUCTURE*
- *HABITAT RESTORATION*
- *OFF-SHORE HABITATS*

LONG ISLAND SOUND PROTOTYPE

The Long Island Sound is an estuary of national significance, 1,320 square miles in area, but impacted by 16,820 square miles of watersheds in Connecticut and New York and the 23 million people who live within 50 miles of the shoreline. The shallow water estuary spawns at least 50 species, and hosts more than 170 finfish species, 1200 species of invertebrates, and dozens of species of migratory birds. Water quality, habitat preservation, and watershed management are critical issues to maintain the Sound as a safe place for recreational and commercial fishing, as well as for recreation, tourism and property values.

At Bridgeport, the sea level at the Sound is predicted to rise by 6.182' by 2100, impacting a significant percentage of the 16 square miles of Bridgeport. The team studied potential closure structures in relation to the changing shoreline. The distance from Watch Hill across Fisher's Island to Orient Point on Long Island, is 20 miles; in addition, a shorter section of about a mile between the Bronx and Queens would be necessary to reduce storm surge throughout the Sound. However, the impacts to water quality would be significant, reducing dissolved oxygen and increasing nitrogen and pesticides to potentially toxic levels, besides posing a threat to waterborne transportation. Instead, a system of combined strategies along the coast, with investments in closure structures, marshes, and levees to maintain existing land uses at the waterfront in conjunction with investment in inland structures and programs that support shifting some settlements to higher ground was determined to offer the highest benefits.

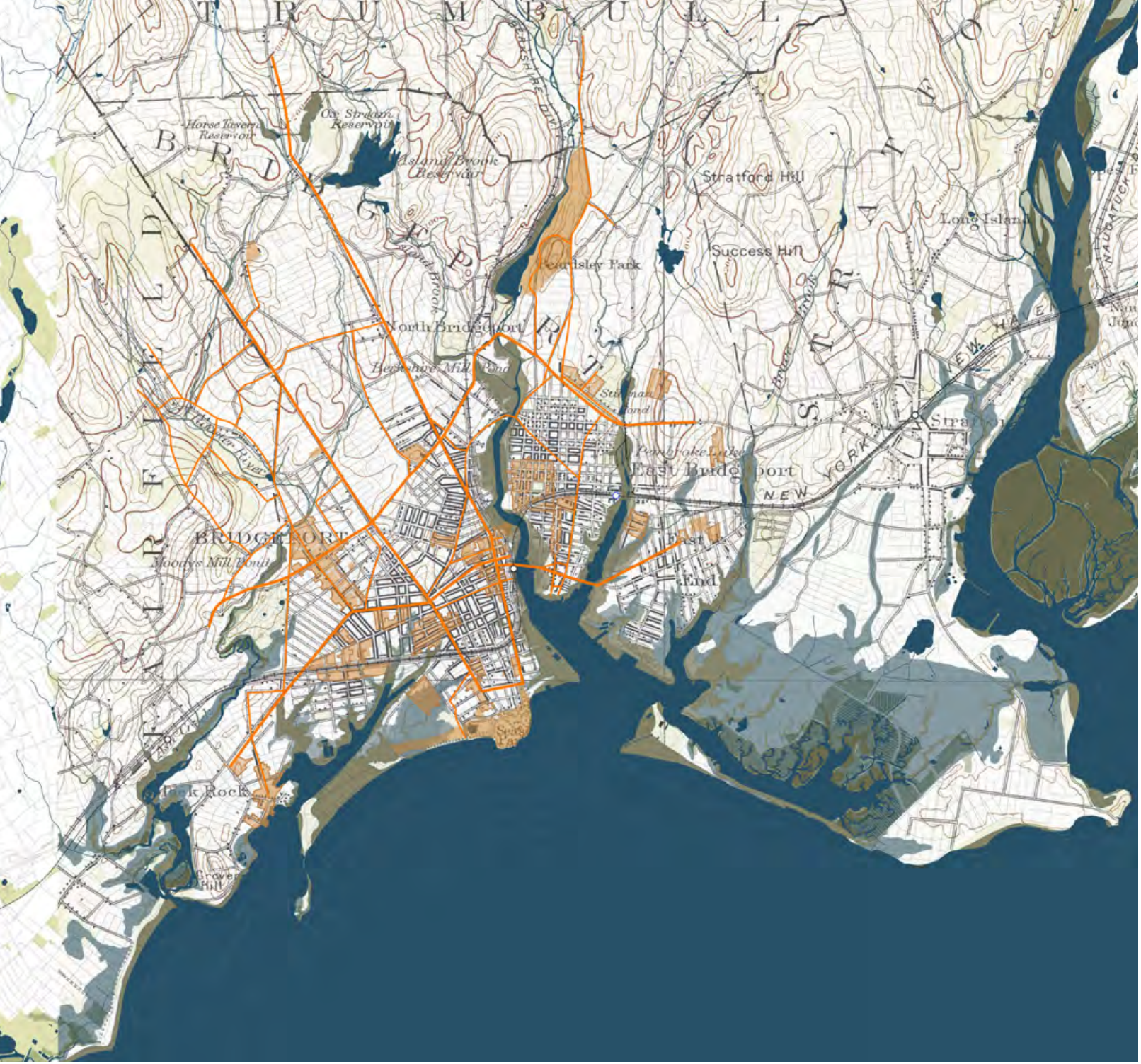
Settlements developed at the water's edge here, and 62% of the state's population of 3.57 million lives in coastal counties. Bridgeport is the largest and densest city at 146,000, followed by New Haven with 130,000, Hartford and Stamford with about 125,000 each, and Waterbury with 115,000. As a result, much of the critical infrastructure at risk from increasing sea levels also lies within the coastal floodplain, including electricity generation, wastewater treatment, and potable water supplies.

Waterborne transportation has plied the waters of the Sound for centuries. From trading canoes to steamers, to the popular car ferries between Bridgeport and Port Jefferson, people and goods move economically via the water. Over one million people and 460,000 cars use the ferry to and from Bridgeport each year, a 90-minute ride across 18 miles of water. A high-speed ferry is proposed to link Bridgeport, Stamford, and New York City.

Freight traffic in Bridgeport has declined considerably in the 21st century. Until 2006, it was the 8th largest banana port in the country, but with no dredging since 1963, sediment has made it impossible for ships to navigate Bridgeport Harbor. The future of Bridgeport shipping is not as a major cargo hub but for local distribution, repair, and maintenance.

The ecology surrounding the Sound is similar, without reference to state or direction: upland, riparian corridor, coastal flat, and estuary types.

- Uplands are the contributing areas that shed water into the riparian corridors. Upland habitats include urban forest, urban shrub/scrub, and urban grassland. Issues include pollution, nutrients, sediment, fragmented habitat, and loss of species diversity. High rates of runoff here can cause pluvial flooding along riparian corridors.
- Riparian corridors defend against runoff, erosion, flooding, and act as filters for pollutants. They provide habitat and corridors for wildlife, shade for waters, and scenic value and recreational opportunities for people.
- Coastal flats are the tidal marshes, beaches, and dunes which provide habitat, shoreline stabilization, food storage, natural filtration, and dampen storm surge.



HISTORIC CITY
1893

Historical landscape and development patterns are illuminated by the overlaying of available maps dating from the early 1800's. Primary roads in the 1700's are the framework of the modern city. Park Avenue and Main Street are still the major north/south routes on the west side of the city, while Kings Highway and Fairfield Avenue link Bridgeport to her neighboring cities. Waterbodies and wetland areas are overlayed to indicate how the form of the landscape has been modified over time. Shallows were filled, waterways narrowed or covered. Urban development, delineated on the 1893 USGS Quadrangle map with bold linework, was for the most part, limited the natural peninsula boundaries. 20th Century industrial development happened along the low lands adjacent to the rivers and wetlands - areas most at risk to flooding today.

Legend

- *2012 NATIONAL DATASET WATER*
- *1700-1893 WATER OVERLAY*
- *2012 NATIONAL DATASET WETLANDS*
- *1848-1893 WETLANDS OVERLAY*
- *1893 USGS QUADRANGLE MAP*
- *BRIDGEPORT HISTORIC DISTRICTS*
- *HISTORICALLY DESIGNATED PARCELS*
- *1700 ROADS*

HISTORIC CITY
1893

Dutch and British settlers found salt water, sandy beaches, salt marshes with brackish water, mudflats, tidal wetlands, many fresh water streams, springs, and ponds, cedar swamps, grassy meadows, and towering primeval forests of old-growth trees when they arrived along the coastal inlets of Connecticut in the late 1700's. The landscape of ridges and peninsulas created inviting habitats for animals as diverse as the right whale and the oyster, black bears and beavers, farm and timber lands which supported the native Pequonnock tribe for centuries.

The city now known as Bridgeport was an important crossing point on the trail linking New Haven to the New Amsterdam colony, as it is today. Because of its protective harbor and its natural estuary, it was a desirable place for shipbuilding, whaling, and rapid growth in the 18th and 19th centuries. Historical landscape and development patterns are illuminated by overlaying maps dating from the early 1800's. Primary roads in the 1700's are the framework for the modern city. Park Avenue and Main Street are still the major north/south routes on the west side of the city, while King's Highway and Fairfield Avenue link Bridgeport to neighboring cities.

Water bodies and wetland areas are overlaid to indicate how the form of the landscape has been modified over time. Shallows were filled, waterways narrowed or covered. Urban development, delineated on the 1893 USGS Quadrangle map with bold linework, was mostly limited to the natural peninsula boundaries. Twentieth century industrial development happened along the low lands adjacent to the rivers and wetlands – areas most at risk to flooding today.

Bridgeport's reputation as the Park City began with two donations from residents to the city: P. T. Barnum's 35 acres for Seaside Park in the South End in 1864, and cattle baron James Beardsley's 100 acres of land in the North End in 1878. Barnum wrote of the landscape before it became Seaside Park: "Up to 1865 the shore of Bridgeport west of the public wharves, and washed by the water of Long Island Sound, was inaccessible to carriages or even to the horsemen, and almost impossible for pedestrians. The shore edge was in fact strewn with rocks and boulders. A narrow lane reaching down to the shore enabled parties to drive near to the water for purposes of clamming, and occasionally bathing; but it was all claimed as private property by the land proprietors, whose farm extended down to the water's edge… I was satisfied that a most lovely park might be, and ought to be, opened along the whole waterfront as far as the western boundary line of Bridgeport." Seaside Park became the dressy promenade, and held Sunday concerts for the benefit of working people.

Park Avenue links the two jewels in the city's green crown, both designed by Frederick Law Olmsted using the contours of land and sculpting shady groves and rustic parterres. Olmsted said of Beardsley Park, it is "just such a countryside as a family of good taste and healthy nature would resort to, if seeking a few hours' complete relief from scenes associated with the wear and tear of ordinary town life."

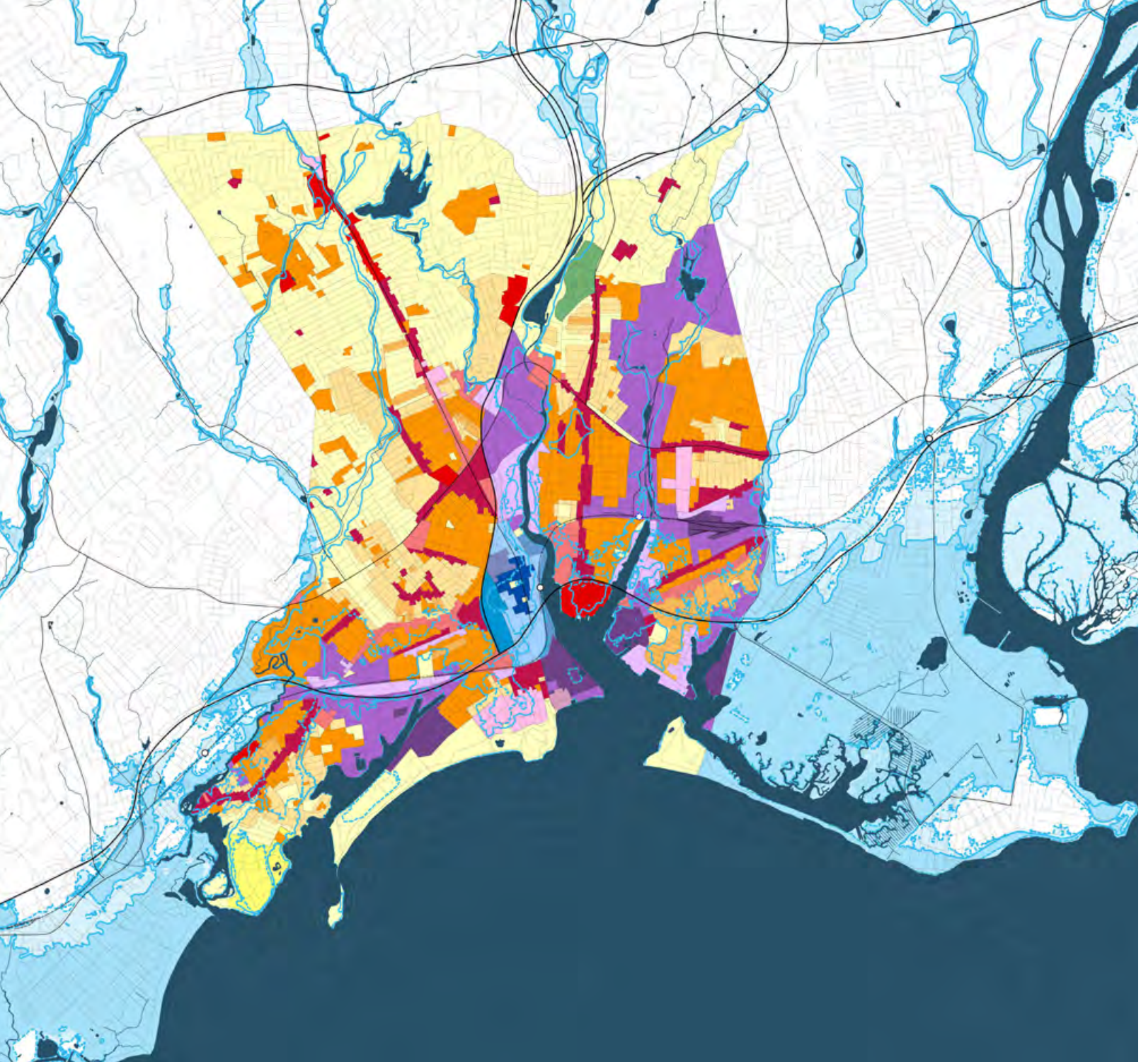
The railroad and industrialization brought innovators in steel, textiles, and machines from carriages to aeroplanes, but the decline of industry led Bridgeport to balance on the edge of viability. A legacy of abandoned sites and environmental brownfields have led to failing infrastructure, troubled public housing, crime, and poverty. The waterfront became an invisible geography, with barriers in place of connections to the life and prosperity on the water.

URBAN FABRIC

Legend

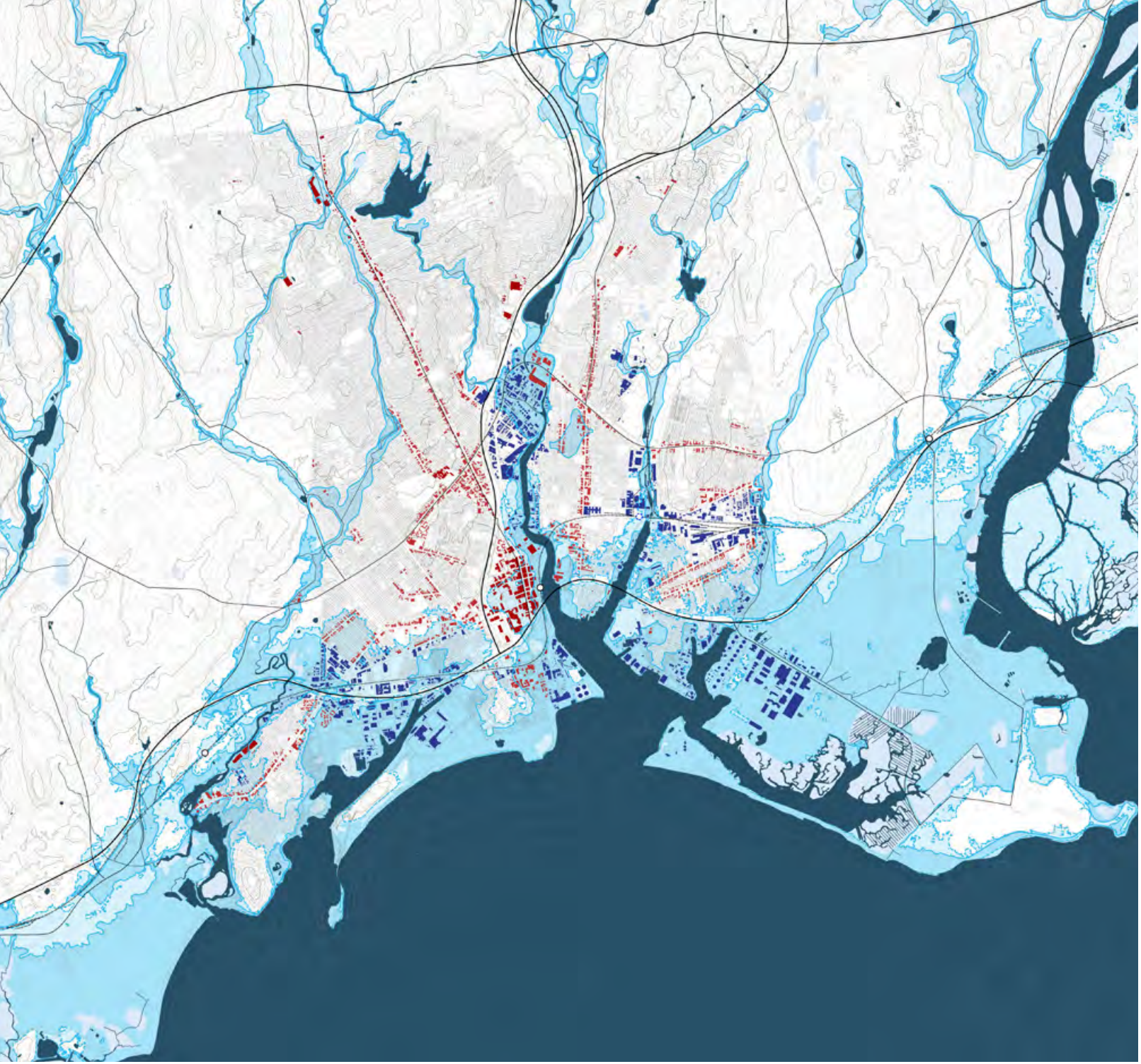
- *MODELED STORM SURGE POTENTIAL*
- *FEMA 100 YEAR FLOOD ZONE*
- *PARK OR OPEN SPACE*
- *VACANT PARCELS*
- *METRO NORTH RAIL AND STOPS*
- *BROWNFIELD SITE*

LAND USE



Legend

- *MODELED STORM SURGE POTENTIAL*
- *FEMA 100 YEAR FLOOD ZONE*
- *SINGLE FAMILY RESIDENTIAL*
- *MULTI-FAMILY RESIDENTIAL*
- *COMMERCIAL*
- *DOWNTOWN DEVELOPMENT ZONE*
- *INSTITUTIONAL*
- *INDUSTRIAL*

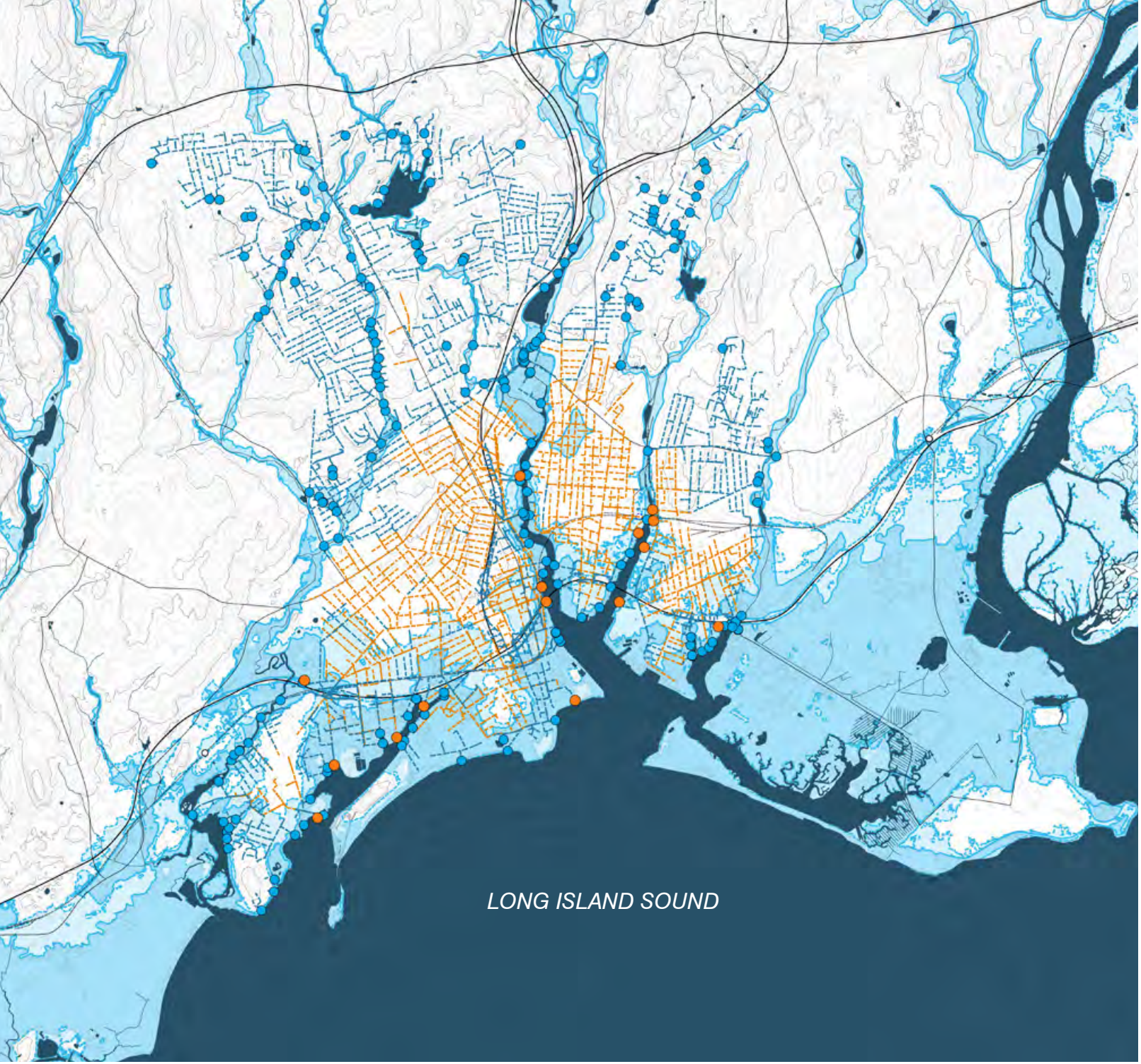


CORRIDORS

Commercial corridors developed along the spines of Bridgeport's peninsulas, on high ground and following Native American and Colonial trading routes that predate the city, as indicated on the Historic Overlay Map. Industrial zones located along rivers and estuaries for shipping access are most at risk from storm surge flooding and sea level rise.

