



**National Disaster Resilience and Rebuild by Design Projects**  
Bridgeport, Connecticut

**Final Environmental Impact Statement/  
Environmental Impact Evaluation  
APPENDICES**

**August 2019**

Prepared for



Prepared by



**APPENDIX A**  
**Agency Coordination**

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Connecticut Department of  
 Energy & Environmental Protection  
 Bureau of Natural Resources  
 Wildlife Division

CPPU USE ONLY	
App #:	_____
Doc #:	_____
Check #:	No fee required
Program:	Natural Diversity Database Endangered Species
Hardcopy	Electronic _____

## Request for Natural Diversity Data Base (NDDB) State Listed Species Review

Please complete this form in accordance with the [instructions](#) (DEEP-INST-007) to ensure proper handling of your request.

**There are no fees associated with NDDB Reviews.**

### Part I: Preliminary Screening & Request Type

<p>Before submitting this request, you must review the most current Natural Diversity Data Base "State and Federal Listed Species and Significant Natural Communities Maps" found on the <a href="#">DEEP website</a>. These maps are updated twice a year, usually in June and December.</p> <p>Does your site, including all affected areas, fall in an NDDB Area according to the map instructions:  <input checked="" type="checkbox"/> Yes    <input type="checkbox"/> No    <b>Enter the date</b> of the map reviewed for pre-screening: <u>December 2017</u></p>	
<p>This form is being submitted for a :</p>	
<input checked="" type="checkbox"/> New NDDB request <input type="checkbox"/> <i>Renewal/Extension of a NDDB Request, without modifications and within two years of issued NDDB determination (no attachments required)</i>	<input type="checkbox"/> <b>New Safe Harbor Determination</b> (optional) must be associated with an application for a GP for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities <input type="checkbox"/> <i>Renewal/Extension of an existing Safe Harbor Determination</i> <input type="checkbox"/> With modifications <input type="checkbox"/> Without modifications (no attachments required)
<small>[CPPU Use Only - NDDB-Listed Species Determination # 1736]</small>	<small>[CPPU Use Only - NDDB-Safe Harbor Determination # 1736]</small>
Enter NDDB Determination Number for Renewal/Extension:	Enter Safe Harbor Determination Number for Renewal/Extension:

## Part II: Requester Information

*If the requester is a corporation, limited liability company, limited partnership, limited liability partnership, or a statutory trust, it must be registered with the Secretary of State. If applicable, the name shall be stated **exactly** as it is registered with the Secretary of State. Please note, for those entities registered with the Secretary of State, the registered name will be the name used by DEEP. This information can be accessed at the Secretary of the State's database CONCORD. ([www.concord-sots.ct.gov/CONCORD/index.jsp](http://www.concord-sots.ct.gov/CONCORD/index.jsp))*

*If the requester is an individual, provide the legal name (include suffix) in the following format: First Name; Middle Initial; Last Name; Suffix (Jr, Sr., II, III, etc.).*

*If there are any changes or corrections to your company/facility or individual mailing or billing address or contact information, please complete and submit the [Request to Change company/Individual Information](#) to the address indicated on the form.*

### 1. Requester\*

Company Name: **State of Connecticut Department of Housing**

Contact Name: **Hermia Delaire**

Address: **505 Hudson Street**

City/Town: **Hartford**

State: **CT**

Zip Code: **06106-7106**

Business Phone: **860-270-8149**

ext.

\*\*E-mail: **Hermia.Delaire@ct.gov**

\*\*By providing this email address you are agreeing to receive official correspondence from the department, at this electronic address, concerning this request. Please remember to check your security settings to be sure you can receive emails from "ct.gov" addresses. Also, please notify the department if your e-mail address changes

#### a) Requester can best be described as:

Individual       Federal Agency       State agency       Municipality       Tribal

business entity (\* if a business entity complete i through iii):

i) Check type     corporation       limited liability company       limited partnership

limited liability partnership       statutory trust       Other:

ii) Provide Secretary of the State Business ID #:      This information can be accessed at the  
Secretary of the State's database (CONCORD). ([www.concord-sots.ct.gov/CONCORD/index.jsp](http://www.concord-sots.ct.gov/CONCORD/index.jsp))

iii)  Check here if your business is **NOT** registered with the Secretary of State's office.

#### b) Acting as (Affiliation), pick one:

Property owner       Consultant       Engineer       Facility owner       Applicant

Biologist       Pesticide Applicator       Other representative:

### 2. List Primary Contact to receive Natural Diversity Data Base correspondence and inquiries, if different from requester.

Company Name: **Arcadis, U.S., Inc.**

Contact Person: **Jessica Denzler**

Title: **Scientist I**

Mailing Address: **17-17 Route 208 North**

City/Town: **Fair Lawn**

State: **NJ**

Zip Code: **07410**

Business Phone: **201.398.4306**

ext.

\*\*E-mail: **Jessica.Denzler@arcadis.com**

### Part III: Site Information

This request can only be completed for one site. A separate request must be filed for each additional site.

#### 1. SITE NAME AND LOCATION

Site Name or Project Name: **Resilient Bridgeport: National Disaster Resilience and Rebuild by Design**

Town(s): **Bridgeport**

Street Address or Location Description:

**South End of Bridgeport, CT. Approximate project area boundaries are Iranistan Avenue on the west, the Northeast Corridor railroad viaduct to the north, the Long Island Sound to the south, and the Pequonnock River to the east**

Size in acres, or site dimensions: **Approx. 382 acres**

Latitude and longitude of the center of the site in decimal degrees (e.g., 41.23456 -71.68574):

Latitude: **41.16671**

Longitude: **-73.18879**

Method of coordinate determination (check one):

- GPS     Photo interpolation using [CTECOmap viewer](#)     Other (specify):

2a. Describe the current land use and land cover of the site.

**Approximately 17.5% of the land cover within the project area is transportation right-of-way. Some of the more predominant land uses within the project area include parks and open spaces (Seaside Park), heavy industrial and utility uses (PSEG, UI, Emera), and institutional uses (Bridgeport University). The remaining land cover within the project area consists of a diverse distribution of single-family dwellings, multi-family dwellings, commercial establishments, mixed-use establishments, and vacant parcels.**

b. Check all that apply and enter the size in acres or % of area in the space after each checked category.

- |  |   |   |
|--|---|---|
| <input checked="" type="checkbox"/> Industrial/Commercial <u>26%</u>         | <input checked="" type="checkbox"/> Residential <u>19.5%</u>              | <input type="checkbox"/> Forest _____       |
| <input type="checkbox"/> Wetland _____                                       | <input checked="" type="checkbox"/> Field/grassland <u>20%</u>            | <input type="checkbox"/> Agricultural _____ |
| <input type="checkbox"/> Water _____   | <input type="checkbox"/> Utility Right-of-way _____                       |   |
| <input checked="" type="checkbox"/> Transportation Right-of-way <u>17.5%</u> | <input checked="" type="checkbox"/> Other (specify): <u>Mixed-use 17%</u> |   |

### Part IV: Project Information

#### 1. PROJECT TYPE:

Choose Project Type: Land Protection, If other describe: \_\_\_\_\_

2. Is the subject activity limited to the maintenance, repair, or improvement of an existing structure within the existing footprint?     Yes     No    If yes, explain.

## Part IV: Project Information (continued)

3. Give a detailed description of the activity which is the subject of this request and describe the methods and equipment that will be used. Include a description of steps that will be taken to minimize impacts to any known listed species

**The proposed project aims to: 1) reduce the risk of acute and chronic flooding in the South End of Bridgeport; 2) provide the South End community with dry egress during flood events; and 3) educate the public about flood risks and sea level rise. These goals will be achieved through a combination of natural (green) and fortified (grey) infrastructure solutions. Measures may include raised streets, flood walls, landscaped berms, detention/retention features, pump systems, installation of new pipes, and other drainage improvements. The project also entails the construction of an educational community space, as well as the creation of a 2.5 acre stormwater park to accept runoff from upland streets.**

**Construction of flood walls will require the use of excavation equipment, such as backhoes, to excavate the area for the flood wall foundation, stormwater park, new stormwater piping, and any relocated underground utilities. Sheet driving may be necessary to create a trench for excavation of the wall foundation area in the vicinity of existing utilities or structures. Impact pile driving may be necessary along the flood wall corridor to provide structural support for the wall foundation, or for certain flood wall configurations (I-walls) or seepage systems. Cranes may be used to install pre-cast flood wall panels atop the foundation, or for other construction, installation, and support operations. Raised street construction will include bringing in, grading and compacting fill, installing drainage structures, and installing pavements, surface treatments and outfit.**

**If field surveys document the presence or potential presence of known listed species within the construction zone of influence (based on noise modeling), a number of mitigation measures may be employed, including: requiring the contractor to develop a Noise Control and Mitigation Plan based on proposed equipment and methods to document expected noise; construct localized three-sided enclosures with roofs around stationary equipment such as compressors and generators; require use of broadband alarms in lieu of pure tone alarms; maintain equipment with effective mufflers; require the use of silencers on combustion engines; line all truck beds and dumpsters with noise dampening material.**

4. If this is a renewal or extension of an existing Safe Harbor request *with* modifications, explain what about the project has changed.

5. Provide a contact for questions about the project details if different from Part II primary contact.

Name: **Richard Gilmour**

Phone: **201.398.4327**

E-mail: **Richard.Gilmour@arcadis.com**

## Part V: Request Requirements and Associated Application Types

Check *one* box from either Group 1, Group 2 or Group 3, indicating the appropriate category for this request.

Group 1. If you check one of these boxes, complete Parts I – VII of this form and submit the required attachments A and B.

- Preliminary screening was negative but an NDDB review is still requested
- Request regards a municipally regulated or unregulated activity (no state permit/certificate needed)
- Request regards a preliminary site assessment or project feasibility study
- Request relates to land acquisition or protection
- Request is associated with a *renewal* of an existing permit or authorization, with no modifications

**Group 2.** If you check one of these boxes, complete Parts I – VII of this form and submit required attachments A, B, and C.

- Request is associated with a *new* state or federal permit or authorization application or registration
- Request is associated with modification of an existing permit or other authorization
- Request is associated with a permit enforcement action
- Request regards site management or planning, requiring detailed species recommendations
- Request regards a state funded project, state agency activity, or CEPA request

**Group 3.** If you are requesting a **Safe Harbor Determination**, complete Parts I-VII and submit required attachments A, B, and D. Safe Harbor determinations can only be requested if you are applying for a GP for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities

If you are filing this request as part of a state or federal permit application(s) enter the application information below.

Permitting Agency and Application Name(s): \_\_\_\_\_

Related State DEEP Permit Number(s), if applicable: \_\_\_\_\_

State DEEP Enforcement Action Number, if applicable: \_\_\_\_\_

State DEEP Permit Analyst(s)/Engineer(s), if known: \_\_\_\_\_

Is this request related to a previously submitted NDDB request?  Yes  No

If yes, provide the previous NDDB Determination Number(s), if known: \_\_\_\_\_

## Part VI: Supporting Documents

Check each attachment submitted as verification that *all* applicable attachments have been supplied with this request form. Label each attachment as indicated in this part (e.g., Attachment A, etc.) and be sure to include the requester's name, site name and the date. **Please note that Attachments A and B are required for all new requests and Safe Harbor renewals/extensions with modifications.** Renewals/Extensions with no modifications do not need to submit any attachments. Attachments C and D are supplied at the end of this form.

<input checked="" type="checkbox"/> Attachment A:	<b>Overview Map:</b> an 8 1/2" X 11" print/copy of the relevant portion of a USGS Topographic Quadrangle Map clearly indicating the exact location of the site.
<input checked="" type="checkbox"/> Attachment B:	<b>Detailed Site Map:</b> fine scaled map showing site boundary and area of work details on aerial imagery with relevant landmarks labeled. (Site and work boundaries in GIS [ESRI ArcView shapefile, in NAD83, State Plane, feet] format can be substituted for detailed maps, see instruction document)
<input checked="" type="checkbox"/> Attachment C:	<b>Supplemental Information, Group 2 requirement (attached, DEEP-APP-007C)</b> <input checked="" type="checkbox"/> Section i: Supplemental Site Information and supporting documents <input checked="" type="checkbox"/> Section ii: Supplemental Project Information and supporting documents
<input type="checkbox"/> Attachment D:	<b>Safe Harbor Report Requirements, Group 3 (attached, DEEP-APP-007D)</b>

## Part VII: Requester Certification

The requester *and* the individual(s) responsible for actually preparing the request must sign this part. A request will be considered incomplete unless all required signatures are provided.

<p>"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that based on reasonable investigation, including my inquiry of the individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief."</p>	
<i>Hermia Delaire</i>	<b>5/30/2018</b>
Signature of Requester (a typed name will substitute for a handwritten signature)	Date
<b>Hermia Delaire</b>	<b>CDBG-DR Program Director</b>
Name of Requester (print or type)	Title (if applicable)
<i>Jessica Denzler</i>	<b>5/23/2018</b>
Signature of Preparer (if different than above)	Date
<b>Jessica Denzler</b>	<b>Scientist I</b>
Name of Preparer (print or type)	Title (if applicable)

Note: Please submit the completed Request Form and all Supporting Documents to:

CENTRAL PERMIT PROCESSING UNIT  
 DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION  
 79 ELM STREET  
 HARTFORD, CT 06106-5127

Or email request to: [deep.nddbrequest@ct.gov](mailto:deep.nddbrequest@ct.gov)

# Attachment C: Supplemental Information, Group 2 requirement

## Section i: Supplemental Site Information

### 1. Existing Conditions

Describe all natural and man-made features including wetlands, watercourses, fish and wildlife habitat, floodplains and any existing structures potentially affected by the subject activity. Such features should be depicted and labeled on the site plan that must be submitted. Photographs of current site conditions may be helpful to reviewers.

**Wildlife is primarily confined to tree-lined streets, residential yards, and public parks and beaches. Habitat potential is restricted by the intense development and urbanization that characterizes much of the project area. Hardened riprap is common along the shoreline, and few examples of historic coastal habitat (e.g. intertidal wetland) remain. Seaside Park, which is directly bordered by the Long Island Sound, provides some foraging and nesting potential to seabirds, shorebirds, wading birds, and waterfowl. The southern end of the park is characterized by an expansive, but heavily utilized beach with a fragmented dune habitat. An assemblage of native trees and cultivars has been planted further inland, creating a limited urban forest canopy. Opportunistic mammals and bird species can be found within this urban forest habitat.**

**An additional type of habitat found within Bridgeport, CT is intertidal mudflat. Intertidal mudflats occur along the southwestern edge of the project area, largely as a result of historic wetland loss and modified sediment transport. These shallow, unvegetated environments function as a habitat for various benthic invertebrates; benthic invertebrates, in turn, serve as a food source for both resident and migratory birds, fish, and other animals. Since the bulk of project activities will occur inland of the study area's mudflats, little to no adverse impact is anticipated to the majority of this habitat.**

**Two small, freshwater ponds are located north of Tongue Point and are subject to considerable human influence/ management. The ponds appear man-made, and the surrounding area is characterized primarily by industrial activity. Limited freshwater emergent wetlands are also found at Tongue Point and are likewise subject to significant disturbance. Another aquatic feature, Cedar Creek Reach, is located just beyond the northwestern corner of the study area. As part of the proposed project, a currently unused outfall on the south shore of Cedar Creek Reach may be repurposed to accept stormwater runoff.**

**A large portion of the South End of Bridgeport is identified as a special flood hazard area. Much of the project site falls within a 100-year floodplain (FEMA Zones VE and AE) and, as such, has a 1% or more annual chance of flooding. Only a small, central area is located in a FEMA designated Zone X, indicating minimal flood hazard. See attached figures showing flood zones, wetlands, and habitats.**

- Site Photographs (optional) attached
- Site Plan/sketch of existing conditions attached

### 2. Biological Surveys

Has a biologist visited the site and conducted a biological survey to determine the presence of any endangered, threatened or special concern species  Yes  No

If yes, complete the following questions and submit any reports of biological surveys, documentation of the biologist's qualifications, and any NDDB survey forms.

Biologist(s) name: \_\_\_\_\_

Habitat and/or species targeted by survey: \_\_\_\_\_

Dates when surveys were conducted: \_\_\_\_\_

- Reports of biological surveys attached
- Documentation of biologist's qualifications attached
- [NDDB Survey forms](#) for any listed species observations attached

## Section ii: Supplemental Project Information

1. Provide a schedule for all phases of the project including the year, the month and/or season that the proposed activity will be initiated and the duration of the activity.

**Project construction is anticipated to span from April 2019 through September 2021.**

2. Describe and quantify the proposed changes to existing conditions and describe any on-site or off-site impacts. In addition, provide an annotated site plan detailing the areas of impact and proposed changes to existing conditions.

**As stated earlier, project goals will be achieved through a combination of natural (green) and fortified (grey) infrastructure solutions, including raised streets, flood walls, landscaped berms, detention/retention features, pump systems, and others. The majority of project activities will take place in areas that are already heavily developed or industrialized. Thus, limited adverse impact is anticipated for existing natural resources (e.g. wetlands, urban forest canopy, etc.), with the exception of some tree disturbance at the east end of Seaside Park. Moreover, project measures like bioswale creation will introduce additional vegetation to the area, generating new habitat potential. Successful flood mitigation will likely aid in the preservation of existing habitat by minimizing runoff, coastal erosion, and combined sewer overflow (CSO) events. See attached site plan for greater detail.**

**Annotated Site Plan attached**

## Attachment D: Safe Harbor Report Requirements

Submit a report, as Attachment D, that synthesizes and analyzes the information listed below. Those providing synthesis and analysis need appropriate qualifications and experience. A request for a safe harbor determination shall include:

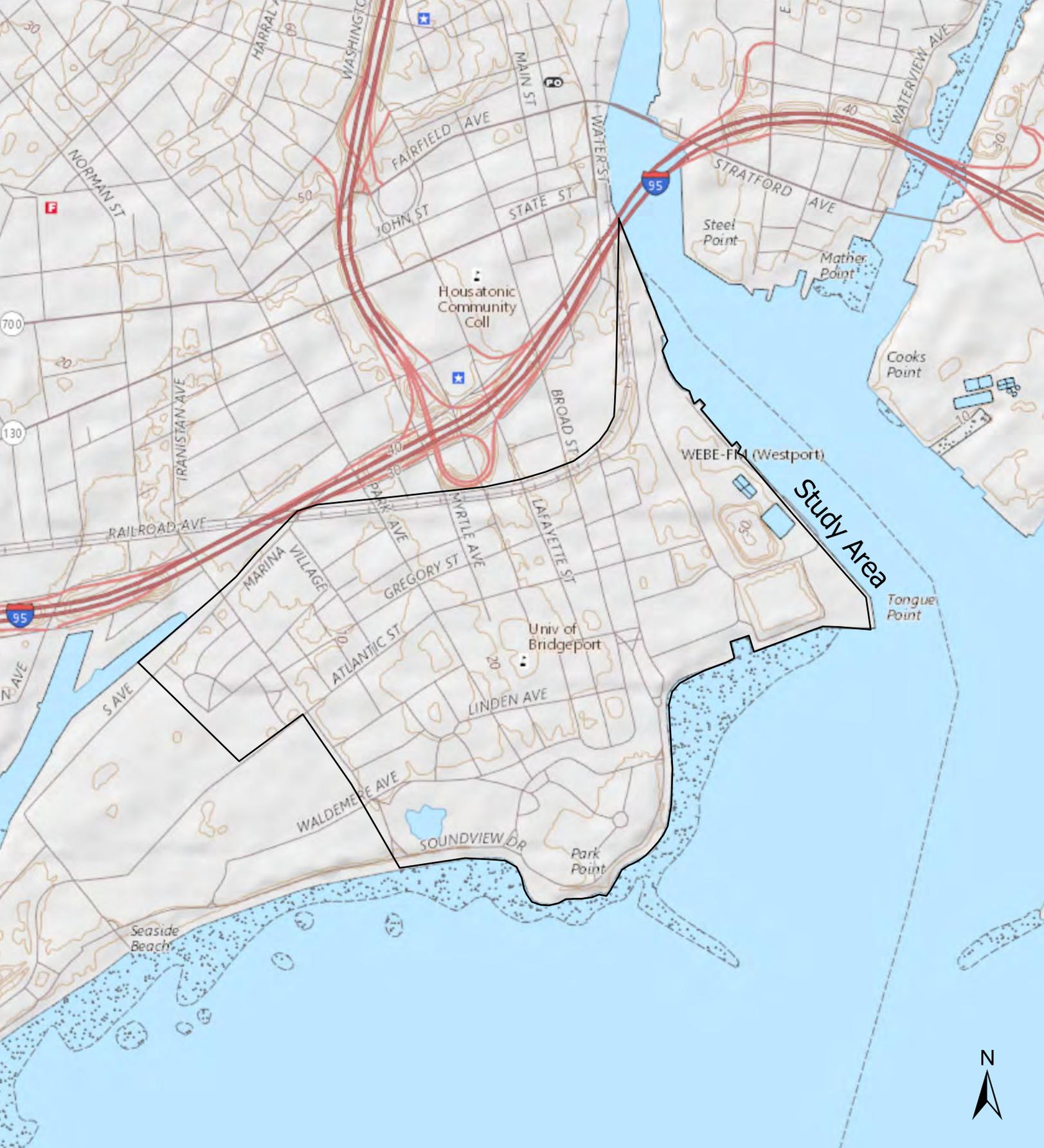
- 1. Habitat Description and Map(s), including GIS mapping overlays, of a scale appropriate for the site, identifying:**
  - wetlands, including wetland cover types;
  - plant community types;
  - topography;
  - soils;
  - bedrock geology;
  - floodplains, if any;
  - land use history; and
  - water quality classifications/criteria.
- 2. Photographs** - The report should include photographs of the site taken from the ground and also all reasonably available aerial or satellite photographs and an analysis of such photographs.
- 3. Inspection** - A visual inspection(s) of the site should be conducted, preferably when the ground is visible, and described in the report. This inspection can be helpful in confirming or further evaluating the items noted above.
- 4. Biological Surveys** - The report should include all biological surveys of the site where construction activity will take place that are reasonably available to a registrant. A registrant shall notify the Department's Wildlife Division of biological studies of the site where construction activity will take place that a registrant is aware of but are not reasonably available to the registrant.
- 5. Based on items #1 through 4 above, the report shall include a Natural Resources Inventory of the site of the construction activity.** This inventory should also include a review of reasonably available scientific literature and any recommendations for minimizing adverse impacts from the proposed construction activity on listed species or their associated habitat.
- 6. In addition, to the extent the following is available at the time a safe harbor determination is requested, a request for a safe harbor determination shall include and assess:**
  - Information on Site Disturbance Estimates/Site Alteration information
  - Vehicular Use
  - Construction Activity Phasing Schedules, if any; and
  - Alteration of Drainage Patterns

# ATTACHMENT A

## Overview Map

Requester: Hermia Delaire, State of Connecticut Department of Housing  
Site Name: Resilient Bridgeport: National Disaster Resilience and Rebuild by Design  
Date: 05.23.2018





USGS The National Map: National Boundaries Dataset, National Elevation Dataset, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; U.S. Census Bureau - TIGER/Line; HERE Road Data

**Legend**

Study Area

□ Study Area Boundary

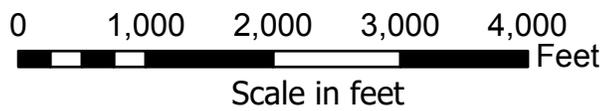


Figure | 1

# ATTACHMENT B

## Detailed Site Map

Requester: Hermia Delaire, State of Connecticut Department of Housing  
Site Name: Resilient Bridgeport: National Disaster Resilience and Rebuild by Design  
Date: 05.23.2018



# Legend

## Flood Risk Reduction Potential Alignments

- Edge Alignment
- Integrated Alignment
- Interior Alignment

## RBD Area

- RBD Area

## Study Area

- Study Area Boundary



Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Scale in feet: 0 500 1,000 2,000 3,000 4,000 Feet



Figure | 2

# ATTACHMENT C

## Supplemental Information: Existing Conditions

Requester: Hermia Delaire, State of Connecticut Department of Housing

Site Name: Resilient Bridgeport: National Disaster Resilience and Rebuild by Design

Date: 05.23.2018



# Resilient Bridgeport Land Use Conditions

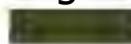


# Mapped Shoreline Conditions



Data adapted from Connecticut 2002 Environmental Sensitivity Index. NOAA National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division and State of Connecticut, Department of Environmental Protection. 2004. Hartford, CT. Connecticut Department of Energy and Environmental Protection website. <http://www.ct.gov/deep>.

## Legend

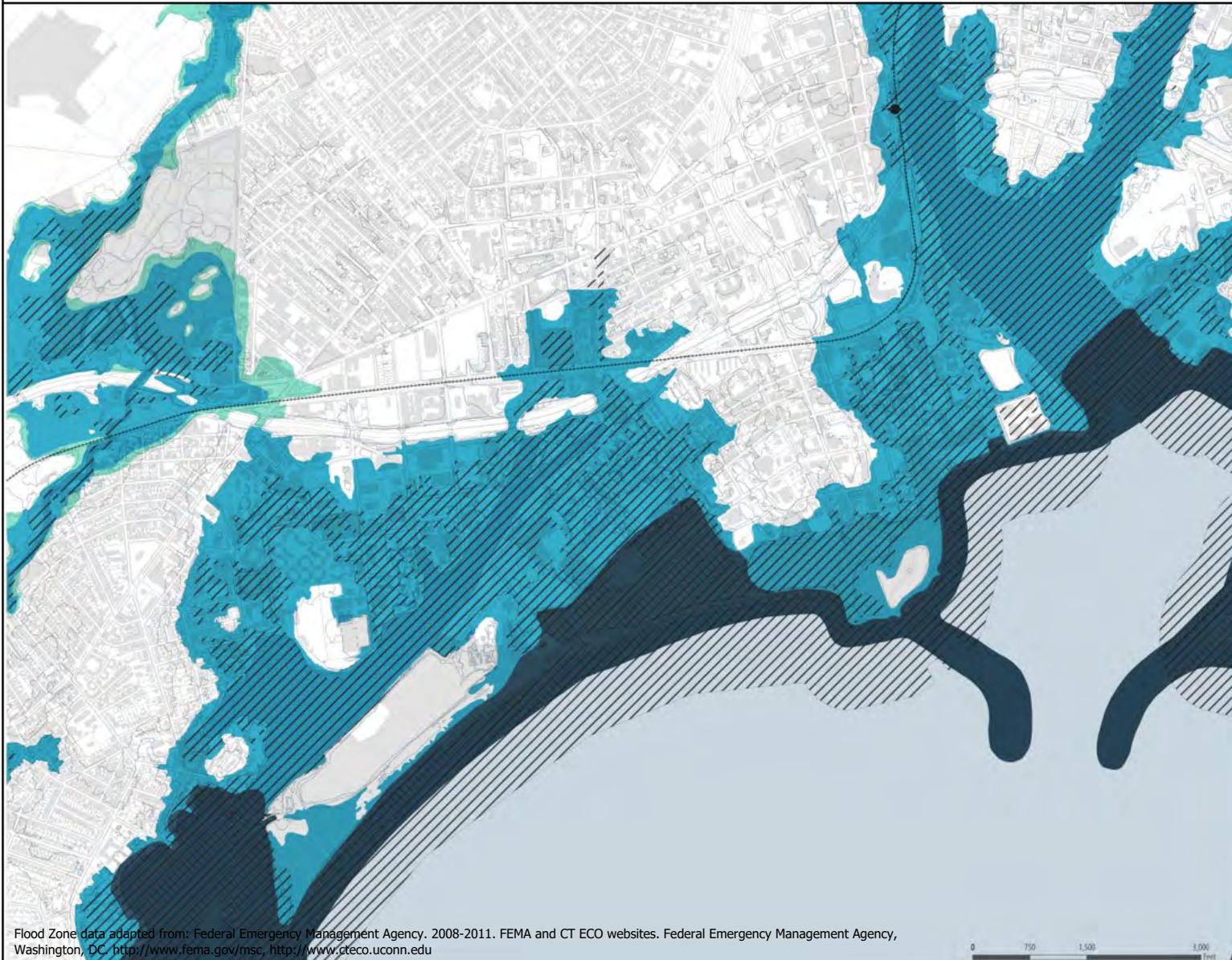
- |   |  |
|---|--|
|  Urban Tree Canopy             |  Sheltered Riprap               |
|  Salt & Brackish Water Marshes |  Riprap                         |
|  Exposed Tidal Flats           |  Exposed Man-Made Structures    |
|  Sheltered Tidal Flats         |  Course-Grained Sand Beaches    |
|   |  Mixed Sand and Gravel Beaches  |
|   |  Fine to Medium-Grained Beaches |



**RESILIENT  
BRIDGEPORT**

Figure | 4

# FEMA FIRM Flood Zones



## Legend

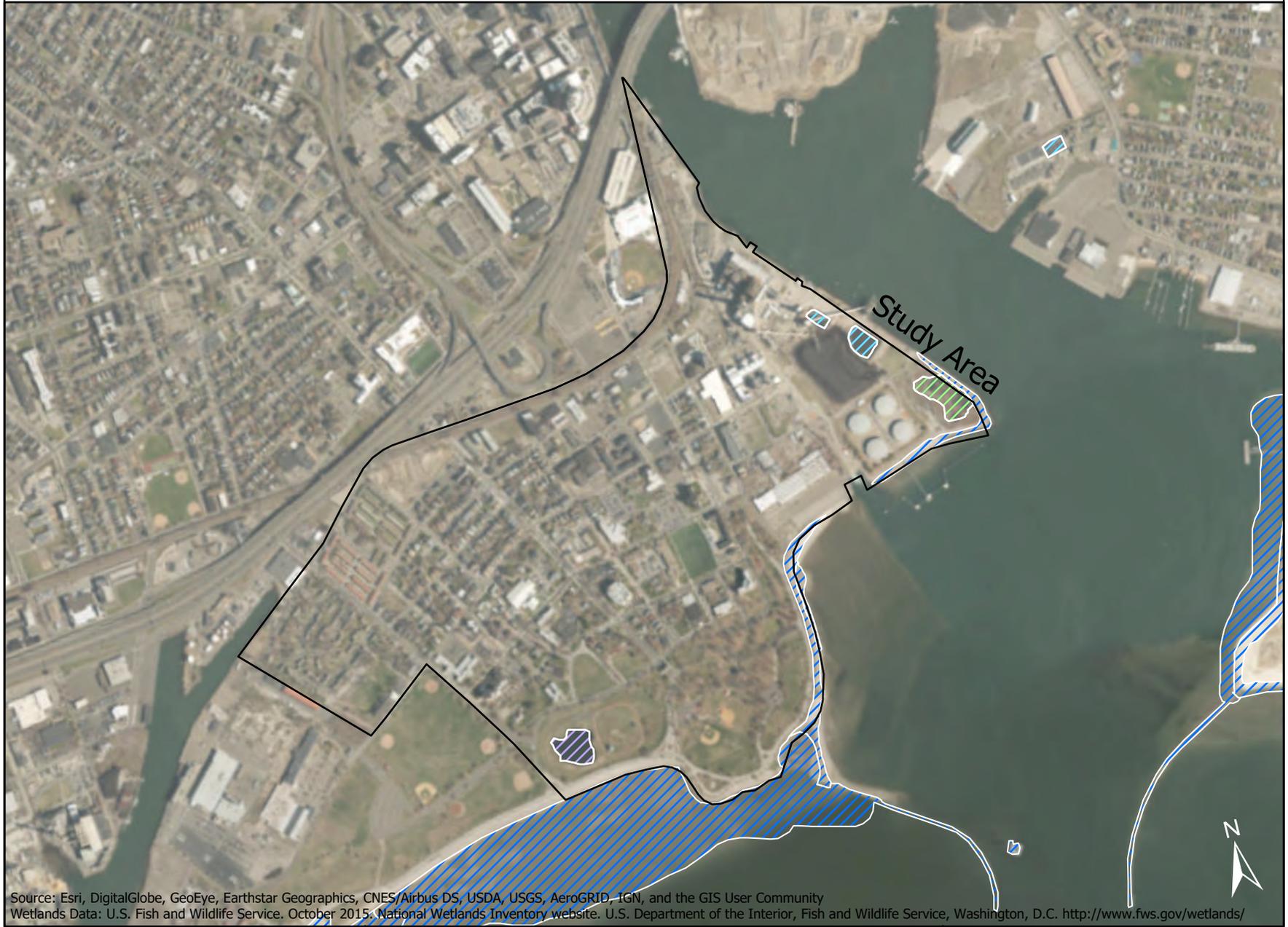
-  VE Zone (waves above 3")
-  100 Year Floodplain (1% annual chance)
-  500 Year Floodplain (0.2% annual chance)
-  Superstorm Sandy Inundation



**RESILIENT  
BRIDGEPORT**

Figure | 5

# Wetlands Mapping



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community  
Wetlands Data: U.S. Fish and Wildlife Service. October 2015. National Wetlands Inventory website. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. <http://www.fws.gov/wetlands/>

## Legend:

-  Estuarine and Marine Deepwater
-  Freshwater Emergent Wetland
-  Freshwater Pond
-  Estuarine and Marine Wetland
-  Study Area Boundary

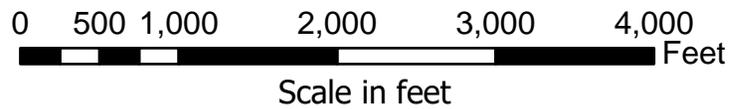


Figure | 6

# Connecticut Critical Habitats



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community  
Critical Habitat: State of Connecticut, Department of Environmental Protection. July 01 2009. Hartford, CT. Connecticut Department of Energy and Environmental Protection website. <http://www.ct.gov/deep>

## Legend

### Critical Habitat

-  Estuarine, Beachshore, B
-  Estuarine, Intertidal Marsh, IM

### Study Area

-  Study Area Boundary

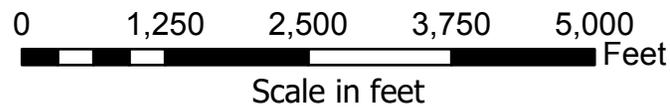


Figure | 7

# ATTACHMENT C.1

## Supplemental Information: Annotated Site Plan(s)

Requester: Hermia Delaire, State of Connecticut Department of Housing

Site Name: Resilient Bridgeport: National Disaster Resilience and Rebuild by Design

Date: 05.23.2018



# Flood Risk Reduction Potential Alignments

**•Integrated Alignment.** This alignment would be constructed in coordination with key area stakeholders and include raised streets, flood walls and landscaped berms that take into account plans for growth, development and risk reduction taking place within the eastern South End community.

**•Interior Alignment.** The interior alignment would identify a street or streets that could be raised to provide dry egress for future development, provide some reduction in risk from storm events and generate opportunities for storm water management that produce co-benefits for the community.

**•Edge Alignment.** This alignment would be constructed either in-water or along the outer edge of the community along the waterfront.



## Legend

 Study Area

Flood Risk Reduction Potential Alignments

 Edge Alignment

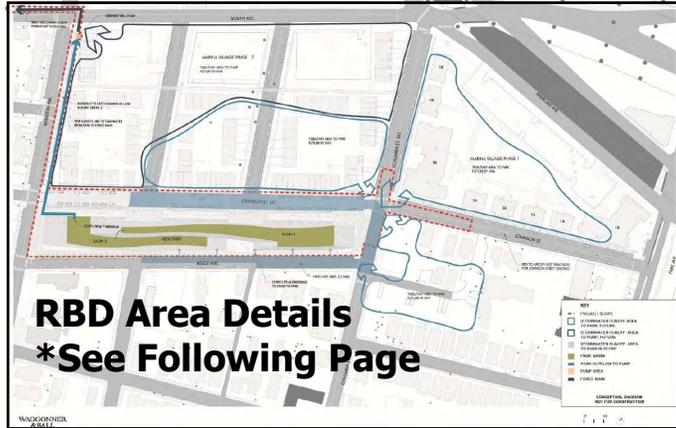
 Integrated Alignment

 Interior Alignment



Figure | 8

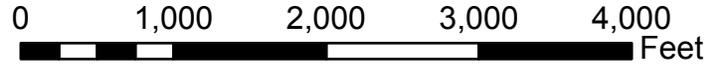
# Area of Proposed Rebuild By Design (RBD) Pilot Elements



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

## Legend

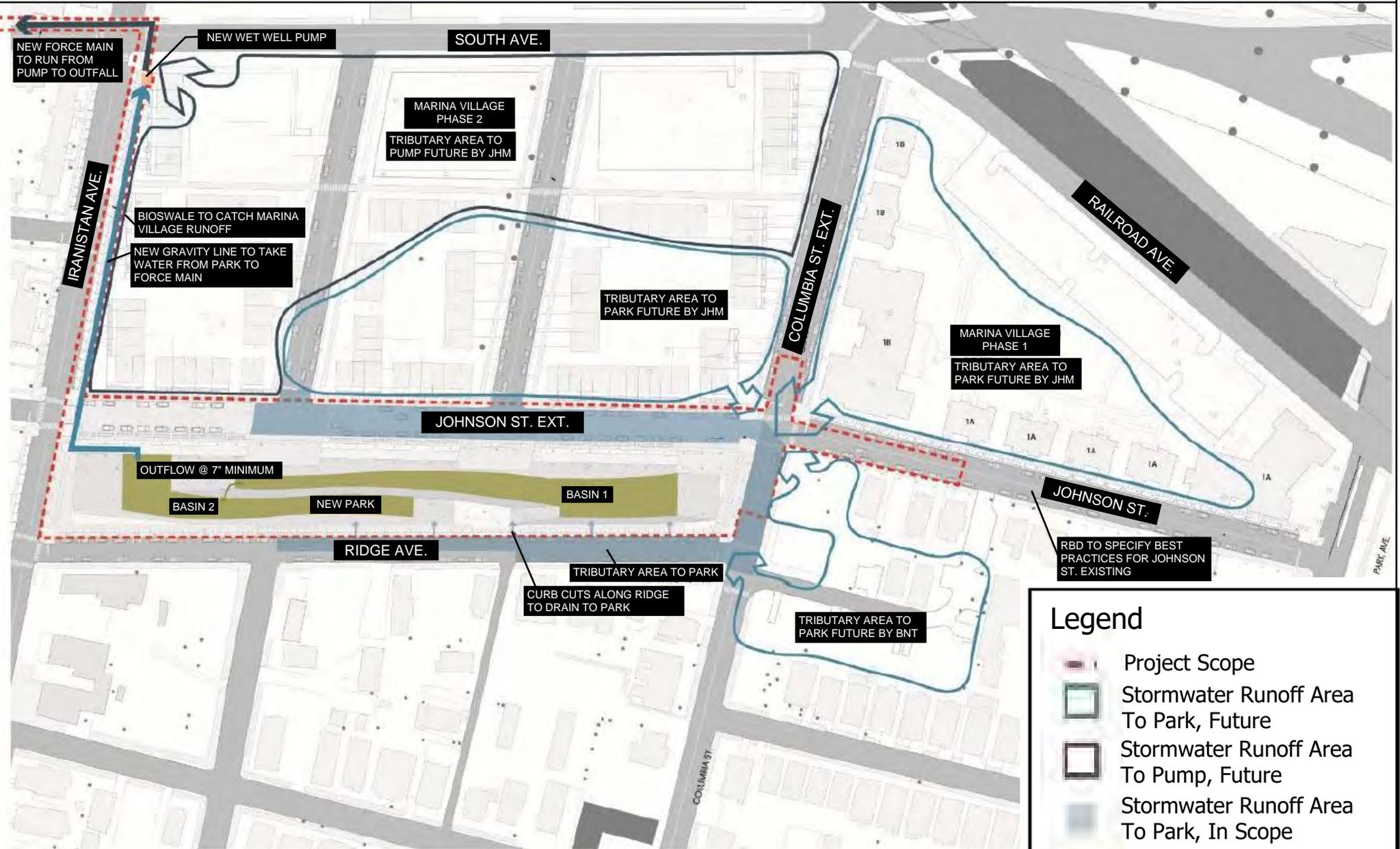
-  Study Area Boundary
-  RBD Area



Scale in feet



# Proposed Rebuild By Design (RBD) Pilot Elements



- ### Legend
- Project Scope
  - Stormwater Runoff Area To Park, Future
  - Stormwater Runoff Area To Pump, Future
  - Stormwater Runoff Area To Park, In Scope
  - Park Basin
  - Park Outflow To Pump
  - Pump Area
  - Force Main

**WAGGONNER & BALL**

\*Conceptual Diagram  
Not For Construction





Connecticut Department of  
**ENERGY &  
ENVIRONMENTAL  
PROTECTION**

March 11, 2019

Ms. Jessica Denzler  
Arcadis U.S., Inc.  
17-17 Route 208 North  
Fair Lawn, NJ 07410  
[jessica.denzler@arcadis.com](mailto:jessica.denzler@arcadis.com)

Project: National Disaster Resilience and Rebuild by Design "Resilient Bridgeport" for the South End of Bridgeport, Connecticut  
NDDB Determination No.: 201807724

Dear Jessica Denzler,

I have reviewed Natural Diversity Data Base maps and files regarding the area delineated on the map provided for National Disaster Resilience and Rebuild by Design "Resilient Bridgeport" for the South End of Bridgeport, Connecticut. I do not anticipate negative impacts to State-listed species (RCSA Sec. 26-306) resulting from your proposed activity at the site based upon the information contained within the NDDB. The result of this review does not preclude the possibility that listed species may be encountered on site and that additional action may be necessary to remain in compliance with certain state permits.

This determination is good for two years. Please re-submit an NDDB Request for Review if the scope of work changes or if work has not begun on this project by March 11, 2021.

Natural Diversity Data Base information includes all information regarding critical biological resources available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Natural History Survey and cooperating units of DEEP, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the Data Base should not be substitutes for on-site surveys required for environmental assessments. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated into the Data Base as it becomes available. The result of this review does not preclude the possibility that listed species may be encountered on site and that additional action may be necessary to remain in compliance with certain state permits.

Please contact me if you have further questions at (860) 424-3592, or [dawn.mckay@ct.gov](mailto:dawn.mckay@ct.gov) . Thank you for consulting the Natural Diversity Data Base.

Sincerely,

A handwritten signature in cursive script that reads "Dawn M. McKay".

Dawn M. McKay  
Environmental Analyst 3



**From:** [Delaire, Hermia](#)  
**To:** [Weymouth, Nicole](#)  
**Cc:** [Kennedy, Daniel](#)  
**Subject:** FW: Technical Assistance: Resilient Bridgeport: National Disaster Resilience and Rebuild by Design Bridgeport, CT  
**Date:** Wednesday, June 13, 2018 10:14:37 AM

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Good Morning Nicole,

Please see email below received from NOAA in response to our request for technical assistance regarding available data regarding essential fish habitat and threatened and endangered species at or near the project area for your information.

Let me know if you have any question or require any additional information.

Kindly,

*Mia Delaire*  
Program Manager  
"Team Sandy"  
CDBG - Sandy Disaster Recovery Program

**From:** Edith Carson - NOAA Federal [mailto:edith.carson@noaa.gov]  
**Sent:** Wednesday, June 13, 2018 10:07 AM  
**To:** Delaire, Hermia  
**Cc:** Alison Verkade - NOAA Affiliate; Zachary Jylkka - NOAA Affiliate  
**Subject:** Technical Assistance: Resilient Bridgeport: National Disaster Resilience and Rebuild by Design Bridgeport, CT

Ms. Delaire,

We received your letter on June 6, 2018, regarding the proposed flood resiliency project for the south end of Bridgeport, CT. In your email, you requested any available data regarding Essential Fish Habitat and threatened and endangered Species at or near the study area. We offer the following comments.

### **Endangered Species Act**

#### *Sea Turtles*

Four species of Endangered Species Act (ESA) listed threatened or endangered sea turtles under our jurisdiction are seasonally present off the north shore of Long Island, including its bays and tributaries: the threatened Northwest Atlantic Ocean distinct population segment (DPS) of loggerhead, the threatened North Atlantic DPS of green, and the endangered Kemp's ridley and leatherback sea turtles. Sea turtles typically occur along the New York coast from May to mid-November, with the highest concentration of sea turtles present from June through October.

#### *Atlantic Sturgeon*

Atlantic sturgeon are present in the waters of Long Island and its adjacent bays and tributaries. The New York Bight, Chesapeake Bay, South Atlantic and Carolina DPS of Atlantic sturgeon are endangered; the Gulf of Maine DPS is threatened. Adult and subadult Atlantic sturgeon originating from any of these DPS could occur in the proposed project area. As young remain in their natal river/estuary until approximately age 2, and early life stages are not tolerant of saline waters, no eggs, larvae, or juvenile Atlantic sturgeon will occur within the waters of Long Island and its adjacent bays and tributaries.

### *Shortnose Sturgeon*

Shortnose sturgeon are present in the waters of Long Island and could occur in their adjacent bays and tributaries. Shortnose sturgeon are listed as endangered throughout their range. As early life stages are not tolerant of saline waters, no eggs, larvae, or juvenile shortnose sturgeon will occur within the saline waters of Long Island and its adjacent bays and tributaries.

As project details develop, we recommend you consider the following effects of the project on sea turtles and sturgeon:

- For activities that increase levels of suspended sediment, consider the use of silt management and/or soil erosion best practices (i.e., silt curtains and/or cofferdams).
- Consider the related effects to water quality after the outfalls are built (i.e., will the standards still be met, will the effluent volume change, and will there be any effects to the species).
- For pile driving or other activities that may affect underwater noise levels, consider the use of cushion blocks and other noise attenuating tools to avoid reaching noise levels that will cause injury or behavioral disturbance to sturgeon - see the table below for more information regarding noise criteria for injury/behavioral disturbance in sturgeon.

<b>Organism</b>	<b>Injury</b>	<b>Behavioral Modification</b>
Sturgeon	206 dB re 1 $\mu$ PaPeak and 187 dB cSEL	150 dB re 1 $\mu$ PaRMS
Sea Turtles	180 dB re 1 $\mu$ PaRMS	166 dB re 1 $\mu$ PaRMS

Depending on the amount and duration of work that takes place in the water, listed species of sea turtles and sturgeon may occur within the vicinity of your proposed project. The federal action agency will be responsible for determining whether the proposed action may affect listed species. If they determine that the proposed action may affect a listed species, they should submit their determination of effects, along with justification and a request for concurrence to the attention of the Section 7 Coordinator, NMFS, Greater Atlantic Regional Fisheries Office, Protected Resources Division, 55 Great Republic Drive, Gloucester, MA 01930 or [nmfs.gar.esa.section7@noaa.gov](mailto:nmfs.gar.esa.section7@noaa.gov). Please be aware that we have recently provided on our website guidance and tools to assist action agencies with their description of the action and analysis of effects to support their determination. See - <http://www.greateratlantic.fisheries.noaa.gov/section7>. After receiving a complete, accurate comprehensive request for consultation, in accordance to the guidance and instructions on our website, we would then be able to conduct a consultation under section 7 of the ESA. Should project plans change or new information become available that changes the basis for this determination, further coordination should be pursued. If you have any questions regarding these comments, please contact me (978-282-8490; [Edith.Carson@noaa.gov](mailto:Edith.Carson@noaa.gov)).

### **Essential Fish Habitat**

NMFS Habitat Conservation Division (HCD) is responsible for overseeing programs related to Essential Fish Habitat (EFH) designated under the Magnuson-Stevens Fishery Conservation and Management Act and other NOAA trust resources under the Fish and Wildlife Coordination Act. If you have any questions regarding EFH, please contact Alison Verkade at (978) 281-9266 or [Alison.Verkade@noaa.gov](mailto:Alison.Verkade@noaa.gov).

Thank you,

Edith

**Edith Carson-Supino, M.Sc.**

*Section 7/Shortnose Sturgeon Fish Biologist  
NOAA Fisheries  
U.S. Department of Commerce*

Greater Atlantic Regional Fisheries Office  
Phone: 978-282-8490  
[edith.carson@noaa.gov](mailto:edith.carson@noaa.gov)

For ESA Section 7 guidance please see:  
<https://www.greateratlantic.fisheries.noaa.gov/section7>







# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
New England Ecological Services Field Office  
70 Commercial Street, Suite 300  
Concord, NH 03301-5094  
Phone: (603) 223-2541 Fax: (603) 223-0104  
<http://www.fws.gov/newengland>

In Reply Refer To:

July 17, 2019

Consultation Code: 05E1NE00-2018-SLI-1280

Event Code: 05E1NE00-2019-E-06000

Project Name: Resilient Bridgeport: National Disaster Resilience and Rebuild by Design

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan ([http://www.fws.gov/windenergy/eagle\\_guidance.html](http://www.fws.gov/windenergy/eagle_guidance.html)). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
-

## Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**New England Ecological Services Field Office**

70 Commercial Street, Suite 300

Concord, NH 03301-5094

(603) 223-2541

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## Project Summary

Consultation Code: 05E1NE00-2018-SLI-1280

Event Code: 05E1NE00-2019-E-06000

Project Name: Resilient Bridgeport: National Disaster Resilience and Rebuild by Design

Project Type: LAND - FLOODING

Project Description: The proposed project is located in the South End of Bridgeport, CT. The project area has the following approximate boundaries: Iranistan Avenue on the west, the Northeast Corridor railroad viaduct to the north, the Long Island Sound to the south, and the Pequonnock River to the east.

The project is aimed at reducing instances of acute and chronic flooding, providing the community with dry egress during flood events, and informing the public about flood risks and sea level rise.

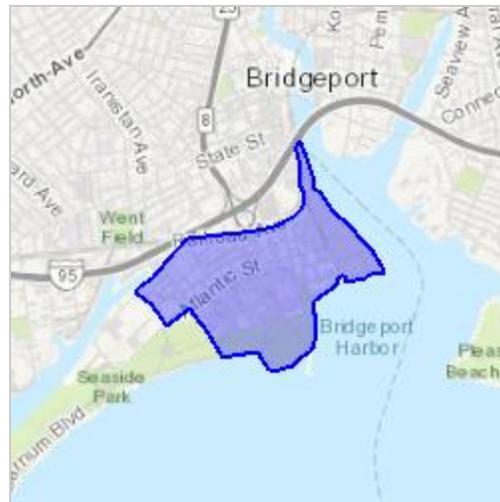
The proposed project will involve a combination of natural (green) and fortified (grey) infrastructure solutions aimed at minimizing flood risk and improving flood recovery. Measures may include raised streets, floodwalls, landscaped berms, detention/retention features, pump systems, and others. The project will also include the funding and creation of a community space and/or application for disseminating information about flood events. Moreover, an approximately 2.5 acre stormwater park is planned to be constructed (just north of Ridge Avenue and east of Iranistan Avenue) to accept runoff from upland streets.

The NEPA process for this project is anticipated to span approximately 16 months, from February 2018 to June 2019. Construction is projected to begin late 2019-early 2020 and conclude by 2022.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/41.16792848398977N73.18861743869965W>

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Counties: Fairfield, CT

## Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

- 
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

### Birds

NAME	STATUS
Red Knot <i>Calidris canutus rufa</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/1864">https://ecos.fws.gov/ecp/species/1864</a>	Threatened
Roseate Tern <i>Sterna dougallii dougallii</i> Population: Northeast U.S. nesting population No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/2083">https://ecos.fws.gov/ecp/species/2083</a>	Endangered

### Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

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## IPaC Information for Planning and Consultation U.S. Fish & Wildlife Service

# IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

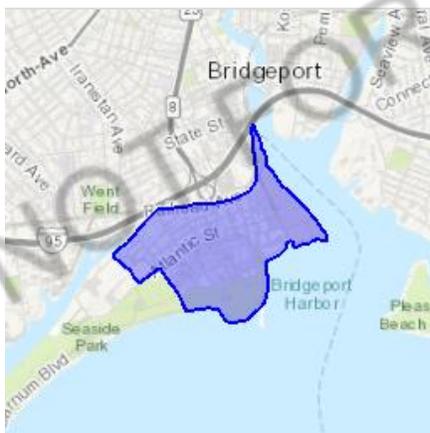
## Project information

### NAME

Resilient Bridgeport: National Disaster Resilience and Rebuild by Design

### LOCATION

Fairfield County, Connecticut



### DESCRIPTION

The

proposed project is located in the South End of Bridgeport, CT. The project area has the following approximate boundaries: Iranistan Avenue on the west, the Northeast Corridor railroad viaduct to the north, the Long Island Sound to the south, and the Pequonnock River to the east. The project is aimed at reducing instances of acute and chronic flooding, providing the community with dry egress during flood events, and informing the public about flood risks and sea level rise. The proposed project will involve a combination of natural (green) and

fortified (grey) infrastructure solutions aimed at minimizing flood risk and improving flood recovery. Measures may include raised streets, floodwalls, landscaped berms, detention/retention features, pump systems, and others. The project will also include the funding and creation of a community space and/or application for disseminating information about flood events. Moreover, an approximately 2.5 acre stormwater park is planned to be constructed (just north of Ridge Avenue and east of Iranistan Avenue) to accept runoff from upland streets. The NEPA process for this project is anticipated to span approximately 16 months, from February 2018 to June 2019. Construction is projected to begin late 2019-early 2020 and conclude by 2022.

## Local office

New England Ecological Services Field Office

☎ (603) 223-2541

📠 (603) 223-0104

70 Commercial Street, Suite 300

Concord, NH 03301-5094

<http://www.fws.gov/newengland>

NOT FOR CONSULTATION

# Endangered species

**This resource list is for informational purposes only and does not constitute an analysis of project level impacts.**

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Log in to IPaC.
2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species

<sup>1</sup> and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries<sup>2</sup>).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

- 
1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.
  2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

## Birds

NAME	STATUS
Red Knot <i>Calidris canutus rufa</i> No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/1864">https://ecos.fws.gov/ecp/species/1864</a>	Threatened
Roseate Tern <i>Sterna dougallii dougallii</i> No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/2083">https://ecos.fws.gov/ecp/species/2083</a>	Endangered

## Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

## Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act

<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted

birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

American Oystercatcher *Haematopus palliatus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/8935>

Breeds Apr 15 to Aug 31

Bald Eagle *Haliaeetus leucocephalus*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1626>

Breeds Oct 15 to Aug 31

Black Scoter *Melanitta nigra*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Breeds elsewhere

Black Skimmer *Rynchops niger*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/5234>

Breeds May 20 to Sep 15

- Black-billed Cuckoo** *Coccyzus erythrophthalmus* Breeds May 15 to Oct 10  
 This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  
<https://ecos.fws.gov/ecp/species/9399>
- Black-legged Kittiwake** *Rissa tridactyla* Breeds elsewhere  
 This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
- Bobolink** *Dolichonyx oryzivorus* Breeds May 20 to Jul 31  
 This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
- Bonaparte's Gull** *Chroicocephalus philadelphia* Breeds elsewhere  
 This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
- Brown Pelican** *Pelecanus occidentalis* Breeds Jan 15 to Sep 30  
 This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.  
<https://ecos.fws.gov/ecp/species/6034>
- Buff-breasted Sandpiper** *Calidris subruficollis* Breeds elsewhere  
 This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  
<https://ecos.fws.gov/ecp/species/9488>
- Canada Warbler** *Cardellina canadensis* Breeds May 20 to Aug 10  
 This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
- Clapper Rail** *Rallus crepitans* Breeds Apr 10 to Oct 31  
 This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
- Common Eider** *Somateria mollissima* Breeds Jun 1 to Sep 30  
 This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Common Loon <i>Gavia immer</i>	Breeds Apr 15 to Oct 31
<p>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p> <p><a href="https://ecos.fws.gov/ecp/species/4464">https://ecos.fws.gov/ecp/species/4464</a></p>	
Common Tern <i>Sterna hirundo</i>	Breeds May 10 to Sep 10
<p>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p> <p><a href="https://ecos.fws.gov/ecp/species/4963">https://ecos.fws.gov/ecp/species/4963</a></p>	
Double-crested Cormorant <i>Phalacrocorax auritus</i>	Breeds Apr 20 to Aug 31
<p>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p> <p><a href="https://ecos.fws.gov/ecp/species/3478">https://ecos.fws.gov/ecp/species/3478</a></p>	
Dunlin <i>Calidris alpina arctica</i>	Breeds elsewhere
<p>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA</p>	
Evening Grosbeak <i>Coccothraustes vespertinus</i>	Breeds elsewhere
<p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	
Great Black-backed Gull <i>Larus marinus</i>	Breeds Apr 15 to Aug 20
<p>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p>	
Gull-billed Tern <i>Gelochelidon nilotica</i>	Breeds May 1 to Jul 31
<p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p><a href="https://ecos.fws.gov/ecp/species/9501">https://ecos.fws.gov/ecp/species/9501</a></p>	
Herring Gull <i>Larus argentatus</i>	Breeds Apr 20 to Aug 31
<p>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p>	

Hudsonian Godwit <i>Limosa haemastica</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Kentucky Warbler <i>Oporornis formosus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 20
Least Tern <i>Sterna antillarum</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Apr 20 to Sep 10
Lesser Yellowlegs <i>Tringa flavipes</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/9679">https://ecos.fws.gov/ecp/species/9679</a>	Breeds elsewhere
Long-eared Owl <i>asio otus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/3631">https://ecos.fws.gov/ecp/species/3631</a>	Breeds elsewhere
Long-tailed Duck <i>Clangula hyemalis</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. <a href="https://ecos.fws.gov/ecp/species/7238">https://ecos.fws.gov/ecp/species/7238</a>	Breeds elsewhere
Manx Shearwater <i>Puffinus puffinus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Apr 15 to Oct 31
Nelson's Sparrow <i>Ammodramus nelsoni</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 15 to Sep 5
Northern Gannet <i>Morus bassanus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds elsewhere

<p>Parasitic Jaeger <i>Stercorarius parasiticus</i></p> <p>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p>	Breeds elsewhere
<p>Prairie Warbler <i>Dendroica discolor</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds May 1 to Jul 31
<p>Purple Sandpiper <i>Calidris maritima</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds elsewhere
<p>Razorbill <i>Alca torda</i></p> <p>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p>	Breeds Jun 15 to Sep 10
<p>Red Phalarope <i>Phalaropus fulicarius</i></p> <p>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p>	Breeds elsewhere
<p>Red-breasted Merganser <i>Mergus serrator</i></p> <p>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p>	Breeds elsewhere
<p>Red-necked Phalarope <i>Phalaropus lobatus</i></p> <p>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p>	Breeds elsewhere
<p>Red-throated Loon <i>Gavia stellata</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds elsewhere
<p>Ring-billed Gull <i>Larus delawarensis</i></p> <p>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p>	Breeds elsewhere

<p>Roseate Tern <i>Sterna dougallii</i>  This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p>	Breeds May 10 to Aug 31
<p>Royal Tern <i>Thalasseus maximus</i>  This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p>	Breeds Apr 15 to Aug 31
<p>Ruddy Turnstone <i>Arenaria interpres morinella</i>  This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA</p>	Breeds elsewhere
<p>Rusty Blackbird <i>Euphagus carolinus</i>  This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds elsewhere
<p>Seaside Sparrow <i>Ammodramus maritimus</i>  This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds May 10 to Aug 20
<p>Semipalmated Sandpiper <i>Calidris pusilla</i>  This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds elsewhere
<p>Short-billed Dowitcher <i>Limnodromus griseus</i>  This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/9480">https://ecos.fws.gov/ecp/species/9480</a></p>	Breeds elsewhere
<p>Snowy Owl <i>Bubo scandiacus</i>  This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds elsewhere
<p>Sooty Tern <i>Onychoprion fuscatus</i>  This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p>	Breeds Mar 10 to Jul 31

**Surf Scoter** *Melanitta perspicillata*

Breeds elsewhere

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

**Whimbrel** *Numenius phaeopus*

Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9483>

**White-winged Scoter** *Melanitta fusca*

Breeds elsewhere

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

**Willet** *Tringa semipalmata*

Breeds Apr 20 to Aug 5

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

**Wilson's Storm-petrel** *Oceanites oceanicus*

Breeds elsewhere

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

**Wood Thrush** *Hylocichla mustelina*

Breeds May 10 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

## Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

### Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is  $0.25/0.25 = 1$ ; at week 20 it is  $0.05/0.25 = 0.2$ .
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

**Breeding Season (■)**

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

**Survey Effort (|)**

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

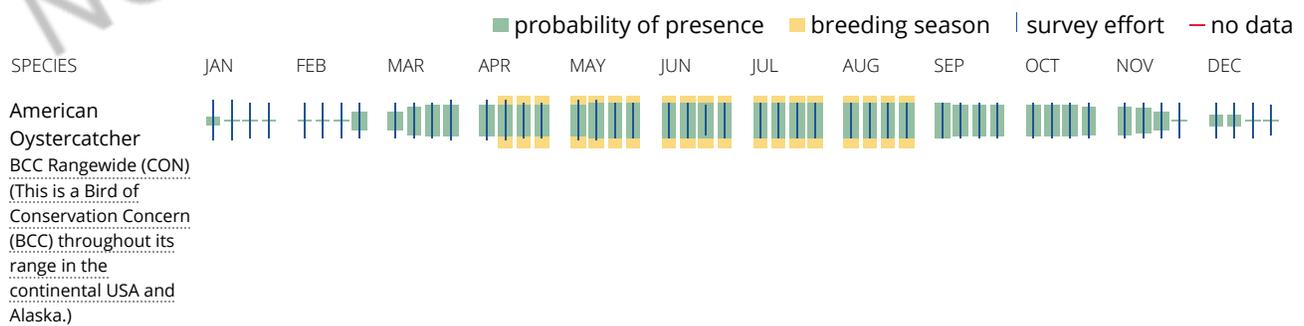
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

**No Data (-)**

A week is marked as having no data if there were no survey events for that week.

