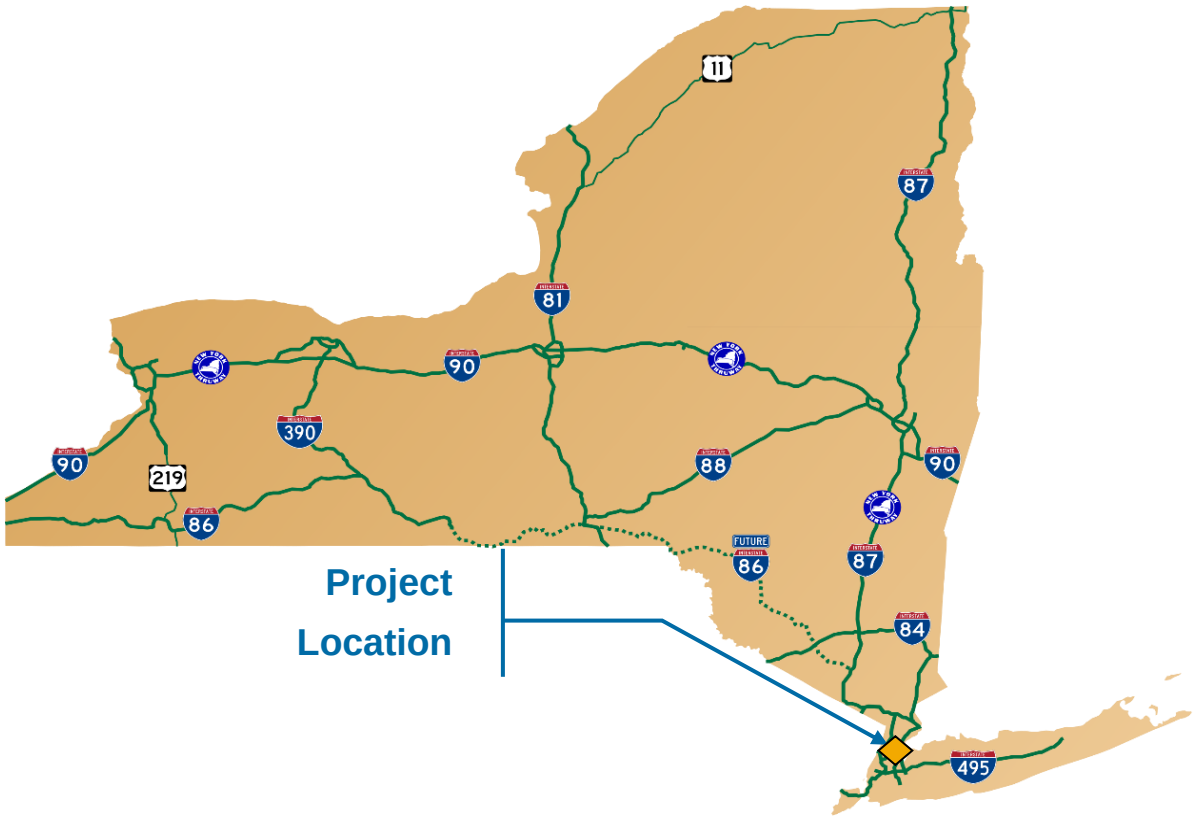
Transportation Project Report

Project Scoping Report

December 2021

Shore Road Bridge over the Hutchinson River
Project Identification Number (PIN): X773.63
Bridge Identification Number (BIN): 2-24020-0
Bronx County, City of New York



NEW YORK CITY DOT

U.S. Department of Transportation
Federal Highway Administration

THIS PAGE INTENTIONALLY LEFT BLANK

Table of Contents

1. INTRODUCTION 1
2. PROJECT LOCATION 8
3. PROJECT PURPOSE, OBJECTIVES, AND NEEDS 9
   - 3.1 PROJECT PURPOSE AND OBJECTIVES 9
   - 3.2 PROJECT HISTORY AND NEEDS 9
     - 3.2.1 PROJECT HISTORY 9
     - 3.2.2 PROJECT NEEDS 10
   - 3.3 PREVIOUS STUDIES 16
     - 3.3.1 NYSDOT GENERAL BRIDGE INSPECTION REPORT AND FLAGS 16
     - 3.3.2 SEPTEMBER 2018 OPERATIONAL ISSUES AND CONDITIONS SUMMARY 17
4. ALTERNATIVES / CONCEPTS 19
   - 4.1 CONCEPTS CONSIDERED AND DISMISSED FROM FURTHER STUDY IN THE DDR/DEIS 20
     - 4.1.1 REHABILITATION CONCEPT 20
     - 4.1.2 REPLACEMENT CONCEPTS 1 AND 2 – SOUTH ALIGNMENT LOW- AND HIGH-LEVEL BRIDGES 21
     - 4.1.3 REPLACEMENT CONCEPTS 3, 4, AND 5 - NORTH ALIGNMENT LOW-, MID-, AND HIGH-LEVEL BRIDGES 25
     - 4.1.4 REPLACEMENT CONCEPTS 6, 7, AND 8 – ON-LINE ALIGNMENT LOW-, MID-, AND HIGH-LEVEL BRIDGES 30
   - 4.2 ALTERNATIVES THAT WILL BE STUDIED IN THE DDR/DEIS 34
     - 4.2.1 NO BUILD/MAINTENANCE ALTERNATIVE (NO BUILD ALTERNATIVE) 34
     - 4.2.2 BUILD ALTERNATIVE – SOUTH ALIGNMENT MID-LEVEL MOVABLE BRIDGE 34
   - 4.3 ALTERNATIVES BEING ADVANCED FOR DETAILED STUDY IN THE DDR/DEIS 40
5. ANALYSIS METHODOLOGIES: SOCIAL, ECONOMIC, AND ENVIRONMENTAL CONSIDERATIONS 41
   - 5.1 INTRODUCTION 41
     - 5.1.1 ENVIRONMENTAL CLASSIFICATION 41
     - 5.1.2 PREPARATION OF EIS 41
     - 5.1.3 STUDY AREA 41
     - 5.1.4 ANALYSIS YEARS 42
     - 5.1.5 ANALYSIS METHODOLOGIES 43
     - 5.1.6 POTENTIAL PERMITS, APPROVALS, CONCURRENCES, AND CONSULTATION 43
   - 5.2 SOCIAL CONSIDERATIONS 45
     - 5.2.1 LAND USE 45
     - 5.2.2 NEIGHBORHOODS AND COMMUNITY COHESION 45
     - 5.2.3 SOCIAL GROUPS BENEFITED OR HARMED, INCLUDING ENVIRONMENTAL JUSTICE 45
     - 5.2.4 COMMUNITY FACILITIES 49
   - 5.3 ECONOMIC CONSIDERATIONS 49
   - 5.4 TRANSPORTATION CONSIDERATIONS 49
   - 5.5 ENVIRONMENTAL CONSIDERATIONS 51
     - 5.5.1 AIR QUALITY 51
     - 5.5.2 ENERGY 51
     - 5.5.3 GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE 52
     - 5.5.4 TRAFFIC NOISE 52
     - 5.5.5 HISTORIC AND CULTURAL RESOURCES 52

5.5.6 PARKS AND RECREATIONAL RESOURCES 52
5.5.7 VISUAL RESOURCES 53
5.5.8 NATURAL RESOURCES 53
5.5.9 HAZARDOUS WASTE/CONTAMINATED MATERIALS 63
5.5.10 INFRASTRUCTURE 65
5.6 CONSTRUCTION EFFECTS 65
5.7 SHORT-TERM USES OF THE ENVIRONMENT VS. LONG-TERM PRODUCTIVITY 67
5.8 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES 67
5.9 UNAVOIDABLE ADVERSE IMPACTS 67
5.10 SECTION 4(F) EVALUATION 67
5.11 SECTION 6(F) EVALUATION 67
6. PUBLIC INVOLVEMENT AND AGENCY COORDINATION 68
6.1 PUBLIC INVOLVEMENT OPPORTUNITIES 68
6.2 AGENCY COORDINATION 70

Figures

FIGURE 1 - USGS TOPOGRAPHIC MAP - FLUSHING QUADRANGLE
FIGURE 2 - PROJECT LOCATION
FIGURE 3 - AERIAL
FIGURE 4 - EXISTING PLAN AND ELEVATION
FIGURE 5 - EXISTING BRIDGE CROSS SECTIONS
FIGURE 6 - SOUTH BRIDGE ALIGNMENT
FIGURE 7 - TYPICAL LOW-LEVEL PROFILE
FIGURE 8 - TYPICAL HIGH-LEVEL PROFILE
FIGURE 9 - NORTH BRIDGE ALIGNMENT
FIGURE 10 - TYPICAL MID-LEVEL PROFILE
FIGURE 11 - BUILD ALTERNATIVE PLAN AND ELEVATION
FIGURE 12 - STUDY AREA
FIGURE 13A - PERCENTAGE OF MINORITY POPULATION WITHIN CENSUS BLOCK GROUP
FIGURE 13B - PERCENTAGE OF POPULATION WITH HOUSEHOLD INCOME BELOW POVERTY LEVEL WITHIN CENSUS BLOCK GROUP
FIGURE 14A - NWI WETLANDS
FIGURE 14B - NYSDEC TIDAL WETLANDS
FIGURE 14C - FEMA EFFECTIVE FIRM 2007
FIGURE 14D - NYC COASTAL ZONE BOUNDARY
FIGURE 15 - AMERICAN SIGN LANGUAGE (ASL) AND CLOSED CAPTIONING PROVIDED DURING SCOPING MEETING PRESENTATION

Tables

4-1. LEVEL A SCREENING EVALUATION
4-2. LEVEL B SCREENING EVALUATION
5-1. EXISTING AND ETC+20 (NO-BUILD) TRAFFIC VOLUMES
6-1 LIST OF INVITED COOPERATING AND PARTICIPATING AGENCIES

Appendixes

A. TECHNICAL PAPER - CONSIDERATION OF REHABILITATION OF THE SHORE ROAD BRIDGE

B. PUBLIC AND AGENCY COMMENTS

C. TABLE C-1: EIS SECTIONS AND CORRESPONDING DESIGN APPROVAL DOCUMENT (DAD) AND CITY ENVIRONMENTAL QUALITY REVIEW (CEQR) CATEGORIES

D. NAVIGATION IMPACT REPORT

THIS PAGE INTENTIONALLY LEFT BLANK

1. INTRODUCTION

The Federal Highway Administration (FHWA), as federal lead agency, the New York State Department of Transportation (NYSDOT), as joint lead agency, and the New York City Department of Transportation (NYCDOT), as project sponsor and joint lead agency, are preparing an Environmental Impact Statement (EIS) for the Shore Road Bridge over the Hutchinson River Project (the Project) located in the Bronx, New York, in accordance with the requirements of the National Environmental Policy Act (NEPA) of 1969, as amended (42 United States Code (U.S.C.) 4321, et seq.), 23 U.S.C. 139, Council on Environmental Quality (CEQ) regulations implementing NEPA (40 Code of Federal Regulations (CFR) Parts 1500-1508, 1515-1518, effective September 2020), FHWA regulations implementing NEPA (23 CFR Part 771), and applicable Federal, State, and local governmental laws and regulations. The Project is classified as a NEPA Class I action under 23 CFR Part 771, a State Environmental Quality Review Act (SEQRA) non-Type II action under 17 NYCRR Part 15, and a City Environmental Quality Review (CEQR) Type 1 action under 6 NYCRR 617 and 43 RCNY §6. The CEQR is New York City's process for implementing SEQRA.

As described in NYSDOT's Project Development Manual (PDM), a Draft Design Report/Draft EIS (DDR/DEIS) will be prepared for the Project. The DDR/DEIS will document the evaluation of engineering, social, economic, and environmental considerations for the Project.

The Shore Road Bridge (BIN 2240200), also known as the Pelham Bridge, located in the Bronx, New York (see **Figures 1** through **3**), is an 865-foot long bridge with seven spans. The main span over the navigation channel is a double-leaf movable bascule[1] span, which is flanked by three concrete arch spans on either side (see **Figure 4**).

The Shore Road Bridge carries vehicular traffic on four travel lanes and pedestrian and bicycle traffic on one sidewalk on the south side of the bridge. The bridge's bascule span lifts for the passage of marine vessels navigating the Hutchinson River.

The existing bridge was opened to traffic in 1908 and was designed and constructed in accordance with the bridge and roadway engineering practices of that time. The bridge has undergone numerous limited rehabilitations, including the most recent interim repair work in 2002. The interim repair and rehabilitation work that has been performed on the bridge has enabled it to remain in service. However, its continued use and marine setting contribute to the progressive deterioration of its structural capacity, which is expected to continue and accelerate in the future.

A Notice of Intent (NOI) to prepare an EIS was previously published in the Federal Register on October 21, 1999 (64 FR 56831) to advise the public that an EIS would be prepared for a proposal to rehabilitate, reconstruct, or replace the Shore Road Bridge over the Hutchinson River in Bronx County, New York. The 1999 NOI was rescinded because a substantial amount of time had passed since its publication and previously identified funding had been reallocated to more urgent projects after September 11, 2001. A Notice to Rescind the 1999 NOI was published in the Federal Register on May 6, 2021 (86 FR 24431). A new NOI to prepare an EIS, as a separate action under the current CEQ implementing regulations and requirements, was published in the Federal Register on July 12, 2021.

Since a federal EIS is being prepared, the NYSDOT and other New York State agencies undertaking a discretionary action for the Project have no obligation to prepare an additional EIS

[1] A bascule, or drawbridge, is a type of movable bridge span which tips up while rotating about a horizontal shaft or trunnion. A bascule has a counterweight that balances a span, or leaf, throughout its upward movement from a closed horizontal position to an established angle of opening to allow for the passage of vessels. It may be single- or double-leafed depending on whether the bascule opens from one side of the channel or both.

under SEQRA. The NYSDOT will give full consideration to the federal Final EIS and prepare a Joint Record of Decision (ROD) with the FHWA. The NYCDOT will prepare a CEQR Statement of Findings based on the NEPA EIS.

Figure 1 - USGS Topographic Map - Flushing Quadrangle

Figure 2 - Project Location

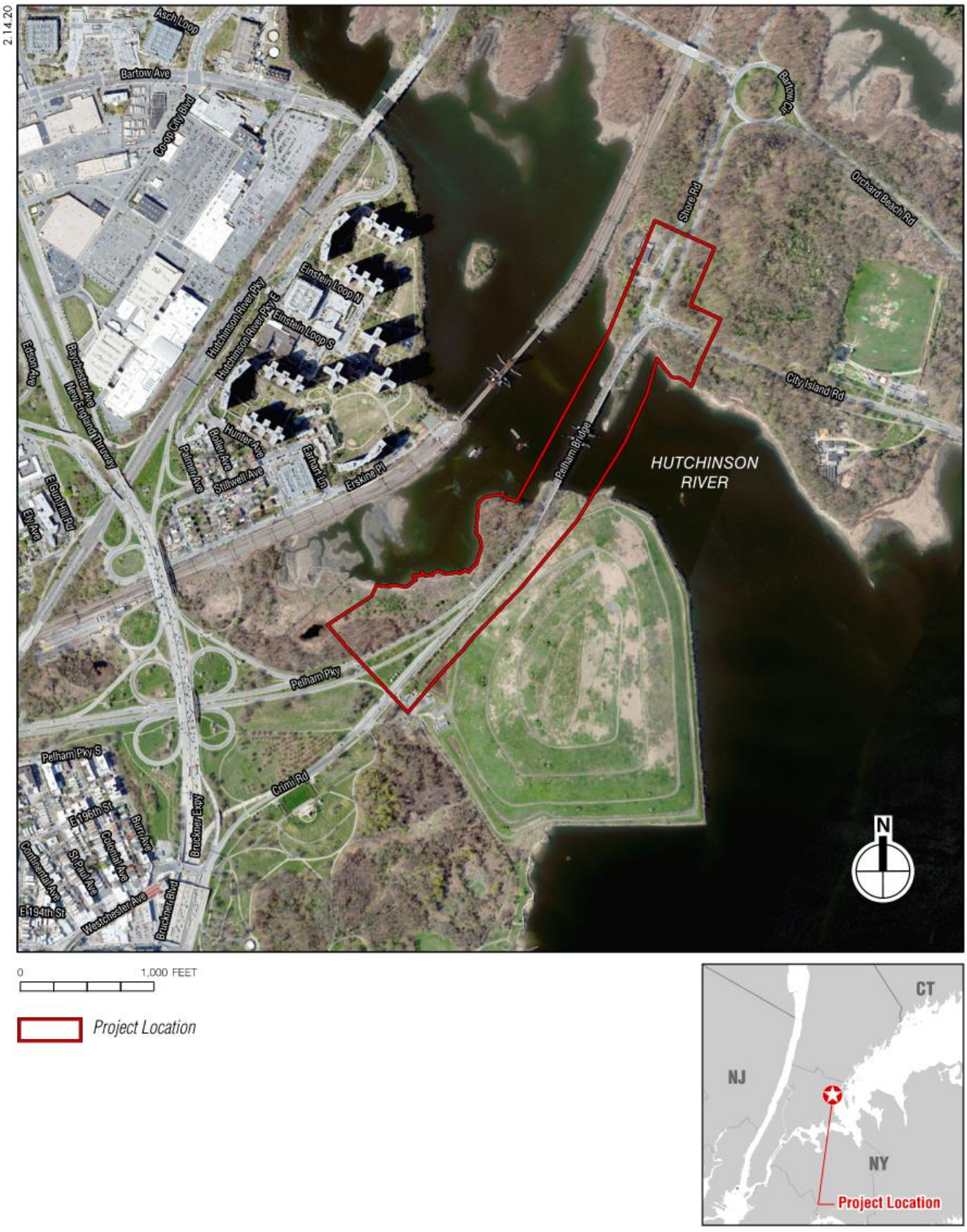
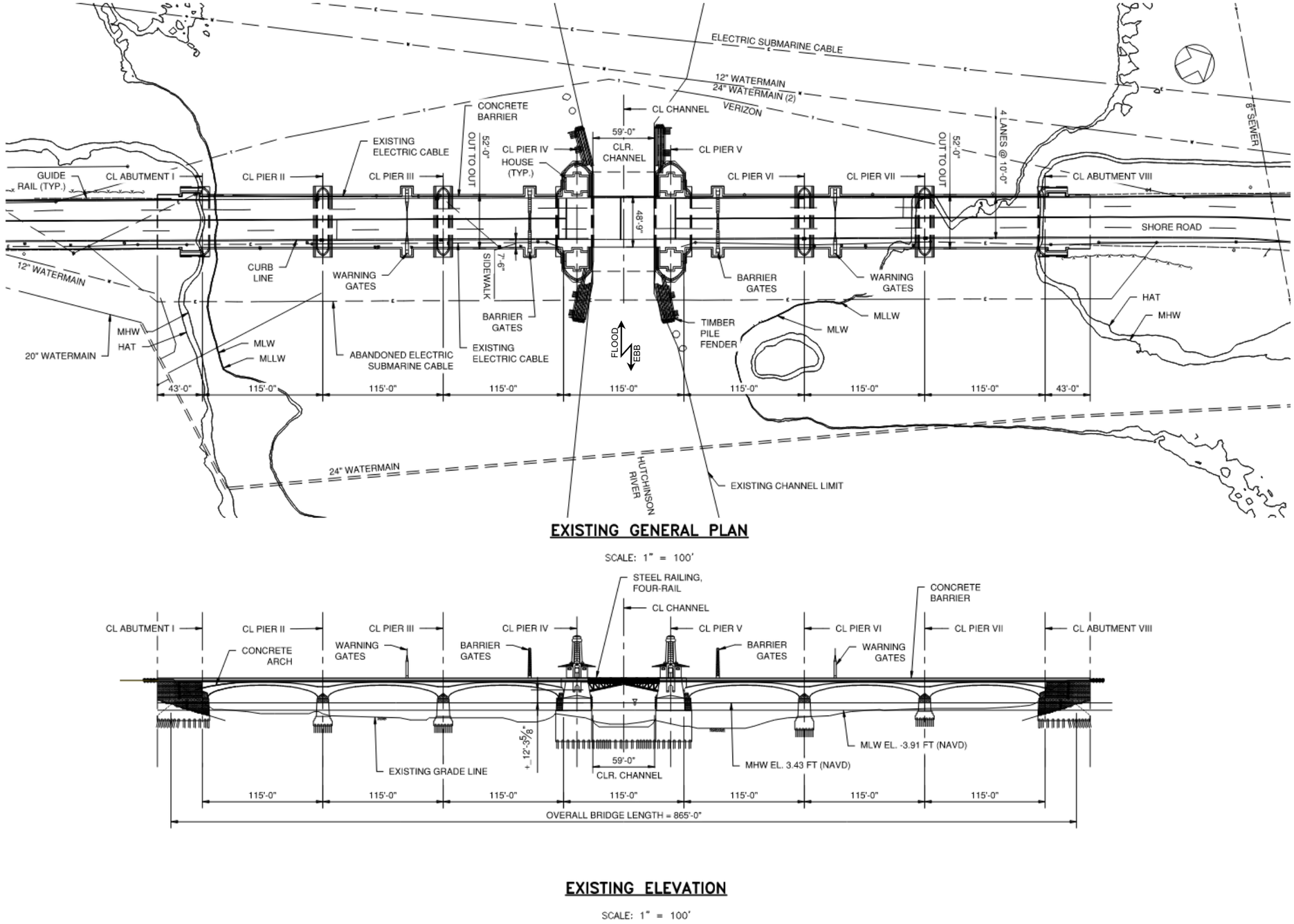


Figure 3 - Aerial



EXISTING GENERAL PLAN

SCALE: 1" = 100'

EXISTING ELEVATION

SCALE: 1" = 100'

Figure 4 - Existing Plan and Elevation

This Project Scoping Report has been prepared to provide an overview and record of the NEPA scoping process conducted for the Project and provide a framework of the proposed environmental review processes. Scoping occurs early in the NEPA process and affords an opportunity for the public and agencies to provide comments and input on potential project alternatives and impacts, and identify any relevant information, studies, or analyses concerning impacts affecting the quality of the human environment. The scoping process has provided an early opportunity for the FHWA, the NYSDOT, and the NYCDOT to disseminate information about the Project to agencies and the public and to receive feedback.

The FHWA, the NYSDOT, and the NYCDOT hosted two virtual Public Scoping Meetings on August 3, 2021 at 4PM and 7PM. In addition to the Public Scoping Meetings, a Project website (https://shoreroadbridgebx.com/) and e-mail address (ShoreRoadBridgeBX@dot.nyc.gov) were established to disseminate information and receive scoping comments. The scoping presentation was made available on the project website and aired on BronxNet on August 12 through 16, 2021. The project scoping comment period began upon publication of the NOI and NOI Report on July 12, 2021 and concluded on August 16, 2021. The lead agencies have considered all comments received throughout the scoping comment period, and, where applicable, will use the input received to determine the appropriate contents of the EIS.

To address requirements under CEQR, NYCDOT published a draft Scope of Work on May 26, 2021 for public review and comment. Comments received on NYCDOT's draft Scope of Work document are included in this report along with those received during the scoping comment period.

Comments received through August 16, 2021 are provided in **Appendix B**.

For further information about the Project, please visit the project website (https://shoreroadbridgebx.com/) or contact:

Richard J. Marquis, Division Administrator
Federal Highway Administration, New York Division
Leo W. O'Brien Federal Building
11A Clinton Avenue, Suite 719
Albany, New York 12207
Telephone: (518) 431-4127
Email: Rick.Marquis@dot.gov

OR

Naim Rasheed, Assistant Commissioner
New York City Department of Transportation, Traffic Engineering & Planning
55 Water Street, 6th floor
New York, NY 10004
Telephone: (212) 839-7710
Email: ShoreRoadBridgeBX@dot.nyc.gov

2. PROJECT LOCATION

The Shore Road Bridge is located in Pelham Bay Park in the Borough of the Bronx, New York City. The bridge crosses the Hutchinson River approximately two miles south of Westchester County. The Project is located along the 1.2-mile-long section of Shore Road between the Bruckner Expressway and Orchard Beach Road.

The roadway carried by the bridge (Shore Road) is classified as an "Urban Principal Arterial-Other" by the NYSDOT and serves as a critical link in the area's transportation network. The bridge and Shore Road provide access to major interchanges with the Hutchinson River Parkway and Bruckner Expressway west of the bridge and City Island Road east of the bridge. The Project is located within Pelham Bay Park, the largest park in New York City. The bridge is located on one of three access routes for Pelham Bay Park and Orchard Beach and on the sole truck access route for Pelham Bay Park and City Island (see **Figures 1** through **3**). The City Island community is in a Coastal/Hurricane Evacuation Zone 1, which is the zone designation most susceptible to flooding in the event of a hurricane or tropical storm event. The bridge is a part of the designated Coastal/Hurricane Evacuation Route for the City Island community.

3. PROJECT PURPOSE, OBJECTIVES, AND NEEDS

3.1 PROJECT PURPOSE AND OBJECTIVES

The purpose of the Project is to address the structural deficiencies; geometric deficiencies; and operational reliability for multi-modal users, including marine vessels, of the Shore Road Bridge over the Hutchinson River.

The following objectives have been established to further refine the purpose of the Project:

- Address the identified structural, geometric and operational deficiencies of the crossing.
- Address operational constraints associated with the passage of marine vessels under the bridge; and
- Improve bicycle/pedestrian facilities on the Shore Road Bridge.

3.2 PROJECT HISTORY AND NEEDS

3.2.1 Project History

The existing Shore Road Bridge was constructed in 1908 and is the fourth bridge to be located on the site. Authorized by an Act of the Legislature on March 16, 1812, the first bridge at the site, a stone bridge, was built in 1815 and destroyed in a storm on April 12, 1816.[2] The two subsequent Pelham Bridges, built in 1834 and 1871, were located southeast or downstream from the existing Shore Road Bridge. Historic mapping is not precise enough to determine the exact location of the 1834 bridge, but it appears to have been situated in close proximity to the 1871 bridge, and may have incorporated some of the same components, especially at the northern end along the stone causeway. Both of these former bridges were completely removed above the water line and there is no longer any visible evidence of them within the river channel.

Since its construction in 1908, the Shore Road Bridge has undergone multiple rehabilitations and maintenance repairs over the course of its life due to the harsh marine environment, age, and vessel impact to the fender system.

Several improvements were made in 1937, which included widening the roadway by eliminating one sidewalk, replacing cantilever brackets on the bascule span, installing new barrier gates, replacing original stone breakwaters on the north and south ends of the bascule piers, and replacing the roadway lighting on the approach spans. In 1945, the masonry piers and abutments were repointed. In 1950, the operator's house and other houses at the bascule span were rehabilitated to replace architectural features such as the windows and roofing, upgrade indoor facilities, and install a new control desk and switchboard.

The bridge underwent a full reconstruction starting in 1982, and the bridge was closed during the non-summer seasons in successive years to accomplish the work. The reconstruction consisted of new bascule span deck grating, new bascule and flanking span stringers, replacement of deteriorated bascule span truss members, new operating machinery, new electrical power and control systems, concrete repairs and masonry resetting and repointing of piers and abutments, replacement of earth fill in spandrel arches and new reinforced concrete spandrel walls, new parapets, repairs to the underside of the concrete arches, as well as new roadway lighting, barrier gates, and warning gates. In addition, shotcrete was applied to the entire facade of the bridge,

[2] "The First Stone Bridge Built Across Eastchester Creek in Pelham, 1814-1815" Historic Pelham Blog, http://historicpelham.blogspot.com/2005/12/first-stone-bridge-built-across.html. Accessed 16 Aug. 2021.

including the four houses, and all four houses were renovated, including replacement of the copper house roofs.

The last major rehabilitation work occurred in 2002, which consisted of replacing the steel grid deck on the bascule span, repairing miscellaneous deteriorated structural steel members on the bascule span, removing loose and hollow concrete from the bridge fascias, parapets, arches, and control house exteriors, repairing a major crack on the north control house, repairing the stone facing on the substructure, and architectural repairs to the four control houses. Since 2002, individual components have been repaired as needed when deterioration was noted by flagged conditions in biennial inspection reports.

Since construction in 1908, the pier protection system, timber dolphins and fenders have been repaired or replaced and upgraded regularly. The bridge was constructed with timber fender wales on the channel faces of the bascule piers and a total of seven pile cluster dolphins (19 piles each), three on the southwest, two on the southeast, and one each on the northeast and northwest corners of the channel.

In 1928, the pier protection system elements were upgraded, the existing seven dolphins (19 piles each) were removed, and 12 new dolphins (19 piles each) were installed with three dolphins per corner of the channel and surrounded with crushed stone at the base. The 12-dolphin configuration was repaired in 1931 (replacement of three northeast dolphins), 1934 (replacement of three southwest dolphins), 1935 (replacement of two southeast dolphins), and 1936 (replacement of one southeast and two northwest dolphins).

In 1936, the pier protection elements were upgraded. Two of the existing dolphins were removed and eight larger dolphins (31 piles each) were installed bringing the total number of dolphins in service to 18. This configuration was modified in 1942 and 1945 as damaged or degraded dolphins were removed from service and replaced. After the 1945 repairs, eight dolphins (31 piles each), two per corner of the channel, remained in service.

The horizontal timber fender wales along the channel sides of the bascule piers were replaced in 1937 and 1947.

In 1961, all of the existing dolphins and timber fender wales on the channel faces of the bascule piers were removed, and a new fender system was constructed. The new system consisted of stone filled timber cribs on the south ends of the bascule piers and timber pile racks on the north ends. New horizontal timber wales with vertical timber sheeting were installed on the channel faces of the bascule piers.

In 1982, the fender system was reconstructed and the pier protection system elements were upgraded as two additional dolphins (31 piles each) were constructed, one each on the northwest and southeast corners of the channel.

In 1998, the fender system was reconstructed under an emergency repair contract and the pier protection system elements were upgraded. The southern stone filled cribs were replaced with timber racks and two additional dolphins (31 piles each) were constructed, one each on the northwest and southeast corners of the channel bringing the total number of dolphins to four.

3.2.2 Project Needs

The needs for the Project are as follows:

- Address structural deficiencies;
- Improve vehicular and marine traffic operations and the operational reliability of the bridge;
- Address geometric deficiencies; and

- Improve pedestrian and bicycle accommodations.

Address structural deficiencies: The Shore Road Bridge has been in service for over 110 years. The bridge is subject to a harsh marine environment, including freeze-thaw cycles, salt exposure, marine splash conditions, and de-icing salts, which contribute to the corrosion of bridge elements. Based on a Biennial Inspection of the bridge, dated June 19, 2020, the NYSDOT assigned a general recommendation rating of 4, indicating that it is a deteriorated bridge. Visible signs of deterioration in the substructure include scaling, efflorescence, cracking, and spalling, with exposed and corroded rebar at many locations on the bridge. These conditions were noted in prior inspections and the various elements of the bridge continue to deteriorate.

The bridge was designed to standards that were in place over 110 years ago. The structural capacity of the existing bridge was not designed to accommodate the range of vehicle types and loads found today. The interim repair and rehabilitation work that has been performed on the bridge has enabled it to remain in service. However, its continued use and marine setting contribute to the progressive deterioration of its structural capacity. The Shore Road Bridge is not load posted since structural redundancy allows for load redistribution. Recurring interim repairs by the NYCDOT are intended to address the most critical deficiencies; however, deterioration of the bridge structure is expected to continue and accelerate in the future. The open grid deck at the movable span allows deicing salts and runoff to drop directly onto relatively light gauge steel members and exacerbate existing corrosion conditions.

The FHWA has classified the Shore Road Bridge as structurally deficient with a National Bridge Inventory (NBI) condition rating of 4 for the superstructure.[3,4,5] In addition, the bridge requires frequent repairs in part due to frequent vessel impacts to the fender system.

The existing Shore Road Bridge was not designed to withstand seismic loadings and has inadequate seismic capacity; therefore, the existing bridge is vulnerable to earthquake conditions. In addition, extrapolating from the previous fatigue assessment, roughly 150 members of the bascule span have a remaining fatigue life of less than 10 years.

Thus, there is a need to address the structural deficiencies of the Shore Road Bridge.

Improve vehicular and marine traffic operations and the operational reliability of the bridge: In the closed position, the existing Shore Road Bridge provides 13 feet of vertical clearance above mean high water (MHW). This portion of the Hutchinson River has been mapped as a navigable waterway by the National Oceanic and Atmospheric Administration (NOAA), and designated as a navigable waterway under the jurisdiction of the United States Coast Guard (USCG), per 33 CFR §2.34. The vertical clearance for bridges over navigable waterways is

[3] The FHWA has established an NBI condition rating system that measures the overall condition of five key bridge components on a scale of 1 (failing condition) to 7 (new condition). The FHWA classifies a bridge as "structurally deficient" if any one component is in Poor or Worse condition.

[4] The NYSDOT uses a bridge inspection program to classify the condition of bridges. Each bridge element has a general condition rating ranging from CS-1 (Good) to CS-4 (Severe). These general condition ratings are a quantitative representation of the physical condition of an element. The NYSDOT also computes an overall New York State general recommendation for each bridge by combining the ratings of individual key bridge components using a weighted average formula. The NYSDOT general recommendation rating scale ranges from 1 (failing condition) to 7 (new condition). The NYSDOT considers a general recommendation rating of less than 5 to be "deteriorated." The Shore Road Bridge rating is 4, which is "deteriorated."

[5] A "superstructure" refers to the upper part of the bridge that rests on its piers and abutments.

approved by the USCG. The approval of the vertical clearance is based on navigation data and vertical clearances of adjacent bridges in the waterway. The next vehicular movable bridge upstream of the Shore Road Bridge is the Hutchinson River Parkway Bridge, a double-leaf bascule providing a 30-foot vertical clearance. Due to the existing 13-foot vertical clearance of the Shore Road Bridge, it is one of the most frequently opened movable bridges in New York City, requiring 862 openings for marine traffic in 2019. This contrasts with the Hutchinson River Parkway Bridge, which had 268 opening in 2019. Virtually all openings of the Shore Road Bridge are for commercial vessels, including tugs with barges carrying oil, building materials, or scrap metal.

The frequent openings for marine traffic results in vehicular traffic delays. On average, each bridge opening requires vehicular and non-motorized traffic to be stopped for approximately 10 minutes while the vessels traverse below the bridge.

The vehicular traffic delays further increase when the bridge becomes inoperable due to the malfunction of outdated electrical equipment, discussed below. Maintenance or repairs must either be made in an open position, restricting vehicular traffic or closed position, restricting vessel traffic. There is a need to improve traffic flow and to reduce wait time and delay for surface traffic while marine vessels pass below the bridge.

Fenders directly attached to the piers of the bascule span delineate the channel beneath the bridge. The channel is approximately 59 feet wide between the fenders (see **Figure 4**). The Shore Road Bridge has the smallest horizontal clearance of all bridges on the Hutchinson River. The United States Army Corps of Engineers (USACE) Eastchester Creek Federal Navigation Project[6] width varies along the Hutchinson River.[7] The current channel width is constrained by the numerous structures crossing the river and, in these locations, the mapped channel is tapered down to match the restrictions of the structure. Parts of the navigation channel are as wide as 200 feet, yet it narrows at the Shore Road Bridge to approximately 59 feet. The overall mapped channel width in the general area of the existing bridge is over 100 feet. As per NOAA Navigation Chart 12366, bridges upstream from the Shore Road Bridge provide between 68 and 130 feet of horizontal clearance. The upstream bridge with the lowest horizontal clearance is the Amtrak Bridge, which has a 68-foot horizontal clearance and is 1,000 feet north of the Shore Road Bridge; however, the Amtrak Bridge is programmed for replacement in approximately 10 years.

There have been up to 40 recorded vessel impacts to the fender system per year. These impacts were attributed to the need for vessels to make a sharp turn when heading downriver after clearing the Amtrak railroad bridge and the narrow horizontal clearance of the Shore Road Bridge. Vessel impacts undermine the structural integrity of the bridge and lead to frequent repairs of the fender system. Widening the horizontal clearance and other geometric improvements are needed to provide the space required for vessels to traverse this section of the Hutchinson River, and to align for passage under multiple bridges.

The electrical equipment is obsolete on the movable span, and last underwent a major rehabilitation in the 1980s. Many mechanical features and components on the bridge have remained in service for over 100 years. Since the bridge opens multiple times per day, the machinery experiences constant wear and requires frequent maintenance. The existing bridge

---

[6] Web link to Eastchester Creek Federal Navigation Project Fact Sheet: https://www.nan.usace.army.mil/Media/Fact-Sheets/Fact-Sheet-Article-View/Article/487367/fact-sheet-eastchester-creek-new-york/ .

[7] The Hutchinson River was originally known as Eastchester Creek.

has a single movable span, making maintenance or rehabilitation difficult since the movable span cannot be temporarily removed from service for repairs without impacting vehicular or marine traffic. In addition, failed electrical components and cascading control system breakdown have resulted in unpredictable and prolonged temporary closures to traffic. Troubleshooting of outdated equipment requires specialized knowledge and NYCDOT maintenance resources. The repairs are unpredictable and frequently costly.[8]

Thus, there is a need to improve vehicular and marine traffic operations and the operational reliability of the bridge.

Address geometric deficiencies: Within the project limits, Shore Road is functionally classified as an "Urban Principal Arterial – Other" by the NYSDOT and is on the National Highway System (NHS). The bridge is also classified as a Critical Bridge[9] by the NYSDOT. The existing Shore Road Bridge has non-standard geometric features, such as lane width, sidewalk width, lack of shoulders, grades on approach spans, and lateral clearances. The geometric deficiencies include the following:

- Lane widths on the bridge are 10 feet, which is below the required minimum of 11 feet for arterial roadways, such as Shore Road;
- No shoulders are provided on the bridge;
- There is no lateral offset on the west side of the bridge between the traffic barrier and the traffic lane (see **Figure 5**); and
- One sidewalk that varies in width from 4 feet to 7.5 feet exists on the south side of the current bridge to serve the needs of pedestrians and dismounted cyclists. To provide continuity with adjoining shared-use paths, American Association of State Highway and Transportation Officials (AASHTO) guidelines require a path that is a minimum of 12 feet wide.

Thus, there is a need to address geometric deficiencies.

Improve pedestrian and bicycle accommodations: The sidewalk on the south side of the bridge is part of the Mosholu-Pelham Greenway and East Coast Greenway. A separated shared-use path is located west of the bridge from Crimi Road to the west abutment of the bridge. Bicyclists are informed by signage to dismount and walk their bicycles across the bridge because the existing south sidewalk on the bridge is too narrow for combined pedestrian and bicycle use. The sidewalk transitions back to a shared-use path to the east of the bridge. The lack of separation between bicyclists/pedestrians and automobiles on the bridge is also undesirable. Bicyclists are discouraged from riding their bikes on the bridge due to the current narrow traffic lanes, lack of

[8] Due to the age of the current electrical system, the bridge's operating system components are obsolete. Replacement equipment is frequently difficult to source, and if not available within the NYCDOT inventory, the parts must be custom fabricated. The mechanical and electrical systems are difficult to troubleshoot due to the age of the systems combined with the quantity and interim nature of repairs implemented since the last rehabilitation.

[9] As defined in the NYSDOT Load and Resistance Factor Design (LRFD) Blue Pages Section 3.10.5, a "Critical Bridge" will continue to function as a part of the lifeline, social/survival network and serve as an important link for civil defense, police, fire department and/or public health agencies to respond to a disaster situation after the event, providing a continuous route. Critical Bridges are part of a designated evacuation route or provide sole access to critical facilities.

shoulders and open grid deck on the movable span. In addition, drainage catch basins have collapsed along the south side curb, creating a potential hazard to bicyclists.

Thus, there is need for improved pedestrian and bicyclist accommodations across the bridge.

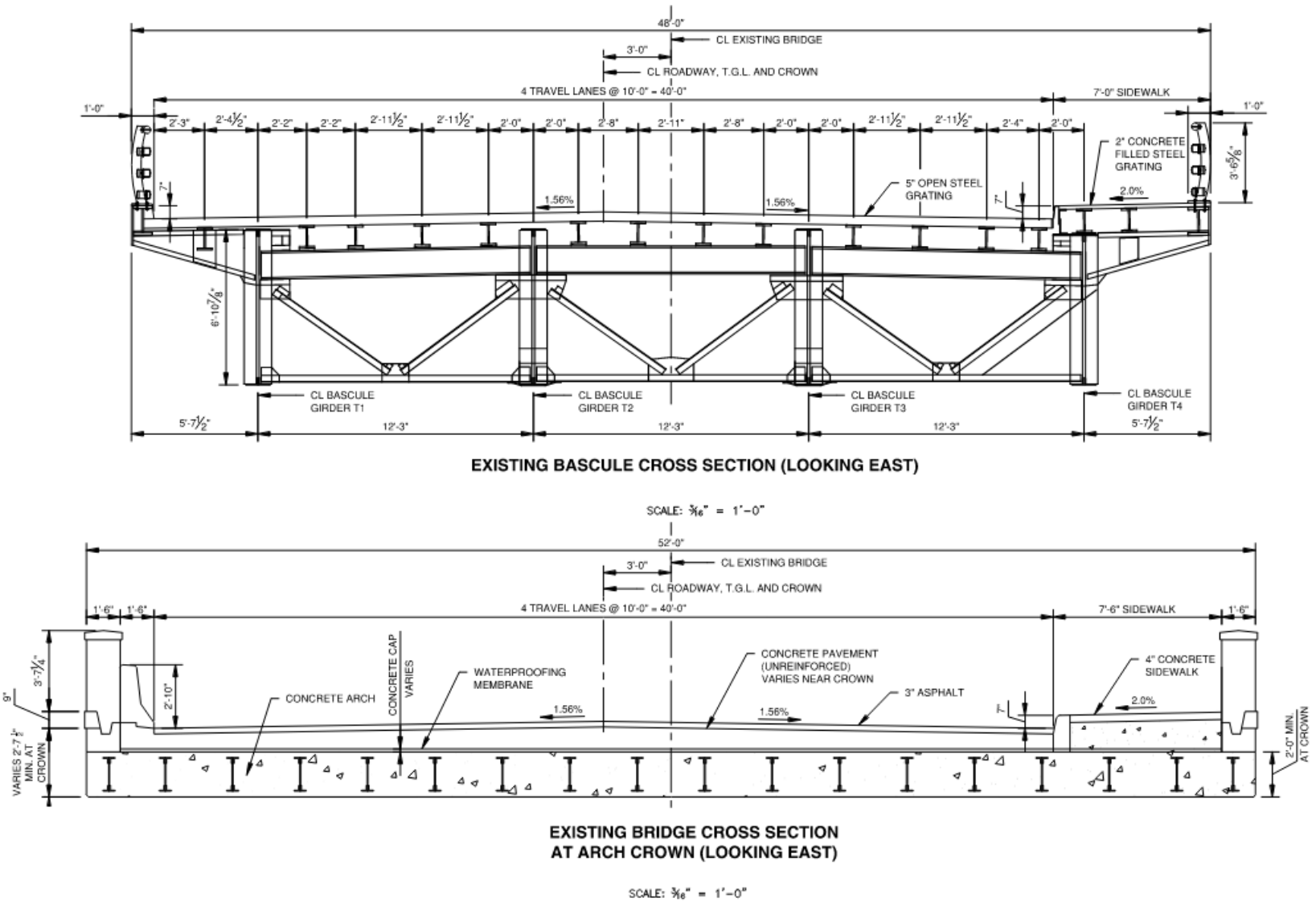


Figure 5 - Existing Bridge Cross Sections

3.3 PREVIOUS STUDIES

In the late 1990s and early 2000s, a series of studies and reports were completed to document the condition of the Shore Road Bridge in preparation for another project that ultimately resulted in a rehabilitation in 2002. The information obtained from these studies will inform the EIS.

- In 1998, a Bridge Reconstruction Project Report (BRPR) was prepared under NYCDOT Contract No. HB1012-9E. The BRPR investigated the effort required to rehabilitate the Shore Road Bridge. In-depth structural, mechanical, electrical, architectural, and diving inspections were completed as well as structural load ratings, fatigue evaluation, seismic and hydraulic studies.
- In 2000, a Bridge Construction Project Report (BCPR) was prepared, which included expanded structural load ratings, a full seismic assessment of the existing bridge, and discussions of a long-term rehabilitation and multiple options for complete reconstruction and replacement of the bridge with either fixed or movable structures. This report included cost estimates and maintenance of traffic schemes.
- In 2002, a Draft Design Report was prepared, which was the culmination of the work previously detailed in the BRPR and BCPR and summarized the findings from those reports.
- The 2020 NYSDOT Biennial Inspection Report identified the latest condition of the bridge and identified specific areas of deterioration. The 2020 Report is referenced to document the current condition of structural elements.
- In September 2018, NYCDOT documented the ongoing operational issues at the bridge, through field observations and other field measures. A summary described the observed ongoing operational issues and the condition of the electrical and mechanical elements of the bridge.

The inspection findings from 2020 NYSDOT Biennial Inspection Report and the September 2018 operational issues and conditions summary provide important information about the current condition of the bridge. As such, a brief summary of these documents is provided below.

3.3.1 NYSDOT General Bridge Inspection Report and Flags

The bridge received a general recommendation rating of 4[10] during the 2020 NYSDOT Bridge Inspection, which indicates that it is a deteriorated bridge. The concrete arch approach spans and piers exhibit areas of extensive spalling[11], areas of hollow sounding concrete (which indicate the likelihood of interior deterioration), and exposed steel arch trusses. The bascule span steel truss members exhibit severe section loss and corrosion holes as well as vessel impact damage.

[10] Per the NYSDOT Bridge Inspection Manual, a general recommendation rating of 4 indicates moderate deterioration of primaries, secondaries, and substructures has occurred. Considerable reconditioning of secondary members, substructures, and other components may be needed.

[11] Concrete spalling (also sometimes called scaling) is a defect that is exhibited when the top layer of hardened concrete slowly chips away or breaks down and flakes away from a larger solidified concrete body, often leaving behind pit marks and concrete fragments, which are known as spalls.

Based on the 2020 NYSDOT Inspection Report, eight yellow flags[12] were issued for corrosion and deterioration in steel members of the movable span. These conditions were noted in prior inspections and these elements of the bridge continue to deteriorate. The Shore Road Bridge is not load posted. Additional safety flags[13] were issued and repairs made in 2020 for loose masonry capstones, broken span seats, degradation of structural steel on movable span truss members, broken steel grating, and damage to the fender system from vessel impacts.

3.3.2 September 2018 Operational Issues and Conditions Summary

Electrical issues have plagued the operational system of the Shore Road Bridge movable span. When electrical system failures occur, the span is either unable to open for navigation or is stuck in a position that prevents passage of vehicular traffic. In September 2018, several electrical components of the Shore Road Bridge failed, generating a small fire in the east (north) terminal box. The fire resulted in replacement and further testing of several bridge components. This required road and navigational traffic closures that delayed vehicular traffic. Several electrical control components were replaced, including silicon controlled rectifiers (SCRs)[14], gate pulser circuit boards, the adjacent ramp generator card, and several conductors. Other issues were noted during testing, including the need to manually align the bridge's bascule (movable) leaves for seating. There was also an electrical short in the east (north) motor brake power wiring preventing it from functioning properly. Therefore, the motor brake required being manually released, which delayed traffic. Further testing of the span demonstrated it to be intermittently unreliable, because of several motor failures while raising the bridge. Additional tests were recommended to ensure that the span was operating reliably.

As a result of the fire and subsequent emergency repairs, an inspection of the electrical and mechanical equipment was conducted and several additional deficiencies with respect to span operations were noted. These operational deficiencies include:

- The east (north) machinery brake is out of service.
- The bridge operator must use the emergency stop to abruptly halt the east (north) bascule leaf when it reaches 45 degrees of opening to prevent impacting the underside of the bascule span toe joint on the west (south) bascule leaf.
- The span position and over-travel limit switches require replacement.
- A traffic gate was out of service.
- The failed terminal blocks and splices were temporarily repaired.
- The auxiliary (i.e., backup) electrical control and mechanical operating system on both the east and west (north and south) sides are out of service.
- Multiple wires and cables need to be properly terminated (i.e., secured) at the correct beginning and ending locations, with the terminal boxes.

---

[12] The NYSDOT, Bridge Inspection Manual (March 2017), defines Yellow Flags as "A structural flag that is used to report a potentially hazardous structural condition which, if left unattended could become a clear and present danger within two years from the current inspection. This flag would also be used to report the actual or imminent failure of a non-critical structural component, where such failure may reduce the reserve capacity or redundancy of the bridge but would not result in a structural collapse."

[13] The NYSDOT, *Bridge Inspection Manual* (March 2017), defines Safety Flags as "A flag that is used to report a condition presenting a clear and present danger to vehicular or pedestrian traffic, but poses no danger of structural failure or collapse."

