Brownfields and Sea Level Rise: 2020

Impact of sea level rise on Brownfields located in Stratford, Bridgeport, and New Haven and development potential

MAY 1, 2020

Climate Corps
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Overview:

There are multiple brownfield programs run by the State of Connecticut and through the Environmental Protection Agency at the Federal level

Brownfields in the state of Connecticut are defined by Connecticut General Statutes §32-760 as "any abandoned or underutilized site where redevelopment, reuse or expansion has not occurred due to the presence or potential presence of pollution in the buildings, soil or groundwater that requires investigation or remediation before or in conjunction with the restoration, redevelopment, reuse and expansion of the property."

The state and federal government provide funding to remediate and redevelop these former industrial/commercial sites, once they have been reported and have been accepted into the Brownfield Remediation Program. There are different programs that offer differentiated incentivizes such as funding and changes in remediation criteria to encourage redevelopment of these areas.

Significant industrial development along our coastline during the early and middle 20th century saw a wave of disinvestment in these environments following WWII up until now, leaving many of the former manufacturing and production facilities in decay and without proper cleanup from their past usage.

Considering the significant projected impacts of sea level rise due to climate change and the concentration of former industrial and manufacturing facilities along the water, it is imperative to understand how sea level rise and storm events will impact these sites and what possible steps can be undertaken to reduce their long term detrimental impact to the environment and be used in a logical.

Methods: To accomplish this, a review of the Brownfield Inventories submitted to the Connecticut Department of Energy and Environmental Protection (CT DEEP), to determine the applicable sites and address of designated brownfields. The Brownfield inventories reviewed are self-reported by the individual towns and the towns are responsible for updating them at their own discretion. The brownfield inventories used can be found in the appendix and contextualization of them can be found in the biases section.

To understand which properties were going to be impacted by sea level rise and 100-year flood events, sea level rise viewers developed by the Connecticut Institute of Resilience and Climate Adaptation (CIRCA) and the National Oceanic and Atmospheric Association (NOAA) were consulted. The CIRCA Sea Level Rise Viewer was much more useful for determining the inundation levels for these specific properties. The images of different scenarios in the appendix were obtained from the CIRCA.

To understand which properties were going to be impacted by future increases in sea level rise and flooding events different scenarios were employed on every site recorded in the brownfield inventories obtained from DEEP. Three different scenarios were employed: Mean high water plus 20 inches, 100 year flood event, 100 year flood event plus 20 inches of sea level rise. These three different scenarios were employed for two reasons. First, it is important to understand which properties that are contaminated or being proposed for development and consider the risks associated with greater inundation and flooding events in general to determine overall risk and especially if they are contaminated risk to the environment and human health. Flooding events will also be more frequent and severe due to the increasing impacts of climate change. Second, 20 inches of sea level rise by 2050 is the current sea level rise predicted by state institutions in Connecticut and United Nations predictions laid out in the IPCC. This certainly does not mean there is not the possibility for higher levels of sea levels or for flooding events to not be influenced by additional factors, related to runaway feedbacks caused by climate

change. All of the sites reported to CT DEEP had these three different scenarios applied to them and then categorized based on their inundation due to sea level rise alone, and then to their flooding during a 100-year flood event, and then a 100-year flood event along with predicted sea level rise by 2050.

After employing the different scenarios, the affected sites were compiled into a shorter list. To understand the impacts and associated consequences, in-depth research was done on each and every address affected by these scenarios. A large amount of time was committed to piecing together the previous site usage history, current state of development and contamination present, and the future plans for remediation and redevelopment.

Research for contamination and site history took the form of in-depth online searches, with the property address with key words such as “contamination, pollution, remediation plan, redevelopment plan,” and going through historical directories related to companies.

In some instances, an attempt was made to reach out to applicable institutions or individuals to obtain more information on the specific sites or parcels. Individuals at the EPA and specific companies were contacted but online searches yielded the significant amount of information gathered and compiled for this report.

After, researching and understanding the possible contamination present, an attempt was made to quantify the costs associated with remediation. Remediation costs were originally going to be estimated based on the contamination on site, however during the completion of this report, it became increasingly clear that quantification and estimation of costs could not be accurately assessed due to varying nature of these structures and the degree of contamination. This is typically assessed and understood through the completion of an Environmental Site Assessment, which even if completely were difficult to obtain access to any of these reports. Instead, an attempt to describe the remediation that would need to take place on this site was included and information about the potential losses associated with the movement of this contamination into the larger environment.

Many sites in this report had associated development plans. Multiple of these plans were reviewed and analyzed for their relevance and overall benefit they create in reference to sea level rise and the remediation of contaminated properties. Recommendations were given to improve some of these development plans and overarching recommendations and their contextualization were provided, to address the findings of this report and help guide development in these areas.

Sea Level Rise: Based on historical data records obtained from research about historic conditions on Earth, as well as modeled scenarios about the impact of climate change on sea level rise, inform the scenarios employed in this report. Current operating understanding for sea level rise by 2050 is the mean high water plus 20 inches. It must be understood this projection for sea level rise may be significantly higher due to a multitude of other interlocking factors associated with climate change. In addition, storm events and associated surges represent significant threats to these sites and the possibility of spreading contamination once they become inundated. Increasing precipitation events and intensified hurricanes pose greater threats as climate impacts worsen. It is thus paramount that understanding and planning for future development does not stop at current 2050 projections of sea level rise but include an understanding of the impacts of storm surges and consideration given to sites that would be inundated under higher scenarios. CIRCA recommends that planning should go beyond 20 inches of sea level rise because the seas do not stop rising in 2050 and further warming will generate exponential growth in sea level rise. According to recent scientific research that looked at the specific conditions of a changing climate on New England, by 2100 100-year flooding events will be occurring on an annual or bi-annual basis. This is influence and increased by the rising oceans and intensity natural disasters like hurricanes and storm surges.

Brownfields in Stratford Connecticut:

The following section details the compiled lists created detailing which brownfield sites were affected under the three different scenarios described above. The sites were categorized by their inundation level if they were not affected by predicted sea level rise by 2050.

Mean High water + 20 inches:

- 1000 Great Meadow Road
- 175 Garfield Ave

100 Year Flood Event

- 993 Honeyspot Road
- *175 Garfield Ave*
- 500 Main Street
- 550 Main Street
- *1000 Great Meadow Road*

100 Year Flood event + 20 inches:

- 2370 Stratford Ave (close to low lying area)
- 1000 East Broadway (close to low lying area)
- *993 Honeyspot Road (extremely flooded)*
- *175 Garfield Ave (extremely flooded)*
- *500 Main Street (extremely flooded)*
- *550 Main Street (extremely flooded)*
- *1000 Great Meadow Road (extremely flooded)*

Brownfields in Stratford, CT, 1000 Great Meadow Road:

Site use (Historical and Current):

Sikorsky Memorial Airport, is currently operating on this site, and hosts multiple different aviation hangars and infrastructure. It is centrally located on the edge of Stratford along shore before Lordship and the runway extend into the marshes located around the edge of the airport property.

Risk of flooding: This site is flooded under 20 inches of sea level rise and is extremely flooded during 100-year flood events. Currently during storm events the site is partially inundated as from the road on the other side of marshes during hightide and storm events. During a 100-year flood event with sea level rise the entire site will be inundated with water.

Possible Contamination: Petroleum products, contaminated fill and construction materials, contaminants resulting from the normal functioning of an airport will definitely be found on this site and in the soils and water connected to impervious surfaces on the airport

Pertinent Information for Site: Funding has been allocated to this site in the past to address flooding of the runway located opposite the marshes. This is an important transportation connection and corridor

Losses Associated with Site: Further contamination and destruction of wetlands, pollution and contamination of Long Island Sound, contamination of potable water supplies located close by if concrete steps are not taken to address remediation and deconstruction before significant inundation events. The extent of contamination is not known, however reports around the sites development note the contamination from the Raymark Asbestos plant, inundation would require significant costs to deconstruct and remove infrastructure and development from the site, reports suggest there is significant contamination of the marshes that are located at the edge of the site. Further, inundation and without land for migration the marshlands will die off, increasing the vulnerability of this site and the shoreline as a whole.

Location of Site Images and Inundation Scenarios Appendix:

- Flooding scenarios
- Environmental Impact Report
- Report on Remediation of Gun Club Point and Raymark Industries Plant
- News Article Raymark Dumping

Brownfields in Stratford, CT, 500 & 550 Main Street:

Site use (Historical and Current):

Historically this was an Army Engine Plant, and break pads were manufactured here, and other mechanical components. Currently the site is abandoned for the most part, the buildings are still structurally sounds, parking lots used for training for school buses and new drivers, and storage by the airport. There has not been much private interest in site due to significant remediation costs, state has provided some funding to help remediate this site. This site is located immediately along the water in Long Island Sound at the lower end of Stratford, across the street from the airport

Risk of flooding: This site will not be inundated due to sea level rise, but partial inundation will occur on the lowlying side of the side. During a 100-year flood event the entire site will be inundated and with increasing severity due to sea level rise.

Possible Contamination: Analysis of the site and testing has found high concentration of pollution in the groundwater that discharges to surface water nearby. Large amounts of metals were found in the groundwater, and groundwater contamination was found below many of the 33 parcels, the buildings contain asbestos ACM and lead based paint, multiple storage tanks located on site that have not been removed, an incinerator was located on the site and ash was disposed of on property, processed waste generated including waste oils, solvents, metal plating solutions, and paints, large amount of soil contamination presents, and located in wetlands adjacent to discharge pipes, COCs: petroleum products, hydrocarbons, solvents, heavy metals, and PCBS

Pertinent Information for Site:
Buildings on the site are not up to FEMA

standards requiring ground floor elevations to be located at or above the 100-year flood plan, this was before an update in sea level rise projections, impacts reports discuss the need for proper disposal of construction materials and monitoring must occur, seems to lay out suggestive framework instead of actual guarantees for testing and how materials are typically spilled or mishandled during normal operations

Losses Associated with Site: Continued destruction of wetlands and associated impacts on fisheries and other marine species, potential contamination spreading into residential areas and drinking water. Further destruction of wetlands in this area will increase the vulnerability of the site. During significant storm events there will also be moved of contaminants from the building structure making cleanup of multiple properties a likely possibility.

