Attachment A

Pertinent Correspondence
MEMORANDUM FOR Commander, US Army Corps of Engineers, New England District (CENAE-EP-P), 696 Virginia Road, Concord, MA 01742-2752

SUBJECT: Great Chebeague Island, ME, Continuing Authorities Program, Section 107, CWIS/P2 332338

1. Reference is made to the following:
   b. CENAD-PD memorandum, received 22 July 2014.

2. The Division has reviewed the District’s Federal Interest Determination (FID) (Reference 1a) and concurs with the District’s finding of Federal Interest (Reference 1b).

3. Please mark the completion of this Federal Interest Determination milestone in P2 and in the CAP database. The District must also submit the current Section 107 policy fact sheet for coordination with OASA (CW) to seek concurrence to proceed with a FCSA.

4. The point of contact for this action is Mr. Paul A. Sabalis, P.E., PMP. He may be reached at 347-370-4589.

Encl

/\ JOHN O'CONNOR, P.E.
Continuing Authorities Program Manager
Civil Works Integration Division
MEMORANDUM FOR Civil Works District Integration Division (Sabalis)

SUBJECT: Great Chebeague Island, ME – Initial Appraisal Report
Continuing Authorities Program, Section 107 - P2/CWIS#: 332338

1. Reference is made to
   a. CENAD-PD-CS memorandum, dated 22 May 2014, requesting review and approval of
      NAE’s Initial Appraisal Report.
   b. CENAE-EP-PN memorandum, received 30 April 2014, which transmitted the District’s
      Initial Appraisal Report for review and approval.
   c. CENAD-PSD-P memorandum dated 5 June 2014, which transmitted PSD comments to
      PD.

2. At your request (Reference 1a), Planning staff reviewed the Initial Appraisal Report
   (Reference 1b) and had a series of comments (Reference 1c). These comments were
   addressed in the District’s resubmission of the document (Reference 1d). CENAD-PD has
   no further comments and approves this document.

3. The point of contact for this action is Ms. Naomi Fraenkel, AICP (NAE Planning
   Program Manager). Ms. Fraenkel may be reached at (917) 790-8615.

JOSEPH R. VIETRI
Chief, Planning and Project Formulation
Programs Directorate

16 July 2014
MEMORANDUM FOR Commander, U.S. Army Corps of Engineers, North Atlantic Division, ATTN: CENAD-PD-CID-P (Attn: Mr. Paul Sabalis), Fort Hamilton Military Community, 302 General Lee Avenue, Brooklyn, NY 11252-6700

SUBJECT: Continuing Authorities Initial Appraisal Report, Section 107 Navigation Improvement Project, Great Chebeague Island, Maine (PWI # 332338)

1. Enclosed are copies of the Initial Appraisal Report and Fact Sheet for the Great Chebeague Island Navigation Improvement Project, Chebeague Island, Maine, for your review and approval to proceed to the Feasibility Phase. Upon completion of your review and incorporation of any comments and revisions, the report will be provided to the Sponsor as a basis for their decision to proceed with a cost-shared feasibility study.

2. To meet the town’s needs for choices in moving forward with navigation improvements two plans were developed. Plan A would focus solely on ensuring safe and efficient access to the landing at the Stone Pier for ferries and cargo carriers, and vital services for the island. Plan B would expand on that base plan to provide improved year-round access for the town’s commercial fishing fleet as well. The initial appraisal indicates both plans carry favorable benefit-cost ratios, 6.68 and 4.96, respectively, and net annual benefits. Both plans are in the Federal interest, and provide the basis to prepare and negotiate a Feasibility Cost Sharing Agreement (FCSA). Execution of a Feasibility Cost-Sharing Agreement with the Sponsor, the Town of Chebeague Island, Maine, is required to share the costs of the feasibility phase.

3. If you have any questions or require additional information, please contact me at (978) 318-8162, or Mr. Robert Russo, the Project Manager, at (978) 318-8553.

