City of Bridgeport

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Community Resilience Building Workshop

Summary of Findings

April 2019

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Overview

The need for municipalities, regional planning organizations, states and federal agencies to increase resilience and adapt to extreme weather events and a changing climate is strikingly evident amongst the communities across the state of Connecticut. Recent events such as Tropical Storm Irene and Sandy have reinforced this urgency and compelled leading communities like the City of Bridgeport to proactively collaborate on planning and mitigating risks. Ultimately, this type of leadership is to be commended because it will reduce the vulnerability of municipal residents, infrastructure, and ecosystems and serve as a model for other communities in Connecticut, New England, and the Nation.

In 2018, the City of Bridgeport embarked in an update of their Natural Hazard Mitigation Plan (NHMP) under the leadership and coordination of the Connecticut Metropolitan Council of Governments (MetroCOG). As part of the NHMP update, MetroCOG engaged the Nature Conservancy to provide a voluntary, community workshop process to assess impacts and development of solutions to reduce risk across the City. In March 2019, a municipal-based core team organized a Community Resilience Building Workshop facilitated by the Nature Conservancy in partnership with MetroCOG. The core directive of this effort was the engagement with and between community stakeholders to facilitate the assessment of vulnerabilities and strengths and the development of priority mitigation actions for Bridgeport. The Workshop's central objectives were to:

- Define top local natural and climate-related hazards of concern;
- Identify existing and future vulnerabilities and strengths;
- Develop prioritized actions for the City of Bridgeport;
- Identify opportunities to collaboratively advance actions to increase resilience.

For the Workshop, the City of Bridgeport employed a unique "anywhere at any scale", community-driven process known as the Community Resilience Building (CRB) Workshop (www.CommunityResilienceBuilding.org). The CRB's Risk Matrix and various data and maps were integrated into the Workshop process to provide both decision-support and risk visualization around shared values and priorities across Bridgeport. Using this CRB process, rich with information, experience and dialogue, the participants produced findings which are outlined in this Summary of Findings report. The following report provides an overview of the top hazards, current concerns and strengths, and proposed actions to improve the City of Bridgeport's resilience to natural and climate-related hazards today and in the future.

The summary of findings transcribed in this report, like any that concern the evolving nature of risk assessment and associated action, are proffered for comments, corrections and updates from workshop attendees and additional stakeholders alike. The leadership displayed by the City of Bridgeport on community resilience building will benefit from the continuous and expanding participation of all those concerned.

Summary of Findings

Top Hazards and Vulnerable Areas for the Community

During the CRB Workshop, community members were asked to identify the top hazards for the City of Bridgeport. The hazards of greatest concern to the participants included flooding from storm surge due to major events such as hurricanes and inland flooding from intense precipitation events such as September, 2018. The other hazards of greatest concern were winter storms that generated snow, ice and wind - in particular Nor'easters as well as heat waves. These hazards have direct and increasing impacts on Bridgeport's residents and resources such as its neighborhoods, natural areas (river corridors, watersheds, parks), roads, places of employment, drinking and wastewater systems, health care facilitates, social support service to vulnerable populations, and other critical infrastructure and community assets.

Top Hazards and Areas of Concern for the Community

Top Hazards

- Coastal Storm Surge - Hurricanes and other major events
- Inland Flooding (precipitation-driven)
- Storms: Snow, Ice, Wind - Nor'easters
- Heat (extended periods of heat waves in mid– to late summer)

*Areas of Concern in Bridgeport**

Neighborhoods: Black Rock, South End, East End, East Side, Chopsey Hill.

Ecosystems: Ash Creek, Johnson Creek, Seaside Park, Pleasure Beach, Rooster River, Island Brook, Pequonnock River.

Transportation: East Main Street, Bishop Avenue, Boston Avenue, Viaducts and Bridge Crossings.

Infrastructure: Tank Farms, Shelters and Cooling Stations, Nursing homes, Library and Museums, Schools, Gas Stations, Low Income Housing, Sewage Treatment, Marinas, Brownfields, Hotels, Seawalls, Parks.

Vulnerable Populations: Renters or Transient, Elderly, Developmentally Disabled, Non-English Speaking, Children, Low Income, Young Families, Mobility-Limited.

* Information above from workshop participants as well as from the NHMP Update for Bridgeport (2014).