**Survey Timeframe**

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Bald Eagle  
 Non-BCC Vulnerable  
 (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

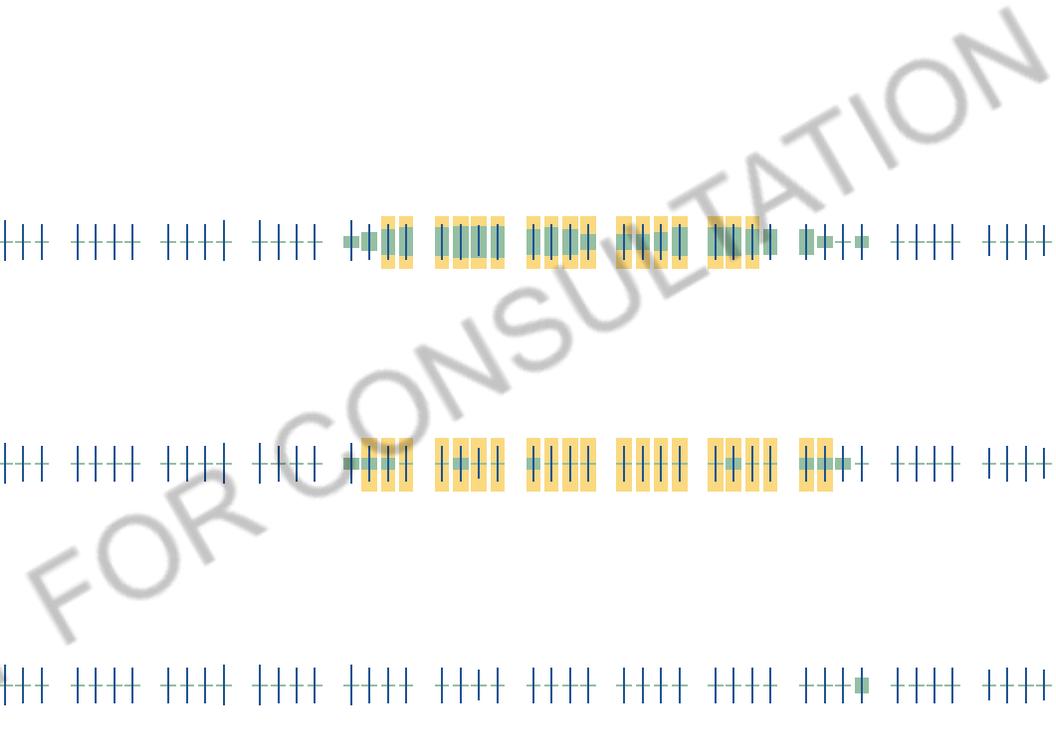
Black Scoter  
 Non-BCC Vulnerable  
 (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

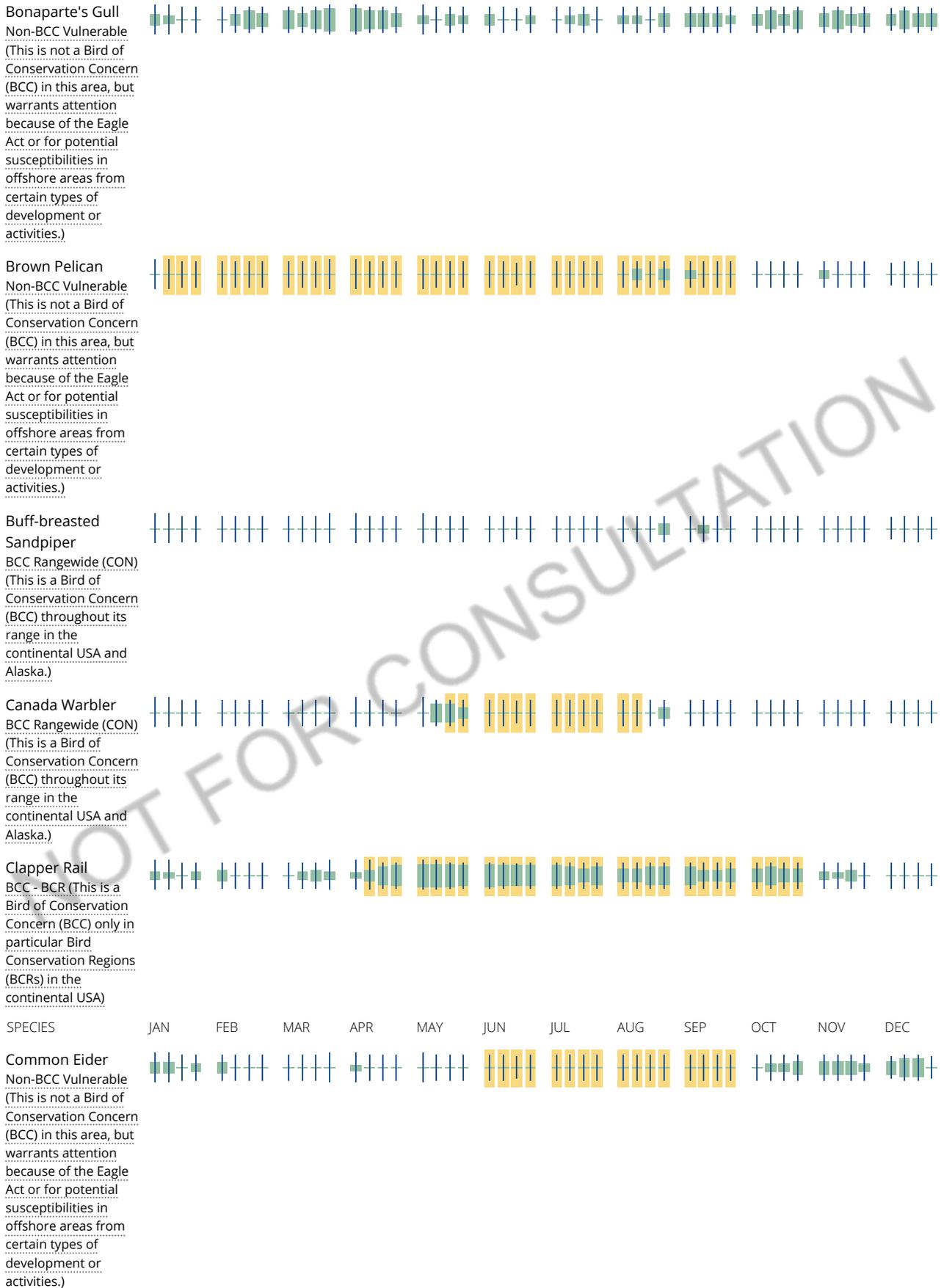
Black Skimmer  
 BCC Rangewide (CON)  
 (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Black-billed Cuckoo  
 BCC Rangewide (CON)  
 (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Black-legged Kittiwake  
 Non-BCC Vulnerable  
 (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Bobolink  
 BCC Rangewide (CON)  
 (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)





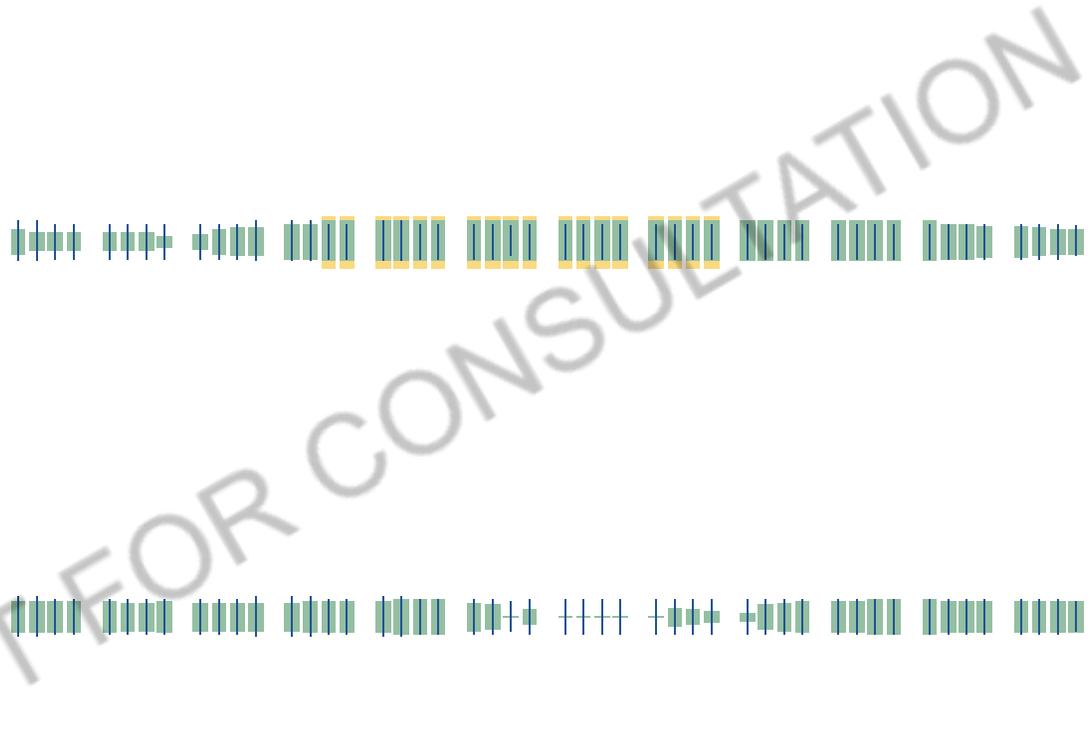
Common Loon  
 Non-BCC Vulnerable  
 (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

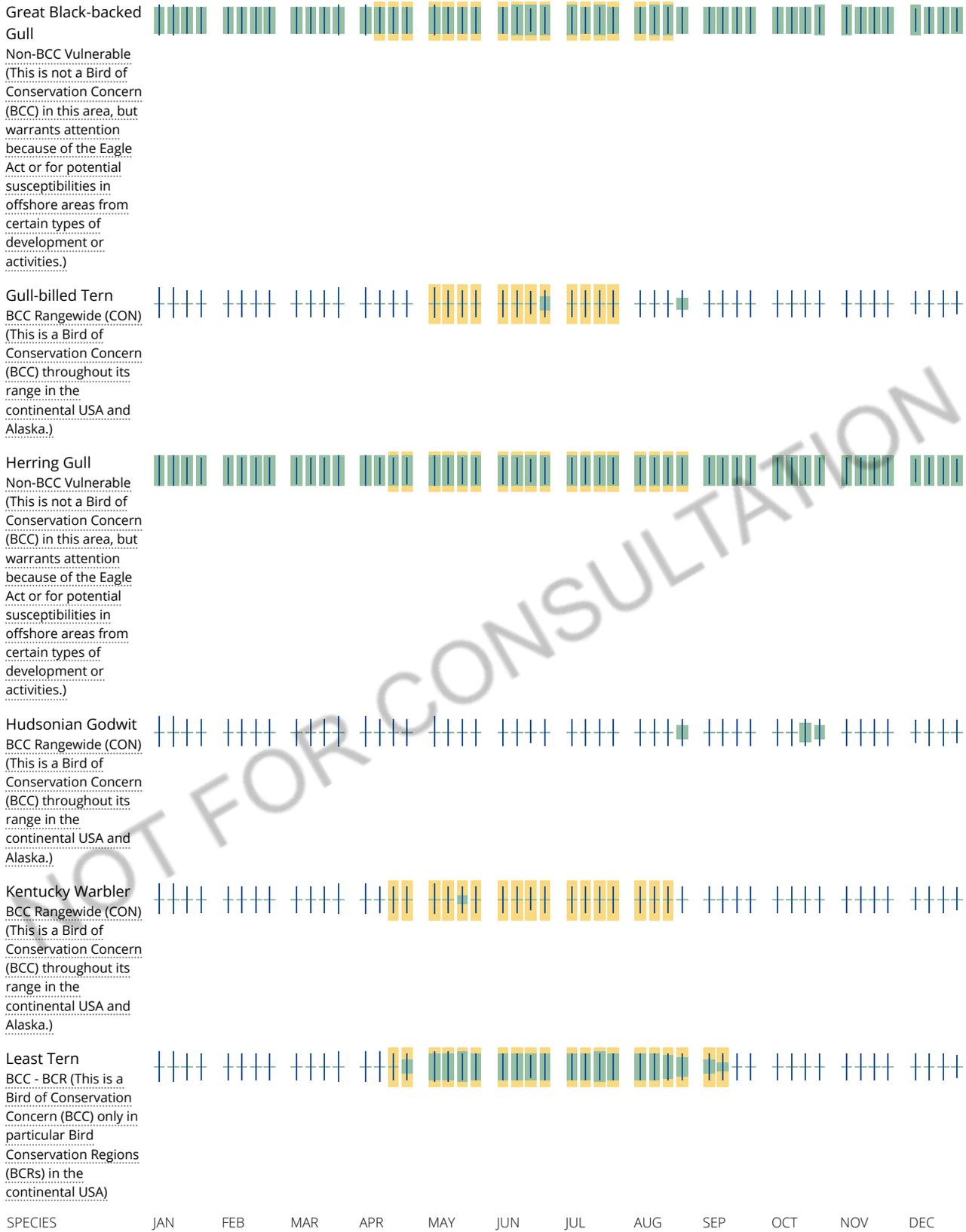
Common Tern  
 Non-BCC Vulnerable  
 (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Double-crested Cormorant  
 Non-BCC Vulnerable  
 (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Dunlin  
 BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Evening Grosbeak  
 BCC Rangelwide (CON)  
 (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)





Lesser Yellowlegs  
 BCC Rangewide (CON)  
 (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

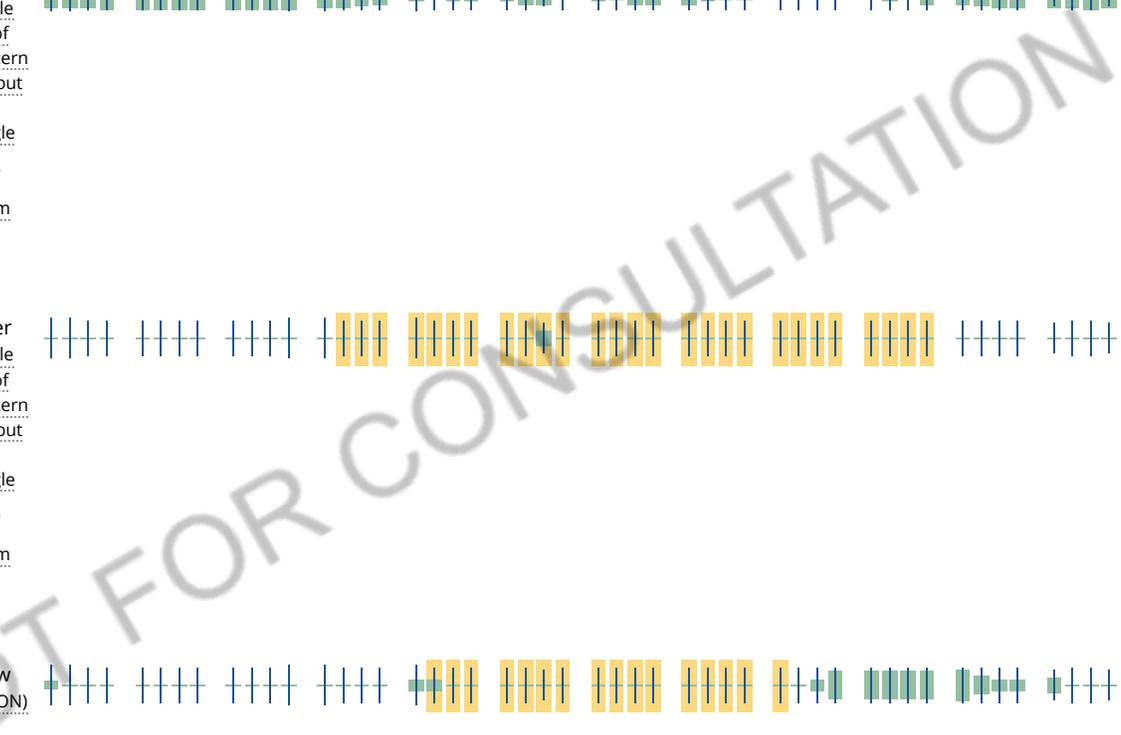
Long-eared Owl  
 BCC Rangewide (CON)  
 (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Long-tailed Duck  
 Non-BCC Vulnerable  
 (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Manx Shearwater  
 Non-BCC Vulnerable  
 (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Nelson's Sparrow  
 BCC Rangewide (CON)  
 (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Northern Gannet  
 Non-BCC Vulnerable  
 (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)



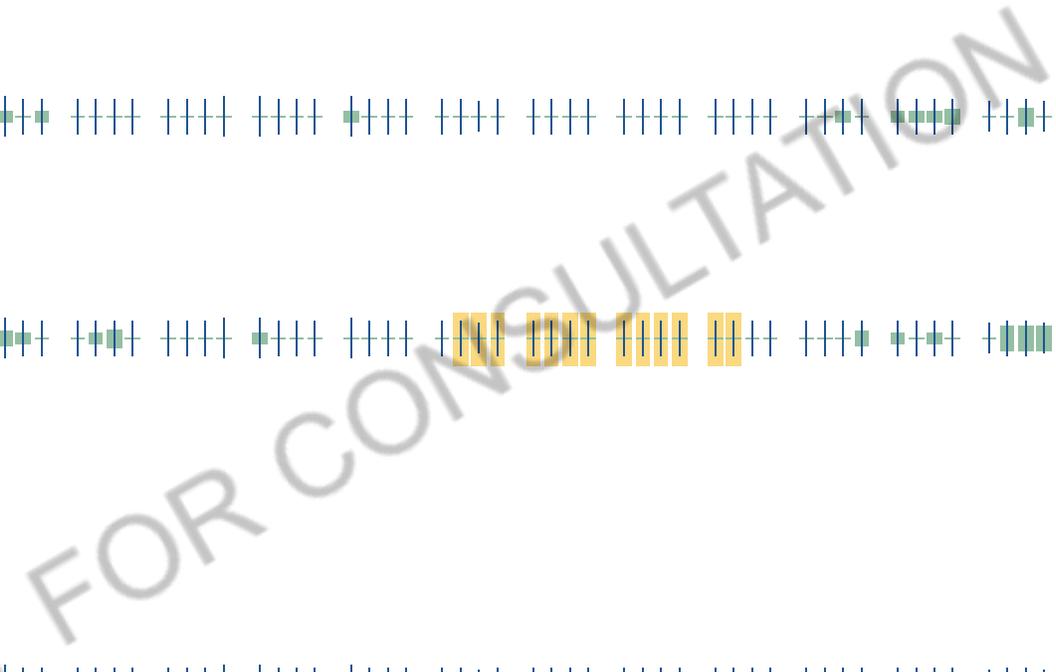
Parasitic Jaeger  
 Non-BCC Vulnerable  
 (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

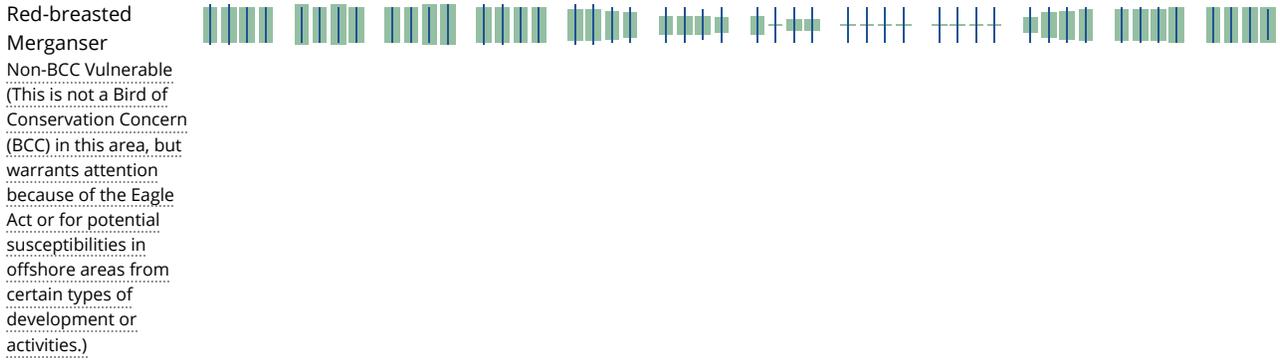
Prairie Warbler  
 BCC Rangewide (CON)  
 (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Purple Sandpiper  
 BCC Rangewide (CON)  
 (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

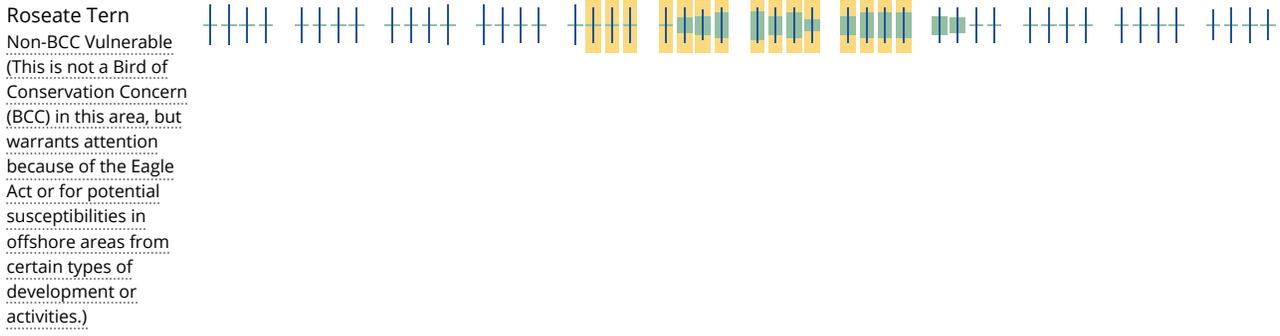
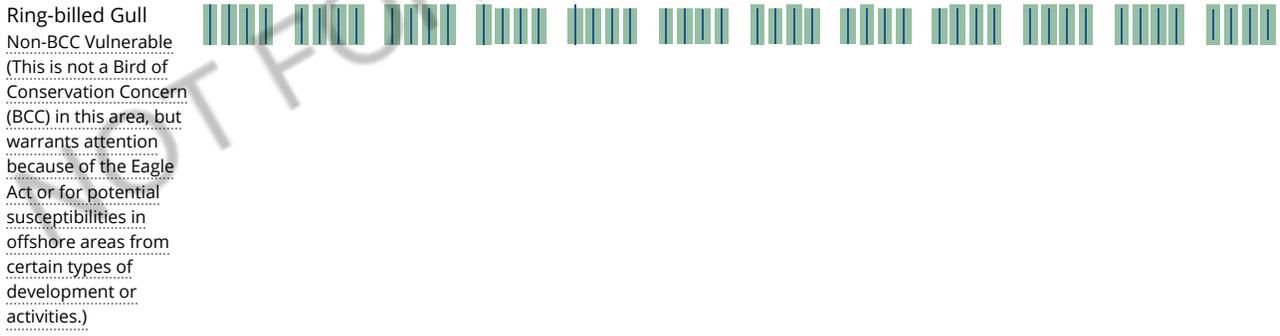
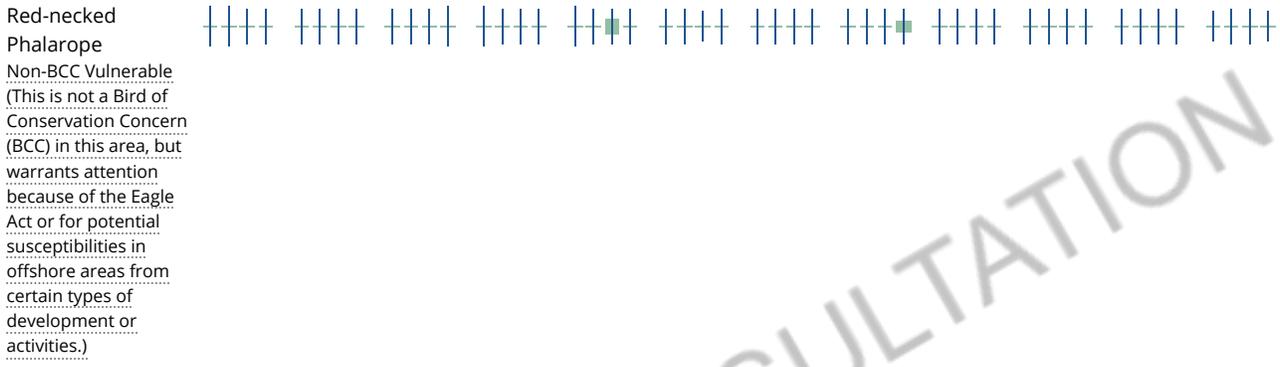
Razorbill  
 Non-BCC Vulnerable  
 (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Red Phalarope  
 Non-BCC Vulnerable  
 (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)





SPECIES      JAN      FEB      MAR      APR      MAY      JUN      JUL      AUG      SEP      OCT      NOV      DEC



NOT FOR CONSULTATION

Royal Tern  
 Non-BCC Vulnerable  
 (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Ruddy Turnstone  
 BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

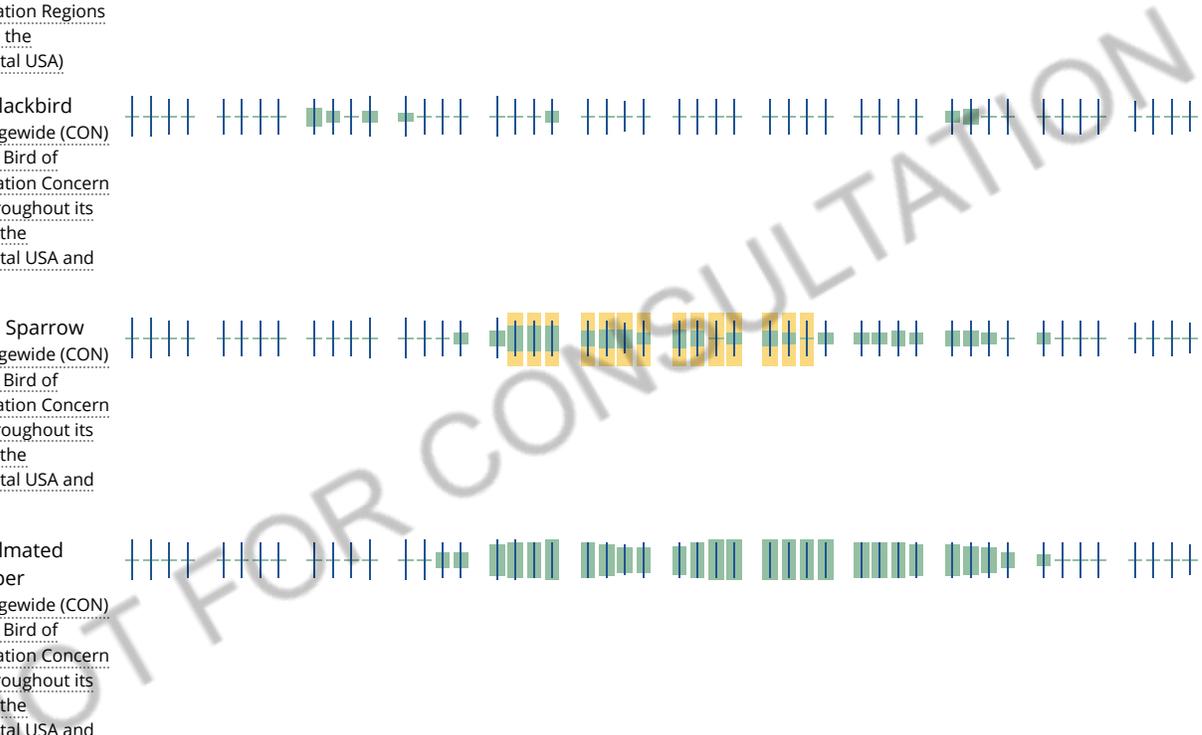
Rusty Blackbird  
 BCC Rangewide (CON)  
 (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

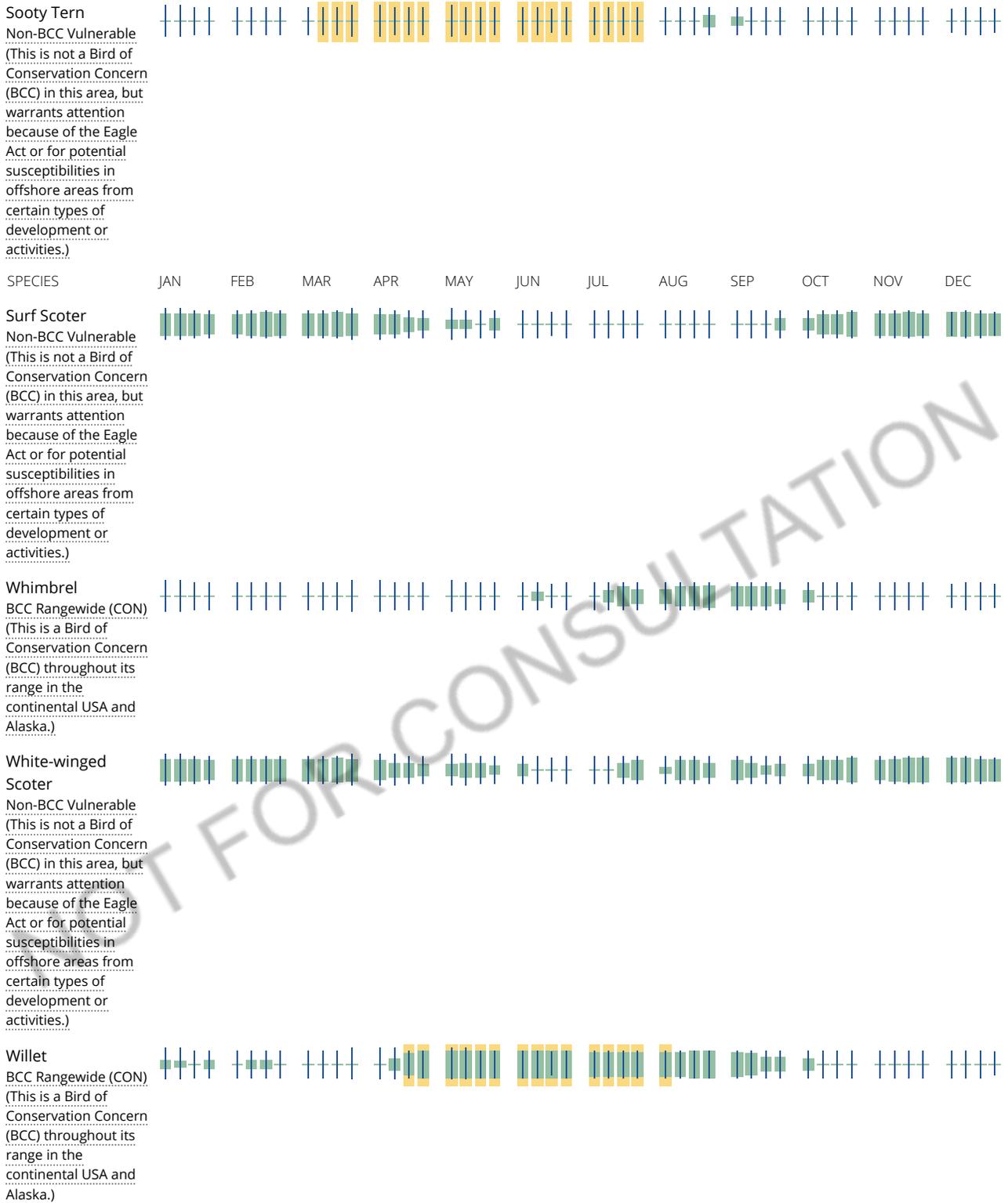
Seaside Sparrow  
 BCC Rangewide (CON)  
 (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

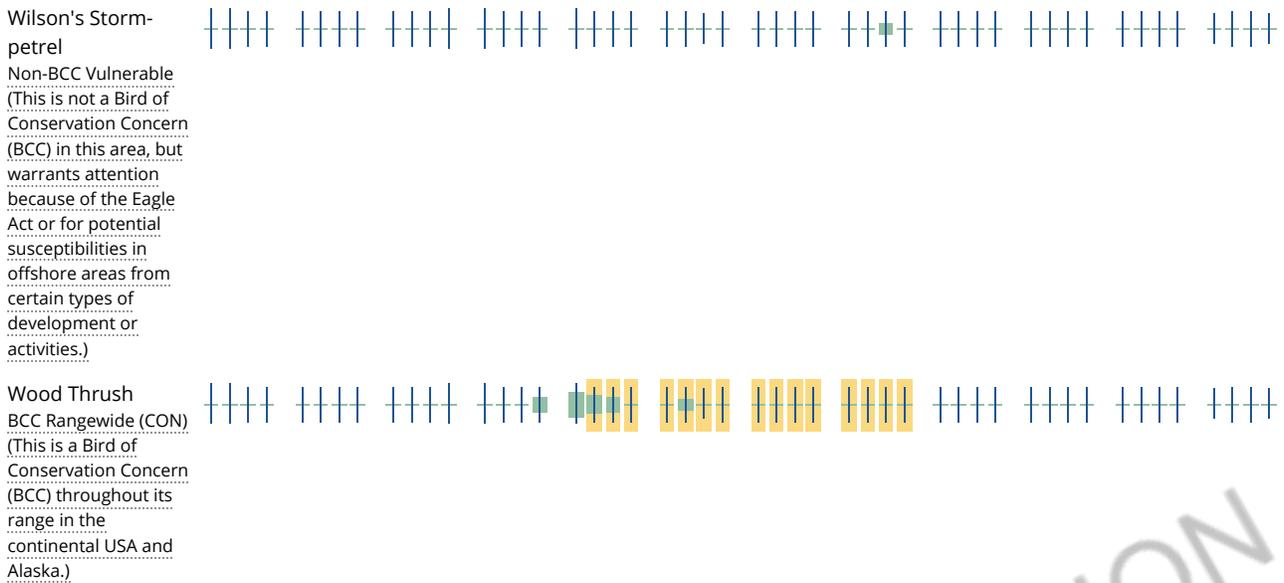
Semipalmated Sandpiper  
 BCC Rangewide (CON)  
 (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Short-billed Dowitcher  
 BCC Rangewide (CON)  
 (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Snowy Owl  
 BCC Rangewide (CON)  
 (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)







**Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.**

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

**What does IPaC use to generate the migratory birds potentially occurring in my specified location?**

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

**What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?**

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

### How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

### What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

### Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

### What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

### Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which

means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

## Facilities

### National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

### Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

### Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

ESTUARINE AND MARINE DEEPWATER

[E1UBL](#)

[E1UBLx](#)

ESTUARINE AND MARINE WETLAND

[E2USM](#)

[E2US2P](#)

[E2US2N](#)

FRESHWATER EMERGENT WETLAND

[PEM1Eh](#)

FRESHWATER POND

[PUBHx](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

**Data limitations**

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

**Data exclusions**

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

**Data precautions**

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.



March 18, 2019

Ms. Rebecca French  
Director of Resilience, CTDOH  
505 Hudson Street  
Hartford, CT 06106  
ATTN: Resilient Bridgeport

Subject: Draft Environmental Impact Statement/Environmental Impact Evaluation  
Resilient Bridgeport: National Disaster Resilience and Rebuild by Design  
Projects  
Bridgeport, Connecticut

Dear Ms. French:

The Connecticut State Historic Preservation Office (CT SHPO) has reviewed the referenced Draft Environmental Impact Statement (DEIS) as it pertains to activities in Connecticut proposed by the U.S. Department of Housing and Urban Development, which has delegated authority to the Connecticut Department of Housing (CTDOH). The stated purpose of the project is to, “to create a more resilient South End community, support its long-term viability, and improve health and safety for the community’s vulnerable populations” including “Lower the risk of acute and chronic flooding, Provide dry egress during emergencies, [and] Educate the public about flood risks and sea level rise.” SHPO further understands that the proposed activities consists of three actions, namely:

- Rebuild by Design (RBD) Pilot Project at the former Marina Village public housing site (to provide stormwater management and dry egress)
- Flood Risk Reduction Project on the east side consisting of a coastal flood defense system to reduce risk from acute storm events (i.e., severe or intense) and a combination of natural/green and fortified/gray infrastructure solutions, and
- Resilience Center to educate and facilitate increased resiliency within the community.

The DEIS does not identify a preferred alternative, but does identify two alternatives that meet the stated purpose and need for the project. SHPO understands that CTDOH will select an alternative (the Selected Alternative) in a Record of Decision. This office appreciates the opportunity to provide comments at this early stage of planning to inform future considerations with the understanding that additional consultation with this office under Section 106 process outlined in the National Historic Preservation Act, as amended, will be followed during future environmental review processes.

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

State Historic Preservation Office

450 Columbus Boulevard, Suite 5 | Hartford, CT 06103 | P: 860.500.2300 | DECD.org

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Regarding the Flood Risk Reduction Project, both alternatives propose raising a portion of University Avenue, from Lafayette Street running east to Main Street, which is directly adjacent to the entrance of Seaside Park (NR# 82004373). The *Eastern Option* includes construction of a flood wall with flood gates at main road crossings, running east across the southern parcel boundary of 60 Main Street, to the sheet pile wall of the proposed PSEG Harbor Unit 5, then north along the western border of Emera's Bridgeport Energy's property, and finally terminate at the CTDOT New Haven Line railroad viaduct. This former New York, New Haven and Hartford Railroad line is potentially eligible for listing in the National Register under Criteria A and C, and includes numerous structures and features, including railroad viaduct retaining walls, catenary structures, and bridges at Park and Myrtle Avenues and Warren, Lafayette, and Broad Streets, as well as the under-grade railroad bridge (known as Bridge 43.21), located 600 Main Street. The *Western Option* would also consist of construction of a flood wall with flood gates at main road crossings, running east across a portion of the southern parcel boundary of 60 Main Street, but would turn north at Henry Street, then west along Henry Street, then north along the eastern side of Main Street to Singer Avenue, then turning east along the western boundary of the proposed Pequonnock Substation, and finally to the CTDOT New Haven Line railroad viaduct. This *Option* would be directly adjacent to the William Bishop Cottage Development Historic District (NR# 82004388). Both *Options* are within 250 feet of the individually listed Mary and Eliza Freeman Houses (NR# 99000110). Additionally, both options would involve ground disturbance in areas deemed to be have an elevated potential for containing intact archaeological deposits from both the historical and prehistorical areas, including prehistoric burial sites.

Both of the proposed alternatives constitute an adverse effect to historic properties, with particular concern given to the raising of University Avenue, which will negatively impact the entrance to Seaside Park, listed in the National Register under Criteria B and C as a "well-preserved Post-Civil War park landscape" and "an important work of 19th-century civil engineering." However, the Western Option would also adversely impact the William Bishop Cottage Development Historic District, listed under Criteria B and C as "one of Bridgeport's first extensive tract developments, a community planned especially to provide an Innovative housing scheme for lower-income workers." Therefore, SHPO's Preferred Alternative is the *Eastern Option*, which would avoid the adverse impact to the William Bishop Cottage Development, and potential archaeological resources in the vicinity of the Freeman Houses. This office expects additional consultation in accordance with Section 106 of the Nation Historic Preservation Act to minimize or mitigate the adverse effect in regards to Seaside Park, potential effects to the Freeman Houses regarding vibrations during construction of the flood wall, additional information regarding design of the flood barrier where it is proposed to be integrated into the railroad viaduct, and an archaeological assessment plan for the area of potential effect (APE).

Finally, the third proposed action, the creation of a *Resilience Center*, would directly impact the Mary and Eliza Freeman Houses, listed under Criterion A "as the last two houses to survive of "Little Liberia," a settlement of black freedmen in this area that began in 1831 and reached its apogee just prior to the outbreak of the Civil War." The properties are proposed to "operate as a community center, a central location for resilience information dissemination, and a location that could store supplies to assist the community with recovery efforts during or after storm events." This use has the potential to help preserve the structures, as they are currently unoccupied. However, an additional portion of the Resilience Center would be to create an "open-air landscaped site, including green infrastructure improvements, near the entrance to Seaside Park at University Avenue." More information is needed to evaluate the effect to both



Department of Economic and  
Community Development

State Historic Preservation Office

Seaside Park and the Freeman Houses, including design schema. SHPO looks forward to additional consultation to determine the potential effects.

CT SHPO appreciates the opportunity to review and comment upon this important planning document pursuant to the National Environmental Policy Act. We look forward to additional information regarding the decision-making process, with particular respect to the potential impacts to historic properties once an alternative has been selected. This office will continue to work with CTDOH to ensure regulatory compliance of Resilient Bridgeport. For additional information, please contact Marena Wisniewski, Environmental Reviewer, at (860) 500-2357, or [marena.wisniewski@ct.gov](mailto:marena.wisniewski@ct.gov).

Sincerely,

A handwritten signature in blue ink, appearing to read "C. Labadia".

Catherine Labadia  
Deputy State Historic Preservation Officer

State Historic Preservation Office

450 Columbus Boulevard, Suite 5 | Hartford, CT 06103 | P: 860.500.2300 | [DECD.org](http://DECD.org)

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May 7, 2019

Ms. Rebecca French  
Director of Resilience, CTDOH  
505 Hudson Street  
Hartford, CT 06106  
ATTN: Resilient Bridgeport

Subject: Draft Environmental Impact Statement/Environmental Impact  
Evaluation: Main Street at University Avenue  
Resilient Bridgeport: National Disaster Resilience and Rebuild by Design  
Projects  
Bridgeport, Connecticut

Dear Ms. French:

The Connecticut State Historic Preservation Office (CT SHPO) has reviewed the referenced Draft Environmental Impact Statement (DEIS) as it pertains to activities in Connecticut proposed by the U.S. Department of Housing and Urban Development, which has delegated authority to the Connecticut Department of Housing (CTDOH). The stated purpose of the project is to, “to create a more resilient South End community, support its long-term viability, and improve health and safety for the community’s vulnerable populations” including “Lower the risk of acute and chronic flooding, Provide dry egress during emergencies, [and] Educate the public about flood risks and sea level rise.” SHPO further understands that the proposed activities consists of three actions, namely:

- Rebuild by Design (RBD) Pilot Project at the former Marina Village public housing site (to provide stormwater management and dry egress)
- Flood Risk Reduction Project on the east side consisting of a coastal flood defense system to reduce risk from acute storm events (i.e., severe or intense) and a combination of natural/green and fortified/gray infrastructure solutions, and
- Resilience Center to educate and facilitate increased resiliency within the community.

Following a letter sent by this office on March 18, 2019, CTDOH requested further comment regarding the two options presented for the resolution of Main Street at University Avenue, namely:

- Elevate Main Street immediately north and south of University Avenue so it continues as a through street (*Through-Street Option*), meeting the newly-elevated University Avenue, or

- Terminate Main Street at University Avenue (*Dead End Option*), and maintain Main Street's current elevation and provide pedestrian access up to the new University Avenue elevation.

As stated in our previous correspondence, both of the proposed Flood Risk Reduction Project alternatives would constitute an adverse effect to historic properties, with particular concern given to Seaside Park, listed in the National Register under Criteria B and C. In regards to the specific impact of the two Main Street at University Avenue options, the Through-Street Option would also result in an elevated road in front of four houses located north of University Avenue, and adjacent to the William Bishop Cottage Development Historic District, listed under Criteria B and C on the National Register. Therefore, SHPO's Preferred Alternative is the *Dead End Option*, which would avoid this.

CT SHPO appreciates the opportunity to review and comment upon this important planning document pursuant to the National Environmental Policy Act. We look forward to additional information regarding the decision-making process, with particular respect to the potential impacts to historic properties once an alternative has been selected. This office will continue to work with CTDOH to ensure regulatory compliance of Resilient Bridgeport. For additional information, please contact Marena Wisniewski, Environmental Reviewer, at (860) 500-2357, or [marena.wisniewski@ct.gov](mailto:marena.wisniewski@ct.gov).

Sincerely,



Catherine Labadia  
Deputy State Historic Preservation Officer



Department of Economic and  
Community Development

State Historic Preservation Office

July 19, 2018

Hermia Delaire  
Department of Housing, State of CT  
505 Hudson Street  
Hartford, CT 06106

received  
7-27-2018

Subject: Resilient Bridgeport/National Disaster Resilience/Rebuild by Design  
Resources Evaluation report  
Bridgeport, CT

Dear Ms. Delaire:

The State Historic Preservation Office has reviewed the information submitted for the above-named property pursuant to the provisions of Section 106 of the National Historic Preservation Act of 1966 and Connecticut Environmental Policy Act.

SHPO has received and reviewed the draft Historic and Archeological Resources Evaluation Report. This report focuses on the existing condition of sites listed or eligible for listing on the National Register of Historic Places within the APE for the HUD-funded Resilient Bridgeport/National Disaster Resilience and Rebuilt by Design programs as part of the federally mandated Environmental Impact Statement/Environmental Impact Evaluation. This report does not include definitive alternatives for impacts, as they are still in development.

SHPO is satisfied with the methodology, APE, and both above ground and below ground existing conditions. SHPO looks forward to continued consultation when the definitive alternatives are established.

The State Historic Preservation Office appreciates the opportunity to review and comment upon this project. These comments are provided in accordance with the Connecticut Environmental Policy Act and Section 106 of the National Historic Preservation Act. For further information please contact Todd Levine, Environmental Reviewer, at (860) 500-2337 or [todd.levine@ct.gov](mailto:todd.levine@ct.gov).

Sincerely,

Catherine Labadia  
Deputy State Historic Preservation Officer

State Historic Preservation Office

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STATE OF CONNECTICUT  
DEPARTMENT OF HOUSING



July 26, 2019

John M. Fowler  
Advisory Council on Historic Preservation  
401 F Street NW, Suite 308  
Washington, DC 20001-2637

Dear Mr. Fowler:

Re: Notification of intention to develop a Programmatic Agreement for the Resilient Bridgeport projects funded by HUD CDBG-NDR and CDBG-DR Programs

As required by 36 CFR Section 800.6(a)(1), the Connecticut Department of Housing (DOH) intends to develop a Programmatic Agreement to facilitate compliance with Section 106 of the National Historic Preservation Act. This agreement will cover Resilient Bridgeport projects originating from the U.S. Department of Housing and Urban Development for which HUD has delegated compliance responsibility pursuant to 24 CFR Part 58 and Pub. L. 113-2 to the Connecticut Department of Housing as the responsible entity. The DOH will prepare the Programmatic Agreement in accordance with 36 CFR Section 800.14(b)(2) and in direct consultation with the Connecticut State Historic Preservation Office (SHPO). DOH and SHPO have engaged in extensive and on-going consultations regarding the consideration of historic properties in the area of the Resilient Bridgeport projects.

Pursuant to 36 CFR Section 800.6(a)(1)(iii), we request that the ACHP advise the DOH whether it will participate in the development and execution of the Programmatic Agreement within fifteen (15) days of receipt of this notice.

We look forward to receiving your response. Should you have any questions regarding this notice, request, or draft agreement, please contact Dr. Rebecca French, Director of Resilience for the Connecticut Department of Housing at [Rebecca.French@ct.gov](mailto:Rebecca.French@ct.gov) or 860-270-8231.

Thank you.

Sincerely,

Seila Mosquera-Bruno  
Commissioner

Enclosures:

Electronic Section 106 Documentation Submittal System Form

Copy:

C. Labadia – SHPO/DECD  
M. Wisniewski – SHPO/DECD  
T. Levine – SHPO/DECD



Preserving America's Heritage

August 26, 2019

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

Ref: *Proposed Resilient Bridgeport Project*  
*Bridgeport, Connecticut*  
*ACHP Connect Log Number: 014265*

Dear Dr. French:

On July 26, 2019, the Advisory Council on Historic Preservation (ACHP) received a notification from the Connecticut Department of Housing (DOH) regarding its intent to develop a Programmatic Agreement (PA) to facilitate compliance with Section 106 of the National Historic Preservation Act (NHPA) (54 U.S.C. § 306108) and its implementing regulations, "Protection of Historic Properties" (36 C.F.R. Part 800), for the referenced undertaking. The DOH is the Responsible Entity pursuant to the environmental regulations of the U.S. Department of Housing and Urban Development, and is responsible for compliance with Section 106.

Based upon the information you provided, we have concluded that Appendix A, *Criteria for Council Involvement in Reviewing Individual Section 106 Cases*, of our regulations does not apply to this undertaking as it appears that the DOT and the Connecticut State Historic Preservation Officer (SHPO) are involved in productive consultation to resolve adverse effects. Accordingly, while we appreciate your invitation, we do not believe that our formal participation in the consultation to resolve adverse effects is needed.

However, we understand that the undertaking is significant in its magnitude and scale, and consulting parties may encounter challenges in coordinating the Section 106 process with the requirements of the National Environmental Policy Act (NEPA). At this time, and in accordance with 36 CFR Part 800.9(a), the ACHP would like to provide technical assistance to the DOH in meeting its Section 106 obligations. Accordingly, we request that DOH schedule a meeting with the consulting parties to discuss the status of the current Section 106 review, and the schedule for drafting and finalizing a PA. Please ensure that such a meeting also includes consulting parties that have been identified to date, including the SHPO, tribes that may have properties of cultural and religious significance affected by the undertaking, representatives of local governments, and any other parties that may have concerns with the undertaking's effects on historic properties [36 C.F.R. §800.2 (c)(1-3, 5)]. Should DOH have questions regarding consulting party status, the ACHP is available to provide guidance.

ADVISORY COUNCIL ON HISTORIC PRESERVATION

401 F Street NW, Suite 308 • Washington, DC 20001-2637  
Phone: 202-517-0200 • Fax: 202-517-6381 • [achp@achp.gov](mailto:achp@achp.gov) • [www.achp.gov](http://www.achp.gov)

We look forward to participating in an upcoming consultation meeting. Should you have any questions, please contact Mr. Anthony Guy Lopez at 202-517-0220 or via e-mail at [alopez@achp.gov](mailto:alopez@achp.gov).

Sincerely,

A handwritten signature in blue ink that reads "Jaime Loichinger". The signature is written in a cursive style and is positioned above a horizontal line.

Jaime Loichinger  
Assistant Director  
Federal Permitting, Licensing and Assistance Section  
Office of Federal Agency Programs

Weymouth, Nicole

---

From: French, Rebecca <Rebecca.French@ct.gov>  
Sent: Wednesday, August 28, 2019 5:13 PM  
To: alopez@achp.gov  
Cc: Jaime Loichinger; Curran, Martha A; Mahon, Donna M; Levine, Todd; Wisniewski, Marena; Labadia, Catherine  
Subject: RE: Resilient Bridgeport - draft Programmatic Agreement

My apologies for neglecting to list the consulting parties identified in the draft PA as follows:

Mary and Eliza Freeman Center for History and Community, the Barnum Museum, the Bridgeport History Center, Greater Bridgeport Community Enterprises, the CT Trust for Historic Preservation, the Fairfield Garden Club, and the Associate Professor of English Eric Lehman of the University of Bridgeport

Tribes:

Mohegan Tribe of Indians Connecticut (accepted invitation to be a consulting party)

Delaware Tribe of Indians (responded that they forwarded the information to their archaeologist, Susan Bachor who handles reviews for all projects in their eastern states on December 27, 2018)

Delaware Nation, Oklahoma (responded on January 28, 2019 that the Resilient Bridgeport Undertakings do not endanger cultural or religious sites of interest to the Delaware Nation but they should be notified within 24 hours if an archaeological site or artifacts are inadvertently uncovered)

-----  
Rebecca A. French, Ph.D.  
Director of Resilience  
Department of Housing  
State of Connecticut

E-mail: Rebecca.French@ct.gov  
Phone: 860-270-8231  
Cell: 860-381-9372



---

From: French, Rebecca  
Sent: Wednesday, August 28, 2019 5:07 PM  
To: 'alopez@achp.gov' <alopez@achp.gov>  
Cc: 'Jaime Loichinger' <jloichinger@achp.gov>; Curran, Martha A <Martha.A.Curran@hud.gov>; 'Mahon, Donna M' <Donna.M.Mahon@hud.gov>; Levine, Todd <Todd.Levine@ct.gov>; Wisniewski, Marena <Marena.Wisniewski@ct.gov>; Labadia, Catherine <Catherine.Labadia@ct.gov>  
Subject: Resilient Bridgeport - draft Programmatic Agreement

Dear Mr. Lopez,

Thank you for the letter from the ACHP received by the CT DOH on August 26, 2019 regarding our invitation to participate in the development of a Programmatic Agreement to resolve adverse effects of the Resilient Bridgeport project and your response declining the offer.

As your letter noted we have been working closely with the CT State Historic Preservation Office in the development of the PA. Together we have agreed to invite the identified consulting party of the Freeman Center, the City of Bridgeport Parks & Recreation Department (not previously identified as a consulting party), and the Tribes who responded to the invitation to be a consulting party (the Mohegan Tribe of Indians of Connecticut, Delaware Tribe of Indians, and the Delaware Nation, Oklahoma) to sign the Programmatic Agreement as concurring parties. The Bridgeport Parks Department was a new addition due to the focus of the PA on addressing the adverse effect to the Seaside Park, which is maintained by that department and who would be impacted by the proposed stipulations, which include preservation planning and tree planting for the park to be carried out by the CT DOH.

I appreciate your offer to provide technical assistance to the CT DOH. In response to your request that we schedule a meeting, in addition to sending the invitations for concurring parties, we will be notifying the identified consulting parties listed below of the publication of the PA with the Final Environmental Impact Statement on September 6, 2019 ahead of that date. September 6, 2019 starts a 30-day public comment period whereby consulting parties and the general public may review and provide comment on the PA. The status and schedule of the Section 106 process is included in the FEIS. As summarized here, the draft PA will be published with the FEIS and reviewed alongside it for 30 days after which we will finalize and sign the PA for publication with the Record of Decision, which will occur approximately 15 days after the end of the 30-day comment period, depending on the public comments received on the FEIS or during the week of October 21, 2019.

As for the broader group of individuals you suggested we engage, I am happy to say we have had a robust public engagement process as part of our environmental review and stretching further back to the development of the application for funds for the Resilient Bridgeport projects, which started back in 2014. We have a Citizen Advisory Committee and Technical Advisory Committee, whose members include several of the consulting parties as well as elected officials and other interested stakeholders you identified. Our public engagement process is documented in the FEIS and on ResilientBridgeport.com.

We are scheduling a meeting with the Bridgeport Parks department and the Freeman Center as concurring parties during the 30-day comment period and will schedule meetings with the Tribes if requested in response to our invitation to be a concurring party. We can schedule meetings with the identified consulting parties as needed based on their response to our notification of the publication of the PA. We have met with all of the consulting parties that are not Tribes individually and/or in group meetings on the design of the project to date. We will be scheduling information meetings with the Citizens Advisory Committee and Technical Advisory Committee as well as a public information meeting in conjunction with the release of the FEIS and draft PA, although we may not undertake these meetings during the 30-day comment period depending on scheduling constraints.

My recommendation would be that if the ACHP would like to attend a meeting, they join us for the Technical Advisory Committee meeting that includes multiple state and federal agencies, but please let me know where you see a role. The CT SHPO sits on the TAC and can also provide assistance in advising on where best to utilize your technical assistance.

Thank you again for your time and consideration.

Best,  
Rebecca French

-----  
Rebecca A. French, Ph.D.  
Director of Resilience

Department of Housing  
State of Connecticut

E-mail: [Rebecca.French@ct.gov](mailto:Rebecca.French@ct.gov)

Phone: 860-270-8231

Cell: 860-381-9372





Dannel P. Malloy  
Governor

STATE OF CONNECTICUT  
DEPARTMENT OF HOUSING



Evonne M. Klein  
Commissioner

December 21, 2018

Kim Penrod  
Director, Cultural Resources/106 Archives, Library and Museum  
Delaware Nation, Oklahoma  
31064 State Highway 281  
P.O. Box 825  
Anadarko, OK 73005

**RE: Resilient Bridgeport: National Disaster Resilience and Rebuild by Design Projects**

Dear Ms. Penrod,

The State of Connecticut's Department of Housing (DOH) proposes to utilize funds from U.S. Department of Housing and Urban Development (HUD) through the Community Development Block Grant (CDBG) Disaster Recovery (DR) National Disaster Resilience (NDR) and Rebuild by Design (RBD) programs, for the proposed *Resilient Bridgeport: National Disaster Resilience and Rebuild by Design* projects (Proposed Action). Under HUD regulation 24 CFR 58.4, DOH has assumed environmental review responsibilities for the project, including tribal consultation related to historic properties.

The South End neighborhood of the city of Bridgeport (Figure 1) is exposed to storm surge from coastal storms and the risk of such events is increasing due to sea level rise. During Superstorm Sandy, the area was impacted by sustained 70 mph gale force winds and experienced a storm surge nearly 7 feet above normal high tide, resulting in flooded streets, damaged residential properties, and the loss of electric power. The vulnerability of the area to future storm events and sea level rise has limited the opportunities for redevelopment. Due to the low-lying geography, the area experiences flooding on a regular basis from rainfall or tidal inundation. Flooding of streets (particularly low-lying underpasses under Interstate 95 and the Northeast Corridor rail line) can cause safety concerns for the local residents when vehicles, including emergency responders (fire, police, medical), are prevented from accessing the area.

The purpose of the Proposed Action is to create a more resilient South End community, support its long-term viability, and improve health and safety for the community's vulnerable populations. The principal targeted outcomes are to lower the risk of acute and chronic flooding, provide dry egress during emergencies, and educate the public about flood risk and sea level rise. As discussed below, the Proposed Action would include three project components: RBD Pilot Project, Flood Risk Reduction Project, and Resilience Center (Figure 2).

- The **RBD Pilot Project** would be constructed within a portion of the former Marina Village Public Housing Complex in the northwestern part of the Study Area, and would include green and gray infrastructure improvements, a 2.5-acre stormwater facility; street extension and regrading to

provide dry egress to future development on the site; and additional street beautification along project area streets.

- The **Flood Risk Reduction Project** would include a combination of measures to reduce the flood risk from future coastal surge and chronic rainfall events in the eastern part of the Study Area. These measures would include a coastal flood defense system comprised of raising a part of University Avenue, Main Street, and Broad Street and installing floodwalls and sheet piling, and implementing both green and gray stormwater and internal drainage management strategies. Two options for the north-south coastal flood defense system alignment are being considered as part of the Proposed Action, both starting from University Avenue in the south and connecting to the existing rail viaduct in the north, one roughly along the east side of Main Street and the second alignment further east along the western edge of the PSEG property.
- The **Resilience Center** would provide funding to the Mary and Eliza Freeman Center for the renovation of the Freeman Houses, a historic resource of local and national significance, that would provide a community space in the South End to operate as a central location for resilience information dissemination, and a location to store supplies to assist the community with recovery efforts during or after shock events. The project would also include other small, open-air design areas to serve as part of the South End Resilience Network.

The Area of Potential Effect (APE), related to historic resources, is delineated as the Study Area, roughly bounded by Metro-North Railroad and South Avenue to the north, Bridgeport Harbor and Long Island Sound to the east and south, and Iranistan Avenue, Atlantic Street, and the west side of Seaside Village to the west (Figure 3). This area was chosen to allow for the assessment of potential direct and indirect effects of the Proposed Action on historic resources. Historic resources include archaeological sites, burial grounds, sacred landscapes or features, ceremonial areas, traditional cultural places and landscapes, and buildings and structure with significant tribal association.

Based on the historic evaluation conducted by a cultural resources consultant (see attached *Historic and Archaeological Resources Evaluation Report*, dated May 4, 2018), it was determined that the APE retains a wide range of historic resources, the majority of which date from mid-19<sup>th</sup> to mid-20<sup>th</sup> centuries. Five National Register of Historic Places (NRHP)-listed individual historic properties and four districts are present; five districts and 11 individual properties were assessed as potentially NRHP-eligible. The NRHP eligibility of these properties is being determined as part of an ongoing consultative process between DOH and the Connecticut State Historic Preservation Office (CTSHPO). Two noteworthy resources include the Freeman Houses (NRHP-listed), located on Main Street, rare and valuable survivors of the Little Liberia community, and Seaside Park (NRHP-listed), designed by Frederick Law Olmsted and Calvert Vaux. The Proposed Action would have an adverse effect on the historic entrance of Seaside Park and an adverse effect on the potentially eligible New Haven and Hartford railroad viaduct.

In addition, there are two archaeological sites within the APE, and research indicates that this area was intensively occupied by Native Americans during the Late Woodland and Contact periods (Figure 4). Any ground disturbance has the potential to impact intact archaeological resources and human remains. Therefore, in advance of construction activities, additional review would include investigation of soil sequences within the project areas by a system of geotechnical investigations (geoprobings, augers, etc.) to

further explore the complicated soil sequences. Ground disturbances would also be monitored by an archaeologist, to limit any possible impacts to human remains that may be buried within the APE. Due to the high archaeological potential of the area of Seaside Park's entrance, any ground disturbance should be preceded by an archaeological survey, to include either a system of geotechnical investigations or traditional shovel testing. Moreover, because of the unique preservation of open spaces associated with Seaside Park, efforts should be made to identify any human burials within the project area, preferably with a ground penetrating radar (GPR) survey. Work in the proximity to the Freeman Houses would be preceded by a systematic geotechnical investigation, such as a geoprobe survey. If the stone pavement on Singer Street must be destroyed or removed for the project, an archaeological shovel test pit survey would be carried out, once the stone pavement has been removed.

DOH has been conducting a review of the historic properties identified within the Study Area to comply with Section 106 of the National Historic Preservation Act and its implementing regulations 36 CFR Part 800. We would like to invite you to be a consulting party in this review to help identify historic properties in the Study Area that may have religious and cultural significance to your tribe, and if such properties exist, to help assess how the Resilient Bridgeport projects might affect them. If the project might have an adverse effect, we would like to discuss possible ways to avoid, minimize, or mitigate potential adverse impacts.

To meet project timeframes, if you would like to be a consulting party on this program, please let us know of your interest within 30 days of this letter. If you have any initial concerns with impacts of the project on religious or cultural properties, please note them in your response. The Draft Environmental Impact Statement is expected to be published in early January 2019. We will notify you when the document is available.

More information on the Section 106 review process is available at <https://www.hudexchange.info/environmental-review/historic-preservation/>.

HUD's process for tribal consultation under Section 106 is described in a Notice available at <https://www.hudexchange.info/resource/2448/notice-cpd-12-006-tribal-consultation-under-24-cfr-part-58/>

DOH welcomes the consultation of the Delaware Nation, Oklahoma as we strive for more effective public participation in NEPA and Section 106 analyses, in our efforts to achieve more informed decision making and to promote cultural heritage and identity. We value your assistance and look forward to consulting further if there are historic properties of religious and cultural significance to your tribe that may be affected by the Proposed Action. Should you have any questions regarding this notice, request, or draft agreement, please do not hesitate to contact me at [Rebecca.French@ct.gov](mailto:Rebecca.French@ct.gov) or 860-270-8231.

