



# Navigation Impact Report

USCG Bridge Permit Application

Wentworth Bridge Replacement

NHDOT 16127 New Castle-Rye, NH

*September 17, 2021*



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# 1 Introduction

This document describes the impacts to marine navigation resulting from a proposed fixed replacement bridge carrying NH Route 1B over Little Harbor between New Castle and Rye, NH and summarizes the important issues surrounding the replacement of the existing bridge and its effects on the navigable waterway. This document identifies a proposed clearance envelope of 51.5'H x 17.3'V at mean high water (MHW), and requests that the USCG provide a Preliminary Navigation Determination. The following attachments are included with this narrative and provide additional information.

- Attachment 1 – Navigation Impact Report (Form Version)
- Attachment 2 – Proposed Bridge Plan and Elevation
- Attachment 3 – 33 CFR 117\_699 – Little Harbor
- Attachment 4 – 2016 USCG Preliminary Navigation Determination
- Attachment 5 – Emergency Operations Outreach Summary
- Attachment 6 – 2014 USACE Letter to Portsmouth Pilots
- Attachment 7 – USACE Channel Condition Surveys
- Attachment 8 – Lift Procedure and Lift Logs
- Attachment 9 – Mooring Permit Holder Blank Survey
- Attachment 10 – Mooring Permit Holder Mailer List
- Attachment 11 – Mooring Permit Holder Response Log
- Attachment 12 – Commercial Outreach Summary and Results
- Attachment 13 – Benefit-Cost Analysis

# 2 Purpose

The purpose of this document is to:

- Provide a project overview.
- Summarize the existing conditions of the bridge and waterway.
- Describe the means of data collection used to inform the report.
- Characterize the waterway and its users.
- Provide a description of the proposed bridge.
- Describe how the proposed bridge will impact present and prospective users of the waterway.
- Identify and compare the benefits and challenges and costs of a fixed bridge replacement when compared to a bascule bridge replacement.
- State conclusions and request for a USCG Preliminary Navigation Determination.



### 3 Project Overview: New Castle-Rye 16127

The project began in 2013 with the preparation of a Bridge Type, Size, and Location (TS&L) Study that evaluated rehabilitation and replacement bridge alternatives. The TS&L Study concluded that rehabilitation was not feasible and recommended bridge replacement. A bascule replacement alternative was developed for consideration.

After the TS&L Study a Public Advisory Committee (PAC) was formed to help NHDOT evaluate and select a preferred replacement alternative. The PAC consists of public officials, emergency responders, and private stakeholders. Seven PAC meetings and five public information meetings have been held since 2013 to inform decision making on the project.

In 2014, citizens raised concerns about higher expenditures associated with a bascule bridge alternative, given the infrequent lift of the existing bascule bridge. A benefit-cost analysis was conducted which determined that the life cycle costs of a bascule replacement would be approximately \$10 million more than a fixed replacement. Based on feedback from the public, the USCG, the Dredge Management Task Force, and the benefit-cost analysis, NHDOT selected a fixed bridge as the preferred alternative. The 2014 benefit-cost analysis is included as Attachment 13.

In 2015, NHDOT submitted a navigation impact report (NIR) requesting USCG review of a fixed bridge alternative providing 51.5' of horizontal clearance and 14' of vertical clearance (51.5'H x 14'V) at mean high water (MHW). The USCG initiated a public review period to solicit comments from the public on the fixed bridge alternative, and in 2016 made a preliminary navigation determination (PND) that a fixed bridge should provide at least 16.52' of vertical clearance at mean high water (MHW). The vertical clearance of 16.52' is the greatest on the waterway, provided by the Route 1A bridge over Sagamore Creek. The 2016 USCG PND is included as Attachment 4. In 2017, the fixed bridge alternative was revised to meet the requirements of the USCG PND.

In 2018, New Castle-Rye 16127 was put on hold to be assessed through the NEPA process in conjunction with the Seabrook-Hampton 15904 project, which are interrelated due to a 1994 memorandum of agreement (MOA) between NHDOT and NH Division of Historical Resources (NHDHR) resulting from the replacement of the Scammel Bascule Bridge in Dover NH with a fixed bridge.

In 2020, USCG requested that the NIR be resubmitted due in part to the amount of time that had passed since the 2016 USCG PND. Additional research was conducted to support USCG decision making.



## 4 Existing Conditions

### Existing Bridge

The Wentworth Bridge carries NH Route 1B (Wentworth Road) over Little Harbor between New Castle, NH and Rye, NH and is NHDOT Bridge No. 066/071. The existing bridge was built in 1942, underwent a deck replacement in 1975, and substructure repairs in 2011. There is a long stone-armored causeway extending into the waterway on the east approach. The bridge consists of six spans and is 250' long. There are 5 approach spans each with an approximate span length of 43' and the single leaf bascule span over the navigational channel has a span length of approximately 34'. This span provides a horizontal clearance of 29.3' and vertical clearance above Mean High Water (MHW) of 13.0' when closed and 65' when open. The 65' vertical clearance in the open position is limited by the overhead utilities which cross the channel along the north side of the bridge.



Figure 1. Locus Map showing location of Wentworth Bridge (source: google.com/maps).

The existing structure is functionally obsolete due to the roadway geometry and is structurally deficient with significant deterioration throughout. Condition ratings from the Federal Highway Administration Recording and Coding Guide for the Structural Inventory and Appraisal of the Nation's Bridges reports the superstructure has a condition rating of "Serious". A 2011 load rating of the structure determined that the bridge required a 15-ton weight limit posting, which is still required today. The existing bridge can be seen in Figure 2.

The bascule span opens by request only and requires a 4-hour advance notice. The bridge operator travels from a remote location to open the bridge. The bridge was opened for vessel passage only 48 times between 2010 and 2020. See Attachment 3 for 33 CFR 117, the federal rule governing the operation of the Wentworth Bridge. See Attachment 8 for the lift logs.



Figure 2. The Wentworth Bridge, looking south. Overhead utility lines shown above the north shoulder.

### **Navigable Waterway**

The navigable waterway flows generally northwesterly during flood tides, from Little Harbor to the Piscataqua River at Shapleigh and Goat islands. The navigable waterway consists of 3 channels, as seen in Figure 3:

- The Back Channel begins at the Wentworth Bridge and Little Harbor and runs northwesterly to its terminus, where the Northward Channel and Sagamore Creek meet.
- The Northward Channel continues north to its terminus at the Piscataqua River, where a bridge carries NH1B between Shapleigh and Goat Islands.
- Sagamore Creek continues west to its terminus at the Sagamore Bridge (NH1A).

Tides are normally semi-diurnal on the waterway (2 lows, 2 highs daily cycles on average). The waterway experiences both ebb and flood tidal flows, with direction and velocity of flow varying with tidal cycles.

Generally, water flows north-south along the Back Channel and Northward Channel, and east-west along Sagamore Creek. According to the US Coast Pilot #1, the tidal currents are strong and special care is required to traverse the areas in and around Portsmouth Harbor.

According to NOAA Tides and Currents data, flood velocity in the vicinity of Shapleigh Island (upstream) is 0.6 to 0.8 knots, and ebb velocity is 0.6 to 0.8 knots. Near the Little Harbor entrance (downstream), flood velocity is 0.5 to 1.0 knots, and ebb velocity is 1 to 1.5 knots.

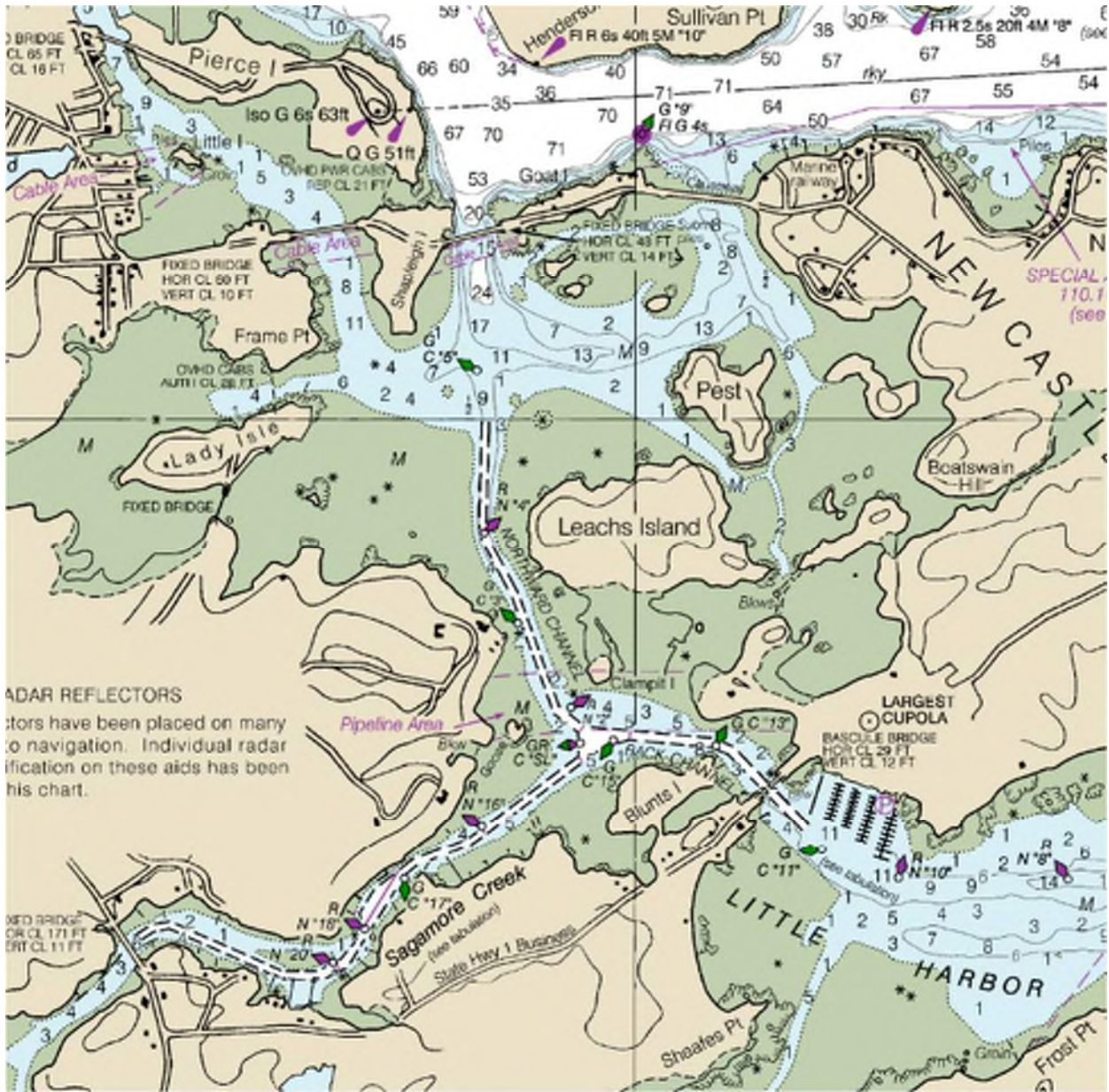


Figure 3. New Castle Island and the Back Channel (source: NOAA Chart No. 13283)

The various waterway stages are listed in Table 1. Elevations are from National Oceanic and Atmospheric Administration (NOAA) Station 8423898 (Fort Point, NH), and adjusted to the National Geodetic Vertical Datum of 1929 (NGVD29).

Table 1. Elevations of various waterway stages

Waterway Stage		Elevation (NGVD29)
MHHW	Mean Higher - High Water	5.18'
MHW	Mean High Water	4.75'
MLW	Mean Low Water	-3.88'
MLLW	Mean Lower-Low Water	-4.22'





The depth of the channel at various waterway stages at the bridge is listed in the Table 2 and determined as follows. Channel Depth at MLLW is taken the USACE New England District 2012 Condition Survey. Channel Depths at other stages are computed using waterway stage elevations in Table 1 above. The channel is listed by the USACE New England District as a 6' channel at MLLW.

The width of the navigable waterway is 29.3' at the existing bridge and 75' up and downstream of the bridge.

**Table 2. Channel depths and various waterway stages**

<i>Waterway Stage</i>		<i>Channel Depth</i>
<i>MHHW</i>	<i>Mean Higher - High Water</i>	<i>15.4'</i>
<i>MHW</i>	<i>Mean High Water</i>	<i>14.97'</i>
<i>MLW</i>	<i>Mean Low Water</i>	<i>6.34'</i>
<i>MLLW</i>	<i>Mean Lower-Low Water</i>	<i>6.0'</i>

### **Structures over the waterway**

There are several bridges on the waterway, and their locations relative to the Wentworth Bridge can be seen in Figure 4. Table 3 lists all bridges upstream and downstream of the proposed bridge site. Clearances and channel depths are taken from NOAA Chart 13283, 24th edition, dated September 2020, except as noted. For a full understanding of the waterway, NOAA Chart 13283 is available for free online at <https://charts.noaa.gov/PDFs/13283.pdf>.



Figure 4. Bridges on the Waterway (source: google.com/maps)



**Table 3. Bridges on the waterway**

<b>Facility Carried</b>	<b>Feature Intersected</b>	<b>Waterway Mile Point (From Jaffrey Ledge Light)</b>	<b>Channel Depth (MLLW)</b>	<b>Vertical Clearance (MHW)</b>	<b>Horizontal Clearance</b>
<i>Pierce Island Road (Portsmouth to Pierce Island)</i>	<i>Piscataqua River</i>	2.6	7'	16'	65'
<i>NH Route 1B (New Castle Ave.) (Portsmouth to Shapleigh Island)</i>	<i>Piscataqua River</i>	2.1	4'	10'	60'
<i>NH Route 1B (New Castle Ave.) (Shapleigh Island to Goat Island)</i>	<i>Piscataqua River</i>	2.0	15.0'	14'	48.0'
<i>NH Route 1A (Sagamore Ave.)</i>	<i>Sagamore Creek</i>	2.1	6'	16.3' *	171'
<i>NH Route 1B (Wentworth Rd) (Existing Bridge)</i>	<i>Back Channel</i>	0.9	6'	13.0' (closed) unlimited (open) (limited to 65' by overhead utilities) ** ***	29.3'
<i>Overhead Utilities @ Existing Bridge</i>	<i>Back Channel</i>	0.9	6'	65'	29.3'

\* According to bridge record plans, dated July 2013, by FST for the City of Portsmouth NH, adjusted to MHW.

\*\* According to bridge record plans, project P623, dated November 1941, by State of New Hampshire Highway Department Bridge Division.

\*\*\* The existing bascule bridge requires a 4-hour advance notice to open, see Attachment 3 for 33 CFR 117.699.

## 5 Data Collection

### General

Multiple sources of data were collected to determine the present and prospective use of the waterway by emergency, recreational, and commercial vessels. In addition to published written sources and web-based map services, the following data sources informed the report. A discussion of lift logs and outreach data sources follows.

- Data collected as part of 2015 Wentworth Bridge Navigational Impact Report.
- Wentworth Bridge Lift Logs from March 2010 through August 2020. (Attachment 8)
- March 17, 2016 USCG preliminary navigation determination. (Attachment 4)
- September 24, 2014 letter from USACE regarding vessel requirements for dredging purposes. (Attachment 6)



- 2017 outreach to Marine Construction Contractors. (Attachment 12)
- 2020 outreach by phone to businesses abutting the waterways of Sagamore Creek. (Attachment 12)
- 2020 outreach by phone to New Castle, Portsmouth, and Rye Fire Departments. (Attachment 5)
- 2020 outreach by mail survey to mooring permit holders in nearby mooring fields. (Attachments 9, 10, and 11)
- 2021 outreach by phone to USCG Station Portsmouth Harbor. (Attachment 5)
- US Coast Pilot #1 (2021) and NOAA Chart 13283 (2020).

## Lift Logs

According to the lift logs, there were a total of 48 lifts requested between 2010 and 2020. After the March 2016 preliminary determination provided by the Coast Guard set a minimum vertical clearance for the proposed bridge to at least 16.52', there was an increase in requested lifts for 2016 and 2017. Since those two years the number of requested lifts has decreased back to the previous average of approximately 4 per year. See Table 7 for a breakdown of lift log data by year and vessel. See Attachment 8 for the lift logs.

## Mooring Permit Holder Outreach

In November 2020, a survey was mailed to all mariners with a current mooring permit in the area. Mooring permit holder names and addresses were acquired from the NH Port Authority and contained both commercial and recreational waterway users. The Sagamore Creek, Goat Back, and Peirce Back mooring fields were targeted but responses to the survey were received from many mooring fields in the area (see Figure 5).

The survey requested information on current and prospective use of the waterway, vessel information, and whether current or prospective use would be affected by a fixed replacement bridge providing a 51.5'H x 17.3'V clearance envelope. 88 responses were received out of 452 surveys mailed to mooring permit holders. See Attachment 9 for a blank survey, Attachment 10 for the list of contacts to whom the survey was mailed, and Attachment 11 for a summary of mooring permit survey responses.



**Figure 5. Mooring fields in the Portsmouth Harbor Area**  
(source: <https://peasedev.org/wp-content/uploads/2018/11/Portsmouth-Harbor-Area.pdf>).

### Other Outreach

In addition to the lift logs and mooring permit outreach, outreach by phone was performed to determine representative use of waterway by stakeholders not captured by the mooring permit holder survey mailer. Phone outreach falls generally into two categories: Emergency Operations Outreach and Commercial Use Outreach.

Emergency Operations outreach was performed to the Portsmouth Naval Shipyard, the USCG, and the municipal fire departments of Portsmouth, Rye, and New Castle, NH regarding their current and prospective use of the waterway and whether current or prospective use would be affected by a fixed replacement bridge providing a 51.5'H x 17.3'V clearance envelope. Results of Emergency Operations outreach can be found in Attachment 5.

Outreach was performed to a variety of commercial businesses within a 3-mile radius of the project, both in and beyond the waterway, including a dockside restaurant, an inn, a marina, marine construction companies, commercial fishing vessels, charter touring and fishing vessels, and a yacht rental company. Outreach to commercial businesses is included in Attachment 12.



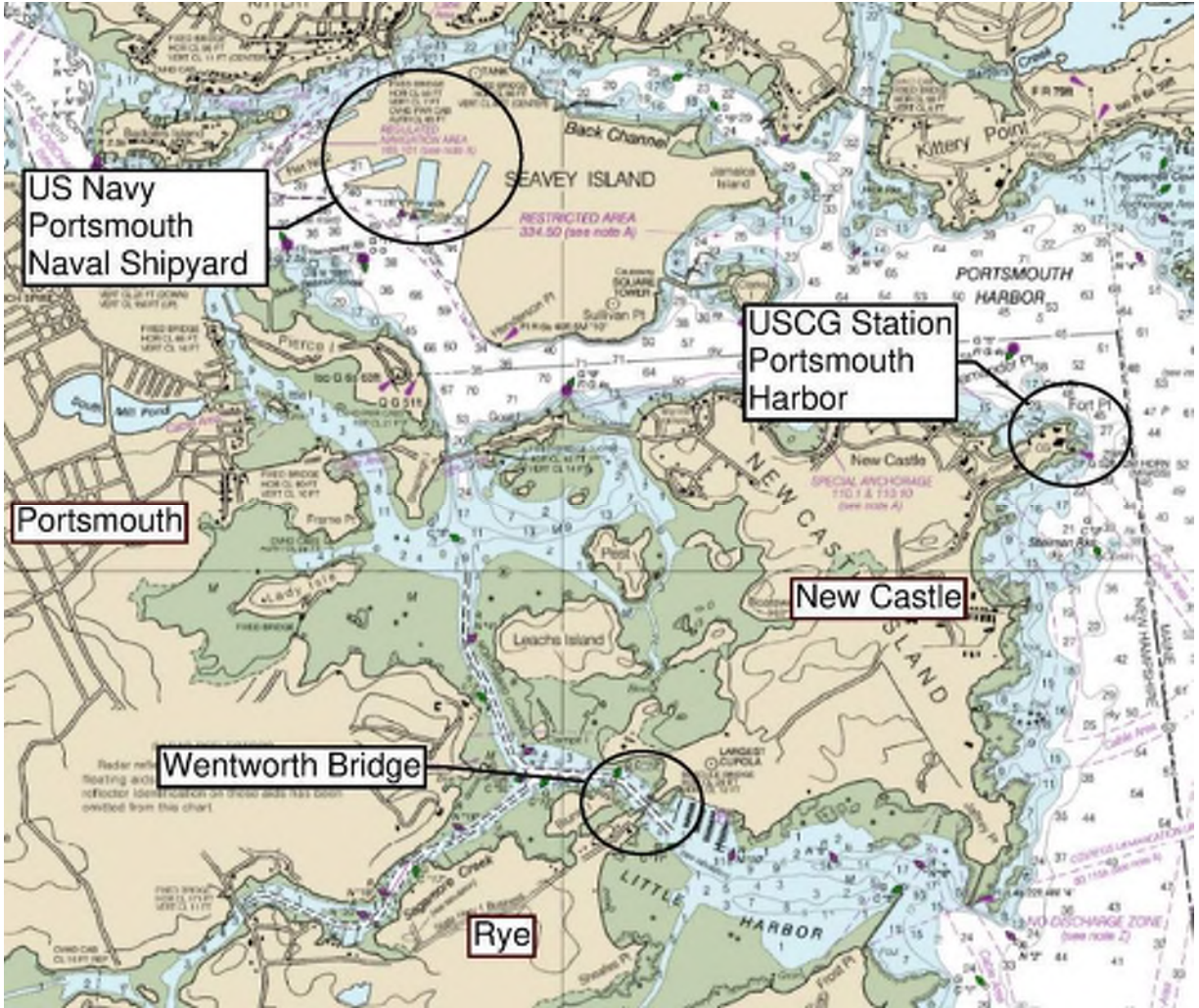


Figure 6. Portsmouth Harbor showing location of the bridge with respect to Portsmouth Naval Shipyard and USCG Station Portsmouth Harbor (source: NOAA Chart No. 13283)

## 6 Use of Waterway

### General

Present waterway use consists of a mix of recreational and commercial traffic, with emergency operations by municipal fire departments and the USCG, and maintenance operations by the USACE and the USCG.

There are boat launch facilities at Goat and Shapleigh Islands, providing kayakers and small trailered vessels with access to the waters of the Back Channel areas.

Three designated mooring locations are in the Back Channel waterway, located in Sagamore Creek, Goat Back, and Peirce Back. Note that while the Peirce Back mooring field is in the Back Channel area this mooring field is not impacted by the replacement of the Wentworth Bridge as it

is bound by two bridges with more restrictive clearances. The locations of the mooring fields in the Back Channel can be found in Figure 5.

## Emergency Operations

Several government agencies operate in the vicinity of the project area.

- The US Navy operates Portsmouth Naval Shipyard, located in Portsmouth Harbor on Seavey Island. The Shipyard is primarily accessed through the Harbor's deep-water channel to the north of New Castle Island. Data collected for the 2015 Navigation Impact Report indicated that use of the existing bascule-lift bridge is not necessary for present and prospective US Navy operations. The location of the shipyard with respect to the bridge is shown in Figure 6.
- The USCG performs two functions on the waterway.
  - o The USCG Station Portsmouth Harbor, located at the mouth of Portsmouth Harbor on New Castle Island, conducts search and rescue (S&R) and maritime law enforcement activities on the waterway, and works closely with municipal police, fire, and rescue operations when needed. According to 2021 phone correspondence with Chief Warrant Officer Dan Benoit, they conduct these activities using 29' Response Boat-Small (RB-S), which requires 9' of vertical clearance, and 47' Motor Lifeboat (MLB), which requires 18'-6" of vertical clearance. Based on lift log analysis, the MLB is not currently used in the waterway. The location of the Station with respect to the bridge is shown in Figure 6.
  - o According to 2021 telephone correspondence with LT David Bourbeau at Detachment Portsmouth, navigation aid maintenance in the waterway is conducted by personnel from USCG Station South Portland. The lift logs show Buoy Utility Stern Loading (BUSL) 49419 and BUSL 49420 vessels requiring a bridge lift to access the waterway in 2010, but not since. The BUSL 49419 and BUSL 49420 are 49' long and require a vertical clearance of 15'. According to LT David Bourbeau at Detachment Portsmouth, the USCG Station South Portland currently maintains the navigation aids in the waterway using a trailered vessel and no longer requires a bridge lift. Attempts to contact with USCG Station South Portland to confirm current vessel use was unsuccessful, but BUSL 49419 and BUSL 49420 appear to be part of their active fleet.
- The New Castle, Rye, and Portsmouth Fire Departments respond to emergency calls in the Back Channel.
  - o According to November 2020 telephone correspondence with the New Castle Fire Department Deputy Fire Chief Mark Wooley, New Castle responds to emergencies using Marine 2, a 19' Boston Waler with no significant clearance requirements.
  - o According to November 2020 telephone correspondence with the New Castle Fire Department Deputy Fire Chief Mark Wooley, New Castle has an agreement with the Town of Rye to jointly respond to emergencies in Rye's jurisdiction – Rye Fire Department would respond to calls using a personal watercraft/jet ski.



- According to November 2020 telephone correspondence with Portsmouth Fire Department Assistant Fire Chief Bill McQuillen, Portsmouth responds to emergencies using Marine 1, a 26’ Ribcraft rigid hull inflatable with no significant clearance requirements.
- Both New Castle and Portsmouth contacts confirmed that the Fire Departments would be the only municipal entities responding to emergency calls in the Back Channel.

See Attachment 5 for a record of Emergency Operations outreach. Emergency Operations Vessels in the waterway are summarized in Table 4. See Section 8 for impacts to emergency operations.

**Table 4. Emergency Operations Vessel Summary.**

<b>Entity</b>	<b>Vessel Description</b>
<i>US Navy</i>	<i>No vessels identified.</i>
<i>USCG (M&amp;R and Law Enforcement)</i>	<i>47’ MLB requiring a vertical clearance of 18’-6”. 29’ RB-S requiring a vertical clearance of 9’.</i>
<i>USCG (Navigation Aid Maintenance)</i>	<i>BUSL 49419 and BUSL 49420 - 49’ Long Buoy Utility Stern Loading requiring a vertical clearance of 15’. Trailerred vessel with no significant clearance requirements.</i>
<i>New Castle Fire Department</i>	<i>Marine 2 - 19’ Boston Whaler, no significant clearance requirements.</i>
<i>Portsmouth Fire Department</i>	<i>Marine 1 - 26’ Ribcraft rigid hull inflatable, no significant clearance requirements.</i>
<i>Rye Fire Department</i>	<i>Personal Watercraft/jet ski with no significant clearance requirements.</i>

### **USACE Dredging Projects**

The USACE conducts dredging efforts in the Back Channel, Northward Channel, and Sagamore Creek. Past dredging operations have been awarded to independent contractors. According to a 2014 letter from the USACE, vessels for past dredging operations have accessed the channels from the fixed bridge carrying NH 1B between Shapleigh and Goat Islands (vertical clearance 14’) because of the limited horizontal clearance of the existing Wentworth Bridge. Lift logs indicated that no bridge lift was required in order to conduct dredging operations in 2017. See Attachment 6 for the 2014 letter from the USACE.

Two federal navigation projects were recently completed by the USACE.

- Back Channel / Sagamore Creek Condition Survey, Completed 08/07/2013
- Back Channel / Sagamore Creek After Dredge Survey, Completed 03/17/2017



The condition survey investigated the condition of, and dredging operations for, Sagamore Creek, the Northward Channel, and the Back Channel with widths of 60', 75' and 75' respectively. The dredging project was completed in 2017, however only Sagamore Creek and Northward Channel had dredging operations occur. All channels are listed as 6' deep at MLLW. See Attachment 7 for USACE Survey Plans before and after the 2017 dredging project. See Section 8 for a discussion of impacts to USACE operations.

### **Recreational Use**

Present recreational traffic includes both self-propelled and sailboats. For those vessels that can clear the Route 1B bridge between Shapleigh and Goat Islands, the Back Channel is a popular route when travelling between Portsmouth harbor and points upstream to the open ocean due in part to the strong currents and large shipping traffic in the main channel of the Piscataqua River. According to the lift logs and mooring permit holder responses, sail boats occasionally transit the existing bridge to access the waterway, one of which is seasonally moored in the Goat Back mooring field (S/V Celerity). See Section 8 for a discussion of impacts to the present and prospective recreation fleet.

### **Commercial Use**

According to map-based research and community outreach efforts, the waterway supports multiple commercial businesses including a dockside restaurant, an inn, a marina, marine construction companies, commercial fishing vessels, charter touring and fishing vessels, and a yacht rental company. Outreach to commercial businesses was performed as is included in Attachment 12. See Section 8 for a discussion of impacts to the present and prospective commercial needs in the waterway.

### **Marine Facilities**

According to the US Coast Pilot #1, Sagamore Creek offers "small craft facilities". There is a marina (Portsmouth Marina) offering berths and guest moorings, electricity, fuel, and a launching ramp. There is also a restaurant (BG's Boathouse) adjacent to the marina. See Section 8 for a discussion of impacts to marine facilities.

Marine facilities located within a 3-mile radius of the Wentworth bridge are listed in Table 5. Facilities in the area offering similar services to that of Portsmouth Marina are:

- Wentworth-By-The-Sea, in Little Harbor, offers similar facilities and is the likely destination for vessels restricted by the existing bridge in its closed position and unable or unwilling to wait the 4 hours for bridge lift requests. Depths are approximately 15' in the approach and 12' alongside. Berths with electricity, gasoline, diesel fuel, water, ice, marine supplies, and pumpout facilities are available. Hull and engine repairs services are also available.
- Portsmouth Yacht Club is located on the south bank of the Piscataqua River on New Castle Island. The facility provides a depth of 9' at its float landings at which gasoline, diesel fuel, water, ice, and electricity are available. Guest moorings are maintained by the club, and other moorings in the special small-vessel anchorage are available for hire.





- Kittery Point Yacht Yard on the eastern end of the Maine Back Channel, northeastward of Jamaica Island, has a marine railway capable of hauling out craft up to 60' long or 80 tons for hull and engine repairs or dry open or covered storage. Deep water moorings for vessels up to 65' and berths up to 60' can be accommodated at this facility. Water, ice, electricity, pumpout service, and provisions can also be obtained from this facility.
- Badger Island Marina, with a machine shop, is on the south side of Badgers Island west of the Memorial Bridge. Water is available at its 100' pier, which has a reported depth of 11' alongside. Two marine railways can handle craft up to 65' in length for repairs or storage. The marina maintains guest moorings and permits overnight berthing. Provisions, electricity, diesel fuel by truck, and most marine supplies can be provided.
- Prescott Park Wharf is a public facility on the south bank of Piscataqua River, about 100 yards eastward of the Memorial Bridge. Depths of 5' to 15' are reported alongside the float landings. Berthing for periods not to exceed 24 hours is available to small craft.
- Kittery Point, on the north bank of the Piscataqua River, has a public wharf and float landings with 12' depth reported alongside. Gasoline and water are available at the float, and ice, provisions and marine supplies are available at the wharf. A small-craft launching ramp is alongside the wharf. The Pepperrell Cove Yacht Club, also at the wharf, has a float landing on the east side of the wharf and maintains guest moorings.



**Table 5. Marine facilities within a 3-mile radius of the Wentworth Bridge.**

<b>Name</b>	<b>Location</b>	<b>Phone</b>
BG's Boat House Marina	Rye	603-431-1074
Esther's Marina	Portsmouth	603-828-6462
Freedom Boat Club	Rye	508-443-6800
Goat Island Car Top Boat Access Facility	New Castle	603-431-6710
Granite State Materials	Portsmouth	603-319-4294
Gundalow Company	Portsmouth	603-433-9505
Irving Oil Terminals Inc.	Portsmouth	603-436-5147
Isles of Shoals Steamship Company	Portsmouth	603-431-5500
Judd Gregg Marine Center	New Castle	603-433-1290
Kittery Point Yacht Club	New Castle	603-436-9303
Moran Towing of New Hampshire	Portsmouth	603-436-1209
NH Port Authority	Portsmouth	603-436-8500
Odiorne Point Boat Launch	Rye	603-436-7406
Peirce Island Boat Launch	Portsmouth	603-766-1483
Portsmouth Harbor Cruises	Portsmouth	603-436-8084
Portsmouth Harbor Tow	Portsmouth	877-838-3193
Portsmouth Kayak Adventures	Portsmouth	603-559-1000
Portsmouth Marina	Portsmouth	603-422-3462
Portsmouth Yacht Club	New Castle	603-436-9877
Riverside Marine Construction	Portsmouth	603-427-2824
Sanders Lobster Company	Portsmouth	603-436-3716
Seafari	Kittery, ME	207-439-5068
Shoal's Marine Laboratory	Portsmouth	603-964-9011
Sushi Hunter Charters	Portsmouth	603-231-7904
U.S. Navy / Portsmouth Naval Shipyard	Kittery, ME	207-438-1000
US Coast Guard	New Castle	603-436-4415
Vista Yacht Charters, LLC	New Castle	781-258-7344
Wentworth By The Sea Marina	New Castle	603-433-5050

## Harbor of Refuge

According to US Coast Pilot 1, Portsmouth Harbor is the local harbor of refuge. Portsmouth Harbor provides refuge from heavy seas for vessels in distress and possesses many anchorage areas



for vessels with deep drafts and/or high air draft. Portsmouth Harbor and the Piscataqua River are immediately adjacent to the northern terminus of the waterway.

Multiple anchorage areas exist within the Piscataqua River: The east and north sides of the channel between Wood Island and Clark's Island in depths of 18' to 71'; Pepperell Cove on the eastern side of the harbor on the northside of Fishing Island in depths of 7' to 11'; the cove at the mouth of Spinney Creek on the north bank of the Piscataqua River provides anchorage in depths of up to 25' of water. See Section 8 for a discussion of impacts to the Harbor of Refuge.

Other locations for vessels seeking shelter include the following:

- Little Harbor, New Castle, NH, 0.2 miles south. Protected by jetties from Jaffrey and Frost Points, provides an anchorage area with a depth of 12 feet on the south side of the channel.
- Rye Harbor, Rye, NH, 4.0 miles south. Protected by a stone breakwater extending southward from Ragged Neck Point and another breakwater extends northeastward from the point at the south side of the entrance to Rye Harbor. These breakwaters are about six feet above high water, and provide depths of 7' to 8' at the harbor's piers. A dredged channel leads through the breakwaters to anchorage basins on the north and south sides of the channel and state anchorage at the western limit.
- York Harbor, York, ME, 5.3 miles north. Anchorage basins are present in the harbor between Harris and Bragdon Islands and in the cove off the north side of Bragdon Island in depths of 3' to 6'. There is also anchorage at the service wharfs at the head of the harbor.
- Hampton Harbor, Hampton, NH, 11.9 miles south. Anchorages are available in the basins or in the narrow channels of the Hampton and Blackwater Rivers and other rivers and creeks northward and southward of the inlet.

## 7 Description of Proposed Bridge

The proposed replacement bridge is a 2-span fixed bridge, approximately 270' long. The bridge will provide a navigational clearance of 51.5' horizontally and 17.3' vertically at MHW (25.9' at MLW). See Attachment 2 for a bridge plan and elevation. The proposed bridge pier is located outside the horizontal limits of the existing navigable channel.

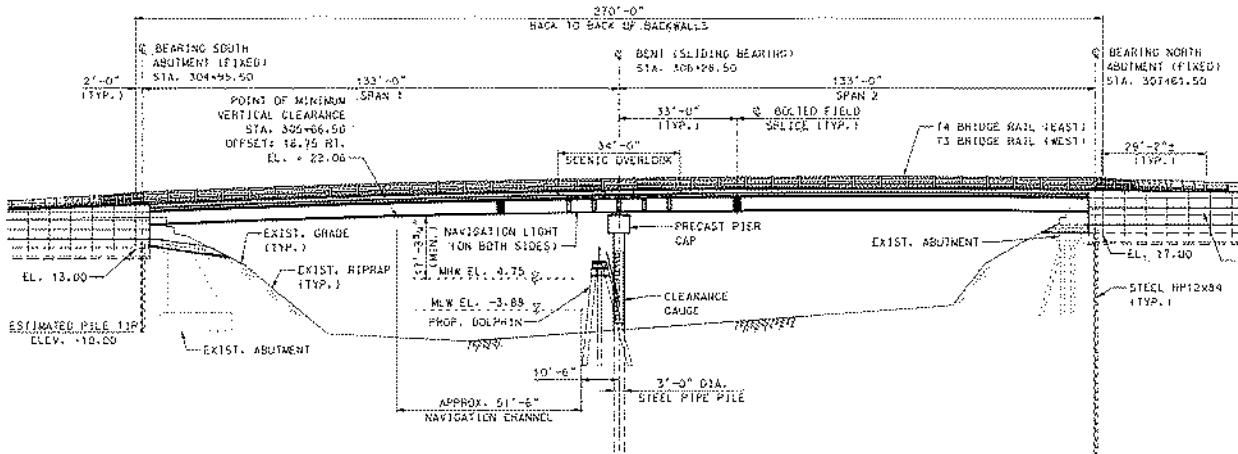


Figure 7. Elevation of Proposed Bridge. (See Attachment 2 for more information)

The proposed bridge provides the greatest vertical clearance of all bridges on the waterway, except for the existing bridge when open (65' at MHW, limited by overhead power lines). The proposed bridge improves the vertical clearance of the existing bridge when closed (13' at MHW).

There are three bridges which provide a horizontal clearance greater than that provided by the proposed bridge. The Pierce Island Road bridge provides a 65' horizontal clearance (16' vertical); The NH Route 1B bridge between Portsmouth and Shapleigh Island provides a 60' horizontal clearance (10' vertical); The NH Route 1A bridge over Sagamore Creek provides a 171' horizontal clearance (16.3' vertical). See Table 3 for a list of all existing structures on the waterway.

Table 6. Waterway clearances of the proposed bridge.

Facility Carried	Feature Intersected	Waterway Mile Point (From Jaffrey Ledge Light)	Channel Depth (MLLW)	Vertical Clearance (MHW)	Horizontal Clearance
NH 1B (Wentworth Rd) (Proposed Bridge)	Back Channel	0.9	6'	17.3'	51.5'

## 8 Impact of Proposed Clearances

### Emergency Operations Vessels

The proposed bridge provides adequate horizontal and vertical clearance for all vessels conducting emergency operations in the back channel except the USCG 47' MLB. The 47' MLB has an air draft of 18.5' and would not be able to transit the proposed bridge at high tide. It is worth noting that USCG has not requested a bridge lift to transit the 47' MLB since 2010,



presumably because of the timely nature of emergency operations and the 4-hour advance notice required to open the existing bridge.

## **USACE Dredging**

According to a 2014 letter from the USACE, vessels for past dredging operations have accessed the channels from the fixed bridge carrying NH 1B between Shapleigh and Goat Islands (vertical clearance 14'), due to the limited horizontal clearance of the existing Wentworth Bridge. Note that in 2014, the USACE was responding to a proposed fixed replacement bridge alternative providing a 51.5'H x 14.0'V clearance envelope at MHW.

The USACE preference for bridge replacement was as follows:

- *The proposed bridge provides adequate horizontal and vertical clearances for dredging equipment.*
- *The proposed bridge will result in a significant reduction of time and costs in dredging operations over the existing bridge configuration.*
- *Given the low frequency that the Corps maintains the Back Channel area, what additional cost savings in dredging operations due to the installation of a new lift bridge would not alone offset the added initial construction cost and the increased life cycle costs associated with a lift bridge replacement.*

The proposed bridge is not anticipated to impact the federal channel. According to the 2013 USACE Condition Survey and the 2017 USACE After Dredge Survey, the federal channel at the bridge is 29.5' wide and 6' deep at MLLW. Based on the after-dredge survey by USACE, it does not appear that additional dredging will be required at the proposed bridge location to maintain the 6' channel depth when the horizontal clearance is widened from 29.3' to 51.5'. See Attachment 7 for the 2013 USACE Condition Survey Plan and the 2017 USACE After Dredge Survey Plan.

## **Recreational Vessels**

Two sources of data were used to analyze the effect on the recreational fleet: (1) the existing bridge lift logs and (2) outreach performed by HDR to mooring permit holders provided by the New Hampshire Port Authority. The bridge has only lifted 48 times since 2010 to allow vessel passage, and the S/V Celerity is the only vessel documented in the lift logs that is known to currently use the waterway. According to the mooring permit holder outreach, the S/V Celerity is moored at the Goat Back mooring field. See mooring permit holder outreach discussion below for more information on the S/V Celerity.

According to the mooring permit holder outreach, both present and prospective waterway users claimed they would be affected by the proposed bridge. Since the mooring outreach contains a more recent and broad collection of data on waterway use, these survey responses were used to estimate the percentage of the affected recreational fleet. Ten of 88 respondents (11%) claimed to be affected by the proposed bridge. Four of 88 respondents (4%) presently use the waterway. Six of the 88 respondents (7%) are prospective users. A discussion of available data follows.

### Existing Bridge Lift Logs.



According to the lift logs, there were a total of 48 lifts requested between 2010 and 2020. After the March 2016 preliminary determination provided by the Coast Guard set a minimum vertical clearance for the proposed bridge to at least 16.52', there had been an increase in requested lifts for 2016 and 2017. Since those two years the number of requested lifts has decreased back to the previous average of approximately 4 per year. See Table 7 for a breakdown of lift log data by year and vessel type. See Attachment 8 for the lift logs.

The USCG vessels that requested openings in 2010 are the BUSL 49419 and BUSL 49420. The BUSL 49419 and BUSL 49420 are 49' long and require a vertical clearance of 15'. The proposed bridge would not restrict access to these vessels. According to LT David Bourbeau at Detachment Portsmouth, the USCG currently maintains the navigation aids in the waterway using a trailerable vessel with lower clearance requirements than the BUSL.

The S/V Celerity requested 26 lifts during this timeframe, accounting for 54% of all lifts requested. Of the 26 lifts requested by S/V Celerity over the last decade, 18 (69%) of those lifts were requested in between 2016 and 2017 after the USCG 2016 preliminary determination was released. According to the mooring permit holder outreach, the S/V Celerity is moored at the Goat Back mooring field. See mooring permit holder outreach discussion below for more information on the S/V Celerity.

A few other sailboats have requested lifts over the years on a limited basis. The S/V Captain John Adams is a gundalow style sailboat owned by the Gundalow Company in Portsmouth NH. The vessel transited the bridge only once in 2010 and not since, indicating the vessel does not use the Back Channel. Captain Matt Glenn of the Gundalow Company responded to the mooring permit holder outreach, stating that the company takes no exception with the proposed bridge. The S/V Magic Frog, S/V Easterly, S/V Bufflehead, and S/V For Horizon requested lifts only twice (once in and once out), indicating that these vessels do not typically use the waterway.