Current Concerns and Challenges Presented by Hazards

The City of Bridgeport has several concerns and faces multiple challenges related to the impacts of natural hazards and climate change. In recent years, Bridgeport has experienced a series of highly disruptive and damaging weather events including Tropical Storm Irene (August 2011), Storm Alfred (October 2011), Tropical Storm Sandy, (October 2012), winter Nor'easter Nemo (February 2013), and intense, short duration, rain events (September 2018). Impacts from Irene included coastal and inland flooding and wind damage. Sandy caused extensive power outages across large portions of Bridgeport. Winter storms drop excessive snow on the City knocking out power and isolating residents and neighborhoods. The magnitude of these events and others across Connecticut has increased awareness of natural hazards and climatic change, while motivating communities like Bridgeport to comprehensively improve resilience.

This series of extreme weather events highlights that for Bridgeport the impacts from hazards are diverse. They range from flooding of surface streets and low-lying areas near rivers and coast during intense storms and heavy precipitation events to property damage from trees, wind, snow, and ice. Longer periods of elevated heat, particularly in July and August, have raised concerns about vulnerable segments of the population including the elderly and children. The combination of these issues presents a challenge to preparedness, response and mitigation priorities and requires comprehensive yet tailored actions for particular locations and/or areas across Bridgeport.

The workshop participants were generally in agreement that Bridgeport is experiencing more intense and frequent storms events. The impacts have affected the daily activities of most residents. Additionally, there was a general concern about the need for and challenges of being prepared with contingency plans for worst case scenarios during different times of the year (i.e. major disasters, storms, major hurricanes (Cat-3 or above)) particularly in the fall/winter due to more intense storms.

(Credit: connecticutexplorer)

(Credit: RealBird.com)

(Credit: livability.com

Specific Categories of Concerns and Challenges

Emergency Management and Preparedness

Emergency management access and ability to evacuate residents and commuters during an event were identified as a key concern. This included the inability to get emergency services to certain places due to flooding of major transportation routes, railroad overpasses, and surface streets (i.e., "Southend"). This issue presents a challenge to emergency providers for at-risk populations such as the high number of disabled and/or elderly (senior centers, public housing). Also identified was the current adequacy of sheltering and hospital facilitates for displaced residents and their pets as well as cooling and warming centers during extreme weather events. The return of displaced peoples after an event was raised as a concern (i.e., medication, food availability, clothes, livable conditions). These issues are further complicated due to the diversity of the City's demographics and the need to communicate in dozens of languages. Actionable news updates and instructions originating from city officials and emergency managers and delivered by trusted messengers (technology plus process) were identified as key to ensure preparedness and proactive responses by an informed and aware citizenry.

Flooding – Critical Facilities and Infrastructure

Flooding impacts to critical facilities and infrastructure such as power plant, airport, transportation routes (rail, primary & secondary roads, bus stations and lines), gas stations, energy transformers, private and public seawalls and levees, storm water and sewer, and the city and regional power grid (generator safety, emergency generators) were raised. Much of the concerns reflected the current age and capacity of the infrastructure (i.e., undersized and/or outdated stormwater/sewer infrastructure). In coastal parts of the City, certain storm drain outlets are currently below the high tide line which prevents dewatering and increased residence time of flood waters. The structural ability due to age of existing flood gates was discussed as problematic during extreme events. Availability and redundancy of existing back-up power and generator capacity were highlighted as insufficient in some locations. Associated risks to public health and safety included potential for disease outbreaks due to overflowing sewage, surface and ground water contamination, leaching from landfills during high tides, mold outbreaks in flooded basements, mobilized debris in the streets and clogging storm drains, and the potential for release of toxic materials from brownfields and other storage facilities in flood-prone areas.

Specific Categories of Concerns and Challenges

Environmental Impacts

Concerns about environmental impacts to coastal and inland wetlands were raised including the loss of ecological productivity and storm protection through a conversion to mudflats and open water caused by rising sea level. This extended to parks, open space, and historic landmarks that have experienced flooding and impacts from storm surge. Recreational areas and natural lands (i.e., Stewart B. McKinney National Wildlife Refuge) were identified as being economically important, while contributing to the quality of life and to the overall commercial viability of the City. Urban forest management was also cited as a concern due to the lack of an adequate tree maintenance policy and capacity.