Sincerely,



Rebecca A. French, Ph.D.  
Director of Resilience

cc: Donna Mahon (HUD)  
Nicole Weymouth (WSP)

ENCLOSURES

Figure 1: Project Location

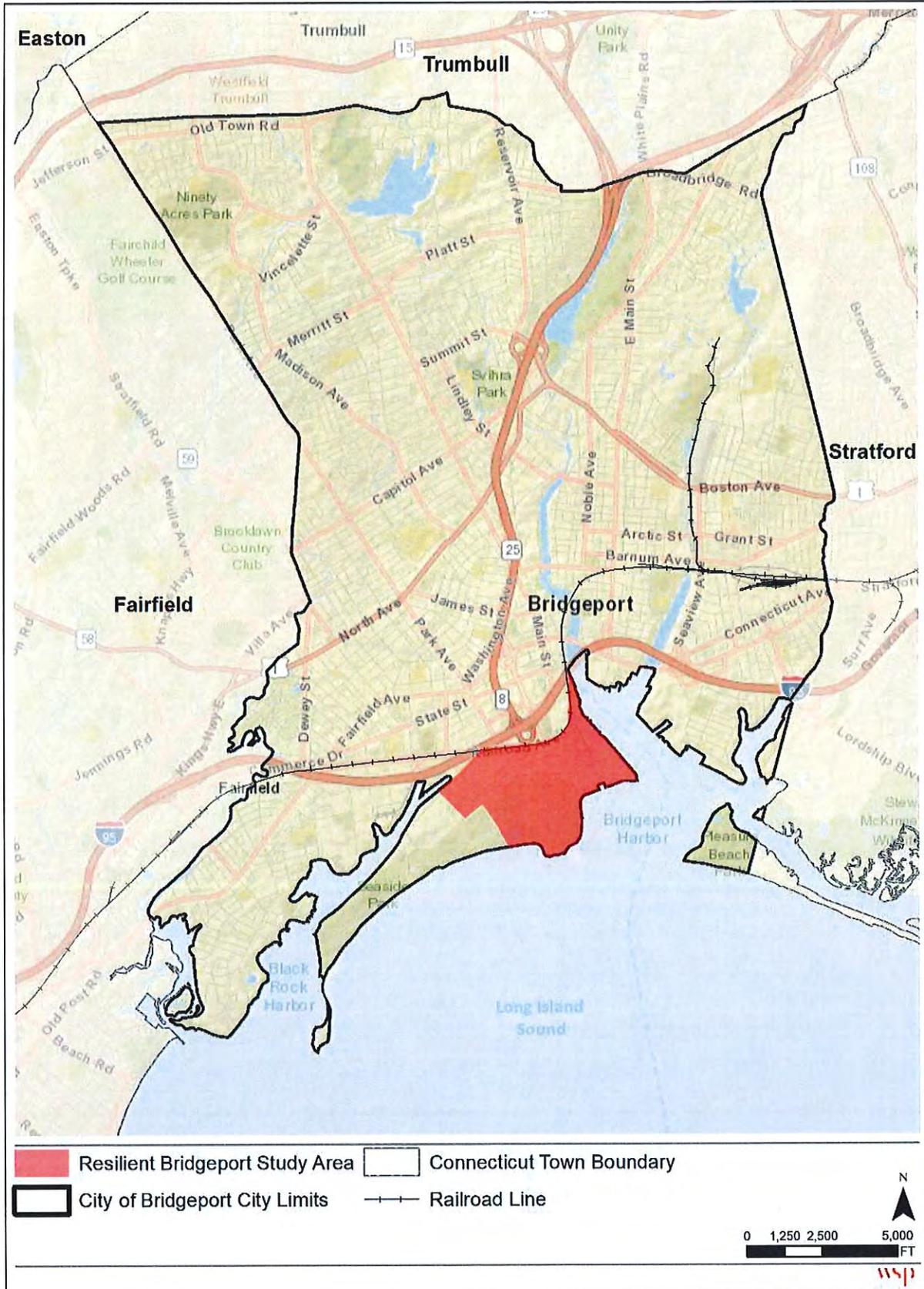


Figure 2: Project Areas

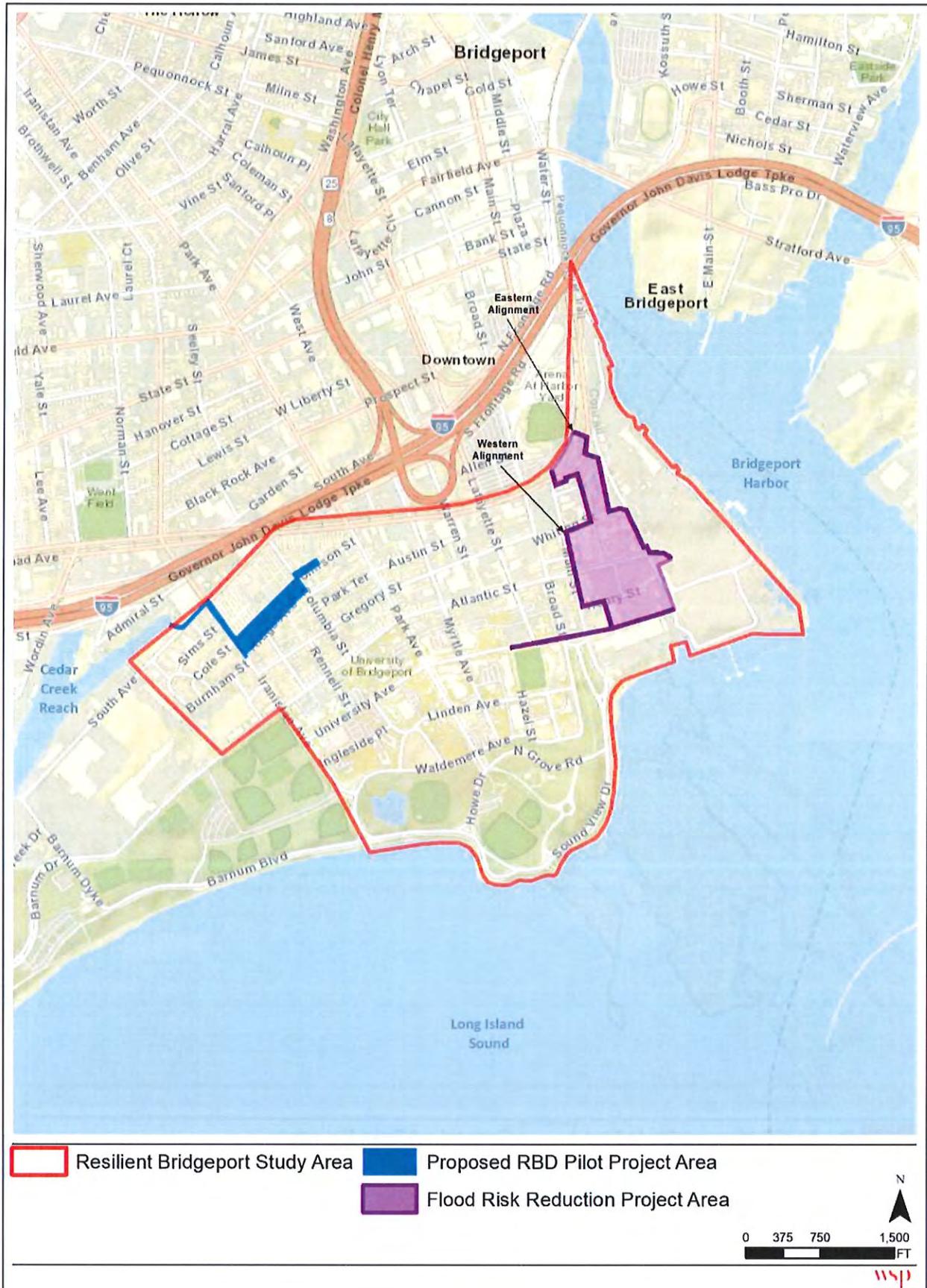


Figure 3: APE and NHRP-listed, and Potentially NHRP-eligible Historic Resources

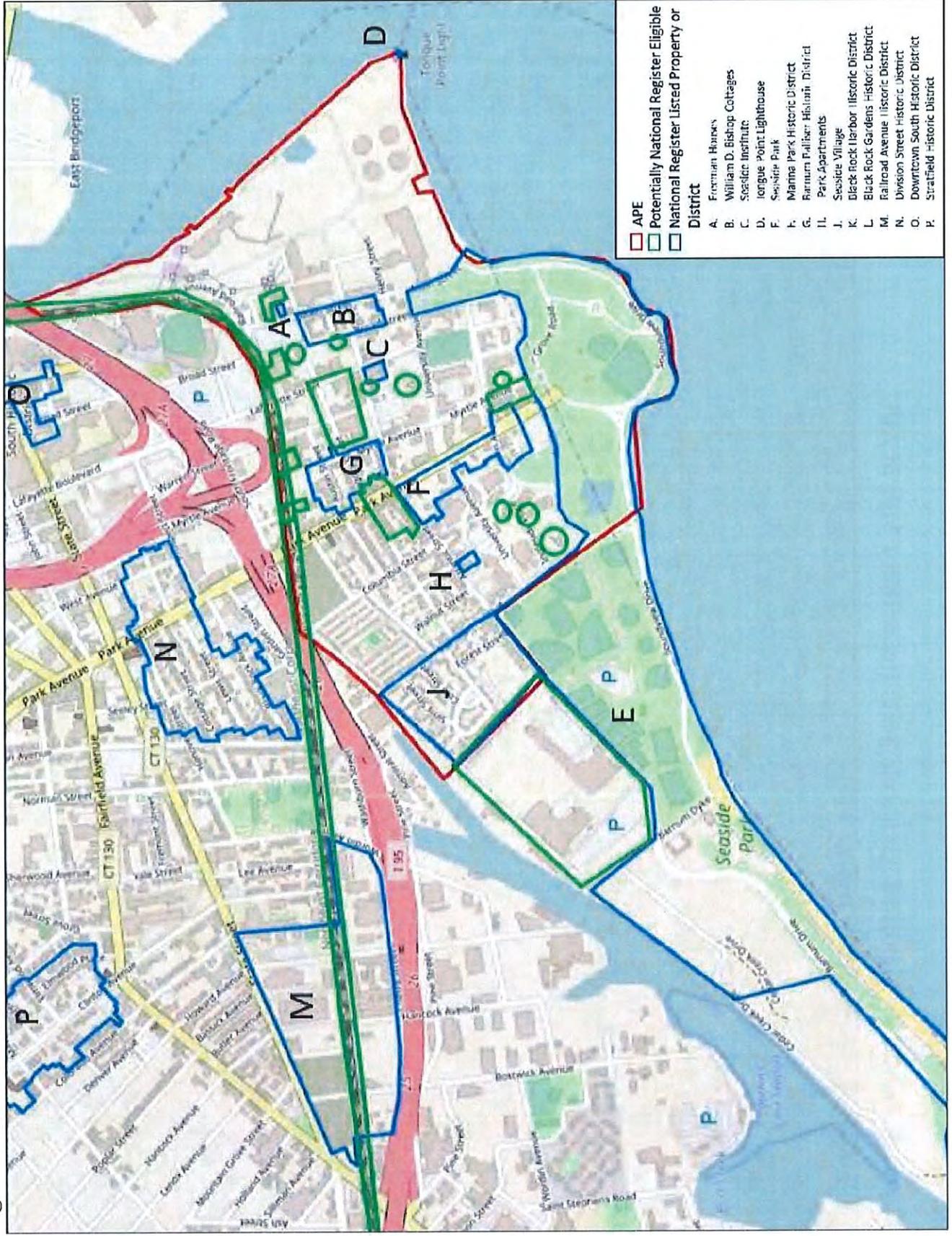


Figure 4: Previously Identified Archaeological Sites within 1 Mile of APE





Dannel P. Malloy  
Governor

STATE OF CONNECTICUT  
DEPARTMENT OF HOUSING



Evonne M. Klein  
Commissioner

December 21, 2018

Brice Obermeyer  
Director, Tribal Historic Preservation Office  
Delaware Tribe of Indians  
Roosevelt Hall, Rm 212  
1200 Commercial Street  
Emporia, KS 66801

**RE: Resilient Bridgeport: National Disaster Resilience and Rebuild by Design Projects**

Dear Mr. Obermeyer,

The State of Connecticut's Department of Housing (DOH) proposes to utilize funds from U.S. Department of Housing and Urban Development (HUD) through the Community Development Block Grant (CDBG) Disaster Recovery (DR) National Disaster Resilience (NDR) and Rebuild by Design (RBD) programs, for the proposed *Resilient Bridgeport: National Disaster Resilience and Rebuild by Design* projects (Proposed Action). Under HUD regulation 24 CFR 58.4, DOH has assumed environmental review responsibilities for the project, including tribal consultation related to historic properties.

The South End neighborhood of the city of Bridgeport (Figure 1) is exposed to storm surge from coastal storms and the risk of such events is increasing due to sea level rise. During Superstorm Sandy, the area was impacted by sustained 70 mph gale force winds and experienced a storm surge nearly 7 feet above normal high tide, resulting in flooded streets, damaged residential properties, and the loss of electric power. The vulnerability of the area to future storm events and sea level rise has limited the opportunities for redevelopment. Due to the low-lying geography, the area experiences flooding on a regular basis from rainfall or tidal inundation. Flooding of streets (particularly low-lying underpasses under Interstate 95 and the Northeast Corridor rail line) can cause safety concerns for the local residents when vehicles, including emergency responders (fire, police, medical), are prevented from accessing the area.

The purpose of the Proposed Action is to create a more resilient South End community, support its long-term viability, and improve health and safety for the community's vulnerable populations. The principal targeted outcomes are to lower the risk of acute and chronic flooding, provide dry egress during emergencies, and educate the public about flood risk and sea level rise. As discussed below, the Proposed Action would include three project components: RBD Pilot Project, Flood Risk Reduction Project, and Resilience Center (Figure 2).

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- The **Flood Risk Reduction Project** would include a combination of measures to reduce the flood risk from future coastal surge and chronic rainfall events in the eastern part of the Study Area. These measures would include a coastal flood defense system comprised of raising a part of University Avenue, Main Street, and Broad Street and installing floodwalls and sheet piling, and implementing both green and gray stormwater and internal drainage management strategies. Two options for the north-south coastal flood defense system alignment are being considered as part of the Proposed Action, both starting from University Avenue in the south and connecting to the existing rail viaduct in the north, one roughly along the east side of Main Street and the second alignment further east along the western edge of the PSEG property.
- The **Resilience Center** would provide funding to the Mary and Eliza Freeman Center for the renovation of the Freeman Houses, a historic resource of local and national significance, that would provide a community space in the South End to operate as a central location for resilience information dissemination, and a location to store supplies to assist the community with recovery efforts during or after shock events. The project would also include other small, open-air design areas to serve as part of the South End Resilience Network.

The Area of Potential Effect (APE), related to historic resources, is delineated as the Study Area, roughly bounded by Metro-North Railroad and South Avenue to the north, Bridgeport Harbor and Long Island Sound to the east and south, and Iranistan Avenue, Atlantic Street, and the west side of Seaside Village to the west (Figure 3). This area was chosen to allow for the assessment of potential direct and indirect effects of the Proposed Action on historic resources. Historic resources include archaeological sites, burial grounds, sacred landscapes or features, ceremonial areas, traditional cultural places and landscapes, and buildings and structure with significant tribal association.

Based on the historic evaluation conducted by a cultural resources consultant (see attached *Historic and Archaeological Resources Evaluation Report*, dated May 4, 2018), it was determined that the APE retains a wide range of historic resources, the majority of which date from mid-19<sup>th</sup> to mid-20<sup>th</sup> centuries. Five National Register of Historic Places (NRHP)-listed individual historic properties and four districts are present; five districts and 11 individual properties were assessed as potentially NRHP-eligible. The NRHP eligibility of these properties is being determined as part of an ongoing consultative process between DOH and the Connecticut State Historic Preservation Office (CTSHPO). Two noteworthy resources include the Freeman Houses (NRHP-listed), located on Main Street, rare and valuable survivors of the Little Liberia community, and Seaside Park (NRHP-listed), designed by Frederick Law Olmsted and Calvert Vaux. The Proposed Action would have an adverse effect on the historic entrance of Seaside Park and an adverse effect on the potentially eligible New Haven and Hartford railroad viaduct.

In addition, there are two archaeological sites within the APE, and research indicates that this area was intensively occupied by Native Americans during the Late Woodland and Contact periods (Figure 4). Any ground disturbance has the potential to impact intact archaeological resources and human remains. Therefore, in advance of construction activities, additional review would include investigation of soil sequences within the project areas by a system of geotechnical investigations (geoprobos, augers, etc.) to further explore the complicated soil sequences. Ground disturbances would also be monitored by an archaeologist, to limit any possible impacts to human remains that may be buried within the APE. Due to the high archaeological potential of the area of Seaside Park's entrance, any ground disturbance should be

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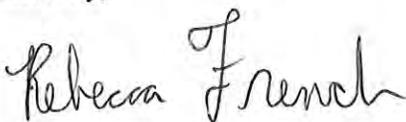
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DOH welcomes the consultation of the Narragansett Indian Tribe as we strive for more effective public participation in NEPA and Section 106 analyses, in our efforts to achieve more informed decision making and to promote cultural heritage and identity. We value your assistance and look forward to consulting further if there are historic properties of religious and cultural significance to your tribe that may be affected by the Proposed Action. Should you have any questions regarding this notice, request, or draft agreement, please do not hesitate to contact me at [Rebecca.French@ct.gov](mailto:Rebecca.French@ct.gov) or 860-270-8231.

Sincerely,



Rebecca A. French, Ph.D.  
Director of Resilience

cc: Donna Mahon (HUD)  
Nicole Weymouth (WSP)

ENCLOSURES

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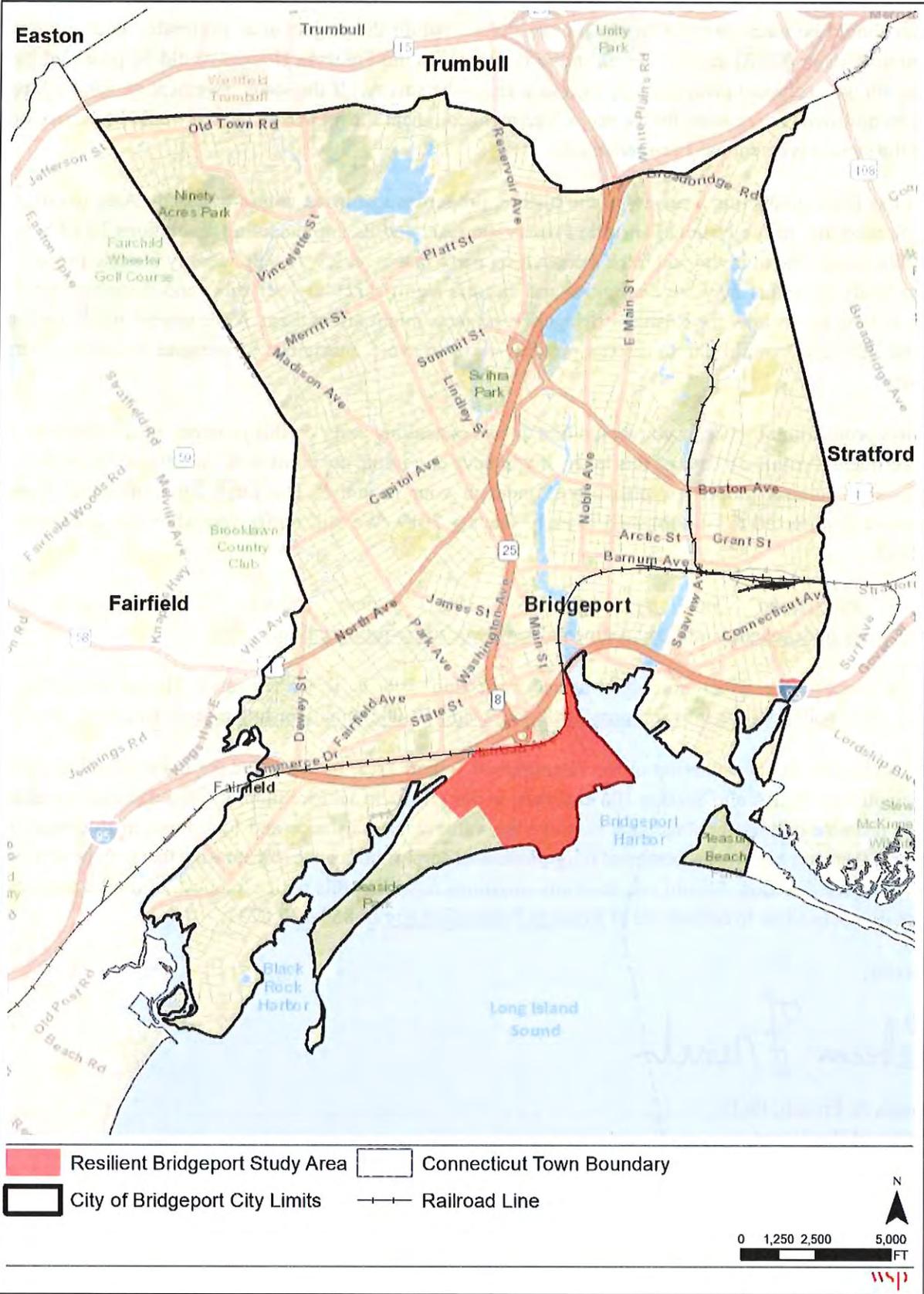


Figure 2: Project Areas

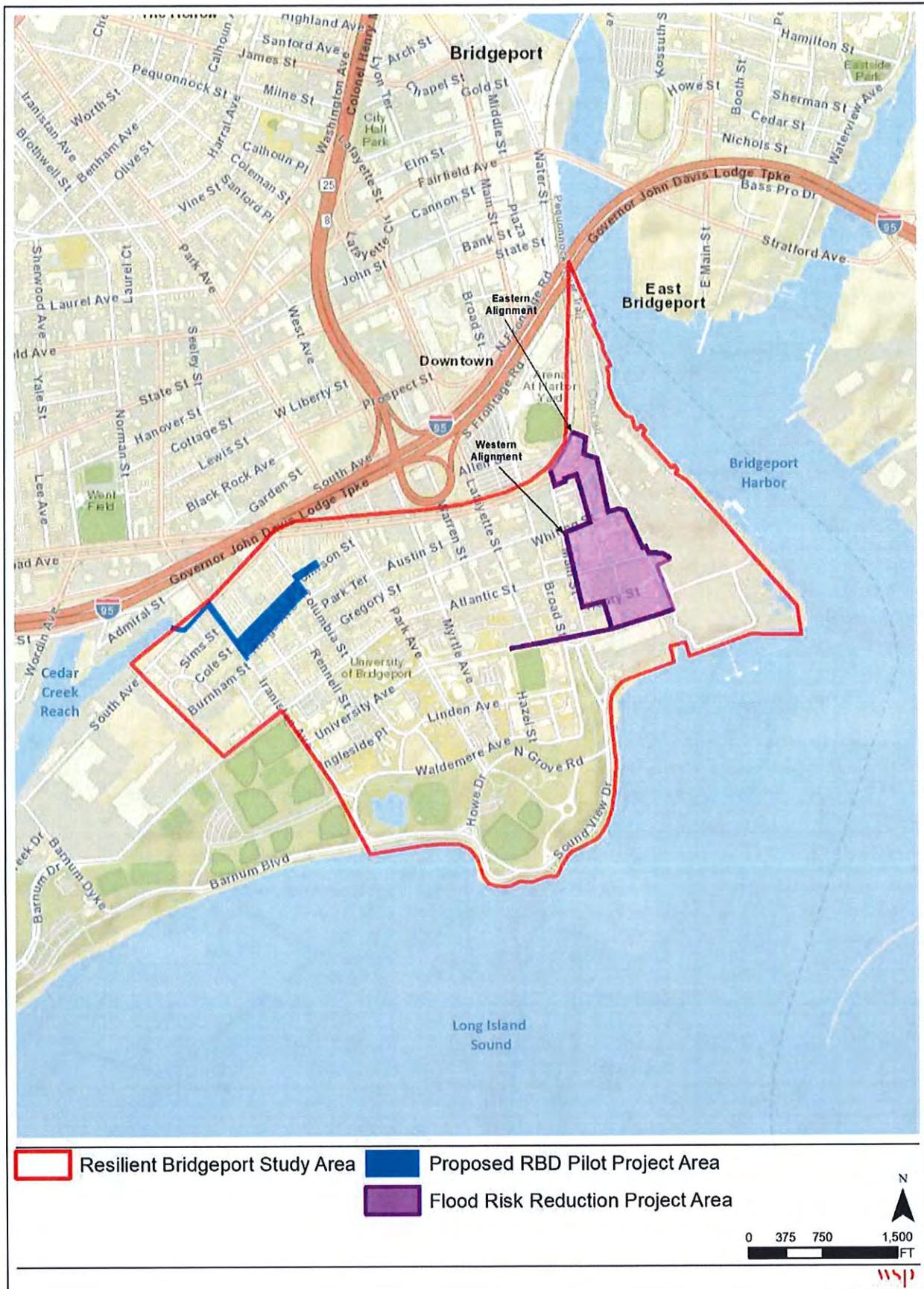


Figure 3: APE and NHRP-listed, and Potentially NHRP-eligible Historic Resources

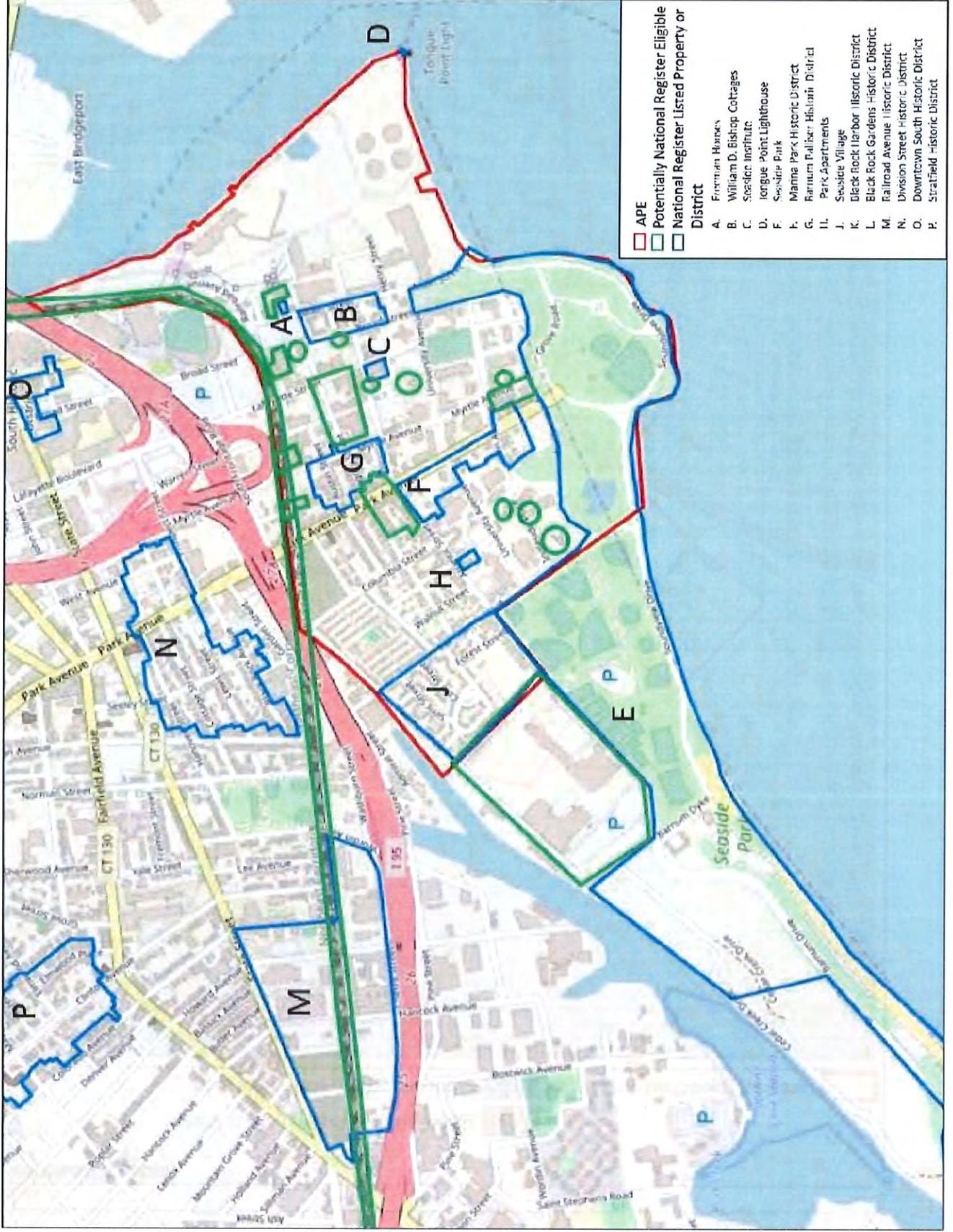


Figure 4: Previously Identified Archaeological Sites within 1 Mile of APE





Dannel P. Malloy  
Governor

STATE OF CONNECTICUT  
DEPARTMENT OF HOUSING



Evonne M. Klein  
Commissioner

December 21, 2018

John Brown  
Tribal Historic Preservation Office  
Narragansett Indian Tribe  
4425 County Trail  
Charlestown, RI 02813

**RE: Resilient Bridgeport: National Disaster Resilience and Rebuild by Design Projects**

Dear Mr. Brown,

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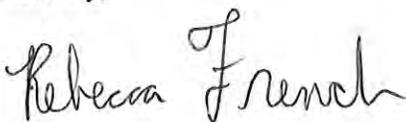
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Director of Resilience

cc: Donna Mahon (HUD)  
Nicole Weymouth (WSP)

ENCLOSURES

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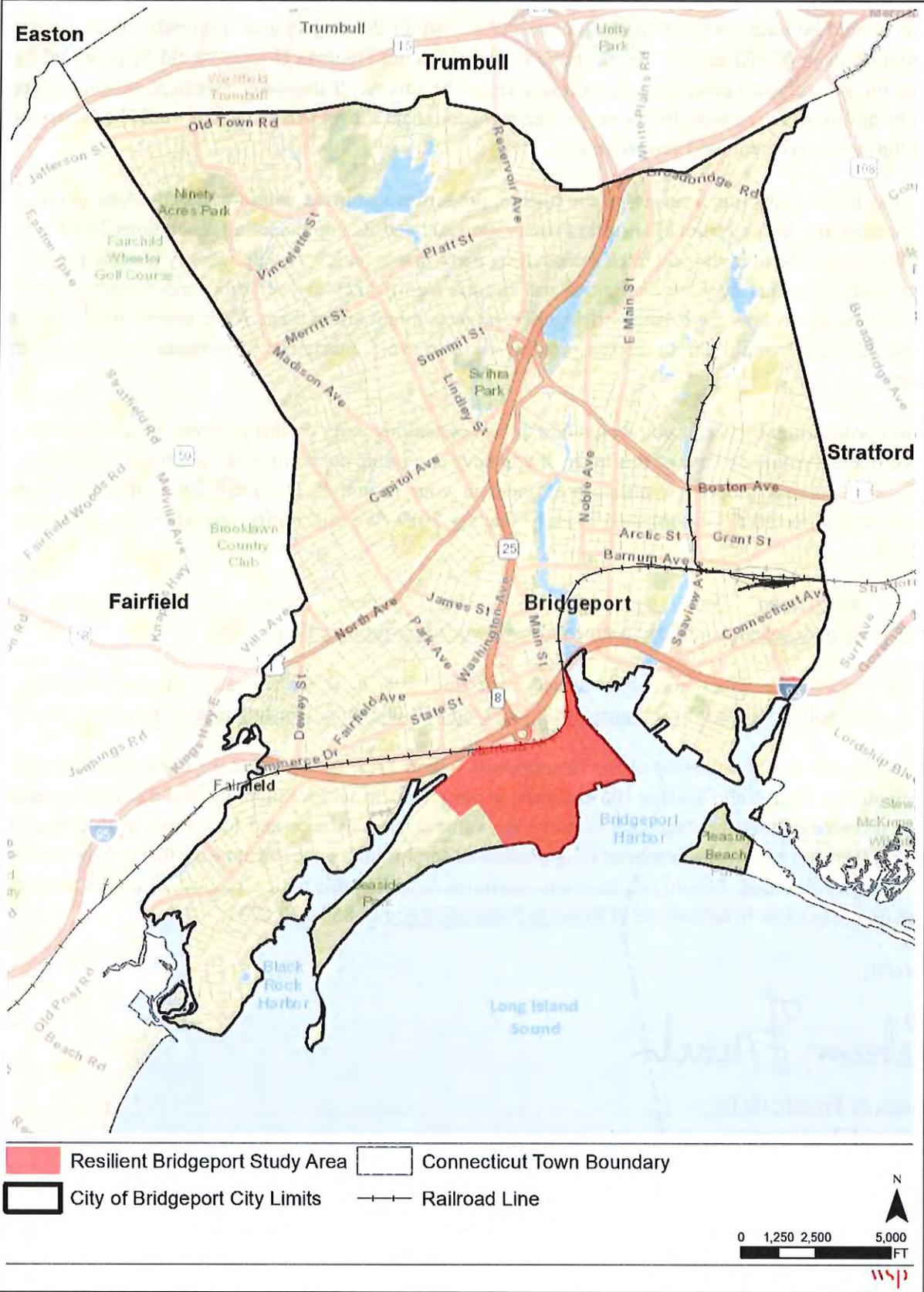


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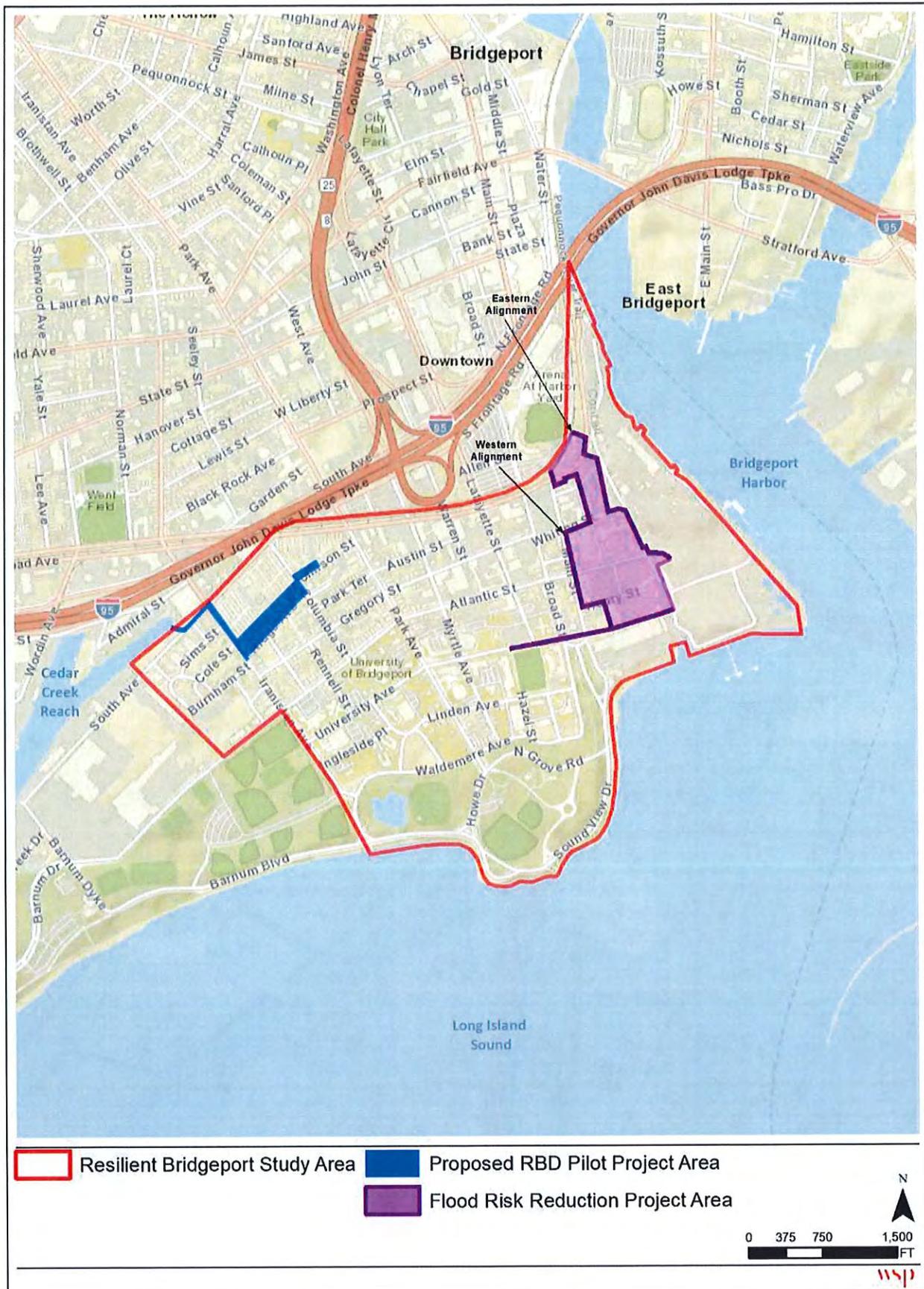


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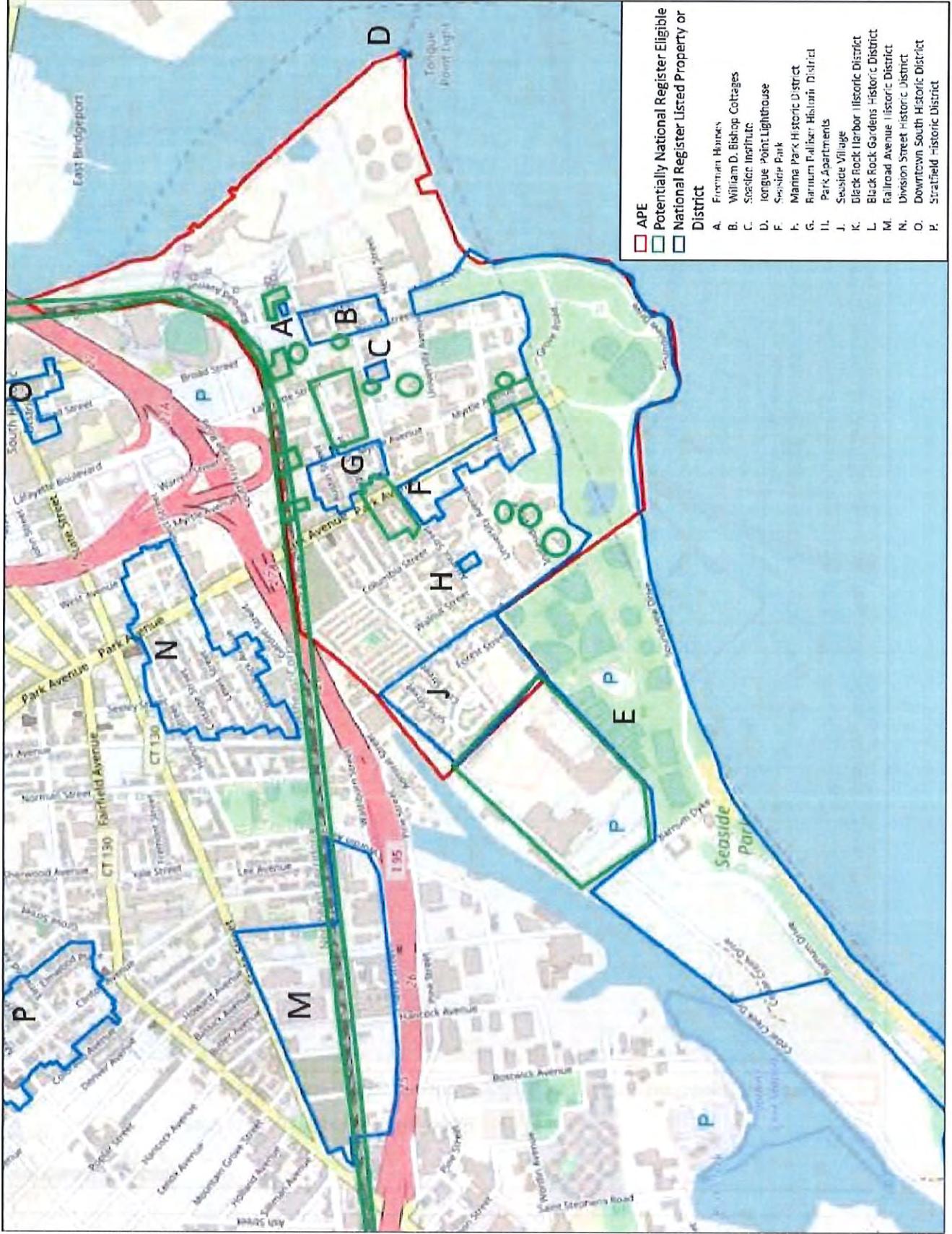


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Dannel P. Malloy  
Governor

STATE OF CONNECTICUT  
DEPARTMENT OF HOUSING



Evonne M. Klein  
Commissioner

November 14, 2018

Marissa Turnbull  
Tribal Historic Preservation Office (THPO)  
Mashantucket (Western) Pequot Tribal Nation  
2 Matts Path, PO Box 3060  
Mashantucket, CT 06338

**RE: Resilient Bridgeport: National Disaster Resilience and Rebuild by Design Projects**

Dear Ms. Turnbull,

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Director of Resilience

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Nicole Weymouth (WSP)

ENCLOSURES

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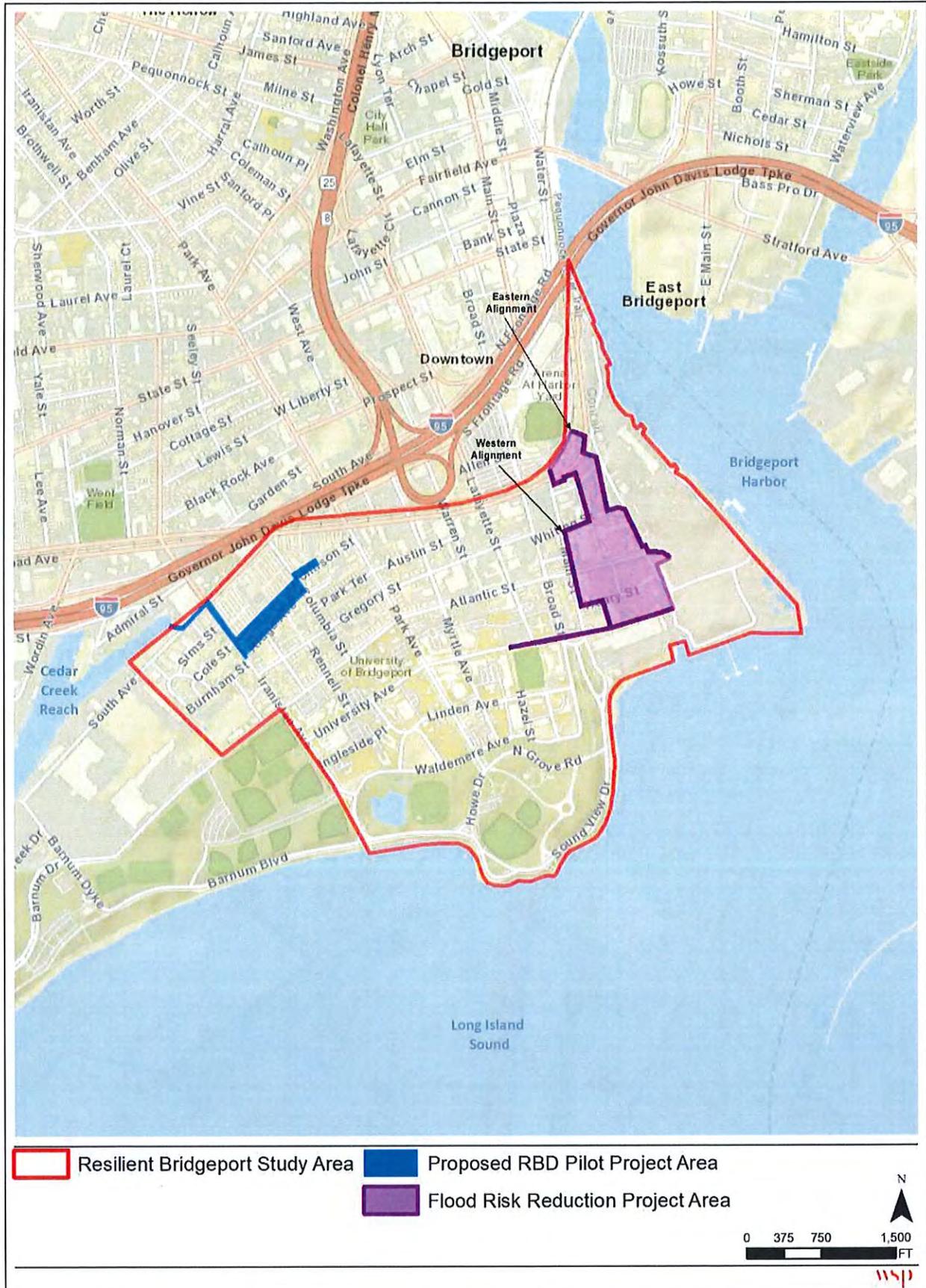
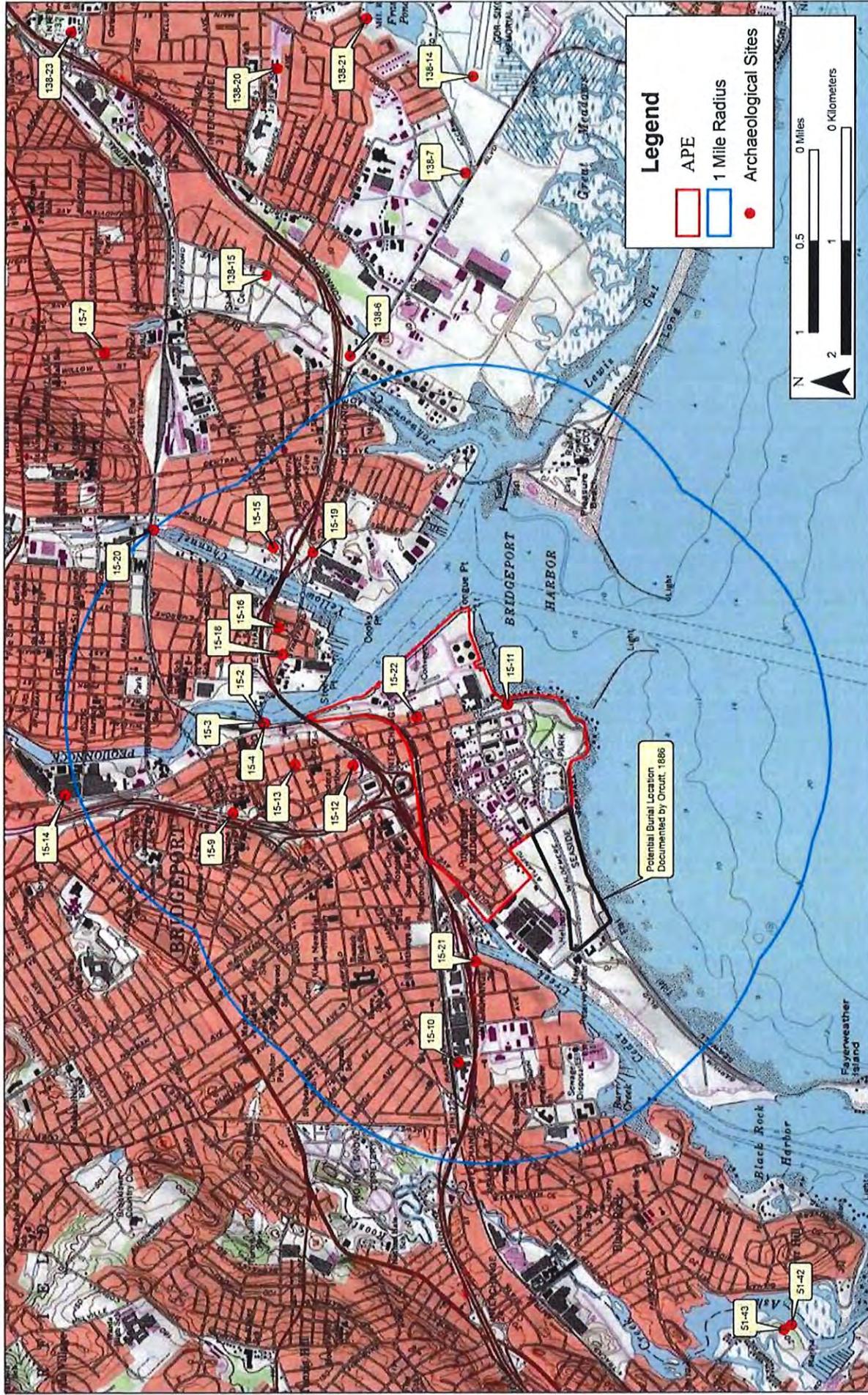


Figure 4: Previously Identified Archaeological Sites within 1 Mile of APE





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STATE OF CONNECTICUT  
DEPARTMENT OF HOUSING



Evonne M. Klein  
Commissioner

November 14, 2018

James Quinn  
Tribal Historic Preservation Officer (THPO)  
Mohegan Tribe of Indians of Connecticut  
13 Crow Hill Road  
Uncasville, CT 06382

**RE: Resilient Bridgeport: National Disaster Resilience and Rebuild by Design Projects**

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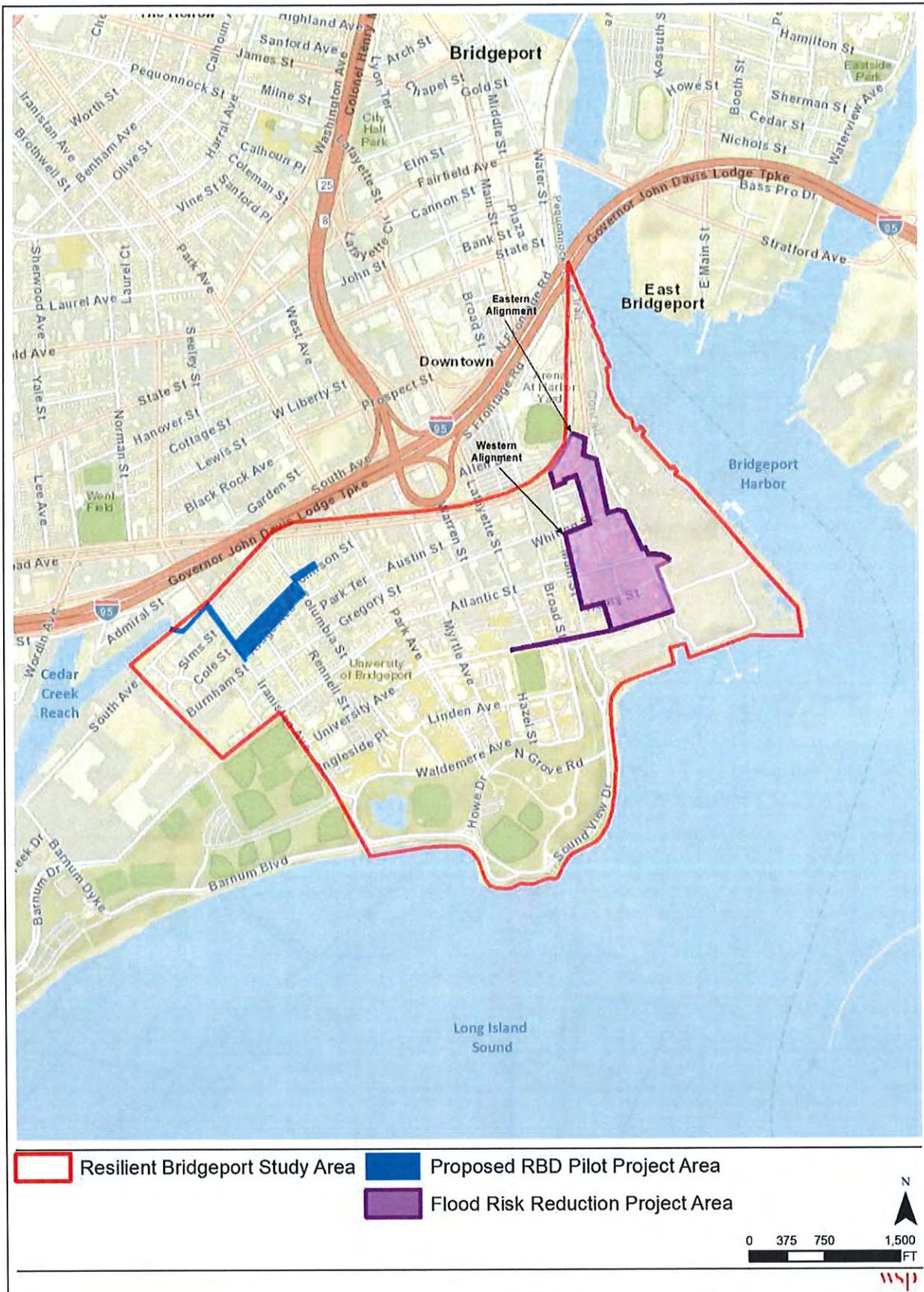


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From: Autumn Cholewa <[ACholewa@moheganmail.com](mailto:ACholewa@moheganmail.com)>  
Date: 12/11/18 3:28 PM (GMT-05:00)  
To: "French, Rebecca" <[Rebecca.French@ct.gov](mailto:Rebecca.French@ct.gov)>  
Cc: James Quinn <[jquinn@moheganmail.com](mailto:jquinn@moheganmail.com)>  
Subject: RE: Resilient Bridgeport - Cultural Resources Section



Good Afternoon Ms. French,

Below are THPO James Quinn's comments regarding the above referenced project sent to our office:

Due to the potential of impacts to highly sensitive cultural resources including the potential for disturbance of burials outlined in the cultural resources assessment sent to our office, we strongly support the recommendations for geotechnical investigations, monitoring of ground disturbances, and archaeological Phase Ib surveying in areas determined to have high potential for intact resources. Please note the following:

- Elevation of University Avenue: We recommend a Phase Ib survey be completed and that our office be notified of a potential timeline/schedule if the geotechnical investigations determine a high potential for intact soils and/or cultural resources and/or burials.
- Elevation of Seaside Park's entrance between Broad and Main Streets: We concur with the recommendation for an archaeological survey. We strongly recommend that ground penetrating radar be used in the open spaces before ground disturbance to determine the presence or absence of burials. We recommend that occur before any shovel testing or other types of ground disturbance. We also agree with the recommendation for monitoring during construction related ground disturbance and also after archaeological and/or GPR are conducted.
- Sheet-piling through the 60 Main Street redevelopment site: We support the recommendation for geotechnical surveying and archaeological monitoring.

We look forward to future discussions around any potential mitigation measures to avoid or minimize any adverse effects to cultural resources and/or burials identified during the course of surveying. Also, we would like for you to provide a projected schedule of the above activities.

Please contact me directly if you have any questions,

Kind Regards,

Autumn Cholewa  
Administrative Assistant of the THPO and Archaeology Dept.  
13 Crow Hill Rd  
Uncasville, CT 06382

Ph: 806-862-6289  
Cell: 860-287-7166

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**From:** Autumn Cholewa <[ACholewa@moheganmail.com](mailto:ACholewa@moheganmail.com)>  
**Sent:** Friday, November 30, 2018 8:38 AM  
**To:** French, Rebecca <[Rebecca.French@ct.gov](mailto:Rebecca.French@ct.gov)>  
**Cc:** James Quinn <[jquinn@moheganmail.com](mailto:jquinn@moheganmail.com)>  
**Subject:** RE: Resilient Bridgeport - Cultural Resources Section



Good Morning Ms. French,

We have received the attachment. Once Mr. Quinn reviews, I will get back to you with comments.

Thank you and have a wonderful weekend,

Autumn Cholewa  
Administrative Assistant of the THPO and Archaeology Dept.  
13 Crow Hill Rd  
Uncasville, CT 06382  
PH: 806-862-6289  
Cell: 860-287-7166

---

**From:** French, Rebecca [<mailto:Rebecca.French@ct.gov>]  
**Sent:** Thursday, November 29, 2018 5:11 PM  
**To:** Autumn Cholewa <[ACholewa@moheganmail.com](mailto:ACholewa@moheganmail.com)>  
**Cc:** James Quinn <[jquinn@moheganmail.com](mailto:jquinn@moheganmail.com)>  
**Subject:** Resilient Bridgeport - Cultural Resources Section

**WARNING: External email. Please verify sender before opening attachments or clicking on links.**

Dear Ms. Cholewa,

Please see the attached pre-public draft chapter of the Cultural Resources section of the Draft EIS with chapters 1 & 2 to provide you with more background information on the project.

If you would like your comments to be included before we publish the Draft EIS for public review, please send them to us by close of business on Dec. 12. If you need additional time, you can submit comments to us at any point up to the end of the public comment period in the second half of January.

Thank you for your time and participation in this process.

Best regards,  
Rebecca

-----  
Rebecca A. French, Ph.D.  
Director of Resilience  
Department of Housing  
State of Connecticut

E-mail: [Rebecca.French@ct.gov](mailto:Rebecca.French@ct.gov)  
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---

**From:** French, Rebecca  
**Sent:** Wednesday, November 21, 2018 4:27 PM  
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**Cc:** James Quinn <[jquinn@moheganmail.com](mailto:jquinn@moheganmail.com)>  
**Subject:** RE: Resilient Bridgeport: National Disaster Resilience and Rebuild by Design Project

Dear Ms. Cholewa,

Thank you for your email. I am delighted to hear from you and Mr. Quinn and we welcome your participation in the process.

Per your request, the Mohegan Tribal Historic Preservation Office will be included as a consulting party and we will keep you informed on any developments. Enclosed with the letter I sent, you have a copy of the Historic and Archaeological Resources Evaluation Report from May 4, 2018 with existing conditions. We are still addressing some initial review comments, but shortly we can send you the Cultural Resources section of Chapter 4 of our Draft Environmental Impact Statement that discusses the impacts from the Proposed Action along with the introductory chapters to provide you with more context for the larger Resilient Bridgeport project.

Thank you again for your prompt response to my inquiry and please do not hesitate to reach out with any questions. You can also find general documents about the Resilient Bridgeport project at [resilientbridgeport.com](http://resilientbridgeport.com) and on the [CT Dept. of Housing website](http://CT Dept. of Housing website).

Best regards,  
Rebecca

-----  
Rebecca A. French, Ph.D.  
Director of Resilience

Department of Housing  
State of Connecticut

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---

**From:** Autumn Cholewa [<mailto:ACholewa@moheganmail.com>]  
**Sent:** Monday, November 19, 2018 3:44 PM  
**To:** French, Rebecca <[Rebecca.French@ct.gov](mailto:Rebecca.French@ct.gov)>  
**Cc:** James Quinn <[jquinn@moheganmail.com](mailto:jquinn@moheganmail.com)>  
**Subject:** Resilient Bridgeport: National Disaster Resilience and Rebuild by Design Project



Good Afternoon Ms. French,

My name is Autumn Cholewa. I am the administrative assistant for Mohegan Tribal Historic Preservation Office. I am contacting you at the request of James Quinn to advise we would like to be a consulting party and ask that more information on the proposed action be sent to our office.

Kind Regards,

Autumn Cholewa  
Administrative Assistant of the THPO and Archaeology Dept.  
13 Crow Hill Rd  
Uncasville, CT 06382  
PH: 806-862-6289  
Cell: 860-287-7166



**APPENDIX B**  
**Alternatives Evaluation Report**

---





STATE OF CONNECTICUT DEPARTMENT OF HOUSING

# RESILIENT BRIDGEPORT NATIONAL DISASTER RESILIENCE PRELIMINARY ALTERNATIVES EVALUATION REPORT

DECEMBER 13, 2018







# RESILIENT BRIDGEPORT NATIONAL DISASTER RESILIENCE

## PRELIMINARY ALTERNATIVES EVALUATION REPORT

STATE OF CONNECTICUT DEPARTMENT OF  
HOUSING

PROJECT NO.: 52829  
DATE: DECEMBER 2018

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December 13, 2018

Dr. Rebecca French - Director of Resilience  
STATE OF CONNECTICUT DEPARTMENT OF HOUSING  
505 Hudson Street  
Hartford, CT 06106

Dear Dr. French:

Subject: Preferred Alternatives Evaluation Report

Please find enclosed the Preliminary Alternatives Evaluation Report, including a Preliminary Alternatives Analysis and an Alternatives Screening Matrix. This report forms the deliverable for Task 2.4, under the scope of services. Recommendations are provided for selection of three alternative alignments for flood risk reduction in Bridgeport's South End. These alternatives have been developed to a 10% level design submitted separately.

Please do not hesitate to contact me if you have any questions concerning this submission, at 1.617.960.4964 or [Dan.J.Kennedy@wsp.com](mailto:Dan.J.Kennedy@wsp.com).

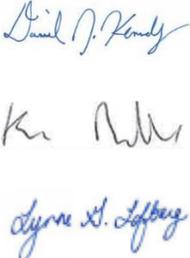
Yours sincerely,

A handwritten signature in blue ink that reads "Daniel J. Kennedy". The signature is fluid and cursive.

Daniel Kennedy, P.E. ENV SP  
Project Manager

WSP ref.: 52829

# QUALITY MANAGEMENT

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Project number	52829	52829		

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This report was prepared by WSP USA for the account of STATE OF CONNECTICUT DEPARTMENT OF HOUSING, in accordance with the professional services agreement. The disclosure of any information contained in this report is the sole responsibility of the intended recipient. The material in it reflects WSP USA's best judgement in light of the information available to it at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. WSP USA accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. This limitations statement is considered part of this report.

---

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# 1 INTRODUCTION

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## 1.1 PROJECT OVERVIEW

The Resilient Bridgeport project is funded by two design competitions initiated by the U.S. Department of Housing and Urban Development (HUD): Rebuild by Design (RBD) and the National Disaster Resilience Competition (NDRC). The Hurricane Sandy Rebuilding Task Force launched the RBD competition in June 2013, as a multi-stage planning and design competition to promote resilience in the Sandy-affected region. The goal of the competition was to promote innovation by developing regionally-scalable but locally applied solutions that increase resilience in the region. The competition set aside HUD Community Development Block Grant Disaster Recovery (CDBG-DR) funding to incentivize the implementation of winning projects and proposals. Resilient Bridgeport was one of the seven winning ideas which received funding.

On September 17, 2014, HUD released a Notice of Funding Availability (NOFA) for the Community Development Block Grant National Disaster Resilience Competition (CDBG-NDRC). The State of Connecticut received funding to support the Resilient Bridgeport pilot program which aligns with the State's broader Connecticut Connections Coastal Resilience Plan. As part of the NDRC, HUD earmarked for Bridgeport, CT, approximately \$42 million to advance resilience planning and implementation in the Bridgeport's South End:

WSP and a team of sub-consultants ("Project Team") have been engaged by the Connecticut Department of Housing (CTDOH) to perform professional engineering services for the NDRC project and the Environmental Impact Statement (EIS) for the RBD and NDRC projects. The RBD pilot project has progressed to approximately 30% design level under a separate contract. The following report is developed to evaluate potential Coastal Flood Defense System (CFDS) alignment alternatives for the NDRC grant funded portion of the Resilient Bridgeport project.

---

## 1.2 PROJECT LOCATION

The general project limits are defined as the area approximately bounded by the Metro North Rail Road (MNRR) line to the north, Park Avenue to the west, Long Island Sound to the south and the Pequonnock River to the east as shown in **Figure 1**. This low-lying area is home to residential neighborhoods, historic districts and landmarks, productive industrial facilities, educational institutions, regional transportation systems and critical regional energy and wastewater infrastructure that face growing environmental challenges.



**Figure 1 - Approximate Project Area (highlighted yellow)**

## 1.3 REPORT SCOPE

The scope of services includes identifying multiple conceptual alignment alternatives to construct a CFDS and narrowing down to three alternatives for further evaluation (10% Design). This report describes the process undertaken to set project goals and selection criteria, develop approaches for reducing flood risk, select a preferred approach, identify alignment alternatives for the preferred approach, analyze alignment alternatives and select three alternatives for 10% design.

With the goal of ultimately selecting three alignment alternatives, this report documents a three-step process implemented to develop a logical and transparent approach to determining alignments which best meets the project goals while considering the numerous constraints and opportunities of each alignment. The three-step process undertaken consists of the following:

1. Evaluate Approaches for Reducing Flood Risk: The Project Team established three general approaches for reduce the impacts of coastal flooding which are listed below. At the conclusion of this step, an approach for reducing flood risk was chosen by evaluating the three approaches against the project goals and selection criteria.
  - a. Edge Alignment: This alignment would be constructed either in-water or along the outer edge of the community along the waterfront;
  - b. Interior Alignment: The interior alignment would identify a street or streets that could be raised to provide dry egress for future development, provide some reduction in risk from storm events and generate opportunities for economic development; and,
  - c. Integrated Alignment: This alignment would be constructed in coordination with key area stakeholders and include raised streets, walls and/or berms. The alignment would also consider future plans for growth, development, and other risk reduction efforts occurring within the project area.
2. Evaluate Preliminary Alignment Alternatives for the preferred approach: Within this step, all potentially feasible alignment segments for the preferred approach were identified for evaluation both on public and private property in

the South End. There are several major property owners/stakeholders in the project area including the University of Bridgeport (UB), PSEG, United Illuminating (UI), Emera, the developer for 60 Main Street, the developer for 30 University Avenue, the City of Bridgeport (City), Connecticut Department of Transportation (CTDOT), Bridgeport Port Authority, community groups and private property owners. Community, property owner and stakeholder input was sought and considered in the preliminary alignments.

3. Select Three Alternatives for Further Evaluation: Segments that were no longer implementable were eliminated from further consideration based on meetings with stakeholders; inconsistency with project goals and selection criteria; and, or, site constraints. Three alignments that were deemed implementable (at the current stage of design), while also achieving the goals of the project, were selected for further consideration (10% Design).

## 2 PROJECT GOALS AND SELECTION CRITERIA

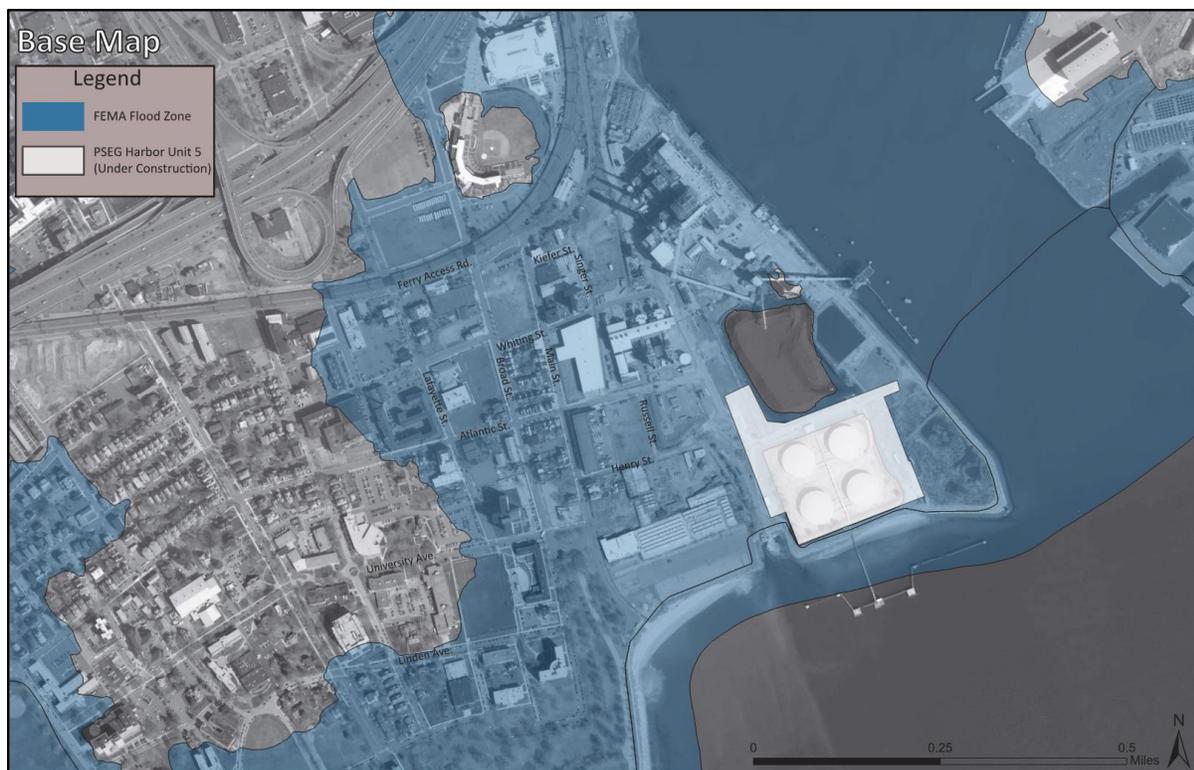
The Project Team established a set of project goals and selection criteria to support those goals. The outcome of the goal setting process is described in “Resilient Bridgeport National Disaster Resilience Goals and Selection Criteria White Paper” first submitted to CTDOH on February 23, 2018. The goals and selection criteria are summarized in this section. In addition, a discussion is provided for the process implemented to identify and combine potential alignment segments.

