

**Mobile Harbor, Mobile, Alabama
Integrated General Reevaluation Report
With Supplemental Environmental Impact
Statement**

**U.S. Army Corps of Engineers Response to
Independent External Peer Review
November 2019**

Independent External Peer Review (IEPR) was conducted for the Mobile Harbor, Mobile, Alabama Integrated General Reevaluation Report With Supplemental Environmental Impact Statement (GRR/SEIS) in accordance with Section 2034 of the Water Resources Development Act of 2007, the U.S. Army Corps of Engineers (USACE) peer review policy (currently, Engineer Circular 1165-2-217), and the Office of Management and Budget's *Final Information Quality Bulletin for Peer Review (2004)*. The goal of the USACE Civil Works program is to always provide scientifically sound, sustainable water resources solutions for the nation. The USACE review processes are essential to ensuring project safety and quality of the products USACE provides to the American people.

Battelle Memorial Institute (Battelle), a non-profit science and technology organization with experience in establishing and administering peer review panels for the USACE, was engaged to conduct the IEPR for the Mobile Harbor GRR/SEIS. Battelle identified potential candidates for the Panel in the following key technical areas: plan formulation, economics, environmental, hydrology and hydraulic engineering, geotechnical engineering, cost engineering, navigation modeling, operations, and real estate. Battelle made the final selection of the four-person Panel.

Battelle issued its Final IEPR Report on November 12, 2018. Overall, eight comments were identified and documented. Of these, two were identified as having medium/high significance, four had a medium significance, and two had medium/low significance.

USACE concurred with six comments and non-concurred with two comments. Of the 15 recommendations proposed, 12 were adopted and three were not. The following discussion presents the USACE final response to the comments.

1. Comment 1 (Significance – Medium/High). A multiport analysis to identify relevant competing port trade flows based on analysis of trade routes, commodities, and port facilities was not conducted.

This comment includes one recommendation which was adopted.

Recommendation. Provide a multiport analysis that describes the extent to which Mobile Harbor shares commodity flows with other ports, or explain why systems considerations are not relevant.

USACE Response: Adopted

Actions Taken: Multiport competition is assessed qualitatively for this study as it relates to shifting cargo from one port to another port based on factors such as deepening of a harbor. The recommended plan includes deepening the existing ship channel to more efficiently load larger vessels. However, larger vessels alone do not drive growth for the harbor. Many factors may influence the growth of a particular harbor: landside development and infrastructure; location of distribution centers for imports; source locations for exports; population, income growth, and location; port logistics and fees; business climate and taxes; carrier preferences; labor stability and volatility; and, business relationships. Harbor depth is just one of many factors involved in determining growth and market share for a particular port. The economic analysis was conducted with the historical Mobile cargo share remaining the same in both the future without-project and future with-project conditions. To restate multiport considerations, justification of the recommendation of this study is not based on the assumption that cargo will shift to Mobile with deepening alone. The analysis assumes Mobile receives the same share of regional cargo volumes with or without the deepening of the Mobile Harbor.

2. Comment 2 (Significance – Medium/High). The Mobile Harbor Draft Integrated GRR/SEIS does not include a sensitivity analysis of the impacts of the risk and uncertainty associated with the commodity and vessel fleet forecasts to the NED benefits and selection of the TSP.

This comment includes one recommendation, which was adopted.

Recommendation. Perform a sensitivity analysis to determine the potential impacts from risk and uncertainty associated with the vessel and fleet forecast on the expected NED benefits and TSP identification.

USACE Response: Adopted

Actions Taken: Three sensitivity analyses were conducted and added to the Economics Appendix of the report to determine uncertainties in the estimates from variables associated with the commodity and fleet forecasts. The first is no growth from the base year. This scenario holds the 2025 tonnage and fleet constant through the period of analysis. The second is reduced growth in containership tonnage and no growth for coal. This scenario assumes 1 to 2 percent reduction in container tonnage and no growth for coal from year 2025. This scenario also assumes the Generation three design vessel does not call Mobile until year 2035. In both scenarios, the changed variables affect the channel

deepening analysis; however, the recommended plan remains justified. The third scenario is no growth from base year of 2025 for all upper harbor and lower harbor vessels. This scenario addresses channel widening benefit and cost uncertainty. The commodity tonnage and fleet are held constant at year 2025. In this scenario, channel widening does not remain justified with negative \$29,800 in net benefits.

3. Comment 3 (Significance – Medium). Limited geotechnical strength data and associated slope stability estimates for the proposed dredging prisms, particularly in the turning basin, are a source of risk and uncertainty for the project cost, schedule, and sediment disposal capacity.