Location of Site Images, Inundation Scenarios, and Resources:

- Flooding scenarios
- Environmental remediation plan
- EPA Superfund Program Profile
- Final Environmental Impact Statement

Brownfields in Stratford, CT, 175 Garfield Ave:

Site use (Historical and Current):

Currently the US Chrome Corporation is operating out of the buildings on this site. They work on metal polishing, buffing, and plating, metal finishing, capabilities of this site included chrome finishing services, industrial finishes, chrome plating, electroless nickel, hard chrome, thin dense chrome, site is still in operation

Risk of flooding: Under 20 inches of SLR low lying areas are present and inundation is severe during a 100-year flood event without SLR, and increases in severity due to sea level rise

Possible Contamination: Pollution was detected in the groundwater on this site, COCs: PFAS, metals, other products used with chrome manufacturing

Projected Remediation Costs:

Pertinent Information for Site: Site is still in operation and remediation is ongoing for this site

Losses Associated with Site: The chemicals used on this site can have large consequences on human health and organism's health. Contamination can extend into ground water polluting significant areas and affecting potable water supplies, extension into surface water bodies and wetlands. This can lead to severe consequences for ecosystem functionality and health for species and humans reliant on them. Costs to clean this up would be severe if it spread during flooding events and would require dredging if it moved into the wetlands

Location of Site Images, Inundation Scenarios, and Resources:

- Flooding scenarios
- Chemical Compliance Statement

<u>Brownfields in Stratford, CT, 2370 Stratford Ave:</u>

Site use (Historical and Current):

Historically, Wade's Garage, also former Texaco Gas Station operated on this site, the town of Stratford has begun to cleanup the site and test for contamination

Risk of flooding: It is not threatened by sea level rise or during a 100 year flood event, but it is close to a low-lying area. Under a 100-year flood event and sea level rise the site has a lot of low-lying area and flooding is close to the site. close to low-lying area under 100-year flood event, and 100-year flood event under 20 inches low-lying areas are present and inundation is close to site, site is not fully inundated

Possible Contamination: petroleum products, products associated with the cleaning and repairing of cars, fuel spills from former gas station, leaky underground storage tanks, COCs: ETPH, metals, petroleum

Pertinent Information for Site:

Losses associated with site: Spreading of contamination further into groundwater and soils can cause significant harm to environment and residents located close by, movement into storm water system close-by can also transport it into surface waters and into aquatic ecosystems causing significant harm

Location of Site Images, Inundation Scenarios, and Resources:

- Flooding scenario
- Department of Economic Development Update

Brownfields in Stratford, CT, 1000 East Broadway:

Site use (Historical and Current):

Former public school built in 1965, turned into an administrative building after school closed down (Board of Education), utilized now as an additional place for community events, contaminated fill was used on this site planned for development project

Risk of flooding: The site is not ask risk of being affected by sea level rise but close to low-lying area during storm events with sea level rise

Possible Contamination: contaminated fill, most likely from the Raybestos plant that have placed contaminated fill on multiple sites across Stratford

Pertinent Information for Site: Current Board of Education Building

Losses Associated with site: Remediation has reportedly been completed on this site however if there is still contamination in the soil due to the standard the land was remediated to there is still the potential for movement of contamination into other properties or into the groundwater

Location of Site Images, Inundation Scenarios, and Resources:

- Flooding Scenario
- Grant Award to Remediate School
- EPA Report About Contamination

Brownfields in Stratford, CT, 993 Honeyspot Road:

Site use (Historical and Current):

Historically this site was used by PCD Realty Company which manufactured die castings, currently Panache Auto Werke, an autobody and repair shop is currently using the site

Risk of flooding: This site is not at risk of inundation due to sea level rise but is completely inundated during 100-year flood events and increasing severity due to sea level.

Possible Contamination: Presence of transformers and other equipment containing PCBS and soil samples taken were found to have high concentrations of PCBs significantly above industrial limits, significant amounts of oil staining, found it would flow into groundwater due to closeness of tidal wetlands, current state of remediation is not known

Pertinent Information for Site: There was a historical lawsuit against the owners and operators of this site for illegally discharging PCBs into groundwater and surface water located near potable water supplies

Losses Associated with site: Spreading of contamination further offsite into potable water supplies, further contamination of wetlands, and eventual degradation and loss of them, between the historical usage of this site and the current use, movement of contamination off this site will require extensive remediation.

Location of Site Images, Inundation Scenarios, and Resources:

- Flooding Scenario
- Rocque v. Biafore Court Case
- EPA Superfund Profile
- Town Meeting Minutes

Brownfields in Bridgeport Connecticut:

Mean High water + 20 inches:

- 560 N. Washington Ave
- 329 Central Ave
- 336 Central Ave
- 405 Central Ave
- 79-119 Trowel Street
- 179 Trowel Street
- 148 & 220 Waterview Ave
- 451-589 Seaview Ave
- 567-589 Seaview Ave

100 Year Flood Event

- 60 Main Street
- 128 Trowel Street

100 Year Flood event + 20 inches:

- 889 Barnum Ave (slightly flooded)
- 148 Congress Street (slightly flooded)
- 323 Jefferson Street (slightly flooded)
- 50 Miles Street (slightly flooded)
- 930 Main Street (slightly flooded)
- 129 Norman Street (slightly flooded)
- 800 Seaview Ave (slightly flooded)
- 837 Seaview Ave (slightly flooded)
- 124 Suggetts Lane (slightly flooded)
- 120 Norman Street (slight/moderately flooded)
- 127 Garden Street (moderately flooded)
- *128 Trowel Street (moderately flooded)*
- *148 & 220 Waterview Ave (moderately flooded)*
- *329 Central Ave (extremely flooded)*
- *336 Central Ave (extremely flooded)*
- *405 Central Ave (extremely flooded)*
- 337 Knowlton Street (extremely flooded)
- *60 Main Street (extremely flooded)*
- *560 N. Washington Ave (extremely flooded)*
- *451-589 Seaview Ave (extremely flooded)*
- *567-589 Seaview Ave (extremely flooded)*
- *79-119 Trowel Street (extremely flooded)*
- *170 Trowel Street (extremely flooded)*

Brownfields in Bridgeport, CT, 560 N. Washington Ave:

Site use (Historical and Current):

historically this site was used by Buskwick metals, an industrial site that manufactured telephone wires and Bridgeport Brass Condominium currently occupy part of the sites

Risk of flooding: There is minor inundation at the edge of the property due to sea level rise. During a 100-year flood event about half of the property is flooded and combined with sea level rise during these events the flooding reaches into the buildings located on site

Possible Contamination: PCBS were found during the present and former owners time and fines levied for illegally storing and handling of the PCBs, most likely contaminated soil will be found on site, electrical and drum storages areas, with removed material being mixed with waste oil and PBS as well, improper disposal of PCBS via leaky or spilled transformers, failure to comply with use, storage, and marking requirements, part of this site still requires remediation

Pertinent Information for Site: Previous lawsuits and fines have been levied at the owners or the property for improper disposal or handling of contaminated materials, DEEP found several federal violations as initial issues due to contaminated material being removed and reported, undertook site compliance walkthrough finding several violations in storage of PCBS and requirements for their handling, part of a master waterfront development plan

Losses Associated with site: Movement of these chemicals into the water poses a risk to aquatic environments and any fishing done near this area. It also poses significant risk during storm events to the surrounding community.

Location of Site Images, Inundation Scenarios, and Resources:

- Flooding Scenarios
- News Article Fines for Contamination
- Bushwick metals profile
- Bridgeport Glass Historic Guide
- CT Mills Plant Profile

Brownfields in Bridgeport, CT, 124 Suggetts Lane:

Site use (Historical and Current): The

site is currently vacated. It is situated next to former location of Mount Trashmore and Chrome Manufacturing plant. Reached out to EPA about information on this site was not given pertinent information

Risk of flooding: Site is not at risk of inundation under sea level rise or during the 100-year flood event. During 100-year flood events with sea level rise this site is has minor inundation

Possible Contamination: Most likely contaminated from adjacent sites

Pertinent Information for Site:

Threats posed by inundation: Movement of contaminates into residential properties located close by and in flood ways located in the opposite direction, contamination of river and stream and movement into these soils threatens to make remediation costs significant and threatens human health and the environment

Location of Site Images, Inundation Scenarios, and Resources:

- Flooding Scenarios

Brownfields in Bridgeport, CT, 329 Central Ave:

Site use (Historical and Current):

Connecticut Building Supply formerly with a 30-foot mountain of debris and mixed construction materials and other fill, known as Mount Trashmore, has been cleanup and remediated, but remain undeveloped

Risk of flooding: severely inundated under 20 inches of sea level rise, with growing inundation under more severe scenarios

Possible Contamination: sheets of aluminum, strips of plastic, 30-foot mound of debris, with mixed construction materials from multiple sites from across the state, safe to assume contamination is present

because of the financial motivations to put this here instead of properly disposing of this, has been remediated, but would assume there is still some form of contamination whether deep on the site or in the surrounding properties because of how long it was here

Pertinent Information for Site: Owned by a single family, that has been part of a significant instances of environmental contamination, pollution, and disposal and handling of materials, not in line with federal or state regulations, multiple lawsuits have occurred around this site and the family, who are part of larger construction company but have each been brought up on charges of mishandling contaminated construction materials, the site has been cleaned up, and development of urban gardening program was supposed to begin years ago but never follow through, this is an ideal site to help develop with a living shoreline and resiliency structures

Threats posed by inundation: If any soil contamination persists inundation of this site can cause it to spread and move into the riparian corridor located close to the site

Location of Site Images, Inundation Scenarios, and Resources:

- Flooding scenarios
- News article Trash on Site
- Redevelopment of Mount Trashmore
- News story about soil cleanup
- 2005 Redevelopment Plan for Area

Brownfields in Bridgeport, CT, 336 Central Ave:

Site use (Historical and Current):

Currently an abandoned lot with contaminated fill on the lot

Risk of flooding: The site is vulnerable to sea level rise and a large portion of the property is inundated due to sea level rise. There is only a small piece of the property that would not be inundated during a 100-year flood events, and combined with sea level rise goes over the entire site and across the road

Possible Contamination: most likely from Mount Trashmore, could have been remediated with the site close by

Pertinent Information for Site: Reported to DEEP and EPA but information is not available on previous site usage or history, would be ideal for living shoreline

Threats posed by inundation: Site is directly adjacent from Johnson's Creek and will be one of the first site inundated, total remediation on this site needs to be completed before this occurs to prevent spreading into human environments and into aquatic ecosystems

Location of Site Images, Inundation Scenarios, and Resources:

- Flooding Scenarios

Brownfields in Bridgeport, CT: 405 Central Ave:

Site use (Historical and Current):

Formerly a Chrome Engineering Site, lot is currently vacated, and buildings were removed

Risk of flooding: Site faces a minor threat of inundation due to sea level rise. During a 100-year flood event a significant portion of the site is inundated and combined with sea level rise the entire site is inundated

Possible Contamination: cyanide detected beneath foundation of building, asbestos, arsenic, lead, chromium, SVOCs, before demolition, Phase III investigation found VOCs, PAHs, metals in groundwater, petroleum products from tanks on site, unclear how extensive these are

Pertinent Information for Site: Former Chrome manufacturing site that had found contamination on site but certain legal restrictions like land use could have been employed to make site compliant but could move once site is inundated due to sea level rise, site is good for living shoreline, unsure the extent of remediation on this site

Threats posed by inundation: It is critical if these contaminants persist on these sites that they ae remediated or they will create significant pollution events for the surrounding community and damages to the functionality of aquatic ecosystem

Location of Site Images, Inundation Scenarios, and Resources:

- Flooding Scenarios

- Q&A About Chrome Engineering Pollution
- Memo Chrome Engineering Profile
- Tank Spillage Emergency Response

Brownfields in Bridgeport, CT, 79-119 Trowel Street:

Site use (Historical and Current):

Historically used by Pacelli Trucking Property and currently the site is a vacant lot

Risk of flooding: The site is not threatened by sea level rise. During a 100-year flood event the site is partially inundated and during a 100-year event combined with sea level rise more than half of the site is inundated.

Possible Contamination: Many metals, fuel oil, and ash were found deep in the soils on this property, reports detail a significant amount of environmental contamination on this site, normal operations for automobile repair, maintenance, and fueling leading to contamination in the soil

Pertinent Information for Site: Voluntary remediation has supposedly begun at this site but no information on extent or if it was concluded, site would be good for living shoreline

Threats posed by inundation: If contamination was not fully cleaned up then there is a possibility of it moving into the surrounding community or being picked up during the storm events and brought into Long Island sound which can cause large problems

Location of Site Images, Inundation Scenarios, and Resources:

- Flooding Scenarios
- Q&A About Chrome Engineering
- Funding History of Site

Brownfields in Bridgeport, CT, 179 Trowel Street:

Site use (Historical and Current): The

historical usage of this site is not known, the site is currently abandoned

Risk of flooding: This property is severely threatened by sea level rise and will be partially inundated as a result. The site is completely inundated during a 100-year flood event and increases in severity due to sea level rise

Possible Contamination: most likely contamination originated from sites around it that contaminated groundwater, ie Mount Trashmore and the Chrome Engineering Site

Pertinent Information for Site: Site was supposed to be part of redevelopment plan for urban agriculture and building of greenhouses to support this, part of living shoreline plan, contamination moved onto this site from development further back from the water

Threats posed by inundation: If contamination persists on this site it must be remediate to prevent spreading and new remediation costs from arising.