### 2.1 PROJECT GOALS

The Project Team developed the following set of goals that encompass project objectives while pushing for innovation and fulfillment of a strategy for resilience. These goals were developed to guide the alternatives selection process and serve as the foundation to effectively measure, evaluate, and screen potential alternatives. The following goals are numbered to provide a unique identifier only and the numbering does not represent the order of importance.

#### 2.1.1 GOAL 1: MINIMIZE RISKS ASSOCIATED WITH ACUTE AND CHRONIC FLOODING

Located on a peninsula, surrounded by the Pequonnock River to the east, Cedar Creek to the west, and Long Island Sound to the south, the South End is at risk of flooding from both coastal storm surge (see **Figure 2**) during storm events and from significant rainfall events that are projected to become more frequent in the future due to climate change and sea level rise. Resilient Bridgeport will seek to alleviate hardships associated with flooding from these types of events through creative and effective coastal and inland water impact mitigation strategies. Hurricane Sandy is a recent example of a major storm causing significant flooding to the South End. Inundation levels during the storm are provided in **Figure 3**



**Figure 2 - FEMA 1% annual chance of occurrence flood zone**



**Figure 3 - Hurricane Sandy Inundation Levels**

### **2.1.2 GOAL 2: INTEGRATE WITH PLANS AND PROJECTS OF KEY LOCAL STAKEHOLDERS**

The South End Community includes a range of stakeholders with active projects and plans which will be considered for coordinated risk reduction measures. Key stakeholders include utility companies, major power generation facilities, private developers, and the University of Bridgeport. This goal will assess the extent to which shared efforts between these parties can lead to effective risk reduction, through integration with stakeholders’ projects, plans and future operations.

There are several significant and ongoing plans, developments, and facility operations in the South End project area. Resilient Bridgeport will strive to integrate with and, at a minimum, coordinate with these stakeholder initiatives to maximize the leveraging of resources, impact, and ultimate success of this project. The project will seek to gain efficiencies through the coordination of risk reduction efforts and the ability to leverage projects in the community to achieve the highest positive impact achievable for the South End.

### **2.1.3 GOAL 3: DELIVER CO-BENEFITS TO ENHANCE COMMUNITY RESILIENCY**

Resilience is defined broadly by the South End Community to include social, economic, and environmental factors in addition to risk reduction. Therefore, the project should employ this comprehensive approach to resilience and aim to reduce risk to the community while delivering co-benefits by: enabling new economic development opportunities, improving mobility, and enhancing quality of life. Risk reduction should create tangible physical, economic, environmental, and social benefits for the community and the extent to which those benefits enable long-term community resiliency.

---

#### **2.1.4 GOAL 4: PROJECT NEEDS TO BE IMPLEMENTABLE**

Resilient Bridgeport has received a finite amount of funding through federal funding sources set on a defined schedule for implementation. The project must be achievable with the available resources, meet necessary relevant local, state, and federal permits and regulations and meet the finite construction timeline provided by HUD for funding. This goal serves as a baseline requirement for alternative evaluation.

---

## **2.2 SELECTION CRITERIA**

The following selection criteria were developed to allow the Project Team to understand and evaluate how each alternative will contribute to, and/or achieve the agreed upon project goals. By qualitatively capturing the positive and negative effects of alternatives, the evaluation process supports development of a consensus for a shortlist of three alternatives.

---

### **2.2.1 SELECTION CRITERIA GOAL 1: MINIMIZE RISKS ASSOCIATED WITH ACUTE AND CHRONIC FLOODING**

- Enhance reliability of energy generation, transmission, and distribution
  - Reduce flood risk for vulnerable populations
  - Reduce flood risk for residents, businesses, and institutions
  - Consider present day and future flood risk based on local climate change projections on storm intensity and frequency
  - Provide dry egress for residents and redevelopment sites
  - Provide opportunities for green infrastructure management measures
  - Provide opportunities for adaptability to future conditions
  - Reduce flood risk for the design life of the project considering sea level rise
  - Reduce flood risk for energy providers during storm events
  - Result in low-level of impact on existing drainage system
- 

### **2.2.2 SELECTION CRITERIA GOAL 2: INTEGRATE WITH PLANS AND PROJECTS OF KEY LOCAL STAKEHOLDERS**

- Achieve stakeholder buy-in
  - Achieve community buy-in
  - Leverage investment through coordination with stakeholders
  - Maintain and/or improve access to stakeholder properties
  - Integrate with current master plans
  - Provide dry egress to future development sites
- 

### **2.2.3 SELECTION CRITERIA GOAL 3: DELIVER CO-BENEFITS TO ENHANCE COMMUNITY RESILIENCY**

- Provide public amenities

- Improve connectivity to Downtown Bridgeport during flood event
  - Improve mobility within South End
  - Facilitate Transit Oriented Development (TOD)
  - Preserve and/or enhance connection to water
  - Preserve and enhance community character
  - Integrate with and repair the urban fabric
  - Unlock potential for future development
  - Improve public health
  - Create and/or enhance the public realm
  - Serve as regional flood risk reduction prototype
- 

#### ***2.2.4 SELECTION CRITERIA GOAL 4: PROJECT NEEDS TO BE IMPLEMENTABLE***

- Avoid/minimize potential right-of-way (ROW) conflicts
- Avoid acquisition of private property
- Avoid significant utility obstructions/conflicts
- Avoid known major environmental impacts
- Avoid known unfavorable subsurface conditions
- Consider spatial constraints
- Estimated construction costs are within project budget or reachable with reasonable supplemental sources
- Provide relative life-cycle cost benefits
- Provide relative Operations and Maintenance (O+M) cost benefits
- Able to be permitted by local, state, and federal agencies
- Buildable within allowable timeframe
- Designed such that it could be accredited by FEMA

# 3 EVALUATE APPROACHES FOR FLOOD RISK REDUCTION

---

## 3.1 GENERAL

Three general approaches to reduce the risk of acute flooding to vulnerable areas of the eastern south end were developed for evaluation. The three alignments approaches are described in the following sections and further evaluated in Sections 5 and 6. Park Avenue provides a high ground “spine” running north-south through the South End. As the focus for this project is the south-east portion of the community, Park Avenue provides the western boundary of the CFDS and the tie-in point for dry egress from the South End.

---

## 3.2 EDGE ALIGNMENT

The edge alignment approach, shown in **Figure 4**, consists of a CFDS either in-water or directly above the Coastal Jurisdiction Line (Elevation +5.0 feet NAVD88). The alignment would start at the high ground on Park Avenue, continue east through the southern boundary of Seaside Park along the water’s edge, and follow the shoreline of the Pequonnock River. A northern tie-in would be required along the MNRR line. This alignment would impact the shoreline along Seaside Park, 60 Main Street, PSEG, UI, and possibly the Bridgeport Port Authority.



**Figure 4 - Edge Alignment Approach (shown in green)**

---

## 3.3 INTERIOR ALIGNMENT

The interior alignment approach, shown in **Figure 5**, would consist of raising streets in the South End neighborhood to create a resilient corridor network, as well as provide dry egress to members of the community and key stakeholders. For

the purposes of this assessment, we have assumed that dry egress requirements will be met if new residential development can be accessed by a raised street elevated to meet the dry egress requirements of the CTDEEP flood plain management regulations. Raised streets may provide multi-modal transportation options for residents while also reducing risk against future acute storm events. In this approach, University Avenue is the focus of the street raising, but consideration was also begiven to additional lateral street connections, such as Gregory Street and Atlantic Street.



**Figure 5 - Interior Alignment Approach (shown in green)**

---

### 3.4 INTEGRATED ALIGNMENT

The integrated approach, shown in **Figure 6**, combines aspects of both the edge and interior approach to reduce acute flood risk for the project area. Similar to the edge approach, the integrated approach consists of a closed loop CFDS with the intent of providing a raised perimeter to reduce the risk of acute flooding to vulnerable areas on the inside of the alignment. However, while the edge alignment only considers an in-water/water's edge perimeter, the integrated approach also considers alignments further inland. An integrated alignment may include construction of structures on both public and private property and requires extensive coordination with stakeholders, agencies and the community. In addition, the integrated alignment incorporates dry egress functions along University Avenue.



**Figure 6 - Integrated Alignment Approach (shown in green)**

---

### 3.5 EVALUATION OF APPROACHES

The Edge Alignment, Interior Alignment and Integrated Alignment approaches were evaluated for each of the project goals identified in Section 2. An evaluation matrix was used as an assessment tool, where each goal was converted to a question with the respective approach either meeting the goal (yes) or not meeting the goal (no). The total number of “yes’s” were tallied to determine which approach best meets the selection criteria. While none of the approaches meet all the project goals, the Integrated approach emerged with the most “yes” responses. Although the Integrated alignment scored highest of the three approaches, the Edge Alignment and Interior Alignment were further evaluated (see Section 5) in coordination with stakeholder outreach (see Section 4) prior to deciding on which approach to carry forward.

**Table 1 - Alignment Approach Evaluation**

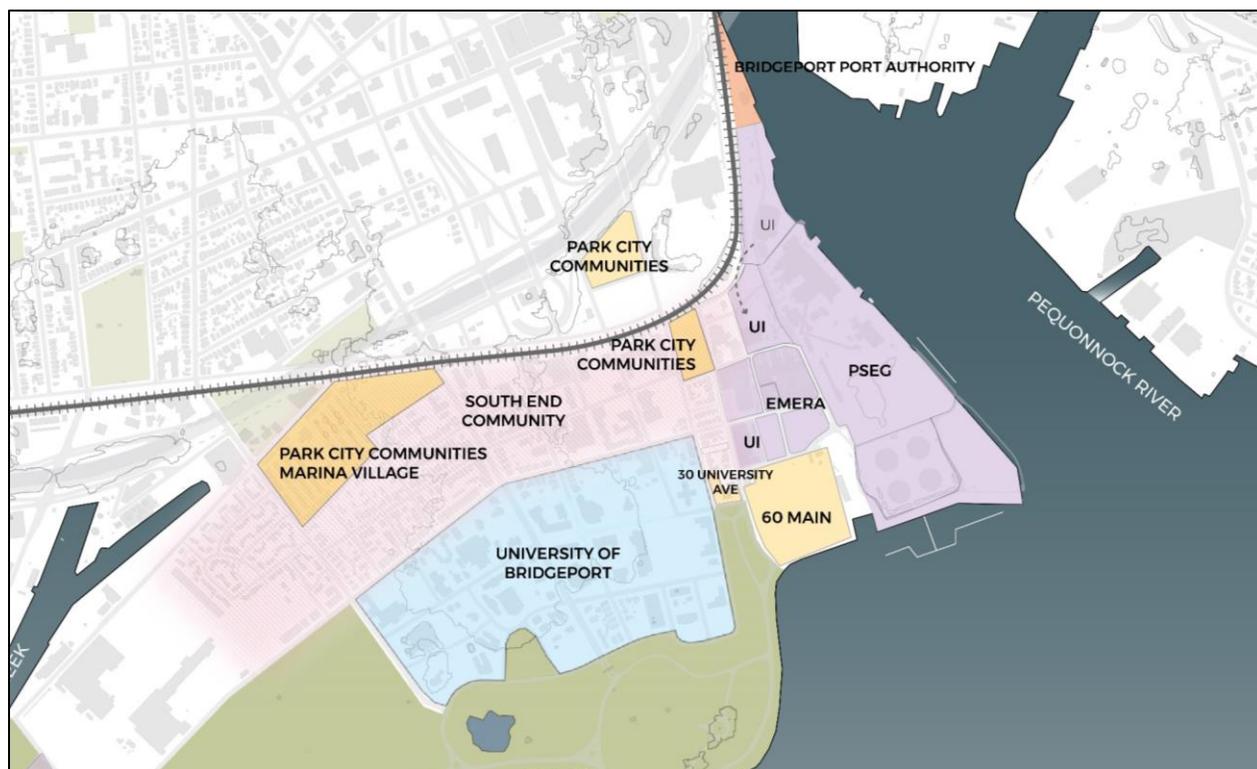
Goal	Selection Criteria	Alignment		
		Edge	Raised Street	Integrated
 <p><b>1. Minimize Risks Associated with Acute and Chronic Flooding</b></p>	Enhances reliability of energy generation, transmission, and distribution?	Y	N	Y
	Reduces flood risk for vulnerable populations?	Y	N	Y
	Reduces flood risk for residents, businesses, and institutions?	Y	N	Y
	Considers present day and future flood risk based on local climate change projects and storm intensity and frequency?	Y	Y	Y
	Provide dry egress for residents and redevelopment sites?	Y	Y	Y
	Provides opportunities for green infrastructure and management measures?	Y	Y	Y
	Provides opportunities for adaptability to future conditions?	Y	Y	Y
	Reduces flood risk for the design life of the project considering sea level rise?	Y	Y	Y
	Reduces flood risk for energy providers during storm events?	Y	N	Y
	Results in low-level of impact on existing drainage system?	Y	N	N
 <p><b>2. Integrate with Plans and Projects of Key Local Stakeholders</b></p>	Achieves stakeholder buy-in?	Y	Y	Y
	Leverages investment through coordination with stakeholders?	Y	N	Y
	Maintains and/or improve access to stakeholder properties?	Y	Y	Y
	Integrates with current master plans?	Y	Y	Y
	Provides dry egress to future development sites?	Y	Y	Y
 <p><b>3. Deliver Co-benefits to Enhance Community Resiliency</b></p>	Provides a multifunctional solution?	Y	Y	Y
	Provides public amenities?	Y	Y	Y
	Improves connectivity to Downtown Bridgeport during flood event?	Y	Y	Y
	Improves mobility within South End?	N	Y	Y
	Facilitates Transit-oriented development?	N	N	N
	Preserves and/or enhance connection to water?	N	Y	Y
	Preserves and enhance community character?	N	Y	Y
	Integrates with and repair the urban fabric?	N	Y	Y
	Unlocks potential for future development?	Y	Y	Y
	Improves public health?	Y	Y	Y
	Creates and/or enhance the public realm?	N	Y	Y
Serves as regional flood risk reduction prototype?	Y	Y	Y	

**Table 2 - Alignment Approach Evaluation (Continued)**

Goal	Selection Criteria	Alignment		
		Edge	Raised Street	Integrated
 <p><b>4. Project Needs to be Implementable</b></p>	Avoids/minimizes potential right-of-way conflicts?	N	Y	Y
	Avoids acquisition of private property?	N	Y	N
	Avoids significant utility obstructions/conflicts?	N	Y	N
	Avoids known major environmental impacts?	N	Y	Y
	Avoids known unfavorable subsurface conditions?	N	Y	Y
	Considers spatial constraints?	Y	Y	Y
	Estimated construction costs are within project budget or researchable with reasonable supplemental sources?	N	Y	Y
	Provides relative life-cycle cost benefits?	Y	Y	Y
	Provides relative Operations and Maintenance (O+M) cost benefits?	Y	Y	Y
	Able to be permitted by local, state, and federal agencies?	Y	Y	Y
	Buildable within allowable timeframe?	N	Y	Y
	Designed such that it could be certified by Federal Emergency Management Agency?	Y	N	Y
<b>Total No. of Yes's</b>		<b>26</b>	<b>31</b>	<b>35</b>

## 4 STAKEHOLDER OUTREACH

Stakeholder outreach was a critical component of the preliminary alternatives analysis process. The Project Team engaged with several key stakeholders to communicate the goals of Resilient Bridgeport, solicit feedback and seek opportunities for cooperation. A map showing key stakeholders is provided in **Figure 7**.



**Figure 7 - Key Local Stakeholders**

The Project Team conducted Stakeholder Outreach and engaged in a high-level review of potential approaches and alignments. Stakeholder outreach was primarily conducted to: collect data, better understand future development plans and initiatives, discuss the project goals and proposed alignment locations, and to look for opportunities to maximize the leveraging of resources. The purpose of the high-level review was to narrow the numerous alternatives down to three to evaluate in further detail. To qualitatively assess the effectiveness of each possible combination of segments against the project goals and selection criteria, an alignment alternatives screening matrix was also developed, as described herein.

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### 4.1 UNIVERSITY OF BRIDGEPORT

The University of Bridgeport is in the center of the project area and contains University Avenue, which was earmarked as a resilient corridor within the NDRC project funding allocation. The Project Team met with representatives from the University multiple times throughout the alternatives development process to coordinate design, engage in integrated planning, and determine the most effective approach for integrating the raised University Avenue into the University's Master Plan. As a result of the meetings, the University agreed to be a partner for the project.

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### 4.2 PRIVATE DEVELOPERS

The Project Team communicated and conducted meetings with Westport Property Management – the private developer seeking to develop 60 Main Street. Several meetings were held during the alternatives selection process with the goal of developing a coastal defense strategy that can be coordinated with the future development. Access needs, coastal defense,

maintenance and operations, public-private interface and construction sequencing were among the many issues considered in engaging the developer. In the meetings, the developer indicated a preference to avoid a coastal alignment in favor of an alignment that extended from the end of University Avenue westward.

CTDOH reached out to the developers of the 30 Main Street site; however, the developer was not responsive.

### 4.3 UNITED ILLUMINATING COMPANY (UI)

The Project Team coordinated with UI, a locally operated energy facility, to advance opportunities for a CFDS alignment that considers the needs of all parties, optimizes efficiencies, prioritizes risk reduction and produces co-benefits. The Project Team met individually with UI and jointly with PSEG, Bridgeport Energy and UI during the preliminary alternative development process, in addition to engaging via telephone and through correspondence. Key subjects of discussion included data collection for transmission and distribution lines, UI’s existing Singer and Pequonnock Substation facilities, plans to relocate the Pequonnock Substation, and the company’s long-term plans for resilience. UI possesses significant underground distribution lines within the project limits, which are a key consideration in assessing utility conflicts.

### 4.4 BRIDGEPORT ENERGY (EMERA)

Bridgeport Energy, owned by Emera is a 520 MW combined cycle natural gas-fired power plant whose facilities fall within the Resilient Bridgeport project area. As with UI, the Project Team met with Bridgeport Energy to seek opportunities for a favorable coastal defense alignment, optimize efficiencies, prioritize risk reduction and produce co-benefits. At individual meetings, as well as through direct correspondence and phone communication, the Project Team reviewed Bridgeport Energy’s plans for reducing risk for its generating station; coordinated potential CFDS schemes and the related impact on Bridgeport Energy’s operations, and; solicited partnership opportunities for an integrated risk reduction strategy.

### 4.5 PSEG

PSEG is located on the eastern border of the South End and is the largest property owner of the three energy providers. The Project Team met with PSEG during the preliminary alternatives analysis process to coordinate and obtain information regarding the following: site conditions, utility locations, the decommissioning strategy for Harbor Unit 3, the design and construction schedule for Harbor Unit 5, and the status of earlier decommissioned units and the jet fuel generator (Harbor Unit 4). The impact of all this existing and future infrastructure in relation to the Resilient Bridgeport project was reviewed. The Project Team presented potential CFDS options to PSEG to determine how risk reduction can be coordinated with PSEG’s long-term planning for the site. At individual meetings, as well as through direct correspondence and phone communication, the Project Team reviewed PSEG’s future plans; coordinated potential CDFS schemes and the related impact on PSEG’s operations, and; solicited partnership opportunities for an integrated protection risk reduction strategy.

### 4.6 OTHER STAKEHOLDERS

In addition to the main property owners in the project area, the Project Team also met and / or corresponded with and solicited feedback from numerous other stakeholders as shown in .

**Table 3 - Additional Stakeholder Meetings**

<b>Stakeholder</b>	<b>Main Discussion Topic(s)</b>
City of Bridgeport (Engineering and WPCA)	Impact on existing utilities and plans for future stormwater improvements, Fire Marshall requirements
Connecticut Department of Energy and Environment (CTDEEP)	Flood Plain Management certification requirements
Connecticut Department of Transportation (CTDOT)	Northern tie-in (existing MNRR trestle and property)

The Mary & Eliza Freeman Center for History and Community	Potential impacts on the Freeman Houses and cottage district
US Army Corps of Engineers (USACE)	Public Law 84-99 (PL 84-99) Emergency Levee Rehabilitation Program
Federal Emergency Management Agency (FEMA)	FEMA Accreditation and Remapping process

# 5 FURTHER EVALUATION OF INTERIOR AND EDGE ALIGNMENT APPROACHES

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## 5.1 INTERIOR ALIGNMENT APPROACH

The Interior Approach generally consists of raising streets. Streets can serve as a primary overland water-conveyance network. By anticipating storm surge and water flow both in and out, streets can function as a raised infrastructure corridor that doubles as flood defense. Streets can set the stage for new investment in key places, such as raised roads near potential redevelopment parcels. Making roadways more resilient would layer benefits of improving utilities, transportation, and flood risk reduction.

Providing dry egress to neighborhoods is a concern for both safety and redevelopment. Critical facilities, for which even a slight increase in flooding is too great a threat, required dry egress in order to be redeveloped. Raised connection corridors, or spines, can spur redevelopment in coastal areas while still promoting architectural adaptation to rising seas.

Raised corridors can be paired with a wayfinding program, such as signage and lighting, to provide clear directions during evacuations and better connections through the neighborhood year-round. Signage and lighting can denote important sites (e.g., shelters) or educational information (e.g., historic flooding heights). Better connections, raised or otherwise, can catalyze redevelopment in critical nodes around Bridgeport.

For the project, raised streets were considered to provide dry egress. As dry egress alone does not meet the full range of the project goals as shown in Section 3.5, the Interior Approach was not selected. However, when raised streets are incorporated into a full CFDS both dry egress and flood risk reduction are achieved. For this analysis, individual streets were examined for effectiveness for providing dry egress. Thereafter, raised streets were evaluated as segments of a full CFDS as discussed in Section 7.

The streets within the project area generally run east-west or north-south. For a raised street to provide dry egress, all or part of the street to be raised needs to be in the floodplain prior to raising. East-west and north-south streets in the floodplain in the project area include the following:

- **East-West Streets** - Soundview Drive, Monument Drive, Grove Road, Waldemere Avenue, Linden Avenue, University Avenue, Atlantic Street, Gregory Street, Henry Street, Whiting Street, Kiefer Street, Ferry Access Road/Railroad Avenue
- **North-South Streets** - Main Street; Broad Street; Lafayette Street, Hazel Street, Myrtle Avenue, Park Avenue, Singer Avenue, Russel Street

Each street was evaluated for its effectiveness for providing dry egress if raised in isolation and a process of elimination was undertaken to evaluate streets for raising as follows:

- **Seaside Park Streets** – Soundview Drive, Monument Drive and Grove Road are all located in Seaside Park. The park does not have occupied infrastructure and therefore does not require dry egress. These streets were eliminated from consideration for raising.
- **Waldemere Avenue, Henry Street, Whiting Street, Keifer Street, Hazel Street, Russell Street, Singer Avenue, Lafayette Street, Main Street, Broad Street** – The option of raising these streets was eliminated as both ends of the street are in the flood plain and therefore raising the street in isolation would not provide dry egress.
- **Ferry Access Road/Railroad Avenue** – The option of raising this street was eliminated as the raising would result in non-operable underpasses at the intersections of Lafayette Street and Broad Street. In addition, there are sensitive, critical utilities under this street which may prohibit the additional of fill needed to raise the road.
- **University Avenue, Atlantic Street, Gregory Street** – Raising the western ends of these streets would provide dry egress from the floodplain. Raising University Avenue provides dry egress to the University of Bridgeport campus as well as future development planned at the 60 Main Street site. Raising Atlantic Street would provide dry egress to PSEG, Emera and properties along raised portions of the street. Raising Gregory Street provides dry egress to the vacant lot at 375 Main Street and properties along raised portions of the street. While raising Atlantic Street and Gregory Street could potentially provide dry egress, they were both eliminated from consideration when considering the full range of project goals. Most notable, raising of Atlantic Street and Gregory Street is problematic due to the proximity of structures (houses, businesses, places of worship etc.) to the street, making transitioning between the raised street and the

parcels along the street a challenge. **Figure 8** shows Gregory Street with elevation markers showing the height of raising that would be required and the proximity of the raised street to a local church. Raising streets also requires raising and transitioning cross streets at intersections to facilitate elevation transitions. For example, if Gregory Street is raised, the nearby intersection of Whiting Street and Broad Street would also need to be raised. As shown in **Figure 9**, properties at this intersection are also very close to the street. Raising Atlantic Street has similar issues.



**Figure 8 - Gregory Street with elevation markers for raised street**



**Figure 9 - Intersection of Whiting Street and Broad Street with elevation markers for raised street**

- **Myrtle Avenue** – While raising the southern end of Myrtle Street would provide dry egress opportunities, this would only benefit a very limited number of properties and therefore this option was eliminated.

Raised streets can provide dry egress and can also moderately lower the risk of acute and chronic flooding locally when water pumping systems are incorporated. Of the raised street options considered only raising University Avenue with additional measures for stormwater management emerged as a viable alternative. However, raising University Avenue only does not meet all the project goals. Additional risk reduction is achievable with a full CFDS in lieu of only a raised street. The development of alternatives that both provide dry egress and lower the risk of acute and chronic flooding including extreme events are provided in the following sections.

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## 5.2 EDGE ALIGNMENT APPROACH

The Edge Alignment consists of a CFDS either in-water or directly above the Coastal Jurisdiction Line (Elevation +5.0 feet NAVD88). The in-water solution, where a CFDS would be built entirely in the water off the coast of Bridgeport, would have extended from the western end of Seaside Park, east along the coast, then north to tie-in to the MNRR. This option was eliminated for multiple reasons. The negative environmental impact would have been significant; the permitting process would have been lengthy and arduous, impacting schedule goals, and; the cost would have significantly exceeded funding availability. In addition, through the public engagement process members of the community voiced significant concern regarding both viewsheds and waterfront access. Because the shoreline lies at a relatively low elevation, the height of a CFDS would need to be much higher than would be necessary at locations further north to provide the same level of risk reduction. The coastal defense structure would be higher due to two primary factors: the lower ground elevation and larger waves which could reach the structure during a storm requiring more freeboard to prevent overtopping. The coastal edge solution, which would be just inshore of the Coastal Jurisdiction was eliminated for similar reasons.

# 6 INTEGRATED ALIGNMENT APPROACH

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## 6.1 ALIGNMENT SEGMENTS ELIMINATED FROM FURTHER CONSIDERATION

The Integrated Alignment Approach consists of a closed loop CFDS located within the South End at some location landward of the shoreline. The Project Team explored numerous streets / segments to potentially be included in this alignment. The following locations were deemed insufficient to meet the project goals and were eliminated in the high-level initial alternatives evaluation. A plan showing the eliminated segments discussed in Section 5.2 above and the following sections is provided in **Figure 10**.

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### 6.1.1 SEASIDE PARK

Seaside Park is a historic park within the project area that has been listed on the National Register of Historic Places since 1982. Due to the historic nature of the location, it was determined that any major impacts to the property should be avoided, where possible. In addition, an existing berm extending along the perimeter of the park currently provides a level of risk reduction against flooding. Since there are no residences, businesses or utility companies located in the park, it is also considered an area that can withstand flooding with little negative impact upon public safety or critical infrastructure. Due to the priority of historic preservation, as well as the lower risks associated with flooding in this location, constructing a coastal defense along this segment was discarded.

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### 6.1.2 WALDEMERE AVENUE

Waldemere Avenue is south of and runs parallel to University Avenue; it marks the southern extent of the University of Bridgeport. Because this road lies at a relatively low elevation, the coastal defense structure height issues discussed in Section 5.2 for Seaside Park also apply to Waldemere Avenue. In addition, since Waldemere Avenue runs adjacent to Seaside Park, building a flood wall of the necessary height would isolate the park from the rest of the community; hindering the community's access to the water. This would be directly in contrast to key project goals. The proximity to the historic park would have instigated a lengthy environmental review and approval process, making it unfavorable with regards to schedule. With private property and structures near the right of way, constructing a CFDS on this street, would render vehicular access to some properties challenging and structure impacts would be likely. Therefore, Waldemere Avenue was eliminated from further consideration.

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### 6.1.3 LINDEN AVENUE

Located between University Avenue and Waldemere Avenue, Linden Avenue poses similar challenges to the Waldemere Avenue alignment. While the existing elevation on Linden Avenue is slightly higher than Waldemere, it is still significantly lower than University Avenue, and thus would require construction of a very high CFDS. The size and cost of such a structure, along with the negative impact on community character and water access, resulted in the exclusion of this alignment.

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### 6.1.4 MYRTLE AVENUE

Myrtle Avenue is a north-south roadway located in the southwest region of the project area. This location is too far west to be of any meaningful value to the coastal defense risk reduction alignment and was therefore rejected.

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### 6.1.5 HAZEL STREET

Hazel Street is located one block east of Myrtle Avenue and was eliminated for similar reasons as the latter. While it is further east than Myrtle Avenue, any alignment established in this location would be too far west to support attainment of project goals.

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### 6.1.6 LAFAYETTE STREET

One block to the east of Hazel Street is Lafayette Street. Potential alignments along this segment were also eliminated because the location is too far west to provide meaningful impact.

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### 6.1.7 ATLANTIC STREET

Atlantic Street is a main thoroughfare which runs east-west adjacent to the north side of the University of Bridgeport campus. A flood reduction strategy constructed in this location would be too far north to be of significant value; and low vulnerable residential areas, 60 Main Street and a second future development to be located at 30 University Avenue would receive no benefit from the alignment being constructed along Atlantic Street. In addition, because this roadway provides access to both Bridgeport Energy and PSEG, constructing an alignment in this location would present significant construction constraints and would not be favorable. This option was therefore eliminated from consideration.

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### 6.1.8 BROAD STREET

Broad Street is the final north-south alignment that was eliminated in the initial assessment for an Integrated Alignment Approach. Like the aforementioned north-south alignments, Broad Street is located too far west to provide a benefit to critical areas that need to be protected to meet project goals. Any north-south alignments located west of Main Street were thus eliminated, as they would not be positioned to provide adequate risk reduction to many residences and critical infrastructure.

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### 6.1.9 GREGORY STREET

Gregory Street was considered as an option for a raised street to provide dry egress to the potential development property at 375 Main Street. Gregory Street is densely populated with residences and community religious centers. Raising the street would have a major impact on the community as many of the existing buildings are located close to the street making transitions and access from the raised road to the adjacent parcels a challenge. In addition, there are several cross streets that would have to be raised to meet the raised elevation of Gregory Street. As the impacts of raising Gregory Street outweighed the benefits, this segment was eliminated from consideration for the Integrated Alignment Approach.

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### 6.1.10 RAILROAD AVENUE / FERRY ACCESS ROAD

Railroad Avenue / Ferry Access Road was considered as a potential northern alignment to tie-back to high ground on Park Avenue. However, the substantial additional length that this alignment would require, as well as numerous street crossings (requiring gates), and utility crossings would add a significant cost and complexity to the project. It was determined that a better solution would be to utilize the MNRR trestle as the northern tie-in.

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## 6.2 ALIGNMENT ELIMINATION SUMMARY

The eliminated segments were plotted graphically, as shown in **Figure 10**. After inspection of the eliminated segments and considering current operations and infrastructure on PSEG's property an envelope of land within the central portion of the east side of the South End, was identified as the potential area which the CFDS alignment could be constructed. The envelope for potential alignment is shown in aqua in **Figure 10** and a description of the potential alignment segments within this zone is provided in the following section.



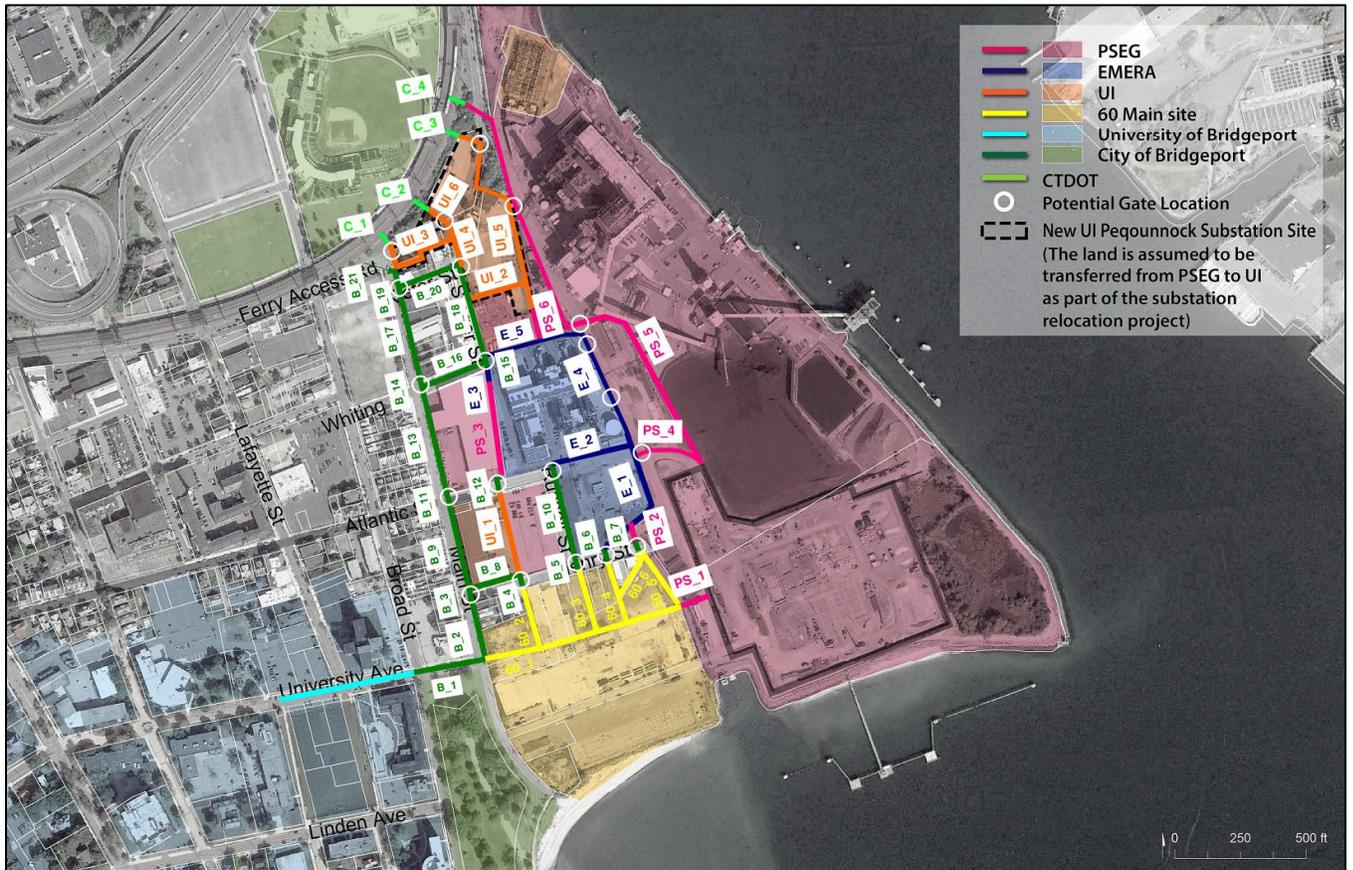
**Figure 10 - Eliminated Alignment Segments with Envelope for Potential Alignments**

### 6.3 ALIGNMENT SEGMENTS FOR CONSIDERATION

For the shaded area shown in **Figure 10**, potential segments were identified to develop a closed loop CFDS. The alignment segments require passing through various private and publicly owned land in the South End. Multiple crossings of the properties were explored and evaluated based on project goals, current operations and future plans for the properties. The segments were color coded and numbered. Numbering convention used for the major property owners is as follows:

- PSEG: PS\_1 to PS\_6
- Bridgeport Energy (Emera): E\_1 to E\_5
- UI: UI\_1 to UI\_6
- 60 Main St: 60\_1 to 60\_6
- University of Bridgeport: UB\_1
- City of Bridgeport: B\_1 to B\_21
- CTDOT: C\_1 to C\_4

In addition, to the numbered color-coded segments, **Figure 11** includes potential locations the gates would be needed. The gates would be open, except during flooding events, when they would be closed to complete the CFDS.



**Figure 11 - Alignment Segment Options for Evaluation**

## 6.4 EVALUATION MATRIX

The alignment segments identified in **Figure 11** were compared to the goal-based criteria and narrowed down by a process of elimination. The segments were evaluated against Goals 1 – 3, as Goal 4 primarily includes, land use, maintenance and operation and permitting. While a costing exercise will be performed for the three alignments selected for 10% design, one was not performed for development of the three preliminary alternatives as there was not sufficient information to make the exercise meaningful. Land use / ownership and operation and maintenance responsibilities are still under discussion and not evaluated herein. With the information available at this stage of the project, permitting considerations are not appreciably different for the segment under consideration and therefore were not considered in the evaluation. As the project moves forward Goal 4 will be revisited.

### 6.4.1 FLOOD RISK REDUCTION (GOAL 1)

The potential for each alignment segment to provide flood risk reduction for critical infrastructure, energy supply companies, vulnerable residential populations, local businesses and institutions was evaluated. This also included the ability to provide dry egress to future development locations (namely, 60 Main Street, 30 University Avenue and 375 Main Street).

### 6.4.2 DELIVERS CO-BENEFITS TO ENHANCE COMMUNITY RESILIENCE (GOAL 2)

The alignment segments were evaluated and compared for benefits to the community character and local resilience. For this exercise this primarily included looking at what was inside and outside of the CFDS for each alignment segment.

### 6.4.3 INTEGRATION WITH LOCAL STAKEHOLDERS (GOAL 3)

Each alignment segment was evaluated based on future plans and feedback provided by locally-based utility companies and the need to maintain adequate access to the various stakeholder properties. In addition, the need for easements or land transfer was considered. Furthermore, the potential to generate local stakeholder investment was considered.

### 6.4.4 QUALITATIVE ANALYSIS

By analyzing individual alignment segments and combinations through this matrix, the Project Team was able to conduct a comprehensive and holistic preliminary alternatives analysis to narrow down segments in the envelope for potential alignments. A summary of the alignments considered and eliminated through the matrix process is in **Table 4**.

**Table 4 - Segment Evaluation Matrix**

SEGMENT	NON-CONFORMING TO GOAL	REASON FOR ELIMINATION FOR 10% DESIGN
B_2	1, 3	Limits access to and does not reduce the risk of flooding or provide co-benefits to: 146, 154, and 160 Main St.
B_4	N/A	Eliminated due to elimination of UI_1 and 60_2.
B_5	N/A	Eliminated due to elimination of B_10 and 60_3.
B_6	N/A	Eliminated due to elimination of 60_4.
B_10	2	Bridgeport Energy expressed a preference for keeping the land to the east of B_10 within the CFDS due to existing critical infrastructure on the property. B_10 was therefore eliminated and replaced with E_1.
B_12	N/A	Eliminated due to elimination of UI_1 and PS_3.
B_17	1,3	Limits access to and does not reduce the risk of flooding or provide co-benefits to the Freeman Homes or other existing buildings between Whiting and Keifer St.
B_20	1,3	Limits access to and does not reduce the risk of flooding to the properties on the north side of Keifer St.
B_21	1,3	Limits access to and does not reduce the risk of flooding to the properties on the north side of 418-420 Main St.
60_3	2	60 Main St Developer prefers an alignment that continues east-west through the property and B_10 was eliminated which was the most logical northern connection.

SEGMENT	NON-CONFORMING TO GOAL	REASON FOR ELIMINATION FOR 10% DESIGN
60_4	2	60 Main St Developer prefers an alignment that continues east-west through the property and segment 60_4 is located on the west side 21 and 27 Henry Street, where an active business is located. 60_5 and 60_6 are adjacent segments that do provide flood risk reduction to the business, therefore 60_4 was eliminated.
60_6	2	60 Main St Developer prefers an alignment that continues east-west through the property so 60_6 was eliminated in favor of 60_5.
E_2	2	E_2 crosses the main entrance to Bridgeport Energy's site and bisects their property, it was eliminated in favor of E_1
E_3	2	Leaves Bridgeport Energy outside the CFDS, but is located on their property, eliminated in-favor of E_4.
E_5	2	Interferes with the utility lines for the operation of Bridgeport Energy's plant.
PS_3	2	Leaves Bridgeport Energy outside the CFDS, eliminated in-favor of E_4.
PS_5	2	Not preferred by PSEG for current and future operations, eliminated in favor of PS_4
PS_6	2	Interferes with PSEG's current operation of Harbor Unit 3.
UI_1	2	Leaves PSEG and Bridgeport Energy property outside of the CFDS, eliminated in favor of E_1.

## 6.5 ALIGNMENTS STILL UNDER CONSIDERATION

After completing the initial segment elimination analysis, the remaining segments were arranged into three CFDS alignments for further evaluation in the 10% design. The alignments are labeled the Eastern, Central and Western Alignment based on their relative proximity to one another. The CFDS (including the raised University Avenue – see below) will be designed to reduce the risk of acute flooding from infrequent coastal storms. The CFDS will be designed to reduce flood risk to the community and stakeholders including energy systems, vulnerable populations, businesses, and institutions; although the geographic extent of the risk reduction will vary with each alignment.

In any instances where a street is crossed in the north-south alignment segments, gate crossings are proposed due to the critical subsurface utilities in the roadways. The gates are also proposed to allow access across the line of defense under non-storm conditions. Where possible, it is proposed that the gates stay above or bridge over critical infrastructure.

Each of these alignments includes raising University Avenue. Raising University Avenue will further reduce flood risk by providing dry egress to the several potential development parcels in the study area.

The study area is subject to chronic flooding due to more frequent rainfall events. The proposed coastal defense alignments may restrict surface drainage and could exacerbate chronic flooding. As part of the overall CFDS alignment design, consideration will be given to internal drainage improvements to avoid excessive stormwater ponding within the alignment. It is anticipated the internal drainage improvements will be designed for infrequent storm events, but will also have a positive impact for more frequent rainfall events, reducing chronic flooding concerns. It is anticipated that interior drainage requirements will be similar for each alignment, although area and ponding characteristics will vary. At the time of the 10%

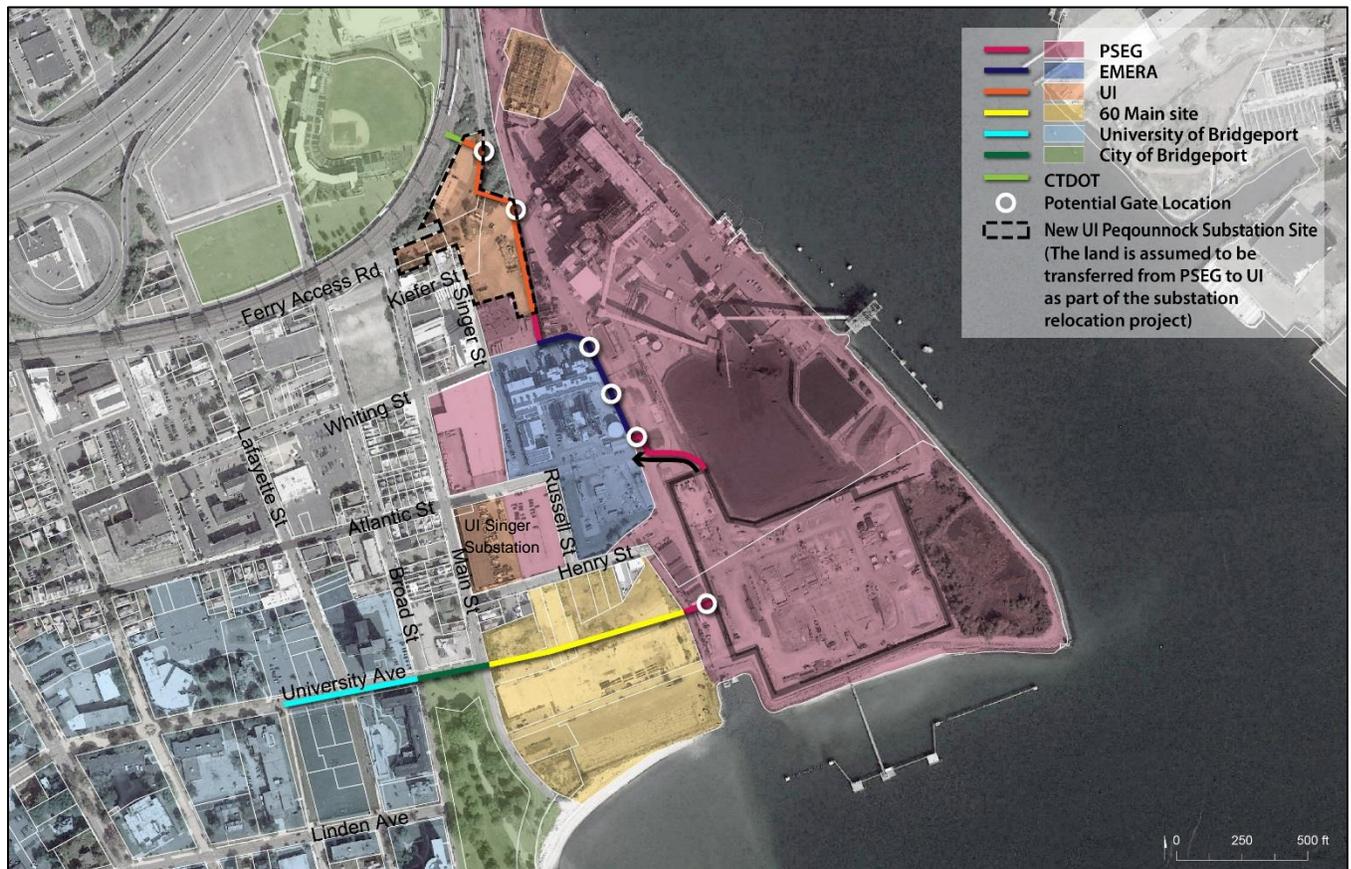
design, stormwater design was not completed in sufficient detail to allow a meaningful comparison between alignments in terms of reduce chronic flooding; as such, each alignment is considered adequate to reduce chronic flooding.

The alignments are shown from the westernmost to the easternmost solution. The intent of the alignments is to show an envelope of solutions to reduce flood risk. While each alignment shows a discrete set of interconnected segments, interchanging some of the north-south alignment segments is possible. The three alignments are described below.

### 6.5.1 EASTERN ALIGNMENT

The Eastern Alignment starts at approximately elevation +16 feet NAVD88 on University Avenue and continues east, down University Avenue and into the 60 Main Street site (Figure 12). The alignment continues parallel to shoreline across the 60 Main Street site to the eastern border, where it crosses to the east into PSEG’s property and connects to the newly built Harbor Unit 5 perimeter sheet pile wall. Harbor Unit 5 provides the southeast corner of the CFDS, which extends north from the plant’s access road ramp on the northwest corner of the perimeter wall. The alignment connects from the ramp over to Bridgeport Energy’s eastern border north of Atlantic Street. The alignment continues along the eastern border of Bridgeport Energy’s site until it reaches the Pequonnock Substation relocation site, where it continues north along the eastern property line of the site across Ferry Access road with a northern tie-in at the elevated MNRR.

The Eastern Alignment provides the greatest geographic extent of coastal flood risk reduction, removing approximately 64 acres from the current FEMA High Hazard Area. It provides risk reduction benefits for several existing and planned energy facilities including the Singer and new Pequonnock substations and the Emera generating facility. This arrangement also provides dry egress to Harbor Unit 5 via Atlantic Street. In addition, the CFDS provides risk reduction benefits for the Cottage District and other residential, industrial and commercial properties.



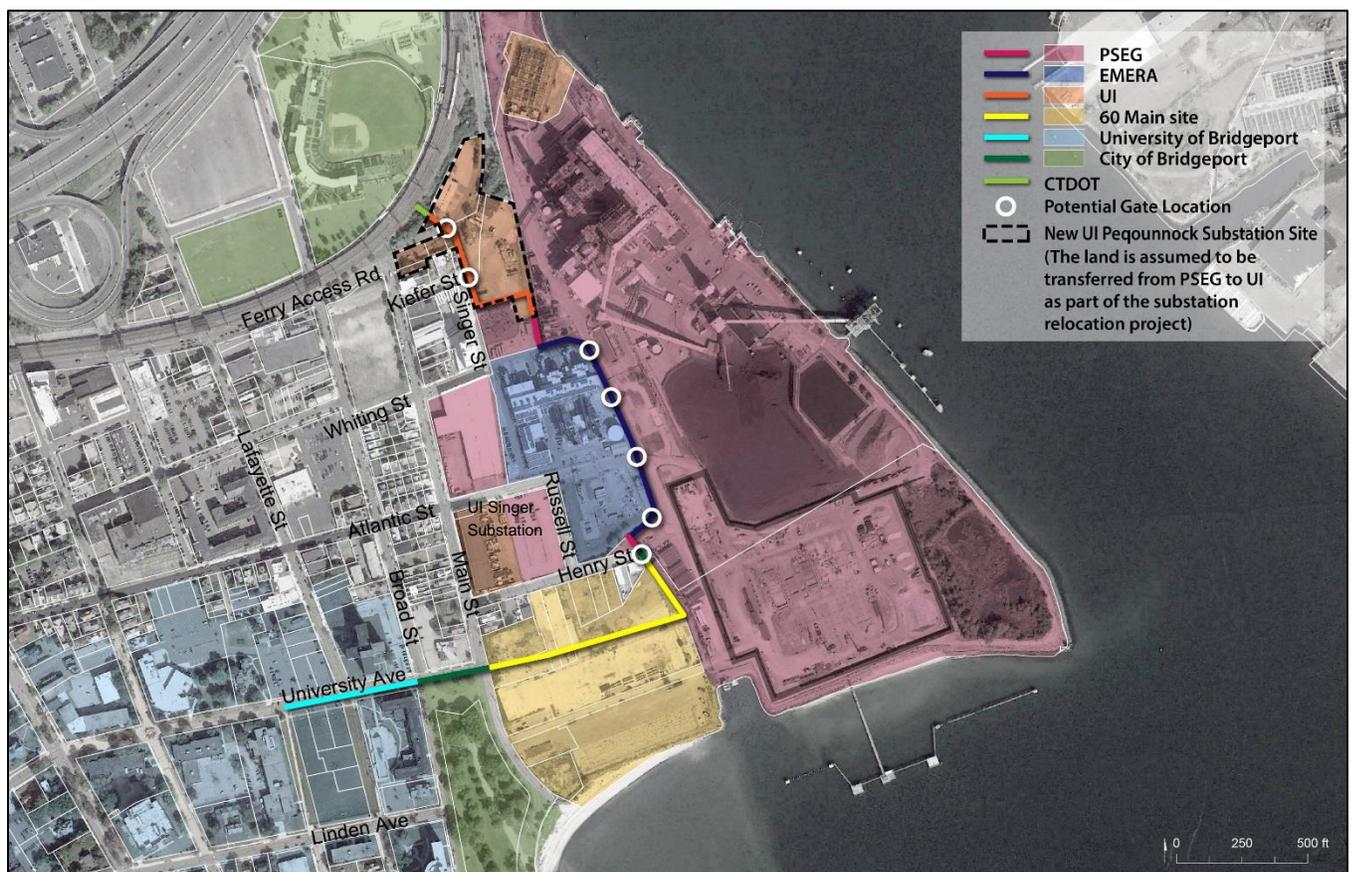
**Figure 12 - Eastern Alignment**

The Eastern Alignment provides dry egress to Harbor Unit 5 and coastal defense to the UI Singer Substation, Bridgeport Energy and the new UI Pequonnock Substation relocation site.

## 6.5.2 CENTRAL ALIGNMENT

The Central alignment is located between the Eastern and Western Alignment (Figure 13). The alignment starts at approximately elevation +16 feet NAVD88 on University Avenue and continues east, down University Avenue and into the 60 Main Street site. Within the 60 Main Street site, the alignment continues east to the eastern property line where it turns north along the property line and crosses Henry Street. North of Henry Street there is a short crossing of PSEG's property and thereafter the alignment continues along the eastern edge of Bridgeport Energy's property until it reaches the Pequonnock Substation relocation site. The alignment turns west just south of new substation location and then turns north across Ferry Access Road with its northernmost tie-in at the MNRR.

The Central Alignment provides significant coastal flood risk reduction, removing approximately 59 acres from the current FEMA High Hazard Area. It provides risk reduction benefits for both the Singer substation and the Emera generating facility. However, this arrangement does not provide dry egress to Harbor Unit 5 or risk reduction for the new Pequonnock substation. The CFDS provides risk reduction benefits for the Cottage District and other residential, industrial and commercial properties, similar to the Eastern Alignment.

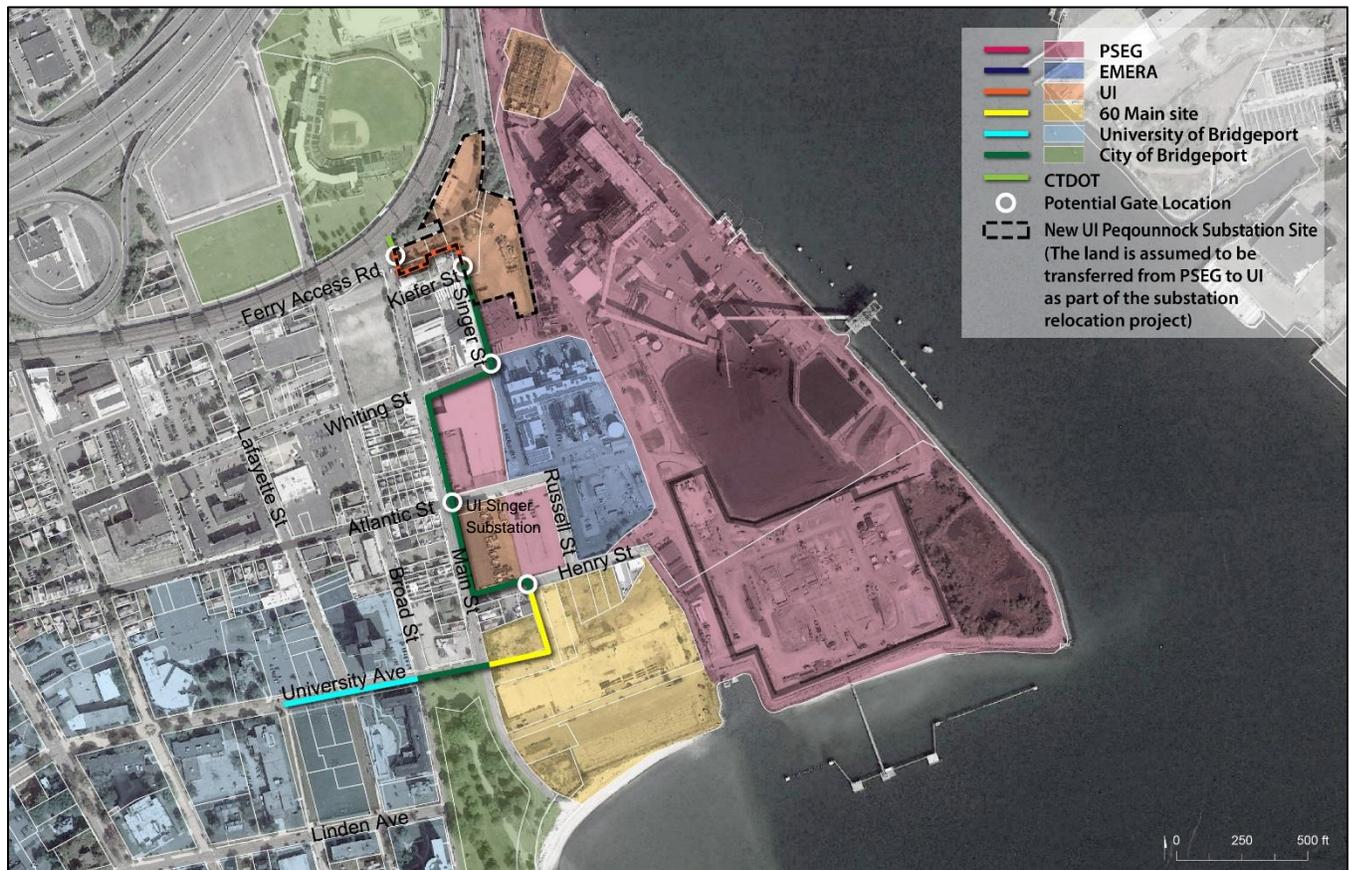


**Figure 13 - Central Alignment**

The Central alignment provides coastal defense to the community north of University Avenue, the UI Singer Substation, Bridgeport Energy as well as the full northern portion of the 60 Main Street site.

### 6.5.3 WESTERN ALIGNMENT

The Western Alignment resides primarily within the urban fabric of the South End community (Figure 14). The alignment starts at approximately elevation +16 feet NAVD88 on University Avenue and continues east, down University Avenue and into the 60 Main Street site. Within the 60 Main Street site, the alignment turns north to the east side of 107 Henry Street and continues across Henry Street. The alignment continues on the east side of Main Street for two blocks heading north before turning east to Singer Street. Thereafter, the alignment hugs the western edge of the future site of the Pequonnock Substation, crosses Ferry Access Road and ties in the MNRR.



**Figure 14 - Western Alignment**

This alignment primarily avoids private utility provider property, with the exception of one segment (i.e., orange line in figure above) located on the future Pequonnock Substation site, which is currently owned by PSEG and planned to be transferred to UI as part of the Pequonnock Substation relocation project. The alternative has the largest portion of the alignment constructed on Public Land. While this alignment includes coastal defense and flood risk reduction for the South End community north of University Avenue, critical utility providers are located outside the line of defense.

The Western Alignment provides the least geographic extent of coastal flood risk reduction for the alignments still under consideration, removing approximately 39 acres from the current FEMA High Hazard Area. However, it does not provide risk reduction benefits for any of the existing or proposed energy facilities nor dry egress to Harbor Unit 5. The Western Alignment CFDS provides flood risk reduction benefits for the Cottage District and other residential, industrial and commercial properties, similar to the other alignments with the exception of several properties on Henry Street and south of Ferry Access road.

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## 6.6 GREEN STORMWATER INFRASTRUCTURE

Green stormwater infrastructure reintroduces ecological functions into the built environment and shall be incorporated into the selected alignment strategy, where possible. Soil-water-plant systems including biofiltration planters, bioretention swales, trees, and permeable pavements are green infrastructure options to intercept stormwater before it reaches gray infrastructure. Some water is infiltrated into the ground, some is evaporated into the air, and some is temporarily stored before being slowly released into the sewer system. Green stormwater infrastructure helps to reduce runoff volume to gray infrastructure and filter pollutants, protecting water quality and mitigating risks of flooding. Investments in green stormwater infrastructure complement gray infrastructure and may extend the useful life of major capital street and sewer projects. An integrated approach to green stormwater management in the public right-of-way is central to the design of resilient urban landscapes. Green infrastructure that collects, slows, and infiltrates stormwater can be integrated into parks and plazas.

Green stormwater infrastructure goes beyond improving stormwater management and provides environmental, economic, and social benefits. For example, retaining stormwater minimizes the operating costs of a wastewater treatment plant or pump station, planting trees and vegetation improves air quality by filtering and removing pollutants from vehicles, and providing green spaces serves additional functions such as park spaces, which add community amenities. Green stormwater infrastructure can be organized into three main categories: subsurface conveyance, surface conveyance, and storage. Specific strategies in each of these groups could apply, depending on goals, available land, existing infrastructure, cost, operations and maintenance, visibility, and effectiveness. Each type of green stormwater infrastructure should be carefully evaluated to fulfill the aspiration and best outcome. While green stormwater infrastructure installations provide many community benefits, they are typically better suited to handle the rainfall volume from small rain events. In addition, they usually require a significant amount of space to be effective, which can be a sizable limitation for a city and a barrier to implementation. Lastly, maintenance is a critical consideration; green stormwater infrastructure installations need to be routinely maintained for peak performance. Thus, the Project Team will evaluate green stormwater infrastructure opportunities to complement gray infrastructure improvements.

## 7 SUMMARY AND NEXT STEPS

A comprehensive analysis was performed starting with three approaches for meeting the project objectives, which were narrowed to a preferred approach with multiple alternatives considered. The three approaches analyzed included the Interior Alignment, Edge Alignment and Integrated Alignment. Where the Edge Alignment was eliminated primarily due to environmental impacts, avoidance of cutting the community off from the water and stakeholder preferences and the Interior Alignment was eliminated as it provided a solution that least met the project goals when compared to the other two options. The Integrated Alignment Approach was selected as the preferred approach for further study.

After conducting this comprehensive, holistic alternatives analysis process, three Integrated Alignment Approach alternatives have been developed to evaluate at a 10% design level. The Eastern Alignment has emerged as an alignment which provides the widest area of flood risk reduction including the community north of University Avenue, Singer Substation, Bridgeport Energy (Emera) and the new Pequonnock Substation site, in addition to providing dry egress to PSEG's Harbor Unit 5. While this alignment meets the objectives of the project, it requires construction on private utility provider properties. Negotiations are on-going to determine whether the alignment will be accepted by the impacted properties' owners.

The Central and Western Alignment move the alignment further west and in each case result in reduced impacts to private land owners. In all cases the alignments provide dry egress to 60 Main St, 30 University Avenue and 375 Main Street, unlocking future development to each of these sites. In addition, the community north of University Avenue is within the defense system, reducing the risk of flooding in all the options. As the alignment moves west, fewer critical utility provider properties are included and dry egress to PSEG's Harbor Unit 5 is only included in the Eastern Alignment.

The three alignments will be brought to a 10% level where preliminary community benefit and impacts and construction types will be explored. A preliminary construction cost estimate will be developed to determine order of magnitude costs for the purpose of comparing the alignment alternatives and evaluating the estimated construction cost in comparison to the project budget. Other project elements, such as the Resilience Hub, stormwater management and pumping requirements will be considered within the 10% design considering the three alignment options.

The 10% design alternatives will be further developed by the Project Team, vetted with the Client, community, local stakeholders and evaluated for cost with the goal of establishing a preferred alternative which best fits within the project goals. The agreed preferred alternative shall be progressed to 30% design.

**APPENDIX C**  
**Cultural Resources Documentation**

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# Contents

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Historic and Archaeological Resources Evaluation Report (May 4, 2018)

Draft Programmatic Agreement (August 2019)



# Historic and Archaeological Resources Evaluation Report

DRAFT May 4, 2018

***Prepared for***

WSP

Glastonbury, Connecticut

***by***

Archaeological and Historical Services, Inc.

