BOSTON HARBOR, MASSACHUSETTS
FEASIBILITY STUDY FOR DEEP DRAFT NAVIGATION IMPROVEMENTS

Description of Proposed Project and Study

The US Army Corps of Engineers, in partnership with the Massachusetts Port Authority, has initiated a study of potential deep-draft navigation channel improvements to Boston Harbor. This was authorized by a resolution of the Senate Subcommittee on Public Works dated September 12, 1969. The Corps and Massport executed an agreement to share the cost of the feasibility study on June 27, 2002. This study was initiated using Federal funds provided in the Fiscal Year 2002 Energy and Water Development Appropriations Bill, and funds provided by Massport.

STUDY PURPOSE AND SCOPE

The study will seek to determine the navigation-related needs of the harbor, port facilities, harbor users and the region. The study will examine the Port of Boston's current and likely future role in the maritime commerce of the nation, and identify likely levels of future navigation traffic and commerce through the port. The study will investigate a number of options for accommodating increased deep draft vessel traffic at Boston Harbor, including channel deepening, cargo diversion, and no action. The costs of implementing alternative options will be measured against estimated benefits to improving commercial transportation costs, to identify whether improvements are warranted consistent with Army policies.

LOCATION OF PROJECT

Boston Harbor, the largest port in New England, is located on the eastern shore of Massachusetts on Massachusetts Bay. The study area comprises the developed port areas of the City of Boston, and the transportation systems and navigation facilities providing access to the port.

Boston Harbor and its navigable tributaries have been extensively improved and developed by the Federal government and State and local agencies and interests. The first Corps navigation project for the Port was authorized in 1822. The Water Resources Development Act of 1990 authorized the most recent improvements and modifications. These modifications consisted of deepening the three principal industrial tributary channels to 40 and 38 feet, and non-structurally realigning the main entrance and approach channels by designating Federal channel limits and repositioning navigation buoys. These improvements were completed in December 2001.

EXISTING NAVIGATION CONDITIONS

The Port of Boston serves the six-state New England Region, and is the region's primary container port. The Conley terminal, the port's largest public cargo terminal located at the confluence of the Reserved Channel and Main Ship Channel,is used by importers and exporters from all over New England for transporting a wide range of goods, including high-value electronic products, on trades routes calling on a series of European and eastern North American ports. Concurrent with the beginning of the deepening of the Federal tributary channels in 1998, Massport began upgrading access and facilities at the Conley Terminal. The outer berths at the Conley terminal were deepened to 45 feet at that time. This has enabled the facility to handle larger container ships that use the tide to access the facility via the 40-foot harbor channels. However, this practice requires shippers to absorb the inefficiencies of tidal delays to transit the channels to and from the deeper terminal berths. Container traffic through the Conley Terminal totaled an estimated 1.2 million tons in 2001.

The Massport Marine Terminal, the former South Boston Marine Industrial Park, was used extensively in the past for bulk imports, mainly automobiles, following decommissioning and redevelopment of the former Naval Annex. In the early 1990's the site was converted to a construction staging and excavation transfer area as part of the State's Third Harbor Tunnel – Central Artery (I-90/I-93) Project. As this major highway project nears completion, and use of the site is phased-out, Massport plans to re-develop the site to serve its former use as a bulk cargo facility.

EVALUATION OF FEASIBILITY OF CHANNEL IMPROVEMENTS

No Action Alternative

In order to determine the economic viability of improvements to the channels of Boston Harbor, the efficiencies and cost-savings that would result from the improvements are compared to a "no action" alternative, which calls for maintaining the channels in Boston Harbor as they exist today. The maintenance of only the existing 40-foot channel depths at Boston will affect shipping, and the port's competitive advantages in three ways. (1) Existing shippers and their vessels will continue to experience tidal related inefficiencies with the current channel depths, including negating the full advantage of Massport's deeper 45-foot berths at the Conley Terminal. (2) The Port will be unable to accommodate the very large container vessels now beginning to serve the east coast of the United States from southern Asia and Europe as these vessels will not be able to use Boston efficiently with the current 40-foot channel depth. (3) As larger container and bulk vessels continue to come into service to replace existing vessels, Boston's lack of channel depth will erode its share of tonnage as New England cargo is redirected to other ports and transported to New England by other means.

Constrained by the 40-foot channel depth, the large container vessels and large bulk carriers now servicing Boston will continue to experience tidal delays entering the harbor and accessing the terminal berths. Large container and bulk vessels must now wait on the tide to access the port's facilities, including the deeper berths at the Conley Terminal. Some petroleum carriers, bound for the terminals upstream of the tunnels, also wait on the tide to access the deep waters in the President Roads Anchorage, where they lighter before proceeding up-harbor.

As container lines continue the shift to larger, deeper-draft vessels, these containerships will not be able to call on Boston Harbor. The current container vessel classes will only serve Boston, preventing Boston area importers and exporters from realizing the economies of scale, which would otherwise be achieved, with use of the newer larger vessels. Over time these conditions and trends will leave less efficient smaller feeder services and overland shippers to provide for a larger share of New England's cargo shipment needs.