[14] Silicon Controlled Rectifiers, or SCRs are a semiconductor device that functions as an electrically controlled switch. The basic purpose of a SCR is to function as a switch that can turn on or off small or large amounts of power. It performs this function without mechanical parts.

- The wire and cable connections within the terminal boxes need to be cleaned of corrosion.

Repairs to the auxiliary electrical control and mechanical operating systems are also needed, which will require substantial time and effort; however, these repairs are considered a priority because of the frequency of bridge openings and the need to ensure reliable operations. It was noted in the September 2018 operational issues and conditions summary that long-term repairs will be required to maintain the bridge's operability, and that the bridge electrical systems are reaching their anticipated lifespan.

Repairs will continue to be completed as needed, but the operational issues have the potential to cause ongoing maintenance concerns and affect the ability of the span to open and close reliably. This can cause traffic disruptions and/or delays to maritime traffic.

4. ALTERNATIVES / CONCEPTS

This section describes the alternatives that are being advanced for detailed study in the Draft Design Report/Draft Environmental Impact Statement (DDR/DEIS) and concepts[15] that have been dismissed from further consideration.

A comprehensive evaluation was conducted during the scoping process to develop and identify the reasonable (feasible and practical) alternatives for the Project to be advanced for detailed study in the DDR/DEIS. Several concepts were developed and evaluated based on the screening criteria listed below, using a tiered approach. If a concept would not meet one or more of the project objectives, it was dismissed from further consideration, as it, by definition, would not be considered a reasonable alternative for the Project. Concepts that met the Level A criteria were then assessed based on the Level B criteria.

Concept Screening Criteria

Level A: Meets the project purpose and objectives

1. Meets the project purpose (see Section 3.1)
2. Meets the project objectives (see Section 3.1)

Level B: For concepts that met the Level A screening criteria, the following Level B screening criteria were used:

1. Reduces vehicle hours of delay and improves travel time predictability/variability by reducing the number of bridge openings required per year.

   The existing bridge opens frequently to allow vessels in the river to pass, often causing vehicle delays on the roadway. The vehicular traffic delays further increase when the bridge becomes inoperable due to the malfunction of outdated operational equipment. With the rise of sea level and continued deterioration of existing equipment, delays could become longer and more frequent. For these reasons, the reasonable Build Alternative should reduce the number of openings, thereby reducing vehicular traffic delays.

2. Able to maintain vehicular and non-motorized (bicycle and pedestrian) connectivity to City Island and within Pelham Bay Park during construction.

   As the only connection spanning the river between the western and eastern sections of Pelham Bay Park, the bridge is a key component in the continuity of the Mosholu-Pelham Greenway and provides for overall circulation within the park. Without the Shore Road Bridge, Pelham Bay Park is bisected by the Hutchinson River.

   The existing bridge is also located on one of three access routes for Pelham Bay Park and Orchard Beach and on the sole truck access route for Pelham Bay Park and City Island. The City Island community is in a Coastal/Hurricane Evacuation Zone 1, which is the zone most susceptible to flooding in the event of a hurricane or tropical storm event. The bridge is a part of the designated Coastal/Hurricane Evacuation Route connecting the City Island community to higher ground on the mainland. For these reasons, the reasonable Build Alternative should maintain vehicular and non-motorized connectivity within the park and region during construction.

[15] For the purposes of this Scoping Report, the term “concept” refers to a potential alternative considered.

4.1 CONCEPTS CONSIDERED AND DISMISSED FROM FURTHER STUDY IN THE DDR/DEIS

This section describes the concepts that were considered and dismissed for the Project and documents the process that was undertaken to screen the concepts. Concepts that did not meet one or more of the Level A or B screening criteria were dismissed from further consideration.

4.1.1 Rehabilitation Concept

This concept would include extensive strengthening of substructures, bascule span replacement, replacement of all mechanical and electrical equipment, concrete repairs, and underpinning of approach spans to address structural deterioration. The existing Shore Road Bridge has multiple non-standard geometric, transportation, and design features related to the width of the structure including narrow lanes, insufficient sidewalk width, lack of shoulders, and inadequate lateral clearances. In order to improve or eliminate these features the superstructure would be widened by 21 feet to increase lane and sidewalk widths. The wider structure would also require replacement of the operators' houses and towers.

Rehabilitation Concept – Screening Evaluation

As discussed below, the Rehabilitation Concept does not meet the project purpose and objectives (Level A screening) [16].

- *Address the identified structural, geometric and operational deficiencies of the crossing* – In order to address the non-standard geometric and structural deficiencies of the existing bridge under the Rehabilitation Concept, the mechanical and electrical systems and major structural elements and features would need to be replaced or modified to an extent that rehabilitation of the bridge would be considered unreasonable. The electrical and mechanical systems would continue to be at risk of being damaged and made inoperable from flooding and storm events, while the structure would continue to be susceptible to seismic events. Thereby the Rehabilitation Concept would not fully address the operational deficiencies of the bridge. Overall, the Rehabilitation Concept would not meet the objective to address the structural, geometric and operational deficiencies of the crossing.
- *Address operational constraints associated with the passage of marine vessels under the bridge* - The Rehabilitation Concept would partially address operational constraints associated with the frequency of openings and delays to vehicular and non-motorized traffic because rehabilitation of the operation equipment would include replacing the mechanical and electrical equipment with newer and more reliable technology. However, since the existing bridge's vertical clearance would not change, the frequency of openings would be the same and continue to cause delays to vehicular traffic. Thereby the operational deficiencies related to the frequency of openings would not be addressed under the Rehabilitation Concept. The narrow width of the opening at the bridge would be retained and would continue to restrict navigation and be at risk of fender impacts. Thus, the Rehabilitation Concept would not meet this project objective.
- *Improve pedestrian and bicycle accommodations* - The Rehabilitation Concept would improve bicycle/pedestrian facilities on the Shore Road Bridge through the addition of a

[16] **Appendix A** provides an in-depth analysis, description and discussion of why the Rehabilitation Concept has been eliminated from further consideration.

15-foot-wide[17] shared-use path (pedestrians and bicyclists) on the south side by widening the entirety of the bridge. Widening would require replacement of mechanical and electrical systems, replacement of the operators' towers, and extensive structural modifications. While unreasonable, the Rehabilitation Concept would meet the objective to improve pedestrian and bicycle accommodations.

Further discussion regarding the Rehabilitation Concept can be found in **Appendix A** (Technical Paper-Consideration of Rehabilitation of the Shore Road Bridge).

4.1.2 Replacement Concepts 1 and 2 – South Alignment Low- and High-Level Bridges

Replacement Concepts 1 and 2 would replace the existing bridge with a new bridge carrying two 11-foot lanes and a 6-foot shoulder in each direction plus a 15-foot-wide shared-use path (pedestrians and cyclists) on the south side.[18]

The centerline of the new bridge in both Concepts 1 and 2 would be located approximately 100 feet to the south of the centerline of the existing bridge **(See Figure 6)**. The alignment would transition back to meet the approaches at either end of the bridge. The existing roadway geometry is compatible with a southern alignment since a former bridge, predating the current 1908 bridge, was on this southerly alignment. The alignment only conflicts with one existing utility crossing, a Con Edison line that was abandoned in place in 1971. The southerly alignment increases the distance between the Shore Road Bridge and the adjacent Amtrak Bridge, which, when combined with spanning a wider segment of the mapped channel, results in a substantial improvement for navigation.

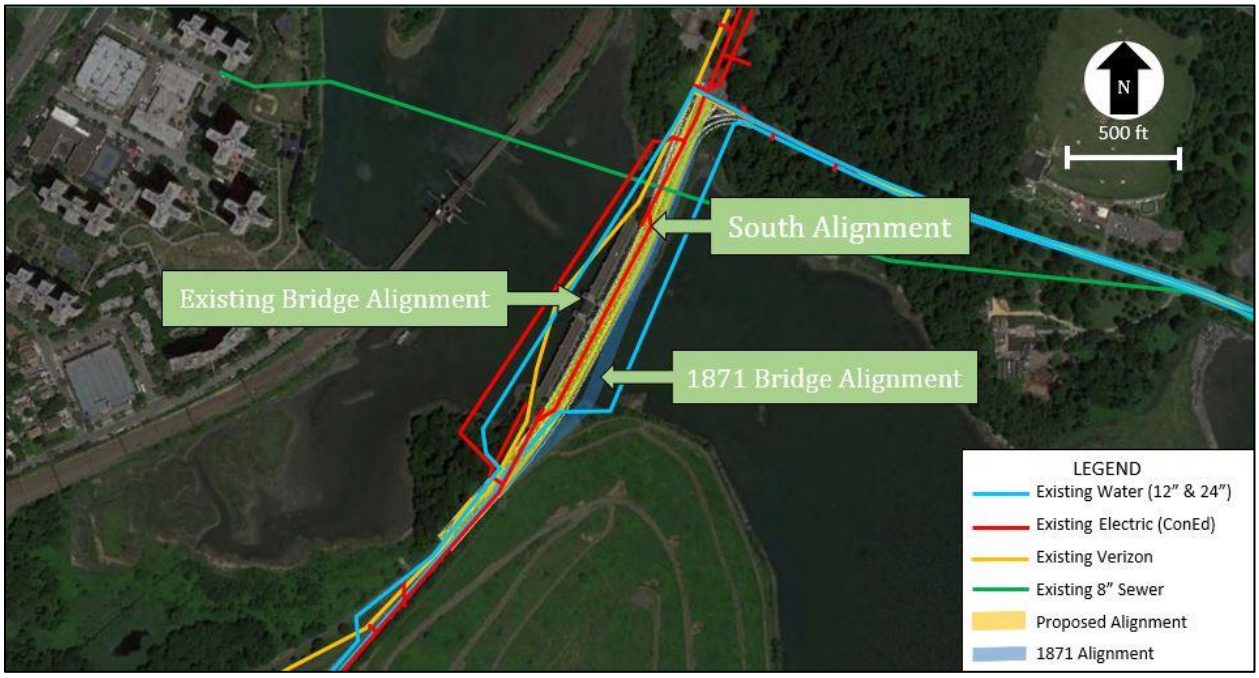


Figure 6 - South Bridge Alignment

[17] Final geometric features such as lane widths, profile grade, and shared-use path (pedestrians and bicyclists) width will be established upon development of design criteria in the DAD/EIS. The proposed values used here are for evaluating concepts in accordance with the screening criteria.

[18] Final geometric features such as lane widths, profile grade, and shared-use path (pedestrians and bicyclists) width will be established upon development of design criteria in the DAD/EIS. The proposed values used here are for evaluating concepts in accordance with the screening criteria.

Replacement Concept 1 - South Alignment Low-Level Movable Bridge

The alignment location to the south of the existing bridge would allow for the new structure to be built while all traffic is maintained on the existing bridge. The structure would include approach roadways on retained fill, fixed multi-girder approach spans, and a new movable span over the navigable channel. Only short-term lane closures would be required to tie in the new approaches to the existing roadways **(See Figure 6)**.

The profile of the bridge would have a 1.5% grade[19] on the approaches and establish a minimum of 15 feet above MHW of vertical clearance over the navigable channel when the bridge is in the lowered position **(See Figure 7)**.

The only type of movable bridge structure considered with Concept 1 was a vertical lift span as discussed further below. A draft memo/letter from the USCG indicated that a replacement bridge with a minimum of 50 feet of vertical clearance above MHW and 115 feet of horizontal clearance will provide for the current and future needs of navigation. The Preliminary Navigation Clearance Determination is forthcoming. Once established, if additional information is discovered during the bridge permitting process the Preliminary Navigation Clearance Determination may need to be revisited to ensure the reasonable needs of navigation are met. The preliminary determination does not constitute an approval or final agency determination. This option assumes that permit approval from the USCG could be obtained for a bridge that would provide a maximum vertical clearance equal to the lowest upstream fixed structure at the New England Thruway, 50 feet above the MHW level over the navigable channel, which could be provided by a vertical lift span[20] Other bascule span options were not considered to be feasible due to the need for a pit pier with operating equipment that would be susceptible to flooding. Vertical lift machinery could be located above current flood elevations at the site. However, because the Concept 1 bridge would be located low to the water, it would have some risk of flooding and saltwater induced corrosion, and thereby increase anticipated maintenance costs. Additionally, a vertical lift span would not provide resiliency for future sea level rise[21] because the maximum channel vertical clearance in the open position is limited by the height of the fixed towers.

[19] Percent grade refers to the number of feet change in elevation over a distance of 100 feet with positive numbers indicating a gain and negative numbers indicating a decrease in elevation for the direction of travel. Therefore, a 1.5% grade would rise 1.5 feet over a distance of 100 feet.

[20] A vertical lift span is a type of movable bridge in which the moveable span over the river is raised vertically to a fixed height, while remaining in the horizontal position, to provide for passage of marine traffic beneath the bridge.

[21] Based on the “middle range” projections reported by the National Panel on Climate Change (NPCC), Sea level rise is anticipated to increase between 1.83 and 4.17 feet by 2100. This report uses the recommendation from the September 2020 NYC Climate Resiliency Design Guidelines version 4.0 with the use of 24” freeboard plus 36” sea level rise.
https://www1.nyc.gov/assets/orr/pdf/Resiliency_Design_Guidelines_v4-0.pdf

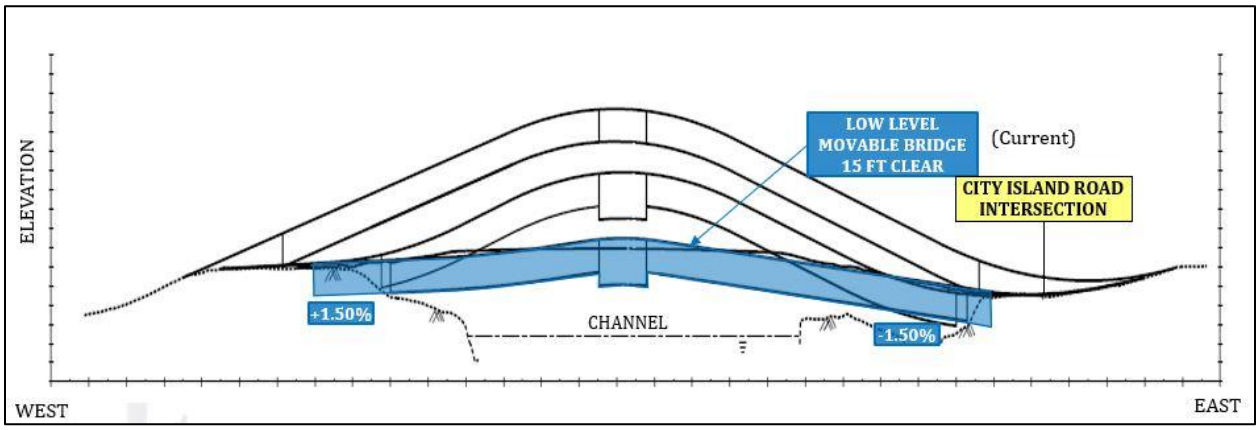


Figure 7 - Typical Low-Level Profile

Replacement Concept 1 Screening

As discussed below, Replacement Concept 1 does not meet the project purpose and objectives (Level A screening).

- *Address the identified structural, geometric and operational deficiencies of the crossing* – Concept 1 would address structural and geometric deficiencies of the crossing by providing a new structure, new lift mechanics and technology, and the roadway cross section would meet current design standard lane and shoulder widths. Additionally, the mechanical and electrical lift equipment would be replaced with modern and more reliable equipment and technology systems. The concept would provide a longer span over a wider part of the channel and would increase the navigation distance between the Amtrak bridge and Shore Road Bridge, thereby addressing the horizontal geometric deficiencies of the crossing. However, the operation of the electrical and mechanical systems would continue to be at risk of being damaged and made inoperable from flooding events and from saltwater induced corrosion, which would result in the bridge not fully meeting the operational deficiencies of the crossing. Thus, Concept 1 would not meet the overall objective to address the structural, geometric and operational deficiencies of the crossing.
- *Address operational constraints associated with the passage of marine vessels under the bridge* - Concept 1 would provide a longer span over a wider part of the channel and would increase the navigation distance between the Amtrak bridge and Shore Road Bridge, thereby addressing the horizontal constraints for marine vessels. However, Concept 1 would provide a limited vertical clearance over the navigable channel in the closed position, requiring approximately the same number of openings to allow vessels to pass as does the current bridge and thereby would not address delays to vehicular and non-motorized traffic. Additionally, a vertical lift span would not provide resiliency against future sea level rise because the maximum channel vertical clearance in the open position is limited by the fixed height of the towers, which could further limit the passage of marine vessels that do not meet the bridge's clearance height. Thus, Concept 1 would not meet the objective to address operational constraints associated with the passage of marine vessels under the bridge.
- *Improve pedestrian and bicycle accommodations* - Concept 1 would improve bicycle/pedestrian facilities on the Shore Road Bridge by including a 15-foot-wide[22]

[22] The width of the shared-use path would be finally established upon development of design criteria (in the DDR/EIS).

shared-use path (pedestrians and bicyclists) on the south side. Concept 1 would meet the objective to improve pedestrian and bicycle accommodations.

Replacement Concept 2 - South Alignment High-Level Fixed Bridge

The alignment location to the south of the existing bridge would allow for the new structure to be constructed while all traffic is maintained on the existing bridge and temporary roadways **(See Figure 6)**. The new structure would include approach roadways on retained fill and fixed multi-girder spans. Long term lane closures and a substantial area of temporary fill and pavement would be required to construct the necessary retaining walls and tie in the new approaches to the existing roadways. This concept would require permanently raising the City Island Road intersection by at least 5 feet and relocating the water, sewer, electric, and telecommunications connections to City Island, Orchard Beach, and points further north.

The profile of the bridge would have a 5% grade[23] on the approaches and establish a fixed vertical clearance over the navigable channel **(See Figure 8)**. A draft memo/letter from the USCG indicated that a replacement bridge with a minimum of 50 feet of vertical clearance above MHW and 115 feet of horizontal clearance will provide for the current and future needs of navigation. The Preliminary Navigation Clearance Determination is forthcoming. Once established, if additional information is discovered during the bridge permitting process the Preliminary Navigation Clearance Determination may need to be revisited to ensure the reasonable needs of navigation are met. The preliminary determination does not constitute an approval or final agency determination. This option assumes that permit approval from the USCG could be obtained for a bridge that would provide a maximum vertical clearance equal to the lowest upstream fixed structure at the New England Thruway, 50 feet above the MHW level over the navigable channel.

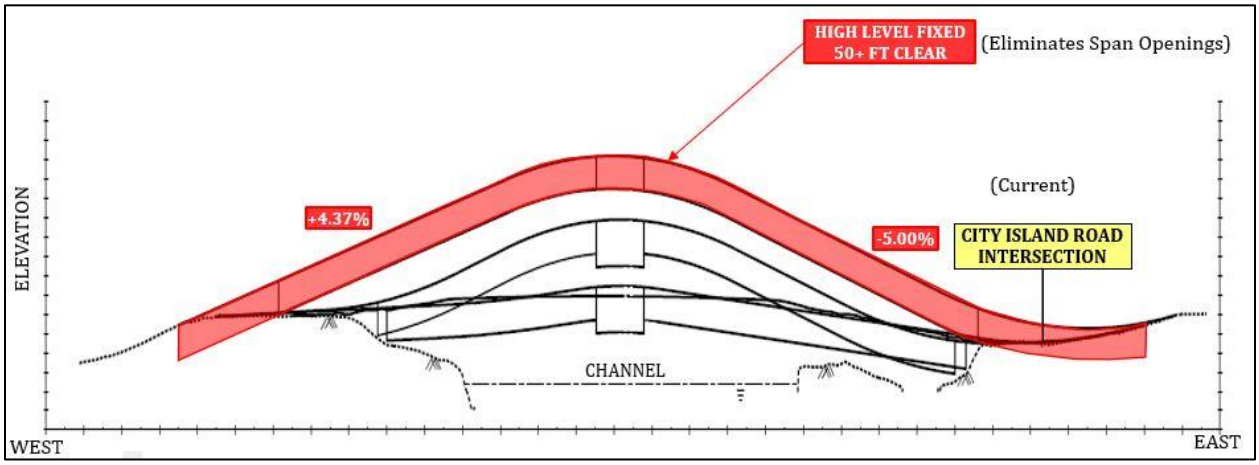


Figure 8 - Typical High-Level Profile

Replacement Concept 2 Screening

As discussed below, Replacement Concept 2 does not meet the project purpose and objectives (Level A screening).

- *Address the identified structural, geometric and operational deficiencies of the crossing* - Concept 2 would address structural and geometric deficiencies of the crossing by providing a new fixed structure with a roadway cross section that meets current design

[23] Percent grade refers to the number of feet change in elevation over a distance of 100 feet with positive numbers indicating a gain and negative numbers indicating a decrease in elevation for the direction of travel. Therefore, a 5% grade would rise 5 feet over a distance of 100 feet.

standard lane and shoulder widths. The new fixed bridge would eliminate issues and operational deficiencies related to age, salt exposure, flooding and obsolete equipment associated with the existing span. Thus, Concept 2 would meet the overall objective to address the structural, geometric and operational deficiencies of the crossing.

- *Address operational constraints associated with the passage of marine vessels under the bridge* - Concept 2 would address the operational constraints associated with delays to vehicular and non-motorized traffic associated with openings by providing a new fixed bridge structure. The concept would provide a longer span over a wider part of the channel and would increase the navigation distance between the Amtrak bridge and Shore Road Bridge. However, the fixed bridge would limit the passage of marine vessels that do not meet the fixed bridge's clearance height. The vertical clearance for marine vessels at the existing bridge crossing is unlimited. By restricting the passage of vessels to those under a set height, a fixed bridge would introduce a clearance constraint at the crossing that does not currently exist. Additionally, the fixed bridge's vertical clearance could be decreased due to future sea level rise and during flooding events. As a result, the vertical clearance of a fixed bridge would further limit the height of the marine vessels that could pass under the bridge. For these reasons, the concept would not fully address operational constraints and would introduce a new operational constraint. Thus, Concept 2 would not meet the overall objective to address operational constraints associated with the passage of marine vessels under the bridge.
- *Improve pedestrian and bicycle accommodations* - Concept 2 would improve bicycle/pedestrian facilities on the Shore Road Bridge by including a 15-foot-wide[24] shared-use path on the south side. However, the higher profile bridge would require steeper grades on the approaches, which would be less desirable in a park setting for cyclists and pedestrians[25]. For example, sidewalks or paths that are flat (0% grade) or that have a 1-2% grade are easy to traverse; whereas a 5% grade will feel noticeably steeper, and could give some users (e.g., the elderly, disabled, persons pushing strollers or carts) difficulty using the path. Overall, Concept 2 would meet the objective to improve pedestrian and bicycle accommodations.

4.1.3 Replacement Concepts 3, 4, and 5 - North Alignment Low-, Mid-, and High-Level Bridges

Replacement Concepts 3, 4, and 5 share a common north alignment and would replace the existing bridge with a new bridge carrying two 11-foot lanes and a 6-foot shoulder in each direction plus a 15-foot-wide shared-use path (pedestrians and bicyclists) on the south side of the bridge.

The centerline of the new bridge in Concepts 3, 4, and 5 would be located approximately 110 feet to the north of the centerline of the existing bridge. The alignment would transition back to meet the approaches at either end of the bridge. The off-line alignment would allow for the new structure to be constructed while all traffic is maintained on the existing bridge **(See Figure 9)**.

The northerly alignment presents a number of challenges. Just north of the existing bridge, and within the proposed alignment, multiple under water utilities are buried under the channel, including water mains, electrical lines, and communication lines. In order to build a new bridge on this alignment, the existing utilities would need to be relocated. Additionally, the north alignment would encroach on a business, the Bronx Equestrian Center, located on the north side of the east

[24] The width of the shared-use path would be finally established upon development of design criteria (in the DDR/EIS).

[25] Similar grades can be found on the bicycle and pedestrian path of the nearby Boston Road Bridge over the Hutchinson River which has a 4.5% grade.

approach roadway. This alignment presents additional costs and other resources associated with relocating utilities and acquiring property at the Bronx Equestrian Center.

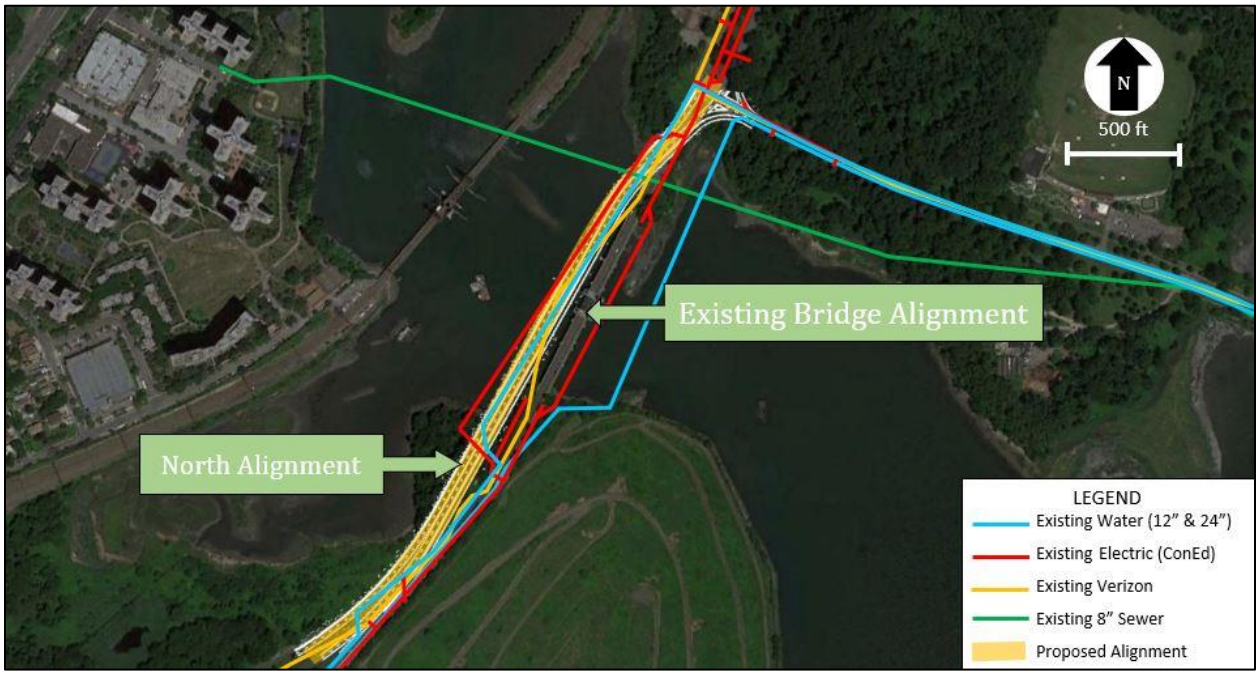


Figure 9 - North Bridge Alignment

Replacement Concept 3 - North Alignment Low-Level Movable Bridge

The off-line alignment would allow for the new structure to be built while all traffic is maintained on the existing bridge **(See Figure 9)**. The structure would include approach roadways on retained fill, fixed multi-girder approach spans, and a new movable span over the navigable channel. Only short-term lane closures would be required to tie in the new approaches to the existing roadways.

The profile of the bridge would have a 1.5% grade on the approaches and establish a minimum of 15 feet of vertical clearance over the navigable channel when the bridge is in the lowered position **(See Figure 7)**. The only type of movable bridge structure considered with Concept 3 was a vertical lift span. A draft memo/letter from the USCG indicated that a replacement bridge with a minimum of 50 feet of vertical clearance above MHW and 115 feet of horizontal clearance will provide for the current and future needs of navigation. The Preliminary Navigation Clearance Determination is forthcoming. Once established, if additional information is discovered during the bridge permitting process the Preliminary Navigation Clearance Determination may need to be revisited to ensure the reasonable needs of navigation are met. The preliminary determination does not constitute an approval or final agency determination. This concept assumes that permit approval from the USCG could be obtained for a vertical lift bridge that would provide a maximum vertical clearance equal to the lowest upstream fixed structure at the New England Thruway, 50 feet above the MHW level over the navigable channel, which could be provided by a vertical lift span. Other movable bridge types including a bascule span were not considered to be feasible due to the need for a pit pier with operating equipment that would be susceptible to flooding. The vertical lift structure is the only movable bridge type that would allow the machinery to be located above current flood elevations on the low-level profile. The profile would not reduce the number of span openings in the short term and could lead to additional openings in the future as sea level rises.

Replacement Concept 3 Screening

As discussed below, Replacement Concept 3 does not meet the project purpose and objectives (Level A screening).

- *Address the identified structural, geometric and operational deficiencies of the crossing* – Concept 3 would partially address the structural, geometric, and operational deficiencies of the crossing by providing a new structure with a roadway cross section that meets current design standard lane and shoulder widths. The new structure would have new lift mechanics and technology and therefore, would address deficiencies related to the operation of the lift equipment. Concept 3 would provide a longer span over a wider part of the channel, thereby addressing the horizontal geometric deficiencies of the crossing. However, the operation of the electrical and mechanical systems would continue to be at risk of being damaged and inoperable from flooding events and from saltwater induced corrosion, which would result in the bridge not fully meeting operational deficiencies. Thus, Concept 3 would not meet the overall objective to address the structural, geometric and operational deficiencies of the crossing.
- *Address operational constraints associated with the passage of marine vessels under the bridge* - Concept 3 would not address all of the operational constraints associated with the passage of marine vessels under the bridge. A vertical lift span would not provide resiliency against future sea level rise because the maximum channel vertical clearance in the open position is limited by the fixed height of the towers, which could further limit the passage of marine vessels that do not meet the bridge's clearance height. Although the new structure would provide a longer movable span over a wider part of the channel, vessel navigation along the Hutchinson River would be negatively affected by this alignment to the north. The existing Shore Road Bridge is located along an abrupt curve in the channel, which is located just south of the Amtrak bridge. Vessel operators currently are required to make a sharp turn to navigate through the area. A northern bridge alignment would place the new bridge closer to the Amtrak bridge and further hinder navigation through the channel. Thus, Concept 3 would not meet the objective to address operational constraints associated with the passage of marine vessels under the bridge.
- *Improve pedestrian and bicycle accommodations* – Concept 3 would improve bicycle/pedestrian facilities on the Shore Road Bridge by including a 15-foot-wide[26] shared-use path (pedestrians and bicyclists) on the south side. Concept 3 would meet the objective to improve pedestrian and bicycle accommodations.

Replacement Concept 4 – North Alignment Mid-Level Movable Bridge

The off-line alignment would allow for the new structure to be built while all traffic is maintained on the existing bridge **(See Figure 9)**. The structure would include approach roadways on retained fill, fixed multi-girder approach spans, and a new movable span over the navigable channel. Only short-term lane closures would be required to tie in the new approaches to the existing roadways.

The profile of the bridge would have a 4% grade on the approaches and establish a minimum of 30 feet of vertical clearance over the navigable channel when the bridge is in the lowered position **(See Figure 10)**. The profile would substantially reduce the number of span openings and would not require grade changes at the City Island Road intersection.

[26] The width of the shared-use path would be finally established upon development of design criteria (in the DDR/EIS).

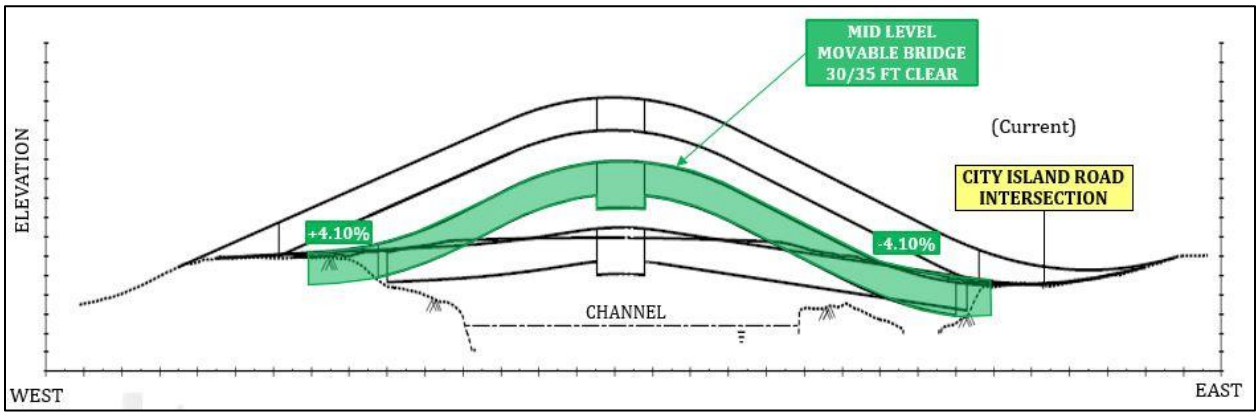


Figure 10 - Typical Mid-Level Profile

Two types of movable structures were considered: a twin double leaf bascule bridge and a twin single leaf bascule bridge[27]. Due to the geometry of the movable span over the navigational channel, the twin single leaf bascule bridge has distinct disadvantages and would not provide the most efficient configuration for this concept; therefore, it has been dismissed from further consideration. A twin single leaf bascule would provide a low angle of opening with a limited vertical clearance over a portion of the navigational channel. In contrast, when opened, a mid-level twin double leaf bascule span would provide unlimited vertical clearance over the full width of the navigational channel and simple access to maintain equipment that would be located below the roadway on each side of the channel. This unlimited clearance would accommodate future sea level rise and potential future increases in the heights of vessels passing the bridge. Machinery would be located in a closed pit pier so that sea level rise will also not impact operations of the bridge.

Replacement Concept 5 – North Alignment High-Level Fixed Bridge

The off-line alignment would allow for the new structure to be constructed while all traffic is maintained on the existing bridge **(See Figure 9)**. The structure would include approach roadways on retained fill and fixed multi-girder spans. Long term lane closures and a substantial area of temporary fill and pavement would be required to construct the necessary retaining walls and tie in the new approaches to the existing roadways.

The profile of the bridge would have a 5% grade on the approaches and establish a fixed vertical clearance over the navigable channel **(See Figure 8)**. A draft memo/letter from the USCG indicated that a replacement bridge with a minimum of 50 feet of vertical clearance above MHW and 115 feet of horizontal clearance will provide for the current and future needs of navigation. The Preliminary Navigation Clearance Determination is forthcoming. Once established, if additional information is discovered during the bridge permitting process the Preliminary Navigation Clearance Determination may need to be revisited to ensure the reasonable needs of navigation are met. The preliminary determination does not constitute an approval or final agency determination. This option assumes that permit approval from the USCG could be obtained for a bridge that would provide a maximum vertical clearance equal to the lowest upstream fixed structure at the New England Thruway, 50 feet above the mean high water level over the navigable channel.

[27] A twin double leaf bascule bridge refers to a set of two double leaf bascule spans side by side with a total of four bascule leaves on the bridge. The twin single leaf bascule bridge refers to a set of two single leaf bascule spans side by side with a total of two bascule leaves on the bridge.

Replacement Concepts 4 and 5 Screening

As discussed below, Replacement Concepts 4 and 5 do not meet the project purpose and objectives (Level A screening).

- *Address the identified structural, geometric and operational deficiencies of the crossing* - Concepts 4 and 5 would address the structural, geometric, and operational deficiencies of the crossing by providing a new structure with a roadway cross section that meets current design standard lane and shoulder widths. For Concept 4, the new structure would have new lift mechanics and technology and therefore would address deficiencies related to the operation of the lift equipment. For Concept 5, the new fixed bridge would eliminate issues and operational deficiencies related to age, salt exposure, flooding and obsolete equipment associated with the existing span. Concepts 4 and 5 would provide a longer span over a wider part of the channel, thereby addressing the horizontal geometric deficiencies of the crossing. Thus, Concepts 4 and 5 would meet the overall objective to address the structural, geometric and operational deficiencies of the crossing.
- *Address operational constraints associated with the passage of marine vessels under the bridge* - Concepts 4 and 5 would not address all of the operational constraints associated with the passage of marine vessels under the bridge. While these concepts would provide a longer movable span over a wider part of the channel, vessel navigation along the Hutchinson River would be negatively affected by the alignment. The existing Shore Road Bridge is located along an abrupt curve in the channel, which is located just south of the Amtrak bridge. Vessel operators currently are required to make a sharp turn to navigate through the area. A northern bridge alignment would place the new bridge closer to the Amtrak bridge and further hinder navigation through the channel. Additionally, for Concept 5, the fixed bridge would limit the passage of marine vessels that do not meet the bridge's clearance height. The vertical clearance for marine vessels at the existing bridge crossing is unlimited. By restricting the passage of vessels to those under a set height, a fixed bridge would introduce a clearance constraint at the crossing that does not currently exist. Additionally, the fixed bridge's vertical clearance could be decreased due to future sea level rise and during flooding events. As a result, the vertical clearance of a fixed bridge would further limit the height of the marine vessels that could pass under the bridge. For these reasons, Concept 5 would not fully address operational constraints and would introduce a new operational constraint. Thus, Concepts 4 and 5 would not meet the objective to address operational constraints associated with the passage of marine vessels under the bridge
- *Improve pedestrian and bicycle accommodations* - Concepts 4 and 5 would improve bicycle/pedestrian facilities on the Shore Road Bridge by including a 15-foot-wide[28] shared-use path (pedestrians and bicyclists) on the south side. For Concept 5, the higher profile bridge would require steeper grades on the approaches, which would be less desirable in a park setting for cyclists and pedestrians. Concepts 4 and 5 would meet the overall objective to improve pedestrian and bicycle accommodations.

[28] The width of the shared-use path would be finally established upon development of design criteria (in the DDR/EIS).

4.1.4 Replacement Concepts 6, 7, and 8 – On-Line Alignment Low-, Mid-, and High-Level Bridges

Replacement Concepts 6, 7, and 8 share a common alignment and would replace the existing bridge with a new bridge carrying two 11-foot lanes and a 6-foot shoulder in each direction plus a 15-foot-wide[29] shared-use path (pedestrians and bicyclists) on the south side.

The centerline of the new bridge would fall at the same location as the centerline of the existing bridge. The cross section of the new structure would be wider than that of the existing bridge and the new fascia lines, or outer limits of the new bridge, would be outside of the existing bridge footprint. The new approach roadways would also have a wider cross section and would transition back to meet the existing roadway.

The primary advantage of building on-line is the limited additional footprint required in Pelham Bay Park. Since the location of the bridge would not move and the new structure would simply be wider than the existing, the additional footprint of the new bridge is minimized. However, in order to construct a new bridge on-line at its current location, the existing bridge would have to be closed to vehicular traffic for the duration of construction. The existing spandrel arches on the approaches and the movable bascule span could not be removed and replaced in stages while maintaining traffic due to their inherent structural characteristics. Closing the existing bridge in order to construct an on-line replacement bridge could not be accomplished without providing alternative routes for traffic such as a temporary movable bridge or a detour for vehicular, bicycle and pedestrian traffic.

Replacement Concept 6 – On-Line Alignment Low-Level Movable Bridge

The profile of the bridge would have a 1.5% grade on the approaches and establish a minimum of 15 feet of vertical clearance over the navigable channel when the bridge is in the lowered position **(See Figure 7)**. The only type of movable bridge structure considered with Concept 6 was a vertical lift span. A draft memo/letter from the USCG indicated that a replacement bridge with a minimum of 50 feet of vertical clearance above MHW and 115 feet of horizontal clearance will provide for the current and future needs of navigation. The Preliminary Navigation Clearance Determination is forthcoming. Once established, if additional information is discovered during the bridge permitting process the Preliminary Navigation Clearance Determination may need to be revisited to ensure the reasonable needs of navigation are met. The preliminary determination does not constitute an approval or final agency determination. This concept assumes that permit approval from the USCG could be obtained for a vertical lift bridge that would provide a maximum vertical clearance equal to the lowest upstream fixed structure at the New England Thruway, 50 feet above the MHW level over the navigable channel, which could be provided by a vertical lift span. Other movable bridge types including a bascule span were not considered to be feasible due to the need for a pit pier with operating equipment that would be susceptible to flooding. The vertical lift structure is the only movable bridge type that would allow the machinery to be located above current flood elevations on the low-level profile. The profile would not reduce the number of span openings in the short term and may lead to additional openings in the future as sea level rises.

Replacement Concept 6 Screening

As discussed below, Replacement Concept 6 does not meet the project purpose and objectives (Level A screening).

[29] The width of the shared-use path would be finally established upon development of design criteria (in the DDR/EIS).

- *Address the identified structural, geometric and operational deficiencies of the crossing* - Concept 6 would provide a longer span over a wider part of the channel, thereby addressing the horizontal geometric deficiencies of the crossing. The concept would address structural and geometric deficiencies of the crossing by providing a new structure with a roadway cross section that meets current design standard lane and shoulder widths. The new structure would have new lift mechanics and technology and therefore, the concept would address equipment related operational deficiencies. However, the future operation of the electrical and mechanical systems would continue to be at risk of being damaged and made inoperable from flooding events and from saltwater induced corrosion; therefore, the concept would not fully meet the operational deficiencies of the crossing. Thus, Concept 6 would not meet the overall objective to address the structural, geometric and operational deficiencies of the crossing.
- *Address operational constraints associated with the passage of marine vessels under the bridge* - Concept 6 would require approximately the same number or more of span openings as the existing bridge due to the low vertical clearance in the closed position, causing delays to vehicular traffic. Additionally, a vertical lift span would not provide resiliency against future sea level rise because the maximum channel vertical clearance in the open position is limited by the height of the fixed towers, which could further limit the passage of marine vessels that do not meet the bridge's clearance height. Thus, Concept 6 would not meet the objective to address operational constraints associated with the passage of marine vessels under the bridge.
- *Improve pedestrian and bicycle accommodations* - Concept 6 would improve bicycle/pedestrian facilities on the Shore Road Bridge by including of a 15-foot-wide shared-use path (pedestrians and bicyclists) on the south side. Concept 6 would meet the objective to improve pedestrian and bicycle accommodations.

Replacement Concept 7 – On-Line Alignment Mid-Level Movable Bridge

The profile of the bridge would have a 4% grade on the approaches and establish a minimum of 30 feet of vertical clearance over the navigable channel when the bridge is in the lowered position **(See Figure 10)**. The profile would substantially reduce the number of span openings and would not require grade changes at the City Island Road intersection (Level B screening criteria).

Replacement Concept 7 Screening

As discussed below, Replacement Concept 7 meets the project purpose and objectives (Level A screening).

- *Address the identified structural, geometric and operational deficiencies of the crossing* - The concept would provide a longer span over a wider part of the channel, addressing the horizontal geometric deficiencies of the crossing. The new structure would have new lift mechanics and technology and therefore, the concept would address deficiencies related to the operation of the lift equipment. Additionally, Concept 7 would address structural and geometric deficiencies of the crossing by providing a new structure with a roadway cross section that meets current design standard lane and shoulder widths.[30] Thus, Concept 7 would meet the objective to address the structural, geometric and operational deficiencies of the crossing.

[30] Geometric features (such as lane and shoulder widths, and grade) would be established upon development of design criteria (in the DDR/EIS). The proposed values are used to evaluate the concepts in accordance with the screening criteria.

- *Address operational constraints associated with the passage of marine vessels under the bridge* - Concept 7 would address the operational constraints associated with delays to vehicular and non-motorized traffic associated with frequent openings. Concept 7 would require approximately half the openings of the existing bridge due to the 30-foot vertical clearance in the closed position, thereby reducing delays to vehicular traffic. Additionally, a bascule span would provide resiliency against future sea level rise because the maximum channel vertical clearance in the open position is unlimited. Thus, Concept 7 would meet the objective to address operational constraints associated with the passage of marine vessels under the bridge.
- *Improve pedestrian and bicycle accommodations* - Concept 7 would improve bicycle/pedestrian facilities on the Shore Road Bridge by including a 15-foot-wide[31] shared-use path (pedestrians and bicyclists) on the south side. Thus, Concept 7 would meet the objective to improve pedestrian and bicycle accommodations.

As discussed below, Replacement Concept 7 does not meet the Level B screening criteria.

- *Reduces vehicle hours of delay and improves travel time predictability/variability by reducing the number of bridge openings required per year* - Concept 7 would reduce vehicle hours of delay and improve travel time predictability/variability by reducing the number of bridge openings required per year through an increase in clearance over the waterway in the closed position. It is estimated that a 30-foot clearance would reduce the required number of openings by 50% of the existing demand. Thus, Concept 7 would meet this screening criterion.
- *Able to maintain vehicular and non-motorized (bicycle and pedestrian) connectivity to City Island and within Pelham Bay Park during construction* – Under Concept 7, in order to maintain vehicular and non-motorized (bicycle and pedestrian) connectivity to City Island and within Pelham Bay Park during construction, a full detour of all motorized and non-motorized traffic and a temporary movable bridge structure during construction were considered.

  The vehicular detour would require rerouting all motorized traffic along an approximately two-mile route via the Hutchinson River Parkway and along park roads. Trucks and buses are prohibited on the Hutchinson River Parkway and park roads and no alternative detours exist to accommodate these vehicles. The Coastal/Hurricane Evacuation Route and associated procedures for the City Island community would also need to be modified to account for the detour.

  The detour for non-motorized vehicles would bypass a 0.7-mile segment of Shore Road from the nearest non-motorized vehicle path connections at the Bronx Victory Memorial and City Island Road with a 2.6-mile route via the existing greenways over the Bruckner Interchange Pedestrian bridges, the Hutchinson River Parkway, and the shared-use paths within Pelham Bay Park. The 2.6-mile detour is considered unreasonable for pedestrians and bicyclists due to its length.

  As an alternative to a full detour, construction of a temporary bridge was considered. Any temporary bridge carrying vehicular or non-motorized traffic, in combination or exclusively, would need to be constructed off-line and include a movable span in order to maintain navigation on the waterway. In order to carry the existing vehicular and non-motorized traffic, the temporary bridge would be required to carry four lanes of vehicular traffic and

[31] The width of the shared-use path would be finally established upon development of design criteria (in the DDR/EIS).

include a shared-use path. The temporary bridge would need to be constructed prior to demolition of the existing bridge and then removed subsequent to the construction of the new bridge, lengthening the construction period. A temporary movable bridge would require in-water work to place piers and would require that temporary approaches be built, similar to those piers and approaches that would be needed for a permanent structure. Although it is feasible to construct a temporary bridge, constructing a temporary movable bridge would require approximately the equivalent resources and effort as constructing a permanent structure. After construction of the permanent bridge is completed, the temporary movable bridge would need to be removed. Similarly, the costs associated with a temporary moveable bridge would approach the cost of a permanent moveable bridge, especially when considering the additional cost of removing the temporary bridge. For these reasons, while it is feasible to provide a temporary movable bridge, it would not be a practical or cost-efficient alternative. Under Concept 7, vehicular and non-motorized connectivity to City Island and within Pelham Bay Park would not be reasonable (feasible and practical).

Thus, Concept 7 does not meet the Level B screening criteria regarding the ability to maintain vehicular and non-motorized (bicycle and pedestrian) connectivity to City Island and within Pelham Bay Park during construction.

Replacement Concept 8 – On-Line Alignment High-Level Fixed Bridge

The profile of the bridge would have a 5% grade on the approaches and establish a fixed vertical clearance over the navigable channel **(See Figure 8)**. This concept assumes that permit approval from the USCG could be obtained for a bridge that would provide a maximum vertical clearance equal to the lowest upstream fixed structure at the New England Thruway, approximately 50 feet above the MHW level over the navigable channel. USCG approval for a fixed bridge in this location is uncertain and future navigation needs could require a higher bridge.

Replacement Concept 8 Screening

As discussed below, Replacement Concept 8 does not meet the project purpose and objectives (Level A screening).

- *Address the identified structural, geometric and operational deficiencies of the crossing* – Concept 8 would address structural and geometric deficiencies of the crossing by providing a new structure with a roadway cross section that meets current design standard lane and shoulder widths. The new structure would have new lift mechanics and technology and therefore, the concept would address deficiencies related to the operation of the lift equipment. Additionally, Concept 8 would provide a longer span over a wider part of the channel, thereby addressing the horizontal geometric deficiencies of the crossing. Thus, Concept 8 would meet the overall objective to address the structural, geometric and operational deficiencies of the crossing.
- *Address operational constraints associated with the passage of marine vessels under the bridge* – Concept 8 would address the operational constraints associated with delays to vehicular and non-motorized traffic associated with openings by providing a new fixed bridge structure. Additionally, the new fixed bridge would eliminate issues and operational deficiencies related to age, salt exposure, flooding, and obsolete equipment associated with the existing span. However, the fixed bridge would limit the passage of marine vessels that do not meet the bridge's clearance height. The vertical clearance for marine vessels at the existing bridge crossing is unlimited. By restricting the passage of vessels to those under a set height, a fixed bridge would introduce a clearance constraint at the crossing that does not currently exist. Additionally, the fixed bridge's vertical clearance could be decreased due to future sea level rise and during flooding events. As a result, the vertical

clearance of a fixed bridge would further limit the height of the marine vessels that could pass under the bridge. For these reasons, Concept 8 would not fully address operational constraints and would introduce a new operational constraint. Thus, Concept 8 would not meet the objective to address operational constraints associated with the passage of marine vessels under the bridge.

