

**SAVANNAH HARBOR
CHATHAM COUNTY, GEORGIA and
JASPER COUNTY, SOUTH CAROLINA
SAVANNAH HARBOR EXPANSION PROJECT
GENERAL RE-EVALUATION REPORT AND
ENVIRONMENTAL IMPACT STATEMENT SUMMARY**

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PROJECT INFORMATION

Project Authority: The project was authorized in the Water Resources Development Act (WRDA) 1999 (Public Law 106-53 – August 17, 1999), which reads:

“SEC. 101. PROJECT AUTHORIZATIONS.

(b) PROJECTS SUBJECT TO A FINAL REPORT.—The following projects for water resources development and conservation and other purposes are authorized to be carried out by the Secretary substantially in accordance with the plans, and subject to the conditions, recommended in a final report of the Chief of Engineers if a favorable report of the Chief is completed not later than December 31, 1999:

(9) SAVANNAH HARBOR EXPANSION, GEORGIA.—

(A) IN GENERAL.—Subject to subparagraph (B), the project for navigation, Savannah Harbor expansion, Georgia, including implementation of the mitigation plan, with such modifications as the Secretary considers appropriate, at a total cost of \$230,174,000 (of which amount a portion is authorized for implementation of the mitigation plan), with an estimated Federal cost of \$145,160,000 and an estimated non-Federal cost of \$85,014,000.

(B) CONDITIONS. — The project authorized by subparagraph (A) may be carried out only after—

(i) the Secretary, in consultation with affected Federal, State of Georgia, State of South Carolina, regional, and local entities, reviews and approves an environmental impact statement for the project that includes—

(I) an analysis of the impacts of project depth alternatives ranging from 42 feet through 48 feet; and

(II) a selected plan for navigation and an associated mitigation plan as required under section 906(a) of the Water Resources Development Act of 1986 (33 U.S.C. 2283(a)); and

(ii) the Secretary of the Interior, the Secretary of Commerce, the Administrator of the Environmental Protection Agency, and the Secretary approve the selected plan and determine that the associated mitigation plan adequately addresses the potential environmental impacts of the project.

(C) MITIGATION REQUIREMENTS. — The mitigation plan shall be implemented before or concurrently with construction of the project.”

Project Sponsor: The non-Federal sponsor, the State of Georgia, acting through the Department of Transportation, represented by the Georgia Ports Authority (GPA), participated extensively in all phases of the study process.

Project Purpose and Scope: In WRDA 1999 (Section 101(b)(9)), Congress conditionally authorized deepening Savannah Harbor to a maximum depth of -48 feet Mean Low Water (MLW). The purpose of the General Re-Evaluation Report (GRR) is to resolve the conditions of the project authorization presented in Section 101 of WRDA 1999 and to conduct investigations required by the National Environmental Policy Act of 1969 (NEPA).

The Savannah District of the US Army Corps of Engineers developed this General Re-evaluation Report (GRR) in conjunction with the USACE Deep-Draft Navigation Center of Expertise. The GRR and EIS document the technical and plan formulation analyses performed while evaluating alternatives for navigation improvements at Savannah Harbor, with their associated environmental mitigation. The GRR and EIS assess mitigation plans for alternative channel depths. The GRR includes a final mitigation plan and an incremental analysis of alternative channel depths from -42 to -48 feet, as required by the conditional authorization.

Project Location/Congressional District: Savannah Harbor is a deep-draft harbor located on the South Atlantic U.S. coast, 75 statute miles south of Charleston Harbor, South Carolina, and 120 miles north of Jacksonville Harbor, Florida. The project is located in the First Congressional District of Georgia and the First Congressional District of South Carolina. The harbor comprises the lower 21.3 miles of the Savannah River (which, with tributaries, forms the boundary between Georgia and South Carolina along its entire length of 313 miles) and 11.4 miles of channel across the bar to the Atlantic Ocean.

Within the harbor limits, the Savannah River is generally divided into two channels by a series of islands. The navigation channel is maintained in Front River to the upper limits of the harbor at River Mile 21.3. The Atlantic Intracoastal Waterway (AIWW) crosses the navigation channel approximately 5.5 miles upstream of the entrance to the harbor. The Savannah River Below Augusta Project, which is a shallow-draft navigation channel authorized for 9 feet deep and 90 feet wide, extends upstream from the harbor (River Mile 21.3) to River Mile 202.6 at Augusta, Georgia.