Legend

- *MODELED STORM SURGE POTENTIAL*
- *FEMA 100 YEAR FLOOD ZONE*
- *COMMERCIAL*
- *INDUSTRIAL*

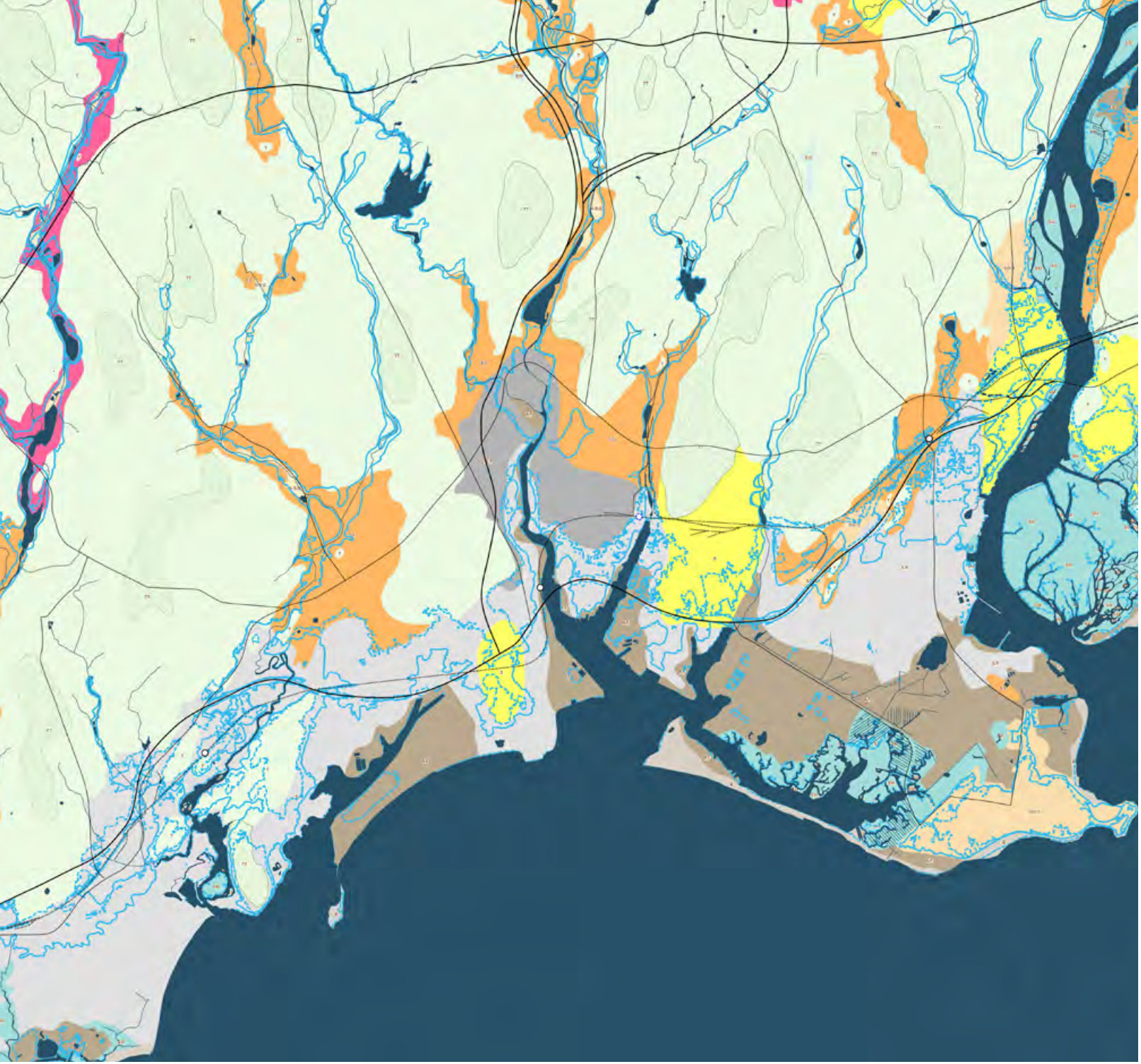


DRAINAGE

Stormwater flows to the sea via streams, culverts, subsurface drainage pipe. This combination of natural and man made water channels is typically hidden behind properties or buried below ground. Trash and pollution impacts water quality and impairs flow. Combined sewer overflow discharges are an ecological challenge for Bridgeport's estuaries during major storm events. Repetitive street flooding occurs in the valleys and low lying areas due to both runoff and sea level rise.

Legend

- *MODELED STORM SURGE POTENTIAL*
- *FEMA 100 YEAR FLOOD ZONE*
- *WATERSHED BOUNDARIES*
- *CSO PIPE*
- *CSO OUTFALL*
- *STORM DRAINAGE PIPE*
- *STORM DRAINAGE OUTFALL*

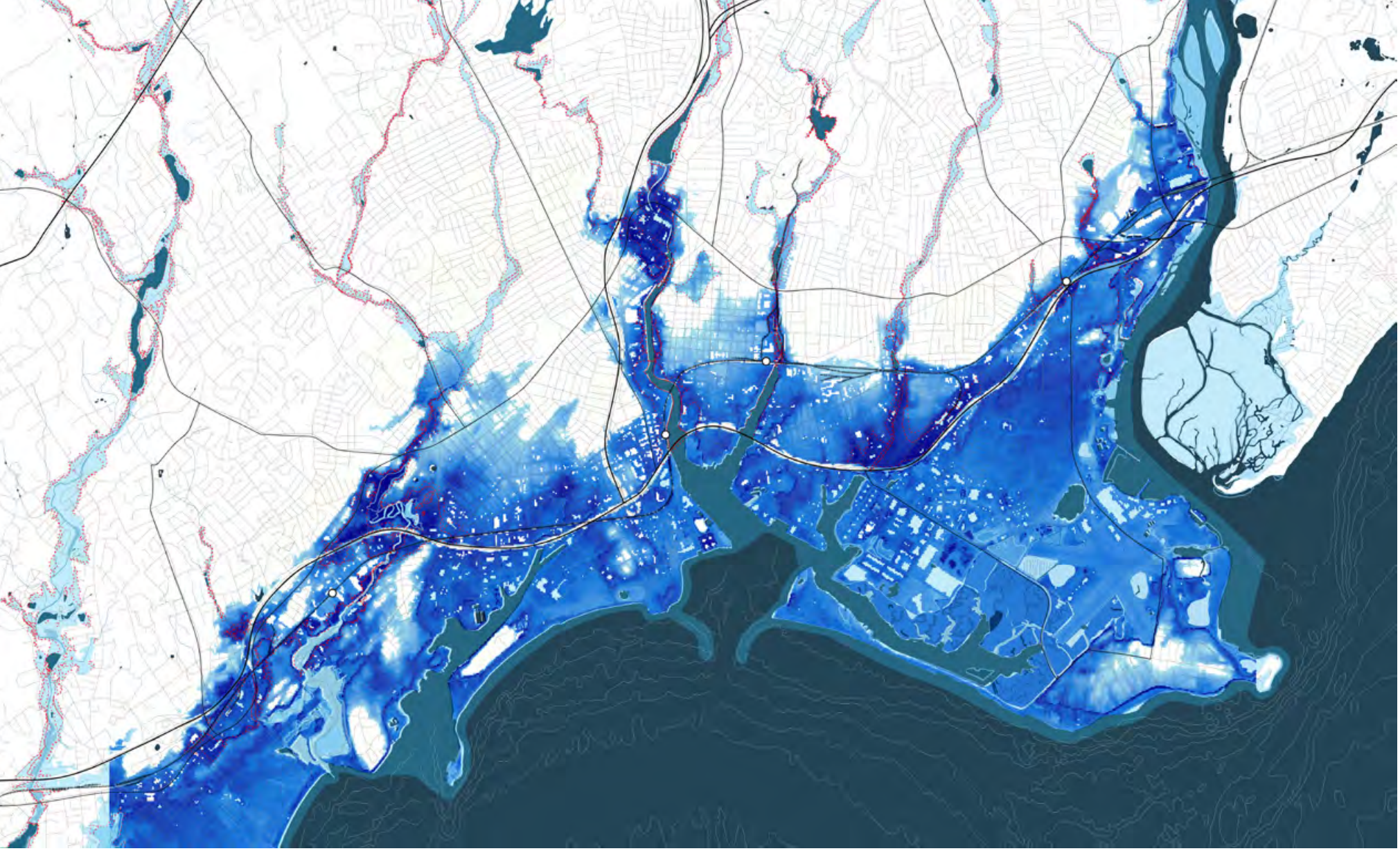


GEOLOGY

This map illustrates the unconsolidated glacial and postglacial deposits of Connecticut. The surficial deposits along the coastline are typically fine grained sand and gravel glacial deposits and alluvium, beach sand or tidal marsh soils, while the upslope consists of heavier rock. The soils along the coast are well-drained due to the predominance of sand and gravel and are well suited for infiltration of stormwater though raingardens, bioswales or other BMPS.

Legend

- *MODELED STORM SURGE POTENTIAL*
- *FEMA 100 YEAR FLOOD ZONE*
- *THIN GLACIAL TILL*
- *THICK GLACIAL TILL*
- *SAND AND GRAVEL*
- *SAND*
- *SAND AND GRAVEL OVERLYING SAND*
- *SAND AND GRAVEL OVERLYING SAND OVERLYING FINES*
- *SAND OVERLYING FINES*
- *ALLUVIUM OVERLYING SAND*
- *SALT MARSH AND TIDAL MARSH DEPOSITS*
- *BEACH DEPOSITS*
- *ARTIFICAL FILL*

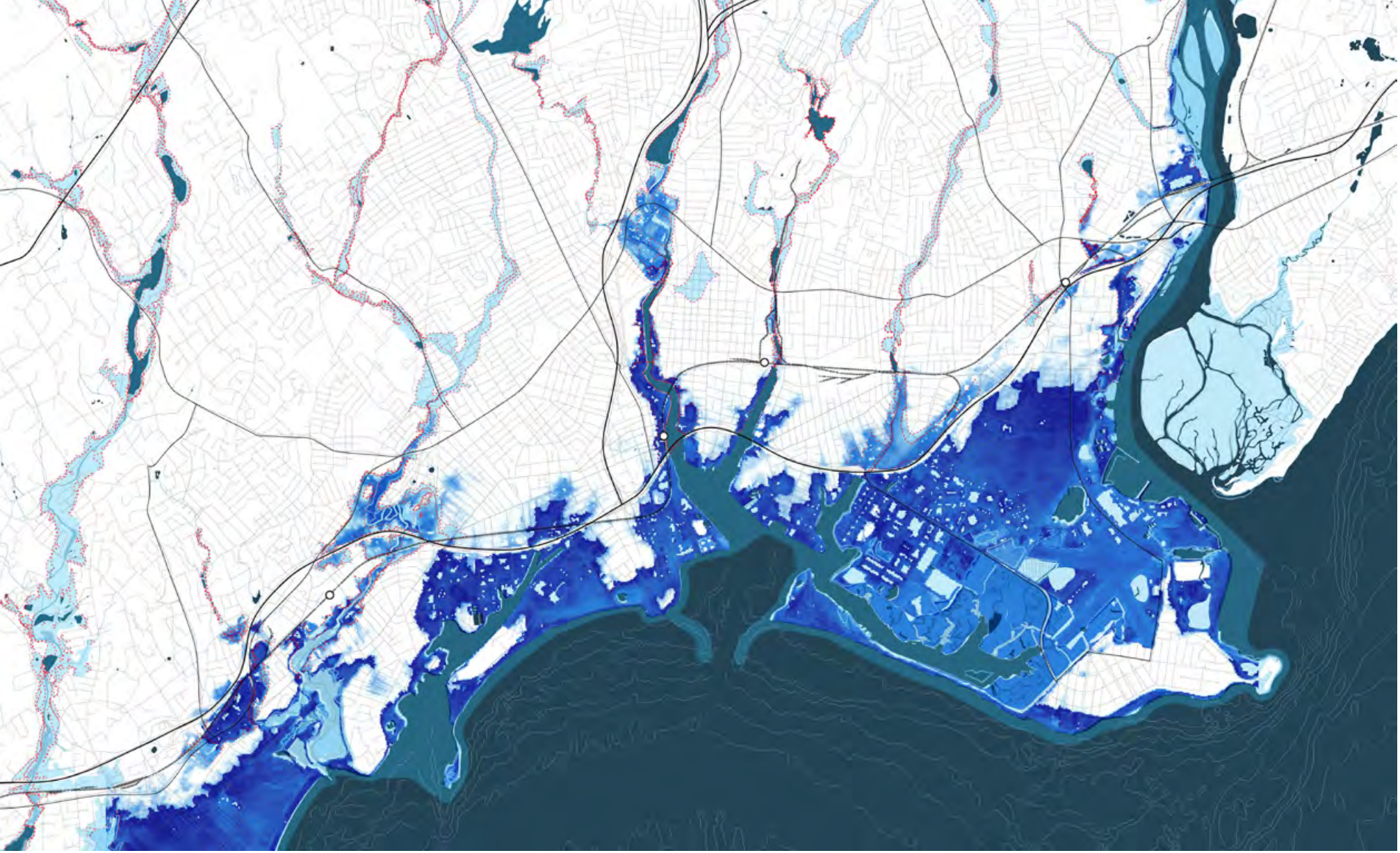


2100: COASTAL RISK/INLAND RISK

Legend

- *METRO-NORTH STOPS*
- *RAIL INFRASTRUCTURE*
- *MAJOR ROAD INFRASTRUCTURE*
- *ROAD INFRASTRUCTURE*
- *100-YEAR FLOOD*
- *STORM SURGE*

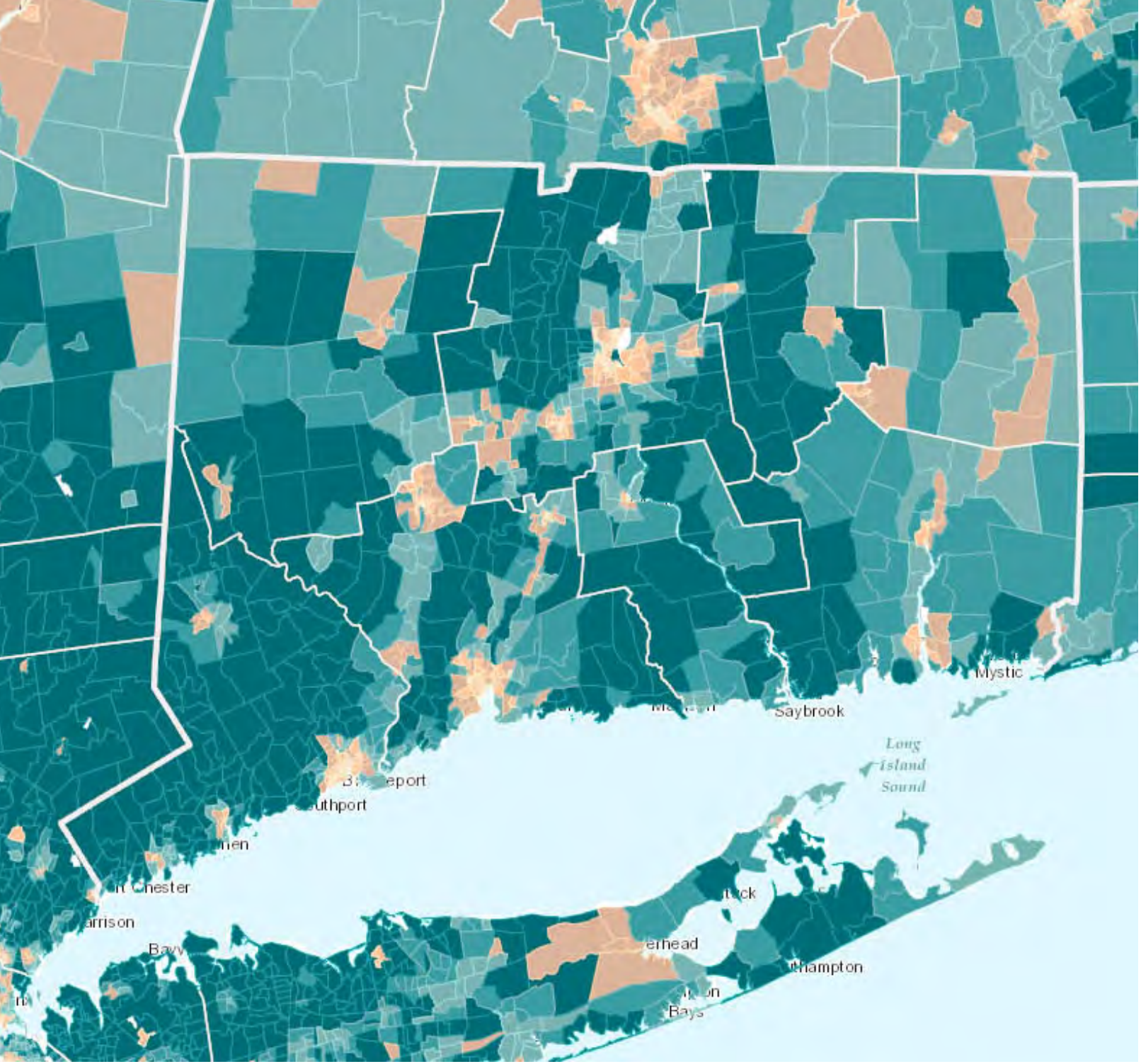
17' 0'



2014: COASTAL RISK/INLAND RISK

Legend

- *METRO-NORTH STOPS*
- *RAIL INFRASTRUCTURE*
- *MAJOR ROAD INFRASTRUCTURE*
- *ROAD INFRASTRUCTURE*
- *100-YEAR FLOOD*
- *STORM SURGE* (17' – 0')



MEDIAN HOUSEHOLD INCOME AT RISK 2014

Legend

- *MORE THAN $82,000*
- *$68,001 TO $82,000*
- *$53,001 TO $68,000*
- *$39,001 TO $53,000*
- *(US MEDIAN: $50,157)*
- *$24,001 TO $39,000*
- *$24,000 OR LESS*
- *NO HOUSEHOLDS*

MEDIAN HOUSEHOLD INCOME AT RISK 2014

Legend

- *MORE THAN $82,000*
- *$68,001 TO $82,000*
- *$53,001 TO $68,000*
- *$39,001 TO $53,000*
- *(US MEDIAN: $50,157)*
- *$24,001 TO $39,000*
- *$24,000 OR LESS*
- *NO HOUSEHOLDS*

SOCIO-ECONOMICS

Bridgeport is the poorest city in the state and one of the 10 poorest cities in the nation. Ironically, it is located within Fairfield County, one of the wealthiest counties in the state. The citywide poverty rate is almost 25% with certain census tracks demonstrating poverty rates of 80% (2000 Census). Poverty and poor health are inextricably linked. Destitute urban populations inevitably live in conditions that compromise physical and emotional well-being, which then results in a much higher rate of disease. Families living in dilapidated housing are often exposed to lead-based paint, cockroaches, dust, dust mites, mold, and mildew and are more vulnerable to natural disasters. The health consequences for people contending with such a multitude of adverse conditions are harsh and debilitating; they suffer from higher rates of asthma, strokes, lead and poisoning, malnutrition, and higher mortality rates in general.

a. Demographic data

(a) Total population of the Target Area	144,229†
(b) Total population under the age of six (6)	10,731†
(c) Number/percentage under the age of 6 with an elevated blood lead level	1,932†† /18%
(d) Area Median Income	$39,571†††
Percentage of population at 80 percent of the area median income level	54%†††
Percentage of population at 50 percent of the area median income level	40%†††

Sources:
† 2010 Census
†† Bridgeport Health Department Stellar 2008 Report
††† 2000 Census

b. Housing data

(a) Number of housing units that were built before 1978	48,233
(b) Number of housing units that were built before 1940	25,490
(c) Number and percentage of housing units that are rental	28,549 / 56.7%
Number and percentage of housing units that are rental and owner occupied.	21,758 / 43%

Source: U.S. Census 2000

Bridgeport has always been a place for the working class in Connecticut. Proximity to jobs in manufacturing, shipping, and trade gave rise to modest incomes and modest homes. The overall unemployment rate for Connecticut decreased to 7.2% last month while Bridgeport's rate remained stubbornly high at 11.8%.