Storrs, Connecticut

***for submission to***

State of Connecticut Department of Housing

***Authors:***

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## Abstract and Management Summary

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The State of Connecticut, through the Connecticut Department of Housing (CTDOH), is undertaking a feasibility study and alternatives analysis, an Environmental Impact Statement (EIS) and Environmental Impact Evaluation (EIE), and preliminary design and engineering to schematic design level at approximately 30 percent for three projects to be funded through a competitively awarded grant from the United States Department of Housing and Urban Development (HUD) to the State as an outcome of the National Disaster Resilience Competition (NDR). The NDR project consists of three coastal storm surge/flooding risk reduction segments, each of which has a distinct alignment, constructability, and regulatory and process goals and challenges:

- University Avenue segment – infrastructure along the existing University Avenue corridor will be raised to form a line of protection to a to-be-determined point above future flood level that connects to a current high point to the east of Park Avenue and extends to the location of 60 Main Street. This raised infrastructure segment will provide dry egress from existing and future development in the area.
- 60 Main Street segment – protection will be extended east from the western edge of the 60 Main property through an independent berm or other surge protection line of defense across (partially or fully) or adjacent to the planned 60 Main Street Development.
- Northern segment – protection will be extended from the 60 Main Street site north along multiple potential alignments using a berm or other surge-protection line of defense to a to-be-determined tie-in point at the railroad viaduct.

The project also includes a Resilience Hub to provide a location for dissemination of information to the community and assist the community in future recovery efforts. Typologies considered include continued use of 7 Middle Street, restoration of an existing building, construction of a new building, and one or more open air sites integrated within the community.

In addition, this project incorporates into the EIS/EIE a project to be funded through a competitively awarded grant from HUD to the State as an outcome of the Rebuild by Design (RBD) competition. The purpose of the RBD-funded project is to construct a pilot project for storm-water flooding mitigation at the Marina Village site.

The project Area of Potential Effect (APE) is delineated as the Resilient Bridgeport Study Area, roughly bounded by Railroad and South avenues to the north, Bridgeport Harbor and Long Island Sound to the east and south, and Iranistan Avenue, Atlantic Street, and the west side of Seaside Village to the west. This area was chosen to allow for the assessment of potential direct and indirect effects related to these resilience projects.

Within the APE, the majority of properties are over 50 years of age (with few exceptions, the minimum age to qualify for National Register of Historic Places (NRHP) eligibility). Five NRHP-listed individual historic properties and four districts are present; five districts and 11 individual properties were assessed as potentially NRHP-eligible. These resources may be affected, directly or indirectly, by the proposed project, depending on the alternative selected. Two previously identified archaeological sites are located within the APE, and research indicates that this area was intensively occupied by Native Americans during the Late Woodland and Contact periods.



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## Table

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Table 1. Status of Historic Resources



# 1. Introduction and Scope of Work

## 1.1 INTRODUCTION

The State of Connecticut, through the Connecticut Department of Housing (CTDOH), is undertaking a feasibility study and alternatives analysis, an Environmental Impact Statement (EIS) and Environmental Impact Evaluation (EIE), and preliminary design and engineering to schematic design level at approximately 30 percent for three projects to be funded through a competitively awarded grant from the United States Department of Housing and Urban Development (HUD) to the State as an outcome of the National Disaster Resilience competition (NDR) (Figures 1 and 2). The NDR project consists of three coastal surge/flooding risk reduction segments, each of which has a distinct alignment, constructability, and regulatory and process goals and challenges:

- University Avenue segment – infrastructure along the existing University Avenue corridor will be raised to form a line of protection to a to-be-determined point above future flood level that connects to a current high point to the east of Park Avenue and extends to the location of 60 Main Street. This raised infrastructure segment will provide dry egress from existing and future development in the area.
- 60 Main Street segment – protection will be extended east from the western edge of the 60 Main property through an independent berm or other surge protection line of defense across (partially or fully) or adjacent to the planned 60 Main Street Development, a private mixed-use development project at the south end of Main Street.
- Northern segment – protection will be extended from the 60 Main Street site north along multiple potential alignments using a berm or other surge-protection line of defense to a to-be-determined tie-in point at the railroad viaduct.

The project also includes a Resilience Hub to provide a location for dissemination of information to the community and assist the community in future recovery efforts. Typologies considered include continued use of 7 Middle Street, restoration of an existing building, construction of a new building, and one or more open air sites integrated within the community.

In addition, this project incorporates into the EIS/EIE a project to be funded through a competitively awarded grant from HUD to the State as an outcome of the Rebuild by Design (RBD) competition. The purpose of the RBD-funded project is to construct a pilot project for storm-water flooding mitigation at the Marina Village site.

Because HUD will provide funding for the project, the project is required to comply with the National Environmental Policy Act (NEPA) and Section 106 of the National Historic Preservation Act of 1966, as amended. These federal laws and their implementing regulations require consultation with the State Historic Preservation Office (CTSHPO) regarding possible project-related impacts to historic properties listed in or eligible for listing in the National Register of Historic Places (NRHP). Historic properties are defined as above-ground resources such as buildings, structures, objects, districts, and landscapes, and archaeological (below-ground) sites that meet the criteria for listing in the NRHP. As the Responsible Entity (RE) of the HUD

Community Block Development Grant that funds this project, the CTDOH will administer NEPA, which requires preparation of an EIS. The project's state funding requires it to comply with the Connecticut Environmental Policy Act (CEPA), which requires that state projects be evaluated concerning "the disruption or alteration of a historic, architectural, or archaeological resource or its setting." Properties subject to CEPA include those listed in or eligible for listing in the NRHP or State Register of Historic Places (SRHP). The CTSHPO is a mandated review agency under CEPA, and CEPA compliance requires preparation of an EIE.

This report presents the results of documentary research, field inspections, and evaluation of historic properties that may be affected by the various proposed project alternatives. The report was prepared by Archaeological and Historical Services, Inc. (AHS) under contract to WSP, the project's consulting engineer. The Phase IA Archaeological and Historical Resource Reconnaissance survey that forms the basis of this report was conducted in accordance with The Secretary of the Interior's Standards and Guidelines for Identification for Archaeology and Historic Preservation and The Secretary of the Interior's Standards and Guidelines for Evaluation (1983 and ongoing revisions). The survey was confined to an Area of Potential Effect (APE) (Figures 1 and 2). AHS personnel inspected the APE several times from January through March 2018. Thorough surveys of the immediate vicinities of the NDR and RBD project areas were conducted on foot, resulting in field notes and over 500 photographs of potentially historic properties. Following the walking survey, all public streets within the APE were assessed in a windshield survey to identify additional historic properties that could be affected. Areas of archaeological sensitivity were noted based on documentary data, as no subsurface testing was conducted.

The results of the historic properties evaluation will be incorporated into a combined EIS/EIE prepared as part of the Bridgeport NDR and RBD projects under NEPA and CEPA. This technical report will be appended to the EIS/EIE.

The conclusions and recommendations herein are the opinion of the historic-preservation consultant. Actual determinations of National Register eligibility and assessment of effects are properly part of the ongoing consultative process among HUD, CTDOH, and CTSHPO, and will be further developed as the project progresses.

This report is organized as follows: Section 2 presents the methodology used; Section 3 provides the pre-colonial and historical-period background contexts of the APE; Section 4 addresses the historic resources (Existing Conditions); Section 5 addresses archaeological resources (Existing Conditions); and Section 6 presents conclusions and recommendations.

## 1.2 DELINEATION OF THE AREA OF POTENTIAL EFFECTS

The overall project APE is delineated as the Resilient Bridgeport Study Area, roughly bounded by Railroad and South avenues to the north, Bridgeport Harbor and Long Island Sound to the east and south, and Iranistan Avenue, Atlantic Street, and the west side of Seaside Village to the west (Figures 1 and 2). This area was chosen to allow for the assessment of potential direct and indirect effects related to three resilience projects: the NDR-funded flood risk reduction segments at University Avenue, 60 Main Street, and north to the railroad viaduct, the Resilience Hub, and the RBD-funded storm-water flooding-mitigation pilot project at the Marina Village site.

Because Section 106 requires projects to evaluate indirect effects, including the effect of visual intrusions posed by new construction, this report considered historic properties on nearby streets. The potential indirect visual effects are twofold: a) the loss of elements that are an important part of the properties' settings and historical character, and b) the introduction of incompatible modern construction that would diminish the properties' integrity of setting, feeling, and association.

No assessment of construction easement, staging, storage and access areas, noise and/or vibration effects on State or National Register-listed or eligible resources could be made, as these areas are not yet known. As the design process moves forward, additional potential impacts to historic properties may be noted.

### **1.3 PROJECT PERSONNEL**

Historian Marguerite Carnell conducted the historical background research and historic (above-ground) resource identification. She and Senior Historian Bruce Clouette field-checked historic resources in the APE and photographed them to document existing conditions. Together they also evaluated the historic resources for potential listing in the NRHP and SRHP. Senior Archaeologist and GIS Specialist David Leslie conducted the archaeological and environmental background research and archaeological sensitivity assessment. AHS President Mary Harper served as project manager.



## 2. Methodology

### 2.1 HISTORICAL RESOURCES RESEARCH

In order to establish an overall historical context and help in the identification of historic (i.e., above-ground) resources, AHS consulted general published histories of Bridgeport such as Witkowski and Williams (2001), Palmquist (1985), Waldo (1897), and Orcutt (1886), as well as well as standard works on New England railroad history such as Turner and Jacobus (1989). Additional research was undertaken to establish the historic contexts for evaluating resources in the project vicinity, including materials in the CTSHPO inventory files, the records and photograph collections of the Bridgeport History Center at the Bridgeport Public Library, and the Connecticut Historical Society's digital collection.

Previous historic resource survey information in the Connecticut Historic Preservation Collection and railroad company records at the Dodd Research Center, University of Connecticut, Storrs, were also consulted, including the intensive-level surveys of historic resources (Loether 1986) and industrial historic resources in Bridgeport (Clouette and Roth 1984).

AHS also assembled a series of historic maps and images of the project area (Appendices B and C), reviewed existing NRHP forms for individual properties and districts, met with representatives from the Fairfield Garden Club regarding their research on Seaside Park, and participated in the March 14, 2018 scoping meeting to speak with other parties with interest in historic properties.

### 2.2 ARCHAEOLOGICAL AND CULTURAL RESOURCE RESEARCH

AHS researched the files of recorded archaeological sites at the Office of State Archaeology (OSA) and CTSHPO. Relevant cultural resource management reports and archaeological publications were reviewed to help develop a pre-colonial Native American and historic-period context preparatory to assessing the potential for significant buried archaeological sites to be present in the APE. Environmental sources on hydrology, geology and soils were reviewed to establish an understanding of the natural environment that existed prior to urbanization and to also help understand the level of disturbance in the APE.

Historic maps, local histories and primary documents were researched to establish a historic-period context and aid in identifying archaeologically sensitive areas in the APE parcels. Aerial photographs and windshield survey helped refine AHS's assessment of archaeological sensitivity. No subsurface testing in the form of hand-powered soil cores or shovel-test pits was conducted in the APE as part of the assessment survey, as access issues, time constraints, buried utilities, and the preponderance of paved areas within the APE made testing impractical. Geotechnical boring data were not available at the time of the survey, but will be incorporated when it is provided by WSP.

## 2.3 EVALUATION OF SIGNIFICANCE

Many historic resources within or adjacent to the APE are listed in the NRHP and SRHP. Other resources identified by the project historians were evaluated for their potential eligibility for listing in the NRHP by applying the National Register criteria of significance. At this time, archaeological sites are excluded from the eligibility evaluation because no subsurface testing was possible to ascertain their presence or eligibility.

### 2.3.1 National Register of Historic Places Criteria of Significance

The criteria for listing in the NHRP are generally used in historic and archaeological surveys as a bar metric for assessing the significance of historic, archaeological and cultural resources. Resources determined by CTSHP or a federal agency to be NRHP-eligible are provided a measure of protection from federally funded or federally-permitted projects in that impacts to them must be avoided, minimized or mitigated. Such resources are also accorded state protection under CEPA.

The National Register criteria of significance state the following:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- Criterion A – That are associated with events that have made a significant contribution to the broad patterns of our history; or
- Criterion B – That are associated with the lives of persons significant in our past; or
- Criterion C – That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- Criterion D – That have yielded or may be likely to yield, information important in history or prehistory.

Resources may qualify under one or more of the National Register eligibility criteria.

The NRHP generally excludes from consideration several types of properties. Besides those less than 50 years old, excluded categories include cemeteries, commemorative properties, resources that have been moved, and religious properties. Such properties can qualify by meeting one or more Criteria Considerations, however. For example, a cemetery may qualify if its overall layout typifies 19th-century cemetery landscape architecture or if the distinctive design of most of its markers illuminates the history of funerary art. Similarly, a church could qualify if its architecture were exceptional.

### 2.3.2 National Register of Historic Places Integrity

Historic properties were also evaluated for their integrity, which is the ability of a resource to visually convey its significance. The seven aspects of integrity are: location, design, setting, materials, workmanship, feeling, and association. Most historic resources have been altered from their original appearance over time, but the question of integrity hinges on the judgment of whether the resource as it exists today retains enough integrity to be able

to convey its historical or architectural significance. The property must still possess several, if not most, aspects of the historical identity for which it is significant. The NRHP defines these aspects of integrity as follows:

- Location is the place where the historic property was constructed or the place where the historic event occurred.
- Design is the combination of elements that create the form, plan, space, structure, and style of a property.
- Setting is the physical environment of a historic property.
- Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property.
- Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory.
- Feeling is a property's expression of the aesthetic or historic sense of a particular period of time.
- Association is the direct link between an important historic event or person and a historic property.

### 2.3.3 State Register of Historic Places

Properties listed in the NRHP are automatically listed in the Connecticut SRHP. The criteria for listing in the SRHP are similar to Criteria A, C, and D of the NRHP. The SRHP numbers its criteria: SRHP Criterion 1 combines NRHP Criteria A and B, SRHP Criterion 2 is the same as NRHP Criterion C, and SRHP Criterion 3 is the same as NRHP Criterion D. The exclusions associated with the NRHP, however, do not apply to SRHP eligibility, so churches, cemeteries, moved properties, etc. that might be ineligible for the NRHP could qualify for the SRHP.



## 3. Historical Background of the Project Area

### 3.1 ENVIRONMENTAL BACKGROUND

The purpose of this section is to provide general information on the environmental context of the APE. Humans, like most species, are sensitive to variations in habitat, and can be generally expected to settle in areas providing both reliable and predictable resources. While climate change over the course of the last 11,000 years has repeatedly transformed the environment in the Northeast, many basic characteristics of the landscape have remained relatively stable. Local geology and topography present important controls on the development and potential organization of habitats, and provide archaeologists with one means of identifying enduring features of the landscape around which people in the past would have organized themselves.

#### 3.1.1 Physiography

The APE is located in the Coastal Slope region of Connecticut (Bell 1985). The coastal slope commences about 12 miles north of the coast, where the topography begins to drop steeply (about 50 feet per mile) to the coast. The Coastal Slope represents a portion of southern New England that was once covered by loose sediments from the former Coastal Plain. Those sediments protected the bedrock from eroding as quickly as surrounding areas. Erosion eventually washed these sediments away, but this period of protection spared the bedrock of the Coastal Slope from the deep erosion that occurred further inland. This process resulted in a gentler topography, which increased the agricultural potential of the Coastal Slope relative to upland areas and contributed to the intensive Woodland period (agricultural) and early European settlement of the Connecticut coast.

#### 3.1.2 Bedrock and Surficial Geology

Bridgeport lies within the volcanic belt of Connecticut (one of three belts – carbonate, clastic, and volcanic). The volcanic belt is composed of metamorphic schists and granites that formed during the Ordovician period, between 500 and 400 million years ago.

Approximately 21,000 years ago, Connecticut and Long Island Sound were covered with glacial ice that was about a mile thick. The glacial ice continually moved south, picking up loose material on the ground surface. As the glacier melted, the material it had collected was re-deposited, creating a long east-west moraine. As the climate warmed, the glacier retreated to the north. About 17,500 years ago, a temporary cooling of the climate caused the ice front to cease its northward movement. The ice front halted along a line that ran off shore from the Bridgeport project area, forming the Captain Islands - Norwalk Islands moraine.

The water released from the melting glacier washed large quantities of finer-grained sediments into low-lying areas resulting in sand and gravel deposits in the Connecticut valleys. In higher and flatter areas, the glacier deposited till, a mixture of variously-sized sediments. As the glacier retreated, it left behind a series of outwash features, including drumlins, eskers, and kettle lakes and kames. The majority of the APE is overlain in fine-grained outwash sediments of finely bedded sand layers indicative of former deltaic deposits, and artificial fill deposits. Recent work in a similar coastal environment in Norwalk has shown that artificial fill units mapped

on the statewide surficial and quaternary geologic maps are often incorrect and that intact soil sequences may remain in developed coastal settings (Leslie and Ouimet 2017).

### 3.1.3 Soils

The soils in the APE are mapped as Urban Land, Udorthents, Udorthent-Urban Land complex, and Beaches Verrazano-Urban Land complex soils, all with slopes less than 8 percent. Udorthent and Urban-land complex soils are found on excavated and filled lands, generally in areas where the original soil has been covered with impervious surfaces like asphalt or concrete. Urban land soils can also refer to areas where the natural soils have been cut away or covered with fill deposits (USDA 2015). In areas with these designations, natural soil sequences may sometimes be found in vacant lots, lawns, wooded areas, parks, and other undeveloped areas interspersed between roads and buildings, and some are capped by roads, sidewalks, etc. Therefore, the Urban Land or Udorthent complex designation does not necessarily indicate pervasive disturbance. The potential for intact archaeological resources remains in undeveloped areas and beneath developed areas.

### 3.1.4 Ecological Context

The APE is located on the Connecticut coast, near the mouth of the Pequonnock River. The Pequonnock River is an approximately 17-mile-long river, which originates in Monroe and flows in a generally south-oriented direction until emptying into the Long Island Sound at Bridgeport Harbor. The Pequonnock River has one main tributary, the West Branch of the Pequonnock River, which also originates in Monroe. Historically, the Pequonnock River hosted the southernmost Atlantic salmon (*Salmo salmar*) spawning runs, which would have provided an important spring food source for pre-colonial Native Americans.

The APE was historically a rich outwash plain of the Pequonnock River. It is situated to the west of Black Rock Harbor, a natural harbor at the mouth of Cedar Creek. The APE would have provided rich soils amenable to Late Woodland Period agriculture and later European farmers. Historically, the APE contained an abundance of hard and soft woods such as oak, chestnut, hickory, maple, hemlock, and elm. The surrounding forests contained plentiful game animals and coastal areas and associated wetlands provided a profusion of important plant and terrestrial and marine animal resources. Numerous pre-colonial Native American camp, village, and shell-midden sites have been identified in the vicinity of the APE (Figure 1), illustrating the importance of the local environment to the past human inhabitants of coastal Connecticut.

## 3.2 PRE-COLONIAL NATIVE AMERICAN BACKGROUND

Although a relatively large number of Native American archaeological sites have been identified in coastal Connecticut, the understanding of pre-colonial cultures in the area remains incomplete. Only a small percentage of the recorded sites along the coast have undergone professional archaeological investigations. Many of the sites were recorded and excavated by avocational archaeologists and many others were destroyed by extensive modern development of coastal areas. Information from several important sites, investigated by avocational and/or professional archaeologists (Coffin 1937, 1938, 1940, 1946, 1951; Glynn 1953; Lavin 1988; Praus 1942; Russell 1942), has contributed to the understanding of Native lifeways in coastal areas. Important coastal sites include Grannis Island (Site 93-3) in New Haven Harbor (Glynn 1953; Lavin 1988), the Old Lyme Shell Heap (Lavin 1988), Mago Point in Waterford (McBride 1984), Fort Shantok and Shantok Cove in Montville (Salwen 1966; Salwen and Ottesen 1972; Williams 1972), the Thomas Site in Groton (Butler 1946), and the Davis Farm

Site in Stonington. A number of regional archaeological surveys have also been conducted in coastal areas of Connecticut and have provided a great deal of information on the nature and distribution of archaeological sites in these areas (McBride 1984a).

Below is a summary of the regional and local culture history, based on the current local archaeological record for Connecticut and the greater Northeast. The era predating the arrival of Europeans, which lasted roughly 11,000 years, is subdivided into several major periods coinciding with broad technological and settlement patterns observed in the archaeological record.

### 3.2.1 Paleoindian Period (11,000-9,500 BP)

In the Northeast, the Paleoindian Period dates from 11,000 to 9,500 years before present (BP), as measured in radiocarbon years, and coincides with the final glacial period, known as the Younger Dryas. Following a brief warming trend in the region, the Younger Dryas marked a return to colder, glacial conditions and ice-sheet re-expansion in portions of eastern North America (McWeeney 1999).

The earliest archaeological evidence for human occupation in New England dates to approximately 11,000 BP (Spiess et al. 1998) and in Connecticut to around 10,200 BP (Moeller 1980, Jones 1999). Paleoindian sites are characterized by distinctive lithic tools kits that include fluted points and unifacial tools such as side- and end-scrapers. Data reflecting Paleoindian land-use patterns and subsistence activities in the Northeast is relatively scarce (Spiess et al. 1998). It is assumed that Paleoindian people exploited a wide range of food resources, including large and small game, fish, wild plant foods, and perhaps extinct megafauna (Meltzer 1988; Jones 1998). Most archaeologists also believe that caribou played a significant, if seasonal, role in the Paleoindian subsistence strategy. Settlement patterns during this period are poorly understood. The range of identified sites includes large base camps, small residential camps, and small, task-specific loci. Taken all together, the archaeological evidence suggests a settlement system based on small, highly mobile social groups exploiting dispersed seasonally available resources.

Few intact Paleoindian sites have been found in Connecticut. According to former State Archaeologist Nicholas Bellantoni, about 50 fluted points have been recovered as isolated finds across Connecticut (Bellantoni 1995), but only two sites have been investigated and published in detail: the Templeton Site in Washington (Moeller 1980, 1984; Singer 2017) and the Hidden Creek Site on the Mashantucket Pequot Reservation in Ledyard (Jones 1997). More recently, excavations were conducted at the Ohomowauke Paleoindian Site, which is also located on the Mashantucket Pequot reservation, indicating repeated use of wetlands by Paleoindians (Singer 2017). A handful of other sites have received more cursory attention. In 2005, a probable Paleoindian component was identified in the Route 7/15 Interchange in Norwalk (Jones et al. 2005). The scarcity of identified Paleoindian sites suggests a low population density during this period. The small size of most Paleoindian sites and the high degree of landscape disturbance over the past 10,000 years likely contribute to poor site visibility. And, rising sea levels have likely inundated early sites, which are now offshore.

### 3.2.2 Archaic Period (9,500-2,700 BP)

The Archaic Period dates from 9,500 to 2,700 BP in the Northeast and it marks a time of dynamic and shifting subsistence and settlement patterns, but the general trend is one of generalist hunter-gatherer populations utilizing a variety of seasonally available resources. The period is subdivided into the Early, Middle and Late

Archaic periods on the basis of associated changes in environment, projectile point styles, and inferred adaptations (Snow 1980; McBride 1984a). Each sub-period is discussed briefly below.

### 3.2.2.1 *The Early Archaic Period (9,500-8,000 BP)*

Pollen evidence from swamp cores indicates a gradual warming and drying trend beginning around 10,000 BP (McWeeney 1999). By this time Pleistocene megafauna had been replaced by modern cool-temperate game species such as moose, muskrat, and beaver. Deer populations likely increased in abundance at the end of this period, when oak began to dominate upland forests. As the climate stabilized, plant and animal resources may have become more abundant and predictable, enabling Early Archaic populations to exploit a wider range of seasonal resources. Early Archaic sites are poorly represented in the regional archaeological record and this likely reflects continued low population densities. The dearth of Early Archaic sites may be due in part to changing environmental conditions which have deeply buried, inundated, or destroyed many early sites, or to the difficulty of recognizing some Early Archaic assemblages (Funk 1997; Jones 1998; Forrest 1999).

Archaeologists have recovered Early Archaic stone tool assemblages from several sites in the Northeast. The recovered data suggest that this period can be characterized by a number of distinct traditions. The most poorly understood period, that between 9,500 and 9,000 BP, appears to reflect both local Late Paleoindian and intrusive southern Piedmont Tradition Early Archaic influences. A quartz lithic industry in which projectile points are extremely rare occurs locally between roughly 9,000 and 8,500 BP. The Sandy Hill Site on the Mashantucket Pequot Reservation demonstrates this pattern (Forrest 1999, Jones and Forrest 2003). The site represents a local expression of a much broader techno-complex referred to as the Gulf of Maine Archaic Tradition (Robinson et al. 1992). Sandy Hill produced evidence of multiple semi-subterranean living structures and a variety of plant-food remains, including abundant cattail roots and hazelnuts. More recently, Jones and Leslie (2017) presented evidence for a Gulf of Maine Archaic Tradition site in Plainville, Massachusetts, dated to approximately 8,700 B.P., uncalibrated.

Archaeological evidence indicates a shift in Early Archaic period technology about 8,500 years ago, marked by the arrival of an apparently intrusive temperate forest-adapted culture that utilized bifurcate-based projectile points typically manufactured from non-regional materials (Jones 1998, 1999). The Dill Farm Site in East Haddam is one of the best-documented bifurcate sites in Connecticut (Pfeiffer 1986). Archaeological investigations at this site identified cooking/refuse features, quartz flakes, retouched tools, bifurcate-based projectile points, and subsistence remains, including charred nuts and mammal bone associated with a radiocarbon date of 8,560 +/- 270 BP. Bifurcate points are documented throughout the state, though most appear to represent isolated finds without apparent associated artifacts. Bifurcate points are commonly manufactured from rhyolite probably originating from a Boston Basin source or from Hudson Valley chert, but few are made from local lithic materials such as quartzite.

### 3.2.2.2 *The Middle Archaic Period (8,000-6,000 BP)*

Based on pollen evidence, the climate became warmer and drier during the Middle Archaic period and alluvial terraces developed along the state's major river systems (Jones 1999; Jones et al. 2008). This period marks the establishment of most modern nut tree species, which provided a new and abundant food resource for both human foragers and game animals such as bear, deer, and turkey. Evidence of Middle Archaic period occupation in Connecticut is more widely documented than for the preceding periods and it suggests adaptation to local resources during a period of population increase (McBride 1984a; Jones 1999). Archaeological evidence of grooved axes suggests that wood became an increasingly important raw material during the Middle Archaic,

while the presence of pebble net-sinkers and plummetts on some regional sites implies a growing reliance on marine and riverine resources (Dincauze 1976; Snow 1980). Despite their relative abundance, sites in Connecticut have yielded limited information on Middle Archaic subsistence and land-use patterns (Jones 1999). Archaeological assemblages are characterized by the presence of Neville and Stark projectile points and large flake tools usually manufactured from local materials such as quartzite. The Middle Archaic settlement pattern appears to have been seasonally oriented toward large upland interior wetlands (McBride 1984a and b; Jones 1999) and the data suggest seasonal re-use of such locales over long periods of time. The Dill Farm Site and the sites around Great Cedar Swamp on the Mashantucket Pequot Reservation reflect this pattern (Jones 1999, 2004). The limited number of period coastal and riverine sites may be due to rising sea levels that have resulted in deep alluvial burial.

### 3.2.2.3 Late Archaic Period (6,000-2,700 BP)

The Late Archaic period in the Northeast is characterized by an essentially modern distribution of plant and animal populations. Based on archaeological evidence for population increase, burial ritual, and long-distance exchange networks, the Late Archaic is often considered a time of cultural florescence (Dincauze 1975; Snow 1980; Ritchie 1994; Cassedy 1999). This period is one of the best-documented temporal sequences in southern New England, and is characterized by three major cultural traditions: the Laurentian (ca. 5,500-4,500 BP), the Narrow-stemmed (ca. 4,500-3,500 BP), and the Terminal Archaic (ca. 3,800-2,700 BP). Late Archaic sites are common throughout the state, although the period between ca. 6,000 and 5,000 BP remains poorly documented. During most of this period, settlement strategies revolved around large, seasonally revisited settlements located in riverine areas and along large wetland terraces, and smaller, more temporary special-purpose sites in the interior and uplands (Ritchie 1969; McBride 1984a and b; Cassedy 1997, 1999). The nature and distribution of sites suggest aggregation during summer months, with seasonal dispersal into smaller groups during the cold weather (McBride and Dewar 1981). In general, the Late Archaic appears to represent a continuation of the land-use and resource-acquisition patterns observed during the Middle Archaic.

The Laurentian Tradition (Ritchie 1965) was originally thought to reflect a hunting and fishing culture with origins in the upper St. Lawrence Valley. In Connecticut, its local manifestations may simply represent the adoption of Laurentian technological traits by local residents (Hoffman 1990; Ives 2009). The settlement pattern appears to reflect a central-based wandering pattern (*sensu* Beardsley et al. 1956) in which numerous small communities exploited a wide variety of settings (Snow 1980: 230). In southern New England, Laurentian sites are more common in the interior than along the coast. This pattern suggests that Laurentian groups were primarily adapted to upland and riverine environments, with more limited exploitation of coastal areas on a seasonal basis (e.g., Snow 1980, Kingsley and Roulette 1990). Laurentian sites are characterized by a distinctive tool kit which includes diagnostic side-notched and corner-notched projectile points, often found in association with adzes, axes, gouges, ulus, and slate knives.

The transition to the Small- or Narrow-stem phase of the Late Archaic includes notable changes in lithic raw material use. During this phase, the use of quartzite declines significantly and quartz becomes by far the most commonly used material. This pattern has promoted the argument that population increase at this time restricted the availability of even regionally available resources like quartzite. The Narrow-stem phase is characterized by the development of a new quartz cobble technology that focused on the reduction of cobble cores into useful blanks for the production of projectile points, especially the narrow-stemmed forms. It is not known whether restrictions on raw material access drove the development of this new technology or if the

technology drove raw material selection. Archaeologically identifiable features are more common on sites from this period and include broad fire-cracked-rock pavements, earth ovens, and some fire-cracked-rock hearths.

Narrow-stemmed phase sites are the most abundant of any period represented in Connecticut. The more notable Narrow Stemmed sites in Connecticut's coastal zones include the Archaic Midden Site in Haddam and the Grannis Island Site in New Haven (Glynn 1953; Lavin 1988). The Archaic Midden Site has been partially submerged by rising sea levels and is only visible at low tide. This may be typical of many Late Archaic sites in the region, indicating the potential of encountering sites under salt marshes or in coves or bays. Recent research interprets the Cove River Site in West Haven to represent a seasonal base camp associated with the Narrow Stemmed Tradition (Cuzzone et al. 2009).

The Terminal Archaic period appears to mark a transition in settlement and perhaps subsistence strategies (Dincauze 1975). A number of technological innovations appear during this period, including the manufacture and use of steatite bowls and the rare production of cord-marked and grit-tempered pottery. The use of quartz declined during this period, while the exploitation of regionally available quartzites increased. Imported chert and other non-local lithics such as argillite, rhyolite, and felsite are found in high proportions in Terminal Archaic lithic assemblages. This pattern appears to indicate renewed social and economic contact with a broader region. Fire-cracked-rock features are often associated with this period and likely reflect intensive food-processing activities. Identified site locations suggest that settlement was focused on expansive lacustrine and wetland areas and upper river terraces, rather than floodplains (McBride and Dewar 1981). The interior and uplands appear to have been less extensively used during this period (McBride 1984a and b), though this may be a reflection of small, difficult-to-locate logistical hunting sites. The Terminal Archaic period also marks the appearance of human cremation burials (Dincauze 1968; Robinson 1996; Leveillee 1999). These cultural attributes may represent intrusive peoples or ideas, but the debate over the possibility of migration remains active (see, for example, Robinson 1996: 38-39).

### 3.2.3 The Woodland Period (2,700-450BP)

The Woodland period is characterized by the increased use of clay pottery, celts, and exotic raw materials, as well as the introduction of bow-and-arrow technology, smoking pipes and horticulture (Lavin 1984; Feder 1984, 1999). An increase in site size and complexity suggests a trend toward greater sedentism and social complexity, probably the result of a growth in the population base, particularly at the end of this period (McBride and Dewar 1987; Lavin 1988; Jones 2002). The Woodland Period has been traditionally subdivided into Early, Middle, and Late periods on the basis of ceramic styles, settlement and subsistence patterns, and political and social developments (Ritchie 1969, 1994; Snow 1980; Lavin 1984). Despite these changes, most recent scholars see the Woodland as a period well-rooted in the traditions and lifeways of the preceding Archaic period (Feder 1984, 1999).

#### 3.2.3.1 Early Woodland Period (2,700-2,000 BP)

Most documented sites in Connecticut containing Early Woodland components are situated along the coast or at the mouths of major rivers such as the Quinnipiac, Connecticut, Thames, and Mystic, although a number of interior upland locations have also been documented.

The Early Woodland period remains poorly understood, and sites from this period are less well-represented in the archaeological record than sites from the preceding phases of the Late Archaic. This leads some to argue for a probable population decline during the Early Woodland (Fiedel 2001). On the other hand, the apparent

dearth of Early Woodland sites may simply reflect the biases of site-recognition strategies (Juli and McBride 1984). Direct association of Narrow-stemmed projectile points with Woodland Period radiocarbon-dated contexts (Herbster and Chereau 1999, 2001, 2003; Herbster 2004), as well as the stratigraphic association of Narrow-stemmed points with Woodland types (Lavin and Russell 1985; Cuzzone and Hartenberger 2009), suggest the possibility that Woodland Period assemblages are frequently misidentified as Late Archaic. The observed change in site patterning from the previous periods may also be a reflection of shifting settlement strategies that promoted the formation of larger, but fewer, seasonal aggregation camps (Jones 2002). Research suggests that year-round habitation of some sites was established by the late Early Woodland period (Ceci 1980; Bernstein 1990).

Early Woodland regional complexes are generally characterized by stemmed, tapered, and side-notched (Meadowood) point forms and preforms, often of Onondaga chert; thick, grit-tempered, cord-marked ceramics; tubular stone pipes; burial ritual; and indications of long-distance trade/exchange networks (Lavin 1984; Juli 1999). It is possible that incipient horticulture focused on native plant species such as goosefoot (*Chenopodium* sp.) had begun by this time (George 1997). The existence of stone pipes also suggests that tobacco was being traded into the region, if not locally produced, by the Early Woodland.

Despite the rarity of Early Woodland sites, a number of very large, deep pit features attributed to this period have been found across southern New England. These pits may represent nut-storage facilities and clusters of these features could indicate repeated use of nut-gathering locations by families, perhaps with established rights to certain groves. This would represent a break from presumed earlier patterns based on more mobile kin-based social units with relatively open access to local areas (Jones 2002).

### *3.2.3.2 Middle Woodland Period (2,000-1,200 BP)*

The Middle Woodland Period is characterized by increased diversity in ceramic style and form, continued examples of long-distance exchange (especially of jasper), and at its end, the introduction of tropical cultigens (Dragoo 1976; Snow 1980; Juli 1999). Much of the current knowledge of the Middle Woodland Period in southern New England is extrapolated from Ritchie's (1994) work in New York State. Ritchie noted an increased use of plant foods such as goosefoot (*Chenopodium* sp.), which he suggested had a substantial impact upon social and settlement patterns. George (1997) reiterated this hypothesis for the Middle Woodland of Connecticut. Ritchie also noted an increase in the frequency and size of storage facilities during the Middle Woodland period, which may reflect a growing trend toward sedentism (Ritchie 1994; Snow 1980). At this time, jasper tool preforms imported from eastern Pennsylvania appear to have been entering the region through broad, formalized exchange networks (Luedtke 1987).

In Connecticut, Middle Woodland sites are relatively rare outside of coastal and near-coastal contexts. Archaeological evidence of settlement patterns suggests an increased frequency of large sites adjacent to wetlands and tidal marshes along the Connecticut River, a decline in large upland occupations, and a corresponding increase in upland temporary camps (McBride 1984a). This pattern may reflect a reduction in residential mobility, likely related to the development, by 2,000 BP, of modern tidal marshes and estuaries in low-lying riverine areas. The tidal marshes would have supported a wide variety of terrestrial and aquatic animal and plant resources, allowing longer residential stays (McBride 1984a).

### *3.2.3.3 Late Woodland Period (1,200-450 BP)*

The Late Woodland period is characterized by population aggregation in villages along coastal and riverine locales; more intensive use of maize, beans, and squash; changes in ceramic technology, form, style, and

function; the eventual establishment of year-round villages; and the use of the upland-interior areas by small, domestic units or organized task groups on a temporary and short-term basis. The settlement pattern suggests a trend toward intensified settlement in larger villages and hamlets in coastal and riverine areas. It has been hypothesized that these changes can be attributed to the introduction of maize, beans, and squash, but the importance of cultigens in the diet of southern New England groups, especially those with access to coastal resources remains unclear (Ceci 1980; McBride 1984a; McBride and Dewar 1987; Bendremer and Dewar 1993; Ritchie 1994; Chilton 1999). Although sites clearly demonstrate the use of tropical cultigens in the Connecticut River valley, wild plant and animal resources were still a primary component of the aboriginal diet. The use of imported cherts increased over time in the Connecticut River valley, suggesting possible social, economic, and/or political ties to the Hudson Valley region. Affinities in pottery styles also suggest western ties at this end of this period (Feder 1999).

### 3.3 CONTACT PERIOD NATIVE AMERICAN HISTORY

While the APE today is characterized by industrial and urban development, it has a rich Contact and early historic past. Between 1520 and 1650, initial European settlement in southern New England had a significant impact on Native American groups in Connecticut and profoundly altered the pre-Contact geopolitical landscape. In the Late Woodland and early Contact periods, indigenous settlement focused on or adjacent to the floodplains of major rivers and tributaries, reflecting the importance of agricultural activities, fishing, and access to transportation and communication routes (Pagoulatos 1990). After 1600 AD, contact with Europeans likely catalyzed documented shifts in settlement and subsistence strategies, including the intensification of maize agriculture. Planting in the spring required a focused, cooperative kin-based effort, while the capture of anadromous fish at waterfalls and choke-points brought together households as it had for millennia. From late summer through winter, small household groups from larger village-based communities continued to use upland areas for hunting, trapping, and gathering. The introduction of a market economy related to the development of a large-scale fur-trading industry led to rapidly shifting alliances and power struggles between the various Native American groups in Connecticut. At the same time, Native communities struggled to maintain traditional lifeways as epidemic diseases decimated populations (Carlson et al 1992). Encroachment by newly arrived European settlers also contributed to the rearrangement of the physical and social landscape.

The explorations of Giovanni da Verrazanno in 1524 and Adriaen Block in 1614 are the most often noted examples of early contact between the region's Native population and Europeans, although it is likely that numerous less well-documented fishermen and traders infiltrated the waters of Long Island Sound and interacted with Native populations throughout the 16th century. For the interior tribes, contact with Europeans took longer. By the end of the Pequot War in 1637, however, rapid colonization and sales of land by Native sachems to English colonists were well underway. In the decade that followed, new towns were quickly established and an estimated 20,000 English settled Connecticut during the Great Migration (1629-1642).

At the time of European contact in the early 17th century, the APE was inhabited or at least utilized by Native Americans. It is likely that the Native people in the area during the Contact and Historic periods identified as Pequonnocks, a subset of the Paugussett Tribe that occupied southwestern Connecticut from Norwalk to West Haven. Wilcoxson (1939) identifies a possible Contact-era fortified village, lying somewhere between the Black Rock Cove and Ash Creek (previously referred to as the Uncaway River). This contact-era fort was likely a fortified village, was located near an "old Indian planting field" and may have held a garrison of 200 warriors during the Pequot War (Wilcoxson 1940). Following the Great Swamp Fight in Fairfield, which ended the

Pequot War in 1637, the English pursued the Pequots to the mouth of the Pequonnock River, and a small skirmish ensued. This area was eventually sold to the town of Fairfield by the Pequonnocks in 1681 (Wilcoxson 1940). A pre-revolutionary war era map delineates the project area as “Indian Harbor”, indicating the likely contact period use of the APE by the Pequonnock (Adams 1928) (Map 1).

Following the end of the Pequot War, English colonists began settling coastal towns previously (and still) occupied by Native peoples and a number of land deeds were negotiated with Native American leaders. The APE lies within the original town bounds of Stratford and adjacent to the Town of Fairfield, which were both settled in 1639. The territory of the Pequonnocks lay between the Towns of Fairfield and Stratford, within the current APE. Local natives suffered a process of dispossession that involved the definition of land reservations within the boundaries of present-day Bridgeport, Fairfield, Orange, Stratford, and Westport. Due to their relatively small sizes, these reservations were not well-suited to supporting large populations through foraging or agriculture. One such reservation, the Golden Hill Reservation, was created by the colonists in 1639, at a sacred spring location to the north of the APE (in modern downtown Bridgeport), divesting the Pequonnocks of their land. Many Pequonnocks lived at this reservation, at least early on; Wilcoxson (1940) suggests that over 100 wigwams (houses) and associated peoples were present at the reservation. The Golden Hill Reservation was sold off by a state-appointed overseer in 1802 (Brilvitch 2007). None of the original Indian reservations exist today, all having passed into non-Indian ownership by the mid-19th century.

Consequently, some Native Americans relocated to communities upriver. Others joined ethnically admixed communities that formed in the state’s developing coastal urban centers, where careers in the maritime and service industries were available. A prime example of this type of coastal community can be found in Bridgeport: Little Liberia (or Ethiope) (see below, Section 3.4.2)

## **3.4 GROWTH AND DEVELOPMENT OF BRIDGEPORT**

### **3.4.1 Euro-American Settlement to the Mid-19th Century**

Bridgeport is Connecticut’s largest city, located at the mouth of the Pequonnock River on Long Island Sound. The area was first inhabited by the native Paugussett tribe, which farmed and fished in the river and Long Island Sound. The first documented English settlers arrived in 1644, and they also subsisted on farming and fishing. During the Revolutionary War, a settlement known as Newfield grew near State and Water streets. To the west, Black Rock Harbor was a natural harbor used by privateers as a safe landing place for captured prizes (Orcutt 1886). The APE was lightly settled by this point, as indicated in a 1777 map used by Sir Henry Clinton during the Revolutionary War (Adams 1928) (Map 2). Connecticut coastal shipping began to expand in the 1790s, fueled by the West Indies trade for sugar and rum, as demand increased for provisions such as livestock, grains, lumber, and manufactured goods. The Newfield community was incorporated as the borough of Bridgeport in the town of Stratford in 1800, allowing it to establish regulations and control development as its harbor grew into a prosperous port. Bridgeport separated from Stratford in 1821 to become a town, which also included land from the eastern side of Fairfield. Bridgeport was chartered as a city in 1836, giving it additional powers. One of its first actions as a city was obtaining bond funding for the Housatonic Railroad and secure the line’s terminus in Bridgeport. The Housatonic line opened in 1840, connecting the city to Danbury, New Milford, and Albany, and providing an alternate route for goods shipped on the Erie Canal (when the Hudson River was frozen). Beginning in 1849, the Naugatuck Railroad linked Bridgeport to Waterbury and Winsted. The New

York and New Haven Railroad began operation in 1848, connecting Bridgeport to New York City as well as to shoreline towns (Clouette 1984: 17-19; Brilvitch 2007: 30).

### 3.4.2 The South End's Little Liberia: Community of People of Color

In the 1820s, Bridgeport's South End was notable for its settlement of free people of color, including members of the Paugussett tribe, African Americans, and immigrants from the Caribbean, including Jamaica and Haiti. The community had about 30 houses, a school, two churches, a Masonic lodge, the Duncan House Hotel (catering to affluent African Americans), a shipyard, and other businesses and social organizations (Maps 3 to 5) (Brilvitch 2007: 12; Brilvitch 2014). The community was referred to as Ethiope in its early decades, according to property deeds. Later residents called it Liberia; according to local oral tradition, the name change was a reference to the American Colonization Society's emigration program of African Americans to the West African coast, which began in 1822. After the Republic of Liberia declared its independence in 1847, the community was referred to as Liberia on deeds; later it became known as Little Liberia. Many men in the Liberia community worked as seamen, waiters, and barbers. Both men and women found employment in the Duncan House Hotel and on steamboats as cooks, and women also worked in laundry services (Brilvitch 2007: 12, 45-53; Brilvitch 2014; "Reimagining Little Liberia" 2017).

Joel Freeman (1793-1865) was a founding and pivotal member of the Ethiope community. He was a seaman from Derby and a member of the Turkey Hill Paugussett tribe. Freeman was one of three founders of the Zion Church (first building completed in 1835; current building 1882), the leading petitioner for the founding of a school for "colored children" in 1841, and a substantial property owner (Brilvitch 2007: 29-31) (Map 4; Image 2; Photograph 1). His sisters Eliza Freeman (1805 -1862) and Mary Freeman (1815-1883) were of Paugussett and African-American descent, also born in Derby. The women moved to Bridgeport in 1848, bought adjacent lots close to Joel Freeman's house and built two houses, which served as rental properties while they lived and worked in New York City (Maps 3 to 5; Photograph 2). Eliza moved back to Bridgeport in the early 1850s and worked as a "domestic." African American women boarded in her Main Street house and she owned several other houses in the community. Mary Freeman worked for a time as a cook in a Manhattan hotel and became the first person of color to join Bridgeport's First Methodist Episcopal Church in 1858. She too owned several properties in Bridgeport as well as a house on Long Island. The Freeman sisters' property holdings and financial success were unusual for women of color in the 19th century (Brilvitch 1998; Brilvitch 2007: 46-49; "Reimagining Little Liberia" 2017).

### 3.4.3 Bridgeport's 19th-Century Industrial Growth

In the 1830s Bridgeport emerged as a major production center for saddles, carriages, and clothing. These products were made by hand, in large workshops, and in sufficient quantities for export. As a major railroad hub for western Connecticut and a city with a good harbor and a skilled workforce, Bridgeport was in a prime position for industrial growth by the 1850s.

At that time, the APE was still lightly settled, and portions of Little Liberia are visible on both the 1850 (Collins and Clark) and 1856 (Clark) maps of the APE (Maps 3 and 4). The city's lack of a significant source of water power was overcome by importing coal for steam power. Bridgeport lacked a seed industry that would begin processes of diversification and mass production, and it was P. T. Barnum that led the importation of manufacturing that required skilled workers to produce highly complex, valuable goods (Clouette 1984: 20-21).

In 1851, Barnum and his partner William H. Noble undertook the building of a “new city” on the east side of the Pequonnock River, including factories, housing, shops, churches, schools, and Washington Park (Saxon 1989: 11, 192; Barnum 1871: 758). They built a factory on speculation that, beginning in the mid-1850s, was occupied by the highly successful Wheeler and Wilson sewing machine company (Waldo 1897: 955). Drawn by the city’s growing expertise in precision metalwork manufacturing, the Howe sewing machine company moved to Bridgeport in the 1860s. Industry continued to grow as enterprising metalwork workers established their own shops. Bridgeport became known for a wide range of metal products such as steam engines, machine and hand tools, gauges, wire, pipes, springs, chains, mechanical toys, knives, scissors, cutlery, locks, and bronze monuments and statuary.

Clothing remained an important industry in Bridgeport throughout the 19th century and, with the city’s proximity to New York’s fashion world and its own metal parts specialty, it became a major center for corset production. Bridgeport Brass was established in 1865, producing metal goods for corsets and many other locally-made products. Warner Brothers Company, founded in 1874 and incorporated in 1894, was the largest corset maker (Image 3). Others included Langdon, Batcheller & Company; the Bridgeport Corset Company; L. L. Loomer & Sons, and the Crown Corset Company (Waldo 1897: 957). Other clothing products included elastics, rubber dress shields, silk and pile fabrics, and patent leather. Furniture, organs, and pianos were other consumer-driven Bridgeport products; the Kiefer Furniture Company was located in the South End near its namesake street.

Demographically, Bridgeport was a diverse working-class city of immigrants. Worker housing was needed near factories, and landowners in the South End saw the development opportunities. William D. Bishop (1827-1904), president of the Naugatuck Railroad as well as the first president of the New York, New Haven and Hartford Railroad, was among them. Bishop left the railroad in 1879 because of ill health; several years later he developed a planned community of workers’ cottages several blocks from the New York, New Haven and Hartford freight yard, between Main and Broad streets (Orcutt 1886: 700-703; Waldo 1897: 787). The designer for Bishop cottage development—close to South End factories as well as Seaside Park—is attributed to George and Charles Palliser, architects from England who became nationally known for their widely influential pattern books (Photographs 3 to 5). Their first major Bridgeport project (with P. T. Barnum in the mid 1870s) was successful and they continued to design housing for the working class, including four developments in Bridgeport. Completed in 1881, the Bishop cottages were first occupied by German, Irish, and rural New England families, representative of Bridgeport’s late 19th-century working class (Brilvitch 1979).

#### **3.4.4 Seaside Park and P. T. Barnum’s South End Developments**

P. T. Barnum (1810-1891), the businessman, showman, and politician, was a prominent landowner and developer in the South End as well as in East Bridgeport and was deeply involved in the establishment of Seaside Park and nearby residential development. In his autobiography Barnum devoted a chapter to Seaside Park, describing his ideas for a public park and how he enlisted other prominent citizens to support the plan (Barnum 1871). Barnum negotiated with landowners and purchased some of the land for the city (Barnum 1871; Waldo 1897: 66-68).

The original (eastern) section of the park was designed by the preeminent landscape architecture team of Frederick Law Olmsted (1822-1903) and Calvert Vaux (1824-1895), who designed Central Park in New York City in 1858, followed by parks and landscapes through the country (Map 6; Images 4 and 5). They were hired by Nathaniel Wheeler of Wheeler and Wilson; along with Barnum, Wheeler was a substantial landowner in the

South End. Their design work for Seaside Park is documented by an 1867 topographical map stamped by Olmsted, Vaux and Company (Waldo 1897: 66-68; Golovin 1972: 8). In 1868 the west end (between Howe Drive and Iranistan Avenue) was redesigned as a horse trotting park (Map 8; Image 7). After the original part of Seaside Park was built, it is possible that Olmsted was involved in portions of the park's expansion, as he and Barnum corresponded in 1873 about the layout of the grounds and roads around Waldemere, Barnum's estate adjacent to the park built in 1869 (Map 7) (Saxon 1989: 215). Barnum's autobiography includes this description of the park's setting:

The branch horse-railroad already reaches one of the main entrances, and brings down crowds of people every day and evening, and especially on the evenings in which the band plays. At such times the avenues are not only thronged with superb equipages and crowds of people, but the whole harbor is alive with row-boats, sail-boats and yachts. The views on all sides are charming. In the rear is the city, with its roofs and spires; Black Rock and Stratford lights are in plain sight; to the eastward and southward "Old Long Island's sea-girt shore"; and between lies the broad expanse of the salt water, with its ever "fresh" breezes, and the perpetual panorama of sails and steamers (Barnum 1871: 766-767).

Estimates of the original size of the park vary from 35 to 44 acres. In 1878, Barnum bought 33 acres of tidal marsh west of the park and built a dyke and a tidal pond to drain the land, then donated the parcel for the park in 1884 (from Iranistan Avenue to Barnum Dyke; see Maps 9 and 10) (Waldo 1897: 68; Roth 1981: 32-33; Gilchrist 1982). After Barnum's death in 1891, the city continued Seaside Park's expansion (Image 6). A seawall was extended west of the dyke in 1894-1895, and the marsh behind it was infilled. The breakwater connecting Fayerweather Island to the mainland was built in 1917, and the island (with its 1823 lighthouse) was incorporated into the park the same year (Danenberg 1936: 91; Gilchrist 1982).

Barnum saw Seaside Park as an integral part of the South End's development. An 1865 Bridgeport Standard article (possibly written by Barnum himself, as he "agitated in the Bridgeport papers" (Barnum 1871: 760)) stated:

We have heard some talk among mechanics and others about this being an aristocratic arrangement intended or suitable only for those who have establishments to drive. This is a great mistake. The Horse Railroad is to be extended to a convenient distance and all for a mere trifle can avail themselves of the privilege of the Park. The intention is to make it especially the resort of this class of citizens, land being cheaper in this part of town, houses of cheaper rent will be put up, and those of moderate circumstances will be better provided for than they have even been before (Brilvitch 1982, Barnum/Palliser; Gilchrist 1982).

Several blocks north of the park, Barnum purchased land between Park and Myrtle avenues (north of Atlantic Street) in 1876 and developed it through the 1880s, holding mortgages on some of the properties (Map 8). Most of the houses (including duplexes, rowhouses, and a few single-family dwellings) in this development are attributed to Palliser, Palliser & Co., like the Bishop cottages. The majority are duplexes with a high level of architectural ornament (Photograph 6 and 7). The John Cummings House, an 1885 duplex at 380-386 Myrtle Avenue, was identical to a design in the Palliser's book *American Architecture* (Photograph 8). George and Charles Palliser themselves lived in the duplex at 371-373 Myrtle Avenue prior to moving their firm to New York City (Brilvitch 1982, Barnum/Palliser).

Concurrently, Barnum was developing his land directly adjacent to Seaside Park. In 1869 he built Waldemere next to the park for the ocean breezes, in large part for his wife Charity's health (Barnum 1871:772). Barnum wrote of his plan to build fine housing near the park: "On the western and northern margins of this public ground, in sight of the Sound and in full view of every part of the park, will hereafter be the villas and mansions of the wealthiest citizens" (Barnum 1871: 767). His plan was realized, with many high-style houses built along Park Avenue and adjacent to Marina Park to the west, from the mid 1880s through the first decade of the 20th century (Photographs 9 to 16). Most were designed by prominent Bridgeport architects, such as George Longstaff, Warren Briggs, Joseph W. Northrup, and built for the city's leading merchants, factory owners, and professionals. Charles B. Read, Secretary of the D. M. Read department store, built 66 Marina Park Circle in 1892. William A. Grippin, president of Bridgeport Malleable Iron Works, built the house next door at 82 Marina Park Circle in 1908 (Photograph 13). George W. Wheeler, a Connecticut Supreme Court justice, built 115 Park Avenue in 1905 (Photograph 14). Albert J. Erslew, a design engineer, built the International Style-house at 185 Park Avenue in 1938 (Photograph 15). His wife Emma was a graduate of the NY Palmer School of Design and she was responsible for much of the innovative floor plan. The house at 219 Park Avenue was built as a summer residence in 1890 by Lavinia L. Parmly, a wealthy New York City widow (Photograph 16).

Charity Barnum died in 1873 and P. T. Barnum married Nancy Fish, the daughter of his friend John Fish, the following year. In 1889 they completed the last Barnum house, a smaller brick house called Marina, next to Waldemere, which was dismantled after Marina's completion (Image 8). (A portion of Waldemere was moved a few blocks north to the northeast corner of Atlantic and Rennell streets; another part was moved to Stratford.) The Waldemere estate was subdivided for more houses (compare Maps 8 and 9). Marina was demolished in 1961 by the University of Bridgeport; its iron gate surmounted with the initial "M" stands just north of Marina Park oval (Photograph 17) (Witkowski, "P. T. Barnum: The Later Years").

### 3.4.5 Bridgeport in the 20<sup>th</sup> Century

Bridgeport had surpassed Hartford, Waterbury, and New Haven in industrial production by 1905, and the city continued to grow as it improved its transportation infrastructure (Maps 11 to 16). Beginning in the 1890s, the U.S. Army Corps of Engineers undertook a number of harbor improvement projects that continued for several decades. The Corps built breakwaters, enlarged navigation channels, dredged portions of the harbor and a channel for a slip at Henry Street, and added fill that enlarged Tongue Point (Riess 1998). The harbor shipping channel was again widened in 1919. Concurrently, the two-track New York, New Haven & Hartford railroad corridor in Bridgeport was reconstructed in the first decade of the 20th century as an elevated, electrified four-track main line that eliminated grade-level crossings. This project was a major undertaking that required lengthy cut-stone retaining walls for the viaduct and new bridges that carried it over city streets and watercourses.

The New York, New Haven & Hartford Railroad's main freight yard was in East Bridgeport, but it also had a large freight yard (inherited from its predecessors, the Housatonic and Naugatuck railroads) along the South End's eastern waterfront, accessed by an under-grade bridge (Maps 13 and 14; Photograph 18). The yard included freight facilities on the north and west side of the tracks as well as on the south and east sides. (Since this bridge entrance was adjacent to the east end of South Avenue at Water Street, the entire yard was known as the South Avenue Yard; South Avenue and Water Street no longer intersect due to interstate highway I-95 and its frontage roads.) The former freight yard area in the project APE (now occupied by a power plant) was known as the Lower Yard.

Trucking companies and warehouse businesses thrived, such as the Bridgeport Storage Warehouse Company that built a nine-floor warehouse in 1917 at 10 Whiting Street, and Menard & Shepard trucking company, which occupied an adjacent 1919 brick building on Main Street (Map 17; Photographs 19 to 21). By 1939 the Bridgeport Storage Warehouse Company had incorporated the trucking company's building into their complex, and the company had its own railroad siding (Photograph 22). Some large companies had their own warehouses in the South End, such as Warner Brothers Company and the D. M. Read Company, Bridgeport's upscale department store (Photographs 23 and 24).

In the 20th century, Bridgeport factories were producing a wide array of electrical devices, including graphophones, along with products such as gauges, typewriters, automobile parts, and armaments. Bridgeport industrial production reached its zenith during World War I, particularly with munitions. The production increase required more wartime workers, and workers needed housing. The first WWI wartime housing development in the city was the Park Apartments at 59 Rennell Street, designed by Bridgeport architect Herbert Lucas for the Bridgeport Housing Company (Photograph 25). The U.S. Housing Corporation built four wartime developments, including one for the Crane Company on South Avenue. A key defense manufacturer, Crane produced valves and pipe fittings (Map 16). The Crane Development, now known as Seaside Village, was a planned residential community designed by a collaborative team of planner Arthur Shurtleff and architects R. Clipston Sturgis, Skinner and Walker (Image 9; Photographs 26 and 27) (Bedford 1989).

The automobile industry was also significant in Bridgeport. Locomobile was a company established in 1899 as an innovator in vehicles powered by steam, gasoline, and electric engines. In the factory at the south end of Main Street (adjacent to Tongue Point), the company produced trucks during World War I, but it was best known for custom-produced luxury automobiles (Map 15; Images 5, 7 and 10). Through the 1920s the company expanded too quickly, and it closed by 1930. Nonetheless, automobile production played a role in Bridgeport's survival of the Great Depression. A few Bridgeport companies made automobile bodies, but many more produced component parts such as cigarette lighters, brakes, windshield defrosters, and upholstery webbing (Clouette 1984: 26-27).

During World War II some Bridgeport defense companies thrived, such as the Auto-Ordnance Company that produced the submachine gun popularly known as the "Tommy Gun" (Clouette 2000). In the early 1940s the Sikorsky Aircraft Company established a helicopter manufacturing facility (and the first U.S. dedicated heliport, along Barnum Dyke) at the Crane Company site on South Avenue (Photograph 28). Sikorsky produced helicopters during the war and expanded its plant in 1948, 1950, and 1980, remaining active at the complex until 2015 (Connecticut Trust 2018).

Although not as extensive as Bridgeport's World War I housing expansion, there were several major World War II developments. Two were built in the South End by the U. S. Housing Authority. Marina Village is a development of plainly-detailed brick rowhouses laid out on two superblocks that flank Columbia Street just south of Railroad Avenue, the former site of the Eastern Malleable Iron Company (Photograph 29). The similarly named Marina Village Apartments, no longer extant, was a three-story brick apartment complex on the site bounded by Railroad Avenue and Main, Broad, and Whiting streets (not extant).

In the post-World War II period, a great deal of manufacturing moved from Bridgeport to outlying towns, out of state, and overseas. Some companies adapted to changing markets and held on. The Warner Brothers Company, for example, transitioned from corset production to modern types of lingerie in the 1920s and 1930s, and expanded to women's and men's sportswear in the late 1950s. The company remained active in Bridgeport

through the late 20th century, expanding through acquisitions and changing its name to Warnaco in 1968, but its South End manufacturing facilities shrank over time. The complex was renovated in the early 1970s by Modernist architect Victor Christ-Janer of New Canaan as Warnaco office space and University Square, a mix of retail and restaurant spaces, including the University of Bridgeport's bookstore ("Bridgeport" 1976).

In the South End, one of the most significant changes in the mid-20th century was the arrival of the University of Bridgeport, now the principal landowner south of Atlantic Avenue. Founded as the Junior College of Connecticut in 1927, the school expanded after World War II to accommodate returning veterans (compare Images 11 and 12). It purchased P. T. Barnum's property and moved to the South End in 1947, the same year that the college became the University of Bridgeport. The school continued to acquire properties over the next several decades, converting stately houses into dormitories and offices and erecting larger new buildings of more modest architectural character (Photographs 30 and 31).

Another major change came in 1957, when the United Illuminating (UI) power plant was constructed on the New York, New Haven & Hartford Railroad's Lower Yard (Images 13 and 14). UI added two more power generation units in 1967 and 1968, which burned oil and coal, followed by a 22-MW jet-fueled combustion turbine (Photograph 32). Today, Public Service Energy Group (PSEG) owns the harbor-front stations built by UI. In 2019, the coal-fueled plant will be replaced by a new 485 MW gas-fired combined cycle power plant, currently under construction at the south end of the complex. Another power company, EMERA, operates a 520-MW gas-fired combined cycle power plant between Whiting and Atlantic streets. UI operates the Pequonnock Substation (north of the coal-powered plant) and the Singer Electric Substation at 120 Henry Street. Currently, the South End power complex provides energy generation, transmission, and distribution on a regional basis.



## 4. Existing Conditions: Historic Resources

The APE has a rich, complex history and retains many historic-period resources (defined as at least fifty years old). The South End includes one known pre-Revolutionary War-period house; two mid-19<sup>th</sup>-century houses and a church that survive from Little Liberia; a variety of working-class, middle-class, and high-style housing from the mid-19<sup>th</sup> through the mid-20<sup>th</sup> centuries; churches, schools, and small mixed-use and commercial buildings; a waterfront park and two lighthouses; a railroad viaduct with bridges and catenary structures; factories and warehouse buildings; 20<sup>th</sup>-century university buildings; and a major power-generating complex (Figures 3 and 4). Within the APE, the majority of properties are over 50 years of age (with few exceptions, the minimum age to qualify for NRHP eligibility). There are dozens of houses, churches, former factories, and commercial buildings dating primarily from the mid-19<sup>th</sup> to the early 20<sup>th</sup> centuries. AHS noted NRHP-listed historic properties and districts, as well as potentially eligible historic resources that may be affected, directly or indirectly, by the proposed project. A review of their historic status follows, along with AHS's recommendations regarding NRHP eligibility. Table 1 calls out the status of historic resources relative to NRHP and SRHP criteria. All NRHP-listed resources are automatically in the SRHP.

### 4.1 NATIONAL REGISTER-LISTED INDIVIDUAL PROPERTIES

#### 4.1.1 Seaside Park

Seaside Park is roughly bounded by Waldemere and Iranistan avenues and Atlantic Street, including the peninsula formed by Cedar Creek and Fayerweather Island (except the peninsula's landfill) (Images 4 to 6; Photographs 34 to 42). The entire park is listed as an individual property in the NRHP (Gilchrist 1982). The eastern section was designed by Frederick Law Olmsted and Calvert Vaux, as documented by a topographical map stamped by their firm (Golovin 1972: 8). In the NRHP nomination, the park meets Criterion B for its association with P. T. Barnum, who was involved with the park until his death in 1891, purchasing additional land and donating it to the city for use as parkland. It also meets Criterion C as a significant 19<sup>th</sup>-century civil engineering project. Some alterations have been made to the park's original Olmsted and Vaux design that affect its historical integrity, such as sports fields and parking areas. According to members of the Fairfield Garden Club who have studied early plans of the park, the most intact portions of the Olmsted and Vaux section are the park entrance at Broad and Main streets and the long tree allées south of the entrance, along with remnants of the long green and carriage concourse, and a section of woods north of the Civil War monument. Other alterations and additions made through the early 20<sup>th</sup> century have acquired their own historical significance, including monuments, some drives and paths, park buildings, and specimen trees. Seaside Park includes as a contributing structure the 1823 brownstone Black Rock Harbor Lighthouse (also known as Fayerweather's Island Lighthouse) (Gilchrist 1982; Palmquist 1985: 207).