This comment included two recommendations, both of which were adopted.

Recommendation 1. Provide documented soil strength data and slope stability analyses that support the proposed design dredge slopes, particularly in the Choctaw Pass turning basin and upland areas.

USACE Response: Adopted

Actions Taken: The additional data was provided in the Engineering Appendix to discuss prior slope stability analyses in the turning basin. The additional data summarizes in more detail the findings from the Turning Basin GRR. The additional text includes input parameters and output factors of safety to justify the slopes that were chosen for the tentatively selected plan (TSP). Additional soil strength data and analyses was not obtained during the feasibility phase for the channel or the Choctaw Pass Turning Basin area. Additional borings, undisturbed samples, and triaxial test data will be obtained during the pre-construction engineering and design (PED) phase, and the slopes for the turning basin and the channel will be evaluated during PED.

Recommendation 2. Explain how the TSP would change if adequate slope stability cannot be established with the available data after the PED geotechnical investigation, laboratory testing, and analyses.

USACE Response: Adopted

Actions Taken: If analyses performed during PED show that the TSP slopes are unstable, the channel template would need to be reconfigured to show less steep slopes. To account for the possible increase in cost and schedule, the USACE will account for a potential increase in quantities due to less steep slopes. This increase will be incorporated in the Cost and Schedule Risk Analysis (CSRA). Additional documentation was added in the Engineering Appendix to explain how the risk of obtaining additional strength data during PED is addressed through the CSRA.

4. Comment 4 (Significance – Medium). The absence of field data on potentially chemically contaminated sediments is a source of risk and uncertainty for the project cost, schedule, and sediment disposal options.

This comment included three recommendations, one of which was adopted and two were not.

Recommendation 1. Identify, discuss, and summarize historic data (including sediment contaminant chemistry) to justify and support the current expectation of no chemically contaminated sediments requiring design or construction modifications.

USACE Response: Adopted

Actions Taken: Section 2.3.4, Appendix C summarizes the sediment testing history associated with Mobile Harbor. Two new work sediment testing efforts were conducted prior to the initiation of the GRR. Sampling of new work material was conducted in 2008 for the initial construction of the Choctaw Pass Turning basin in which two potential turning basin location alternatives were tested. The testing of the new work material in the turning basin revealed that the sediment met the Limiting Permissible Concentration (LPC) requirements for water quality, water column toxicity, benthic toxicity, and bioaccumulation for placement in the Mobile Ocean Dredged Material Disposal Site (ODMDS). Although the samples were not collected to the maximum depths required for the deepening, the sampling provided a general representation of the new work sediment characteristics occurring in the upper portion of the project. Other new work sediment testing was conducted in 2014 for the proposed widening of a 7-mile section of the Mobile Harbor Lower Bay and Bar Channels. Results from this testing indicated that the new work sediments from both Lower Bay and Bar Channel sediments met the LPC requirements for water quality, water column toxicity, benthic toxicity, and benthic bioaccumulation for placement in the Mobile ODMDS. As with the Choctaw Turning Basin, it is realized that the samples were not collected to the maximum depths required for the deepening, however, it provides a general representation of the new work sediment characteristics occurring in the lower portion of the project.

Recommendation 2. Explain how the TSP would change if chemically contaminated sediments were discovered during the PED or during construction.

USACE Response: Not Adopted

Actions Taken: Based on the low level of risk associated with the presence of contaminants in the new work sediments, it is assumed that those sediments will not be found, and therefore the TSP would be unlikely to change. However, the possibility that the low level presence of certain substances may result in the reduction of hopper volumes going to ODMDS. Should placement be restricted in the Relic Shell Mined Area, the ODMDS has the capacity to accept the additional material. Revisions were made to the appropriate sections of the report to reflect this decision.

Recommendation 3. Identify and discuss the contingency plans if chemically contaminated sediments were discovered during PED or construction.

USACE Response: Not Adopted

Actions Taken: Based on the low level of risk for conducting the sediment testing in PED, the development of a contingency plan is not warranted at this time. Should levels of contamination be encountered within specific areas of the project that would preclude placement of that new work material in the ODMDS, contingency plans will be developed for the specific new work areas. Revisions were made to the appropriate sections of the document to reflect this position.

5. Comment 5 (Significance – Medium). The Purpose and Need statement for the project does not provide enough detail to allow clear identification and evaluation of project alternatives.

This comment includes three recommendations, all of which were adopted.