- *Improve pedestrian and bicycle accommodations* – Concept 8 would improve bicycle/pedestrian facilities on the Shore Road Bridge by including a 15-foot-wide[32] shared use path (pedestrians and bicyclists) on the south side. The higher profile bridge would require steeper grades on the approaches, which would be less desirable in a park setting for cyclists and pedestrians. Overall, Concept 8 would meet the objective to improve pedestrian and bicycle accommodations.

4.2 ALTERNATIVES THAT WILL BE STUDIED IN THE DDR/DEIS

4.2.1 No Build/Maintenance Alternative (No Build Alternative)

NEPA and CEQR require the evaluation of a No Build Alternative, which serves as the baseline condition against which the potential effects of the Build Alternative(s) are evaluated. The No Build Alternative would retain the bridge in its existing configuration. Geometric deficiencies would remain and maintenance and repairs would continue to be performed to address immediate structural and operational needs, and the safety of the traveling public. The roadway surface would be periodically repaved and appurtenances (i.e., attachments or accessories to the bridge, including bridge protective systems, traffic control devices, lighting, railings) would be repaired to the extent reasonable. Major structural degradation would not be addressed and deterioration would continue. Roadway, lane, or channel closures could be necessary in the future should repairs be insufficient to keep the bridge safe and operational. The NYCDOT would continue to incur high maintenance and operational costs to avoid the eventual closure of the bridge. Maintaining the existing structure would not meet the purpose and objectives of the Project.

4.2.1.1 No-Action Alternative – Section 404(b)(1) Guidelines

Under NEPA and the Section 404(b)(1) Guidelines, the USACE must evaluate a “no-action alternative” as part of the agency’s alternatives analysis. As per Appendix B of 33 CFR Part 325 (NEPA Implementation Procedures for the USACE Regulatory Program), the “no-action” alternative is one that results in either no construction requiring a USACE permit or the denial of a USACE permit. All of the concepts evaluated for this Project, except for the No Build Alternative described in Section 4.2.1, would likely require an Individual Permit under Section 404 of the Clean Water Act. Thus, the No-Action Alternative under the Section 404(b)(1) Guidelines is essentially the No-Build Alternative described in Section 4.2.1, which assumes no improvements as part of this Project. As part of the DDR/DEIS, the NYCDOT will continue to evaluate measures, such as design modifications, to minimize impacts to regulated waters, including wetlands, resulting from implementation of the proposed action.

4.2.2 Build Alternative – South Alignment Mid-Level Movable Bridge

The Build Alternative would replace the existing bridge with a new bridge carrying two 11-foot lanes and a 6-foot shoulder in each direction plus a 15-foot-wide[33] shared-use path (pedestrians

[32] The width of the shared-use path would be finally established upon development of design criteria (in the DDR/EIS).

[33] The width of the shared-use path would be finally established upon development of design criteria (in the DDR/EIS).

and bicyclists) on the south side. The structure would include approach roadways on retained fill, fixed multi-girder approach spans and a movable span crossing the channel **(See Figure 11)**.

The centerline of the new bridge would be located approximately 100 feet to the south of the centerline of the existing bridge **(See Figure 11)**. The alignment would transition back to meet the approaches at either end of the bridge. This off-line alignment would allow for the new structure to be built while all traffic is maintained on the existing bridge. Only short-term lane closures would be required to tie in the new approaches to the existing roadways.

The existing roadway geometry is compatible with a southern alignment as a former bridge predating the current 1908 bridge was on this alignment. The southern alignment would efficiently tie into the existing roadway and require minimal temporary roadway closures during construction. The south alignment only conflicts with one existing utility crossing, a Con Edison line that was abandoned in place in 1971. The southern alignment increases the distance between the Shore Road Bridge and the adjacent Amtrak bridge, which, when combined with spanning a wider segment of the existing mapped channel, results in a substantial improvement for navigation. Vessels would have more space to navigate the abrupt curve in the channel and greater distance between fenders of the bridge would reduce impacts.

The profile of the bridge would have a 4% grade on the approaches and establish a minimum of 30 feet of vertical clearance over the navigable channel when the movable span is in the lowered position. The profile would substantially reduce the number of span openings from current condition and would not require grade changes at the City Island Road intersection.

Two types of movable structures were considered: a twin double leaf bascule bridge and a twin single leaf bascule bridge[34]. Due to the geometry of the movable span over the navigational channel, the twin single leaf bascule bridge has distinct disadvantages and would not provide the most efficient configuration for this concept; therefore, it has been dismissed from further consideration. A twin single leaf bascule would provide a low angle of opening with a limited vertical clearance over a portion of the navigational channel. In contrast, when opened, a mid-level twin double leaf bascule span would provide unlimited vertical clearance over the full width of the navigational channel and simple access to maintain equipment that would be located below the roadway on each side of the channel. This unlimited clearance would accommodate future sea level rise and potential future increases in the heights of vessels passing the bridge in the open position. Machinery would be located in a closed pit pier with sufficient freeboard above the projected flood elevations so that sea level rise will also not impact operations of the bridge[35]. Additionally, the mid-level twin double leaf bascule span would provide a 30-foot vertical clearance in the closed position.

[34] A twin double leaf bascule bridge refers to a set of two double leaf bascule spans side by side with a total of four bascule leaves on the bridge. The twin single leaf bascule bridge refers to a set of two single leaf bascule spans side by side with a total of two bascule leaves on the bridge.

[35] Based on the “middle range” projections reported by the National Panel on Climate Change (NPCC), Sea level rise is anticipated to increase between 1.83 and 4.17 feet by 2100. This report uses the recommendation from the September 2020 NYC Climate Resiliency Design Guidelines version 4.0 with the use of 24” freeboard plus 36” sea level rise.
https://www1.nyc.gov/assets/orr/pdf/Resiliency_Design_Guidelines_v4-0.pdf

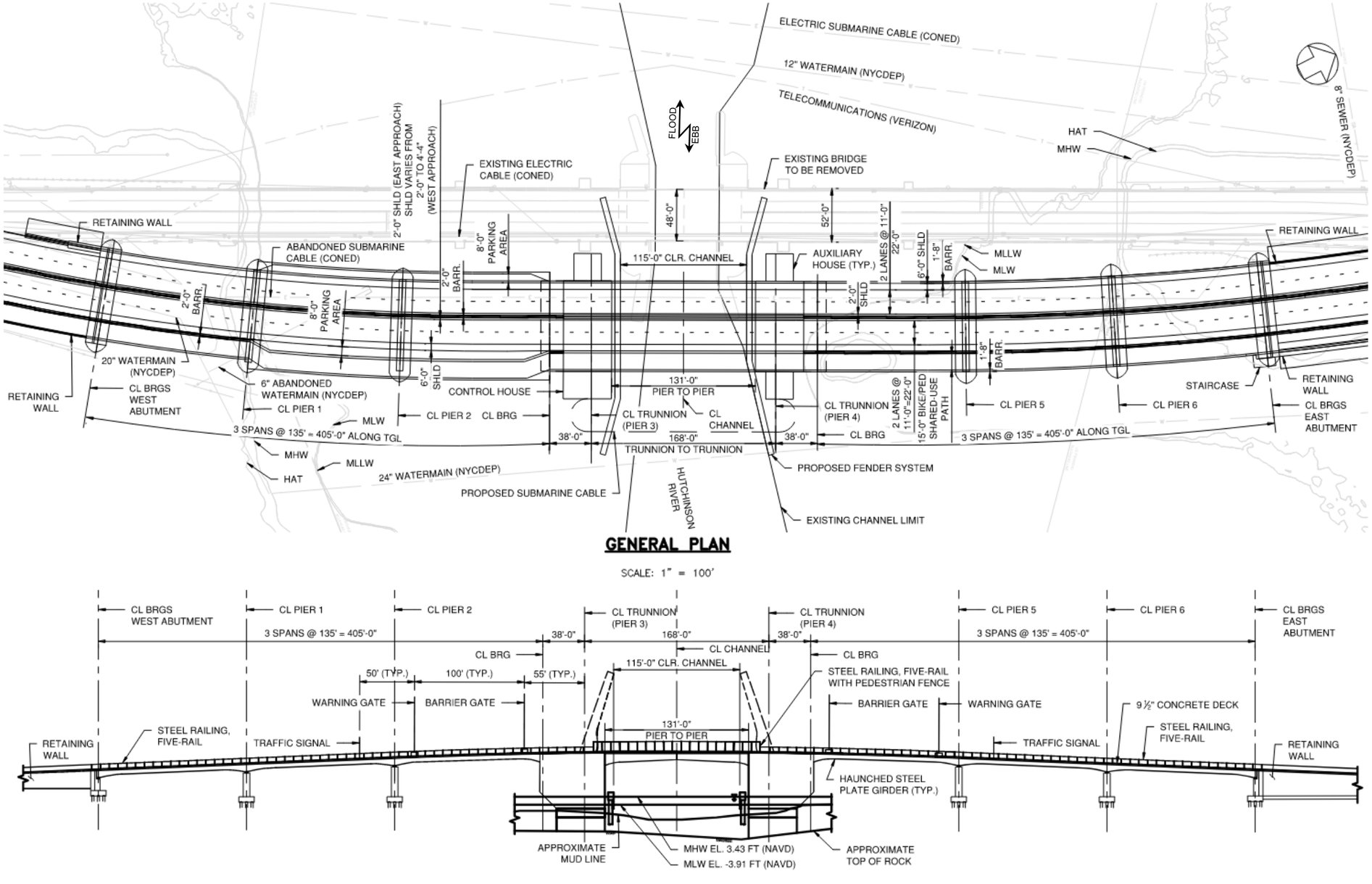


Figure 11 - Build Alternative Plan and Elevation

Build Alternative Screening

As discussed below, the Build Alternative meets the project purpose and objectives (Level A screening).

- *Address the identified structural, geometric and operational deficiencies of the crossing* – The Build Alternative would provide a longer span over a wider part of the channel, addressing the horizontal geometric deficiencies of the crossing. Additionally, the Build Alternative would address structural and geometric deficiencies of the crossing by providing a new structure that meets current design standards by upgrading the lanes and shoulders to the standard widths. Thus, the Build Alternative would meet the overall objective to address the structural, geometric and operational deficiencies of the crossing.
- *Address operational constraints associated with the passage of marine vessels under the bridge* - the Build Alternative would address the operational constraints associated with delays to vehicular and non-motorized traffic associated with openings. The Build Alternative would require approximately half the openings of the existing bridge due to the 30-foot vertical clearance in the closed position, reducing delays to vehicular traffic. Additionally, a bascule span would provide resiliency against future sea level rise because the maximum channel vertical clearance in the open position is unlimited. Thus, the Build Alternative would meet the objective to address operational constraints associated with the passage of marine vessels under the bridge.
- *Improve pedestrian and bicycle accommodations* - The Build Alternative would improve bicycle/pedestrian facilities on the Shore Road Bridge through the addition of a 15-foot-wide[36] shared-use path (pedestrians and bicyclists) on the south side. The Build Alternative would meet the objective to improve pedestrian and bicycle accommodations.

As discussed below, the Build Alternative meets the Level B screening criteria.

- *Reduces vehicle hours of delay and improves travel time predictability/variability by reducing the number of bridge openings required per year* – The Build Alternative would reduce vehicle hours of delay and improve travel time predictability/variability by reducing the number of bridge openings required per year through an increase in clearance over the waterway in the closed position. It is estimated that a 30-foot clearance would reduce the required number of openings by 50% of the existing demand since more smaller vessels could pass without a span opening.
- *Able to maintain vehicular and non-motorized (bicycle and pedestrian) connectivity to City Island and within Pelham Bay Park during construction* - The Build Alternative would maintain vehicular and non-motorized (bicycle and pedestrian) connectivity to City Island and within Pelham Bay Park during construction by leaving the existing bridge in place to carry traffic during construction. No detours or other temporary offline structures would be required to construct the Build Alternative.

[36] The width of the shared-use path would be finally established upon development of design criteria (in the DDR/EIS).

Table 4-1
Level A Screening Evaluation

Alternative / Concept	Meets Project Purpose	Project Objectives			Move to Level B Screening
		Address the identified structural, geometric and operational deficiencies of the crossing	Address operational constraints associated with the passage of marine vessels under the bridge	Improve bicycle/pedestrian facilities on the Shore Road Bridge	
No Build Alternative[1]	-	-	-	-	-
Build Alternative – South Alignment Mid-Level Movable	✓	✓	✓	✓	✓
Rehabilitation Alternative	✗	✗	✗	✓	✗
Concept 1 – South Alignment Low-Level Movable	✗	✗	✗	✓	✗
Concept 2 – South Alignment High-Level Fixed	✗	✓	✗	✓	✗
Concept 3 – North Alignment Low-Level Movable	✗	✗	✗	✓	✗
Concept 4 – North Alignment Mid-Level Movable	✗	✓	✗	✓	✗
Concept 5 – North Alignment High-Level Fixed	✗	✓	✗	✓	✗
Concept 6 – On-Line Alignment Low-Level Movable	✗	✗	✗	✓	✗
Concept 7 – On-Line Alignment Mid-Level Movable	✓	✓	✓	✓	✓
Concept 8 – On-Line Alignment High-Level Fixed	✗	✓	✗	✓	✗

Notes:
[1] The No Build Alternative does not meet the purpose and objectives of the Project. However, NEPA and CEQR require the evaluation of the No Build Alternative, which serves as the baseline condition against which the potential effects of the Build Alternatives are evaluated.

Table 4-2
Level B Screening Evaluation

Alternative / Concept	Meets Level A Screening	Screening Criteria		Advance Into DDR/DEIS
		Reduces vehicle hours of delay and improves travel time predictability/variability by reducing the number of bridge openings required per year	Able to maintain vehicular and non-motorized (bicycle and pedestrian) connectivity to City Island and within Pelham Bay Park during construction	
No Build Alternative[1]	-	-	-	✓
Build Alternative – South Alignment Mid-Level Movable	✓	✓	✓	✓
Rehabilitation Alternative	✗	-	-	✗
Concept 1 – South Alignment Low-Level Movable	✗	-	-	✗
Concept 2 – South Alignment High-Level Fixed	✗	-	-	✗
Concept 3 – North Alignment Low-Level Movable	✗	-	-	✗
Concept 4 – North Alignment Mid-Level Movable	✗	-	-	✗
Concept 5 – North Alignment High-Level Fixed	✗	-	-	✗
Concept 6 – On-Line Alignment Low-Level Movable	✗	-	-	✗
Concept 7 – On-Line Alignment Mid-Level Movable	✓	✓	✗	✗
Concept 8 – On-Line Alignment High-Level Fixed	✗	-	-	✗

4.3 ALTERNATIVES BEING ADVANCED FOR DETAILED STUDY IN THE DDR/DEIS

Based on the multi-tiered screening summarized in **Tables 4-1** and **4-2** above, the following alternatives will be advanced for detailed study in the DDR/DEIS:

A. No Build Alternative

B. Replacement with a Mid-Level Movable Bridge on a South Alignment (Build Alternative)

5. ANALYSIS METHODOLOGIES: SOCIAL, ECONOMIC, AND ENVIRONMENTAL CONSIDERATIONS

5.1 INTRODUCTION

5.1.1 Environmental Classification

The Project is classified as a NEPA Class I action under 23 CFR 771, which requires the preparation of a federal EIS to determine the likely impacts of the Project on the environment.

The Project is classified as a SEQRA non-Type II action and CEQR Type 1 action, indicating that the Project has the potential for significant environmental impacts or substantial controversy on environmental grounds that should be evaluated under SEQRA and CEQR.

5.1.2 Preparation of EIS

The FHWA, as Federal Lead Agency, the NYSDOT, as joint lead agency, and the NYCDOT, as project sponsor and joint lead agency, will advance the Project through the NEPA EIS process in consideration of public and agency comments received on the Project. Given that a federal EIS is being prepared, the NYSDOT and other New York State agencies undertaking a discretionary action for this Project have no obligation to prepare an additional EIS under SEQRA.

As noted in Section 310 of the 2020 *CEQR Technical Manual*:

> "NEPA's regulations, found at 40 CFR Part 1506, provide for a process to coordinate the federal and state and/or City procedures to achieve savings of time and money and to avoid duplicative procedures. Federal agencies must cooperate with City agencies 'to the fullest extent possible to reduce duplication between NEPA and state and local requirements,' by such means as (1) joint planning processes, (2) joint environmental research and studies, (3) joint public hearings, and (4) joint environmental assessments."

As such, one environmental review process will be conducted and one EIS document will be prepared to satisfy SEQRA, CEQR and NEPA requirements. The DDR/DEIS will address any additional analyses required for CEQR, including Public Health, Greenhouse Gas Emissions and Climate Change, and Shadows. **Appendix C** contains a table showing what topics and CEQR technical area categories will be covered in each section of the DDR/DEIS.

The following sections describe the proposed methodology for the technical analyses.

5.1.3 Study Area

The Project is located along the 1.2-mile-long section of Shore Road between the Bruckner Expressway and Orchard Beach Road (see **Figure 12**). The General Study Area for the Project is comprised of a 400-foot radius from the area extending along Shore Road east 900 feet beyond the intersection of Shore Road and City Island Road; along Shore Road west 575 feet beyond the tip of the physical gore formed by intersecting Shore Road and Crimi Road; along Crimi Road 900 feet beyond the tip of the physical gore formed by intersecting of Shore Road and Crimi Road; and along City Island Road south 375 feet beyond the intersection of Shore Road and City Island Road. This General Study Area will be used for the evaluation of most social, economic, and environmental topics. However, for some topics, the Study Area may vary, depending on environmental methodologies and analysis requirements.

Figure 12 - Study Area

5.1.4 Analysis Years

Depending on the type of analysis being conducted, the following analysis years will be used in the DDR/DEIS:

- Estimated Time of Completion (the projected build year; ETC) (2029);
- Design Year, which is ETC plus 20 years (ETC+20) (2049); and
- Construction Year (generally the year representing the mid-point of construction) (2028).

5.1.5 Analysis Methodologies

The social, economic and environmental studies will be conducted in accordance with the principal guidance documents and sources listed below. Additional guidance and procedures will be consulted as relevant for technical topics or as needed to resolve unique conditions or circumstances.

- FHWA's "Environmental Impact and Related Procedures" (23 CFR 771) and the *Environmental Review Toolkit*;
- NYSDOT's *The Environmental Manual* (TEM) and *Project Development Manual* (PDM)[37];
- New York City Mayor's Office of Environmental Coordination's *CEQR Technical Manual*[38];
- Other applicable guidance and procedures.

Additional information on the methodologies to be followed for each topic are provided in the below sections. Note that for any resource categories/technical analyses where operational or construction impacts are identified, measures to avoid, minimize, or otherwise mitigate adverse impacts would be identified and discussed in the DDR/DEIS.

5.1.6 Potential Permits, Approvals, Concurrences, and Consultation

Anticipated permits, approvals, concurrences, and consultation for the Project are listed below. This list will be refined as NYCDOT further develops the project design and the potential effects that would result from implementation of the Project are identified. The refined list will be presented in the DDR/DEIS. The following permits, approvals, concurrences, and consultation are anticipated for the Project:

- Federal Highway Administration (FHWA)
  - Determination under Section 4(f) of the U.S. Department of Transportation Act of 1966: Parks, Recreation Areas, Wildlife and Waterfowl Refuges, and Historic Sites (23 CFR § 774)
  - Determination under Section 106 of the National Historic Preservation Act of 1966 (NHPA; Section 106)
- U.S. Army Corps of Engineers (USACE)
  - Individual Permit under Section 404 Clean Water Act (33 USC 1344)
  - Individual Permit under Section 10 Rivers and Harbors Act (33 USC 403)
  - Section 408 Authorization (33 USC 408)
- U.S. Coast Guard (USCG)
  - Bridge Permit (23 CFR §650.807)
  - Navigable Waterway Determination (33 CFR § 2.40)
- National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS)
  - Consultation under Section 7 Endangered Species Act 16 U.S.C. 1536

[37] The NYSDOT TEM is available at the following website: https://www.dot.ny.gov/divisions/engineering/environmental-analysis/manuals-and-guidance/epm

The complete NYSDOT *PDM* is available at the following website: https://www.dot.ny.gov/divisions/engineering/design/dqab/pdm

[38] The complete *2020 CEQR Technical Manual* is available at: https://www1.nyc.gov/site/oec/environmental-quality-review/technical-manual.page

    - NMFS Essential Fish Habitat Consultation under the Magnuson-Stevens Fisher Conservation and Management Act and the Fish and Wildlife Coordination Act
  - U.S. Department of Interior, National Park Service (NPS)
    - Determination under Section 6(f) of the Land and Water Conservation Fund Act of 1965
  - U.S. Environmental Protection Agency (USEPA)
    - Consultation under Section 309, Clean Air Act
    - Water Quality Certification under Section 401 of the Clean Water Act (33 USC 1341)
    - Consultation under Section 404, Clean Water Act
- U.S. Department of the Interior, Fish and Wildlife Service (USFWS)
  - Consultation under Section 7 of the Endangered Species Act
- Advisory Council on Historic Preservation (ACHP)
  - Consultation related to Section 106 of the National Historic Preservation Act
- New York State Department of Environmental Conservation (NYSDEC)
  - Coordination regarding Environmental Conservation Law (ECL) Article 15 [Protection of Waters] Wetlands Permit
  - Coordination pursuant to NYSDEC/NYSDOT Memorandum of Understanding (MOU) Regarding Environmental Conservation Law (ECL) Article 11 & 13
  - Coordination regarding Environmental Conservation Law (ECL) Article 25 [Tidal Wetlands] Permit
  - State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activities (ECL Article 17)
- New York State Department of State (NYSDOS)
  - Federal Aid Notification
  - State Coastal Zone Consistency certification under the Coastal Zone Management (CZM) Program
- New York State Parks, Recreation, and Historic Preservation, State Historic Preservation Office (SHPO)
  - Consultation under Section 106 of the National Historic Preservation Act
  - Consultation under Section 4(f) of the U.S. Department of Transportation Act of 1966: Parks, Recreation Areas, Wildlife and Waterfowl Refuges, and Historic Sites (23 CFR § 774)
- New York City Department of City Planning (NYCDCP)
  - Coastal Zone Consistency Coordination
  - Compliance with Waterfront Revitalization Plan Coordination
- New York City Department of Transportation (NYCDOT)
  - Office of Construction Mitigation and Coordination (OCMC) Coordination during construction/approval of any Maintenance and Protection of Traffic (MPT) Plans
- New York City Department of Environmental Protection (NYCDEP)
- New York City Department of Parks and Recreation (NYC Parks)
- Metropolitan Transit Authority (MTA)
- Utilities Coordination

The Project must also comply with Executive Order 11990 “Protection of Wetlands,” Executive Order 11988 “Floodplain Management,” and Executive Order 12898 “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.

5.2 SOCIAL CONSIDERATIONS

5.2.1 Land Use

An assessment of existing land use will be conducted as part of the DDR/DEIS. This assessment will characterize the uses and development trends in the area that could be affected by the Project, describe the public policies that guide development, and determine whether the Project would be compatible with those conditions and policies. The land use assessment will include the following:

- Identify other future projects in the Study Area that will be completed by the analysis year. Describe how these projects will affect land use patterns and development trends. Also, describe any pending zoning actions or other public policy actions that could affect land use patterns and trends in the Study Area, including plans for public improvement.
- Assess the impacts of the Project on land use and land use trends, zoning, and public policy. Project impacts related to issues of compatibility with surrounding land use (including sensitive uses and neighborhood activity patterns), consistency with zoning and other public policies, and the effect of the Project on development trends and conditions in the area will be assessed.

The land use assessment will also include an evaluation of how the Project meets the ten criteria of the New York State Smart Growth Public Infrastructure Policy Act.

The area in the vicinity of the Shore Road Bridge is comprised of various land uses, including public parks and residential. Pelham Bay Park, New York City's largest public park, makes up a large portion of land use in the Study Area.

5.2.2 Neighborhoods and Community Cohesion

Potential effects to neighborhood and community cohesion will be evaluated as part of the DDR/DEIS. The neighborhoods and community cohesion assessment will consider the characteristics that contribute to a resident's attachment to their neighbors and that affect neighborhood and community character and cohesion, including population, housing, economic activity, land use, open space, historic and cultural resources, urban design, visual resources, transportation, and noise. The assessment will involve identifying the defining features of the area that contribute to its character, and examining the potential for the Project to divide or unite neighborhoods, isolate or unite communities, generate new development, and affect development trends through a comparison of future conditions both with and without the Project.

Public health is an important component of neighborhood character. A public health assessment may be warranted if an unmitigated adverse impact is identified in certain other analysis areas, such as air quality, water quality, hazardous materials, or noise. If unmitigated adverse impacts are identified in any one of these technical areas and NYCDOT determines that a public health assessment is warranted, an analysis will be provided for that specific technical area. This assessment, if warranted, would be conducted to fulfill CEQR requirements.

The area intersects with Bronx Community Boards 10, 11, and 12, and includes the Pelham Bay Park, Baychester, Pelham Gardens, Orchard Beach, City Island, and Co-Op City Neighborhoods.

5.2.3 Social Groups Benefited or Harmed, Including Environmental Justice

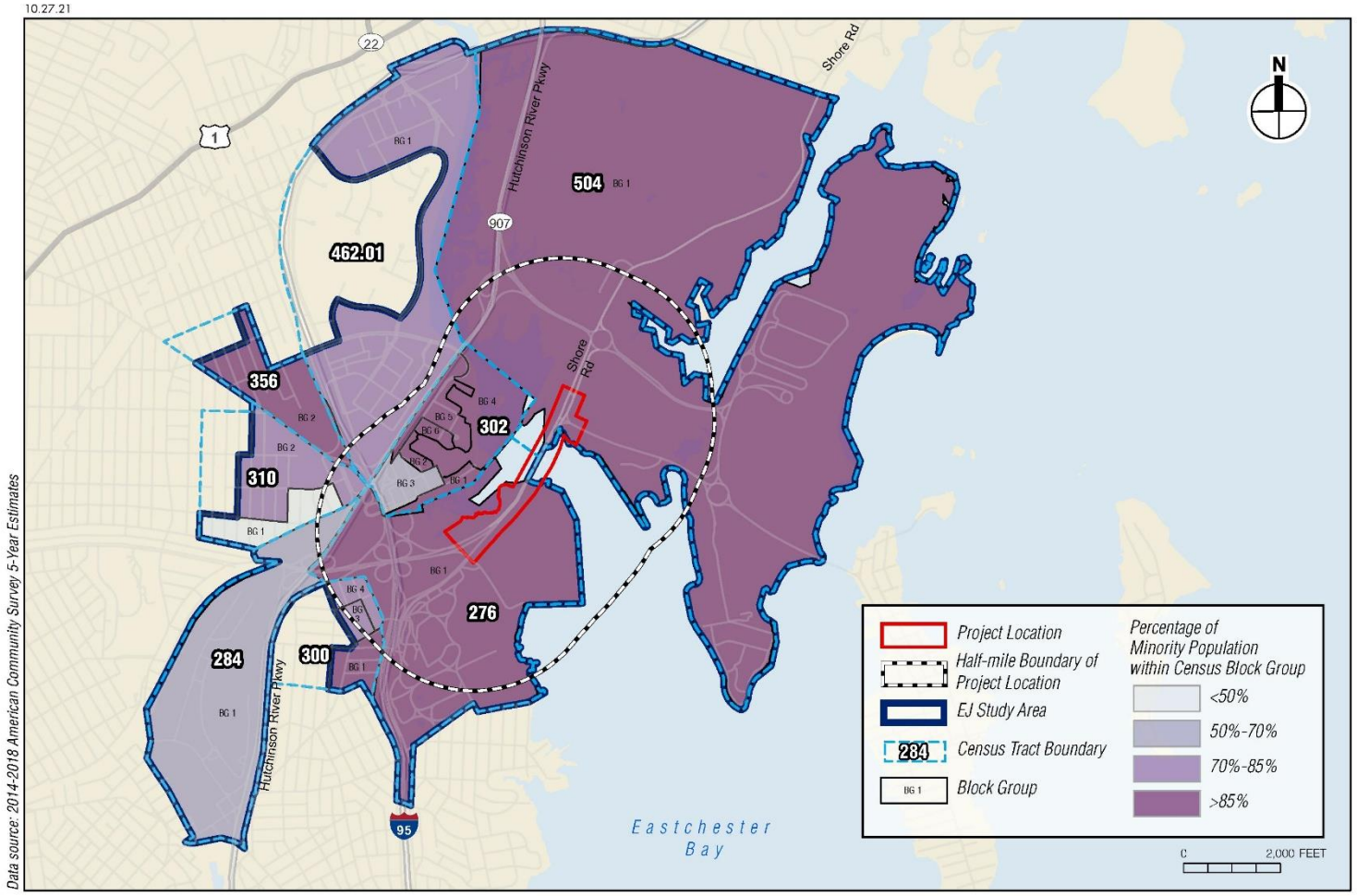
The DDR/DEIS will include an assessment of the potential for the Project to result in disproportionately high and adverse impacts on minority and low-income populations, in compliance with Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" (February 11, 1994).

The assessment will follow methodologies and guidance established by the CEQ, U.S. Department of Transportation (USDOT) Order 5610.2(a), and the FHWA Order 6640.23A, including the FHWA's G*uidance on Environmental Justice and NEPA* (December 2011), the FHWA's *Environmental Reference Guide* (April 2015), the U.S. Environmental Protection Agency's (USEPA) *Promising Practices for EJ Methodologies in NEPA Reviews* (March 2016), and the NYSDOT's *TEM*. In accordance with USDOT policy, this assessment will help ensure that "positive corrective action can be taken" to avoid or minimize disproportionately high and adverse impacts.[39]

- In general, the EJ Study Area in the DDR/DEIS will include block groups (consistent with the most recent Census data available) within or adjacent to a ½-mile buffer from the Project Limits. If the technical assessments indicate the potential for adverse impacts in areas outside the ½-mile buffer, the Study Area will be expanded accordingly. EJ communities (i.e., minority and/or low-income populations) within the Study Area are shown in **Figure 13a and 13b**.
- Based on a preliminary review using tract level 2014-2018 American Community Survey (ACS) – 5-year estimate Census data, the majority of the census tracts located within the project Study Area have greater than 85 percent minority populations. This preliminary review indicates the Study Area would be within an EJ community. See **Figure 13a**.
- EJ communities within the Study Area will be identified (as defined by the FHWA Order 6640.23A) using data from the most recent U.S. Census data and, if appropriate, the most recent ACS data.
- The EJ assessment will examine the potential effects of the Project for the full range of environmental topic areas addressed in the DDR/DEIS and then determine whether the Project would potentially result in disproportionately high and adverse (direct or indirect) impacts on minority and low-income populations.
- If potential disproportionately high and adverse impacts are identified, potential measures to avoid or reduce the disproportionately high and adverse effects or to otherwise mitigate impacts on environmental justice communities will be discussed.
- Meaningful efforts to engage environmental justice communities in the Project will be identified and undertaken.

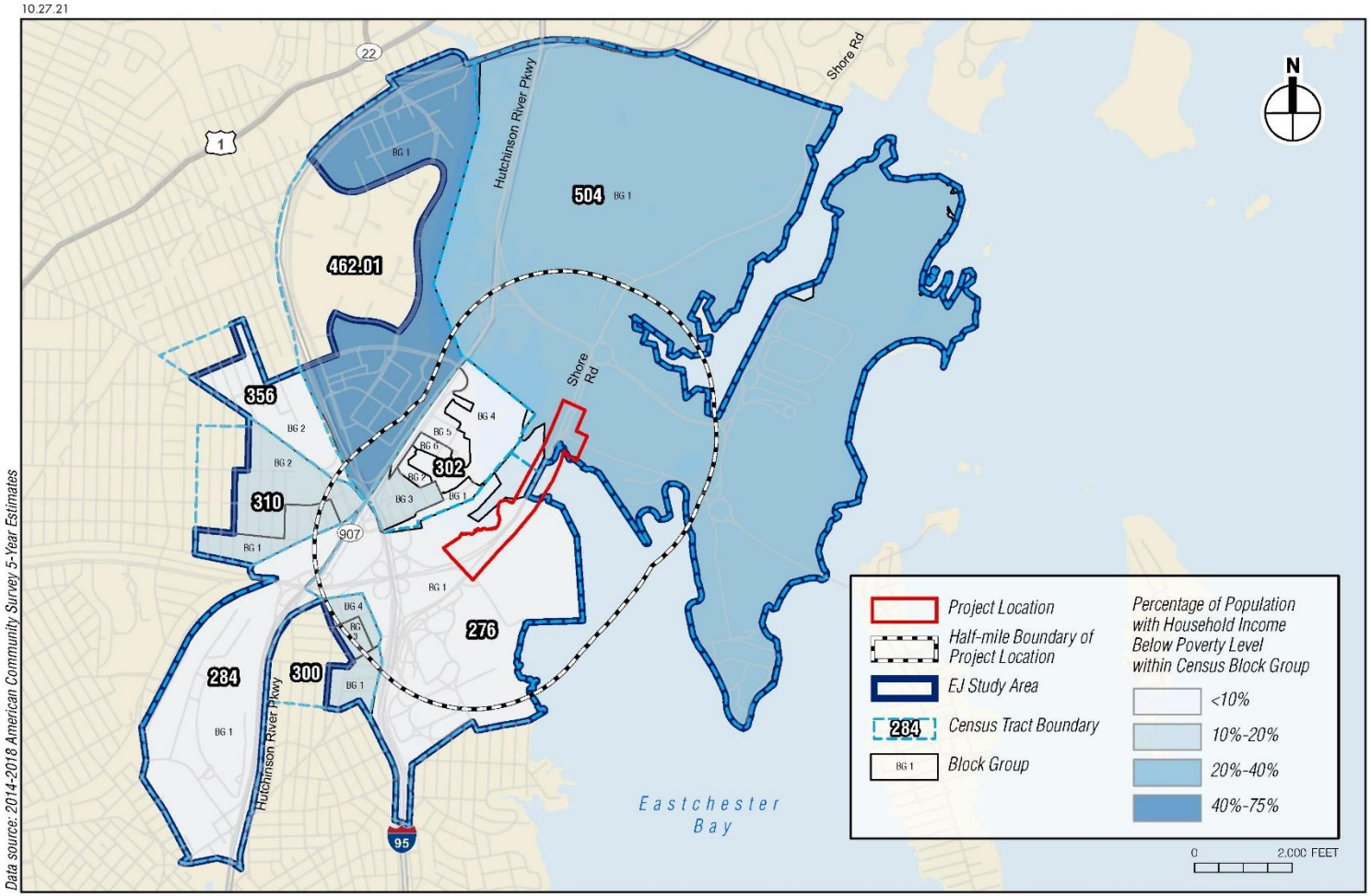
This assessment will also identify other populations of special concern, including limited-mobility populations (including elderly, disabled, and transit-dependent populations) within the Study Area and will assess impacts on the identified populations.

[39] USDOT, "Department of Transportation Updated Environmental Justice Order 5610.2(a)." May 2012.



Percentage of Minority Population within Census Block Group

Figure 13a – Percentage of Minority Population within Census Block Group



Percentage of Population with Household Income Below Poverty Level within Census Block Group

Figure 13b – Percentage of Population with Household Income Below Poverty Level within Census Block Group

5.2.4 Community Facilities

The DDR/DEIS will identify school districts, libraries, childcare centers, health care facilities, places of worship, government service providers, civic centers (e.g., senior centers) and fire, police protection, ambulance, and other emergency services facilities, and will assess the potential effect of the Project on these facilities and services, in accordance with the methodologies established in the *CEQR Technical Manual*. Project effects can include physical displacement or alteration, or direct or induced changes in population that could affect the services delivered by a community facility, such as by creating a demand that could not be met by the existing facility.

5.3 ECONOMIC CONSIDERATIONS

The economic character of an area includes its local economy and its place in the regional economy; local business districts; and specific businesses. Economic changes can occur when a project directly or indirectly changes any of these elements. The DDR/DEIS will include an assessment of the Project's effects on those elements of economic character, as well as any specific impacts due to direct or indirect business displacement or adverse effects on a specific industry, including any potential effects on access to and operation of businesses within the Study Area.

The assessment will describe the types of businesses and employment, changes to businesses and employment due to other anticipated projects in the area, and any impacts on businesses and employment in the Study Area due to the Project as well as any anticipated improvements in accessibility. The Study Area for economic character will be defined separately and extend on a regional scale. The assessment will be carried out in accordance with the methodologies established in the *CEQR Technical Manual*.

5.4 TRANSPORTATION CONSIDERATIONS

The DDR/DEIS will include an analysis of the traffic flow for the Project for the 2029 Build Year – Estimated Time of Completion (ETC), and in the Design Year (ETC+20). The existing and ETC+20 (No-Build) traffic volumes are provided in **Table 5-1**.

Table 5-1
Existing and ETC+20 (No-Build) Traffic Volumes

Time Period	Fall 2017 Traffic		Summer 2018 Traffic		Pedestrians	
	Existing (2017)	ETC+20 (2049)	Existing (2018)	ETC+20 (2049)	Existing (2017)	ETC+20 (2049)
Weekday AM	1,340	1,843	975	1,326	17	18
Weekday MD	895	1,229	1,280	1,741	14	15
Weekday PM	1,425	1,959	1,810	2,464	21	22
SATURDAY MD	1,800	2,474	1,890	2,573	54	57
Sunday MD	-	-	3,085	4,200	-	-

The DDR/DEIS will include a quantified traffic analysis, peak hour and Study Area determinations, network and intersection level of service analysis, and identification of impacts, generally based on the threshold criteria in the CEQR Technical Manual, NYSDOT Highway Design Manual (HDM), and NYSDOT PDM.

A detailed analysis of traffic crashes on the bridge will be prepared, examining the most recently available three years of crash data. In addition, as the Project will involve an extended (three-

year) construction period and potential temporary traffic changes, an assessment during the construction period will also be provided. Lastly, the effect of the Project on transit (bus), pedestrian, bicycle, and waterway traffic during the construction period, upon project completion in 2029, and in the long term will be examined. The traffic information developed will also be used in the impact analyses for noise and air quality.

- Define the transportation Study Area. The Study Area will include the existing Shore Road Bridge itself, the intersection of the Bronx and Pelham Parkway and Crimi Road to the west of the bridge, and the intersection of Shore Road and City Island Road to the east of the bridge.
- Determine existing traffic conditions. For the weekday AM and PM peak periods and for weekend midday peak periods, determine existing hourly traffic volumes along the Shore Road Bridge, based on available data or through the use of automatic traffic recorders. Perform traffic counts to determine peak hour volumes and turning movements at critical locations. If determined necessary, the previously collected traffic data will be supplemented by "update" field surveys, to be performed on weekdays, not including Friday or Monday and a weekend. As needed, counts will be performed during both regular traffic conditions (during the school year), and for summer conditions, to account for the Orchard Beach traffic. Average travel speeds along the Shore Road Bridge during the peak periods will also be determined.
- Determine level-of-service (LOS) during the weekday AM and PM peak periods and for weekend midday peak periods. This analysis will utilize the procedures and methodologies contained in the *CEQR Technical Manual* and will be based on the *2010 Highway Capacity Manual*.
- Collect the three most recent years of crash data on and around the bridge and prepare a crash analysis.
- Determine existing pedestrian and public transportation service. Where applicable, assess and extrapolate (or perform field surveys) existing pedestrian activity to summertime levels.
- Determine future conditions without the Project. Using an accepted annual growth rate and including any known background projects and operational and geometric changes in the area, determine future conditions without the Project (i.e., No Build Alternative). Determine peak hour traffic volumes along the Shore Road Bridge and other locations under study. Assess LOS without the Project at these locations using the methodologies described above.
- Assess any changes anticipated in pedestrian activity or public transportation service in the Study Area by the future analysis year. Examine projects that may affect the Project or access issues that may arise due to new construction. Determine future levels of pedestrian activity and public transportation through conversations with various concerned agencies including MTA New York City Transit (NYCT).
- Assess operational impacts of the Project. Describe impacts, both beneficial and adverse, of the Project within the Study Area.
- Assess the operational improvements along the Shore Road Bridge due to the Project and assess potential changes in traffic patterns. Compute LOS for the weekday AM and PM peak periods and for a weekend midday peak period.
- Describe any changes to the roadway geometry that could affect either the bridge itself; the intersection of the Bronx and Pelham Parkway and Crimi Road to the west of the bridge; and the intersection of Shore Road and City Island Road to the east of

the bridge. If any changes are planned, determine what effect they could have on LOS or access.

- Determine the long-term effect, if any, on pedestrian activity and public transportation within the Study Area. The assessment will not be limited to adverse impacts and may show improved pedestrian LOS.
- If the Project results in short- or long-term adverse impacts, examine measures to mitigate these potential impacts.

A Navigation Impact Report (NIR) has been prepared in accordance with Appendix A of the July 2016 Office of Bridge Programs, U.S. Coast Guard Bridge Permit Application Guide. A copy of the NIR is included in **APPENDIX D**.

- Describes the current and future navigation trends along the Hutchinson River.
- Assesses any changes anticipated in maritime traffic as a result of the Project. Utilizes bridge operation logs as well as feedback received through a consultant - developed outreach program to relate frequency of bridge openings with the vertical clearance required by vessels that navigate the river.

5.5 ENVIRONMENTAL CONSIDERATIONS

5.5.1 Air Quality

Since federal funds could be used for the Project, it will be necessary to show that the Project is compatible with the State Implementation Plan (SIP) for air quality. This will include a review of the Project's compliance with federal transportation conformity regulations. The DDR/DEIS will include a description of existing air quality and discuss ambient air quality conditions within the Study Area based on data obtained from NYSDEC's annual Air Quality Report Ambient Air Monitoring System. In addition, NYCDEP and NYSDEC will be contacted for the latest available information regarding SIP and attainment status[40] for Bronx County. Transportation Control Measures (TCMs) in the SIP that may apply to the Shore Road Project will be identified.

Air quality analyses for this Project could include a particulate matter microscale analysis, mesoscale analysis, and mobile source air toxic analysis. The analyses will be conducted in accordance with methodologies in the *CEQR Technical Manual*, NYSDOT's TEM Chapter 1.1, FHWA guidance, USEPA guidance, and using the most recent version of USEPA's MOVES model. The analyses will be based on traffic data developed for the Project.

5.5.2 Energy

An energy consumption analysis will be conducted as part of the DDR/DEIS. The DDR/DEIS will include a qualitative assessment of the Project's potential effects on utility energy and will estimate the Project's direct and indirect energy consumption during construction (i.e., energy required to produce and transport construction materials). This analysis will be carried out in accordance with the methodologies established in the NYSDOT's *TEM* and the *CEQR Technical Manual*.

[40] Nonattainment areas are any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for a National Ambient Air Quality Standards (NAAQS). Attainment areas meet the national primary or secondary ambient air quality standard for a NAAQS. Bronx County is designated nonattainment for 8-Hour Ozone (2008) and 8-Hour Ozone (2015). For more information, please refer to the following link: https://www3.epa.gov/airquality/greenbook/anayo_ny.html.

5.5.3 Greenhouse Gas Emissions and Climate Change

The DDR/DEIS will include an analysis of the Project's potential effects on direct (on-road) greenhouse gas (GHG) emissions and the susceptibility of project elements to flooding and extreme weather events. The GHG emissions analysis will quantify Project-generated GHG emissions and assess the consistency of the Project with the State's and City's established GHG reduction goals. Emissions will be estimated based on the change in vehicle speeds and miles traveled due to the Project. On-road vehicle direct energy consumption (estimated as described in Section 5.5.2, above) and GHG emissions associated with vehicle operations will be estimated based on forecasts of vehicle miles traveled (VMT). Features of the Project that demonstrate consistency with the City's GHG reduction goal will be described. As applicable, the analysis will be prepared by using the most recent version of USEPA's MOVES model and NYSDOT guidance.

5.5.4 Traffic Noise

The Project is categorized as a Type I noise project as per FHWA noise Regulations (23 CFR 772) and the NYSDOT Noise Policy (TEM Section 4.4.18 "Noise Analysis Policy and Procedures") and thus requires a traffic noise analysis. The analysis will follow the procedures described in the NYSDOT Noise Policy and the *CEQR Technical Manual* (Chapter 19 – Noise). The analysis will use traffic data developed for the Project. Existing and future traffic noise levels will be generated using the FHWA Traffic Noise Model (TNM) and used to determine impacts. If impacts are identified, noise abatement measures will be evaluated.

5.5.5 Historic and Cultural Resources

The Project is a federal undertaking subject to review under Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA), and its implementing regulations, 36 CFR Part 800. Section 106 requires federal agencies to take into account the effects of their undertakings on historic properties, defined as "any prehistoric or historic district, site, building, structure or object included in, or eligible for inclusion in the National Register of Historic Places" (36 CFR Part 800.16(l)(1), and to provide the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment. During the development of the EIS, the project's effects on historic properties will be evaluated through the Section 106 process, with the goal of seeking ways to avoid, minimize or mitigate any adverse effects.

Research will be undertaken to document known historic properties within the vicinity of the Project. Historic properties identified to date, using information provided in the NYS Office of Parks, Recreation and Historic Preservation Cultural Resource Information System (CRIS), include the Shore Road Bridge (BIN 2240200; aka Pelham Parkway Bridge), the Pelham Bay Park Historic District, and the Amtrak Pelham Bridge.

Following established standards and procedures, the identification of historic properties that could be affected by the Project will be completed and the effects to those properties will be evaluated.

5.5.6 Parks and Recreational Resources

Potential effects to parks and recreational resources will be evaluated during the development of the EIS. The assessment of effects on open spaces and recreational resources in the Study Area will be performed in accordance with the methodologies established in the *CEQR Technical Manual*.

This assessment will discuss potential effects on parks, open spaces, and recreational resources, including physical changes resulting from the construction of the Project and other activities that could alter the use of an open space or facility so that it no longer serves the same user population, limits public access to an open space, or results in conditions (such as increased noise, air

pollutant emissions, odor, or shadows) that would temporarily or permanently affect the use of a public open space or facility.

The Project is subject to review by the USDOT and FHWA and is therefore subject to review under Section 4(f) of the U.S. Department of Transportation Act of 1966. Section 4(f) requires the consideration of park and recreational lands, wildlife and waterfowl refuges, and historic sites in transportation project development. A Section 4(f) evaluation will be conducted concurrently with the EIS, as needed. Section 4(f) is described in more detail in **Section 5.10**.

Section 6(f) of the Land and Water Conservation Fund (LWCF) Act of 1965 (now 16 USC § 460i-4) requires that the conversion of lands or facilities acquired with LWCF Act funds under the State Assistance program be coordinated with the National Park Service (NPS). Section 6(f) is described in more detail in **Section 5.11**.

Parks and recreational resources located in the Study Area include Pelham Bay Park, the Mosholu-Pelham Greenway and East Coast Greenway. The Pelham Bay Park and the Greenways are resources subject to Section 4(f) and Section 6(f).

5.5.7 Visual Resources

A Visual Impact Assessment (VIA) will be completed for the Project in accordance with FHWA's "Guidelines for Visual Impact Assessment of Highway Projects" and the *CEQR Technical Manual*. The VIA will consist of an evaluation of the Project, including photo simulations, to assess its impacts, both beneficial and/or adverse, on the visual resources within the VIA Study Area. The visual environment includes schools, places of worship, parkland facilities, nature preserves, marinas, water bodies, residences, and historic sites. If adverse visual effects are anticipated, measures to avoid, minimize, and/or compensate for the adverse effect, in accordance with FHWA's guidelines, will be considered.

This VIA will assess the potential impacts of removing the existing bridge and constructing the new bridge on the urban design and visual resources of the surrounding area and its viewer groups.

5.5.8 Natural Resources

The Project is within or adjacent to areas characterized by roadside habitat, upland forest, tidal wetlands, surface waters of the Hutchinson River, and Pelham Bay Park. An evaluation of natural resources will be conducted to determine if the Project could result in direct or indirect effects to identified natural resources within the Study Area. A desktop review of available information from NYSDEC, USFWS, NOAA/NMFS, United States Geological Survey (USGS), NYCDEP, the Harbor River Estuary Program, and publicly available empirical studies, in addition to field surveys conducted in the vicinity of the Study Area, will inform the natural resources analysis.

The evaluation will be based on site investigations, review of existing information, and consultation with regulatory agencies, including the NYSDEC, USFWS, NOAA/NMFS, and NYC Parks.