Capacity Needs

Additional concerns highlighted areas where the expertise of city officials, social services organizations, utility company employees, transit authorities and assorted specialists are required to determine how broader needs can be met. These include traffic pattern management and evacuation routes, more shelter capacity, ongoing educational and training programs, better interface with MetroNorth officials regarding their emergency plans and scheduled train station and rail line renovations, more progressive funding programs that cover new climate mitigation and adaptation projects (rather than primarily damage repair), disease prevention, water quality protection, natural resource and ecosystem protection, new zoning regulations and property tax policies, and evolving property insurance programs.

Current Strengths and Assets

Because of the recent experiences with extreme weather, the City of Bridgeport is well acquainted with existing and shared strengths. Reinforcing best practices and enhancing available assets will generate greater benefits to the City through increased resiliency to more frequent and intense storms, as well as to long term impacts from the ongoing increases in air temperature, wind, and snow.

- Clearly, the responsive and committed leadership exhibited by officials and senior staff is a very appreciated strength within the City of Bridgeport. Ongoing collaboration between city, regional, and state staff (DEMHS Region 1) along with the business community and NGOs on the priorities as identified below will help to advance comprehensive, cost-effective approaches to resilience.
- The City has solid, highly experienced, staff with access to adequate resources for shorter duration events. The overarching coordination amongst various departments including Emergency Management, Police, Fire, and Facilities was cited as an ongoing, and highly valued community strength with the continuous need to update and improve emergency management/action plans. Active CERT and MRC program compliments these strengths within the community.
- Recognition by the National Weather Service as the first "StormReady Community" in Connecticut.
- On-going dialogue between federal, regional, municipal and neighborhood levels on emergency response and preparedness.
- Rich natural resources, recreational areas, and green infrastructure that provides buffering, water storage, and protective capacity to the City along the coast and riverine/wetland networks.
- Increase in food supply assistance from the state coupled with new initiatives to increase local food production (i.e. Urban Agriculture Plan).
- Broad network of education resources that can assist with public awareness and outreach including the public library network, schools, and university.
- Strong social services network including faith-based community of 75 plus churches, sheltering facilities, and hospitals and clinics.

DEMHS Region 1 Credit: DEMHS

Top Recommendations to Improve Resilience

A common thread throughout the workshop discussions was the recognition that Bridgeport always needs to be better prepared through longer-term, community-based, contingency planning across all areas of concern. This need and additional key issues surfaced by the Workshop participants are provided below.

Higher Priority

- Seek to complete and implement the "West End Resiliency Plan" and leverage to other at-risk neighborhoods and locations across the City.
- Look to aggregate engineering studies and other resource materials for all inland rivers and waterways across City (i.e. Oxbow, Rooster, Island Brook, etc.) and initiate a comprehensive identification, assessment and prioritization of flood reduction projects that integrate immediate and longer term vulnerabilities and strengths of infrastructure such as bridges and culverts.
- Secure additional funding to implement priority flood reduction projects involving City infrastructure (bridges and culverts), roadways, and parks.
- Continued commitment and progress towards the 2039 complete elimination of combine sewer overflow system for wastewater treatment in the City.
- Need to continue to strengthen communications channels to ensure all segments of Bridgeport's population are reached in times of crisis.
- Continue to plan for economic growth in Bridgeport by redeveloping or development amenities and housing that is attractive to a diverse demographics (young professionals to retired) to ensure resilient and engaged community.
- Continue to maintain and look for ways to strengthen evacuation plans and procedures for residents, business, and vulnerable populations.
- To help reduce the impacts of localized flooding and heat site and install green infrastructure including rain gardens, bioswales, and tree planting in many priority locations across Bridgeport.
- Replicate designs and approaches by utility that can reduce flooding impacts at critical power substations in City.
- Continue to seek ways to minimize the long term implications to various neighborhoods due to flooding that build on previous examples (Seaside Village).