The F/V Black Fin and F/V Rough Times requested lifts only a few times. Similar to the sailboats, this indicates that the vessels do not regularly transit the bridge. Neither of these vessel owners were able to be contacted through the commercial outreach or mooring permit holder outreach performed. Additionally, Black Fin is a boat manufacturer and may have been mistaken for the vessel name in the lift logs. It is also possible that these vessels can transit the bridge except for higher tides but given the 4-hour advanced notice required to request a bridge lift, this is unlikely.



**Table 7. Lift log breakdown by year and vessel type (S/V sailing vessel; F/V fishing vessel).**

Year	Lifts for USCG Vessels	Lifts for Commercial Vessels	Lifts for Recreational Vessels	Total Lifts	Number of Unique Vessels	Vessel Name
2010	6	1	-	4 2 1	3	USCG 49419 USCG 49420 S/V Capt John Adams
2011	-	-	-	0*	-	-
2012	-	-	2	2	1	S/V Magic Frog
2013	-	-	4	1 2 1	3	S/V Easterly S/V Bufflehead S/V Peter Nerbonne
2014	-	1	-	1	1	F/V Black Fin
2015	-	2	-	2	1	F/V Black Fin
2016	-	2	6	2 6	2	F/V Black Fin S/V Celerity
2017	-	-	14	2 12	2	S/V For Horizon S/V Celerity
2018	-	-	4	4	1	S/V Celerity
2019	-	2	2	2 2	2	F/V Rough Times S/V Celerity
2020	-	-	2	2	1	S/V Celerity
Total	6	8	34	48	11 †	

### Mooring Permit Holder Outreach

Outreach to mooring permit holders was conducted by mailed survey as described in Section 5. Both commercial and recreational waterway users responded. Of 452 surveys mailed to mooring permit holders, 88 responses were received. . Of the 88 permit holders that responded, 10 stated they would be affected by the proposed bridge. See Attachment 9 for a blank survey, Attachment 10 for the list of contacts to whom the survey was mailed, and Attachment 11 for a summary of mooring permit survey responses.

\* In 2011, the bridge was only opened for bridge maintenance and inspection, no vessel lifts.

† There is a total of 11 individual vessels that have requested lifts over the 10 years of available lift log data.



Present Users Impacted. Four of the 10 impacted permit holders stated their present use of the waterway would be affected by the proposed bridge clearances. The F/V Half Moon has an air draft of 18’ and is moored in the Goat Back mooring field. The owner stated that he has never requested a lift of the existing bridge, and instead waits for lower tides to transit the bridge. The S/V Celerity has an air draft of 49’ and is seasonally moored in the Goat Back mooring field. The S/V Celerity is the only vessel of the present recreational fleet affected that has requested a lift of the current bridge. The S/V [unnamed day sailboat] is an “O’Day Day Sailer 2” with has an air draft of 24’ and is moored in the Goat Back. The owner stated that they typically lower the mast to transit the bridge, but the process is difficult and time consuming. The F/V Black Dog is moored in Sagamore Creek and must lower the vessel’s antennae to transit the bridge at higher tides, a process which takes 40 minutes. The present recreational fleet affected by the proposed bridge are summarized below:

**Table 8. Vessels in the present recreational fleet affected by the proposed bridge, according to public outreach.**

<b>Vessel Owner</b>	<b>Vessel Name</b>	<b>Mooring Field</b>	<b>Length</b>	<b>Beam</b>	<b>Draft</b>	<b>Air Draft</b>	<b>Impact of Proposed Bridge</b>
<i>Manning</i>	<i>F/V Half Moon</i>	<i>Goat Back</i>	<i>36’</i>	<i>13.5’</i>	<i>3.5’</i>	<i>18’</i>	<i>Can wait for lower tides</i>
<i>Urbanek</i>	<i>S/V Celerity</i>	<i>Goat Back</i>	<i>33’</i>	<i>11’</i>	<i>5.75’</i>	<i>49’</i>	<i>Cannot transit</i>
<i>Stewart</i>	<i>S/V [unnamed day sailboat]</i>	<i>Goat Back</i>	<i>17.5’</i>	<i>5’</i>	<i>3.75’</i>	<i>24’</i>	<i>Can lower mast</i>
<i>Tuttle</i>	<i>F/V Black Dog</i>	<i>Sagamore Creek</i>	<i>31’</i>	<i>10’</i>	<i>4’</i>	<i>25’</i>	<i>Can lower antennae</i>

Prospective Users Impacted. There are 6 users that stated their future needs of navigation could be impacted by the proposed bridge clearances. The owner of the F/V Wendy Lee currently has a mooring permit in the Back Channel and owns a vessel that he would prefer to moor in the Back Channel instead of at a slip in Kittery, Maine. The F/V Wendy Lee could transit the bridge at lower tides. The owners of the S/V Red Stripe, S/V Landseer, and S/V Cadence do not currently have a mooring in the Back Channel area but may someday pursue one. The S/V Red Stripe, S/V Landseer, and S/V Cadence would not be able to transit the proposed bridge at any tide. The prospective recreational fleet affected vessels are summarized in the table below. Note that two respondents (Purinton and Hollister) currently have moorings in the Goat Back mooring field and would like to someday moor a sailboat there. No prospective vessel information was provided. Additional information can be found in Attachment 11.



**Table 9. Vessels in the prospective fleet, according to public outreach.**

<b>Vessel Owner</b>	<b>Vessel Name</b>	<b>Mooring Field</b>	<b>Length</b>	<b>Beam</b>	<b>Draft</b>	<b>Air Draft</b>	<b>Impact of Proposed Bridge</b>
<i>Flanigan</i>	<i>F/V Wendy Lee</i>	<i>Sagamore Creek</i>	<i>46'</i>	<i>15.5'</i>	<i>6'</i>	<i>21'</i>	<i>Can wait for lower tides</i>
<i>Marconi</i>	<i>S/V Red Stripe</i>	<i>-</i>	<i>25'</i>	<i>8'</i>	<i>3'</i>	<i>35'</i>	<i>Cannot transit</i>
<i>Hughes</i>	<i>S/V Landseer</i>	<i>Harts Cove</i>	<i>36'</i>	<i>12'</i>	<i>6'</i>	<i>56'</i>	<i>Cannot transit</i>
<i>Brown</i>	<i>S/V Cadence</i>	<i>Peirce Island</i>	<i>60'</i>	<i>14'</i>	<i>6'</i>	<i>64'</i>	<i>Cannot transit</i>

### **Commercial Vessels**

According to the lift log data, commercial vessels requested a lift to transit the bridge eight times since 2010. The lift logs were cross-referenced with mooring permit holders and none of the vessels in the lift logs are moored in the Back Channel waterway. Therefore, the existing commercial fleet does not appear to be affected by the clearances of the existing bridge. (See Impact of Proposed Clearances below). A discussion on impacts to prospective commercial activity follows.

According to mooring permit holder outreach, two commercial fishing vessels would be negatively impacted. The F/V Half Moon is moored in the Goat Back and has an air draft of 18'. The owner generally waits for lower tides to transit the existing bridge and can lower the canvas to transit the existing bridge at higher tides. Note that the owner did not claim to be impacted by the proposed bridge. The F/V Black Dog is moored in Sagamore Creek and has an air draft of 25'. The owner takes 40 minutes to lower antennae to transit the existing bridge at higher tides. See Table 10 for dimensions of the F/V Half Moon and F/V Black Dog.

Three marine construction companies were contacted in 2017 to determine the size of vessels that may transit the bridge to access construction sites in the back channel. Riverside and Pickering requires 15.5' of vertical clearance. Prock Marine requires 60' of horizontal clearance and 15' of vertical clearance. Pepperell Cove Marine Services requires 12.5' of horizontal clearance and 15' of vertical clearance. All three companies mentioned that the Back Channel is currently accessed by transiting the NH1B bridge at Shapleigh Island. These vessels are tabulated in Table 10.

According to 2020 commercial outreach, The M/V Heritage is operated by Portsmouth Harbor Cruises and is one of the largest vessels transiting the existing bridge, and can do so without a bridge lift. The dimensions of the M/V Heritage are in Table 10.



The owner of Portsmouth Marina has indicated that the proposed bridge could impact prospective commercial development of his facility by limiting the size of vessels that can transit the bridge. There is limited evidence in the lift logs that taller vessels use the facilities at Portsmouth Marina with any significant frequency. It is possible that the 4-hour advanced notification to request a bridge lift deters some potential customers, but it is also likely that the improved clearances offered by the proposed bridge without the inconvenience of the advance notice will provide an increase customer base for the marina as well as other businesses in Sagamore Creek.

Additionally, the Portsmouth Marina owner notified the team of his intent to purchase a research vessel, R/V Thunder, and dock or moor it at his facility in Sagamore Creek. As of the date of the letter, the owner had not made the purchase. This vessel would be not be able to transit the proposed bridge except at low tide. The measurements for the R/V Thunder are listed in Table 11.

**Table 10. Largest vessels in the present commercial fleet, according to commercial outreach.**

<b>Name</b>	<b>Vessel Name</b>	<b>Vessel Type</b>	<b>Length</b>	<b>Beam</b>	<b>Draft</b>	<b>Air Draft</b>	<b>Impact of Proposed Bridge</b>
<i>Jim Manning</i>	<i>F/V Half Moon</i>	<i>Fishing Vessel</i>	36'	13.5'	3.5'	18'	<i>Can wait for lower tides</i>
<i>John Tuttle</i>	<i>F/V Black Dog</i>	<i>Fishing Vessel</i>	31'	10'	4'	25'	<i>Can lower antennae</i>
<i>Riverside &amp; Pickering</i>	-	<i>Construction Vessel</i>	-	-	-	15.5'	<i>No Impact</i>
<i>Prock Marine</i>	-	<i>Construction Vessel</i>	-	60'*	-	15'	<i>Can reconfigure to transit the bridge</i>
<i>Pepperell Cove Marine Services</i>	-	<i>Construction Vessel</i>	-	12.5'	-	15'	<i>No Impact</i>
<i>Portsmouth Harbor Cruises</i>	<i>M/V Heritage</i>	<i>Passenger</i>	60'	17.5'	4.5'	14.5'	<i>No Impact</i>

\*The 60' width includes the tug attached to the barge for propulsion. This vessel currently transits the NH Route 1B Bridge (Shapleigh Island to Goat Island) which has a horizontal clearance of 48'.



**Table 11. Largest vessels in the prospective commercial fleet, according to commercial outreach.**

<b>Name</b>	<b>Vessel Name</b>	<b>Vessel Type</b>	<b>Length</b>	<b>Beam</b>	<b>Draft</b>	<b>Air Draft</b>	<b>Impact of Proposed Bridge</b>
<i>Portsmouth Marina</i>	<i>R/V Thunder</i>	<i>Research Vessel</i>	<i>69.5'</i>	<i>20'</i>	<i>2.5'</i>	<i>25'</i>	<i>Can transit at lower tides</i>

### **Access to Marine Facilities**

It is possible that the proposed bridge may restrict vessel access to Portsmouth Marina for maintenance and fuel, but no vessels were identified during outreach efforts. Furthermore, the lift logs demonstrate vessels that cannot transit the existing bridge in its closed position use Portsmouth Marina with any significant frequency. The clearances provided by the proposed bridge (57.5'H x 17.3'V) will improve access to the facilities in the waterway when compared to the existing bridge when closed (29.3'H x 13.0'V).

For those vessels that are restricted by the proposed bridge from accessing marine facilities offering maintenance and fuel, there are other facilities in the immediate vicinity offering similar services.

### **Access to Harbor of Refuge**

The proposed bridge will not restrict access to Portsmouth Harbor, as it can be accessed by the main river channel to the north of New Castle Island. In addition to Portsmouth Harbor, vessels unable to transit the proposed bridge can seek shelter in Little Harbor, which is immediately south of the proposed bridge and which is protected by jetties extending from opposing Jaffrey and Frost Points.

The Back Channel, Northward Channel, and Sagamore Creek could be considered a place of refuge for vessels with an air draft less than 17.3' at MHW and whose draft does not exceed the available water depth. The proposed bridge provides improved access to vessels that cannot transit the existing bridge when closed.

Some mariners believe the Back Channel has in the past been used as a harbor of refuge during major storm events. The lift logs since 2010 do not support any such transit of larger air draft vessels on any given day. Two major events occurred during this time frame, Hurricane Irene impacted the Northeast on August 28<sup>th</sup>-30<sup>th</sup>, 2011 and Hurricane Sandy impacted the Northeast on October 30<sup>th</sup> - November 2<sup>nd</sup>, 2012. According to the lift logs the only lifts in 2011 were for maintenance purposes and in 2012 no requested bridge lifts were made in the weeks around the hurricane event.



## 9 Comparison of Fixed and Bascule Bridge Alternatives.

### 2014 Benefit-Cost Analysis

In 2015, NHDOT selected a fixed replacement alternative over the bascule replacement alternative that was recommended in the TS&L report. The decision to switch bridge types was based on feedback from the public, an infrequently lifted bascule bridge, and the results of a 2014 Benefit-Cost Analysis (BCA). The BCA is included with this report as Attachment 13.

The BCA compared the bascule structure at existing grade recommended in the TS&L report with a fixed structure at existing grade. The BCA determined that the benefits of a bascule replacement bridge include greater property values, greater safe harbor accessibility, increased commercial fishing opportunities, increased tourist revenue, greater climate change resiliency, and lower dredging costs. The benefits of a fixed bridge include less impact to vehicular traffic, lower utility replacement costs, and less noise.

The BCA also compared capital costs and life cycle costs. The bascule bridge was estimated to have a capital cost \$8M more than the fixed bridge and a life cycle cost of \$10M more than the fixed bridge. The higher costs are primarily due to construction of the bascule pier and maintenance of the mechanical and electrical systems.

The BCA concluded:

*While the fixed alternative does not provide as much potential for benefit as a bascule bridge, the costs of the fixed alternative are significantly lower. Additionally, many of the potentials for benefit a bascule provides only reflect opportunity for quality-of-life and economic growth. These benefits may not be realized because the majority of the benefits examined would be dependent upon future dredging of the channel, and the possibility of having bridge lifts with notice times much less than the current 4-hour required notice, which are planned for, but not guaranteed to occur. Even if these two events were to occur, related economic growth is not guaranteed. Additionally, the proposed fixed bridge provides improved navigable clearances over the existing bascule bridge in the down position, which is the condition that serves the vast majority of vessels currently entering the Back Channel, as the current bridge only lifts three to four times per year. Since these benefits only allow for potential growth in the economy and quality of life, and since the impact from benefits is inconclusive, one should examine the overall life-cycle costs. In this case, the fixed bridge provides a lower life-cycle cost than the bascule bridge and is the recommended alternative.*

It is worth noting that since the writing of the BCA, the vertical clearance of the proposed fixed bridge has increased from 13.0' at MHW to 17.3' at MHW, which only strengthens the conclusions of the BCA.





## **2015 USCG Public Comment**

During the 2015 USCG review of the navigation impact report, the USCG received public comments regarding a fixed bridge replacement that provided 13.0' (17.3' is currently proposed) of vertical clearance at MHW. 25 comments were received with support for both fixed and bascule bridge replacements.

### **COMMUNITY SUPPORT FOR A FIXED BRIDGE**

Support for a fixed bridge focused primarily on the responsible use of public funds. Some responders in support recognized that the \$8M savings in capital costs realized (\$10M over the life of the bridge) could be used to repair or replace the many other failing bridges in the State, rather than to replace a bascule bridge that is hardly used with one in kind.

The Town of Rye requested that a fixed bridge replace the existing bascule bridge to facilitate a water line replacement that currently runs under Little Harbor. A replacement water line could be installed on the underside of a fixed bridge, but a replacement submarine water line would be required if a moveable bridge were installed and carries a higher construction cost for the community.

Portsmouth Pilots requested that the fixed bridge vertical clearance be raised from 13.0' to 18.0' as a common sense compromise that would significantly improve the existing clearance (when closed) and facilitate increased vessel use.

### **COMMUNITY CONCERNS FOR A FIXED BRIDGE**

The vast majority of comments received by the USCG were in opposition to the fixed bridge replacement. Many writers had similar opinions. Those concerns not addressed in other areas of this report are summarized in Table 12.



**Table 12. Summary of 2015 community concerns for a fixed bridge**

<b>Concern for a Fixed Bridge</b>	<b>Response</b>
<i>Fixed bridge will restrict access to shelter.</i>	<i>The lift logs do not support that the existing bridge is transited by taller vessels in advance of an approaching storm. Anchorages in Little Harbor and the Piscataqua River also provide shelter for larger vessels. Proposed bridge improves access for those not requesting lifts.</i>
<i>Fixed bridge will restrict future use of waterway</i>	<i>It is possible that a fixed bridge will limit future growth of the waterway, but many large boats are limited by channel depth (6ft). The 2017 dredging project was expected to increase use, but increased use by vessels requiring a bridge lift has not materialized according to the lift logs. The proposed bridge improves access for those not requesting lifts.</i>
<i>Fixed Bridge will restrict access to services, such as for dock maintenance or to facilities such as Portsmouth Marina.</i>	<i>It is possible that a fixed bridge will restrict future business growth opportunities at the marina. The lift logs do not support that the existing bridge is transited by taller vessels with any significant regularity.</i>
<i>Current users avoid the existing bridge due to dependability of existing bridge and 4 hour advance notice.</i>	<i>It is possible that the 4 hour advance notice deters use, but the 2017 dredging project was also expected to increase use, but increased use by vessels requiring a bridge lift has not materialized according to the lift logs. The proposed bridge improves access for those not requesting lifts.</i>
<i>Detrimental economic impact to commercial and residential abutters who need vertical clearance provided by bascule bridge</i>	<i>The lift logs do not support abutters currently require bridge lifts with any regularity. It is possible that future growth may be restricted, but the development of the underutilized frontage would likely require expensive dredging efforts to anchor vessels requiring more than 17.3 of vertical clearance at MHW.</i>
<i>Fixed bridge will restrict access for future dredging operations.</i>	<i>The USACE dredged the channel in 2017 using independent contractors who accessed the back channel via the NH 1B bridge at the north end of the channel. The proposed bridge will provide improved access to both this bridge and the existing bridge and can therefore be dredged in the future.</i>

## 10 Conclusion

### Proposed bridge

The proposed replacement bridge is a 2-span fixed bridge that will provide a 52.5'H x 17.3'V clearance window at MHW (52.5'H x 25.9'V at MLW).

### Summary of Impacts on present needs of navigation

The proposed bridge will provide a greater horizontal clearance when compared to the existing bascule bridge (29.3') and will provide vertical clearance to accommodate the vast majority of vessels currently using the waterway. One vessel, the S/V Celerity will no longer be able to transit the bridge. Two vessels, the USCG 47' MLB and the F/V Half Moon cannot transit the bridge at high tide. Two vessels, the F/V Black Dog and S/V [unnamed day sailboat] can make temporary modifications to transit the bridge. One vessel, a barge owned by Prock Marine, requires a horizontal clearance of 60', but also reports using the NH 1B Bridge between Shapleigh Island and Goat Island to access the waterway, which has a horizontal clearance of 48'.



Table 13 summarizes the impact to the largest of vessels currently using the waterway.

### Summary of Impacts on future needs of navigation

The proposed bridge may impact the future needs of waterway users. Table 14 provides a summary of the vessels that do not currently use the waterway but may in the future and would be impacted by the proposed bridge. Four of the vessels cannot transit the bridge due to their required vertical clearance. One vessel, the F/V Wendy Lee (21' air draft), is currently docked at a slip in Kittery Maine and would need to wait for lower tides to transit the bridge.

In addition to access for the R/V thunder (25' air draft), it is possible that future growth of Portsmouth Marina and other properties in the waterway may be impacted by the proposed bridge. Taller vessels such as sailboats would no longer be able to transit the bridge. However, the 2017 USACE dredging project in the back channel was also predicted to allow better access to larger vessels, but there has been no noticeable increase in the number of bridge lifts in the years since indicating that the need for additional clearance may not materialize.

Table 13. Summary of impacted vessels in the present fleet.

<b>Name</b>	<b>Vessel Name</b>	<b>Length</b>	<b>Beam</b>	<b>Draft</b>	<b>Air Draft</b>	<b>Impact of Proposed Bridge</b>
<i>Manning</i>	<i>F/V Half Moon</i>	36'	13.5'	3.5'	18'	<i>Cannot transit at high tide</i>
<i>Urbanek</i>	<i>S/V Celerity</i>	33'	11'	5.75'	49'	<i>Cannot transit</i>
<i>Stewart</i>	<i>S/V [unnamed day sailboat]</i>	17.5'	5'	3.75'	24'	<i>Can lower mast</i>
<i>Tuttle</i>	<i>F/V Black Dog</i>	31'	10'	4'	25'	<i>Can lower antennae</i>
<i>Prock Marine</i>	<i>Construction Vessel</i>	-	60*	-	15'	<i>Can reconfigure to transit the bridge</i>
<i>USCG</i>	<i>47' MLB</i>	47'	14'	4.5'	18.5'	<i>Cannot transit at high tide</i>

\*The 60' width includes the tug attached to the barge for propulsion. This vessel currently transits the NH Route 1B Bridge (Shapleigh Island to Goat Island) which has a horizontal clearance of 48'.



**Table 14. Summary of impacted vessels in the prospective fleet.**

<b>Vessel Owner</b>	<b>Vessel Name</b>	<b>Length</b>	<b>Beam</b>	<b>Draft</b>	<b>Air Draft</b>	<b>Impact of Proposed Bridge</b>
<i>Portsmouth Marina</i>	<i>R/V Thunder</i>	<i>69.5'</i>	<i>20'</i>	<i>2.5'</i>	<i>25'</i>	<i>Can access at lower tides</i>
<i>Flanigan</i>	<i>F/V Wendy Lee</i>	<i>46'</i>	<i>15.5'</i>	<i>6'</i>	<i>21'</i>	<i>Can wait for lower tides</i>
<i>Marconi</i>	<i>S/V Red Stripe</i>	<i>25'</i>	<i>8'</i>	<i>3'</i>	<i>35'</i>	<i>Cannot transit</i>
<i>Hughes</i>	<i>S/V Landseer</i>	<i>36'</i>	<i>12'</i>	<i>6'</i>	<i>56'</i>	<i>Cannot transit</i>
<i>Brown</i>	<i>S/V Cadence</i>	<i>60'</i>	<i>14'</i>	<i>6'</i>	<i>64'</i>	<i>Cannot transit</i>

### **Request to USCG**

The NHDOT proposes to replace the existing Wentworth Bridge, a bascule bridge providing a 29.3H x unlimited V structure clearance (limited to 65' by overhead utilities) envelope at MHW with a fixed bridge providing a 51.5H x 17.3V clearance envelope at MHW. The proposed clearance envelope meets the needs of the vast majority of present and prospective waterway users with minimal impact. Please consider this assessment of navigational needs of the waterway in order to provide a Preliminary Navigation Determination. If the USCG does not concur with the proposed clearance envelope, please provide a Preliminary Navigation Determination that advises what the USCG would accept for a proposed clearance envelope in order to advance to project.



# USCG Bridge Permit Application List of Attachments

## NH 1B over Little Harbor New Castle- Rye, NH

- 1 Navigation Impact Report (Form Version)
- 2 Proposed Bridge Plan and Elevation
- 3 33 CFR 117.699 – Little Harbor
- 4 2016 USCG Preliminary Navigation Determination
- 5 Emergency Operations Outreach Summary
- 6 2014 USACE Letter to Portsmouth Pilots
- 7 USACE Dredge Surveys
- 8 Lift Logs
- 9 Mooring Permit Holder Blank Survey
- 10 Mooring Permit Holder Mailer List
- 11 Mooring Permit Holder Response Log
- 12 Commercial Outreach Summary and Results
- 13 Benefit-Cost Analysis





# Attachment 1

Navigation Impact Report  
(Form Version)

## WATERWAY DATA REQUIREMENTS

### **A. Means of Data Collection:**

The following sources of data on the use of the waterway were acquired.

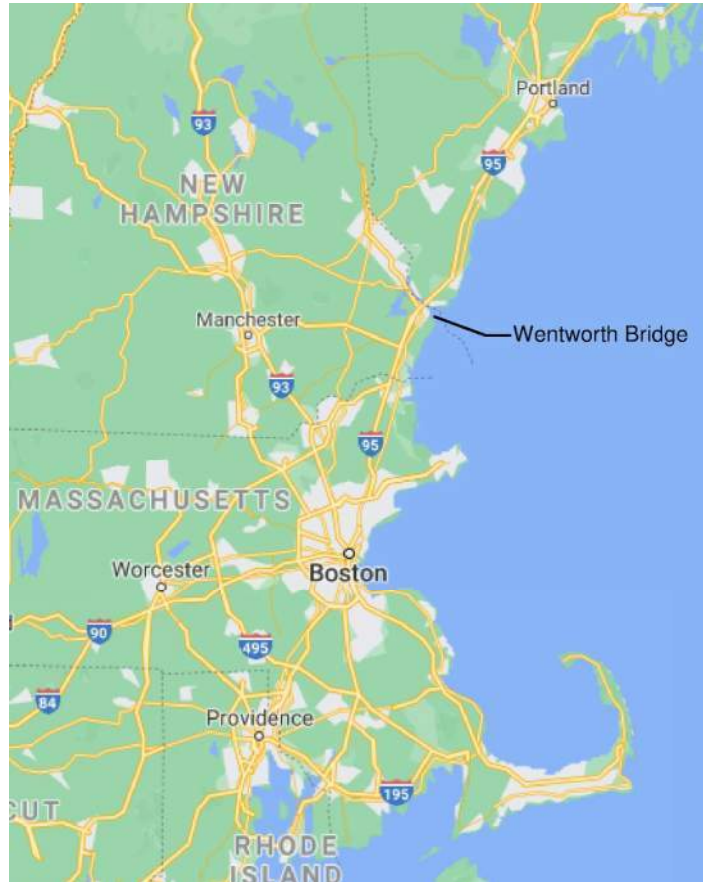
- Data collected as part of 2015 Navigational Impact Report.
- Bridge Lift Logs from March 2010 through August 2020.
- March 17, 2016 USCG preliminary navigation determination.
- September 24, 2014 letter from USACE regarding vessel requirements for dredging purposes.
- 2017 outreach to Marine Construction Contractors.
- 2020 outreach by phone to businesses abutting the waterways of Sagamore Creek.
- 2020 outreach by phone to New Castle, Portsmouth, and Rye Fire Departments.
- 2020 outreach by mail survey to mooring permit holders in nearby mooring fields.
- US Coast Pilot #1 and NOAA Chart 13283
- 2021 outreach by phone to USCG Station Portsmouth Harbor.

### **B. Present governing bridge(s) or aerial structure(s) on the waterway:**

1. Identify all bridges upstream and downstream of the proposed bridge site and their existing horizontal and vertical clearances to determine the existing minimum horizontal and vertical clearances (including overhead transmission line clearances). Provide in table format.

(If all bridges downstream have the same minimum clearance, state instead of the above requested information.)

*The Wentworth Bridge is located on the Atlantic Ocean coast of the northeastern United States near the border of Maine and New Hampshire, as seen in Figure 1. The bridge carries NH route 1B over the Back Channel on the town line between New Castle and Rye, NH, as seen in Figure 3. The existing bridge can be seen in Figure 2.*



*Figure 1. Locus Map showing location of Wentworth Bridge (source: google.com/maps).*

*There are several bridges on the waterway, and their locations relative to the Wentworth Bridge can be seen in Figure 3. Table 1 lists all bridge upstream and downstream of the proposed bridge site. Clearances and channel depths are taken from NOAA Chart 13283, 24<sup>th</sup> edition, dated September 2020, except as noted. See Attachment 2 for proposed bridge plans. Please reference NOAA Chart 13283 for a full understanding of the waterway, which is available for free online at <https://charts.noaa.gov/InteractiveCatalog/nrnc.shtml>.*



Figure 2. The Wentworth Bridge, looking south. Overhead utility lines shown above the north shoulder.

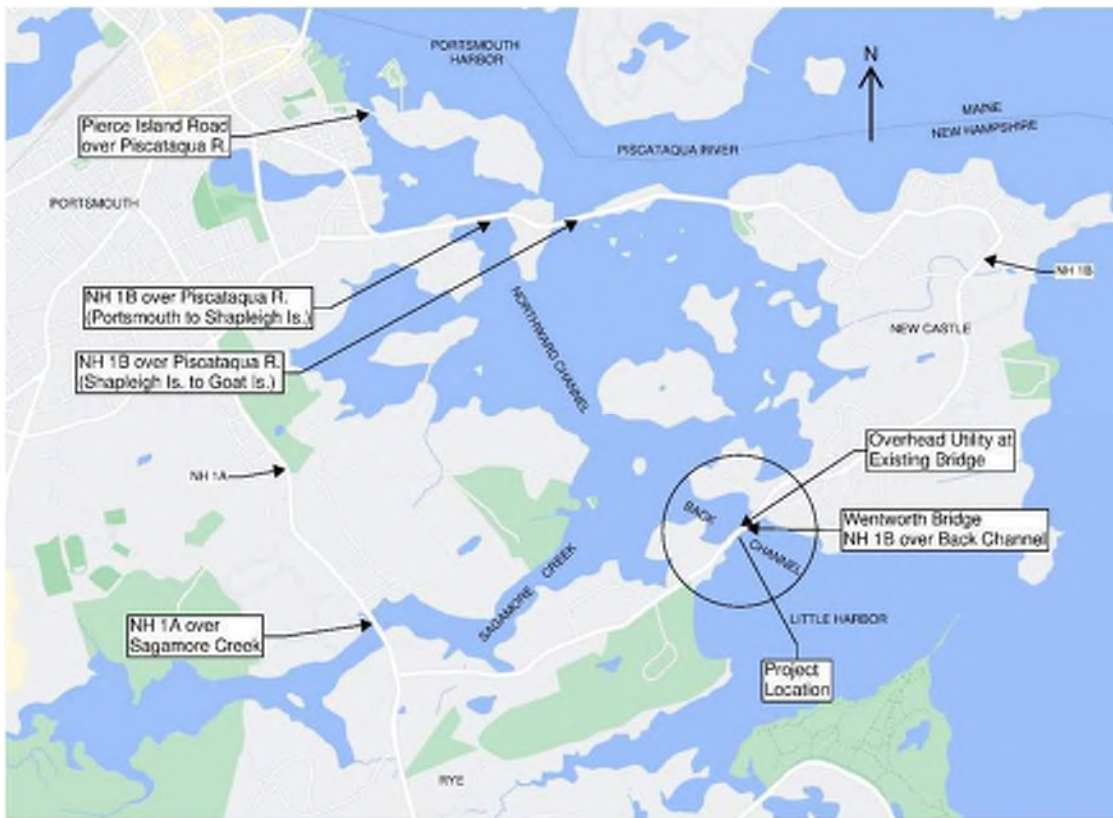


Figure 3. Bridges on the Waterway (source: google.com/maps)

Table 1. Bridges on the waterway

<i>Facility Carried</i>	<i>Feature Intersected</i>	<i>Waterway Mile Point (From Jaffrey Ledge Light)</i>	<i>Channel Depth (MLLW)</i>	<i>Vertical Clearance (MHW)</i>	<i>Horizontal Clearance</i>
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<i>Pierce Island Road (Portsmouth to Pierce Island)</i>	<i>Piscataqua River</i>	2.6	7'	16'	65'
<i>NH Route 1B (New Castle Ave.) (Portsmouth to ,Shapleigh Island)</i>	<i>Piscataqua River</i>	2.1	4'	10'	60'
<i>NH Route 1B (New Castle Ave.) (Shapleigh Island to Goat Island)</i>	<i>Piscataqua River</i>	2.0	15.0'	14'	48.0'
<i>NH Route 1A (Sagamore Ave.)</i>	<i>Sagamore Creek</i>	2.1	6'	16.3' *	171'
<i>NH Route 1B (Wentworth Rd) (Existing Bridge)</i>	<i>Back Channel</i>	0.9	6'	13.0' (closed) unlimited (open) (limited to 65' by overhead utilities) ** ***	29.3'
<i>Overhead Utilities at Existing Bridge</i>	<i>Back Channel</i>	0.9	6'	65'	29.3'
<b><i>NH 1B (Wentworth Rd) (Proposed Bridge)</i></b>	<b><i>Back Channel</i></b>	<b>0.9</b>	<b>6'</b>	<b>17.3'</b>	<b>51.5'</b>

\* According to bridge record plans, dated July 2013, by FST for the City of Portsmouth NH, adjusted to MHW.

\*\* According to bridge record plans, project P623, dated November 1941, by State of New Hampshire Highway Department Bridge Division.

\*\*\* The existing bascule bridge requires a 4-hour advance notice to open, see Attachment 3 for 33 CFR 117.699.

2. Does the proposed bridge(s) match (or is greater than) the navigational clearance of existing structures on the waterway?

*As requested in the 2016 USCG Preliminary Navigation Determination (PND), the proposed bridge will provide a horizontal clearance of 51.5', which exceeds the horizontal clearance of the existing bridge. The proposed bridge will provide a vertical clearance of 17.3', which exceeds the vertical clearance of all fixed bridges in the waterway and the existing bridge when in the closed position. The 2016 PND can be found in Attachment 4.*

3. What is the most restrictive horizontal clearance on the waterway? (This may be a fixed bridge downstream/upstream of the proposed structure, a low hanging power line downstream/upstream of the bridge(s), or it may be some other structure that limits horizontal clearance. Sometimes the existing to-be-replaced bridge(s) is the most restrictive structure.)

*The structure with the most restrictive horizontal clearance on the waterway is the existing Wentworth Bridge (29.3').*

- a. Milepoint: 0.9
  - b. Horizontal clearance: 29.3'
4. What is the most restrictive vertical clearance on the waterway? (This may be a fixed bridge downstream/upstream of the proposed structure, a low hanging power line downstream/upstream of the bridge(s), or it may be some other structure which limits vertical clearance. Sometimes the existing to-be-replaced bridge(s) is the most restrictive structure.)

*The structure with the most restrictive vertical clearance on the waterway is the bridge carrying NH State Route 1B between Portsmouth and Shapleigh Island (10' at MHW).*

- a. Mile Point: 2.1
  - b. Vertical clearance: 10.0' (MHW)
5. Will the proposed bridge(s) become the most restrictive/obstructive structure across the waterway?

*The vertical clearance of the proposed bridge (17.3' at MHW) will exceed the vertical clearance of all structures on the waterway except the existing bridge when open (unlimited vertical clearance) and the overhead utilities immediately north of the existing bridge (Figure 2, 65' at MHW).*

*The horizontal clearance of the proposed bridge (51.5') will exceed the horizontal clearance of the NH Route 1B (New Castle Ave. Shapleigh Island to Goat Island) (48.0') bridge which will become the most restrictive on the waterway.*

**C. Waterway characteristics:** (All domestic bridge navigational clearances should be stated in linear feet in decimal form vs. feet and inches. All international bridge navigational clearances should be stated in linear unit of measure as well as the metric equivalent.)

- 1. Various waterway stages: (Datum that is used).

*The various waterway stages are listed in the table below. Elevations are from National Oceanic and Atmospheric Administration (NOAA) Station 8423898 (Fort Point, NH), and adjusted to the National Geodetic Vertical Datum of 1929 (NGVD29).*

*Table 2. Elevations of various waterway stages*

<i>Waterway Stage</i>		<i>Elevation (NGVD29)</i>
<i>MHHW</i>	<i>Mean Higher - High Water</i>	<i>5.18'</i>
<i>MHW</i>	<i>Mean High Water</i>	<i>4.75'</i>
<i>MLW</i>	<i>Mean Low Water</i>	<i>-3.88'</i>
<i>MLLW</i>	<i>Mean Lower-Low Water</i>	<i>-4.22'</i>

- 2. Natural flow of the waterway including currents, waterway velocity, water direction, and velocity fluctuations (seasonal, daily, hourly, etc.), that might affect navigation.



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*Tides are normally semi-diurnal on the waterway (2 lows, 2 highs daily cycles on average). The waterway experiences both ebb and flood tidal flows, with direction and velocity of flow varying with tidal cycles.*

*Generally, water flows north-south along the Back Channel and Northward Channel, and east-west along Sagamore Creek. According to the US Coast Pilot #1, the tidal currents are strong and special care is required to traverse the areas in and around Portsmouth Harbor.*

*According to NOAA Tides and Currents data, flood velocity in the vicinity of Shapleigh Island (upstream) is 0.6 to 0.8 knots, and ebb velocity is 0.6 to 0.8 knots. In the vicinity of Little Harbor Entrance (downstream), flood velocity is 0.5 to 1.0 knots, and ebb velocity is 1 to 1.5 knots.*

3. Width of the waterway at bridge site:

*The width of the waterway at the bridge is approximately 200'. The width of the navigable waterway is 29.3' at the existing bridge and 75' up and downstream of the bridge.*

4. Depth of the waterway and elevation fluctuations at bridge site: [List the depth at each waterway bridge stage (ex. Range of tides, average high water elevation, etc.)].

*The depth of the waterway at various stages at the bridge is listed in the table below. Channel Depth at MLLW is taken from surveys by the USACE New England District, dated 2012. Channel Depths at other stages are computed using waterway stage elevations in Section C.1 above.*

*A dredging effort was performed by the USACE New England District in 2017 in the Back Channel and will not have an effect on the proposed bridge. The dredging effort occurred in Sagamore Creek and in the northwest portion of the Northward Channel, near the bridge carrying New Hampshire State Route 1B between Portsmouth and Shapleigh Island. The channel is still listed by the USACE New England District as a 6' channel. Based on existing survey by USACE, there is no indication that additional dredging will be required at the proposed bridge location to maintain the 6' channel depth when the horizontal clearance is widened from 29.3' to 51.5'.*

*Table 3. Channel depths and various waterway stages*

<i>Waterway Stage</i>		<i>Channel Depth</i>
<i>MHHW</i>	<i>Mean Higher - High Water</i>	<i>15.4'</i>
<i>MHW</i>	<i>Mean High Water</i>	<i>14.97'</i>
<i>MLW</i>	<i>Mean Low Water</i>	<i>6.34'</i>
<i>MLLW</i>	<i>Mean Lower-Low Water</i>	<i>6.0'</i>

5. Waterway layout and geometry: (For example, is there a dam or lock; does the elevation of the approach impact the required bridge(s) clearance?)

*The navigable waterway flows generally northwesterly during flood tides, from Little Harbor to the Piscataqua River at Shapleigh and Goat islands. The navigable waterway consists of 3 channels:*

- *The Back Channel begins at the Wentworth Bridge and Little Harbor and runs northwesterly to its terminus, where the Northward Channel and Sagamore Creek meet.*
- *The Northward Channel continues north to its terminus at the Piscataqua River, where a bridge carries NHIB between Shapleigh and Goat Islands.*
- *Sagamore Creek continues west to its terminus at the Sagamore Bridge (NHIA).*

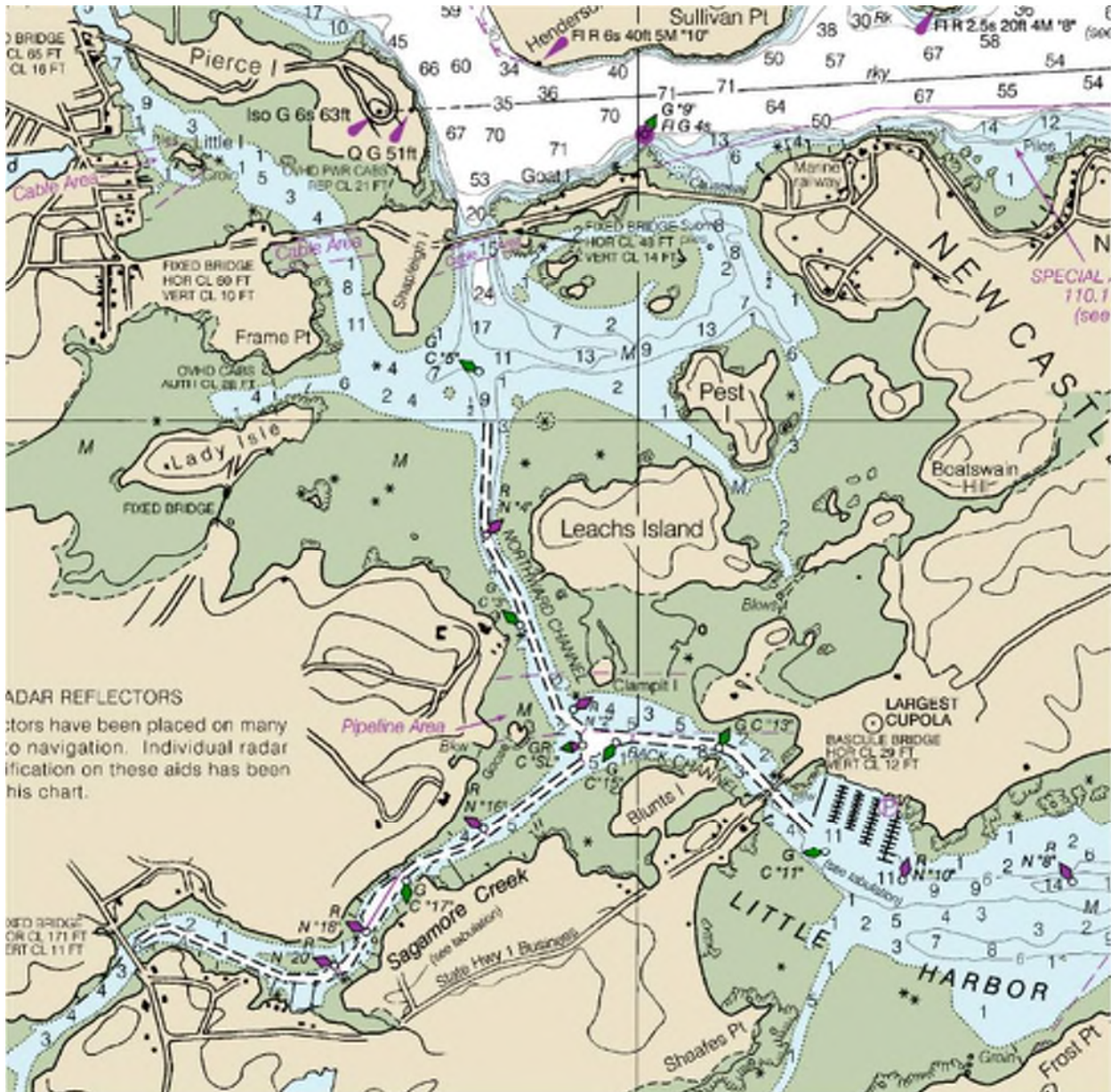


Figure 4. New Castle Island and the Back Channel (source: NOAA Chart No. 13283)

6. Channel and waterway alignment: Location of the channel(s).

*The Back Channel flows generally northwest during flood tides and is approximately 1400' long and 75' wide. The Northward Channel runs generally north during flood tides and is approximately 4,800' feet long and 75' wide. The Sagamore Creek channel runs generally west*



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during flood tides and is approximately 4,600' long and 60' wide. The channels are maintained by the USACE New England District.