The evaluation will be conducted in accordance with appropriate regulations, including, but not limited to: Executive Order 11988, Floodplain Management; Executive Order 11990, Protection of Wetlands; Executive Order 13112, Invasive Species; the Endangered Species Act of 1973; the Fish and Wildlife Coordination Act; the Migratory Bird Treaty Act; Section 1424(e) of the Safe Drinking Water Act; the Coastal Barrier Resource Act of 1982; the Bald and Golden Eagle Protection Act (BGEPA); New York State's Endangered and Threatened Species of Fish and Wildlife, Species of Special Concern Regulations; New York State's Protected Plants regulations; New York City Local Law 3 of 2010 (city regulated trees); and the methodologies established in the *CEQR Technical Manual* related to surface waters, groundwater, and general ecology

resources and wildlife. The Project will be evaluated for consistency with the coastal zone polices outlined in the NYC WRP.

5.5.8.1 Wetlands

Based on review of the National Wetlands Inventory maps, Federal jurisdictional wetlands are located in the vicinity of the Study Area. These include the Hutchinson River (E1UBL), intertidal wetlands (E2EM1P, E2EM1N, E2US2N), permanently flooded tidal wetland areas (PUBV), and palustrine excavated areas (PUBHx) (**Figure 14a**).

Based on review of NYSDEC freshwater wetland maps, there are no NYSDEC jurisdictional freshwater wetlands or 100-foot regulated adjacent areas located within the vicinity of the Study Area.

NYSDEC-mapped high marsh (HM), intertidal marsh (IM), littoral zone (LZ), and costal shoals, bars, and mudflats (SM) are located within and in the vicinity of the Study Area (**Figure 14b**).

To supplement the review of wetland mapping, aerial imagery was also reviewed, along with various elevation products and ancillary data sources, such as the National Hydrography Dataset, Soil Survey Geographic Database and World Imagery.

Potential effects to wetlands will be assessed as part of the DDR/DEIS. In accordance with applicable regulations, wetland tasks will include: a field investigation and a wetland/surface water delineation to determine the extent of any jurisdictional freshwater regulated wetland adjacent areas that lie within the Project's construction limits; preparation of wetland/surface water mapping and report; assessment of potential effects; identification of mitigation measures; identification of permitting requirements; and coordination with the USACE and NYSDEC. As applicable, the Project will comply with Article 24 of the NYS Freshwater Wetlands Act, Article 25 of the NYS Tidal Wetlands Act, Sections 401 and 404 of the Clean Water Act, Section 10 of the Rivers and Harbors Act, Executive Order 11990. To help determine the types of wetlands in the Study area, in addition to field surveys, the following resources will be consulted: USACE Wetlands Delineation Manual, Regional Supplement to the Corps of Engineers Wetland Delineation Manual, NYSDEC Freshwater Wetlands Delineation Manual, and the methodologies established in the *CEQR Technical Manual* related to wetlands. The Study Area will consider the proposed limits of construction and an appropriate buffer.

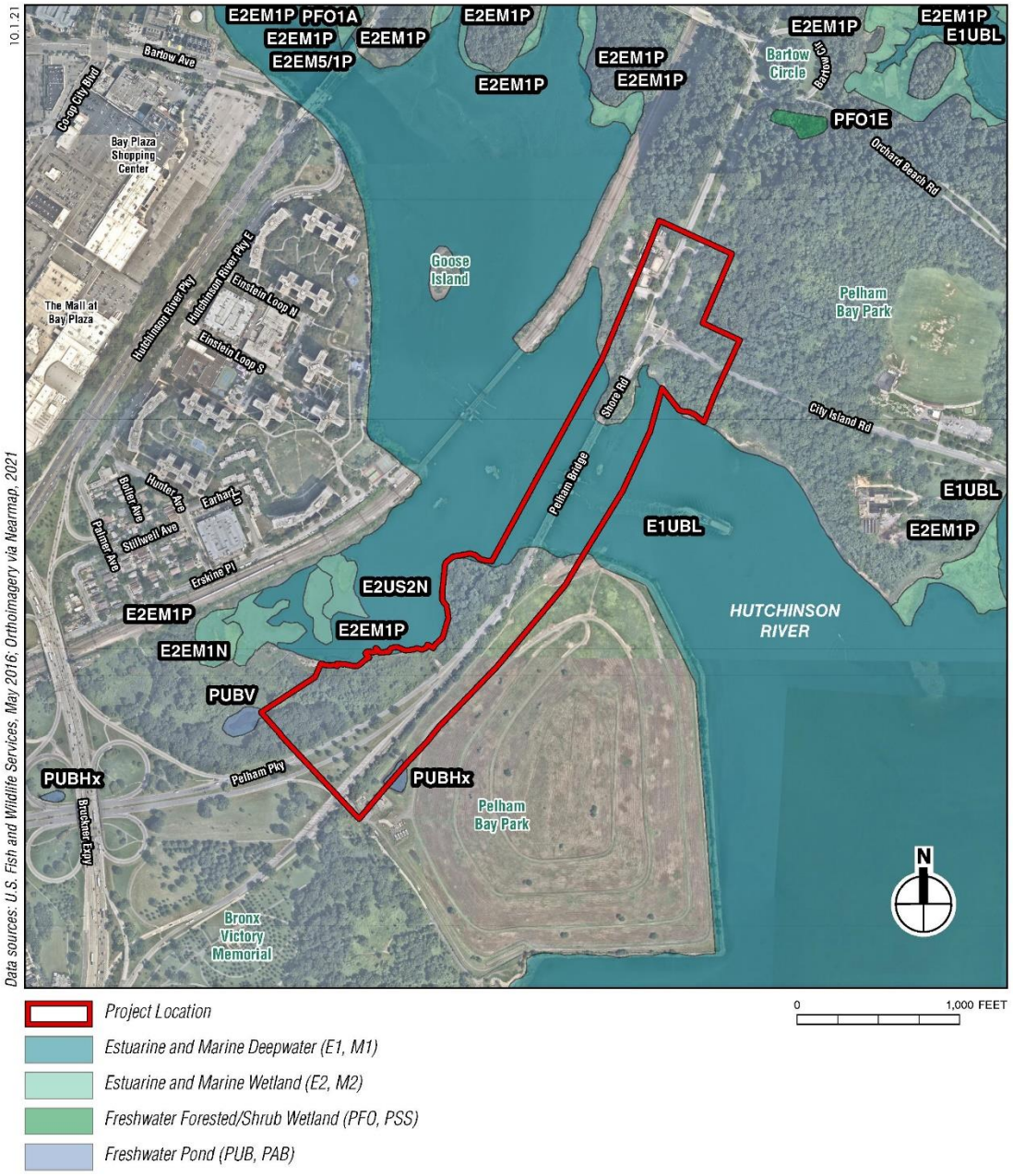


Figure 14a – NWI Wetlands

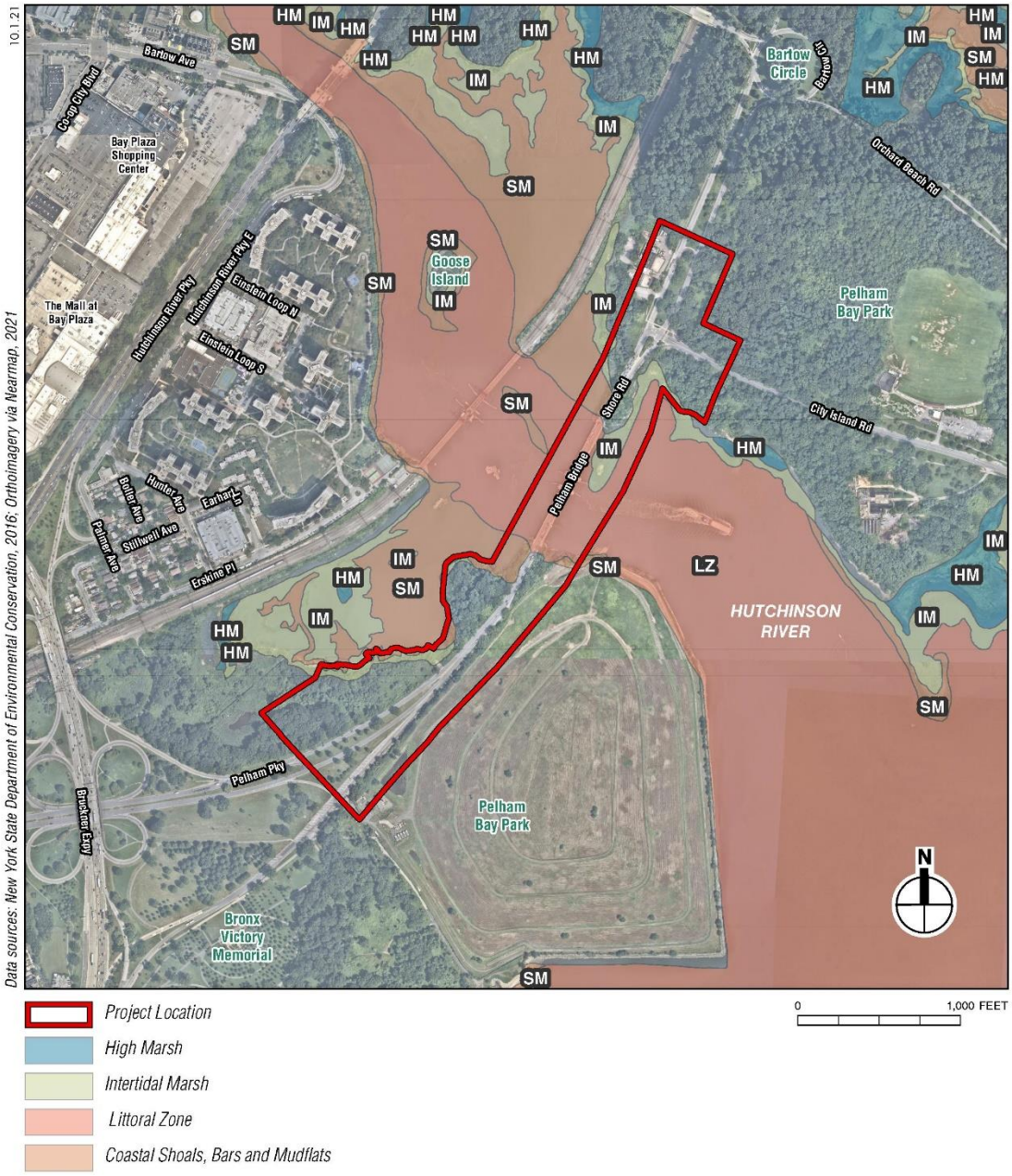


Figure 14b – NYSDEC Tidal Wetlands

5.5.8.2 Surface Waterbodies and Watercourses

The Project is located in the Atlantic Ocean/Long Island Sound Watershed and the Shore Road Bridge crosses the Hutchinson River. There are no other surface waterbodies or watercourses in the Study Area. Potential effects to surface waters and water quality will be evaluated as part of the DDR/DEIS. The Project will comply with Sections 401 and 404 of the Clean Water Act, Section 10 of the Rivers and Harbors Act, and the methodologies established in the *CEQR Technical Manual* related to surface waters. The Study Area will consider the proposed limits of construction and an appropriate buffer.

5.5.8.3 Navigable Waters

The Shore Road Bridge spans the Eastchester Creek Federal Navigation Channel within the Hutchinson River. The vertical clearance for bridges over navigable waterways is approved by the USCG.

The mapped Eastchester Creek Channel tapers from the 150-foot average width authorized within Reaches A and B to 59 feet at the location of the existing Shore Road Bridge fenders. The replacement bridge would continue to span the Eastchester Creek Navigation Channel. The mapped channel in the area of the replacement bridge is wider than the fender limited channel at the existing bridge's bascule span. The DDR/DEIS will assess the potential impacts of the construction and operation of a new bridge and the removal of the existing bridge and constructing the new bridge on the navigable waters of the Eastchester Creek Federal Navigation Channel.

The Project will comply with Section 10 of the Rivers and Harbors Act and the methodologies established in the *CEQR Technical Manual* related to navigable waters. A Bridge Permit, which establishes allowable clearances for bridges over navigable waterways, such as the Hutchinson River, would be obtained in coordination with USCG.

5.5.8.4 Floodplains

As part of the DDR/DEIS, a floodplain evaluation will be conducted to document the existing floodplain areas within the general Study Area, evaluate potential encroachments, and document the Project's potential effects to floodplains. According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), the area includes areas within the 1-percent annual chance (100-year) and 0.2-percent annual chance (500-year) flood zones due to its proximity to the Hutchinson River (see **Figure 14c**). The Project will comply with Executive Order 11988 and the methodologies established in the *CEQR Technical Manual* related to floodplains.

The City Island community is in a Coastal/Hurricane Evacuation Zone 1, which is the zone designation most susceptible to flooding in the event of a hurricane or tropical storm event. The bridge is a part of the designated Coastal/Hurricane Evacuation Route for the City Island community.

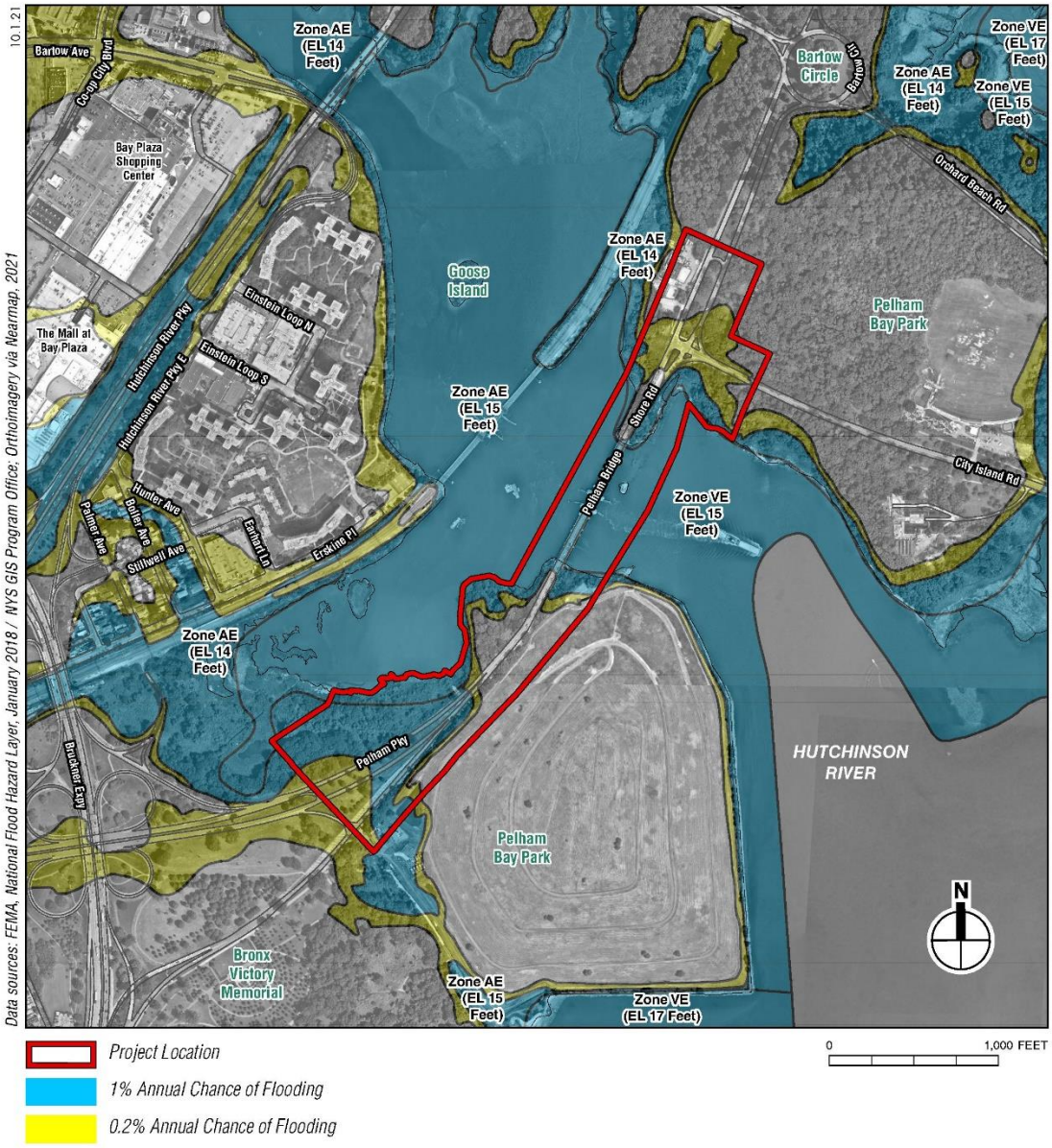


Figure 14c – FEMA Effective FIRM 2007

5.5.8.5 Coastal Resources

The NYSDOS has authority from state and federal legislation to ensure that state and federal government activities along the coasts and waterways of NYS are consistent with NYS coastal policies and any approved Local Waterfront Revitalization Program (LWRP). New York City has a Waterfront Revitalization Program (NYC WRP) that was approved in June 2016.The Project is located within the New York City Coastal Zone Boundary. (see **Figure 14d**).

The Study Area also includes the Pelham Bay Park Wetlands Significant Coastal Fish and Wildlife Habitat (SCFWH) and a Special Natural Waterfront Area (SNWA).

As part of the DDR/DEIS, the Project will be reviewed for consistency with the established state coastal policies and the coastal zone policies outlined in the NYC WRP. The Study Area will include the proposed limits of construction and an appropriate buffer.

Figure 14d – NYC Coastal Zone Boundary

5.5.8.6 Groundwater Resources, Aquifers, and Reservoirs

The Project is not situated within nor does it drain to the recharge area of a federal sole source aquifer as designated by USEPA, a NYSDEC designated primary or principal aquifer, or a private or municipal water supply well. The potential for groundwater in the Study Area to be impacted with hazardous or contaminated materials will be evaluated. Any components of the Project that would interfere with groundwater flow within the Study Area will be examined.

5.5.8.7 Stormwater Management

Stormwater management measures, both for construction and operation of the Project, will be evaluated. The Project will comply with all applicable requirements of the State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity, including the specifications for Erosion and Sediment Control as part of the Stormwater Pollution Prevention Plan (SWPPP). Measures to manage stormwater resulting from implementation of the Project will be evaluated.

Projects that disturb soils and increase the extent of impervious surfaces have the potential to affect the quality and quantity of stormwater runoff that could discharge into subsurface or surface waters. As part of the DDR/DEIS, the potential effects to surface water quality, including erosion and sediment control practices proposed in the vicinity of surface water bodies, storm sewer systems connections and combined sewer outfall connections, will be evaluated and documented. Consultation with NYSDEC and NYCDEP will occur as necessary.

5.5.8.8 General Ecology and Wildlife Resources

Natural areas in the vicinity of the Project include the Hutchinson River and Pelham Bay Park. The general landscape is characterized by forested parkland, tidal wetlands, urban/suburban development, highway corridors and open water. The Hutchinson River is located within NOAA's mapped New England / Mid-Atlantic Habitat Area of Particular Concern and within the New England / Mid-Atlantic Essential Fish Habitat (EFH) and Highly Migratory Species EFH.

An initial review of the NOAA/NMFS EFH Mapper[41] identified 15 species for which EFH has been designated in the vicinity of the Study Area, including the following:

- Winter Flounder (*Pseudopleuronectes americanus*)
- Little Skate (*Leucoraja erinacea*)
- Atlantic Herring (*Clupea harengus*)
- Pollock (*Pollachius*)
- Red Hake (*Urophycis chuss*)
- Windowpane Flounder (*Scophthalmus aquosus*)
- Winter Skate (*Leucoraja ocellata*)
- Sand Tiger Shark (*Carcharias taurus*)
- Scup (*Stenotomus chrysops*)
- Longfin Inshore Squid (*Loligo pealeii*)
- Atlantic Mackerel (*Scomber scombrus*)
- Bluefish (*Pomatomus saltatrix*)
- Atlantic Butterfish (*Peprilus triacanthus*)
- Summer Flounder (*Paralichthys dentatus*)
- Black Sea Bass (*Centropristis striata*)

[41] https://www.habitat.noaa.gov/apps/efhmapper/ (accessed December 8, 2021)

As part of the DDR/DEIS, the nature and extent of potential effects of the Project on ecological communities and habitats, including general determinations of the amount and type of vegetation to be disturbed, special habitats that could be damaged, and possible interruption of fish and wildlife movements, will be evaluated. Consultation will occur with the NYSDEC, New York Natural Heritage Program (NYNHP), NOAA/NMFS, and USFWS regarding any state-listed and federally listed threatened, endangered or other sensitive species and NOAA/NMFS-designated EFH that may occur in the Study Area. A field investigation will be conducted to determine existing general terrestrial ecology (i.e., ecological communities, plants, and wildlife), city-regulated trees, aquatic resources (i.e., surface waters, tidal wetlands, and aquatic biota), and significant ecological communities (i.e., tidal wetlands) within the project limits and an appropriate Study Area around the project limits. For EFH species (listed above), the habitat conditions at the Project Site will be compared with the habitat characteristics listed in the EFH text descriptions available through the EFH Mapper tool. The species and life stages whose EFH text descriptions match the habitat conditions at the Project Site will be included in the EFH assessment.

General determinations regarding potential impacts to ecological communities, including individual trees, and possible interruptions to fish and wildlife movements as a result of the Project will be assessed. Operational (permanent) impacts to terrestrial ecological communities, city-regulated trees, wildlife, waterbodies and tidal wetlands, threatened and endangered species, and EFH, including projected changes to these resources, will be evaluated. Construction (temporary) impacts will be evaluated as described in the Construction section below. Mitigation measures will be identified as necessary to minimize potential adverse effects to terrestrial and aquatic resources. For terrestrial resources, this may include such measures as incorporating native plants indigenous to the New York City region into the landscaping design to enhance available habitat for wildlife.

5.5.8.9 Threatened and Endangered Species

Based on the USFWS Information for Planning and Consultation (IPaC), there are one federally-listed species and one candidate species with the potential to occur within a 500-foot buffer surrounding the project location. Piping Plover (*Charadrius melodus*) is a federally-listed threatened species. The Monarch Butterfly (*Danaus plexippus*) is listed as a candidate species and currently does not have any protection under ESA Section 7; as such, consultation with USFWS for the Monarch Butterfly is not required at this time. The IPaC screening revealed there are no critical habitats at this location. Additionally, numerous bird species were identified as USFWS Birds of Conservation Concern (BCC).

Bald (*Haliaeetus leucocephalus*) and Golden (*Aquila chrysaetos*) eagles also have the potential to occur within the vicinity of the Study Area and are protected under the BGEPA. As part of the DDR/DEIS, consultation with USFWS will be conducted to determine the potential for effects to any of the identified species or their habitat.

An initial review of the NOAA ESA Section 7 Mapper identified six threatened or endangered marine species with the potential to occur within the vicinity of the Study Area. Species identified by NOAA as potentially occurring within the vicinity of the Study Area include the following:

- Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*)
- Shortnose Sturgeon (*Acipenser brevirostrum*)
- Green Sea Turtle (*Chelonia mydas*)
- Kemp's Ridley Sea Turtle (*Lepidochelys kempii*)
- Leatherback Sea Turtle (*Dermochelys coriacea*)
- Loggerhead Sea Turtle (*Caretta caretta*)

An initial review of the NYSDEC's New York Natural Heritage Program (NYNHP) database identified numerous state-listed protected, rare, threatened and endangered plant and animal species within the vicinity of the Study Area. Species identified by NYNHP as potentially occurring within the vicinity of the Study Area, and within the NYNHP specified general 0.5-mile check zone, include the following:

- Barn Owl (*Tyto alba*)
- Snowy Egret (*Egretta thula*)
- Little Blue Heron (*Egretta caerulea*)
- Yellow-crowned Night Heron (*Nyctanassa violacea*)
- Glossy Ibis (*Plegadis falcinellus*)
- Seaside Dragonlet (*Erythrodiplax berenice*)
- Yellow Bumble Bee (*Bombus fervidus*)
- Slender Blue Flag (*Iris prismatica*)
- Persimmon (*Diospyros virginiana*)
- Yellow Giant Hyssop (*Agastache nepetoides*)
- Field Bead Grass (*Paspalum laeve*)
- Woodland Lettuce (*Lactuca floridana*)
- Sharp-angled Spike Rush (*Eleocharis tenuis var. pseudoptera*)
- Wild Pink (*Silene caroliniana ssp. pensylvanica*)
- Southern Seaside Goldenrod (*Solidago mexicana*)
- Texas Wild Flax (*Linum medium var. texanum*)
- Marsh Arrow Grass (*Triglochin palustris*)
- Southern Arrowwood (*Viburnum dentatum var. venosum*)
- Single-Glumed Spike Rush (*Eleocharis uniglumis*)
- Violet Wood Sorrel (*Oxalis violacea*)
- Annual Saltmarsh Aster (*Symphyotrichum subulatum var. subulatum*)
- Virginia Three-Seeded Mercury (*Acalypha virginica*)

Effects to federally and state-listed threatened, endangered, and rare species, as well as birds protected under the Migratory Bird Treaty Act (MBTA) and/or BGEPA, as well as EFH, will be assessed as part of the DDR/DEIS. The Study Area will include the proposed limits of construction and an appropriate buffer. The assessment will include documenting the habitat types in the project vicinity and determining whether suitable habitats exist for the identified species. If adverse effects to species are anticipated, mitigation measures will be identified in consultation with appropriate agencies.

5.5.9 Hazardous Waste/Contaminated Materials

The Study Area is located in an urban setting and is adjacent to the Pelham Bay Landfill. A preliminary environmental review was completed and includes a modified Phase I Environmental Site Assessment (ESA) performed in accordance with the NYSDOT TEM Section 4.4.20 and *CEQR Technical Manual* methodologies for hazardous waste and contaminated materials, an asbestos-containing materials (ACM) and lead-based paint (LBP) survey of the existing Shore Road Bridge performed in accordance with TEM Section 4.4.19, and a detailed Hazardous Material Investigation (Phase II ESA) and the *CEQR Technical Manual*. The Phase I ESA and detailed Hazardous Material Investigation (Phase II ESA) were performed by a Qualified Environmental Professional (QEP) in accordance with the NYSDOT TEM Section 4.4.20 and ASTM E1527-13.

The purpose of the Phase I ESA was to identify the potential for soil, sediment, or groundwater contamination in and adjacent to the Study Area.

The Phase I ESA included the following components:

5.5.9.1 Historic and Regulatory Records Review

- Land use history and areas of environmental concern in and adjacent to the Study Area were determined by reviewing historical aerial photography and Sanborn Fire Insurance Maps.
- Identification of sites with documented use, storage or releases of hazardous materials, including hazardous waste disposal sites, hazardous waste generators or treatment facilities, records of petroleum or chemical storage tanks, and petroleum or hazardous substance releases via review of publicly available environmental databases.
- Search results from state and municipal agency online record sources maintained by the New York City Department of Buildings (NYCDOB) building permit records, NYCDEP, NYSDEC, and NY City Mayor's Office of Environmental Remediation (OER).
- Information on subsurface conditions (geology and hydrogeology), including any available information from subsurface investigations performed within or adjacent to the Study Area as well as the NYCDEP 2009 Site Management Plan for the Pelham Bay Landfill.

5.5.9.2 Site Visit of Project Location and Surrounding Properties

A physical site inspection of the Study Area was conducted to document or verify current land use as well as any observable, physical evidence of potential contamination sources. A follow up site inspection will be conducted as part of the DDR/DEIS.

A Draft Modified Phase I ESA Report was prepared to summarize the findings of any identified Recognized Environmental Conditions (RECs) within or adjacent to the Study Area. The results of the Draft Modified Phase I ESA Report identified several RECs within and adjacent to the Study Area, including the Pelham Bay Landfill, a historic gasoline service station circa 1918 located at the western end of the Project Location, and potentially-contaminated Hutchinson River sediments.

Based on the findings of the Draft Modified Phase I ESA Report, a Phase II ESA investigation was conducted that included the installation of soil borings and the collection of soil, groundwater, and soil vapor samples for laboratory analysis. A Draft Phase II ESA Investigation Findings Report was prepared to summarize the findings of the investigation. The results of the Draft Phase II ESA Investigation Findings Report identified locations within and adjacent to the Study Area exhibiting contamination primarily associated with historic fill. An area of suspected petroleum contamination was identified in the vicinity of the historic filling station. Based on the preliminary findings of the Draft Phase II ESA Investigation Findings Report, additional sampling would be conducted to better delineate subsurface contamination as part of the DDR/DEIS.

5.5.9.3 Hazardous Material Survey

In accordance with NYSDOT TEM 4.4.19, a screening of as-built record plans was performed to identify the potential presence of suspect ACM, LBP, and/or other hazardous materials (i.e., PCBs, mercury, etc.) within the Study Area. A preliminary Hazardous Material Survey for ACM, LBP, and PCBs was then conducted, which included sample collection of suspect materials for laboratory analyses. The results of suspect materials samples submitted for laboratory analyses were summarized in a Draft Hazardous Material Survey Report. An updated screening and updates to the preliminary Hazardous Material Survey, as needed, would be conducted as part of the DDR/DEIS. would

5.5.10 Infrastructure

A project of this type is not expected to pose substantial issues with respect to such municipal services as water supply, sewage, and solid waste generation. However, the DDR/DEIS will assess the potential for impacts to any utilities during project construction. In addition, any changes to the Project's drainage system that would increase stormwater discharge will also be analyzed in the DDR/DEIS. The DDR/DEIS will document existing utilities that could be affected by the Project.

The infrastructure analysis in the DDR/EIS will:

- Assess any changes that could be required for existing municipal utilities due to construction of the Project.
- Describe the roadway's existing and future storm water drainage system. The existing stormwater generated from the site will be quantified.
- Describe any increase in stormwater generated by the Project based on the design engineer's analysis for a range in storm intensity and duration, including the 1- and 5-year storm event. The method of discharge, any retention facilities provided, and the effects of the incremental flows on the existing system will be examined.
- Assess the effects of any additional stormwater generation upon water quality and natural resources (see section 5.5.8 above).

5.6 CONSTRUCTION EFFECTS

The DDR/DEIS will include an assessment of potential effects resulting from construction of the Project, including disturbances in the water, soil, parklands, and wetlands, noise, temporary lane closures, and increased traffic congestion, which in turn may affect access to neighborhoods or services, and utility disruption. Measures to mitigate adverse construction-related effects will be presented as part of the DDR/DEIS and will include a discussion of sediment/erosion control, remediation of potential health risks, prevention of air pollution from fugitive dust, noise control, traffic management, and coordination with the local communities.

The various construction-related impact assessments that will be included in the DDR/DEIS by topic are outlined below.

Neighborhoods and Community Cohesion

Construction of the Project could have potential temporary effects on adjacent communities. An assessment of the Project's temporary effects on neighborhoods and community cohesion due to traffic detours, increases in traffic on certain roadways, and emissions and noise from construction equipment due to Project construction will be provided using the same methodologies employed for the operational analysis of neighborhoods and community cohesion.

Social Groups Benefited or Harmed, Including Environmental Justice

An assessment of the potential for adverse construction-related effects due to traffic detours, increases in traffic on certain roadways, changes in transit service, emissions and noise from construction equipment and other relevant issues on elderly individuals, individuals with disabilities, transit-dependent individuals, pedestrians, bicyclists, and environmental justice communities will be provided, using the same methodologies employed for the operational analysis of social groups benefited or harmed.

Transportation

This assessment will consider losses in lanes, sidewalks, access, connections, designated routes, and other transportation services during the various phases of construction, if any, and identify

the increase in vehicle trips from construction workers and equipment. The construction plan will be qualitatively described in the DDR/DEIS. The assessment will focus on Shore Road, examining other roadways and interchanges as necessary. Any alternative that causes diversions of vehicular, bicycle, and pedestrian traffic will be assessed for the effects of the diversions on the area's traffic network. No long-term bridge closures are anticipated for the Build Alternative being considered. Some minimal short-term lane closures would be needed to connect the new bridge and roadways to the existing roadway system.

The DDR/DEIS will include an assessment of the potential for construction-related impacts on the navigable waters of the Eastchester Creek Federal Navigation Channel within the Hutchinson River. This assessment will focus on long or short term navigation restrictions, if any, during the various phases of construction. The construction coordination plan with the USCG will be qualitatively described in the DDR/DEIS.

Air Quality

The DDR/DEIS will include an assessment of emissions from on-site construction equipment, on-road construction-related vehicles, diverted traffic during construction, and dust-generating construction activities during construction and the potential to affect air quality. Primary air pollutants of concern for construction activities are particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), and carbon monoxide (CO). A preliminary analysis of both mobile source emissions from construction equipment and worker and delivery vehicles, and fugitive dust emissions will inform if more detailed analysis should be conducted. Depending upon the results collected during studies to document existing conditions, above, further analysis may be required.

Noise and Vibration

The DDR/DEIS will include a quantitative evaluation of potential noise levels as a result of construction based on different types of construction activity. The evaluation will determine noise levels at a series of distances from the construction location.

Historic and Cultural Resources

Construction-related activities, such as excavation, grading, demolition, construction/reconstruction, and staging, have the potential to cause indirect and direct effects on historic and cultural resources. An assessment of the potential for construction activities to cause effects on historic resources, including archaeological and architectural resources, will be evaluated during the Section 106 process, as described in Section 5.5.6. Construction effects on historic resources will also be evaluated under CEQR.

Parks and Recreational Resources

The DDR/DEIS will include an evaluation of potential effects on parks and recreational resources, including Pelham Bay Park, the Mosholu-Pelham Greenway, and the East Coast Greenway, due to restricted park access from areas used for temporary construction staging, or during any temporary bridge or lane closures. Using the *CEQR Technical* Manual, the Project's construction effects on parks and recreational resources due to Project construction will be assessed.

Natural Resources

The DDR/DEIS will include an assessment of the potential for construction-related impacts on floodplains, terrestrial ecological communities (i.e., temporary staging), wildlife (i.e., noise), tidal wetlands, surface waters (e.g., erosion, sedimentation, stormwater generated during construction), threatened and endangered species, and EFH (i.e., noise and vibration).

The DDR/DEIS will include an assessment of the potential for construction-related impacts on the navigable waters of the Eastchester Creek Federal Navigation Channel within the Hutchinson River.

Public Health and Contaminated Materials

The DDR/DEIS will include an assessment of the potential to expose construction workers or the public to potential contaminants during construction due to subsurface contamination, potential asbestos-containing materials from the bridges, or ambient air quality.

5.7 SHORT-TERM USES OF THE ENVIRONMENT VS. LONG-TERM PRODUCTIVITY

The DDR/DEIS will include a discussion of how the potential short-term effects of the Project are necessary to realize its long-term public benefits.

5.8 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The DDR/DEIS will include discussion of those resources that would be irretrievably committed if the Project was built.

5.9 UNAVOIDABLE ADVERSE IMPACTS

Unavoidable adverse impacts resulting from the implementation of the Project will be evaluated as part of the DDR/DEIS.

5.10 SECTION 4(F) EVALUATION

Section 4(f) of the USDOT Act of 1966 (49 U.S.C. Section 303(c)), as amended, prohibits the FHWA from approving any program or project that requires the "use" of any land from a public park, recreation area, wildlife or waterfowl refuge, or historic site unless (a) the agency determines that the use of the property will have a *de minimis* impact, or (b) there is no feasible and prudent alternative to that use and the project or program includes all possible planning to minimize harm. A "use" can include the permanent incorporation of a protected resource into the Project, a temporary use during construction, and a constructive use, in which no direct impacts occur to the resource, but there are proximity impacts so severe that the activities, features, or attributes that qualify the property for protection are substantially impaired.

The Project is subject to review under Section 4(f); as such, a Section 4(f) evaluation will be conducted concurrently with the EIS. The Section 4(f) evaluation will be carried out in accordance with the methodology established in the FHWA's Section 4(f) Policy Paper (July 2012). The evaluation will build on the results of the Section 106 process and the Parks and Recreational Resources assessment (see Section 5.5.6, above) to identify Section 4(f) properties in the Study Area. The evaluation will document any use of Section 4(f) properties, feasible and prudent alternatives to avoid those uses, and if avoidance is not possible, planning efforts to minimize harm to Section 4(f) properties.

5.11 SECTION 6(F) EVALUATION

Under Section 6(f) of the Land and Water Conservation Fund (LWCF) Act of 1965 (now 16 USC § 460i-4), property acquired and/or developed with LWCF funds must remain forever available for public outdoor recreation use or be replaced by lands of equal market value and recreational usefulness. The U.S. Department of the Interior (USDOI), through the NPS, provides funding under the LWCF program for state and local efforts to plan, acquire, or develop land to advance outdoor recreational activities. The New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP) serves as the New York State agency that administers LWCF funds received from the USDOI. Using LWCF funds imposes limitations on future changes to LWCF-funded projects. Once LWCF funds are used for a particular recreation project, that recreational facility cannot be converted to nonrecreational use, either wholly or partly (either permanently or

on a temporary basis for greater than six months), without approval from the NPS in accordance with the requirements of Section 6(f).

Pelham Bay Park received LWCF funds. Conversion of any LWCF property for the Project will be evaluated during the development of the DDR/DEIS. If a Section 6(f) conversion is identified, replacement property for the conversion of parkland will be considered in consultation with the NYSOPRHP and NPS.

6. PUBLIC INVOLVEMENT AND AGENCY COORDINATION

Public involvement is an integral part of the environmental review process. The FHWA and the NYCDOT have and will continue to provide opportunities for open, collaborative, and meaningful public and agency participation throughout the process.

6.1 PUBLIC INVOLVEMENT OPPORTUNITIES

A Public Involvement Plan (PIP)[42] for the Project has been prepared and describes the process by which the FHWA, the NYSDOT, and the NYCDOT will provide opportunities for members of the public to engage in the development of the EIS and give relevant input for the development of the Project; ensures any decisions are made with the benefits of robust public involvement; ensures that elected officials, agencies, stakeholders, and the general public are adequately informed about the Project and its implications for their communities; and identifies potential issues important to stakeholders so that they can be addressed. The PIP includes a number of different outreach tools and activities to involve the public (e.g., Project mailing list, Project Web Portal on the NYCDOT website, and stakeholder briefings).

The Project website (https://shoreroadbridgebx.com/) serves as a source of project information, including information on preliminary alternatives, the environmental review process, public engagement opportunities, and project contact information. The website address will appear on project informational materials, such as the Project brochure, meeting/hearing notices and materials, newsletters, fact sheets, and/or press releases.

A database of the elected representatives, community boards, civic, community, and advocacy organizations, and business and trade associations will be established and maintained. Public information materials and notifications will be distributed electronically to these organizations, which will be asked to distribute the materials to their constituents and members. An electronic mailing list will be compiled and maintained for individuals who request participation by submitting their email address at public meetings or via the project website. These individuals will be sent meeting notifications and/or project information electronically.

EO 12898 “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations” requires federal agencies to provide meaningful opportunities for affected minority and/or low-income communities to provide input on a project. Public meetings have been and will continue to be sited, scheduled, advertised, and planned to provide meaningful opportunities for participation by minority and/or low-income (environmental justice) populations.

Individuals who do not speak English as their primary language and/or those who have limited ability to read, speak, write, or understand English are considered “limited English proficient” (LEP). As discussed in the PIP, English and Spanish are the primary languages spoken in the five census tracts surrounding the Project Location. In compliance with EO 13166 “*Improving Access to Services for Persons with Limited English Proficiency*” and New York State EO 26 “*Statewide Language Access Policy*,” the public involvement activities conducted for the Project

[42] The PIP is included as Attachment G to the NOI Report, available from https://shoreroadbridgebx.com/sites/default/files/2021-07/ShoreRoadBridge_NOI_Report.pdf

during the Scoping process were conducted in consideration of those populations with limited English proficiency, including the following:

- Advertising for public meetings in local Spanish-language newspapers;
- Distributing Spanish-language flyers for public meetings;
- Providing Spanish-language interpreters at the public meetings; and
- Having dual materials available at the public meetings and on the Project website.

Additional LEP outreach may be necessary and will be determined as the Project proceeds. The NYSDOT will continue to conduct public involvement activities for the Project in consideration of LEP populations.

Public meetings will be held in locations that comply with the Americans with Disabilities Act (ADA) to ensure that individuals with disabilities have access to meetings. Sign language interpreters and additional language interpreters will be available at public meetings, if requested. Public notices announcing public meetings will provide instructions for requesting special accommodations.

Public scoping meetings allow the public and agencies to comment on the Project purpose and objectives, identify and share issues of concern, and comment on the reasonable range of alternatives to be studied in the EIS. Two Virtual Public Scoping Meetings for the Project were held on August 3, 2021 at 4PM and 7PM. The Scoping Meetings were advertised in 8 English language publications, The Daily News, NY Post, AM Metro NY, Bronx Daily, The Bronx Free Press /Bronx Press/ Bronx Press-Review, BronxTimes / BronxTimes Reporter, Co-Op City Times, Bronx Voice, and two Spanish language publications El Especialito and El Diario, between July 17, 2021 and July 28, 2021. Two Project Information Signs advertising the meetings were also erected along the bridge approaches on July 13, 2021 and remained in place through the Scoping Meetings. A recording of the Scoping Meeting presentation was also re-broadcast at various times daily on BronxNet cable television from August 12 through August 16, 2021. Closed captions, sign language interpreters, and Spanish translation captions were broadcast onscreen during the presentation and the re-broadcasts on BronxNet (see **Figure 15**).

Figure 15 – American Sign Language (ASL) and Closed Captioning Provided During Scoping Meeting Presentation

The Public Scoping Meetings were held using the Microsoft Teams Platform. Participants were asked to register in advance using Eventbrite. Eventbrite was used to collect contact information, affiliation, allow participants to request translation services, and register to speak during the meeting. Hard copies of the Scoping Meeting materials were provided upon request to those without computer access and electronic copies of the meeting materials are available on the project website (https://shoreroadbridgebx.com/materials).

Agencies and members of the public were provided with numerous ways to provide their feedback during the project Scoping comment period: by telephone, through written comments by mail, through comments submitted via the project website (https://shoreroadbridgebx.com/contact), through comments submitted via the NYCDOT website (https://www1.nyc.gov/html/dot/html/contact/contact-form.shtml?routing=sr), by email, and verbally as well as the Microsoft Teams chat function during both Public Scoping Meetings. Public comments on the CEQR Draft Scope of Work, NEPA Notice of Intent (NOI), and NOI Report were accepted through August 16, 2021 (see **APPENDIX B**).

Once the Notice of Availability (NOA) of the DEIS has been published in the Federal Register and the DEIS has been made available to the public and agencies, two (2) public hearings will be held. The public hearings will provide the public with an opportunity to ask questions, engage with members of the Project Team, and submit formal comments. A 45-day public comment period will follow the publication of the NOA of the DEIS in the Federal Register. The public hearings will be conducted during this comment period. Comments received at the public hearings and during the DEIS comment period will be considered and responded to in the Final EIS (FEIS).

In addition to the public meetings, input will be solicited from additional sources during meetings with business and community representatives. Elected officials, business organizations, and community-based groups can provide specific insights into the community concerns. The results of these meetings may provide suggested direction for strategies and additional guidance for community involvement approaches. Businesses, community groups, and government representatives can also aid in the dissemination of Project information and public engagement opportunities. In addition, the Project Team has met and will continue to meet with local elected officials and Community Boards (Bronx 10, 11 and 12).

To reach community residents where they live, “pop-up” table events at local parks and adjacent neighborhood cultural events will be held. These events will all be held within Environmental Justice communities and will be specifically selected to provide additional opportunities for meaningful engagement with EJ populations.

In addition to the meetings previously listed, the Project Team will solicit input from additional sources during meetings with agency, business and community representatives, as appropriate.

6.2 AGENCY COORDINATION

An Agency Coordination Plan (ACP) has been prepared to guide the Project’s coordination activities with Cooperating and PA through the environmental review process.

The ACP conforms to the requirements of NEPA, and specifically complies with the current federal surface transportation law, Fixing America’s Surface Transportation Act (FAST Act) of 2015 as required in 23 CFR Section 139.

The plan was produced pursuant to 23 USC §139 to allow permitting and resource agencies to be informed and involved in the Project’s environmental review and identify any issues of concern that could substantially delay or prevent an agency from granting a permit or other approval. Agencies can be involved as lead, Cooperating, or Participating Agencies, depending on their anticipated role. The responsibility of the lead agency or agencies is to ensure compliance with applicable environmental review processes. According to CEQ regulations (40 CFR § 1508.5),

and the CEQ implementing regulations as updated July 2020, per: *Final Rule: Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act*, effective September 14, 2020, “Cooperating Agency” means any federal agency, other than a lead agency, that has jurisdiction by law or special expertise with respect to any environmental impact involved in a proposed project or project alternative. “Participating Agencies” are those with an interest in the Project. The ACP identifies the agencies that were invited as Cooperating and Participating Agencies for the Project. Invited Cooperating and Participating Agencies are listed in **Table 6-1.** Regular meetings with the Cooperating and Participating Agencies are held monthly and coordination will continue throughout the environmental review process.

Table 6-1
List of Invited Cooperating and Participating Agencies

Agency Name
Invited Cooperating Agencies
U.S. Army Corps of Engineers (USACE)
U.S. Coast Guard (USCG) [2]
U.S. Department of Interior (USDOI)/National Park Service (NPS) [2]
U.S. Environmental Protection Agency (USEPA)
U.S. Fish and Wildlife Service (USFWS) [2]
National Oceanic and Atmospheric Administration (NOAA)—National Marine Fisheries Service (NMFS)
Federal Emergency Management Agency (FEMA), Federal Region II [1]
Advisory Council on Historic Preservation (ACHP) [1]
Federal Transit Administration (FTA) [2]
New York State Department of Environmental Conservation (NYSDEC)
New York State Historic Preservation Office (SHPO) at New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP)
New York State Department of State (NYSDOS) [1]
Invited Participating Agencies
Metropolitan Transportation Authority (MTA)
Westchester Department of Transportation [1]
Village of Pelham Manor
New York Metropolitan Transportation Council (NYMTC) [1]
New York City Department of Parks and Recreation (NYCDPR)
New York City Department of City Planning (NYCDCP)
New York City Landmarks Preservation Commission (LPC)
New York City Department of Environmental Protection (NYCDEP)
New York City Mayor's Office of Resiliency (NYCMOR)
New York City Office of Emergency Management (NYCEM) [1]
New York City Mayor's Office of Capital Project Development [1]
New York City Mayor's Office of Environmental Coordination (MOEC)
New York City Mayor's Office of Sustainability (NYCMOS)
New York City Department of Sanitation (DSNY)
Fire Department of the City of New York (FDNY)
City of New York Police Department (NYPD)
New York City Public Design Commission
New York Office of General Services (OGS)
Delaware Nation [1]
Delaware Tribe
Shinnecock Indian Nation Tribal Office
Stockbridge-Munsee Community

Notes:
[1] *Declined invitation to become a participating or cooperating agency.*
[2] *Invited to become a cooperating agency but accepted role of participating agency.*

Concurrence Point #1, the adoption of the Project Purpose, Objectives, and Need, was distributed to the Cooperating Agencies on March 8, 2021. Concurrence Point #2 establishes the alternatives to be carried forward for evaluation in the DDR/EIS, and describes how the Cooperating Agencies and Lead Agencies assessed the concepts outlined in Chapter 4 prior to the publication of this Scoping Report. Concurrence Point #3 establishes a preferred alternative, which will be explored and analyzed in the DDR/DEIS.

The project Scoping comment period began upon publication of the NOI and NOI Report on July 12, 2021 and concluded on August 16, 2021. The lead agencies have considered all comments received throughout the scoping comment period, and, where applicable, will use the input received to determine the appropriate contents of the EIS.

To address requirements under CEQR, NYCDOT published a draft Scope of Work on May 26, 2021 for public review and comment. Comments received on NYCDOT's draft Scope of Work document are included in this report along with those received during the scoping comment period.

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX A

Technical Paper - Consideration Of Rehabilitation Of The Shore Road Bridge

THIS PAGE INTENTIONALLY LEFT BLANK

Technical Paper

Consideration of Rehabilitation of the Shore Road Bridge

March 2020

The Shore Road Bridge over Hutchinson River Project
Project Identification Number (PIN): X773.63
Bridge Identification Number (BIN): 2-24020-0
Bronx County

NEW YORK CITY DOT

U.S. Department of Transportation
Federal Highway Administration

1. Purpose of the Technical Paper

The purpose of this technical paper is to document whether rehabilitation of the Shore Road Bridge is reasonable (feasible and practical). The paper describes the bridge's structural, geometric, hydraulic, navigational, seismic and operational conditions and deficiencies and discusses the measures needed to correct them. Where correction of specific deficiencies is not reasonable, this is noted in the text.

2. Background of the Structure

The existing Shore Road Bridge, also known as Pelham Bridge, was designed as a replacement for an obsolete, circa 1870 swing bridge and causeway located just to the south of the existing alignment. The 1870 bridge replaced earlier bridges constructed at this crossing in 1812 and 1834, making the existing bridge the fourth known bridge at this site. Construction of the existing Shore Road Bridge was authorized in October 1904, and the bridge opened to traffic on October 15, 1908.