The most common occupations are in information and records-keeping, media and communications equipment workers, customer service representatives, accountants, and construction workers. Most residents (72%) have a high school diploma, but only 14% have a bachelor's degree or higher educational attainment. Advanced manufacturing is replacing heavy industry, so preparing workers for the growing demand is a critical task of the proposed workforce training center. DOL researchers project high growth occupations that provide a family-sustaining income and require one year or less of training include: Hazardous Material Removal Workers, Construction Laborers, Equipment Operators, Roofers, Road Maintenance Workers, and related construction occupations. Bridgeport's Green Business Zone has created new and expanding businesses to a previously blighted neighborhood filled with abandoned factories.

One quarter of the city population is foreign-born, primarily from Latin America. This is significantly higher than Connecticut's average of 13%, and may be due to the linked history of immigration and manufacturing,

SOCIO-ECONOMICS

the lack of entry level housing in surrounding communities and the presence of the University of Bridgeport, which has a high rate of international students, arriving from 70 countries. (International full-time engineering graduate students total 95% of the program, an anomaly even among graduate engineering programs.) Also, since 1918, the International Institute of Connecticut has been located in the west end, bringing immigrants from all parts of the globe to the city.

Bridgeport struggles with homelessness, poverty, and blight. According to the RAND Corporation, the social cost of crime in Bridgeport can be calculated as follows: 20 murders per year at $8,649,216 each; 116 rapes at $217,866 each; 610 robberies at $62,277 each; 1540 burglaries at $13,096 each, and so on. Schools are challenged: with 20,800 students, it is the second largest district in the state, but has a ranking of 158th of 164 districts.

The Index of Social Vulnerability synthesizes 30 socioeconomic variables, which reduce a community's ability to prepare for, respond to, and recover from hazards. Factors which increase vulnerability include: low income or socioeconomic status, female head of household, non-Caucasian ethnicity, elderly or under 18 ages, renters, unemployment, occupation as agricultural workers or in low skilled service jobs, single parent households, large families, education less than high school, rapid population growth, lack of access to medical services, high special needs populations such as homeless, tourists, transients, and nursing home residents, and high numbers of social security recipients. As demonstrated by the information in this section, Bridgeport is a community at risk.

South End of Bridgeport

The South End has a population of 8,825 people, a predominant white population of 45%, followed by African American at 30%, Asian at 3% and all other of 22%. The South End Neighborhood has approximately 2,400 units of housing. 23% are owner occupied, 64% are renter occupied and 12.2% are vacant while 11.4% of all units are overcrowded. Approximately 5% of the South End housing was built in the last 20 years, suggesting a historic but aging housing inventory. Making matters worse, this neighborhood lost over 500 hundred units of public housing when the Pequonnock Apartments and the Barnum Avenue Apartments were demolished and never replaced. In addition the public housing project Marina Village, which consists of 400 units is planned for redevelopment and nearly 25% have been vacated.

The South End's average household income is $20,444 which falls well below the City average of $34,659 and County average of $77,690. Please note that this area is different than the planning area reference in the South End Section.

Our proposal addresses comprehensive transformation in the South End. An annotated bibliography of our approach to transformation follows, as does the full text of the State of the Child in Bridgeport 2013.

Annotated Bibliography of Evidence Based Best Practices

Ladder of Opportunity to the Middle Class

The programs identified below are just a few of the many programs that demonstrate successful strategies for the type of transformation proposed for the South End including the public housing at Marina Village. They are selected from a larger group identified documented as part of our research. Quality of programming, quality of trained staff/program leaders, specific characteristics of the program (e.g., diversity of options for participants), staffing ratios, availability of funding, and fidelity of implementation are key in any program's success.

Children enter kindergarten ready to learn

Program: Parent Child Home Program

Description: The Parent-Child Home Program is a 2-year early literacy and parenting program designed for fam-

ilies whose children are at risk for educational disadvantage. Families enter the home visiting program when their children are 2-3 years old. Families are visited for 30 minutes twice a week for a minimum of 23 weeks (46 visits) per year. During the visits, trained home visitors model and encourage parents to interact verbally with their children through reading and educational toys provided by the home visitor.

Evidence of success: Over the past 40 years, The Parent Child Home Program has been evaluated repeatedly. Longitudinal, randomized control group studies have found that the program is successful in increasing positive parenting and involvement, preparing children for school and increasing school success and achievement, and increasing earning potential for program participants. Some key research findings include the following:

1. Low income children who completed 2 years of the program went on to graduate from high school at the rate of middle income children nationally, 20% higher than their SES peers and 30% higher than the control group.

2. Children who participated in the program had statistically significant increases in IQ and receptive vocabulary development compared to control groups.

3. Participating parents interacted more positively with their children during and after program implementation. Positive parent-child interactions were found to last in participating families compared to control group families and their effect was correlated with increased cognitive and social emotional skills in the 1st grade.

4. Program participation significantly reduced the need for special education (at the 3rd grade, 14% of program graduates needed special education services compared to 39% for controls).

For summary and citations for all research summarized above see: http://www.parentchild.org/assets/Proven_Outcomes/Research_Summaries/PCHP_Research_Summary.pdf

Source: Parent Child Home Program (http://www.parent-child.org)

See also: http://www.parent-child.org/assets/Proven_Outcomes/Research_Summaries/PCHP_Research_Summary.pdf

For a summary of sources of independent evaluations see: http://www.parent-child.org/assets/Proven_Outcomes/Research_Summaries/Independent_Evaluations_of_the_Parent-Child_Home_Program.pdf

Children are proficient in core academic subjects

Program: Success for All

Description: Success for All (SFA) is a whole-school reform model for students in pre K – 12th grade. Program components include: leadership, powerful instruction, school wide support and intervention tools, professional development and coaching, and research.

Evidence of success: Success For All's implementation has been thoroughly evaluated and proven to be replicable for student achievement in more than 30 research studies, most of which were done by independent researchers. Success for All has been found to increase reading achievement, cut the achievement gap between African Americans, Hispanic, and white students, and prepare teachers to support the needs of English learners.

See sources below for citations and study findings/details

Source: http://www.successforall.org/

See also: http://www.successforall.org/SuccessForAll/media/PDFs/Borman_CSR_meta_RER.pdf

Also http://ies.ed.gov/ncee/wwc/pdf/intervention_reports/wwc_sfa_081109.pdf

Also: http://earlyed.newamerica.net/blogposts/2013/success_for_all_with_i3_program-96104

Also: http://www.mdrc.org/publication/success-all-model-school-reform

Cradle-through-college-to career solutions

SOCIO-ECONOMICS

Program: Positive Action

Description: Positive Action is an integrated and comprehensive program that is designed to improve participants' life in multiple areas including but not limited to academic achievement, social behavior, physical health, and family relationships and bonding. The program is intended for a variety of age groups ranging from children to adults. Positive Action has materials for schools, homes, and community agencies and has been implemented in school settings, before- and after-school programs, social service agencies, detention centers, home schooling, youth programs, family and juvenile justice agencies, correctional institutions, probation and parole settings, mental health and welfare agencies, faith-based organizations, public housing developments, and other programs specifically for high-risk, at-risk, special-needs, and disadvantaged individuals, families, schools, and communities.

All materials are based on the same unifying broad concept (one feels good about oneself when taking positive actions) with six explanatory subconcepts (positive actions for the physical, intellectual, social, and emotional areas) that elaborate on the overall theme. The program components include grade-specific curriculum kits for kindergarten through 12th grade, drug education kits, a conflict resolution kit, sitewide climate development kits for elementary and secondary school levels, a counselor's kit, a family kit, and a community kit. All the components and their parts can be used separately or in any combination and are designed to reinforce and support one another.

Evidence of success: Based on findings of rigorous research, Positive Action has been identified as an effective program by The National Institute of Justice and SAMHSA's National Registry of Evidence Based Programs and Practices. Research using experimental and quasi experimental designs has found that compared to control groups, participants of the Positive Action program have significantly 1) higher levels of math and reading proficiency and achievement, 2) higher academic standardized tests scores, 3) increased school attendance, 4) lower levels of substance use, 5) lower levels of violent behavior, and 6) higher levels of family cohesion and functioning.

See sources below for more details on research studies and findings

Source: http://www.positiveaction.net

See also: http://www.nrepp.samhsa.gov/ViewIntervention.aspx?id=78

And http://www.crimesolutions.gov/ProgramDetails.aspx?ID=113

Households are economically stable and self-sufficient

Program: Job Corps

Description: Job Corps serves young adults between 16 and 24, primarily in a residential setting. Participants receive vocational training, academic education, and other services such as social skills training, counseling, health care and health education. For six months after participants leave the program, placement agencies help participants find jobs or pursue additional training.

Evidence of success: Job Corps was evaluated using an experimental design in which some youth were assigned to a control group and tracked in order to see whether program participants fared better. The evaluation found that Job Corps increased the receipt of GED and vocational certificates by more than 20 percentage points, produced measurable improvements in literacy skills, and reduced involvement with crime. The evaluation also found that after four years, the average gain in earnings per participant was $1,150 (or 12% higher). Earnings gains persisted only for the 20 to 24 year old age group and the program was found to be cost effective only for this age group.

Source: Program evaluation report from Mathematica is online at: http://wdr.doleta.gov/research/FullText_Documents/National%20Job%20Corps%20Study%20and%20Longer%20Term%20Follow-Up%20Study%20-%20Final%20Report.pdf

See also this study, which cites evaluations of Job Corps but also

SOCIO-ECONOMICS

provides a broad overview of the effectiveness of employment and training programs in the US: http://www.nber.org/chapters/c10261.pdf

Public safety strategies

Program: Operation Ceasefire

Description: Operation Ceasefire is a comprehensive problem-solving police strategy that seeks to reduce gang violence, illegal gun possession, and gun violence in communities by implementing 1) aggressive law enforcement and prosecution efforts to recover illegal handguns, prosecute dangerous felons, and 2) deter violence by increasing public awareness and promoting public safety and antiviolence. As a deterrence strategy, the intervention is based on the assumption that crimes can be prevented when the costs of committing the crime are perceived by the offender to outweigh the benefits of committing a crime. It targets high-risk youths as well as serious and violent juvenile offenders. In Providence, the Institute for the Study and Practice of Nonviolence offers similar programming.

Evidence: Several studies evaluated by the National Institute of Justice found Operation Ceasefire to have had a positive impact on:

- Percentage of youth homicides (reduction)
- Citywide gun assaults (reduction)
- "shots fired" calls (reduction)
- Recovery of traceable hand guns (increase)

Source: http://www.crimesolutions.gov/ProgramDetails.aspx?ID=207

Appendix of Helpful Websites

Early childhood Best Practices:, http://www.bestevidence.org/early/early_child_ed/top.htm

RAND Corporation Promising Practices Network:, http://www.promisingpractices.net/program.asp?programid=275

Office of Juvenile justice and Prevention, http://www.ojjdp.gov/mpg/Program

National Network for Safe Communities, http://www.nnscommunities.org/pages/group_violence_tools_for_practitioners.php

Institute of Education Sciences What Works Clearinghouse , http://ies.ed.gov/ncee/wwc/

NREPP SAMHSA's National Registry of Evidence Based Programs and Practices, http://nrepp.samhsa.gov/

Find Youth Info, http://findyouthinfo.gov/

National Dropout Prevention Network, http://www.dropoutprevention.org/

American Youth Policy Forum, http://www.dropoutprevention.org/

Coalition for Evidence Based Policy, http://coalition4evidence.org/

Home Visiting Evidence of Effectiveness, http://homvee.acf.hhs.gov/

Office of Planning Research and Evaluation (Administration for Children and Families)

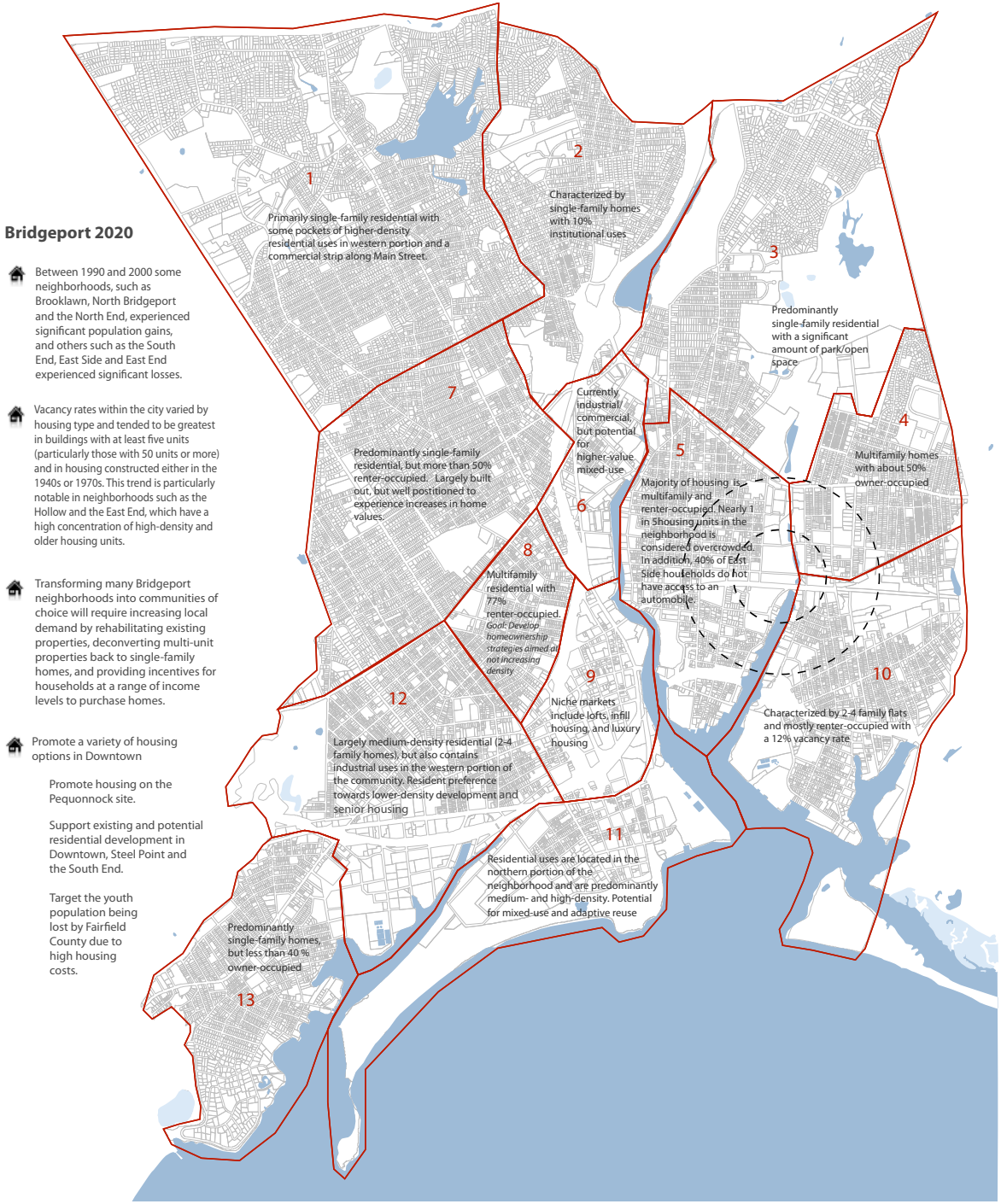
http://www.acf.hhs.gov/programs/opre

Child Trends, http://www.childtrends.org/what-works/

The Guide to Community Preventative Services, http://www.thecommunityguide.org/

Manpower Research Demonstration Corporation, http://www.mdrc.org

SOCIO-ECONOMICS



HOUSING PLANNING

This summary of housing planning is a tool for future housing planning and a reminder of the importance of utilizing all of the previous analysis and planning work as new designs and strategies are developed. Also of importance, though not specifically noted on this map, is the thorough housing needs assessment conducted as part of the development of the City's housing policy in 2006 and 2007. The results of this assessment have not been included in this summary because projections were only made out until 2011. It would be potentially valuable to see if these projections have come to fruition and to develop another housing needs assessment based on current data.

Legend

1 *NORTH END*
2 *RESERVOIR / WHISKEY HILL*
3 *NORTH BRIDGEPORT*
4 *BOSTON AVENUE / MILL HILL*
5 *EAST SIDE*
6 *ENTERPRISE ZONE*
7 *BROOKLAWN / ST VINCENT*
8 *THE HOLLOW*
9 *DOWNTOWN*
10 *EAST END*
11 *SOUTH END*
12 *WEST END / WEST SIDE*
13 *BLACK ROCK*

BARNUM STATION FEASIBILITY STUDY AREA

HOUSING PLANNING

In the City of Bridgeport there are 51,255 households with 29,433 rental properties with an average rent of $1,485 as of September 2012 Bridgeport had 878 properties listed for sale. The Warren Group, Commercial Record, June 2012, reports that the median home price in Bridgeport is $131,375, which is a 16.26% increase from 2011.

Bridgeport is a weak market community where poverty is concentrated within a region of high incomes. The median value of a home in Fairfield County is $403,400 compared to $171,800 in the US. Almost half of the apartments rent for over $1250 per month with many of those below this rent being located in Bridgeport.

Foreclosure Crisis

Per the Connecticut Housing Finance Authority, Bridgeport has suffered from the highest foreclosures rates in CT. In fact, Bridgeport is among the very worst in the country in terms of magnitude, rate and concentration. In 2013, 1321 foreclosure filings were reported, 1240 lis pendens are currently pending and 137 properties are bank owned.

The 2007 City of Bridgeport's Housing Report confirmed that 53% of Bridgeport's households are renters and 47% are homeowners in comparison to the county (Fairfield), which has a two thirds homeownership rate. Additional findings in the City 2007 Housing Report underscore the fact the City has suffered from highest foreclosures in the State and is affecting approximately 23% of the City's housing stock. Circumstances in Bridgeport are among the very worst in the country in terms of magnitude, rate and concentration. Also, few cities share the confluence of high percentages of housing stocks older than 1939 (31%) with high rate of recently foreclosed properties or properties in foreclosure, or otherwise affected by subprime lending activities.

The City of Bridgeport has been losing housing with greatest loss in low income housing at a time when poverty has been on the rise. While the population in Bridgeport decreased by only 1.5% from 1990 – 2000 the City's housing stock decreased by 5% City side. Bridgeport lost nearly 3,000 housing units during this time. The reduction of units was most substantial in low-income census tracts resulting in the City's most vulnerable populations find themselves with even fewer affordable housing options.

In 2007 czbLLC prepared a Housing Policy Report on behalf of the City of Bridgeport, which confirmed the following:

- 62% of Bridgeport's households earn less than $50,000 per year;
- 53% of Bridgeport's households are renters and 47% are homeowners in comparison to the county, which is two-thirds homeowner.
- 40% of Bridgeport's households pay more than 30% of their income for housing;
- Housing price increased and rent increases are going up faster than income; and
- Rental housing has little vacancy.

Affordable Housing Gap

The average cost of a two-bedroom apartment in Bridgeport is approx-

imately $1,200/monthly. To afford an apartment, a family must earn $24.56 per hour, or $50,000/year. However, the median family income in Bridgeport is $39,000 year, resulting in a housing budget deficit of $11,000. The effects of this huge disparity are such that the affordability gap is not being met.

United Way 2-1-1 Top 5 Housing-Related Requests for Service for Bridgeport

Type of Request	2012/2011
1. Homeless Shelter	1,963/1,838
2. Rent Payment Assistance	1,290/1,515
3. Housing Search and Information	1,153/1,030
4. Rental Deposit Assistance	947/659
5. Section 8 Housing Choice Vouchers	343/363

Housing Authority of the City of Bridgeport

There are limited affordable rental housing options for families in the City of Bridgeport. The Bridgeport Housing Authority reports an average vacancy rate of 3.9% for their 2,523 units. As of December 2013, there were 2,270 people on the waiting list. In addition to 1,281 on the waiting list for Project Base Section 8. Data was provided by BCAC 2013 State of the Child Report.

Resilient Homes

Ideally, more people will be able to safely shelter at home during storms. That is the rationale behind the Design Center and Green Collar Institute and the training programs for floodproofing, elevating, remediating, and mitigating - to make existing and new construction ready to handle the challenges of the climate everyday and in emergencies. Shelter in Place works when livable spaces are elevated above flood hazards and protected from storm surge, when the ground is permeable enough to resist flooding or to channel it away quickly, and when utilities continue operating throughout municipal shutdowns.