#### 4.1.2 Tongue Point Lighthouse

Tongue Point Lighthouse (also known as Bridgeport Breakwater Light, Buglight, and Inner Harbor Light) is located at the eastern tip of Tongue Point, on the west side of Bridgeport Harbor (Photograph 43). It is a small

cast-iron lighthouse built in 1894. It is entirely painted black. The lighthouse was moved in 1919, when a breakwater was demolished for harbor improvements. It is individually listed in the NRHP with statewide significance in the multiple property submission for “Operating Lighthouses in Connecticut.”

### 4.1.3 Freeman Houses

The Freeman Houses at 352-54 and 358-60 Main Street, north of Whiting Street, were built for Mary and Eliza Freeman in 1848 (Photograph 2). They are the last remaining dwellings of Little Liberia and together are individually listed in the NRHP under Criterion A. They are also included on the Connecticut Freedom Trail.

### 4.1.4 Seaside Institute

Seaside Institute (now the Bridgeport International Academy) is located at 299 Lafayette Street, on the southwest corner of Lafayette and Atlantic streets (Image 15; Photograph 44). Designed by local architect Warren Briggs as an eclectic interpretation of Romanesque-Revival style, it was built in 1887 by the Warner Brothers Company for their female employees, providing a library, concert hall, classrooms, sewing room, parlor, and restaurant. It was later occupied by the Bridgeport Herald, which built the 1930s addition. It is individually listed in the NRHP under Criteria A and C.

### 4.1.5 Park Apartments

The Park Apartments is a four-story brick building at 59 Rennell Street, at the southwest corner of Atlantic and Rennell streets (Photograph 25). Designed by local architect Herbert Lucas, this Colonial Revival-style building was completed in 1916 as the first development project of the Bridgeport Housing Authority and the first Bridgeport housing built for wartime workers. It is individually listed in the NRHP under Criteria A and C in the multiple property submission for “Wartime Emergency Housing in Bridgeport, 1916-1920.”

## 4.2 NATIONAL REGISTER-LISTED DISTRICTS

### 4.2.1 William D. Bishop Cottage Development Historic District

The William D. Bishop Cottage Development Historic District is roughly bounded by Broad, Whiting, Main, and Henry streets (Photographs 3 to 5). It includes approximately 35 wood-frame workers’ cottages built 1880-81 that are attributed to local architects George and Charles Palliser, pioneers of mail-order architecture in America. It also includes several adjacent late 19th-century buildings. The district is listed in the NRHP under Criteria B and C.

### 4.2.2 Barnum/Palliser Historic District (also a Local Historic District)

The Barnum/Palliser Development Historic District is roughly bounded by Myrtle and Park avenues, Atlantic Street, and both sides of Austin Street (Photographs 6 to 8). It includes about 21 duplex wood-frame buildings for worker housing, many with a high level of architectural ornament, which are attributed to George and Charles Palliser. The district also includes 349-51 Myrtle Avenue, brick rowhouses at 374-84 Atlantic Street, 276 Gregory Street, and the brick Myrtle Avenue School/Jefferson School (1884; 1916) at 325 Myrtle Avenue.

Most of the buildings date to ca. 1882 to 1894. The district is listed in the NRHP under Criteria A, B and C, and it is also a designated Local Historic District (LHD).

#### 4.2.3 Marina Park Historic District (also a Local Historic District)

The Marina Park Historic District is located along Park Avenue, south of Atlantic Street (Photographs 13 to 16). This district comprises a fine collection of about 13 high-style late 19th- and early 20th-century houses designed for Bridgeport's prominent merchants, factory owners, and professionals. The extant buildings in the district date from 1887 to 1937; some houses were demolished by the University of Bridgeport for parking and post-World War II academic buildings. The district is listed in the NRHP under Criteria B and C, and it is also a designated LHD.

#### 4.2.4 Seaside Village Historic District

The Seaside Village Historic District is located on the west side of Iranistan Avenue between South and Burnham streets, including Albert Square, Alsace, Cole, and Flanders streets, Forest Court, and Sims Street (Image 9; Photographs 26 and 27). The complex was designed by R. Clipson Sturgis, Skinner and Walker, along with planner Arthur Shurtleff. It was built 1916-1920 for wartime workers at the nearby Crane Company plant on South Avenue (most recently occupied by Sikorsky Aircraft). There are about 58 contributing buildings. The district is listed in the NRHP under Criteria A and C in the multiple property submission for "Wartime Emergency Housing in Bridgeport, 1916-1920."

### 4.3 POTENTIAL NATIONAL REGISTER-ELIGIBLE INDIVIDUAL PROPERTIES

#### 4.3.1 Walters Memorial A.M.E. Zion Church and Parsonage (also State Register-listed)

The church and parsonage at 427 Broad Street are individually listed in the SRHP under Criteria 1 and 2, and they are also included on the Connecticut Freedom Trail (Photograph 1). This church was the focal point for a community of free people of color, originally called Ethiopie and later known as Little Liberia. The congregation was founded by Joel Freeman, brother of Mary and Eliza Freeman, along with two other trustees. The original church was built in 1835; the current building dates to 1882 and is attributed to George and Charles Palliser (Image 1). The church was renovated in 1951, removing a belfry and adding clapboard siding, but much of the 19th-century interior remains intact. Both buildings have been sided with vinyl, which conceals wood clapboards and shingles. Because of their historical significance, the buildings appear to be potentially individually NRHP-eligible under Criterion A. This is the only resource in the APE that is listed in the SRHP but not in the NRHP.

#### 4.3.2 Bridgeport Storage Warehouse Company

Several buildings on the block bounded by Main, Whiting, and Kiefer streets and Singer Avenue were owned by the Bridgeport Storage Warehouse Company (Photographs 19 to 22). The warehouses at 376 Main Street were connected to the nine-story warehouse (1917) at 10 Whiting Street and shared a railroad siding, comprising a single operation at least as early as 1939 (Map 17). The surviving buildings are on the parcel listed at 376 Main Street, and Singer Avenue retains remnants of stone paving and tracks from the company's siding. The property

was recommended for individual NRHP listing in the 1984 survey of Bridgeport industrial sites (Clouette and Roth 1984); it is recommended that the property be considered NRHP-eligible under Criteria A and C.

### 4.3.3 Crown Corset and Crown Paper Box Company Factories

The Crown Corset factory (1909) at 345 Railroad Avenue and the Crown Paper Box factory (1910) at 347 Railroad Avenue (between Park and Myrtle avenues) were linked by financial and managerial connections, and their closely spaced, three-story brick buildings share many design details (Map 18; Photograph 45). Both retain much of their historical integrity; it is recommended that the property be considered NRHP-eligible under Criteria A and C. This property was recommended for NRHP listing in the 1984 survey of Bridgeport industrial sites as part of a small district that included another corset factory on the same block (Clouette and Roth 1984). The other factory (G. C. Batchellor & Co.; Thomas, Langdon & Co.) is not extant.

### 4.3.4 D. M. Read Company Warehouse

The D. M. Read Company Warehouse at 461 Broad Street was built ca.1941 (Photographs 23 and 24). In the early 1900s the Warner Brothers Company built warehouses on this site; by 1939 they were owned by D. M. Read, Bridgeport's premier department store. The company replaced two smaller warehouses facing Broad Street with this brick building, and the concrete block addition along Railroad Avenue replaced several smaller warehouses sometime after 1950. Besides the modern overhead doors, the building appears to be intact (the windows are not visible). It is recommended that the property be considered NRHP-eligible under Criteria A and C as an example of a typical mid-20<sup>th</sup>-century warehouse.

### 4.3.5 Carstensen Hall

Carstensen Hall at 174 University Avenue was historically known as the G. C. Edwards House (Photograph 10). Built ca. 1900, this fine Colonial Revival house retains its original windows and many fine details, despite the vinyl siding. It is owned by the University of Bridgeport and serves as office space; inside, the hall and stairway retain much historical integrity. It is recommended that the property be considered NRHP-eligible as an individual property under Criteria A and C.

### 4.3.6 Ingleside Hall

Ingleside Hall (ca. 1895) is located on Ingleside Avenue on the University of Bridgeport campus (Photograph 9). With its asymmetrical plan, steeply-pitched irregular roof with multiple gables, and wall surfaces enlivened with multiple materials and surface planes, the building was once a high-style Queen Anne house. It is currently vacant. The brick, stucco, and shingle walls are in fair condition; the interior was not accessible. It is recommended that the property be considered NRHP-eligible as an individual property under Criteria A and C.

### 4.3.7 Waldemere Hall

This ca. 1913 Colonial Revival brick house at 409 Waldemere Avenue (at the northeast corner of Waldemere and Iranistan avenues) is owned by the University of Bridgeport and serves as the University president's residence (Photograph 11). Despite a modern garage addition, the house retains a significant amount of exterior

integrity; the interior was not accessible. The house is potentially NRHP-eligible as an individual property under Criteria A and C.

#### 4.3.8 Wisteria Hall

Owned by the University of Bridgeport, Wisteria Hall (ca. 1915) at 405 Linden Avenue was historically known as the Dudley M. Morris House (Photograph 12). It is an excellent example of the Tudor Revival style that retains a great deal of architectural integrity; the interior was not accessible. This property was recommended for NRHP listing in the 1986 survey of Bridgeport's Western Neighborhoods (Loether 1986); it appears to be potentially eligible under Criteria A and C.

#### 4.3.9 247 Atlantic Street

This 1879 Stick Style house retains much of its integrity, most notably its clapboard and board-and-batten siding, timber-frame trusses at the gable ends, and porch details (Image 16; Photograph 46). Its first known occupant was Charles L. Peck, a salesman with Flint & Warren. It is located between the Warner Brothers Company to the north (just west of the NRHP-listed Seaside Institute), and the University of Bridgeport to the south. The house was recommended for individual NRHP listing in the 1986 survey of Bridgeport's Western Neighborhoods (Loether 1986). Since the survey, the original 2-over-2 windows have been replaced. It is recommended that the property still be considered NRHP-eligible under Criteria A and C because it retains enough integrity to convey its significance.

#### 4.3.10 337-341 Broad Street

This wood-framed Queen Anne triple tenement (ca. 1890) has many original details, including Jacobean-style chimneys, entrance with brick veneer, wood panel and glass doors, and porch details (Photographs 47 and 48). Beneath the asphalt siding there may be wall surfaces with equal architectural interest. It is located across the street from the NRHP-listed William D. Bishop Cottages Development Historic District. The building's first known resident was Willis W. Wilmot, a molder employed by the Eaton, Cole & Burnham Company on Water Street. Despite its asphalt siding, this property was recommended for individual NRHP listing in the 1986 survey of Bridgeport's Western Neighborhoods. Since the survey, the original windows (with multi-light upper sash, like the central entrance door) have been replaced. It is recommended that the property still be considered NRHP-eligible under Criteria A and C because it retains enough integrity to convey its significance.

#### 4.3.11 Seagrove Cottage

The house at 36 Myrtle Avenue is known as Seagrove Cottage (Photograph 49). According to local lore, this diminutive Second Empire-style house was built ca. 1868 and belonged to P. T. Barnum's secretary J. J. Gorham. The house might have been moved from another location; it is depicted on Myrtle Avenue on the 1910 Kershaw map but not on the 1876 Beers or the 1888 Hopkins maps. It is currently owned by the University of Bridgeport. Most of the other houses on the street date to early 1920s (see Section 4.4.2 Myrtle Avenue Housing). This property was recommended for individual NRHP listing in the 1986 survey of Bridgeport's Western Neighborhoods (Loether 1986). It is recommended that the property be considered NRHP-eligible under Criteria A and C.

## 4.4 POTENTIAL NATIONAL REGISTER-ELIGIBLE DISTRICTS

### 4.4.1 Housing on Park Avenue and Atlantic and Gregory Streets

Just north of the Marina Park Historic District and west of the Barnum/Palliser Historic District is a block of single and multifamily houses on both sides of Park Avenue from Atlantic to Gregory streets, and extending west on both Atlantic and Gregory streets (Photographs 50 to 53). This collection of buildings, primarily multifamily houses dating from 1882 to 1921, retains a good degree of architectural character and historical integrity. The potential district would be a connecting link between the Barnum/Palliser and the Marina Park NRHP-listed districts. The 24 houses in the proposed district are as follows: 351-353, 359-361, 367-369, 373-375, 379-381, 387-389, 393-395, and 399 Gregory Street; 319-323, 320, 328, 331-333, 337-339, 340, 343-345, 349-351, 350, 358-360, and 357-359 Park Avenue; 492-494, 502-504, 510-512, 518-520, and 526 Atlantic Avenue. The north side of Atlantic Street is included; the south side is part of the NRHP-listed Marina Park Historic District. On Gregory Street, the south side buildings have a greater degree of cohesion and integrity than the north side, so only the south side is included in the proposed district (see Photographs 53 and 54). On Gregory and Atlantic streets, the cohesion and integrity of the streetscape west of this group is substantially reduced (Photographs 55 and 56).

### 4.4.2 Myrtle Avenue Housing

On Myrtle and Waldemere avenues just north of Seaside Park is a group of seven remarkably intact duplex houses (Photographs 57 and 58). They date from 1919 to 1924 and are associated with prolific local builder William Chatlos. They are currently owned by the University of Bridgeport and private owners. The houses in this proposed district are as follows: 25-27, 49-51, 53-55, 59-61, and 65-67 Myrtle Avenue; and 174-176 and 186-188 Waldemere Avenue. These properties were recommended for NRHP listing as a district in the 1986 survey of Bridgeport's Western Neighborhoods (Loether 1986). It is recommended that the potential district be considered NRHP-eligible under Criteria A and C.

### 4.4.3 New York, New Haven & Hartford Railroad

The former New York, New Haven and Hartford Railroad line within the APE represents a potential historic linear district that would include railroad viaduct retaining walls, catenary structures, and bridges at Park and Myrtle avenues and Warren, Lafayette, and Broad streets, as well as the under-grade railroad bridge (known as Bridge 43.21) on the east side of Webster Bank Arena at 600 Main Street (Photographs 59 to 65). It is recommended that the railroad be considered a NRHP-eligible linear historic district under Criteria A and C; CTSHPO has found similar railroad sections in Stamford and Norwalk to be NRHP-eligible.

### 4.4.4 Bassick Company Factory

The Bassick Company Factory complex is located at 275 Warren Street, bounded by Warren and Austin streets and Myrtle and Railroad avenues (Map 18; Photographs 66 to 68). It consists of roughly six adjoining blocks of buildings constructed between 1885 and 1960, ranging from one to five stories. The 1885 building Canfield Rubber Company was purchased by the Bassick Company, which produced hardware for furniture and cabinetry, and the company quickly grew and expanded, including a large die-casting plant erected at the corner of Warren Street and Austin Avenue in 1930. While the five-story block (1920) has metal siding that conceals

its original design details, the complex has a whole retains sufficient historical integrity to be able to convey its significance for the industrial history of Bridgeport. The complex was recommended as a candidate for the SRHP in the Connecticut Trust for Historic Preservation's (CTHP) mill survey. It is recommended that the property be considered NRHP-eligible under Criterion A.

#### 4.4.5 Warner Brothers Company Factory

The Warner Brothers Company Factory complex is located at 325 Lafayette Street and 330 Myrtle Avenue, bounded by Gregory, Lafayette, and Atlantic streets and Myrtle Avenue (Maps 9 and 18; Image 3; Photographs 69 to 75). It has roughly 16 building blocks dating from 1876 through ca. 1950, including a large expansion in 1910-1912. The complex was renovated in the early 1970s by Modernist architect Victor Christ-Janer of New Canaan as Warnaco office space and University Square, a mix of retail and restaurant spaces ("Bridgeport" 1976). The western half has been vacant for about 20 years, and the eastern half was rehabilitated ca. 2007 for multifamily housing. This property was recommended for individual NRHP listing in the 1984 survey of Bridgeport industrial sites (Clouette and Roth 1984). It was also recommended as a candidate for the SRHP in the CTHP mill survey. Despite the alterations to the eastern section in the 1970s and its more recent rehabilitation, the complex retains sufficient integrity to be able to convey its significance for the industrial history of Bridgeport. It is recommended that the property be considered NRHP-eligible under Criterion A.

#### 4.4.6 United Aircraft Company (Sikorsky Aircraft Division) (on border of APE)

The United Aircraft Company (Sikorsky Aircraft Division) complex is located at 1000 and 1225 South Avenue (Image 12; Photograph 28). The property borders the study area, just west of the NRHP-listed Seaside Village. The surviving buildings comprise roughly five blocks built in 1912, 1948, 1951, and 1980. Sikorsky Aircraft occupied this factory complex from the early 1940s to 2015 for helicopter production. Final determination of the complex's NRHP eligibility need not be part of this project, unless the design changes to expand the APE westward. The complex was recommended as a candidate for the SRHP in the CTHP mill survey.

### 4.5 PROPERTIES MORE THAN 50 YEARS OLD THAT DO NOT APPEAR TO BE ELIGIBLE FOR THE NRHP

There are dozens of buildings dating from the mid-19th to the mid-20th century within the APE which were assessed as not eligible for listing in the NRHP, primarily because of diminished integrity of design, materials, and/or setting. The following are some individual properties that were considered, along with several groups of buildings, which illustrate typical levels of diminished integrity. Photographs of these properties appear in Appendix D.

#### 4.5.1 45 Columbia Street

This house is probably the only extant pre-Revolutionary War dwelling in the South End (Photograph 76). In local legend, it is associated with John Mallett, a French Huguenot farmer whose property was purchased by P. T. Barnum in 1864. Much of Mallett's farm became part of Seaside Park and Barnum's Waldemere property. This house was moved from the southeast corner of Park Avenue and Atlantic Street to 45 Columbia Street sometime after Waldemere's completion in 1869. Its first known occupant in the current location was Charles H. Bonner, a plumber (1894). Despite significant alterations, this property was recommended for individual

NRHP listing in the 1986 survey of Bridgeport's Western Neighborhoods because of its early date and its association with the area's agricultural history (Loether 1986). Since the 1986 survey, the property has been further compromised with vinyl siding and replacement windows and doors, leading to the conclusion that it no longer possesses sufficient integrity to convey its significance. Local residents, however, recognize the building's history.

#### 4.5.2 160-162 Main Street and Neighboring Multifamily Houses

This trio of ca. 1915 three-story wood-frame buildings is at the southeast corner of Main and Henry streets (Photograph 77). The house appears on the 1917 Hopkins map as the property of H. Schine, together with several smaller buildings fronting Henry Street on the same lot. They are just south of the modern UI Singer Substation, and the property south of them is vacant. Across Main Street is one house of slightly earlier vintage that is flanked by a vacant mid 20th-century restaurant and vacant lots. These buildings represent typical early 20th-century urban mixed-use and multifamily housing, although their integrity has been compromised to varying degrees with replacement siding, doors, windows, and porches. Given their diminished integrity and lack of historic neighborhood context, NRHP-eligibility is not recommended for these buildings under Criterion C. At this time, the extent of historical background associated with this property is insufficient to support NRHP-eligibility under Criterion A.

#### 4.5.3 250 through 281 Myrtle Avenue

This group of single and multifamily houses is on the south side of Atlantic Street (Photographs 78 and 79). It is adjacent to the Barnum/Pallister NRHP-listed district to the north and the University of Bridgeport to the south. These houses were built in the late 19th through early 20th centuries. Their integrity varies; some have been altered with replacement siding, doors, windows, and porches. They appear unrelated to the Barnum/Palliser development, and they have lost their historic context to the south. Therefore, NRHP-eligibility is not recommended for these buildings under Criterion C, although additional research could reveal sufficient historical importance for Criterion A.

#### 4.5.4 East side of Iranistan Avenue near Gregory Street

Opposite the NRHP-listed Seaside Village on Iranistan Avenue, near Gregory Street, is an eclectic group of buildings (Photograph 80). They include a few ca. 1930 commercial buildings and houses ranging from late 19th-century multifamily dwellings to mid 20th-century Cape-type houses and more recent construction. Their integrity varies; many have been altered with replacement siding, doors, windows, and/or porches. The Seaside Market building has been altered with large roof-mounted billboards. NRHP-eligibility is not recommended for this disparate collection of buildings under Criteria A or C.

#### 4.5.5 Marina Village

Marina Village (1941) was one of two major World War II housing developments in the South End built by the U. S. Housing Authority (Images 12 and 13; Photograph 29). It consisted of two superblocks of plainly-detailed, two-story brick rowhouses and a community building, located south of Railroad Avenue and bounded by South, Iranistan, Ridge, and Park avenues and Columbia and Johnson streets. The eastern section (west of Columbia Street has been demolished, with plans for the entire site to be redeveloped as mixed used and this project's

storm-water park). In the context of the redevelopment project, the CTSHPO did not identify this property as NRHP-eligible.

#### **4.5.6 United Illuminating Pier**

This pier structure located west of Tongue Point was built in 1968 (Image 13; Photograph 81). It was used for unloading oil into the four large tanks that formerly stood on the southern end of the PSEG property. Because the oil tanks were recently demolished and the plant has been extensively altered, the pier lacks a historic context and is unlikely to meet NRHP Criteria A or C.

#### **4.5.7 University of Bridgeport's Mid 20<sup>th</sup>-Century Buildings**

The University of Bridgeport includes residence halls, classroom buildings, and administrative offices built throughout the second half of the 20<sup>th</sup> century (Images 12 and 13; Photographs 30 and 31). Most are brick, multi-story, of no particular style, with flat roofs and little architectural detail. Some have been altered with replacement windows and doors and/or additions. Interspersed with older houses converted for the University's use and more recent construction, it is not likely that these buildings would be NRHP-eligible under Criteria A or C.



## 5. Existing Conditions: Archaeological Resources

### 5.1 PREVIOUSLY IDENTIFIED PRE-COLONIAL ARCHAEOLOGICAL SITES

AHS reviewed the files of previously-documented archaeological sites in the site files of the OSA and CTSHPO. Several archaeological assessment surveys have been conducted within or near the APE, one previously recorded pre-colonial archaeological site is located within the APE and another eight pre-colonial sites are recorded within one mile of the APE. A review and discussion of those sites is presented below (Figure 6). Sites reported in the general vicinity of the APE are clustered along the shore and waterways on either side of waterways, which would have provided an ideal place for Native American subsistence and settlement, adjacent to abundant fish and shellfish and coastal resources, and freshwater rivers. The sites include numerous large shell heaps and burial grounds, the majority of which are dated to the Late Woodland period. In fact, an early, Revolutionary War-era map of the APE identifies the modern Bridgeport Harbor as “Indian Harbor” (Map 1). However, due to the massive disturbances from urban development and early excavation dates, none of these archaeological sites are thought to be preserved or eligible for listing in the NRHP.

Several pre-colonial human burial locations have been identified within or near the APE. Within the APE, at the Main/Broad Street entrance to Seaside Park, on the west side of the Pequonnock River at the mouth of Bridgeport Harbor, a shell midden and multiple burials are recorded as Site 15-11. This site is likely much larger than a single point on a map, as burials were exposed farther south, along the sea wall area, and to the west. To the north of the APE, Site 15-12 was discovered in 1870 and earlier, when more than 50 burials were exposed during the construction of the Prospect School; tobacco pipes and a pot were also found. Recorded by the OSA in 1968, the site was reported in the Bulletin of the Archaeological Society of Connecticut (ASC Bulletin) (Coffin 1940; Batchelor and Steck 1941). A short distance to the north, Site 15-13 was recorded by the OSA in 1968 as an “Indian cemetery;” it was reported in the ASC Bulletin (Batchelor and Steck 1941). Yet another Native American burial ground was discovered and disturbed or destroyed during railroad construction near the old site of the Bridgeport Gas Works. This site, designated 15-14, lies just over one mile from the APE and was reported in 1941 (Batchelor and Steck 1941). Site 15-15, located on the east bank of the Yellow Mill Channel, is recorded in the site files as a “shell outcropping” inclusive of a single human burial and grave goods (Batchelor and Steck 1941: 22-23). Site 15-7, which lies approximately 1.25 miles northeast of the APE near Bruce Pond, contained ten human skeletons and associated grave goods dating to the Late Woodland period; a shell-midden layer covered the burials, which were found in coarse gravel. This site was reported in the ASC Bulletin (Coffin 1940). The OSA, according to the site form completed in the 1960s, believed the site, excavated in 1900, was destroyed in 1905 when the area was graded and houses were constructed. In 2004 PAST, Inc., an affiliate of AHS, Inc., conducted archaeological monitoring of a Connecticut Department of Transportation project based on reports in 19th- and 20th-century sources that the remains of two human skeletons were observed during construction of an industrial building on Bostwick Avenue (recorded by the OSA as Site 15-10); the reports indicated that the remains lay directly beneath a brick wall and could not be removed (Forrest and Harper 2004). No human remains were found in the monitoring, but the documentation of building construction on top of burial sites indicated that the potential for human remains to be present even in disturbed settings is a very real possibility. Samuel Orcutt, in 1886, also recorded numerous Native American burials that were unearthed as part of an extension of Waldemere Avenue, associated with an expansion of Seaside Park.

These burials are not recorded in the OSA site files, but are located approximately on Figure 6, adjacent to the APE.

The OSA considers Sites 15-7 and 10 through 15 to have been destroyed; however, undisturbed portions of these sites may remain below fill deposits. Human remains, regardless of their integrity (disturbed or intact) are also subject to Connecticut General Statute 10-388, which applies to the treatment of human remains discovered in a project area, that are determined by the Chief Medical Examiner's Office to be archaeological in nature.

In addition to burial sites, numerous Native American activity/occupation sites have been reported from the Bridgeport Harbor vicinity. Site 15-20, northeast of the APE where the railroad line crosses the Yellow Mill Channel, is the "Stone Post Site" (15-20), thought by the OSA to be a possible "medicine or ceremonial ground," consisting of a number of large stone posts. The posts were found around 1840 (Orcutt 1886: 63-64; Batchelor and Steck 1941: 23- 24). The archaeological site files show two reported shell-midden sites (that are absent human burials) near the APE (Figure 6). Site 15-18, at the northeast corner of East Main Street and Stratford Avenue, was reported to the CTSHP/OA in 1968; the site form, completed by the OSA, describes it as "a shell heap that is undoubtedly the largest in Bridgeport; the shell heap proper lies beneath a large brick storage house; during construction of the storage house, excavations showed a solid mass of black earth and broken shell." The OSA wrote that the site was "probably destroyed or inaccessible" (Batchelor and Steck 1941). One block east, the site files list Site 15-16 at the northeast corner of Pembroke Street and Stratford Avenue (Figure 6). This site, although mapped at Pembroke Street and Stratford Avenue, is labeled the "East Main Street Shell Heap." AHS trenched and monitored a redevelopment project in the Steel Point area, in the vicinity of Site 15-16 (Harper et al. 2010). Based on the results of the monitoring, AHS concluded that Site 15-16 was likely either mistakenly reported and actually refers to Site 15-18, which is on East Main Street, or that the Site 15-18 shellheap extends eastward to the mapped location of Site 15-16.

## 5.2 PREVIOUSLY IDENTIFIED HISTORIC-PERIOD ARCHAEOLOGICAL SITES

One previously identified historic-period archaeological site has been recorded within the APE, and five historical archaeological sites have been reported within one mile of the APE (Figure 6). Site 15-22, the Mary and Eliza Freeman Houses property, is within the APE, at 360 Main Street, and are listed on the NRHP under Criterion A. Constructed in the 1848, these houses represent the oldest houses constructed by African Americans in Connecticut, and the last remaining houses of Little Liberia, a community of free African American and Native peoples that was centered around maritime activities. In 2008, then State Archaeologist Nicholas Bellantoni and Natural Resource Conservation Service (NRCS) Soil Scientist Deborah Surabian performed electromagnetic induction (EMI) survey of the front yard portions of the houses, identifying several possible buried features, and concluding that a ground penetrating radar (GPR) survey should be performed to further delineate features (Surabian 2008). A remnant cobbled street is exposed on Singer Avenue, located one block behind the Freeman Houses, underscoring the sensitivity of this area relative to preserved fragments of Little Liberia, and possibly earlier, intact soil sequences below the cobbled street (Photograph 22).

Sites 15-2, 3, and 4 are submerged vessels that lie just north of the APE within the Pequonnock River. Site 15-2, the Berkshire No. 7, is a wooden and steel barge that was constructed in 1935 and measures approximately 104 feet in length. Sites 15-3 is the Elmer S. Dailey, measuring 105 feet in length, built in 1915, and modified in 1928; it is the only known surviving wooden canal boat that was used along the Erie Canal. Site 15-4, the

Priscilla Dailey, is a wooden canal boat that measures 111 feet in length and was originally built in 1928 for use along the Champlain Canal. Stewart J. Dailey, a former driver on the Erie Canal, purchased these three boats for use as lighterage cargo transport along the New Jersey, New York, and Connecticut coasts (Clouette 1978a; Clouette 1978b; Clouette 1978c). Each of these vessels are listed individually in the NRHP under criterion A.

Site 15-21, the Pequannock Old Fort, is located to the west of the APE, along the banks of Cedar Creek within Black Rock Harbor. The site was located near the “old Indian planting field” at the end of Black Rock cove, between the cove and Ash Creek (formerly the Uncaway River). The OSA records this site at the headwaters of Cedar Creek; however, this conjecture is based on Wilcoxson’s (1940) work, not on actual excavation or field identifications. Given the pervasive industrial and urban development in the APE and surrounding area, it is likely that the fortifications remnants have been destroyed, although pockets of integrity may be preserved adjacent to or underneath modern- and historic-period fill deposits.

Site 15-9, located to the north of the APE, is believed to be the 18th-century reservation of the Golden Hill Paugusset Tribe; “2 or 3 skeletons” were found during the construction of Bridgeport High School. The OSA, when it recorded the site in 1968, believed it to be destroyed (Batchelor and Steck 1941). This reservation was sold off in 1802, and it was this catalyst that likely set into motion the resettling of the APE by Pequonnocks, into the area that would become Little Liberia. The remnants of the reservation are likely destroyed today, as with the fortified village, although intact portions may still be preserved underneath urban and industrial fill.

### 5.3 ARCHAEOLOGICAL SENSITIVITY OF THE APE

Two previously identified archaeological sites are located within the APE, but this low number is likely artificial and representative of the lack of archaeological survey and reporting, and pervasive disturbances associated with the industrial and urban development of this area over the 19<sup>th</sup> and 20<sup>th</sup> centuries (Figure 6). However, the presence of burials within the APE, and the documentation of numerous burials adjacent to the APE by Orcutt (1886), indicates that the entire APE is likely sensitive for Late Woodland and Contact period archaeological sites, including burial and village remnants. Urbanization should not be assumed to have unilaterally destroyed archaeological sites; rather, it is entirely possible that sites are buried deeply under fill or that there are lots on which buildings were never constructed. The cobbled street shown in Photograph 22, paired with the standing Freeman Houses, indicates that intact portions of Little Liberia may be found within the APE. Overall, the APE is very sensitive for archaeological resources, although the integrity of these may have been compromised by later historic period urban and industrial development. Only Phase IB testing in the form of Ground Penetrating Radar (GPR), Geoprobe borings, shovel test pits and/or machine testing can ascertain whether sites are present in the APE.’



## 6. Conclusion and Recommendations

### 6.1 HISTORIC RESOURCES

The APE retains a wide range of historic-period resources, the majority of which date from the mid-19th to the mid-20th centuries. These buildings, landscapes, structures, and objects reflect Bridgeport's rich and complex history. The Freeman Houses, in particular, are rare and valuable survivors of the Little Liberia community. While a number of the South End's historic resources are NRHP-listed as individual properties and as historic districts, additional potential NRHP-eligible properties were identified throughout the APE. Actual determination of NRHP eligibility is properly part of the ongoing consultative process among CTDOH, and CTSHPO.

As the project design process moves forward, the potential effects will need to be evaluated accordingly, including both direct effects and indirect effects. Indirect effects involve a) the loss of elements that are an important part of the properties' settings and historical character, and b) the introduction of incompatible modern construction that would diminish the properties' integrity of setting, feeling, and association. No assessment of construction easement, staging, storage and access areas, noise and/or vibration effects on National Register-listed or eligible resources could be made, as there is not yet sufficient data. As the project design evolves, additional potential impacts to historic resources should be noted.

### 6.2 ARCHAEOLOGICAL AND CULTURAL RESOURCES

The APE is characterized by pervasive disturbance from industrial and urban development. In such settings, intact archaeological resources are rarely encountered at the current ground surface, although they may be preserved underneath industrial and urban fill deposits. The APE was clearly an important area for pre-colonial peoples, particularly during the Late Woodland Period Contact-era Native Americans (the Pequonnocks) also lived here. Numerous Native American burial grounds have been recorded within or adjacent to the APE and the presence of the Freeman Houses in the APE is a testament to the importance of the APE to people of color during the 19th century. Any ground disturbance has the potential to impact intact archaeological resources and human remains. Once alternatives have been defined, and in advance of construction activities, additional Section 106 review should include investigation of soil sequences within the project area by a system of geotechnical investigations (geoprobos, augers, etc.). Ground disturbances should also be monitored by an archaeologist, to limit any possible impacts to human remains that may be buried within the APE.



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## Appendix A: Figures

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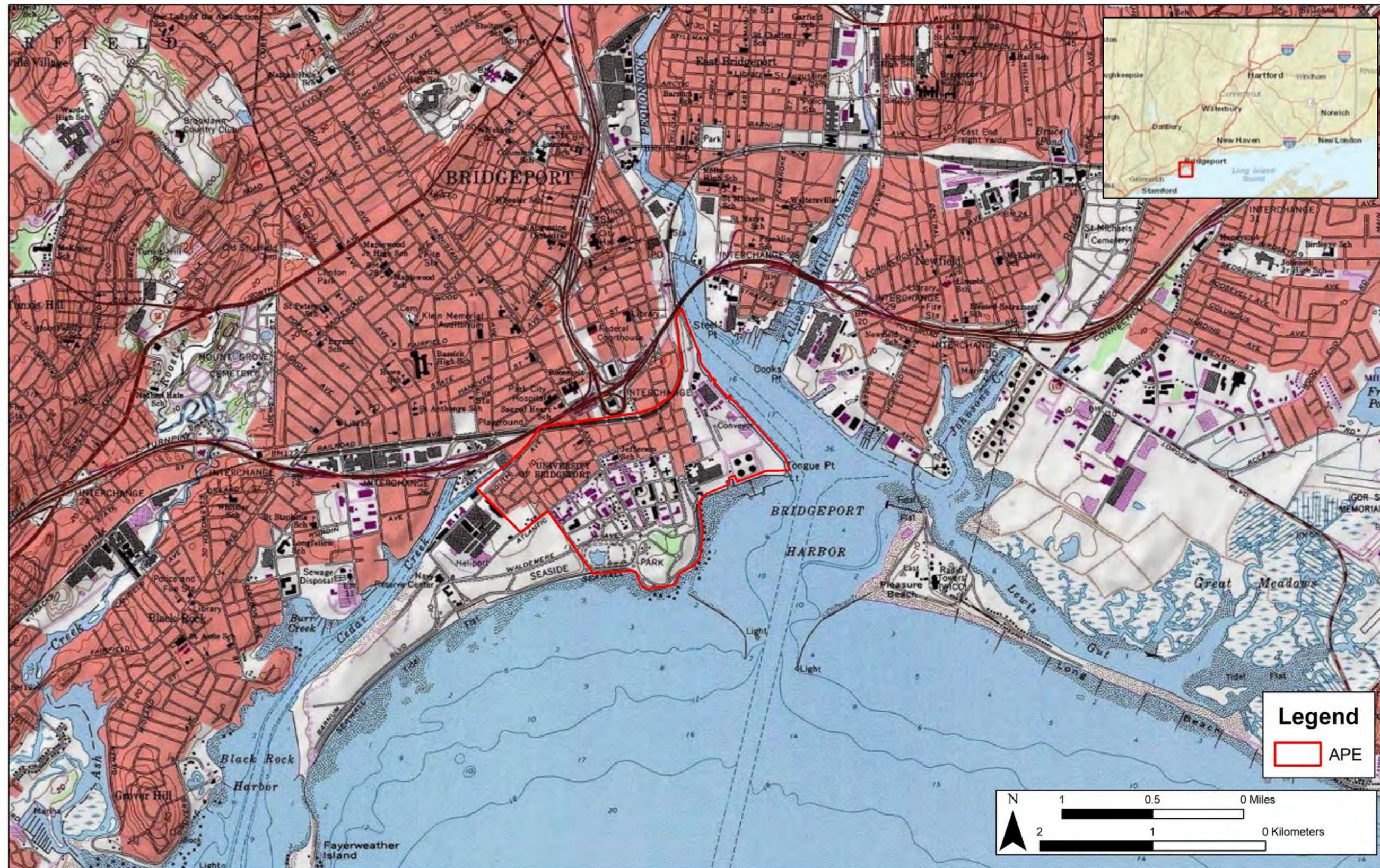


Figure 1: Location of project (outlined in red) shown on USGS topographic map.



Figure 2: Area of Potential Effect (APE, shaded) shown on an aerial view of the vicinity (Google Earth™ 2017).

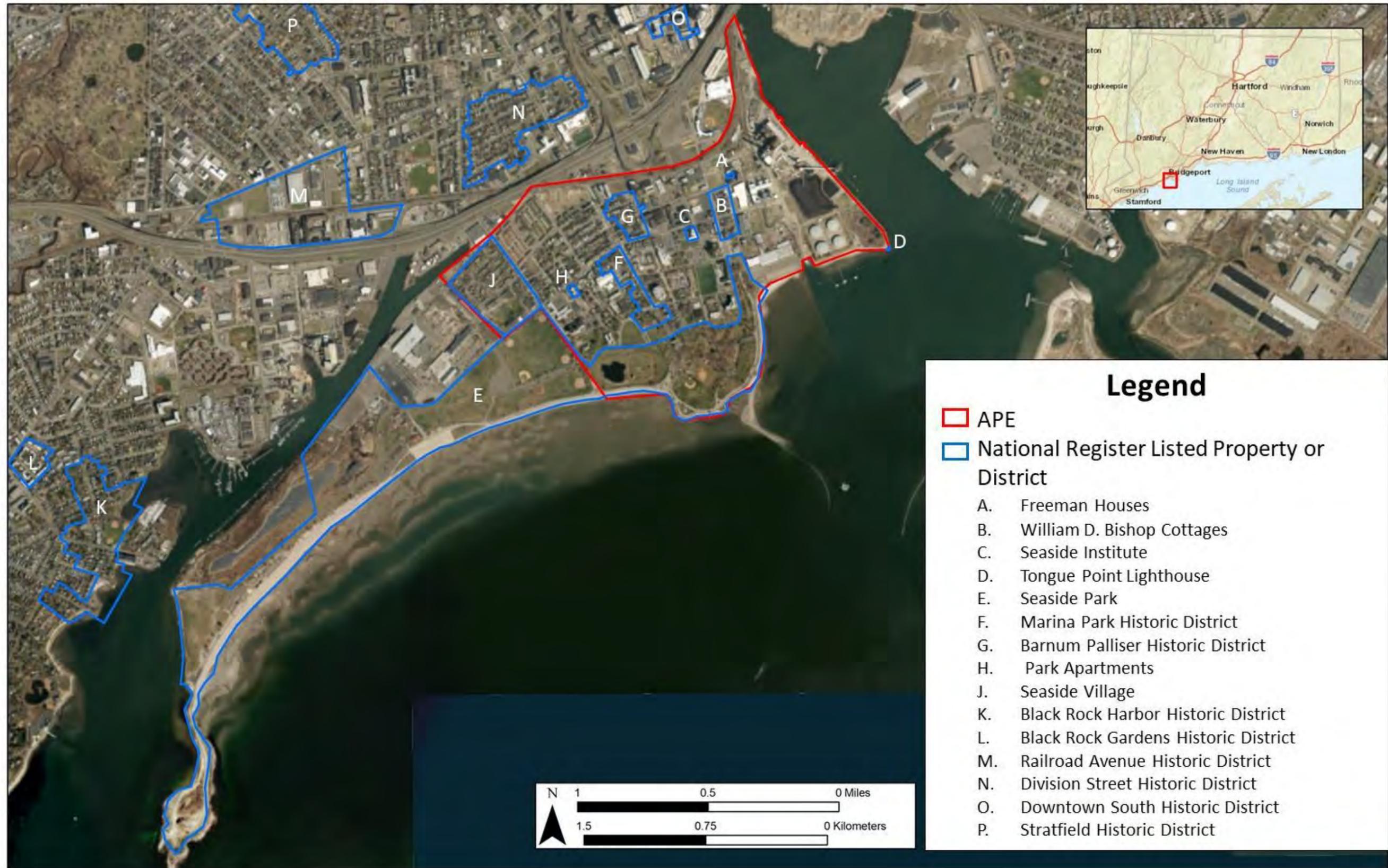


Figure 3: APE and NHRP-listed historic resources shown on an aerial view of the vicinity.

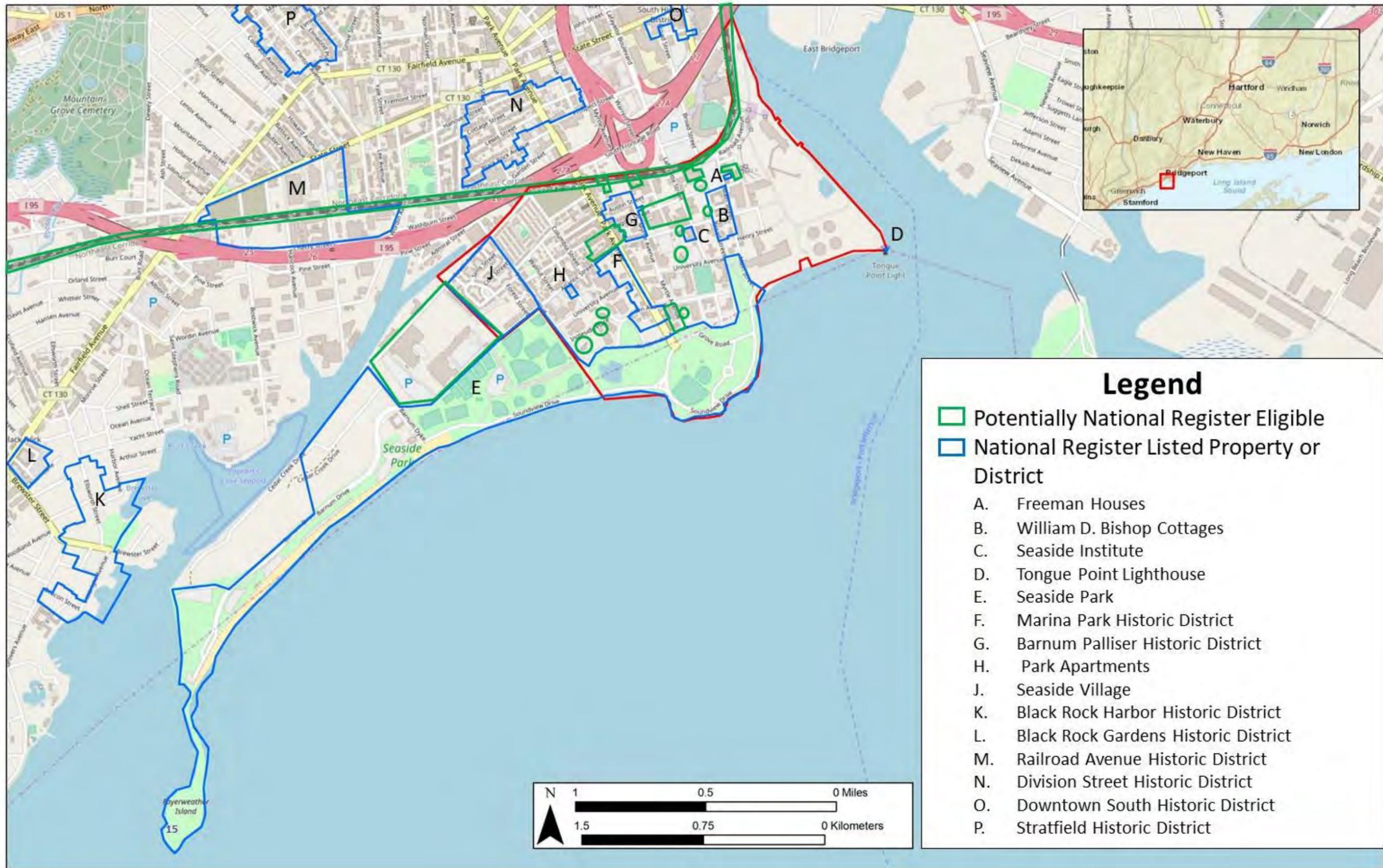


Figure 4: APE, NHRP-listed historic resources, and potentially NRHP-eligible resources.



Figure 5: Project APE (outlined in red) shown on 1934 Fairchild Aerial.

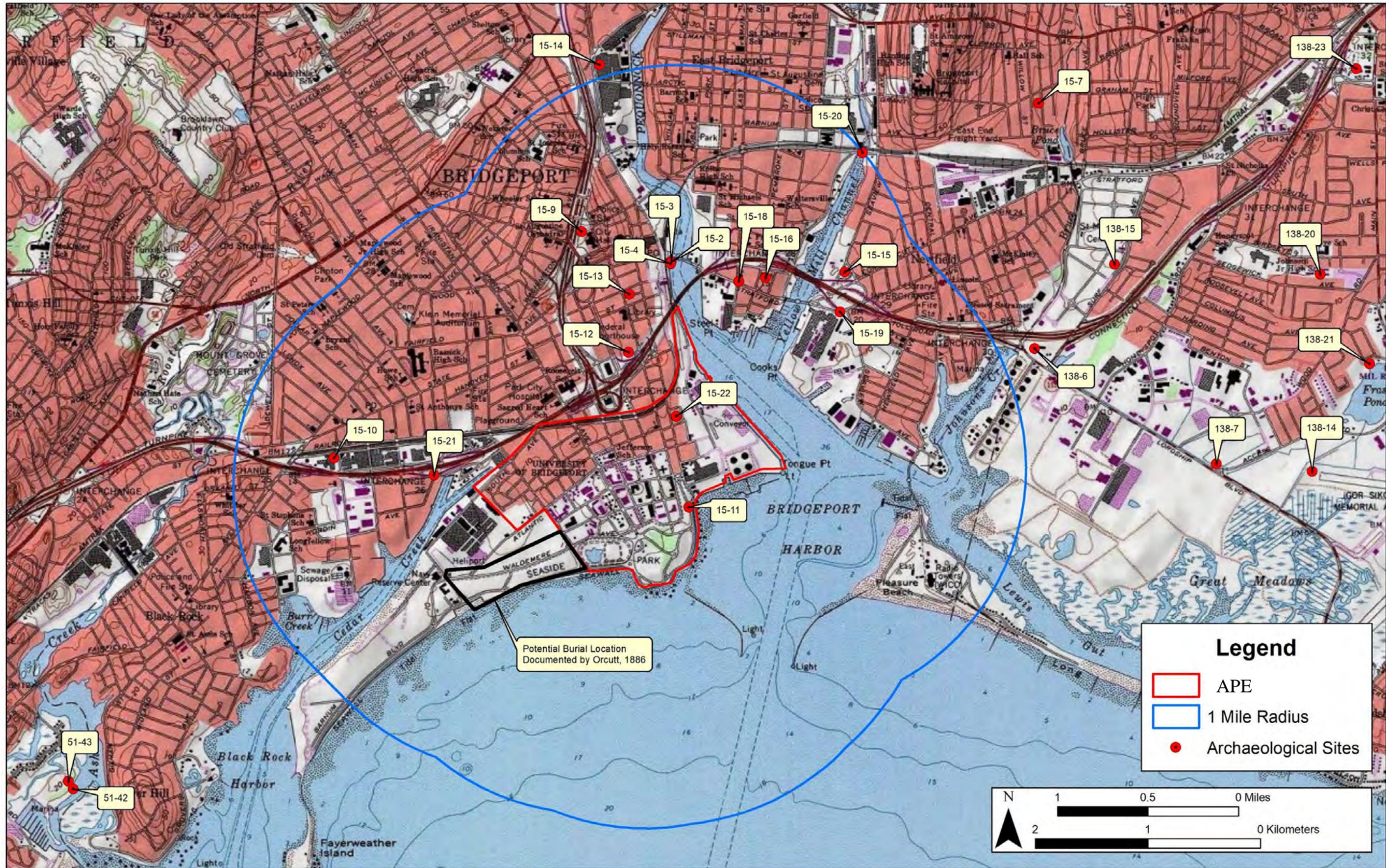
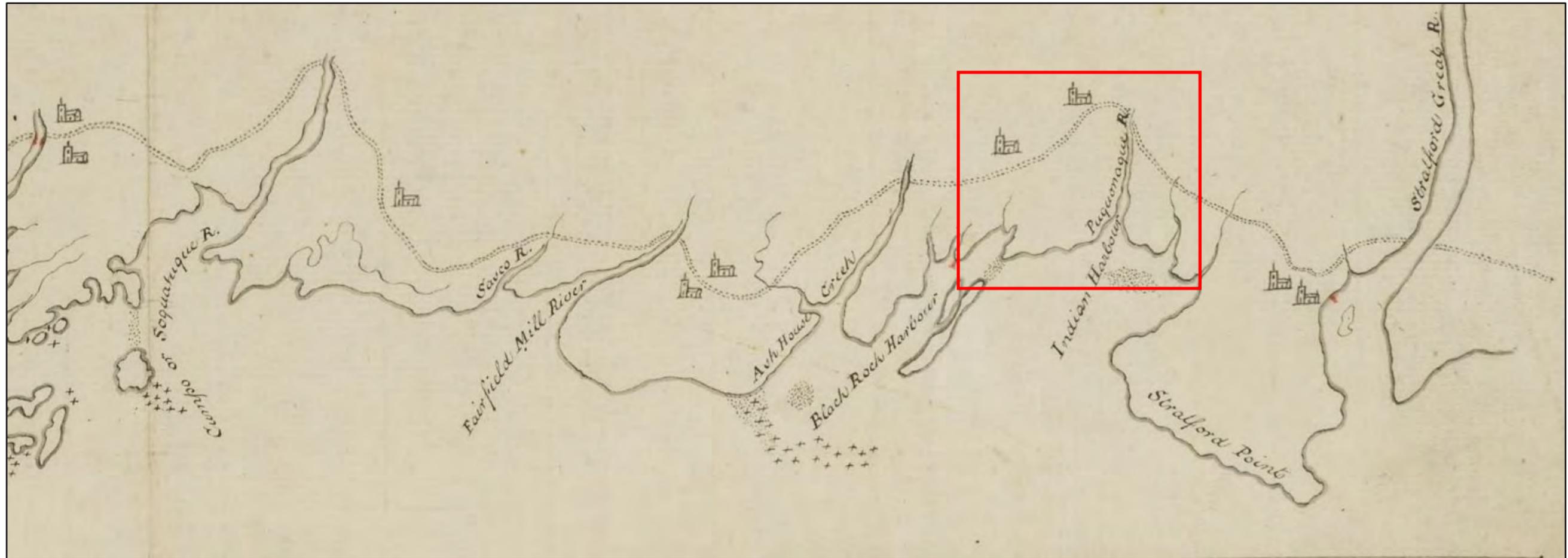


Figure 6: Previously identified archaeological sites within one mile of APE (outlined in red), shown on USGS topographic map.

## Appendix B: Historical Maps

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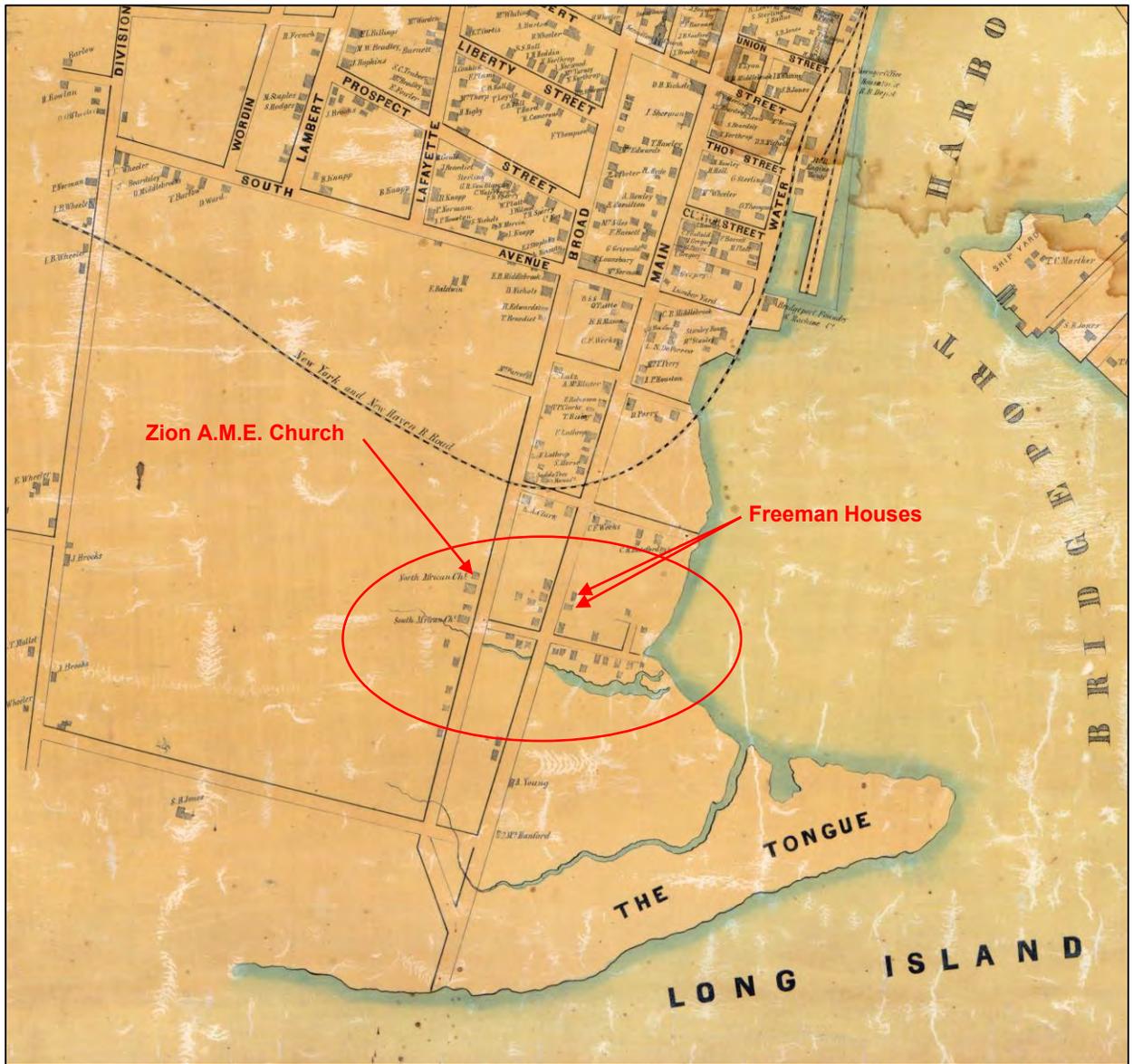




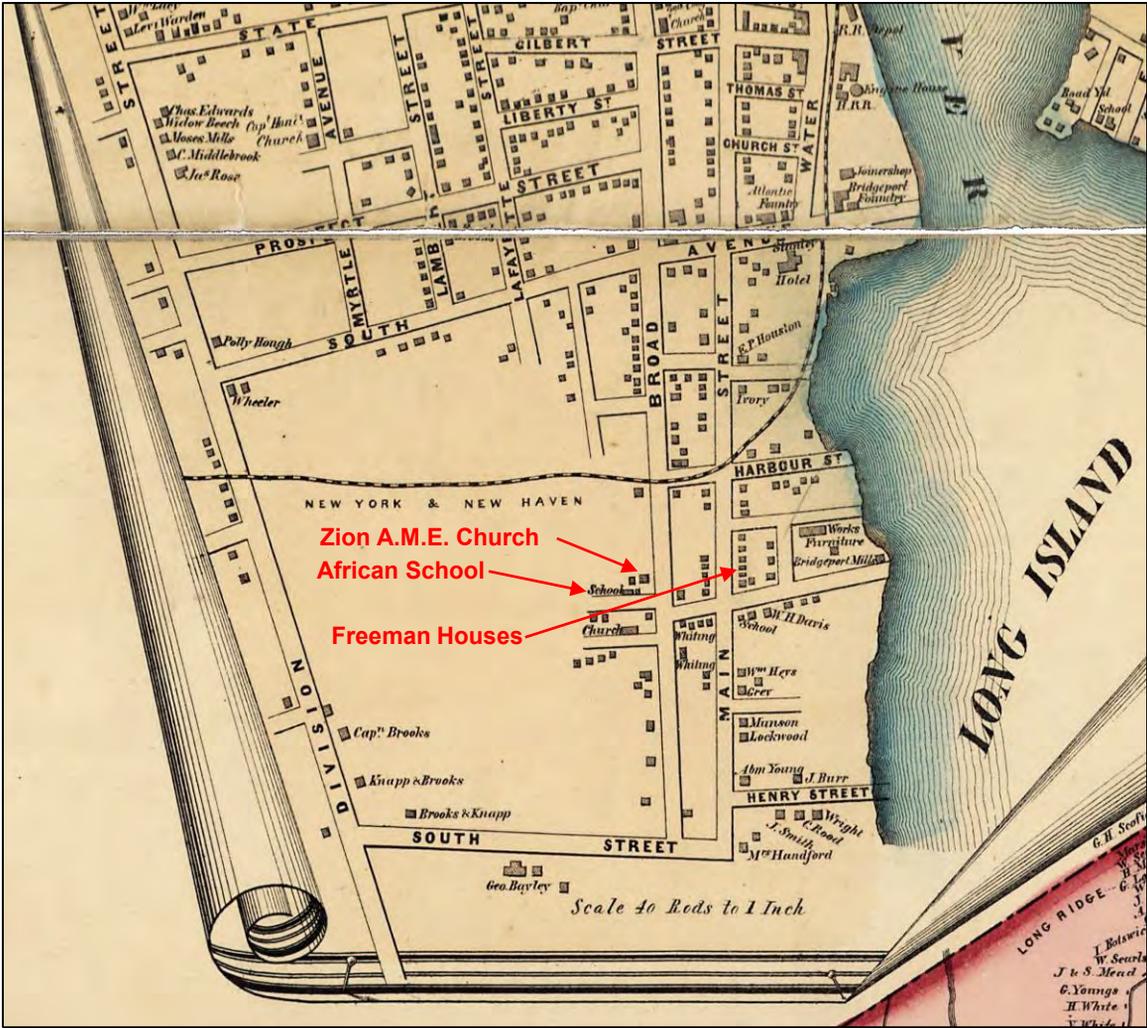
Map 1: Pre-Revolutionary War era map of the Connecticut coast, detailing the project area (in red). Map was in Sir Henry Clinton's possession while in command of the British forces operating in North America during the War for Independence, 1775-1782, and is on file at the Clements Library, University of Michigan (Adams 1928).



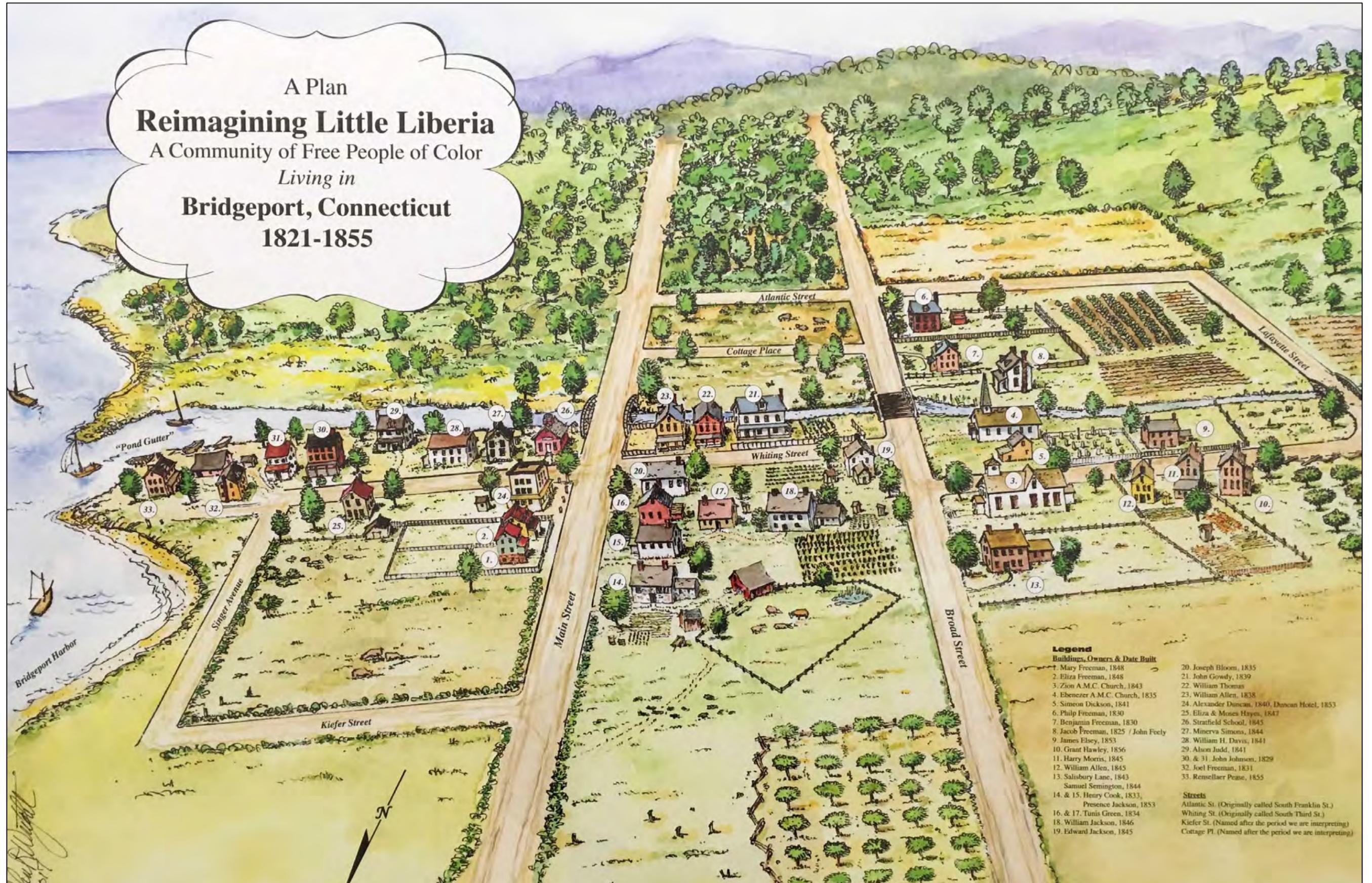
Map 2: Skinner 1777 Revolutionary War era map of the Connecticut coast, detailing the project area (in red). Map was in Sir Henry Clinton's possession while in command of the British forces operating in North America during the War for Independence, 1775-1782, and is on file at the Clements Library, University of Michigan (Adams 1928).



Map 3: The South End of Bridgeport on the 1850 Collins & Clark map. Little Liberia is circled in red.