The existing Shore Road Bridge is an 865-foot long bridge that carries four travel lanes over the Hutchinson River in the northeast corner of the Bronx within Pelham Bay Park. The span over the navigable channel is a double leaf rolling lift bascule type movable span with two short fixed steel spans over each counterweight. On either side of the movable span there are three filled concrete spandrel arch spans. The arches are supported by concrete and stone piers and abutments founded directly on rock and/or timber piles driven to rock. The bridge has been in service for over 110 years and carries approximately 17,000 vehicles each day. Additionally, Shore Road serves as the only truck route to and from City Island. Its design and construction were undertaken in accordance with the bridge and roadway engineering practices of that time.

In the closed position, the existing Shore Road Bridge provides 13 feet of vertical clearance above mean high water (MHW). The next vehicular movable bridge upstream of the Shore Road Bridge is the Hutchinson River Parkway Bridge, a double-leaf bascule that provides a 30-foot vertical clearance above MHW in the closed position. Due to the existing 13-foot vertical clearance of the Shore Road Bridge, it is one of the most frequently opened movable bridges in New York City, requiring 821 openings for marine traffic in 2018. This contrasts with the Hutchinson River Parkway Bridge, which had 246 openings in 2018. Virtually all openings of the Shore Road Bridge are for commercial vessels, including tugs with barges carrying oil, building materials, or scrap metal.

3. Past Repairs of the Structure

The Shore Road Bridge has undergone multiple rehabilitations and maintenance repairs over the course of its life. Several improvements were made in 1937, which included widening the roadway by eliminating one sidewalk, replacing cantilever brackets on the bascule span, installing new barrier gates, replacing original stone breakwaters on the north and south ends of the bascule piers, and replacing the roadway lighting on the approach spans. In 1945, the masonry piers and abutments were repointed. In 1950, the operator's house and other houses at the bascule span were rehabilitated to replace architectural features such as the windows and roofing, upgrade indoor facilities, and install a new control desk and switchboard.

The bridge underwent a full reconstruction starting in 1982, and the bridge was closed during the non-summer seasons in successive years to accomplish the work. The reconstruction consisted of new bascule span deck grating, new bascule and flanking span stringers, replacement of deteriorated bascule span truss members, new operating machinery, new electrical power and control systems, concrete repairs and masonry resetting and repointing of piers and abutments, replacement of earth fill in spandrel arches and new reinforced concrete spandrel walls, new parapets, repairs to underside of the concrete arches, as well as new roadway lighting, barrier gates, and warning gates. In addition, shotcrete was applied to the entire facade of the bridge, including the four houses, and all four houses were renovated, including replacement of the copper house roofs.

The last major rehabilitation work occurred in 2002, which consisted of replacing the steel grid deck on the bascule span, repairing miscellaneous deteriorated structural steel members on the bascule span, removing loose and hollow concrete from the bridge fascias, parapets, arches, and control house exteriors, repairing a major crack on the north

control house, repairing the stone facing on the substructure, and architectural repairs to the four control houses. Since 2002, individual components have been repaired as needed when deterioration was noted by flagged conditions in biennial inspection reports.

4. Prior Studies/Reports

In the late 1990s and early 2000s, a series of studies and reports were completed. This paper references the prior studies and reports to provide the basis for assessment of the potential for rehabilitation of the Shore Road Bridge. A summary of the reports referenced in this paper follows:

- In 1998, a Bridge Reconstruction Project Report (BRPR) was prepared under NYCDOT Contract No. HB1012-9E. The BRPR investigated the effort required to rehabilitate the Shore Road Bridge. In-depth structural, mechanical, electrical, architectural, and diving inspections were completed as well as structural load ratings, fatigue evaluation, seismic and hydraulic studies.

- In 2000, a Bridge Construction Project Report (BCPR) was prepared, which included expanded structural load ratings, a full seismic assessment of the existing bridge, and discussions of a long-term rehabilitation and multiple options for complete reconstruction and replacement of the bridge with either fixed or movable structures. This report included cost estimates and maintenance of traffic schemes.

- In 2002, a Draft Design Report was prepared, which was the culmination of the work previously detailed in the BRPR and BCPR and summarized the findings from those reports.

- The 2018 NYSDOT Biennial Inspection Report identified the latest condition of the bridge and identified specific areas of deterioration. The 2018 Report is referenced to document the current condition of structural elements.

- In September 2018, Hardesty and Hanover (H&H) was requested to help troubleshoot operational issues at the bridge. An email written by H&H summarized the ongoing operational issues and condition of the electrical and mechanical elements.

5. Geometric Deficiencies

The existing Shore Road Bridge has multiple non-standard geometric, transportation, and design features including narrow lanes, insufficient sidewalk width, lack of shoulders, non-standard curb height, flat profile grades on approach spans, and inadequate lateral clearances. Specific deficiencies include:

a) Lane Width: The bridge carries four 10-foot wide lanes, which are less than the required 11-foot minimum for the roadway functional classification of “Urban Principal Arterial – Other” (Designated by NYSDOT Functional Classification Maps)

b) Shoulder Width: There are no shoulders provided on the bridge, and there is no lateral clearance on the north side of the bridge between the edge of the traffic barrier and the westbound outside traffic lane.[1]

c) Sidewalk Width: One sidewalk that varies in width from 4 feet to 7.5 feet exists on the south side of the existing bridge to serve the needs of pedestrians and dismounted cyclists. To provide continuity with adjoining shared-use paths, American Association of State Highway and Transportation Officials (AASHTO) guidelines require a path that is a minimum of 12 feet wide.

[1] For consistency, discussion of the directional orientation of the Shore Road Bridge in this document is east to west, which is based on the orientation designation established under the NYSDOT Bridge Inventory System

d) Profile Grade: The approach spans currently have a 0.147% profile grade, which is below the 0.50% minimum specified by the NYSDOT Highway Design Manual (HDM) to ensure adequate drainage of the roadway surface. Inadequate drainage contributes to structural deterioration.

e) Curb Height: While not a non-standard feature according to the NYSDOT HDM, the curb heights vary both above and below the NYCDOT Standard Highway Specifications standard height of 7 inches.

f) Open Grid Deck: While not a non-standard feature according to the NYSDOT HDM, open grid deck is a less desirable riding surface, especially when combined with the non-standard lane widths that are present on this bridge.

The sidewalk on the south side of the bridge is part of the Mosholu-Pelham Greenway and East Coast Greenway. A separated shared-use path is located west of the bridge from Crimi Road to the west abutment of the bridge. Bicyclists are informed by signage to dismount and walk their bicycles across the bridge because the existing south sidewalk on the bridge is too narrow for combined pedestrian and bicycle use. The sidewalk transitions back to a shared use path to the east of the bridge. The lack of separation between bicyclists/pedestrians and automobiles on the bridge is also undesirable. Bicyclists are discouraged from riding their bikes on the bridge due to the current narrow traffic lanes, lack of shoulders and open grid deck on the movable span. In addition, drainage catch basins have collapsed along the south side curb, creating a potential hazard to bicyclists.

For the deficiencies outlined above, the complete elimination of all non-standard features would require widening of the existing structure, specifically adding one foot to each vehicle lane (4 feet total), new shoulders in both directions (12 feet total) and widening of the existing sidewalk (5 feet minimum) for a conservative total of 21 feet of widening. Increasing the width of an existing bascule span by 21 feet would be impractical. A bascule must be balanced using a counterweight, which weighs over two times the span weight. The widened superstructure would need to be rebalanced while the added superstructure and counterweight would overload the span and require replacement of all mechanical equipment. Substantial strengthening of the substructure would be needed as well. Moreover, even if the existing structure were able to sustain this additional weight, widening is impractical because of the four bridge houses constraining the alignment at each corner of the bascule span. These vertical structures serve as a physical obstacle to even a marginal widening of the bridge. This means that widening would require extensive rehabilitation, removal and reconstruction of these towers. Additionally, widening of the approach spans would also be needed to address existing geometric deficiencies. This would require extending the existing concrete arches and foundations to support the roadway of the widths described above.

6. Structural Deficiencies

The Shore Road Bridge is subject to a harsh marine environment including freeze-thaw cycles, salt exposure, and marine splash conditions. In addition, the bridge is exposed to roadway de-icing salts, which contribute to the corrosion of the bridge members. Roadway salts drop directly through the open grid deck onto the relatively lightweight steel structure at the bascule span. The deficiencies of the existing bridge include severely deteriorated structural members. Due to the age of the structure and the time elapsed since the last rehabilitation, the structural deterioration is accelerating. The bridge fender system also requires frequent repairs in part due to vessel impacts.

The bridge received a general recommendation rating of 4[2] during the 2018 Biennial Bridge Inspection. Condition evaluation data from the inspection were used to define the required repairs for rehabilitation of the bridge and to determine if these repairs are feasible (reasonable). Based on the 2018 NYSDOT Biennial Inspection Report, nine yellow flags[3] were issued for corrosion and deterioration in steel members of the movable span. Visible signs of

[2] Per the NYSDOT Bridge Inspection Manual, a general recommendation rating of 4 indicates moderate deterioration of primaries, secondaries, and substructures has occurred. Considerable reconditioning of secondary members, substructures, and other components may be needed.

[3] A yellow flag is used to report a potentially hazardous structural condition which, if left unattended could become a clear and present danger within two years from the current inspection. They may also be used to report the actual

deterioration in the substructure include scaling, efflorescence, cracking, and spalling, with exposed and corroded rebar at many locations on the bridge. These conditions were noted in prior inspections and these elements of the bridge continue to deteriorate. The Shore Road Bridge is not load posted; however, the 2017 Biennial Inspection Report issued one red and nine yellow flags for structural conditions. In addition, a total of 15 flags (1 red flag, 1 yellow flag, and 13 safety flags) were issued for structural conditions in 2018. The volume of flags issued is an indication of the rate of deterioration of the structure. It is anticipated that the deterioration of the bridge structure will continue and accelerate in the future.

6.1. Bascule Span

On the bascule span, yellow flags were issued for the large corrosion holes and severe section loss noted at the trusses at both bascule leaves. The span locks for all four trusses show impact damage due to repeated span operational issues and evidence of vessel impact. Multiple stringers exhibit corrosion holes on their webs and up to 50% section loss with broken edges on their bottom flanges. Paint failure is evident throughout the bridge and is particularly severe at several stringers and their supporting floorbeam, and at the steel trusses and their gusset plates. In addition, the protective coating for the bearings has failed. Inside the counterweight pit there are deep spalls, which under a previous rehabilitation effort, were covered with steel wire mesh.

Six yellow flags were issued in 2018 for steel stringer deterioration where the webs exhibited heavy corrosion and section loss along the interface to the concrete counterweight and along the bottom flanges. In several locations, the section loss was noted as severe, with corrosion, holes, and a subsequent reduction in load carrying capacity. Stringer S7 exhibits impact damage to the lower portion of the web with three stress fractures and was issued a yellow flag. A yellow flag was issued for the substantial deterioration and reduced load carrying capacity of all four steel trusses for the west bascule leaf. Moderate to heavy corrosion and up to 85% thickness loss observed on the vertical web plate of the bottom chord of all four trusses of the west bascule leaf. The magnitude of deterioration, even if repairs are made, is an indication of the rate of deterioration.

A yellow flag was issued for steel floorbeam FB1 of the west bascule leaf, exhibiting heavy corrosion and 60% section loss, reducing the load carrying capacity. There were numerous corrosion holes surrounded by paper thin areas on the web. The Inspection Report documented many secondary members adjacent to the main truss members that exhibit substantial deterioration but were not flagged conditions. These include the two completely broken gusset plates, a broken transverse member along the trusses, and several horizontal and vertical cross bracing members including their gusset plates with corrosion holes. The widespread deterioration of secondary members, while not technically a flag condition, is indicative of the overall degraded condition of the structure. Figures 1 through 3 show specific areas of deterioration and are representative of widespread deterioration throughout the bridge.

In many instances, paint failure and section loss of secondary members can be repaired in a rehabilitation plan. However, primary members whose corrosion and section loss elicited flagged conditions are more difficult. They can be repaired or replaced with a larger member, but repairs of this type are more difficult to perform. This option might be plausible in isolated or specific cases, but when considered in conjunction with the other load rating and structural concerns of the bridge, the addition of repair plates and new members poses a burden on the movable span and its operating systems.

or imminent failure of a non-critical structural component, where such failure may reduce the reserve capacity or redundancy of the bridge but would not result I a structural collapse.

Figure 1: Stringer exhibiting large corrosion holes and severe section loss along interface to concrete counterweight.
Source: 2018 NYSDOT Biennial Inspection Report

Figure 2: Corrosion holes and severe section loss on bottom chord vertical plate of Truss T3
Source: 2018 NYSDOT Yellow Flag NB185QW015

Figure 3: Span 4, west leaf, Floorbeam FB1 between Truss T3 and T4, exhibiting numerous corrosion holes and severe section loss. Source: 2018 NYSDOT Biennial Inspection Report

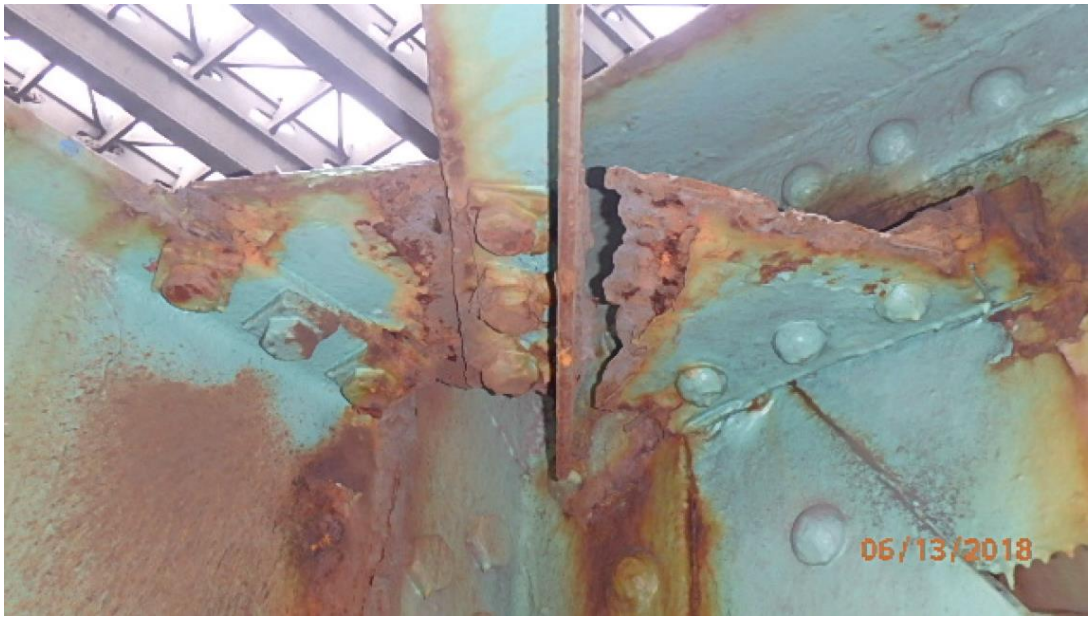


Figure 4: Right side of Truss T2, connecting to Floorbeam FB5, exhibits completely broken gusset plate along T2. Source: 2018 NYSDOT Biennial Inspection Report

In addition to the structural concerns of supporting members, the riding surface of the bridge is undesirable. The bascule span consists of an open grid deck, which is an undesirable riding surface and does not protect the steel below from runoff water or de-icing salts. A rehabilitation plan that retrofits the existing structure to provide a solid deck would add structural demands of a heavier deck and the difficulty of balancing the additional weight.

Due to the extensive corrosion in the bascule span, as seen from the 2018 NYSDOT Biennial Inspection Report, long term reliability of the bridge depends on a full replacement of the bascule span superstructure. The 1998 BRPR concluded that 178 members on the bascule leaves had less than 15 years remaining safe fatigue life, and 138 had less than 15 years remaining mean fatigue life. It has been 20 years since the fatigue analysis was completed and the number of members with little or no fatigue life remaining is expected to have increased as they have not been repaired or replaced during previous rehabilitation work. It is also important to note that rehabilitating the bascule span members to meet current design loads would require increasing the size of the members, which would in turn change the appearance of the trusses, and potentially restrict the navigability of the waterway below. Rehabilitation or major maintenance of the bascule span could not be done without impacting either vehicular or marine traffic and the non-standard features associated with the lane, shoulders and sidewalk width would remain. Although the disruption of traffic would also occur with a bridge replacement, the result would be the removal of these non-standard features and a long-term solution of both fatigue and reliability concerns.

6.2. Concrete Arch Spans

The concrete approach spans were built using the patented Melan system where light gauge steel trusses are embedded into cast-in-place concrete arches. The trusses form an important structural element but are not visible for inspection. The 2018 Biennial Bridge Inspection noted that on the concrete approach spans, there are multiple 4 inch to 6 inch deep spalls with exposed ribs of the steel arch frame throughout 60% of the arch length, horizontal cracks, and moderate to heavy scaling on both fascias. The condition is typical of all six concrete approach spans. Additionally, all spans were found to have hollow concrete with moderate to heavy scaling on both fascias, and four out of six spans exhibited cracks with efflorescence. The intrados (underside) of all arch spans are completely covered with nylon mesh netting due to the numerous areas of spalled and hollow sounding concrete. The mortar is missing, and wide gaps are observed between stones in the masonry stone veneer of all the piers and abutments.

The approach span pavement is supported by earth fill above the concrete arches, the tops of the arches are not visible for inspection or sounding. This makes them difficult to monitor and access for repair. In 1998, eight concrete cores were taken from the roadway surface, one in each of the six approach spans, and one in each approach roadway. The concrete in five of the cores had early signs of alkali silica reactions (ASR). The concrete in two of the other cores had an inadequate air void system indicating that future development of freezing-thaw distress is possible. One of the cores was cracked through, which was attributed to the settlement of the arch fill. The concrete roadway base was described in overall good condition, except at the pier locations where it has cracked. It is probable that over time the combined effects of ASR and freeze-thaw distress will produce cracks that will become numerous enough and wide enough to absorb sufficient volumes of freezable water to spall off pieces of exterior concrete further exposing the vulnerable steel elements to corrosion.

Previous studies identified settlement of fill within the arches as an ongoing concern. In the 2002 interim rehabilitation, the scuppers were reset at grade. However, continued settlement of the roadway, evident by the 3”-6” settling of the roadway scuppers, was observed in the 2018 NYSDOT Inspection Report (see Figure 5). Span 3 at Pier 2 exhibits differential elevation of the right sidewalk curb, indicative of settling of the roadway. On Span 4 at mid-span, the right sidewalk in full width exhibits up to 1.5 inches differential elevation across the length of the bascule span. Without replacement of the underlying fill and subsequently the arches themselves, settlement would continue to occur in these locations.

Figure 5: Differential elevation between the curbs at Span 3.
Source: 2018 NYSDOT Biennial Inspection Report

In addition, the earth fill on the approach spans has settled, the deterioration can also be found in cracked unreinforced concrete below the roadway. Due to past concrete deterioration, the capacity of the concrete arch approach spans was found to be only marginally adequate. Settlement of the arch fill has been a chronic issue throughout the life of the bridge and has required correction several times over the life of the bridge. In the 1986 reconstruction, the spandrel walls were replaced and new compacted fill was added to the approach spans. However, this did not eliminate the problem. Replacement of the fill cannot be done in stages while maintaining traffic, requiring the bridge to be completely closed to traffic during the replacement work. Therefore, there is no practical and feasible (reasonable) option for strengthening the arches under rehabilitation.

The concrete barrel vault arch spans exhibit extensive hollow, spalled, and deteriorated concrete on the undersides of the arches (see Figure 6) and the structural load carrying capacity is marginal. The 1998 BRPR determined that the arches are highly vulnerable to seismic forces. The concrete arches would need to be repaired to their original condition and then underpinned and strengthened to meet the latest structural and seismic loading requirements. In areas that lack reinforcement, hook type bolts would need to be drilled and grouted as required around the truss frame and would be attached to new wire mesh. After the new wire mesh and new rebar are in place, new repair concrete would be placed. Then, the arches would be underpinned and strengthened with new reinforced concrete arch sections below the bottom of the existing repaired concrete arches, to act as redundant support.

Figure 6: Span 5 underside exhibits spalled and hollow sounding concrete on arch intrados. Source: 2018 NYSDOT Biennial Inspection Report

6.3. Piers and Abutments

In 1998, five concrete cores were taken from existing piers #1, 2, 5 and 6 and an abutment to assess the general condition of the concrete. The concrete in two of the samples from the existing piers was described as poor, and the deterioration indicated that the samples had freeze-thaw distress and early signs of alkali silica reaction (ASR). It was also found that the bond of the coarse aggregate to the cementitious matrix is not adequate due to the high water/cement ratio in the original concrete mix and poor workmanship. The concrete portion of the core from the bridge abutment was completely disintegrated. The cementitious matrix had eroded, and the cement components had separated from the concrete. It is probable that over time the observed ASR and freeze-thaw distress will continue to cause deterioration producing further expansion and cracks, which will absorb water and continue to spall off pieces of concrete. Over the past 20 years, the concrete has continued to deteriorate since no cost effective corrective measures were feasible. The 2018 NYSDOT Biennial Inspection Report also noted that the mortar joints in the stone facings on the piers and abutments are extensively deteriorated.

To address the structural concrete deterioration, the existing stone facing would need to be removed, and the piers and abutments underpinned and strengthened. New drilled piles, reinforced concrete pile caps, and pier jackets would be constructed around the existing foundations and piers. The width of the pile caps would be approximately twice as wide as the existing. To fix the mortar joints and stone facing on the piers and abutments above the water line, the voids would be filled with grout. The ports would be sealed, and the deteriorated masonry joints would be repointed with new mortar as required.

6.4. Bridge Houses

The shotcrete veneer on the house exteriors is extensively delaminated and spalled. For a rehabilitation, the floor access doors and passageways to the lower levels of the houses would require widening to meet current Occupational Safety and Health Administration (OSHA) standards since they provide the access to the lower vaults and bascule pits, which house transformers, electrical distribution panels, and an emergency generator. There are also numerous windows, doors, ladders, and stairs that are deteriorated or substandard and would need to be replaced and reconfigured to improve safety for maintenance personnel. The house roofs leak and there are numerous cracks, holes, and spalls in the concrete parapets along the side of the operator's house. Figures 7 through 9 illustrate the bridge house deterioration. There is a large vertical crack with a hole at the bottom on the inner face of the left parapet along the side of the operator house at Pier 4. The outer face of the parapet has a large spall along

the bottom and the supporting concrete pylon has a large spall on the right half. There are four external steel straps (tensioning rods) across this crack anchored to the side of the Operator's house to prevent further expansion of the crack and to prevent further leaning of the house. NYCDOT has been monitoring five cracks in the bridge house wall and the lean of one Operator House since 1999. A large crack in the northeast house was stabilized during the 2002 interim rehabilitation work, however this was not a permanent repair to the house. The external steel straps were installed in the 2002 interim rehabilitation work. In order to permanently repair the structural damage to the house, partial reconstruction would be required to replace the cracked walls.

Figure 7: Parapet at Pier 4 along the side of the operator house exhibits a wide vertical crack with a hole at the bottom.
Source: 2018 NYSDOT Biennial Inspection Report

Additionally, all four houses would need additional rehabilitative measures, including new walls, ceiling, floor finishes, windows, and doors in order to fix the leaking roofs and non-standard features within the houses. The access to the lower vaults and bascule pits would also need to be improved to meet OSHA requirements.

Exterior spalling and delamination, along with many of the internal aesthetic elements, such as doors and windows, can be readily addressed with rehabilitation. Stairs could be rehabilitated and marginally improved, but full modernization would require space not available in the existing houses. A rehabilitation option would not provide egress for workers that meets current OSHA standards, regardless of any upgrades made internally. It would not be practical to keep the existing houses and maintain the current footprint while bringing all means of access up to current OSHA standards. The limited space also poses operational issues, as discussed in a later section of this paper.

Additionally, the numerous cracks and spalls along the outside of the houses could be addressed with a series of patchwork structural repairs, but more serious cracks require reconstruction in order to repair.

Figure 8: Typical deterioration at underside of arch spans. Note the small chunks of concrete that fell (at Span 3 near Pier 3) on nylon mesh netting covering entire arch intrados. Source: 2018 NYSDOT Biennial Inspection Report

Figure 9: Spalled and cracked concrete in left parapet along the side of the Operator's house. Note the large vertical crack along the side of the Operator's house supported by four steel straps (tensioning members) anchored to the side of the Operator's house to prevent further expansion of the crack.
Source: 2018 NYSDOT Biennial Inspection Report

6.5. Load Ratings

All main, live-load carrying superstructure members of the bridge were rated for structural capacity in the 1998 BRPR. The concrete approach spans and bascule span were rated using both the Working Stress Method and the Load Factor Method for both the As-Built and the As-Inspected condition using the MS18[4] live load. The 1998 BRPR load rating found that eight members of the bascule trusses rated below the MS18 Inventory requirement. These members were replaced in the 2002 rehabilitation. This included one original diagonal member on each of the eight bascule trusses. All other members rated at or above MS18 Inventory at that time.

The approach span arches rate below the MS18 Inventory requirement by the Working Stress Method for the As-Built and As-Inspected conditions, and rate as low as MS11. The approach span concrete arches rate at or above MS18 Inventory requirement by the Load Factor Method in both the As-Built and As-Inspected Condition. However, due to over 110 years of service, lack of reinforcement, and lost capacity due to concrete degradation, the structural adequacy of the concrete arch approach spans were described as marginal in the BRPR load ratings.

The structural capacity of the bridge was not designed for the vehicle loads seen today. Substantial replacement of members on the bascule span could improve load carrying capacity, but the increased dead load of the repairs could result in additional effects. The load on the bascule span would need to be counter-balanced, the machinery could need to be upgraded even if the bridge weren't widened, and the substructures could also need strengthening.

6.6. Fatigue

The fatigue life evaluation of the Shore Road Bridge was performed according to the provisions of the AASHTO "Guide Specification for Fatigue Evaluation of Existing Steel Bridges" in the 1998 BRPR. The result of a fatigue evaluation of an existing bridge is an estimate of the remaining fatigue life of the various fatigue prone details on the bridge. Two different estimates of remaining fatigue life were obtained, including the Remaining Mean Fatigue Life and the Remaining Safe Fatigue Life. These two estimates represent different levels of fatigue safety and are intended to provide suitable flexibility in making reasonable, cost-effective decisions regarding repair, rehabilitation or replacement.

Bascule span superstructures and decks generally benefit from being as light as possible. This limits the weight needed to balance the movable span, and inevitably the weight carried by the substructure. Because of span operations, particularly in a bridge as frequently opened as the Shore Road Bridge, their superstructures usually experience higher average stresses and higher live load stress ranges than fixed bridges. The original members of the fixed spans were found to have adequate remaining fatigue life, while slightly more than half of the bascule span members, including many members replaced in the 1982 reconstruction, do not. The 1998 BRPR also concluded that 178 members (slightly more than half of the superstructure members) on the bascule leaves had less than 15 years remaining safe fatigue life, and 138 (greater than one-third of the members) had less than 15 years remaining mean fatigue life. The danger of fatigue cracking is increased where corrosion losses increase stress concentration, or where the member is structurally deficient. Therefore, because of the open deck roadway surface and the frequent operation, the existing bascule span is especially susceptible to fatigue. It has been 20 years since the fatigue analysis was completed and the number of members with little or no remaining fatigue life remaining is expected to have increased. To eliminate fatigue concerns on the bascule spans, a full superstructure replacement of all trusses, floorbeams, stringers and deck would be necessary.

6.7. Seismic Deficiencies

The 1998 BRPR included a seismic analysis of the Shore Road Bridge, since it is standard policy for the NYSDOT to evaluate the seismic vulnerability of existing bridges that could possibly be rehabilitated. Seismic evaluations of existing bridges focus on elements known to have performed poorly in past seismic events, and the influence of failure in each component is assessed. Consideration was given to retrofitting substandard components if the required work was consistent with the scope and cost of the planned rehabilitation, or if their failure would result in bridge

[4] MS18 is equivalent to a 32.4 metric ton truck.

collapse. The vulnerability of design features was assessed by applying seismic design forces in combination with other loads (demand) and determining the ability of bridge components to resist the design forces (capacity). A capacity to demand ratio that was less than 1.0 represented inadequate seismic capacity (because demand exceeds capacity).

Of the 42 lateral bracing members on the bascule span, 12 had capacity to demand ratios less than 1.0. These members are the top laterals in the outside bays. The concrete approach span arches also had capacity to demand ratios greater than 1.0. The arches have adequate seismic capacity when analyzed by the Single Mode Spectral Analysis Method. However, the validity of this method assumes reasonable ductility in standard structures composed of steel or properly reinforced concrete members. The approach span arches are reinforced by steel trusses, but the amount of steel reinforcement does not meet current design requirements. Therefore, the ductility of the arches is limited. Structures with low ductility generally do not perform well under seismic loads.

The approach piers and abutments are made of unreinforced concrete and have no ductility and are therefore vulnerable to cracking under the dynamic loads of a seismic event. If the concrete were to break up under vibrations and vertical and horizontal displacements, then its shear capacity would be drastically reduced. Therefore, the piers and abutments are vulnerable to seismic loads as well.

The existing Shore Road Bridge was not designed to withstand seismic loadings and has inadequate seismic capacity by current standards. The BRPR found that on the bascule span, 12 lateral bracing members have inadequate seismic capacity and should be replaced. The concrete approach span arches appeared to have adequate seismic capacity, but they have limited ductility, so their actual capacity is not certain. The BCPR states that the approach span arches and the approach pier stems are vulnerable to seismic forces under the 2500-year return period earthquake. The unreinforced concrete piers and footings have no ductility and are vulnerable to seismic loading. The wingwalls are vulnerable to cracking and loss of integrity from seismic displacements, which could result in failure. The BCPR recommended retrofitting all the pier and abutment foundations to resist the 2500-year seismic event.

A detailed analysis based on the most recent site specific seismic criteria would need to be performed to determine the required rehabilitation to withstand the 2500-year seismic event. At a minimum, to address the seismic deficiencies, all the foundations, piers, and arches would be underpinned and strengthened. New drilled piles, or caissons, reinforced concrete pile caps, and pier jackets would be constructed around the foundations and piers, integral with new reinforced concrete arches constructed below the existing arches, as redundant support. This would change the proportions of the concrete arches and piers. In addition, the replacement of the approach span arch fill material and decks and the construction of the redundant arches would require that the bridge be closed to vehicular traffic.

6.8. Hydraulic

The 1998 BRPR included an assessment on the hydraulic adequacy of the channel below the Shore Road Bridge, and the bridge's vulnerability to scour, ice, and debris. It included a review of the existing conditions, site investigation, available recent and historical information, and a Diving Report. The roadway surface is approximately 22 feet above mean high water. There are two abutments, which define the shoreline at the bridge, 797 feet apart, face-to-face. Each abutment is protected by stone rip-rap, and both are typically out of, or nearly out of the water at low tide. There are four intermediate approach piers. One of the four piers is out of the water at low tide, and the others are in the water at all times. The piers and abutments are unreinforced concrete footings and stem walls founded partially on short timber piles driven to rock, and partially bearing directly on to the rock. The bascule piers are unreinforced concrete footings and stems founded on a common unreinforced concrete mat, partially supported on short timber piles driven to rock, and partially bearing directly on rock.

The BRPR concluded that the embedment depths of the footings are adequate with respect to scour depths, which are known to have occurred at other similar bridges. There is no evidence of local or progressive scour, but in the future if scour depths increase to expose the timber piles, the stability of the footings could be compromised. The vulnerability of the bridge to ice or debris can be characterized as low. The bridge is hydraulically adequate, but it is

at some risk of scour from extreme events such as hurricanes or nor'easters because of the relatively shallow depth of the footings.

The 2018 NYSDOT Biennial Inspection Report noted that numerous pier footings are submerged under water and are therefore inaccessible. In the future due to sea level rise and storm conditions, there is a danger of water intrusion into the bascule pier pits and electrical vaults through the bascule pit drainage weep holes in the channel walls. During extreme weather events, there is a risk of exposing the timber piles and undermining the pier foundations caused by sudden scour. The BRPR recommended diving inspections after extreme weather events to ensure the safety of the bridge foundations.

7. Operational Deficiencies

Electrical issues have plagued the operational system of the Shore Road Bridge movable span. When electrical system failures occur, troubleshooting often involves stopping traffic to perform test runs or in worse cases the span is unable to open for navigation or is stuck in a position that prevents passage of vehicular traffic.

In September 2018, several electrical components of the Shore Road Bridge failed, generating a small fire in the east terminal box. The fire resulted in replacement and further testing of several bridge components. This required road and navigational traffic closures. Several electrical control components were replaced, including silicon-controlled rectifiers (SCRs), gate pulser circuit boards, the adjacent ramp generator card, and several conductors. Other issues were noted during testing, including the need to manually align the bridge's bascule leaves for seating. There was also an electrical short in the east motor brake power wiring preventing it from functioning properly. Therefore, the motor brake required being manually released, which delayed traffic. Further testing of the span demonstrated it to be intermittently unreliable, because of several motor failures while raising the bridge. Additional tests were recommended to ensure that the span was operating reliably.

As a result of the fire and subsequent emergency repairs, an inspection of the electrical and mechanical equipment was conducted in the fall of 2018 and several additional deficiencies with respect to span operations were noted. These operational deficiencies include:

- The east machinery brake is out of service.
- The bridge operator must use the emergency stop to abruptly halt the east bascule leaf when it reaches 45 degrees of opening to prevent impacting the underside of the bascule span toe joint on the west bascule leaf.
- The span position and over-travel limit switches require replacement.
- A traffic gate was out of service.
- The failed terminal blocks and splices were temporarily repaired.
- The auxiliary or backup electrical control and mechanical operating system on both the east and west sides are out of service.
- Multiple wires and cables need to be properly terminated, secured at the correct beginning and ending locations, with the terminal boxes.
- The wire and cable connections within the terminal boxes need to be cleaned of corrosion.

Many of the issues on the preceding list could be resolved under a rehabilitation of the bridge, such as cleaning corrosion from terminal boxes and conductors, and properly terminating cables. Such work could be done during low tide when few vessels navigate the channel to minimize disruption to navigation. However, many operational issues are long standing, requiring recurring effort to resolve.

Many electrical and mechanical components vital for the operation of the movable span are at some risk at the 100-year flood level due to the intrusion of water through the weep holes located in the channel side walls of the bascule piers, at the pit floor level. The mechanical system is intrinsic to the current movable span and cannot be moved to a higher elevation making the brakes and motors susceptible to flooding, but the gears, shafts, and bearings may be cleaned and put back in service after water intrusion. With rehabilitation, little could be done in the way of fully

waterproofing the space surrounding the mechanical equipment. This means that any rehabilitation would inevitably be susceptible to the same issues of flooding and corrosion.

The bridge opens frequently for marine traffic, approximately 800 times a year. This is the second most frequently opened NYCDOT movable bridge. Repairs to the mechanical and electrical operating systems are considered a priority for NYCDOT due to the frequency of bridge openings and are needed to ensure reliable operations. These operational issues have the potential to affect the ability of the span to open and close reliably, which can cause disruptions or delays to maritime and vehicular traffic. Replacing the mechanical and electrical equipment would require a long-term disruption to either vehicular or marine traffic since the span would need to be locked in either the open or closed position in order to accomplish the needed work. Additionally, the electrical equipment on the bridge is obsolete. Most control systems of this vintage are no longer supported by the original manufacturers, making it difficult to repair or replace certain components as part of routine or emergency maintenance because they are unavailable.

7.1 Operational Reliability

The movable span mechanical and electrical last underwent a major rehabilitation in the 1980s. The age of the equipment combined with operation multiple times per day, has resulted in accelerated wear and above average maintenance frequency. It was noted in the September 2018 Operational Issues Summary that long-term repairs would be required to maintain the bridge's operability, and that the bridge electrical systems are reaching the end of their lifespan.

These operational issues affect the ability of the span to open and close reliably, which can cause disruptions or delays to vehicular and maritime traffic. Due to the fact that the electrical equipment is obsolete and similar materials are unavailable, complete replacement is the only long-term solution. If complete replacement of the electrical system were completed as part of a bridge rehabilitation, a long-term bridge closure would be required and have impacts to both navigation and vehicular traffic.

7.2 Clearances for Marine Vessels

The Shore Road Bridge opens multiple times a day for marine traffic and is one of the most frequently opened movable bridges in New York City. The frequent openings are a function of the number of vessel passages and the low bridge height. The number of span openings is expected to continue unless the bridge height is raised to allow more vessels to pass without openings. The existing horizontal clearance between the fenders is 59 feet, which is the narrowest channel width of all bridges on the Hutchinson River. The existing navigation channel tapers down at the bridge making it difficult to navigate and more susceptible to vessel impacts (see Figures 10 and 11). This narrow channel predates the establishment of the current Federal Navigation channel in 1930. The overall Hutchinson River (Eastchester Creek) navigation channel is as wide as 200 feet, yet it narrows at the existing Shore Road Bridge. The current channel width is constrained by the multiple bridges crossing the river and, in these locations, the mapped channel is tapered down to match the restrictions of each bridge. As per National Oceanic and Atmospheric Administration (NOAA) Navigation Chart 12366, bridges upstream from the Shore Road Bridge provide 68 to 130 feet of horizontal clearance. The Shore Road Bridge fender is integral with the bridge substructure and experiences frequent vessel impacts due to this narrow horizontal clearance, thereby undermining the structural integrity of the bridge and resulting frequent repairs. Increasing the horizontal clearance would provide additional space for vessels to pass through this section of the Hutchinson River, allow them to better align with the channel, and to improve sightlines along the navigational channel. Rehabilitation of the bridge would not be able to address the existing horizontal clearance issues and would maintain the existing bridge alignment. These issues would continue to present an ongoing concern and continue to contribute to frequent vessel impacts.

The existing vertical clearance is also a concern and results in an increased number of bridge openings. In the closed position, the bridge provides 13 feet of vertical clearance above mean high water. Due to sea level rise, this clearance would decrease over time requiring additional openings. Excessive bridge openings create vehicle traffic delays and can intensify wear on a bridge's mechanical system. With bridge rehabilitation, the vertical clearance could not be practically improved. Vertical clearance can only be changed by replacement of the bridge.

Figure 10: Oil barge passing northbound through the open bridge. Source: 1998 BRPR Shore Road Bridge, Volume 1

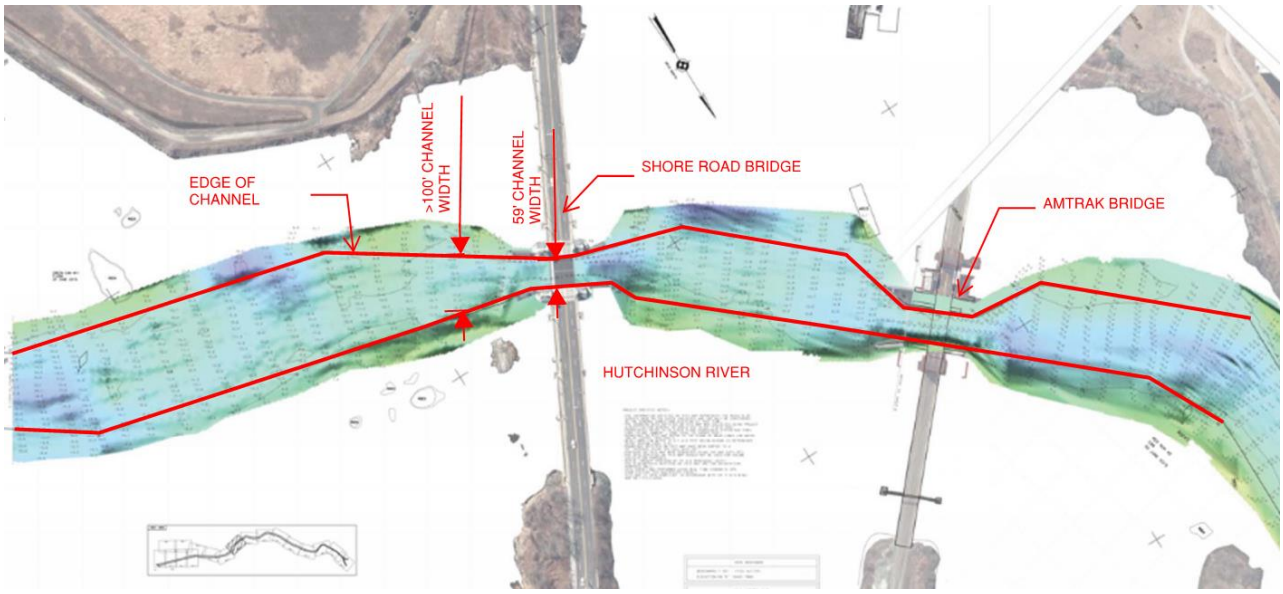


Figure 11: Narrow channel width of Shore Road Bridge over Hutchinson River and the adjoining Amtrak Bridge. Source: 2015 Channel Survey – Eastchester Creek

7. Conclusion

Deterioration of the aging Shore Road Bridge has reached the point where bridge replacement or major rehabilitation is needed to maintain this vital link in the transportation system. Geometric, structural and operational deficiencies have been considered to determine if rehabilitation is reasonable (practical and feasible).

The existing Shore Road Bridge has multiple non-standard geometric, transportation, and design features including narrow lanes, insufficient sidewalk width, lack of shoulders, non-standard curb height, flat profile grades on approach spans, and inadequate lateral clearances. In order to improve or eliminate these features the bridge would need to be widened. Widening would require replacement of mechanical and electrical systems, replacement of the operators' towers, and extensive structural modifications making rehabilitation unreasonable.

Structural deterioration is prevalent on all spans of the bridge. Nine yellow flags were issued in the 2018 Biennial Inspection Report for severe corrosion of the movable span steel members. The concrete arch approach spans exhibit deep spalls, cracks, exposed steel ribs and roadway settlement. The bridge houses also exhibit spalls and cracking, and do not meet OSHA safety standards. The bridge is susceptible to extreme events and its age and frequent use make it susceptible to fatigue issues. Rehabilitation of these structural deficiencies would require extensive strengthening of substructures, bascule span replacement, concrete repairs and underpinning of approach spans. Under Rehabilitation, many of the structural, fatigue, and seismic deficiencies could be corrected, however would be limited in the extent to which they would extend the life of the bridge.

Numerous operational issues were noted that have the potential to affect the ability of the span to open and close reliably. Many electrical and mechanical components are at some risk of flooding and cannot be moved or enclosed in fully waterproof areas. The electrical controls on the bridge are obsolete and compatible equipment needed for repairs are difficult to source or no longer manufactured. Rehabilitation of the operational equipment would require replacing the mechanical and electrical equipment would require a long-term disruption to either vehicular or marine traffic since the span would need to be locked in either the open or closed position in order to accomplish the needed work.

Furthermore, rehabilitation of the aging bridge structure would not improve the poor geometry of the navigation channel in the vicinity of the bridge. The narrow channel width would be retained under the rehabilitation and would continue to constrict navigation and contribute to fender impacts. The limited clearance for marine vessel passage under the bridge would continue to require frequent movable bridge openings and the associated delays to traffic.

Rehabilitation of the existing Shore Road Bridge is not reasonable (practical and feasible) and has been dismissed from further consideration.

APPENDIX B

Public and Agency Comments

THIS PAGE INTENTIONALLY LEFT BLANK

I. PUBLIC AND AGENCY COMMENTS

The Joint Lead Agencies received 24 comment submissions during the public scoping comment period for the Shore Road Bridge over the Hutchinson River Project. The public was provided opportunities to submit comments in several ways throughout the comment period. The project scoping comment period began upon publication of the NOI and NOI Report on July 12, 2021 and concluded on August 16, 2021. Scoping meetings took place on August 3, 2021. The lead agencies have considered the comments received throughout the scoping comment period, and, where applicable, will use the input received to determine the appropriate contents of the EIS.

To address requirements under CEQR, NYCDOT published a draft Scope of Work on May 26, 2021 for public review and comment. Comments received on NYCDOT's draft Scope of Work document are included in this report along with those received during the scoping comment period.

Written comments could be submitted via email, the project website, mail, and using the Microsoft Teams chat feature or made verbally during the scoping meetings held for the Project. Private stenographers were available at the scoping meetings to record oral comments.

The Joint Lead Agencies have considered the comments received on the Project. The Responses to Public/Agency Comments section of this appendix contains summaries of the substantive comments received from the public and agencies and responses to those comments. Comments are organized by subject matter. This section also includes a table listing the commenters and the comment/response numbers associated with the submitted comments.

The Public/Agency Comments section contains the written comments received from the public and agencies as well as transcripts of the oral comments from the scoping meetings.

Cooperating Agency comments on the draft Scoping Report and Concurrence Point #2 are included at the end of this appendix. The Scoping Report was revised to respond to the Cooperating Agency comments received, where appropriate, and full consideration will be given to comments during the development of the DDR/DEIS.

For additional information regarding public involvement, refer to Section 6 of this Scoping Report.

A. RESPONSES TO PUBLIC AND AGENCY COMMENTS

Table B-1: List of Public/Agency Commenters

#	Name, Organization	Comment Date	Type	Comment / Response Number	Page Number
1	Anonymous	6/5/2021	Website - Shore Road Bridge (SRB)	PI01	B-12
2	Anonymous	6/16/2021	Phone Call	PI04	B-12
3	Anonymous	8/2/2021	Website - SRB	PI11	B-13
4	Anonymous	8/2/2021	Website - SRB	PI12	B-13
5	Carla Chadwick	7/13/2021	Website - SRB	PI09	B-13
6	Cheryl Martin	8/7/2021	Email	PI15	B-14
7	Cheryl Martin	8/13/2021	Email	AQ1, PC5, PI16, T3	B-3, B-10, B-14, B-16
8	Donald Burns, FTA	7/16/2021	Letter - FHWA	EJ1, PDP1, PDP2	B-9, B-11
9	Emily Yurlina	6/24/2021	Phone Call	PI05, PI06, TN1	B-12, B-17
10	George Spencer	8/2/2021	Website - SRB	PI13	B-13
11	John Doyle, City Island Rising, Inc.	8/5/2021	Website - NYCDOT	BPA4	B-4
12	Jorge Santiago	8/4/2021	Phone Call	PI14	B-13, B-14
13	Jorge Santiago, East Bronx History Forum	8/11/2021	Email	CH1	B-8
14	Kevin Daloia, Hudson River Greenway	6/12/2021	Website - SRB	PI02	B-12
15	Kevin Daloia, Friends of Hutchinson River Greenway	8/3/2021	Public Meeting	EC1, PDP3	B-6, B-11
16	LS	8/3/2021	Public Meeting	BPA3, CC2, EC3, PC3, SC1, T2	B-4, B-7, B-6, B-10, B-15, B-16
17	Maria Guido	6/12/2021	Website - SRB	PI03	B-12
18	Michael Kaess	8/3/2021	Public Meeting	BPA1, PC1, T1	B-4, B-10, B-16
19	Nilka Martell, Friends of Pelham Bay Park	8/3/2021	Public Meeting	PDP4	B-11
20	Paul A. Tapogna, RA, LEED AP, WCS	7/30/2021	Website - SRB	PI10	B-13
21	Paul A. Tapogna, RA, LEED AP, WCS	8/12/2021	Email	BPA5, BPA6, PC4, VRV1	B-4, B-5, B-10, B-18
22	Robert Sheridan	8/3/2021	Public Meeting	BPA2, CC1, EC2, PC2, BPA7	B-4, B-7, B-6, B-10, B-5
23	Yevgeniy Galinski, NYMTC	6/25/2021	Website - SRB	PI07	B-12, B-13
24	Yevgeniy Galinski, NYMTC	6/25/2021	Email	PI08	B-13

1. AIR QUALITY

Comment-AQ1	Commenter expressed concern that additional traffic through Co-Op City will affect air quality and worsen it in the area.
Response-AQ1	As stated in Section 5 of this Scoping Report, air quality analyses will be conducted as part of the DDR/DEIS for the Project. The air quality analyses will be conducted using New York State Department of Transportation, Federal Highway Administration, and U.S. Environmental Protection Agency (USEPA) procedures and USEPA models. The air quality analyses for this Project could include a particulate matter microscale analysis, mesoscale analysis, and mobile source air toxic analysis. The analyses will be documented in the DDR/DEIS.