Endnotes

Bridgeport Child Advocacy Coalition, State of the Child in Bridgeport 2013

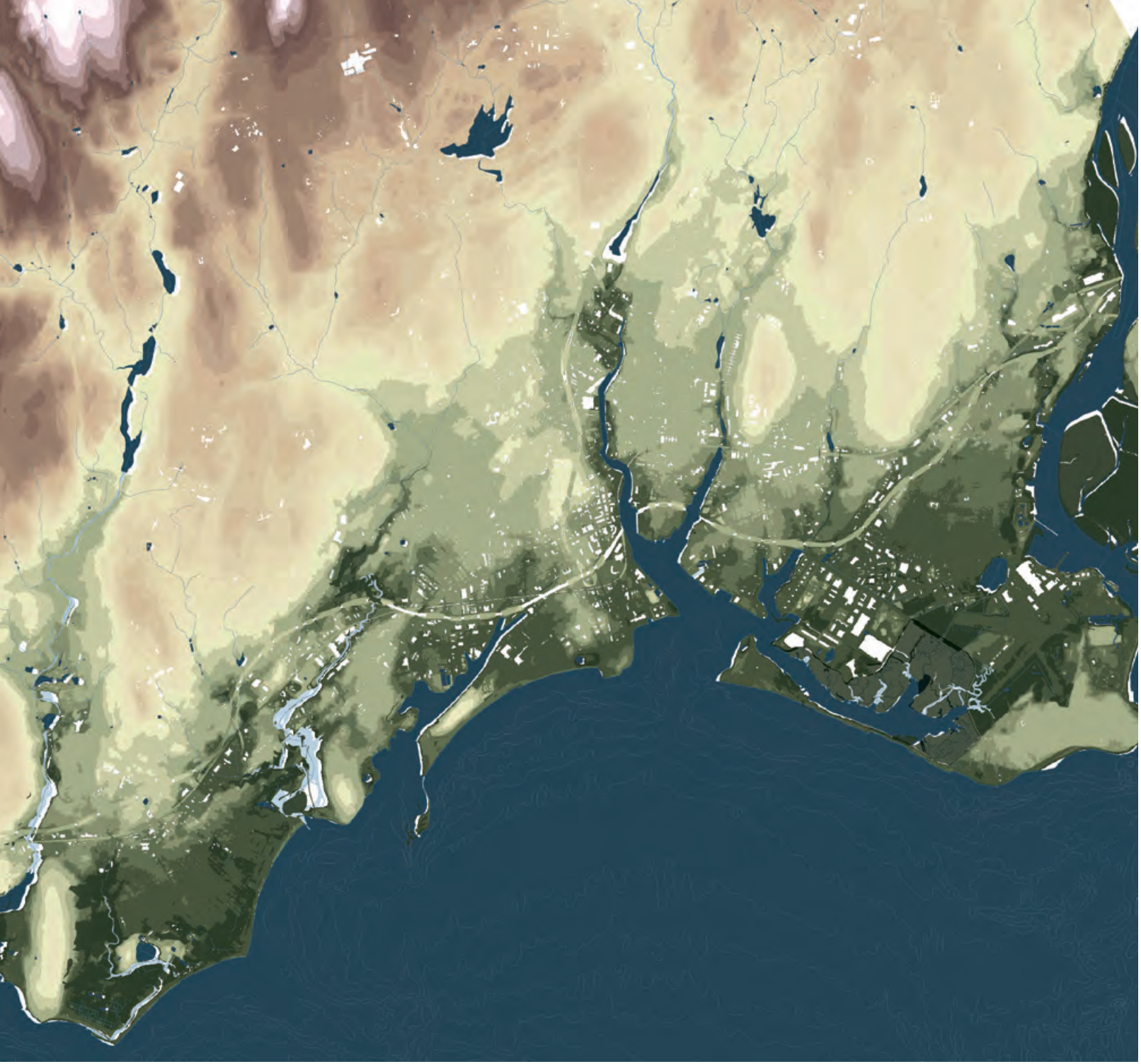
czbLLC, Housing Policy Report, City of Bridgeport, 2007.

Partnership for Strong Communities, Housing Data Profile, Bridgeport 2013.

Partnership for Strong Communities, Housing Data Profile, Connecticut 2013.

Partnership for Strong Communities, Housing Data Profile, Fairfield County 2013.

HOUSING PLANNING



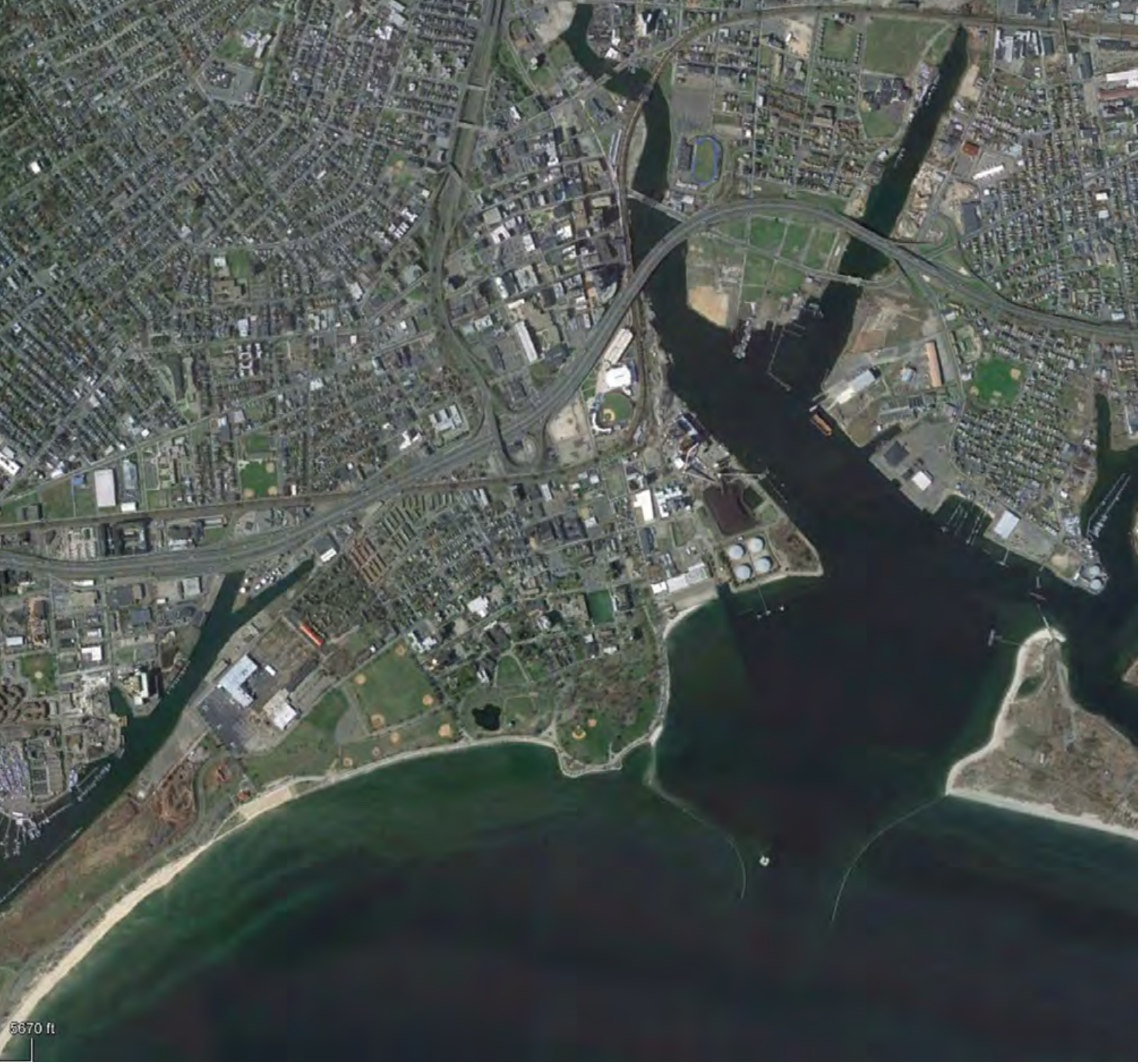
SURFACE ELEVATION

Legend

LIDAR
<VALUE>

- 0 - 0
- 1 - 5
- 6 - 10
- 11 - 15
- 16 - 20
- 21 - 40
- 41 - 60
- 61 - 80
- 81 - 100
- 101 - 120
- 121 - 140
- 141 - 160
- 161 - 180
- 181 - 200
- 201 - 220
- 221 - 240
- 241 - 260
- 261 - 280
- 281 - 300
- 301 - 320
- 321 - 340
- 341 - 360
- 361 - 380
- 381 - 400
- 401 - 420
- 421 - 440
- 441 - 460
- 461 - 480
- 481 - 500

PRE-INTERSTATE
1951



EXISTING CITY
2014

MOBILITY AND RESILIENCY

While the link of transportation needs to flood events is clear (evacuation, emergency response, crucial supply deliveries, and recovery), there is also a more insidious connection through carbon use and global warming, through population and industry relocation limitations, and through recreation (health) opportunities.

We looked at the various Bridgeport transportation networks in relation to resiliency strategies (namely Barriers, Elevation, Absorption, and Relocation).

Rail

Existing issues

While the Metro North line is raised to an adequate flood level for the near future. The need to cross under the line at several major arteries has lead to low lying roads that frequently flood and block the same roads that would be used for evacuation. Flooding at the riverfront station makes access to and from the elevated station impossible as well.

There is a low radius turn through Bridgeport that slows rail traffic and precludes any high speed rail traffic. Constraints on elevated roadbed widths preclude the addition of a central platform which is required to access the inner two rail lines and utilize Bridgeport as an express stop. Any new construction or maintenance must recognize the need for continuous rail operations. And while the raised roadbed has stood well for over 100 years, there is no ability to warrant it as a flood barrier.

In several instances, power grid and communications grids utilize the same railroad right of way.

The State of Connecticut directly subsidizes the operation of the Metro North, and financing is not only at variance with most rail line operations, but also requires complex financial politics to fund other than general maintenance.

Freight rail is extremely limited by available track time, by restrictions on weight and by lack of off loading ports.

Assumptions

Given track and construction constraints, it seems unlikely that true high speed rail can be retrofit to the Metro North line. One of the likely possible paths for high speed train from New York City to Boston would run north of Bridgeport and towards Hartford.

Metro North continues to predict steady increases in ridership as a commuter rails system, though constraints include parking limitations for suburban commuters, platform length, and operational frequency limits.

Multi-modal traffic is likely to increase along the Route 8 corridor, and along commercial north/south spines as major transportation routes migrate away from the coast.

The introduction of Bridgeport as an express stop would not only increase train traffic through the city, but by reducing the trip to New York City to a more manageable time could begin to attract New York City commuters to live in Bridgeport. The addition of a second (local) station would again attract commuters from outside Bridgeport, but would also begin to make transit oriented design communities within close distance of the station a real possibility.

A northern high speed rail would open up some track time and ridership space for new commuter efficiencies. While on the face of it, freight and high speed are not generally compatible it would be wise to at least maintain a single right of way for both.

The City of Bridgeport has investigated both adding an additional stop to the city (Barnum Station) and tunneling a new right of way and express station through the city.

Recommendations

The existing raised rail line divides the city, limiting growth and development. It creates several flood related hazards and it limits the ability to develop express stops. Running the rail underground along State Street to a new station (near the existing) and continuing under the Pequonnock to a new Barnum station before surfac-

MOBILITY AND RESILIENCY

ing in the existing rail yards allows the introduction of Bridgeport as an express stop and removes several flood hazards. The recommendation would then be to develop (on half of the existing rail bed) a local light rail or trolley system with at-grade crossing and the other half as a new green way development running continuously from one side of the city to the other. Cross streets would be raised gently to the new safer elevations. Transit oriented design communities would develop along the new greenway trolley. The rail bed and accompanying railroad avenue would utilize new water absorption techniques and accommodate water management runoff as well as septic systems.

The Metro North and Greenway lines would intersect with each other, with the bus terminal and bus lines, and with new bikeways and pedestrian paths developed. All of this would then encourage development within the modal system, cutting down commute time, eliminating much car traffic and generally decreasing the carbon footprint of the city.

Interstate Highway

Existing issues

I-95 is one of the heaviest trafficked corridors in North America. Forecasts are for traffic to increase and traffic speeds will continue to drop until a point of equilibrium is reached where its inconvenience outweighs its convenience. It is a vital trucking route for local industry and a major commuter track. It does run through several low lying areas along the Connecticut coast.

In Bridgeport, while the highway is built to a very high elevation, many of the on/off ramps terminate in low lying areas that make it impassable in predicted flood events. While the highway berms effectively restrict flooding, there is no way to warrant their performance even as flood conditions are worsened at underpasses, and low lying ramps.

The great height and imposing width exactly bisects the city and has had devastating affect on property values, development potential and local health. It has effectively decimated the East Side neighborhood, truncated east end neighborhoods and stymied downtown growth in its sixty years.

The DOT is in a constant maintenance mode without any serious plans for regional improvements or multi-modal use of the existing aging structures. Financing bonds require continued funding sometimes beyond the useful life of structures.

Assumptions

As industries phase to green solutions, and local sourcing (of food, of goods, even of raw materials) increase, truck delivery will lessen. As industries in low lying areas migrate north the assumption is that the major I-95 corridor should also shift north, and its current corridor will be turned over to local modes of traffic.

As transit oriented design communities take hold, as fuel prices rise, and as roads are choked, commuter car traffic will decrease.

Recommendation

A highway bypass around Bridgeport would remove the physical impediment of the I-95 structure and reunite neighborhoods. It would free up over 80 acres of dry land in three different neighborhoods for relocation efforts, and for new development at scales appropriate to each neighborhood.

This bypass would follow existing road rights of way through Connecticut, running up the Route 8 corridor, to the Merritt Parkway corridor and then down the Milford connector back to I-95.

Light Rail

Green Line as discussed above

Bus Lines

Existing Issues

The main bus terminal as well as its access to the train station is located in a flood plain. The city maintains a fairly robust level of bus service throughout the city. The lack of density of areas along the route however can make for sparse ridership.

Assumptions

Bus travel will increase and develop

MOBILITY AND RESILIENCY

in tandem with a new light rail line, especially as car operation and ecological costs increase.

The city is encouraging zoning changes to create new areas of transit oriented design density along major commercial arteries.

Recommendation

There are several areas of the city where major commercial arteries cross waterways that have been covered, conduited and are susceptible to flood. The development could at once uncover and manage such waterways while at the same time raising perimeter densities. The waterworks would be central features of new defined development nodes - nodes with sufficient density to support the water works, the transit system, and increased land values.

Cars

Existing issues

Bridgeport, like most small cities, remains car-centric. Parking garages and hard surface parking lots dominate downtown and suburban shopping centers alike. Cars are vulnerable in low lying areas. Car exits are blocked (particularly from south end) in flood conditions. Road and surface runoff exacerbate pluvial flooding.

In fact many in poorer communities do not own cars and are victims of the car based travel system that limits shopping, working and recreation opportunities for the carless.

Metro North subsidizes parking lots near stations to attract rail ridership. Bridgeport residents bear the brunt of traffic and pollution from outside the community as they serve as parking stations for commuters who interact infrequently with downtown commerce (and probably pay their taxes elsewhere).

Assumptions

Cars will not go away, nor will commuting, but non-car mode from home to station and from home to work or school or shopping should all be encouraged. Bridge traffic of all kinds across the cities waterways are essential assets. Ultimately most bridge and bridge approaches will need to be raised to accommodate surge levels.

Recommendations

- Redesign parking and green streets with permeable surfaces
- Encourage mixed use development that includes housing, commercial and industrial components to cut down on travel miles and to strengthen neighborhoods

Bikes and Pedestrians

Existing Issues

New bike lanes are just developing in Bridgeport and remain largely sporadic and traffic bound. Some neighborhoods lack suitable pedestrian sidewalks. Traffic safety is a concern at difficult road crossings.

Assumptions

Bike and pedestrian traffic will grow exactly as conditions allow and encourage. Health concerns will move more to take advantage of new recreation areas.

Recommendations

- Incorporate into new Pequonnock River Park bike lanes and walking trails connecting to Trail to Bike way and from Beardsley Park to Seaside park
- Incorporate bike berms through South End, East End, and eventually from Black Rock to Pleasure Beach
- Include bike storage facilities and rentals at transit stations and park facilities
- Include pedestrian friendly walks, benches and conversation areas along green streets, and park paths

TECHNICAL SECTIONS
SUPPORTING MATERIALS

T.1 PRELIMINARY COST ESTIMATES

ARCADIS

Estimate of Probable Cost

City of Bridgeport

Construction Multi-Functional South End Berm (~7ft)

Item Description	Quantity	Unit	Unit Price	PROBABLE (Cost)
Feasibility Studies				
Impact Assessment				$50,000
Civil Engineering Study				$50,000
Structural Engineering Study				$100,000
Geotechincal Engineering Study				$100,000
Neighborhood Planning and Stratgy Assessment				$50,000
Environmental Analysis				$25,000
Architectural and Landscape Design				$100,000
Studies Subtotal				$475,000
Construction and Materials				
Levee	8500	LF	$2,500.00	$21,250,000
Topsoil Placement	450000	TON	$12.00	$5,400,000
Landscape Buffer (Construction and Materials)	5000	LB	$2.00	$10,000
Bioswale (Construction and Materials)	5000	LB	$2,000.00	$10,000,000
Construction and Materials Subtotal				$36,660,000
Contingency - 30%	30%			$10,998,000
Opinion of Probable Cost				**$48,133,000**

1. Unit prices based off of recent cost estimates for other projects
2. Topsoil costs assume given dimensions and 100 pcf

S.1.1

ARCADIS

City of Bridgeport

Elevated Singer Street with Integrated Multif-functional wall (South End - 1 mile)

Item Description	Quantity	Unit	Unit Price	PROBABLE (Cost)
Feasibility Studies				
Impact Assessment				$50,000
Civil Engineering Study				$100,000
Structural Engineering Study				$100,000
Geotechincal Engineering Study				$100,000
Neighborhood Planning and Stratgy Assessment				$75,000
Environmental Analysis				$50,000
Architectural and Landscape Design				$150,000
Studies Subtotal				$625,000
Construction and Materials				
Roadway Construction	1	MILE	$1,360,000.00	$1,360,000
Earthwork Embankment	33244	CY	$50.00	$1,662,217
Storm Drainage Construction	1	MILE	$930,000.00	$930,000
Street Lighting	1	MILE	$280,000.00	$280,000
Driveway Connections to Existing Properties	50	EACH	$100,000.00	$5,000,000
Storm Drainage Connections to Existing Properties	25	EACH	$100,000.00	$2,500,000
Temporary Construction Easements	3	ACRE	$50,000.00	$150,000
Utility Relocation	1	MILE	$1,000,000.00	$1,000,000
Construction and Materials Subtotal				$12,882,217
Contingency - 30%	30%			$3,864,665
Opinion of Probable Cost				**$17,371,882**

S.1.2

Item Description	Quantity	Unit	Unit Price	PROBABLE (Cost)
Sewer System Interpretation				
Review Existing Data				$25,000
CSO Outfall - Sewershed Hydrodynamic Modeling				$45,000
Treatment Park Study Assessments				
Assessment of Technologies and Ccology				$70,000
Site Analyses				$55,000
Numerical Analyses Treatment Park				$45,000
Architectural and Landscape Design				$55,000
Environmental and Permitting Analyses				$65,000
Resident and Neighbor Engagement				$40,000
Reporting				$55,000
Project Implementation Plan - Next Steps, Design and Construction Requirements				$30,000
Studies Subtotal				$485,000
Opinion of Probable Cost				**$485,000**

S.1.3

ARCADIS

Estimate of Probable Cost

City of Bridgeport

Construction Living Shoreline: Offshore Constructed Breakwaters with Wetland

Item Description	Quantity	Unit	Unit Price	PROBABLE (Cost)
Feasibility Studies				
Impact Assessment				$50,000
Hydraulic and Hydrological Assessment				$50,000
Civil Engineering Study				$50,000
Neighborhood Planning and Stratgy Assessment				$50,000
Environmental Analysis				$50,000
Architectural and Landscape Design				$50,000
Studies Subtotal				$300,000
Phase A				
Geotextile Material (Geotextile Bags)	300000	SF	$0.50	$150,000
Dredge Material and Delivery Costs	11250	TON	$13.00	$146,000
Delivery of Geotextile Bags	15000	LF	$5.00	$75,000
Filling of Geotextile Bags	8300	CY	$12.00	$100,000
Placement of Geotextile Bags	1500	EACH	$50.00	$75,000
Topsoil Placement	20000	TON	$12.00	$240,000
Wetland Vegetation (Construction and Materials)	2100	LB	$2.00	$4,000
Mattress for Off-Shore Island (Waterfront Side)	561100	SF	$0.50	$281,000
Dredge Material and Delivery Costs	5500	TON	$13.00	$71,000
Delivery of Geotextile Matresses	500	LF	$5.00	$3,000
Filling of Geotextile Mattreesses	1020	CY	$12.00	$12,000
Placement of Geotextile Mattresses	10	EACH	$50.00	$1,000
Rip Rap for Off-shore Island (Assuming to Cover Mattress)	30560	TON	$24.00	$733,000
Phase A Subtotal				$1,891,000
Phase B				
Geotextile Material (Geotextile Bags)	180000	SF	$0.50	$90,000
Dredge Material and Delivery Costs	6750	TON	$13.00	$88,000
Delivery of Geotextile Bags	9000	LF	$5.00	$45,000
Filling of Geotextile Bags	4980	CY	$12.00	$60,000
Placement of Geotextile Bags	900	EACH	$50.00	$45,000
Topsoil Placement	12000	TON	$12.00	$144,000
Wetland Vegetation (Construction and Materials)	1260	LB	$2.00	$3,000
Phase B Subtotal				$475,000
Contingency - 30%	30%			$709,800
Opinion of Probable Cost				**$3,375,800**

S.2

S.3 South End Neighborhood Transformation and Resilience Center

Uses

Replacement of Marina Village-JHM	$75,000,000
Replacement of Marina Village POKO Partners	$75,000,000
Homeowner rehabilitaion	$30,000,000
Commercial Revitalization	$5,000,000
Institutional Improvements	1,500,00
Green Streets	$5,000,000
Resilience Center	$6,000,000
Community Services	$8,000,000
Wayfinding	$10,000
Total	$204,010,000

Sources

Net LIHTC Equity- blended 4% and 9%	$102,005,000
FEMA	$40,000,000
CHFA Loans	$3,000,000
DOH Grants	$5,000,000
CEFIA Loans	$1,400,000
Utility Grants	$6,400,000
FHLB Grants	$1,200,000
Other Grants	$1,505,000
Homeowner Sweat Equity	$2,000,000
Foundations	$1,500,000
RBD	$40,000,000
Total	$204,010,000

S.3

ARCADIS

City of Bridgeport

Offshore CSO Outfall Treatment Park with Neighborhood Implementation Study

Item Description		Item Total
Sewer System Interpretation		
Review existing data	$	25,000
CSO outfall - sewershed hydrodynamic modeling	$	45,000
Treatment Park Study Assessments		
Assessment of technologies	$	65,000
Site Analyses and waterfront typology assessment	$	50,000
Numerical Analyses, hydrodynamic modeling	$	45,000
Landscaping and Architecture	$	45,000
Reporting and project plan	$	45,000
Permitting Analyses	$	65,000
Resident and Neighbor Engagement	$	40,000
Treatment Park Construction, 9 acres (following Living Shoreline conept)		
Offshore Breakwaters with re-use of drege materials	$	325,000
Wetland creation - backfill and topsoil placement	$	500,000
Wetland vegetation	$	25,000
Waterfront reshaping (Rip Rap - Geotextile mattrasses)	$	125,000
Community Implementation & Revitalization Plan with Onshore Mitigation		
Community surveys and needs interviews	$	90,000
Household data analyses	$	20,000
Resident and Neighbor Engagement	$	20,000
Site Planning, financing plan and water connectivity	$	80,000
Black Rock Transition Design - Neighborhood to Treatment Park	$	120,000
Neighborhood Plan with adaptation goals and eduction program	$	65,000
Subtotal	**$**	**1,795,000**
Subtotal - Non-Construction Items	$	820,000
Subtotal - Construction Items	$	975,000
Contingency	**30.00%** $	538,500
Opinion of Probable Planning and Construction Cost	**$**	**2,333,500**

Notes and Assumptions:

1. Public R/W construction pricing information used herein is based on generic costs
2. Earthwork Embankment, Offshore study and construction pricing information is obtained from ARCADIS reference projects
3. Storm Drainage unit prices are assumed values based on engineering judgement and have not been verified.
4. A budget Contingency of 30% is included due to the conceptual nature of the current pre-planning stage of the project development.

