



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
NORTH ATLANTIC DIVISION, US ARMY CORPS OF ENGINEERS
FORT HAMILTON MILITARY COMMUNITY
BROOKLYN, NEW YORK 11252-6700

DEC 14 2012

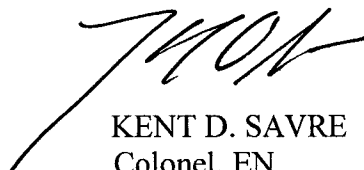
CENAD-PD-PP

MEMORANDUM FOR Commander, New England District, ATTN: CENAE-PP-P

SUBJECT: Review Plan Approval for Boston Harbor, Boston, Chelsea and Revere, Massachusetts

1. The attached Review Plan for the subject study has been prepared in accordance with EC 1165-2-209, Civil Works Review Policy.
2. The Review Plan has been coordinated with the Deep Draft Navigation Planning Center of Expertise of the South Atlantic Division, which is the lead office to execute this plan. For further information, contact Mr. Bernard Moseby at 251-694-3884. Independent external peer review was conducted in June 2008.
3. I hereby approve this Review Plan, which is subject to change as study circumstances require, consistent with study development under the Project Management Business Process. Subsequent revisions to this Review Plan or its execution will require new written approval from this office.

Encl
as


KENT D. SAVRE
Colonel, EN
Commanding

Feasibility Phase Review Plan
Navigation Improvement Study General
Investigation Feasibility Report and
Supplemental Environmental Impact
Statement

Boston Harbor Boston, Chelsea and Revere, Massachusetts



**MASSACHUSETTS
PORT AUTHORITY**

**US Army Corps
of Engineers
New England District**

October 2007

Updated: December 2012

**BOSTON HARBOR NAVIGATION IMPROVEMENT PROJECT
GENERAL INVESTIGATION**

**FEASIBILITY REPORT AND
SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT**

FEASIBILITY PHASE REVIEW PLAN

**NEW ENGLAND DISTRICT
(Revised October 2007)**

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BOSTON HARBOR NAVIGATION IMPROVEMENT PROJECT FEASIBILITY PHASE REVIEW PLAN

1. PURPOSE

This Review Plan is for the Boston Harbor Navigation Improvement Project, Massachusetts, General Investigation (GI), Feasibility Study. The purpose of the plan is to ensure the quality and credibility of assessments and solutions for the navigation improvement investigation and potential project.

The plan defines the review process and team members. This review plan was developed jointly and agreed upon by New England District and the National Deep Draft Navigation Planning Center of Expertise (DDNPCX).

2. BACKGROUND

The Boston Harbor Navigation Improvement Project is sponsored by the Massachusetts Port Authority (Massport), a legislatively chartered State authority. Massport manages the State's public terminals and toll bridges in Boston Harbor and state airports in Eastern Massachusetts, and has been the sponsor of past improvement studies and projects at Boston Harbor.

The scope of the Boston Harbor Feasibility Study and Supplemental Environmental Impact Statement (SEIS) will include problem identification, alternatives formulation, analysis and screening of alternatives, engineering design, cost estimates, environmental assessment, economic cost-benefit assessment, cultural resources assessment, identification of a recommend plan of improvement, and determination of Federal interest. If a project is found justified, in the Federal interest, and supported by the Sponsor, it is envisioned that the Corps process will lead to Congressional authorization and appropriations necessary to construct the project.

The Corps review process includes review of the technical aspects of the decision document, NEPA documents and their constituent analyses through an approach called "independent Technical Review" (ITR). ITR is a critical examination by a qualified person or team that was not involved in the day-to-day work of the investigation. In general, current Corps policy for decision documents to be approved at Headquarters is that the Planning Center of Expertise (PCX) for the project purpose be involved in establishing the review plan and review team, and that reviews be conducted by Corps specialists outside of the performing District. In some special cases where the risk and/or magnitude of the project are high, an External Peer Review (EPR) may be recommended. EPR refers to review conducted outside of the Corps of Engineers.

This review plan is in accordance with the provisions of Corps of Engineers policy outlined in EC! 105-2-408, dated 31 May 2005 entitled "Peer Review of Decision Documents" and the 30 March 2007 Memorandum from Major General Don T. Riley on Peer Review Process.