Prior Reports and Existing Water Projects: The last deepening of the Savannah Harbor Navigation Project – deepening of the inner harbor from -38 to -42 feet MLLW (Stations 103+000 to -14+000B) and of the entrance channel from -40 to -44 feet MLLW (Stations -14+000B to -60+000B) was authorized in WRDA 1992. The construction was completed in 1994.

The August 1996 Savannah Harbor Expansion Reconnaissance Report identified waterborne transportation inefficiencies that could be remedied by deepening the Federal navigation channel. The report identified economically justified alternatives, a Federal interest in their implementation, and recommended that a feasibility study of potential navigation improvements of Savannah Harbor be conducted under the existing study authority.

In 1998, GPA completed a feasibility study of navigation improvements to Savannah Harbor under the authority of Section 203 of WRDA 1986 (P.L. 99-662). The feasibility study recommended deepening the harbor to a 48-foot depth. The Tier I EIS assessed the potential impacts of the “maximum impact” project alternative, which was a 50-foot depth alternative. Detailed analysis of the impacts of the selected plan was deferred to a Tier II EIS to be conducted during the Continuing Engineering and Design phase of the project. Development of the final mitigation plan would also be assessed in the Tier II EIS. The US Army Corps of Engineers (the Corps) published the Draft Tier I EIS in May 1998 and the Final Tier I EIS in September 1998. The Corps completed the Tier I EIS when it signed a Record of Decision (ROD) on 22 December 1999. The ROD states that the conditional Congressional authorization provides sufficient safeguards that the project would not be implemented until the Chief of Engineers determines that it is in accordance with all applicable US Army Corps of Engineers policies, procedures, and regulations, and that it includes an acceptable mitigation plan. The ROD recommended implementation of the authorized project after additional review by the Corps of Engineers and approval by the Chief of Engineers to ensure that construction of the project complies with all applicable laws and policies, and cost sharing requirements for mitigation features determined to be appropriate by the Chief of Engineers.

The Chief's Report for the Section 203 Feasibility Study (signed on 21 October 1999) recommended implementation of the authorized project, under recognition that the Congressional authorization is conditioned on approval of a special report and EIS by the Secretary of the Interior, Secretary of Commerce, the Secretary of the Army, and the Administrator of the Environmental Protection Agency. The special report and EIS must include additional analyses which more completely identify and evaluate the potential impacts of alternative channel depths, develop an acceptable mitigation plan, and conclusively determine the NED plan and cost sharing for mitigation features.

Federal Interest: The Reconnaissance Phase Report, the Section 203 Feasibility Report, and the GRR all identify Federal interest in improving the Savannah Harbor Navigation Project to produce National Economic Development benefits based on savings in waterborne transportation costs.

STUDY OBJECTIVES

Problems and Opportunities: The major water resource problem at Savannah Harbor is the inefficient operation of container ships in the Federal channel at Savannah Harbor, which affects transportation costs in the nation's international trade. GPA's Garden City Terminal at Savannah Harbor is currently the second largest container port on the US east coast (by TEU volume) and the fourth largest in the Nation. The Garden City Terminal is a port of call for more than 50 container ship services, which call weekly on a fixed day schedule (liner services). However, Savannah Harbor currently has the shallowest controlling depth for a major container port.

The 1994 harbor improvements were designed to accommodate a class of container ships with maximum TEU (Twenty-foot Equivalent Unit) capacity of 4,024 TEUs. The design vessel for the 1994 improvements had a length of 951 feet, a maximum operating draft of 42.6 feet, and a beam of 106 feet, which was the maximum beam for vessels transiting the Panama Canal. The largest vessels currently calling at the Port are rated at more than 8,100 TEUs, an overall length of 984 feet, a maximum operating draft of 48 feet, and a beam of 131 feet. GPA has made major investments in landside infrastructure to accommodate the increasingly larger vessels and burgeoning trade growth. GPA has planned and funded additional improvements at the Garden City Terminal to coincide with the ongoing expansion of the Panama Canal. With those improvements in place, the terminal will be the largest single container handling facility in the Nation.