The Atlantic Ocean lies east of the inlet to Little Harbor and is protected by two jetties extending from Jaffrey Point and Frost Point (Figure 6).



Figure 5. The Wentworth Bridge, looking east. (Source: Marinas.com)

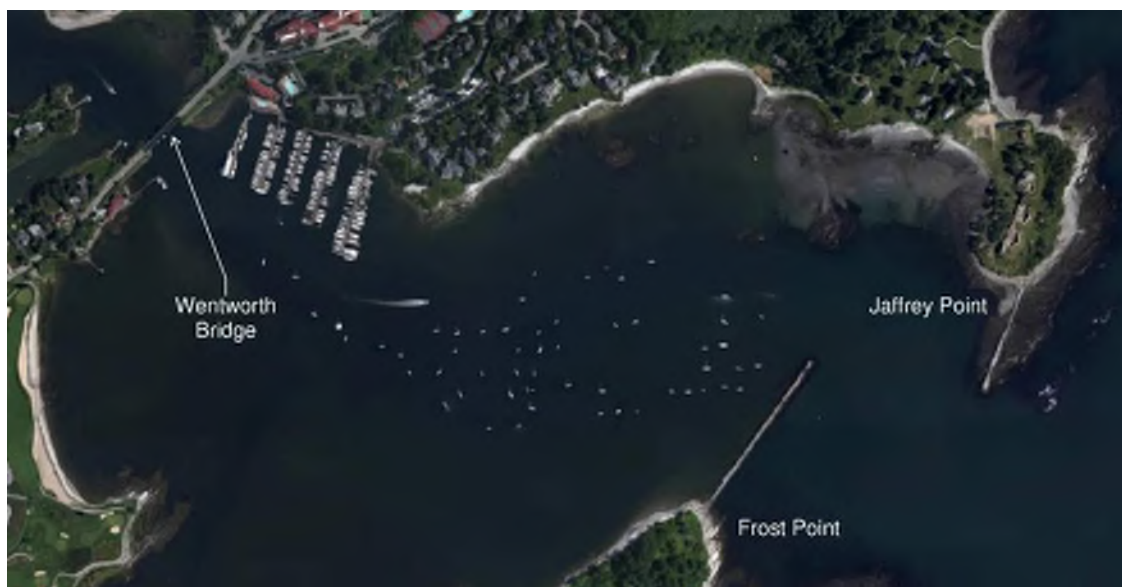


Figure 6. Little Harbor. (Source: maps.google.com)

7. Other limiting factors: (For example, bends in the waterway within one-half mile of project site, hindrances to free navigation, fog, hydraulics, etc.)

*The navigational channel has an “S curve” alignment with the first bend occurring just north of the Wentworth Bridge and the second bend occurring at the intersection of the Back Channel and Northward Channel where the Sagamore Creek Channel joins with the Back Channel. Just east of Little Harbor, there is a bend between the two jetties extending from Jaffrey Point and Frost Point.*

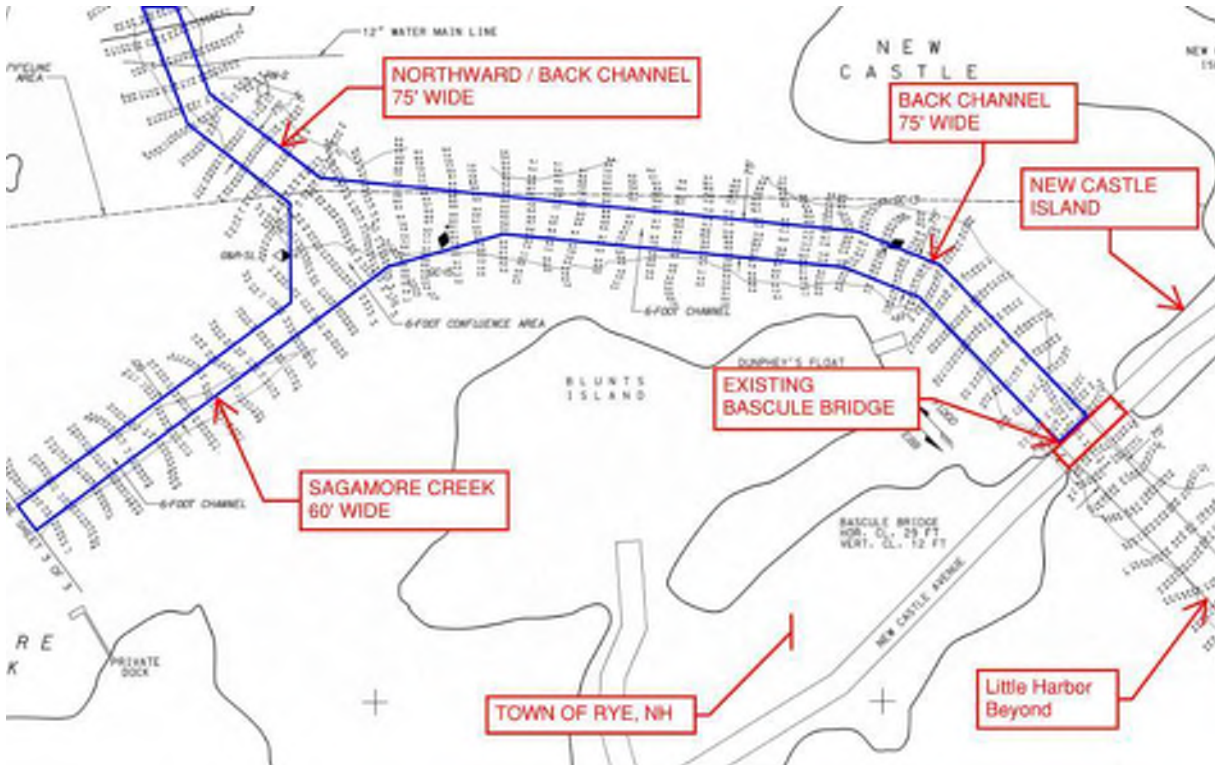


Figure 7. New Castle – Rye Maintained Channels (source: adapted from Back Channel / Sagamore Creek Condition Survey, 08/07/13, by USACE. See Attachment 7a for full-size USACE survey plans)

**D. Do vessels that engage in emergency operations (i.e., law enforcement, fire, rescue, emergency dam repair, etc.), national defense activities (i.e. cruisers, fuel barges, munitions ships, etc.) or channel maintenance (i.e., dredges, dam and levee repair, etc.) operate on the waterway? If yes, describe the vessels and provide the following information:**

1. Does levee maintenance, bridge work (other bridges), channel maintenance and emergency operations upstream of bridge require certain vessels to transit the waterway?

*Several government agencies operate in the vicinity of the project area.*

- *The US Navy operates Portsmouth Naval Shipyard, located in Portsmouth Harbor on Seavey Island. The Shipyard is primarily accessed through the Harbor’s deep-water*

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*channel to the north of New Castle Island. Data collected for the 2015 Navigation Impact Report indicated that use of the existing bascule-lift bridge is not necessary for present and prospective US Navy operations.*

- *The USACE conducts dredging efforts in the Back Channel, Northward Channel, and Sagamore Creek. Past dredging operations have been awarded to independent contractors. According to a 2014 letter from the USACE, vessels for past dredging operations have accessed the channels from the fixed bridge carrying NH 1B between Shapleigh and Goat Islands (vertical clearance 14') because of the limited horizontal clearance of the existing Wentworth Bridge. Lift logs indicated that no bridge lift was required in order to conduct dredging operations in 2017.*
  
- *The USCG performs two functions on the waterway.*
  - o *The USCG Station Portsmouth Harbor, located at the mouth of Portsmouth Harbor on New Castle Island, conducts search and rescue (S&R) and maritime law enforcement activities in the waterway, and works closely with municipal police, fire, and rescue operations when needed. According to 2021 phone correspondence with Chief Warrant Officer Dan Benoit, they conduct these activities using a 29' Response Boat-Small (RB-S), which requires 9' of vertical clearance, and 47' Motor Lifeboat (MLB), which requires 18'-6" of vertical clearance. Based on lift log analysis, the MLB is not currently used in the waterway.*
  - o *According to 2021 telephone correspondence with LT David Bourbeau at Detachment Portsmouth, navigation aid maintenance in the waterway is conducted by personnel from USCG Station South Portland. The lift logs show Buoy Utility Stern Loading (BUSL) 49419 and BUSL 49420 vessels requiring a bridge lift to access the waterway in 2010, but not since. The BUSL 49419 and BUSL 49420 are 49' long and require a vertical clearance of 15'. According to LT David Bourbeau at Detachment Portsmouth, the USCG currently maintains the navigation aids in the waterway using a trailerable vessel and no longer requires a bridge lift.*
  
- *The New Castle, Rye, and Portsmouth Fire Departments respond to emergency calls in the Back Channel.*
  - o *According to November 2020 telephone correspondence with the New Castle Fire Department Deputy Fire Chief Mark Wooley, New Castle responds to emergencies using Marine 2, a 19' Boston Waler with no significant clearance requirements.*
  - o *According to November 2020 telephone correspondence with the New Castle Fire Department Deputy Fire Chief Mark Wooley, New Castle has an agreement with the Town of Rye to jointly respond to emergencies in Rye's jurisdiction – Rye Fire Department would respond to calls using a personal watercraft/jet ski.*
  - o *According to November 2020 telephone correspondence with Portsmouth Fire Department Assistant Fire Chief Bill McQuillen, Portsmouth responds to emergencies using Marine 1, a 26' Ribcraft rigid hull inflatable with no significant clearance requirements.*



- o Both New Castle and Portsmouth confirmed that the Fire Departments would be the only municipal entities responding to emergency calls in the Back Channel.

Please see Section E for additional information on USACE dredging operations, Attachment 5 for a summary of Emergency Operations outreach, and Attachment 6 for 2014 letter from USACE.

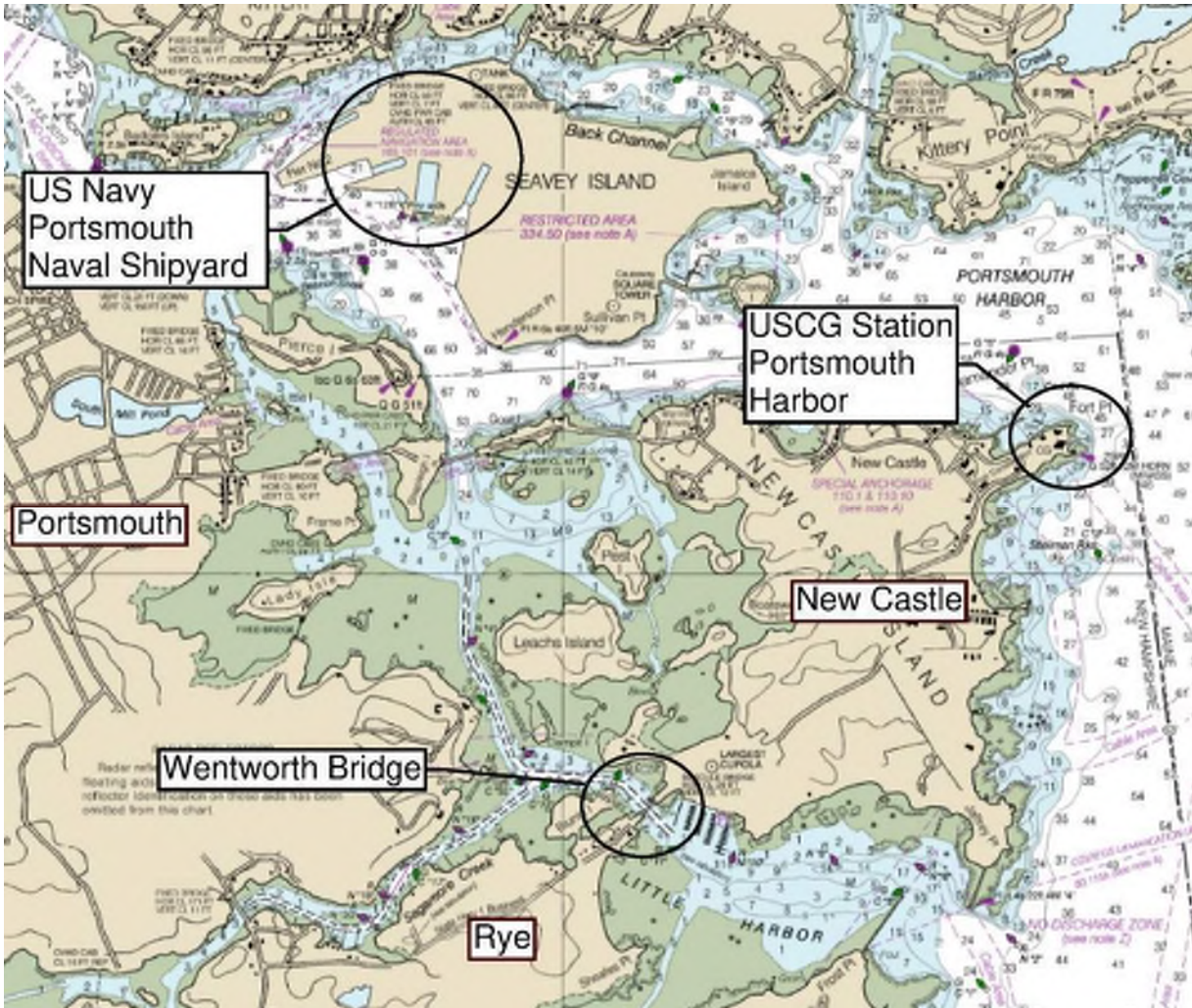


Figure 8. Portsmouth Harbor showing location of the bridge with respect to Portsmouth Naval Shipyard and USCG Station Portsmouth Harbor (source: NOAA Chart No. 13283)

2. Does the proposed bridge(s) impact USCG and/or other government vessels' ability to transit the bridge(s) to conduct mission essential functions (icebreakers, patrols, etc.)?

US Navy at Portsmouth Naval Shipyard:  
There is no impact to naval operations.



USACE Channel Dredging:

According to a 2014 letter from the USACE, vessels for past dredging operations have accessed the channels from the fixed bridge carrying NH 1B between Shapleigh and Goat Islands (vertical clearance 14'), due to the limited horizontal clearance of the existing Wentworth Bridge.

In the letter, the USACE preference for bridge replacement was as follows:

- The proposed bridge provides adequate horizontal and vertical clearances for dredging equipment.
- The proposed bridge will result in a significant reduction of time and costs in dredging operations over the existing bridge configuration.
- Given the low frequency that the Corps maintains the Back Channel area, what additional cost savings in dredging operations due to the installation of a new lift bridge would not alone offset the added initial construction cost and the increased life cycle costs associated with a lift bridge replacement.

USCG:

The proposed bridge provides adequate horizontal clearance for 47' MLB, but does not provide adequate vertical clearance at high tide. The 47' MLB requires 18'-6" of vertical clearance and would be therefore be restricted at high tide by the 17'-3" proposed bridge clearance. The 47' MLB could transit the bridge at lower tides.

Emergency operations by Municipalities:

The proposed bridge provides adequate horizontal and vertical clearance for the largest of the vessels used by the New Castle, Rye, and Portsmouth Fire Departments.

3. Vessels using the waterway during the proposed bridge(s) lifespan:

Table 4. Emergency Operations Vessel Summary.

<b>Entity</b>	<b>Vessel Description</b>
US Navy	No vessels identified.
USACE Dredging	Varies - Independent contractor.
USCG (S&R and Law Enforcement)	47' MLB requiring a vertical clearance of 18'-6". 29' RB-S requiring a vertical clearance of 9'.
USCG (Navigation Aid Maintenance)	BUSL 49419 and BUSL 49420 49' Long Buoy Utility Stern Loading requiring a vertical clearance of 15'
New Castle Fire Department	Marine 2 – 19' Boston Whaler with no significant clearance requirements.

<i>Portsmouth Fire Department</i>	<i>Marine 1 - 26' Ribcraft rigid hull inflatable with no significant clearance requirements.</i>
<i>Rye Fire Department</i>	<i>Personal Watercraft/jet ski with no significant clearance requirements.</i>

4. Will the proposed bridge(s) provide the horizontal and vertical clearances for the safe, efficient passage of the largest of these vessels? Why?

*According to outreach summarized in Sections D.1 and D.2, the proposed bridge will provide sufficient horizontal and vertical clearances for all documented vessels except the USCG 47' MLB at high tide. The lift logs show that the USCG has not transited the existing bridge using the 47' MLB since at least 2010.*

5. If no, estimate the number of vessels in each of the above categories unable to pass through the proposed bridge(s). Give the name, length overall (LOA), beam, draft and height of highest fixed point above the waterline for vessels affected by the bridge(s).

<i>Name</i>	<i>LOA</i>	<i>Beam</i>	<i>Draft</i>	<i>Required Clearance</i>
<i>USCG 47' MLB</i>	<i>47'</i>	<i>14'</i>	<i>4'-6"</i>	<i>18'-6"</i>

6. Can these vessels be modified (i.e., folding mast, relocation or equipment, etc.) without decreasing their respective response times? If so, name the vessels.

*The 18'-6" vertical clearance requirement for the 47' MLB cannot be reduced.*

7. If modifications are feasible, state the name of the vessel(s), their trip frequency, the necessary modifications, the cost of the modification(s) and who will pay for them (i.e., vessel owner, applicant, other).

*The 18'-6" vertical clearance requirement for the 47' MLB cannot be reduced.*

8. Provide any additional information concerning the potentially impacted or burdened users of the waterway as well as the future use of the waterway.

*There is no additional information available concerning potentially impacted vessels and there are no identified vessel restrictions.*

**E. Has the United States Corps of Engineers (USACE) completed or does it plan to complete a federal navigation project on the waterway? If yes, provide the following information:**

1. Project name, downstream/upstream mile points, depth, type of project, scope, status of project and other limiting factors.

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*Yes. Two federal navigation projects were recently completed by the USACE.*

- *Back Channel / Sagamore Creek Condition Survey, Completed 08/07/2013*
- *Back Channel / Sagamore Creek After Dredge Survey, Completed 03/17/2017*

*The condition survey investigated the condition of, and dredging operations for, Sagamore Creek, the Northward Channel, and the Back Channel with widths of 60', 75' and 75' respectively. The dredging project was completed through bid contracts utilizing private contractors in 2017, however only Sagamore Creek and Northward Channel had dredging operations occur. All channels are listed as 6' deep at MLLW. Please see Attachment 7 for the 2013 Condition Survey Plan and the 2017 After Dredge Survey Plan.*

2. Whether there is/was a "design vessel" used in planning the channel? What is/was the design vessel? Was the design vessel reviewed by the Coast Guard?

*No design vessels were identified for the USACE navigation project.*

3. The following specifications of the vessel for which the navigation project is or will be designed: LOA, beam, draft and height of highest fixed point above the waterline.

*No design vessel was identified for the USACE navigation project.*

4. Will the proposed bridge(s) provide the horizontal and vertical clearances necessary for the safe, efficient passage of the vessel for which the navigation project was designed?

*No design vessel was identified for the USACE navigation project.*

5. If so, can the vessel be modified to clear the proposed bridge(s) without substantially increasing operating costs?

*No design vessel was identified for the USACE navigation project.*

6. If modifications are feasible, state the necessary modifications, costs of any modification(s), and who will pay for the modifications.

*No design vessel was identified for the USACE navigation project.*

7. Are there projected changes in waterway usage based upon anticipated waterway improvement projects?

*No projected changes in waterway usage are anticipated. The channel is still listed by the USACE New England District as a 6' channel. Based on the after-dredge survey by USACE, additional dredging will not be required at the proposed bridge location to maintain the 6' channel depth when the horizontal clearance is widened from 29.3' to 51.5'.*

8. Does the proposed bridge(s) impact USACE ability to transit the bridge(s) in a Federal project channel?

*The proposed bridge will fix the vertical clearance to 17.3' which may impact the USACE or contracted vessels' ability to transit the bridge. Past dredging operations have been awarded to*

*independent contractors, and the ability of the contractor's vessel to transit the bridge was inherently required. However, there is no record of USACE vessels or USACE contracted vessels requesting a bridge lift to transit the existing bridge.*

*According to a 2014 letter from the USACE, vessels for past dredging operations have accessed the channels from the fixed bridge carrying NH 1B between Shapleigh and Goat Islands (vertical clearance 14') because of the limited horizontal clearance of the existing Wentworth Bridge. See Attachment 6 for the referenced 2014 letter.*

*In the letter, the USACE preference for bridge replacement was as follows:*

- *The proposed bridge provides adequate horizontal and vertical clearances for dredging equipment.*
- *The proposed bridge will result in a significant reduction of time and costs in dredging operations over the existing bridge configuration.*
- *Given the low frequency that the Corps maintains the Back Channel area, what additional cost savings in dredging operations due to the installation of a new lift bridge would not alone offset the added initial construction cost and the increased life cycle costs associated with a lift bridge replacement.*

**F. Describe the present and prospective recreational navigation:** Will the proposed bridge(s) affect the safe, efficient movement of any segment of the present or prospective recreational fleet operation on the waterway? If yes, provide the following information:

*Yes. Vessels with a fixed air draft exceeding 26.3' (clearance at MLW) will be unable to access the waterway. Vessels with a fixed air draft exceeding 17.3' (clearance at MHW) but less than 26.3' will need to plan access in accordance with the tide. Sailboats in particular will be affected. A small portion of larger self-propelled vessel traffic may be restricted at higher tides if fixed mast heights exceed the proposed fixed clearance.*

1. Vessels utilizing the waterway during the proposed bridge(s) lifespan.

*Present recreational traffic includes both self-propelled and sailboats. For those vessels that can clear the Route 1B bridge between Shapleigh and Goat Islands, the Back Channel is a popular route when travelling between Portsmouth harbor and points upstream to the open ocean due in part to the strong currents and large shipping traffic in the main channel of the Piscataqua River. According to the lift logs and mooring permit holder responses, sail boats occasionally transit the existing bridge to access the waterway, one of which is seasonally moored in the Goat Back mooring field (S/V Celerity).*

*There is a boat launch facility at Goat Island, providing kayakers and small trailered vessels with access to the waters of the Back Channel areas.*

*Three designated mooring locations are located in the Back Channel waterway, located in Sagamore Creek, Goat Back, and Peirce Back. Note that while the Peirce Back mooring field is in the Back Channel area, this mooring field is not impacted by the replacement of the Wentworth Bridge as it is bound by two bridges with more restrictive clearances. The locations of the mooring fields in the Back Channel can be found in Figure 9.*



Figure 9. Mooring fields in the Portsmouth Harbor Area  
 (source: <https://peasedev.org/wp-content/uploads/2018/11/Portsmouth-Harbor-Area.pdf>).

2. What is the estimated percentage of the recreational fleet, which may be affected by the proposed bridge(s)?

Two sources of data were used to analyze the effect on the recreational fleet: (1) the existing bridge lift logs and (2) outreach performed by HDR to mooring permit holders provided by the New Hampshire Port Authority. The bridge has only lifted 48 times since 2010 to allow vessel passage, and the S/V Celerity is the only vessel documented in the lift logs that is known to currently use the waterway. According to the mooring permit holder outreach, the S/V Celerity is moored at the Goat Back mooring field. See mooring permit holder outreach discussion below for more information on the S/V Celerity.

According to the mooring permit holder outreach, both present and prospective waterway users claimed they would be affected by the proposed bridge. Since the mooring outreach contains a more recent and broad collection of data on waterway use, these survey responses were used to estimate the percentage of the affected recreational fleet. Ten of 88 respondents (11%) claimed to be affected by the proposed bridge. Four of 88 respondents (4%) presently use the waterway. Six of the 88 respondents (7%) are prospective users. A discussion of available data follows.

Existing Bridge Lift Logs.

According to the lift logs, there were a total of 48 lifts requested between 2010 and 2020. After the March 2016 preliminary determination provided by the Coast Guard set a minimum vertical

*clearance for the proposed bridge to at least 16.52', there had been an increase in requested lifts for 2016 and 2017. Since those two years the number of requested lifts has decreased back to the previous average of approximately 4 per year. See Table 5 for a breakdown of lift log data by year and vessel type. See Attachment 8 for the lift logs.*

*The USCG vessels that requested openings in 2010 are the BUSL 49419 and BUSL 49420. The BUSL 49419 and BUSL 49420 are 49' long and require a vertical clearance of 15'. The proposed bridge would not restrict access to these vessels. According to LT David Bourbeau at Detachment Portsmouth, the USCG currently maintains the navigation aids in the waterway using a trailerable vessel. See part D for more information on USCG use.*

*The S/V Celerity requested 26 lifts during this timeframe, accounting for 54% of all lifts requested. Of the 26 lifts requested by S/V Celerity over the last decade, 18 (69%) of those lifts were requested in between 2016 and 2017 after the USCG 2016 preliminary determination was released. According to the mooring permit holder outreach, the S/V Celerity is moored at the Goat Back mooring field. See mooring permit holder outreach discussion below for more information on the S/V Celerity.*

*A few other sailboats have requested lifts over the years on a limited basis. The S/V Captain John Adams is a gundalow style sailboat owned by the Gundalow Company in Portsmouth NH. The vessel transited the bridge only once in 2010 and not since, indicating the vessel does not use the Back Channel. Captain Matt Glenn of the Gundalow Company responded to the mooring permit holder outreach, stating that they have no problem with the proposed bridge. The S/V Magic Frog, S/V Easterly, S/V Bufflehead, and S/V For Horizon requested lifts only twice (once in and once out), which indicates that these vessels do not typically use the waterway.*

*The F/V Black Fin and F/V Rough Times requested lifts only a few times. Similar to the sailboats, this indicates that the vessels do not routinely transit the bridge. Neither of these vessel owners were able to be contacted through the commercial outreach or mooring permit holder outreach performed. Additionally, Black Fin is a boat manufacturer and may have been mistaken for the vessel name in the lift logs. It is also possible that these vessels can transit the bridge except for higher tides but given the 4-hour advanced notice required to request a bridge lift, this is unlikely.*



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Table 5. Lift log breakdown by year and vessel type (S/V sailing vessel; F/V fishing vessel).

<i>Year</i>	<i>Lifts for USCG Vessels</i>	<i>Lifts for Commercial Vessels</i>	<i>Lifts for Recreational Vessels</i>	<i>Total Lifts</i>	<i>Number of Unique Vessels</i>	<i>Vessel Name</i>
2010	6	1	-	4 2 1	3	USCG 49419 USCG 49420 S/V Capt John Adams
2011	-	-	-	0 *	-	-
2012	-	-	2	2	1	S/V Magic Frog
2013	-	-	4	1 2 1	3	S/V Easterly S/V Bufflehead S/V Peter Nerbonne
2014	-	1	-	1	1	F/V Black Fin
2015	-	2	-	2	1	F/V Black Fin
2016	-	2	6	2 6	2	F/V Black Fin S/V Celerity
2017	-	-	14	2 12	2	S/V For Horizon S/V Celerity
2018	-	-	4	4	1	S/V Celerity
2019	-	2	2	2 2	2	F/V Rough Times S/V Celerity
2020	-	-	2	2	1	S/V Celerity
<i>Total</i>	6	8	34	48	11 **	

\* In 2011, the bridge was only opened for bridge maintenance and inspection, no vessel lifts.

\*\* There is a total of 11 individual vessels that have requested lifts over the 10 years of available lift log data.

Mooring Permit Holder Outreach

Outreach to mooring permit holders was conducted by mailed survey. Mooring permit holder names and addresses were acquired from the NH Port Authority and contained both commercial and recreational waterway users. The Sagamore Creek, Goat Back, and Peirce Back mooring fields are accessed by transiting the Wentworth Bridge or the NH 1B Bridge between Shapleigh and Goat islands (see Figure 9) but responses to the survey were received from many mooring fields in the area. 88 responses were received out of 452 surveys mailed to mooring permit holders. 10 of the 88 permit holders that responded stated they would be affected by the proposed bridge. See Attachment 9 for a blank survey, Attachment 10 for the list of contacts to whom the survey was mailed, and Attachment 11 for a summary of mooring permit survey responses.

*Present Users Affected. Four of the 10 affected permit holders stated their present use of the waterway would be affected by the proposed bridge clearances. The F/V Half Moon has an air draft of 18’ and is moored in the Goat Back mooring field. The owner stated that he has never requested a lift of the existing bridge, and instead waits for lower tides to transit the bridge. The S/V Celerity has an air draft of 49’ and is seasonally moored in the Goat Back mooring field. The S/V Celerity is the only vessel of the present recreational fleet affected that has requested a lift of the current bridge. The S/V [unnamed day sailboat] is an “O’Day Day Sailer 2” with has an air draft of 24’ and is moored in the Goat Back. The owner stated that they typically lower the mast to transit the bridge, but the process is difficult and time consuming. The F/V Black Dog is moored in Sagamore Creek and must lower the vessel’s antennae to transit the bridge at higher tides, a process which takes 40 minutes. The present recreational fleet affected by the proposed bridge are summarized below:*

*Table 6. Vessels in the present recreational fleet affected by the proposed bridge, according to public outreach.*

<b>Vessel Owner</b>	<b>Vessel Name</b>	<b>Mooring Field</b>	<b>Length</b>	<b>Beam</b>	<b>Draft</b>	<b>Air Draft</b>	<b>Impact of Proposed Bridge</b>
Manning	F/V Half Moon	Goat Back	36’	13.5’	3.5’	18’	Can wait for lower tides
Urbanek	S/V Celerity	Goat Back	33’	11’	5.75’	49’	Cannot transit
Stewart	S/V [unnamed day sailboat]	Goat Back	17.5’	5’	3.75’	24’	Can lower mast
Tuttle	F/V Black Dog	Sagamore Creek	31’	10’	4’	25’	Can lower antennae

*Prospective Users Affected. There are 6 users that stated their prospective navigation would be affected by the proposed bridge clearances. The owner of the F/V Wendy Lee currently has a mooring permit in the Back Channel and owns a vessel that he would prefer to moor in the Back Channel instead of at a slip in Kittery, Maine. The F/V Wendy Lee could transit the bridge at lower tides. The owners of the S/V Red Stripe, S/V Landseer, and S/V Cadence do not currently have a mooring in the Back Channel area but may someday pursue one. The S/V Red Stripe, S/V Landseer, and S/V Cadence would not be able to transit the proposed bridge at any tide. The prospective recreational fleet affected vessels are summarized in the table below. Note that two respondents (Purington and Hollister) currently have moorings in the Goat Back mooring field and would like to someday moor a sailboat there. No prospective vessel information was provided. Additional information can be found in Attachment 11.*

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Table 7. Vessels in the *prospective* recreational fleet, according to public outreach.

<b>Vessel Owner</b>	<b>Vessel Name</b>	<b>Mooring Field</b>	<b>Length</b>	<b>Beam</b>	<b>Draft</b>	<b>Air Draft</b>	<b>Impact of Proposed Bridge</b>
Flanigan	F/V Wendy Lee	Sagamore Creek	46'	15.5'	6'	21'	Can wait for lower tides
Marconi	S/V Red Stripe	-	25'	8'	3'	35'	Cannot transit
Hughes	S/V Landseer	Harts Cove	36'	12'	6'	56'	Cannot transit
Brown	S/V Cadence	Peirce Island	60'	14'	6'	64'	Cannot transit

3. Will the proposed bridge(s) eliminate the access of these vessels to existing or planned commercial, water-oriented facilities (i.e., restaurants, shops, recreational areas, marinas, etc.) in the vicinity of the proposed bridge(s)?

*According to the US Coast Pilot #1, Sagamore Creek offers “small craft facilities”. There is a marina (Portsmouth Marina) offering berths and guest moorings, electricity, fuel, and a launching ramp. There is also a restaurant (BG’s Boathouse) adjacent to the marina. It is possible that the proposed bridge will restrict the use of these facilities by tall vessels such as sailboats. However, based on the lift log data there is limited evidence that taller vessels had used these facilities in the past including after the completion of the USACE 2017 dredging project.*

*Other facilities in the area offer similar facilities to that of Portsmouth Marina:*

- *Wentworth-By-The-Sea, in Little Harbor, offers similar facilities and is the likely destination for vessels restricted by the existing bridge in its closed position and unable or unwilling to wait the 4 hours for bridge lift requests. Depths are approximately 15’ in the approach and 12’ alongside. Berths with electricity, gasoline, diesel fuel, water, ice, marine supplies, and pumpout facilities are available. Hull and engine repairs services are also available.*
- *Portsmouth Yacht Club is located on the south bank of the Piscataqua River on New Castle Island. The facility provides a depth of 9’ at its float landings at which gasoline, diesel fuel, water, ice, and electricity are available. Guest moorings are maintained by the club, and other moorings in the special small-vessel anchorage are available for hire.*
- *Kittery Point Yacht Yard on the eastern end of the Maine Back Channel, northeastward of Jamaica Island, has a marine railway capable of hauling out craft up to 60’ long or 80 tons for hull and engine repairs or dry open or covered storage. Deep water moorings for vessels up to 65’ and berths up to 60’ can be accommodated at this facility. Water, ice, electricity, pumpout service, and provisions can also be obtained from this facility.*
- *Badger Island Marina, with a machine shop, is on the south side of Badgers Island west of the Memorial Bridge. Water is available at its 100’ pier, which has a reported depth of 11’ alongside. Two marine railways can handle craft up to 65’ in length for repairs or*

*storage. The marina maintains guest moorings and permits overnight berthing. Provisions, electricity, diesel fuel by truck, and most marine supplies can be provided.*

- *Prescott Park Wharf is a public facility on the south bank of Piscataqua River, about 100 yards eastward of the Memorial Bridge. Depths of 5' to 15' are reported alongside the float landings. Berthing for periods not to exceed 24 hours is available to small craft.*
- *Kittery Point, on the north bank of the Piscataqua River, has a public wharf and float landings with 12' depth reported alongside. Gasoline and water are available at the float, and ice, provisions and marine supplies are available at the wharf. A small-craft launching ramp is alongside the wharf. The Pepperrell Cove Yacht Club, also at the wharf, has a float landing on the east side of the wharf and maintains guest moorings.*

*The S/V Celerity (present use) and the vessels in Table 7 would not have access to mooring fields in the Back Channel.*

4. Is it feasible to modify the affected segments of the fleet to clear the proposed bridge(s) without substantially increasing operating costs? If yes, name the vessel(s), state the necessary modifications, cost of modifying each vessel and person or entity responsible for financing the modifications.

*The F/V Half Moon explained that the canvas can be lowered to transit the existing bridge without requesting a bridge lift, at some tide stages, but the process is tedious, and waiting for lower tides is preferable.*

*The S/V [unnamed day sailboat] explained that the mast can be lowered to transit the bridge, but the process is difficult and time consuming.*

5. Provide any additional information concerning the potentially impacted or burdened users of the waterway as well as the future use of the waterway.

*According to public outreach, some users feel that sailboats and other tall vessels would transit the existing bridge if a 4-hour notice was not required to lift the bridge. The proposed bridge would prevent access to the Back Channel for vessels with air drafts over 17.3' at MHW and air drafts over 26.3' and drafts greater than 6' at MLLW.*

*Some users indicated the proposed bridge would restrict access for future dredging projects, resulting in increased costs to the communities. According to the letter from the USACE, the proposed bridge would greatly reduce the costs of dredging when compared to the existing bridge (see Section E.8 for additional information).*

**G. Describe the present waterway and prospective commercial navigation and the cargoes moved on the waterway:** Will the proposed bridge(s) affect the safe, efficient movement of any segment of the present or prospective commercial fleet operating on the waterway? If yes, provide the following information:

*According to map-based research and community outreach efforts, the waterway supports multiple commercial businesses including a dockside restaurant, an inn, a marina, marine construction companies, commercial fishing vessels, charter touring and fishing vessels, and a yacht rental company. Outreach to commercial businesses was performed as is included in Attachment 12.*

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1. Will the proposed bridge(s) clearance impact present and/or prospective upstream commercial activity, e.g., jobs and economic growth and development?

Note: the next opportunity to adjust clearances for navigation is usually between 50-100 years unless interim waterway improvement projects include the cost of bridge alterations.

*Most data collected on activity in the waterway does not support any present or prospective impact to economic growth and development.*

*According to the lift log data, commercial vessels requested a lift to transit the bridge eight times since 2010. The lift logs were cross-referenced with mooring permit holders and none of the vessels in the lift logs are moored in the Back Channel waterway. Therefore, the existing commercial fleet does not appear to be affected by the clearances of the existing bridge. See Section G.2 for a discussion on impacts to prospective commercial activity.*

2. If yes, address any existing or planned commercial/industrial developments negatively affected by the proposed clearances and discuss the economic impacts the proposed clearances will have on these businesses:

*According to mooring permit holder outreach, two commercial fishing vessels would be negatively impacted. The F/V Half Moon is moored in the Goat Back and has an air draft of 18'. The owner generally waits for lower tides to transit the existing bridge and can lower the canvas to transit the existing bridge at higher tides. Note that the owner did not claim to be impacted by the proposed bridge. The F/V Black Dog is moored in Sagamore Creek and has an air draft of 25'. The owner takes 40 minutes to lower antennae to transit the existing bridge at higher tides. See Table 9 for dimensions of the F/V Half Moon and F/V Black Dog, and Section F for additional information.*

*According to 2020 commercial outreach, the owner of Portsmouth Marina has indicated that the proposed bridge could impact prospective commercial development of his facility by limiting the size of vessels that can transit the bridge. There is limited evidence in the lift logs that taller vessels use the facilities at Portsmouth Marina with any significant frequency. It is possible that the 4-hour advanced notification to request a bridge lift deters some potential customers, but it is also likely that the improved clearances offered by the proposed bridge without the inconvenience of the advance notice will provide an increase customer base for the marina as well as other businesses in Sagamore Creek.*

*Additionally, the Portsmouth Marina owner notified the team of his intent to purchase a research vessel, R/V Thunder, and dock or moor it at his facility in Sagamore Creek. As of the date of the letter, the owner had not made the purchase. This vessel would be not be able to transit the proposed bridge except at low tide. The measurements for the R/V Thunder are listed in Table 8.*

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Table 8. List of affected vessels in the prospective commercial fleet, according to commercial outreach.

<i>Vessel Name</i>	<i>Vessel Type</i>	<i>Length</i>	<i>Beam</i>	<i>Draft</i>	<i>Air Draft</i>	<i>Impact of Proposed Bridge</i>
<i>R/V Thunder</i>	<i>Research Vessel</i>	<i>69.5'</i>	<i>20'</i>	<i>2.5'</i>	<i>25'</i>	<i>Can transit at lower tides</i>

3. Document the foreseeable needs to future navigation;

*Prospective navigation is limited primarily by channel depth. The presence of Portsmouth Harbor provides a primary freight and commercial navigational path. In 2017, the USACE completed a federal navigation project which dredged portions of the Back Channel (See Section E). It is reasonable to assume that the USACE will conduct future dredging projects, although none are planned at this time.*

4. Provide input from waterway dependent facilities concerning future use;

*Three marine construction companies were contacted in 2017 to determine the size of vessels that may transit the bridge to access construction sites in the back channel. Riverside and Pickering requires 15.5' of vertical clearance. Prock Marine requires 60' of horizontal clearance and 15' of vertical clearance. Pepperell Cove Marine Services requires 12.5' of horizontal clearance and 15' of vertical clearance. All three companies mentioned that the Back Channel is currently accessed by transiting the NHIB bridge at Shapleigh Island. These vessels are tabulated in Table 9.*

*The M/V Heritage, operated by Portsmouth Harbor Cruises is one of the largest vessels transiting the existing bridge, and can do so without a bridge lift. The dimensions of the M/V Heritage are in Table 9.*

Table 9. Largest vessels in the present commercial fleet, according to community outreach.

<i>Name</i>	<i>Name</i>	<i>Vessel Type</i>	<i>Length</i>	<i>Beam</i>	<i>Draft</i>	<i>Air Draft</i>	<i>Impact of Proposed Bridge</i>
<i>Jim Manning</i>	<i>F/V Half Moon</i>	<i>Fishing Vessel</i>	<i>36'</i>	<i>13.5'</i>	<i>3.5'</i>	<i>18'</i>	<i>Can wait for lower tides</i>
<i>John Tuttle</i>	<i>F/V Black Dog</i>	<i>Fishing Vessel</i>	<i>31'</i>	<i>10'</i>	<i>4'</i>	<i>25'</i>	<i>Can lower antennae</i>
<i>Riverside &amp; Pickering</i>	-	<i>Construction Vessel</i>	-	-	-	<i>15.5'</i>	<i>No Impact</i>
<i>Prock Marine</i>	-	<i>Construction Vessel</i>	-	<i>60'*</i>	-	<i>15'</i>	<i>Can reconfigure to transit the bridge</i>
<i>Pepperell Cove Marine Services</i>	-	<i>Construction Vessel</i>	-	<i>12.5'</i>	-	<i>15'</i>	<i>No Impact</i>



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<i>Portsmouth Harbor Cruises</i>	<i>M/V Heritage</i>	<i>Passenger</i>	<i>60'</i>	<i>17.5'</i>	<i>4.5'</i>	<i>14.5'</i>	<i>No Impact</i>
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*\*Note: The 60' width includes the tug attached to the barge for propulsion. This vessel currently transits the NH Route 1B Bridge (Shapleigh Island to Goat Island) which has a horizontal clearance of 48'.*

5. Describe land use zoning along the waterway (particularly within the riparian zone);

*Land use zoning along the New Castle side of the bridge consists of full-time commercial business along with seasonal and full time residential beyond the Wentworth By The Sea Marina.*

*The land to the west of the bridge, in Rye, and along the west shore of the Northward Channel and the north shore of Sagamore Creek, in Portsmouth, and is a combination of full time residential and conservation / marshland zones.*

*The land along south shore of Sagamore Creek, in Portsmouth NH, consists of a full time commercial and full time residential.*

**H. Identify the name and contact information for marine facilities located within a 3-mile radius of the proposed project (public boat ramps, marinas or major docking facilities, boat repair facilities, etc.):**

The following facilities were identified:

Table 10. Marine facilities within a 3-mile radius of the Wentworth Bridge.