B.1.1
B.1.2

ARCADIS

Estimate of Probable Cost

City of Bridgeport

Bostwick Avenue Elevated Section

Item Description	Quantity	Unit	Unit Price	PROBABLE (Cost)
Feasibility Studies				
Impact Assessment				$50,000
Civil Engineering Study				$100,000
Structural Engineering Study				$100,000
Geotechincal Engineering Study				$100,000
Neighborhood Planning and Stratgy Assessment				$75,000
Environmental Analysis				$50,000
Architectural and Landscape Design				$150,000
Studies Subtotal				$625,000
Construction and Materials				
Roadway Construction	1	MILE	$1,180,000.00	$1,062,000
Earthwork Embankment (New Fill)	29000	CY	$30.00	$870,000
Concrete Retaining Walls	23100	SF	$120.00	$2,772,000
Storm Drainage System	1	MILE	$930,000.00	$837,000
Erosion Control	1	MILE	$20,000.00	$18,000
Pavement Marking and Signage	1	MILE	$30,000.00	$27,000
Street Lighting	1	MILE	$280,000.00	$252,000
Utility Relocations	1	MILE	$1,000,000.00	$900,000
Driveway Connections to Existing Properties	26	EACH	$100,000.00	$2,600,000
Drainage Connections to Existing Properties	13	EACH	$100,000.00	$1,300,000
Construction and Materials Subtotal				$10,638,000
Contingency - 30%	30%			$3,191,400
Opinion of Probable Cost				**$14,454,400**

B.2

ARCADIS

Estimate of Probable Cost

City of Bridgeport

Black Rock Harbor - Comprehensive Feasibility Study for Bridge with Integrated Surge Protection

Item Description	Quantity	Unit	Unit Price	PROBABLE (Cost)
Feasibility Studies				
Impact Assesment				$50,000
Data Collection				
Environmental Impact Statement				
Public Outreach				
Hydraulic & Hydrological Study				$100,000
Flood Elevation Determination				
Flow Characteristics Study				
Sediment Transport Study				
Civil Engineering Study				$120,000
Survey Data Collection				
Excavation				
Scourt Analysis				
Geotechnical Engineering Study				$100,000
Study of Boring Logs				
Slope Stability				
Structural Engineering Study				$140,000
Preliminary Gate Design				
Foundation Design				
Quantity Analysis				
Mechanical/Electrical Engineering Study				$60,000
Preliminary Sizing of Machinery				
Cost Estimation				
Operation and Maintenance Cost Analysis				
Cost Benefit Analysis				$30,000
Environmental Impact Study - Focus Area Black Rock Harbor				$50,000
Strategy Assessment - Focus Area Black Rock & South End Landfill				$55,000
Community Outreach and Participation Program				$55,000
Architectural and Landscape Design				$125,000
Studies Subtotal				$885,000
Opinion of Probable Cost				**$885,000**

B.3

ARCADIS

Estimate of Probable Cost

City of Bridgeport

Downtown Protection Floodwall

Item Description	Quantity	Unit	Unit Price	PROBABLE (Cost)
Feasibility Studies				
Impact Assessment				$50,000
Hydraulic and Hydrological Assessment				$50,000
Civil Engineering Study				$50,000
Neighborhood Planning and Stratgy Assessment				$50,000
Environmental Analysis				$50,000
Architectural and Landscape Design				$50,000
Studies Subtotal				$300,000
Construction and Materials				
Floodwall - 20 ft	529	LF	$8,000.00	$4,232,617
Pedestrian Bulkhead - Epoxy Coated Sheet Pile with Aesthetic Concrete Cap (Formliner and Incl. Pedestrian Sidewalk)	1096	LF	$3,500.00	$3,837,128
Floodwall - 20 ft with High and Low Platform	1233	LF	$9,000.00	$11,094,783
Floodwall - 20 ft with High and Low Platform	430	LF	$10,500.00	$4,510,758
Construction and Materials Subtotal				$23,675,286
Contingency - 30%	30%			$7,102,586
Opinion of Probable Cost				**$31,077,871**

D.1

ARCADIS

Estimate of Probable Cost

City of Bridgeport

Downtown Protection Floodwall

Item Description	Quantity	Unit	Unit Price	PROBABLE (Cost)
Feasibility Studies				
Impact Assessment				$50,000
Hydraulic and Hydrological Assessment				$50,000
Civil Engineering Study				$50,000
Neighborhood Planning and Stratgy Assessment				$50,000
Environmental Analysis				$50,000
Architectural and Landscape Design				$50,000
Studies Subtotal				$300,000
Construction and Materials				
Floodwall - 20 ft	774	LF	$8,000.00	$6,191,383
Pedestrian Bulkhead - Epoxy Coated Sheet Pile with Aesthetic Concrete Cap (Formliner and Incl. Pedestrian Sidewalk)	1604	LF	$3,500.00	$5,612,872
Floodwall - 20 ft with High and Low Platform	1803	LF	$9,000.00	$16,229,217
Floodwall - 20 ft with High and Low Platform	628	LF	$10,500.00	$6,598,242
Construction and Materials Subtotal				$34,631,714
Contingency - 30%	30%			$10,389,514
Opinion of Probable Cost				**$45,321,229**

D.2

ARCADIS

Estimate of Probable Cost

City of Bridgeport

New Congress Street Bridge - Low Level Steel Bascule with Concrete Arch Approach Spans

Item Description	Quantity	Unit	Unit Price	PROBABLE (Cost)
Feasibility Studies				
Impact Assessment				$50,000
Civil Engineering Study				$50,000
Structural Engineering Study				$100,000
Geotechincal Engineering Study				$100,000
Neighborhood Planning and Stratgy Assessment				$50,000
Environmental Analysis				$25,000
Architectural and Landscape Design				$100,000
Studies Subtotal				$475,000
Construction and Materials				
Approach Spans - Concrete Slab Span (East and West)	14800	SF	$200.00	$2,960,000
Concrete Arch Approach Spans (67 ft Long)	19832	SF	$450.00	$8,924,400
Steel Bascule Foundations and Pier Substructure (90 ft Opening)	1	EA	$20,000,000.00	$20,000,000
Steel Bascule Superstructure	1	EA	$8,500,000.00	$8,500,000
Steel Bascule Mechanical and Electrical Equipment	1	EA	$10,000,000.00	$10,000,000
Construction and Materials Subtotal				$50,384,400
Contingency - 30%	30%			$15,115,320
Opinion of Probable Cost				**$65,974,720**

D.3
OPTION 1

ARCADIS

Estimate of Probable Cost

City of Bridgeport

New Congress Street Bridge - Exotic Steel Arch with Intermediate Piers

Item Description	Quantity	Unit	Unit Price	PROBABLE (Cost)
Feasibility Studies				
Impact Assessment				$50,000
Civil Engineering Study				$50,000
Structural Engineering Study				$100,000
Geotechincal Engineering Study				$100,000
Neighborhood Planning and Stratgy Assessment				$50,000
Environmental Analysis				$25,000
Architectural and Landscape Design				$100,000
Studies Subtotal				$475,000
Construction and Materials				
Approach Spans - Concrete Slab Spans (East and West)	12800	SF	$200.00	$2,560,000
Exotic Steel Arch Main Span (Including Intermediate Piers)	41280	SF	$750.00	$30,960,000
Construction and Materials Subtotal				$33,520,000
Contingency - 30%	30%			$10,056,000
Opinion of Probable Cost				**$44,051,000**

D.3
OPTION 2

DOWNTOWN DESIGN CENTER AND COMMUNITY DEVELOPMENT
$10.4 MILLION

Renovation of Design Center Building - $5,000,000

Program start-up funds - $1,800,000

Loan and grant funds for property improvements

RBD Funds: $3,000,000
Home Funds: $5,000,000
CEFIA Funds: $1.050,000
CHFA First Time Homebuyer Funds: $6,000,000
CHAMP Funds: $500,000
Shoreline Recovery Fund: $2,000,000
Private Mortgages: $18,000,000
Utility rebates: $900,000
Value of self-help: $6,000,000
Additional grant funding and private donations: $1,000,000 (Surdna, NEA,

Small Resiliency Grants – 120 @ $5000 ea. = $600,000

D.4

Estimate of Probable Cost

BRIDGEPORT TRANSPORTATION AND INVESTMENT PLAN

Item Description				PROBABLE (Cost)
Work Plan				
Review and catalog current and projected regional transportation system alternatives				$75,000
Focus and remap as relevant current and projected transportation system including identify long-term opportunities for redevelopment with rail and highway alternatives and the impact these would have on Bridgeport				$100,000
Develop and assess alternatives for multi-modal transportation hub/station				$125,000
Design development plans for the station area, with connections to and through new infrastructure, Downtown, East Side and South End.				$250,000
Identify priority properties for development				$50,000
Identify network and locations for future utilities' infrastructure				$50,000
Identify long term alternatives for property redevelopment with rail and highway realignments				$150,000
Develop near, mid-and long term scenario plans to guide resiliency planning and development strategies				$100,000
Community Outreach and Participation Program				$75,000
Administration, Report and Production				$25,000
Total				**$1,000,000**

D.5

ARCADIS

City of Bridgeport
Green Streets

Item Description	Quantity	Unit	Unit Price	PROBABLE (Cost)
Feasibility Studies				
Impact Assessment				$50,000
Civil Engineering Study				$100,000
Structural Engineering Study				$100,000
Geotechincal Engineering Study				$100,000
Neighborhood Planning and Stratgy Assessment				$75,000
Environmental Analysis				$50,000
Architectural and Landscape Design				$150,000
Studies Subtotal				$625,000
Construction and Materials				
Roadway Construction	3	MILE	$1,330,000.00	$4,522,000
Storm Drainage Construction	3	MILE	$930,000.00	$3,162,000
Corner Basins / Retention Facilities (i.e. Bioswales)	1	LS	$2,900,000.00	$2,900,000
Street Lighting	3	MILE	$280,000.00	$952,000
Traffic Signalization	17	EACH	$80,000.00	$1,360,000
Driveway Connections to Connections to Existing Properties - Residential	57	EACH	$5,000.00	$285,000
Driveway Connections to Connections to Existing Properties - Commercial	60	EACH	$15,000.00	$900,000
Storm Drainage Connections to Existing Properties - Residential	81	EACH	$7,500.00	$607,500
Storm Drainage Connections to Existing Properties - Commercial	163	EACH	$25,000.00	$4,075,000
Temporary Construction Easements	8	ACRE	$50,000.00	$410,000
Utility Relocation	3	MILE	$1,000,000.00	$3,400,000
Construction and Materials Subtotal				$22,573,500
Contingency - 30%	30%			$6,772,050
Opinion of Probable Cost				**$29,970,550**

P.1

Estimate of Probable Cost

LOWER PEQUONNOCK DESIGN AND IMPLEMENTATION PLAN

Item Description				PROBABLE (Cost)
Work Plan				
Model watershed including interacations of coastal surge, urban stormwater, and river flows, including interatction with creeks and tributaries				$150,000
Develop connection water and park systems from Beardsley Park down Pequonock to Sound				$75,000
Catalogue property ownership and explore opportunities to reorganize and redevelop commercial and industrial zone around US Highway 1, converting property owners to shareholders				$100,000
Daylight Pequonnock and Island Brook and develop park at confluence. Explore dry feet and wet feet development types.				$200,000
Create development plan for commercial zone along US Highway 1 / Boston Avenue to Route 8				$100,000
Develop castcade for enhanced fish ladder from dam to US Highway 1 bridge				$200,000
Develop area for oyster beds and related aquaculture along river's edge, including hatchery				$100,000
Explore opportunities along waterfront and up peninsula for transfers, using sending and receiving zones				$50,000
Investigate and design daylighting program of covered streams in inland waterways west of the Pequonnock to improve hydrolic function and to explore engergy generation and capture from stream				$125,000
Develop enhanced transportation connection of the Pequonnock Rail to Trail project from downtown to Beardsley Park connection				$50,000
Construct an ecological assessment of the larger urban riparian system to establish a baseline of the current species and related health of the river				$100,000
Create ecological design and adaptive management design guidelines to monitor and evalute iterations of larger plan				$50,000
Establish a Watershed Overlay District in each town along the river from Monroe to Trumbull to Bridgeport				$75,000
Identify brownfield reclaimations				$75,000
Cost Benefit Analysis				$75,000
Economic Development Analysis				$75,000
Community Outreach and Participation				$150,000
Administration and Report Production				$50,000
Total				**$1,800,000**

P.2

LETTERS OF SUPPORT
THE RESILIENT BRIDGEPORT COALITION

BRIDGEPORT
MAYOR BILL FINCH

BILL FINCH
Mayor

OFFICE OF THE MAYOR
CITY OF BRIDGEPORT, CONNECTICUT
MARGARET E. MORTON GOVERNMENT CENTER
999 BROAD STREET
BRIDGEPORT, CONNECTICUT 06604
TELEPHONE (203) 576-7201
FAX (203) 576-3913

March 25, 2014

Mr. Shaun Donovan, Secretary
U.S. Department of Housing and Urban Development
451 7th Street S.W.
Washington, DC 20410

Re: Rebuild By Design, Bridgeport Team - WB unabridged + Yale ARCADIS

Dear Secretary Donovan:

On behalf of the residents and businesses of Bridgeport, Connecticut's most populous city, I, Mayor Bill Finch, am writing to voice my strong support for the projects embodied in 'Resilient Bridgeport.' This proposal, submitted to Rebuild By Design by WB unabridged + Yale ARCADIS was developed in close collaboration with myself, my senior staff, and many local private and civic stakeholders who will be integral partners in achieving implementation. The proposed projects will strengthen Bridgeport's future by investing in strategies that address short-, medium-, and long-term solutions that are realistic and achievable in our city and the many like it up and down the east coast. This road map will lead to increased economic opportunities, increased environmental quality, and an overall better quality of life for Bridgeport residents and workers.

Working with the WB unabridged + Yale ARCADIS Team has been an enlightening experience and has provided my administration a unique opportunity to take a step back from the day to day challenges of governing and re-envision our city as a place well positioned to cope with the threats of climate change long into the future.

Bridgeport is committed to executing ideas and concepts proposed in the Team's proposal. As is demonstrated by BGreen 2020, our public private partnership for sustainability and emissions reduction, we have a proven ability to bring together key decision-makers from the public, private, and civic sectors to achieve results and investment in a short time frame. Since launching in 2010, we have begun implementation on nearly every single one of the 64 action items outlined in the BGreen 2020 plan. As is demonstrated by the NY-CT Sustainable Communities Consortium, Bridgeport has proven to be a leader in bringing together its peer communities from across the region to cross pollinate strategies that are working towards sustainability and to work together on those issues that cross political borders.

"Together we are making Bridgeport the cleanest, greenest, safest, most affordable city, with schools and neighborhoods that improve each year"

look like in the real world. Hurricanes Sandy and Irene, and the preceding Nor'easters made clear that mitigation alone is not enough and we need to seriously tackle adaptation as the inevitable impacts of climate change are already becoming apparent. For a city like Bridgeport, that has faced so many economic, social, and environmental challenges since its founding, adaptation alone is not a sustainable strategy. The Rebuild by Design process has taught us what resiliency really means and how a collection of strategic initiatives can work together to reposition the city for the next century.

The City of Bridgeport and the Resilient Bridgeport team of WB unabridged + Yale ARCADIS have developed a strong partnership that has generated innovative and implementable ideas and, more importantly, forged a working relationship that will ensure that CDBG-DR capital invested here will be put to good work, demonstrating how post-industrial mid-sized cities can grow and prosper to the benefit of their residents, workers, and the environment in an age of climate change.

We are excited about the project and look forward to this partnership.

Sincerely,

Bill Finch
Mayor

BRIDGEPORT
MAYOR BILL FINCH

HOUSING AUTHORITY OF THE CITY OF BRIDGEPORT

Sharon Ebert, Interim Executive Director
150 Highland Avenue
Bridgeport, CT 06604
T#. (203) 337-8900
F#. (203) 337-8830
TDD#. 1-800-545-1833 Ext. 226
www.bridgeporthousing.org

March 21, 2014

RE: ReBuild By Design Resilient Bridgeport

Dear Secretary Donovan:

The Housing Authority of the City of Bridgeport (the Authority) is pleased to be part of the Rebuild By Design – Resilient Bridgeport coalition. As the Interim Executive Director, I have been personally involved in the project and can say with confidence that the design team has worked well to include many regional and local stakeholders, including residents, business owners, nonprofits, and government officials to develop a vision for the transformation of Bridgeport.

The Authority has a key role in the implementation of the Resilient Bridgeport vision as we have three housing development sites that are in 100-year flood zones that are part of the proposed plan: Marina Village and the former Marina Apartments site, both located in the South End; and P T Barnum Apartments located in the City's West End adjacent to the Block Rock neighborhood. At great risk to flooding and storm damage is the Marina Village site that is currently under review by HUD for a demolition and disposition application due to severe water and wind damage cause from Hurricane Irene in 2011 and Super Storm Sandy in 2012. P T Barnum is also located in a 100-year flood plain and received water and wind damage from hurricane Irene in 2011. Together over 760 households reside at these two public housing sites. The former Marina Apartment site, which is now a vacant lot is located at Main and Broad Streets in the South End and is Phase One of a multi-phase redevelopment plan for Marin Village containing 78 mixed-income residential units of which 56 will be replacement housing.

The Authority strongly supports the Resilient Bridgeport proposal's position that it is possible to develop the Connecticut shoreline in ways that restores the environment, strengthens the regional economy, reduces long-term risk, and allows Bridgeport to thrive as a place to live and work. The design team's watershed-based planning and extensive community engagement process have brought innovations and best practices to bear upon Bridgeport, while initiating the conversations and educational process that will be the basis for successful implementation. The innovative strategies and projects that comprise the

HOUSING AUTHORITY OF THE CITY OF BRIDGEPORT

HOUSING AUTHORITY OF THE CITY OF BRIDGEPORT

proposal will have an immediate and positive impact on the city and its residents, while laying the foundations for a healthy and prosperous future.

The Authority is a key partner in the future of Bridgeport's South End neighborhood. As part of the Resilient Bridgeport coalition we are committed to working along with the City of Bridgeport to leverage the public investments of future housing developments. We currently are working with our development partner, Bridgeport Community Renewal Associates (BCRA) a partnership between the Richman Group and JHM Group, to demolish the oldest section of Marina Village at Park Avenue the core of the City's South End and develop new mixed income residential housing as well as a health clinic, a senior center and a panelized housing factory to bring manufacturing back to the neighborhood. The opportunity to join forces with the City and the Rebuild By Design team to make all of these elements into a neighborhood resiliency center is key to the greater success of revitalizing the South End neighborhood.

I greatly look forward to working with the Rebuild By Design team and the City of Bridgeport in creating a this resilient community along the beautiful Connecticut shoreline so that people of all economic backgrounds may enjoy its benefits for decades to come.

Sincerely,

Sharon L. Ebert, A.I.A., CNU-A

Sharon L. Ebert, A.I.A., CNU-A
Interim Executive Director
The Housing Authority of the City of Bridgeport

BRIDGEPORT NEIGHBORHOOD TRUST

March 18 , 2014

Dear Secretary Donovan:

On behalf of Bridgeport Neighborhood Trust (BNT), I am writing to express my support of Resilient Bridgeport's proposal. Resilient Bridgeport stands out as an integrative planning and design process in which regional and local stakeholders – including residents, business owners, nonprofits, and government officials – have joined together to develop a vision for the transformation of Bridgeport. This vision is built on existing plans and initiatives that mark Bridgeport as a place with highly engaged citizenry, proactive government, and many underutilized assets ranging from its waterfronts and waterways to its historic urban fabric and proud history as an industrial center.

The proposal's assertion that continued inhabitation of Connecticut's coastline is necessary, and that is possible to do so in a way that restores the environment, strengthens the regional economy, reduces long-term risk, and allows Bridgeport to thrive as a place to live and work makes it a model for other cities along the Long Island Sound and throughout New England. The design team's watershed-based planning and extensive community engagement process have brought innovations and best practices to bear upon Bridgeport, while initiating the conversations and educational process that will be the basis for successful implementation. The innovative strategies and projects that comprise the proposal will have an immediate and positive impact on the city and its residents, while laying the foundations for a healthy and prosperous future that can only be built with the concerted and cumulative actions of *our coalition*.