FOR THE COMMANER:

SCOTT E. ACONE, P.E.
Chief, Engineering/Planning Division

Enclosures
GREAT CHEBEAGUE ISLAND – INITIAL APPRAISAL REPORT
SPONSOR-PROVIDED DATA

To: Army Corp. of Engineers
From: Ronald Tozier: Harbor Master; Town of Chebeague Island
Re: Data Sheet for Chebeague Island
Date: September 24, 2013

List of the commercial fishing vessels operating out of Great Chebeague Island
List by area moored (Please see sheet provided)
1. Stone Pier
2. Chandler’s Cove
3. Central Landing
4. Boat Yard
5. Johnson’s Cove
6. Bennett’s Cove

Please provide contact info for those boat owners willing to speak with the Corps;
Please see list provided:

What tidal delays are experienced by fishing vessels.
Average tidal delay per fishing boat per round trip to Stone Pier
For vessels operating out of Stone Pier occasionally/ or during trap transfer season.

The Stone Wharf is only accessible during a few hours either side of high tide. This is an issue for loading and unloading traps, and for servicing the boats. Our fishing fleet is using larger vessels as the fishermen replace their older boats. Fishing off shore, as more are doing, requires a larger vessel and deeper draft vessels. This is a problem that is producing conflicts on the Stone Pier as the fishermen place traps to be loaded and unloaded on a limited pier space. The municipal ordinance limits time that gear can be stored on the pier to 48 hrs. As the Harbor Master, I have to mark the traps with caulk to try to manage the process. Fishermen rotate their gear and tie up the prime spots so others can’t load their gear. This has lead to very tense moments, heated exchanges, and traps being pushed over board.

What is the average vessel damages/excess maintenance (in $$$s) annually
(Separately estimate grounding damage, chaffing/collision damages, excess maintenance)
For vessels operating out of Stone Pier for most of the year
For vessels operating out of Stone Pier occasionally/ or during trap transfer season.
Certainly small boats get banged up and motors damaged due to the limited space for small craft tie up. I do not have estimates of the annual cost of such repairs.

Please provide similar information for any non-fishing commercial users of the Pier area.
Charter vessels by type, # of annual trips, # of annual passengers
Contact info for those operators willing to speak with the Corps
Lionel Plante  Associated (Barge company)  207 766-2508
Chebeague Transportation Co. 207 846-3700 (Freight, Passengers and Barge)
Casco Bay Lines:  207 774-7871 (Freight and Passengers)
Island Water Taxi 207 799-1818
Casco Bay Water Taxi  207 999-2101
Portland Express Water Taxi  207 415-8593
Island Electric 207 846-7863
Leon Hamilton  Fishing Charters:  207 846-4343

For the Town’s last maintenance dredging operation at Stone Pier please provide:
  Copies of any sediment test data, with sample location maps, tests rung, and data yielded.
  Specifications, including contract drawings, showing areas dredged.
  Contract award documents showing prices bid and Contractor.
  Copies of State, local and Federal permits and approvals for the work.

For the Stone Pier Area, please also provide:
  Current resource maps for submerged aquatic vegetation and shellfish.
  Please see maps and information provided.

Any known or suspected cultural/archaeological resources
None know of.

Amy record in the last ten years of reported petroleum/chemical spills in the harbor.
None reported or observed

During what weeks of the year do shellfish spawn in the Stone Pier area?
Mid-May through mid-June.

Presence of any Federally or State listed species (fish, birds, other).
  Two species of sturgeon. The species are: the Atlantic sturgeon (Acipenser oxyrinchus oxyrinchus) and the shortnose sturgeon (Acipenser brevirostrum).