<b>Name</b>	<b>Location</b>	<b>Phone</b>
<i>BG's Boat House Marina</i>	<i>Rye</i>	<i>603-431-1074</i>
<i>Esther's Marina</i>	<i>Portsmouth</i>	<i>603-828-6462</i>
<i>Freedom Boat Club</i>	<i>Rye</i>	<i>508-443-6800</i>
<i>Goat Island Car Top Boat Access Facility</i>	<i>New Castle</i>	<i>603-431-6710</i>
<i>Granite State Materials</i>	<i>Portsmouth</i>	<i>603-319-4294</i>
<i>Gundalow Company</i>	<i>Portsmouth</i>	<i>603-433-9505</i>
<i>Irving Oil Terminals Inc.</i>	<i>Portsmouth</i>	<i>603-436-5147</i>
<i>Isles of Shoals Steamship Company</i>	<i>Portsmouth</i>	<i>603-431-5500</i>
<i>Judd Gregg Marine Center</i>	<i>New Castle</i>	<i>603-433-1290</i>
<i>Kittery Point Yacht Club</i>	<i>New Castle</i>	<i>603-436-9303</i>
<i>Moran Towing of New Hampshire</i>	<i>Portsmouth</i>	<i>603-436-1209</i>
<i>NH Port Authority</i>	<i>Portsmouth</i>	<i>603-436-8500</i>
<i>Odiorne Point Boat Launch</i>	<i>Rye</i>	<i>603-436-7406</i>
<i>Peirce Island Boat Launch</i>	<i>Portsmouth</i>	<i>603-766-1483</i>
<i>Portsmouth Harbor Cruises</i>	<i>Portsmouth</i>	<i>603-436-8084</i>
<i>Portsmouth Harbor Tow</i>	<i>Portsmouth</i>	<i>877-838-3193</i>
<i>Portsmouth Kayak Adventures</i>	<i>Portsmouth</i>	<i>603-559-1000</i>
<i>Portsmouth Marina</i>	<i>Portsmouth</i>	<i>603-422-3462</i>
<i>Portsmouth Yacht Club</i>	<i>New Castle</i>	<i>603-436-9877</i>
<i>Riverside Marine Construction</i>	<i>Portsmouth</i>	<i>603-427-2824</i>
<i>Sanders Lobster Company</i>	<i>Portsmouth</i>	<i>603-436-3716</i>
<i>Seafari</i>	<i>Kittery, ME</i>	<i>207-439-5068</i>
<i>Shoal's Marine Laboratory</i>	<i>Portsmouth</i>	<i>603-964-9011</i>
<i>Sushi Hunter Charters</i>	<i>Portsmouth</i>	<i>603-231-7904</i>
<i>U.S. Navy / Portsmouth Naval Shipyard</i>	<i>Kittery, ME</i>	<i>207-438-1000</i>
<i>US Coast Guard</i>	<i>New Castle</i>	<i>603-436-4415</i>
<i>Vista Yacht Charters, LLC</i>	<i>New Castle</i>	<i>781-258-7344</i>
<i>Wentworth By The Sea Marina</i>	<i>New Castle</i>	<i>603-433-5050</i>

**I. Will the proposed bridge(s) block access of any vessel presently using local service facilities (i.e., repair shops, parts distributors, fuel stations)? If yes, provide the following information:**

*It is possible that the proposed bridge may block access to vessels accessing Portsmouth Marina for maintenance and fuel, but no vessels were identified during outreach efforts and there are other facilities in the immediate vicinity with similar amenities.*

1. Describe the facilities impacted and estimate the number of vessels currently using these facilities.

*No facilities are known to be impacted by the proposed bridge.*

2. Could any of these facilities be considered critical infrastructure, key resources, or important/unique U.S. industrial capability (i.e., are these facilities unique or one of only a few of the type in the area?) Address whether the proposed clearances negatively affect those facilities and their customers.

*No critical infrastructure facilities were identified in the waterway.*

3. What economic impact will loss of access have on these facilities? Include estimated dollar amount to support Commandant and DHS goals.

*It is possible that the proposed bridge may block access to vessels accessing Portsmouth Marina for maintenance and fuel. However, the lift logs demonstrate vessels that cannot transit the existing bridge in its closed position use Portsmouth Marina with any significant frequency. The clearances provided by the proposed bridge (57.5'H x 17.3'V) will improve access to the facilities in the waterway when compared to the existing bridge when closed (29.3'H x 13.0'V).*

4. What is the distance to alternate service facilities capable of servicing the affected vessels? Describe the facilities.

*Wentworth-By-the-Sea is immediately downstream of the bridge site, 0.2 miles south and east, and offers similar service facilities as Portsmouth Marina.*

5. Will use of these alternate facilities substantially increase vessel operation affected vessels? Describe the facilities.

*No facilities are known to be impacted by the proposed bridge.*

6. Is it feasible to modify the affected vessels to clear the proposed bridge(s)?

*No affected vessels were identified.*

7. If yes, state the name, necessary modifications, cost of modifying each vessel and who will pay for the modifications.

*No affected vessels were identified.*

**J. Are alternate routes bypassing the proposed bridge(s) available for use by vessels unable to pass the proposed bridge(s)? If yes, provide the following information:**

*The proposed bridge provides the greatest vertical clearance on the waterway (17.3' at MHW). For those vessels requiring greater vertical clearance, there is no alternate route.*

*The NH Route 1B Bridge between Portsmouth and Shapleigh Island provides a slightly greater horizontal clearance (60') when compared to the proposed bridge (57.5'), but only 10' of vertical clearance at MHW and 4' of channel depth at MLLW. Vessels which are within these horizontal and vertical clearances can access the waterway from the north by travelling around New Castle Island and Pierce Island. The alternate route is 6.5 miles long and is shown below.*

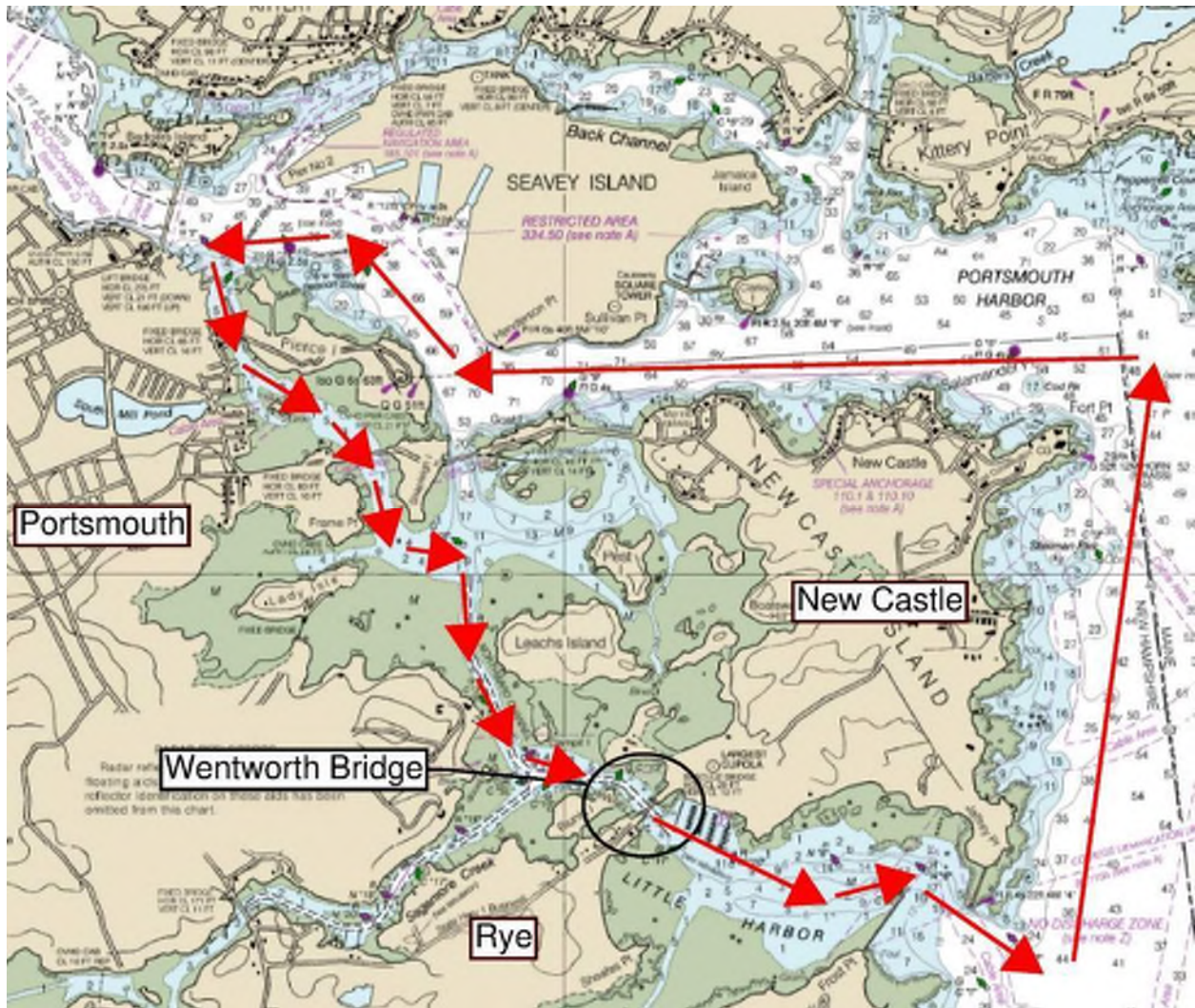


Figure 10. Alternate Route offering greater horizontal clearance over proposed bridge but decreased vertical clearance.

1. State the number of vessels that will be forced to use alternate routes.

*There are no documented vessels which would be restricted by the proposed bridge but could access the waterway using the alternate route.*

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2. For each vessel identified in section H1.a., above, include the following information:

*There are no documented vessels which would be restricted by the proposed bridge but could access the waterway using the alternate route.*

3. Identify any alternate routes and provide the respective distances between the proposed bridge(s) and these routes.

*The alternate route described above is 6.5 miles long.*

4. Will use of these routes substantially increase the transit time and/or operating costs of the affected vessels? This relates to the mobility goals of the Commandant and DHS.

*There are no documented vessels which would be restricted by the proposed bridge but could access the waterway using the alternate route.*

5. If yes, describe the impacts of increased transit time and/or operating costs.

*There are no documented vessels which would be restricted by the proposed bridge but could access the waterway using the alternate route.*

6. Is it feasible to modify these vessels to clear the proposed bridge(s)?

*There are no documented vessels which would be restricted by the proposed bridge but could access the waterway using the alternate route.*

7. If yes, state the name, necessary modifications, cost of modifying each vessel and who will pay for these modifications.

*There are no documented vessels which would be restricted by the proposed bridge but could access the waterway using the alternate route.*



**K. Will the bridge(s) prohibit the entry of any vessels to the local harbor of refuge? If yes, describe the harbor and provide the following information:**

*The proposed bridge will not restrict access to the local harbor of refuge. According to US Coast Pilot 1, Portsmouth Harbor is the local harbor of refuge. Portsmouth Harbor provides refuge from heavy seas for vessels in distress and possesses many anchorage areas for vessels with deep drafts and/or high air draft. Portsmouth Harbor and the Piscataqua River are immediately adjacent to the northern terminus of the waterway.*

*Multiple anchorage areas exist within the Piscataqua River: The east and north sides of the channel between Wood Island and Clark's Island in depths of 18' to 71'; Pepperell Cove on the eastern side of the harbor on the northside of Fishing Island in depths of 7' to 11'; the cove at the mouth of Spinney Creek on the north bank of the Piscataqua River provides anchorage in depths of up to 25' of water.*

*The proposed bridge will not restrict access to Portsmouth Harbor, as it can be accessed by the main river channel to the north of New Castle Island. In addition to Portsmouth Harbor, vessels unable to transit the proposed bridge can seek shelter in Little Harbor, which is immediately south of the proposed bridge and which is protected by jetties extending from opposing Jaffrey and Frost Points.*

*The Back Channel, Northward Channel, and Sagamore Creek could be considered a place of refuge for vessels with an air draft less than 17.3' at MHW and whose draft does not exceed the available water depth. The proposed bridge provides improved access to vessels that cannot transit the existing bridge when closed.*

*Some mariners believe the Back Channel has in the past been used as a harbor of refuge during major storm events. The lift logs since 2010 do not support any such transit of larger air draft vessels on any given day. Two major events occurred during this time frame, Hurricane Irene impacted the Northeast on August 28<sup>th</sup>-30<sup>th</sup>, 2011 and Hurricane Sandy impacted the Northeast on October 30<sup>th</sup> - November 2<sup>nd</sup>, 2012. According to the lift logs the only lifts in 2011 were for maintenance purposes and in 2012 no requested bridge lifts were made in the weeks around the hurricane event.*

1. What percentage of vessels currently using the harbor refuge will not be able to pass the proposed bridge(s) to gain access to that refuge? Describe the vessels.

*The proposed bridge will not restrict access to the harbor of refuge, Portsmouth Harbor. No known vessels are affected.*

2. Provide vessel information for those vessels identified in J.1.:

*No known vessels are affected.*

3. Is it feasible to modify these vessels to clear the proposed bridge(s)?

*No known vessels are affected.*

4. If yes, state the name, necessary modification, cost of modifying each vessel and who will pay for the modifications.

*No known vessels are affected.*

5. If alternate refuges are available, describe them and state the distance of each from the present harbor of refuge.

*Other locations for vessels seeking harbors of refuge include the following:*

- *Little Harbor, New Castle, NH, 0.2 miles south. Protected by jetties from Jaffrey and Frost Points, provides an anchorage area with a project depth of 12 feet on the south side of the channel.*
- *Rye Harbor, Rye, NH, 4.0 miles south. Protected by a stone breakwater extending southward from Ragged Neck Point and another breakwater extends northeastward from the point at the south side of the entrance to Rye Harbor. These breakwaters are about six feet above high water, and provide depths of 7' to 8' at the harbor's piers. A dredged channel leads through the breakwaters to anchorage basins on the north and south sides of the channel and state anchorage at the western limit.*
- *York Harbor, York, ME, 5.3 miles north. Anchorage basins are present in the harbor between Harris and Bragdon Islands and in the cove off the north side of Bragdon Island in depths of 3' to 6'. There is also anchorage at the service wharfs at the head of the harbor.*
- *Hampton Harbor, Hampton, NH, 11.9 miles south. Anchorages are available in the basins or in the narrow channels of the Hampton and Blackwater Rivers and other rivers and creeks northward and southward of the inlet.*

**NOTE: A harbor of refuge is defined as a naturally or artificially protected water area that provides a place of relative safety or refuge for commercial and recreational vessels traveling along the coast or operating in a region.**

**L. Will the proposed bridge(s) be located within one-half mile of a bend in a waterway? If yes, describe the bend and provide the following information:**

*Yes, there are bends in the waterway, to the north and south of the bridge. Approximately 1300' north of the bridge, the Back Channel splits into Sagamore Creek, to the west, and the Northward Channel, to the north. Approximately 2500' south of the bridge, the navigable channel turns eastward through Little Harbor toward the two jetties at Frost and Jaffrey Points and the Atlantic Ocean. See waterway and channel descriptions in Section C.*

1. Is there sufficient distance between the bridge(s) and the bend to allow proper vessel alignment for the safe, efficient passage of vessels through the proposed bridge(s)?

*The proposed bridge will be constructed in the same location as the existing bridge. The bridge is located approximately 1300' northwest from the bend in Little Harbor and approximately 600' southeast. This provides adequate visibility, alignment, and safe passage for vessels navigating the existing bridge and will provide for the same with the expanded horizontal clearance of the proposed bridge.*

2. If no, what factors make construction of the bridge(s) at an alternate location impractical?

*The proposed bridge will be constructed in the same location as the existing bridge.*

**M. Are there other factors (i.e., dockages, lightering areas, existing bridges, etc.) located within one-half mile of the proposed bridge(s), which would create hazardous passage through the proposed structure? If yes, provide the following information:**

1. Describe the factors. (For example, construction impacts to navigation and waterway users, etc.).

*There are private docks located on both the north and south sides of the Rye bridge approach. It is not anticipated that the docks will create any hazards that do not currently exist with the existing bridge.*

2. What mitigative measures are being recommended? (For example, navigation safety during construction, etc.) Why?

*The owners of the private docks have been made aware of the construction staging as well as operating and construction schedules. Appropriate navigational lighting and safety will be provided during construction. In addition, any anticipated encumbrance of the channel will be communicated as early as possible to the private and public dock operators and the boating public. Further public outreach and coordination for construction staging and scheduling will be undertaken during final design and prior to the start of construction.*

**N. Do local hydraulic conditions (i.e., wave chop, cross currents, tides, shoals, etc.) increase the hazard of passage through the proposed bridge(s)? If yes, provide the following information:**

*Per the project hydraulic report, strong tidal effects only occur when there is a flood occurring from a 100 or 500 year storm. The proposed bridge will have fewer piers in the waterway and will provide a wider navigable channel for vessels. Therefore, it is unlikely that hydraulic conditions will increase the hazard of passage.*

1. Describe the conditions:

*There are strong periodic tidal currents that may impact smaller, lower powered vessels. According to NOAA Tides and Currents data, flood velocity in the vicinity of Shapleigh Island (upstream) is 0.6 to 0.8 knots, and ebb velocity is 0.6 to 0.8 knots. In the vicinity of the Little Harbor Entrance (downstream), flood velocity is 0.5 to 1.0 knots, and ebb velocity is 1 to 1.5 knots. No change in tidal currents is expected at the proposed bridge.*

2. What mitigative measures are being recommended? Why?

*The proposed increase in navigable channel width mitigates the hazard of strong tidal currents by allowing more room for vessels to safely traverse the bridge along the channel. Additionally, the pier will be protected by a timber dolphin system. The independent system protects the users of the navigation channel and the concrete pier columns from potential allisions.*

**O. Do local atmospheric conditions (i.e., strong, prevailing winds, fog, rapidly developing storms, etc.) increase the hazard of passage through the proposed bridge(s)? If yes, provide the following information:**

Navigation Impact Report - Coast Guard Bridge Permit

*No local atmospheric conditions were identified that will increase the hazard of passage through the proposed bridge. However, extreme conditions such as winter storms would impact all navigation and transits in the entire geographic area which would inhibit navigation in most area harbors.*

1. Describe the conditions:

*No conditions were identified.*

2. What mitigative measures are being recommended? Why?

*No conditions were identified.*

**P. Have guide clearances been established for the waterway? If yes, provide the following information:**

1. Horizontal guide clearance;

*No guide clearances have been established.*

2. Vertical guide clearance;

*The Preliminary Navigation Determination letter from the US Coast Guard dated March 17, 2016 requested a vertical clearance of at least 16.52' above mean high water.*

3. Do the proposed bridge(s) clearances differ from these guide clearances?

*Yes, the proposed bridge provides a vertical clearance of 17.3' above mean highwater, approximately 0.78' above the given guide clearance.*

4. If yes, what factors justify deviating from these guide clearances?

*The guide clearances have been exceeded.*

**Q. Are there other natural or man-made conditions that affect navigation (atmospherics, exclusion zones, etc.)?**

1. Describe the conditions:

*Channel dredging by the USACE corrects natural shoaling and maintains access to the facilities in Sagamore Creek, the Northward Channel, and the Back Channel, as described in Section C.*

2. What mitigative measures are being recommended? Why?

*No mitigative measures are recommended.*

**R. State any other factors considered necessary for the safe, efficient passage of vessels through the proposed bridge(s)? Are clearance gauges needed? Why?**

*Fixed navigational lighting on the bridge will be required to indicate center span and navigable channel perimeters. Clearance gauges will be used as a safety precaution. Information on the*

*final bridge will be provided for inclusion in the US Coast Pilot and during construction through Notices to Mariners, broadcast Notice to Mariners, and other standard boater information methods including notices to mariners, web site postings, and other media methodology as appropriate.*

**S. Include a description of the impacts to navigation caused or which could be reasonably caused by the proposed bridge(s) including but not limited to: proposed construction methodology, proposed or prospective changes to the existing bridge(s) operating schedule (for movable bridges), and any proposed mitigation to all unavoidable impacts to navigation.**

*The proposed bridge will reduce vertical clearance at MHW from 65' (the height of the adjacent power lines) to 17.3' and will improve horizontal clearance from 29.3' to 51.5'. All vessels that require excess clearance will not be able to transit the bridge. Vessels that require vertical clearances between 13.0' (the existing bridge clearance when closed) and 17.3', at MHW, will be able to transit the bridge without requesting a lift.*

*The existing bridge was constructed using steel stringers which support an open steel grid deck, steel curbs, and steel guard rails. The five bents and the north abutment of the existing bridge were constructed on H-pile foundations. The south abutment is founded on rock.*

*Construction of the replacement bridge is scheduled to begin during the winter of 2022/2023. It is anticipated that the bridge will be closed to all vehicular traffic for a period of approximately 4 months. The project does not propose the construction of a temporary bridge during this time. The 4-month schedule assumes a work schedule of 6 days per week with 10-hour shifts.*

*Demolition of the superstructure will begin with removal of the operating equipment from the bascule-lift span. There will be consideration of an earlier closure of the bascule-lift to marine traffic, allowing pinning of the bridge in a closed position. Work associated with taking the operating equipment out of service and removing connections of the machinery to the span could then be performed prior to the road closure. This work would be performed while the bridge remains open to roadway traffic.*

*Following removal of the bascule-lift operating equipment, the superstructure and bents will be demolished. This work can be done using barge mounted cranes operating from the waterway. The abutments will only be partially removed as they do not interfere with construction of the new abutments.*

*Construction activities will begin with demolition of the existing structure, along with excavation required for construction of the approach roadway retaining walls. Bents in the waterway and spans over the waterway can be accessed by floating equipment, consisting of crane barges, materials barges, and tugboats. Equipment can access the site via water from both Little Harbor and the Back Channel with a short tow to get from side to side. Water depths are sufficient to access water work with floating equipment. There could be some limitations at MLW and a possibility that the contractor may request minor dredging for an access channel. Any dredging may require permits for which the proposed schedule provides time for permitting and may be subject to in water work windows. Another possible access method would be by temporary trestle which could extend from either approach roadway, though this alternative has many disadvantages due to the steep banks at the approaches. Land and abutment work will be accessed from the existing closed roadway.*



*The bascule span can be floated out using modified barges and taken off site for further demolition. Approach spans can be removed by floating out or lifting with barge mounted equipment. Existing bents consist of H-pile foundations with steel bracing and caps. Bent structures are typically removed to at least the mudline. Abutments are reinforced concrete and demolition will be done with large excavator-mounted impact breakers to break the concrete and then excavate.*

*Following demolition of the existing structure, piles will be driven to construct the bent and integral abutments. With piles driven the precast bent cap and abutments will be placed and grouted in place. The cap will be set in two pieces with each in the range of 30 tons, within the capacity of the cranes doing other in-water work. The abutments will be set in three pieces and can be placed using land-based cranes at the approaches.*

*Steel plate girders and precast concrete deck panels will then be placed via barge-mounted cranes operating in the waterway. Each girder will have two splices, one on either side of the bent. One girder end section will be placed first and temporarily supported either by crane or temporary shoring. Once the middle girder section is placed and the first splice connection made, the temporary support will be removed, and the other end section installed. Cast in place concrete will be used for deck closure pours and to construct the sidewalk and barriers.*

1. Conduct a navigational impact report, and include a review of all bridges upstream and downstream of the proposed site to determine the minimum vertical and horizontal clearances available on the waterway.

*Refer to Section B.1 for analysis of bridge clearances upstream with respect to the proposed bridge.*

2. If the proposed bridge(s) is fixed, and is replacing an existing drawbridge with unlimited vertical clearance, the applicant must determine whether the proposed bridge(s) will accommodate existing and perspective navigation.

*The proposed bridge will accommodate all documented existing navigation except for vessels outlined in Sections D, F, and G.*

**T. Is there any proposed or completed mitigation for impacted waterway users? Are there any impacts that cannot be mitigated?**

1. Can vessels and cargoes be partially disassembled/dismantled in order to transit the proposed bridge(s), and if so, is it economically reasonable? The Coast Guard must take into consideration a vessel's ability to adjust its operations without economic loss. Adjustment or mitigations techniques may include using other routes, lowering electronics (GPS, radar, communication antennae, etc.), lowering crane booms, etc.

*Vessels that cannot transit the proposed bridge are documented in Sections D, F, and G. There is no proposed or completed mitigation for impacted waterway users.*

2. Are alternative routes available for vessel passage?

*Alternative routes available for passage are outlined in Section J.*

3. Can vessels transit at typical lower water stages (mean low water, mean pool level, etc.)?

*The tidal elevation difference from MHW to MLW is approximately 8.6' which when added to the MHW clearance results in an MLW clearance of approximately 25.9'. Vessels that have clearance requirements greater than 25.9' will be restricted from transiting the bridge. The F/V Half Moon, F/V Black Dog, and S/V [unnamed day sailboat] noted that their vessels can be modified to transit the existing bridge and therefore will also be capable of transiting the proposed bridge.*



# Attachment 2

## Proposed Bridge Plan and Elevation

### Attachment Summary

Existing Vertical Clearance: 13.0' (Closed) 65' (Open)

Existing Horizontal Clearance: 29.3'

Proposed Vertical Clearance: 17.3'

Proposed Horizontal Clearance: 51.5'





# Attachment 3

33 CFR 117.699 – Little Harbor

§ 117.683

Fort Bayou drawtender. During periods of storm or hurricane warnings issued by the National Weather Service, the draw shall open on signal at any time.

[CGD 82-025, 49 FR 17452, Apr. 24, 1984; 49 FR 37382, Sept. 24, 1984]

§ 117.683 **Pearl River.**

See § 117.486, Pearl River, listed under Louisiana.

[USCG-2001-10881, 71 FR 70311, Dec. 4, 2006]

§ 117.684 **Bayou Portage.**

The draw of the Henderson Avenue Bridge, mile 2.0, at Pass Christian, MS shall open on signal if at least two hours notice is given to the Harrison County Board of Supervisors.

[CGD08-04-010, 69 FR 69531, Nov. 30, 2004]

§ 117.685 **Tchoutacabouffa River.**

The draw of the Cedar Lake Road Bridge over the Tchoutacabouffa River, mile 8.0, shall open on signal if at least twenty-four hours notice is given.

[CGD08-98-055, 63 FR 49822, Sept. 18, 1998]

§ 117.686 **Yazoo River.**

(a) The draws of the Canadian National/Illinois Central railroad bridge, mile 16.7 at Redwood, and the Satartia highway (S433) bridge, mile 53.3 at Satartia, shall open on signal if at least two hours notice is given. When a vessel has given notice and fails to arrive within the two hour period specified, the drawtender shall remain on duty for two additional hours and open the draw if the requesting vessel appears. After this time, an additional two hour notice is required.

(b) The draws of the bridges upstream from the Satartia highway (S433) bridge shall open on signal if at least four hours notice is given. When a vessel has given notice and fails to arrive within the four hour period specified, the drawtender shall remain on duty for two additional hours and open the draw if the requesting vessel appears. After this time, an additional four hour notice is required.

[CGD 82-025, 49 FR 17452, Apr. 24, 1984. Redesignated at CGD8-92-03, 57 FR 27696, June 22, 1992, as amended by USCG-2000-7223, 65 FR 40056, June 29, 2000]

33 CFR Ch. I (7-1-18 Edition)

MISSOURI

§ 117.687 **Missouri River.**

The draws of the bridges, except for the Atchison Railroad Bridge, Mile 422.5, see § 117.411(b) for further details, across the Missouri River shall open on signal; except during the winter season between the date of closure and date of opening of the commercial navigation season as published by the Army Corps of Engineers, the draws need not open unless at least 24-hours advance notice is given.

[USCG-2014-0358, 80 FR 81181, Dec. 29, 2015]

§ 117.689 **Osage River.**

The draw of the Missouri Pacific Railroad bridge, mile 5.6 at Osage City, need not be opened for the passage of vessels.

NEBRASKA

§ 117.691 **Missouri River.**

The draw of the Illinois Central Gulf Railroad Bridge, mile 618.3, at Omaha, shall open on signal; except during the winter season between the date of closure and date of opening of the commercial navigation season as published by the Army Corps of Engineers, the draw need not open unless at least 24 hours advance notice is given.

[CGD08-98-020, 66 FR 62938, Dec. 4, 2001]

NEW HAMPSHIRE

§ 117.697 **Hampton River.**

The SR1A bridge, mile 0.0 at Hampton, operates as follows:

(a) The draw shall open on signal from April 1 through October 31 for the passage of vessels during daylight hours from three hours before to three hours after each high tide. "Daylight hours" means one-half hour before sunrise to one-half hour after sunset. High tide occurs one-half hour later than the time of high tide for Portland, Maine, as published in the tide tables published by private entities using data provided by the National Ocean Service. At all other times, the draw shall open on signal if at least three hours notice is given.



(b) The owners of the bridge shall provide and keep in good legible condition two board gages painted white with black figures not less than six inches high to indicate the vertical clearance under the closed draw at all stages of the tide. The gages shall be so placed on the bridge that they are plainly visible to operators of vessels approaching the bridge either up or downstream.

(c) Vessels which can pass under the closed draw with a clearance of one foot or more shall not signal for the opening of the draw. In case a vessel gives the prescribed signal and the drawtender is uncertain as to whether the vessel can safely pass, the drawtender shall open the draw. If the drawtender finds that there would have been a clearance of one foot or more had the draw remained closed, the matter shall be reported immediately to the District Commander, giving the name of the vessel, the time of opening the draw, the clearance under the bridge as indicated by the gage at the time of opening the draw, and the approximate vertical clearance required by the vessel.

[CGD 82-025, 49 FR 17452, Apr. 24, 1984, as amended by USCG-2001-9286, 66 FR 33641, June 25, 2001]

**§ 117.699 Little Harbor.**

The draw of the SR1B bridge, mile 1.0 between New Castle and Rye, shall open on signal from April 1 through October 31 from 6 a.m. to 10 p.m. if at least four hours notice is given. At all other times, the draw shall open as soon as possible only for emergencies.

**§ 117.700 Piscataqua River.**

See § 117.531, Piscataqua River, listed under Maine.

[CGD 92-015, 57 FR 37880, Aug. 21, 1992]

NEW JERSEY

**§ 117.701 Alloway Creek.**

(a) The draws of the Salem County bridges, miles 5.1 at Hancocks Bridge, and 6.5 at New Bridge, shall open on signal if at least 24 hours notice is given.

(b) The draw of the S49 bridge, mile 9.5 at Quinton, need not be opened for the passage of vessels.

**§ 117.702 Arthur Kill.**

(a) The draw of the Arthur Kill (AK) Railroad Bridge shall be maintained in the full open position for navigation at all times, except during periods when it is closed for the passage of rail traffic.

(b) The bridge owner/operator shall maintain a dedicated telephone hot line for vessel operators to call the bridge in advance to coordinate anticipated bridge closures. The telephone hot line number shall be posted on signs at the bridge clearly visible from both the up and downstream sides of the bridge.

(c) Tide constrained deep draft vessels shall notify the bridge operator, daily, of their expected times of vessel transits through the bridge, by calling the designated telephone hot line.

(d) The bridge shall not be closed for the passage of rail traffic during any predicted high tide period if a tide constrained deep draft vessel has provided the bridge operator with an advance notice of their intent to transit through the bridge. For the purposes of this regulation, the predicted high tide period shall be considered to be from two hours before each predicted high tide to a half-hour after each predicted high tide taken at the Battery, New York.

(e) The bridge operator shall issue a manual broadcast notice to mariners of the intent to close the bridge for a period of up to 30 minutes for the passage of rail traffic, on VHF-FM channels 13 and 16 (minimum range of 15 miles) 90 minutes before and again at 75 minutes before each bridge closure.

(f) Beginning at 60 minutes prior to each bridge closure, automated or manual broadcast notice to mariners must be repeated at 15 minute intervals and again at 10 and 5 minutes prior to each bridge closure and once again as the bridge begins to close, at which point the appropriate sound signal will be given.

(g) Two 15 minute bridge closures may be provided each day for the passage of multiple rail traffic movements across the bridge. Each 15 minute bridge closure shall be separated by at



# Attachment 4

2016 USCG Preliminary Navigation Determination

U.S. Department of  
Homeland Security

United States  
Coast Guard



Commander  
First Coast Guard District

Battery Park Bldg.  
1 South Street  
New York, NY 10004-1466  
Staff Symbol: (dpb)  
Phone: (212) 514-4331  
Fax: (212) 514-4337

16591/0.8/H  
Little Harbor/NH  
March 17, 2016

Mr. L. Robert Landry, P.E.  
Chief of Consultant Section, Bureau of Bridge Design  
New Hampshire Dept. of Transportation  
John O. Morton Building  
7 Hazen Drive  
P.O. Box 483  
Concord, NH 03302-0483

Dear Mr. Landry:

In order to assist the New Hampshire Department of Transportation (NHDOT) with submission of an application for authorization to construct a replacement of the NH Route 1B (Wentworth) Bridge over Little Harbor, mile 0.8, between Newcastle and Rye, New Hampshire, I write to inform you of our preliminary review of navigation survey results. This survey, in conjunction with other information discussed below and the reasonable needs of navigation, requires that your bridge replacement proposal provide for a minimal vertical clearance of at least 16.52 feet.

As you know, the Coast Guard has been working closely with NHDOT for several years on the replacement of the functionally obsolete and structurally deficient single-leaf bascule lift bridge on NH Route 1B across Little Harbor. Initially, NHDOT proposed replacing the existing bridge with either another single-leaf bascule bridge (drawbridge) or a fixed bridge. The proposed bascule bridge option would preserve the existing vertical clearance of 65 feet and increase the horizontal clearance from 29 feet to approximately 44 feet. The proposed fixed bridge option would reduce the vertical clearance to 14 feet and increase the horizontal clearance to 51.5 feet. From your Navigational Report of June 23, 2015, we understand that NHDOT prefers the fixed bridge option.

A review of NOAA chart#13283 indicates this area is the main route from points upstream to Portsmouth Harbor and the Atlantic Ocean. The nearby Sagamore Creek US Route 1A Bridge was constructed with a vertical clearance of 16.52 feet above mean high water (MHW) to accommodate commercial fishing vessels upstream of the bridge. Vessels generally only transit the Route 1B Bridge at low tide to avoid the four-hour advance notice to open the bridge, and avoid using the other bridges to exit the back channels because of the low clearances, shallow water, and because of the longer distance to the fishing grounds. Replacement of the Route 1B Bridge with a fixed vertical clearance of 14 feet would make this new bridge the governing structure for vertical clearances on the waterway, and would not satisfy the intended purpose of the US Route 1A Bridge to accommodate commercial fishing vessels.

Historically, bridge openings occurred more frequently than in recent years. In 1995 and 1996, there were 51 total openings, 47 of which were for vessels. Access to Sagamore Creek and the

Little Harbor back channels has been limited the last several years due to shoaling. In February 2016, however, the U.S. Army Corps of Engineers (USACE) announced they have funding and a schedule to dredge the channel. We anticipate this will allow more/larger vessels to utilize the waterways. Accordingly, we recently reached out to local mariners and facilities to determine how many vessels would utilize the back channels after the dredging project is complete. While we only received one response, we anticipate that the dredging project will increase waterway use.

Likewise, the responses to our public notice were largely in favor of the drawbridge alternative. Several members of the public commented to encourage replacement with a moveable bridge. The USACE stated that the greater clearance (along with the proposed greater horizontal clearance) associated with the bascule lift bridge would be optimal when dredging/maintaining the federal channel; the greater clearances would provide full access to the Corps' dredging equipment, saving time and money on future projects. Coast Guard Sector Northern New England and local mariners and maritime organizations noted that the drawbridge would allow the back channels to be used as a safe harbor of refuge during storms by larger vessels that normally moor outside of the Route 1B Bridge.

While a bridge replacement that maintains the 65-foot vertical clearance would be optimal, we were unable to produce sufficient data to support it. Based on the information presently available, we have made a preliminary determination that to provide for the current and prospective needs of navigation on waters upstream of the existing NH Route 1B Bridge, an application for a bridge replacement should provide at least 16.52 feet of vertical clearance above mean high water. Please note that this preliminary determination does not constitute an approval or final agency determination, which we can only make in accordance with regulation and after NHDOT submits a complete bridge permit application.

To assist with the application for a bridge permit, please refer to the Coast Guard's Bridge permit Application Guide, COMDTPUB P16591.3 (series), which is available on line at: [http://www.uscg.mil/hq/cg5/cg551/BPAG\\_Page.asp](http://www.uscg.mil/hq/cg5/cg551/BPAG_Page.asp), and contact me at the number above with any questions. We look forward to working with NHDOT and moving this project forward.

Sincerely,



C.J. Bisignano  
Supervisory Bridge Management Specialist  
By direction

E-Copy: (1) FHWA-NH Division  
(2) USCG Sector Northern New England



# Attachment 5

Emergency Operations Outreach Summary



Description	Address	Phone	Called?	Answered?	Contact	Vessel Info	Further Actions
US Coast Guard (S&R and Maritime Law Enforcement)	25 Wentworth Road, New Castle, NH	603-436-4415	Yes	Yes	Chief Warrant Officer Dan Benoit	29' Response Boat-Small (RB-S), 9' clearance. 47' Motor Lifeboat (MLB), 18'-6" clearance; 4'-6" draft	According to Chief Warrant Officer Benoit, the proposed bridge does impact USCG operations in the back channel. The 47' MLB would not be able to transit the bridge at high tide.
US Coast Guard (Navigation Aid Maintenance)	Station Portsmouth Harbor 25 Wentworth Road, New Castle, NH	603-433-7324	Yes	Yes	Lt David Bourbeau	trailerable boat, no significant clearance requirements	According to Lt David Bourbeau, aids to navigation are maintained using a trailerable boat by personnel out of Station South Portland. Lt Bourbeau recommended contacting Senior Chief Clayton Franklin. 207-767-0393. Attempts to contact Senior Chief Franklin during the week of 7/15/21 were unsuccessful.
	Station South Portland 259 High St, South Portland ME 04106	207-767-0393	Yes	No	Senior Chief Clayton Franklin		
New Castle Fire Department	43 Main Street, New Castle, NH	603-436-1132	Yes	Yes	Mark Wooley, Dep Fire Chief	"Marine 2" 19' long Boston Whaler, no significant clearance requirements	Closed
New Castle Police Department	43 Main Street, New Castle, NH	603-436-3800	No	N/A	-	-	Closed. See New Castle Fire
Portsmouth Fire Department	170 Court Street, Portsmouth, NH	603-427-1515	Yes	Yes	Bill McQuillen	"Marine 1" 26' Ribcraft rigid hull inflatable, no significant clearance requirements	closed
Portsmouth Police Department	3 Junkins Avenue, Portsmouth, NH	603-427-1510	Yes	N/A	-	-	Closed, see Portsmouth fire
Rye Fire Department	555 Washington Road, Rye, NH	603-964-6411	Yes	No	-	jet ski, agreement with New Castle for joint response. no significant clearance requirements	According to New Castle Fire Dept, Rye responds with jet ski, and has agreement with New Castle Fire for joint response to emergencies
Rye Police Department	555 Washington Road, Rye, NH	603-964-7450	No	N/A	-	-	Closed, see Portsmouth fire
Portsmouth Naval Shipyard	2 Wentworth St Kittery, ME	207-438-1000	No	N/A	-	-	Complete. Sufficient outreach performed in previous NIR
US Army Corp of Engineers	696 Virginia Road, Concord, MA	978-318-8238	No	N/A	-	No vessel info. Dredging performed by independent contractor	Complete. Sufficient outreach performed in previous NIR





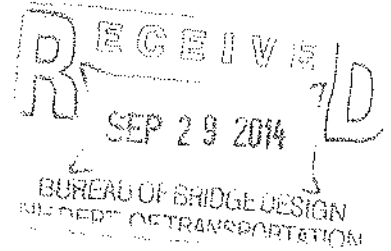
# Attachment 6

2014 USACE Letter to Portsmouth Pilots



DEPARTMENT OF THE ARMY  
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS  
696 VIRGINIA ROAD  
CONCORD, MA 01742-2751

September 24, 2014



Programs and Project Management Division  
Civil Works/IIS Project Management Branch

Mr. Chris Holt  
Portsmouth Pilots, Inc  
PO Box 72  
Portsmouth, New Hampshire 03801

RE: Proposed Replacement of the Wentworth Bridge on NH Route 1B at Little Harbor,  
Between Rye and New Castle, New Hampshire

Dear Mr. Holt:

As requested, I am writing to provide you with the Corps' perspective regarding the subject proposed bridge replacement relative to the Corps' ability to maintain the Federal channels known as the Portsmouth Harbor Back Channels. I understand that the State of New Hampshire Department of Transportation (NH-DOT) is currently considering two options for the proposed bridge replacement:

1. A new fixed span bridge with a wider opening than the current bascule bridge;  
and
2. A new bascule bridge with a wider opening than the current opening

Because the existing Route 1B bascule bridge is too narrow to allow passage of dredging equipment, the current configuration requires all dredging equipment accessing the Federal channels to pass under the fixed span Route 1B bridge (NH-DOT bridge identification - "New Castle 031/142") to the north of the Back Channels area. This bridge is wide enough to accommodate dredging equipment and the vertical clearance is sufficient for a dredging contractor to maneuver (albeit with much difficulty) equipment through the opening. Although workable, this current situation requires scows transporting dredged sediments to the Wallis Sands Beach near-shore placement site to travel north and then around the east side of New Castle before heading to the near-shore placement site to the south. Maintenance dredging of the Portsmouth Harbor Back Channels would be very slow and costly under this current configuration.

With that said, both of the NH-DOT's proposed bridge replacement options represent an improvement as regards access for dredging equipment to the Back Channels area. The wider bascule bridge option provides adequate width and unlimited

vertical clearance for dredging equipment. Also, opening up a passage to the south and nearer to the dredged material disposal site, this option would significantly reduce the time and cost associated with hauling dredged materials to the near-shore placement site. Similarly, the wider fixed span bridge, though cumbersome to work through due to the limited vertical clearance, would still allow for passage of dredging equipment and scows to the south, and would significantly reduce the time and cost associated with transporting the dredged sediments to the Wallis Sands near-shore placement site.

Although the bascule bridge option is the Corps' preferred alternative, the New England District of the Corps of Engineers, believes that there would be a benefit from either bridge replacement alternative in terms of the cost and constructability associated with maintenance dredging of the Federal Portsmouth Harbor Back Channels. However, while we prefer the wider Bascule option, we understand that this option represents a significant increase in the cost of construction, operation and maintenance over the cost of a fixed bridge. Given the low frequency that we maintain the Portsmouth Harbor Back Channels area, we do not believe the savings in dredging costs alone would justify the additional life cycle costs of a Bascule bridge over the costs of a fixed bridge. The Corps understands that many factors play into the final decision.

Please feel free to contact me if you require any further information regarding this matter at 978-318-8586.

