



DEPARTMENT OF THE ARMY
CHIEF OF ENGINEERS
2600 ARMY PENTAGON
WASHINGTON, D.C. 20314-1000

DAEN

AUG 23 2018

SUBJECT: San Juan Harbor Navigation Improvements Feasibility Study, San Juan, Puerto Rico

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on navigation improvements for San Juan Harbor, San Juan, Puerto Rico. It is accompanied by the report of the district and division engineers. The project was originally authorized under the River and Harbor Act of 1907 (P.L. 59-168) with modifications throughout the 20th century. This report was prepared under the authority of House Resolution 2764 of the Committee on Transportation and Infrastructure, U.S. House of Representatives, adopted 20 September 2006, which authorizes the Secretary of the Army to determine the feasibility of providing navigation improvements at San Juan Harbor, Puerto Rico to increase security, safety and efficiency. Pre-construction, engineering, and design activities for the San Juan Harbor Navigation Improvements Project will continue under this same authority.

2. The reporting officers recommend a project that will contribute to the economic efficiency of commercial navigation and power generation. The National Economic Development (NED) Plan, which is also the recommended plan, includes deepening of channels with associated channel widening and turning basins as described below. Based on Fiscal Year (FY) 2018 price levels, a 2.75-percent discount rate, and a 50-year period of analysis, the project first cost of the NED Plan is \$54,042,000. Total economic costs are estimated to be \$403,975,000 (with contingency) which include project first costs, interest during construction, local service facilities, and aids to navigation. The recommended plan provides average annual benefits of \$75,269,000, average annual costs of \$15,172,000, and a benefit-to-cost ratio of 5.0. The recommended plan consists of the following navigation improvements (depths do not include overdepth or advance maintenance depths):

a. Deepen Cut-6 of the existing entrance channel from -42 feet to -46 feet Mean Lower Low Water (MLLW) to accommodate larger draft LR2 petroleum tankers and fully-loaded MR2 and LR1 petroleum tankers at the project depth of -44 feet MLLW for the inner harbor channels. The wind and wave conditions at the entrance channel warrant an additional 2 feet of depth greater than the project depth.

b. Widen the Army Terminal Channel by 100 feet (50 feet to the east and 50 feet to the west) from an existing 350 foot width to 450 feet wide to accommodate the larger LR2 tankers and liquefied natural gas (LNG) tankers.

c. Deepen the inner harbor Anegado and Army Terminal Channels from an existing project depth of -40 feet to -44 feet MLLW from the confluence of Cut-6 to the Army Terminal Turning Basin to petroleum and future LNG terminals.

DAEN

SUBJECT: San Juan Harbor Navigation Improvements Feasibility Study, San Juan, Puerto Rico

d. Enlarge the northern terminus of the existing Army Terminal Turning Basin with two flares, one to the east and one to the west encroaching within the existing Sabana Approach Channel. The flares will improve maneuverability of the larger class vessels expected to call.

e. Deepen the San Antonio Approach Channel, San Antonio Channel, and the San Antonio Channel Extension from the existing -35 foot depth to the authorized depth of -36 feet MLLW for the cruise vessel fleet.

f. Expand the federal project limits 1,050 feet to the east of the San Antonio Channel Extension to include an area currently dredged to -36 feet MLLW by the Puerto Rico Ports Authority (PRPA) for existing terminal operators.

g. Deepen the Cruise Ship Basin East from the existing -30 foot MLLW depth to the authorized depth of -36 feet MLLW for improved maneuverability for turn-and-go operations of cruise vessels transiting the San Antonio Approach Channel.

3. Under the least cost disposal option, about 2.2 million cubic yards of dredged material would be placed in the Ocean Dredged Material Disposal Site (ODMDS) located approximately 2.2 miles from the entrance of the harbor. The beneficial use of approximately 230,000 cubic yards of dredged material in Condado Lagoon was also evaluated and may be considered if a non-federal cost-sharing sponsor is identified and funding is available.

4. An environmental assessment was prepared in accordance with the National Environmental Policy Act. The recommended plan has been determined to be economically justified and environmentally acceptable. The recommended plan would not have any significant adverse effects. Therefore, no compensatory mitigation would be required.

5. Based on an analysis of historical operation and maintenance (O&M) activities and the proposed modifications, the recommended plan would increase annual maintenance dredging requirements by approximately 15,000 cubic yards per year. The existing project footprint would continue to be maintained according to current practice at project depth plus 1 foot of required overdepth and 1 foot of allowable overdepth in most channel areas.

6. Environmental monitoring for water quality and endangered species during construction has an estimated cost of \$2,347,000. The project is expected to reduce vessel wake energy by reducing the total number of vessel calls; hence, no shoreline erosion impacts from the project are anticipated. If post-construction monitoring indicates that additional monitoring or corrective action as part of the federal project is warranted, the U.S. Army Corps of Engineers (Corps) could share in the cost of the additional efforts.

7. Project Cost Breakdown based on FY 2018 (October 2017) prices.

a. Project First Cost: The estimated project first cost is \$54,042,000 for the cost of constructing the General Navigation Features (GNF). The PRPA is the non-federal cost sharing sponsor for all features.