Community Resilience Building Workshop Recommendations

Moderate Priority

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- Continue to implement short-term solutions such as closure barriers and signage to help minimize impacts to motorists and residents at the four to seven viaducts under the Metro North elevated rail lines. Initiate or revisit longer term considerations of more permanent solutions with railroad leadership.
- Explore further how the emergency power and renewable energy supply can contribute during both emergencies and non-emergencies.
- For the municipal stormwater system, conduct a broad and comprehensive study to identify locations for green infrastructure that could alleviate storm water run-off into system.
- Work to initiate trainings by chamber of commerce and others on business continuity planning and emergency preparedness for business owners across the City.
- Protect and restore natural systems on the watershed and full coastline scales. Areas of focus should include replanting of Remington Woods and riparian zones, Pleasure Beach, inland wetlands, tidal wetlands (East End, Stratford Great Meadows, Harbor areas, Ash Creek, Rooster River, Island Brook, Pequonnock River).
- Seek further risk reduction through conservation and acquisition of salt marsh advancement zones as well as riparian corridors throughout City.
- Revisit, update as needed, and disseminate Neighborhood Preparedness Plans to appropriate neighborhoods in partnership with NRZ representatives. Look to NRZs to disseminate information regarding emergency preparedness planning at the family and neighborhood.
- Continue to work towards providing food and water resources to family and individual in need before, during, and after major events.
- Work to coordinate work force development activities across employers and the City to ensure talent gaps are filled locally by Bridgeport residents.

CRB Workshop Participants: Department/Organization

City of Bridgeport - Planning Department
City of Bridgeport - Emergency Management/DEMHS
City of Bridgeport - Engineering
Bridgeport Regional Business Council
Water Pollution Control Authority - Bridgeport
Seaside Village Neighborhood - Resident
Public Service Enterprise Group Inc.
Green Village Initiative
City of Bridgeport - Resident
Bridgeport land Development, LLC.
The Nature Conservancy

CRB Workshop Project Team: Organization and Role

Bridgeport Core Team

Lynn Haig - City of Bridgeport

Workshop Team

The Nature Conservancy – Adam Whelchel, Ph.D. (Lead Facilitator)
MetroCOG - Patrick Carleton (Project Manager)