The increase in the size of containerships calling at the world's major ports has been driven by economic efficiency. The world's major ports maintain channel depths that allow the efficient operation of the fleet that they serve. Container ships operate inefficiently at Savannah Harbor because its vessels need to light load to navigate the 42-foot deep Federal channel, which increases cargo transportation costs. Vessels using tides to provide more depth incur tidal delay costs. Light loading and tidal delays at Savannah will increase in the future as present harbor users increase their annual tonnage and as larger, more efficient ships replace older, smaller ones. The opportunity exists to reduce transportation cost of import and export trade through Savannah Harbor and contribute to increases in national net income.

Planning Objectives: The primary planning goal was to identify a navigation improvement for Savannah Harbor that contributes to national economic development, consistent with protecting the nation's environment, and complies with national environmental statutes, applicable executive orders, and other Federal planning requirements. The Cooperating Agencies (USEPA, USFWS, NMFS, and GPA) jointly developed a set of goals for the planning process and project-related outcomes. The study team worked with many stakeholders to develop objectives for this project. All were helpful insights into their desired outcomes. However, to meet USACE planning guidelines, they were summarized into the following objective: Reduce navigation transportation costs to and from the Savannah Harbor to the extent possible over the next 50 years.

Planning Constraints: In addition to the typical constraints which impact the planning process, project-specific constraints restricted the set of alternatives that were developed and influenced the technical investigations conducted. The desire to avoid or minimize impacts to natural resources resulted in technical investigations being conducted for dissolved oxygen, salinity, marsh succession, chloride effects at Savannah's surface water intake, dredged material physical and chemical characteristics, and the Upper Floridan aquifer.

ALTERNATIVES

Plan Formulation Rationale: General planning criteria used in USACE project planning is guided by the Principles and Guidelines (1983), the Planning Guidance Notebook (ER 1105-2-100 dated, 22 Apr 2000), NEPA, and Procedures for Implementing NEPA (ER 200-2-2, dated 4 Mar 1988). The Cooperating Agencies, Stakeholders Evaluation Group, and participating natural resource agencies also developed numerous technical, economic, institutional, environmental, and social formulation and evaluation project-specific criteria which they used to evaluate this project.

Management Measure Identification: Several management measures were identified to address the navigation-related problems at Savannah Harbor including operational (i.e., non-structural) measures, structural measures implemented at other ports, and structural modification of the existing Federal Navigation Project. Non-structural measures included reducing underkeel clearance requirements, improving traffic management practices, and modifying the Garden City Terminal infrastructure. Structural measures included development of a Regional Southeastern US Container Port, alternate terminal locations within the region, and modifications to the existing Federal Navigation Project. Modifications to the Federal Navigation Project included construction of meeting areas, bend wideners, straightening of river bends, turning basin expansion, and channel deepening.

Management Measures Evaluation: The non-structural measures were assessed on their potential to address the identified navigation problems and opportunities. These measures were eliminated during the initial screening because of their ineffectiveness in addressing the navigation problems.

Deepening to nine alternate terminal locations were assessed as structural measures in the analysis. It was assumed that the alternate terminal(s) would handle depth-constrained container vessels, and the Garden City Terminal would handle container ships that are not constrained by the existing 42-foot channel. The evaluation of deepening to alternate terminal locations was based on differences in construction costs, as well as other criteria such as completeness, effectiveness, efficiency, and acceptability. The four sites that were judged to have either a MEDIUM or HIGH potential as a terminal were compared on their economics. Deepening to the Garden City Terminal was identified as having the lowest costs, with the cost of the next site being 42% more expensive. As a result, only the lowest cost site (Garden City Terminal) was advanced to more detailed evaluations.

A regional southeastern US container port was considered as a structural measure. The regional port would be the port-of-call for the largest container ships, which would arrive from and depart for the largest ports of major trading partners throughout the world. Conceivably, in-bound containerized cargo would be transshipped at the regional port from larger Post-Panamax vessels onto smaller container ships which would call at multiple ports along the southeastern US coast. Overall, a southeastern US regional port was determined to have very low potential for future development because of the large TEU capacity required to be an effective regional port. Such a large TEU handling capacity would require large capital outlays and result in local natural resource impacts, which would likely be unacceptable. Institutional conditions favor localized port development over regional development, which further decreases the potential for development of a regional port. This structural measure was not carried forward into the detailed analysis phase.