Four years ago, at the height of the housing crisis, BNT embarked on a neighborhood stabilization initiative in the South End of Bridgeport to restore a 9 block area plagued with abandonment, neglect and blight. In this small footprint, more than 45 properties are either foreclosed, lis pendens have been filed or at risk (blighted). In addition, this area is also home to Marina Village, a 400 unit public housing authority project that is partially vacant and has suffered from disinvestment.

BNT's South End Community Building Initiative proposes to transform this neighborhood into a community of choice where people want to live and work. This strategy will result in wider community investment and improve the neighborhood by restoring abandoned buildings to functional use. It will additionally provide resources for new residents to be successful in permanent housing.

Originally, BNT's strategy was to acquire properties, rehab and manage under one single responsible landlord (subsidiary of BNT). This one-house-at-a-time approach allowed BNT to rehab 7 properties totaling 25 units, with another 3 buildings and 7 vacant lots in its pipeline. The next phase of this project will create an additional 13 units which would bring the total number

240 Fairfield Avenue · 3rd Floor · Bridgeport, CT 06604
T 203.232 7977 · F 203.579.2238 · www.bnhweb.org

of units under BNT management to 38. To date, BNT is proud of its success and is pleased to report a change in its approach that will provide a much bigger impact.

Recently, BNT partnered with a private developer to help the housing authority redevelop the Marina Village project. This project includes the new construction of 200 new housing units in this neighborhood, many of which are in the 100 flood zone. But we are not giving up. We plan to address this challenge by elevating the building 5 feet, eliminating residential living uses proposed on ground floor, bring utilities into the 2nd floor, and mechanicals will be located on the roof.

We are very excited about the attention the Resilient Bridgeport's team has bought to Bridgeport. I am hopeful you their proposal deserving of your continued support.

Sincerely,

Elizabeth Torres
Executive Director

BRIDGEPORT NEIGHBORHOOD TRUST

GBRC
Greater Bridgeport Regional Council
Bridgeport • Easton • Fairfield • Monroe • Stratford • Trumbull

March 19, 2014

Secretary Shaun Donovan and the RBD Jury
U.S. Department of Housing and Urban Development
451 7th Street S.W., Washington, DC 20410

Dear Secretary Donovan and the RBD Jury,

The Greater Bridgeport Regional Council (GBRC) and task group, Conservation Technical Advisory Committee (CTAC) enthusiastically endorse and support the fine efforts of your team on behalf of Hurricane Sandy Recovery. The design concepts and innovations presented by stakeholders at the recent Bridgeport workshops held to develop and facilitate the Rebuild By Design program are indicative of the innovations necessary to facilitate creative solutions to the challenges we face with climate change and sea level rise. We are especially gratified that the Waggoner/Ball team, consultants, and stakeholders have emphasized the importance of whole community and regional watershed planning.

The GBRC CTAC has as one of its specific missions to coordinate Natural Hazard Mitigation Planning with other planning strategies for the City of Bridgeport, together with the towns of Easton, Fairfield, Monroe, Stratford and Trumbull as a comprehensive region. These six municipalities comprise two of the major watersheds that impact Bridgeport and also the shoreline communities most severely impacted by Hurricane Sandy. The CTAC serves as the manager for the Pequonnock River Watershed Master Plan. The GBRC and CTAC have also completed the composition and subsequent submission to the Connecticut Department of Energy and Environmental Protection and to FEMA of the Natural Hazard Mitigation Plan for the six municipalities of the region. GBRC is also providing technical assistance as the municipalities of the Greater Bridgeport Region prepare applications to the Community Rating System (CRS).

CTAC is supported by GBRC professional staff and consultants to provide comprehensive planning for the region, including transportation, GIS mapping, emergency preparedness, hazard mitigation and conservation planning and policies. You may count on our full organizational support and cooperation in bringing the elected officials, town staff and community volunteers to the table in support of the programs you are proposing as Post-Sandy recovery and resilience is realized though community outreach and stakeholder participation at the Rebuild By Design events and meetings.

Sincerely,

Brian Bidolli
Executive Director, Greater Bridgeport Regional Council

525 Water Street, Suite 1 • Bridgeport, CT 06604
V. 203-366-5405 • F. 203-366-8437 • www.GBRC.org

GREATER
BRIDGEPORT
REGIONAL COUNCIL

BRIDGEPORT
REGIONAL
BUSINESS COUNCIL

Creating Opportunities for Business Growth

March 21, 2014

Mr. Shaun Donovan, Secretary
U.S. Department of Housing and Urban Development
451 7th Street S.W.
Washington, DC 20410

Re: Rebuild By Design, Bridgeport Team - WB unabridged w/ Yale ARCADIS

Dear Secretary Donovan:

The Bridgeport Regional Business Council (BRBC) supports the Bridgeport Rebuild By Design team's proposal to receive CDBG-DR funding for resiliency design. The WB unabridged w/ Yale ARCADIS proposed projects will make Bridgeport and its citizens more resilient from economic, environmental and climactic disasters and will create a national model for municipalities throughout New England and the nation.

The BRBC views the WB unabridged w/ Yale ARCADIS team's proposal safeguard the South End where the eco-technology park is located. Significant investment by public and private partners has occurred in this area. It continues to drive Bridgeport's revitalization of an urban center recovering from de-industrialization. Integrating cutting edge resilience measure with the new green jobs in the Eco-Technology Park is paramount to the future success of both the park and the City of Bridgeport's economy.

The BRBC and the Bridgeport Rebuild By Design team of WB unabridged w/ Yale ARCADIS have a strong partnership and, over the past several months, have discussed many critical projects together. Funding from HUD for these projects will help to make Bridgeport a model for resiliency design and building.

We are excited about the project and look forward to this partnership.

Sincerely,

Paul Timpanelli
President & CEO

BRIDGEPORT CHAMBER OF COMMERCE | STRATFORD CHAMBER OF COMMERCE | TRUMBULL CHAMBER OF COMMERCE
BRIDGEPORT ECONOMIC DEVELOPMENT CORPORATION | LEADERSHIP GREATER BRIDGEPORT | WOMEN'S LEADERSHIP COUNCIL

10 Middle Street, 14th Floor, Bridgeport, CT 06604 | Office: 203-335-3800 | Fax: 203-336-0105
www.brbc.org

BRIDGEPORT
REGIONAL
BUSINESS COUNCIL

The Mary & Eliza Freeman Center

FOR HISTORY AND COMMUNITY, INC.

THE MARY AND ELIZA FREEMAN CENTER

March 24, 2014

Dear Secretary Donovan:

Resilient Bridgeport stands out as an integrative planning and design process in which regional and local stakeholders – including residents, business owners, nonprofits, and government officials – have joined together to develop a vision for the transformation of Bridgeport. This vision is built on existing plans and initiatives that mark Bridgeport as a place with highly engaged citizenry, proactive government, and many underutilized assets ranging from its waterfronts and waterways to its historic urban fabric and proud history as an industrial center.

The proposal's assertion that continued inhabitation of Connecticut's coastline is necessary, and that is possible to do so in a way that restores the environment, strengthens the regional economy, reduces long-term risk, and allows Bridgeport to thrive as a place to live and work makes it a model for other cities along the Long Island Sound and throughout New England. The design team's watershed-based planning and extensive community engagement process have brought innovations and best practices to bear upon Bridgeport, while initiating the conversations and educational process that will be the basis for successful implementation. The innovative strategies and projects that comprise the proposal will have an immediate and positive impact on the city and its residents, while laying the foundations for a healthy and prosperous future that can only be built with the concerted and cumulative actions of *our coalition*.

The Mary & Eliza Freeman Center for History and Community, a CT nonprofit, owns the historic Mary & Eliza Freeman Houses. We are creating a national African American historic site consisting of a museum and education center, a research/digital humanities center, and a unit of housing in Bridgeport's South End. The Center's preservation and restoration plans are designed to act as catalysts to neighborhood revitalization.

Built in 1848, the year slavery ended in Connecticut, the Freeman Houses are the only surviving buildings of Ethiope/Liberia - a seafaring community of free people of color that thrived from the 1820s to the 1850s. The houses are located at 354 and 360 Main Street, just blocks from Seaside Park and the Long Island Sound.

The Freeman Houses …are rare and irreplaceable evidence of African American life prior to Emancipation, and should be considered a site of national significance worthy of careful stewardship and protection. Listed on the State and National Register of Historic Places, the circa 1848 Freeman Houses should be considered some of Bridgeport's most significant architectural resources.

As (we) work to advance African American preservation across the Northeast region and to identify sites worthy of our assistance, this example presents a rare and unique opportunity. With the loss of most African American architectural histories due to urban renewal, it is even more critical that extant sites of importance to African Americans are preserved…they are the last extant examples remaining from a community, Little Liberia, circa 1822, and are the oldest houses built by African Americans in the State of Connecticut. These buildings must be considered irreplaceable. - National Trust for Historic Preservation (2008 Letter to Mayor Bill Finch)

1 c/o Action for Bridgeport Community Development; 1070 Park Avenue; Bridgeport, CT 06604
www.freemancenterbpt.com

THE MARY AND ELIZA FREEMAN CENTER

The story of the Little Liberia is an iconic American story of a people's struggle for freedom, self-determination, prosperity and democracy against overwhelming odds in shameful, inhumane times. Its history rivals the script of the most compelling Hollywood saga. Ethiope's narrative has proven inspiring to people of diverse backgrounds. In the last two years, one thousand people from the US and abroad found their way to the doors of these boarded structures.

The Freeman Center is committed to using the preservation and restoration of these cultural resources as catalysts for change, civic participation, and racial healing. The Freeman Center partnered with Greater Bridgeport Community Enterprises/The Green Team to teach displaced workers preservation deconstruction and other green contracting skills. History and archaeology were taught along with topics like lead abatement and asbestos removal. Museum quality artifacts from the 1800's were recovered. Endangered properties were shored up…And then came Sandy! Ironically the "two old ladies" weathered the storm quite well - one perched atop an English basement; the other clearly raised not long after construction in 1848.

The rest of the neighborhood didn't fare as well. I made my way south very early the morning after, through the flooded railroad viaduct - before the National Guard arrived with machine guns blockading our neighborhood at its one point of entry from the north. Families wandered the streets in their nightgowns, just walking –aimlessly, disoriented – like lost souls. Front doors were wide open, forced open by the water. Cars, signs, dumpsters (even the port-a-potty on our worksite) had been lifted, shoved, moved. Contents in the South End Barbershop were afloat in four feet of water. The Spanish restaurant's owner still shaken after riding out the storm started clean up early. Senior citizens and shop owners lamented over ruined food and medicine - sewage, fecal matter, no power, no cell service. The park had vanished and the Sound swallowed up the streets south of Whiting.

Our neighbors had nowhere to go. Our neighbors had nowhere to pray. The sanctuary of the oldest Black church in Fairfield County, Walter's Memorial AME Zion, just across the way, is still closed due to storm damage. Superstorm Sandy did not discriminate. And if we are to translate the creation of a resilient, safe and healthy built environment into educational, employment, and civic opportunities; plans for the future must respect the aspirations and visions, well-being and stability of the rich and poor alike - those who can afford to contribute to political campaigns and move when the water rises; and those who can't.

Based on my participation in Rebuild-By-Design workshops in late February, I believe RBD is Bridgeport's best hope for equitable and respectful public investment and land use in the face of climate change. The Mary & Eliza Freeman Center for History and Community will incorporate information and strategies generated by Rebuild-By-Design into lessons, public humanities programs, job training workshops, site preservation and design. The principles and objectives of Resilient Bridgeport will be an integral part and defining characteristic of our work. The Freeman Center supports the WB unabridged w/ Yale ARCADIS submission. We applaud its effort to reconnect the City with the waterways that once brought historic Ethiope/Liberia economic prosperity, freedom, and beauty.

Maisa L. Tisdale

President/CEO

The Mary & Eliza Freeman Center for History and Community, Inc.

2 c/o Action for Bridgeport Community Development; 1070 Park Avenue; Bridgeport, CT 06604
www.freemancenterbpt.com

March 18, 2014

Mr. Shaun Donovan, Secretary
U.S. Department of Housing and Urban Development
451 7th Street S.W.
Washington, DC 20410

Re: Rebuild By Design - Resilient Bridgeport

Dear Secretary Donovan:

O & G Industries supports the Bridgeport Rebuild By Design team's proposal to receive CDBG-DR funding for resiliency design. The Resilient Bridgeport proposed projects will make Bridgeport and its businesses more resilient from economic, environmental and climactic disasters and will create a national model for municipalities throughout New England and the nation. Black Rock Harbor affects dozens of major businesses and utilities in Bridgeport and calls for a major feasibility study to help protect those entities.

O & G Industries supports the Resilient Bridgeport design team's proposal to have a feasibility study done on the possibility of a floodgate and pedestrian bridge in Black Rock Harbor. In addition, the business community strongly supports the development of a resiliency center in Bridgeport as a regional asset where the businesses and the region's elected leaders can jointly educate themselves about the risks and challenges of climate change but also as a center where collaborative solutions can be vetted and implemented. The resilience center would provide the additional benefit of serving as a refuge during disasters.

O & G Industries and the Bridgeport Rebuild By Design team of WB unabridged w/ Yale ARCADIS have a strong partnership and, over the past several months, have discussed many critical projects together. Funding from HUD for these projects will help to make Bridgeport a model for resiliency design and building.

We are excited about the project and look forward to this partnership.

Very Truly Yours,
O&G Industries, Inc.

Richard O. Warren

Richard O. Warren
Facilities Administrator

112 Wall Street
Torrington, CT 06790-5416

O&G INDUSTRIES, INC.
www.ogindustries.com

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Fax (860) 496-4286

O&G INDUSTRIES

Wheelabrator Bridgeport, L.P.
A Waste Management Company

6 Howard Avenue
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(203) 579-1169 Fax

Mr. Shaun Donovan, Secretary
U.S. Department of Housing and Urban Development
451 7th Street S.W.
Washington, DC 20410

March 20, 2014

Re: Rebuild By Design - Resilient Bridgeport

Dear Secretary Donovan:

Wheelabrator Bridgeport, L.P. supports the Bridgeport Rebuild By Design team's proposal to receive CDBG-DR funding for resiliency design. The Resilient Bridgeport proposed projects will make Bridgeport and its businesses more resilient from economic, environmental and climactic disasters and will create a national model for municipalities throughout New England and the nation. Black Rock Harbor affects dozens of major businesses and utilities in Bridgeport and calls for a major feasibility study to help protect those entities.

Wheelabrator Bridgeport, L.P. supports the Resilient Bridgeport design team's proposal to have a feasibility study done on the possibility of a floodgate and pedestrian bridge in Black Rock Harbor. In addition, the business community strongly supports the development of a resiliency center in Bridgeport as a regional asset where the businesses and the region's elected leaders can jointly educate themselves about the risks and challenges of climate change but also as a center where collaborative solutions can be vetted and implemented. The resilience center would provide the additional benefit of serving as a refuge during disasters.

Wheelabrator Bridgeport, L.P. and the Bridgeport Rebuild By Design team of WB unabridged w/ Yale ARCADIS have a strong partnership and, over the past several months, have discussed many critical projects together. Funding from HUD for these projects will help to make Bridgeport a model for resiliency design and building.

We are excited about the project and look forward to this partnership.

Sincerely,

Glenn Lockhart
Plant Manager

WASTE MANAGEMENT

WHEELABRATOR
BRIDGEPORT, LP

CONNECTICUT DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

79 Elm Street • Hartford, CT 06106-5127 www.ct.gov/deep Affirmative Action/Equal Opportunity Employer

March 18, 2014

Mr. Shaun Donovan, Secretary
U.S. Department of Housing and Urban Development
451 7th Street S.W.
Washington, DC 20410

Re: Rebuild By Design, Bridgeport Team - WB unabridged w/ Yale ARCADIS

Dear Secretary Donovan:

The Connecticut Department of Energy and Environmental Protection (DEEP) supports the Bridgeport Rebuild By Design team's proposal to receive CDBG-DR funding for resiliency design. The WB unabridged w/ Yale ARCADIS proposed projects will make Bridgeport and its citizens more resilient from economic, environmental and climactic disasters and will create a national model for municipalities throughout New England and the nation.

The statewide Connecticut Climate Preparedness Plan, Tropical Storm Irene in late August 2011 and an October 2011 snowstorm and Storm Sandy in October 2012 demonstrated the vulnerability of the state's infrastructure and the need for further climate change preparedness, particularly on the municipal level. The state's vulnerability was further examined in Governor Malloy's "Two Storm Panel," and the evaluation initiated by the legislative Climate Change & Shoreline Preservation Taskforce, which highlighted the particular vulnerabilities and lack of available preparedness resources of shoreline communities.

Resilient Bridgeport will address, not only the particular vulnerabilities of a diverse, urban shoreline community with limited resources, but will serve as a model for other Connecticut municipalities as well as other coastal communities throughout the country.

CT DEEP and the Bridgeport Rebuild By Design team of WB unabridged w/ Yale ARCADIS have a strong partnership and, over the past several months, have discussed many critical projects together. Funding from HUD for these projects will help to make Bridgeport a model for resiliency design and building.

We are excited about the project and look forward to this partnership.

Sincerely,

Macky McCleary
Deputy Commissioner

MM/

Department of Housing

Connecticut
still revolutionary

March 24, 2014

Mr. Shaun Donovan
Secretary
U.S. Department of Housing and Urban Development
451 7th Street S.W.
Washington, DC 20410

Re: Resilient Bridgeport

Dear Secretary Donovan:

I write to express the enthusiastic support of the State of Connecticut's Department of Housing ("DOH") for "Resilient Bridgeport", the Rebuild By Design proposal submitted by the team of Waggonner and Ball, unabridged Architecture, the Gulf Coast Community Design Studio, Yale University's Urban Ecology and Design Laboratory, and ARCADIS (the "Resilient Bridgeport Team").

Since being selected by HUD as one of the ten Design Teams to participate in the Rebuild By Design initiative, the Resilient Bridgeport Team has brought a wealth of experience in resiliency efforts in disaster prone regions around the nation and the globe to the specific challenges and opportunities in Bridgeport, the most populous city in Connecticut and also one of its most vulnerable in both economic and environmental terms.

Superstorm Sandy laid bare Bridgeport's vulnerability, particularly that of the low-income residents in the South End neighborhood, including the residents in the HUD-funded Marina Village development, which was severely damaged by wind and coastal flooding.

Through close collaborative with local residents, businesses, advocates, and other stakeholders at the local, state, and regional levels, the Resilient Bridgeport Team has developed a vision for protecting Bridgeport's coastal and riparian communities through resiliency measures while at the same time stimulating reinvestment and environmental restoration.

The implementation of this vision will not only help stimulate the long-term recovery of Bridgeport from Superstorm Sandy but also serve as a model for the resiliency of many other mid-size industrial cities along the southern New England coast and the critical mass transit infrastructure that links them.

As the lead agency for affordable housing policy and programs in Connecticut and the administrator of approximately $137 million in Superstorm Sandy disaster relief funding under HUD's Community Development Block Grant – Disaster Relief ("CDBG-DR") program, DOH has been an active participant in the efforts of the Resilient Bridgeport Team and the Rebuild By Design initiative. DOH has a dedicated staffing unit focusing exclusively on providing assistance to individuals, families, businesses, and municipalities recovering from Superstorm Sandy and rebuilding stronger and smarter than ever before.

CONNECTICUT DEPARTMENT OF HOUSING

DOH also spearheads the State's investment of capital funding at historic levels to create and preserve affordable housing opportunities statewide and the State's efforts to combat and ultimately end homelessness through increased funding for permanent supportive housing, State-funded and federally-funded rental assistance, rapid rehousing, and more effective interagency coordination and collaboration. DOH is committed – and has the capacity – to assist the Resilient Bridgeport Team implement effective solutions to the growing climate crisis.

We hope to have the opportunity to work with the Resilient Bridgeport Team and HUD to make Bridgeport a regional and national model for resiliency design that works in the real world.