Location of Site Images, Inundation Scenarios, and Resources:

- Flooding Scenarios
- Living Shoreline Development Plan
- Urban agriculture project proposed for site
- City Council Development

Brownfields in Bridgeport, CT, 148 & 220 Waterview Ave:

Site use (Historical and Current):

Formerly an abandoned lot used for industrial, commercial purposes, used for storage, currently leased to the MOVE Yacht Club, with a tiny marina

Risk of flooding: The edge of the site is partially threatened by sea level rise. A 100-year flood event inundates part of the property. Combined with sea level rise a 100-year flood event does not inundate the site but inundation is significant and present around the roads on the site making it inaccessible during a storm event.

Possible Contamination: remediation possible occurred before the Yacht Club as allowed to move in, but historic industrial commercial contamination from usage may still be in the soils

Pertinent Information for Site: Predominantly African American Yacht club, would be good to facilitate community organizing with them around impacts of sea level rise and the

potential impacts on their marina, would be good to purpose flood infrastructure and measures for this site to make it look nicer and more resilient.

Threats posed by inundation: Loss of property and the Yacht club would have to relocated

Location of Site Images, Inundation Scenarios, and Resources:

- Flooding scenarios
- News article about club

Brownfields in Bridgeport, CT, 451-589 & 567-589 Seaview Ave:

Site use (Historical and Current):

Currently Barnum Landing LLC, includes ferry docks, transportation corridors, storage facilities for shipping, formerly Derecktor Shipyard, Coastline Terminals of Connecticut, currently being used as Bridgeport BoatWorks

Risk of flooding: Located right along the coastline, sea level rise will inundate pieces of the coastline along this site. During a 100-year flood event the flooding is severe on almost half of the site an extending into the surrounding community. The severity increases significantly due to sea level rise and almost the entire site Is inundated

Possible Contamination: contamination resulting from petroleum products, and fuels that may have been discharged on property and into the water, maintenance of ferries, contaminants from shipping, buildings also contain contamination from petroleum products, and paints, under remediation

Pertinent Information for Site:

Proposed redevelopment for offshore wind project launching area, and ideal site for future ferry terminal. Recommendations should be made to develop a living shoreline or the replanting of marshes along the edge of this property. Practices to reduce the vulnerability and increase resilience are critical to reducing the impacts on the surrounding properties

Threats posed by inundation: Movement of contamination from this site into Long Island Sound or into the surrounding community will create large costs for remediation. Debris from this site can also be moved during storm events again threatening the community. During these flooding

events inundations of this site will mean flood waters are significantly contaminated when they reach the residential community nearby, meaning even greater economic fallout

Location of Site Images, Inundation Scenarios, and Resources:

- Flooding scenarios
- Article Derecktor Shipyards
- Redevelopment for Offshore Wind Project
- Ferry Expansion Project 2011
- Article Redevelopment Project

Brownfields in Bridgeport, CT, 60 Main Street:

Site use (Historical and Current):

Former Remington Shaver Facility, currently any remaining buildings are falling into disrepair due to fires, demolition of building has occurred, and deconstruction debris remains on the site

Risk of flooding: Due to sea level rise significant sections of low lying areas are present. During a 100-year flood event the property is inundated and increases in severity when combined with sea level rise

Possible Contamination: contamination in the soils from metals, petroleum products used on site, asbestos and lead paint can be potentially found in the debris still located on site

Pertinent Information for Site: Being proposed to form an earthen beam along with the elevation of University Ave to build a seawall using this property, the impact from this report did not discuss to any large degree environmental justice past making minor considerations

Threats posed by inundation: If site is not remediated it will create much larger costs for remediation as it extends into other properties and residential communities. The construction of a seawall on this property would also channel storm surges and flood waters into other communities and locations and should be reconsidered.

Location of Site Images, Inundation Scenarios, and Resources:

- Flooding scenarios
- Remington Shaver Development Profile
- Remington Shaver Demolition

- Redevelopment Project Plan

Brownfields in Bridgeport, CT, 889 Barnum Ave:

Site use (Historical and Current):

Formerly the Remington Arms Manufacturing Plant, known as the Remgrit facility or Tower Place, currently, many of the buildings remain on site but are falling into disrepair

Risk of flooding: The site is not affected by sea level rise, but during 100-year flood events significant low-lying areas are present and the report on the development plan labeled this site at catastrophic risk of flooding

Possible Contamination: Several structures remain on the site, some deteriorating, others completely demolish, soil and groundwater have contamination left over from sites industrial history, lead contamination, copper zinc, metals, contaminated fill remains on the site, close to riparian corridor and wetlands that are highly contaminated.

Pertinent Information for Site: Remgrit is responsible for remediation costs aligned with the Industrial/Commercial cleanup standard and not for anything past this, remediation and redevelopment of this site seeks to preserve historical buildings because of community importance and planning for transit-oriented development project, this site was formerly the largest ammunitions manufacturer in the US until 1950, costs to preserve these sites are continuously increasing. This site is part of the Barnum Transit Oriented Development Plan

Threats posed by inundation: If the site Is not remediated this contamination will spread into the surrounding area creating severe and extensive costs for remediation and testing to determine the extent of this. The buildings and debris on site also make for the possibility of destruction of other property and economic losses, and there will be continuing degradation of the riparian corridor located on site

Location of Site Images, Inundation Scenarios, and Resources:

- Flooding scenarios
- EPA Federal Facilities Site Characterization for Munitions Constituents

- Funding Source Overviews by News
- Planned Demolition of Site 2020
- Tower Place Preservation Project
- Barnum Station Environmental Impact 2017
- Transit Oriented Redevelopment Plan 2016

Brownfields in Bridgeport, CT, 148 Congress Street:

Site use (Historical and Current):

Former United Pattern Factory, buildings demolished, addressed changed as part of redevelopment project, currently part of the site is vacated but one building remains on the property

Risk of flooding: Site is not threatened by sea level rise. There Is minor inundation close to the site. When combined with sea level rise there is partial inundation on the site

Possible Contamination: Contamination resulting from dyeing processes, metals, ash, PCBs from transformers located on site, deterioration of buildings and debris remain on site and are sources of possible contamination

Pertinent Information for Site: Fires have repeatedly broken out here, potentially being converted to housing development along with a project occurring on Cherry Street, confirmation should be done that this is the correct property address since the City changed it

Threats posed by inundation: Contamination could move on site and into other properties increasing remediation costs and cleanup costs on the surrounding buildings

Location of Site Images, Inundation Scenarios, and Resources:

- Flooding scenarios
- News Article Housing Redevelopment
- News Article Factory Conversion

Brownfields in Bridgeport, CT, 323 Jefferson Street:

Site use (Historical and Current):

Most likely attached to the site where Mount Trashmore was located. property ID does not exist, but Jefferson Street is located next to the brownfield site 329 Central Ave, and a piece of the adjacent property was not included in that property parcel, which most likely means that this site is 323 Jefferson Street

Risk of flooding: Site is not impacted by sea level rise. Site is heavily inundated during 100-year flood event. When combined with sea level rise site is heavily inundated

Possible Contamination: Contamination moved from Mount Trashmore onto this property

Pertinent Information for Site: Unclear if site has been completely remediated or not, but same issues as the adjacent sites would apply if it is not

Threats posed by inundation: This site would create much larger costs for remediation and cleanup if contamination extended into surrounding properties

Location of Site Images, Inundation Scenarios, and Resources:

- Flooding scenarios

Brownfields in Bridgeport, CT, 50 Miles Street:

Site use (Historical and Current):

Formerly used by Boros Metal Finishing, a building remains on site

Risk of flooding: The site is not inundated by sea level rise. Minor inundation is present on one side of the site during 1000-year flood event. A large portion of the site is inundated during a 100-year flood event combined with sea level rise

Possible Contamination: Metals could persist in the soils on site

Pertinent Information for Site:

Threats posed by inundation: Depending on the type of contamination that is present, its

movement can cause severe threats of exposure to human health and the environment

Location of Site Images, Inundation Scenarios, and Resources:

- Flooding scenarios
- DEEP Property Transfer Remediation Started
- Description of Site Evaluation

Brownfields in Bridgeport, CT, 930 Main Street:

Site use (Historical and Current):

Mechanics and Farmers Bank Building, site has reportedly been remediated and positive development has occurred for work space and residential buildings

Risk of flooding: Site is not threatened by sea level rise and is not impacted during a 100-year flood event. Combined with sea level rise this site is partially inundated

Possible Contamination: contamination seems to have been remediated on site

Pertinent Information for Site: Current ownership and usage of the property is up in the air

Threats posed by inundation: Since the site has been remediated contamination will not be an issue but destruction of infrastructure and economic loss of this are most likely impacts from inundation

Location of Site Images, Inundation Scenarios, and Resources:

- Flooding scenarios
- Bridgeport Revitalization Project
- News Article Working Space
- Current Usage of Site
- Landmark Building Profile

Brownfields in Bridgeport, CT, 129 Norman Street:

Site use (Historical and Current):

Former industrial commercial site, Part of Wentfield Park

Risk of flooding: Site is not affected by sea level rise alone. During 100-year flood events low lying areas are present

close by. Combined with sea level rise the edge of this property is partially inundated and there is extensive flooding directly offsite in the surrounding residential community

Possible Contamination: Site has been deconstructed and remediated to a standard that would allow for a park

Pertinent Information for Site: part of the Wentfield Park plan, greater emphasis should be placed on structures meant to aid in resilience and flood control

Threats posed by inundation: Since remediation has occurred there is not a significant threat posed by inundation on this site, but it could be used to help lessen impacts on the surrounding residential properties

Location of Site Images, Inundation Scenarios, and Resources:

- Flooding scenarios
- Brownfield Success Story
- Wentfield Park Profile
- News Article About Wentfield Park

Brownfields in Bridgeport, CT, 800 Seaview Ave:

Site use (Historical and Current):

Adjacent to the former Derecktor ship yards and currently has a housing development located on it

Risk of flooding: This site is not affected by sea level rise. The site is threatened with partial inundation during 100-year flood events and inundation extends into the site when combined with sea level rise

Possible Contamination: petroleum and mechanical work on ferries and ships from the shipyard, most likely has been remediated for residential development

Pertinent Information for Site: There are apartment listings for this exact address in Bridgeport but site was reported to EPA as brownfield

Threats posed by inundation: Loss of economic properties and housing development, requiring residents to be relocated, adjacent sites could be used

to increase the resiliency of this residential development through the use of flood barriers and associated practices

Location of Site Images, Inundation Scenarios, and Resources:

- Flooding scenarios
- Residential Development Project

Brownfields in Bridgeport, CT, 837 Seaview Ave:

Site use (Historical and Current):

Formerly a steel manufacturing operation, owned by Carpenter and is currently being developed with retail shops, grocery store, movies, entertainment, car wash, gas station, public harbor walk along water front, possibly casino, known as Seaview Plaza

Risk of flooding: The site is not at risk of inundation due to sea level rise, but the edge of the property is flood. Slightly flooded under 100-year flood event + 20 inches of sea level rise

Possible Contamination: contamination from metals and petroleum

Pertinent Information for Site: An ELUR was placed on this site due to court case over the right to develop the site or not, must not disturb an 11-acre plume of fuel suspended in the soil, in 2011 a $350,000 grant was awarded to remediate this site, not specifically the plume, court case resolved BLDs right to purchase and develop the site.