Structural measures which modify the existing channel included straightening the river, bend wideners, meeting areas, turning basin expansion, and channel deepening. Neither the Harbor Pilots nor Savannah District design staff could identify any portion of the channel where straightening would markedly increase the efficiency of transit. Therefore, straightening the river was not carried forward into the detailed analysis phase.

Bend wideners were identified in previous ship simulation modeling as being needed to allow safe transit of Post-Panamax vessels. Therefore, the bend wideners were included as components of the detailed alternatives. The existing Savannah Harbor navigation channel was designed for Panamax vessels and does not provide sufficient width to accommodate two-way traffic of Post-Panamax vessels. Meeting areas could potentially avoid delays that would otherwise be incurred if a vessel had to either wait in the entrance channel or at a dock until a design vessel exits the channel. Meeting areas were included as components of the detailed alternatives.

The King's Island Turning Basin was designed for a container ship with a 960-foot length. The design vessel for the detailed evaluations would be container ship with a 1,138-foot length. Such a vessel would have difficulty using the existing turning basin. As a result, enlargement of the King's Island Turning Basin was included as a component of the detailed alternatives.

Final Array of Alternatives: Management measures advanced for more detailed investigation and formulation into alternative plans include channel deepening, turning basin enlargement, and bend widener and meeting area construction. The alternative plans evaluated in detail include Plan A - No Action, in which no improvements would be made to the existing Savannah Harbor Federal Navigation Project. The navigation channel would remain at its presently authorized 42-foot depth in the inner harbor and 44-foot depth in the entrance channel. Plan B – Channel Deepening Alternatives includes incremental channel deepening, widening, meeting area construction, and turning basin expansion. Plan B includes several scales, ranging from a 44-foot to a 48-foot channel depth. The channel deepening plans have the following components:

- **Channel Length:** From the ocean to Station 103+000, plus an upstream transition;
- **Channel Width:** Maintain existing side slopes. The bottom width for a 48-foot channel would be 464-feet;
- **Channel Depth:** Channel depth in one-foot increments to 48-feet;
 - Plan B-44: a 2-foot channel deepening,
 - Plan B-45: a 3-foot channel deepening,
 - Plan B-46: a 4-foot channel deepening,
 - Plan B-47: a 5-foot channel deepening,
 - Plan B-48: a 6-foot channel deepening,
- **Entrance Channel Extension:** From Station -60+000B to Station -98+600B;
- **Turning Basins:** Deepen and enlarge the Kings Island Turning Basin to 1,600-feet x 1,600- feet (radius determined by ship simulation analysis);
- **Bend Wideners:** Three bend wideners were identified as necessary by ship simulation analysis; and
- **Meeting Areas:** Two meeting area locations in an incremental analysis:
 - Long Island meeting area – 8,000 foot meeting area located from Station 14+000 to 22+000;
 - Oglethorpe meeting area – 4,000 foot meeting area located from Station 55+000 to 59+000;
 - Combination of both Long Island and Oglethorpe meeting areas.

Comparison of Alternatives -- Transportation Cost Savings: The benefit evaluation identifies benefits expected from channel deepening alternatives based on transportation cost efficiencies and reduced tide-delays. Benefits are also evaluated for construction of meeting areas, which are based on reduced channel

congestion delays. Alternative deepening plans are evaluated for one-foot increments of depth from -44 to -48 feet MLLW. The meeting areas are evaluated at the same one-foot depth increments.

There are three primary effects from channel deepening that would change the future fleet at Savannah. The first is an increase in a vessel’s maximum practicable loading capacity. Channel restrictions limit a vessel’s capacity by limiting its draft. Deepening the channel reduces this constraint, and the vessel’s maximum practicable capacity increases towards its design capacity. This increase in vessel capacity allows fewer vessel trips to transport the forecasted cargo. The second effect of increased channel depth is the increased reliability of water depth, which encourages the deployment of larger vessels to Savannah. The third effect is a consequence of the second. The increase in Post-Panamax vessels displaces the less economically efficient Panamax class vessels.