For the Town, please provide:
  Estimates of bulk deliveries of cargo over the Stone Pier area

    Fuel oil: Limited, Delivered mostly to the Chebeague Island Boat Yard.
    Aggregates: Hundreds of yards of sand, gravel and top soil.
In 2012, the island had two private seawall stabilization projects that required many individual barging trips. The Town of Chebeague has to barge to haul trash off, road service material on...(road, salt and sand). In 2012, we paved North Road and all the material was delivered to the island by barge. This is a very tidal activity which requires careful timing with two possible landing sites, the Stone Wharf and Bennett’s Cove. In 2013, we will also be paving more roads, as Chebeague plans to do $150,000.00 average for the years to come. All septic sand, stone and gravel has to be hauled to the island as the supply of sand/gravel/top soil/etc from the local pits is all but gone. There might be
other sites available but the laws and regulations on mineral extraction are very restrictive from both the State and Municipal level. Chebeague Transportation Company, a private company, runs from May to November but is limited by the tides. They run from Cousins island to Chebeague, a short trip. Most vehicles and construction materials use this barging option, when available. As Chebeague Island has many weddings a year, and this seems to be a growing trend, most supplies for the events, ie, flowers, tents, food etc. come by CTC barge, as well

**Lumber:** We had 7 houses under construction in the 2012 year and many other renovation projects. All materials have to come to the island by barge, mostly by the Stone Wharf. In 2013, there are 3 houses under construction, many roofs projects, and many misc. renovation projects.

**Other Bulk Goods:** Cars, trucks, removal of metal items, Sub contractor trucks and vehicles, supplies for the Chebeague Inn, Supplies for the weddings that take place at the Inn as well as other areas on the island, all the groceries and supplies for the local market, (“Eds), supplies for the local restaurant and bar, (“The Slow Bell Café”), the food and supplies for the “Clam Shack.”
March 20, 2013

The Honorable Susan M. Collins  
United States Senate  
188 Russell Senate Office Building  
Washington, DC 20510

The Honorable Angus S. King, Jr  
United States Senate  
413 Dirksen Senate Office Building  
Washington, DC 20510

The Honorable Michael H. Michaud  
United State House of Representatives  
1318 Longworth HOB  
Washington, DC 20515

The Honorable Chellie M. Pingree  
United State House of Representatives  
1724 Longworth HOB  
Washington, DC 20515

Dear Senator Collins, Senator King, Congressman Michaud and Congresswoman Pingree:

In response to previous requests from our Congressional Delegation staff, this letter is to provide information for your consideration in addressing the State's interests and concerns regarding federal funding for maintenance and improving dredging and related matters.

The Army Corps of Engineers' ("ACOE") policy for prioritizing among projects that qualify for and need federal funds for maintenance dredging is based primarily on the tonnage of commercial freight that passes through a port. With few exceptions, the federal navigation projects which the ACOE maintains along Maine's coast serve primarily commercial fishing and recreational boating-related small businesses as well as many water-dependent public uses. Most of Maine's ports have little or no commercial shipping traffic yet provides critical infrastructure and supports small businesses vital to the economy of our coastal communities and in turn our state economy as a whole. As a consequence, many Maine projects do not rank highly among the ACOE's funding priorities. For example the Kennebec River project, which provides access for Navy vessels built and repaired at Bath Iron Works, one of the few naval shipyards of its kind in the country, does not rank highly in the ACOE's maintenance dredging ranking scheme, illustrates the narrowness of the ACOE's focus, even in addressing strategic national interests.

In recent years, Congress has considered legislation, such as the Renew America's Maritime Promise ("RAMP") bill, which would provide additional funding to the ACOE from the Harbor Maintenance Trust Fund, to meet the maintenance dredging-related needs of the nation's ports and harbors. We urge that you give thoughtful consideration to any such legislation that may facilitate maintenance and improvement of Maine's ports and harbors.
Senator Collins, Senator King, Congressman Michaud and Congresswoman Pingree
March 14, 2013
Page 2

The federal navigation projects in Maine require maintenance at varying intervals and in varying degrees over time, depending on shoaling rates, weather, and other natural factors. Likewise, the local, state, federal processes to determine dredging needs and ensure the necessary environmental review and approval of dredging activities may vary. As a result, the State's priorities regarding federal funding for dredging in a given year focuses on projects that are ready, are anticipated to be ready, or are in a position to move forward in the project planning and assessment process if federal funds were available.