Recommended Citation

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Acknowledgements

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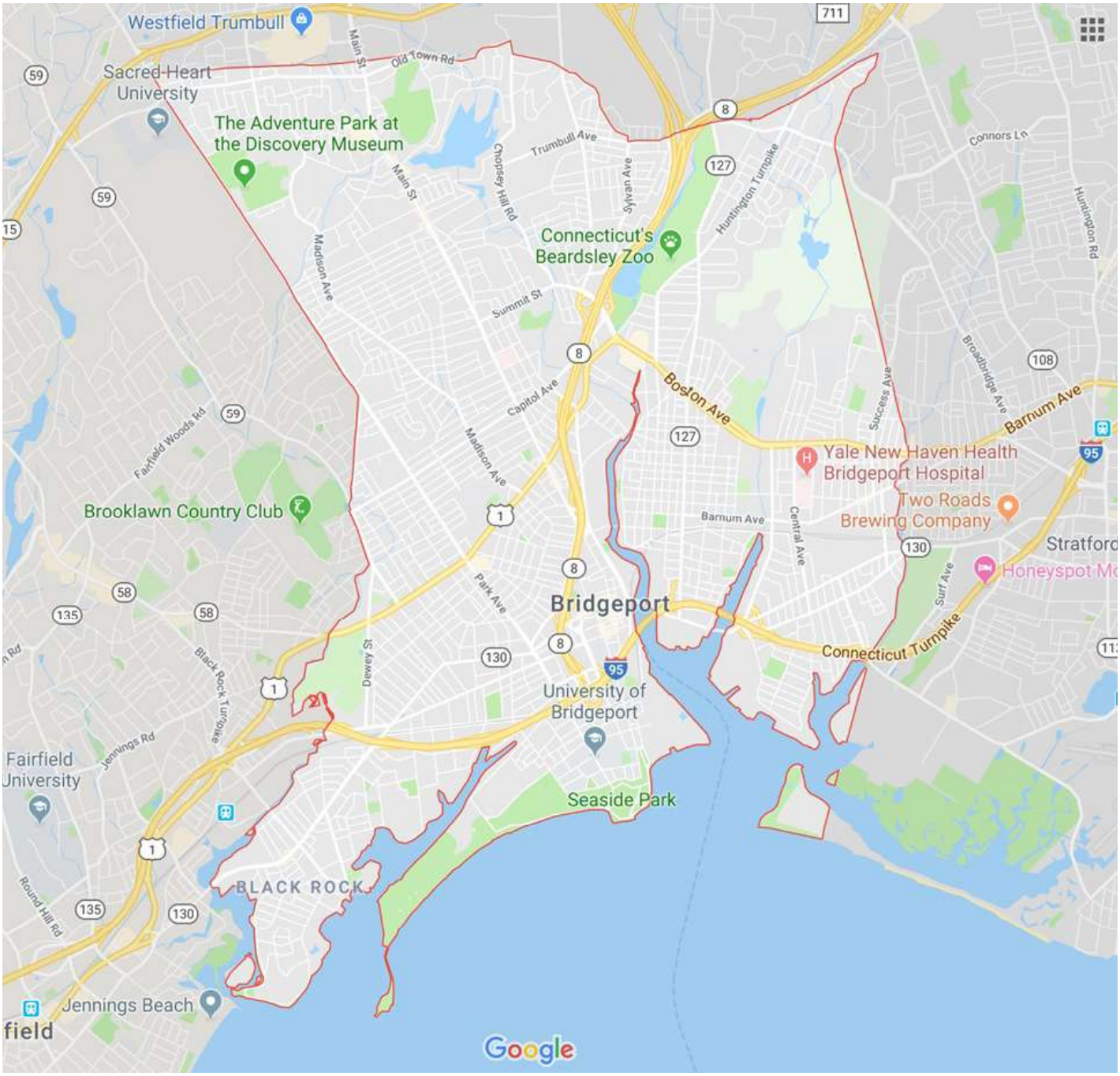
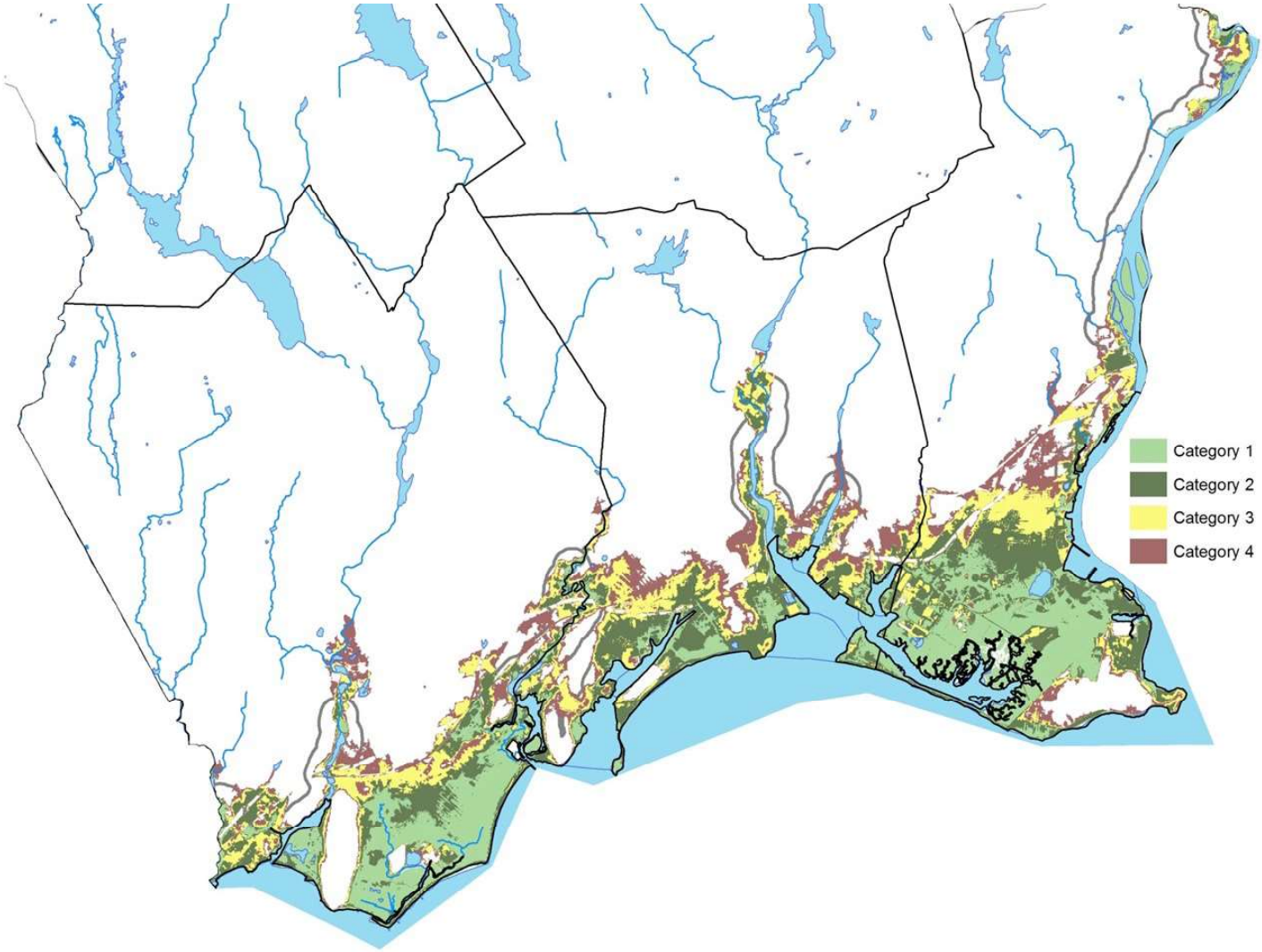
Appendix