The basic transportation cost model computes the cost per thousand miles for the forecasted vessel calls for the without and with project condition. The savings in costs between the without and with project condition make up the transportation cost savings benefits per thousand miles. The total trade route distance is determined based on the weighted average origin-to-destination distances. The total transportation cost savings benefits were estimated for a 50-year period of analysis for the years 2017 through 2066. Transportation cost savings were estimated using the transportation cost saving model for the years 2017, 2020, 2025 and 2030. Since the Garden City terminal capacity of 6.5 million TEUs is expected to be reached by 2030, the transportation cost savings were held constant beyond 2030. The present value of the benefits was estimated by interpolating between the aforementioned dates and discounting at the FY 2011 Federal Discount rate of 4.125 percent. Estimates were determined for each alternative project depth.

Meeting area and tide delay benefits were based on reductions in transit time to navigate Savannah Harbor that would result from the channel modifications. Transit costs were estimated by analyzing conditions that are most likely to occur in the absence of channel deepening or meeting area (without-project conditions) and compared to the transit times/costs derived when including the channel deepening and meeting area alternatives. The meeting area and tide delay economic benefits were determined using the HarborSym model.

Table 1: Total Average Annual Equivalent Benefits

Project Depth	Transportation Cost Savings	Tide Delay Benefits	Meeting Area Benefits	Total Project Benefits	Incremental Benefits
-44	\$98,210,000	\$1,408,000	\$717,000	\$100,335,000	
-45	\$133,150,000	\$2,366,000	\$722,000	\$136,238,000	\$35,903,000
-46	\$150,370,000	\$3,146,000	\$731,000	\$154,247,000	\$18,009,000
-47	\$155,040,000	\$3,702,000	\$730,000	\$159,472,000	\$5,225,000
-48	\$155,040,000	\$4,190,000	\$723,000	\$159,953,000	\$481,000
-47 (FY12)	\$206,899,000	\$5,253,000	\$993,000	\$213,144,000	

Note: Values discounted 50 years at 4.125%, except for the last line which displays FY12 values at 4%

Comparison of Alternatives -- Environmental Impacts: Savannah District used hydrodynamic and water quality models to identify many of the impacts to natural resources from the proposed project alternatives. These included impacts to salinity, water quality (especially dissolved oxygen), wetlands, fisheries, and the City of Savannah’s raw water intake on Abercorn Creek. Impacts to other resources were evaluated using separate analyses. Those evaluations included potential impacts to the drinking water aquifer, adjacent ocean beaches, riverine shorelines, and air quality. Impact avoidance and minimization were integral to project planning and influenced channel design, dredged material

placement locations, dredged material placement techniques, and mitigation plan formulation. The remaining unavoidable adverse impacts to ecological resources are addressed by the mitigation plan.

Natural resource agency and public involvement were major components of environmental impact assessment. Savannah District established Interagency Coordination Teams to collaborate on the analyses for five important issues: Wetland, Water Quality, Fisheries, Groundwater, and Sediment Placement. Those teams allowed the agency technical experts to openly discuss the impact analysis procedures and effectiveness of mitigation features. They also provided approvals of individual technical products as the study progressed. The Stakeholder's Evaluation Group, which includes concerned members of the general public and agency officials, was instrumental in identifying environmental studies that should be performed.

The project's direct impacts would not vary substantially by depth alternative, but the indirect impacts would increase with channel depth. The direct impacts of the Selected Plan include loss of 15.68 acres of brackish marsh. Indirect impacts (predominantly from salinity increases) would include marsh conversion (freshwater -223 acres; saltwater -740 acres; brackish +964 acres); adverse effects on the dissolved oxygen regime in Savannah Harbor (without mitigation); loss of habitat for Striped bass and Shortnose sturgeon; and increased chloride levels at the City of Savannah's raw water intake during low flow conditions. The Selected Plan mitigates for impacts to wetlands; dissolved oxygen levels, Striped bass and Shortnose sturgeon habitats; chloride levels at the City of Savannah's water intake, and recreational boating access.