Sincerely,



Michael E. Walsh, P.E., PMP  
Navigation Project Manager

Copies Furnished:

Mr. Chris Bisignano, Supervisory Bridge Management Specialist  
First Coast Guard District (dpb)  
Battery Bldg, Room 301  
1 South Street  
New York, New York 10004-1466

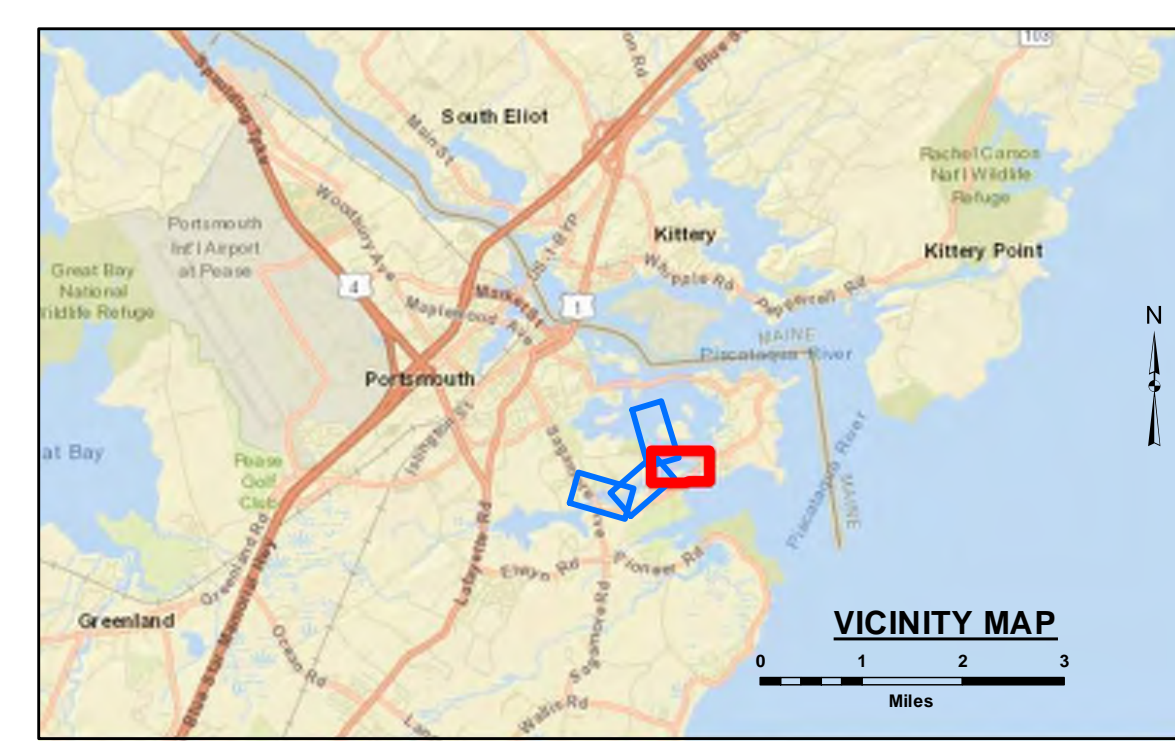
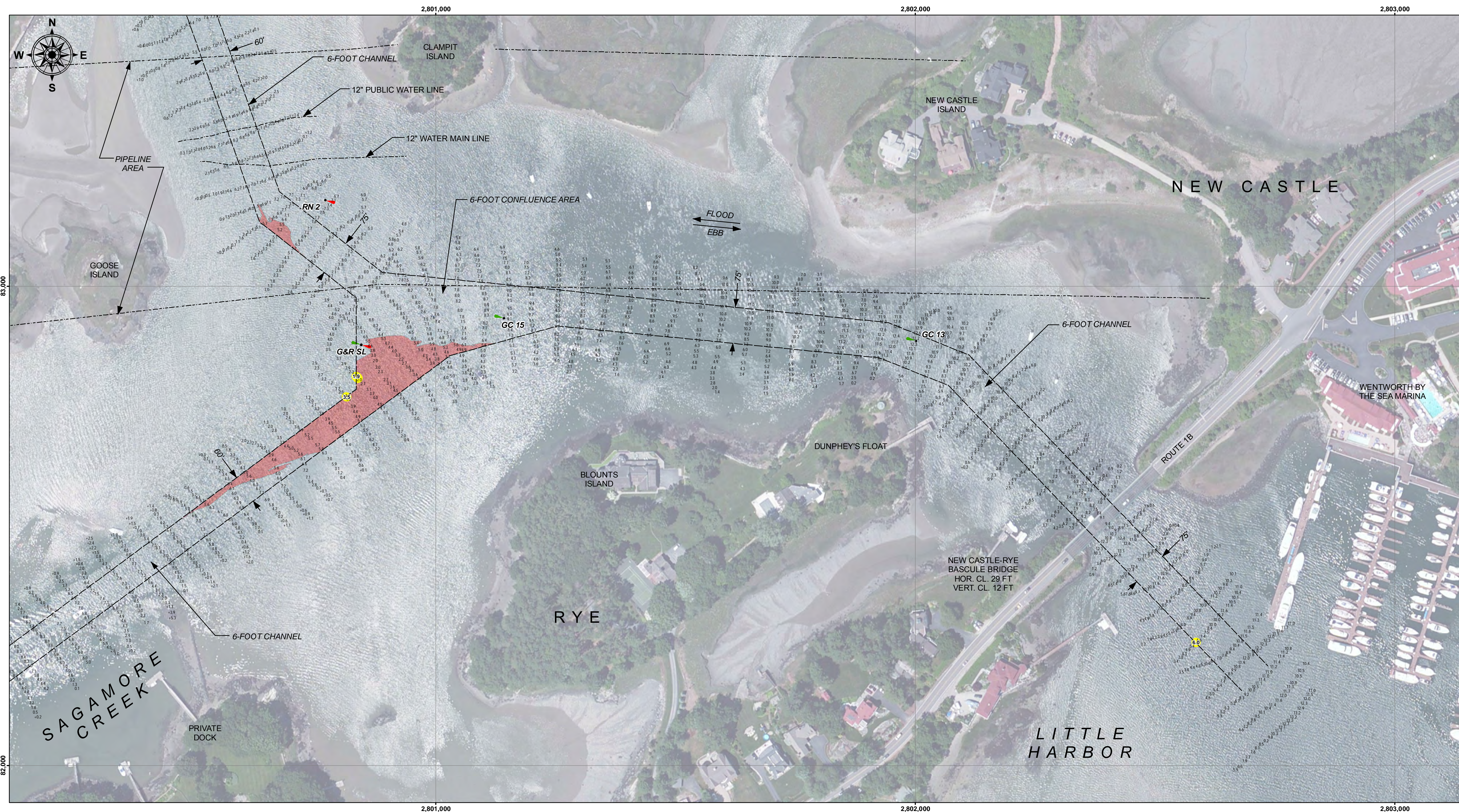
Mr. L. Robert Landry, Jr.  
DOT Bureau of Bridge Design  
7 Hazen Drive  
Concord, New Hampshire 03301



# Attachment 7

USACE Dredge Surveys





**LEGEND**

--- Federal Navigation Channel	□ Placement Area	⊥ Beacon, General
..... Cable Submarine	⊠ Anchorage Area	⊗ Fixed Navigation Aids
- - - Cable Overhead	⊗ Obstruction Point	! Red Navigation Buoy
--- Pipes (Gas/Sewer)	⚓ Wrecks-Submerged	! Green Navigation Buoy
— Contour Line	■ Shoaling Area	
▨ Cable Area	● Shoalest Sounding**	

\*\* Shoalest Sounding per Quarter per Reach

**GRAPHIC SCALE**

1" = 200'

0 100 200 Feet

**Notes:**  
 Horizontal Datum: Maine West, ME-1802  
 Distance Units: U.S. Survey Feet  
 Vertical Datum: MLLW  
 Depth Units: U.S. Survey Feet  
 Vessel Name: Popham Beach  
 Sonar System: Qdorn MK-3 (Single Trace)  
 Sounding Frequency: 200 MHz  
 Survey Method: Tide gauges  
 GPS System: Leica 1200 (RTK)  
 RTK Base Station: MTS Berwick, ME  
 Software Used: Hypack  
 Sounding Sort Distance: 20'  
 Field Books: R&H 4353  
 Survey No.: 13-1212  
 Reference NOAA Chart No.: 13283

The information depicted on these charts represents the results of surveys made on the dates indicated, and can only be considered as indicating the conditions existing at that time.

**General Notes**  
 The sounding information shown on this map represents the SHOALEST soundings of those obtained from hydrographic surveys conducted during December 2012 and can only be considered as indicating the conditions existing at that time. The information depicted on this map should NOT be used to determine volumes. Volumes are determined from more sounding information than shown.

**Project Remarks**  
 None.

**Bench Mark Information**  
 Tides were recorded using RTK GPS. The MLLW to NAVD88 correction for this project is 5.02 feet. This correction is published by NOAA for Bench Marks at Fort Point, Newcastle Island, New Hampshire (Station ID 8423898, 06/13/2005). NAVD88 is above MLLW; therefore the correction should be added to NAVD88 to convert to MLLW. Tide gauges were set on piles in the vicinity of Station Kayak (2012) and TBM Coolidge (2007). The mean high tide is 7.0 feet above MLLW.



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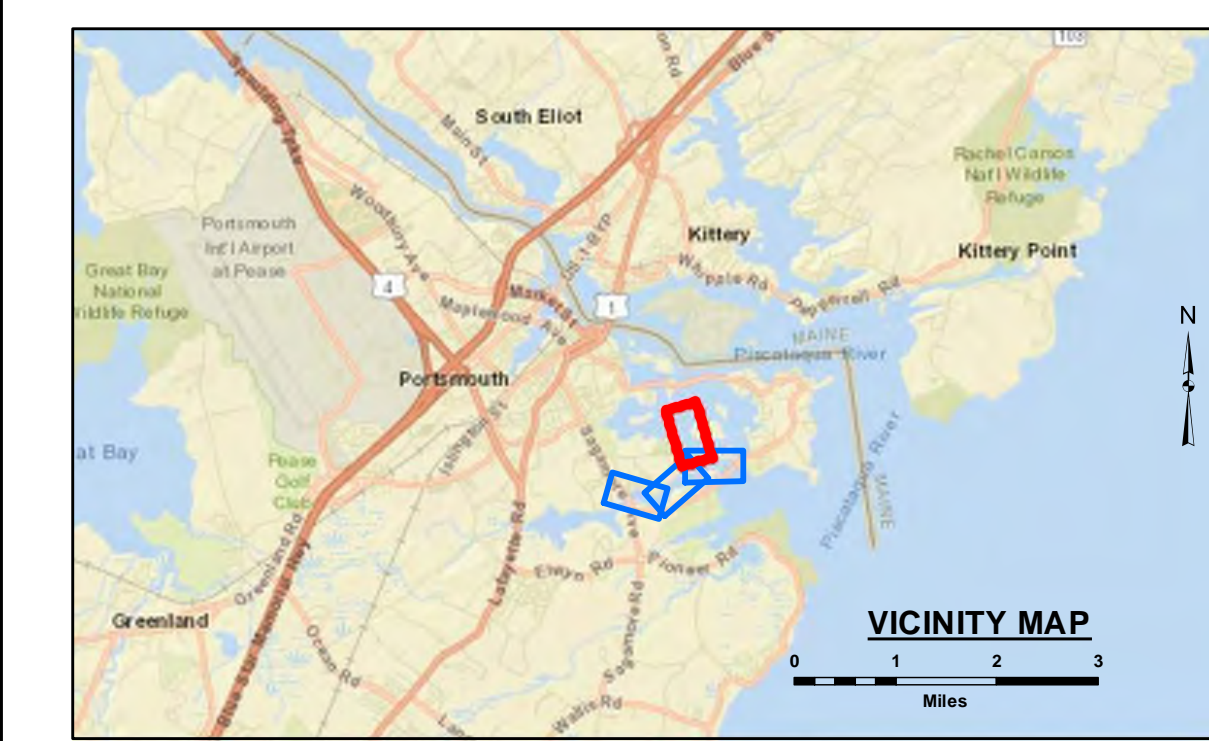
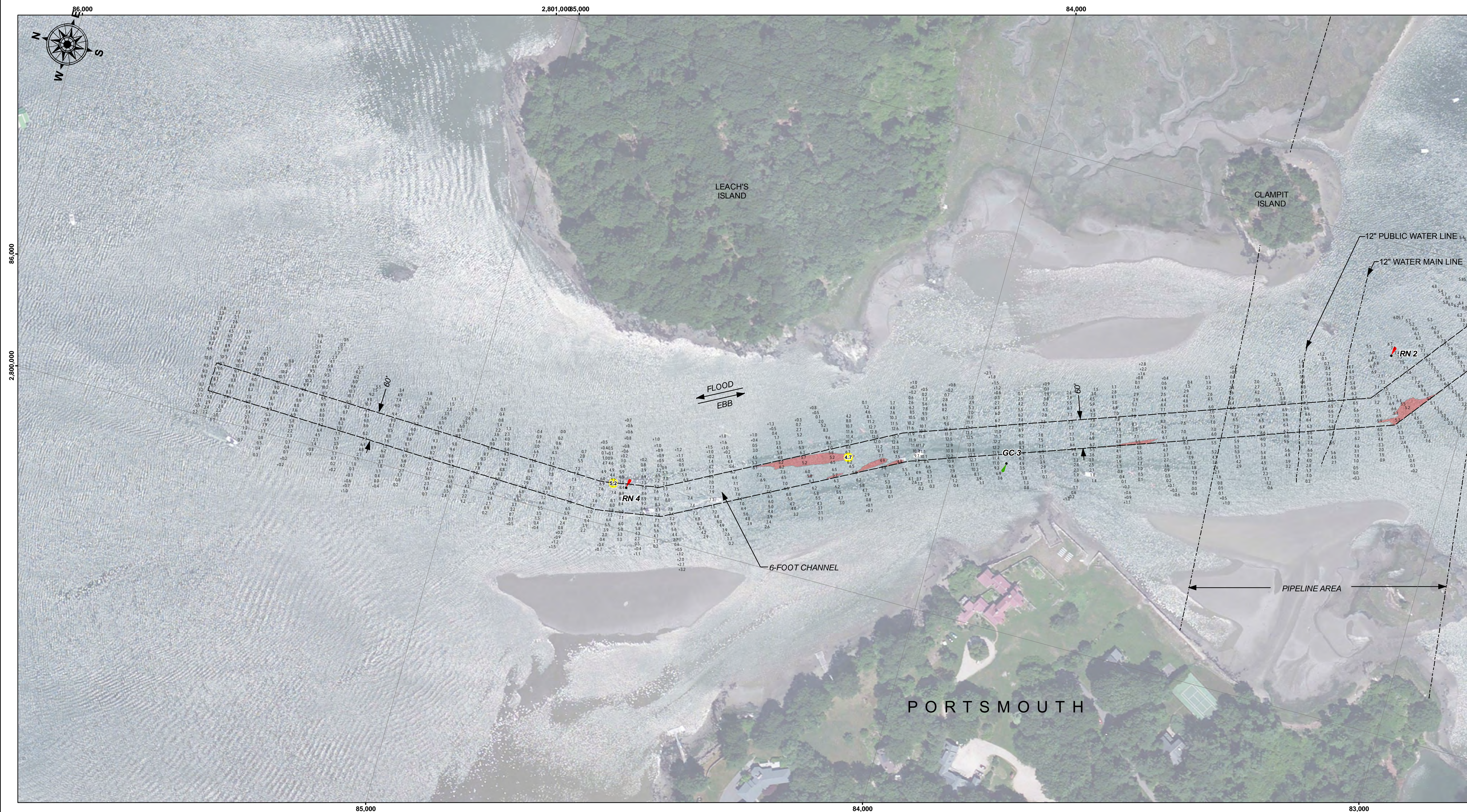
SURVEYED BY: PKO		CHECKED BY: SWK		ISSUE DATE: 2/2/2017
SUBMITTED BY: Jeffrey Preston/SI		APPROVED BY: Maureen Murray/SI		MAP DOCUMENT: NH_02_PC_20121211_CS_20
SIZE: A3/D3				

**PORTSMOUTH HARBOR  
 BACK CHANNEL/SAGAMORE CREEK  
 PORTSMOUTH, RYE & NEW CASTLE, N.H.  
 CONDITION SURVEY  
 6 AND 8-FOOT CHANNELS  
 6-FOOT ANCHORAGE**

File Name: NH\_02\_PC\_20121211\_CS\_20

**SHEET IDENTIFICATION**  
 Portsmouth Harbor, Back Channel and  
 Sheet 1 of 4





**LEGEND**

--- Federal Navigation Channel	□ Placement Area	⊥ Beacon, General
..... Cable Submarine	⊠ Anchorage Area	⊗ Fixed Navigation Aids
- - - Cable Overhead	⊗ Obstruction Point	! Red Navigation Buoy
--- Pipes (Gas/Sewer)	⚓ Wrecks-Submerged	! Green Navigation Buoy
— Contour Line	■ Shoaling Area	
▨ Cable Area	● Shoalest Sounding**	

\*\* Shoalest Sounding per Quarter per Reach

**GRAPHIC SCALE**

1" = 200'

0 100 200 Feet

**Notes:**  
 Horizontal Datum: Maine West, ME-1802  
 Distance Units: U.S. Survey Feet  
 Vertical Datum: MLLW  
 Depth Units: U.S. Survey Feet  
 Vessel Name: Popham Beach  
 Sonar System: Chom MK-3 (Single Trace)  
 Sounding Frequency: 200 kHz  
 Survey Method: Tide gauges  
 GPS System: Leica 1200 (RTK)  
 RTK Base Station: MTS Berwick, ME  
 Software Used: Hypack  
 Sounding Sort Distance: 20'  
 Field Books: R&H 4353  
 Survey No.: 13-1212  
 Reference NOAA Chart No.: 13283

The information depicted on these charts represents the results of surveys made on the dates indicated, and can only be considered as indicating the conditions existing at that time.

**General Notes**  
 The sounding information shown on this map represents the SHOALEST soundings of those obtained from hydrographic surveys conducted during December 2012 and can only be considered as indicating the conditions existing at that time. The information depicted on this map should NOT be used to determine volumes. Volumes are determined from more sounding information than shown.

**Project Remarks**  
 None.

**Bench Mark Information**  
 Tides were recorded using RTK GPS. The MLLW to NAVD88 correction for this project is 5.02 feet. This correction is published by NOAA for Bench Marks at Fort Point, Newcastle Island, New Hampshire (Station ID 8423898, 06/13/2005). NAVD88 is above MLLW, therefore the correction should be added to NAVD88 to convert to MLLW. Tide gauges were set on piles in the vicinity of Station Kayak (2012) and TBM Coolidge (2007). The mean high tide is 7.0 feet above MLLW.



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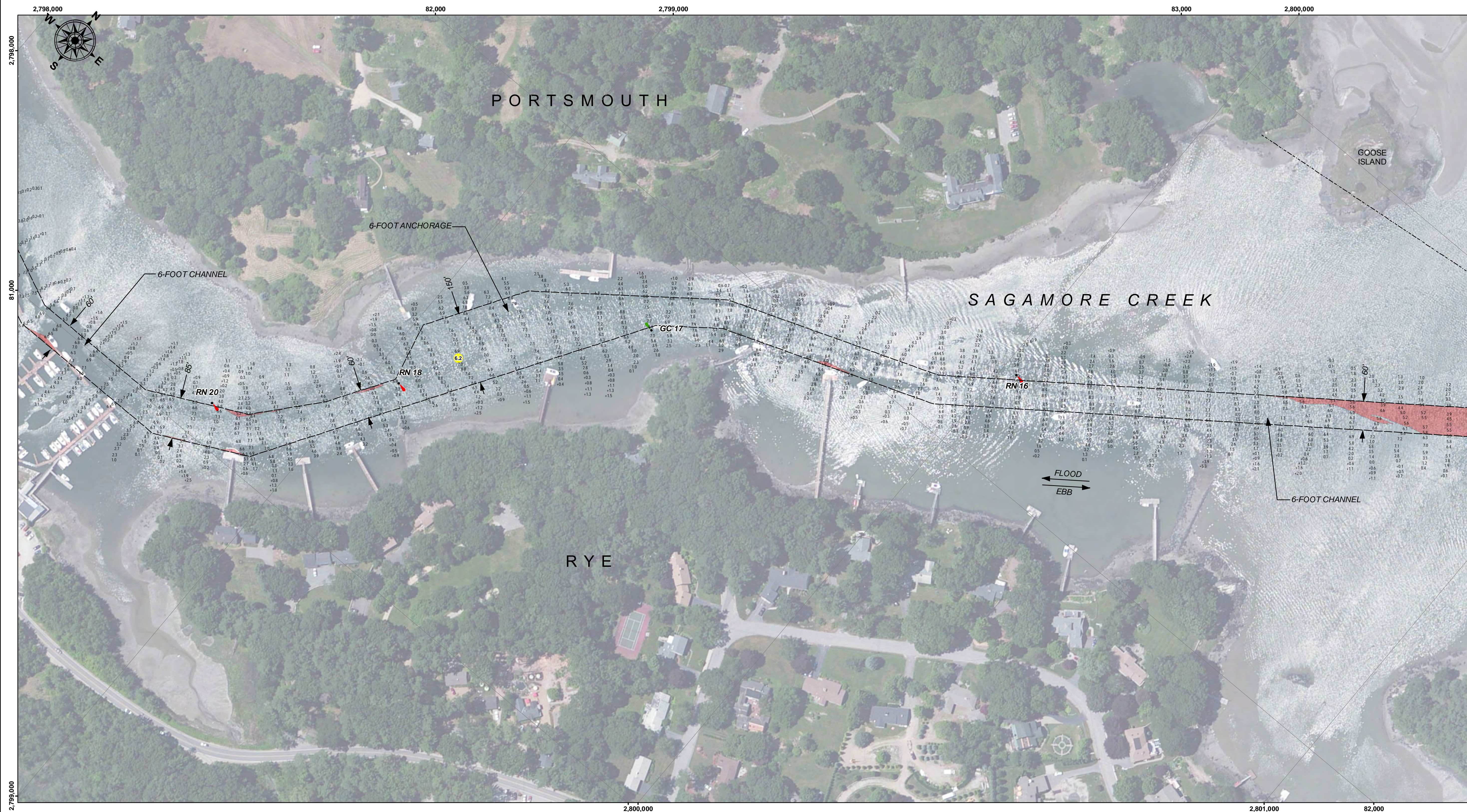
SURVEYED BY: PKO		CHECKED BY: SMK		ISSUE DATE: 2/2/2017
SUBMITTED BY: Jeffrey Preston/SI		APPROVED BY: Maureen Murray/SI		MAP DOCUMENT: NH_02_PC_20121211_CS_20
SIZE: A3SID				

**PORTSMOUTH HARBOR  
 BACK CHANNEL/SAGAMORE CREEK  
 PORTSMOUTH, RYE & NEW CASTLE, N.H.  
 CONDITION SURVEY  
 6 AND 8-FOOT CHANNELS  
 6-FOOT ANCHORAGE**

File Name: NH\_02\_PC\_20121211\_CS\_20

**SHEET IDENTIFICATION**  
 Portsmouth Harbor, Back Channel and  
 Sheet 2 of 4



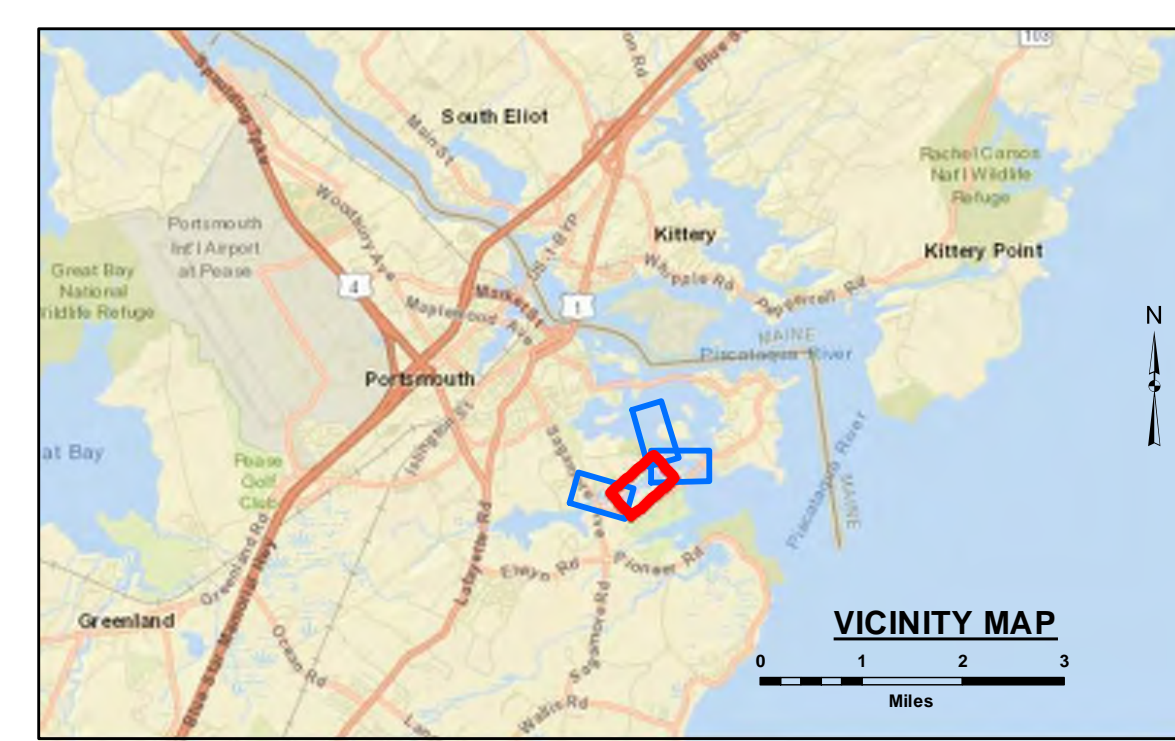


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SURVEYED BY: PKO		CHECKED BY: SWK		ISSUE DATE: 2/2/2017
SUBMITTED BY: Jeffrey Presbys/SJ		APPROVED BY: Maureen Murray/SJ		MAP DOCUMENT: NH_02_PG_0512121_CS_20
SIZE: A3SID				

**PORTSMOUTH HARBOR  
BACK CHANNEL/SAGAMORE CREEK  
PORTSMOUTH, RYE & NEW CASTLE, N.H.  
CONDITION SURVEY  
6 AND 8-FOOT CHANNELS  
6-FOOT ANCHORAGE**

**SHEET  
IDENTIFICATION**  
Portsmouth Harbor,  
Back Channel and  
Sheet 3 of 4



**LEGEND**

--- Federal Navigation Channel	□ Placement Area	⊥ Beacon, General
..... Cable Submarine	⊞ Anchorage Area	⊗ Fixed Navigation Aids
- - - Cable Overhead	⊗ Obstruction Point	! Red Navigation Buoy
--- Pipes (Gas/Sewer)	⚓ Wrecks-Submerged	! Green Navigation Buoy
— Contour Line	■ Shoaling Area	
▨ Cable Area	● Shoalest Sounding**	

\*\* Shoalest Sounding per Quarter per Reach

**GRAPHIC SCALE**

1" = 200'

0 100 200 Feet

**Notes:**  
Horizontal Datum: Maine West, ME-1802  
Distance Units: U.S. Survey Feet  
Vertical Datum: MLLW  
Depth Units: U.S. Survey Feet  
Vessel Name: Popham Beach  
Sonar System: Odom MK 3 (Single Trace)  
Sounding Frequency: 200 kHz  
Survey Method: Tide gauges  
GPS System: Leica 1200 (RTK)  
RTK Base Station: MTS Berwick, ME  
Software Used: Hypack  
Sounding Sort Distance: 20'  
Field Books: R&H 4353  
Survey No.: 13-1212  
Reference NOAA Chart No.: 13283

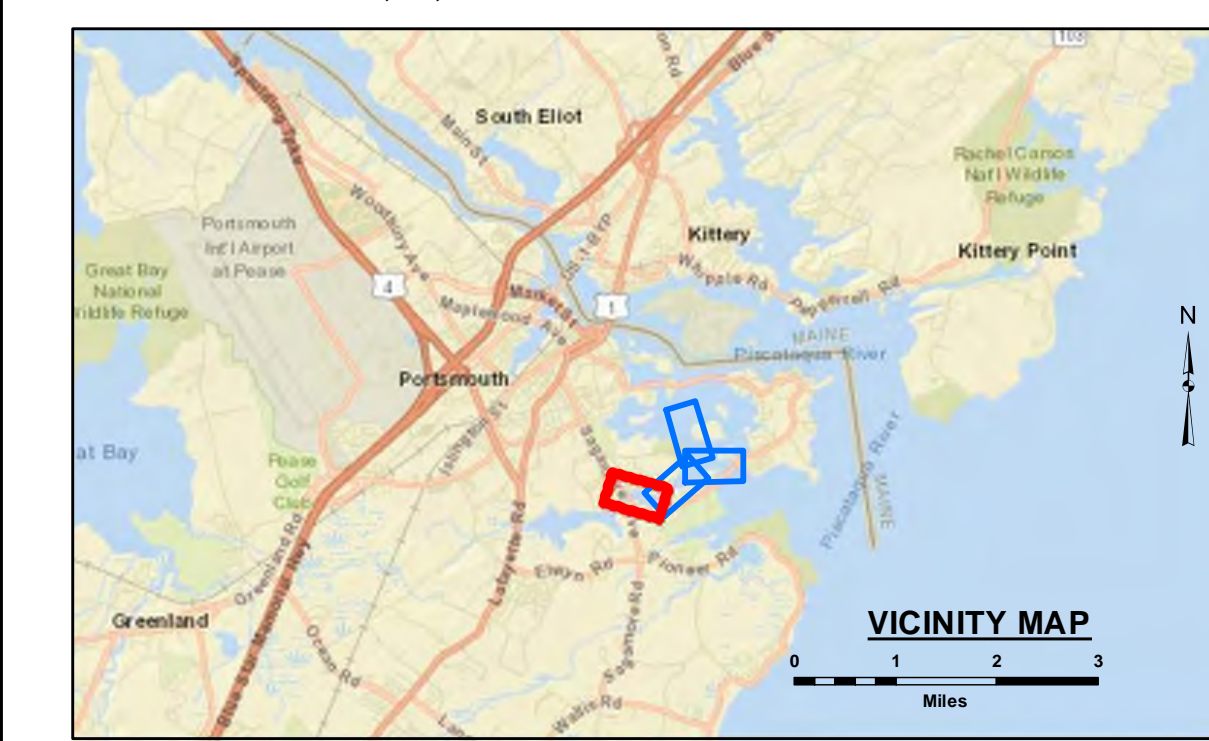
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**Project Remarks**  
None.

**Bench Mark Information**  
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**LEGEND**

--- Federal Navigation Channel	□ Placement Area	⊥ Beacon, General
..... Cable Submarine	⊠ Anchorage Area	⊗ Fixed Navigation Aids
- - - Cable Overhead	⊗ Obstruction Point	! Red Navigation Buoy
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**GRAPHIC SCALE**

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0 100 200 Feet

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 Distance Units: U.S. Survey Feet  
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 Vessel Name: Popham Beach  
 Sonar System: Odom MK-3 (Single Trace)  
 Sounding Frequency: 200 KHz  
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**Project Remarks**  
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**Bench Mark Information**  
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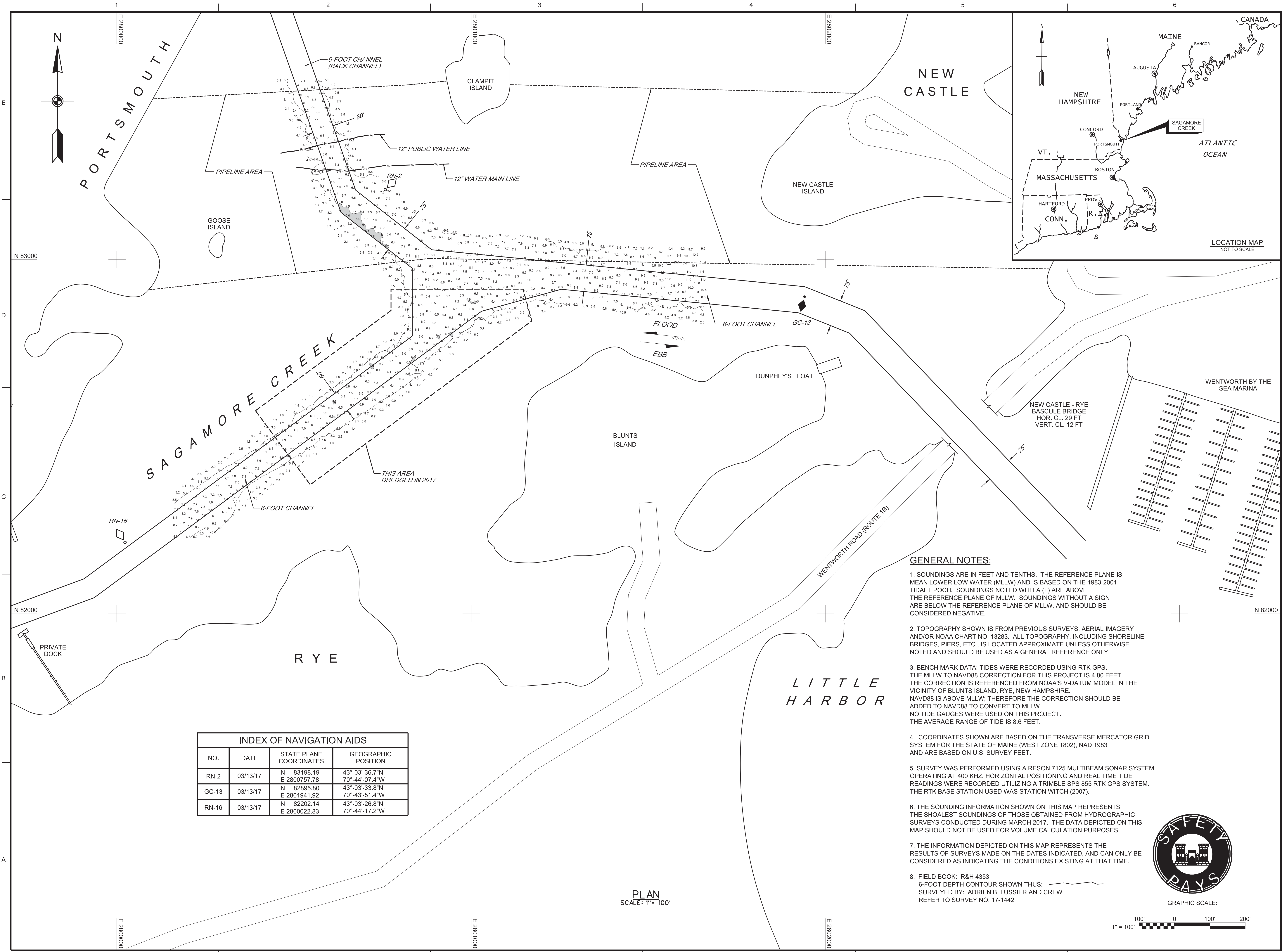
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SURVEYED BY: PKO		CHECKED BY: SWK		ISSUE DATE: 2/2/2017
SUBMITTED BY: Jeffrey Preston/SI		APPROVED BY: Maureen Murray/SI		MAP DOCUMENT: NH_02_PC_20121211_CS_20
SIZE: ANSI D				

**PORTSMOUTH HARBOR  
 BACK CHANNEL/SAGAMORE CREEK  
 PORTSMOUTH, RYE & NEW CASTLE, N.H.  
 CONDITION SURVEY  
 6 AND 8-FOOT CHANNELS  
 6-FOOT ANCHORAGE**

**SHEET IDENTIFICATION**  
 Portsmouth Harbor,  
 Back Channel and  
 Sheet 4 of 4





US Army Corps of Engineers  
New England District

REVIEWED BY: ADRIEN B. LUSSIER  
DATE: MARCH 17, 2017  
DRAWING CODE: 17-1442

DESIGNED BY: ADRIEN B. LUSSIER  
DATE: MARCH 17, 2017  
DESIGN FILE: P18-2791\_1442.dwg

PLANNED BY: ADRIEN B. LUSSIER  
DATE: MARCH 17, 2017  
PLANNING FILE: P18-2791\_1442.dwg

PROJECT: SAGAMORE CREEK AND LITTLE HARBOR AFTER DREDGE SURVEY

PROJECT NO.: 17-1442

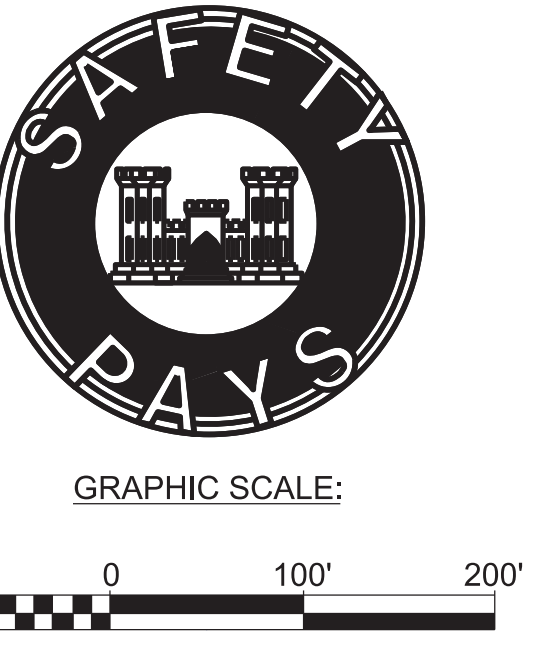
PROJECT LOCATION: PORTSMOUTH, NEW HAMPSHIRE

PROJECT DESCRIPTION: 6-FOOT CHANNEL

SHEET IDENTIFICATION  
V-101  
SHEET 1 OF 1

INDEX OF NAVIGATION AIDS			
NO.	DATE	STATE PLANE COORDINATES	GEOGRAPHIC POSITION
RN-2	03/13/17	N 83198.19 E 2800757.78	43°-03'-36.7"N 70°-44'-07.4"W
GC-13	03/13/17	N 82895.80 E 2801941.92	43°-03'-33.8"N 70°-43'-51.4"W
RN-16	03/13/17	N 82202.14 E 2800022.83	43°-03'-26.8"N 70°-44'-17.2"W

- GENERAL NOTES:**
- SOUNDINGS ARE IN FEET AND TENTHS. THE REFERENCE PLANE IS MEAN LOWER LOW WATER (MLLW) AND IS BASED ON THE 1983-2001 TIDAL EPOCH. SOUNDINGS NOTED WITH A (+) ARE ABOVE THE REFERENCE PLANE OF MLLW. SOUNDINGS WITHOUT A SIGN ARE BELOW THE REFERENCE PLANE OF MLLW, AND SHOULD BE CONSIDERED NEGATIVE.
  - TOPOGRAPHY SHOWN IS FROM PREVIOUS SURVEYS, AERIAL IMAGERY AND/OR NOAA CHART NO. 13283. ALL TOPOGRAPHY, INCLUDING SHORELINE, BRIDGES, PIERS, ETC., IS LOCATED APPROXIMATE UNLESS OTHERWISE NOTED AND SHOULD BE USED AS A GENERAL REFERENCE ONLY.
  - BENCH MARK DATA: TIDES WERE RECORDED USING RTK GPS. THE MLLW TO NAVD88 CORRECTION FOR THIS PROJECT IS 4.80 FEET. THE CORRECTION IS REFERENCED FROM NOAA'S V-DATUM MODEL IN THE VICINITY OF BLUNTS ISLAND, RYE, NEW HAMPSHIRE. NAVD88 IS ABOVE MLLW; THEREFORE THE CORRECTION SHOULD BE ADDED TO NAVD88 TO CONVERT TO MLLW. NO TIDE GAUGES WERE USED ON THIS PROJECT. THE AVERAGE RANGE OF TIDE IS 8.6 FEET.
  - COORDINATES SHOWN ARE BASED ON THE TRANSVERSE MERCATOR GRID SYSTEM FOR THE STATE OF MAINE (WEST ZONE 1802), NAD 1983 AND ARE BASED ON U.S. SURVEY FEET.
  - SURVEY WAS PERFORMED USING A RESON 7125 MULTIBEAM SONAR SYSTEM OPERATING AT 400 KHZ. HORIZONTAL POSITIONING AND REAL TIME TIDE READINGS WERE RECORDED UTILIZING A TRIMBLE SPS 855 RTK GPS SYSTEM. THE RTK BASE STATION USED WAS STATION WITCH (2007).
  - THE SOUNDING INFORMATION SHOWN ON THIS MAP REPRESENTS THE SHOALEST SOUNDINGS OF THOSE OBTAINED FROM HYDROGRAPHIC SURVEYS CONDUCTED DURING MARCH 2017. THE DATA DEPICTED ON THIS MAP SHOULD NOT BE USED FOR VOLUME CALCULATION PURPOSES.
  - THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED, AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME.
  - FIELD BOOK: R&H 4353  
6-FOOT DEPTH CONTOUR SHOWN THUS:  
SURVEYED BY: ADRIEN B. LUSSIER AND CREW  
REFER TO SURVEY NO. 17-1442



PLAN  
SCALE: 1" = 100'



# Attachment 8

## Lift Logs

### Attachment Summary

Lift logs from 2010 through 2020, 48 total lifts

6 lifts for USCG vessels (all from 2010), vessels now used for buoy maintenance do not require a lift

8 lifts for commercial vessels (2 vessels responsible for 8 lifts)

34 lifts (71%) for recreational vessels

1 vessel responsible for 26 lifts (76% of recreational lifts, 54% of total lifts)