Sincerely,

Nick Lundgren
Deputy Commissioner

505 Hudson Street | Hartford, CT 06106
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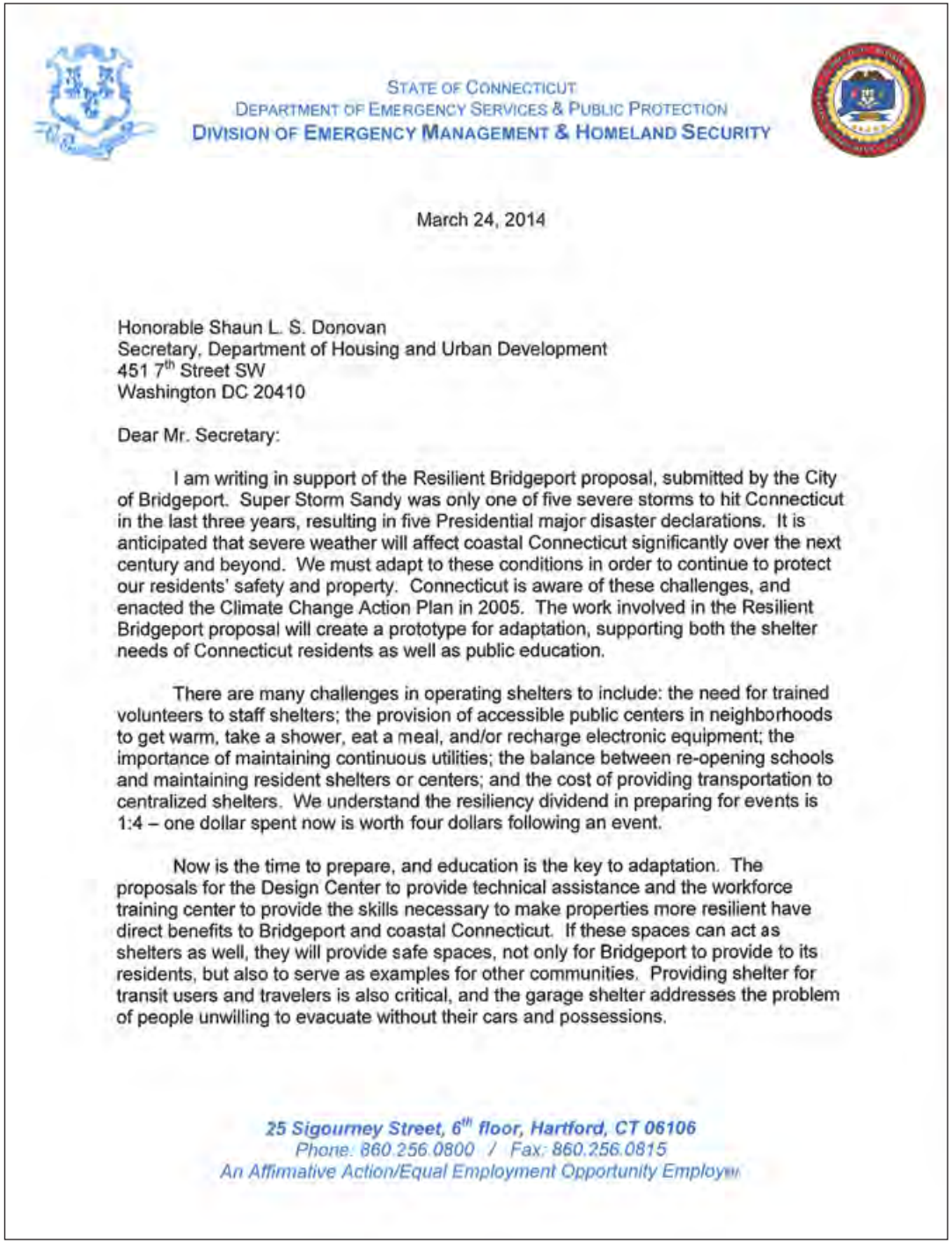
CONNECTICUT DEPARTMENT OF HOUSING



STATE OF CONNECTICUT
DEPARTMENT OF EMERGENCY SERVICES & PUBLIC PROTECTION
DIVISION OF EMERGENCY MANAGEMENT & HOMELAND SECURITY

March 24, 2014

Honorable Shaun L. S. Donovan
Secretary, Department of Housing and Urban Development
451 7th Street SW
Washington DC 20410

Dear Mr. Secretary:

I am writing in support of the Resilient Bridgeport proposal, submitted by the City of Bridgeport. Super Storm Sandy was only one of five severe storms to hit Connecticut in the last three years, resulting in five Presidential major disaster declarations. It is anticipated that severe weather will affect coastal Connecticut significantly over the next century and beyond. We must adapt to these conditions in order to continue to protect our residents' safety and property. Connecticut is aware of these challenges, and enacted the Climate Change Action Plan in 2005. The work involved in the Resilient Bridgeport proposal will create a prototype for adaptation, supporting both the shelter needs of Connecticut residents as well as public education.

There are many challenges in operating shelters to include: the need for trained volunteers to staff shelters; the provision of accessible public centers in neighborhoods to get warm, take a shower, eat a meal, and/or recharge electronic equipment; the importance of maintaining continuous utilities; the balance between re-opening schools and maintaining resident shelters or centers; and the cost of providing transportation to centralized shelters. We understand the resiliency dividend in preparing for events is 1:4 – one dollar spent now is worth four dollars following an event.

Now is the time to prepare, and education is the key to adaptation. The proposals for the Design Center to provide technical assistance and the workforce training center to provide the skills necessary to make properties more resilient have direct benefits to Bridgeport and coastal Connecticut. If these spaces can act as shelters as well, they will provide safe spaces, not only for Bridgeport to provide to its residents, but also to serve as examples for other communities. Providing shelter for transit users and travelers is also critical, and the garage shelter addresses the problem of people unwilling to evacuate without their cars and possessions.

25 Sigourney Street, 6th floor, Hartford, CT 06106
Phone: 860.256.0800 / Fax: 860.256.0815
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CONNECTICUT DEPARTMENT OF EMERGENCY MANAGEMENT AND HOMELAND SECURITY

CONNECTICUT DEPARTMENT OF EMERGENCY MANAGEMENT AND HOMELAND SECURITY

The Connecticut Division of Emergency Management and Homeland Security (DEMHS) of the Department of Emergency Services and Public Protection supports this vision and will continue to support the project through our ongoing regional collaboration as evidenced by the DEMHS Region 1 Office, which is located in Bridgeport, as well as the Regional Emergency Planning Team that includes officials from each of the fourteen Region 1 municipalities.

Resilient Bridgeport directly aids in the refashioning of the city's identity, connects people to the water as the basis for a revitalized local and regional economy, provides resources and amenities that benefit residents every day, and supports a long-term transformation. We support the implementable projects put forward in this proposal, and look forward to the next phase, should Resilient Bridgeport be selected for funding.

Please let me know if you have any questions or if you require any additional information. I can be reached at 860.256.0810 or via e-mail at william.shea@ct.gov.

Sincerely,

William P. Shea
Deputy Commissioner
Division of Emergency Management and Homeland Security
Department of Emergency Services and Public Protection

25 Sigourney Street, 6th floor, Hartford, CT 06106
Phone: 860.256.0800 / Fax: 860.256.0815
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CONNECTICUT DEPARTMENT OF LABOR

March 19, 2014

Secretary Shaun Donovan
U.S. Department of Housing and Urban Development
451 7th Street SW
Washington, D.C. 20410

Re: Rebuild by Design

Dear Secretary Donovan:

On behalf of the Connecticut Department of Labor, I strongly support the City of Bridgeport and coalition partners in their Rebuild by Design proposal. The efforts of Mayor Bill Finch and his team have brought our fair city national attention from the business sector, non-profit community and individuals dedicated to supporting and encouraging eco-friendly practices. Limited resources are an on-going concern but the Mayor has made it his priority to focus on conservation. Protecting the Connecticut shoreline is of critical importance to the economic viability and quality of life for all Connecticut's citizens, especially those residing in and around Long Island Sound.

Bridgeport's history as an industrial powerhouse is well established. Middle income jobs have attracted a diverse, hard-working population to the area for many decades. Those traditional jobs have steadily evaporated since the 1980s resulting in increased crime and poverty. In recent years, through the collective efforts of community stakeholders and government, the situation has begun to improve. However, there remains a critical need for safe and affordable housing for seniors, the unemployed, veterans, disabled and other residents struggling to make ends meet. As Connecticut's largest city, Bridgeport struggles with homelessness, poverty and blight. Since 1918, the International Institute of Connecticut has been located in the west end, bringing immigrants from all parts of the globe to our fair city. This contributes to the incredible diversity of the community but at the same time adds unique challenges to public education and workforce readiness. The overall unemployment rate for Connecticut decreased to 7.2% last month while Bridgeport's rate remained stubbornly high at 11.8%.

The dynamics of the job market are changing. From a labor perspective, the need for technical skills training is rapidly increasing. Advanced manufacturing is replacing heavy industry, and infrastructure in aging. Preparing workers for the growing demand will be an important aspect of the overall plan. DOL researchers project high growth occupations that provide a family-sustaining income and require one year or less of training include: Hazardous Material Removal Workers, Construction Laborers, Equipment Operators, Roofers, Road Maintenance Workers, and related construction occupations. Bridgeport's Green Business Zone has created new and expanding businesses to a previously blighted neighborhood filled with abandoned factories. Recent training efforts, short-term in nature, have provided entry-level jobs for ex-offenders and homeless veterans but much more needs to be done. The economy is improving and we've seen a large increase in job postings at the Department of Labor. Employers are holding out for the most skilled candidate, leaving the long-term unemployed and youth at a disadvantage.

CONNECTICUT DEPARTMENT OF LABOR

There is a tremendous need for community involvement and this proposal will serve to address many areas of concern. The Connecticut Labor Department will support the collation efforts to make this Rebuild by Design initiative a success. This support may include:

- Compiling and sharing local and statewide labor market information.
- Identifying industry/businesses for jobs, internships and Program Advisory Committees.
- Host Career Days/Job Fairs/Trade Shows relevant to adult and displaced workers.
- Support public education efforts.
- Provide expertise in the implementation of Apprenticeship and related training.
- Refer veterans, displaced workers, youth and other local residents from the local one-stop American Job Center, located in Bridgeport.

In addition to the above, we will provide research data; assist in community outreach efforts, help to engage businesses, trade associations and community services agencies. We can offer our formal Speakers' Bureau, career development workshops, and informational sessions for students.

It is clear that in order to jump-start Connecticut's economy we need to support each other's efforts. Our Department looks forward to supporting this coalition and I personally look forward to seeing this comprehensive vision become reality. Thank you for your consideration.

Sincerely,

Lori-lynn Chatlos, Business Services Specialist
Connecticut Department of Labor
2 Lafayette Square
Bridgeport, CT 06604
(203) 455-2601
Lorilynn.chatlos@ct.gov
www.ct.gov

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
5 POST OFFICE SQUARE, SUITE 100
BOSTON, MA 02109-3912

March 25, 2014

The Honorable Bill Finch
Office of the Mayor
Margaret E. Morton Government Center
999 Broad Street
Bridgeport, CT 06604

OFFICE OF THE
REGIONAL ADMINISTRATOR

Re: City of Bridgeport Resiliency Efforts

Dear Mayor Finch:

The United States Environmental Protection Agency, Region 1, is committed to helping communities become more resilient to the impacts of climate change, and we are very interested in the resilience work that you and your staff have been doing through the HUD-supported Rebuild by Design process. My staff participated in the most recent design workshop, and we strongly support exploration of green infrastructure and living shorelines as part of the solutions to stormwater discharge and storm surge. The focus areas being investigated in the Rebuild by Design process – The River's Edge, The Coast, Resilience Center, and Prototype for the Sound – resonate with climate change adaptation work that EPA is doing in conjunction with federal, state, and local partners.

We believe there is great potential for Bridgeport to become much more resilient to climate change and natural hazards, and the City can serve as an effective model for dozens of other communities along our coastline. We understand that the Rebuild by Design process is entering the next phase shortly and we strongly support Bridgeport's efforts to serve as a replicable showcase for implementation of innovative designs to increase resilience.

We look forward to continuing our partnership with Bridgeport and supporting you in your efforts to integrate the environment, the economy, and equity in a resilience framework. We would be pleased to help transfer the results of your efforts to other coastal communities in Connecticut and beyond. If you have any questions or concerns, please do not hesitate to contact me.

Sincerely,

H. Curtis Spalding
Regional Administrator

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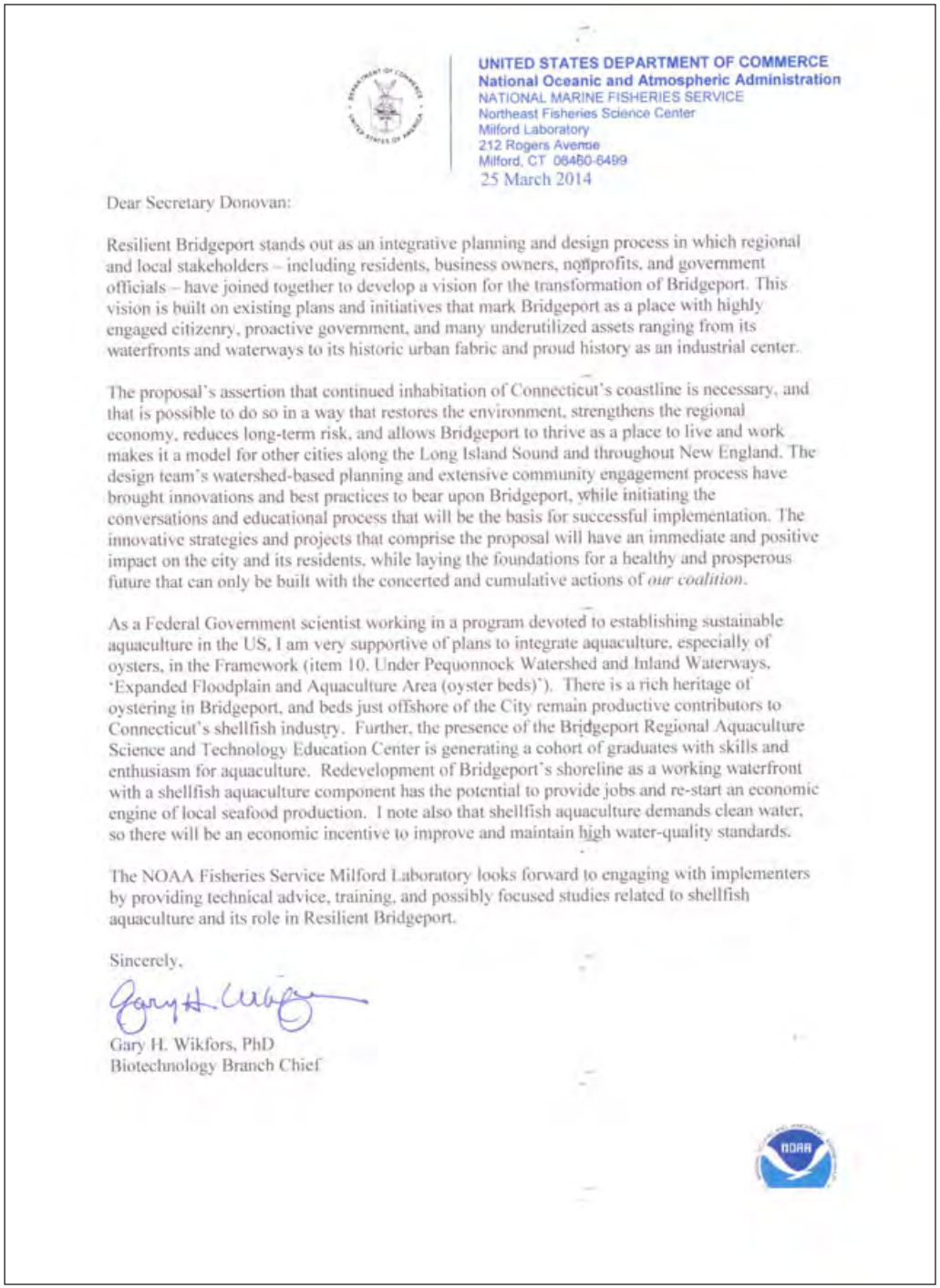
U. S. ENVIRONMENTAL PROTECTION AGENCY



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northeast Fisheries Science Center
Milford Laboratory
212 Rogers Avenue
Milford, CT 06460-6499

25 March 2014

Dear Secretary Donovan:

Resilient Bridgeport stands out as an integrative planning and design process in which regional and local stakeholders – including residents, business owners, nonprofits, and government officials – have joined together to develop a vision for the transformation of Bridgeport. This vision is built on existing plans and initiatives that mark Bridgeport as a place with highly engaged citizenry, proactive government, and many underutilized assets ranging from its waterfronts and waterways to its historic urban fabric and proud history as an industrial center.

The proposal's assertion that continued inhabitation of Connecticut's coastline is necessary, and that is possible to do so in a way that restores the environment, strengthens the regional economy, reduces long-term risk, and allows Bridgeport to thrive as a place to live and work makes it a model for other cities along the Long Island Sound and throughout New England. The design team's watershed-based planning and extensive community engagement process have brought innovations and best practices to bear upon Bridgeport, while initiating the conversations and educational process that will be the basis for successful implementation. The innovative strategies and projects that comprise the proposal will have an immediate and positive impact on the city and its residents, while laying the foundations for a healthy and prosperous future that can only be built with the concerted and cumulative actions of *our coalition*.

As a Federal Government scientist working in a program devoted to establishing sustainable aquaculture in the US, I am very supportive of plans to integrate aquaculture, especially of oysters, in the Framework (item 10. Under Pequonnock Watershed and Inland Waterways, 'Expanded Floodplain and Aquaculture Area (oyster beds)'). There is a rich heritage of oystering in Bridgeport, and beds just offshore of the City remain productive contributors to Connecticut's shellfish industry. Further, the presence of the Bridgeport Regional Aquaculture Science and Technology Education Center is generating a cohort of graduates with skills and enthusiasm for aquaculture. Redevelopment of Bridgeport's shoreline as a working waterfront with a shellfish aquaculture component has the potential to provide jobs and re-start an economic engine of local seafood production. I note also that shellfish aquaculture demands clean water, so there will be an economic incentive to improve and maintain high water-quality standards.

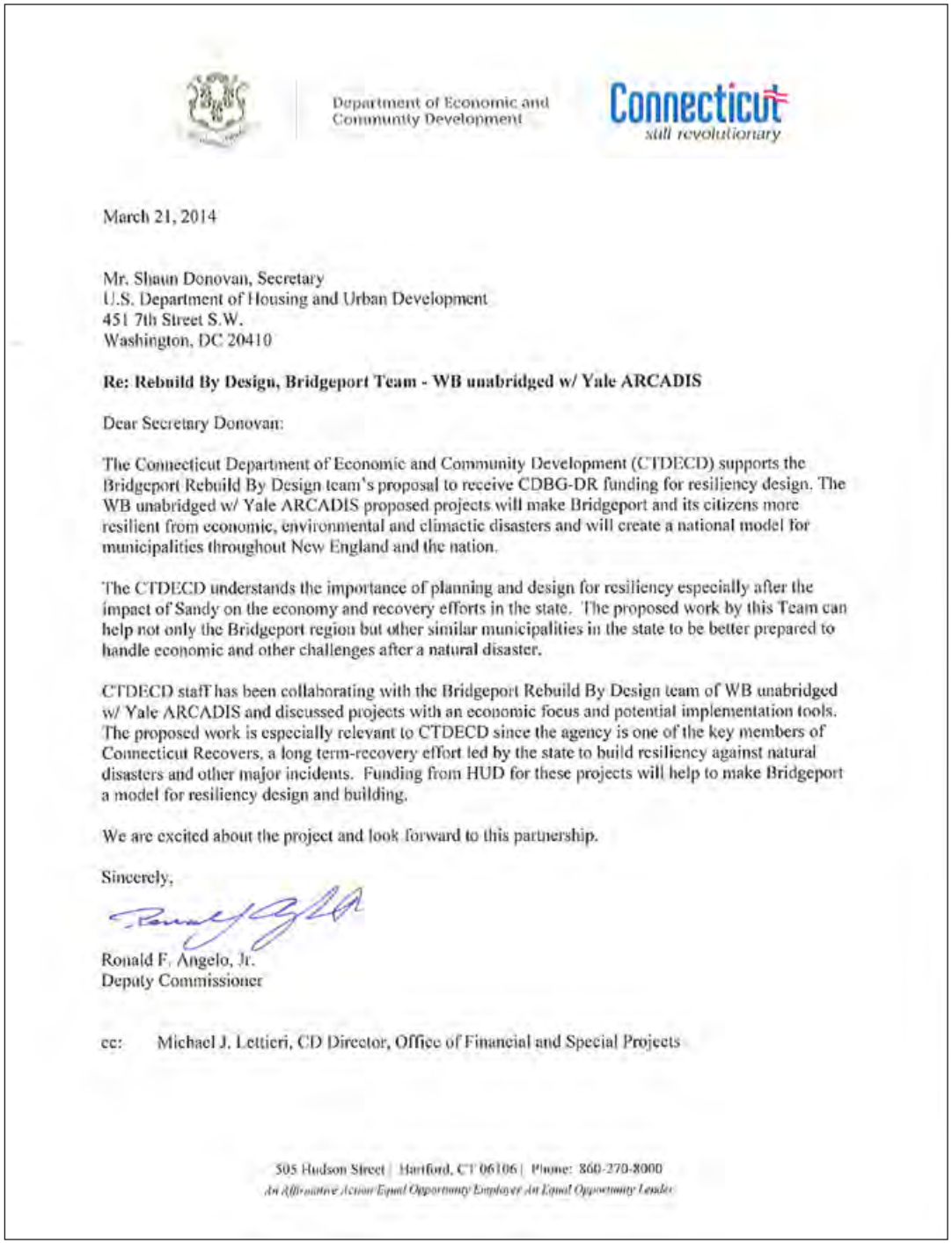
The NOAA Fisheries Service Milford Laboratory looks forward to engaging with implementers by providing technical advice, training, and possibly focused studies related to shellfish aquaculture and its role in Resilient Bridgeport.

Sincerely,

Gary H. Wikfors, PhD
Biotechnology Branch Chief

NOAA

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION



Department of Economic and Community Development

Connecticut
still revolutionary

March 21, 2014

Mr. Shaun Donovan, Secretary
U.S. Department of Housing and Urban Development
451 7th Street S.W.
Washington, DC 20410

Re: Rebuild By Design, Bridgeport Team - WB unabridged w/ Yale ARCADIS

Dear Secretary Donovan:

The Connecticut Department of Economic and Community Development (CTDECD) supports the Bridgeport Rebuild By Design team's proposal to receive CDBG-DR funding for resiliency design. The WB unabridged w/ Yale ARCADIS proposed projects will make Bridgeport and its citizens more resilient from economic, environmental and climactic disasters and will create a national model for municipalities throughout New England and the nation.

The CTDECD understands the importance of planning and design for resiliency especially after the impact of Sandy on the economy and recovery efforts in the state. The proposed work by this Team can help not only the Bridgeport region but other similar municipalities in the state to be better prepared to handle economic and other challenges after a natural disaster.