Key Assumptions: The key assumptions of the analysis include the forecasted without-project and with-project conditions as described below.

Without-Project Conditions for Container Ship Industry: Under future without-project conditions, the Federal channel at Savannah Harbor would remain at a depth of -42 feet MLLW. Planned improvements to major port facilities would become operational. Completion of the existing capital improvement plan will increase Garden City terminal's container throughput capacity to 6.5 million TEUs annually. New US east and Gulf coast container terminals will be constructed. Larger vessels will continue to enter the container ship fleet calling at the US east coast. The Panama Canal expansion will be completed, allowing a maximum sailing draft of 50 feet within the new locks. The width of the new locks will be 180 feet and the length 1,400 feet.

Without-Project and With-Project Commodity Forecast: The with-project and the without-project conditions use the same commodity forecast, which assumes no project-induced cargo changes under with-project conditions. The commodity forecast was capped in 2030, which is the year that cargo volumes reach the Garden City Terminal's maximum throughput capacity.

Without-Project and With-Project Vessels and Vessel Operations: A Load Factor Analysis (LFA) was used to estimate the cargo capacity of each vessel class and for each trade route. Capacity allocations are assumed constant throughout the period of analysis. The combination of assumptions and calculations used in the Load Factor Analysis determine vessel deployment and vessel drafts in the Transportation Cost Savings Model. The results of the LFA provide maximum practicable sailing drafts by type of vessel, trade route and channel depth. All vessels on all routes are expected to reach their maximum practicable sailing draft with a 47-foot channel. In other words, increases in channel depth from -42 to -47 feet would allow reallocation of vessel DWT from non-cargo-related capacity to cargo-related capacity. At a channel depth of -47 feet, all of a vessel's available space and dead weight tonnage has been allocated. Therefore, deepening to depths greater than -47 feet would have no impact on future vessel loading or operating drafts.

Environmental Resources: Tidal freshwater wetlands are expected to continue to be highly valued within the estuary based on the high diversity of habitats they provide. Sea level rise is expected to continue in the estuary at its observed historic rate. The Shortnose sturgeon is expected to remain protected by the ESA. A notice in the Federal Register on February 6, 2012, indicates the National Marine Fisheries Services will be listing several subspecies of the Atlantic sturgeon as an endangered species. The marine critical range for these subspecies is from Cape Canaveral, Florida north to the border with Canada.

Selected Plan: The Selected Plan is the NED Plan, which includes navigation improvements to the existing channel and mitigation for environmental impacts. The -47-foot depth alternative maximizes net benefits at an average annual equivalent of \$174 million (FY 2012 price levels and discount rate; 4.00%). Although the next depth increment (-48-foot plan) would provide more total benefits, the net benefits decrease, confirming the -47 foot depth alternative is the NED plan. The navigation components of the NED Plan consist of the following components:

- Deepen to -47 feet MLLW, with required bend wideners, extend the entrance channel to deeper water, and enlarge the Kings Island Turning Basin;
- Construct a Long Island Meeting Area at -47 feet; and
- Construct a Oglethorpe Meeting Area at -47 feet.

The FY 2012 project first cost of the Selected Plan, is \$652 million. The Selected Plan FY 2012 annual average equivalent cost (including annual maintenance) is \$39 million. The Selected Plan FY 2012 average annual equivalent benefits would be \$213 million, which results in average annual equivalent net benefits of \$174 million and a benefit-to-cost ratio of 5.5:1.

Systems/Watershed Context: The selected plan has been integrated into other watershed purposes including water quality and habitat restoration, and commercial use. The selected plan conforms with the Savannah Harbor Long Term Management Strategy (LTMS). The LTMS identifies numerous structural and operational management measures, which are being implemented to maintain environmental quality during operation of the Savannah Harbor Navigation Project. In addition, the LTMS provided the initial DMMP for the harbor. Savannah District used analysis tools developed and used by the regional natural resource agencies in the impact identification and mitigation plan development phases. The extensive coordination with those agencies ensured the project and its mitigation features support the goals of those agencies for important natural resources in the estuary.