Using bulkheads to secure the coast for this site should be reconsidered. Half of the site is for the Bridgeport Boatworks, and another piece for Seaview Plaza, there is still potential for MGM Entertainment Center to be located here which the Mayor of Bridgeport is pushing for

Threats posed by inundation: This site does not face severe risk of inundation but during stronger events can generate severe economic losses and if the current proposed development is completed will build infrastructure, like gas stations, which will require deconstruction costs and a large possibility for contamination, a lot of critical infrastructure like a sewage treatment plant are located close-by to this property

Location of Site Images, Inundation Scenarios, and Resources:

- Flooding scenarios
- BLD Development Plan
- Complementary Development
- Part of Development Project
- News Article Bridgeport Boatworks
- Development Testimony for Casino

Location of Site Images, Inundation Scenarios, and Resources:

- Flooding scenarios
- Brownfield Success Story
- Wentfield Park Profile
- News Article Wentfield Park

Brownfields in Bridgeport, CT, 120 Norman Street:

Site use (Historical and Current): This site was historically an EXMET Chemical Facility, but has been remediated and turned into Wentfield Park

Risk of flooding: Site is not affected by sea level rise alone. During 100-year flood events low lying areas are present close by. Combined with sea level rise the edge of this property is partially inundated and there is extensive flooding directly offsite in the surrounding residential community

Possible Contamination:

Pertinent Information for Site: This site has been remediated and redevelopment has occurred

Brownfields in Bridgeport, CT, 127 Garden Street:

Site use (Historical and Current):

Historically used for an ice cream company, truck storage garage, and lumber yard, in 2009 Bridgeport Housing Authority became owners of site, the site is currently abandoned

Risk of flooding: This site is not threatened by sea level rise and low-lying areas are present during a 100-year flood event. When combined with sea level rise the site is partially inundated

Possible Contamination: Soil samples revealed contamination of arsenic, metals, mercury, and other inorganic compounds, storage of vehicles might

also lead to petroleum products accumulating in the soil and nearby ground water connected to impervious pavement, coal ash

Pertinent Information for Site: This site was reportedly remediated as a piece of another property located close by. This site also had the potential of being proposed as a green space, but no plan could be found. In 2009 Bridgeport Housing Authority was awarded a grant to remediate and redevelopment, adjacent from elderly Franklin Elanor Housing

Threats posed by inundation: Since this site has been remediated, contamination moving from this site is not a likely consequence. This site could be used to help control flooding.

Location of Site Images, Inundation Scenarios, and Resources:

- Flooding scenarios
- Former Park City Hospital ESA Results
- Possible Garden Street Green Space

Brownfields in Bridgeport, CT, 128 Trowel:

Site use (Historical and Current):

Currently the site is a vacant lot connected to former Mount Trashmore

Risk of flooding: The site is not impacted by sea level rise. The site is partially inundated during 100-year flood event and is completely inundated when combined with sea level rise projections

Possible Contamination: Contamination from Mount Trashmore and Chrome Engineering Site

Projected Remediation Costs: Site could possibly have been remediated

Pertinent Information for Site: Could be an ideal site for community garden as it is located adjacent to residential housing

Threats posed by inundation: If the site has been remediated there is no threat to the spreading of contamination, but could offer protection for the housing nearby

Location of Site Images, Inundation Scenarios, and Resources:

- Flooding scenarios

Brownfields in Bridgeport, CT, 337 Knowlton Street:

Site use (Historical and Current):

Former facility, demolished in January 2014 to make way for Phase I of a park, other Phases under development, the park is partially completed

Risk of flooding: Site is not at inundated due to sea level rise but is partially inundated during a 100-year flood event. When combined with sea level rise the entire property and surrounding area is inundated

Possible Contamination: Contamination on site was resolved, or at least remediated to an acceptable standard for park development

Pertinent Information for Site: The plan stipulates that 50% complete as of 2020, Phase II being drafted, will include green storm water infrastructure practices, this is where phase III of the park will go, later Phases should also consider the inclusion of flood protections and structures designed to intake this water and contain it. There may still be contamination persisting in the soil. A living shoreline should be proposed here

Threats posed by inundation: If contamination persists in the soil, inundation during storm events could lead to the spreading of this contamination and can pose a threat to human and environmental health

Location of Site Images, Inundation Scenarios, and Resources:

- Flooding scenarios
- News Article About Park
- Update on Park 2020
- News Article Specific Site

Brownfields in New Haven Connecticut:

Mean High water + 20 inches:

- No brownfields are inundated under this scenario

100 year flood event:

- 142 River Street
- 34 Lloyd Street
- 458 Grand Ave
- 56 River Street
- 198 River Street

100 Year Flood event + 20 inches:

- 470 James Street (slightly flooded)
- 116-120 Haven Street (Moderately/extremely flooded)
- *34 Lloyd Street (extremely flooded)*
- *458 Grand Ave (extremely flooded)*
- *56 River Street (extremely flooded)*
- *198 River Street (extremely flooded)*

Brownfields in New Haven, CT, 142 River Street:

Site use (Historical and Current):

Historically, it was the New Haven Pipe bending Company, part of the Bigelow plant complex making huge industrial furnaces and pipe bending making the tubes needed for the boilers, currently partially demolished as of 2016 but minor debris remains on site, mostly vacant

Risk of flooding: There Is minor flooding at the edge of the site due to sea level rise. The site is heavily inundated during 100 year flood event and combined with sea level rise is completely inundated with it extending across the street into adjacent development

Possible Contamination: Significant asbestos contamination of the entire building, metals, oil

Projected Remediation Costs: Economic Development Administration estimated it might cost as much as $300,000 to demolish the structure

Pertinent Information for Site: Building was demolished partially in 2016

Threats posed by inundation: If this site is not cleaned up and remediated the large amount of debris will be moved and extend the contamination on this site into multiple other properties and cause damage. This will pose significant threats to human and environmental health

Location of Site Images, Inundation Scenarios, and Resources:

- Flooding scenarios
- Demolition of Facility
- News Article Demolition of Structure
- Development News
- 2002 Development Plan

Brownfields in New Haven, CT, 34 Lloyd Street:

Site use (Historical and Current):

Formerly a scrap metal site, currently occupied by Capasso Restoration, a building and offices remain on the site

Risk of flooding: Very minor flooding is present due to sea level rise on this site. Site is heavily inundated under 100-year flood event and when combined with sea level rise the entire site is completely inundated and it extends across multiple properties

Possible Contamination: site has been remediated for a variety of contaminants including metals, to a standard to allow for commercial/industrial use

Pertinent Information for Site: Site has been completely remediated to industrial commercial standards and the renovation was complete in 2008, used by Capasso Restoration who are working to restore additional brownfield buildings nearby

Threats posed by inundation: Contamination most likely persists in the soils and inundation of site can lead to movement of these contaminants, as well as scrap and other debris located on this site. This can pose significant threats during storm events and heighten costs during cleanup

Location of Site Images, Inundation Scenarios, and Resources:

- Flooding scenarios
- Restoration of Building

- Funding Summary

Brownfields in New Haven, CT, 458 Grand Ave:

Site use (Historical and Current):

Former Brewery Building, currently leased office space for commercial usage

Risk of flooding: There is minor flooding due to sea level rise on the edge of this site. The site is partially inundated during a 100-year flood event. When combined with sea level rise, inundation is much more severe on the property

Possible Contamination: EPA administered cleanup program with city to remove and dispose of contaminated soils with ETPH and petroleum products

Pertinent Information for Site: Demolition occurred in early 2019, TRC solutions was hired to remediate the soil, remediation occurred to commercial standard, leased to Above Average LLC for office space

Threats posed by inundation: If remediation only occurred to the industrial/commercial standard contamination is still present on site and could be impacted by inundation

Location of Site Images, Inundation Scenarios, and Resources:

- Flooding scenarios
- EPA Funding Profile
- Article Mentioning Site
- Current Usage and Lease of Site
- Proto Group Profile on Site Voluntary Remediation

Brownfields in New Haven, CT, 56 River Street:

Site use (Historical and Current):

Historical usage of site is not known, but currently vacated site, and planned to provide waterfront access and trails for people to utilize

Risk of flooding: The edge of the site is partially inundated due to sea level rise. During a 100-year flood event inundation is extensive on all of the area surrounding this property but not

on it. When combined with sea level rise, there is still minor inundation on the site, but the surrounding inundation surrounds the entire property.

Possible Contamination: Not aware of the exact contamination but soil borings in report noted that AOCs were identified warranting a Phase II and III investigation

Pertinent Information for Site: Remediation was not required because it was not subjected to the property transfer act, appendix with soil boring information was not attached to public documents, would be an ideal site to offer storm protection and flood controls

Threats posed by inundation: If contamination is still present on site there is the possibility of it spreading into other properties and into the aquatic ecosystems located at the edge of this property

Location of Site Images, Inundation Scenarios, and Resources:

- Flooding scenarios
- Redevelopment Plan
- News Article About Redevelopment

Brownfields in New Haven, CT, 198 River Street:

Site use (Historical and Current):

Historically, this site was part of the Bigelow plant complex, fabricated metal products, machine tools, and machinery, Capasso Restoration is in the process of remediating the property for purchase

Risk of flooding: This site is partially inundated due to sea level rise. During a 100-year flood event the entire property is inundated and increases in severity when combined with sea level rise

Possible Contamination: metal, petroleum contamination

Pertinent Information for Site: Remediation is ongoing at the site by Capasso Restoration

Threats posed by inundation: If the site is not remediated there can be movement of the contaminants into ecosystems and the environment. This site is going to be completely inundated

and should be used to help provide flood protection to surrounding development

Location of Site Images, Inundation Scenarios, and Resources:

- Flooding scenarios
- Lease News Article
- Building Profile
- News Article About Redevelopment
- Status of buildings 2020

Brownfields in New Haven, CT, 470 James Street:

Site use (Historical and Current):

Former CT Transit Bus depot, remediated and redeveloped for a tech campus called “District”

Risk of flooding: The site is not at risk due to sea level rise. During a 100-year flood event there is inundation on the water edge of the property. When combined with sea level rise inundation occurs in low-lying areas around the site but not directly on it

Possible Contamination: remediated contamination included asbestos, PCBs, lead paint, large area of free phase petroleum products, and fill up to 20 feet thick

Pertinent Information for Site: Tech campus developed with additional shops and beer garden, money allocated to dredge the Mill River for kayaking and paddle boarding, and launching area

Threats posed by inundation: There is no minimal risk of the spreading of contamination from the site, but development at the waters edge for the campus will be lost during these events and accommodations should be made to understand the loss of development along the water’s edge.

Location of Site Images, Inundation Scenarios, and Resources:

- Flooding scenarios
- Profile of Site Remediation
- DEEP Profile
- “District” New Haven
- News Article Redevelopment
- Acquisition of Property

Brownfields in New Haven, CT, 116-120 Haven Street:

Site use (Historical and Current):

Former industrial site, buildings remain on site, formerly Nutmeg Chemical company, vacated and partially used buildings remain on site

Risk of flooding: Site is not at risk of inundation due to sea level rise. During a 100-year flood event the property is heavily inundated and when combined with sea level rise the entire site and surrounding properties are completely inundated

Possible Contamination: Unclear the stage of remediation this site is at, but a former chemical company would have created a lot of contamination in the soils on the site

Threats posed by inundation: If contamination persists on this site it would be major threats to human health and the environment once the site is inundated. The remaining buildings may also have contamination present in them that could extend into other developments during storm events

Location of Site Images, Inundation Scenarios, and Resources:

- Flooding scenarios
- Vacant industrial building profile

Overview and Analysis:

Remediation and Contamination Commonalities, Associated Impacts:

Remediation on each of these sites identified by the various town and cities must be done, whether development occurs on them or not. There is a significant amount of contamination in our natural environment and although it may not be economically efficient to not do this, the longevity and stability of our natural is much more important. Concrete legislative steps should be taken to greater regulate the ability of industrial sites to contaminate the environment. There will be significant impacts caused by sea level rise and storm events in isolation of the significant amount of contamination that is present on these various sites. It is difficult to quantify these costs as they are extremely varied based on the specific site characteristics and historic usage of them. Environmental Site Assessments should be completed on each of these parcels and a remedial action plan should be developed to remediate these sites to a standard that significantly reduces their contamination potential once they are inundated by sea level rise. There were a few sites where environmental land use restrictions were put in place to help ease the remediation standards on these properties. However, sea level rise will inundate these properties for extended periods of time, meaning there is a high potential for this contamination to move through larger amounts of the soil and contaminate water bodies. This will create health and functional consequences on humans living close by and the ecosystems that are relied on. It is paramount that marshlands and wetlands be remediated and restored as they offer flood protection to the shoreline as a whole and help prevent further spreading of contamination from these sites. There are large costs associated with initiating environmental site assessments and the associated remedial action necessary for its future use. To address this, plans should be developed and attached to each site outlining a long-term plan for remediation and the proposed costs for this remediation to occur. This analysis should be completed and presented in tandem with an analysis of the associated losses and impacts on potable water supplies and the

potential for greater remedial costs down the line due to greater spreading and movement.