RECORD OF OPENINGS

ENT NORTH BRIDGE NEWCASTLE

DATE	KIND OF VESSEL	NAME OF VESSEL	DIRECT OF VESSEL	WE SEAS RAISED	TIME VESSEL PASSED	TIME OPENED AND CLOSED	TIDE	WEATHER	INITIAL
03-08-10	N/A	TEST LIFT	N/A	Full	N/A	10:40 AM 10:45 AM	IN	CLEAR 45°	Paul Sp
04-12-10	N/A	TEST LIFT	N/A	Full	N/A	2:45 2:50	IN	CLEAR 50°	Paul Sp
04-12-10	N/A	TRAINING	N/A	Full	N/A	0900 0915	IN	CLEAR	BTD
04-12-10	N/A	TRAINING	N/A	Full	N/A	0920 0930	IN	CLEAR	George DAVIS
04-13-10	N/A	YATES SPRING INSPECTION	N/A	Full	N/A	11:30 AM 11:30 AM	OUT	CLEAR 52°	Paul Sp
07/13/10	USCG	49419 Buoy Tender	IN	Full	LWS	11:00 AM 11:20 AM	IN	CLEAR 30°	George DAVIS
07/13/10	USCG	49419	OUT	Full	LWS	12:5 1:35	IN	CLEAR 30	George DAVIS
07/13/10	USCG	49420	IN	Full	LWS	1:40 PM 1:42 PM	IN	CLEAR 30	George DAVIS
07/13/10	USCG	49420	OUT	Full	LWS	2:37 2:40	OUT	P. CLOUDY 30°	Paul Sp
07/14/10	N/A	TRAINING	N/A	Full		13:10 13:15	IN	CLOUDY RAIN 70-80	Bob Sp, Paul Sp
07/14/10	USCG	#49419 Buoy Tender	IN	Full		13:25 13:30	IN	CLOUDY RAIN 70-80	Bob Sp, Paul Sp
07/14/10	USCG	#49419 Buoy Tender	OUT	Full		15:02 15:00	SPACE HIGH	CLOUDY Lt RAIN 70+80	Bob Sp, Paul Sp
08/03/10	BUNDOFF LOW	CAPT JOHN ADAMS	OUT	Full		16:55 17:00	IN HIGH	SUNNY H H	Bob Sp, George D.
11/28/10	N/A	Greased all fittings & span locks & gates	Cycled Slinger gates			7:50 - 9:30		Sun 30°	Bob Sp
01-04-11	N/A	TEST LIFT	N/A	Full	N/A	9:55 10:05	INCREASING HIGH	CLEAR 30°	Paul Sp
01-11-11	N/A	INSPECTION / HAULE TANNER / HDR TESTS	N/A	Full	N/A	1:40 PM 1:44 PM	IN	CLOUDY 28°	Paul Sp
01-11-11	N/A	"	N/A	Full	N/A	1:48 PM 1:54 PM	IN	CLOUDY 28°	Paul Sp
01-11-11	N/A	"	N/A	Full	N/A	2:10 PM 2:15 PM	IN	CLOUDY 28°	Paul Sp
01-13-11	N/A	"	N/A	Full	N/A	11:25 AM 12:05 PM	OUT	CLEAR 30 MPH 36	Paul Sp
02-16-11	N/A	GREASE GEARING	N/A	Full	N/A	10:30 AM 10:35 AM	IN	Partly CLOUDY 30°	Paul Sp
07-06-2012	SB	Magic Fog (Fog)	OUT	Full	8:55	8:51 AM 8:59 AM	OUT	Sunny 85°	JOA

# RECORD OF OPENINGS - WENTWORTH BRIDGE NEWCASTLE

DATE	KIND OF VESSEL	NAME OF VESSEL	DIRECT OF VESSEL	HL SPAN RAISED	TIME VESSEL PASSED	TIME OPENED AND CLOSED	TIDE	WEATHER	INITIA
7-8-12	SB	Alagic frog	OUT	Full	12:58	10:55 10:59	Ebb	Clear 70 H.H.H	Jed
8-26-12	N/A	Maintenance Crosso	-	3/4	N/A	9:58 AM 9:09 AM	Ebbing	Mostly Cloudy H.H.H.	Jed
11/02/12	N/A	Maintenance Yard's inspect	-	Full	N/A	9:00 AM 9:08 AM	low slack	clear Cool Run Good	Jed
5/22/13	TRAINING	TRAINING	-	Full	-	8:25 AM 8:30	-	no upper limit stricker plate	JM
5-22-13	TRAINING	TRAINING	-	Full	-	8:40 8:50	FLOOD	no N. Red light no upper limit stricker pl.	JE
5-22-13	TRAINING	TRAINING	-	Full	-	9:00 AM	FLD	" "	LA
5/22-13	TRAINING	TRAINING	-	Full	-	9:30 A	FH	ADZY HUMID 60°	RJT
5/22-13	TRAINING	TRAINING	-	Full	-	-	FH	LL	MV
5-30-13	Maint.	Maintenance	-	Full	-	8:50 9:00	Ebb	Clear 75° W.H.	Jed
5-30-13	Maint	Maint. (Setting upper limit stop)	-	Full	-	9:48 9:50	Ebb	Clear 80° W.H.H.	Jed
5-30-13	Maint	" "	-	Full	-	10:05 10:10	OUT	CLEAR 85° H.H.H.	P.S
5-30-13	Maint	" "	-	Full	-	10:15 10:20	OUT	CLEAR 85° H.H.H.	P.S
6-28-13	SAILBOAT	Easterly	IN	Full	10:42	10:35 10:45	Low	FOG - LA RAIN 65-70°	R.S w/ crew
8-7-13	30' sail	Buffle head	IN	Full	3:05	3:00 3:10	WELL Ebb	Sunny/Clear	JM, MV, RS
8-9-13	30' sail	" "	OUT	Full	1210	1220	FLD	RAIN	LA-JM BT
9/30/13	SAILBOAT	Peter Verbonne	OUT	Full	2:45 PM	2:50 PM	ebb	clear sunny 62°	RJT MV
10/4/13		Reset Traffic Light Timers							RJT Comden Traffic
11/04/13	Maint	Maint.	-	Full	2:40	2:55	Eb	Clear 68°	
11/12/13	MAINT	Greasing	-	Full	11:33 AM	11:38 PM	Ebb	overcast 35°	



## RECORD OF OPENINGS - WENTWORTH BRIDGE NEWCASTLE

DATE	KIND OF VESSEL	NAME OF VESSEL	DIRECT OF VESSEL	HT. SPAN RAISED	TIME VESSEL PASSED	TIME OPENED AND CLOSED	TIDE	WEATHER	INITIA
9-30-17	TUNA BOAT	BLACK FIN	OUT	FULL	2:02	2:10 2:10	3/4 High	cloudy 42 fog outside	Bob Sp.
3-26-15	N/A	YATES TEST SPRING INSPECTION	N/A	FULL	N/A	12:16 PM 12:22 PM	in open	CLEAR - 40° overcast 40°	Paul Sp.
4-2-15	N/A	Maint. For Greasing	N/A	FULL	N/A	12:25 AM 12:35 PM	out open	clear 65°	JM JG
5/7/15	Tuna BOAT	BLACK FIN	IN	FULL	6:33	6:35 6:40	Ebb	clear 75°	Paul
9-18-15	Tuna BOAT	Black Fin	OUT	FULL	7:00 PM	7:05 PM	in	clear 75°	Paul
12/08/15	LIFT	YATES CREW 6 CREW 15			8:30	8:40 AM	High	cloudy 42°	RJT
12/13/15	GATE	Malfunction at N end	Main	Breather	Turned off	Fixes pulled in	GATE		RJT
4/22/16	EV	Black Fin	IN	FULL	12:40 PM	12:30 PM 12:40 PM	High	clear	Louise
6/14/16	N/A	CREW 12 GREASING	Lube	LIFT		08:45 09:00	High	SUNNY windy	Louise
7/4/16	SAIL	Celerity	IN	FULL		12:20 12:25	High	SUNNY 80°	Bob Sp Joe + CAM
7/23/16	MTV	Black Fin	OUT	FULL		6:00 6:12	High	CLD 90°	RJT
8/03/16	MAINT	LIFTS for repair				9:03 9:20		SUNNY 74°	
8/13/16	SAIL	CELEBRITY (PAUL)	OUT	FULL	8:05 A	8:02 8:07	High	SUNNY 75°	R.S.
8/21/16	SAIL	celebrity	IN	FULL	2:30	2:35	High	SUNNY 87°	R.S.
9/3/16	SAIL	celebrity	OUT	FULL	1:36	1:25	High	SUNNY 75°	R.S. CAM
9/16/16	SAIL	celebrity	IN	FULL	11:24	11:30 11:26	High	SUNNY 70°	JW M. JG EM. LE.
9/24/16	SAIL	celebrity	OUT	FULL	7:02	6:59 7:06	High	clear cold	JW M. RS PR CREW 15
10/6/16	MAINT	MAINT. LIFTS		FULL	11:45 A	12:00 P	cloud	CLR 70°	



**RECORD OF OPENINGS - WENTWORTH BRIDGE NEWCASTLE**

DATE	KIND OF VESSEL	NAME OF VESSEL	DIRECT OF VESSEL	HT. SPAN RAISED	TIME VESSEL PASSED	TIME OPENED AND CLOSED	TIDE	WEATHER	TEMP	INITIA
5/10/17	Sailboat	For Horizon	IN	Full	1:00	12:53 1:05		cloudy cool	52°	RSJ
5/31/17	Sailboat	For Horizon	OUT	Full	5:18	5:14 5:23		cloudy fog	53°	RSJ
6/10/17	Sailboat	Celerity	IN	Full	12:38	12:35 12:42		clear	72°	JJWM
6/23/17	Sailboat	Celerity	OUT	Full	11:08	11:07 11:10		cloudy	65°	JJWM
6/25/17	Sailboat	Celerity	IN	Full	10:4 PM	10:1 PM 10:5 PM		clear	82°	JJWM
7/3/17	Sailboat	Celerity	OUT	Full	8:23	8:12 AM 8:25 AM	Flood	clear	73°	JJWM
7/9/17	Sailboat	Celerity	IN	Full	12:33	12:31 PM 12:35 PM	Ebb	clear	78°	JJWM
7/28/17	Sailboat	Celerity	OUT	Full	4:45 AM	4:43 PM 4:47 PM	Flood	clear	74°	JJWM
7/30/17	Sailboat	Celerity	IN	Full	5:51 AM	5:49 PM 5:53 PM	Flood	clear	74°	JJWM
8/14/17	Sail		OUT	Full	4:36	4:33 4:41	Flood	cldy	81°	RSJ
8/20/17	Sail	Celerity	IN	Full	11:14	11:13 11:15	Ebb	clear	77°	JJWM
9/5/17	sail	Celerity	OUT	Full	11:25	11:24 11:27	Flood	clear	75°	JJWM
9/10/17	SAIL	Celerity	IN	Full	2:40	2:38 2:45	Flood	sun + clouds	75	B. LSR
9/30/17	Sail	Celerity	OUT	Full	7:43	7:41 7:46	Flood	Rain	53°	CM
2-23-18	N/A	ORIENTATION VISIT w/RYAN	Ferguson					SUNNY	35°	RS
6-19-18	N/A	test lift OR and Mikee. Gates fixed up/limit		Full		9:05 9:20	Flood	SUNNY w/clouds	78°	RS & LEE
6-19-18	N/A	test lift FINE TUNED limit		Full		9:40 9:49	Flood			..
6-19-18	N/A	test		Full		10:05 10:13	Flood		78	..
6-20-18	SAILBOAT	Celerity	IN	Full	6:58	6:55	FLOOD	clear	70°	LE/DAN/BOB'S.
7-1-18	S/B	Celerity	OUT	Full	2:10	2:10 2:15	Flood	CLR	80	LA DD CM
7-8-18	S/B	Celerity	IN	Full	7:30	7:25 7:35	Flood	SUNNY WINDY	80°	RS, CAM DANNY







# Attachment 9

Mooring Permit Holder Blank Survey

Dear Mariner:

You have received this survey as a mooring permit holder in the Sagamore Creek, Peirce Back, or Goat Back mooring fields. The purpose of this survey is to gather information on vessels transiting the Wentworth Bridge, which carries NH Route 1B over Little Harbor between New Castle and Rye, New Hampshire. The information gathered will be used to support decision making for the replacement of the current draw bridge.

The existing Wentworth Bridge provides a horizontal clearance of 29 feet and a vertical clearance of 65 feet above Mean High Water (MHW) when opened and 13 feet when closed. The proposed replacement bridge would provide a horizontal clearance of 53 feet and a vertical clearance of 17 feet above MHW.

**Please return completed surveys by December 7, 2020.**  
**Surveys may be returned by mail or email to the following address:**

New Castle–Rye Project Team  
c/o Paul Lefebvre  
HDR, Inc.  
250 Commercial St, Suite 3005  
Manchester NH 03101  
Paul.Lefebvre@hdrinc.com

- 1. Is the mooring permit for recreational or commercial use? Please describe.**
- 2. May we contact you should additional information be needed? Please provide contact information:**

Name \_\_\_\_\_  
Company (if Applicable) \_\_\_\_\_  
Phone \_\_\_\_\_  
Email \_\_\_\_\_  
Address \_\_\_\_\_  
City, State, Zip \_\_\_\_\_

- 3. Please describe the vessel moored. If more than one vessel is moored, please describe each vessel.**

Vessel Name \_\_\_\_\_  
Vessel Type \_\_\_\_\_  
Length (ft) \_\_\_\_\_  
Width (ft) \_\_\_\_\_  
Draft (ft) \_\_\_\_\_  
Air Draft (ft) \_\_\_\_\_



**4. In which mooring field is the vessel located?**

**5. How frequently does the vessel pass beneath the Wentworth Bridge? Please estimate each month.**

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

**6. Has the vessel ever required the existing drawbridge to lift in order to pass? If yes, please describe.**

**7. Will the proposed bridge clearances adversely impact your vessel's navigation in the channel?**

a. If yes, please describe.

b. If yes, can the vessel be partially dismantled or disassembled to transit the proposed bridge?

**8. Are you in the process of acquiring any new vessels?**

a. If yes, please describe the vessel and its use.

b. If yes, would these vessels be impacted by the proposed bridge clearances?

**9. Do you have a business plan, if so, how would the proposed bridge affect that plan?**

**10. Any additional information about channel use?**

**Thank you for your time!**





# Attachment 10

## Mooring Permit Holder Mailer List

### Attachment Summary

Mooring permit holder name and address lists for Goat Back, Pierce Back, and Sagamore Creek provided by NH Port Authority.

First Name	Last Name	Business Name	MailingStreet1	MailingStreet2	MailingCity	MailingState	MailingZip
		KITTERY POINT YACHT CLUB	PO BOX 373		NEW CASTLE	NH	03854
		ESTHER'S MARINA, LLC	41 PICKERING AVE.		PORTSMOUTH	NH	03801
		PORTSMOUTH YACHT CLUB	ATTN TREASURER	PO BOX 189	NEW CASTLE	NH	03854
		UNH- SHOALS MARINE LAB C/O ROSS HANSEN	MORSE HALL, SUITE 1135	8 COLLEGE RD	DURHAM	NH	03824
		BUCCANEER CHARTERS	261 BRACKETT RD		RYE	NH	03870
		CAPE COD FROSTY, FLEET #9	C/O TIM PURINGTON	9 STAYSAIL WAY	PORTSMOUTH	NH	03801
		CAP'N SAV'S CHARTERS INC,	PO BOX 1144		HAMPTON	NH	03842
		ECLIPSE MARINE PHOTOGRAPHY	153 SCHOOL ST		CONCORD	NH	03854
		GENO'S CHOWDER/LOBSTER PD	177 MECHANIC STREET		PORTSMOUTH	NH	03801
		GOLTER LOBSTER SALES, LLC	30 NANTUCKET PLACE		GREENLAND	NH	03840
		GRANITE STATE WHALE WATCH	PO BOX 768		RYE	NH	03870
		GREAT BAY YACHT CLUB	PO BOX 1644		DOVER	NH	03820
		LADY MERRILEE ANN FISHERIES	C/O L.EASTMAN,JR	118 EXETER RD	HAMPTON FALLS	NH	03874
		LANG FISHERIES LLC	86 WALKER BUNGALOW RD		PORTSMOUTH	NH	03854
		MUD COVE BOAT YARD	P.O. BOX 525		NEW CASTLE	NH	03854
		NH STATE PORT AUTHORITY	555 MARKET STREET		PORTSMOUTH	NH	03801
		NORTH HAMPTON FISHERIES	163 STEVENS HILL RD		NOTTINGHAM	NH	03920
		PARENTAL GUIDANCE INC.	10 WASHINGTON RD		RYE	NH	03870
		PISCATAQUA SAILING ASSOCIATION	PO BOX 158		PORTSMOUTH	NH	03802
		SAGAMORE LANDING CONDOMINIUM ASSOCIATION	C/O GARY EPLER	272 WALKER BUNGALOW ROAD	PORTSMOUTH	NH	03801
		SAVAGE CHARTERS	56 GARY ROAD		SANBORNVILLE	NH	03872
		SOCIETY FOR THE PROTECTION OF NH FOREST	54 PORTSMOUTH STREET		CONCORD	NH	03801
		SOUTHEND YACHT CLUB	C/O ROBIN NORMANDEAU	SEVEN PICKERING AVE	PORTSMOUTH	NH	03801
		SPLIT ROCK COVE LTD	J.P. NADEAU	507 STATE STREET	PORTSMOUTH	NH	03870
		TONTINE FISHING INC.	284 GROVE RD		RYE	NH	03870
		TRENHOLM REALTY TRUST	C/O JOYCE MILLS, TRUSTEE	PO BOX 42	RYE	NH	03870
		US NORTHEAST DREDGE AND MARINE, LLC	PO BOX 778		HAMPSTEAD	NH	03841
		WARPATH FAMILY FARM, INC	PO BOX 53		NEW CASTLE	NH	03854-0053
		WEST RYE MARINE INC.	144 WEST ROAD		RYE	NH	03870
PETER J	AIKENS	Harvester Fishing Charters LLC	1209A OCEAN BLVD		RYE	NH	03870
TED WILLIAM	ALEX	SOUTHEND CHARTERS	104 LOCKE ROAD		RYE	NH	03870
DIANE	ALIE		50 PLEASANT POINT DRIVE		PORTSMOUTH	NH	03801
RICHARD A	ALLARD		441 ARAH ST		MANCHESTER	NH	03104
ERIC	ALLEN		2 BAYBERRY LN		HAMPTON	NH	03842
GEORGE B	ALMGREN		PO BOX 98		NEW CASTLE	NH	03854
DONALD	ANDERSON		129 LANE RD		RAYMOND	NH	03077
ERNEST	ARSENAULT		454 WALLIS ROAD		RYE	NH	03870
LEO	AXTIN	NH SEACOAST CRUISES	144 WEST RD		RYE	NH	03870
MICHAEL	BABIN		901 OCEAN BLVD		RYE	NH	03870
STEPHEN J	BABULA		74 BLUE HERON DRIVE		PORTSMOUTH	NH	03801
JONATHAN	BAILEY		5 WALTON ROAD	PO BOX 66	NEW CASTLE	NH	03854
LAURIE A	BAILEY		PO BOX 66		NEW CASTLE	NH	03854-066
STEVEN	BAKER		PO BOX 147		NEW CASTLE	NH	03854
ADAM	BAKER	Vintage Fish Company LLC--F/V Northern Lights	PO BOX 86		RYE	NH	03870
LEO	BALLOU		C/O EDMUND J ARSENAULT	79 PORTSMOUTH AVE	NEW CASTLE	NH	03854-099
SUSAN S.	BANK		124 W. WALNUT LA		PHILADELPHIA	PA	19144
JEFFREY S	BARBOUR	RITZO LOBSTERS	341 LOCKE ROAD		RYE	NH	03870
JOHN	BARRIE		15 MAVIN ROAD		WELLESLEY	MA	03854
DARREN	BASOUKAS		48 OLD SAW MILL RD		BEDFORD	NH	03110
SCOTT	BASOUKAS		86 WEST ROSEMONT AVE.		MANCHESTER	NH	03103
DONALD E	BATTIS		PO BOX 2129		NEW CASTLE	NH	03854
KATHERINE	BATTLES		6 NEWFIELDS RD		EXETER	NH	03833
THOMAS R	BEAL		#6 FOURTEENTH		NEWBURY	MA	01951
JOSHUA	BELISLE	Sea Fever Charters	25 COACH LANE		HAMPTON FALLS	NH	03844
GARY	BELIVEAU		PO BOX 213		HAMPTON	NH	03874
DAVID	BELLANTONE		107 BREAKFAST HILL RD		GREENLAND	NH	03840
SIDNEY	BENNETT		5380 GULF OF MEXICO DRIVE #105		LONGBOAT KEY	FL	03820

First Name	Last Name	Business Name	MailingStreet1	MailingStreet2	MailingCity	MailingState	MailingZip
KURT DAVID	BETTCHER		5 WINTERBERRY LANE		NORTH HAMPTON	NH	03862
GREGORY A.	BINETTE		262B EXETER ROAD		HAMPTON FALLS	NH	03884
JACK	BIRKBECK		6 PEABODY DR		BRENTWOOD	NH	03833
ROBERT	BLACKINGTON		65 MENDUM AVE		PORTSMOUTH	NH	03801-3801
LAWRENCE	BLAHUT		9 LANDING WAY		DOVER	NH	03821
HARRISON	BOHENKO		500 FW HARTFORD		PORTSMOUTH	NH	03801
LAWRENCE	BOHLEY		7 FRENCH CROSS RD		MADBURY	NH	03833
DAVID W	BOIES		22 GREAT GATE DRIVE		HAMPTON	NH	03842
MARK	BOILARD		75 LANE RD		CHICHESTER	NH	03258
TIMOTHY O	BOSAK		136 WINNICUTT ROAD		STRATHAM	NH	03885
JOSEPH R	BOSCO		1515 OCEAN BLVD	UNIT 5	RYE	NH	03870
JACOB D	BOSSE		4 RIVER RD		SEABROOK	NH	03874
MARY	BOUCHER		47 GIBSON ROAD		HUDSON	NH	03051
CHARLES	BRATKO		173 STANIELS RD		LOUDON	NH	03307-0717
JASON	BREWSTER		121 MECHANIC STREET		PORTSMOUTH	NH	03801
KEITH	BRIDGE		165 CENTRAL RD		RYE	NH	03870-2524
PETER	BRONSTEIN		15 MERRILL AVENUE		SALEM	NH	03079
MARCIA A	BROWN		11 HAMPSHIRE AVE		ROCHESTER	NH	03867-2010
SUZANNE	BROWN		PO BOX 523		NEW CASTLE	NH	03854
RANDOLPH C.	BRYAN		46 RIDGE RD		CONCORD	NH	03820
ARTHUR	BUNCE		C/O GRAHAM BUNCE	338 HIGH STREET	HAMPTON	NH	03871
KENNETH	BURLAGE		2 ISAAC LUCAS CIR		DOVER	NH	03820
PAUL	BUTLER		196A DOVER PT RD		DOVER	NH	03820
JAMES D (JAMIE)	BYRD		100 BARNSTEAD ROAD		PITTSFIELD	NH	03801
SUSAN	CAIN		22 DOVER NECK RD		DOVER	NH	03820
ANTHONY T	CANTONE		434 HIGH ST UNIT 2		HAMPTON	NH	03842
PATRICK J	CARBERRY	ATLANTIC LOBSTA LLC	PO BOX 279		RYE BEACH	NH	03871
GARY A	CARBONNEAU		PO BOX 273		WINDHAM	NH	03087
WILLIAM	CARLEY		PO BOX 466		NEWPORT	NH	03773
JENNIFER M DUDDY	CARROLL		305 WASHINGTON RD		RYE	NH	03870
RORY DANIEL	CARTER		62 ELWYN ROAD		RYE	NH	03870
THERESA	CASSIDY		216 DOVER POINT RD		DOVER	NH	03820
SEAN	CAUGHRAN		275 MILLER AVE		PORTSMOUTH	NH	03801
BRUCE	CAYER		723 PINE ST		CONTOOCOOK	NH	03229
DAVID	CEGLIA		356 WASHINGTON RD		RYE	NH	03870
THOMAS	CHAMBERLIN		49 RIVERVIEW ROAD	PO BOX 117	NEW CASTLE	NH	03854
SUSAN	CHASE		PO BOX 21		NEW CASTLE	NH	03854
BRENDA	CHOUINARD		303 129th AVE EAST		MADEIRA BEACH	FL	03874
DARI L	CHRISTENSON		PO BOX 351		NEW CASTLE	NH	03854
JOHN R	CLARK		97 SAGAMORE RD		RYE	NH	03870
STEPHEN B	CLARK		PO BOX 211		RYE	NH	03870
ALEXANDER SCOTT	CLEMENT		30 BICKFORD ROAD		ROCHESTER	NH	03867
THOMAS A	CLIFFORD		95 WASHINGTON RD	PO BOX 104	RYE	NH	03870
ZACHARIE J	CLIFFORD	COOPERS LOBSTERS	160 ATLANTIC AVE		NORTH HAMPTON	NH	03862
MARION E	CLOUGH		95 MAINMAST CIRCLE	PO BOX 735	NEW CASTLE	NH	03854
SAMUEL H	COES		24 BRIAR RD		HAMPTON	NH	03842
BENJAMIN ROY	COLE		242 N. HAVERHILL RD.		KENSINGTON	NH	08833
KEPER P.	CONNELL	CLANDESTINO FISHERIES, LLC	PO BOX 4654		PORTSMOUTH	NH	03870
W SEAN	CONNER		20 GROVE STREET		GREENLAND	NH	03840
WILLIAM PIERCE	CONNER		20 GROVE STREET		GREENLAND	NH	03840
JOHN	CONNORS		24 SHAW RD		PORTSMOUTH	NH	03801
N MILES	COOK		22 ISAAC LUCAS CIRCLE		DOVER	NH	03820
STEVEN JAMES	COOK		PO BOX 801		NEW CASTLE	NH	03854-0801
GREGORY K	COSTANZO		21 POLLOCK DR		RYE	NH	03870
THOMAS	COTS		PO BOX 482		GREENLAND	NH	03840
ANDREW	COURTEAU		280 HOUDE RD		ELIOT	ME	03903
WILLIAM	COVERT		6 ISAAC LUCAS CIR		DOVER	NH	03820

First Name	Last Name	Business Name	MailingStreet1	MailingStreet2	MailingCity	MailingState	MailingZip
TAMMY	CRETE		291 MOUNTAIN ROAD		CONCORD	NH	03820
MARION	CROMBIE		2 GRANITE WAY		SOMERSWORTH	NH	03878
JOSHUA	CROOKS		77 LOCUST STREET		SOUTH HAMPTON	NH	03827
LEO	CROTTY		PO BOX 2064		NEW CASTLE	NH	03870
KEVIN DAVID	CROWELL		39 SHORE LANE		DOVER	NH	03820
PETER	CRYANS		235 WEST RD #8		PORTSMOUTH	NH	03801
ALLEN	CUMINGS		114 PATTERSON LANE		NEWINGTON	NH	03801
CHERYL ELIZABETH	CUNNINGHAM		195 WASHINGTON ST		PORTSMOUTH	NH	03801
EDWARD	CUNNINGHAM		8 MUDDY POND ROAD		KENSINGTON	NH	03833
RICHARD D	CURLEY		262A DOVER PT RD		DOVER	NH	03820
JOHN	CURTH		16 COTE DRIVE		DOVER	NH	03820
NICOLAS P	CYR		2 TUCKER LANE		HAMPTON	NH	03842
GEORGE	DAILEY		46 ISAAC LUCAS CIRCLE		DOVER	NH	03820
MICHAEL C.	DANIELSKI		PO BOX 707		NEW CASTLE	NH	03854
THOMAS L	DAVIS		374 LINCOLN AVE		PORTSMOUTH	NH	03801
WILLIAM KELLY	DAVIS		1 BOYAN PLACE		PORTSMOUTH	NH	03801
CARLY	DELEEUW		17 OLIVER STREET	PO BOX 248	NEW CASTLE	NH	03854
JOHN P	DELEEUW		17 OLIVER ST	PO BOX 248	NEW CASTLE	NH	03854
DANIEL E.	DENMAN		480 BRACKETT RD		RYE	NH	03870
GREGORY C	DESISTO		36 SHAW RD		PORTSMOUTH	NH	03801
JOAN	DICKINSON		220 WALKER BUNGALOW ROAD		PORTSMOUTH	NH	03801
FANEL	DOBRE		18 CATAMOUNT ROAD		NORTHWOOD	NH	03261
CHUCK	DOLEAC		365 LITTLE HARBOR RD		PORTSMOUTH	NH	03801
JAMES	DONLON		1194 OCEAN BLVD		RYE	NH	03870
GEORGE	DONOVAN		1591 OCIAN BLVD		RYE	NH	03870
JONATHAN	DRAKE		315 LOCKE ROAD		RYE	NH	03870
JAYSON	DRISCOLL		50 YORK RD		WOLFEBORO	NH	03894
STEVE	DRISCOLL		366 HIGH STREET		HAMPTON	NH	03842
TIMOTHY C	DRISCOLL		PO BOX 412		NEW CASTLE	NH	03854
WAYNE N	DRISCOLL		422 HIGH ST		HAMPTON	NH	03842
ROBERT	DUBE		250 WHITEHALL RD		HOOKSETT	NH	03106
NINA	DUDDY		PO BOX 711		YORK HARBOR	ME	03909
RONALD	DUDDY		18 STEVENS ROAD		NORTH HAMPTON	NH	03867
PATRICK J	DUGAN		260 SO MAIN STREET		SEABROOK	NH	03874
ROBERT M	DURKEE		PO BOX 502		NEW CASTLE	NH	03854
ROBERT	DUVAL		120 KENNARD RD		MANCHESTER	NH	03104
CHARLES W	EASTMAN		3 GUINEA RD		STRATHAM	NH	03885-2506
LESTER	EASTMAN	ANNIE B LLC	188 EXETER RD		HAMPTON FALLS	NH	03844
ALAN	EATON		38 RIVERBEND ST		NEWMARKET	NH	03857
ROBERT E	EBERHART		PO BOX 242		RYE BEACH	NH	03871
THOMAS P.	ELDREDGE		777 OCEAN BLVD		RYE	NH	03870
JEREMY	ELWELL		32 GRAY FOX ROAD		EFFINGHAM	NH	03882
SCOTT THOMAS	EMERSON		63 PINE STREET		SEABROOK	NH	03874
MARK	EPPLY		267 BRACKETT RD		RYE	NH	03870
DREW ALLAN	ERICKSON		325 PORTLAND ST #1		ROCHESTER	NH	03867
JANET VAUGHAN	FEE		7 WENTWORTH TER		DOVER	NH	03820
CHARLES	FELCH		9 DANDIVIEW ACRES		SEABROOK	NH	03874
DONALD	FELCH		34 FARM LANE		SEABROOK	NH	03874
CHESTER	FESSENDEN		97 SPRING HILL RD		NEW CASTLE	NH	03854
MATTHEW	FESSENDEN		581 COLONIAL DR.		PORTSMOUTH	NH	03801
MICHAEL	FINN		227 PORTSMOUTH AVE		STRATHAM	NH	03885-2205
DAVID	FITTS		PO BOX 341		NEW CASTLE	NH	03854
HELEN MARION	FITZGERALD		19 RIVERSIDE DRIVE		DOVER	NH	03820
REGINALD (REG)	FITZGERALD		10 BRICKYARD DRIVE		DOVER	NH	03820
PETER	FLANIGAN		1053 WASHINGTON RD		RYE	NH	03870
PETER	FLYNN		69 WHEELER ROAD	PO BOX 654	HOLLIS	NH	03049
ROGER W	FORD		33 LOVELL ROAD		STRATHAM	NH	03885

First Name	Last Name	Business Name	MailingStreet1	MailingStreet2	MailingCity	MailingState	MailingZip
DAMON	FRAMPTON		TEN NEALS LANE	P.O. BOX 22	NEW CASTLE	NH	03854
MARGARET	FRENCH		PO BOX96		NEW CASTLE	NH	03854-096
DANIEL	GABRIEL		PO BOX 727		DOVER	NH	03820
FRANCIS A	GAGE		32 SUNSET DRIVE		GREENLAND	NH	03840
MARK	GARDNER		PO BOX 551		NEW CASTLE	NH	03854-0551
DANIEL A	GERVAIS		76 SCHAEFER CIRCLE		HUDSON	NH	03051
JAY	GINGRICH	PORTSMOUTH SCUBA	513 MARCY STREET		PORTSMOUTH	NH	03801
GARY	GLIDDEN		52 GROVE ROAD		RYE	NH	03870
ALEXANDER S	GONZALEZ	Rally Cap LLC	11 FARMER RD		WINDHAM	NH	03087
DALE R.	GOODWIN		196 MAST RD		DOVER	NH	03820
MICHAEL E	GOOTEE		48 OAK DRIVE		N. HAMPTON	NH	03862
PETER	GORDON		P.O. BOX 531		RYE	NH	03870
CHRISTOPHER SHAWN	GRAY		12 ROBBIE LANE		ATKINSON	NH	03811
MARK DOUGLAS	GRAY		140 SUMMER ST		PORTSMOUTH	NH	03801
ANN MARIE	GREGERSON		25 COTE DRIVE		DOVER	NH	03820
JUDD	GREGG		210 SOUTH ROAD	PO BOX 10	RYE BEACH	NH	03871
JAMES (PAUL)	GRIFFIN		137 BEANE LN		NEWINGTON	NH	03801
ROGER	GROUX		278 1/2 DOVER PT. RD		DOVER	NH	03820
EDWARD (JOE)	GUNZELMANN		9 KEENE LANE		HAMPTON	NH	03842
ANNA BARBARA	HANTZ MARCONI		27 PARKMAN BROOK LANE		STRATHAM	NH	03885
PAULA	HARRINGTON		9 STAY SAIL WAY		PORTSMOUTH	NH	03801
SCOTT F	HARRINGTON		6 TIRRELL RD		BEDFORD	NH	03110
NETTA	HART		18 COASTAL WAY		GREENLAND	NH	03840
PAUL	HARVEY		320 NEWCASTLE AVENUE		PORTSMOUTH	NH	03801
MARY	HAUZE		81 CENTENNIAL STREET	#404	SEABROOK	NH	03874
SCOTT	HEISEY		PO BOX 972		RYE	NH	03801
MARK P	HEPP		28 RIDGES COURT		PORTSMOUTH	NH	03801
LILIANE	HIBBLE		PO BOX 88		NEW CASTLE	NH	03854
ALAN	HILL		108 DRINKWATER RD		HAMPTON FALLS	NH	03844
DAVID T	HOBBS		38 ISAAC LUCAS CIRCLE		DOVER	NH	03820
JAMES	HOMET		259 GRANT AVE		PORTSMOUTH	NH	03801
PETER F.	HORAN		139 HIGH STREET		STRATHAM	NH	03885
RICHARD J	HORAN		14 RIVERVIEW ROAD		DURHAM	NH	03824
STEVAN E	HUFF		3 WENTWORTH TERR. #3		DOVER	NH	03820
COREY	HUGHES		3 LAZY PINES DRIVE		LOUDON	NH	03307
JEFFREY BRIAN	HUGHES		47 OLIVER STREET	PO BOX 831	NEW CASTLE	NH	03854
ELIZABETH B	HURLEY		12399 COLLIER'S RESERVE DR		NAPLES	FL	03870
KATHRYN	IMBODEN		1752 OCEAN BLVD.	PO BOX 906	RYE	NH	03870
JAMES R.	IRISH		137 LANG RD		RYE	NH	03870
N. ANTHONY	JACKSON		761 WASHINGTON RD		RYE	NH	03870
MARK I	JACOBS		PO BOX 4747		PORTSMOUTH	NH	03802-4747
BEN	JANKOWSKI		624 SHAPLEIGH ROAD		LEBANON	ME	04027
THADDEUS	JANKOWSKI		PO BOX 4074		PORTSMOUTH	NH	03801-4074
STEVE	JEFFERSON		111 WALTON ROAD	PO BOX 687	NEW CASTLE	NH	03854
WALTER G	JILLET		70 WOODLAND HILLS		SOUTH BERWICK	ME	03908
STEPHEN B	JOHNSON		PO BOX 316		NEW CASTLE	NH	03854
JAMES	JONES		207 ATLANTIC AVE		NORTH HAMPTON	NH	03862
RANDY C.	JONES LIVING TRUST		35 GARFIELD RD		PORTSMOUTH	NH	03801
STEVE	JOSELOW		12 CRANFIELD ST	PO BOX 760	NEW CASTLE	NH	03854
PAUL	KAGELEIRY		35 ISAAC LUCAS CIRCLE		DOVER	NH	03820
JOHN C	KARECKAS		15 PARENT ST		SOUTH BERWICK	ME	03908
PETER	KASNET		80 OLD BEACH RD	PO BOX 700	RYE BEACH	NH	03871
JOSEPH P	KASZTEJNA	Allity, LLC	30 BRADLEY LN		NORTH HAMPTON	NH	03862
ESTHER	KENNEDY		41 PICKERING AVE		PORTSMOUTH	NH	03801-5236
MARY A.	KENNEDY		PO BOX 131		NEW CASTLE	NH	03854-0131
ANDRIUS	KETURAKIS		PO BOX 313		NEW CASTLE	NH	03854
EMELINE TARBELL	KETURAKIS		146 PORTSMOUTH AVE	PO BOX 313	NEW CASTLE	NH	03854-0313

First Name	Last Name	Business Name	MailingStreet1	MailingStreet2	MailingCity	MailingState	MailingZip
THOMAS SPENCER	KETURAKIS		146 PORTSMOUTH AVE	PO BOX 313	NEW CASTLE	NH	03854-0313
PAUL	KEYSER		41 PROSPECT ST		W NEWBURY	MA	01985
GLENN T (DUNCAN)	KIEDAISCH		373 MEADOW RD		PORTSMOUTH	NH	03801
CHANTAL	KIMBALL		23 HIGHLAND PARK AVE		RYE	NH	03870
TRISTAN	KIMMEL		266 WENTWORTH RD	PO BOX 506	NEW CASTLE	NH	03854-506
DAVID	KOHLHASE	Lucas Marine LLC	335 WASHINGTON ROAD		RYE	NH	03870
DAVID	KORNECHUK		147 PARSONS RD		RYE	NH	03870
BRIAN	KOZLER		320 DOVER POINT RD		DOVER	NH	03820
STEVEN P.	KRAFTON		SIX CHERRY STREET		EXETER	NH	03833
MARTIN F	KUROWSKI		212 WALKER BUNGALOW		PORTSMOUTH	NH	03801
RAYMOND	LABBE		461 CHESHIRE TURNPIKE		LANGDON	NH	03602
G SCOTT	LAING		21 WHIPPOORWILL DRIVE		NEWTON	NH	03870
JOHN DAVID	LAMB		256A DOVER PT RD		DOVER	NH	03820
RYAN JOSEPH	LAMEY		1589 1ST NH TPKE		NORTHWOOD	NH	03261
CHARLES A	LAMPREY		25 NEW ROAD		NORTH HAMPTON	NH	03862
DAVID G	LANCASTER		21 COTE DRIVE		DOVER	NH	03820
RICHARD	LAPPIERRE	YELLOWBIRD FISHING CHARTERS	PO BOX 1212		HAMPTON	NH	03833
CHARLES L	LASSEN		1 ROUND ISLAND		PORTSMOUTH	NH	03801
STEPHEN R	LAW	SEAWORTHY MARINE	14 MCINTOSH WAY		GREENLAND	NH	03840
IIRO OSKARI	LEHTINEN		740 WOODBURY AVE		PORTSMOUTH	NH	03801
JASON JOSEPH	LE MOS		17 RANDOM ROAD		RYE	NH	03870
DAVID ALLEN	LESPERANCE		301 PORTSMOUTH AVE		SEABROOK	NH	03874
NEIL	LEVESQUE		75 OAKMONT DRIVE		CONCORD	NH	03301
DAVID	L'HOMME		415 WASHINGTON RD		RYE	NH	03870
JOSEPH	LIMA	HOOK FISHING INDUSTRIES	2 TECH CIRCLE		METHUEN	MA	01844
STEPHEN	LORD		111 SAGAMORE RD		RYE	NH	03870
HENRY MW	LOTHROP		42 BRANCH RD		WELLS	ME	04090
HARRY	LOWELL		114 HARBOR ROAD		RYE	NH	03870
THOMAS P	LYNG		333 NEWCASTLE AVE		PORTSMOUTH	NH	03801
DAVID P	MACDONALD		28 BALL ST		PORTSMOUTH	NH	03801
J. RALPH	MACDONALD		4 THELMA DRIVE		EXETER	NH	03833
ROBERT RUSSELL	MACDONALD		209 GOSPORT RD		PORTSMOUTH	NH	03801
RONALD	MACE		3 MILBERN AVE		HAMPTON	NH	03842
JOHN STEPHEN	MADDEN		2 MOODY AVE		METHUEN	MA	01844
SCOTT	MADDOCK		174 WENTWORTH ROAD	P.O. BOX 309	NEW CASTLE	NH	03854
ROBERT S.	MAIRS		14 ROBERTS ROAD		DOVER	NH	03820
JOHN H.	MAKOWSKY		18 ROBERTS DRIVE		HAMPTON	NH	03842
STEPHEN	MANION		1463 W STILLWATER DR		HEBER	NH	84032
JIM	MANNING		320 PORTSMOUTH AVE	PO Box 901	NEW CASTLE	NH	03854
AARON	MARCONI		28 NEWCASTLE AVE		PORTSMOUTH	NH	03801-5215
VINCENT	MARCONI		501 NEW CASTLE AVE		PORTSMOUTH	NH	03801
WILLIAM T	MARCONI		529A NEW CASTLE AVE		PORTSMOUTH	NH	03801
GREGG	MARSHALL		37 SO MAIN ST		SEABROOK	NH	03874
JUAN D	MARTINEZ PERALTA		161 TIMBER SWAMP RD		HAMPTON	NH	03842
EDWARD	MARVIN		56 OLIVER STREET	PO BOX 276	NEW CASTLE	NH	03854-0276
ROBERT T	MAYER		P.O. BOX 302		PORTSMOUTH	NH	03840
LAURIE	MC INTOSH		73 BELLAMY RD		DOVER	NH	03820
JOHN D	MCCORMACK		PO BOX 383		NEW CASTLE	NH	03854
JOHN	MCCUNE		278 LAFAYETTE ROAD	SUITE 11	PORTSMOUTH	NH	03870
DONALD	MCEVOY		888 MCINTYRE ROAD		NEWINGTON	NH	03801
PAUL G	MCINNIS	RYE HARBOR ADVENTURES	ONE JUNIPER RD		NORTH HAMPTON	NH	03862
JACK	MCKENNA		2721/2 DOVER PT RD		DOVER	NH	03820
JOHN MARTIN	MCLAUGHLIN		77 MAIN STREET		HOLLIS	NH	03870
M.L.	MCLAUGHLIN		9 EASTMAN LANE		HOLLIS	NH	03049
TYLER LOKKEN	MCLAUGHLIN	Pinwheel Tuna Charters	7 LAUREL CT		PORTSMOUTH	NH	03870
JAMES M	MCSHARRY		58 PLEASANT POINT DRIVE		PORTSMOUTH	NH	03801
GARY	MERRILL		15 RIVERSIDE DR		DOVER POINT	NH	03820