3. APPLICABILITY

The documents that will be reviewed by the technical review team are:

- The Alternative Formulation Briefing (AFB) Submittal Package
- The Draft Feasibility Report, Supplemental Environmental Impact Statement, and related technical and supporting appendices
- The Final Feasibility Report and Supplemental Environmental Impact Statement
- The Civil Works Review Board Materials

4. REFERENCES

- CECW-CP, Memorandum dated 30 March 2007, "Peer Review Process"
- EC1105-2-408, "Peer Review of Decision Documents", dated 31 May 2005
- ER1105-2-100, "Planning Guidance Notebook", dated 22 April 2000, and Amendment #1 to Appendices V & G, dated 31 January 2006 (note - reviews of proposed revisions to Appendices F, G and 11 are currently undergoing)

5. PROJECT DESCRIPTION

Boston Harbor is located on the western shore of Massachusetts Bay in eastern Massachusetts. Boston Harbor is New England's largest port, handling about 25 million tons of cargo annually. The Massport manages the harbor's major public terminals located throughout the harbor including the port's only container terminal, the Conley Terminal in South Boston on the Reserved Channel. The four tunnels that cross beneath the harbor a short distance up-harbor from the Reserved Channel limit channel deepening of the upper harbor to the 40 feet provided by the existing authorized Federal navigation project.

Federal project modifications authorized by WRDA90 included deepening of the harbor's three major industrial tributary channels; the Reserved Channel, lower Mystic River and Chelsea River. The lower Reserved Channel and about three-quarters of the lower Mystic River Channel were deepened to 40 feet, including dredging of a new 40-foot turning basin at the confluence of the Reserved and Main Ship Channels. The Chelsea River Channel was deepened to -38 feet. These improvements were substantially completed in 2001. Only replacement of the Keyspan gas line and dredging over the area of the existing line and through the Chelsea Street Bridge remain to complete that project

During construction of the 1990 project, Massport deepened the two principal berths at the Conley Terminal to 45 feet. The principal focus of this feasibility study was a request by Massport to examine the feasibility of deepening access from the Bay to the Conley Terminal to at least 45 feet. Such improvements would require deepening the principal entrance channel, the harbor's anchorage in President Roads just inside the entrance, the Main Ship Channel from the Roads to the Reserved Channel, the lower reach of the Reserved Channel into the Conley Terminal berths, and the Reserved Channel Turning Area. These improvements are known as the Main Channels Improvement Plan and benefits analysis is focused on reduced transportation costs for container shipping.

Early in the course of the study, Massport requested that three additional smaller improvements also be investigated as follows:

- Extending the deepening of the Main Ship Channel above the Reserved Channel Turning Area to access the Massport Marine Terminal in South Boston located below the seaward tunnel (1-90). Control of this property was recently returned to Massport after nearly two decades of use as staging area and material storage for the now completed third harbor tunnel and central artery highway project. Massport and its partners will redevelop this site for multiple bulk cargo operations, and is negotiating with lessees and shippers. Shipment of cement, steel, and paper goods is anticipated.
- Deepening a small area of the Mystic River Channel that remained at 35 feet after the 40-foot deepening project was completed. This area provides access to Massport's Medford Street Terminal. Massport has deepened the berth at this terminal to 40 feet and has redeveloped the site for bulk cargo, with a cement operation in development. This improvement would be minor in scope; less than 100,000 CY at 40 feet.
- Deepening the Chelsea River Channel from the 38 feet now provided to a depth of 40 feet. The Chelsea River is the location of five of the harbor's six major petroleum terminals, and most of the area's fuel deliveries flow through this waterway. The 1990 authorization was limited by the condition and width of the navigation opening in the Chelsea Street Bridge (86 feet), which precluded passage of vessels that would benefit from depths greater than 38 feet. The US Coast Guard, State and City of Boston have completed design of a replacement bridge with construction expected to begin in late 2007 or early 2008 and take two years to complete. The new vertical lift bridge will have a navigation opening more than twice that now provided (225 feet) and will allow passage of tank ships that would benefit from a deeper channel.

The expedited reconnaissance investigation was initiated at the request of the Massachusetts Port Authority (Massport), the study sponsor, in December 1999 using funds provided in the Fiscal Year 2000 Energy and Water Development Appropriations Act. The 905(b) Reconnaissance Report was approved by NAD and HQUSACE in August 2000.

The Corps and Massport executed the Feasibility Cost-Sharing Agreement (FCSA) for this project on 27 June 2002. The study was initiated in July 2002 upon receipt of Federal and Sponsor funds for the study. A Notice of Intent to prepare a Supplemental Environmental Impact Statement for the project was published in the Federal Register on

23 August 2002, and the first public involvement meeting on the proposed project was held on 5 September 2002.

The reconnaissance effort focused on the main channels improvement for the Conley Terminal and considered a channel depth of 45 feet mean lower low water (MLLW). The increased depth would allow greater loading of existing container ships, less reliance on tidal navigation, upgrades in service to larger vessels, and potentially inclusion of new services carry additional cargo to and from the port. The feasibility investigation included a foot-by-foot depth optimization analysis.