Redevelopment Plan 1: This site has a significant amount of opportunity to promote storm resiliency and community support and engagement. For this site I would first suggest the implementation of the plan developed by CIRCA and MetroCOG to develop a living shoreline in this area along and on multiple properties lining the coast, these two sites have been colored blue. On the smaller sites labeled in green I am purposing that community agriculture programs be developed and administered by the city to promote local food campaigns and help reduce the issues of food deserts. On the larger plot of land colored orange, this site should be used for community services. It would be ideal for a farmer's market to be established or to host some community events like small concerts. This would improve access to food and cultural resources for the nearby residents and help bring life into this deindustrialized area. This will allow for non-permanent usage and movement of the usage away during storm events. This site can also be used as a place to organize community educational events about the benefits of living shorelines, mixed use development, and redeveloping through community engagement. On the sites colored red, green storm water infrastructure practices, LID practices, should be implemented on the edge to accommodate overflow during storm events. In addition, part of the area of these sites along the road should be used to expand to roadway to add pervious sidewalks and bike lanes to the stretch of central ave. A significant amount of consideration must be given to community engagement and the right to remain for residents living close by to these areas. As these areas are remediated and the area is improved, the residents who live in the houses that are adjacent should be able to enjoy these new benefits and not be displaced. Consideration can be given through institutional rent controls over the area and controls on rent increases of these properties. These suggestions should be taken with the understanding that I did not consult the residents of this area, who should have the major determining factor over what development will go in this area.
A reference map can be found in the appendix

Redevelopment Plan 2:

Multiple of these sites are being remediated by Capasso Restoration who is located on one of these sites. Before making recommendations for development on this site, Capasso Restoration should be consulted because they have undertaken the remediation and development on these sites, the surrounding community should also be consulted for their opinions and needs for their community. Along the shore of all of these sites a living shoreline should be developed. The living shoreline encompass many of the same practices and principles outlined in the proposal for Johnsons Creek, including native plantings, changes in the grade and slope of the hill, a boardwalk, with the ability to withstand storm surges and storm events, to provide waterfront access. This area as a whole should be replanted with water and salt tolerant species of trees and plants to discourage erosion.

In addition, on 100 River Street a parcel not included in the Brownfields program reported by the city, however the property is owned by the city. Analysis of the surrounding area reveals that many of the options for grocery stores are small corner stores, and a Stop and Shop is located a few miles away. On the other side of the river a significant number of the residents are not within a grocery store within half a mile. On this site I am recommending that a farmer's market be established and run through the city to help provide access to healthy nutritional food. This can also be done in tandem with a community urban agriculture program, where excess crops can be surplused into the farmers market, helping to sustain both of the programs once they have been initiated. This program would help improve the area and bring new life and usage to these properties. In addition, the projects could be removed once storm events are coming and these areas will act as protection for the surrounding community. As with the other development plan, there should be an expansion of the roadway to accommodate a pervious sidewalk and bike lanes to allow people to feel safe and encourage usage of their space. Green stormwater infrastructure should also be implemented on these sites to accommodate the runoff from the impervious surfaces above these sites and to help stem the flow of contamination moving through these sites due to runoff. Flood barriers and

bioretention areas are also recommended to aid in resiliency. Along with all of these proposals should be a significant reliance on the input provide by the surrounding community on how their needs and how these sites should be redeveloped to give them greater access to green spaces and movement within their own area. These sites can also be used as locations for education events about sea level rise, resiliency, complete streets, and green infrastructure in urban environments.

A reference map can be found in the appendix

Analysis of Development Plans:

The Johnson's Creek plan was created with CIRCA, MetroCOG, and the city of Bridgeport for the areas along central avenue and trowel street. This proposal is also part of the Master Waterfront Development Plan purposed by the city of Bridgeport. I think the plan proposed by MetroCOG was very interesting and could provide a number of significant benefits to the community. I would encourage the plan to take an even greater approach at promoting community development and usage of the sites along this area. Expansion on these sites is outlined above and recommended due to the large availability of land and potential to redevelopment this space into a multifunctional green space**.** The Johnson's Creek proposal was highlight in Bridgeport's Master Waterfront Development Plan and was a recommended as a contribution to storm resiliency and community protection.

Wentfield Park: This park was developed in an area that typically lacked green space and encompasses the two sites located on Norman street, now under different identification as their specific address are encompassed in the park. This park was very needed and offers a lot of community value to the surrounding residents. This park as a whole will be partially inundated during storm events, as will many of the surrounding properties. As a general recommendation for this park, LID practices should be included to help deal with everyday storm water runoff and also help reduce the total amount of water going through this area. In the future pervious pavement should be implemented in the parking area and pervious sidewalks included, when the current structures are to be replaced. An evaluation of this park should be completed to understand how it can truly be utilized to deal with flooding events and lessen the severity of impacts on the surrounding properties.

Barnum Station TOD: This plan describes an expansion of and connection of various forms of transportation in a transportation development plan including the former Remington Facility located at, 889 Barnum Ave. This plan is connected to a number of other development plans in the City of Bridgeport including their Master Waterfront Development Plan and the Steelpointe Harbor development projects. This

development helps connect the community and larger counties with the city of Bridgeport and various transportation available. This plan encompasses both the development of the station as a “Regional Center” and also to serve high-density employment uses like flexible office space, research, and healthcare. The proposal addresses the increasing demand for housing but does not make a mention of how residents in the current community surrounding these areas will be able to remain in their homes or not be displaced due to increasing rent values, which as the report highlights places heavy reliance on market forces. The specific site where the Remington Facility is located will be developed as part of the Station District hosting_____ kinds of development. The plan calls for the soils to be remediated on this site and for the “shot Tower” to be stabilized and recommend temporary community events being held here once it is clean to promote interest in the site. Since this site is targeted for high intensity development there needs to be a heavy emphasis put on LID practices, including green roofs, rain gardens, and pervious pavements to reduce the impacts on the riparian corridors and also accommodate flooding during severe events. This plan must also account for this risk of sea level rise and the potential losses from this if restoration of the riparian areas is not restored. The plan should also recommend pervious pavement options for all parking areas around this development because over this entire area there will be a large increase in impervious cover. The plan does include for a Yellow Mill green pathway and walkway with green space preserved on the edges of the river. The environmental impact assessment for this plan offers some important insights but in multiple places seems to lack foresight and understanding of the goals of the proposed development plan. This site is noted to be at catastrophic risk during a flood event and further consideration was not given since it is only a 1% chance otherwise known as a 100-year flood event. Considerations should be made to ensure existing occupants and residents are able to stay in these areas and gentrification does not occur

Bridgeport Master Waterfront Development Plan

Seaview Plaza: This development project encompasses a number of sites

along the coast of Bridgeport. On 837 Seaview Ave, where the MGM entertainment center as well as a shopping and retail area have been proposed, known as Seaview Plaza, which will be focused on. It will be mixed commercial development including offices, grocery stores, retail, restaurants, and a seasonal farmer's market with high visibility. The plan also discusses the large space still available to accommodate community events. The inclusion of a grocery stores and access to green space are necessary for local residents and is important to larger ideals aid at equity.

The plan does make good emphasis on the need to incorporate both LID practices and other flooding protection measures on all properties to increase resilience. This project utilized bulkheads to secure the shoreline and are known to increase erosion and reduce the resiliency and overall effectiveness of natural systems located close by. An alternative should be utilized, and the shoreline of these sites preserved to all for flooding during storm events to protect other properties and residents located close by. This is partially done through the use of green space, but greater consideration should be given to flood water detention. Consideration should also be placed on the utilization of pervious pavements and green roofs on these buildings. This development proposal is quite comprehensive and offers a lot in terms of community development and economic potential. This is a very strong proposal that incorporates needs of the communities and brings new life and activity into these areas, without generating significant commercial investment, which is not always guaranteed. This is alluding to the development of the casino which does not always bring the economic benefits it promises and are not sustained throughout the long term, like mixed use development that supports community expansion.

Bridgeport Brass: This site encompasses 560 N. Washington Ave brownfield sites and requires long term investment to remediate and provide for redevelopment potential, as of right now the plan calls for a berm to be constructed and a walk by the water to continue to accessibility pathway laid out in the Master Waterfront Development Plan. Long term development on this site would include gyms, skate parks, community event space, art/performance space, and market space. This site does not

mention measures aimed at resilience or environmental sustainability. There should be a prioritization of green infrastructure and LID practices to reduce the stormwater from these sites. The plan seeks to retain the industrial characteristics of the site but could utilize this presence to incorporate more significant large plantings to reduce expanse of grass on the site and retain the industrial look. There should be the development of native plants and salt tolerant plants along the edge instead of the hard-structured stairs that are proposed. Views can be constructed on this spot to still allow for the perspectives offered towards Knowlton Park and N. Washington Ave. From a community angle the event spaces and events should be designed to place a prioritization of involving local community members and residents of Bridgeport to give a real sense of community involvement to this space.

Knowlton park: This site encompasses the sites located on Knowlton street and is park of a park development. The plan and development employed LID practices and development of spaces for community events. The park already has a dock and waterfront boardwalk. This site brings together a lot of community benefits like green spaces, recreation, and access to the water. It is also ideal for community spaces and events. A full plan could not be found on this site; however it is part of resilient Bridgeport and is part of their long term goal of providing community connection through pathways of green space.

The final development project is about large-scale resilience in the city of Bridgeport and involves the site located on 60 Main Street. Here the plan calls for elevating the streets around this and constructing a flood wall on this property. It is meant to provide walking spaces as well as protection of dry egress routes during storm events. The plan calls for consideration of sea level rise and the overtopping of the wall as major considerations. Seawall notoriously increase erosion and push flooding into other areas and should be considered before this wall is constructed.

Retreat, Living Shorelines, Marshland Migrations

The state and towns need to be taking the idea of retreat in a serious and managed manner. Arguments for and against the use of retreat will not be debated in this report but some key points must be emphasized in support of retreat:

All contaminated properties along the shore need to be remediated and deconstructed to prevent further destruction and contamination to the natural environment. The economic, social, and environmental loss associated with the inundation and extending contamination from these sites cannot be estimate by our current economic models but will have far reaching consequences on communities ability to remain stable and the economies associated with them to remain functional.

The threat of sea level rise is continuing to increase: The predictions that I based my report on do not mean the oceans stop rising in 2050 or are reflective of the feedback loops that can be triggered in the next 50 years that would create exponentially large sea level rises. In addition, it must be understood the changing frequency of large storm events and how this will affect storm surges and vulnerable properties along the cost. Paramount is the understanding that the ocean cannot be stopped with walls or with greater barriers, as it just shifts the consequences away from the area you are protecting.

As the seas continue to rise we continue to develop along them because it is prime real-estate and our development is often based on this principle. If we continue to develop, large infrastructure projects for our accepted standards of sea level rise, we will once again lose major amounts of capital when the inevitably become flooding during a hurricane or large storm event. This raises the issue of funding and capital. If we have the money to subsidize development along the shore, through tax breaks and other forms, why are we not subsidizing the retreat away from the shore. When those buildings are inevitably inundated they will apply for flood insurance money, once again costing more money that could have been put toward a managed retreat strategy

To efficiently spend money and develop, we must turn to a managed retreat strategy to protect our coastline

and our communities. With retreat, we can also allow for the reintroduction and migration of marshlands and wetlands which also provide coastal protection reducing our vulnerability to storm events, saving us money in the long term. Wetlands are also not the only thing that can come with managed retreat. With this living shorelines can be developed and large green spaces for community use and engagement can be set up that offer residents recreation, but also flooding and storm protections. It can also provide green jobs to the state and community. Fundamentally, any other initiative other than retreat, requires the expenditure of funds to preserve for a short time longer the inevitable flooding when this money could be used to protect and develop communities meant to protect itself and its residents. It also provides a false sense of security that hard structures like sea walls offer protection to anything other than buildings and development. Communities across America are ready for managed retreat, but they must be empowered and given the resources and information to do so, and this falls on our town and city governments to undertake. Managed retreat is the most effective, economically efficient, and holistic solution to sea level rise and climate change.