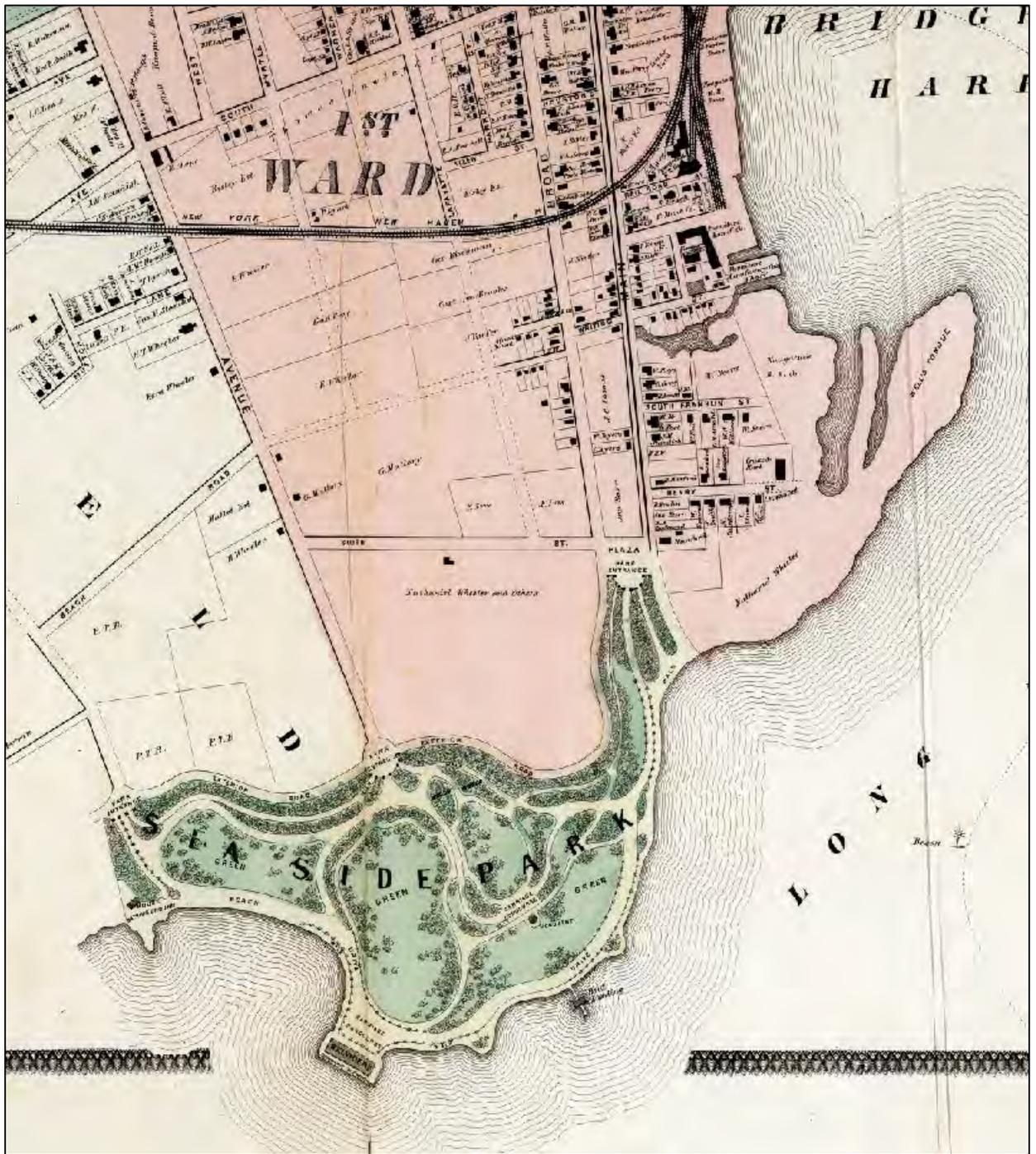
Map 4: The South End on the 1856 Clark's Map of Fairfield County.



A Plan  
**Reimagining Little Liberia**  
 A Community of Free People of Color  
 Living in  
**Bridgeport, Connecticut**  
 1821-1855

- Legend**  
**Buildings, Owners & Date Built**
- |                                     |  |
|-------------------------------------|--|
| 1. Mary Freeman, 1848               | 20. Joseph Bloom, 1835                         |
| 2. Eliza Freeman, 1848              | 21. John Gowdy, 1839                           |
| 3. Zion A.M.C. Church, 1843         | 22. William Thomas                             |
| 4. Ebenezer A.M.C. Church, 1835     | 23. William Allen, 1838                        |
| 5. Simeon Dickson, 1841             | 24. Alexander Duncan, 1840, Duncan Hotel, 1853 |
| 6. Philp Freeman, 1830              | 25. Eliza & Moses Hayes, 1847                  |
| 7. Benjamin Freeman, 1830           | 26. Stratfield School, 1845                    |
| 8. Jacob Freeman, 1825 / John Feely | 27. Minerva Simons, 1844                       |
| 9. James Elsey, 1853                | 28. William H. Davis, 1841                     |
| 10. Grant Hawley, 1856              | 29. Alson Judd, 1841                           |
| 11. Harry Morris, 1845              | 30. & 31. John Johnson, 1829                   |
| 12. William Allen, 1845             | 32. Joel Freeman, 1831                         |
| 13. Salisbury Lane, 1843            | 33. Remellaer Pease, 1855                      |
| 14. Samuel Semington, 1844          |  |
| 14. & 15. Henry Cook, 1833,         |  |
| Presence Jackson, 1853              |  |
| 16. & 17. Tunis Green, 1834         |  |
| 18. William Jackson, 1846           |  |
| 19. Edward Jackson, 1845            |  |
- Streets**  
 Atlantic St. (Originally called South Franklin St.)  
 Whiting St. (Originally called South Third St.)  
 Kiefer St. (Named after the period we are interpreting)  
 Cottage Pl. (Named after the period we are interpreting)

Map 5: Reconstructed bird's eye view of Little Liberia by John Wright, looking south toward Long Island Sound. The Freeman houses are labeled 1 and 2; the Zion A.M.E. Church is labeled 3. From "Reimagining Little Liberia: Restoration & Reunion," museum exhibit at Housatonic Community College, a collaboration between the Mary and Eliza Freeman Center for History and Community, Dr. Jamila Moore Pewu, and the Housatonic Museum of Art.



Map 6: The South End as shown on the 1867 Beers map, depicting Olmsted & Vaux's original design for Seaside Park.

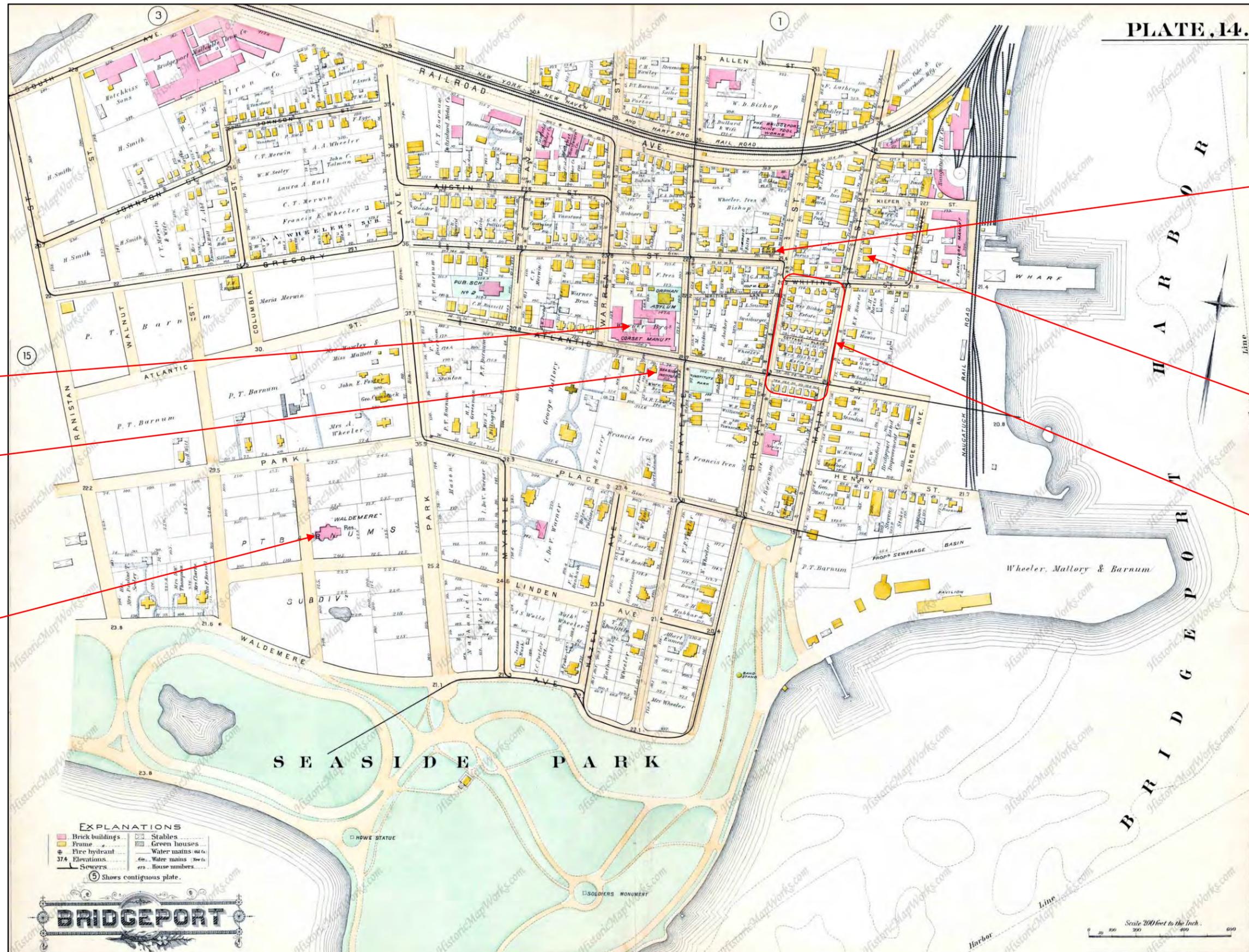


74-693246  
**Waldemere**

**BRIDGE**

**Map 7: The South End as shown on the 1875 Bailey bird's eye view map. The inset depicts the Kiefer Furniture factory. P. T. Barnum's house Waldemere is shown north of the 1868 trotting park oval.**





Warner Brothers Corset Company

Seaside Institute

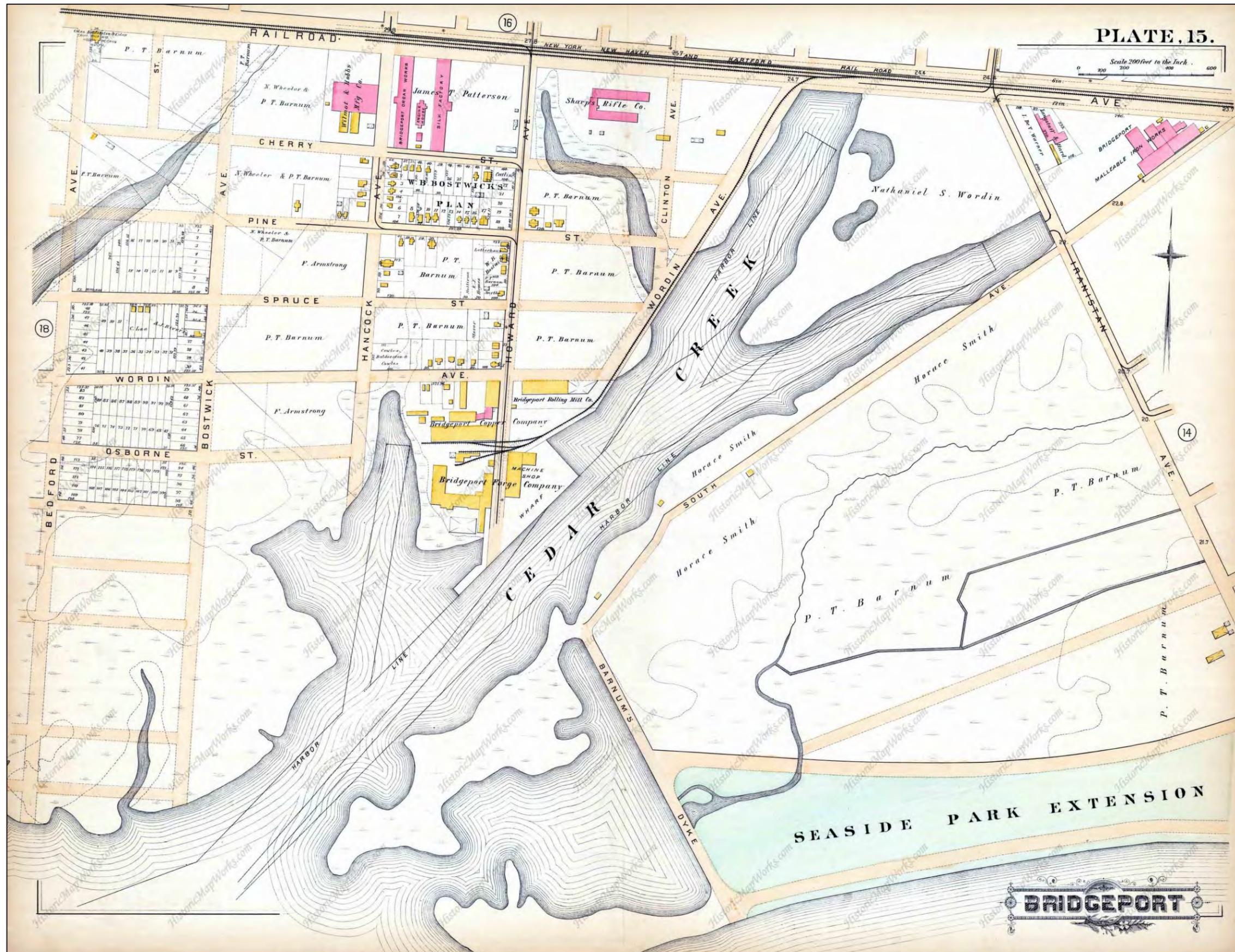
Waldemere

Zion A.M.E. Church

Freeman Houses

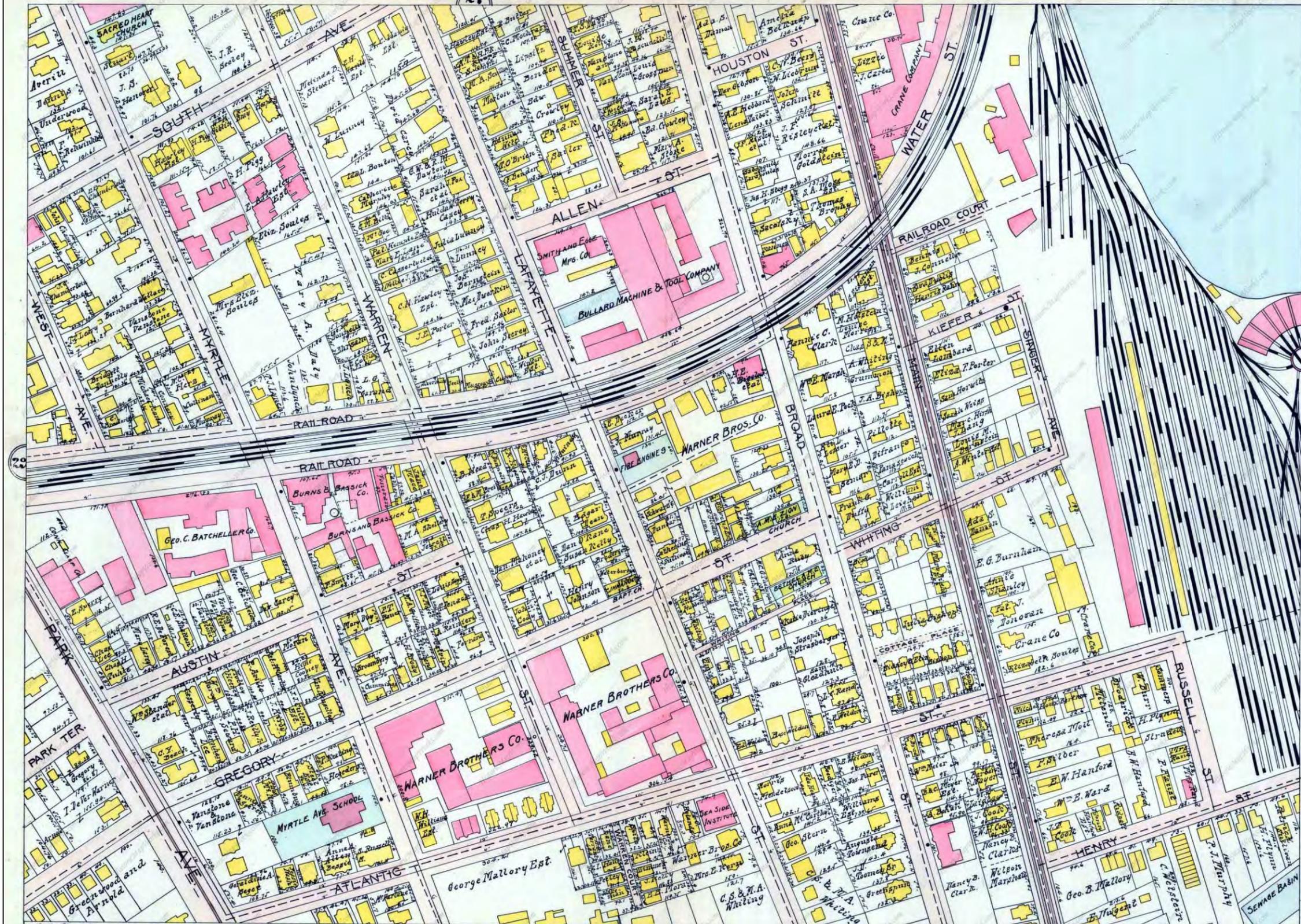
Bishop Cottages

Map 9: The South End as seen on the 1888 Hopkins map. It depicts P. T. Barnum's house Waldemere just after the property's subdivision. The Warner Brothers Company had not yet expanded west of Lafayette Street. Several factories (not extant) are located along the New York, New Haven & Hartford Railroad. The Bridgeport Malleable Iron Co. (top left) is located on the future site of Marina Village.

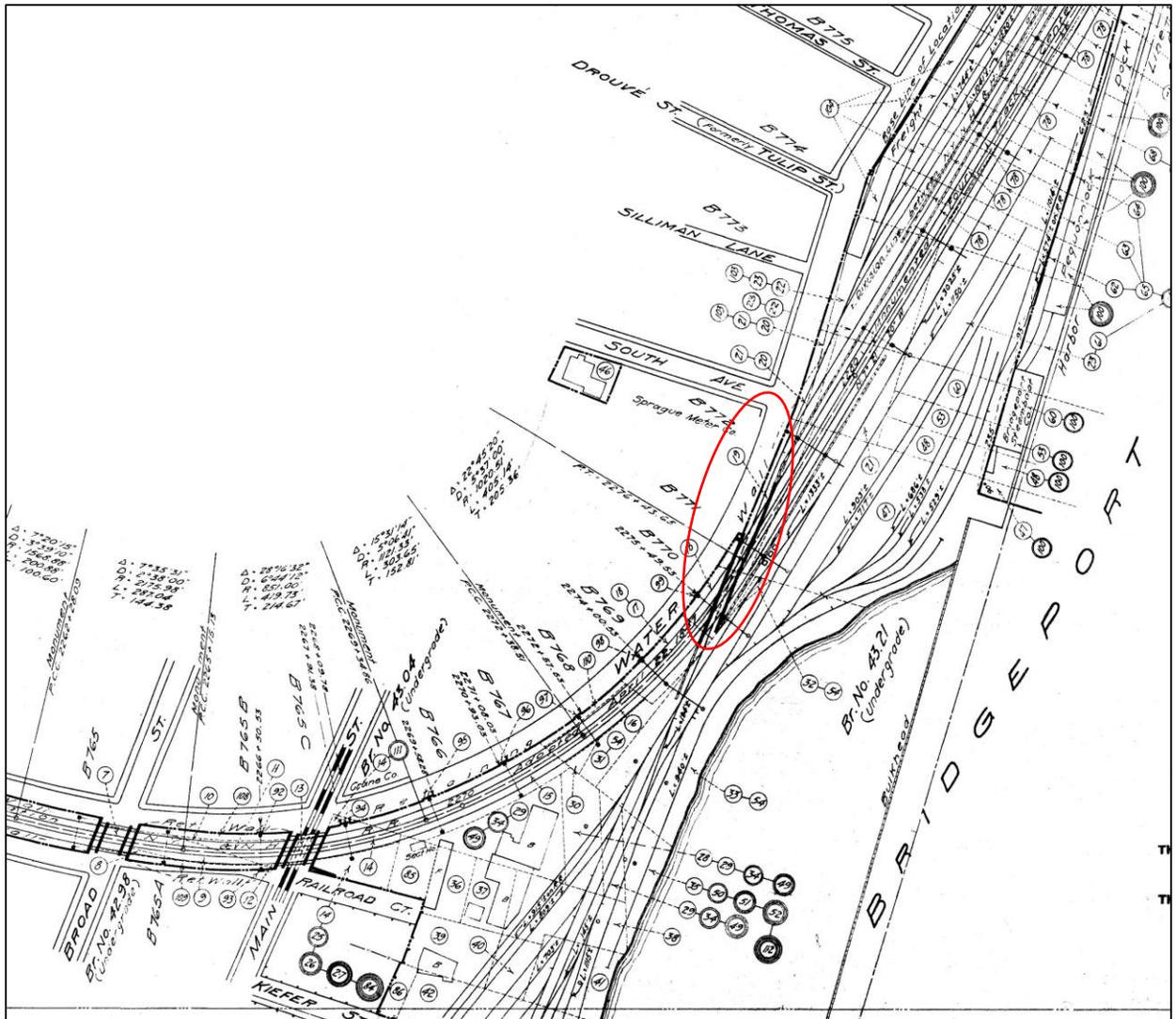


Map 10: This 1888 Hopkins map plate shows Seaside Park's western expansion. Additional property owned by P. T. Barnum to the north of the park is now the Sikorsky site.



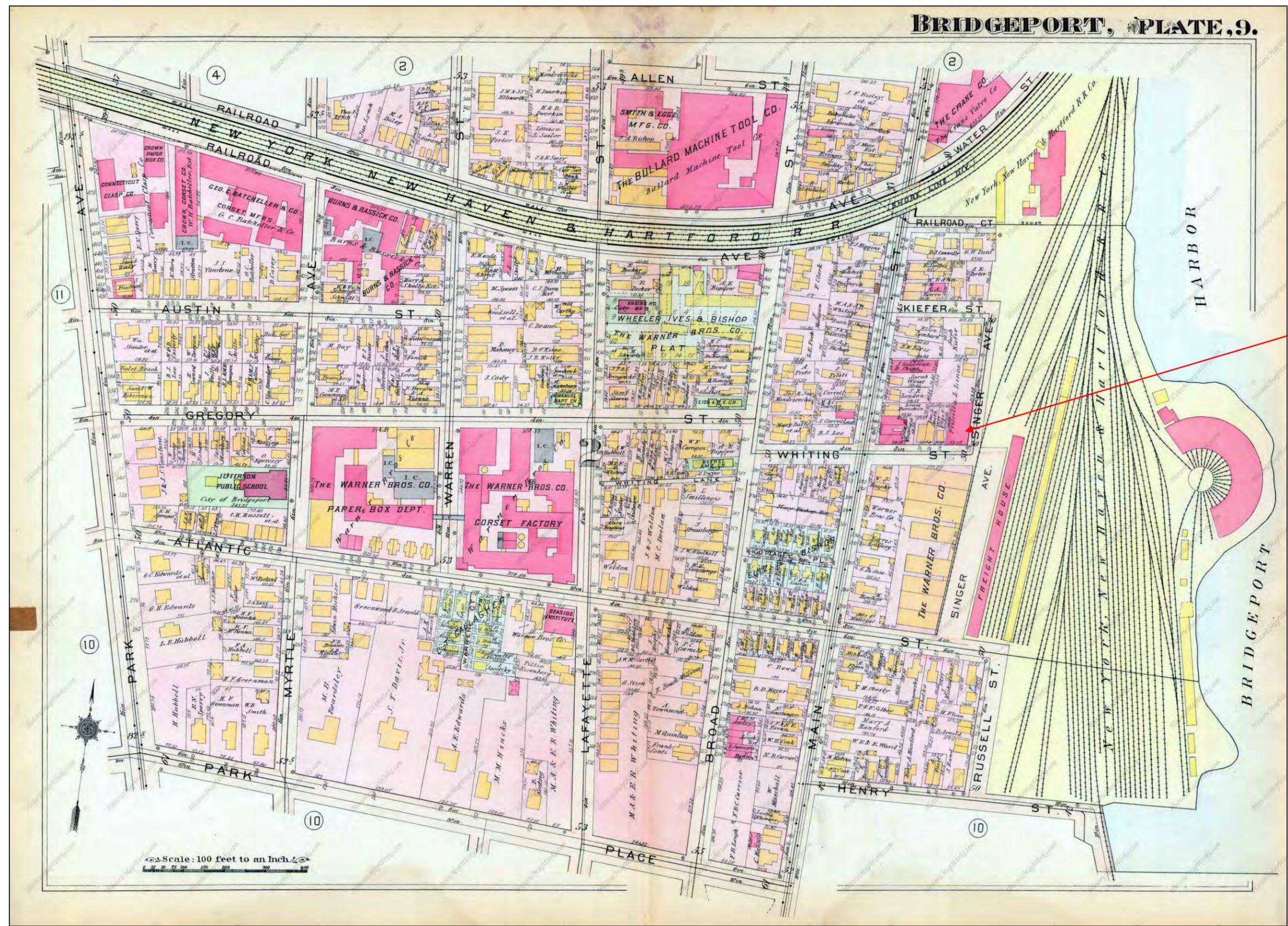


Map 12: The northern section of the South End as shown on the 1910 Kershaw map. The New York, New Haven & Hartford Railroad turntable and roundhouse are partially shown at the far right. By 1910, the Warner Brothers' factory complex west of Lafayette St. had been built, and factories along the railroad had expanded.



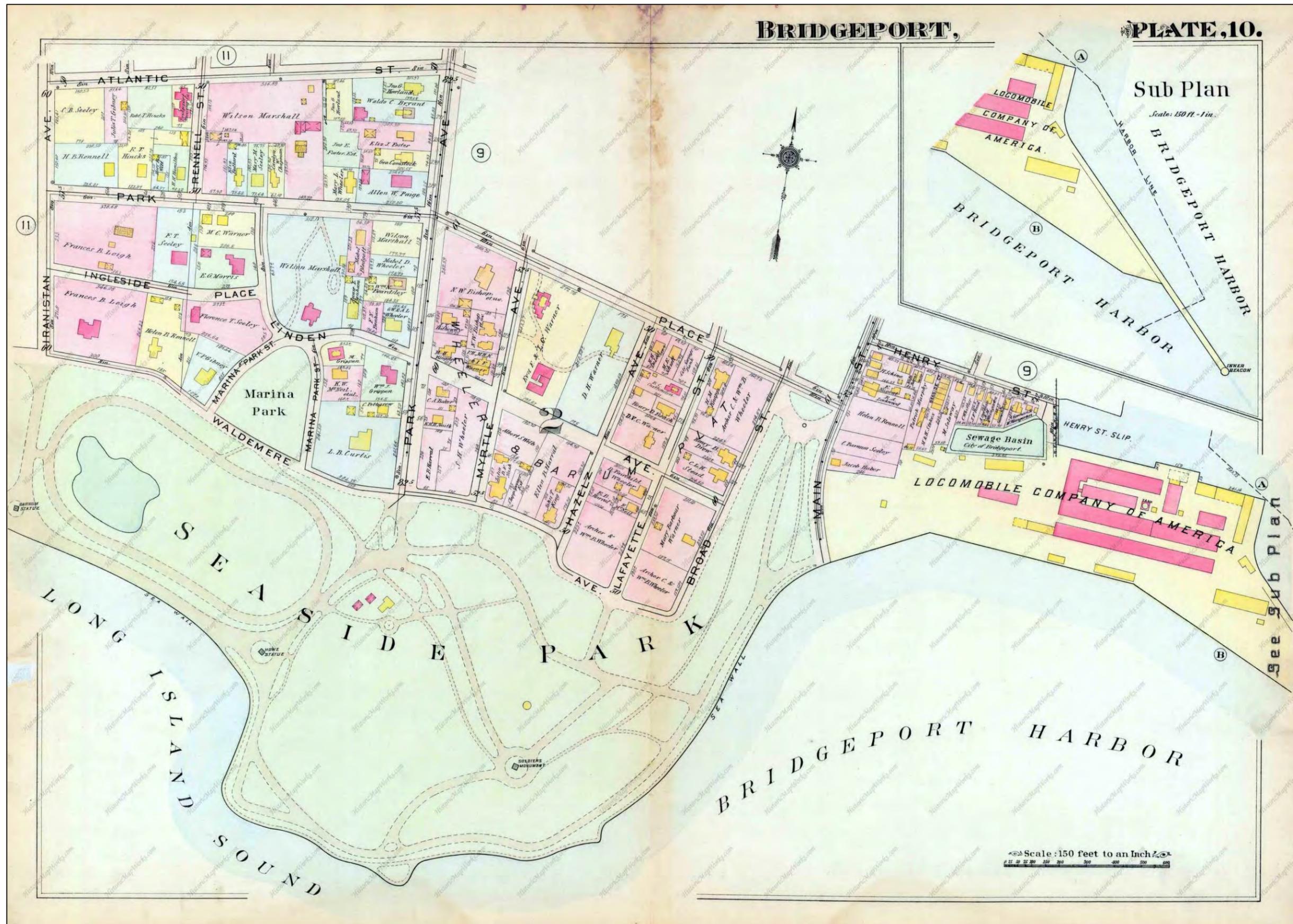
Map 13: A section of the 1915 New York, New Haven & Hartford Railroad valuation map, showing the 1903 under-grade bridge, designated Bridge 43.21 at the time. The bridge served as the entrance to the large freight yard that formerly occupied the power plant site. Note the streetcar lines running along Main Street.

# BRIDGEPORT, PLATE 9.



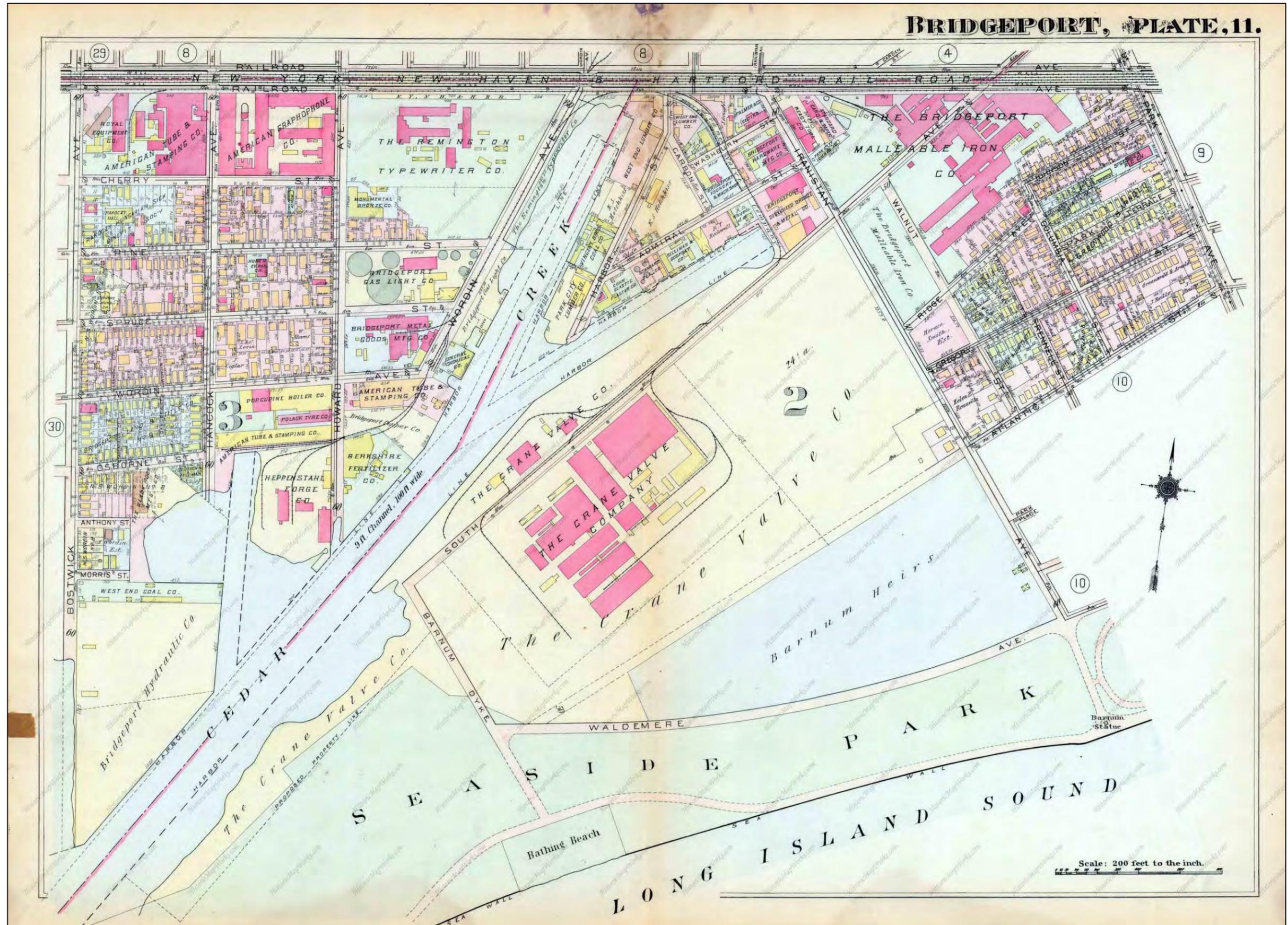
Bridgeport  
Storage  
Company  
Warehouse

Map 14: The northeast section of the South End as shown on the 1917 Kershaw map. In this area, the major changes since 1910 were along Singer Avenue, where houses were replaced by warehouses, including many belonging to Warner Brothers.

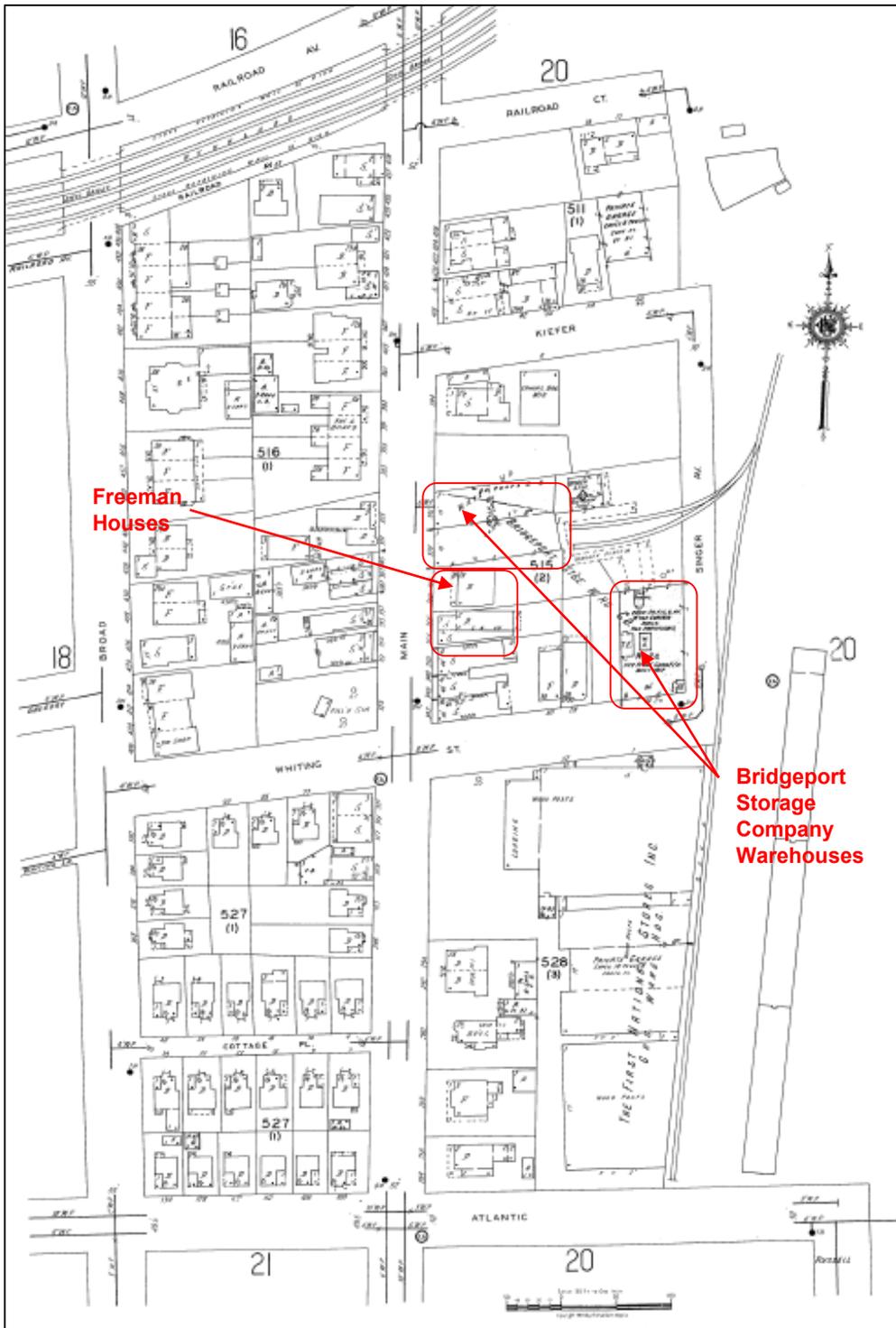


Map 15: The southeast section of the South End as shown on the 1917 Kershaw map, showing the Henry Street slip and the Locomobile factory to the east of Seaside Park. The inset map shows the Tongue Point Lighthouse, before the breakwater was demolished and the lighthouse was moved to its current location in 1919.

# BRIDGEPORT, PLATE 11.



Map 16: The western section of the South End as shown on the 1917 Kershaw map, showing Seaside Park's additional westward expansion and the Crane Company (now the Sikorsky site). The Bridgeport Malleable Iron Company is now the Marina Village site; Walnut Street now ends at Ridge Street, and Columbia Street extends north to South Avenue.



**Map 17: Broad and Main streets as shown on the 1939 Sanborn map. Much of the Bridgeport Storage Warehouse Co. complex remains intact, including the 1917 nine-story building on Whiting Street and the buildings just north of the Freeman Houses on Main Street. Note the railroad siding on Singer Avenue.**

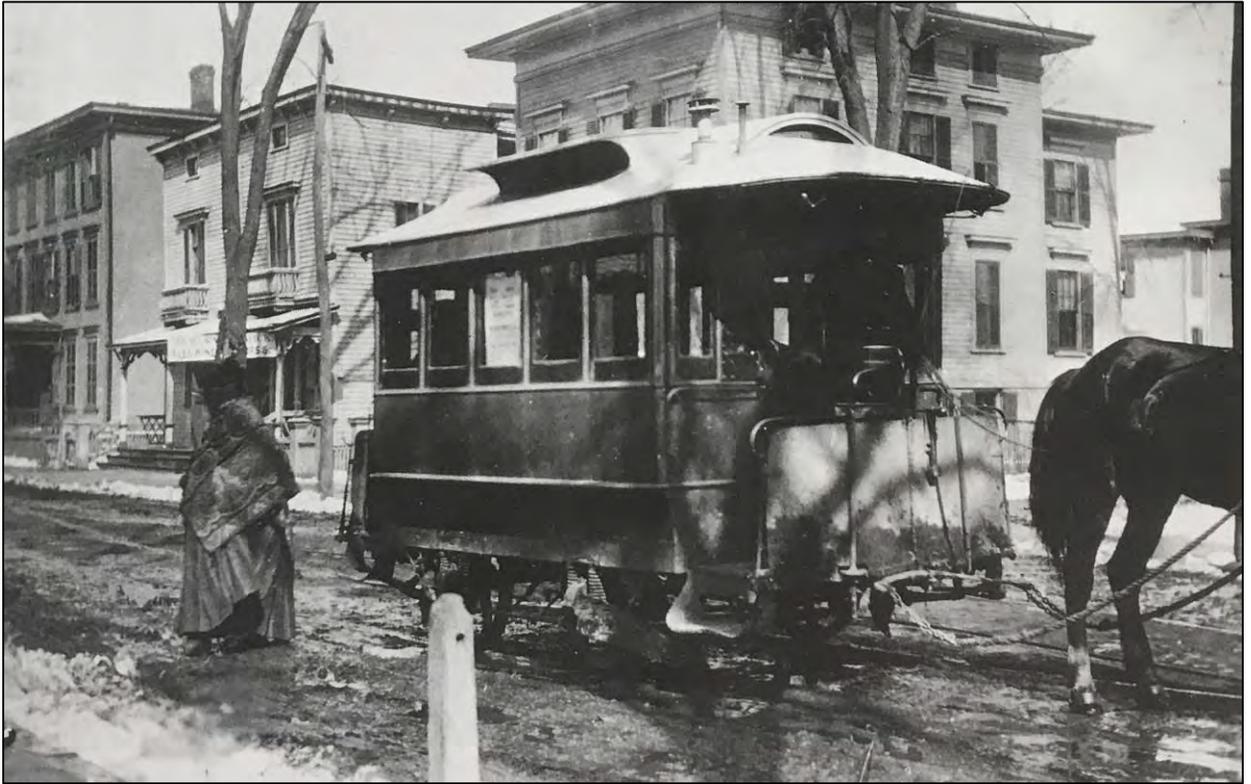


Map 18: Several South End factory buildings shown on the 1939 Sanborn map remain extant.

## Appendix C: Historical Images

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**Image 1: A horse-drawn streetcar on Main Street in the Little Liberia area in the winter of 1892, camera facing north (from Witkowski and Williams, p. 27).**



**Image 2: Walters Memorial A.M.E. Zion Church (1882) prior to the 1950s remodeling, camera facing west (from Witkowski and Williams, p. 26).**

The Warner Brothers Company Factories, Bridgeport, Conn.

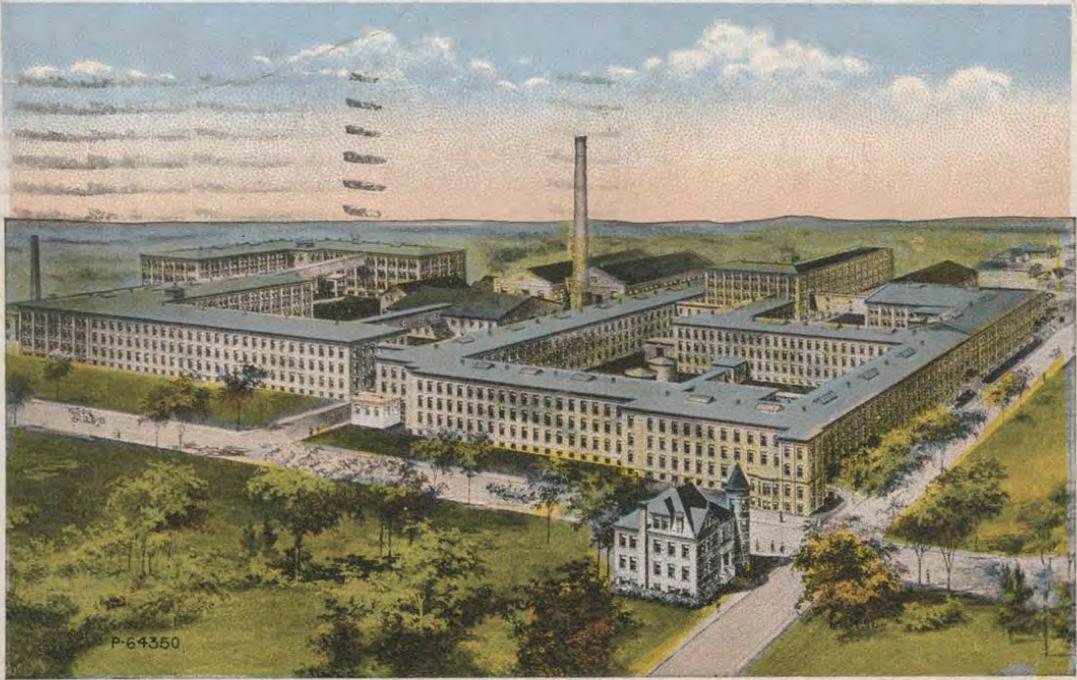


Image 3: Bird's eye view postcard of the Warner Brothers Company and Seaside Institute, view facing northwest (from the Museum of Connecticut History).



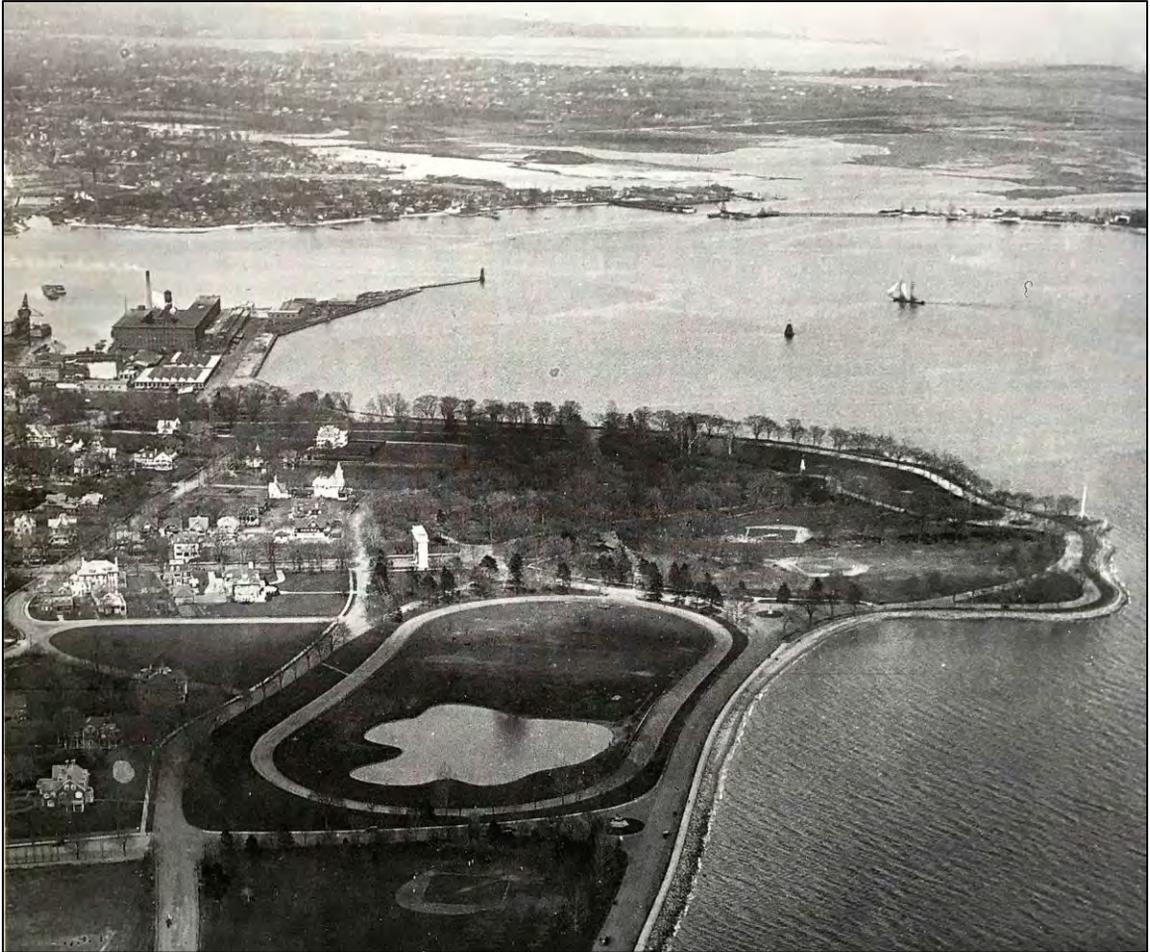
**Image 4: Postcard of Seaside Park ca. 1900-1910, camera facing south (from the Connecticut Historical Society).**



**Image 5: Postcard of Seaside Park and Locomobile factory, view facing northeast (private collection).**



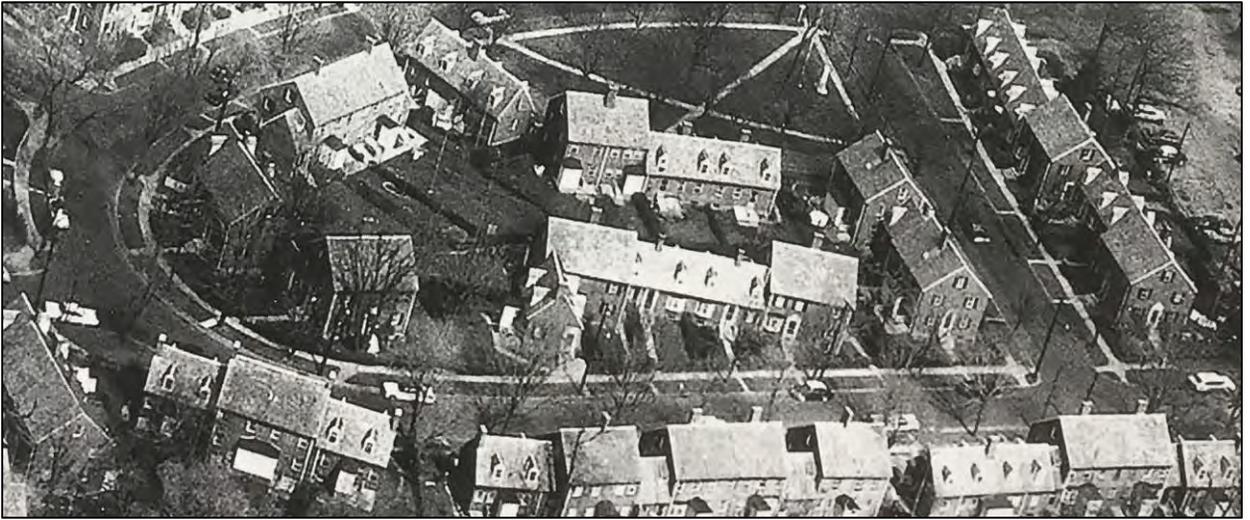
**Image 6: Bird's eye view postcard of the Seaside Park beach and bath house, view facing west (private collection).**



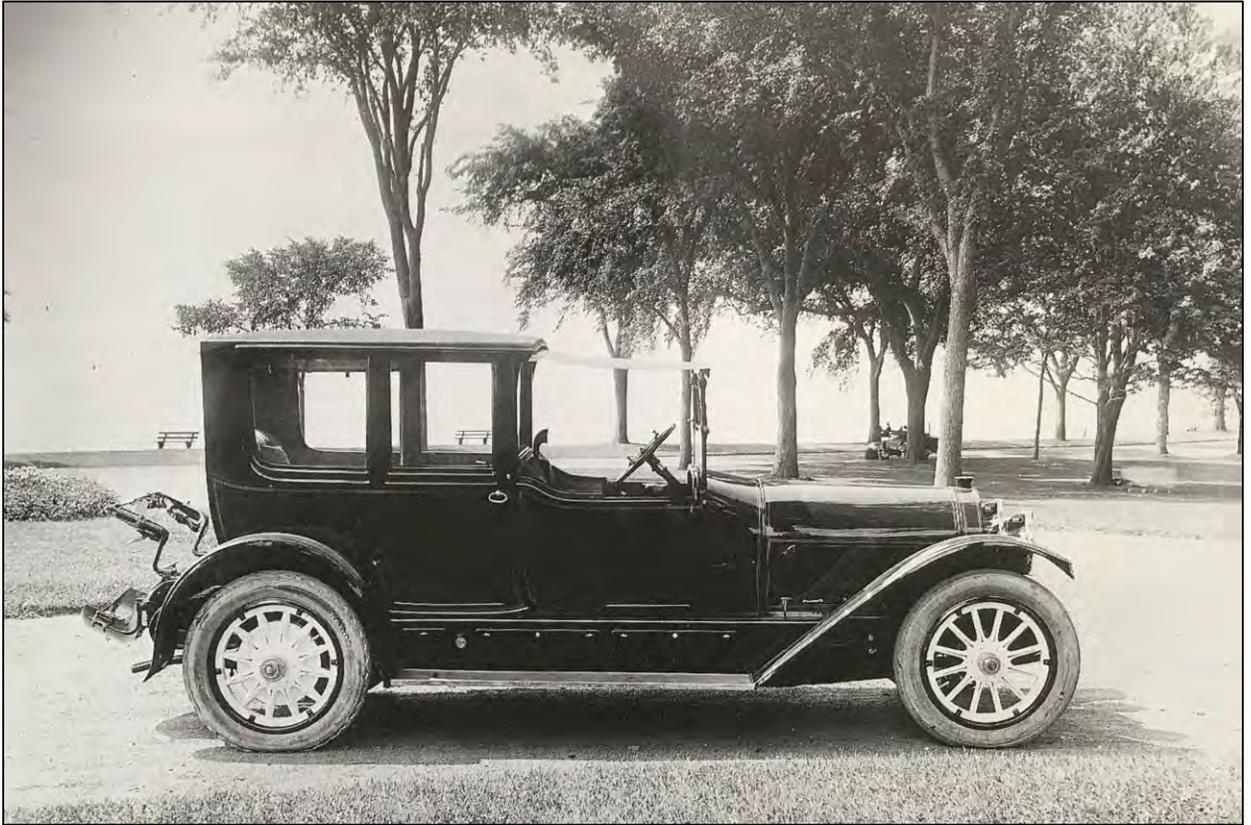
**Image 7: Aerial view of Seaside Park, with the trotting park in the foreground and Park Avenue houses at the left. The Locomobile factory is in the background at left. Waldemere Hall (the current University of Bridgeport president's house) is at bottom left. Photo by Brewer H. Sholund, camera facing northeast (from Witkowski and Williams, p. 18).**



**Image 8: On the left is P. T. Barnum's 1869 house Waldemere, and on the right is his last house Marina under construction ca. 1888, camera facing south (from the Bridgeport History Center collection). After Marina was completed, Waldemere was dismantled.**



**Image 9: Aerial view of Seaside Village, camera facing northeast (from Witkowski and Williams, p. 49).**



**Image 10: A Locomobile vehicle photographed in Seaside Park ca. 1916 (from Witkowski and Williams, p. 73).**



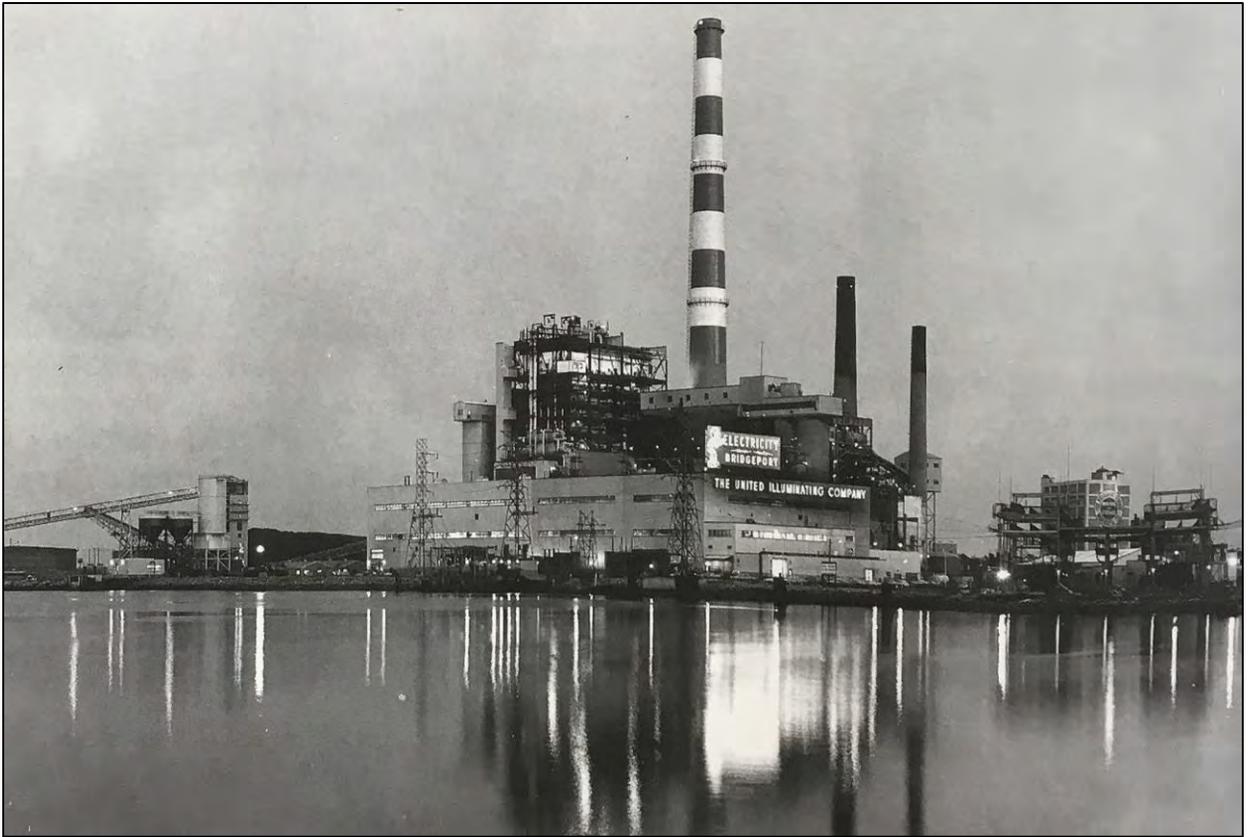
Image 11: The South End in a 1934 aerial photograph (from Connecticut Historical Aerial Photography, University of Connecticut).



Image 12: The South End in a 1965 aerial photograph (from Connecticut Historical Aerial Photography, University of Connecticut). Note the large University of Bridgeport buildings a few blocks north of Seaside Park.



Image 13: The South End in a 1970 aerial photograph (from Connecticut Historical Aerial Photography, University of Connecticut). Note the power plant, oil tanks, and pier on the right.



**Image 14: Power plant as seen from Bridgeport Harbor with the 500' high United Illuminating smokestack built in 1967. The Bridgeport Storage Warehouse Co. building is on the far right. Photo by Brewer H. Sholund, camera facing west (from Witkowski and Williams, p. 20; photo appears to be printed backwards).**



Image 15: Artist's rendering of Seaside Institute, view facing southwest (from Orcutt, p. 741b).