Dredged material from all areas of the improvement project was subject to testing and found suitable for unconfined ocean disposal at the Massachusetts Bay Disposal Site (MBDS) by the Corps and US EPA. The MBDS is a US EPA designated ocean disposal site located about 15 miles seaward of the harbor entrance in a deep basin (about 300 feet) in the Bay that has been used for disposal of dredged material from eastern Massachusetts Harbors for many decades. Recent major maintenance operations during the 2004-2008 period for the same channels being proposed for deepening in this feasibility study used the MBDS for all suitable dredged material. Placement at the MBDS is the Federal base plan for disposal of the project's dredged materials.

Two proposals for beneficial use of the improvement project's dredged materials were considered in the feasibility study, but will require further analysis in the design phase of the project.

- Depending on the final depth optimization (45 to 50 feet), between 700,000 and 1,450,000 CY of blasted ledge and other hard materials (cobble tills) would be removed by channel deepening. The tentatively recommended 48-foot channel depth would generate about 1.1 million CY of this material. The Corps and the Commonwealth's CZM Office have proposed using this material beneficially to create hard bottom habitat at one or both of two candidate sites in state waters in Massachusetts Bay. The purpose is to increase habitat for lobster and other species. Five sites selected in consultation with area lobstermen were investigated and screened, yielding the two candidate sites. Additional work to be done during the design phase would include final layout of the placement plan to avoid existing hard bottom areas and shipwrecks in the two sites, and development of a monitoring plan in consult with NMFS and State agencies.
- Between 6,000,000 and 14,500,000 CY of unconsolidated material would also be removed depending on the final depth optimization. The tentatively recommended 48-foot channel depth would generate about 12 million CY of this material. The Corps and US EPA Region I have proposed that some or all of this material be used to cap areas of the former Industrial Waste Site (IWS) in Massachusetts Bay. The IWS is located north of and overlaps the MBDS. The IWS was used from the 1940s to 1970s for disposal of medical, chemical and radiological waste in barrels and drums. Most of the steel barrels have largely disintegrated, spilling their contents on the sea floor. Concentrations of barrels have been located by US EPA and others in studies conducted in the early 1990s and in 2006, and are largely located outside the MBDS boundaries. US EPA is in the process of delineating the barrel "fields" in the

site and prioritizing these areas for capping. The Corps, in cooperation with EPA is planning to conduct a capping demonstration as part of the disposal of the 2007-2008 inner harbor maintenance operation at the MBDS. The demonstration would test and refine methods for capping in deep water with semi-consolidated and unconsolidated material in a controlled pattern design to create a sufficient cap without displacing the existing bottom materials. Evaluation of this proposal and the target areas within the IWS would continue into the design phase for the project and EPA would need to modify the MBDS boundary by Rule to enable this beneficial use to proceed.

Both beneficial use plans, the lobster reef creation and IWS capping, are expected to have little impact on project cost. The lobster reef sites are located inshore of the existing ocean disposal site and will have a reduced hauling cost. Costs for controlled dumping and post construction monitoring of site colonization are expected to be more than offset by the reduced hauling cost. Haul distance to the IWS is identical to that for the MBDS. With modern computerized dump vessel location and track line navigation, and given the haul distance, a controlled disposal grid should not add any appreciable time to the dump vessels' round trip.

6. REVIEW REQUIREMENTS AND PROJECT RISK

Initial Quality Control (*QC*) review of feasibility study products is handled within the Section or Branch at New England District performing the work, and by ERDC, Massport, US EPA, and contractors submitting the results of specific field investigations and reports. Additional QC will be performed by the project delivery team (PDT) during the course of the feasibility plan formulation and evaluation process, and during preparation and assembling the draft and final AFB documents. Feasibility Report and NEPA documents. These District level internal checks of engineering, technical, and scientific methodology applied, computations, and assessment are standard operating procedure and normally conducted by Section Chiefs and Team Leaders.

ITR: Pursuant to EC1105-2-408, the feasibility study and resultant documents will require review by a Corps Independent Technical Review (ITR) team assigned by the Planning Center of Expertise (PCX) for Deep Draft Navigation. The Director, Deep Draft Navigation Planning Center of Expertise, will select this team. As the cost estimate for the project will require review by the PCX for Cost Estimating, the Director will also coordinate with this PCX to establish the cost estimating ITR member. ITR will also include review and certification of Planning Models used in the study. These models are limited to spreadsheets detailing the assessment of economic data and calculation supporting the development of project benefits and cost-benefit analysis.

EPR: The study is expected to be a straightforward navigation improvement project at an existing federal channel, it is not novel and is not precedent setting, and does not have significant economic, environmental or social impacts.