Notes and Additional Thoughts:

- There was a large amount of information that was unavailable to the general public which I think was severely problematic for a multitude of reasons.
- Updates to these documents need to improve significantly, they are not thorough or accurate of current state.
- To understand the context of this report there are a few additional thoughts and notes that need to be included, this will also address data gaps, biases, and any other issues encountered during the development of this report
- The accuracy of the brownfield information and the correctness of it on the sites stage of development was significantly lacking and differentiated. The brownfield inventories submitted by the towns should include a significantly larger amount of information relating to the previous site usage, type and extent of the contamination, and actions on going. This should be state mandated and kept in a centralized system, updated on a yearly basis, and be available to the public for access. This will help to ensure accuracy , transparency and consistency in the information on these sites. In multiple instances, it was hard to determine from any official documents the remediation that occurred or was ongoing, and had to be done through news articles written about the development. In addition, information relating to development projects was largely inconsistent and had to be searched for and compared to understand the current state of development. Towns had varying degrees to which their information was accessible and accurate, as certain property ID's in Bridgeport could not be found within their own GIS software or through the use of google maps, presenting challenges.

- Attempts were made to gather more information on certain sites through EPA but was told that the research method employed in this report would yield the greatest results. The information these cities and the EPA have

about the nature and state of brownfields should be available to the general public out of concern for public safety and transparency about development and location next to contaminated sites.

- If there was a longer time to complete this report, more time would have been committed to researching the site histories and usage as extensively as possible and contacting of town or city officials in an attempt to gather more information where it was lacking.
- The difficulty of finding information was not necessarily a hinderance on the accuracy of this report but the public availability of contamination data and lack of consideration for public knowledge is problematic for community involvement, engagement, and long term development.
- This report was completed for the Climate Corps at University of Connecticut. The goal was the understand how brownfields in Stratford, Bridgeport, and New Haven will be impacted by currently recognized sea level rise predictions and flooding scenarios and the associated impacts on these sites. I sought to analyze current development projects, offer alternatives to this development, and overall suggestions on policy solutions moving forward.

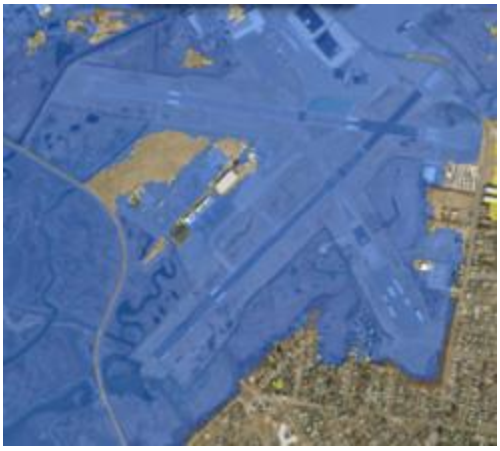
Appendix Site Images:

Stratford, Connecticut

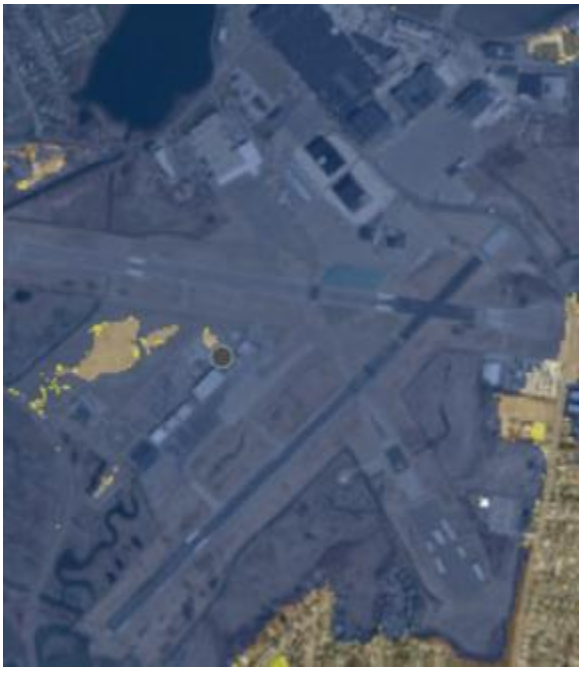
1000 Great Meadow Road Site Aerial

1000 Great Meadow Road (MHHW +20in)

1000 Great Meadow Road (100 year flood event)



1000 Great Meadow Road (100 year event +20in



993 Honeyspot Road Aerial

993 Honeyspot Road (100 year flood event)

993 Honeyspot Road (MHHW +20in)

993 Honeyspot Road (100 year event + 20in)

500 & 550 Main Street Aerial

500 & 550 Main Street (MHHW +20in)

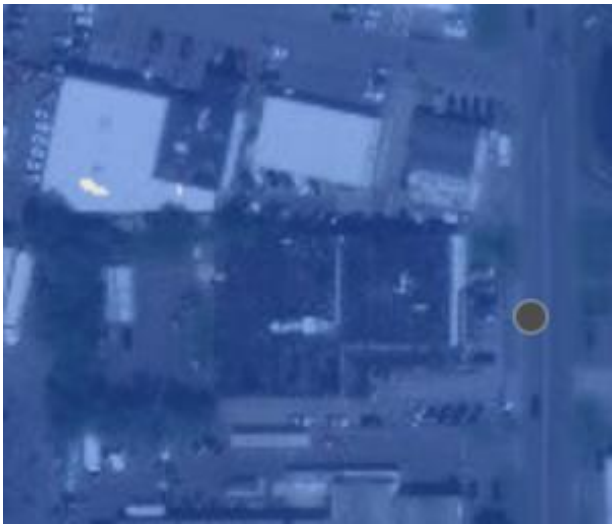
500 & 550 Main Street (100 year flood event)

500 & 550 Main Street (100 year event + 20inch)

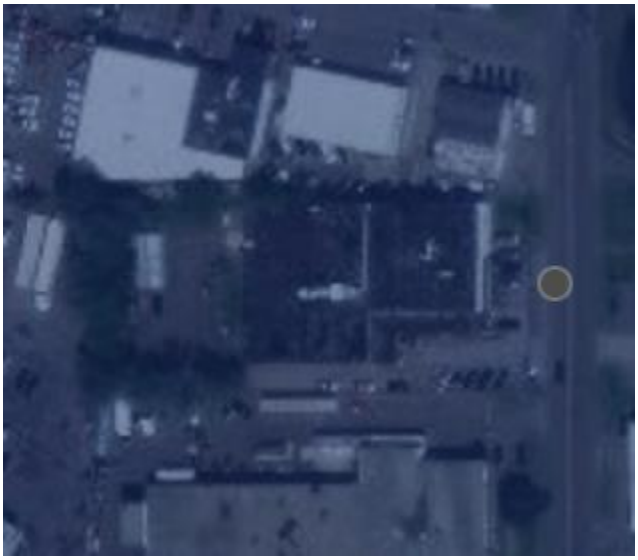
175 Garfield Ave Aerial

175 Garfield Ave (MHHW +20inch)

175 Garfield Ave (100 year flood event)



175 Garfield Ave (100 year event + 20inch)



2370 Stratford Ave Aerial

2370 Stratford Ave (MHHW +20in)

2370 Stratford Ave (100 year flood event)

2370 Stratford Ave (100 year event + 20in)

1000 East Broadway Aerial

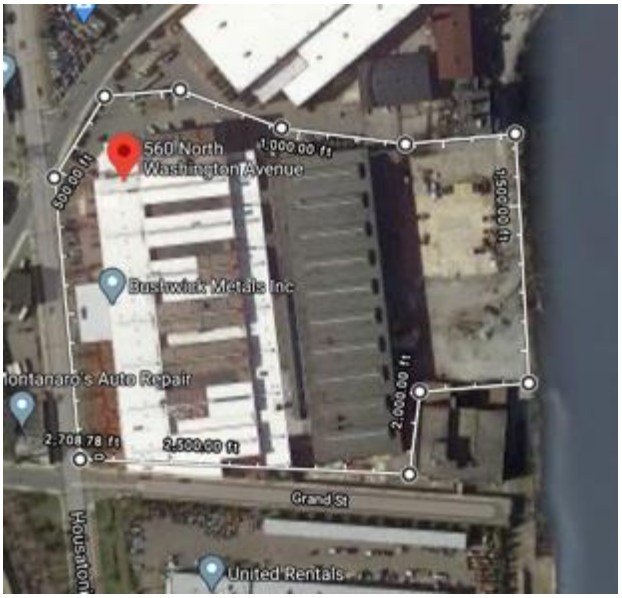
1000 East Broadway (MHHW +20in)

1000 East Broadway (100 year flood event)

1000 East Broadway (100 year event + 20in)

Bridgeport, Connecticut

560 N. Washington Ave Aerial



560 N. Washington Ave (MHHW +20in)

560 N. Washington Ave (100 year flood event)

560 N. Washington Ave (100 year event + 20in)

329 Central Ave Aerial

329 Central Ave (MHHW +20in)

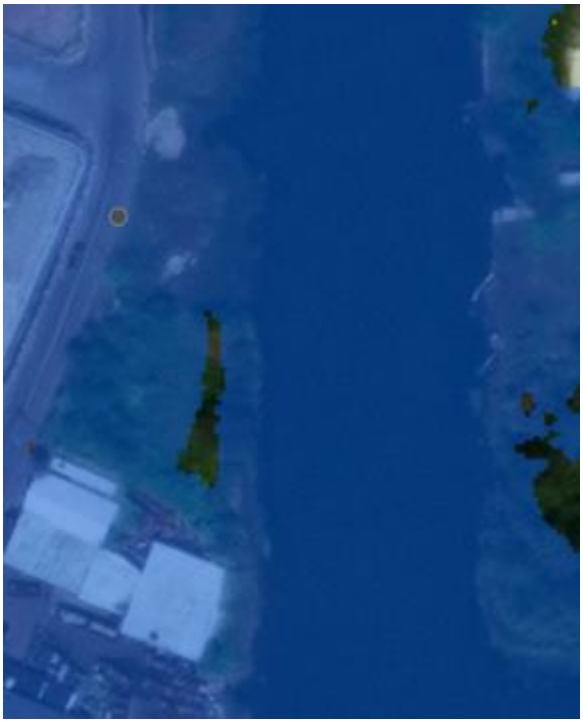
329 Central Ave (100 year flood event)

329 Central Ave (100 year event + 20in)

336 Central Ave Aerial

336 Central Ave (MHHW +20in)

336 Central Ave (100 year flood event)



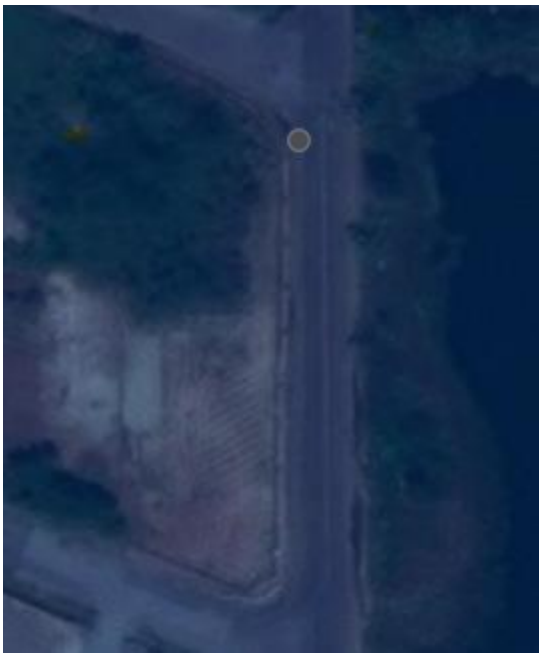
336 Central Ave (100 year event + 20in)