The State has identified the following as current needs for federal funding for maintenance dredging, navigation improvement, and navigation project planning: ¹

**Maintenance dredging**

- Portland Harbor project - $13 million
- Wells Harbor project - $3.5 million
- Beals Island/Pig Island Gut project - $4 million (The ACOE has advised that, for efficiency's sake, it would undertake these two projects together when funded.)
- Royal River project - $3 million

We note that funding for the Portland Harbor project is in the President's budget for this year and that funding for the Wells Harbor project is provided by legislation to address the effects of Hurricane Sandy. We appreciate and encourage your continuing support for the anticipated federal appropriations needed to complete these projects.

Please be advised that the ACOE has also identified the Scarborough River, Biddeford Pool, Saco River, Kennebunk River, and York Harbor projects as other federal navigation projects which the ACOE is evaluating and which may be ready for maintenance dredging funding in a subsequent, near-term fiscal year.

**Navigation improvement**

It is our understanding that there is potential that Congress may consider and enact a Water Resources Development Act ("WRDA") bill this year. The ACOE has advised that it needs authorization in WRDA as well as an appropriation in the amount indicated to complete the following navigation improvement-related projects:

¹ The approximate project cost estimates indicated are based on information provided by the ACOE at its annual meeting with Maine congressional delegation staff, state and federal agencies, local officials, and other stakeholders to discuss the status, funding needs, and related issues regarding ACOE navigation projects in Maine.
Senator Collins, Senator King, Congressman Michaud and Congresswoman Pingree
March 14, 2013
Page 3

- Searsport Project - $8.6 million (design & construction)

- Piscataqua River/turning Basin Project - $5.3 million (Dredging for this New Hampshire-sponsored project would occur in Maine. The Towns of Wells and Kittery are among those which have expressed interest in using the dredged materials, sand and blasted ledge, for beach nourishment or other beneficial uses.)

- Saco/Camp Ellis Project

Disposal of dredged materials

In 2010, due to a deadline under the federal process for formally designating it as a disposal site, the Cape Arundel Disposal Site ("CADS") ceased to be open for disposal of dredged materials. For decades, CADS was used as a site for deposition of dredged materials suitable for ocean disposal and has the capacity for such use in the future. The York Harbor project, for example, would be about $1.2 million less if CADS were available for disposal of dredged materials according to the ACOE.

Project planning and development

The ACOE works with communities to help plan and design navigation improvement projects. The State has identified the following current funding needs to continue to advance these efforts in the following Maine coastal communities:

- Blue Hill - $200,000

- Chebeague Island - $216,000

Thank you for your consideration and work on behalf of our State.

Sincerely,

[Signature]
David Bernhardt
Commissioner
October 9, 2009

John Kennelly  
Chief of Planning  
New England District  
U.S. Army Corps of Engineers  
696 Virginia Road  
Concord, MA 01742

Dear Mr. Kennelly:  
On behalf of the citizens of the Town of Chebeague Island, I request that the Corps of Engineers take steps to perform an initial feasibility appraisal of the Great Chebeague Island Stone Wharf maintenance dredging needs under Section 107 of the River & Harbor Act of 1960. The Town of Chebeague Island is the newest town in the State of Maine, having seceded from the Town of Cumberland in July of 2007. Chebeague's marine economy is the single largest element in the Town's overall economy.

The Stone Wharf is the only town-owned wharf, and is the primary location for emergency rescue operations, year round ferry and commercial fishing, barging and passenger operations. This is the channel access for the year-round passenger ferry which carries school children, commuters, year-round residents, medical and service personnel, among others. The ferry has been recognized by the Maine Department of Transportation as an essential transportation service for this community when they established permanent mainland parking for the island community. This area has shoaled in recent years, creating increasing difficulty for the ferry to operate, even more challenging in winter when there is ice accumulation. The commercial fishing fleet is now limited to tidal access directly to the Stone Wharf for loading of gear.