Alternative Plans For Channel Improvements

To permit deep-draft container ships to access the Reserved Channels' Conley Terminal, deepening of the 40-foot Federal channels, including the Broad Sound North Entrance Channel, the Main Ship Channel through President Roads and up to the Reserved Channel, the lower two-thirds of the Reserved Channel and its Turning Area, all to depths of between 42 and 50 feet, will be examined. To allow flexibility in channel transits, berth access and permit safer lightering, deepening all or a portion of the 40-foot President Roads Anchorage to depths of 42 to 50 feet will also be examined.

To provide for deep-draft access to the Massport Marine Terminal in South Boston for large bulk cargo carriers, deepening an additional reach of the Main Ship Channel from the Reserved Channel up to the Ted Williams Tunnel, beyond its current 40 feet to depths of 42 to 50 feet will be examined.

To provide for improved access to the Charlestown shore of the Mystic River Channel in support of Massport's efforts to upgrade facilities above the Moran Terminal, deepening a small portion of the existing 35-foot area of the Mystic Channel to depths of 37 to 40 feet would be examined.

To provide improved access for large petroleum carriers to the majority of the Port's terminals on the Chelsea River Channel, deepening of the existing 38-foot channel to a depth of 40 feet, presuming replacement of the Chelsea Street Bridge, will be examined. A range of quantity estimates for each of the alternative plans are shown in Table 1 below. These estimates are for a dredge depth of 47 feet at the entrance, a depth of 45 feet in the main channel up to the Reserved Channel, the lower Reserved channel, its turning area, and the main channel up to the marine terminal, and a depth of 40 feet in the Mystic River and Chelsea River.

Dredging would be by mechanical bucket dredge, with the material placed in scows for transport to the disposal site. In areas where silty material is encountered (not sand, gravels or clays) some type of closed bucket would likely be employed to limit turbidity. Work on such a large project would proceed 24 hours a day, 7 days a week, until completion. Some sequencing of dredging operations in the several parts of the harbor may be possible if resource concerns are present, provided that dredging may progress uninterrupted throughout the project as a whole. Ledge would likely require blasting before removal.

Dredged Material Disposal

It is assumed that improvement dredging materials, including rock, are undisturbed and uncontaminated, and will be found suitable for unconfined open-water disposal at the Massachusetts Bay Disposal Site (MBDS), located about 16 miles seaward of the entrance to Boston Harbor. Chemical tests of the sediment have been conducted according to a sampling plan approved by the EPA, and a report on the results was prepared. Chemical test results indicate that nearly all the material proposed for dredging is likely suitable for ocean disposal. The MBDS is an EPA designated ocean disposal site regulated by the Federal government under the Ocean Dumping Act. The MBDS has depths of about 300 feet, and has sufficient capacity to serve the dredged material disposal needs of Boston Harbor and the rest of eastern Massachusetts over at least the next 20 years.

Some of the overlying maintenance increment materials, particularly from the Mystic River, may prove to be unsuitable for unconfined ocean disposal, as was the case with the recently completed main tributary channels deepening project. That project removed nearly all maintenance shoal material from the Reserved Channel and the Chelsea River that would otherwise have overlain the areas now under consideration for dredging. In the recent maintenance project, a series of confined aquatic disposal (CAD) cells were dredged beneath sections of the Main Ship Channel, Inner Confluence Area, Mystic River and Chelsea River. The blue clays dredged to form the deep cells was disposed at MBDS. Unsuitable dredged maintenance material from the channels was deposited in the CAD cells, and clean sandy material generated by maintenance dredging of the Cape Cod Canal was used to cap the cells. The cleaner substrate materials removed for the tributaries improvement project was, in most cases, disposed at MBDS. Should the overlying maintenance material that must be removed for the improvements now under investigation also prove unsuitable for unconfined disposal, similar means of providing dredged material disposal facilities for the maintenance materials would be investigated during the feasibility study. Many of the CAD cell sites approved under the EIS for the last project are still available for use.

STUDY/PROJECT TIMELINE

Feasibility study efforts began in June 2002. The study is scheduled to be completed and a draft report issued in the summer of 2006. The feasibility report will include a main report, a supplemental environmental impact statement, copies of all pertinent correspondence, and a number of supporting technical appendixes dealing with environmental and engineering investigations, design and cost estimates, economic evaluation, cultural resources studies, and other topics. Release of the draft report will begin a review effort on several levels; first by the New England District and Massport, then the Corps North Atlantic Division (NAD) office in Brooklyn, NY, and then the Corps Washington headquarters (HQUSACE). Once the draft report is approved it will be released for public review and Federal and State approvals and permits will be solicited. After consideration of agency and public comment, a final report would be prepared and submitted for review in Washington. Upon approval of that report, funds would be requested to begin the final detailed design and permitting for the project. Concurrently, Congress would initiate action to authorize the proposed improvements. Once design was complete, reviewed and approved, funds would be sought for construction.

It is estimated that the review, approval, permitting and final design will take approximately two years. Scheduling the project for construction will depend the time

required for Congress' authorizing the project and appropriating funds for construction. The period of construction depends largely on the plan of improvement ultimately chosen but is expected to take two or more years.

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