405 Central Ave Aerial

405 Central Ave (100 year flood event)

405 Central Ave (MHHW +20in)

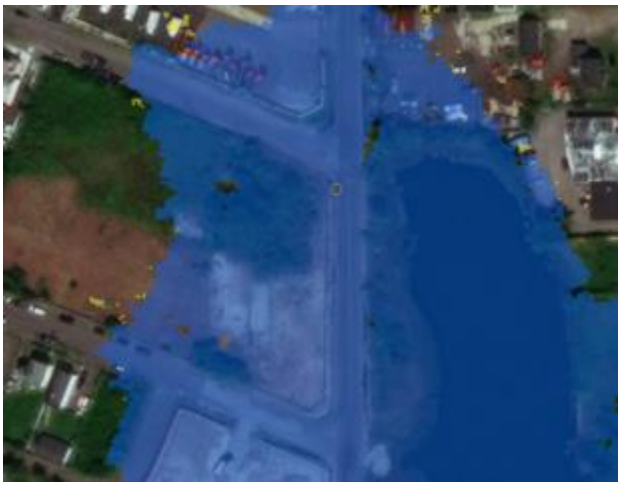
405 Central Ave (100 year event + 20in)



79-119 Trowel Street Aerial

79-119 Trowel Street (MHHW +20in)

79-119 Trowel Street (100 year flood event)

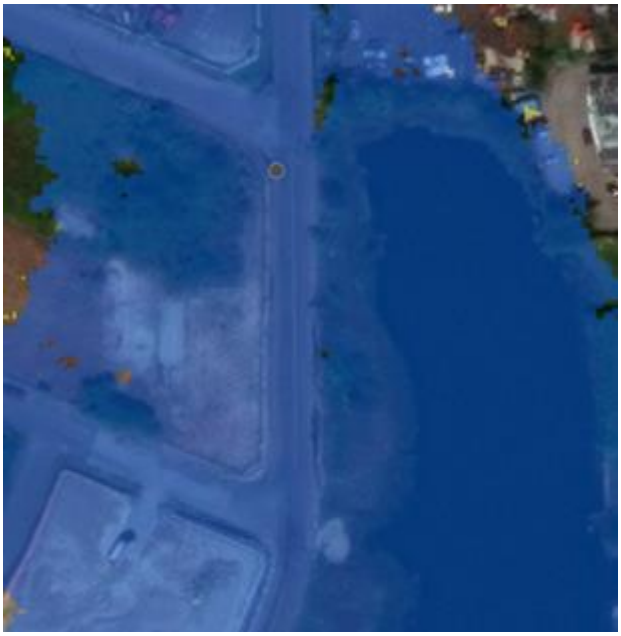


79-119 Trowel Street (100 year event + 20in)

179 Trowel Street Aerial

179 Trowel Street (MHHW +20in)

179 Trowel Street (100 year flood event)



179 Trowel Street (100 year event + 20in)

148 & 220 Waterview Ave Aerial

148 & 220 Waterview Ave (MHHW +20in)

148 & 220 Waterview Ave (100 year flood event)

148 & 220 Waterview Ave (100 year event + 20in)

451-589, 567 Seaview Ave Aerial

451-589, 567 Seaview Ave (MHHW +20in)

451-589, 567 Seaview Ave (100 year flood event)

451-589, 567 Seaview Ave (100 year event + 20in)

60 Main Street Aerial

60 Main Street (MHHW +20in)

60 Main Street (100 year flood event)

60 Main Street (100 year event + 20in)

128 Trowel Street Aerial

128 Trowel Street (MHHW +20in)

128 Trowel Street (100 year flood event)

128 Trowel Street (100 year event + 20in)

889 Barnum Ave Aerial

889 Barnum Ave (MHHW +20in)

889 Barnum Ave (100 year flood event)

889 Barnum Ave (100 year event + 20in)

148 Congress Street Aerial- *the address on this site did not appear online*

148 Congress Street (MHHW +20in)

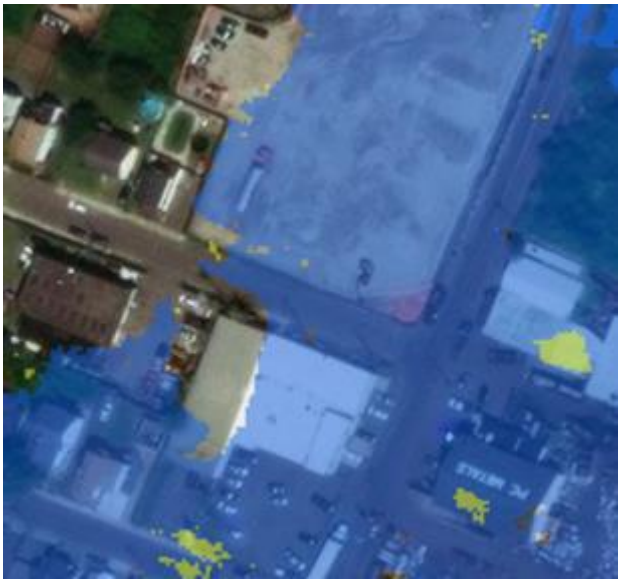
148 Congress Street (100 year flood event)

148 Congress Street (100 year event + 20in)

323 Jefferson Street Aerial-

323 Jefferson Street (MHHW +20in)

323 Jefferson Street (100 year flood event)



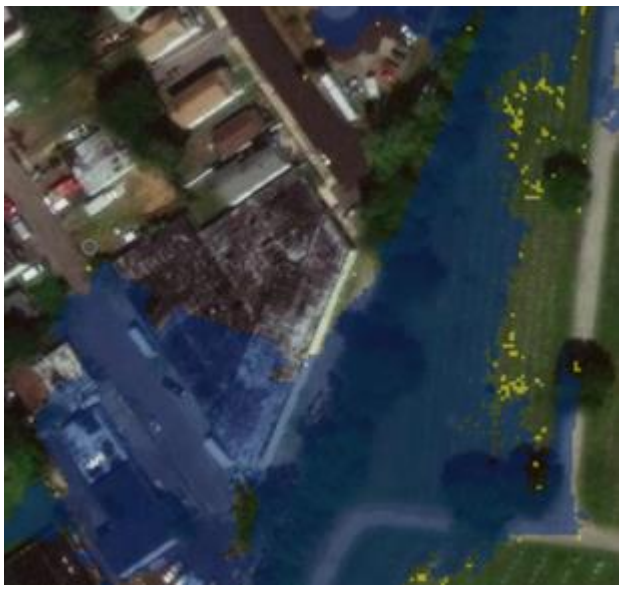
323 Jefferson Street (100 year event + 20in)

50 Miles Street Aerial

50 Miles Street (MHHW +20in)

50 Miles Street (100 year flood event)

50 Miles Street (100 year event + 20in)



930 Main Street Aerial

930 Main Street (MHHW +20in)

930 Main Street (100 year flood event)

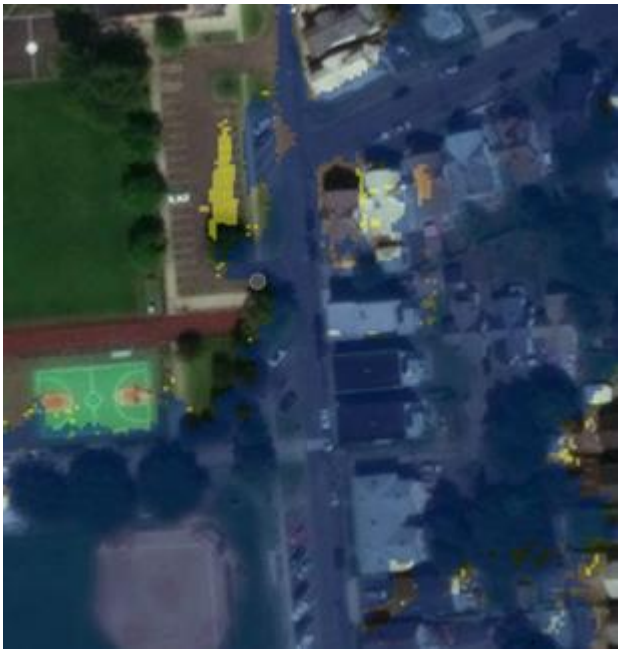
930 Main Street (100 year event + 20in)

129 Norman Street Aerial

129 Norman Street (MHHW +20in)

129 Norman Street (100 year flood event)

129 Norman Street (100 year event + 20in)



800 Seaview Ave Aerial

800 Seaview Ave (MHHW +20in)

800 Seaview Ave (100 year flood event)

800 Seaview Ave (100 year event + 20in)

837 Seaview Ave Aerial

837 Seaview Ave (MHHW +20in)

837 Seaview Ave (100 year flood event)

837 Seaview Ave (100 year event + 20in)

124 Suggetts Lane Aerial

124 Suggetts Lane (MHHW +20in)

124 Suggetts Lane (100 year flood event)

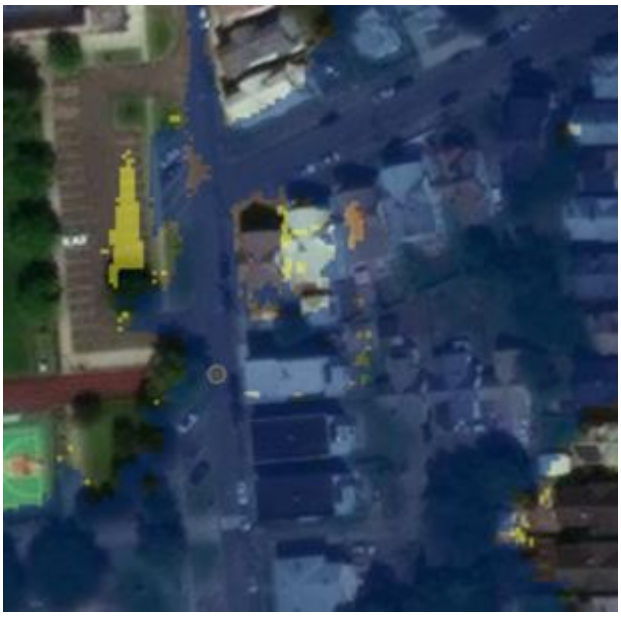
124 Suggetts Lane (100 year event + 20in)

120 Norman Street Aerial

120 Norman Street (100 year flood event)

120 Norman Street (MHHW +20in)

120 Norman Street (100 year event + 20in)

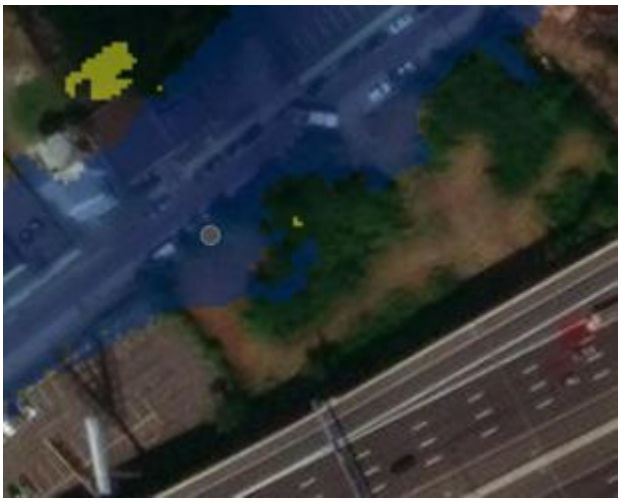


127 Garden Street Aerial

127 Garden Street (MHHW +20in)

127 Garden Street (100 year flood event)

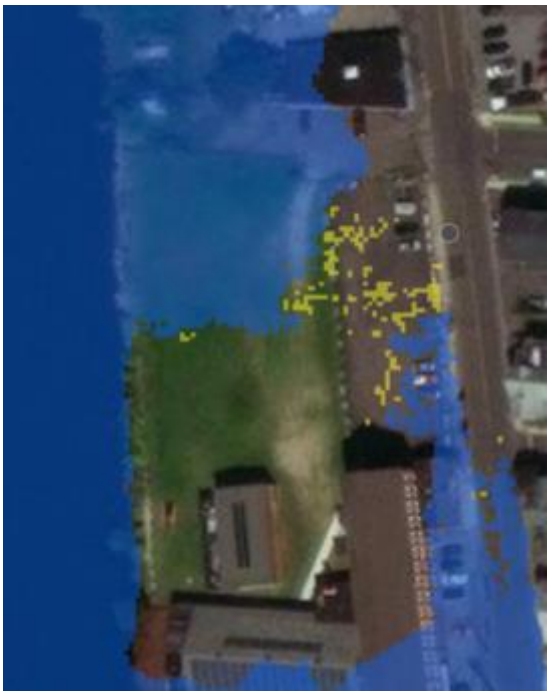
127 Garden Street (100 year event + 20in)