Also requested in this initial appraisal is to include a study of potential navigation improvements to the area around the Great Chebeague Island Stone Wharf to increase the depth of water beside the Stone Wharf for the use by the Town's commercial fishing fleet and barging services. The fishing fleet is the core economic activity for the Town of Chebeague Island.

Timely maintenance dredging and appropriate navigation improvements are needed to restore and protect the economic and safety needs of this community.

The Town of Chebeague Island looks forward to working with the Army Corps of Engineers to ensure safe navigation for the benefit of all commercial, ferry and public interests at the Great Chebeague Stone Wharf.

Sincerely,

Scott W. Seaver  
Town Administrator  
SWS/cmr
Attachment C

Economic Analysis
Great Chebeague Island – Stone Wharf Landing  
Town of Chebeague Island  
Cumberland County, Maine  
Section 107 Initial Appraisal of Federal Interest  
Preliminary Economic Assessment  
February 2013  
As Revised July 2014

Introduction

This report presents the potential economic benefits of providing navigation improvements to the town landing at Stone Wharf on Great Chebeague Island, in the Town of Chebeague Island, Maine. The assessment is conducted at a preliminary level of detail using data provided by the Town of Chebeague Island. A more detailed analysis will be conducted if the proposed project proceeds to the Feasibility phase of study. This assessment follows Corps guidance for estimating National Economic Development benefits as contained in ER 1105-2-100, April 2000, Appendix E, Section II - Navigation.

Description of Study Area

Chebeague Island is an isolated (unattached) island town in Cumberland County, Maine, located 10 miles off the coast from the city of Portland, with no bridge access to the mainland. It is the largest island in Casco Bay; approximately 4 miles long and 1.4 miles wide at the widest points. The Town of Chebeague Island covers 24.6 square miles of land and 21.0 square miles of water. It includes a total of 17 islands but only Great Chebeague and Hope Islands are currently inhabited year-round. The 2010 US Census Bureau reports that 341 people live on Chebeague year round. An additional 1,700 people may be on the island in the summer at any given time.

Navigational improvements are needed to ensure the island maintains its critical public navigational access, which is integral to the economic, educational and public safety needs of the immediate and surrounding communities. As an un-bridged island, Chebeague relies on boat travel through a channel at the Stone Wharf to transport all rescue operations and 125,000 ferry passengers annually, including commuting schoolchildren, residents, police, teachers, and supplies.

Existing Fleet

The fleet currently consists of 63 commercial vessels registered on Great Chebeague Island. There are 44 vessels licensed for lobstering or fishing and 19 vessels licensed primarily for passenger and freight transport, waste removal and utility services.
Two passenger ferries, owned and operated by the municipally-managed Chebeague Transportation Company (CTC) provide passenger and small freight ferry service from Cousins Island (connected to the mainly by causeway) to the Stone Wharf on Chebeague Island 10-12 times throughout the day; seven days per week. The trip is approximately 15 minutes, depending on the tide. A barge and push boat transport vehicles and commercial freight from April 1st (weather permitting) to November 30th each year. Barging originates on Chebeague Island, or in Yarmouth at Cousins Island or Yankee Marina. CTC has 25 year-round employees 12 of which are full-time.

The CTC ferry also provides several significant public services to the Town. It holds the contract for transporting island children to school on the mainland. It also provides transportation free of charge at any time of day or night for police and medical rescue services. When a call for a rescue is made to 911, the Cumberland County Dispatch calls all rescue personnel on the island to respond. If the patient needs to be transported to the hospital, they are taken to the Stone Wharf by ambulance. At the Wharf a CTC captain and deckhand have also answered the rescue call by going to the boat. The patient, still on the stretcher, is put onto the boat and taken to the Cousins Island Wharf where the boat is met by a Yarmouth ambulance which transports the patient to Portland.