Environmental Operating Principles: The selected plan supports USACE Environmental Operating Principles by assessing and mitigating impacts using a systems approach. The mitigation plan provides mitigation across several ecosystem components (fish habitat, wetlands, water quality, recreational boating access, and water supply). Monitoring and adaptive management is included to ensure the expected project impacts are not exceeded and the mitigation features function as intended.

Peer Review: Savannah District coordinated extensively with the regional natural resource agencies during the course of the study to ensure the evaluations addressed all important issues, and used tools and techniques that were scientifically valid and produced the information the agencies would need in their decision-making process. Those agencies participated in the NEPA scoping meetings, the AFB, and the CWRB. The Federal Cooperating Agencies provided comments on interim versions of the reports. The District committed to include peer review in this project before it became a Corps requirement. External reviews were initially conducted on three project components (benefit analysis, groundwater impact investigation, and hydrodynamic models). Later, reviews were conducted on other important issues and eventually on the entire report.

EXPECTED PROJECT PERFORMANCE

Project Costs: The project costs include all project related costs such as costs related to construction, PED (including sunk PED costs), interest during construction (IDC), real estate, additional O&M, and mitigation. There are no utility relocations. Economic costs (i.e., those included in NED calculations) also include the associated costs related to port infrastructure required to realize the projected transportation cost savings. The associated cost include berth deepening (a non-Federal sponsor cost) and navigation aids (a U.S. Coast Guard cost).

Table 2: Project First Costs (Oct 2011 Price level, in Millions)

Construction Item	Cost
Real Estate	\$ 19
Mitigation and Monitoring	\$292
Navigation Features	\$257
Pre-Engineering & Design	\$ 70
Construction Management	\$ 14
Total Project Construction Costs	\$652

Equivalent Annual Costs and Benefits:

Table 3: Equivalent Annual Costs and Benefits (in Millions)¹

<u>Investment Costs:</u>	
Total Project Construction Costs	\$652
Associated Project Costs	<u>\$ 8</u>
Interest During Construction	<u>\$ 49</u>
Total Investment Cost	\$709
<u>Average Annual Costs and Benefits :</u>	
Interest and Amortization	\$34
OMRR&R	<u>\$ 5</u>
Total Average Annual Cost	\$39
Average Annual Benefits	\$213
Net Annual Benefits	\$174
Benefit-Cost Ratio	5.5

¹Numbers are in Oct 2011 price level and discount rate (4.125%).

Per Executive Order 12893, Benefit-Cost Ratio at 7% is 3.8.

Cost Sharing: Cost sharing for the Selected NED Plan is in accordance with Section 101 of the WRDA 1986. The Selected Plan requires a blended cost sharing since the depth would be greater than -45 feet. Costs for General Navigation Features for channel depths from -21 feet to -45 feet MLLW are cost shared 25 percent non-Federal and 75 percent Federal. Costs for the portion greater than -45 feet MLLW are cost shared 50 percent non-Federal and 50 percent Federal. An additional 10 percent of the total costs of General Navigation Features can be repaid by the non-Federal sponsor over a period not to exceed 30 years. Sponsor costs for lands, easements, right-of-ways, and relocations, except utilities, are credited against the 10% cash contribution. The non-Federal sponsor will provide all Lands, Easements, Right-of-ways, and Relocations (LERR). The sponsor may be credited for costs incurred after the 1999 authorization of the project, as stated in Section 119 of P.L. 108-7 (Consolidated Appropriations Resolution FY 2003).

Table 4
Construction Cost Share Apportionment (Oct 2011 Price level in Millions)

	<u>Federal</u>	<u>Non-Federal</u>	<u>Total</u>
Total GNF	\$461	\$185	\$646
LERRS		\$ 6 ¹	\$ 6
Total	\$461	\$191	\$652
Percentages	70.7%	29.3%	100%
Other Costs	\$5 ²	\$3 ³	\$ 8