337 Knowlton Street Aerial

337 Knowlton Street (MHHW +20in)

337 Knowlton Street (100 year flood event)

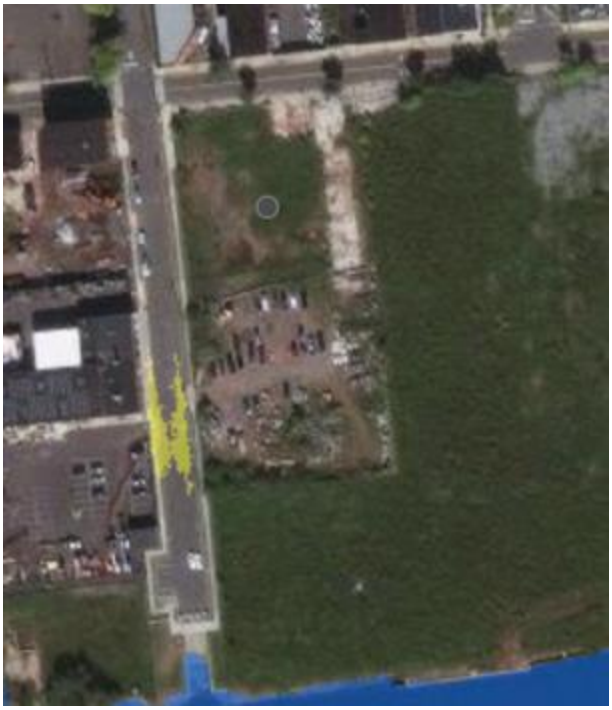


337 Knowlton Street (100 year event + 20in)

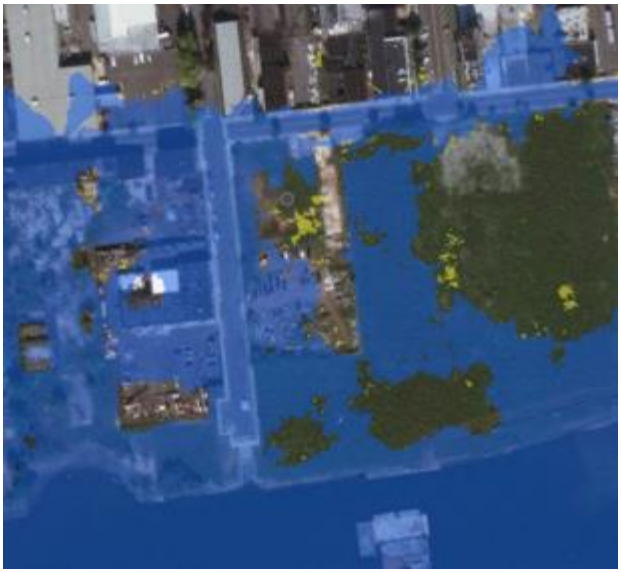
New Haven

142 River Street Aerial

142 River Street (MHHW +20in)

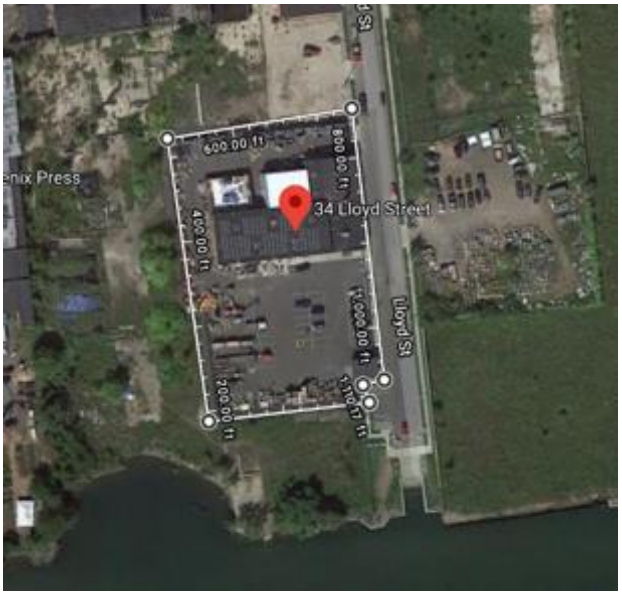


142 River Street (100 year flood event)



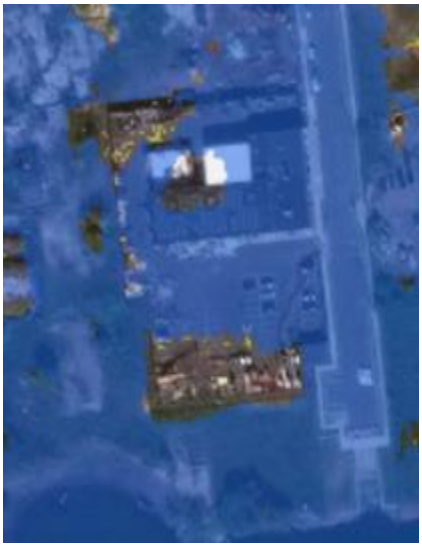
142 River Street (100 year event + 20in)

34 Lloyd Street Aerial



34 Lloyd Street (MHHW +20in)

34 Lloyd Street (100 year flood event)



34 Lloyd Street (100 year event + 20in)

458 Grand Ave Aerial

458 Grand Ave (100 year flood event)

458 Grand Ave (MHHW +20in)

458 Grand Ave (100 year event + 20in)

56 River Street Aerial

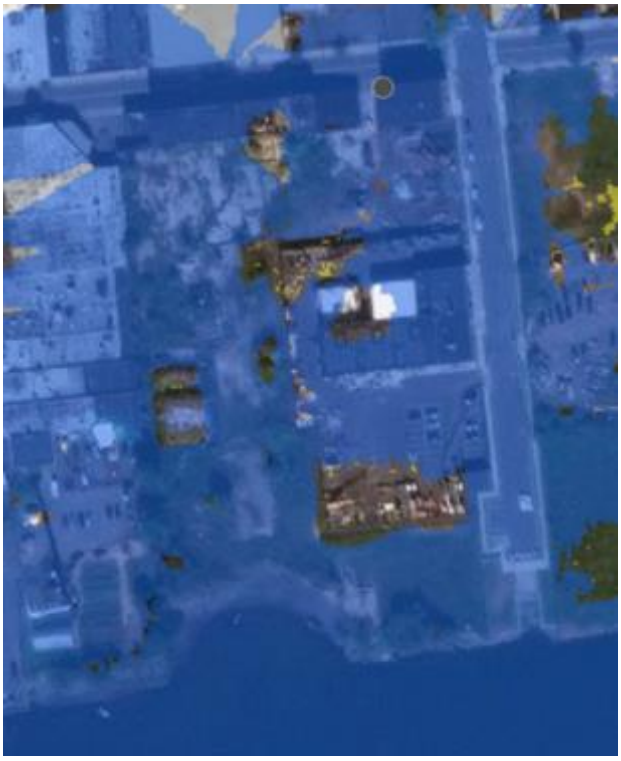
56 River Street (MHHW +20in)

56 River Street (100 year flood event)

56 River Street (100 year event + 20in)

198 River Street Aerial

198 River Street (100 year flood event)



198 River Street (MHHW +20in)

198 River Street (100 year event + 20in)

470 James Street Aerial

470 James Street (100 year flood event)

470 James Street (MHHW +20in)

470 James Street (100 year event + 20in)

116-120 Haven Street Aerial

116-120 Haven Street (MHHW +20in)

116-120 Haven Street (100 year flood event)

116-120 Haven Street (100 year event + 20in)

Redevelopment Plan 1:

Redevelopment Project 2:

Appendix (Resources): *Materials that informed this report are hyperlinked under each site*

Stratford:

-1000 Great Meadow Road:

Environmental Impact Statement

Raymark and Gun Point Remediation Report

New story About Raymark Dumping Across the Town

-993 Honeyspot Road:

Rocque v. Biafore Case About Contamination

EPA Superfund program

Town Meeting Minutes About Contamination

-500 & 550 Main Street:

Proposed Plan for Environmental Remediation

Final Environmental Impact Statement

EPA Stewardship Permit

-175 Garfield Ave

US Chrome Manufacturing Specialities

Chemical Compliance Statement

-2370 Stratford Ave:

Department of Economic Development Update

-1000 East Broadway:

-Grant Award to Remediate School

-EPA Report About Contamination from Raymark Waste

Bridgeport:

Bridgeport Overview of Redevelopment Projects

Environmental Services ESAs

-560 N. Washington Ave:

News Article About Fines for Contamination

Bushwick Metals profile

Bridgeport Glass Historic Guide

Plant Profile CT Mills

-329 Central Ave

News story about trash on site

Redevelopment of Mount Trashmore

News story about soil cleanup

2005 Redevelopment Plan for Area

-336 Central Ave:

-405 Central Ave:

Q&A About Chrome Engineering Pollution

Memo Chrome Engineering Site Profile

2009 Tank Spillage Emergency Response

-79-119 Trowel Street

Q&A About Chrome Engineering Pollution

Funding History

-179 Trowel Street

Living Shoreline Development Plan

Urban Agriculture Project

City Council Development Resolution

-148 & 220 Waterview Ave

News Article about Club

-451-589, 567 Seaview Ave:

Article Derecktor Shipyards Redevelopment for offshore wind

Ferry Expansion Project 2011

Article Redevelopment Project

-60 Main Street

Remington Shaver Development Profile

Remington Shaver Demolition Redevelopment Project Plan

-128 Trowel Street

-889 Barnum Ave

EPA Federal Facilities Site Characterization for Munitions Constituents

Funding Source Overviews by News

Planned demolition of site 2020

Tower Place Preservation Project

Barnum Station Environmental Impact 2017

Transit Oriented Redevelopment Plan 2016

148 Congress Street:

News Article Possible Housing Redevelopment

News Article Factory Conversion

-50 Miles Street

DEEP Property Transfer Remediation Started

Description of site evaluation

-930 Main Street

Bridgeport Revitalization Project

News article working space

Current usage of site

Landmark Building Profile

-129 Norman Street

Brownfield Success Story

Wentfield Park Profile

News Article Wentfield Park

-800 Seaview Ave

Residential Development Project

-837 Seaview Ave

BLD Development Plan
Complementary Development
Part of development project possibly
News Article About Bridgeport
Boatworks
Development Testimony Casino

-124 Suggetts Lane:

-120 Norman Street

Brownfield Success Story
Wentfield Park Profile
News Article Wentfield Park

-127 Garden Street:

Former Park City Hospital ESA Results
Possible Garden Street Green Space

-337 Knowlton Street

News Article About Park
Update on Park 2020
News article Specific site

New Haven:

142 River Street:

Demolition of Facility
News article Demolition of Structure
Development News
2002 Development Plan

34 Lloyd Street:

Restoration of building
Funding Summary

458 Grand Ave:

EPA Funding profile
Article mentions site
Current usage and lease of site
Proto Group Profile on Site
Voluntary Remediation

56 River Street:

Redevelopment Plan
News article about redevelopment

198 River Street:

Lease News article
Building Profile
News article about redevelopment
Status of buildings 2020

-470 James street:

Profile of Site Remediation
DEEP Profile
District New Haven
News Article Redevelopment
Acquisition of Property

-116-120 Haven Street:

Vacant industrial building profile