Existing Conditions

As the channel approaches the Stone Warf on Great Chebeague Island, controlling depth is reduced to less than 5 feet MLLW. The Town dredged the ferry berth at the wharf in 2003, but that area along with the undredged approach channel has continued to shoal. Approximately 200 feet past the ferry docking area is a barge ramp located at the end of Stone Wharf Road. The ramp can only be used at high tide because the channel is not dredged completely to the ramp and the bottom is fully exposed during low tides.

The Harbor Master reports several problems with the existing channel conditions. Deep draft lobster vessels have run aground on shoals located within the channel when bringing in catch. These vessels must also tie up to a floating dock in order to load supplies or off load catch because the area along the Stone Wharf is too shallow.

Barging between Cousins Island or Portland, ME is also severely restricted by the tide at the Chebeague Island end of the routes, and the ferries now have less than 1 foot underkeel clearance at low tide when tying up to the wharf. Low underkeel clearance could cause the ferry to suddenly strike bottom; causing damage to the vessel or cargo and injury to passengers. Most importantly, low depth may restrict rescue services in an emergency situation.

Projected Benefits

The proposed Federal project would improve access for emergency services and reduce tidal delays and related labor and fuel costs incurred while waiting to offload passengers, fish catch and freight at the Stone Wharf.
Preliminary benefits to deepening the channel are calculated in the following categories:

- Reduction in labor/time costs due to tidal delays;
- Reduction in fuel costs due to tidal delays;
- Reduction in damages from running aground.

Benefits are estimated based on the type of vessel, number of trips per year and number of crew per boat. Since all vessels experience delays at either the northwestern end of the channel or at the southern end close to the boat ramp, benefits are calculated for all 63 commercial vessels using the harbor (both fishing vessels and other non-fishing commercial vessels). Tidal-related delays that would be eliminated by dredging the channel range from 3.7 hours for larger vessels to an hour for shallow draft vessels if they return to Chebeague at low tide.

The extent of tidal delays was calculated using the current distribution of commercial fishing vessels provided by the Harbor Master, and a mean tide chart developed for Casco Bay at Portland, ME. An under-keel clearance of 1 foot was assumed with delays based on a tidal range of 9.1 feet and a controlling depth of 1 foot as shown in the latest survey. With a 1-foot controlling depth, the largest vessels drafting between 5 and 9 feet must wait from 2 to almost 4 hours over the 12 hour tidal cycle before they have sufficient depth to safely pull up to the dock. The smaller vessels drafting less than 5 feet have an average delay of one hour.

**Labor Costs**

To calculate the additional cost of labor/time lost due to delays, the value of fishermen’s time is estimated using the current average weekly wage divided by 40 hours for the Fishing industry (NAICS Code 114111) in Cumberland County, ME. The 2011 average hourly wage was $11.00 (latest available) according to the Bureau of Labor Statistics (http://data.bls.gov/pdq/querytool.jsp?survey=en accessed 01/18/2013). The value of non-fishing labor was based on the 2012 state-wide average weekly wage for employees in the Water Transportation field (NAICS Code 483). The average hourly wage was $13.00. (http://data.bls.gov/pdq/querytool.jsp?survey=en accessed 02/04/2013).

Reduction in labor cost due to tidal delays for fishing- and non-fishing vessels is presented in Tables C-1 and C-2 below. The costs are calculated as follows:

\[(\text{# of boats}) \times (\text{crew/boat}) \times (\text{hour delay/trip}) \times (\text{# of trips/year}) \times (\$ \text{ hourly wage})\]
### Table C-1
**Fishing Vessels**
**Additional Labor Costs due to Tidal Delays (Rounded)**