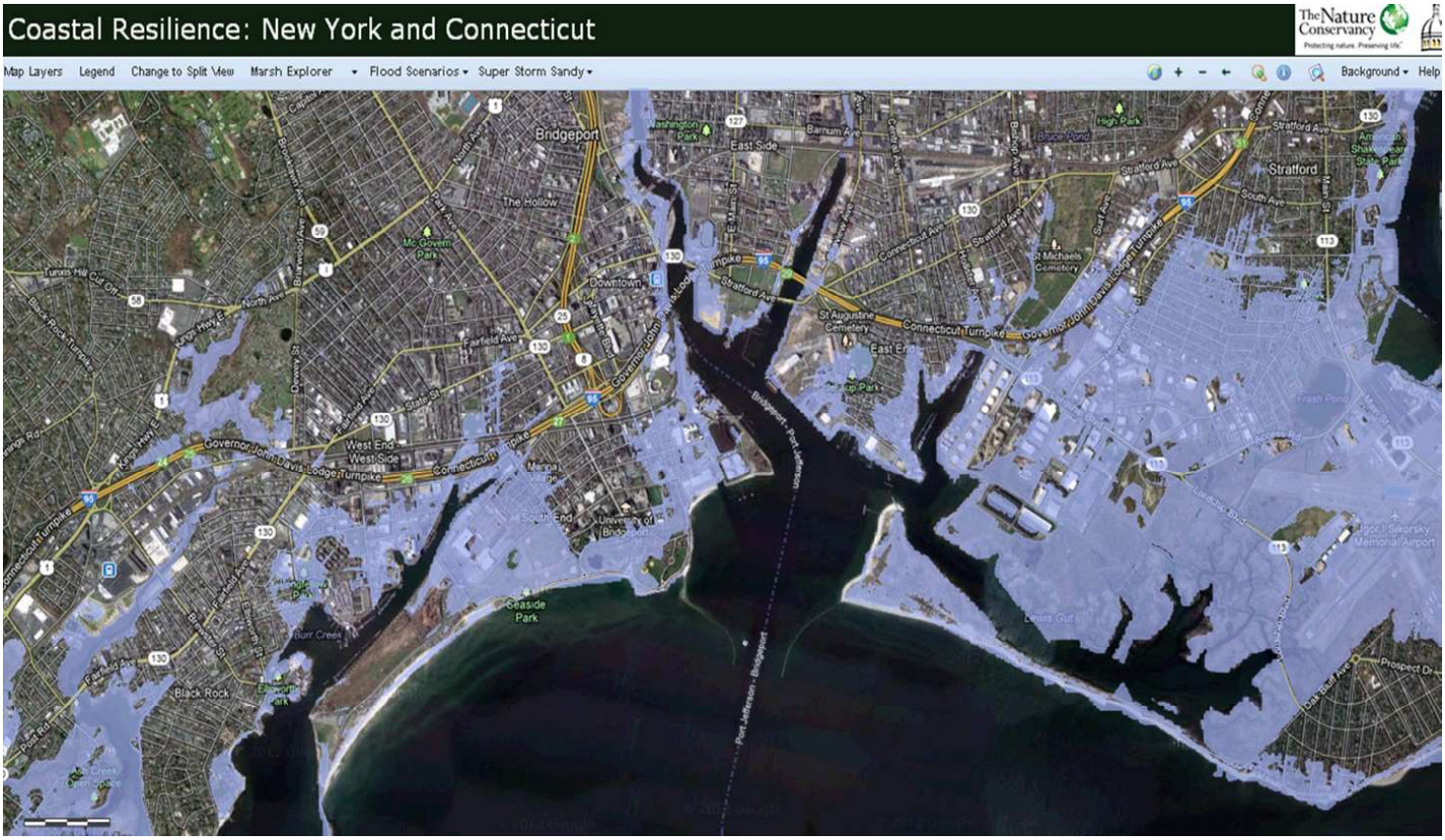
Base Map


Westfield Trumbull
Sacred Heart University
The Adventure Park at the Discovery Museum
Connecticut's Beardsley Zoo
Brooklawn Country Club
Bridgeport
University of Bridgeport
Yale New Haven Health Bridgeport Hospital
Two Roads Brewing Company
Seaside Park
Fairfield University
BLACK ROCK
Jennings Beach
Boston Ave
Barnum Ave
Connecticut Turnpike
Main St
Old Town Rd
Trumbull Ave
Chopsey Hill Rd
Sylvan Ave
Huntington Turnpike
Connors Ln
Huntington Rd
Madison Ave
Summit St
Capitol Ave
Fairfield Woods Rd
Park Ave
Central Ave
Success Ave
Broadbridge Ave
Surf Ave
Seaway St
Black Rock Turnpike
Jennings Rd
Round Hill Rd
Google

Resources and Maps Used During Workshop



SLOSH Map for Bridgeport. Data Source: NOAA.



Tropical Storm Sandy Flooding. Data Source: FEMA.

CAT-3 Hurricane Flooding of Roads (in red). Analysis by the Nature Conservancy.

Photo Credits: WB unabridged

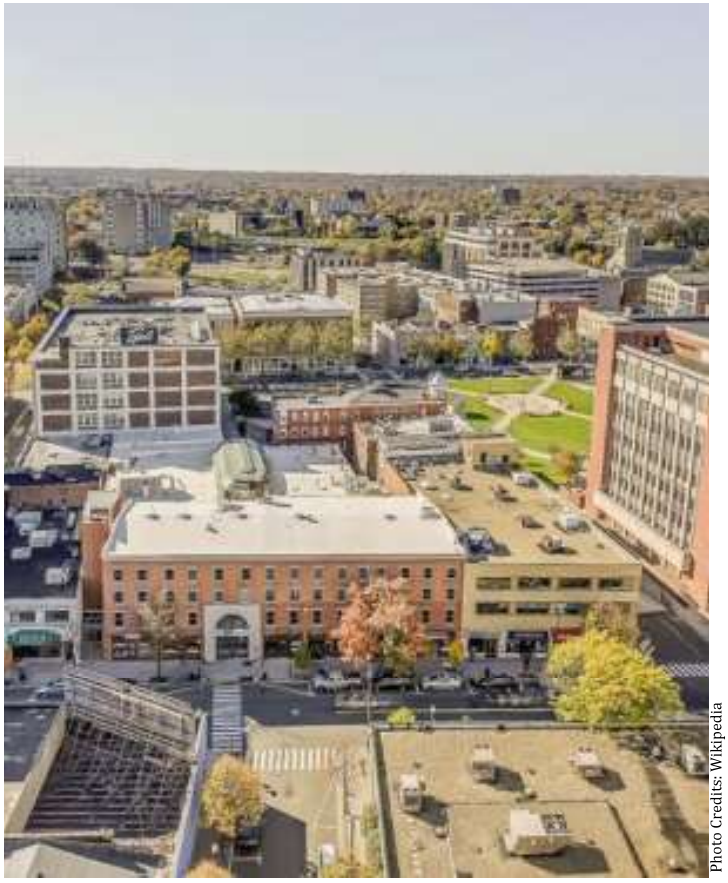


Photo Credits: Wikipedia