2. BICYCLE/PEDESTRIAN ACCOMMODATIONS

Comment-BPA1	Commenter stated they are a regular bicyclist over the bridge and remarked that it is the worst portion of the Greenway. The commenter stated they would like to see the replacement bridge provide improved bicycle infrastructure that takes into consideration the needs of the bicyclists. The commenter added that when the City Island bridge was replaced it included standard bicycle lanes that were not protected.
Response-BPA1	One of the project objectives is to improve bicycle and pedestrian facilities on the Shore Road Bridge. Improvements to bicycle facilities within the project limits will be studied as part of the DDR/DEIS for the Project.
Comment-BPA2	Commenter stated they would like to see separated bicycle and pedestrian paths, and that these bicycle/pedestrian lanes be fully protected from traffic.
Response-BPA2	One of the project objectives is to improve bicycle and pedestrian facilities on the Shore Road Bridge. Improvements to bicycle facilities within the project limits will be studied as part of the DDR/DEIS for the Project.
Comment-BPA3	Commenter stated they would like to see separated bicycle and pedestrian paths, and that these bicycle/pedestrian lanes be fully protected from traffic with concrete barrier. Commenter further requested that NYCDOT consider constructing a bicycle or micro-mobility lane along Orchard Beach Road.
Response-BPA3	One of the project objectives is to improve bicycle and pedestrian facilities on the Shore Road Bridge. Improvements to bicycle facilities within the project limits will be studied as part of the DDR/DEIS for the Project. Orchard Beach Road is outside of the Project limits and beyond the stated purpose and need of the Project.
Comment-BPA4	Commenter requested railings to protect pedestrians and bicyclists on the Pelham Bridge (Shore Road).
Response-BPA4	One of the project objectives is to improve bicycle and pedestrian facilities on the Shore Road Bridge. Improvements to bicycle facilities within the project limits will be studied as part of the DDR/DEIS for the Project.
Comment-BPA5	Commenter noted that the existing path is too narrow, unguarded from traffic, should be wider and safely divided between bicyclists and pedestrians, and have a continuous guiderail. Also recommended one-way bicycle paths on both sides of the bridge.
Response-BPA5	One of the project objectives is to improve bicycle and pedestrian facilities on the Shore Road Bridge. Improvements and design details for bicycle facilities within the project limits will be studied as part of the DDR/DEIS for the Project.

Comment-BPA6	Commenter recommended improving north side circulation, improving connections from bicycle paths to the bridge, redesigning crosswalks, and improving signage and nighttime lighting.
Response-BPA6	One of the project objectives is to improve bicycle and pedestrian facilities on the Shore Road Bridge. Improvements to bicycle facilities within the project limits will be studied as part of the DDR/DEIS for the Project.
Comment-BPA7	Commenter is in favor of fixed high bridge and noted bicyclists could dismount from bicycles and walk incline if needed.
Response-BPA7	One of the project objectives is to improve bicycle and pedestrian facilities on the Shore Road Bridge. Improvements and design details, including grades, for bicycle facilities within the project limits will be studied as part of the DDR/DEIS for the Project.

3. ENGINEERING CONSIDERATIONS

Comment-EC1	Commenter requested clarification on the meaning of a 4.1% grade and reference to another bridge in Manhattan with a bicycle/ped path that is roughly 4.1 percent grade to gain a better understanding of what that looks like.
Response-EC1	Percent grade refers to the number of feet change in elevation over a distance of 100 feet with positive numbers indicating a gain and negative numbers indicating a decrease in elevation for the direction of travel. Therefore, a 4.1% grade would rise 4.1 feet over a distance of 100 feet. Similar grades can be found on the bicycle and pedestrian path of the nearby Boston Road Bridge over the Hutchinson River.
Comment-EC2	Commenter requested consideration be given to including lighting and an emergency call box along the proposed shared use path and the bridge itself.
Response-EC2	One of the project objectives is to improve bicycle and pedestrian facilities on the Shore Road Bridge. Bicycle and pedestrian improvements and related infrastructure within the project limits will be studied as part of the DDR/DEIS for the Project.
Comment-EC3	Commenter requested consideration be given to including a water fountain, public restroom, bicycle pump/repair facility, kayak access, and bicycle escalator along the proposed shared use path.
Response-EC3	One of the project objectives is to improve bicycle and pedestrian facilities on the Shore Road Bridge. Bicycle and pedestrian improvements and related infrastructure within the project limits will be studied as part of the DDR/DEIS for the Project.

4. PROJECT CONSTRUCTION

Comment-CC1	Commenter noted concern about material storage and staging during construction. Commenter would like to ensure that the construction materials are stored on barges and not on land due to the sensitive lands surrounding the project and adjacent landfill.
Response-CC1	Construction phasing and construction effects, including effects to environmental resources, resulting from implementation of the Project will be evaluated as part of the DDR/DEIS. If the potential for adverse impacts is identified, measures to avoid, minimize or otherwise mitigate the impacts will be considered and documented in the DDR/DEIS.
Comment-CC2	Commenter requested that the Community Boards and local organizations be informed where construction materials will be stored in advance.
Response-CC2	Construction phasing and construction effects resulting from implementation of the Project will be evaluated. If the potential for adverse impacts is identified, measures to avoid, minimize or otherwise mitigate the impacts will be considered as part of the DDR/DEIS.

5. CULTURAL/HISTORIC RESOURCES

Comment-CH1	Commenter noted that there are known archaeologically sensitive areas in the vicinity of the bridge. Commenter further noted that two of the concepts may impact the archeological site, and requested further information regarding NYCDOT procedures when artifacts are found during a construction project.
Response-CH1	As stated in Section 5 of this Scoping Report, the Project is a federal undertaking subject to review under Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations, 36 CFR Part 800. Section 106 requires federal agencies to take into account the effects of their undertakings on historic properties, defined as “any prehistoric or historic district, site, building, structure or object included in, or eligible for inclusion in the National Register of Historic Places” (36 CFR Part 800.16(l)(1), and to provide the Advisory Council on Historic Preservation a reasonable opportunity to comment. During the development of the DDR/DEIS, the effects of the Project on historic properties will be evaluated through the Section 106 process, with the goal of seeking ways to avoid, minimize or mitigate any adverse effects. Research will be undertaken to document known historic properties within the vicinity of the Project. Following established standards and procedures, the identification of historic properties that could be affected by the Project will be completed and the effects to those properties will be evaluated. The Section 106 process and findings will be documented in the DDR/DEIS. Potential construction period impacts on archaeological resources will be evaluated. If warranted, an unanticipated discovery plan (for archaeological resources found during construction) may be prepared for the Project.

6. ENVIRONMENTAL JUSTICE

Comment-EJ1	Commenter noted that there are Environmental Justice communities surrounding the project area and coordination will be needed with the appropriate public transportation agencies serving those communities.
Response-EJ1	As discussed in Section 5.2.3 of this Scoping Report, and consistent with Executive Order (E.O.) 12898 - Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, the DDR/DEIS will include an assessment of the potential for environmental and human health effects of the Project, on minority and low-income populations. The analysis will identify low income and/or minority (Environmental Justice) communities within the Study Area, identify the potential for any disproportionately high and adverse human health or environmental effects of the Proposed Action on minority and low-income populations within the Study Area, and identify measures to mitigate adverse impacts (if identified). As discussed in Section 6.2 of this Scoping Report, the Joint Lead Agencies have invited Cooperating and Participating Agencies to participate in the EIS process. Invited Participating Agencies include the MTA and Westchester County Department of Public Works and Transportation (Bee Line Bus).

7. PROJECT CONCEPTS

Comment-PC1	Commenter stated support for a high-level fixed bridge due to concern about having to wait for a drawbridge to open/close and perceived lifecycle costs.
Response-PC1	As discussed in Section 4 of this Scoping Report, the Joint Lead Agencies evaluated 11 concepts for the Project. Based on the project purpose, and objectives, established screening criteria, available information, appropriate analyses, and public and agency input during the scoping process, a reasonable range of alternatives were identified to advance for further study in the DDR/DEIS.
Comment-PC2	Commenter stated support for a high-level fixed bridge due to perceived lifecycle costs.
Response-PC2	As discussed in Section 4 of this Scoping Report, the Joint Lead Agencies evaluated 11 concepts for the Project. Based on the project purpose and objectives, established screening criteria, available information, appropriate analyses, and public and agency input during the scoping process, a reasonable range of alternatives were identified to advance for further study in the DDR/DEIS.
Comment-PC3	Commenter stated support for a high-level fixed bridge due to perceived improvements in longevity.
Response-PC3	As discussed in Section 4 of this Scoping Report, the Joint Lead Agencies evaluated 11 concepts for the Project against the Purpose, Objectives, and Needs. Based on available information, appropriate analyses, and public and agency input during the scoping process, a reasonable range of feasible alternatives were identified to advance for further study in the DDR/DEIS.
Comment-PC4	Commenter recommended that the bridge should not be a drawbridge, but high enough to be a fixed type bridge.
Response-PC4	As discussed in Section 4 of this Scoping Report, the Joint Lead Agencies evaluated 11 concepts for the Project. Based on the project purpose and objectives, established screening criteria, available information, appropriate analyses, and public and agency input during the scoping process, a reasonable range of alternatives were identified to advance for further study in the DDR/DEIS.
Comment-PC5	Commenter requested information regarding cost and impact of utility relocation caused by the Project.
Response-PC5	As stated in Section 5.5.10 of this Scoping Report, potential impacts to any utilities during construction will be addressed and documented in the DDR/DEIS.

8. PROJECT DEVELOPMENT PROCESS

Comment-PDP1	Commenter noted that the MTA is currently in the design phase for the Penn Station Access Project and that the Shore Road Team should be aware of the MTA construction methods and timelines moving forward.
Response-PDP1	As described in Section 6 of this Scoping Report, the joint lead agencies have provided, and will continue to provide, opportunities for meaningful public and agency participation throughout the environmental review process. The DDR/DEIS will identify transportation, infrastructure, and/or other development projects planned to occur during the anticipated construction through the completion year of the proposed action, to ensure that these background projects and their effects are accounted for appropriately in the environmental analyses. Cooperating and Participating Agencies have been identified and invited to participate in the EIS process. The Participating Agencies on the Project include the MTA.
Comment-PDP2	Commenter noted that the Project is adjacent to Amtrak ROW and that any in-water work will need to consider any Amtrak construction efforts as part of the Penn Station Access Project.
Response-PDP2	As described in Section 6 of this Scoping Report, the joint lead agencies have provided, and will continue to provide, opportunities for meaningful public and agency participation throughout the environmental review process. The DDR/DEIS will identify transportation, infrastructure, and/or other development projects planned to occur during the anticipated construction through the completion year of the proposed action, to ensure that these background projects and their effects are accounted for appropriately in the environmental analyses. Cooperating and Participating Agencies have been identified and invited to participate in the EIS process. The Cooperating Agencies on the Project include the US Coast Guard and US Army Corps of Engineers for in-water construction work.
Comment-PDP3	Commenter seeks to ensure that the greenway staff of NYCDOT and NYC Parks are involved in development of the connections on both approaches since the bridge is a connection between City Island to Orchard Beach/Pelham Park on the Mosholu-Pelham Greenway.
Response-PDP3	Comment noted. The Participating Agencies on the Project include NYC Parks and active coordination will occur as the Project progresses.
Comment-PDP4	Commenter stated that they were going to ask whether there will be an Environmental Impact Statement developed for this project and that through viewing the project video, they now understand that there will be one.
Response-PDP4	Comment noted.

9. PUBLIC INVOLVEMENT

Comment-PI01	Commenter requested to be added to the Project Email List.
Response-PI01	Commenter added to mailing list database.
Comment-PI02	Commenter requested to be added to the Project Email List.
Response-PI02	Commenter added to mailing list database.
Comment-PI03	Commenter requested to be added to the Project Email List.
Response-PI03	Commenter added to mailing list database.
Comment-PI04	Commenter requested more information regarding the proposed project.
Response-PI04	Information regarding the Project was provided in several formats (posters, video presentation, and brochures) at the public scoping meetings and those materials are also available on the Project website in the Library/Meeting Materials section (https://ShoreRoadBridgeBX.com/materials). Section 4 of this Scoping Report discusses the concepts considered for the Project and the alternatives that are being advanced for further study in the DDR/DEIS.
Comment-PI05	Commenter requested clarification of format and location of the Public Meeting.
Response-PI05	Information provided via interaction Project with Public Involvement Team.
Comment-PI06	Commenter stated concern with virtual attendance due to lack of computer, smart phone, and BronxNet television access.
Response-PI06	A copy of the materials presented at the Public Scoping Meeting was provided to the commenter after the meeting.
Comment-PI07	Commenter requested to be added to the Project Email List.

Response-PI07	Commenter added to mailing list database.
Comment-PI08	Commenter requested assistance registering for the Public Meeting.
Response-PI08	Commenter registered for the meeting, confirmation email provided.
Comment-PI09	Commenter requested to be added to the Project Email List.
Response-PI09	Commenter added to mailing list database.
Comment-PI10	Commenter requested to be added to the Project Email List.
Response-PI10	Commenter added to mailing list database.
Comment-PI11	Commenter requested to be added to the Project Email List.
Response-PI11	Commenter added to mailing list database.
Comment-PI12	Commenter requested to be added to the Project Email List.
Response-PI12	Commenter added to mailing list database.
Comment-PI13	Commenter requested to be added to the Project Email List.
Response-PI13	Commenter added to mailing list database.
Comment-PI14	Commenter stated that they missed the August 3 scoping meetings and requested information about the Project website and viewing the presentation showing the alternatives.

Response-PI14	A copy of the materials presented at the Public Scoping Meeting was provided to the commenter after the meeting.
Comment-PI15	Commenter noted they could not attend the Public Scoping Meeting due to technical difficulties.
Response-PI15	A copy of the materials presented at the Public Scoping Meeting was provided to the commenter after the meeting.
Comment-PI16	Commenter noted they had trouble following the video and felt it went too fast. Commenter requested that for future meetings more information be provided about the types of electronic tools needed to participate in virtual public meetings.
Response-PI16	A copy of the materials presented at the Public Scoping Meeting was provided to the commenter after the meeting.

10. SOCIAL CONSIDERATIONS

Comment-SC1	Commenter noted that the Pelham Bay Park is an important amenity for both Bronx residents and visitors, and the importance of this area as a community resource needs to be considered to help increase enjoyment of the public space.
Response-SC1	Comment noted. An assessment of potential impacts on parks and recreational resources as a result of implementation of the Project will be conducted as part of the DDR/DEIS.

11. TRAFFIC

Comment-T1	Commenter expressed support for eleven foot wide vehicular travel lanes and noted that speeding is an issue on the bridge.
Response-T1	A traffic and safety analysis will be conducted for the Project as part of the DDR/DEIS. The DDR/DEIS will document the findings of the analysis.
Comment-T2	Commenter would like to see wider vehicular travel lanes, but not so wide that it encourages speeding. Eleven (11) feet would be sufficient and would also be safer and allow truck and bus traffic to flow more efficiently.
Response-T2	A traffic and safety analysis will be conducted for the Project as part of the DDR/DEIS. The DDR/DEIS will document the findings of the analysis.
Comment-T3	Commenter expressed concern about additional traffic causing increased congestion and accidents in Co-Op City.
Response-T3	A traffic and safety analysis will be conducted for the Project as part of the DDR/DEIS. The DDR/DEIS will document the findings of the analysis.

12. TRAFFIC NOISE

Comment-TN1	Commenter stated concern related to ongoing noise from a loose street plate on a repaired section of roadway.
Response-TN1	Comment noted.

13. VISUAL RESOURCES/VIEWS

Comment-VRV1	Commenter recommended pull offs to help get sight-seeing visitors off the pathway to view the surrounding area visuals.
Response-VRV1	The request for public access to scenic views is noted and will be considered as part of the DDR/DEIS.

From: ShoreRoadBridgeBX
To: Stephanie Brooks
Subject: Fw: Shore Road Bridge Project Email Sign-up
Date: Wednesday, July 28, 2021 11:29:55 AM

From: ShoreRoadBridgeBX
Sent: Thursday, July 1, 2021 1:25 PM
To: [redacted]
Subject: Re: Shore Road Bridge Project Email Sign-up

Thank you! Your name has been added to our stakeholder database

PI01

From: [redacted]
Sent: Saturday, June 5, 2021 4:59:22 PM
To: ShoreRoadBridgeBX
Subject: Shore Road Bridge Project Email Sign-up

Re: Updates

ShoreRoadBridgeBX

Thu 2021-07-01 1:22 PM

To: Hutchinson River Greenway [redacted]

Thank you! Your name has been added to our stakeholder database.

From: Hutchinson River Greenway [redacted]
Sent: Saturday, June 12, 2021 12:01:24 AM
To: ShoreRoadBridgeBX
Subject: Updates

Good day, please add me to your Shore rd bridge updates.

Thank you

Kevin daloia
Friends of the Hutchinson River Greenway
[redacted]

PI02

Sent from my iPhone

Sent from my iPhone

Re: Shore Road Bridge Project Comment

ShoreRoadBridgeBX

Thu 2021-07-01 1:21 PM

To: Maria Guido [redacted]

Thank you! Your name has been added to our stakeholder database.

From: Maria Guido [redacted]
Sent: Saturday, June 12, 2021 1:48:32 PM
To: ShoreRoadBridgeBX
Subject: Shore Road Bridge Project Comment

Please keep me informed

Sent from my iPhone

PI03

From: ShoreRoadBridgeBX
To: Stephanie Brooks
Subject: Fw: Shore Road Bridge Project Email Sign-up
Date: Wednesday, July 28, 2021 11:33:43 AM

From: Galinski, Yevgeniy (DOT) [redacted]
Sent: Thursday, July 1, 2021 2:41 PM
To: ShoreRoadBridgeBX
Subject: Re: Shore Road Bridge Project Email Sign-up

Thank you!

Yevgeniy

From: ShoreRoadBridgeBX
Sent: Thursday, July 1, 2021 1:21:30 PM
To: Galinski, Yevgeniy (DOT)
Subject: Re: Shore Road Bridge Project Email Sign-up

ATTENTION: This email came from an external source. Do not open attachments or click on links from unknown senders or unexpected emails.

Thank you! Your name has been added to our stakeholder database

---

From: Galinski, Yevgeniy (DOT)
Sent: Friday, June 25, 2021 2:38:43 PM
To: ShoreRoadBridgeBX
Subject: Shore Road Bridge Project Email Sign-up

Hello,
Please add me to the mailing list.

Yevgeniy Galinski
TIP Coordinator
New York City Transportation Coordinating Committee
47 - 40 21st Street, Long Island City, New York 11101
[redacted]
www.NYMTC.org

PI07

****
****

This message and any attachments are solely for the individual(s) named above and others who have been specifically authorized to receive such and may contain information which is confidential, privileged or exempt from disclosure under applicable law. If you are not the intended recipient, any disclosure, copying, use or distribution of the information included in this message and any attachments is strictly prohibited. If you have received this communication in error, please notify us by reply e-mail and immediately and permanently delete this message and any attachments.
Thank you.
NYC – Department of Transportation
****
****

From: ShoreRoadBridgeBX
To: Stephanie Brooks
Subject: Fw: Technical Issues signing up for public scoping session on August 3rd
Date: Wednesday, July 28, 2021 11:32:56 AM

From: Stephanie Brooks [redacted]
Sent: Thursday, July 1, 2021 2:59 PM
To: Galinski, Yevgeniy (DOT); ShoreRoadBridgeBX
Subject: Re: Technical Issues signing up for public scoping session on August 3rd

Excellent, thank you for letting me know!

Stephanie Brooks
Project Manager
FHI Studio
[redacted]
www.fhistudio.com

From: Galinski, Yevgeniy (DOT)
Sent: Thursday, July 1, 2021 2:45:57 PM
To: ShoreRoadBridgeBX
Cc: Stephanie Brooks
Subject: RE: Technical Issues signing up for public scoping session on August 3rd

Thank you Stephanie.
Received invites to both sessions. I'm not planning to speak as my role is observation only. Will be involved in TIP related matters further down in the process.
Best regards,

Yevgeniy Galinski
TIP Coordinator
New York City Transportation Coordinating Committee
47 - 40 21st Street, Long Island City, New York 11101
[redacted]
www.NYMTC.org

From: ShoreRoadBridgeBX
Sent: Thursday, July 1, 2021 2:09 PM

To: Galinski, Yevgeniy (DOT)
Cc: 'Stephanie Brooks'
Subject: Re: Technical Issues signing up for public scoping session on August 3rd

You have been registered for both the 4-6 pm and 7-9 pm sessions, you can attend either one (or both!)
Please confirm that you have received the registration emails from Eventbrite.
Thank you for your participation, we look forward to seeing you!

Best,
Stephanie Brooks,
Shore Road Outreach Coordinator

From: ShoreRoadBridgeBX
Sent: Thursday, July 1, 2021 1:16:27 PM
To: Galinski, Yevgeniy (DOT)
Subject: Re: Technical Issues signing up for public scoping session on August 3rd
I sure will. Would you like to sign up to speak at the meeting?

From: Galinski, Yevgeniy (DOT) [redacted]
Sent: Friday, June 25, 2021 2:46:12 PM
To: ShoreRoadBridgeBX
Subject: Technical Issues signing up for public scoping session on August 3rd
Hello,

I cant seem to register for the scoping meeting on August 3rd. The Eventbrite link seems to hang, after I input my information and hit register.
Could you kindly manually add me?
Best regards,

PI08

Yevgeniy Galinski
TIP Coordinator
New York City Transportation Coordinating Committee
47 - 40 21st Street, Long Island City, New York 11101
[redacted]
www.NYMTC.org

****
****
****

This message and any attachments are solely for the individual(s) named above and others who have been specifically authorized to receive such and may contain information which is confidential, privileged or exempt from disclosure under applicable law. If you are not the intended recipient, any disclosure, copying, use or distribution of the information included in this message and any attachments is strictly prohibited. If you have received this communication in error, please notify us by reply e-mail and immediately and permanently delete this message and any attachments.
Thank you.
NYC – Department of Transportation
****
****
****

From: ShoreRoadBridgeBX
To: Carla Chadwick
Subject: Re: Shore Road Bridge Project Email Sign-up
Date: Wednesday, July 14, 2021 4:24:43 PM

Thank you for contacting us! Your name has been added to our database.

Come join us August 3! https://shoreroadbridgebx.com/meetings

From: Carla Chadwick [redacted]
Sent: Tuesday, July 13, 2021 10:09 PM
To: ShoreRoadBridgeBX
Subject: Shore Road Bridge Project Email Sign-up

Please add me to your list. Thanks.

Carla Chadwick

Sent from Mail for Windows 10

PI09

U.S. Department
Of Transportation
Federal Transit
Administration

Region II
New York
New Jersey

One Bowling Green
Room 429
New York, NY 10004-1415
[redacted]

July 16, 2021

Ms. Lisell Guerra
Senior Area Engineer
Federal Highway Administration – NY Division
11A Clinton Avenue, Suite 719
Albany, NY 12207

Subject: FTA Comments – Shore Road Bridge Project CEQR Draft Scope of Work Document

Dear Ms. Guerra,

The Federal Transit Administration (FTA) has completed our review of the Shore Road Bridge Project City Environmental Quality Review (CEQR) Draft Scope of Work, emailed to Participating Agencies on 28 May 2021. The CEQR Draft Scope of Work was issued on 26 May 2021, which marked the beginning of the public comment period for this document. We are providing general comments below. It is our hope that these comments will assist the Federal Highway Administration (FHWA), the New York State Department of Transportation (NYSDOT), and the New York City Department of Transportation (NYC DOT) in preparing the final Scope of Work and progressing the environmental process.

GENERAL COMMENTS

EJ1 →

1. *Environmental Justice (EJ) Communities:* Residents from environmental justice communities within the area surrounding the Project may take the bus or ride bicycles to Orchard Beach and City Island, especially during the summer. Work on the Shore Road Bridge Project should progress in coordination with the Metropolitan Transportation Authority (MTA) New York City Transit Bus and NYC DOT.

PDP1 →

2. *Penn Station Access Project:* MTA is in the design phase for the Penn Station Access (PSA) Project, which would introduce direct Metro-North rail service from New Haven, Connecticut into New York Penn Station via Metro-North Railroad's existing New Haven Line. The Environmental Assessment (EA) for PSA (found at https://pennstationaccess.info/environmental-assessment) includes discussion of several elements in proximity to the Shore Road Bridge project, including the Amtrak alignment parallel to the Shore Road Bridge and a new station at Co-op City. While impacts from PSA on the Shore Road Bridge project are not apparent with given information, the Shore Road

PDP1 Cont'd. → Bridge team should be aware of the project and its construction methods / timelines moving forward.

PDP2 →

3. *Amtrak Right-of-Way (ROW)*: The Shore Road Bridge is adjacent to Amtrak ROW. Therefore, NYSDOT should coordinate any in-water construction to ensure barges do not conflict with any scheduled Amtrak construction as part of the PSA project.

If you have any questions or would like to discuss any of the comments, please contact me at [redacted] We look forward to continuing to work with you on this effort.

Sincerely,

Digitally signed by DONALD C BURNS
Date: 2021.07.16 09:16:36 -04'00'

Donald C. Burns, AICP
Director, Planning and Program Development

cc: E. Maciejak, FTA, Region 2

From: ShoreRoadBridgeBX
To: Stephanie Brooks
Subject: Fw: Shore Road Bridge Project Email Sign-up
Date: Friday, July 30, 2021 12:31:30 PM

From: Paul A. Tapogna [redacted]
Sent: Friday, July 30, 2021 7:36 AM
To: ShoreRoadBridgeBX
Subject: Shore Road Bridge Project Email Sign-up

Sign me up please.
Thanks.

PI10

Paul A. Tapogna, RA, LEED AP
Assistant Director
Design Management
WCS

From: ShoreRoadBridgeBX
To: Stephanie Brooks
Subject: Fw: Shore Road Bridge Project Email Sign-up
Date: Monday, August 2, 2021 12:49:57 PM

PI11

From: [redacted]
Sent: Monday, August 2, 2021 10:03 AM
To: ShoreRoadBridgeBX
Subject: Shore Road Bridge Project Email Sign-up

From: ShoreRoadBridgeBX
To: Stephanie Brooks
Subject: Fw: Shore Road Bridge Project Email Sign-up
Date: Tuesday, August 3, 2021 11:34:09 AM

From: [redacted]
Sent: Monday, August 2, 2021 4:50 PM
To: ShoreRoadBridgeBX
Subject: Shore Road Bridge Project Email Sign-up

PI12

Sent from my iPhone

****

This message and any attachments are solely for the individual(s) named above and others who have been specifically authorized to receive such and may contain information which is confidential, privileged or exempt from disclosure under applicable law. If you are not the intended recipient, any disclosure, copying, use or distribution of the information included in this message and any attachments is strictly prohibited. If you have received this communication in error, please notify us by reply e-mail and immediately and permanently delete this message and any attachments. Thank you.

NYC – Department of Transportation

****

From: ShoreRoadBridgeBX
To: Stephanie Brooks
Subject: Fw: Shore Road Bridge Project Email Sign-up
Date: Monday, August 2, 2021 12:49:40 PM

From: Spencer, George [redacted]
Sent: Monday, August 2, 2021 10:02 AM
To: ShoreRoadBridgeBX
Subject: Shore Road Bridge Project Email Sign-up

PI13

****

This message and any attachments are solely for the individual(s) named above and others who have been specifically authorized to receive such and may contain information which is confidential, privileged or exempt from disclosure under applicable law. If you are not the intended recipient, any disclosure, copying, use or distribution of the information included in this message and any attachments is strictly prohibited. If you have received this communication in error, please notify us by reply e-mail and immediately and permanently delete this message and any attachments. Thank you.

NYC – Department of Transportation

****

you so much. If you can state and spell your name for the public record, please.

MR. DALOIA: Kevin Daloia, as it's written there, K-E-V-I-N, D-A-L-O-I-A, kind of with Friends of The Hutchinson River Greenway, so very interested in this project.

I asked the question earlier, I mean, I'll just rephrase it. I just kind of want to make sure that as far as the players that are involved with this project includes, you know, Greenway members of the DOT and the Parks Department being that it is the connection to get over towards City Island and Orchard Beach from Pelham Bay Park, as you mentioned, on the Mosholu-Pelham Parkway from the Hutchinson River Greenway. So I just want to make sure that there's involvement with connecting on each side of the bridge as well as the placement of the bridge itself. I'm not really interested in who's on the line just that they are involved.

PDP3

And as a follow-up I did ask another question when I saw the grades, or the three options. The medium grade that would open, you know, less than 800 -- the 350 times a year,

EC1

shows a 4.1 percent grade. I don't how to -- what that means. Can you give a reference to another bridge in Manhattan that has a Greenway, or a bike path on it, that is roughly 4.1 percent grade so I can get a determination on, you know, how that would be. I'm not sure if you're answering questions on this phone call.

EC1 Cont'd

MS. BROOKS: We are not answering questions right now, but we can definitely respond to them in our public scoping report and later on in the process. But you can always e-mail these questions also, and you see the e-mail address on your screen. So I've paused the microphone just to clarify that for you. I've paused your timing.

MR. DALOIA: Okay. So I don't need any more time. I've made a question, statement, or opinion, and I guess I'll go now.

Thank you.

MS. BROOKS: Fantastic. Thank you so much for your feedback. We really appreciate it. And, again, this is being recorded with a stenographer and it's become part of the public record as well.

Our next speaker is Michael, and

I think it's -- I'm not sure how to pronounce your last name, Kaess. If you could please unmute your microphone. We are -- if you'll give us just one moment to make your microphone active, you can unmute your microphone. And then if you could please spell -- state and spell your name for the public record, and then we'll begin your time.

MR. KAESS: Hi, I'm Michael Kaess, M-I-C-H-A-E-L, K-A-E-S-S. Thank you for having me. So I frequently bike over this bridge whenever I'm heading out to City Island and it is, along the whole Greenway, the worst portion. So I'm very interested in this project, that the replacement really does consider the needs of cyclists, and that it's a really adequate replacement.

As an example, the City Island bridge was replaced and they did put in bike lanes, but just standard bike lanes. They're not protected. So what I'm looking for in a replacement is a bridge that has, of course, protection for cyclists and pedestrians, but also I believe there should be some separation between the cyclists and pedestrians as well, so to reduce any conflict

BPA1

BPA1 Cont'd.

between those users. So you could, say, have a barrier then a two-way bike lane and then a curb, or a sidewalk, for the pedestrians. And, of course, each should be of sufficient width, say ten feet for a two-way bike lane, seven or eight feet for a sidewalk.

T1

Now with regards to the vehicular travel lanes, right now they're ten feet, that's not adequate for trucks and buses. But when this is designed, don't go overboard on the lane width. It's not a highway. We do have an issue with speeding on the roadway. So perhaps if 11 feet would be adequate, that would be sufficient, I think, in addressing both the speeding issue, while still being safe in terms of, you know, lane departure crashes.

PC1

Lastly, regarding the -- which height profile is appropriate, I believe the fixed bridge is best. Yes, it's going to be more work to bike over, but I think it's worth doing because, you know, I haven't had the opportunity of having to wait for the bridge to open and close, and that's not something I want to experience. It only takes me 20 minutes to get to City Island. I don't

PC1 Cont'd.

want to spend ten minutes waiting for it to open and close. And, ultimately, it's going to be less expensive to maintain, the bridge is going to last longer, because there's no moving -- fewer moving parts. So I hope the fixed bridge is ultimately what the agencies decide to move forward with.

MS. BROOKS: And you have 30 seconds.

MR. KAESS: I'm finished. Thank you.

MS. BROOKS: Great. Thank you so much for your feedback. Again, your comment is recorded and has been -- with a stenographer. And, again, you can always e-mail this, as well, all your feedback, to our project e-mail address which you saw on the screen.

Our next speaker is Mr. Rob Sheridan. And, Mr. Sheridan, I believe we are unmuting your mic right now, so that you have the ability to unmute your mic. Your mic is now active. If you want to unmute your microphone and you can provide your statement. If you could please state and spell your name for the record and then your time will begin, your three minutes.

So, Mr. Sheridan, do we have you on?

MR. SHERIDAN: Yes.

MS. BROOKS: Great.

MR. SHERIDAN: Thank you.

My name is Robert Sheridan, R-O-B-E-R-T, S-H-E-R-I-D-A-N. I'm second generation from Pelham Bay. I think Michael just took a lot of my points, but I would like to say that I fully agree that a fixed bridge does seem like the way to go for the future and for longevity. I don't think that what must be a tremendous (Teams inaudible) bridge is justified for sand and scrap from private enterprises. I think that it makes more sense. Bicyclists can get off their bikes and walk up if they need to.

PC2 / BPA7

Also, the separated bike paths and pedestrian paths, I think, is an excellent idea. It is currently very dangerous to be riding and walking. I've done it my whole life. And it's also just very awkward, especially for kids trying to ride their bikes. So I think the protected bike lane is an excellent idea.

BPA2

I also hope that that bike lane

EC2

and pedestrian lane can be lit, well lit, all night, particularly because of the large numbers of restaurant workers who are returning from City Island back towards Pelham Bay or Baychester late at night.

EC2 Cont'd.

I also hope that there could definitely be an emergency call box on both sides of the bridge for the safety of those workers returning late at night, particularly women.

And I'd also like to add that seeing the construction of the new bridge, which I'm sure is going to be very impressive, underneath the Eisenhower ribbon, going over Westchester Creek by where the Bruckner and Cross Bronx converge, which is probably about a mile-and-a-half south, the tremendous amount of construction material that is just around the area that, luckily, they have a tremendous amount of space underneath these elevated highways. But I do have a concern of where the construction materials are going to be staged, or stored, like the giant metal tubes that are 50 feet long and three feet, you know, just tremendous amounts of stuff. I don't know how else to say it.

CC1

And I would like to know whether

CC1 Cont'd.

that's going to be on barges, hopefully, and not on the land because the land immediately surrounding the bridge is both sensitive and the Superfund site, the Pelham Bay dump, which I actually grew up still being an active dump. So I'm hoping that where the construction materials are staged could be made clear to the public so that, well, for environment reasons, and just for aesthetic reasons, quality of life reasons, that --

MS. BROOKS: You have 30 seconds, sir.

MR. SHERIDAN: Thank you. That that's just clear to the residents of Pelham Bay and City Island.

Thank you very much.

MS. BROOKS: Thank you so much for your comment. And, again, this was recorded and it will become part of the public record, and you can always e-mail further information, or further questions you have on the project e-mail address, and as people are speaking, you can see that slide show up on your screen.

I believe I have one more speaker. We have LS who has also registered to speak.

MS. BROOKS: Thank you.

LS: My initials are spelled L, S, and I would like to second the comments that Kevin, Michael, and Rob have made, particularly in support of a fixed bridge, concrete protection for cyclists between the bike lane and the moving lane, Kevin's point -- or, sorry, Michael's points an 11-foot wide car lane to discourage speeding, but facilitate truck and bus transportation.

We need an emergency call box, like Rob mentioned. And I agree that the community needs to be made aware, especially the community board and local organizations, about where construction materials are being staged throughout the process.

I would also like this project to consider including water fountains as part of this proposal. Pelham Bay park has a lack of access to clean water, which is especially necessary when people are making the long journey sometimes to City Island. So I would like to see water fountains included, public restrooms included, a bike pump and fixing station included, benches included, if possible, safe kayak access to the

PC3

BPA3

T2

CC2

EC3

river.

I would also like to see included, or considered, a bike escalator like they have in Norway, a Norwegian City of Trondheim. It's an easy and cheap way to help cyclists go up steep graded hills and seems appropriate to consider in this circumstances -- this circumstance.

EC3 Cont'd.

I would also like this project to consider ADA accessibility to the bridge. A lot of people use this who do not own cars, and we really need to take advantage of building infrastructure that supports that. That includes building an elevator, if necessary.

If, in the scope of this project, I would also call on the DOT and the agencies present here to build a bike lane or micromobility lane on Orchard Beach Road to help access to Orchard Beach, which is not the only -- City Island is not the only way -- reason people are using this bridge.

BPA3 Cont'd.

MS. BROOKS: You have 30 seconds remaining.

LS: Thanks so much.

I would just like to reiterate how this park is an amenity for Bronx residents, and people outside of Bronx, people who drive cars, take the bus, drive their -- ride their bike from other boroughs. So having some of these comfort stations, water fountains, public restrooms, are a huge boon to the public's enjoyment of this space. Thanks so much for hearing me out.

SC1

EC3 Cont'd.

MS. BROOKS: Thank you so much. This is great comment and it was great, too, that you could join us tonight. Again, all of these comments are being weighed equally and will be added to the public record.

And, again, you'll see on your screen ways that you can always leave additional messages if you have further information you'd like to share at our e-mail address, shoreroadbridgebx@dot.nyc.gov. And you can also, if you have any written mailing, anything written, you would like to mail to the DOT, the written mailing instructions are available on our website and you'll see that at shoreroadbridgebx.com.

So we have some time if additional people would like to speak who have not

record and for the stenographer, please?

MS. MARTELL: Sure, the first name is Nilka that's N-I-L-K-A, last name is M-A-R-T-E-L-L.

MS. BROOKS: Great.

MS. MARTELL: And I'm the -- thank you. Thank you, Stephanie. And I'm the president of the Friends of Pelham Bay Park. The only question that I had was regarding the Environmental impact statement, which I see there's, you know, going to be one. So I guess I will just provide my comments and my concerns at that time, but I thank you.

PDP4

MS. BROOKS: Thank you very much, Ms. Martell, for providing your comment. And we will be available to receive comments at any time also during that EIS process.

Do we have any other additional speakers? If people would like to register to speak and they have not yet, you feel free to raise your hand using the raise hand button. You'll see that on your screen. And we can unmute your microphone, or change the settings so you can unmute your microphone yourself. If we have any

Buck Slip - Request for railings to protect pedestrians and cyclists on the Pelham Bridge (Shore Road)

Prepared by Patricia Foster **Thursday, August 19, 2021**

Request Status:	Location Added for Consideration	**Created On:**	8/5/2021	**Assigned To:**	Bronx BC
Status (Open/ Closed):	Resolved	**Due Date:**	9/1/2021	**Assigned By:**	Keith Kalb
Days To Close:	13	**Closed On:**	8/18/2021	**Closed By:**	Patricia Foster

Overview

Case Number: DOT-513243-H6W8

Parent Case: **Child Case:** No

Master Case: **Multi-Issue:** No

Short Description: Request for railings to protect pedestrians and cyclists on the Pelham Bridge (Shore Road) ← BPA4

Client Details

Client:	John Doyle	**Client Type:**	Organization/Business
On Behalf Of:		**VIP:**	
Client Email:	[redacted]	**Client Phone:**	[redacted]
Company Name:	City Island Rising, Inc.		

Location

Location Type:	Bridge or Tunnel	**Location Detail:**	Bike Lane
Borough:	Bronx		
Bridge or Tunnel:	Shore Road over Hutchinson River (or Pelham Bridge)		
Direction:			

Request Details

Public Details

The pedestrian/bicycle path going across the bridge is very narrow and comes very close to the roadway. Installing railings can help protect those who are commuting on or nearby the bridge.

Dates & Details

Request Date:	8/5/2021	**Ack Due Date:**	8/19/2021	**Completion Timeframe:**	12 Weeks
Date On letter:		**Ack Sent:**	8/6/2021	**Due Date:**	9/1/2021
Received Date:		**Days To Ack:**	1	**Op.Unit Transfer Date:**	8/18/2021
		Date Assigned:	8/6/2021	**Op.Unit Days toTransfer:**	12
				Days To Close:	13

Closed Date: 8/18/2021

Assignment & Status

Assignment

Assigned To:	Bronx BC	**Assigned By:**	Keith Kalb
Unit:	Bridges Community Relations	**Division:**	DIVISION-Bridges

Status

Request Status:	Location Added for Consideration	**Refered To:**	
Final Response Team:	Bronx BC	**Response Type:**	
Modified By:	Patricia Foster	**Modified On:**	8/18/2021 9:50 AM

Classifications

Case Type:	Concern	**Addressed To:**	BC-Bronx	**Channel:**	Meeting
Priority:	Normal	**Seibel SR #:**		**Mayor's #:**	
Press:	No	**Translation Needed:**	No	**Title VI:**	No
Case Topic:	Safety Improvements	**Issue:**	Concern		

Operation Unit

Category:		**Operations Manager Approval:**	No
Inspector:		**External System Tracking Number:**	
Followed Up By:		**BETS Codes:**	
Determination:			

Working Notes

Note:

Client notified with response. Closed.
Note Created On 8/18/2021 9:50 AM By Patricia Foster

Note:

Client notified with response. Closed.
Note Created On 8/18/2021 9:48 AM By Patricia Foster

Note:

No Working Notes Found

Attachment(s): JDoyle_VariousCase#s_ACK.msg
Attached On 8/6/2021 12:16 PM By Holly Malone

Note:

The bridge is used my many pedestrians and cyclists. The attached photo shows that there is no protection from vehicles.
Note Created On 8/5/2021 12:26 PM By Holly Malone

Note:

No Working Notes Found

Attachment(s): Bridge6.jpg
Attached On 8/5/2021 12:24 PM By Holly Malone

Note:

No Working Notes Found

Attachment(s): Bridge5.jpg
Attached On 8/5/2021 12:24 PM By Holly Malone

Note:

No Working Notes Found

Attachment(s): Bridge4.jpg
Attached On 8/5/2021 12:24 PM By Holly Malone

Note:

No Working Notes Found

Attachment(s): Bridge3.jpg
Attached On 8/5/2021 12:24 PM By Holly Malone

Note:

No Working Notes Found

Attachment(s): Bridge2.jpg
Attached On 8/5/2021 12:24 PM By Holly Malone

Note:

No Working Notes Found

Attachment(s): Bridge1.jpg
Attached On 8/5/2021 12:24 PM By Holly Malone

(For the public record, copy of NYCDOT email response below)

From: Division of Bridges
To [redacted]
Subject: DOT-513243-H6W8-Requesting railings to protect pedestrians and cyclists on the Pelham Bridge(Shore Road)

We have received your inquiry regarding your request for the above location.

We are pleased to inform you that this bridge is currently in the DOT Division of Bridges Capital Program for replacement.
Bike and Pedestrian facilities are included in the new design. We hope that this response is sufficient for your request.

We thank you for contacting the New York City Department of Transportation.

Sincerely,

Division of Bridges
****

NYC – Department of Transportation

From: Stephanie Brooks
To: Cheryl Martin
Cc: ShoreRoadBridgeBX
Subject: RE: Eventbrite link
Date: Saturday, August 7, 2021 10:54:14 AM
Attachments: [redacted]

Ms. Martin,

I am so sorry that it was that difficult to join the meeting! The meeting link should have been accessible via your web browser, without having to download Microsoft Teams. I do apologize. I am not sure what happened, as many members of the community were able to open the link and were at the meeting, and people did provide public comments both verbally and written. I hope you do too!

You can watch the presentation that was shown at the meeting and provide feedback on what was shown either to me here at this email address or to our project email address at [redacted]. They both get to me, either way, and I will forward all your comments to the NYC Department of Transportation. You can also call and leave a voicemail with your comments at [redacted]. Other ways to submit comments directly to the NYCDOT using their website are here: https://shoreroadbridgebx.com/contact

All meeting materials, including the meeting presentation video are located here: https://shoreroadbridgebx.com/materials. This is everything that was presented at the meeting, so you do not have to feel like you missed anything. All comments are recorded, and the comment period is open until **August 16, 2021**.

We look forward to your feedback!

Take care,

Stephanie

FHI studio
Stephanie Brooks
Project Manager
[redacted]
fhistudio.com
[redacted]

Fitzgerald & Halliday, Inc. (FHI) is now FHI Studio!
To learn more, view our announcement video.

From: Cheryl Martin [redacted]
Sent: Saturday, August 7, 2021 10:22 AM
To: Stephanie Brooks [redacted]
Subject: Re: Eventbrite link

PI15

Dear Ms. Brooks,

I was very frustrated and annoyed that I was not able to get access to the meeting room despite having

PI15 Cont'd.

registered in June.

I felt like I was in a revolving door as I was sent to the App Store to download Microsoft Teams. Then I was sent a link, that said it was good for two hours, but also said it had expired! How could it expire if I'd just received it and it was to be good for two hours?

Was this your way of not having the community at the meeting?

Cheryl Martin

On Tue, Aug 3, 2021 at 4:57 PM Stephanie Brooks [redacted] wrote:

> Thank you for joining! The meeting link is below for 7-9 pm
>
> https://www.eventbrite.com/x/shore-road-bridge-scoping-meeting-700-900-pm-tickets-156589666909?utm_source=eventbrite&utm_medium=email&utm_campaign=event_reminder&utm_term=cta&ref=eemaileventremind
>
> For further assistance you can call our help line at [redacted].
>
> Stephanie Brooks
> Project Manager
> FHI Studio
> [redacted]
> www.fhistudio.com

From: Cheryl Martin [redacted]
Sent: Tuesday, August 3, 2021 4:51 PM
To: Stephanie Brooks [redacted]
Subject: Shore Road Bridge Scoping Meeting: 4:00 - 6:00 PM - Question from Cheryl Martin

Cheryl Martin [redacted] has a question for you about your event Shore Road Bridge Scoping Meeting: 4:00 - 6:00 PM.

I have tickets to both events, entered my email address and created a password and am not able to enter the event.

This message was sent to you via Eventbrite.

From: ShoreRoadBridgeBX
To: [redacted]
Subject: Fw: [EXTERNAL] Shore Road Bridge Scoping Comments
Date: Wednesday, August 11, 2021 1:59:41 PM
Attachments: [redacted]

From: [redacted]
Sent: Tuesday, August 10, 2021 10:41 PM
To: ShoreRoadBridgeBX
Subject: [EXTERNAL] Shore Road Bridge Scoping Comments

THIS MESSAGE IS FROM AN EXTERNAL SENDER

Use caution when clicking on links or attachments and never provide your username or password. Not sure? Report this email to [redacted].

CH1

East Bronx History Forum
9 Westchester Square
Bronx, New York 10461
http://www.bronxnyc.com
[redacted]

EDUCATE, ADVOCATE & PRESERVE
ESTABLISHED 2005

New York City Department of Transportation, Division of Bridges
Shore Road Bridge Project Team
Attention: Joannene Kidder
55 Water Street, 5th Floor
New York, NY 10041

August 10, 2021

Shore Road Bridge Project Team,

The East Bronx History Forum (EBHF) supports the NYCDOT project to replace the Shore Road Bridge or, as we know it, the Pelham Bridge.

In 1973 Con Edison discovered a Native American shell midden site while digging a trench for a pipeline by a pedestrian path on the northeast side of the Pelham Bridge. A partial archaeological excavation was done and a number of pre-historic items were identified, but we don't know where these items reside or if they were ever radiocarbon dated. The final report stated that this site could possibly be two acres see Figure 1.

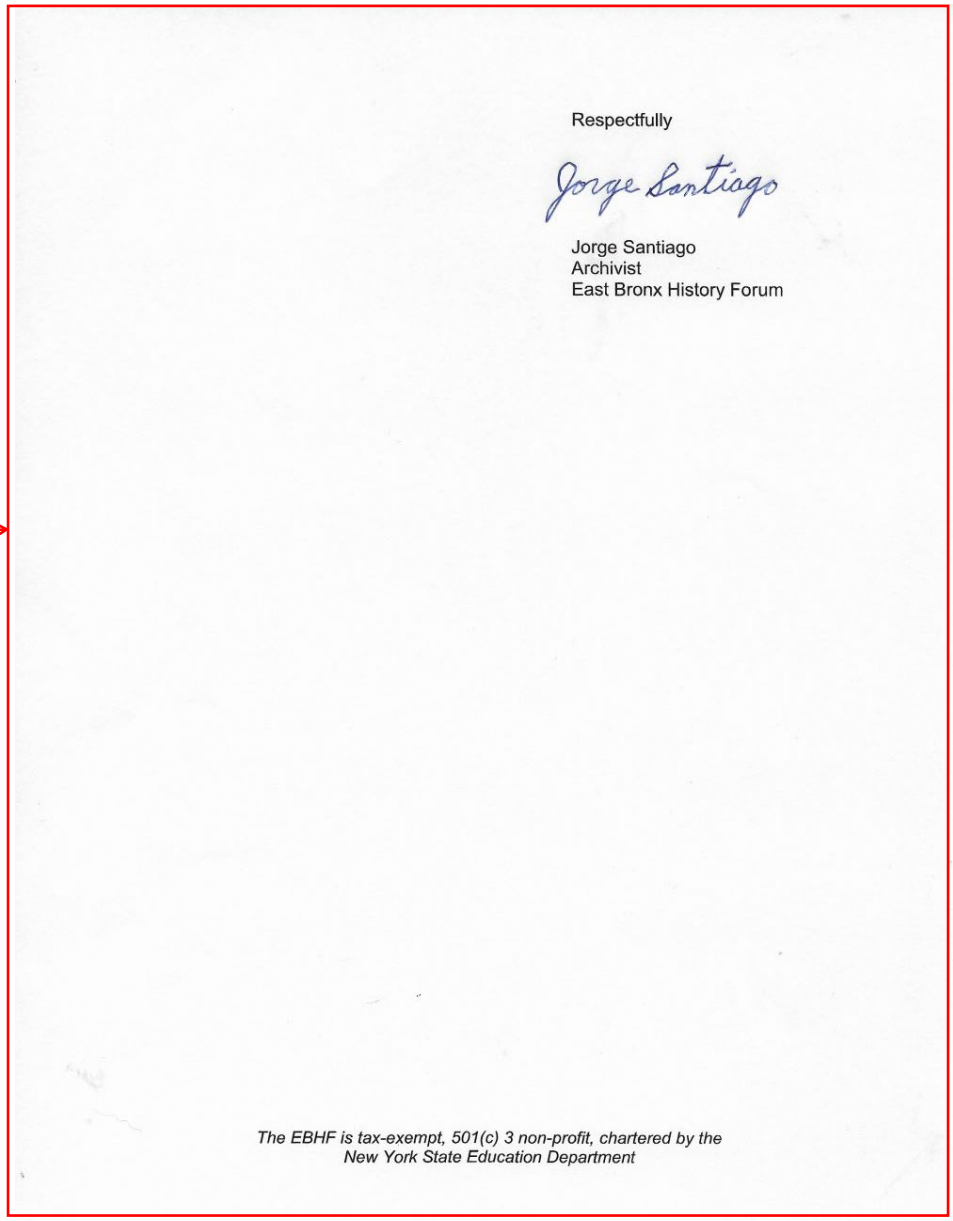
In a July 20, 2015, newspaper article, the NYC Landmarks Preservation Commission (LPC) identified six shell midden sites not far from the Pelham Bridge as the oldest Native American sites in NYC, dating from 200 AD. The artifacts collected from the Pelham Bay Park site are currently at a new Landmark Preservation Commission facility in midtown Manhattan.