<table>
<thead>
<tr>
<th>Vessel draft</th>
<th>Mid-point draft (Ft.)</th>
<th>Number of Fishing vessels</th>
<th>Average Delay (hrs)</th>
<th>Trips per year</th>
<th>Labor cost per hour ($)</th>
<th>Crew per boat</th>
<th>Annual cost of Labor due to delays ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 - 9'</td>
<td>8.50</td>
<td>2</td>
<td>3.7</td>
<td>180</td>
<td>11.00</td>
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<td>$36,600</td>
</tr>
<tr>
<td>7-7.9'</td>
<td>7.50</td>
<td>4</td>
<td>2.6</td>
<td>180</td>
<td>11.00</td>
<td>2.5</td>
<td>$51,500</td>
</tr>
<tr>
<td>6-6.9'</td>
<td>6.50</td>
<td>7</td>
<td>2.2</td>
<td>180</td>
<td>11.00</td>
<td>2.5</td>
<td>$76,200</td>
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<tr>
<td>5-5.9'</td>
<td>5.50</td>
<td>10</td>
<td>1.5</td>
<td>180</td>
<td>11.00</td>
<td>2.5</td>
<td>$74,300</td>
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<tr>
<td>3-4.9'</td>
<td>3.50</td>
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<td>1.0</td>
<td>180</td>
<td>11.00</td>
<td>2.5</td>
<td>$104,000</td>
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<td><strong>Total</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>$306,000</strong></td>
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</tbody>
</table>

### Table C-2
**Other (Non-Fishing) Commercial Vessels**
**Additional Labor Costs due to Tidal Delays (Rounded)**

<table>
<thead>
<tr>
<th>Vessel draft</th>
<th>Mid-point draft (Ft.)</th>
<th>Number of Non-Fishing vessels</th>
<th>Average Delay (hrs)</th>
<th>Trips per year</th>
<th>Labor cost per hour ($)</th>
<th>Crew per boat</th>
<th>Annual cost of Labor due to delays ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-7.9'</td>
<td>7.50</td>
<td>2</td>
<td>2.6</td>
<td>1800</td>
<td>$13.00</td>
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<td>$365,000</td>
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<td>$3,600</td>
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<td>5-5.9'</td>
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<td><strong>Total</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>$470,000</strong></td>
</tr>
</tbody>
</table>

### Fuel Costs

Reduction in fuel costs due to tidal delays are calculated assuming 4 gallons burned per hour at an average cost of $4.31 per gallon for marine diesel fuel in the state of Maine. ([http://marinefuel.com/marinas-directory/maine/](http://marinefuel.com/marinas-directory/maine/) accessed 01/14/2011). Reduction in fuel cost for fishing- and non-fishing vessels is presented in Tables C-3 and C-4 below. The costs are calculated as follows:

\[(\text{# of boats}) \times (\text{hour delay/trip}) \times (\text{# of trips/year}) \times (4 \text{ gallons/hour}) \times (4.31/\text{gallon})\]
### Table C-3
Fishing Vessels
Additional Fuel Costs due to Tidal Delays (Rounded)

<table>
<thead>
<tr>
<th>Vessel draft</th>
<th>Number of Fishing vessels</th>
<th>Average Delay (hrs)</th>
<th>Trips per year</th>
<th>Average Hours Delayed per year</th>
<th>Additional Fuel consumed (4 gal/hr)</th>
<th>Additional cost of Fuel at $4.31/gal</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 - 9'</td>
<td>2</td>
<td>3.7</td>
<td>180</td>
<td>1,300</td>
<td>5,200</td>
<td>$22,400</td>
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<tr>
<td>7-7.9'</td>
<td>4</td>
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<td>180</td>
<td>1,800</td>
<td>7,200</td>
<td>$31,000</td>
</tr>
<tr>
<td>6-6.9'</td>
<td>7</td>
<td>2.2</td>
<td>180</td>
<td>2,800</td>
<td>11,200</td>
<td>$48,300</td>
</tr>
<tr>
<td>5-5.9'</td>
<td>10</td>
<td>1.5</td>
<td>180</td>
<td>2,700</td>
<td>10,800</td>
<td>$46,500</td>
</tr>
<tr>
<td>3-4.9'</td>
<td>21</td>
<td>1.0</td>
<td>180</td>
<td>3,780</td>
<td>15,120</td>
<td>$65,200</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>44</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>$213,400</strong></td>
</tr>
</tbody>
</table>