CTDECD staff has been collaborating with the Bridgeport Rebuild By Design team of WB unabridged w/ Yale ARCADIS and discussed projects with an economic focus and potential implementation tools. The proposed work is especially relevant to CTDECD since the agency is one of the key members of Connecticut Recovers, a long term-recovery effort led by the state to build resiliency against natural disasters and other major incidents. Funding from HUD for these projects will help to make Bridgeport a model for resiliency design and building.

We are excited about the project and look forward to this partnership.

Sincerely,

Ronald F. Angelo, Jr.
Deputy Commissioner

cc: Michael J. Lettieri, CD Director, Office of Financial and Special Projects

505 Hudson Street | Hartford, CT 06106 | Phone: 860-270-8000
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CONNECTICUT DEPARTMENT OF ECONOMIC AND COMMUNITY DEVELOPMENT

Stantec Consulting Services Inc.
2321 Whitney Avenue
Hamden, CT 06518
Tel: (203) 281-1350
Fax: (203) 281-1470

STANTEC

March 24, 2014

Dear Secretary Donovan,

Reference: Rebuild by Design, Bridgeport, Connecticut

Resilient Bridgeport stands out as an integrative planning and design process in which regional and local stakeholders – including residents, business owners, nonprofits, and government officials – have joined together to develop a vision for the transformation of Bridgeport. This vision is built on existing plans and initiatives that mark Bridgeport as a place with highly engaged citizenry, proactive government, and many underutilized assets ranging from its waterfronts and waterways to its historic urban fabric and proud history as an industrial center for precision instrumentation.

The proposal's assertion that continued inhabitation of Connecticut's coastline is necessary, and that it is possible to do so in a way that restores the coastline community's ecological function and environment, strengthens the regional economy, reduces long-term risk, and allows Bridgeport to thrive as a place to live and work. It also propels the City as a much needed model for other cities along the Long Island Sound and throughout New England. The design team's watershed-based planning and extensive community engagement process have brought innovations and best practices to bear upon Bridgeport, while initiating the conversations and educational process that will be the basis for successful implementation. The innovative strategies and projects that comprise the proposal will have an immediate and positive impact on the city and its residents, while laying the foundations for a healthy and prosperous future that can only be built with the concerted and cumulative actions of *our coalition*.

The City of Bridgeport was once a hub of industry in Fairfield County and a critical job center that supported the region. Now, as surrounding communities prosper, Bridgeport bears the heavy burden in energy production, interstate transport and non-taxable regional services such as healthcare. The proposal identifies initiatives that will benefit the City by increasing tourism, aquaculture and recreation – all measures that may lead to long-term economic sustainability and counter overwhelming constraints.

As a professional landscape architect and planner in the State of Connecticut, I recognize the staff and financial commitments that the City of Bridgeport has made to its waterfront. From the recent master plan for Pleasure Beach Park to re-open the prized shoreline destination for public visitation to the repeated improvements to historic Seaside Park following Storm's Irene and Sandy, the City contributes greatly to the extremely limited publicly accessible shoreline in the State. Rebuild by Design is an opportunity to recognize this commitment and advance great vision for far-reaching public benefit.

Thank you for this opportunity to participate in this important initiative for the State of Connecticut and the City of Bridgeport.

Sincerely,

Gary T. Sorge, FASLA, AICP
Senior Principal
gary.sorge@stantec.com

THE TRUST FOR PUBLIC LAND

THE TRUST for PUBLIC LAND
CONSERVING LAND FOR PEOPLE

Connecticut Office
101 Whitney Ave
Second Floor
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06510
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F. 203.777.7488

www.tpl.org

March 24, 2014

Dear Secretary Donovan:

On behalf of The Trust for Public Land, I am pleased to provide this letter of support for Resilient Bridgeport. Resilient Bridgeport stands out as an integrative planning and design process in which regional and local stakeholders – including residents, business owners, nonprofits, and government officials – have joined together to develop a vision for the transformation of Bridgeport. This vision is built on existing plans and initiatives that mark Bridgeport as a place with highly engaged citizenry, proactive government, and many underutilized assets ranging from its waterfronts and waterways to its historic urban fabric and proud history as an industrial center.

The proposal's assertion that continued inhabitation of Connecticut's coastline is necessary, and that is possible to do so in a way that restores the environment, strengthens the regional economy, reduces long-term risk, and allows Bridgeport to thrive as a place to live and work makes it a model for other cities along the Long Island Sound and throughout New England. The design team's watershed-based planning and extensive community engagement process have brought innovations and best practices to bear upon Bridgeport, while initiating the conversations and educational process that will be the basis for successful implementation. The innovative strategies and projects that comprise the proposal will have an immediate and positive impact on the city and its residents, while laying the foundations for a healthy and prosperous future that can only be built with the concerted and cumulative actions of our coalition.

The Trust for Public Land is actively engaged in the City of Bridgeport's parks system. At present, we are in the early stages of creating a Parks for People – Bridgeport program, through which we will work with the City of Bridgeport to renovate existing parks and create new parks and green spaces in the City. Our goal is to ensure that all Bridgeport residents have access to a park within a 10-minute walk of their home. Our participatory design process for parks leads stakeholders through a visioning process to imagine, agree upon, and design the park area that the community wants, needs, and will care for in the years to come. When applied to parks and greenways within Bridgeport's coastal, riparian, and low-lying areas, this design process builds community awareness of sensitive environments, climate resiliency, and green infrastructure techniques. As such, Resilient Bridgeport's focus on park-to-riparian corridor connections, coastal park expansion, and green drainage improvements are very much in line with The Trust for Public Land's work in Bridgeport.

We enthusiastically offer our support for Resilient Bridgeport.

Sincerely,

Walker Holmes
Urban Program Manager
The Trust for Public Land

THE BUSINESS COUNCIL OF FAIRFIELD COUNTY

The Business Council of Fairfield County

Strengthening Businesses. Strengthening Communities.

March 13, 2014

Mr. Shaun Donovan, Secretary
U.S. Department of Housing and Urban Development
451 7th Street S.W.
Washington, DC 20410

Re: Rebuild By Design, Bridgeport Team - WB unabridged w/ Yale ARCADIS

Dear Secretary Donovan:

The Business Council of Fairfield County supports the Bridgeport Rebuild By Design team's proposal to receive CDBG-DR funding for resiliency design. The WB unabridged w/ Yale ARCADIS proposed projects will make Bridgeport and its citizens more resilient from economic, environmental and climactic disasters and will create a national model for municipalities throughout New England and the nation. Seaside Park designed by Frederick Law Olmsted, one of America's premier landscape architects, provides a major case study for adaptive reuse of a major urban park threatened by the effects of climate change.

The Business Council views the WB unabridged w/ Yale ARCADIS design team's proposal to create a berm in Seaside Park while at the same time preserving Olmstead's vision for an urban park as a very important and challenging effort that warrants federal support. In addition, the business community strongly supports the development of a resiliency center in Bridgeport as a regional asset where the business community and the region's elected leaders can jointly educate themselves about the risks and challenges of climate change but also as a center where collaborative solutions can be vetted and implemented. The resilience center would provide the additional benefit of serving as a refuge during disasters.
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The Business Council of Fairfield County and the Bridgeport Rebuild By Design team of WB unabridged w/ Yale ARCADIS have a strong partnership and, over the past several months, have discussed many critical projects together. Funding from HUD for these projects will help to make Bridgeport a model for resiliency design and building.

We are excited about the project and look forward to this partnership.

Sincerely,

Joseph McGee
Vice President, Public Policy and Programs
The Business Council of Fairfield County\

One Landmark Square, Suite 300 Stamford, CT 06901-2696 P: 203-359-3220 F: 203-967-8294 www.businessfairfield.com

CITY OF STAMFORD

MAYOR
David Martin

Director of Operations
ERNIE ORGERA

Land Use Bureau Chief
Norman F. Cole, AICP

Principal Planner
David W. Woods, Ph.D., AICP

CITY OF STAMFORD
LAND USE BUREAU
888 WASHINGTON BOULEVARD
STAMFORD, CT 06904 -2152
203 977.4718

March 25, 2014

Dear Secretary Donovan:

RE: Resilient Bridgeport

Resilient Bridgeport is a model collaborative planning and design program bringing together regional and local stakeholders, especially residents, business owners, nonprofits, and government officials in order to better assess the threats and opportunities by developing a vision in which to serve as a model for Connecticut's coastal cities and towns to develop the policies and programs to help deal with traumatic storm events that cause flooding, erosion, loss of property and lives that negatively impact the region's quality of life. It is through this collaborative planning process that stakeholders from the various groups are able to come together and bring their own insider knowledge of their communities and of the region to develop a shared vision and solutions that are location specific as well as regionally portable.

Resilient Bridgeport will work to tackle sustainable issues, which were identified in Sustainable Cities Initiative, but will take the sustainability framework developed earlier to develop more refined solutions, which local jurisdictions planning and capital funding decisions will be able to point to for guidance. The City of Stamford is currently updating its Master Plan in which resiliency and sustainability is a major focus; however, to truly be successful in dealing regional issues, such as I-95 and the Northeast Corridor Railroad tracks that are located less than 500 feet apart in downtown Stamford, requires more regional solutions.

In sum, the proposal's water-based planning and community engagement approach will increase community awareness and understanding, as well as the inclusiveness of the proposal to include both Stamford and New Haven is important in developing the vision for building sustainable architectures – built, environmental and social/political – that will increase stakeholder awareness, provide models for solutions to these issues where appropriate, and to educate the public, elected and appointed officials in creating more resilient Connecticut coastal communities. I personally am looking forward to working with the Resilient Bridgeport Team in implementing this proposal, and ultimately implementing the proposals for the City of Stamford.

Sincerely,

David W. Woods

David W. Woods, Ph.D., AICP
Principal Planner

NEW HAVEN CITY PLAN DEPARTMENT
165 CHURCH STREET, NEW HAVEN, CT 06510
TEL (203) 946-6378 FAX (203) 946-7815

March 24, 2014

Dear Secretary Donovan:

Resilient Bridgeport has been a primer on how Connecticut's coastal cities can adapt to sea level rise and the increasingly violent storms that assail the coast both from the south, as storm surge from Long Island Sound; and the from the north as rain events that overwhelm both natural and manmade watershed drainage systems. Bridgeport, like Connecticut's other coastal cities and towns, is situated on a coastal plain that is cut by rivers running north/south. The plain has lost most of its buffering tidal marshes and shellfish beds and has been filled for industrial development, leaving it close to sea level.

Transportation infrastructure in the form of I-95 and the Northeast Corridor Railroad tracks runs east/west across this landscape, often below grade, sometimes elevated. This is infrastructure of national significance connecting New England to the rest of the US. This pattern is repeated up the coast and into Rhode Island, Massachusetts, New Hampshire and southern Maine, making the lessons of Resilient Bridgeport widely applicable. Given the Connecticut cities inability to annex land, and their dependency on property tax revenue, a reduction in area and retreat inland is infeasible. Bridgeport is 17 square miles, New Haven 19 and Norwalk 22 and New London less than 6. Area reductions would result in significant negative economic impacts including jobs, population, regional infrastructure and revenue loss, and eventually extinction.

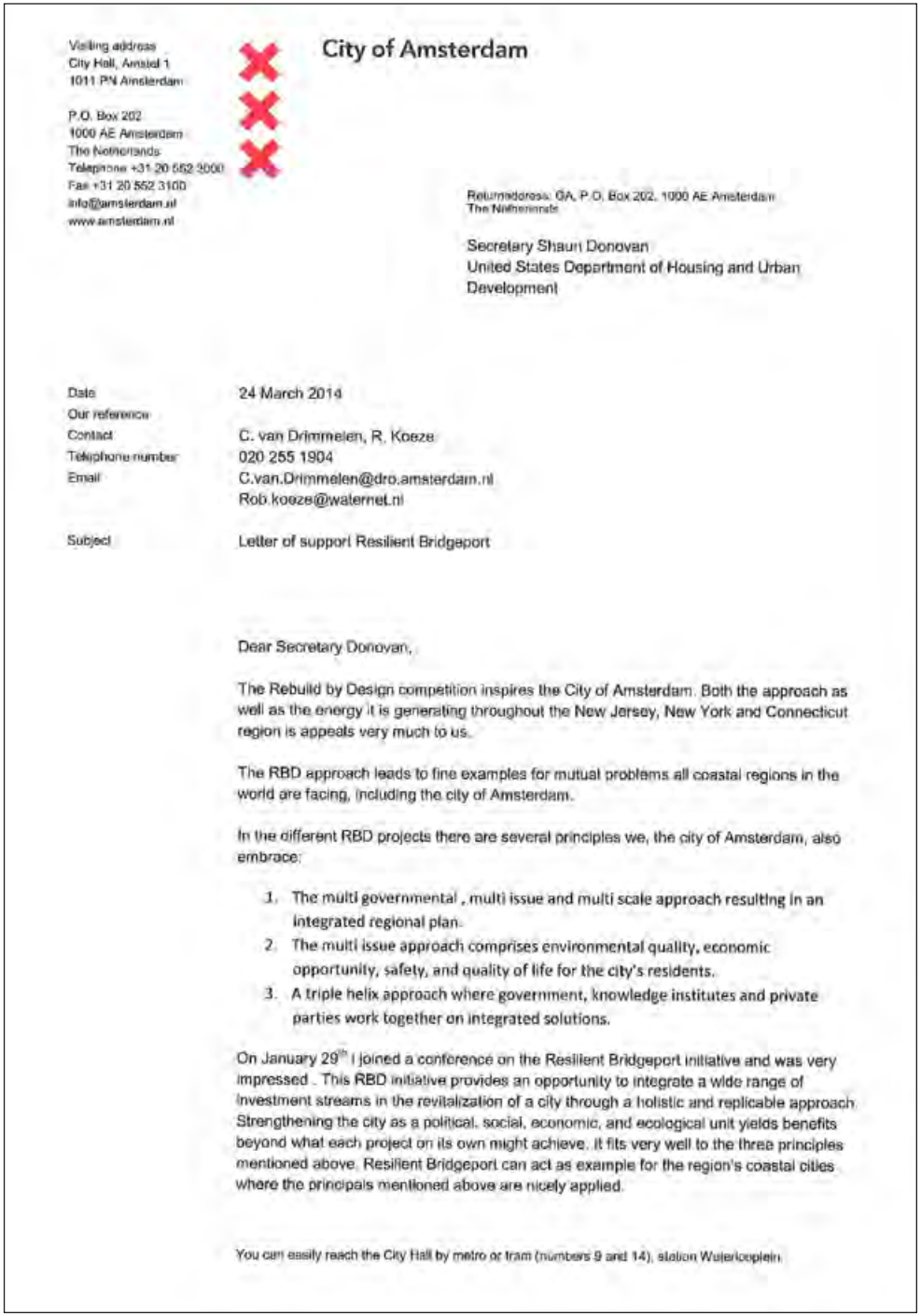
The integrative planning and design process in which regional and local stakeholders – including residents, business owners, nonprofits, and government officials – have joined together to understand the threats and develop a vision for the transformation of Bridgeport can be repeated in other coastal cities. The engagement of other communities, such as New Haven, echoes the recent work of the Sustainable Cities Initiative. The vision is built on existing local plans and initiatives, some already underway. Implementation of resilience measures must be as synergistic as possible with economic development and capital projects. The diversified approach of Resilient Bridgeport is effective because of the other funds and objectives leveraged.

The proposal's assertion that continued habitation of Connecticut's coastline is necessary, and possible in a way that restores the environment, strengthens the regional economy, reduces long-term risk, and allows Bridgeport to thrive makes it a model for other cities along Long Island Sound and throughout New England. The design team's watershed-based planning and community engagement process have increased awareness and understanding of the issues and brought a tool box of innovations and best practices to Bridgeport and Connecticut. Conversations and educational processes that will be the basis for successful implementation have started. I look forward to applying many of the strategies in New Haven as we seek to develop our own resilience plans.

Sincerely,

Karyn M. Gilvarg, A. I. A.
Executive Director

NEW HAVEN CITY
PLAN DEPARTMENT



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City of Amsterdam

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Secretary Shaun Donovan
United States Department of Housing and Urban Development

Date	24 March 2014
Our reference	
Contact	C. van Drimmelen, R. Koeze
Telephone number	020 255 1904
Email	C.van.Drimmelen@dro.amsterdam.nl Rob.koeze@waternet.nl
Subject	Letter of support Resilient Bridgeport

Dear Secretary Donovan,

The Rebuild by Design competition inspires the City of Amsterdam. Both the approach as well as the energy it is generating throughout the New Jersey, New York and Connecticut region is appeals very much to us.

The RBD approach leads to fine examples for mutual problems all coastal regions in the world are facing, including the city of Amsterdam.

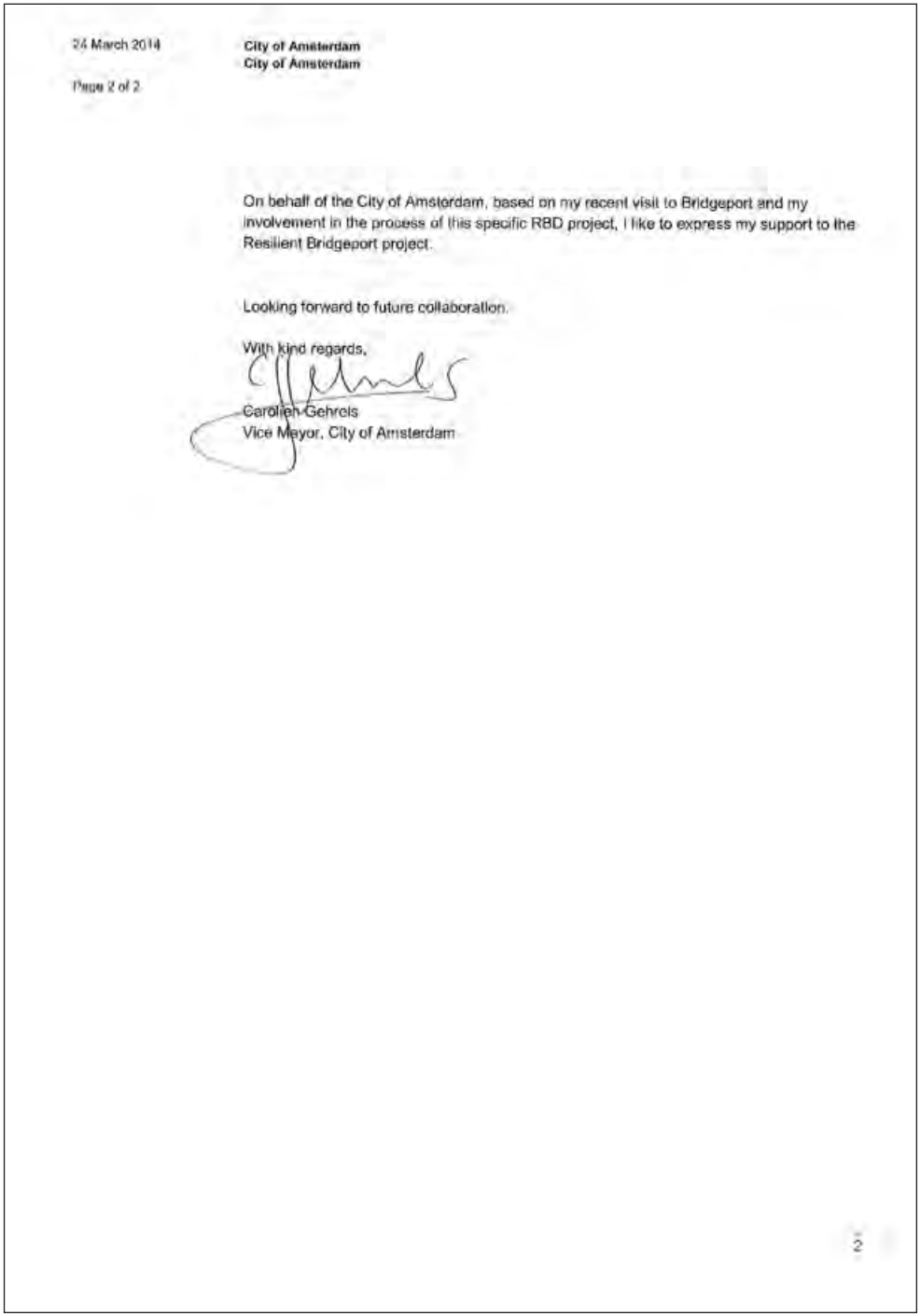
In the different RBD projects there are several principles we, the city of Amsterdam, also embrace:

1. The multi governmental , multi issue and multi scale approach resulting in an integrated regional plan.
2. The multi issue approach comprises environmental quality, economic opportunity, safety, and quality of life for the city's residents.
3. A triple helix approach where government, knowledge institutes and private parties work together on integrated solutions.

On January 29th I joined a conference on the Resilient Bridgeport initiative and was very impressed . This RBD initiative provides an opportunity to integrate a wide range of investment streams in the revitalization of a city through a holistic and replicable approach. Strengthening the city as a political, social, economic, and ecological unit yields benefits beyond what each project on its own might achieve. It fits very well to the three principles mentioned above. Resilient Bridgeport can act as example for the region's coastal cities where the principals mentioned above are nicely applied.

You can easily reach the City Hall by metro or tram (numbers 9 and 14), station Waterlooplein.

CITY OF AMSTERDAM



24 March 2014

City of Amsterdam
City of Amsterdam

Page 2 of 2

On behalf of the City of Amsterdam, based on my recent visit to Bridgeport and my involvement in the process of this specific RBD project, I like to express my support to the Resilient Bridgeport project.

Looking forward to future collaboration.

With kind regards,

Carolien Gehrels
Vice Mayor, City of Amsterdam

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CITY OF AMSTERDAM

2014

WB unabridged w/ Yale ARCADIS