The 2015 excavation raises the importance of the 1973 shell midden site where the new bridge construction will destroy it. We are concerned that artifacts might be unearthed and discarded without an archaeologist getting the opportunity to document and preserve them. This possible two-acre site may provide us with artifacts that could be as old as the ones from the above-mentioned excavation and could give us additional information about the local Native Americans who lived in our area.

As per the presentation, there are three options for the type of bridge to be built. Two of the options will affect the archaeological site. We would like to know what the NYCDOT procedures are when artifacts are found during a construction project.

Please see the supporting documents in the enclosed attachments.

CH1
Cont'd.



Respectfully

Jorge Santiago

Jorge Santiago
Archivist
East Bronx History Forum

The EBHF is tax-exempt, 501(c) 3 non-profit, chartered by the New York State Education Department

Figure 1

The remainder of comment CH1, including the enclosures to the above letter, have been removed due to archaeological site confidentiality.

From: ShoreRoadBridgeBX
To: Stephanie Brooks
Subject: Fw: [EXTERNAL] Shore Road Bridge Project Comment
Date: Thursday, August 12, 2021 11:58:29 AM

From: Paul A. Tapogna [redacted]
Sent: Thursday, August 12, 2021 7:19 AM
To: ShoreRoadBridgeBX
Subject: [EXTERNAL] Shore Road Bridge Project Comment

THIS MESSAGE IS FROM AN EXTERNAL SENDER
Use caution when clicking on links or attachments and never provide your username or password. Not sure? Report this email to [redacted]

Dear project team,

I use the existing bridge nearly every work day to travel from Pelham NY to the Bronx Zoo. I commute by bicycle and ride about 2,000 miles a year back and forth. I know the bridge and it's approaches well and would like to offer the following comments:

BPA5 →
- The pedestrian and bicycle path over the bridge is too narrow and unguarded from traffic. The pathway should be wider and divided so that pedestrians and cyclists can both move safely unimpeded. No one gets off their bicycle to walk the bridge. This policy should be retired in favor of a nice wide path similar to the new Cuomo bridge over the Hudson. A continuous guardrail is also needed.

VRV1 →
- A few pull offs would also help to get site seeing folks off the pathway if they want to take in the view.

PC4 →
- if at all possible, it would be great if the bridge was not a draw bridge, but high enough to be a fixed type. When that deck goes up, people are waiting a while resulting in being late for work, baking in the sun or freezing in the winter.

BPA6 →
- The circulation on the north side of the bridge could be improved. The connection from the bike paths to the bridge are not clear and the crosswalks are not well designated or really recognized by motorists. Ideally the whole area would be redesigned to be more streamlined, clearer and safer.

- Better signage. Most people don't understand how the pathway should work. Stay to the right, for example. Signage to improve wayfinding would be good.

- Better lighting at night would be good to have.

- This might be a stretch, but bike paths on both sides of the bridge would activate the unused paths along Pelham Parkway. One way paths on each side would also ease congestion.

Thanks,
Paul A. Tapogna

Paul A. Tapogna, RA, LEED AP
Assistant Director
Design Management
WCS

From: ShoreRoadBridgeBX
To: Stephanie Brooks
Subject: Fw: [EXTERNAL] Shore Road Project
Date: Monday, August 16, 2021 9:44:07 AM

From: Cheryl Martin [redacted]
Sent: Friday, August 13, 2021 8:34 PM
To: ShoreRoadBridgeBX
Subject: [EXTERNAL] Shore Road Project

THIS MESSAGE IS FROM AN EXTERNAL SENDER
Use caution when clicking on links or attachments and never provide your username or password. Not sure? Report this email to [redacted].

To Whom It May Concern:

I have just viewed the video concerning the project. I had a problem with the video because one cannot listen to the speaker and read the slides at the same time. I feel as though I missed some information because I did not have enough time to view the slides.

AQ1 → I did not hear anything about how this will affect CoOp City residents and traffic. If the traffic is made to go through CoOp City, how will the additional traffic affect residents health (air pollution, increased asthma and other respiratory disease rates, noise pollution). I believe it has been said that the Bronx has the highest asthma rate in New York City. The increased vehicle traffic will cause increased congestion (traffic is terrible now with the mall traffic) and increased accidents. ← T3

PC5 → Also, there was no mention of the disruption of utilities to CoOp residents and the additional cost to them. As a NORC community, remember most of the residents are on fixed incomes and will not be able to afford maintenance increases to pay for relocation of utilities caused by this project. And, will relocation of utilities cause residents to be without utilities for any period of time?

Those are my questions and concerns. Hopefully you will take them into consideration before making your final decision.

PI16 → My last point: I had accessibility/connection problems on August 3rd. If you have another public meeting, please let people know ahead of time if apps, programs, etc. will have to be downloaded. As I tried to access the meeting (I had a ticket since June 29th), I got a message that I needed to get Microsoft Teams. I'm not familiar with Microsoft Teams so I didn't download it.

Respectfully,
Cheryl Martin

PI04

Transcription of voicemail received on June 16, 2021 from [redacted]

I would like to know what is going on with the Shore Road Bridge [be]cause I use it all the time. My phone number is [redacted] and if someone could call me back, I would appreciate it. Thank you.

PI05

Transcription of voicemail received on June 24, 2021 from [redacted]

Yes, I would like to attend the public scoping meeting on June 29th I saw an article in my local newspaper, it's called the Co-Op City Times in the Bronx. Uh, you mentioned a time and a date but there is no address as to where this meeting is taking place. Is this a Zoom meeting or is it an actual meeting, a actual group meeting in person, it just doesn't say here in this notification. So, if you could just let me know the location of this meeting. My name is Emily Yurlina and my phone number is [redacted]. Thank you, bye bye.

PI06

Summary of Follow Up Telephone Conversation with Emily Yurlina on June 24, 2021

Outreach Consultant informed commenter about the rescheduled August 3 scoping meeting and noted that it would be posted on BronxNet.

Commenter noted that they do not have internet, a computer, or a smartphone, commenter has no cable or antenna and only views the few stations that Co-Op City provides within the building. Outreach Consultant agreed that once finalized, a hard copy of the scoping meeting presentation will be provided to commenter. The Outreach Consultant will be available for any follow up questions that they have via telephone.

TN1

Commenter also had concerns about the loud noise on the bridge and a potential safety hazard resulting from what is causing the noise. Commenter noted that in the northbound right lane there is a concrete depression and a steel plate that is loose. When vehicles go over the plate the sound is very loud, as it travels over the water. Commenter and neighbors can hear it in their Co-Op City building, especially at night. Commenter requested a meeting with a construction contractor when they are working on the repairs.

PI14

Transcription of voicemail received on August 4, 2021 from [redacted]

Good morning. My name is Jorge Santiago and I missed the presentation the other day and I would like to know if you have a website with the video of the three different types of bridges. My number is [redacted]. My email address is [redacted]. Thank you very much. Bye.

Agency Concurrences/Comments Received with Concurrence Point #2

CONCURRENCE FORM

CONCURRENCE POINT 2: ALTERNATIVES TO BE CARRIED FORWARD FOR EVALUATION

Project Name: Shore Road Bridge over the Hutchinson River Project (NYSDOT PIN: X773.63)

Having reviewed the attached draft Project Scoping Report, the following agency (by signing this document):

Cooperating Agencies

☐ U.S. Army Corps of Engineers	☐ New York State Department of Environmental Conservation
☐ U.S. Environmental Protection Agency	☐ NYSOPHRP – State Historic Preservation Office
☐ NOAA - National Marine Fisheries Service	☒ NYSOPRHP – State Parks

☒ Concurs (without comments) **☐ Concurs (w/minor comments)** **☐ Does Not Concur**

Notes:

1) ***Pursuant to 40 C.F.R. Parts 1500-1508 and 15515-1518 (Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA, issued September 14, 2020), and 23 U.S.C. Section 139 (Efficient Environmental Reviews for Project Decision making), "Concurrence" means "confirmation by the agency that the information is sufficient for that stage, and the environmental review process may proceed to the next stage of the NEPA process."***
2) ***Pursuant to Section 1304(f)(2)(A)(ii) of the Fixing America's Surface Transportation (FAST) Act: "…[agencies] shall limit the comments of the agency to subject matter areas within the special expertise or jurisdiction of the agency."***

Comments/Reasons for Non-Concurrence:

Note: Please do not provide "conditional" concurrence: either concur with the information as provided (without comments or with minor comments) or do not concur until revisions are made or additional information is provided.

Signature: Diana Carter Date: 11/1/2021

Title: Asst. Division Director for Planning/ASLO

CONCURRENCE FORM

CONCURRENCE POINT 2: ALTERNATIVES TO BE CARRIED FORWARD FOR EVALUATION

Project Name: Shore Road Bridge over the Hutchinson River Project (NYSDOT PIN: X773.63)

Having reviewed the attached draft Project Scoping Report, the following agency (by signing this document):

Cooperating Agencies

☐ U.S. Army Corps of Engineers	☐ New York State Department of Environmental Conservation
☐ U.S. Environmental Protection Agency	☐ NYSOPHRP – State Historic Preservation Office
☑ NOAA - National Marine Fisheries Service	☐ NYSOPRHP – State Parks

☐ **Concurs (without comments)** ☑ **Concurs (w/minor comments)** ☐ **Does Not Concur**

Notes:

1) ***Pursuant to 40 C.F.R. Parts 1500-1508 and 15515-1518 (Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA, issued September 14, 2020), and 23 U.S.C. Section 139 (Efficient Environmental Reviews for Project Decision making), "Concurrence" means "confirmation by the agency that the information is sufficient for that stage, and the environmental review process may proceed to the next stage of the NEPA process."***
2) ***Pursuant to Section 1304(f)(2)(A)(ii) of the Fixing America's Surface Transportation (FAST) Act: "…[agencies] shall limit the comments of the agency to subject matter areas within the special expertise or jurisdiction of the agency."***

Comments/Reasons for Non-Concurrence:

No comments from NOAA NMFS Protected Resources Division as it relates to Section 7 ESA.

Comments from NOAA NMFS Habitat and Ecosystem Services Division include:

- The EFH mapper is available to assist in identifying EFH (https://www.habitat.noaa.gov/apps/efhmapper/) and will list the species for which EFH has been designated in the project area. The habitat conditions at the project site should be compared with the habitat characteristics listed in the EFH text description available as a pdf link on the mapper. Those species and life stages whose EFH text descriptions match the habitat conditions at the project site should be included in the EFH assessment
- On pages 43-44, in addition to EFH consultations under the MSA, federal agencies also must consult with us under the Fish and Wildlife Coordination Act. The FWCA also requires consultation with us on projects such as this that may result in the modification of a natural stream or body of water. The FWCA also requires the consideration of the effects that these projects would have on fish and wildlife, and must also provide for improvement of these resources. Under this authority, we work to protect, conserve and enhance species and habitats for a wide range of aquatic resources such as diadromous species, shellfish, and other commercially and recreationally important species that are not managed by the federal fishery management councils and therefore do not have designated EFH. Consultation under the FWCA will be done as a part of the EFH consultation.
- On page 44, the USFWS does not undertake EFH consultations under the MSA. That authority only lies with NMFS through the Department of Commerce, so that can be removed from the scoping document.

Note: Please do not provide "conditional" concurrence: either concur with the information as provided (without comments or with minor comments) or do not concur until revisions are made or additional information is provided.

Signature: Michael Pentony Digitally signed by Michael Pentony Date: 2021.11.23 10:33:17 -05'00' Date: November 23, 2021

Title: Regional Administrator

November 30, 2021

Lori Blair
Environmental Specialist 2; Cultural Resources Specialist
NYSDOT
50 Wolf Road
POD 4-1
Albany, NY 12232

Re: FHWA
PIN X773.63 Shore Road Bridge over Hutchinson River Project
21PR01888
PIN X773.63

Dear Lori Blair:

Thank you for continuing to consult with the New York State Historic Preservation Office (SHPO). We have reviewed the provided documentation in accordance with Section 106 of the National Historic Preservation Act of 1966. These comments are those of the SHPO and relate only to Historic/Cultural resources. They do not include other environmental impacts to New York State Parkland that may be involved in or near your project.

We have reviewed your letter dated November 1st, 2021 and the project scoping report dated November 2021 and concurrence point 2 form. Based upon our review, the scoping report appears acceptable for historic and cultural resources and we concur with the alternatives to be carried forward (concurrence point 2). We have no further comments at this time.

If additional information or correspondence is required regarding this project it should be provided via our Cultural Resource Information System (CRIS) at www.nysparks.com/shpo/online-tools/ Once on the CRIS site, you can log in as a guest and choose "submit" at the very top menu. Next choose "submit new information for an existing project". You will need this project number and your e-mail address. If you have any questions, I am best reached via e-mail.

Sincerely,

Olivia Brazee
Historic Site Restoration Coordinator
[redacted]

via e-mail only

cc: Laura Savage, Zephreny Parmenter, NYSDOT; Lisell Guerra, US DOT

CONCURRENCE FORM

CONCURRENCE POINT 2: ALTERNATIVES TO BE CARRIED FORWARD FOR EVALUATION

Project Name: Shore Road Bridge over the Hutchinson River Project (NYSDOT PIN: X773.63)

Having reviewed the attached draft Project Scoping Report, the following agency (by signing this document):

Cooperating Agencies

☐ U.S. Army Corps of Engineers	☐ New York State Department of Environmental Conservation
☐ U.S. Environmental Protection Agency	☑ NYSOPHRP – State Historic Preservation Office
☐ NOAA - National Marine Fisheries Service	☐ NYSOPRHP – State Parks

☑ **Concurs (without comments)** ☐ **Concurs (w/minor comments)** ☐ **Does Not Concur**

Notes:

1) ***Pursuant to 40 C.F.R. Parts 1500-1508 and 15515-1518 (Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA, issued September 14, 2020), and 23 U.S.C. Section 139 (Efficient Environmental Reviews for Project Decision making), "Concurrence" means "confirmation by the agency that the information is sufficient for that stage, and the environmental review process may proceed to the next stage of the NEPA process."***
2) ***Pursuant to Section 1304(f)(2)(A)(ii) of the Fixing America's Surface Transportation (FAST) Act: "…[agencies] shall limit the comments of the agency to subject matter areas within the special expertise or jurisdiction of the agency."***

Comments/Reasons for Non-Concurrence:

Note: Please do not provide "conditional" concurrence: either concur with the information as provided (without comments or with minor comments) or do not concur until revisions are made or additional information is provided.

Signature: Olivia Brazee Date: 11/30/2021

Title: Historic Site Restoration Coordinator

CONCURRENCE FORM

CONCURRENCE POINT 2: ALTERNATIVES TO BE CARRIED FORWARD FOR EVALUATION

Project Name: Shore Road Bridge over the Hutchinson River Project (NYSDOT PIN: X773.63)

Having reviewed the attached draft Project Scoping Report, the following agency (by signing this document):

Cooperating Agencies

☐ U.S. Army Corps of Engineers	☐ New York State Department of Environmental Conservation
☒ U.S. Environmental Protection Agency	☐ NYSOPHRP – State Historic Preservation Office
☐ NOAA - National Marine Fisheries Service	☐ NYSOPRHP – State Parks

☐ **Concurs (without comments)** ☒ **Concurs (w/minor comments)** ☐ **Does Not Concur**

Notes:

1) ***Pursuant to 40 C.F.R. Parts 1500-1508 and 15515-1518 (Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA, issued September 14, 2020), and 23 U.S.C. Section 139 (Efficient Environmental Reviews for Project Decision making), "Concurrence" means "confirmation by the agency that the information is sufficient for that stage, and the environmental review process may proceed to the next stage of the NEPA process."***
2) ***Pursuant to Section 1304(f)(2)(A)(ii) of the Fixing America's Surface Transportation (FAST) Act: "…[agencies] shall limit the comments of the agency to subject matter areas within the special expertise or jurisdiction of the agency."***

Comments/Reasons for Non-Concurrence:

We would like more description for the screening criteria, most notably:
"Able to maintain vehicular and non-motorized (bicycle and pedestrian) connectivity to City Island and within Pelham Bay Park during construction" (p. 37):

Please explain the reasoning behind why the connectivity to City Island and within Pelham Bay Park during construction can only be met by leaving the existing bridge in place to carry traffic during construction. Are there no other alternatives? Is this a cost issue? We understand that this would minimize detours or other temporary offline structures; however, we would like to see this clearly detailed in the forthcoming DEIS, especially considering that this screening question eliminates most alternatives.

Note: Please do not provide "conditional" concurrence: either concur with the information as provided (without comments or with minor comments) or do not concur until revisions are made or additional information is provided.

Signature: Quille M. Barrios Date: 11/30/2021

Title: Environmental Engineer, EPA Region 2 NEPA

CONCURRENCE FORM

CONCURRENCE POINT 2: ALTERNATIVES TO BE CARRIED FORWARD FOR EVALUATION

Project Name: Shore Road Bridge over the Hutchinson River Project (NYSDOT PIN: X773.63)

Having reviewed the attached draft Project Scoping Report, the following agency (by signing this document):

Cooperating Agencies

☑ U.S. Army Corps of Engineers	☐ New York State Department of Environmental Conservation
☐ U.S. Environmental Protection Agency	☐ NYSOPHRP – State Historic Preservation Office
☐ NOAA - National Marine Fisheries Service	☐ NYSOPRHP – State Parks

☑ **Concurs (without comments)** ☐ **Concurs (w/minor comments)** ☐ **Does Not Concur**

Notes:

1) ***Pursuant to 40 C.F.R. Parts 1500-1508 and 15515-1518 (Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA, issued September 14, 2020), and 23 U.S.C. Section 139 (Efficient Environmental Reviews for Project Decision making), "Concurrence" means "confirmation by the agency that the information is sufficient for that stage, and the environmental review process may proceed to the next stage of the NEPA process."***
2) ***Pursuant to Section 1304(f)(2)(A)(ii) of the Fixing America's Surface Transportation (FAST) Act: "…[agencies] shall limit the comments of the agency to subject matter areas within the special expertise or jurisdiction of the agency."***

Comments/Reasons for Non-Concurrence:

Note: Please do not provide "conditional" concurrence: either concur with the information as provided (without comments or with minor comments) or do not concur until revisions are made or additional information is provided.

Signature: FOR AND IN BEHALF OF STEPHAN A. RYBA Date: 2021.12.01 13:34:10 -05'00'

Date: December 1, 2021

Title: Chief, Regulatory Branch

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX C

Table C-1: EIS Sections and Corresponding Design Approval Document (DAD) And City Environmental Quality Review (CEQR) Categories

THIS PAGE INTENTIONALLY LEFT BLANK

Table C-1 lists the topics and CEQR technical area categories that will be covered in each section of the Shore Road Bridge EIS. The table demonstrates that the EIS will incorporate all of the relevant topics and analysis areas included in the NYSDOT's *Project Development Manual*, the NYSDOT's *The Environmental Manual* (TEM), and the *CEQR Technical Manual*.

Table C-1
EIS Sections and Corresponding Design Approval Document (DAD) and City Environmental Quality Review (CEQR) Categories

Shore Road Bridge EIS Section	DAD Section (NEPA/SEQRA)[1]	CEQR Technical Area
Introduction	1.1 Introduction 1.2 Purpose and Need 1.5 What are the Costs and Schedules? 2.1 Project History	- Project Description
Project Alternatives	2.3. Transportation Conditions, Deficiencies and Engineering Considerations 3.1 Alternatives Considered and Eliminated from Further Study 3.2 Reasonable Build Alternatives 3.3 Engineering Considerations	- Alternatives
Process, Agency Coordination, and Public Participation	1.7 What are the Opportunities for Public Involvement? 4.1.1 Environmental Classification 4.1.2 Coordination with Agencies	- Procedures and Documentation
Land Use	2.2 Transportation Plans and Land Use 4.2.1 Land Use 4.4.6 Coastal Resources	- Land Use, Zoning, and Public Policy
Neighborhoods and Community Cohesion	4.2.2 Neighborhoods and Community Cohesion	- Socioeconomic Conditions - Neighborhood Character - Public Health
Social Groups Benefitted or Harmed	4.2.3 Social Groups Benefitted or Harmed	- Socioeconomic Conditions
Environmental Justice	Section 4.2.3.3 Low Income, Minority and Ethnic Groups [Environmental Justice])	- Socioeconomic Conditions
Community Facilities	4.2.4 School Districts, Recreational Areas, and Places of Worship	- Community Facilities and Services
Economic Considerations	4.3.1 Regional and Local Economies 4.3.2 Business Districts 4.3.3 Specific Business Impacts	- Socioeconomic Conditions
Traffic Analysis	2.2 Transportation Plans and Land Use	- Transportation
Air Quality	4.4.15 Air Quality	- Air Quality
Energy	4.4.16 Energy	- Energy - Greenhouse Gas Emissions and Climate Change
Noise and Vibration	4.4.17 Noise	- Noise
Historic and Cultural Resources	4.4.11 Historic and Cultural Resources	- Historic and Cultural Resources

Table C-1
EIS Sections and Corresponding Design Approval Document (DAD) and City Environmental Quality Review (CEQR) Categories

Shore Road Bridge EIS Section	DAD Section (NEPA/SEQRA)[1]	CEQR Technical Area
Parks and Recreational Resources	4.4.12 Parks and Recreational Resources	- Open Space
Visual Resources	4.4.13 Visual Resources	- Urban Design and Visual Resources - Shadows
Natural Resources	4.4.1 Wetlands 4.4.2 Surface Waterbodies and Watercourses 4.4.4 Navigable Waters 4.4.5 Floodplains 4.4.7 Groundwater Resources, Aquifers, and Reservoirs 4.4.9 General Ecology and Wildlife Resources	- Natural Resources
Hazardous Waste and Contaminated Materials	4.4.18 Asbestos 4.4.19 Hazardous Waste and Contaminated Materials	- Hazardous Materials
Infrastructure	4.4.8 Stormwater Management	- Water and Sewer Infrastructure - Solid Waste and Sanitation Services
Construction Effects	4.5 Construction Effects	- Construction
Short-term Uses of the Environment vs. Long-term Productivity	Short-term Uses of the Environment vs. Long-term Productivity[2]	- No corresponding CEQR analysis
Irreversible and Irretrievable Commitment of Resources	Irreversible and Irretrievable Commitment of Resources[2]	- Irreversible and Irretrievable Commitment of Resources
Unavoidable Adverse Impacts	Unavoidable Adverse Impacts[2]	- Unavoidable Adverse Impacts
Section 4(f) Evaluation	5.0 Section 4(f) Evaluation	- No corresponding CEQR analysis
Section 6(f) Evaluation	6.0 Section 6(f) Evaluation	- No corresponding CEQR analysis
[Not included in this EIS]	4.4.3 Wild, Scenic, and Recreational Rivers[4] 4.4.10 Critical Environmental Areas[4] 4.4.14 Farmlands[4]	- No corresponding CEQR analysis

Notes:

[1] Typical chapter and sections headings found in NEPA/SEQRA DAD/DEIS documents are listed. Titles and organization of headings may vary slightly for this project

[2] Not explicitly included in the DAD outline, but it is a typical chapter in a NEPA EIS.

[3] NEPA EISs typically include mitigation in the technical chapters of the EIS.

[4] Not applicable to the Project, as this resource is not present within the Project Study Area.

APPENDIX D

Navigation Impact Report

THIS PAGE INTENTIONALLY LEFT BLANK

Replacement of Shore Road Bridge (Pelham Bay Parkway Bridge) over the Hutchinson River

Bronx County, New York City
PIN X773.63
BIN: 2-24020-0

Navigation Impact Report

Hardesty & Hanover

NEW YORK CITY DOT

December 2021

Table of Contents

Executive Summary 3
Introduction 4
Means of Data Collection 4
Present Governing Bridge(s) or Aerial Structures 5
Existing Bridge: 5
Proposed Bridge Concept: 7
Waterway Characteristics 9
Emergency Operations 11
United States Army Corps of Engineers (USACE) Federal Navigation Project 11
Recreational Navigation 12
Commercial Navigation 12
Public Outreach 13
Mariners 13
DonJon Marine Co. Inc. 13
Buchanan Marine 14
Marine Facilities 15
Pascap Co. Inc 15
Sprague Energy 16
Analysis of Reasonable Range of Feasible Concepts and Proposed Clearances Criteria 17
Methodology 18
Results 19
Alternate Routes 20
Geometry and Hydraulics of Waterway 20
Natural or Man-Made Conditions Affecting Navigation 21
Other Factors Necessary for Safe Navigation 21
Impacts to Navigation 21
Mitigation for Impacted Waterway Users 21
Conclusion 22
References 23

Appendices..... 26

A. List of Waterway Users and Vessels Operated on Hutchinson River
B. Marine Facilities Data
C. Existing Bridge Plan and Elevation
D. Vessel Data
E. 2018-2020 NYCDOT Bridge Operators Logs – Shore Road (Pelham) Bridge
F.1. National Oceanic and Atmospheric Administration (NOAA) Chart #12366
F.2. USACE Controlled Depth Report Dated July 16, 2020
F.3. USACE June 30, 2020 Hydrographic Survey

Executive Summary

The purpose of this report is to provide information on the navigational needs of the Hutchinson River as it relates to the considerations of concepts for the Shore Road Bridge (Pelham Bay Parkway Bridge) Project that will be evaluated in National Environmental Policy Act (NEPA) Environmental Impact Statement process. It is also to ensure that, as per the Rivers and Harbors Act, a reasonable range of feasible concepts that will be considered do not "unreasonably obstruct the free navigation" of the underlying waterway.

The Hutchinson River, also known as Eastchester Creek, begins as a freshwater stream in southern Westchester County, NY and heads south for roughly 10 miles before emptying into Eastchester Bay and the Long Island Sound in the Borough of The Bronx in New York City. The southerly four miles of the river are navigable. The river is home to several industrial facilities and is traversed frequently by commercial vessels. The navigable section of the river is crossed by six bridges, the most southerly of which is the Shore Road Bridge (Pelham Bay Parkway Bridge).

Opened to the public in 1908, the existing Shore Road Bridge (Pelham Bay Parkway Bridge) (also known as the Pelham Bridge) is a seven span bridge carrying Shore Road over the southernmost portion of the Hutchinson River in the Pelham Bay Park section of the Bronx. The bridge is located at mile 0.4 of the Hutchinson River. The bridge lies within Pelham Bay Park. The main span over the navigation channel is a double-leaf Scherzer style rolling lift bascule bridge. Numerous structural deficiencies and nonstandard geometric features have led the New York City Department of Transportation to propose a full replacement of the over 110-year-old structure. The bridge serves as a key connection on the sole designated truck route for Pelham Bay Park and the City Island community in The Bronx. Although marine traffic along the river has diminished since the 1960s, the industrial facilities at the head of navigation in the river continue to rely on barges for oil and construction material deliveries and shipment of scrap metal. The frequency of this marine traffic coupled with a low vertical clearance of the bridge in the closed position make Shore Road one of the most frequently opened movable bridges in New York City. The frequency of openings exacerbates wear on already deteriorated structural and aging mechanical components. Transportation in the area and access to the community at large is affected through increased traffic delays due to the long operating time and frequent span openings. Thus, there is a need for reliable marine transportation that accommodates the surrounding community and non-motorized users of the bridge.

To satisfy the competing needs of the environmental impact, local users, and mariners, generally three sets of vertical clearances are explored that will assist in developing reasonable range of feasible concepts for scoping.

This navigation impact report, prepared in accordance with Appendix A of the July 2016 Office of Bridge Programs, U.S. Coast Guard Bridge Permit Application Guide, describes current and future navigation trends along the Hutchinson River, and utilizes recent bridge operation logs as well as feedback received through a consultant - developed outreach program. The resulting discussion relates frequency of bridge openings with the vertical clearance required by vessels that

navigate the river. Recent observations of vessel openings, along with stakeholder feedback, provide additional context to the navigational needs of the river's users.

Introduction

The Shore Road Bridge (Pelham Bay Parkway Bridge) is a bridge spanning across the Hutchinson River (also known as Eastchester Creek) owned and operated by the New York City Department of Transportation (NYCDOT). The movable span over the navigable channel is a double leaf rolling lift bascule span. On either side of the movable span there are three filled concrete spandrel arch spans. For the purposes of this document, the bridge will be considered an East/West facility in accordance with its listing in the NYSDOT Bridge Inventory System. The bridge carries two lanes of traffic in each direction and a sidewalk along its southern edge. Although it carries 17,000 vehicles per day, Shore Road draws traffic from principal arterials like the Bruckner Expressway, Hutchinson River Parkway, and the Bronx and Pelham Parkway and provides an important connection to City Island, the northern Bronx, and Westchester County. It also links two sections of Pelham Bay Park, the largest park in New York City connecting the western end of the park with the historic and recreational areas on the eastern end. Both the eastern and western bridge approaches border recreational public space, including saltwater marshes, a wildlife sanctuary, and golf courses. An inactive sanitary landfill is located along the southwest approach. The landfill is capped and has been turned over to NYC Parks for restricted use as parkland.

The bridge has undergone many rehabilitations since opening over 110 years ago, namely from 1982 to 1986 when it underwent major reconstruction and fender replacement and again in 2002. The fender system has required particularly frequent work in large part because of recurrent vessel impacts. Despite the repair efforts, the bridge is considered structurally deficient, suffering from deterioration and corrosion of its superstructure, and the concrete arch approach spans and piers. There is also concern that the bridge is vulnerable to seismic loads, and does not meet local and federal design criteria. In addition to structural deficiencies, the bridge has multiple non-standard geometric, transportation, and design features. It has narrow lanes, insufficient sidewalk width, lack of shoulders, non-standard curb height, flat profile grades on approach spans, and inadequate lateral clearances.

Means of Data Collection

In September 2017, NYCDOT and Hardesty & Hanover, as part of planned outreach to the regional planning agencies contacted the United States Coast Guard (USCG) Waterways Management Coordinator from the USCG Sector NY and requested a list of known operators and port facilities along the waterway. USCG provided a list of facilities and operators including emergency services and other regulatory agencies that may have a stake in the waterway. This list was confirmed and expanded as shown in Appendixes A and B.

In October 2017, Hardesty & Hanover conducted a site visit along the waterway and identified facilities that differed from the list provided by the USCG.

In December 2017, NYCDOT and Hardesty & Hanover mailed a survey to the identified vessel owners and port facilities along the waterway requesting data pertaining to usage patterns and vessel dimensions.

In September 2021, Hardesty & Hanover distributed a total of 19 letters to the port facilities along the Hutchinson River, the known mariners operating on the waterway, and 6 regulatory agencies with jurisdiction over plans for waterway utilization. Responses were requested to be returned by the end of September 2021. As of December 10, 2021, a total of 6 responses (RCA Asphalt, American Petroleum and Transport, US Waterways Transportation LLC, Greater NY Marine Transportation, PASCAP Co. Inc., and 113 Edison Ave LLC), and 1 response indicating acknowledgement (NYSDOS) have been received.

NYCDOT provided Hardesty & Hanover with the bridge opening logs from 2014 through 2020 for both the Shore Road Bridge (Pelham Bay Parkway Bridge) and the Hutchinson River Parkway Bridge (2020 Shore Road Logs are included in Appendix E), which were digitized and used in conjunction with the data collected from the survey to evaluate trends in the openings and determine a set of critical vertical clearances that can be utilized to develop a reasonable range of feasible concepts.

Present Governing Bridge(s) or Aerial Structures

Existing Bridge:

The Shore Road Bridge (Pelham Bay Parkway Bridge) is the southernmost crossing of the Hutchinson River as it opens to Eastchester Bay and the Long Island Sound. Figure 1 shows the location of the six bridges that span the navigable section of the Hutchinson River. Table 1 presents the bridges along the Hutchinson River from south to north and their respective clearances. At just 59 feet, Shore Road offers the most restrictive horizontal clearance. At 13 feet in the closed position, the Shore Road Bridge (Pelham Bay Parkway Bridge) has the third most restrictive vertical clearance in the closed position. The existing bridge plan and elevation are shown in Appendix C. The Amtrak Bridge and the South Fulton Avenue Bridges have the most restrictive vertical clearances at 8 feet and 6 feet above Mean High Water (MHW), respectively. Additionally, The Shore Road Bridge (Pelham Bay Parkway Bridge) lies along a poorly aligned section of waterway. The alignment and close spacing of the Shore Road Bridge (Pelham Bay Parkway Bridge) and Amtrak Bridge forces vessels to turn sharply to navigate. Collisions between the existing fender systems and crossing vessels are a frequent problem that require expensive and time-consuming repairs to the bridge fender system.

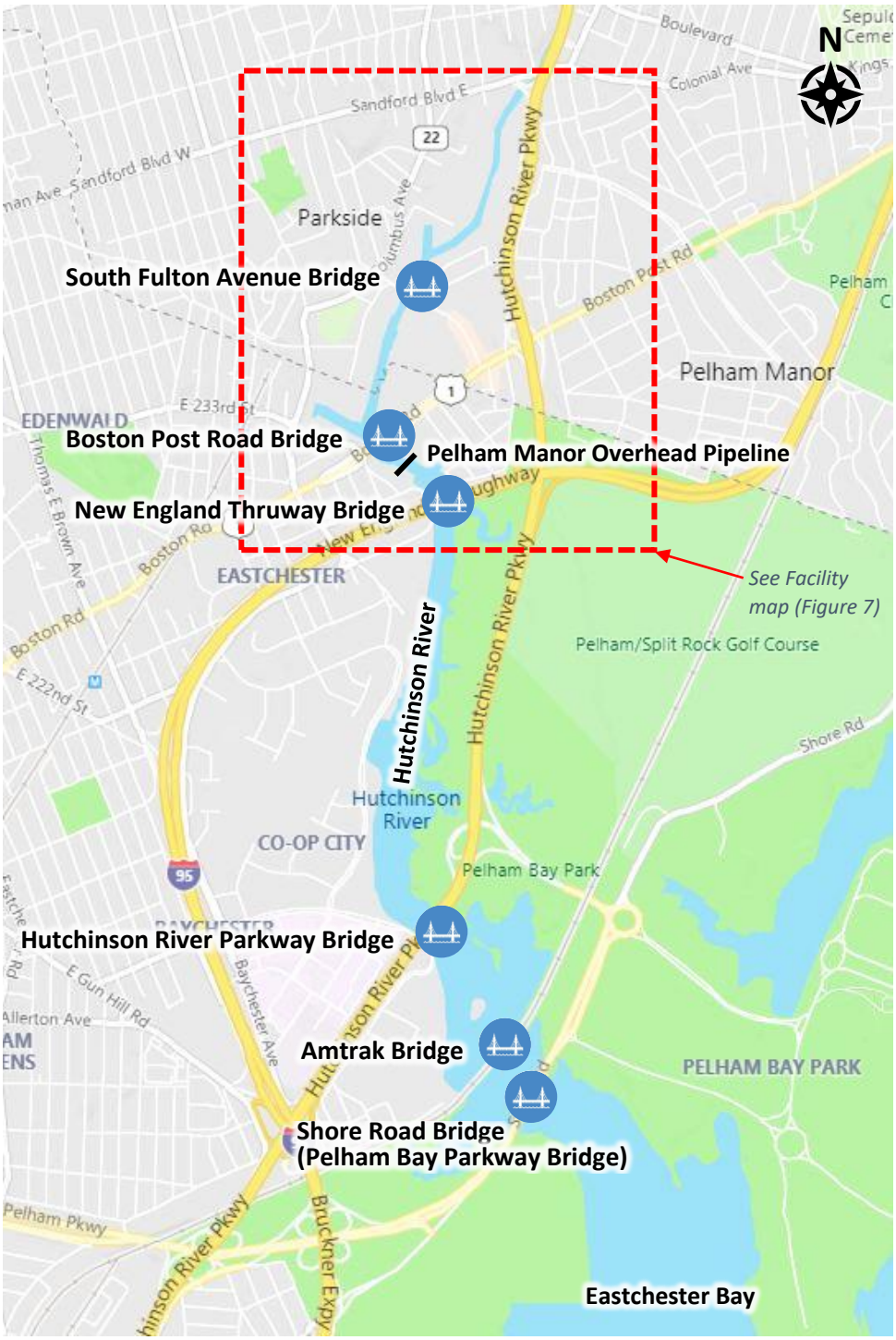


Figure 1: Bridges over the Hutchinson River, Bronx, NY

Table 1: Hutchinson River Bridges

Mile	Bridge Name	Type	Horizontal (ft)	Vertical MHW (ft)
0.4	Shore Road Bridge (Pelham Bay Parkway Bridge)	Bascule	59	13 (closed position)
0.5	Amtrak	Bascule	68	8 (closed position) 130 (overhead power cable)
0.9	Hutchinson River Pkwy	Bascule	130	30 (closed position)
2.2	New England Thruway	Fixed	100	50
2.5	Boston Post Road	Fixed	121	50
2.8	Pelham Manor Pipeline	Fixed - Overhead Pipeline	100	130
2.9	South Fulton Avenue	Bascule	80	6 (closed position)

Proposed Bridge Concept:

The proposed bridge concept type, size, and location is not yet determined. The proposed concept will be developed through the NEPA EIS process, with agency and public input. No-Build, Rehabilitation, and replacement options will be considered against the project's purpose, objective, and needs.

A No-Build option would consider taking no action.

A Rehabilitation option would repair the bridge at the current location and existing vertical clearance.

Replacement options would have the following criteria considerations to develop a reasonable range of feasible concepts:

A. Alignment - To develop a reasonable range of feasible concepts, the following horizontal alignments are being considered:

   a. On-line - The replacement bridge would be at the current location and alignment. The bridge would provide a horizontal clearance of 115 feet between the fenders.

   b. Offline - The replacement bridge would be on a different alignment, but within the general vicinity of the existing bridge (refer to Figure 2).

      i. North Alignment - The centerline of the new bridge would be approximately 110 feet to the north of the centerline of the existing bridge. This northerly alignment would decrease the distance between the Shore Road Bridge (Pelham Bay Parkway Bridge) and the Amtrak Bridge. The bridge would provide a horizontal clearance of 115 feet between the fenders.

      ii. South Alignment - The centerline of the new bridge would be approximately 100 feet to the south of the centerline of the existing bridge. This southerly

alignment would increase the distance between the Shore Road Bridge (Pelham Bay Parkway Bridge) and the Amtrak Bridge. The bridge would provide a horizontal clearance of 115 feet between the fenders.

B. Vertical Clearance - To develop a reasonable range of feasible concepts, three ranges of vertical clearances in the closed or fixed positions were considered:

   a. Low (15ft.) – Concepts in this category would provide a vertical lift span over the channel with 15ft of clearance the closed position and 50+ft of clearance in the open position.

   b. Medium (30-35 ft.) – Concepts in this category would provide a double leaf bascule span over the channel with 30-35 ft of clearance in the closed position and unlimited clearance in the open position.

   c. High (50+ ft.) – Concepts in this category would provide a fixed span over the channel with at least 50ft of vertical clearance.

It is notable to mention that the neighboring Amtrak Bridge is anticipated to be replaced in the next 10 years. Amtrak will be consulted to coordinate navigation needs as well as vertical and horizontal clearances.

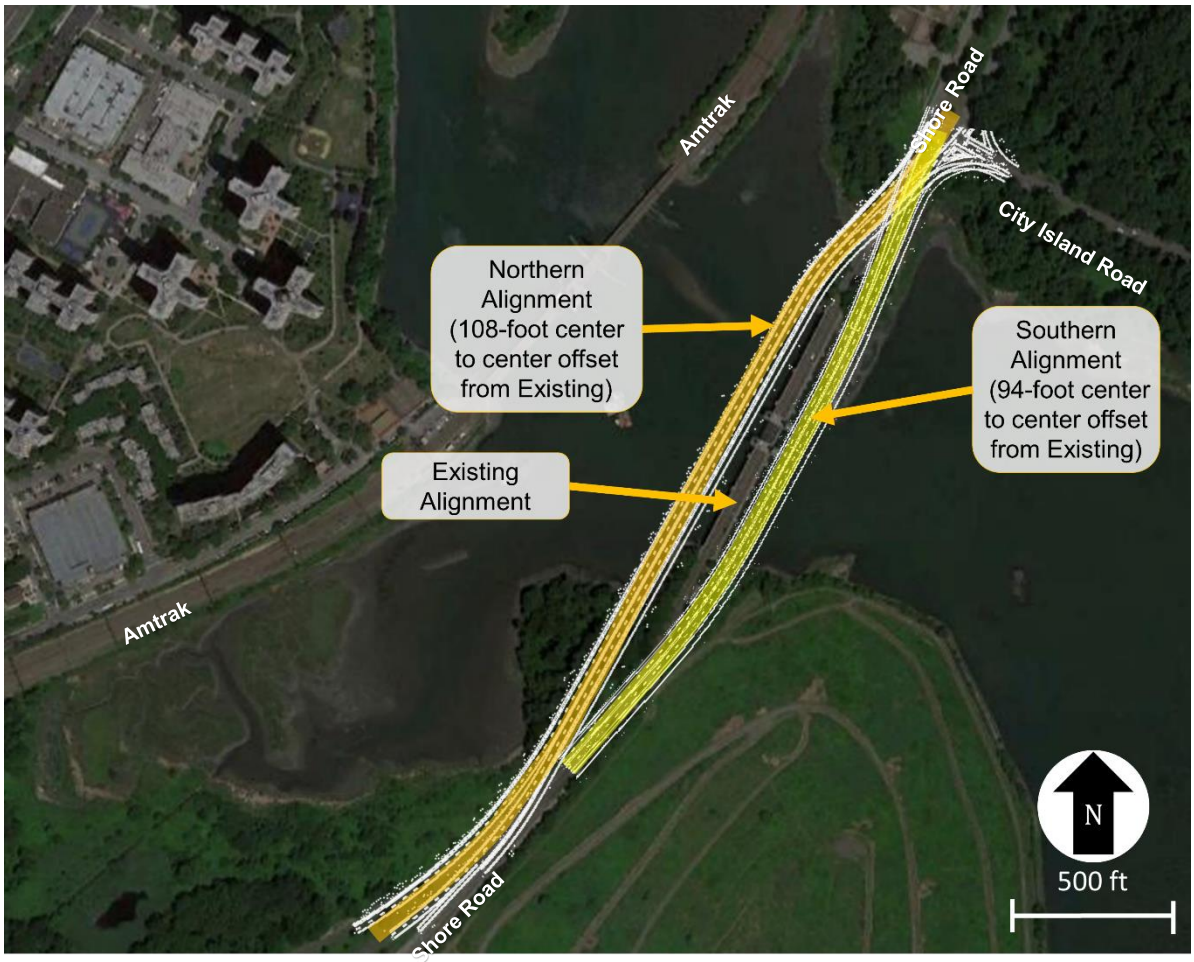


Figure 2: Concept Alignments for the Shore Road Bridge (Pelham Bay Parkway Bridge)

Waterway Characteristics

The main span over the navigation channel is a double-leaf movable bascule span, which is flanked by three concrete arch spans on either side. Shore Road Bridge (Pelham Bay Parkway Bridge) sits at the entrance of the Hutchinson River, a which starts as a freshwater creek in Westchester County and heads south roughly 10 miles before eventually draining into Eastchester Bay. As shown in Table 2, the river's MHW sits at 3.43 feet elevation (NAVD88) while its Mean Range of Tide is 7.35 feet. In 1930 the channel depth was authorized at 8 feet below Mean Lower Low Water (MLLW), elevation -12.19 feet (NAVD88). In 1950, the United States Army Corps of Engineers (USACE) authorized the channel depth at 10 feet below MLLW, elevation -14.19 feet (NAVD88). It should be noted that a project has not yet been undertaken to increase the channel depth to the authorized 10 feet below MLLW and the channel remains at 8 feet below MLLW.

Table 2: Waterway Stages and Project Depths

Waterway Stage		NAVD88 Elevation	1930 Project Channel Depth	1950 Project Channel Depth (Not Constructed)
MHHW	Mean Higher-High Water	+3.79’	15.98’	17.98’
MHW	Mean High Water	+3.43’	15.62’	17.62’
MLW	Mean Low Water	-3.92’	8.27’	10.27’
MLLW	Mean Lower-Low Water	-4.19’	8.00’	10.00’

In the vicinity of the bridge crossing, the river is largely natural with rocky features and woody vegetation. The bottom material is silty sand material with some gravel and some organic material. At low tide, areas of shoaling and vegetated salt marsh are visible. A preserved wildlife area exists to the north and east of the bridge. Along the west bank, the floodplain is generally developed, with parklands, commercial, and industrial areas. Some bulkheads, manmade and natural rip-rap/boulder shoreline protection is visible in the tidal zone. The site is subject to tidal conditions as well as fluvial flows from the Hutchinson River’s 14.9 square mile watershed. According to the December 2018 Draft Hydraulic Justification Report, the average fluvial velocity through the structure with ebb tide is 0.91 ft/sec (basic flood velocity). The river has a normal diurnal tidal cycle and normally takes 6.25 hours to reach high water.

The USACE Eastchester Creek Federal Navigation Project width varies along the Hutchinson River. The current channel width is constrained by the numerous structures crossing the river and, in these locations, the mapped channel is tapered down to match the restrictions of each structure. The navigation channel at the existing Shore Road Bridge (Pelham Bay Parkway Bridge) is 59 feet wide. This narrow channel predates the establishment of the current Federal Navigation channel in 1930. The navigation channel is as wide as 200 feet, yet it narrows at the existing Shore Road Bridge (Pelham Bay Parkway Bridge) and at the Amtrak Bridge. The overall mapped channel width in the general area of the existing bridge is over 100 feet.

The channel depth is maintained by the USACE through periodic dredging, this is intended to ensure that it remains deep enough to allow barge access. All reported depths are relative to Mean Lower Low Water (MLLW) datum, which is -4.19 feet. The most recent dredging occurred in 2010 along the shoreline in Mount Vernon, where many of the creek’s commercial terminals exist. The maintenance dredging removed approximately 21,000 cubic yards of sediment and provided for a channel 8 feet deep (at MLLW) from Long Island Sound through Eastchester Bay. Dredging farther south, near Eastchester Bay, is complicated by an inactive landfill and other sources of pollution which contaminate the built-up sediment, making dredging here difficult. According to the 2017 USACE Eastchester Creek Channel Survey and a hydrographic survey performed by Alpine Ocean Seismic Survey, Inc. in 2017, the water depths at MLLW at the site of the existing bridge (from fender to fender) ranged from 8.4 feet to 16.8 feet. According to the 2017 USACE Channel Condition Report, shoaling exists to varying severity throughout the river, further restricting vessel travel.

Due to the poor alignment and narrow horizontal clearance of the existing Shore Road Bridge (Pelham Bay Parkway Bridge), vessel operators currently are required to make a sharp turn when heading downriver after clearing the Amtrak railroad bridge. There are several named rock outcrops in the vicinity of the bridge, including Middle Rock, The Blizzard, Yacht Club Rock, and additional unnamed rock outcrops. The footing for the existing bascule piers crosses below the full width of the navigation channel from approximate elevation -19.91 feet to -33.91 feet (NAVD88). It is anticipated that should a concept require footing removal, the footing would generally be removed 5 feet below the authorized project depth to an elevation -19.19 feet. The majority of the footing under the channel would be deep enough to remain in order to minimize channel closures and environmental disturbance.