### Table C-4
Other (Non-Fishing) Commercial Vessels
Additional Fuel Costs due to Tidal Delays (Rounded)

<table>
<thead>
<tr>
<th>Vessel draft</th>
<th>Number of Non-Fishing vessels</th>
<th>Average Delay (hrs)</th>
<th>Trips per year</th>
<th>Average Hours Delayed per year</th>
<th>Additional Fuel consumed (4 gal/hr)</th>
<th>Additional cost of Fuel at $4.31/gal</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-7.9'</td>
<td>2</td>
<td>2.6</td>
<td>1800</td>
<td>9,300</td>
<td>37,200</td>
<td>$160,300</td>
</tr>
<tr>
<td>6-6.9'</td>
<td>2</td>
<td>2.2</td>
<td>32</td>
<td>140</td>
<td>560</td>
<td>$2,400</td>
</tr>
<tr>
<td>5-5.9'</td>
<td>8</td>
<td>1.5</td>
<td>250</td>
<td>3,000</td>
<td>12,000</td>
<td>$51,700</td>
</tr>
<tr>
<td>3-4.9'</td>
<td>5</td>
<td>1.0</td>
<td>180</td>
<td>900</td>
<td>3,600</td>
<td>$15,500</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>17</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>$229,900</strong></td>
</tr>
</tbody>
</table>

**Damage Costs**

Damages from running aground are estimated at an average of $2,000 per vessel, based on other studies in the New England area. Because this report is submitted as a Federal Interest Determination (Initial Appraisal), the level of detail and research did not include a survey/questionnaire. An average annual repair cost of $2,000 is assumed. Wheel and rudder damage due to striking or powering through a shoal have been around $2,000 in other studies, with a range from $500 to $7500.

There are 37 vessels that draft greater than 5 feet. It is assumed that approximately one half of these larger fishing and utility vessels will experience some form of damage due to shoaling in the channel. Reduction in annual damages due to chaffing would amount to $37,000 calculated as follows:

\[(37 \text{ boats}) \times ($2,000 \text{ average damage/boat}) \times (1/2) = $37,000\]
The proposed project would benefit the commercial fleet by reducing the cost of these operating inefficiencies and providing a safer area in which to maneuver for access to loading and off-loading facilities at the Stone Warf.

**Conclusion**

Preliminary calculations of annual benefits to dredging the channel and Stone Wharf area on Chebeague Island are $1,256,300. The benefits are the sum of avoided costs calculated above. These benefits would be verified during the Feasibility Phase of the study, by collecting detailed information regarding the extent of tidal-related delays and damages from Chebeague fishermen, ferry operators, and utility vessels. The benefits calculated after additional information is collected may be higher or lower than those estimated here, depending on the information provided by the vessel operators.

For example; potential benefits calculated for two Casco Bay ferries drafting 8.5 feet are not included in this analysis. The Casco Bay ferries are currently restricted from stopping at the Stone Warf due to insufficient depth and it remains uncertain as to whether they would use the Stone Warf under improved conditions. If the feasibility study determines that the Casco Bay line would use the Stone Warf after dredging, benefits would be increased by $332,500 as shown in Table C-5 below. This amount represents the cost of additional fuel and labor caused by tidal delays under current conditions. These costs would be avoided in the with-project condition.

<table>
<thead>
<tr>
<th>Table C-5</th>
<th>Casco Bay Line (2 Ferries)</th>
<th>Additional Labor &amp; Fuel Costs due to Tidal Delays (Rounded)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Additional Labor Costs</strong></td>
<td>Average Delay (hrs)</td>
<td>Trips per year</td>
</tr>
<tr>
<td>3.7</td>
<td>800</td>
<td>$13.00</td>
</tr>
<tr>
<td><strong>Additional Fuel Costs</strong></td>
<td>Average Delay (hrs)</td>
<td>Trips per year</td>
</tr>
<tr>
<td>3.7</td>
<td>800</td>
<td>5,900</td>
</tr>
</tbody>
</table>

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