Recommendation 1. In the Purpose and Need statement, clarify the need for the project as it relates to commodity growth in the region.

USACE Response: Adopted

Actions Taken: The need for the project is not based on commodity growth but on efficiencies gained by reducing transportation costs.

The following was added to Section 1.3 of the Main Report:

“The objective of the Federal Government for water and related land resources planning is to contribute to National Economic Development (NED) consistent with protecting the Nation’s environment. Federal interest is the basis for Federal participation in water resource projects. Verification of Federal Interest in a project is a prerequisite to project implementation. The fundamental public purpose of a navigation project is to facilitate the movement of vessels and the transportation of cargo. The USACE uses a six step planning process to make decisions and select the plan with the highest NED benefits consistent with environmental considerations. Alternative plans are formulated with respect to the Problems, Opportunities, Objectives, and Constraints discussed below. Incremental alternative analysis measures efficiency and effectiveness of alternatives. The efficiencies of alternative improvements are measured by calculating the reduction in transportation costs for commodities and the increase in the value of output of goods and services. Economic justification requires that benefits exceed costs and the benefit to cost ratio exceed 1.0. Any costs to address environmental impacts, if any, are included in the economic evaluation. Maximum net NED benefits are the used as the primary determinant of the most efficient plan. Benefits are based on a reduction in transportation cost and increased efficiency only. The same growth in commerce is assumed for future without and with project conditions. Likewise, anticipated fleet changes (or vessels calling) are based on general trend and expected changes to the world fleet.”

Recommendation 2. Explain how that need relates to the number and size of ships forecasted to use the channel.

USACE Response: Adopted

Actions Taken: The following paragraph was added to Section 1.3.1:

“As the number and size of vessels has increased, operational practices have been put in place because of the channel width and configuration to assure safe operations. These practices include limiting the channel to one-way usage while larger vessels transit the channel and limiting transit of larger vessels to daylight only. As a result, larger vessels are delayed while waiting for an opportunity to use the channel and, as they use the channel, it is limited to one-way use which also creates delays for other vessels. The configuration of the channel near the bar also limits the larger vessels to daylight transit only, also causing delays for those vessels. It is anticipated that current delays would continue or become more frequent as the fleet transitions to larger vessels (i.e., future without project conditions). Tankers, General Cargo and Bulk Vessels can wait up to four hours for other vessels to transit the channel. Similarly, under future without project conditions, the inefficiencies would likely increase as larger vessels would be load restricted to utilize the port. The existing depth of the channel requires deeper drafting vessels be light-loaded to transit. The economic analysis for the project assumes Mobile receives the same share of regional cargo volumes with or without deepening of the Mobile Ship Channel. It also assumes that more efficient loading and the use of larger vessels would reduce the number of vessels calling. Economic benefits supporting the proposed channel changes are based on the reduction of transportation delays and more efficient cargo loading.”

Recommendation 3. Describe the anticipated delays and inefficiencies that would continue to prevail if the TSP were not implemented.

USACE Response: Adopted

Actions Taken: The following paragraph was added to Section 1.3.1:

“As the number and size of vessels has increased, operational practices have been put in place because of the channel width and configuration to assure safe operations. These practices include limiting the channel to one-way usage while larger vessels transit the channel and limiting transit of larger vessels to daylight only. As a result, larger vessels are delayed while waiting for an opportunity to use the channel and, as they use the channel, it is limited to one-way use which also creates delays for other vessels. The configuration of the channel near the bar also limits the larger vessels to daylight transit only, also causing delays for those vessels. It is anticipated that current delays would continue or become more frequent as the fleet transitions to larger vessels (i.e., future without project conditions). Tankers, General Cargo and Bulk Vessels can wait up to four hours for other vessels to transit the channel. Similarly, under future without project conditions, the inefficiencies would likely increase as larger vessels would be load restricted to utilize the port. The existing depth of the channel requires deeper drafting vessels be light-loaded to transit. The economic analysis for the project assumes Mobile receives the same share of regional cargo volumes with or without deepening of the Mobile Ship Channel. It also assumes that more efficient loading and the use of larger vessels would reduce the number of vessels calling. Economic benefits supporting the proposed

channel changes are based on the reduction of transportation delays and more efficient cargo loading.”

6. **Comment 6 (Significance – Medium). The analysis of environmental impacts relies heavily on a modeling approach, making it difficult to verify whether impacts will actually occur and, if so, what would be done to address them.**

This comment included two recommendations; one was not adopted as discussed below.

Recommendation 1. Discuss why sea turtles and other offshore species would not be affected under the project, incorporating regional data to support the discussion.