First Name	Last Name	Business Name	MailingStreet1	MailingStreet2	MailingCity	MailingState	MailingZip
MATTHEW	METIVIER		C/O DAN METIVIER	75 GROVE ROAD	RYE	NH	03801
ASHLEY	MEYER		25 MOULTON RD		HAMPTON	NH	03842
SEAN CHRISTOPHER	MILLER		303 THORNTON STREET		PORTSMOUTH	NH	03801
GERALDINE H	MITTELMAN		130 HARBOR RD	PO BOX 1030	RYE	NH	03870-1030
FRANCIS MICHAEL	MOGE		12 DEER RUN RD		NORTH HAMPTON	NH	03862
JAY DAVID	MOONEY		41 FRED ST		LOWELL	MA	01850
PETER G	MORIN		49 PICKERING STREET		PORTSMOUTH	NH	03801
WILLIAM P	MOUFLOUZE		PO BOX 27		NEW CASTLE	NH	03854
JILLIAN DUDDY	MUIR		231 EXETER ROAD		HAMPTON FALLS	NH	03844
JOSEPH	MUNROE JR		9 ASPEN WAY		NORTH HAMPTON	NH	03862
THOMAS	MUNSON		34 TOFTREE LANE		DOVER	NH	03820
JAMES	MUNTON		PO BOX 508		NEW CASTLE	NH	03854-0508
JOHN	MUXIE		315 HIGH STREET		HAMPTON	NH	03842
JOHN D	MYLES		PO BOX 216		NEW CASTLE	NH	03854
JP	NADEAU		507 STATE STREET		PORTSMOUTH	NH	03870
GARY	NADEAU		138 ROCKLAND STREET		PORTSMOUTH	NH	03801
LOUIS	NARDELLO		PO BOX 816		BARRINGTON	NH	03825
ANDREW	NOLET		PO BOX 226		W NOTTINGHAM	NH	03291
ANDREW P	NOONE		15 MARSHALL WAY		SEABROOK	NH	03874-5610
ALEXANDER G.	NOSSIFF		23 COTE DRIVE		DOVER	NH	03820
NEIL F	O'BRIEN		183 AMESBURY RD		KENSINGTON	NH	03833
PAUL	O'BRIEN		202 SOUTH ROAD		DEERFIELD	NH	03037
JOIE RAFFAELA	PACIULLI		PO BOX 1197		PORTSMOUTH	NH	03802-1197
RICHARD G	PALMER		24 PARKERSVILLE LANE		SEABROOK	NH	03874
SAMUEL L	PALMER		PO BOX 272		NEW CASTLE	NH	03854
CHARLES	PANASIS		280 A DOVER POINT ROAD		DOVER	NH	03820
LEE ANN	PARKS		9 ISAAC LUCAS CIRCLE		DOVER	NH	03820
BRIAN J.	PEARSON		104 LINCOLN AVE		PORTSMOUTH	NH	03801-4427
WAYNE	PERKINS		73 RAILROAD AVE		SEABROOK	NH	03874
TODD	PETERS		379 NEW CASTLE AVE		PORTSMOUTH	NH	03801
SCOTT	PETTIS		PO BOX 311		NEW CASTLE	NH	03854
GEORGE RICHARD	PHILBRICK		188 BUNKERHILL AVE		STRATHAM	NH	03885
TAYLOR LEE	PHILLIPS	Black Lab Fishing Co./BBE Lobster	10 HIGHLANDER DR		NORTH HAMPTON	NH	03862
GRAHAM EDWARD	PHILPOT		69 CABOT STREET #2		PORTSMOUTH	NH	03801
NORMAN	PIKE		44 RIVER ST		SEABROOK	NH	03874
NORMAN	PINARD		103 CHARLES BANCROFT HWY		LITCHFIELD	NH	03052
DOUGLAS	PINCIARO		P. O. BOX 121		NEW CASTLE	NH	03854
TIMOTHY A	PINKHAM		880 PORTLAND AVENUE		ROLLINSFORD	NH	03869
PETER L	POPE		48 WATERLOO CIRCLE		DOVER	NH	03820
KEITH A	PRATT		225 OAK HILL RD		BARRINGTON	NH	03825
VINCENT	PRIEN		SIX STONEWALL LANE		RYE	NH	03870
G. WILLIAM	PURDIE		1154 OCEAN BLVD		RYE	NH	03870
PATRICIA	RANDALL		187 SO. MAIN STREET		SEABROOK	NH	03874
RAY F	RANDALL		37 N. BELGIAN RD		DANVERS	MA	01923
KEVIN M	RAPF		43 BROOK RD		AMHERST	NH	03031
PHIL	READ		SEVEN BROWNING DR		DOVER	NH	03820
JEFFREY C	REDICAN		42 CROWDIS ST		SALEM	MA	01970
NEAL JUSTIN	REYNOLDS		54 WATERLOO CIRCLE		DOVER	NH	03820
PETER DAVID	REYNOLDS		37 NAVES ROAD		HAMPTON	NH	03842
SUSAN	REYNOLDS		PO BOX 66		RYE	NH	03870
HEIDI SUSAN	RICCI		912 SAGAMORE AVE		PORTSMOUTH	NH	03801
JILL K	RICHTER		8870 SOUTH 120 EAST		SANDY	UT	03870
GEORGE B (BEN)	RICKER		362 LANG ROAD		PORTSMOUTH	NH	03801
DANIEL	RILEY		1661 OCEAN BLVD		RYE	NH	03870
DONALD	RIST		33 COTE DRIVE		DOVER	NH	03820
DANIEL F	ROACH		80 RAYMOND ROAD		NOTTINGHAM	NH	03290
WILLIAM J	ROACH		3 FRONTIER STREET		RYE	NH	03870-6116

First Name	Last Name	Business Name	MailingStreet1	MailingStreet2	MailingCity	MailingState	MailingZip
THEODORE F	ROBBINS		BOX 169		NEW CASTLE	NH	03854-0169
BRENT	ROGERS		NINE ELLIOTT ST		HAMPTON	NH	03842
PATRICIA A	ROSE		17 COTE DRIVE		DOVER	NH	03820
THERESA L.	RUDOLPH		61 MAPLE GROVE RD		BENNINGTON	NH	05201-8750
WILLIAM	RUSHFORTH		34 MAPLE RD		NO. HAMPTON	NH	03862
JAMES	RUSS		20 PLEASANT POINT DRIVE		PORTSMOUTH	NH	03801
JOHN	SAMONAS		111 BOW ST	SUITE 5	PORTSMOUTH	NH	03854
EARL J	SANDFORD		597 NEW BOSTON RD		BEDFORD	NH	03110
LEONARD P.(LEE)	SAUNDERS		158 MILL RD		NO HAMPTON	NH	03862
THOMAS	SCAMPINI		840 MAGEE DRIVE		PORTSMOUTH	NH	03801
DAVID	SCESNY		34 SQUANNACOOK RD		SHIRLEY	MA	01464
DEBORAH	SCHULTE		PO BOX 122		NEW CASTLE	NH	03854
STEPHEN	SCHULTEN		18 COTE DR		DOVER	NH	03820
WILLIAM G	SCOTT		147 WASHINGTON RD		RYE	NH	03870
THOMAS J	SEBORIC		5 HARBORVIEW DRIVE		RYE	NH	03870
KEVIN	SEMPRINI		300 NEW CASTLE AVE		PORTSMOUTH	NH	03801
WAYNE	SEMPRINI		PO BOX 336		NEW CASTLE	NH	03854
TRACY R	SHATTUCK		TWO BOYAN PLACE		PORTSMOUTH	NH	03801
JACQUELINE	SHERWIN		80 CENTRAL RD		RYE	NH	03870
ED	SHIEMBOB		7 LANDING WAY		DOVER	NH	03820
JAMES	SIEDENBURG		23 DURHAM POINT RD		DURHAM	NH	03824-3100
RICHARD	SIMPSON		PO BOX 4093		PORTSMOUTH	NH	03802-4093
FLOYD DOYLE	SKEELS		PO BOX 22425		PORTSMOUTH	NH	03820
CHARLES D	SLEEPER		23 FERN AVE		RYE	NH	03870
JACQUELYN	SMALL		18-A ROBERTS RD		DOVER	NH	03820
ALEXANDER	SMITH		50 TUG MOUNTAIN ROAD		ORANGE	NH	03290
MATTHEW	SMITH		58 MUDDY POND ROAD		KENSINGTON	NH	03833
RICHARD	SMITH		PO BOX 187		NEWMARKET	NH	03857
TODD	SMITH		931 BROADWAY		HAVERHILL	MA	01832
WILLIAM B	SMITH		906 SNOWBERRY LN		SANIBEL	FL	03854
STEPHEN	SMITH	Rudedog Fishing	4 LIBERTY ST	UNIT 2	SALISBURY	MA	01952
GAIL	SNOW		180A WILLARD AVE		PORTSMOUTH	NH	03801
STEPHANIE	SONNABEND		586 LYONS LANE		LONGBOAT KEY	FL	03870
KEITH	SOUCY		121 BACK RIVER ROAD		DOVER	NH	03820
DWIGHT	SOUTHER		41 WALTON RD		SEABROOK	NH	03874
ERIC	SPURLING		16 ISAAC LUCAS CIRCLE		DOVER	NH	03820
ANTONIA	ST GERMAIN		PO BOX 832		NEW CASTLE	NH	03854
RHONDA	STACYCOYLE		36 RICHARDS AVE		PORTSMOUTH	NH	03801
IVAN	STANEK		10 WOODLAWN AVE		HAMPTON	NH	03844
GEORGE ROBERT	STAPLES		104 WASHINGTON STREET		SEABROOK	NH	03874
CHRISTOPHER LEWIS	STEVENS		14 ISAAC LUCAS CIRCLE		DOVER	NH	03820
H. BROOKS	STEVENS		50 MARTINE COTTAGE ROAD		PORTSMOUTH	NH	03801
JANET	STEVENS		29 HARBORVIEW DRIVE		RYE	NH	03870
DONALD	STEVENS	ATLANTIC AQUASPORT	522 SAGAMORE RD		RYE	NH	03870
WILLIAM M	STEWART		PO BOX 462		NEW CASTLE	NH	03854-0462
SPENCER	STRUBLE		316C DOVER POINT RD		DOVER	NH	03820-4636
GORDON	SULLIVAN		19 COTE DRIVE		DOVER	NH	03820
ROBERT PAUL	SULLIVAN		280 LESLIE DRIVE		PORTSMOUTH	NH	03801
KEVIN C	SWENSON		47 STRAWS POINT		RYE	NH	03870
JULIE	SWIADAS		84 GOFFSTOWN ROAD		GOFFSTOWN	NH	03045
MARK	SYRACUSA		PO BOX 8272		PORTSMOUTH	NH	03801
DIANE K	SZMYD		41 HARBORVIEW DRIVE		RYE	NH	03801
STEPHEN R	TABBUTT		PO BOX 47		NEW CASTLE	NH	03854-0047
VINCENT	TACCETTA		22 NIBLICK LN		GREENLAND	NH	03840
EDMUND C	TARBELL		96 PORTSMOUTH AVE		NEWCASTLE	NH	03854
MATTHEW	TAYLOR		PO BOX 322		NEW CASTLE	NH	03854
DONALD E	TAYLOR	Taylor'd Charters LLC	301 BEAR HILL RD		LOUDON	NH	03307

First Name	Last Name	Business Name	MailingStreet1	MailingStreet2	MailingCity	MailingState	MailingZip
MICHAEL	THIEL		34 BRACKETT RD		RYE	NH	03870
EDWARD P	THOMPSON		55 SALTER ST		PORTSMOUTH	NH	03801
JEFFREY A	THURLLOW		164 HIGH RD		NEWBURY	MA	01951
JONATHAN L	TIERNEY		637 EAST 1ST ST	UNIT 102	BOSTON	MA	02127
MARY	TILNEY			PO BOX 266	NEW CASTLE	NH	03854
JOSEPH	TIRONE, JR	MISS ALISON LOBSTER	89 PORTSMOUTH AVE		SEABROOK	NH	03874
JAMES	TITONE		PO BOX 944		SEABROOK	NH	03874
JOSEPH	TITONE		272 PORTSMOUTH AVE	PO BOX 2561	SEABROOK	NH	03874
JASON	TOWNSEND		691 COLONIAL DR		PORTSMOUTH	NH	03801
JOYCE	TRENHOLM MILLS		PO BOX 42		RYE	NH	03870
PHILIP	TUCKER		650 LONG JOHN RD		RYE	NH	03870
JOHN	TUTTLE		50 JENNESS	PO BOX 508	RYE	NH	03870
DWIGHT A	TUTTLE	BLACK DOG CHARTER, LLC	PO BOX 508		RYE	NH	03870
PAUL	URBANEK		153 SCHOOL STREET		CONCORD	NH	03301
JOHN C	VALENTINE		14 HALLS WAY		SEABROOK	NH	03824
GREGORY M	VALLEE		27 WENTWORTH TERRACE		DOVER	NH	03820
BRUCE L	VALLEY		175 HARBOR ROAD		RYE	NH	03870
PETER	VANDERMARK		86 RIDGES COURT		PORTSMOUTH	NH	03801
RICHARD E	VANLANDINGHAM		62 WATERLOO CIRCLE		DOVER	NH	03820
ROBERT L	VIEL		187 EDMOND AVE		PORTSMOUTH	NH	03801
PHILLIP	VOSS		47 HARBORVIEW DRIVE		RYE	NH	03870
BRIAN	WALSH		9 WESTRIDGE DRIVE		HAMPTON	NH	03842
KIERON	WALSH		149 GOLDMINE ROAD		DUBLIN	NH	03444
BENJAMIN	WARD		PO BOX 351		NEW CASTLE	NH	03885
CHRIS	WARD		PO BOX 19		NEWCASTLE	NH	03870
ROBERT C	WARNER		142 FLAGG RD		ROCHESTER	NH	03839
ROBERT E	WARPULA		364 HANCOCK RD		PETERBOROUGH	NH	03458
RICHARD	WARREN		9 OAK RIDGE RD		KENSINGTON	NH	03833
JEFFREY R	WARSCHAUER		1 WENTWORTH TERRACE		DOVER	NH	03820
DIANE M	WASSON		7 RIVER ST		SEABROOK	NH	03874
JOHN CLINTON	WASSON		6 AMY DRIVE		SEABROOK	NH	03874
SCOTT	WATTS		PO BOX 2244		SEABROOK	NH	03874-2244
ROBERT G	WEATHERSBY	Seacoast NH Sportfishing	26 NEPTUNE DRIVE		RYE	NH	03870
JUSTIN S	WEBBER		254A DOVER POINT ROAD		DOVER	NH	03820
CRAIG W	WELCH		77 SOUTH STREET		PORTSMOUTH	NH	03801
WHITNEY	WELLER		FOUR TAMARIND LANE		EXETER	NH	03833
ALAN RUSSELL	WESTON		PO BOX 853		NEWCASTLE	NH	03854
SHARON KAY	WESTON		PO BOX 853		NEWCASTLE	NH	03854
BEN	WHEELER		834 WASHINGTON ROAD		RYE	NH	03870
ANDREW B	WHITE		40 VENNARDS CT	PO BOX 91	NEW CASTLE	NH	03854
DENISE M	WHITTIER		306C DOVER POINT RD		DOVER	NH	03820
RICHARD L	WICKSON	REVOLVER LLC	261 CENTRAL ROAD		RYE	NH	03870-2525
ANDREW	WIDEN	RAY'S SEAFOOD	1677 OCEAN BLVD		RYE	NH	03870
DAVID (ROB)	WILICH	NASS, LLC	31 DEARBORN AVE		HAMPTON	NH	03842
JEFFREY P.	WILLS		262 1/2 DOVER POINT ROAD		DOVER	NH	03820-4666
TOM	WILLWERTH		PO BOX 644		SEABROOK	NH	03874-0644
PHILIP D	WINSLOW		100 HARBOR RD		RYE	NH	03870
BARBARA	WOODMAN		35 HARBOR VIEW DRIVE		RYE	NH	03870
GERALD	WORCESTER		96 PATTERSON LANE		NEWINGTON	NH	03801
JOSEPH	WORMHOOD		6 WHITE DRIVE		KINGSTON	NH	03848
PETER	WORRELL		PO BOX 558		NEW CASTLE	NH	03854
WILLIAM D	ZECHEL		102 POST ROAD		GREENLAND	NH	03840
SUSAN	ZUCKERT		PO BOX 307		NEW CASTLE	NH	03854



# Attachment 11

## Mooring Permit Holder Response Log

### Attachment Summary

Mooring permit holder survey recipients contained both commercial and recreational waterway users.

88 responses were received out of the 452 surveys mailed.

10 of the 88 responding permit holders stated they would be affected in some fashion by the proposed bridge.

4 of the 10 stated their present use would be affected. 1 permit holder transits at lower tides, 2 permit holders lower the mast or antenna of the vessel for passage, and 1 permit holder is the only vessel of the present recreational fleet that requests lifts to transit the bridge.

6 of the 10 stated their prospective use would be affected. 4 permit holders do not have a mooring in the back channel but would someday like too and 2 currently have moorings and would like to own a sailboat someday.



Response#	Received	Name	Response Method	Use Type	Mooring Field	Annual Trips	Navigation Affected by Proposed Bridge	Vessel Name	Length	Width	Draft	Air Draft	Can Modify to Transit bridge?	Notes
1	2020 1121	Goodwin	email	Recreational	Piscataqua River	0	No							
2	2020 1121	Gunzelmann	email	Commercial	Rye Harbor	10	No							
3	2020 1123	Miller	email		Peirce Back	90	No							
4	2020 1123	Manning	email	Both	Goat Back	30	Yes	Half Moon	36	13.5	3.5	18	yes	11/24 followup - he currently waits for lower tides to clear the bridge. he can lower his canvas to clear the bridge but that is a pain.
5	2020 1123	Gregerson	email		Dover Point	16	No							
6	2020 1123	McLaughlin	email	Recreational	Rye Harbor		No							
7	2020 1123	Kingston	email				No							Shared information about how to resolve the silting issues in the back channel.
8	2020 1124	Lowell	usps	Recreational	Rye Harbor	12	No							
9	2020 1124	Connors	usps	Recreational	Sagamore Creek	33	No							
10	2020 1124	Wormhood	usps		Peirce Island	0	No							does not transit the bridge
11	2020 1124	Eldredge	usps		Rye Harbor		No							does not transit the bridge
12	2020 1124	Allard	usps	Recreational	Goat Island	40	No							may purchase a larger boat in the future that may require higher clearance than proposed bridge. No specific plans.
13	2020 1125	Bettcher	email	Commercial	Rye Harbor	0	No							
14	2020 1127	White	email	Recreational	PYC	4	No							
15	2020 1124	Bosen	email				No							owns a dock and several boats, found out about survey through word of mouth. Wants the clearance "as high as possible"
16	2020 1129	Dickinson	email		Sagamore Creek	0	No							Did not complete a survey. Stated many concerns about the proposed bridge, but does not own a vessel
17	2020 1129	Brown	email	Recreational	Peirce Island	0	Yes	Cadence	50	14	6	64	no	Future Use effect. Currently moored at Peirce Island. Did not choose back channel mooring because of hassle of 4 hour advanced call to request bridge opening.
18	2020 1130	McEvoy	email	Commercial	Goat Back	40	No							
19	2020 1130	Marconi	email	Recreational	Waitlisted	0	Yes	Red Stripe	25	8	3	35	no	Future Use effect. Waitlisted at Little Harbor. Would want to transit the bridge once she gets off the waitlist
20	2020 1130	KPYC	email	Commercial	Goat Back	90+	No							Launch Vessel for KPYC. No impact to club operation
21	2020 1130	Purington	email	Commercial	Goat Island	0	No							
22	2020 1130	Purington	email	Recreational	Goat Back	18	Yes							Future Use effect. Purington owns sailboats and a mooring at goat island. (See previous entry). Considering sail boat purchase for mooring at goat back location. No specific purchase was mentioned.
23	2020 1130	Thiel	email	Recreational	Little Harbor	0	No							
24	2020 1201	Semprini	email	Recreational	Peirce Back	98	No							
25	2020 1202	Fitts	email	Recreational	Goat Back	35	No							
26	2020 1118	Philpot	usps											returned to sender
27	2020 1118	Erickson	usps											returned to sender
28	2020 1118	Bryan	usps											returned to sender
29	2020 1203	Fee	usps	Recreational	Piscataqua River	2	No							
30	2020 1203	Gabriel	usps	Recreational	Piscataqua River	0	No							
31	2020 1203	Jackson	usps	Recreational	Rye Harbor	25	No							included letter in support of movable bridge
32	2020 1201	Nolet	usps		Goat Back	64	No							
33	2020 1201	Hughes	usps	Recreational	Harts Cove	46	Yes	Landseer	36	12	6		no	Future Use effect. Landseer is a sailboat in VA, may consider moving to NH if a mooring becomes available.
34	2020 1201	Flanigan	usps	Commercial	Sagamore Creek	0	Yes	Wendy Lee	46	15.5	6	21	no	Future Use effect. 12/7 received clarification email. Wendy Lee used to be moored in Sag creek, but changes made to the vessel (outriggers, etc) made it practical to moor the Wendy Lee in Sag Creek due to existing bridge clearance/wait time. Wendy Lee is docked in Kittery now and Sag Creek mooring is now used for small skiff.
35	2020 1201	Arsenault	usps	Recreational	Goat Back	44	No							
36	2020 1125	Marvin	usps	Recreational	PYC	26	No							
37	2020 1125	Perkins	usps		Seabrook		No							

Response#	Received	Name	Response Method	Use Type	Mooring Field	Annual Trips	Navigation Affected by Proposed Bridge	Vessel Name	Length	Width	Draft	Air Draft	Can Modify to Transit bridge?	Notes
38	2020 1125	Struble	usps		Piscataqua River		No							11/25 received letter. 13' whaler does not transit the existing bridge.
39	2020 1125	Duddy	usps	Recreational	Rye Harbor	4	No							
40	2020 1125	Blackington	usps	Recreational	Goat Back	60	No							
41	2020 1125	Smith	usps	Recreational	Piscataqua River	0	No							
42	2020 1125	Webber	usps	Recreational	Dover Point		No							
43	2020 1125	French	usps	Recreational	Goat Back	0	No							
44	2020 1125	Davis	usps		Goat Back		No							
45	2020 1125	Morin	usps		Goat Back	106	No							
46	2020 1125	Gardner	usps	Recreational	Goat Back	43	No							
47	2020 1125	Vandermark	usps	Recreational	goat back	20	No							Past effect. 12/7 used to have sailboat with 38.5' air draft.
48	2020 1125	Marconi	usps	Commercial	Peirce Island		No							
49	2020 1125	Gervais	usps		Goat Back	47	No							
50	2020 1125	Walsh	usps	Recreational	Sagamore Creek	96	No							
51	2020 1125	Desisto	usps	Recreational	Sagamore Creek	50	No							
52	2020 1125	Rudolph	usps	Recreational	Goat Back		No							
53	2020 1125	Woodman	usps		Sagamore Creek	45	No							
54	2020 1125	Voss	usps	Recreational	Sagamore Creek	140	No							
55	2020 1125	Horan	usps	Recreational	Rye Harbor	0	No							
56	2020 1125	Butler	usps	Recreational	Piscataqua River	4	No							
57	2020 1125	Johnson	usps	Recreational	Goat Back	12	No							
58	2020 1125	Scott	usps	Recreational	Rye Harbor	0	No							
59	2020 1125	Robbins	usps	Recreational	PYC	0	No							
60	2020 1125	MacDonald	usps	Recreational	Peirce Island	58	No							
61	2020 1125	Fessender	usps	Commercial	Sagamore Creek	190	No							
62	2020 1125	Prien	usps	Commercial	PYC	0	No							
63	2020 1125	Doleac	usps	Recreational	Goat Back	9	No							
64	2020 1125	Hollister	usps	Recreational	Goat Back	0	Yes							Future effect. Would like to have a sailboat that would not fit under the proposed bridge
65	2020 1125	Pettis	usps	Recreational	Goat Back	16	No							
66	2020 1125	Peters	usps	Recreational	Peirce Back	5	No							
67	2020 1125	Chamberlin	usps	Recreational	Goat Island	20	No							
68	2020 1125	Sedork	usps	Recreational	Sagamore Creek	61	No							
69	2020 1205	Ricci	email	Commercial	Sagamore Creek	420	No							
70	2020 1205	Ricci	email	Commercial	Sagamore Creek	420	No							
71	2020 1207	Urbanek	email	Recreational	Goat Back	8	yes	Celerity	33	11	5.75	49	no	
72	2020 1208	Axton	usps		Rye Harbor		No							included letter in support of movable bridge. Did not complete survey.
73	2020 1208	West Rye Marine	usps		Rye Harbor		No							same envelope as Axton. Did not complete survey.
74	2020 1208	Valentine	usps	Recreational	Piscataqua River	15	No							
75	2020 1208	Barbour	usps		Rye Harbor	0	No							
76	2020 1208	Jankowski	usps											returned to sender
77	2020 1208	Joselow	usps		PYC	13	No							
78	2020 1208	Russ	usps	Recreational	Goat Back	110	No							
79	2020 1210	Stewart	email	Recreational	Goat Back	135	Yes	unnamed	17.5	5		24	yes	followup clarified that air draft is 24' not 22'. Oday Day Sailer, unnamed, with a centerboard. Lowers mast to transit the bridge, but is difficult and time consuming. Feels that the USCG told them the Wentworth Bridge would remain a movable bridge after the 18 movable bridge was replaced with fixed bridge
80	2020 1210	Coyle	usps	Recreational		47	No							
81	2020 1210	Golter Lobster Co	usps	Commercial	Sagamore Creek	196	No							
82	2020 1211	Gundalow Company	email	Commercial	Sagamore Creek	8	No							Gundalow Co uses the mooring permitted to Society for the Protection of NH Forests
83	2020 1215	Stevens	usps	Recreational	Sagamore Creek	48	No							
84	2020 1215	Davis	usps	Commercial	Sagamore Creek	59	No							
85	2020 1215	Coughran	usps	Recreational	Sagamore Creek	26	No							
86	2020 1222	Kormechuk	usps	Recreational	Rye Harbor	0	No							
87	2020 1222	Beal	usps	Recreational	Piscataqua River	0	No							Doesn't transit the bridge, but if he ever did, his vessel would be restricted by the proposed clearances
88	2020 1222	Tuttle	usps	Commercial	Sagamore Creek		Yes	Black Dog	31	10	4	25	yes	Can lower antennae to transit the bridge, but it is very inconvenient, takes 40 minutes every time



# Attachment 12

## Commercial Outreach Summary and Results

### Attachment Summary

Outreach to 25 commercial enterprises within 3-mile radius of the bridge was performed via phone.

12 provided responses about the proposed bridge.

5 currently transit the bridge as part of business operations.

2 of the 5 indicated that the proposed bridge clearance would be close to restricting their vessels at high tide.



Project:	<a href="#">Newcastle Rye Bridge Replacement</a>	Date:	
Subject:	<a href="#">USCG Bridge Application</a>	Date:	
Task:	<a href="#">Commercial Outreach Summary</a>	Of:	
Job #:			

Business	Town, Waterway	Phone	Called?	Answered?	First Call	Second Call	Contact	notes	Status
			Yes/No	Yes/No	Date	Date			
Wentworth By the Sea Marina	New Castle, Little Harbor	603-433-5050	No	N/A	-		-	part of PAC, not outreach reqd.	closed
Freedom Boat Club	Portsmouth, Sagamore Creek	508-443-6800	Yes	No	Week of 9/7	Week of 9/24	-	no response	closed
BG's Boat House Marina	Portsmouth, Sagamore Creek	603-431-1074	Yes	Yes	Week of 9/7	-	Jeff and Lisa	response recorded, no response to followup	closed
Irving Oil Terminals Inc.	Portsmouth, Piscataqua River	603-436-5147	Yes	No	Week of 9/14	Week of 9/24	-	no response	closed
Kittery Point Yacht Club	New Castle, Piscataqua River	603-436-9303	Yes	Yes	Week of 9/14	-	Chris Snow	response recorded	closed
Portsmouth Marina	Portsmouth, Sagamore Creek	603-422-3462	Yes	Yes	Week of 9/14	-	Tom Reis	9/28 response recorded. Email follow up sent. 10/1 received response, owner has plans to purchase R/V thunder	closed
Portsmouth Kayak Adventures	New Castle, Piscataqua River	603-559-1000	Yes	No	Week of 9/7	Week of 9/24	Bill Hyad	no response	closed
Portsmouth Yacht Club	Portsmouth, Piscataqua River	603-436-9877	Yes	No	Week of 9/14	Week of 9/24	-	no response	closed
Riverside and Pickering Marine Construction	Portsmouth, Piscataqua River	603-427-2824	Yes	Yes	Week of 9/14	-	Doug Anderson	2017 outreach performed	closed
Vista Yacht Charters, LLC	New Castle, Little Harbor	781-258-7344	Yes	Yes	Week of 9/14	-	Steve Briggs	response recorded	closed
Sushi Hunter Charters	Portsmouth	603-231-7904	Yes	No	Week of 9/14	Week of 9/24	-	no response	closed
Seafari	Kittery, ME	207-439-5068	Yes	No	Week of 9/14	Week of 9/24	-	no response	closed
Isles of Shoals Steamship Company	Portsmouth	603-431-5500	Yes	No	Week of 9/14	Week of 9/24	-	no response	closed
Gundalow Company	Portsmouth	603-433-9505	Yes	Yes	Week of 9/14	-	Andy Goodell	reponse recorded	closed
Granite State Materials	Portsmouth	603-319-4294	Yes	Yes	Week of 9/14	-	Bill Craton	response recorded	closed
Portsmouth Harbor Tow	Portsmouth	877-838-3193	Yes	Yes	Week of 9/14	-	Stephen Root	response recorded	closed
Shoal's Marine Laboratory	Portsmouth	603-964-9011	Yes	No	Week of 9/14	Week of 9/24	-	no response	closed
Judd Greg Marine Center	New Castle, Piscataqua River	603-433-1290	Yes	No	Week of 9/14	Week of 9/24	-	no response	closed
Sanders Lobster Company	Portsmouth, Piscataqua River	603-436-716	Yes	No	Week of 9/14	Week of 9/24	-	no response	closed
Moran Towing of New Hampshire	Portsmouth	603-436-1209	Yes	No	Week of 9/14	Week of 9/24	-	no response	closed
Little Bay Lobster	Newington, Piscataqua River	603-431-3170	Yes	Yes	Week of 9/14	Week of 9/24	-	response recorded	closed
Esthers Marina	Portsmouth, Piscataqua River	603-828-6462	Yes	No	Week of 9/14	Week of 9/24	-	no response	closed
Portsmouth Scuba	Portsmouth, Sagamore Creek	603-436-4887	Yes	Yes	Week of 9/7	-	Chuck Oxencine	response recorded, no response to followup	closed
Portsmouth Harbor Cruises	Portsmouth, Piscataqua River	603-436-8084	Yes	Yes	Week of 10/19	30-Oct	Andrew Cole	response recorded	closed
Pepperrell Cove Marine Services	Newington, Piscataqua River	603-373-812	No	N/A	-	-	-	2017 outreach performed	closed

# Memo

Date: Wednesday, November 08, 2017

Project: 16127 New Castle-Rye Bridge Project

To: NH Division of Historical Resources and Consulting Parties of the New Castle-Rye Bridge Project

From: Jill Edelmann, New Hampshire Department of Transportation (NHDOT)

Subject: Additional Information for November 9, 2017 Cultural Resources Coordination Meeting

This memorandum summarizes additional information gathered in response to comments received from Ben Wilson, Chief of Historic Sites for NH Division of Parks and Recreation, on October 27<sup>th</sup>, 2017. In his comments, Ben Wilson suggested a fixed bridge could restrict access to the Back Channel for marine construction firms. This could affect the Bureau of Historic Sites' ability to construct a dock and to conduct ongoing maintenance on the waterfront. Note that vertical clearance under the existing NH 1B bascule bridge in the closed position is approximately 13' at high tide, and approximately 22' at low tide. A fixed bridge would have a vertical clearance of 16.5' at high tide and approximately 25.5' at low tide.

The NHDOT contacted three marine contractors who've worked in the Back Channel and received the following information:

- Ken Anderson at Riverside & Pickering said they can't access the Back Channel under the NH 1B Bridge due to the horizontal clearance. Instead, they use the Marconi Island Bridge. He said his equipment needs approximately 15.5' of vertical clearance.
- Ken Knauer at Prock Marine said they accessed the Back Channel under the Marconi Island Bridge when they dredged Sagamore Creek last year. They require approximately 60' of horizontal clearance and 15' of vertical clearance for their equipment.
- Geoff Tortoriello at Pepperell Cove Marine Services said their barges fit under the NH 1B Bridge in the closed position, as it just requires 12-1/2' of horizontal clearance and 15' of vertical clearance, but that his boats generally don't enter the Back Channel from the NH 1B Bridge because the Marconi Bridge is more convenient. He said that the Heritage, a local tour boat, is restricted under the NH 1B Bridge at high tide, but it can pass through at lower tides.

Ben Wilson also raised concerns about area fire departments being able to fight a fire at the Wentworth-Coolidge Mansion. NHDOT spoke with Tracey Freeman at the Portsmouth Fire Department. She stated they had a larger metal hulled fire boat, but that they recently gave it to the Town of New Castle because Portsmouth did not use it frequently enough. Instead, they purchased a Zodiac, which has a very low draft so it's able to get into most areas in the Back Channel. NHDOT also spoke with New Castle Fire Chief David Blanding. He indicated that the fire boat Portsmouth gave them requires 12' of clearance and that their second fire boat is smaller and just requires 6' of clearance.



## Newcastle Rye Business Outreach Response

1. Can I get your name, and is this a good number to reach out to you again should we need to?

Jeff Graves

Phone: 603-431-1074

Email: BGSBoathouse@comcast.net

2. What do you do at \_\_\_\_\_?

Owner and Operator

3. Does your business utilize the Back Channel, Sagamore Creek, or Northward Channel for business operations?

Yes, they rent slips seasonally to boaters. The marina gets closed in October along with the restaurant.

4. Does your business own any vessels that utilize the waterway?

No, they do not personally own any vessels that are used for the business.

- i. Would the proposed clearances of (51x16) restrict your access?

N/A

- ii. Can you describe the vessels you own?

1. Vessel Name – N/A
    2. Type – N/A
    3. Draft – N/A
    4. Air draft – N/A
    5. Beam – N/A
    6. Length – N/A

- iii. How frequently does your business use the waterway?

N/A

5. Do any vessels not owned by you use the waterway to access your business?

Yes, vessels come in to use the restaurant and also use their marina slips that they seasonally rent out.

- i. Would the proposed clearances of (51x16) restrict their access?

No, larger vessels that want to come eat at the restaurant are referred to dock at the Wentworth Marina and drive down. They mentioned channel depths and how larger vessels typically aren't able to traverse the waterway.

- ii. Can you describe the vessels?

**NOTE:** Email has been sent asking for mooring list, no response yet.

1. Vessel Name – N/A
2. Type – N/A
3. Draft – N/A
4. Air draft – N/A
5. Beam – 8' beam is max
6. Length – 22' is largest boat that can fit in slip.

- iii. How frequently do they access your business?

Very frequently during the summer, as stated above they close for business during the winter in October.

6. Do you have any future business plans that would include the purchase of a new vessels that would be restricted by the proposed vertical clearance?

No business plans to expand.

## Newcastle Rye Business Outreach Response

1. Can I get your name, and is this a good number to reach out to you again should we need to?

Chris Snow

Email: [csnow@nhpta.com](mailto:csnow@nhpta.com)

Phone: 603-731-3348

2. What do you do at Kittery Point Yacht Club?

Port Advisory Contact as well as Commodore of the Kittery Point Yacht Club.

3. Does your business utilize the Back Channel, Sagamore Creek, or Northward Channel for business operations? Is so, how?

No, the Kittery Point Yacht club does not have any impact from the replacement of the bridge. The location of the yacht club does not require

4. Does your business own any vessels that utilize the waterway?

No, no vessels are owned by the yacht club that utilize the waterway.

- i. Would the proposed clearances of (51x16) restrict your access?

N/A

- ii. Can you describe the vessels you own?

1. Vessel Name – N/A

2. Type – N/A

3. Draft – N/A

4. Air draft– N/A

5. Beam – N/A

6. Length – N/A

- iii. How frequently does your business use the waterway?

5. Do any vessels not owned by you use the waterway to access your business?

No, no vessels use the channel. The yacht club has direct access to the ocean via the Piscataqua river. Vessels docked at club have outriggers for fishing that are restricted.

i. Would the proposed clearances of (51x16) restrict their access?

N/A

ii. Can you describe the vessels?

1. Vessel Name – N/A
2. Type – N/A
3. Draft – N/A
4. Air draft – N/A
5. Beam – N/A
6. Length – N/A

iii. How frequently do they access your business?

N/A

6. Do you have any future business plans that would include the purchase of a new vessels that would be restricted by the proposed vertical clearance?

No, there are no future plans to expand that would require the channel be accessed.

Additional notes: Chris said that he feels the bridge should be replaced as a bascule bridge, and that the pier sitting on the west side of the channel provides clearance and navigational clearances. As a representative for the Port advisory, he mentioned that the channel could be used as a port of refuge.

## Newcastle Rye Business Outreach Response

1. Can I get your name, and is this a good number to reach out to you again should we need to?

Tom Reese

Phone: 603-661-6551

Email: tom@substructure.com

2. What do you do at \_\_\_\_\_?

Owner and operator of Portsmouth Marina.

3. Does your business utilize the Back Channel, Sagamore Creek, or Northward Channel for business operations?

Yes, vessels use the channel to access his Marina.

4. Does your business own any vessels that utilize the waterway?

Yes, his work vessel that is owned would be close to being restricted by the clearances. Please see question 6 below where Tom discusses talk about future plans. Research projects are done with surrounding businesses that require the channel.

- i. Would the proposed clearances of (51x16) restrict your access?

It would be close. A vessel was just purchased from Alaska that is a research vessel. Please see below for information.

**NOTE:** An email has been sent to get exact dimensions of vessels that would be close to being restricted. There has been no response.

- ii. Can you describe the vessels you own?

1. Vessel Name – RV Thunder
    2. Type – Research Vessel
    3. Draft – N/A
    4. Air draft – N/A
    5. Beam – 20'
    6. Length – 70'



iii. How frequently does your business use the waterway?

Whenever he is contracted out for work. This varies.

5. Do any vessels not owned by you use the waterway to access your business?

Yes, vessels are stored during the winter in dry docks and at the marina.

i. Would the proposed clearances of (51x16) restrict their access?

No vessels are currently restricted. However, it was stated that vessels have stopped using his services because their outriggers are not able to get under the bridge and requesting a bridge lift is too inefficient and takes too much advanced time.

ii. Can you describe the vessels?

**NOTE:** An email has been sent to get exact dimensions of vessels that would be close to being restricted. There has been no response.

1. Vessel Name – N/A
2. Type– N/A
3. Draft– N/A
4. Air draft– N/A
5. Beam– N/A
6. Length– N/A

iii. How frequently do they access your business?

Frequently during the summer and at the end of seasons when vessels come to be stored.

6. Do you have any future business plans that would include the purchase of a new vessels that would be restricted by the proposed vertical clearance?

Yes, it was stated that the property was bought 5 years ago under the impression that the drawbridge was going to be replaced with a new drawbridge that would work better. Was very adamant on a bascule bridge being the replacement option as a fixed bridge would restrict him from hundreds of thousands of dollars in business. He has significant construction that if he was able to take larger vessels through bridge, he would be able to create more revenue.

**For Marinas and Yacht Clubs** – Do they offer fuel to vessels / do they offer repair services to vessels.

Yes, offers repairs to vessels.

## Newcastle Rye Business Outreach Response

1. Can I get your name, and is this a good number to reach out to you again should we need to?

Steve Briggs

Phone: 781-258-7344

2. What do you do at \_\_\_\_\_?

Owner and captain of vessels owned by Vista Yacht Charters.

3. Does your business utilize the Back Channel, Sagamore Creek, or Northward Channel for business operations?

No, he mentioned that their outboards cause narrow clearance through the bridge. Mentioned that there is no need for them to go through the bridge as they are docked at the Wentworth Marina and have direct access to the ocean.

4. Does your business own any vessels that utilize the waterway?

No.

- i. Would the proposed clearances of (51x16) restrict your access?

N/A

- ii. Can you describe the vessels you own?

1. Vessel Name – N/A
    2. Type – N/A
    3. Draft – N/A
    4. Air draft – N/A
    5. Beam – N/A
    6. Length – N/A

- iii. How frequently does your business use the waterway?

N/A

5. Do any vessels not owned by you use the waterway to access your business?

No.

i. Would the proposed clearances of (51x16) restrict their access?

N/A

ii. Can you describe the vessels?

1. Vessel Name – N/A
2. Type – N/A
3. Draft – N/A
4. Air draft – N/A
5. Beam – N/A
6. Length – N/A

iii. How frequently do they access your business?

N/A

6. Do you have any future business plans that would include the purchase of a new vessels that would be restricted by the proposed vertical clearance?

No, no future plans to expand that are impacted by the bridge.

## Newcastle Rye Business Outreach Response

1. Can I get your name, and is this a good number to reach out to you again should we need to?

Andy Goodell

Phone: 603-433-9505

Matt Glenn – Captain of Gundalow

Email: [captain@gundalow.org](mailto:captain@gundalow.org)

2. What do you do at \_\_\_\_\_?

Manager

3. Does your business utilize the Back Channel, Sagamore Creek, or Northward Channel for business operations?

Yes, they frequently traverse the creek for lessons.

4. Does your business own any vessels that utilize the waterway?

Yes, however only their small vessels use the waterway for lessons as stated above. Their only large vessel, the gundalow, has never needed to go through the channel and use the drawbridge. The gundalow mostly stays in the piscataqua.

- i. Would the proposed clearances of (51x16) restrict your access?

No, only small vessels that don't impact the 16' clearance use the area.

- ii. Can you describe the vessels you own?

1. Vessel Name– N/A
    2. Type– N/A
    3. Draft– N/A
    4. Air draft– N/A
    5. Beam– N/A
    6. Length– N/A

- iii. How frequently does your business use the waterway?

Mostly during the summer for lessons. They close business during the wintertime.



5. Do any vessels not owned by you use the waterway to access your business?

No

i. Would the proposed clearances of (51x16) restrict their access?

ii. Can you describe the vessels?

1. Vessel Name– N/A

2. Type– N/A

3. Draft– N/A

4. Air draft– N/A

5. Beam– N/A

6. Length– N/A

iii. How frequently do they access your business?

N/A

6. Do you have any future business plans that would include the purchase of a new vessels that would be restricted by the proposed vertical clearance?

There are currently no plans to expand the business.

## Newcastle Rye Business Outreach Response

1. Can I get your name, and is this a good number to reach out to you again should we need to?

Bill Craton

Phone: 603-319-4294

2. What do you do at \_\_\_\_\_?

Manager

3. Does your business utilize the Back Channel, Sagamore Creek, or Northward Channel for business operations?

No

4. Does your business own any vessels that utilize the waterway?

No

- i. Would the proposed clearances of (51x16) restrict your access?

N/A

- ii. Can you describe the vessels you own?

1. Vessel Name – N/A

2. Type – N/A

3. Draft – N/A

4. Air draft – N/A

5. Beam – N/A

6. Length – N/A

- iii. How frequently does your business use the waterway?

5. Do any vessels not owned by you use the waterway to access your business?

No

- i. Would the proposed clearances of (51x16) restrict their access?

N/A



ii. Can you describe the vessels?

1. Vessel Name – N/A
2. Type – N/A
3. Draft – N/A
4. Air draft – N/A
5. Beam – N/A
6. Length – N/A

iii. How frequently do they access your business?