**Image 16: House at 247 Atlantic Street (at right) after the Hurricane of 1938 (from Witkowski and Williams, p. 48).**

## Appendix D: Photographs

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**Photograph 1. Walters Memorial A.M.E. Zion Church and Parsonage at 427 Broad Street (northwest corner of Broad Street and Gregory Street/Bishop J.C. White Boulevard), camera facing northwest.**



**Photograph 2. Mary Freeman House at 358-60 Main Street and Eliza Freeman House at 352-4 Main Street, camera facing east.**



**Photograph 3. Houses on Main and Atlantic streets in the William D. Bishop Cottage Development Historic District, camera facing southwest.**



**Photograph 4. Houses at the corner of Atlantic and Broad streets in the William D. Bishop Cottage Development Historic District, camera facing southeast.**



**Photograph 5. Houses on Broad Street in the William D. Bishop Cottage Development Historic District, camera facing south.**



**Photograph 6. Duplexes on Myrtle Avenue in the Barnum/Palliser Historic District, camera facing northwest.**



**Photograph 7. Duplexes on Atlantic Street in the Barnum/Palliser Historic District, camera facing northwest.**



**Photograph 8. 380-386 Myrtle Avenue in the Barnum/Palliser Historic District, camera facing northeast.**



**Photograph 9. University of Bridgeport's Ingleside Hall on Ingleside Avenue, camera facing north.**



**Photograph 10. University of Bridgeport's Carstensen Hall at 174 University Avenue, camera facing northeast.**



**Photograph 11. University of Bridgeport's Waldemere Hall at 460 Waldemere Avenue, camera facing west.**



**Photograph 12. University of Bridgeport's Wisteria Hall at 405 Linden Avenue, camera facing west.**



**Photograph 13. University of Bridgeport's Bauer Hall at 82 Marina Park Street in the Marina Park Historic District, camera facing east.**



**Photograph 14. George W. Wheeler House at 115 Park Avenue in the Marina Park Historic District, camera facing west.**



**Photograph 15. Albert J. Erslew House at 185 Park Avenue (corner of University Avenue) in the Marina Park Historic District, camera facing south.**



**Photograph 16. Lavinia Parmly House at 219 Park Avenue in the Marina Park Historic District,, camera facing west.**



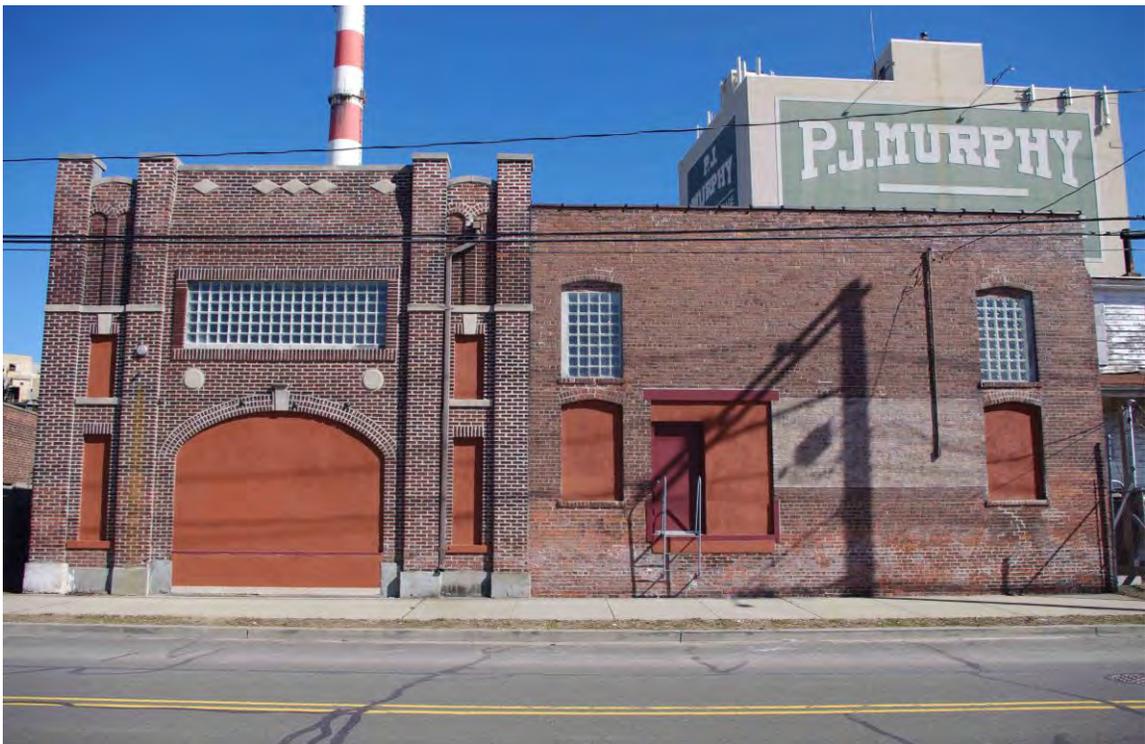
**Photograph 17. Gate to Marina, Barnum's house built in 1889, at the north end of Marina Park; camera facing north. The gate has probably been relocated.**



**Photograph 18. Railroad retaining wall and railroad bridge (formerly bridge #43.21; now #08059R) along Ferry Access Road, camera facing north.**



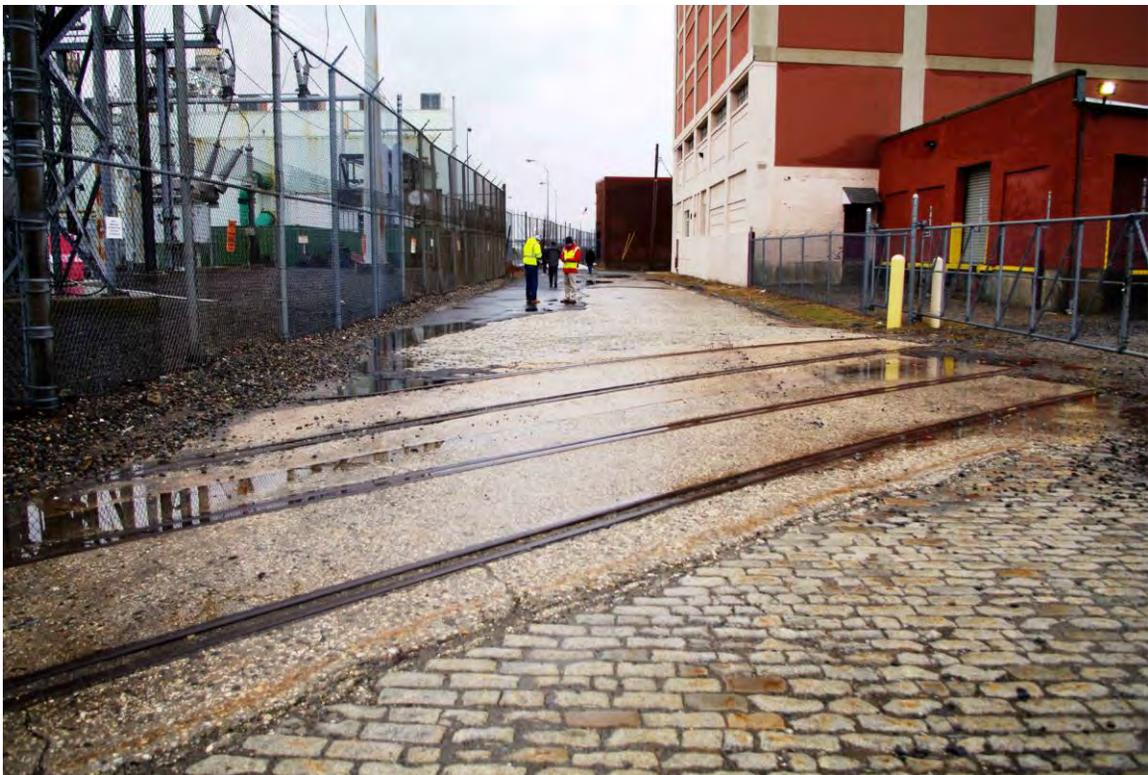
**Photograph 19. Warehouse buildings at 376 Main Street (center left) are connected to the nine-story warehouse on Whiting Street (now P. J. Murphy Moving & Storage). The Freeman Houses are at center right.**



**Photograph 20. Bridgeport Storage Warehouse Company buildings (formerly the Menard & Shepard trucking company) at 376 Main Street, camera facing east.**



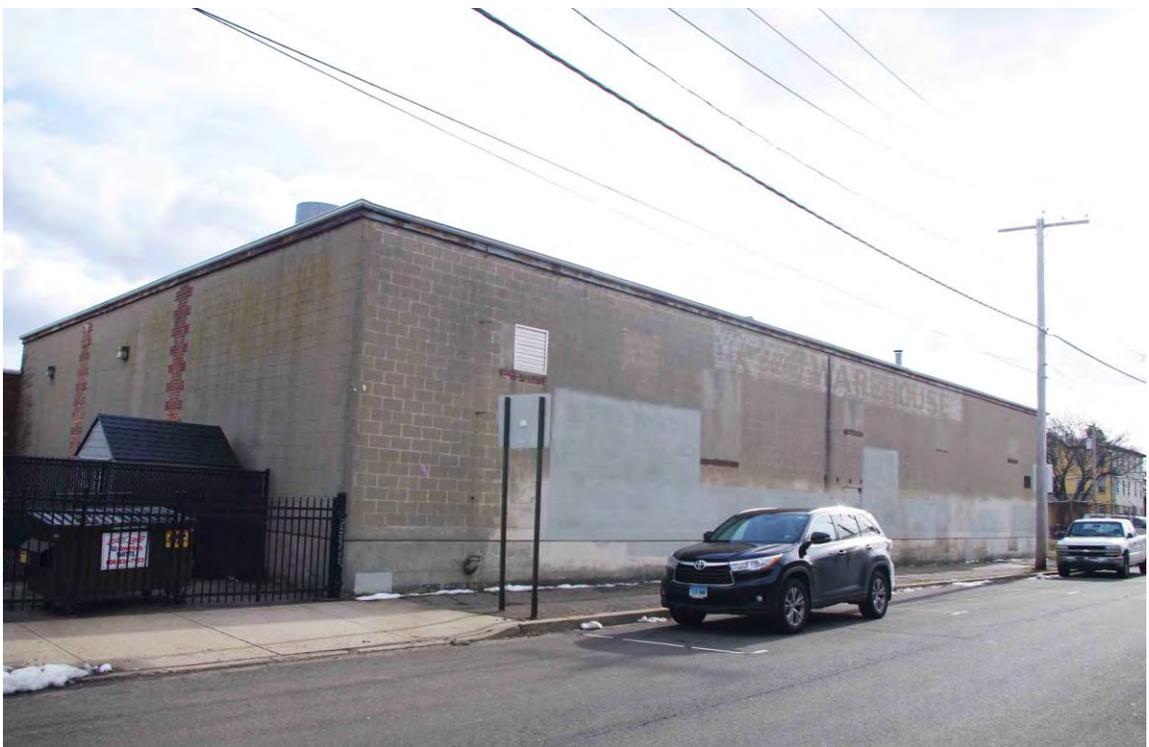
**Photograph 21. Bridgeport Storage Warehouse Company, camera facing west.**



**Photograph 22. Singer Avenue stone paving and tracks from the Bridgeport Storage Warehouse Company's railroad siding, camera facing south.**



**Photograph 23. D. M. Read Warehouse at 461 Broad Street, camera facing southwest.**



**Photograph 24. D. M. Read Warehouse addition as seen from Railroad Avenue, camera facing southwest.**



**Photograph 25. Park Apartments at 59 Rennell Street, camera facing northwest.**



**Photograph 26. Seaside Village housing and World War I monument, camera facing west.**



**Photograph 27. Seaside Village housing on Burnham Street, camera facing southwest.**



**Photograph 28. United Aircraft Company (Sikorsky Aircraft Division) complex on South Avenue, camera facing south.**



**Photograph 29. Marina Village housing on Iranistan Avenue, camera facing north.**



**Photograph 30. University of Bridgeport buildings at the corner of Broad Street and University Avenue, as seen from the entrance to Seaside Park, camera facing west. The ASPCA founder Henry Bergh monument (1897) is at the left.**



**Photograph 31. University of Bridgeport buildings at the corner of Linden and Hazel avenues, camera facing southeast.**



**Photograph 32. PSEG's coal-burning plant, camera facing northwest.**



**Photograph 33. Seaside Park entrance at Broad Street, camera facing south. The ASPCA founder Henry Bergh monument (1897) is at the left.**



**Photograph 34. William H. Perry Memorial Arch (1918), camera facing northeast.**



**Photograph 35. Seaside Park's eastern section, camera facing south.**



**Photograph 36. Sailors and Soldiers Civil War Monument (1876), camera facing east.**



Photograph 37. Elias Howe statue (1884), camera facing north.



Photograph 38. P. T. Barnum statue (1891), camera facing north.



**Photograph 39. Spanish-American War monument (1913), camera facing southeast.**



**Photograph 40. Seaside Park Bath House (1918) at the corner of Barnum Dyke and Soundview Drive, camera facing north.**



**Photograph 41. Seaside Park Stables (ca. 1918), camera facing east.**



**Photograph 42. Breakwater to Fayerweather Island (1917) and Black Rock Lighthouse (1823), camera facing south.**



Photograph 43. Tongue Point Lighthouse, camera facing east.



Photograph 44. Seaside Institute at 299 Lafayette Street (corner of Atlantic Street), camera facing southwest.



**Photograph 45. Crown Corset Company at 345 Railroad Avenue and Crown Paper Box Company at 347 Railroad Avenue, camera facing southeast.**



**Photograph 46. 247 Atlantic Street, camera facing southwest.**



**Photograph 47. 337-341 Broad Street, camera facing northwest.**



**Photograph 48. Entrance of 337-341 Broad Street, camera facing west.**



**Photograph 49. Seagrove Cottage at 36 Myrtle Avenue, camera facing northeast.**



**Photograph 50. Multifamily housing on the north side of Atlantic Street between Columbia Street and Park Avenue, camera facing northeast.**



**Photograph 51. Houses on the west side of Park Avenue, between Gregory and Atlantic streets, camera facing northwest.**



**Photograph 52. Houses on the east side of Park Avenue, between Gregory and Atlantic streets, camera facing north.**



**Photograph 53. Multifamily housing on the south side of Gregory Street, between Park Avenue and Columbia Street, camera facing southwest.**



**Photograph 54. Multifamily housing on the north side of Gregory Street, between Park Avenue and Columbia Street, camera facing west.**



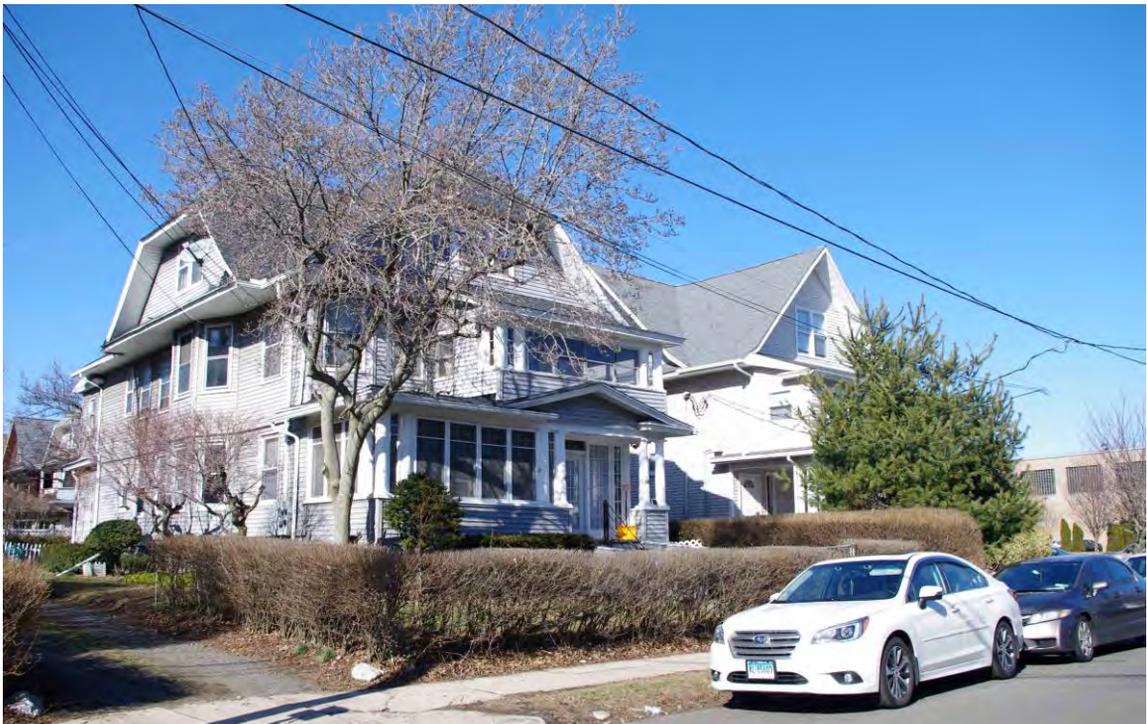
**Photograph 55. Multifamily houses on the north side of Gregory Street (east of the Columbia Street intersection), camera facing northeast.**



**Photograph 56. Multifamily houses on the north side of Atlantic Street, between Columbia Street and Park Avenue, camera facing northeast.**



**Photograph 57. Multifamily houses on Myrtle Avenue, camera facing southwest.**



**Photograph 58. Multifamily houses on Waldemere Avenue, camera facing northeast.**



**Photograph 59. Railroad viaduct stone retaining walls, catenary structures, and the Park Avenue Railroad Bridge, camera facing northwest.**



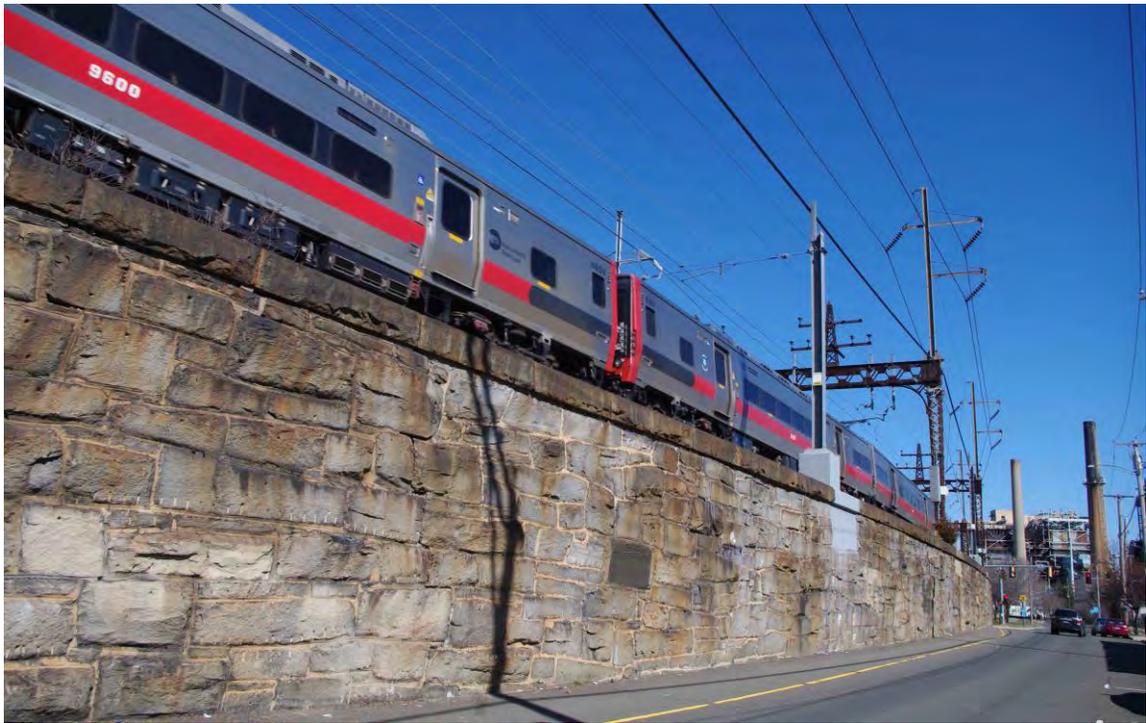
**Photograph 60. Railroad viaduct retaining walls, catenary structures, and the Myrtle Avenue Railroad Bridge, camera facing northwest.**



**Photo 61. Warren Street Railroad Bridge and catenary structures, camera facing northeast.**



**Photograph 62. Lafayette Street Railroad Bridge, viaduct stone retaining walls, and catenary structures, camera facing northeast.**



**Photograph 63. Railroad viaduct stone retaining walls on Railroad Avenue, east of Lafayette Street, camera facing east.**



**Photograph 64. Broad Street Railroad Bridge, viaduct stone retaining walls and catenary structures, camera facing north.**



**Photograph 65. Infilled section of the railroad viaduct where the Main Street Bridge was removed, camera facing northeast.**



**Photograph 66. Bassick Company, Google 3D aerial view, camera facing north.**



**Photograph 67. Bassick Company, corner of Myrtle and Railroad, camera facing southeast.**



**Photograph 68. Bassick Company, corner of Railroad Avenue and Warren Street, camera facing southwest.**



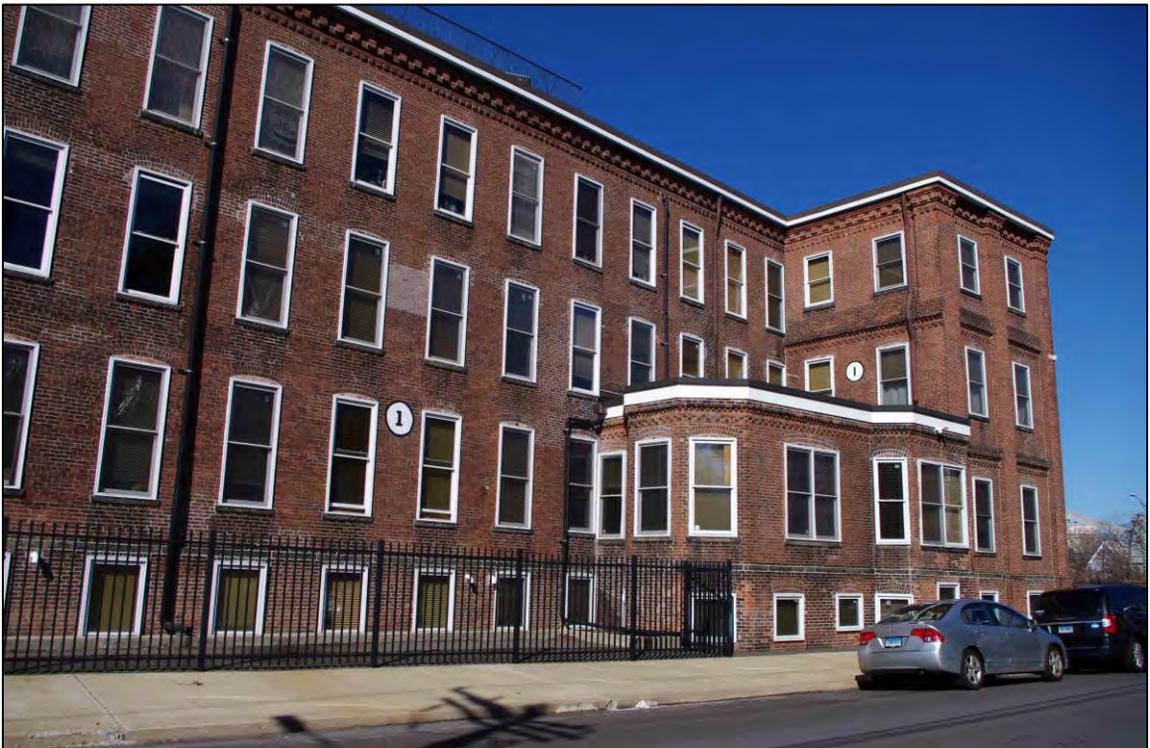
Photograph 69. Warner Brothers Company, Google 3D aerial view, camera facing north.



Photograph 70. Warner Brothers Company, corner of Gregory Street and Myrtle Avenue, camera facing southeast.



**Photograph 71. Warner Brothers Company on Atlantic Street, camera facing northeast. This area was an open street in the 1970s University Square redevelopment, and many of this building's alternations date to that period.**



**Photograph 72. Warner Brothers Company on Atlantic Street, camera facing northeast.**



**Photograph 73. Warner Brothers Company on Lafayette Street, camera facing northwest.**



**Photograph 74. Warner Brothers Company on Gregory Street, camera facing southwest.**



**Photograph 75. Warner Brothers Company on Gregory Street, camera facing southwest.**



**Photograph 76. 45 Columbia Street, camera facing south.**



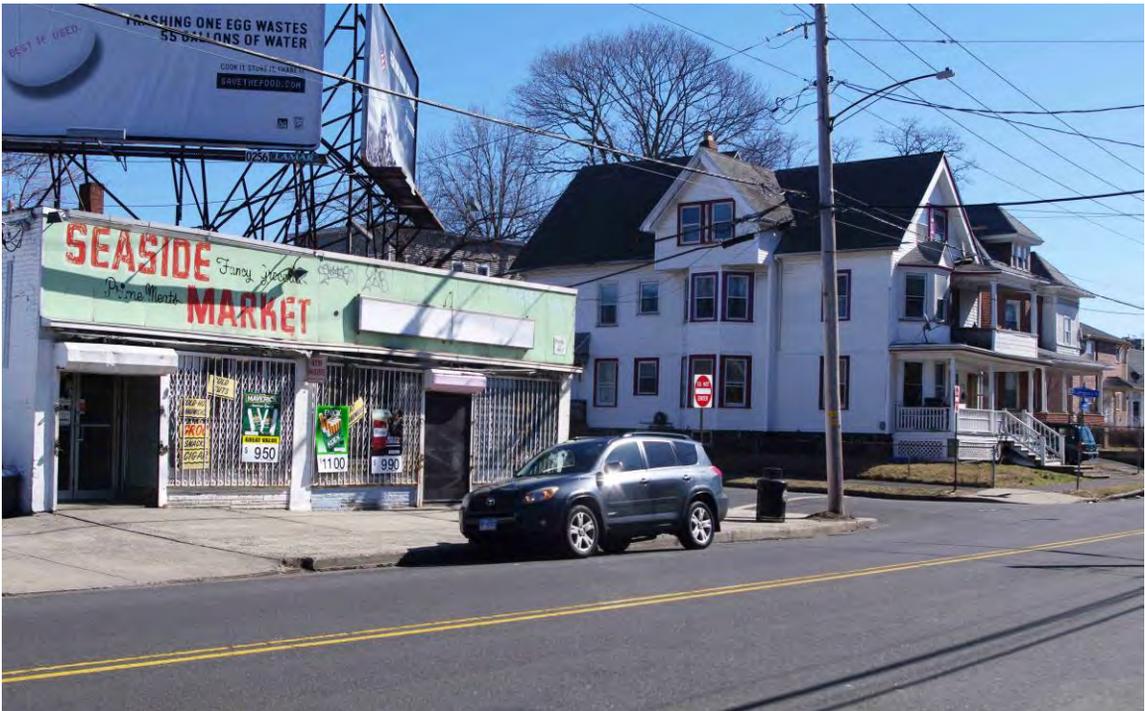
**Photograph 77. Buildings on east side of Main Street, south of Henry Street, camera facing northeast. At the far left is the United Illuminating Singer Substation.**



**Photograph 78. Houses on east side of Myrtle Avenue, south of Atlantic Street, camera facing southeast.**



**Photograph 79. Houses on west side of Myrtle Avenue, south of Atlantic Street, camera facing northwest.**



**Photograph 80. Buildings on the east side of Iranistan Avenue, at intersection with Gregory Street, camera facing southeast.**



**Photograph 81. United Illuminating pier, camera facing southwest.**



# Appendix E: Table

**Table 1. Status of Historic Resources**

Property Name	NR Listed (indiv.)	NR Listed (district)	NR Pot. Elig. (indiv.)	NR Pot. Elig. (district)	SR Listed Only	LHD
Seaside Park	X					
Tongue Point Lighthouse	X					
Freeman Houses	X					
Seaside Institute	X					
Park Apartments	X					
Willam D. Bishop Cottages Development Historic District		X				
Barnum/Palliser Historic Distict		X				X
Marina Park Historic District		X				X
Seaside Village Historic District		X				
Walters Memorial AME Zion Church			X		X	
Bridgeport Storage Warehouse Company			X			
Crown Corset & Crown Paper Box Company Factories			X			
D. M. Read Company Warehouse			X			
Carstensen Hall			X			
Ingleside Hall			X			
Waldemere Hall			X			
Wisteria Hall			X			
247 Atlantic Street			X			
337-341 Broad Street			X			
Seagrove Cottage			X			
Housing on Park Avenue & Atlantic & Gregory Streets (24 houses)				X		
Myrtle Avenue Housing (7 houses)				X		
New York, New Haven & Hartford Railroad				X		
Bassick Company Factory				X		
Warner Brothers Company Factory				X		



# Draft Programmatic Agreement (August 2019)

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**PROGRAMMATIC AGREEMENT AMONG  
CONNECTICUT DEPARTMENT OF HOUSING, AND  
CONNECTICUT STATE HISTORIC PRESERVATION OFFICE  
REGARDING RESILIENT BRIDGEPORT IN BRIDGEPORT, CT**

**WHEREAS**, the U.S. Department of Housing and Urban Development (hereinafter, HUD) has allocated supplemental Community Development Block Grant-Disaster Recovery funds (hereinafter, CDBG-DR) through the Rebuild by Design competition and Community Development Block Grant – National Disaster Resilience (hereinafter, CDBG-NDR) to the Connecticut Department of Housing (hereinafter, CT DOH) under the Disaster Relief Appropriations Act of 2013 (Pub. L. 113–2) and Federal Register Notices 79 FR 62182 and 81 FR 36557 for the purpose of assisting recovery in the most impacted and distressed areas declared a major disaster due to Hurricane Sandy;

**WHEREAS**, HUD has unique statutory authority to delegate its environmental compliance responsibilities promulgated at 24 CFR Part 58 to State, tribal, and local governments including obligations under Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. §§ 470 *et seq.*, hereinafter, Act) and its implementing regulations 36 CFR Part 800;

**WHEREAS**, CT DOH has assumed the role of Responsible Entity, on behalf of HUD, and makes assistance, including CDBG-DR, available to communities, its citizens, Federally recognized Indian Tribes (Tribes) and other entities;

**WHEREAS**, CT DOH has determined that implementing the Resilient Bridgeport projects will result in undertakings (as that term is defined by 16 U.S.C. § 470w and 36 C.F.R. § 800.16(y)) that may affect historic properties listed in or eligible for the National Register of Historic Places (NRHP), and CT DOH has consulted with the Connecticut State Historic Preservation Office (CT SHPO) pursuant to Section 106 of the National Historic Preservation Act (NHPA), Pub. L. No. 89-665 (1966) (codified as amended at 16 U.S.C. § 470f) (Section 106) and Section 110(f) of the NHPA (codified as amended at 16 U.S.C. § 470h-2), and Section 106's implementing regulations at 36 C.F.R. Part 800;

**WHEREAS**, the Resilient Bridgeport undertakings is the set of projects to create a more resilient Bridgeport South End community, support its long-term viability, and improve health and safety for the community's vulnerable populations by lowering the risk of acute and chronic flooding, providing dry egress during emergencies, and educating the public about flood risks and sea level rise for this low-lying area located largely within the 1% annual chance floodplain, as further detailed in the Draft Environmental Impact Statement (hereinafter DEIS) published February 1, 2019 and the Final Environmental Impact Statement (hereinafter FEIS) published September 6, 2019 and in the descriptions below;

**WHEREAS**, the Resilient Bridgeport undertakings consist of three projects located within the South End of Bridgeport, Connecticut—the Rebuild By Design Pilot Project (hereinafter RBD Pilot Project), a Flood Risk Reduction Project on the east side of the South End (hereinafter Flood Risk Reduction Project), and a Resilience Center;

**WHEREAS**, RBD Pilot Project means the project benefiting the public housing development on the site of Marina Village/Windward Apartments consisting of the construction of the new Johnson Street extension, raised to provide dry egress for the surrounding residents and

facilitate emergency access during an acute flooding event; regrading of a portion of the existing Johnson Street; regrading of a portion of Columbia Street, north and south of the new Johnson Street Extension; additional street beautification and stormwater improvements along Ridge Avenue; and a new 2.5-acre stormwater park, to be located just south of Johnson Street Extension with a wet well pump and force main connection into Cedar Creek outfall to accept water from upland streets and adjacent parcels and to retain, delay and improve the quality of the stormwater runoff through this green and grey infrastructure approach (Exhibit A);

**WHEREAS**, Flood Risk Reduction Project means a combination of measures within the eastern South End that would reduce the flood risk within the DEIS study area, which includes the William Bishop Cottage Development Historic District and the Mary and Eliza Freeman Houses (Exhibit B), from future coastal surge, including 2.5 feet of sea level rise, and chronic rainfall events. The measures would include a coastal flood defense system and implementing both green and gray stormwater and internal drainage management strategies (e.g., detention/retention features, drainage structures, and pump systems);

**WHEREAS**, Coastal flood defense system means raising a portion of University Avenue and installing sheet piling and floodwalls in the north-south section of the coastal flood defense system alignment. The DEIS included a Western Alignment option and an Eastern Alignment option with variations in between those boundaries for the north-south section of the coastal flood defense system (Exhibit A) and in place of the Western and Eastern options the FEIS includes four alternative alignments, Alternatives 1-4, for the coastal flood defense system with Alternative 1 selected as the preferred alternative (Exhibit A);

**WHEREAS**, Resilience Center means a center for resilience activities, disseminating information to the community and assisting the community in future recovery efforts. The Mary and Eliza Freeman Center for History and Community, located on Main Street in the South End, is a significant historic resource to the local community. The project would provide funding to The Mary and Eliza Freeman Center to support renovations of a community space within the Mary and Eliza Freeman Houses complex that would provide a location in the South End that would operate as a community center, a central location for resilience information dissemination, and a location that could store supplies to assist the community with recovery efforts during or after storm events. The project would include another open-air site with green infrastructure improvements near the entrance to Seaside Park at University Avenue;

**WHEREAS**, pursuant to Section 106 regulations, CT DOH identified Archaeological and Historic Architectural Areas of Potential Effects (APE) for Resilient Bridgeport (Exhibit B), and determined that the APEs will be the areas where potential effects on Historic Properties caused by Projects may occur;

**WHEREAS**, the Historic Properties in the APE are listed under Exhibit C;

**WHEREAS**, the CT DOH is the Responsible Entity for initiating Section 106 and the CT SHPO is the regulatory agency overseeing compliance to Section 106 of the National Historic Preservation Act of 1966, as amended and which describes a finding of adverse effect when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association;

**WHEREAS**, this Programmatic Agreement (hereinafter PA) was developed with appropriate public participation during the NEPA public comment periods pursuant to Subpart A of Section 106 Regulations, and copy of this PA was included in and distributed with the FEIS, published September 6, 2019. The public shall be duly notified as to the execution and effective dates of this PA through the issuance of the FEIS Record of Decision for the Resilient Bridgeport undertakings;

**WHEREAS**, in accordance with 36 CFR § 800.6(a)(1), in a letter dated July 26, 2019, the CT DOH notified the Advisory Council on Historic Preservation (hereinafter ACHP) of its intent to develop a PA for the Resilient Bridgeport undertakings; and on August 26, 2019 the ACHP declined to formally participate in the consultation to resolve adverse effects as the ACHP concluded under Appendix A, *Criteria for Council Involvement in Reviewing Individual Section 106 Cases* that their regulations do not apply to these undertakings as it appears that the CT SHPO are involved in productive consultation to resolve adverse effects;

**WHEREAS**, in the same letter as above dated August 26, 2019, the ACHP indicated they would like to provide technical assistance to the CT DOH in meeting its Section 106 obligations in accordance with 36 CFR Part 800.9(a) and requested that CT DOH schedule a meeting with the consulting parties to discuss the status of the current Section 106 review, and the schedule for drafting and finalizing a PA and that the meeting include consulting parties that have been identified to date, including the SHPO, tribes that may have properties of cultural and religious significance affected by the undertaking, representatives of local governments, and any other parties that may have concerns with the undertaking's effects on historic properties [36 C.F.R. §800.2 (c)(1-3,5) and in a letter dated August 28, 2019 CT DOH responded to the ACHP that the CT DOH would be inviting concurring parties to review and sign the PA and notifying identified consulting parties of the publication of the PA ahead of its publication with the FEIS on September 6, 2019 and the commencement of the 30-day comment period and that the status and schedule of the Section 106 process is discussed in the FEIS along with the extensive public engagement process inclusive of the parties listed by the ACHP;

**WHEREAS**, the CT DOH issued letters on February 5, 2019 inviting the following parties to consult with the agency regarding the Resilient Bridgeport projects: the Mary and Eliza Freeman Center for History and Community, the Barnum Museum, the Bridgeport History Center, Greater Bridgeport Community Enterprises, the CT Trust for Historic Preservation, the Fairfield Garden Club, and the Associate Professor of English Eric Lehman of the University of Bridgeport regarding the effects of the undertaking on historic properties and will continue to invite them to participate in the Section 106 process through invitations to general public meetings or invitations to focused meetings;

**WHEREAS**, the Mary and Eliza Freeman Center for History and Community attended regular meetings of the Citizens Advisory Committee, submitted comments on the DEIS in an email dated March 18, 2019, presented oral comments on the DEIS at the Public Hearing on February 25, 2019, and met with CT DOH and CT SHPO on June 26, 2019;

**WHEREAS**, the Barnum Museum attended regular meetings of the Citizens Advisory Committee, submitted comments on the DEIS in a letter dated February 26, 2019, and presented oral comments on the DEIS at the Public Hearing on February 25, 2019;

**WHEREAS**, the Bridgeport History Center participated in a conference call with CT DOH on April 2, 2019;

**WHEREAS**, Greater Bridgeport Community Enterprises participated in a conference call with CT DOH on March 28, 2019;

**WHEREAS**, the CT Trust for Historic Preservation submitted comments on the DEIS in a letter dated March 18, 2019 and participated in a workshop at Seaside Park with CT DOH and CT SHPO on May 9, 2019;

**WHEREAS**, the Fairfield Garden Club responded in an email dated February 14, 2019 that they would like to participate as a consulting party. A member of the Fairfield Garden Club participated in a workshop at Seaside Park with CT DOH and CT SHPO on May 9, 2019;

**WHEREAS**, Associate Professor of English Eric Lehman of the University of Bridgeport attended regular meetings of the Technical Advisory Committee and participated in a workshop at Seaside Park with CT DOH and CT SHPO on May 9, 2019;

**WHEREAS**, CT DOH has conducted reasonable and good faith efforts to invite the appropriate Native American tribes and groups (the "Tribes") to participate in the Section 106 process by way of identifying the Tribes and delivering letters of invitation to such Tribes that could attach religious or cultural significance to sites within the Resilient Bridgeport APE, and upon which Resilient Bridgeport could have an effect. Letters of invitation were sent as an attachment via email and a hard copy via mail to the Mashantucket (Western) Pequot Tribal Nation and the Mohegan Tribe of Indians of Connecticut on November 14, 2018 and to the Delaware Tribe of Indians; the Delaware Nation, Oklahoma and the Narragansett Indian Tribe on December 21, 2018;

**WHEREAS**, the Mashantucket (Western) Pequot Tribal Nation did not respond to the above letter;

**WHEREAS**, the Mohegan Tribe of Indians of Connecticut responded to the above letter that they would like to be a consulting party on November 21, 2018;

**WHEREAS**, the Delaware Tribe of Indians responded to the above letter that they forwarded the information to their archaeologist, Susan Bachor who handles reviews for all projects in their eastern states on December 27, 2018;

**WHEREAS**, the Delaware Nation, Oklahoma responded to the above letter on January 28, 2019 that the Resilient Bridgeport Undertakings do not endanger cultural or religious sites of interest to the Delaware Nation but they should be notified within 24 hours if an archaeological site or artifacts are inadvertently uncovered;

**WHEREAS**, the Narragansett Indian Tribe did not respond to the above letter;

**WHEREAS**, the DEIS was published on February 1, 2019 for public comment. The DEIS provides the environmental impact analysis of the Resilient Bridgeport projects;

**WHEREAS**, CTDOH has demonstrated coordinated compliance with Section 106 and NEPA, pursuant to 36 CFR § 800.8, through the preparation of a Historic and Archaeological Resources Evaluation Report submitted to CT SHPO in May 2018 and developed cultural resource specific recommendations for inclusion within the Project's FEIS for Resilient Bridgeport so that Section 106 recommendations were considered during the analysis of

alternatives as part of the NEPA EIS processes as well as consultation with CT SHPO for participation in the Section 106 process;

**WHEREAS**, in a letter dated March 18, 2019, CT SHPO determined the RBD Pilot Project will have no adverse effects to historic properties, and therefore no additional consultation regarding RBD Pilot Project is needed;

**WHEREAS**, in the same letter, CT SHPO determined an adverse effect to the historic Seaside Park for the Flood Risk Reduction Project - listed in the National Register under Criteria B and C as a “well-preserved Post-Civil War park landscape” and “an important work of 19th-century civil engineering”- due to the proposed elevation of University Avenue at the entrance to the park, which alters the remaining portion of the park designed by the firm of Frederick Law Olmstead;

**WHEREAS**, in the same letter, the option of the alignment of the coastal flood defense system” of the Flood Risk Reduction Project along Main Street across the street from the William Bishop Cottage Development Historic District - listed under Criteria B and C as “one of Bridgeport’s fine extensive tract developments, a community planned especially to provide an innovative housing scheme for lower-income workers”- could adversely affect the setting, feeling and association of the Cottage District;

**WHEREAS**, the coastal flood defense system of the Flood Risk Reduction Project is proposed to terminate at the Connecticut Department of Transportation (hereinafter CT DOT) New Haven Line railroad viaduct, and in the letter dated March 18, 2019, CT SHPO determined it is potentially eligible for listing on the National Register under Criteria A and C, and includes numerous structures and features, including railroad viaduct retaining walls, catenary structures, and bridges at Park and Myrtle Avenues and Warren, Lafayette, and Broad Streets, as well as the under-grade railroad bridge (known as Bridge 43.21), located at 600 Main Street;

**WHEREAS**, in the letter dated March 18, 2019, CT SHPO determined the creation of a Resilience Center would directly impact the Mary and Eliza Freeman Houses, listed under Criterion A “as the last two houses to survive of “Little Liberia,” a settlement of black freedmen in this area that began in 1831 and reached its apogee just prior to the outbreak of the Civil War;”

**WHEREAS**, the entire APE is likely sensitive for Late Woodland and Contact period archaeological sites, including burial and village remnants;

**WHEREAS**, the preferred alternative for the alignment of the coastal flood defense system of the Flood Risk Reduction Project, known as Alternative 1 (Exhibit A), is proposed to continue the 60 Main Street alignment parallel to the shoreline across the 60 Main Street site to the eastern border, where it would turn south for a short distance before crossing to the east into PSEG’s property and connecting to the elevated podium for PSEG’s newly built Harbor Unit 5 (HU5) perimeter sheet pile wall. HU5 would provide the southeast corner of the coastal flood defense system, which would extend north from HU5’s access road ramp on the northwest corner of the perimeter wall. The alignment would connect from the ramp over to Bridgeport Energy’s eastern border north of Atlantic Street. The alignment would continue along the eastern border of Bridgeport Energy’s site until it reaches the Pequonnock Substation relocation site, where it would continue north along the eastern property line of the site across Ferry Access Road with a northern tie-in at the elevated CT DOT New Haven Line railroad viaduct;

**WHEREAS**, Alternative 1 is CT SHPO’s preferred option and would not adversely impact the William Bishop Cottage Development Historic District;

**WHEREAS**, there is a potential for adverse effects to historic resources as regards to the Freeman Houses regarding vibrations during construction of the coastal flood defense system, additional information regarding design of the coastal flood defense system where it is proposed to be integrated into the railroad viaduct, and an archaeological assessment plan for the APE;

**WHEREAS**, it was determined by the CT DOH as the Responsible Entity that a PA was appropriate to the circumstances of the above projects since as design progresses to 90% there may be changes that would avoid, minimize, or mitigate any findings of adverse effect; CT SHPO expects additional consultation in accordance with Section 106 during that design process; a PA allows for the agreement of CTDOH and CT SHPO to the process by which further consultation will occur throughout the design process; and that publication of the PA with the FEIS allows for public review of that consultation process;

**WHEREAS**, it is possible that as the Resilient Bridgeport undertakings evolve or as a result of the addition of new project elements beyond the boundaries of the current APEs, CT DOH, in consultation with CT SHPO, may identify additional, previously unidentified Historic Properties or archaeologically sensitive areas, which may be affected by the Project;

**WHEREAS**, CT DOH invited the consulting party the Freeman Center, the City of Bridgeport Parks & Recreation Department, and the Tribes who responded to the invitation to be a consulting party (the Mohegan Tribe of Indians of Connecticut, Delaware Tribe of Indians, and the Delaware Nation, Oklahoma) to sign this Programmatic Agreement as concurring parties in a letter dated September 5, 2019 in advance of the start of the 30-day comment period of the FEIS on September 6, 2019; and

**NOW, THEREFORE**, CT DOH and CT SHPO as signatories, agree that, upon execution of this PA, the Resilient Bridgeport undertakings funded by the CDBG-NDR and CDBG-DR programs shall be implemented in accordance with the following stipulations to take into account the effects of the undertaking on Historic Properties and Archaeological Resources.

## **STIPULATIONS**

**CT DOH** will ensure the following stipulations are implemented:

### **I. RESOLUTION OF ADVERSE EFFECT**

1. CT DOH, or a contracted party, shall document the current conditions of entrance to be lost to Seaside Park before any work commences. Documentation shall meet the state-level standards of CT SHPO and, at a minimum, include indexed high-quality photographs, a site plan, and narrative text. Final documentation shall be provided to CT SHPO for permanent archiving and public accessibility. A copy is also to be made available to the Bridgeport History Center at the Bridgeport Public Library. Documentation is estimated to cost \$20,000.
2. The National Register of Historic Places Nomination for Seaside Park shall be updated, with funding by CT DOH, following the completion of the undertaking. The update shall reflect current conditions but also provide

additional narrative that meets current documentation standards in consultation with CT SHPO. The consultant selected to update the district must meet the minimum professional qualifications for architectural historian, as outlined in the Secretary of the Interior's Historic Preservation Professional Qualification Standards and Guidelines, part of the larger Secretary of the Interior's Standards and Guidance for Archeology and Historic Preservation. The updated nomination shall include a reevaluation of:

- a. Boundaries,
- b. Contributing and non-contributing resources, and
- c. Themes and period of significance.

A final draft that is acceptable to SHPO will be completed within one (1) year of the signing of this document. Additional guidance will be provided by CT SHPO after the project has begun. Updating the nomination is estimated to cost \$20,000.

3. CT DOH, at its own cost, shall fund a comprehensive preservation and management plan for Seaside Park, with specific attention made to the following:
  - a. Remaining 19<sup>th</sup> century engineering components and water management systems. The consultant selected to create this portion of the plan must meet the minimum professional qualifications for architectural historian, as outlined in the Secretary of the Interior's Historic Preservation Professional Qualification Standards and Guidelines, part of the larger Secretary of the Interior's Standards and Guidance for Archeology and Historic Preservation,
  - b. Structures and features determined to be significant within the nomination and not in direct APE, including Bath House, Stables, Memorial Archway, and Lighthouse and keeper's house foundations. The consultant selected to create this portion of the plan must meet the minimum professional qualifications for architectural historian, as outlined in the Secretary of the Interior's Historic Preservation Professional Qualification Standards and Guidelines, part of the larger Secretary of the Interior's Standards and Guidance for Archeology and Historic Preservation.
  - c. A tree study and planting diagram created by a licensed arborist, having prior experience with historic landscapes. The resulting portion of the plan is to include a financial allowance of \$50,000 for long-term maintenance and planting schema that includes reestablishment of historic tree canopy.
  - d. Opportunities for natural flood remediation shall be incorporated into the plan, including opportunities for reintroducing permeable paths and surfaces.

A final draft that is acceptable to SHPO will be completed within one (1) year of the signing of this document. Additional guidance will be provided by CT SHPO after the project has begun.

The comprehensive preservation and maintenance plan is estimated to cost \$100,000, with an implementation fund of \$100,000.

4. CT DOH, at its own cost, shall fund at least two National Register of Historic Places nominations focusing on historic landscapes or properties designed/influenced by the Olmstead landscape firm. Suitable resources are to be determined by September 30, 2019, in consultation with and approved by CT SHPO.

The two nominations are estimated to cost \$20,000 each.

5. All trees within Seaside Park disturbed/destroyed during construction shall be replaced, matching in species, as close to original location as possible, in a location that will support tree growth, and in accordance with the new planting schema.

Cost of tree replacement is to be determined once site plans have been finalized.

## **II. PROJECT REVIEW AND CONSULTATION**

CT DOH shall ensure that the procedures for project-specific consultation, including design for the new entrance to Seaside Park, connection of flood barrier into CT DOT New Haven Line railroad viaduct, and rehabilitation of the Freeman Houses into a Resiliency Center, historic properties and archaeological resources identification and evaluation, assessment of effects, and mitigation of adverse effects are implemented in accordance with the procedures below.

- A. Procedures for Project Review: Historic Properties
  1. Design Specifications will be submitted by the CT DOH to the CT SHPO for review and comment. The CT SHPO will be afforded a 30 calendar day review period for all design submittals. CT DOH may proceed with the design if CT SHPO does not respond within the time allotted or if a response is provided by CT SHPO sooner.
    - a. When design reaches 60 percent, CT SHPO will review all available plans and specifications and determine if the design might affect historic properties within the APE.
    - b. When design reaches 90 percent, CT SHPO will review all available plans and specifications and determine if the design might affect historic properties within the APE.
  2. All design enhancements and/or aesthetic treatments that may affect historic properties will be subject to review and comment by the CT SHPO.

- a. In the event CT SHPO determines that the design enhancements and/or aesthetic treatments will have an adverse effect on the historic property, CT DOH shall develop appropriate treatment plans or mitigation for historic properties adversely affected by the projects. Unless the PA Signatories object within 30 calendar days of receipt of any plan, CT DOH shall ensure that treatment plans are implemented by CT DOH or its representative(s).
  - b. Each treatment plan will address historic properties adversely affected and set forth means to avoid, protect, or develop treatment measures to minimize the undertakings' effects where CT DOH, in consultation with the appropriate agencies, CT SHPO, and other signatories, determines that adverse effects cannot be avoided. The treatment plans will conform to the principles of the ACHP's Treatment of Archaeological Properties: A Handbook Parts I and II, the "Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation" (48 Fed. Reg. 44716-44742 (September 29, 1983)), and appropriate CT SHPO Guidelines.
  - c. CT DOH, shall revise Plans to address comments and recommendations provided by the signatories.
3. CT DOH will develop a Historic Resource Construction Protection Plan specific to the Freeman Houses that addresses vibrations during construction of the flood wall in the vicinity of the resource. The Plan will be submitted to CT SHPO for a review and comment period of 30 calendar days from submittal of design review to CT SHPO. CT DOH may proceed with the plan if CT SHPO does not respond within the time allotted or if a response is provided by CT SHPO sooner.
  4. CT DOH will include all plans within specific contract packages to inform contractors of the responsibilities relative to historic properties within the APE.

#### B. Procedures for Project Review: Archaeological Resources

1. CT DOH, in consultation with the PA Signatories and in advance of construction, will develop an Archaeological Assessment Plan for areas identified as archaeologically sensitive areas within the Project's archaeological APE.
  - a. The plan may include Ground Penetrating Radar (GPR) to provide evidence of potential burial sites and Geoprobe to provide data on subsurface archaeological integrity.
  - b. The results of the GPR or Geoprobe will be used to further refine the areas of archaeological potential.
  - c. The Archaeological Assessment Plan shall be submitted to CT SHPO for a review and comment period of 30 calendar days.
  - d. Upon receipt of comments on the Plan, CT DOH will implement the approved Plan. CT DOH may proceed with the plan if CT SHPO does not respond within the time allotted or if a response is provided by CT SHPO sooner.

- e. CT DOH will provide a summary report of the Archaeological Assessment Plan's activities and results.
2. Following the refinement and definition of sensitive areas, shovel test sites and excavation units in select parts of the APE that may be impacted will be performed to confirm further the presence or absence of probable archaeological deposits.
3. Following assessment of archaeological data, recommendations for additional intensive archaeological survey, potential archaeological removal of identified sites, and exploration of burials will be made and an Archaeological Treatment Plan will be developed by the CT DOH and submitted to CT SHPO for a review and comment period of 30 calendar days.
  - a. If deemed appropriate by the PA Signatories, the Archaeological Treatment Plan may be incorporated into a Memorandum of Agreement (per Stipulation IV).
  - b. Upon receipt of comments on the Archaeological Treatment Plan, CTDOH will implement the approved Plan. For all field tested sites, CTDOH shall provide a summary report to the other PA Signatories for review. CT DOH may implement the plan if CT SHPO does not respond within the 30 calendar days or if a response is provided sooner.
4. If the Projects will have an adverse effect on an NRHP eligible archaeological site, CT DOH in consultation with CT SHPO, shall develop appropriate treatment plans for archaeological properties adversely affected by the undertakings. Unless the PA Signatories object within 15 calendar days of receipt of any plan, CT DOH shall ensure that treatment plans are implemented by CT DOH or its representative(s). CT DOH shall revise Plans to address comment and recommendations provided by CT SHPO. CT DOH may proceed with the plans if CT SHPO does not respond within the time allotted or if a response is provided by CT SHPO sooner.
5. Confidentiality
  - a. All parties to this PA shall ensure that shared data, including data concerning the precise location and nature of historic properties and properties of religious and cultural significance are protected from public disclosure to the greatest extent permitted by law, consistent with applicable confidentiality requirements and federal records management requirements, including conformance to Section 304 of the NHPA, as amended, and the regulations implementing the NHPA, specifically 36 CFR § 800.11 (c) and Section 9 of the Archaeological Resource Protection Act as amended 1988 (ARPA) and Executive Order on Sacred Sites 13007 FR dated May 24, 1996.

C. Procedures for Post-Review Discoveries

1. CT DOH shall ensure that the procedures for post-review discoveries, if previously unidentified historic properties are discovered or unanticipated effects on historic properties are found during the implementation of the undertaking, are implemented in accordance with the procedures outlined below.
2. If previously unidentified historic properties are discovered or unanticipated effects on historic properties are found during the implementation of the undertaking, CT DOH shall cease all work in the vicinity of the discovered historic property or effect and take all reasonable measures to avoid or minimize harm to the property until it can be evaluated pursuant to Stipulations I and II of this Programmatic Agreement.
3. CT DOH shall notify the PA Signatories of the discovery at the earliest possible time and consult to develop actions to take into account the effects of the Undertaking. CT DOH shall notify the PA Signatories of any time constraints, and all parties will mutually agree upon timeframes for this consultation.
4. CT DOH shall provide the PA Signatories with written notification describing CTDOH's assessment of National Register eligibility of the property and proposed actions to resolve the adverse effects.
5. The PA Signatories shall respond to CT DOH's written notification within the mutually agreed upon timeframe.
6. CT DOH shall take into account their recommendations regarding National Register eligibility and proposed actions, and then carry out appropriate actions.
7. Memorandum of Agreement (MOA) will be developed by the CT DOH if CT DOH determines, in consultation with SHPO and the Tribes, that the Undertaking will have an adverse effect on the unanticipated discovery. The MOA will include avoidance, minimization, and/or mitigation measures for eligible properties. CT DOH will notify the ACHP of any finding of adverse effect and invite the ACHP to participate in the development of the MOA pursuant to 36 CFR § 800.6(a)(1)(i)(c)
8. The agency official shall provide the PA Signatories a report of the actions when they are completed.
9. Human Remains
  - a. If human remains are discovered during construction activities, all construction will cease within one hundred (100) feet in all directions of the human remains. CT DOH will immediately inform the appropriate parties as laid out under Connecticut General Statutes Section 10-388.

- b. Any human remains and funerary objects discovered as a part of the Projects will be treated by CT DOH in accordance with the requirements of Connecticut General Statutes Section 10-388.

### **III. QUALIFICATIONS**

All cultural resource work under this agreement will be conducted by qualified professionals meeting the *Secretary of the Interior's Guidelines for Archaeology and Historic Preservation* (48 FR 44738-39).

### **IV. REPORTING AND MONITORING**

A. Annual Reports. In order to monitor completion of the stipulations contained in this PA, CT DOH, will prepare and submit an annual report each year for distribution to the PA Signatories summarizing the actions taken to fulfill the stipulations of this PA. The PA Signatories may agree to change the frequency of the reports.

B. Reporting Meetings. CT DOH will coordinate PA Signatory meetings to discuss activities carried out pursuant to this PA as needed.

C. Schedule. The timeframe for the annual reports will commence from the execution date of this PA.

### **V. OTHER FEDERAL INVOLVEMENT**

In the event that another federal agency not initially a party to or subject to this PA receives an application for funding/license/permit for the Undertaking as described in this PA, that agency may fulfill its Section 106 responsibilities by stating in writing it concurs with the terms of this PA and notifying the CTDOH, SHPO, [and the ACHP if participating] that it intends to do so. Such agreement shall be evidenced by execution of (Appendix A) and filing with the ACHP, and implementation of the terms of this PA.

### **VI. DISPUTE RESOLUTION**

Should any signatory to this PA object in writing within 15 calendar days to the terms of this Agreement, CT DOH shall consult with such party for not more than 15 calendar days to resolve the objection. If CT DOH determines within 15 calendar days that such objection cannot be resolved, CT DOH will:

A. Forward all documentation relevant to the dispute, including the CT DOH's proposed resolution, to the ACHP. The ACHP shall provide CT DOH with its advice on the resolution of the objection within 30 calendar days of receiving adequate documentation. Prior to reaching a final decision on the dispute, CT DOH shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, signatories and concurring parties, and provide them with a copy of this written response. CT DOH will then proceed according to its final decision.

B. If the ACHP does not provide its advice regarding the dispute within the 30 calendar day time period, CT DOH may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, CT DOH shall prepare a written

response that takes into account any timely comments regarding the dispute from the signatories and concurring parties to the PA, and provide them and the ACHP with a copy of such written response.

C. CT DOH's responsibility to carry out all other actions subject to the terms of this PA that are not the subject of the dispute remain unchanged.

## **VII. AMENDMENTS**

This PA may be amended when such an amendment is agreed to in writing by all signatories. The amendment will be effective on the date a copy signed by all of the signatories is filed with the ACHP.

## **VIII. EMERGENCY SITUATION**

A. Should an emergency situation occur which represents an imminent threat to public health, a natural disaster, or safety, or creates a hazardous condition, CT DOH shall immediately notify the other PA Signatories of the condition which has initiated the situation and the measures taken to respond to the emergency or hazardous condition. Should the CT SHPO or the ACHP desire to provide technical assistance to the CT DOH, they shall submit comments within 7 calendar days from notification, if the nature of the emergency or hazardous condition allows for such coordination.

## **IX. TERMINATION**

If any signatory to this PA determines that its terms will not or cannot be carried out, that party shall immediately consult with the other signatories to attempt to develop an amendment per Stipulation VIII, above. If within 15 calendar days an amendment cannot be reached, any signatory may terminate the PA upon written notification to the other signatories.

Once the PA is terminated, and prior to work continuing on the undertaking, CT DOH must either (a) execute a PA pursuant to 36 CFR § 800.6 or (b) request, take into account, and respond to the comments of the ACHP under 36 CFR § 800.7. CT DOH shall notify the signatories as to the course of action it will pursue.

## **X. DURATION**

Unless otherwise extended and agreed upon by the PA Signatories, the Resilient Bridgeport PA will remain in effect until December 31, 2022, with all funds expended for by September 30, 2022 consistent with the Disaster Relief Act of 2013 (P.L. 113-2) and 31 U.S.C. § 1552(a).

Execution of this PA by the CT DOH and CT SHPO and implementation of its terms evidence that CT DOH has taken into account the effects of this undertaking on historic properties and afforded the ACHP an opportunity to comment.

**THE CONNECTICUT DEPARTMENT OF HOUSING**

**By:** \_\_\_\_\_

**Date** \_\_\_\_\_

**Name:**

**Title:**

**THE CONNECTICUT STATE HISTORIC PRESERVATION OFFICE**

**By:** \_\_\_\_\_

**Date** \_\_\_\_\_

**Name:**

**Title:**

**CONCURRING PARTIES:**

**Mohegan Tribe of Indians of Connecticut**

**By:**\_\_\_\_\_ **Date**\_\_\_\_\_

**Name:**

**Title:**

**Delaware Tribe of Indians**

**By:**\_\_\_\_\_ **Date**\_\_\_\_\_

**Name:**

**Title:**

**Delaware Nation, Oklahoma**

**By:**\_\_\_\_\_ **Date**\_\_\_\_\_

**Name:**

**Title:**

**City of Bridgeport Parks & Recreation Department**

**By:**\_\_\_\_\_ **Date**\_\_\_\_\_

**Name:**

**Title:**

**Freeman Center**

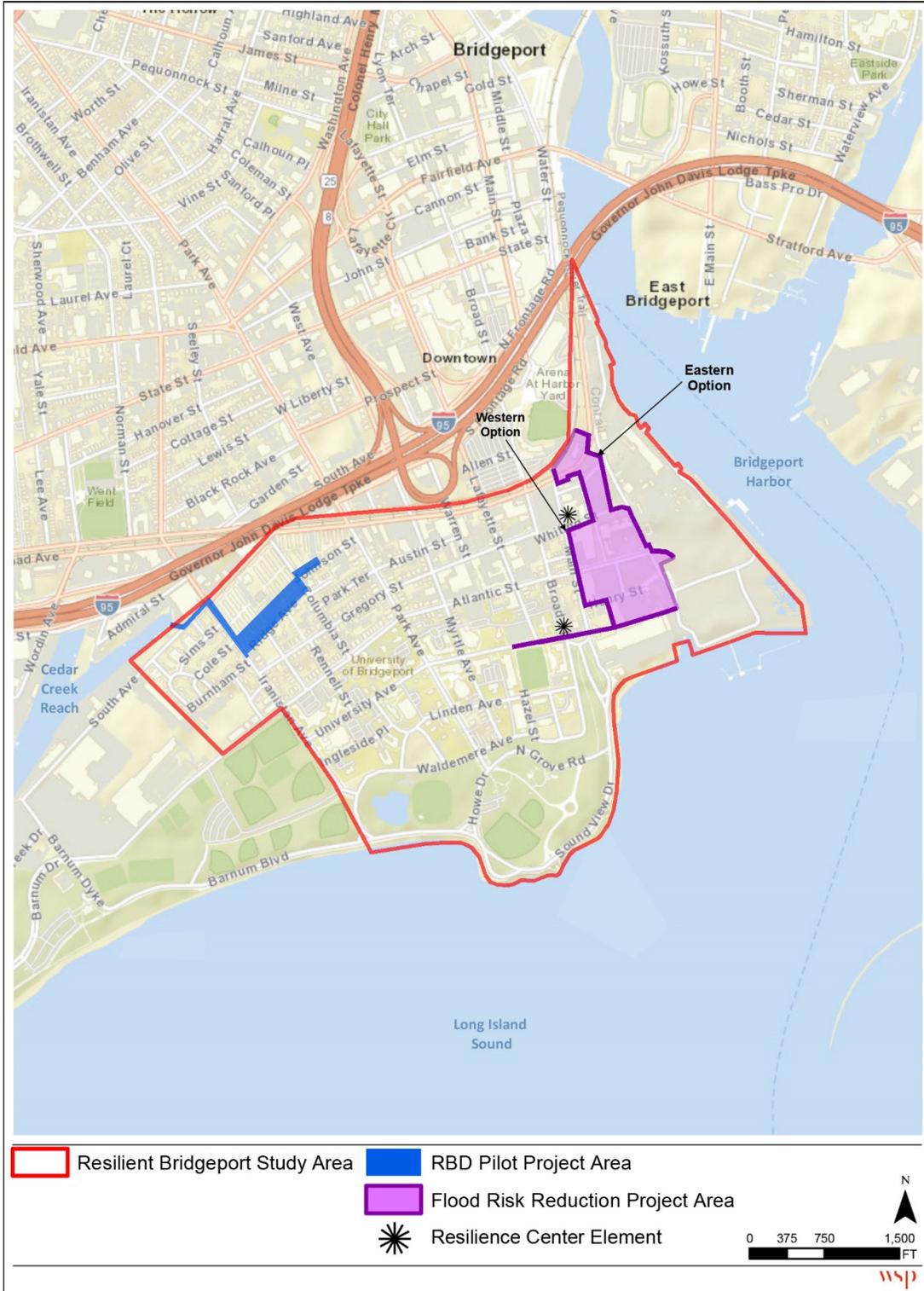
**By:**\_\_\_\_\_ **Date**\_\_\_\_\_

**Name:**

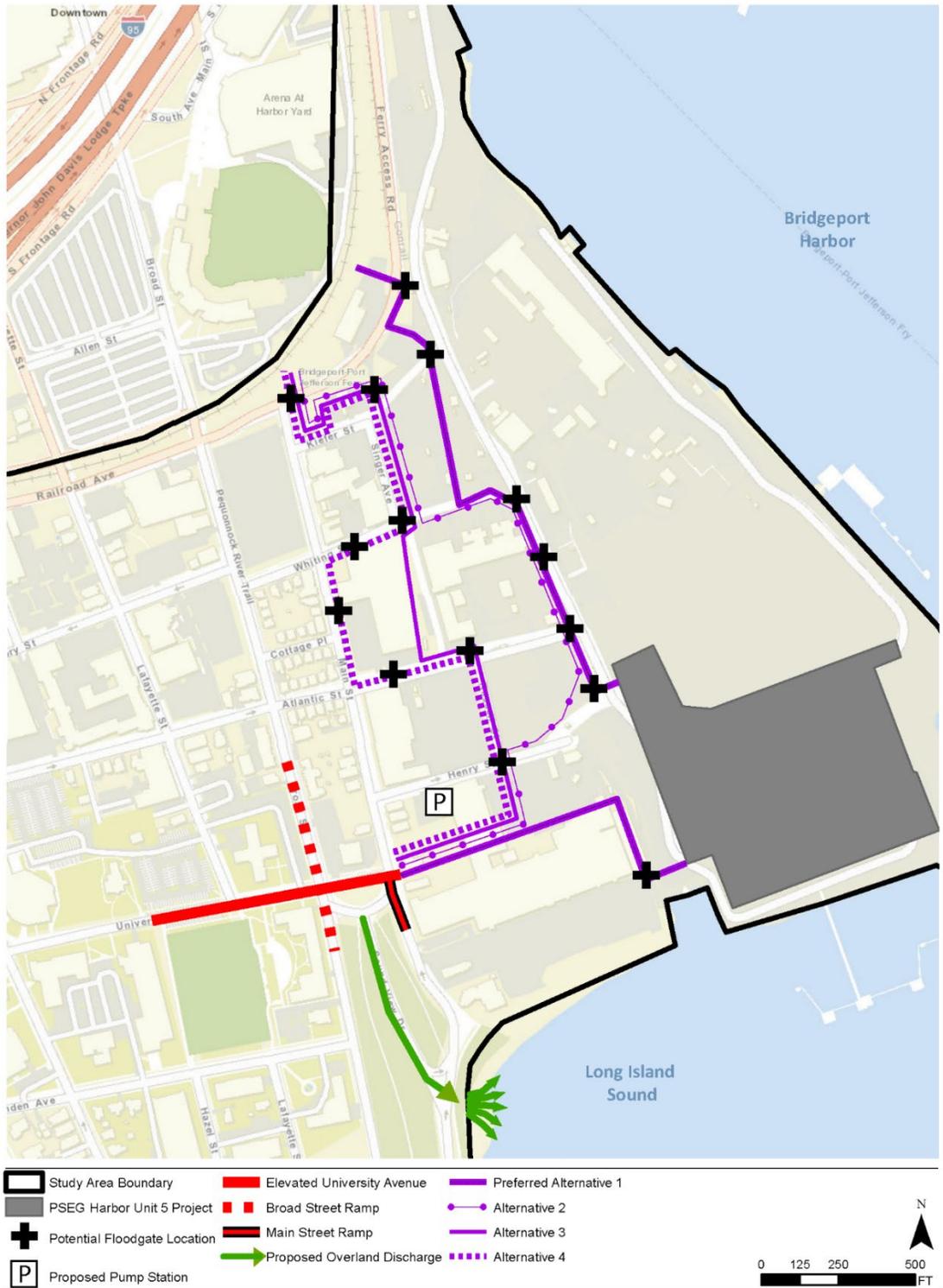
**Title:**

# EXHIBIT A

## RESILIENT BRIDGEPORT PROJECTS IN DRAFT ENVIRONMENTAL IMPACT STATEMENT



## RESILIENT BRIDGEPORT PROJECTS IN FINAL ENVIRONMENTAL IMPACT STATEMENT



## EXHIBIT B

### AREA OF POTENTIAL EFFECTS



**EXHIBIT C**

**HISTORIC PROPERTIES IN THE APE**

Property Name	NR Listed (indiv.)	NR Listed (district)	NR Pot. Elig. (indiv.)	NR Pot. Elig. (district)	SR Listed Only	LHD
Seaside Park	X					
Tongue Point Lighthouse	X					
Freeman Houses	X					
Seaside Institute	X					
Park Apartments	X					
Willam D. Bishop Cottages Development Historic District		X				
Barnum/Palliser Historic Distict		X				X
Marina Park Historic District		X				X
Seaside Village Historic District		X				
Walters Memorial AME Zion Church			X		X	
Bridgeport Storage Warehouse Company			X			
Crown Corset & Crown Paper Box Company Factories			X			
D. M. Read Company Warehouse			X			
Carstensen Hall			X			
Ingleside Hall			X			
Waldemere Hall			X			
Wisteria Hall			X			
247 Atlantic Street			X			
337-341 Broad Street			X			
Seagrove Cottage			X			
Housing on Park Avenue & Atlantic & Gregory Streets (24 houses)				X		
Myrtle Avenue Housing (7 houses)				X		
New York, New Haven & Hartford Railroad				X		
Bassick Company Factory				X		
Warner Brothers Company Factory				X		