USACE Response: Adopted

Actions Taken: Regional data such as the U.S. Fish and Wildlife Service (USFWS) and NOAA – National Marine Fisheries Service (NMFS) species list and/or critical habitat designations, suitable habitat criteria, examination of possible routes of effects, and the Gulf Regional Biological Opinion (GRBO) was used to make a determination that the project may affect but is not likely to adversely affect threatened or endangered species as described in Section 5.9, Main Report and Section 3.10, Appendix C. Further discussion concerning the GRBO and other regional data sources was added to clarify how this information applies and was used as the basis for the USACE effects determinations. No designated critical habitat is found within the action area. Consultation with the USFWS and NMFS was conducted for Section 7 of the Endangered Species Act (ESA) and for Essential Fish Habitat pursuant to the Magnuson–Stevens Fishery Conservation and Management Act. Results of these consultations were added to the final report. In regards to the Migratory Bird Treaty Act, it is noted in the documentation that the project area is entirely within the open water and away from any landforms, therefore it is highly unlikely that any impacts to the piping plover, red knot, or least tern would occur. In addition, the November 7, 2018 Draft Fish and Wildlife Coordination Act Report stated that the USFWS did not oppose the implementation of the TSP provided the listed conservation measures and recommendations were implemented. The USACE does not object to these conditions.

Recommendation 2. If the analysis is to be based entirely on modeling, consider at a minimum a monitoring plan for shoreline erosion comparing baseline pre-project versus post-project conditions.

USACE Response: Not Adopted

Actions Taken: Since the modeling results indicated minimal changes in sediment transport processes in the bay and along the nearshore coastal areas/ebb tidal shoal as described in Appendix A, the USACE does not intend to monitor shorelines across the study area post implementation of the project. However, the USACE recently initiated a proactive monitoring plan to survey the ebb tidal shoal/nearshore coastal area south of Dauphin Island twice per year to help quantify seasonal and storm-driven sediment transport processes to ultimately ensure sandy material dredged from the Bar Channel is placed in the best locations possible within the Sand Island Beneficial Use Area (SIBUA) and/or the SIBUA Northwest Extension given the availability of funds and capabilities of the dredging industry. A monitoring plan for this effort was added to the final report.

7. **Comment 7 (Significance – Medium/Low). The analysis of beneficial use alternatives for dredged material does not provide sufficient details on the overall environmental, logistical, and economic impacts of beneficial reuse, nor does it adequately discuss direct shore placement at locations of specific concern to the public.**

This comment included two recommendations, both of which were adopted.

Recommendation 1. Include a full alternatives analysis of dredged material management sites/uses that addresses both the benefits and costs of different disposal methods and sites and their respective environmental impacts.

USACE Response: Adopted

Actions Taken: Paragraph 4.2.3.2 and figure 4-9 were updated to better describe the beneficial use options. A qualitative analysis was added to the report for the other beneficial use alternatives including direct shore placement on Dauphin Island. Additional background information and alternative analysis, including a table with a cost comparison for the least cost disposal option, was included in Paragraph 4.2 of the GRR.

Recommendation 2. Provide a more detailed discussion of direct placement of dredged material on Dauphin Island.

USACE Response: Adopted

Actions Taken: Direct shore placement on Dauphin Island was included as a beneficial use option. The report was revised to address qualitatively and to explain the necessary cost sharing and other requirements for direct placement on Dauphin Island.

8. **Comment 8 (Significance – Medium/Low). The drafts of the design vessels for the alternatives analysis are given as 50.8 and 51.6 feet, which are greater than the actual channel depth.**

This comment included one recommendation, which was adopted.

Recommendation. Clearly state the actual vessel drafts used in the modeling study in Appendix A, Section 4.3 “Design Vessel” (i.e., a draft of 50.8 feet light-loaded to 46 feet to account for underkeel clearance).

USACE Response: Adopted

Actions Taken: The actual vessel drafts used in the analysis are detailed in Appendix A, Section 4.3 Design Vessel. Vessels governing the current design include the following: a 115,000 to 125,000 deadweight tonnage (DWT), nominal 10,000 to 11,000 twenty-foot equivalent unit container ship with an overall length, beam, and maximum draft of 1,100 feet, 158 feet, and 50.8 (44.5 feet static draft to account for underkeel clearance), respectively; and a 100,000 to 120,000 DWT tanker with an overall length, beam, and maximum draft of 851.5 feet, 141.2 feet, and 51.6 feet (44.5 feet static draft to account for underkeel clearance), respectively.