External Peer Review Decision Checklist

1	Novel subject in alter?	No	Project consists of navigation improvement by dredging and blasting with ocean disposal at a designated site using traditional engineering design methods and construction techniques.
2	Controversial subject matter?	No	Improvement and maintenance dredging have been underway with little break at Boston Harbor since 1998. Process and impacts are well known and documented; No novel or controversial environmental issues have been raised by resource agencies.
3	Precedent setting?	No	Bulk of the benefits are reduced landside transportation cost savings to containerized cargo from diversion away from truck transport to ship. Benefits are well documented and straightforward. Analysis was conducted using well-established guidelines and criteria.
4	Unusually significant interagency interest?	No	Not with the base plan. State and EPA interest in further pursuing beneficial use options rock reefs and deep water capping of old disposal areas will be further defined during design. If no agreement is reached on these additional options then the base plan for ocean disposal will be followed. The project is strongly supported by the State and there is no unusually significant interagency interest.
5	Unusually significant economic, environmental, and social effects to the nation?	No	There are no unusually significant national economic, environmental or social effects. National and regional economic benefits are sufficient to support a project of this magnitude.

Decision: External Peer Review will be required to comply with EC 1105-2-408. Planning, Peer Review of Decision Documents, dated 31 May 2005. The project; while straightforward from a formulation, engineering, environmental and economic viewpoint carries a total first cost, escalated to the construction period, of about \$260,000,000.

Model Certification: Aside from economic computation spreadsheets, hydrodynamic and vessel models developed by ERDC for input to the ship simulation study, and cost estimating (CDEP) spreadsheets, no planning models were used in this study. The study involves the deepening of existing Federal navigation channels. Cost estimating review would be conducted by the PCX for Cost Estimating (NWW) as coordinated by the PCX for Deep Draft Navigation (SAM). The economic computations were determined using spreadsheets covering the development and presentation of economic baseline, without-project and with-project scenarios, for containership cargo, dry bulk and liquid petroleum cargoes. The PCX for Deep Draft Navigation, in consultation with reviewing authorities, will determine the appropriate level of review and certification required for these report products.

7. REVIEW PROCESS

As described above, Initial Quality Control (QC) for all study documents, products, and reports, is performed by the PDT and by the Section or Branch at New England District performing the work, and by ERDC, Massport, US EPA, and contractors submitting the results of specific field investigations and reports, as standard procedure.

The ITR process will include review of draft investigations of existing conditions, determination of the without-project condition, formulation of alternative plans, collection and evaluation of data, development and refinement of assumptions, and engineering, economic, environmental, cultural, and social assessments. Real estate aspects of proposed alternatives is expected to be minimal and will not require review unless scope of real estate requirements change.

ITR review milestones will include review of preliminary documents (AFB submittal) after the PDT identifies the alternatives that will be analyzed in detail, and review of the draft Feasibility Report and NEPA documents after the PDT completes its selection of a tentatively recommended plan of improvement.

8. PUBLIC COMMENT

Public involvement has been maintained throughout the feasibility study. Public information and other meetings as appropriate have been held in the study area as the study progresses. A description of the public involvement efforts for the study is attached to this review plan. Copies of this review plan and the public involvement plan will be posted to the New England District website for public access.

9. REVIEW COST

The cost of the ITR will be discussed with the PCX and the Sponsor, and agreed to once the ITR team is assembled. The cost of the ITR is a cost shared feasibility study item. The cost of the EPR will be developed by the PCX and will also be coordinated with the project Sponsor and subject to cost-sharing.

10. REVIEW SCHEDULE

	Start	Complete
1. Develop Review Plan, Coord, w/ PCX	Aug 07	Sept 07
2. PCX Assigns ITR Team (NAN Team in Place)	Aug 07	Aug 07
4. ITR of AFB Package	Aug 07	Sept 07
5. ITR of draft Feasibility Report/SEIS and PDT response and changes	Nov 07	Dec 07
6. Certification of Planning Models	Nov07	Jan 07
7. ITR of final feasibility report and SEIS before CWRB briefing	Jan 13	Jan 13
8. ITR of CWRB Materials	Feb 13	Feb 13
9. CWRB Meeting	Mar 13	Mar 13

11. PDT and ITR TEAMS

I) New England District PDT

At the New England District, project management for large deep-draft navigation improvements, and project management for operations and maintenance of navigation projects, is managed by the Programs and Project Management Division. The Planning Branch, and Evaluation Branch (including Environmental, Economic and Cultural Resource functions) are handled by the Engineering-Planning Division. The Engineering-Planning Division also handles engineering design, cost engineering, geology, geotechnical engineering, hydrology and coastal engineering, structural engineering, and survey functions. Other disciplines represented on the team include real estate, dredged material management and navigation operations and maintenance.

2) ITR Team

After consultation with the PCX (SAM) and New York District, it was decided to retain NAN ITR responsibility for the Boston Harbor Feasibility Report, subject to PCX concurrence. Accordingly, NAN filled out the review team that had previously been limited to economic review and cost and geotechnical advice. The team assignments require review and approval by the Director, Deep Draft Navigation Planning Center of Expertise and may include the following disciplines as appropriate. Technical disciplines represented on the ITR team mirror those of the PDT to ensure a comprehensive review.