N/A

6. Do you have any future business plans that would include the purchase of a new vessels that would be restricted by the proposed vertical clearance?

There are no future plans that include work in the area.

## Newcastle Rye Business Outreach Response

1. Can I get your name, and is this a good number to reach out to you again should we need to?

Stephen Root

Email: [portsmouthharbortowingllc@comcast.net](mailto:portsmouthharbortowingllc@comcast.net)

Phone: 603-36-0915

2. What do you do at Portsmouth Harbor Tows?

Owner and operator of the towing business.

3. Does your business utilize the Back Channel, Sagamore Creek, or Northward Channel for business operations?

No, he does not frequently use the channel. He gets called to locations where boats need towing or services that require towing.

There has only been once instance in early 2010s where he needed to take a sailboat through channel and request a bridge opening.

4. Does your business own any vessels that utilize the waterway?

No, there are no vessels that he owns that utilize the waterway.

- i. Would the proposed clearances of (51x16) restrict your access?

N/A

- ii. Can you describe the vessels you own?

1. Vessel Name – N/A

2. Type – N/A

3. Draft – N/A

4. Air draft – N/A

5. Beam – N/A

6. Length – N/A

- iii. How frequently does your business use the waterway?

Not frequently. As stated above there has been one time when Stephen has had to use the channel and the drawbridge.



5. Do any vessels not owned by you use the waterway to access your business?

N/A

i. Would the proposed clearances of (51x16) restrict their access?

N/A

ii. Can you describe the vessels?

1. Vessel Name – N/A

2. Type – N/A

3. Draft – N/A

4. Air draft – N/A

5. Beam – N/A

6. Length – N/A

iii. How frequently do they access your business?

N/A

6. Do you have any future business plans that would include the purchase of a new vessels that would be restricted by the proposed vertical clearance?

No future plans to expand that would need use of channel and bridge.

## Newcastle Rye Business Outreach Response

1. Can I get your name, and is this a good number to reach out to you again should we need to?

Amy, 603-431-3170

2. What do you do at \_\_\_\_\_?

Operating manager of little bay lobster

3. Does your business utilize the Back Channel, Sagamore Creek, or Northward Channel for business operations?

No, vessels do not pass underneath the bridge and there is no future need to operate in the channel.

4. Does your business own any vessels that utilize the waterway?

- i. Would the proposed clearances of (51x16) restrict your access?

- ii. Can you describe the vessels you own?

1. Vessel Name
    2. Type
    3. Draft
    4. Air draft
    5. Beam
    6. Length

- iii. How frequently does your business use the waterway?

5. Do any vessels not owned by you use the waterway to access your business?

- i. Would the proposed clearances of (51x16) restrict their access?

- ii. Can you describe the vessels?

1. Vessel Name
    2. Type
    3. Draft
    4. Air draft
    5. Beam

## 6. Length

iii. How frequently do they access your business?

6. Do you have any future business plans that would include the purchase of a new vessels that would be restricted by the proposed vertical clearance?

There are currently no plans to have vessels operating in the back channel under the bridge.



## Newcastle Rye Business Outreach Response

1. Can I get your name, and is this a good number to reach out to you again should we need to?

Chuck Oxencine

Phone: 603-436-4887

Email: [chuck@portsmouthscuba.com](mailto:chuck@portsmouthscuba.com)

2. What do you do at \_\_\_\_\_?

Owner and Operator

3. Does your business utilize the Back Channel, Sagamore Creek, or Northward Channel for business operations?

Yes, frequently goes through as business owns a mooring in back channel.

4. Does your business own any vessels that utilize the waterway?

Yes, owns a vessel that is moored at the mooring he uses for business.

- i. Would the proposed clearances of (51x16) restrict your access?

Vessel dimensions would be close to being restricted.

- ii. Can you describe the vessels you own?

**NOTE:** Email has been sent to owner asking about specific dimensions.

No response at this time on vessel dimensions that would be restricted.

1. Vessel Name – N/A
    2. Type– N/A
    3. Draft– N/A
    4. Air draft– N/A
    5. Beam– N/A
    6. Length– N/A

- iii. How frequently does your business use the waterway?

5. Do any vessels not owned by you use the waterway to access your business?

Yes, when business owned vessel is not moored the mooring is rented out to other vessels.

i. Would the proposed clearances of (51x16) restrict their access?

**NOTE:** Email has been sent to owner asking about specific dimensions.  
No response at this time on vessel dimensions that would be restricted.

ii. Can you describe the vessels?

1. Vessel Name– N/A
2. Type– N/A
3. Draft– N/A
4. Air draft– N/A
5. Beam– N/A
6. Length– N/A

iii. How frequently do they access your business?

Whenever business owned vessel is not moored.

6. Do you have any future business plans that would include the purchase of a new vessels that would be restricted by the proposed vertical clearance?

Yes, owner stated that he would like to buy the mooring and the adjacent property to expand. His goal is to be able to accommodate more vessels and larger vessels, but it is dependent on whether or not there is a drawbridge. Would prefer drawbridge to allow for more expansion of business.

## Newcastle Rye Business Outreach Response

1. Can I get your name, and is this a good number to reach out to you again should we need to?

Andrew Cole  
Portsmouth Harbor Cruises  
64 Ceres St.  
Portsmouth, NH 03801  
603-436-8084 (office)  
603-502-6908 (cell)  
Email: [phc@portsmouthharbor.com](mailto:phc@portsmouthharbor.com)

2. What do you do at Portsmouth Harbor Cruises?

Owner and operator of Portsmouth Harbor Cruises.

3. Does your business utilize the Back Channel, Sagamore Creek, or Northward Channel for business operations?

Yes, cruises are taken through this waterway.

4. Does your business own any vessels that utilize the waterway?

- i. Would the proposed clearances of (51x16) restrict your access?

Not currently.

- ii. Can you describe the vessels you own?

1. Vessel Name – [Heritage](#)
    2. Type – [Passenger](#)
    3. Draft – [4.5'](#)
    4. Air draft – [14.5'](#)
    5. Beam – [17.5'](#)
    6. Length – [60'](#)

- iii. How frequently does your business use the waterway?

[5-8 time a day in season \(June – September\)](#)

[3-5 times a day on shoulder seasons \(May – June, September – October\)](#)

5. Do any vessels not owned by you use the waterway to access your business?

No



i. Would the proposed clearances of (51x16) restrict their access?

N/A

ii. Can you describe the vessels?

1. Vessel Name – N/A

2. Type – N/A

3. Draft – N/A

4. Air draft – N/A

5. Beam – N/A

6. Length – N/A

iii. How frequently do they access your business?

N/A

6. Do you have any future business plans that would include the purchase of a new vessels that would be restricted by the proposed vertical clearance?

Possibility for the future if a different vessel is aquired.

NOTE: Personally, owns a deep-water dock on Sagamore Creek. Had a sailboat at one point and used the bridge multiple times for an opening. Would like to have that opportunity available in the future and feels like a fixed bridge would limit that opportunity.



# Attachment 13

## Benefit-Cost Analysis

### Attachment Summary

Bascule bridge capital cost of \$15.8 million, life-cycle costs of \$8.5 million

Fixed bridge capital cost of \$7.0 million, life-cycle costs of \$3.7 million

# Memo

Date: Monday, February 20, 2015

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Project: New Castle-Rye 16127

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To: Victoria Chase - NHDOT, Bob Landry - NHDOT

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From: Marissa Witkowski Birtz - HDR, Jim Murphy - HDR

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Subject: New Castle-Rye Bridge Benefit-Cost Analysis: Fixed and Movable Bridge Replacement Alternatives

The New Castle-Rye Bridge, constructed in 1942, carries Wentworth Road/NH Route 1B over Little Harbor in the towns of New Castle and Rye, New Hampshire. The town of New Castle is an archipelago with only two entry routes. This bridge carries one of these two routes, making it a vital piece of infrastructure for the local community. The New Hampshire Department of Transportation (NHDOT) retained a Design Team, lead by HDR Engineering Inc. (HDR), in conjunction with Hoyle, Tanner & Associates (HTA) and Fitzgerald & Halliday Inc. (FHI) to provide preliminary design services for the New Castle-Rye Bridge. Upon the completion of a Type, Size and Location (TS&L) Study, the NHDOT has decided to replace the existing bridge. The following Benefit-Cost Analysis compares two replacement alternatives: replacement with a fixed structure at existing grade, and replacement with a bascule structure at existing grade.

Typically, a bridge Benefit-Cost Analysis considers the impacts to vehicular traffic, congestion, safety benefits, emissions reductions, and other quantifiable impacts using industry accepted parameters. Based on an initial assessment of the New Castle-Rye Bridge alternatives, which include a bascule and fixed option, there is no clear advantage to one alternative over the other from a roadway benefits perspective. Both options would accommodate vehicular traffic, bicyclists and pedestrians; vehicle speeds and access would remain the same as they are presently. Vehicle congestion would not be reduced and travel time is likely to remain relatively unchanged regardless of the alternative chosen. As a result, quantitative benefits that are typically associated with a bridge investment may not be relevant in this case or useful in determining which bridge alternative is preferable.

While these “typical” road-side benefits may not be useful in differentiating between the bridge alternatives, there are differences on the marine side. The vertical clearance of the bridge will determine marine traffic access to the Back Channel area in the mid- to longer-term.

The focus of this memorandum is to better understand the differences between the two bridge alternatives, identify benefits or disbenefits associated with each alternative, and provide a method to assess the benefits and costs of the alternatives on cost-effectiveness grounds, as well as from a more qualitative perspective.



## **Methodological Framework**

Benefit-Cost Analysis (BCA) is a conceptual framework that quantifies, in monetary terms, as many of the costs and benefits of a project as possible. Benefits are broadly defined. They represent the extent to which people impacted by the project are made better-off, as measured by their own willingness-to-pay. In other words, central to BCA is the idea that people are best able to judge what is “good” for them, or what improves their well-being or welfare.

BCA also adopts the view that a net increase in welfare (as measured by the summation of individual welfare changes) is a good thing, even if some groups within society are made worse-off. A project or proposal would be rated positively if the benefits to some members of society are large enough to compensate for the losses of other members of society.

Finally, BCA is typically a forward-looking exercise, seeking to anticipate the welfare impacts of a project or proposal over its entire life-cycle. Future welfare changes are weighted against today’s changes through discounting, which is meant to reflect society’s general preference for the present, as well as broader inter-generational concerns.

As is often the case that when choosing between infrastructure alternatives, there are factors beyond those reasonably able to be measured that hold great influence over the ultimate decision in the selection of an alternative. In the case of this analysis, a traditional BCA was particularly difficult to develop due to the lack of measurable and quantifiable differences between the two alternatives. Therefore, two potential benefits have been quantified and monetized, while other benefits are qualitatively discussed. This memorandum will present a combination of both quantitative and qualitative benefits associated with the two bridge alternatives under consideration.

## **Base Case and Alternatives**

A BCA examines the incremental differences between the alternatives under consideration. The existing New Castle-Rye Bridge is in need of replacement, and discussion has been ongoing as to whether the bridge should be replaced with a fixed bridge or a bascule bridge.

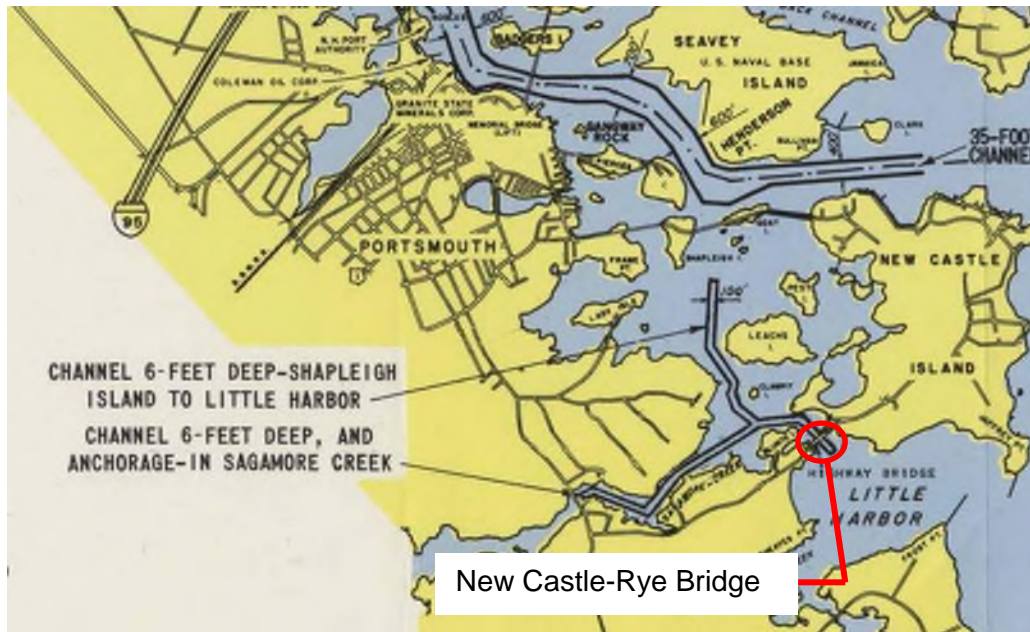
The first step in the analysis is to determine the differences in cost between the alternatives. Initial capital costs, as well as life-cycle maintenance costs, will be analyzed for each alternative. The bascule structure will have substantially higher capital and maintenance costs, primarily due to the costs of the bascule pier construction, mechanical and electrical systems, maintenance of the systems and operation costs.

This analysis will also examine the benefits of the two alternatives: bascule bridge and fixed bridge. On the land-side, the differences between the alternatives with regards to access for vehicular traffic, bicyclists, and pedestrians; including vehicle speeds and access, is negligible as the bridge currently lifts infrequently, typically between three and four times a year. Even if the number of lifts per year is increased substantially, there would not be a major impact to vehicular traffic, as the Average Daily Traffic on this bridge is only 4,200 vehicles per day.

The primary difference in benefits between the two alternatives is marine-access. The proposed fixed bridge does not offer the option to be raised to increase underclearance for marine vessels

when necessary. This would restrict access to the Back Channel, an Army Corp of Engineers maintained water way located between New Castle, Rye, and Portsmouth, NH. The New Castle-Rye Bridge is currently the only means for tall vessels to enter the Back Channel, as fixed bridges currently restrict the other two access points. The existing bridge requires four hours notice to lift, and has only been requested to lift approximately three to four times per year. The benefits discussed in this analysis will be primarily related to marine-access improvements and associated impacts.

Figure 1: Map of Back Channel (Source: USACE)



### General Analytical Assumptions

Where possible, the BCA measures benefits against costs for a duration of time that includes the construction period and a fixed number of years of operation. For this analysis, all input prices assume that the first year of analysis is the year in which the bridge is replaced, currently slated for 2017 . A constant four percent real discount rate is assumed throughout the period of analysis, reflecting the time value of money. In other words, it acknowledges that a dollar today can be invested to yield more than a dollar tomorrow.

### Project Costs and Schedule

The costs used for this comparison are based on a life-cycle cost analysis for each of the two proposed bridge alternatives. HDR performed order-of-magnitude life-cycle cost estimates which include both the initial capital costs and the long-term maintenance costs over the 75-year useful life of the new bridge.

For the bascule alternative replacement cost, the initial capital costs total \$15.8 million and the operating and maintenance costs total \$8.5 million in constant dollars (\$1.8 million in present-day dollars). The fixed alternative replacement cost is estimated at \$7.0 million in construction cost and \$3.7 million in long-term maintenance costs in constant dollars (\$0.7 million in present-

day dollars). The overall difference in cost between the two alternatives is \$13.6 million in constant dollars (\$9.9 million in present-day dollars) using the 4-percent discount rate.

For purposes of this analysis, it is assumed that all construction costs are incurred in “year zero.” Both alternatives are slated to begin construction in late 2017. Accelerated construction techniques will be employed regardless of which alternative is selected; therefore, the differences in construction duration between the two alternatives would only be a matter of weeks, which is negligible for purposes of establishing life-cycle cost periods. The completion of construction marks the beginning of the useful-life of the bridge. For the purposes of this analysis, the useful-life is assumed to be 75-years and the construction duration is assumed to be approximately one-year. The one-year construction duration and 75-year useful life result in a total analysis period of 76 years.

### **Benefits**

There are many benefits that are traditionally measured in a transportation BCA. These include travel-time impacts based on changes in demand or congestion, pavement maintenance impacts, safety impacts, and air emission impacts. In the case of this project, the impacts to these categories do not vary between the two alternatives. These traditional impacts are driven by a change in demand for use of the facility.

The two bridge alternatives have a similar surface composition. They both: maintain the existing 11’ wide roadway lanes; replace the open-grate deck surface with a solid surfaced deck; widen the sidewalk and shoulders for improved pedestrian/bicycle access; and have the same roadway vehicular capacity. It is possible that the bascule bridge may have a marginal impact on traffic if it is raised and lowered with greater frequency. This impact was not measured for this analysis, as it would require projections for future use of the bascule bridge which could vary widely. There are currently three to four lifts per year, which minimally impacts traffic. The road served an average of 4,200 vehicles per day in 2010. Traffic impacts would depend on the timing and duration of the lifts with the new bascule bridge. A lift currently takes 10 minutes, which would be substantially reduced by a new bascule bridge, as the span locks are currently operated manually. The manual span lock operation requires operators to walk to the far end of the bascule span to unlock the bascule span, and walk back prior to lifting the bridge. If increased marine activity led to a substantial increase in the number of bridge lifts, the potential for negative impacts to traffic does exist, though they are negligible for this analysis.

When assessed based on traditional bridge-related benefits, neither of the two alternatives will be significantly more or less appealing to roadway users, and thus the differences between these two alternatives are negligible. As a result, any value of these traditional benefits would essentially net to zero when comparing the two alternatives for the New Castle-Rye Bridge replacement. Due to the lack of ability to quantify a difference in traditional benefits, the study was expanded to include impacts to property values, local utilities and a number of marine-related benefits.

The potential for an increase in property values was investigated. The United States Department of Transportation (USDOT) recognizes property value increases associated with transportation investments as a societal benefit that improves the public’s quality of life in the



longer term. In fact, it allows the incorporation of some property value increases in the BCA required as part of its Transportation Investment Generating Economic Recovery (TIGER) grant program.<sup>1</sup> It is the net increase in land value due to the presence of a transportation improvement that is considered a benefit by USDOT. But after review of sources, it was found that there is no precedent or study found indicating an actualized increase in property value strictly associated with improved movable bridge access, and therefore increases in property values cannot be dependably considered a benefit. For informational purposes only, a simplified review was performed to determine the amount which property values would have to increase in order to offset the difference in costs between the two alternatives, which is discussed later in this report.

The City of Portsmouth is undergoing an effort to improve its water system, a utility that provides water to New Castle and portions of Rye. The city is planning to potentially install a new water line at the bridge site. The bridge type selected will affect how the water line is installed, as a bascule bridge would require that the water line be installed under the channel with directional drilling, where as a fixed bridge would allow for the waterline to be connected to the bridge. The cost impacts of each alternative on local utilities will be reviewed in this document.

In addition to “land-side” benefits, the study reviewed potential marine-related benefits. These benefits include marine accessibility, resiliency to climate change and rising sea levels, boat-related economic activity, as well as affects replacement alternatives may have on the logistics and costs associated with dredging the Back Channel in the future. Unfortunately, many of these benefits are not easily quantified or monetized, and thus are not included in a quantitative analysis. However, these factors should still be given consideration in the overall decision making process. This highlights the reality that for some transportation investments it is difficult to quantify all of the factors that should be considered when evaluating project alternatives.

This report discusses the qualitative benefits identified with each bridge alternative, as well as quantifies the costs associated with dredging and utilities.

### **Quantified and Monetized Benefits**

As noted previously, the road condition and overall demand on the roadway will not be different between the two bridge alternatives. Consequently, land-side benefits traditionally incorporated into a bridge alternatives selection process may not be suitable for this project, as the difference between alternatives will be negligible. Two benefits were considered in the quantitative analysis. One category of land-side benefits (potential property value impact), as well as one category of marine-side benefits (dredging), were considered.

#### Potential Property Values

It is widely accepted that water access impacts the value of nearby properties. Research was performed to determine whether values are affected by improved water access due to a movable bridge. No studies were found to address the change in property values driven by

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<sup>1</sup> “Benefit-Cost Analysis Analyses Guidance for TIGER Grant Applicants,” US DOT, <http://www.dot.gov/sites/dot.gov/files/docs/TIGER%20BCA%20Guidance%202014.pdf>

movable or fixed bridge types. Thus, there was no precedent to indicate definitive changes in property values as a direct result of bridge related access.

A simplified review was performed to determine the amount which property values would have to increase in order to offset the difference in costs between the two alternatives, for reference purposes only. Details of the exercise undertaken to determine the potential change in property values and the varying level of impacts to the properties in the area of the Back Channel can be found in the Appendix. The general results highlight the range of potential benefits at varying percentage value increases. For example, a 5.0 percent property value premium results in a total lifetime benefit of \$2.99 million dollars. A 16.6 percent increase for properties in the area would lead to an additional \$9.9 million and offset the additional costs of the on-demand movable bascule bridge as compared to the fixed bridge. A variety of property value premiums were tested and they are shown in the table below. Again, it should be noted that there is no precedent indicating that this premium in property value would be guaranteed, and thus this information is solely provided for reference.

**Table 1: Property Value Increases (4% discount rate)**

<b>Lifetime Property Premium</b>	<b>Total Benefits</b>
20%	\$ 11,932,000
16.6%	\$ 9,903,000
15%	\$ 8,949,000
13%	\$ 7,756,000
10%	\$ 5,966,000
7%	\$ 4,176,000
5%	\$ 2,983,000
3%	\$ 1,790,000

### Dredging Benefits

Dredging of the Back Channel would allow for larger vessels to enter the Back Channel, as the depth and width of the navigable channel would be increased. Currently, the depth of the channel limits some vessels from travelling into the Back Channel. Dredging of the Back Channel is planned as part of the congressionally authorized Federal Navigation Project, but funding has not yet been authorized. The 2013 Annual Dredge Report by the Pease Development Authority Division of Ports & Harbors states that the United States Army Corp of Engineers (USACE) estimates the dredging would cost approximately \$750,000. This estimate assumes the current bridge will be in place. Correspondence with the USACE indicates that both a fixed and bascule bridge would improve access for dredging, as both alternatives widen the horizontal clearances of the waterway. The USACE has also indicated in a letter dated September 24, 2014 that the bascule alternative would be favored, as it would not limit vertical clearances for dredging equipment. Regardless of which alternative is selected, the Back Channel would not be removed from the Federal Navigation Project unless done so through a Congressional vote on legislation addressing the project.

It is unknown when dredging would occur, and therefore, the value of dredging in present-day dollars cannot be known, as the cost would be discounted based on time of expenditure. The following table shows the present-day cost of dredging at various years of expenditure.

**Table 2: Cost of Dredging in Present-Day Dollars (4% discount rate)**

Year of Dredging	Cost
0	\$ 750,000
10	\$ 519,400
20	\$ 345,314
30	\$ 229,576
50	\$ 101,473

While the bascule span will provide increased cost savings over a fixed bridge, these cost savings can vary based on a number of factors: year of dredging, equipment used, and increased sediment buildup in the channel. Even if the cost savings between the alternatives were an order-of-magnitude savings, the dollar values would be orders-of-magnitude smaller than the cost differential associated with bridge construction and maintenance.

**Qualitative Benefits**

As noted previously, most of the benefits of the two bridge alternatives are not easily quantified or monetized. This section will discuss the qualitative benefits to consider when selecting between the bascule and fixed bridge alternatives.

Safe Harbor

Under current conditions, the Back Channel area is considered a safe harbor that can be used for refuge during extreme weather events. Any restriction to the vertical clearance under the bridge has the potential to limit this access for use as a safe harbor.

The benefit associated with the safe harbor is difficult to quantify as these storms are not predictable, but the possibility of saving lives due to availability of access to the harbor over the open ocean provides respite and peace of mind for ocean-going vessels in the area.

Maintaining the area as a safe harbor may also provide the potential to reduce impacts on the Coast Guard due to the reduced need to rescue vessels during these events as they have access to the safe harbor on their own. Without this safe harbor, it would be expected that the marine vessels would remain exposed on the open ocean.

Commercial Fishing

The Back Channel area is currently home to multiple small commercial lobsterman and other fishermen. The boats that currently fish there do not require the existing bridge to be lifted for access to the Back Channel, though the availability of on-demand access to the Back Channel, which requires less coordination with the tides to ensure clearances or advanced notice, would provide the opportunity to maintain the existing commercial fishing industry, as well as potentially increase the commercial fishing output of the area. While information on revenue



from local fishing industry is available, no data is available that isolates product in the Back Channel from product caught elsewhere.

#### Tourist Revenue

There are several boat tours that leave downtown Portsmouth near the Market Street Marine Terminal and tour the Portsmouth harbor and the area around New Castle. Ships that would require the bridge to lift do not currently enter the Back Channel. The Back Channel area offers views of beautiful homes and uninhabited islands, and provides the potential for increased tourist revenue due to new or expanded tours into this area. A bascule bridge allows for the possibility of boat tours accessing the Back Channel, if on-demand bridge mobility were utilized and dredging of the Back Channel was completed. A fixed bridge would reduce the vertical clearance for access into the Back Channel area and would limit the opportunity for expanded tours, if dredging of the Back Channel was completed.

#### Livability Improvements

Under current conditions, tall boats can access the Back Channel area, but require a 4-hour notice to open the bridge. A new bascule bridge allows for the potential of improving access to the Back Channel for recreational benefits to both local and non-local users, should on-demand bridge lifts and dredging of the channel be implemented.

In addition to recreational boating access considerations, improvement of currently underutilized parcels not considered in the property-value analysis are possible with changes in use of the Back Channel area. These improvements could reflect a change in land uses and value of developments associated with increased attention to the area.

#### Boat Related Economic Activity

Currently, only boats under a certain height can access the Back Channel area without at least 4-hours notice. There are currently only thirteen commercial vessels moored inside of the Back Channel; a bascule alternative allows for the possibility of increasing the number of commercial vessels through increased access, since it does not restrict vertical underclearance. This presents an opportunity for commercial activities dependent upon the possibility of channel dredging and increased accessibility through on-demand bridge lifts.

#### Climate Change Resiliency

Though there are no consensus predictions regarding timing of climate change, rising sea levels have been an issue of importance in coastal areas. The timing of this climate change is unclear, and thus creates difficulty in attempting to measure benefits associated with its impacts. However, in this instance, the assumption is that the bridge will exist for 75 years. During this time, reasonable expectations include a rising sea level. While direct impacts associated with changes in coast line and reduction in land masses will not be affected by bridge type, the alternatives differ in how navigational clearances will be affected. The vertical clearance under a fixed bridge alternative would be reduced as sea levels rise, where a movable bridge can lift, maintaining accessibility for vessels even with rises in sea levels. The potential change in vertical clearance from the water should be considered due to its impact on existing private and commercial vessels.

## Noise

The existing bridge has an open grate deck, which generates a great deal of noise as vehicles cross the bridge. Both alternatives replace this with a closed deck. The bascule bridge may generate a small amount of noise upon opening and closing that could potentially disturb anyone occupying or using adjacent properties.

## Utilities

The City of Portsmouth Public Works Department is currently reviewing scenarios to improve water service to New Castle. One alternative under consideration calls for the installation a new water line running across the Back Channel at the location of the New Castle-Rye Bridge. With a bascule bridge, this potential scenario would require the water line to run under the channel at the bridge location, installed by directional drilling. Under a fixed bridge alternative, the water line would be affixed to the bridge. The 2013 Portsmouth Master Plan programs the total cost of this new water line at \$1.1 million. The City of Portsmouth Water Division has estimated that the ability to connect the water line to a fixed bridge would cost approximately \$600,000 less than running the water line under the channel with a bascule bridge. This project is in the design phase, and commenced in the summer of 2014.

## **Results and Summary**

Many of the benefits typically analyzed in a traditional BCA, such as traffic and noise impacts, are not applicable to this bridge replacement, as the two alternatives have negligible differences for these benefits. That being said, three categories of benefits – benefits associated with utilities, property values and dredging benefits – were able to be quantified. It should be noted that there was no precedent found during this study that would suggest the increased water a moveable bridge provides would increase property values, and that calculations associated with property values are not meant to imply an expectation of such increase.

Quantitative analysis highlights the monetizable benefits to society, but often other considerations cannot be quantified or monetized. These qualitative benefits are given consideration in the overall decision making process. In the case of the New Castle-Rye Bridge replacement, many of the qualitative benefits lay in the fact that a bascule bridge allows for greater possibility of improvements and benefits to local economy and properties in the Back Channel.

Table 3 highlights the benefits, both quantitative and qualitative, that can be attributed to each of the two alternatives. A rating system is applied to each benefit, which weights the benefit with up to three check marks using the following classification:

- ✓: Provides a greater potential for benefit than the alternative bridge type
- ✓✓: Provides a greater potential for a benefit than the alternative bridge type that would also have either a widely affecting impact on the local population or a significant impact on a portion of the local population should that benefit be realized
- ✓✓✓: Meets the criteria of ✓✓, and has a benefit that is definitively known or probable to occur.

It should be noted that expenditure of public money for dredging and utilities is considered a widely affecting impact in this table.

**Table 3: Potential Benefits of Fixed and Bascule Bridge Alternatives**

<b>Benefit</b>	<b>Bascule</b>	<b>Fixed</b>
Increased Property Value	✓	
Traffic Impacts		✓
Safe Harbor	✓✓✓	
Increased Commercial Fishing	✓✓	
Tourist Revenue	✓	
Boat Related Economic Impacts	✓✓	
Climate Change Resiliency	✓✓✓	
Dredging Costs	✓✓✓	
Utilities		✓✓✓
Noise		✓

An analysis of costs was also performed, which found that the fixed bridge alternative has significantly lower capital and maintenance costs. The fixed bridge has an estimated capital costs that is approximately \$8.8 million less than the bascule bridge (\$7.0 million versus \$15.8 million). The life-cycle costs of the fixed bridge were found to be \$1.1 million less than the bascule bridge in present-day dollars (\$0.7 million versus \$1.8 million). The higher costs of the bascule bridge alternative are largely associated with the construction of the bascule pier, the construction and maintenance of the mechanical and electrical systems, as well as the greater operational costs required for a movable bridge. See Table 4 for a summary of costs associated with each alternative.

**Table 4: Costs of Fixed and Bascule Bridge Alternatives (Present Day Dollars)**

<b>Alternative</b>	<b>Capital Cost (2014 dollars)</b>	<b>Maintenance Cost (2014 Dollars)</b>	<b>Total Cost (2014 Dollars)</b>
Bascule	\$15.8 million	\$1.8 million	\$17.6 million
Fixed	\$7.0 million	\$0.7 million	\$7.7 million
Cost Differential	\$8.8 million	\$1.1 million	\$9.9 million

While the fixed alternative does not provide as much potential for benefit as a bascule bridge, the costs of the fixed alternative are significantly lower. Additionally, many of the potential for benefits a bascule provides only reflect opportunity for quality-of-life and economic growth. These benefits may not be realized because the majority of the benefits examined would be dependent upon future dredging of the channel, and the possibility of having bridge lifts with notice times much less than the current 4-hour required notice, which are planned for, but not guaranteed to occur. Even if these two events were to occur, related economic growth is not guaranteed. Additionally, the proposed fixed bridge provides improved navigable clearances over the existing bascule bridge in the down position, which is the condition that serves the vast majority of vessels currently entering the Back Channel, as the current bridge only lifts three to four times per year. Since these benefits only allow for potential growth in the economy and



quality of life, and since the impact from benefits is inconclusive, one should examine the overall life-cycle costs. In this case, the fixed bridge provides a lower life-cycle cost than the bascule bridge and is the recommended alternative.

## Appendix: Potential Property Value Impacts

Research has found that deep-water lots have increased property value over cove lots in South Carolina<sup>2</sup> and there is a generally held view that properties with a water view are appraised at a higher value than their non-coastline equivalents.<sup>3</sup> This observation is reflected in the data that have been assembled for the New Castle-Rye Bridge area. Properties that have open water access in and around New Castle, Portsmouth, and Rye, NH, are valued 258 percent higher per-acre than medium-access properties, according to tax assessor data. As a result, property value differences were reviewed as part of this BCA, as a bascule bridge offers the potential for increased open water access, while a fixed bridge is far more limiting.

In addition to USDOT's acknowledgement that property value increases may be appropriate for inclusion in a BCA, a 2010 Texas Transportation Institute Workshop suggested that real estate benefits can occasionally be included in Benefit-Cost Analyses if the associated improvements provide value over and above what would have occurred in the absence of the project.<sup>4</sup> This typically applies to improvements in transportation and transit infrastructure, but the land-side improvement of a movable bridge may be argued to improve the water access, and thus the value of properties just to the inside of the bridge. However, during research performed for this Benefit-Cost Analysis, no studies were found that address property value impacts as they relate specifically to water access changes driven by movable or fixed bridge types. Therefore, there was no precedent found indicating property values are changed as a direct result of access through a movable or fixed bridge, nor to what extent values may change as a result of a change in water access caused by the presence or lack of a movable bridge.

Due to the difficulty in isolating the increase in property value associated with water access, a detailed analysis was unable to be completed. However, for purposes of illustrating the range of monetary benefits that could be associated with property value increases, a simplistic analysis investigates the average increase in property value that would be required to offset the higher costs of the bascule alternative. This analysis examines the average property value of properties with full water access as compared to medium water access and limited water access, which are considered to be properties that have access permanently restricted by obstructions such as shallow water depths or fixed bridges. Currently, the ability to access the open ocean from the Back Channel is limited due to the operational windows available to have the bridge lift. The new bascule bridge may allow marine traffic to more freely travel between the ocean and the Back Channel if two conditions were met: remotely controlled lifts allowing for shorter notice by vessels than the current four-hour notice, and dredging of the Back Channel, allowing larger vessels to navigate through that area. Both of these conditions are under consideration, but neither are currently slated to have funding for completion. This analysis will assume that both of these conditions are met, for purposes of illustrating the possible benefits associated with increased marine access.

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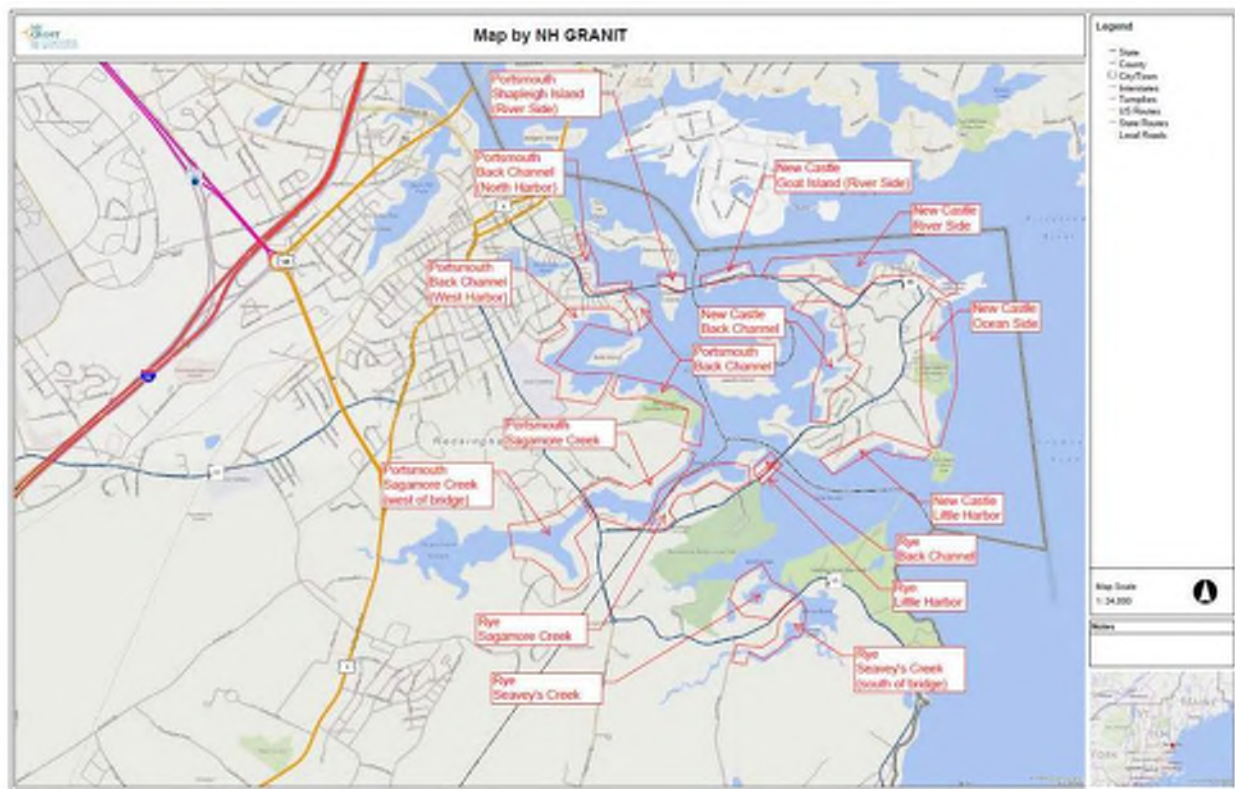
<sup>2</sup> Brown and McCabe; "Current Issues Concerning View Attributes in the Appraisal of Real Estate"

<sup>3</sup> Restore America's Estuaries; "The Economic and Market Value of Coasts and Estuaries: What's at Stake?"

<sup>4</sup> TTI Workshop Proceedings; "Benefit/Cost Analysis for Transportation Infrastructure: A Practitioner's Workshop"; May 17, 2010.

The first step in conducting the analysis was to identify the various parcels to include. Existing parcels and property values for waterfront properties in Portsmouth, New Castle, and Rye were extracted from the Tax Assessor database. These parcels come from 15 different areas, as indicated in the map below. Waterfront properties in these areas were then sorted into one of three categories (full access, medium access, or limited access) based on their access to open and deep water. Parcels on the outside of the Back Channel and Sagamore Creek areas with ocean access without the restriction of a bridge were considered full access. Those parcels on the dredged portion of Sagamore Creek and the Back Channel but inside the bridge are considered medium access. Those waterfront parcels that require boating through undredged areas after entering the Back Channel are considered limited access.

**Figure A1: New Castle-Rye, NH, Study Area Properties**



The study area contained a total of 273 properties that were included in this analysis, 101 properties of which were considered to have full water access, 87 properties with medium access, and 85 properties with limited access. The breakdown of areas by access type is as follows:

- Full access
  - New Castle – Goat Island, River Side; Little Harbor, South; Ocean Side, East; River Side, North
  - Rye – Concord Point; Little Harbor; Rye Harbor
- Medium access
  - New Castle – Back Channel, West



- Portsmouth – Back Channel; Back Channel, West Harbor; Shapleigh Island, River Side
- Rye – Back Channel; Sesavehy’s Creek, North of Bridge
- Limited access
  - Portsmouth – Back Channel, North Harbor; Sagamore Creek
  - Rye – Sagamore Creek; Seavey’s Creek, South of Bridge

The table below depicts the total, average, and median property values per parcel for each of the three categories. The 101 properties with full water access have a substantially higher property value than the medium access properties, which have a higher average property value than the limited access properties. The average and median value of the full-water access properties are greater than the average and median value of all properties considered, as shown in the table below.

**Table A1: Number of Properties and Value by Water Access Type**

	Number Properties	Total Property Value	Average Property Value	Median Property Value
Full Access	101	\$147,480,800	\$1,460,206	\$1,251,200
Medium Access	87	\$69,529,400	\$799,189	\$794,200
Limited Access	85	\$45,398,600	\$534,101	\$486,800
Total	273	\$262,408,800	\$961,204	\$826,300

In addition to these existing residential properties, a commercial marina and a bait and tackle shop are located within the Back Channel area, and are two of the only commercial properties in this area. The marina is currently valued at \$1.33 million, though this 3.07 acre property has the potential to increase in value due to the increased water access associated with the on-demand movable bridge.

It should be noted that for purposes of this analysis, the residential parcels were only examined at a high level, and not in detail. If further study were to be done, greater analysis of the various parcels, including any attributes that would potentially alter the value of the property beyond water access, would be considered. This detailed analysis has the potential to greatly alter the outputs of the preliminary property analysis.

The higher property values of the full access parcels may not be exclusively due to deep water boating access. Other factors, including view and potential beach or seashore access, may influence property values. As a result, only a partial premium can be added to the medium access properties associated with the improved water access due to the on-demand movable bridge. This premium reflects the increase in property value over-and-above the increase in value that would be expected over time, absent the improved water access.

As this is the only easily quantifiable benefit associated with the two alternatives, the analysis sought to identify the magnitude of the property value increase required to offset the incremental cost difference between the two bridge alternatives. Using the current average assessed values for the medium access properties, the necessary increase in both residential and commercial

properties<sup>5</sup> would be approximately 16.6 percent. This property value increase isolates growth associated with increased access, and is independent of other factors, such as appreciation and market demand. It should be noted that this is strictly a high level estimate and should not be used to estimate additional property tax revenue that could be generated. This calculation is also not an indication of expected property value increase, but solely reflects the increase that corresponds to the cost differential between the two bridge alternatives.

The 16.6 percent premium equates to an average of \$109,730 per residential property. This reflects the total property value increase over the useful life of the bridge, 75 years, and equates to approximately \$1,540 in additional property value per property per year. For purposes of this analysis, it is assumed that 25 percent of the annual increase will accrue in the first year, and it will take 10 years to reach the full value of the increase due to increasing certainty and realization of the availability of this resource (water access). These assumptions result in a total residential property value increase of \$9.9 million over the time horizon.

Using similar assumptions to the residential properties, the commercial marina site also has the potential to increase in value due to the improved access afforded by the on-demand movable bridge. Using the same growth assumptions and 16.6 percent increase for the marina, property values over the 75-year horizon could increase \$357,000, an average annual increase of \$5,010.

The combination of a 16.6 percent increase in property value for both the residential and commercial marina properties would offset the additional cost of an on-demand movable bascule bridge, with a total value increase of approximately \$9.9 million. As there is no precedent indicating the anticipated property value increase associated with movable bridges, sensitivity calculations were also done assuming various other property premiums. The results indicating the total dollar increase in property values based on percentage increases are shown in the table below.

**Table A2: Property Value Increases (4% discount rate)**

<b>Lifetime Property Premium</b>	<b>Total Benefits</b>
20%	\$ 11,932,000
16.6%	\$ 9,903,000
15%	\$ 8,949,000
13%	\$ 7,756,000
10%	\$ 5,966,000
7%	\$ 4,176,000
5%	\$ 2,983,000
3%	\$ 1,790,000

<sup>5</sup> This includes the marina in the Back Channel.

It is possible that this increase in property value could be composed differently – with a greater increase in commercial property value than residential, or vice versa. For the purposes of this analysis, the property value increase was assumed to be the same regardless of land use.