Emergency Operations

Police and other public vessels make very few trips along the Hutchinson River, and do not typically require bridge openings. NYPD vessels required only three bridge openings in 2015. The FDNY tug Fireboat Marine, which has a 30 foot air draft, required only two bridge openings in 2014. The list of vessels that navigated the waterway during the 2014 to 2020 period are summarized in Appendix A with their operator's information. Appendix D contains the technical details for each vessel and data sheets if available. The anticipated concept will not impact emergency, USCG or other government vessels usage of the waterway.

United States Army Corps of Engineers (USACE) Federal Navigation Project

There is no remapping of the channel or dredging planned as part of the bridge replacement project but local channel excavation is needed for bridge demolition. According to the USACE Eastchester Creek Federal Navigation Project, the latest maintenance dredging of the creek completed in 2010 provided an 8 feet deep channel (below MLLW) which was authorized under the 1930 project. No work has been done under the project modification adopted in 1950, which would have provided a 10 feet deep channel and additional channel width near the Boston Post Road Bridge. A copy of the National Oceanic and Atmospheric Administration (NOAA) Chart #12366, the USACE Controlled Depth Report Dated July 16, 2020, and the USACE June 30, 2020 Hydrographic Survey showing the Federal Navigation Project depth are included in Appendix F of this report.

According to the Shore Road Bridge (Pelham Bay Parkway Bridge) Navigation Study Port Facility Profile Form, Peckham Materials Corp., a hot mix asphalt plant located north of the Shore Road Bridge (Pelham Bay Parkway Bridge) is working to acquire permits to dredge and replace the existing bulkhead at their facility. This work would allow for an increased number of barge deliveries to and from the plant. The site is located upstream of the Shore Road Bridge (Pelham Bay Parkway Bridge) at 3966 Provost Avenue, Bronx. According to the NYS Register, on March 9, 2017, Peckham Materials Corp. proposed maintenance dredging to restore and preserve safe draft depths along an existing industrial site bulkhead for commercial barges entering and leaving the site. The proposed dredge area was 60 feet x 690 feet with a maximum depth of 12 feet below mean low water. The estimated volume of material to be removed during the first dredging event was estimated to be between 10,000 and 15,000 cubic yards. Future maintenance dredging

involves removing approximately 1,000 cubic yards per dredging event and is likely to occur once a year.

According to the USACE Public Notice issued on July 21, 2017, Sprague Operating Resources, LLC submitted an application to perform dredging with ten year maintenance with upland disposal within a previously dredged area of the de-authorized federal navigation channel. The dredging was proposed within the City of Mount Vernon and the purpose was to restore operational depths to ensure safe navigation. The proposed work was to involve a total of five dredging events within 1.5 acres of Eastchester Creek to remove a total volume of approximately 25,000 cubic yards of material over a ten year period. The area would be dredged to an authorized depth of 9 feet below MLLW. Approximately 12,500 cubic yards was to be dredged in the initial dredge event, and approximately 3,125 cubic yards of sediment would be dredged in four subsequent dredge events.

Recreational Navigation

Many of its existing features make the Hutchinson River unattractive to recreational marine use. According to the 2017 New York State Department of Environmental Conservation (NYSDEC) Waterbody Inventory/Priority Waterbodies List water quality assessment, the NYSDEC categorized the river as impaired for recreation use. Controlled sewage overflows, or CSOs, line the shore along its navigable path and industrial material spills from barges and facilities upstream have polluted the waterway. Nearby Co-op City and Westchester County also contribute to pollution through urban storm runoff. These pollution sources coupled with low drafts and lack of docking make the channel unattractive to recreational users. Still, the Hutchinson River provides access to Eastchester Bay and the adjoining Long Island Sound which boasts heavy traffic from sail boats, yachts, and other recreational vessels. Nearby City Island has dockage for recreational as well as commercial vessels and this may eventually lead to future interest in developing the creek to improve public use. Regardless, the concepts would have no appreciable long-term negative impact on recreational boating, as recreational boats tend to require relatively little clearance.

Commercial Navigation

The Hutchinson River hosts many commercial industries that utilize marine freight along its shore. The cargo is transported by barge and consists primarily of gravel (Gvl/B), sand (Sd/B), petroleum (O/B), and scrap metal (Scp/B). A breakdown of vessel openings by type is shown in Figure 3. Gravel barges represent the largest share of Shore Road openings at 34.8%, followed by scrap barges at 26.1% and oil barges at 21.1%. Most of the barges conduct deliveries, transporting materials up the creek to be processed and distributed. The exception to this is scrap metal, which is collected and sorted before being shipped from the New York area. Specific analysis of the transportation companies and commercial owners who use the Hutchinson River is important because they drive the vessel traffic that dictate bridge openings. The rate of future openings therefore depends heavily on the strength of those industries and their respective terminals. A lull in an industry, or the closing of a terminal upstream, can have a substantial impact on the frequency of vessel openings.

Other events also influence the number of vessels traveling in the Hutchinson River and driven marine traffic to one of its lowest rates in a decade. For example, in the summer of 2017, the Hutchinson River Parkway Bridge briefly ceased span operations to perform maintenance painting. Records indicate that during this time multiple vessels which had previously traveled through the river were prevented from passing the Hutchinson River Parkway Bridge, decreasing the total openings at Shore Road Bridge (Pelham Bay Parkway Bridge) as well. Operational issues and associated bridge repairs disrupt operations for businesses in the area by limiting vessel access. Table 3 below summarizes the total number of annual bridge openings for NYCDOT bridges on the Hutchinson River.

Table 3: Annual Span Openings on the Hutchinson River

	Span Openings	
Year	**Hutchinson River Pkwy Bridge**	**Shore Road Bridge (Pelham Bay Parkway Bridge)**
2008	135	1527
2009	252	906
2010	273	1285
2011	230	887
2012	223	680
2013	339	769
2014	270	778
2015	339	704
2016	380	895
2017	130	814
2018	246	821
2019	268	862
2020	248	672

Public Outreach

Outreach to facilities and marine transportation companies operating along the Hutchinson River was conducted throughout 2017 and compiled for this report (Appendix A.1). Further outreach was completed in September 2021. A total of 19 letters were mailed to the port facilities along the Hutchinson River, the known mariners operating on the waterway, and 6 regulatory agencies with jurisdiction over plans for waterway utilization (Appendix A.2). Requests were made for vessel air-drafts, projected future use, and additional input concerning the project. The most significant of the responders are briefly described below while additional responses can be found in the list of references. The list of vessel names, types, and drafts of all vessels as well as data sheets (if available) can be found in Appendix D.

Mariners

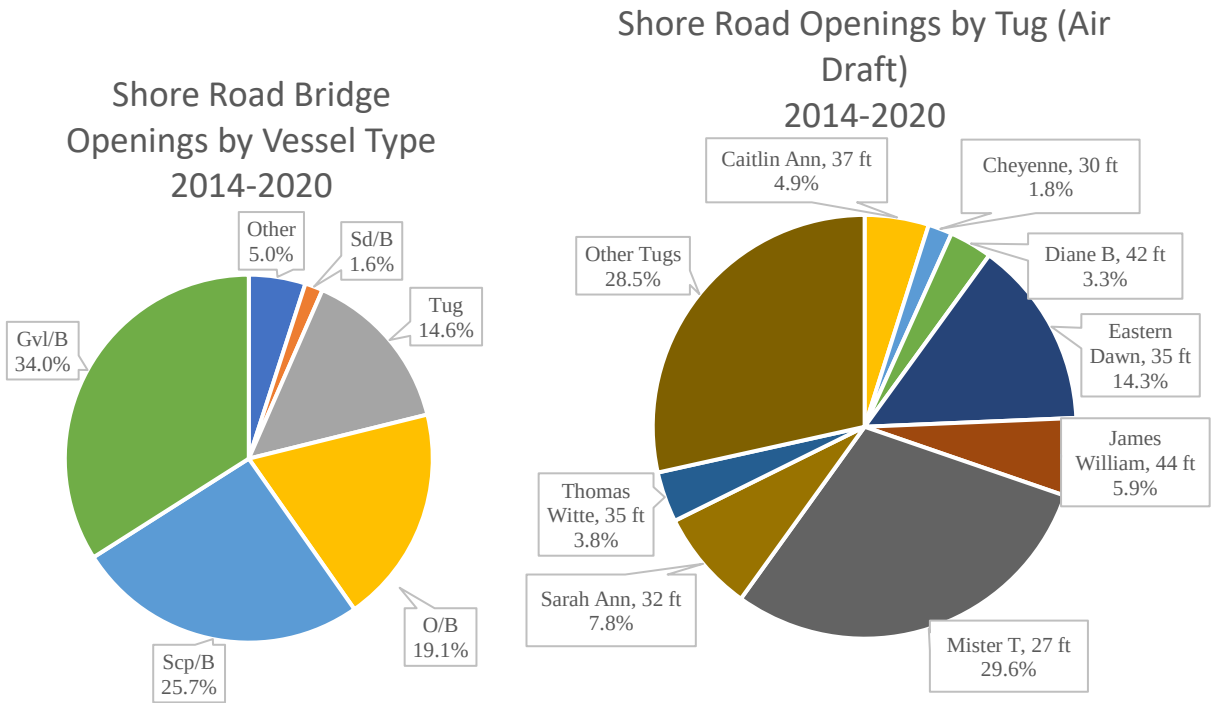
Collecting the air-drafts of vessels was fundamental to understanding navigational needs of Hutchinson River users. Figure 4 shows the most frequent tugs and their respective air drafts. The

tug *Mister T* accounted for 29.6% of the vessel trips from 2014 through 2020, and almost all gravel barge deliveries. This was followed by *Eastern Dawn* (14.3%), and *Sarah Ann* (7.8%), contributing in total to over half of vessel openings from 2014-2020. In subsequent sections, the significance of these vessels will be discussed with respect their impact on bridge operations.

In late 2020 the Sprague Terminal ceased operations and the vessels that were bound for that facility, indicated as O/B in Figure 3, are no longer operating on the waterway. This was confirmed by the operators of the *Diane B* and the *Eastern Dawn,* American Petroleum Transport and Greater New York Marine Transportation respectively, in response to the September 2021 outreach effort. The change in navigational needs represents an estimated reduction of nearly 19% in the number of vessel openings at the Shore Road Bridge (Pelham Bay Parkway Bridge) from those typically recorded in the 2014-2020 period.

DonJon Marine Co. Inc.
One of the most prolific transportation companies on the Hutchinson River is DonJon Marine Co. In total, their fleet includes seven tugs which transport scrap metal in barges from processing centers along the river. These tugs vary in air draft, from a low of 28 feet, to a maximum of 50 feet. In addition to providing their fleet air drafts, a representative from the company noted that many transportation companies use their lowest height tugs to transport cargo along the Hutchinson River, in part because of delays in current bridge operations. This reflects a certain amount of flexibility that operators must employ to use the river. They also often modify masts and other parts of their vessels to mitigate the impact of low vertical clearances.

Buchanan Marine
Another major contributor to vessel traffic in the area is Buchanan Marine LP, which among other services delivers aggregate materials, like sand and gravel. The company operates two tugs in the area: *Buchanan I* (38-foot air draft, as noted in Mariner Survey Response) and *Mister T* (27-foot air draft, as noted by the USACE), a tug that was the single most frequent cause of Shore Road Bridge (Pelham Bay Parkway Bridge) openings from 2014 through 2020. The company transports aggregate to RCA asphalt, a commercial manufacturer of paving materials in Mount Vernon, NY.



Figures 3 and 4: Shore Road Bridge (Pelham Bay Parkway Bridge) Openings

Marine Facilities

Figure 7 shows the facility locations along the Hutchinson River. Several of the waterfront facilities shown on the map do not currently use the waterway. Pascap Co. Inc, Sprague Energy, Peckham Materials, and RCA Asphalt are the most utilized facilities according to the public outreach conducted in 2017. On November 18, 2021, 113 Edison Ave LLC indicated that they are in the process of applying for permits to reconstruct their bulkhead and intend to utilize their facility to receive sand and stone by barge for further processing. 113 Edison Ave LLC did not provide additional information regarding future navigation needs such as vessel size, name, or frequency. The names and contact information for the facilities can be found in Appendix B.

Pascap Co. Inc

The primary terminal for DonJon tugs is the Pascap scrap metal processing facility, located at 4250 Boston Road in the Bronx. The company located here in 1929 and provides recycled materials to both domestic and international consumers. They operate at typical business hours, which dictates arrival times for vessels to the facility. This schedule must also be coordinated with high tide, when the depth of the channel makes it navigable. These limitations are outside the control of bridge design but impact the schedule and frequency of marine transport and can help predict when bridge openings will occur in the future.

Figure 5: PASCAP Scrap Processing Facility

Former Sprague Mt. Vernon Terminal (Reputed owner, Bioenergy Devco)
Another major facility on the Hutchinson River is the former home of the Sprague Operating Resources Mt. Vernon Terminal, an energy provider which delivered home heating oil and diesel in New York. Like Pascap, this facility was one of the oldest companies in the area and their commercial activities contributed to a significant number of vessel trips. The facility is located in Mount Vernon, NY, just north of the South Fulton Avenue Bridge. Operations at the terminal ceased in late 2020 as the facility changed ownership. Outreach to the reputed owner Bioenergy Devco of Annapolis, Maryland was unsuccessful.

The terminal formerly attracted oil barges with a seasonality that corresponded to heating demands; highest in winter months with steep drops off in the summer. While operated by Sprague Energy, the most common tug traveling to this location was the *Eastern Dawn*, owned and operated by Greater New York Marine Transportation with an air draft of 35 feet. Greater New York Marine Transportation and American Petroleum Transport reported in September 2021 that they no longer operate on this waterway due to the closure of the Sprague Terminal.

Figure 6: Sprague Energy Facility

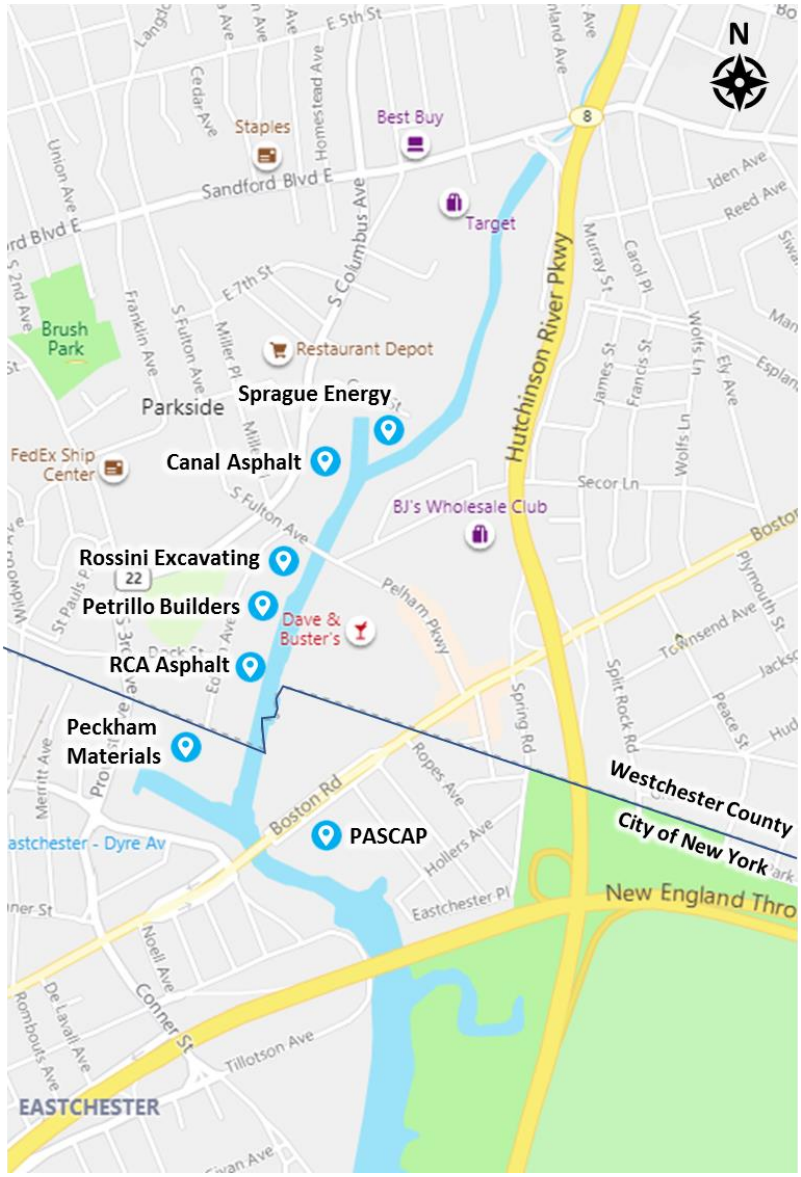


Figure 7: Facility Locations along upper Hutchinson River

Analysis of Reasonable Range of Feasible Concepts and Proposed Clearances Criteria

As previously stated, a reasonable range of feasible concepts will be considered and a preferred alternative will be developed through the NEPA EIS Process. However, as several criteria will help inform these feasible concepts, alignments and ranges for vertical clearances are discussed below.

d. Low Level (Movable) (15ft.) – The existing bridge has a clearance of 13’ above MHW. This proposed criteria of a low clearance bridge would generally require the same number of navigation openings as the existing bridge.

e. Mid Level (Movable) (30-35 ft.) - More vessels can pass under the closed structure than the current approximately 13-foot bridge, thereby decreasing the number of navigation openings. This bridge would be able to be opened to provide unlimited vertical clearance over the navigable channel.

f. High Level (Fixed) (50+ ft.) – This height range would provide a maximum vertical clearance equal to the lowest upstream fixed structure at the New England Thruway, which is approximately 50 feet above MHW over the navigable channel. This could potentially eliminate all current required navigation openings and a fixed bridge concept would be considered. Construction of a fixed bridge would remove the need for bridge openings but would result in a substantially larger bridge structure and longer transitions to tie into the existing roadway. This concept would require regrading of the City Island Road intersection and would have a larger footprint, with proportionally greater environmental impacts to Pelham Bay Park, wetlands and natural resources, and to the Bronx Equestrian Center. The higher profile would also require steep grades on the approaches that could impact pedestrians/cyclists within the park.

Methodology

Bridge operator logs from both the Hutchinson River Parkway Bridge and the Shore Road Bridge (Pelham Bay Parkway Bridge) from 2014 through 2020 were analyzed. The hand-written logs contain key details about each opening including the date, span opening and closing times, and the tug and/or barge which passed, if applicable. Vessels were also categorized in the logs by type, such as gravel or oil barge or NYPD boat. The data used to analyze the concepts does not reflect the changes in navigation related to the 2020 closure of the Sprague Terminal and therefore represents a greater diversity of vessels than currently operate on the waterway.

In addition to bridge operation logs, outreach was made to any known facilities and vessel operators currently using the Hutchinson River. While this effort resulted in a lot of usable data, it still left some gaps in information, particularly for vessel air-drafts. To mitigate this, assumptions were made about the clearance required for unknown tugs. For vessels that required the opening of the Shore Road Bridge (Pelham Bay Parkway Bridge) but not Hutchinson River Parkway Bridge, it was inferred that their air drafts fell somewhere between the two vertical clearances (13 feet and 30 feet respectively) and assumed conservatively to be 30 feet. Similarly, in vessels which required both the Shore Road Bridge (Pelham Bay Parkway Bridge) and the Hutchinson River Parkway Bridge to open, the air drafts were inferred to be somewhere between 30 feet and 50 feet, since all vessels must eventually travel under the 50-foot fixed clearance upstream. The air draft of these vessels when not provided, was initially assumed to be 50 feet at MHW.

It is also important to note that the logs do not indicate the total number of vessels entering the waterway, just ones which required the bridge to open. Despite this, the logs still reflect overall trends in vessel traffic. Moreover, the trips not captured likely involved shorter vessels which wouldn't be affected by a replacement bridge.

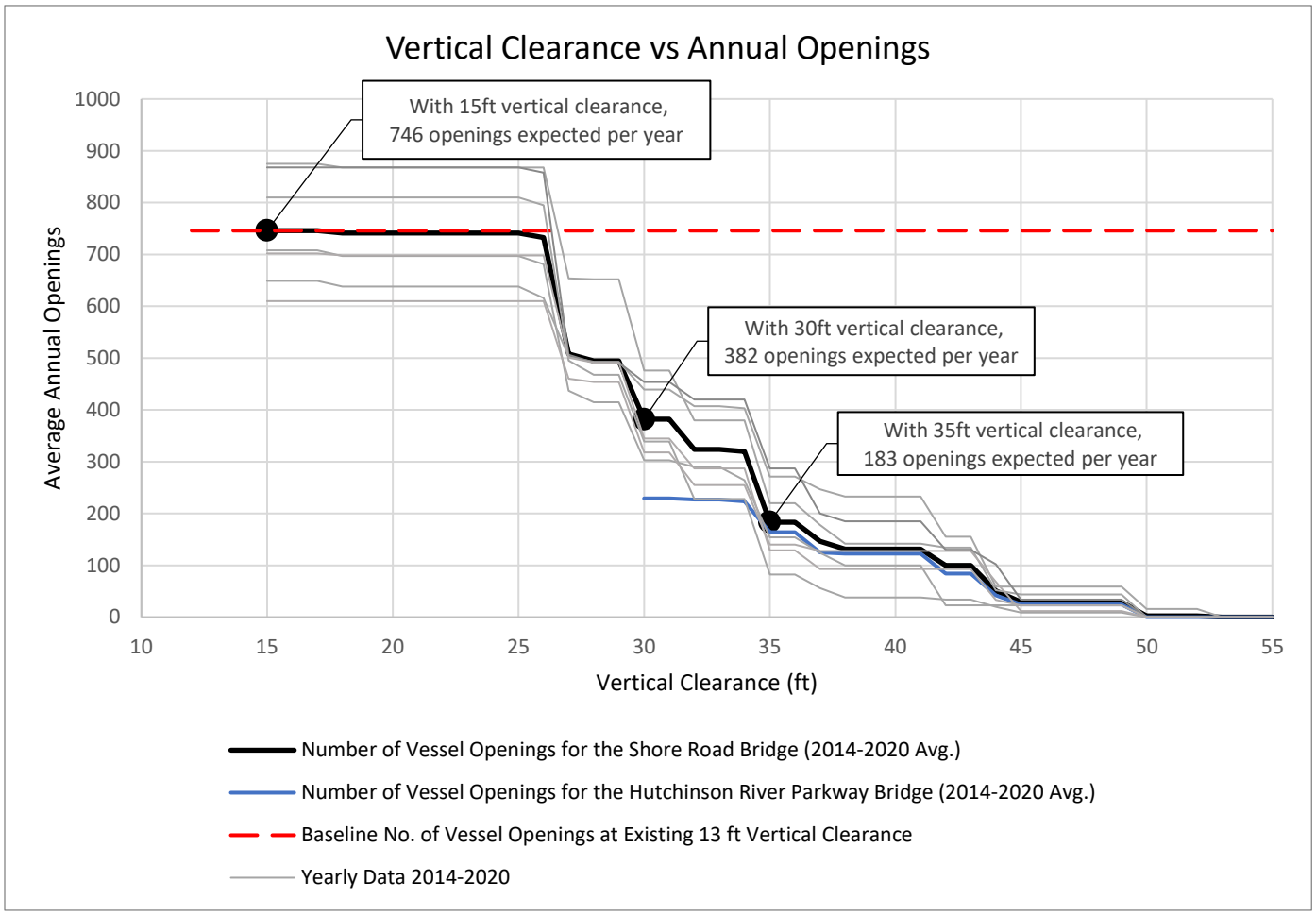


Figure 8: Vertical clearance vs average annual vessel openings

Results

Figure 8 shows a comparison between vertical clearance and the average annual openings from 2014 through 2020. The thickest black line shows how many times a year, on average, Shore Road Bridge (Pelham Bay Parkway Bridge) would have needed to open at any given vertical clearance. At the top is a dashed line representing the current rate, averaged from all the collected data. The overall trend shows an increase in vertical clearance leads to fewer openings. This trend is not linear however, and the jumps in the line reflect that many vessel openings were a result of a limited number of specific of tugs.

The data shows recent trends in bridge operation and is a reasonable projection of openings that could occur under a reasonable range of feasible concepts. Under a low vertical clearance, the Shore Road Bridge (Pelham Bay Parkway Bridge) would have opened on average 782 times per year, or over twice a day. At the next range of vertical clearance, a vertical clearance of 30 feet the annual rate drops to 402 openings, a decrease of over 48% from the current rate. Most of this change occurs at 27 feet, the point at which the tug *Mister T* no longer needs the Shore Road Bridge (Pelham Bay Parkway Bridge) to open to pass. Had the clearance been 35 feet, the bridge would have opened only 203 times per year. This is a 49% decrease from the 30-foot clearance and a

74% decrease from the existing condition. This marginal drop is also significant and reflects many of the tugs from Figure 4 whose air-draft falls within this higher clearance, namely *Eastern Dawn* (no longer operating on the waterway), *Thomas Witte*, and *Sarah Ann*. These tugs contributed to 24.8% of the vessel openings in the observed period. Finally, a higher vertical clearance of 50'+ would offer a minimum fixed clearance of 50 feet which is adequate for the current fleet of vessels, but this span could not be raised should taller vessel need to be accommodated in the future.

The choice of vertical clearance will significantly affect the number of openings anticipated under a potential replacement concept. Since the most common vessels can individually impact the rate of openings each year, a small change in vessel make-up could alter these numbers by a significant amount.

It should be noted that there are currently no height restrictions posed by any of the bridge crossings south of the New England Thruway since the bascule spans south of that point each provide unlimited clearance when open. Construction of a fixed bridge at Shore Road would introduce a new height restriction for the lower two miles of the Hutchinson River that is not present today. Replacement with a double leaf bascule would not pose that restriction.

Alternate Routes

There are no alternate routes available along the Hutchinson River bypassing the proposed bridge concept. While the permanent replacement bridge is intended to accommodate navigation without the need for alternative routes, temporary height restrictions are possible during construction. These restrictions would be coordinated with USCG. The Hutchinson River is not a local harbor of refuge.

Geometry and Hydraulics of Waterway

At 59 feet, the existing Shore Road Bridge (Pelham Bay Parkway Bridge) has the most restrictive horizontal clearance along the Hutchinson River and it also provides poor alignment with its underlying waterway, forcing vessels to turn sharply in order to navigate up or downstream after traversing below the Shore Road Bridge (Pelham Bay Parkway Bridge). Located on a curve in the mapped channel, the Shore Road Bridge (Pelham Bay Parkway Bridge) is located 1,000 feet south of the next upstream bridge, the Amtrak Bridge. Vessels are required to make a sharp turn when heading downriver after clearing the Amtrak Bridge in order to align with the narrow channel at the Shore Road Bridge (Pelham Bay Parkway Bridge) and continue into the downstream curve. The current Federal Emergency Management Agency Flood Insurance Study (FEMA FIS) indicates the floodplain transitions from a Zone VE to a Zone AE as the man-made structure and the narrowing of the waterway is likely a feature that dissipates significant wave action. FEMA's Limit of Moderate Wave Action occurs at the bridge. Upstream of this point, waves are generally less than 3 feet high. The overall width of the mapped navigational channel within the footprint of the proposed concepts ranges from 60 feet to 117 feet. An increase in horizontal clearance is expected to improve the safety of passage through the proposed bridge concept.

The water recession at outgoing tides is not rapid, and the river is subject to a normal diurnal tidal cycle.

The USCG has not established formal guide clearances for the Hutchinson River.

Natural or Man-Made Conditions Affecting Navigation

There are several rock outcrops located to the south of the existing bridge. The substructure for a potential bridge replacement concept on this type of alignment would be located in front of the rock outcrop immediately to the south of the existing bridge, so the rock outcrop will not affect navigation. According to the hydrographic survey, there are several sunken vessels, between the Shore Road Bridge (Pelham Bay Parkway Bridge) and the Amtrak Bridge. They are not located within the channel and therefore should not affect navigation.

Other Factors Necessary for Safe Navigation

Navigational lighting will be provided on the bridge and/or pier protection system to indicate channel perimeters. Additionally, as required in the Code of Federal Regulations, 33 CFR Section 117.793 Hutchinson River (Eastchester Creek) clearance gauges are in place at the existing bridge and would be installed at the new one. Information on the final bridge information will be provided for inclusion in the US Coast Pilot and during construction through Notices to Mariners and other standard boater information methods.

Impacts to Navigation

The proposed bridge concept type, size, and location is not yet determined. However, the proposed bridge concept is not expected to cause any detrimental impacts to navigation.

The proposed bridge concepts are expected to accommodate all documented existing navigation needs. Future navigation is likely limited by the upstream channel depths.

Mitigation for Impacted Waterway Users

There are no alternate routes bypassing the proposed bridge concept available for vessels. Vessel navigation will be affected temporarily during various construction for the rehabilitation and replacement options with the rehabilitation option posing the greatest potential impacts to navigation during construction.

The correspondence with the mariners indicated that facilities currently send the vessels with the lowest air draft to avoid potential delays during bridge openings. Some mariners were able to reduce their air draft to traverse below the Hutchinson River Parkway bridge when it was inoperable. For example, one mariner, DonJon Marine Co. Inc. was able to lower the air drafts of certain tugs by traversing with the mast down or upper house down. If the vertical clearance of the new bridge was raised to 30 feet, this would allow DonJon Marine Co. Inc vessels Brian Nicholas and Meagan Ann to pass through while the bridge is in the lowered position. One thing to consider is if the vertical clearance of the new bridge was raised to 35 feet, this would allow DonJon Marine Co. Inc. vessels Brian Nicholas, Emily Ann, Meagan Ann, Sarah Ann, and Thomas Witte to traverse while the bridge is in the lowered position. If bridge is raised to a 50 ft. + clearance, the current navigational needs of the mariners could potentially be met without concerns.

Conclusion

The frequency of span openings and volume of barge traffic are dependent on the needs of the upstream terminals to which they deliver. Changes in vessel trips can occur because of the closure or expansion of the business at these terminals. In 2009, the waterway saw a large decrease (close to 50%) in vessel trips, likely occurring because of the closure of an oil terminal upstream.

Bridge operations along the Hutchinson River also impact vessel traffic. Several responses to the project outreach included complaints about difficulty in navigating the creek. This included poor alignment between the river and bridge, as well as bridge mechanical malfunctions which trapped tugs inside the waterway.

One of the mariners contacted stated that it is common practice to send vessels with the least amount of air draft to avoid bridge openings due to the bridge delays. Multiple mariners requested a bridge with vertical clearance greater than the present clearance.

The design of the rehabilitation and replacement concepts will consider not only the long term needs of navigation but also construction activities that could potentially impact navigation. Those impacts will be mitigated to the greatest extent practicable.

References

New York Department of Environmental Conservation, NYSDEC, Waterbody Inventory/Priority Waterbodies List for the Hutchinson River/Mamaroneck River Watershed, 03/17/2017, https://www.dec.ny.gov/docs/water_pdf/wiatllishrmr.pdf, Retrieved 2/22/18.

U.S. Department of the Army, Corps of Engineers, USACE, Navigation Data Center, Five Year Trips Report, 2016. http://www.navigationdatacenter.us/wcsc/webpub/#/report-landing/year/2008/region/1/location/348s, Retrieved 2/20/18.

U.S. Department of the Army, Corps of Engineers, USACE Alexandria, Virginia, Waterborne Transportation Lines of the United States, Calendar Year 2016 Volumes 1 through 3 consolidated, 10/2017, https://usace.contentdm.oclc.org/digital/collection/p16021coll2/id/1376/, Retrieved 2/22/2018.

U.S. Department of the Army, Corps of Engineers. New York District, New York, Operations Division, Survey Section, East Chester Creek Conditions Survey (6/2017).

U.S. Department of the Army, Corps of Engineers. New York District, New York, East Chester Creek Channel Conditions Survey (9/06/2017).

U.S. Department of the Army, Corps of Engineers. New York District, New York, 2017 Channel Dredging Public Notice - Eastchester Creek (8/21/2017).

U.S. Department of the Army, Corps of Engineers, New York District, Fact Sheet – Eastchester Creek, New York, 2/1/2018, https://www.nan.usace.army.mil/Media/Fact-Sheets/Fact-Sheet-Article-View/Article/487367/fact-sheet-eastchester-creek-new-york, Retrieved 6/27/2019.

New York State Registrar, Miscellaneous Notices/Hearings, Public Notice Department of State, 5/31/2017, https://docs.dos.ny.gov/info/register/2017/may31/Miscellaneous.pdf, Retrieved 6/28/2019.

Regional Development Economic Councils, Sprague Operating Resources Capital, https://regionalcouncils.ny.gov/cfa/project/210085, Retrieved 6/28/2019.

National Oceanic and Atmospheric Administration, Navigation Chart 12366, 30th Ed., 4/1/2019, https://www.charts.noaa.gov/OnLineViewer/12366.shtml, Retrieved 6/26/2019.

Federal Emergency Management Agency, Flood Insurance Study, Westchester County, New York (All Jurisdictions), No. 36119CV001B, December 8, 2014.

United States Coast Guard. U.S. Department of Homeland Security, USCG Guide Clearances on Waterways, https://www.dco.uscg.mil/Our-Organization/Assistant-Commandant-for-Prevention-Policy-CG-5P/Marine-Transportation-Systems-CG-5PW/Office-of-Bridge-Programs/Bridge-Guide-Clearances/, Retrieved 7/2/2019.

Electronic Code of Federal Regulations, 33 CFR Section 117.793 - Hutchinson River (Eastchester Creek), Navigation and Navigable Waters, Drawbridge Operation Regulations, 6/28/2019, https://www.ecfr.gov/cgi-bin/text-idx?SID=35e6b9bd8768f471ee1c12c30f0f92ee&mc=true&node=se33.1.117_1793&rgn=div8, Retrieved 7/03/2019.

New York City Department of Transportation, Bureau of Bridges (Operations), Pelham Bay Bridge Boat Log, 2014-2020.

New York City Department of Transportation, Bureau of Bridges (Operations), Hutchinson River Parkway Bridge Boat Log, 2014-2020.

Mariner Survey Responses

Shore Road (Pelham) Bridge Navigation Study Vessel Profile Form, Steven Newes, Senior Vice President, DonJon Marine Co., Inc., 1/18/2018.

DonJon Marine Co., Inc Vessels Air Draft (Follow-up email), Steven Newes, Senior Vice President, DonJon Marine Co., Inc., 2/2/2018.

Shore Road (Pelham) Bridge Navigation Study Vessel Profile Form, Hugh McCrory, Buchanan Marine, LP, 1/24/2018.

Shore Road (Pelham) Bridge Navigation Study Vessel Profile Form, Hugh McCrory, Buchanan Marine, LP, 10/1/2021.

Shore Road (Pelham) Bridge Navigation Study Vessel Profile Form, Rudy Wohl, Operations Manager, Dann Ocean Towing, Inc., 1/25/2018.

Shore Road (Pelham) Bridge Navigation Study Vessel Profile Form, Collin Bryant, General Manager, Coeymans Marine Towing, LLC., 1/23/2018.

Shore Road (Pelham) Bridge Navigation Study Vessel Profile Form, Stephen Bragoli, Owner, American Petroleum and Transport, Inc., 1/17/2018.

Shore Road (Pelham) Bridge Navigation Study Vessel Profile Form, Hugh McCrory, Norfolk Tug Co., 1/24/18.

Shore Road (Pelham) Bridge Navigation Study Vessel Profile Form, Hugh McCrory, Norfolk Tug Co., 10/1/2021.

Shore Road (Pelham) Bridge Navigation Study Vessel Profile Form, John White, Owner, Greater NY Marine Transportation, LLC, 1/12/2018.

Shore Road (Pelham) Bridge Navigation Study Vessel Profile Form, John White, Owner, Greater NY Marine Transportation, LLC, 10/11/2021.

Facility Survey Responses

Shore Road (Pelham) Bridge Navigation Study Port Facility Profile Form, James Capasso, Pascap Co. Inc., 1/26/2018.

Shore Road (Pelham) Bridge Navigation Study Port Facility Profile Form, James Capasso, Pascap Co. Inc., 11/04/2021.

Shore Road (Pelham) Bridge Navigation Study Port Facility Profile Form, Matthew Lazzari, Peckham Materials Corp., 1/15/2018.

Shore Road (Pelham) Bridge Navigation Study Port Facility Profile Form, Matthew Lazzari, Peckham Materials Corp., (Follow-up email), 1/15/2018.

Shore Road (Pelham) Bridge Navigation Study Port Facility Profile Form, Adriane Casterella, RCA Asphalt LLC, 9/23/2021.

Shore Road (Pelham) Bridge Navigation Study Port Facility Profile Form, Mike Merna, Sprague Operating Resources, 1/22/2018.

Shore Road (Pelham) Bridge Navigation Study Port Facility Profile Form, Michael T. Williams, 113 Edison Ave LLC, 11/18/2021.

Appendix A:

A.1 – List of Waterway Users and Vessels Operated on Hutchinson River

A.2 – 2017 Public Outreach Program – Facilities and Mariners Contacted

A.3 – 2021 Public Outreach Program – Facilities, Mariners, and Regulatory Agencies Contacted

A.1 - List of Waterway Users and Vessels Operated on Hutchinson River

#	Operator	Vessels
1	American Petroleum and Transport 1 Serviceberry Ct. Miller Place, NY 11769	Diane B Stephen B Barge: James Joseph Barge: John Blanche Barge: PMS
2	Balico Marine Services 66 Lilac Lane Paramus, NJ 07652	Navigator Barge: HT-100
3	Buchanon 39 East Ferry Street New Haven, CT 06513	Buchanon 1 Buchanon 12 Mister T
4	Coeyman's Marine Towing (Mailing address) P.O. BOX 890 Coeymans, NY, 12045	Mister Jim Helen Laraway
5	Dann Ocean Towing 3670 S. Westshore Blvd. Tampa, FL 33629	Captain Willie Landers Charles A Ruby M Stephen Dann
6	DonJon Marine 100 Central Avenue Hillside, New Jersey 07205	Brian Nicholas Caitlin Ann Emily Ann Meagan Ann Paul Andrews Sarah Ann Thomas Witte
7	Fox Marine Corporation 531 Cattell St Easton, PA 18042	Foxy 3 (Formerly BF Jersey)
8	Miller's Launch Pier 7 1/2 15 Murray Hulbert Ave. Staten Island New York, 10301	Shawn Miller Gabby Miller
9	Greater NY Marine Transportation 333 Jackson Ave, STE. 9 Syosset, NY 11791	Dory
10	Eastern Barge Services 333 Jackson Ave, STE. 9 Syosset, NY 11791	Harbor II
11	White Near Coastal Towing Corp. 333 Jackson Ave, STE. 9 Syosset, NY 11791	Eastern Dawn Barge: Portchester
12	Sea Wolf Marine Transportation 473 Broadway Suite 408 Bayonne, NJ 07002	Sea Wolf

#	Operator	Vessels
13	Wittich Bros Marine, Inc 25A Abe Voorhees Drive Manasquan, NJ 08736	Sea Fox
14	Thomas J. Brown and Sons Inc. 136 Aspinwall Street Staten Island, NY 10307	Thomas Brown
15	Norfolk Tug Company 508A East Indian River Rd Norfolk, VA 23523	James William Taft Beach
16	Henry Marine 12 Craig Ave Staten Island, NY 10307	
17	Marine Environmental Transportation Inc. 3200 Leprechaun Lane Palm Harbor, FL 34683	Hubert Bays
18	Poling & Culter 18 Breckenridge Ct Freehold, NJ 07728	
19	Reinauer 1983 Richmond Terrace Staten Island, New York 10302	
20	Thornton Towing and Transportation 2883 Richmond Terrace Staten Island, NY 10303	C.G. Thorton
21	Conway Marine Construction	Barbara Ann
22	NYS Marine Highway Transportation LLC 427 River Street Troy, NY 12180	Margot
23	FDNY	Fireboat Marine
24	NYPD	#654 #4 #628 LT. Frederico Navarez (#3)
25	NYCDEP	Osprey

A.2 – 2017 Public Outreach Program – Facilities and Mariners Contacted

#	Operator / Facility Name	Vessels or Facility Description	Response Received
1	American Petroleum and Transport 1 Serviceberry Ct. Miller Place, NY 11769	Diane B Stephen B Barge: James Joseph Barge: John Blanche Barge: PMS	Received Hard Copy on 1/17/18
2	Buchanan 39 East Ferry Street New Haven, CT 06513	Buchanan 1 Mister T James William Taft Beach	Received Email on 1/24/18
3	Coeyman's Marine Towing P.O. BOX 890 (Mailing) Coeymans, NY, 12045 (Mailing)	Mister Jim Helen Laraway	Received Email on 1/23/18
4	Dann Ocean Towing 3670 S. Westshore Blvd. Tampa, FL 33629	Captain Willie Landers Charles A Ruby M Stephen Dann	Received email on 1/25/18
5	DonJon Marine 100 Central Avenue Hillside, New Jersey 07205	Brian Nicholas Caitlin Ann Emily Ann Meagan Ann Paul Andrews Sarah Ann Thomas Witte	Received Email on 1/18/18
6	Fox Marine Corporation 531 Cattell St Easton, PA 18042	Foxy 3 (Formerly BF Jersey)	No Response Received
7	Miller's Launch Pier 7 1/2 15 Murray Hulbert Ave. Staten Island New York, 10301	Shawn Miller Gabby Miller	Partial Response Received Email on 1/26/18
8	Greater NY Marine Transportation 333 Jackson Ave, STE. 9 Syosset, NY 11791	DoryHarbor IIEastern DawnBarge: Portchester	Received Email 1/12/18
9	Sea Wolf Marine Transportation 473 Broadway Suite 408 Bayonne, NJ 07002	Sea Wolf Sea Fox	No Response Received
10	Tug & Barge Committee		
11	Pascap Scrap Metal Co. 4250 Boston Post Road Bronx, NY 10475	Has 4 wharfs, 1 south of Boston Post Road on east side of River, 3 north of Boston Post Road: 2 on east, 1 on west	Received Hard Copy on 1/26/18
12	Petrillo Builders Supply 41 Edison Ave Mt. Vernon, NY 10550	North of Boston Post Road on west side of river	No Response Received
13	Rossini Contracting Co. 113 Edison Ave Mt. Vernon, NY 10550	North of Boston Post Road on west side of river	No Response Received

#	Operator / Facility Name	Vessels or Facility Description	Response Received
14	Sprague Mt. Vernon 40 Canal Street Mt. Vernon, NY 10550	North of S. Fulton Ave on west side of river	Received Email 1/22/18
15	Peckham Materials 3966 Provost Ave Bronx, NY 1055	North of Boston Post Road	Received Email 1/15/18
16	RCA Asphalt 7 Edison Ave Mt. Vernon, NY 10550	North of Boston Post Road Also operates 800 Canal Road	No Response Received
17	DeFoe Corporation 800 S Columbus Ave Mt. Vernon, NY 10550		No Response Received
18	Mikal Management Co Inc 57 Canal Road Pelham Manor, NY 10803	North of S. Fulton Ave on east side of river. Formerly Imperia Bros. Contact Provided by Pelham Manager	No Response Received
19	UNKNOWN 6 Canal Road Pelham Manor , NY	North of S. Fulton Ave on east side of river. Facility was leveled and is part of Pelham Manor redevelopment RFP	No Response Received
20	DEFUNCT - West Vernon Petroleum 701 S. Columbus Ave Mt. Vernon, NY 10550	North of S. Fulton Ave on west side of river. DEFUNCT & Razed in 2007. Facility in litigation. Status unknown	No Response Received

A.3 – 2021 Public Outreach Program – Facilities, Mariners, and Regulatory Agencies Contacted

#	Operator / Facility Name	Vessels or Facility Description	Response Received
1	American Petroleum and Transport 1 Serviceberry Ct. Miller Place, NY 11769	Diane B Stephen B Barge: James Joseph Barge: John Blanche Barge: PMS	Received Email 9/23/21
2	Buchanan 39 East Ferry Street New Haven, CT 06513	Buchanan 1 Mister T James William Taft Beach	Received Email 10/1/21
3	Coeyman's Marine Towing P.O. BOX 890 (Mailing) Coeymans, NY, 12045 (Mailing)	CMT Otter CMT Pike Helen Laraway Mister Jim Daisy Mae	No Response Received
4	DonJon Marine 100 Central Avenue Hillside, New Jersey 07205	Brian Nicholas Caitlin Ann Emily Ann Meagan Ann Paul Andrews Sarah Ann Thomas Witte	No Response Received
5	Mothers Towing Pier 7 1/2 15 Murray Hulbert Ave. Staten Island New York, 10301	Michael Miller	No Response Received
6	Miller's Launch / Miller's Tug and Barge Pier 7 1/2 15 Murray Hulbert Ave. Staten Island New York, 10301	Susan Miller	No Response Received
7	Greater NY Marine Transportation 333 Jackson Ave, STE. 9 Syosset, NY 11791	Eastern Dawn Barge: Portchester	Received Email 10/11/21
8	Pascap Scrap Metal Co. 4250 Boston Post Road Bronx, NY 10475	Has 4 wharfs, 1 south of Boston Post Road on east side of River, 3 north of Boston Post Road: 2 on east, 1 on west	Received Email 11/04/2021
9	Petrillo Builders Supply 41 Edison Ave Mt. Vernon, NY 10550	North of Boston Post Road on west side of river	No Response Received
10	113 Edison Ave LLC 113 Edison Ave Mt. Vernon, NY 10550	North of Boston Post Road on west side of river	Received Email on 11/18/2021
11	Bioenergy Devco 40 Canal Street Mt. Vernon, NY 10550	North of S. Fulton Ave on west side of river	No Response Received

#	Operator / Facility Name	Vessels or Facility Description	Response Received
12	County Asphalt / Peckham Materials 3966 Provost Ave Bronx, NY 1055	North of Boston Post Road	No Response Received
13	RCA Asphalt 7 Edison Ave Mt. Vernon, NY 10550	North of Boston Post Road Also operates 800 Canal Road	Received Email 9/23/21
14	Planning Administrator City of Mount Vernon 1 Roosevelt Square Mount Vernon, NY 10550	CMV may have waterfront utilization plans.	No Response Received
15	U.S. Army Corps of Engineers 26 Federal Plaza, 19th Floor New York, NY 10278	USACE is responsible for the Navigational Project	No Response Received
16	New York State Department of Environmental Conservation One Hunters Point Plaza 47-40 21st Street Long Island City, NY 11101	NYSDEC is potentially a reviewer of other waterfront usage applications.	Received confirmation of receipt. No information.
17	New York State Department of State One Commerce Plaza 99 Washington Ave, Suite 1010 Albany, NY 12231	NYSDOS is responsible for the CZM	No Response Received
18	NYC Department of City Planning 120 Broadway, 31st Floor New York, NY 10271	NYCDCP is responsible for the CZM	No Response Received
19	Village of Pelham Manor 4 Penfield Place Pelham Manor, NY 10803	Village of Pelham may have waterfront utilization plans	No Response Received

Appendix B: Marine Facilities Data

#	Facility	Address
1	Pascap Scrap Metal Co.	4250 Boston Post Road Bronx, NY 10475
2	Petrillo Builders Supply	41 Edison Ave Mt. Vernon, NY 10550
3	Verde Electric	89 Edison Avenue Mount Vernon, NY 10550
4	113 Edison Ave LLC	113 Edison Ave Mt. Vernon, NY 10550
5	Mount Vernon Recycling Corp.	113 Edison Ave Mt. Vernon, NY 10550
6	Former Sprague Mt. Vernon	40 Canal Street Mt. Vernon, NY 10550
	Notes: Sprague Mt. Vernon ceased operations in late 2020. Bioenergy Devco of Annapolis, Maryland is the reputed owner and was unresponsive to the September 2021 outreach effort.	
7	Peckham Materials	3966 Provost Ave Bronx, NY 10466
8	RCA Asphalt	7 Edison Ave Mt. Vernon, NY 10550
9	DeFoe Corporation	800 Canal Street Mount Vernon, NY 10550
10	Mikal Management Co Inc. (Currently a parking log)	57 Canal Road Pelham Manor, NY 10803
11	Bus Parking Facility	6 Canal Road Pelham Manor, NY
12	Former West Vernon Petroleum (Currently a bus parking facility)	701 S. Columbus Ave Mount Vernon, NY 10550

Appendix C: Existing Bridge Plan and Elevation

APPENDIX OMITTED FROM PROJECT SCOPING REPORT

Appendix D: Vessel Data

APPENDIX OMITTED FROM PROJECT SCOPING REPORT

Appendix E: 2018-2020 NYCDOT Bridge Operators Logs – Shore Road (Pelham) Bridge

APPENDIX OMITTED FROM PROJECT SCOPING REPORT

Appendix F:

1. National Oceanic and Atmospheric Administration (NOAA) Chart #12366
2. USACE Controlled Depth Report Dated July 16, 2020
3. USACE June 30, 2020 Hydrographic Survey

APPENDIX OMITTED FROM PROJECT SCOPING REPORT