¹LERRs not shared initially but credited over 30 years

²Navigation Aids

³Bething Areas

Project Implementation: The non-Federal sponsor, the State of Georgia, is committed to providing the project cost share, dredged material placement sites, and the container handling capacity needed to realize project benefits. The non-Federal sponsor most recently indicated its support for the proposed project in a letter dated February 2012 in which they endorse the Selected Plan. The Chief of Engineers Report, and the Record Of Decision which is based on the findings of the GRR and Final EIS serve as decision documents regarding whether to implement the conditionally authorized deepening. Upon approvals, the project will proceed through preconstruction, engineering and design (PED), and construction by the Corps of Engineers. The schedule to proceed with construction is estimated to be as early as FY 13, subject to approvals by the Secretaries of the Army, Commerce, and Interior, and the Administrator of the Environmental Protection Agency, and subject to Congressional appropriations and approval for increase in project cost. The project base year is estimated to be FY 2017. The project includes an extensive Monitoring and Adaptive Management Plan to ensure the expected environmental impacts are not exceeded and the mitigation features perform as intended.

Operation, Maintenance, Repair, Rehabilitation, and Replacement (OMRR&R): Additional annual maintenance costs to the United States are estimated to be \$4.6 million (FY 2012). Maintenance of non-Federal ancillary facilities (e.g. berthing areas) is a 100% non-Federal responsibility.

Key Social and Environmental Factors: Deepening the harbor to the Garden City Terminal would allow salinity to move farther upstream. This is expected to affect wetlands, water quality (dissolved oxygen), fishery habitats, and chloride concentrations at the City of Savannah's water intake. Minimization of wetland impacts was a major focus of the study. Mitigation plans address the remaining impacts to wetlands, dissolved oxygen, Striped bass and endangered Shortnose sturgeon habitats, and water at the City of Savannah's water intake. The project includes a multi-faceted mitigation plan, the major features of which are: flow rerouting to minimize impacts to wetlands and fisheries habitat, wetland purchase and preservation, oxygen injection systems, a fish bypass at an upstream Corps dam, and a raw water storage pond for the City of Savannah. As stated in the 1999 Chiefs Report, operation and maintenance of the raw water storage pond would be the responsibility of the City of Savannah. Since the project is not expected to increase the total volume of cargo moving through the Port of Savannah (when compared to the without project condition), no impacts would occur to traffic patterns, air quality or nearby communities.

Stakeholder Perspectives and Differences: After the conditional authorization, GPA formed a Stakeholders Evaluation Group (SEG) in 1999 to provide a recurring public forum about the project and to assist them and the Corps in identifying scientific studies and technical analyses that should be performed to identify environmental impacts that may result from proposed deepening of the harbor. The SEG had as its principal charge the development of consensus among the participants about: (1) the scope and content of the scientific investigations and analyses to be performed during development of the EIS; and (2) the appropriate increment of channel depth and the appropriate mitigation measures.

Substantial efforts were made to inform and listen to the public, the SEG, local communities, and State and Federal resource agencies regarding the proposed harbor deepening. Since its inception to the present day, the Corps met with the SEG approximately 70 times to discuss the proposed action. In addition to two scoping meetings in 2002, a number of meetings with the public and agencies have discussed project issues in detail. The Corps held a public information meeting during review of the Draft EIS to provide opportunity for public and agency input. The models used to quantify impacts to water quality, dissolved oxygen, chlorides, salinity, fisheries, and conversion of freshwater to brackish wetlands have been reviewed and agreed to by the State and Federal agencies. The conclusions of these meetings and subsequent input are incorporated into the GRR and EIS.

Environmental Compliance: The GRR and the EIS were prepared in accordance with NEPA requirements. Some potential environmental impacts have been avoided through the channel design, dredged material placement location selection, dredged material placement technique selection, and mitigation plan design. Remaining unavoidable significant adverse impacts are mitigated through implementation of the mitigation plan. The Selected Plan complies with Federal, State, and local statutes and policies.

State and Agency Review: To be completed by HQUSACE after State and Agency review.

Certification of Peer and Legal Review: Independent External Peer Review was completed in April 2011. In March of 2012, the IEPR team was notified of the changes to the report since April 2011. The Corps' ATR on the final report was performed by CENAN, CESAM, CENWW Cost PCX, and CESWG, and was completed in January 2012. The Cost Engineering PCX certified the project cost estimates and the risk analysis in January 2012. The Savannah District Counsel provided legal certification for the reports in January 2012. The GRR complies with all applicable policies and laws in place at this time.

Policy Compliance Review: To be completed by HQUSACE after Documentation of Review Findings complete.