DAEN

SUBJECT: San Juan Harbor Navigation Improvements Feasibility Study, San Juan, Puerto Rico

b. Estimated Federal and Non-Federal Cost Shares: The estimated federal and non-federal shares of the project first cost are \$40,532,000 and \$13,510,000 respectively, as apportioned in accordance with the cost sharing provisions of Section 101 of the Water Resources Development Act (WRDA) of 1986, as amended (33 U.S.C. 2211). The cost for the deepening of the GNF with depths less than -50 feet MLLW are cost shared at a rate of 75-percent by the government and 25-percent by the non-federal sponsor.

c. Additional 10-Percent Payment. In addition to the non-federal sponsor's estimated share of the project first cost of constructing the project, pursuant to Section 101(a)(2) of WRDA 1986, as amended (33 U.S.C. 2211(a)(2)), the non-federal sponsor must pay an additional 10-percent of the costs for NED GNF of the project, estimated at \$5,404,000 before interest is applied, in cash over a period not to exceed 30 years, with interest. Interest is applied at the time of construction using the applicable interest rate. In general, the value of lands, easements, rights-of-way, and relocations (LERR) is credited toward this additional 10-percent payment. However, for this project, there are no required LERR.

d. Operation and Maintenance Costs (O&M). With the average annual increase of approximately 15,000 cubic yards of shoal material to be dredged from the new project, the additional annual O&M cost is estimated to be \$164,000.

e. Associated Costs. Estimated associated federal costs of \$105,000 include navigation aids, a U.S. Coast Guard expense.

f. Local Service Facilities. The associated costs for local service facilities are approximately \$348,023,000 for the LNG receiving, storage, and gasification facilities at the two San Juan area Puerto Rico Electrical Power Authority power plants. The berthing area dredging costs are \$1,805,000. These costs are 100% non-federal and are not included in the project first costs of the recommended plan.

g. Authorized Project Cost and Section 902 Calculation. The project first cost, for the purposes of authorization and calculating the maximum cost of the project pursuant to Section 902 of WRDA 1986, as amended, includes estimates for GNF construction costs and the value of LERR. Accordingly, as set forth in paragraph 3.a. above, based on a FY 2018 Price Level (October 2017), the estimated project first cost for these purposes is \$54,042,000.

8. In accordance with the Corps' Policy on review of decision documents, all technical, engineering and scientific work underwent a comprehensive review process to ensure technical quality. This included District Quality Control, Agency Technical Review, Policy and Legal Compliance Review, and Cost Engineering Mandatory Center of Expertise Review and Certification. The review comments resulted in expanded narratives throughout the report to support the decision-making process and justify the recommended plan and resulted in improvements to the technical quality of the report. All comments from the above referenced reviews have been addressed and incorporated into the final report documents.

9. Washington level review indicates that the plan recommended by the reporting officers is technically sound, environmentally and socially acceptable, and on the basis of congressional

DAEN

SUBJECT: San Juan Harbor Navigation Improvements Feasibility Study, San Juan, Puerto Rico

directives, economically justified. The plan complies with all essential elements of the 1983 U.S. Water Resources Council's Economic and Environmental Principles and Guidelines for Water and Land Related Resources Implementation Studies. The recommended plan complies with other administration and legislative policies and guidelines. The views of interested parties, including federal, state, and local agencies have been considered.

10. I concur with the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that navigation improvements for San Juan Harbor be authorized in accordance with the reporting officers' recommended plan at an estimated first cost of \$54,042,000 with such modifications as in the discretion of the Chief of Engineers may be advisable. My recommendation is subject to cost sharing, financing, and other applicable requirements of federal laws and policies, including Section 101 of WRDA 1986 as amended (33 U.S.C. 2211), and to the non-federal sponsor agreeing, prior to project implementation, to perform the required items of local cooperation, including but not limited to the following:

a. Provide during the period of design and construction, funds necessary to make its total contribution for commercial navigation equal to 25 percent of the cost of design and construction of the GNF attributable to dredging to the project in excess of -20 feet MLLW but not in excess of -50 feet MLLW.

b. Provide all lands, easements, and rights-of-way, including those necessary for the borrowing of material and placement of dredged or excavated material, and perform or assure performance of all relocations, including utility relocations, all as determined by the government to be necessary for the construction or O&M of the GNF, all in compliance with applicable provisions of the Uniform Relocation and Assistance and Real Property Acquisition Policies Act of 1970, as amended (42 U.S.C. 4601-4655) and the regulations contained in 49 C.F.R. Part 24.

c. Pay with interest, over a period not to exceed 30 years following completion of the period of construction of the GNF, an additional amount equal to 10 percent of the total cost of construction of the NED GNF.

d. Provide, operate, and maintain, at no cost to the government, the local service facilities in a manner compatible with the project's authorized purposes and in accordance with applicable federal and state laws and regulations and any specific directions prescribed by the government.

e. Prevent obstructions or encroachments on the project (including prescribing and enforcing regulations to prevent such obstructions or encroachments) such as any new developments on project lands, easements, and rights-of-way or the addition of facilities which might reduce the outputs produced by the project, hinder operation and maintenance of the project, or interfere with the project's proper function.

f. Give the federal government a right to enter, at reasonable times and in a reasonable manner, upon property that the non-federal sponsor owns or controls for access to the project for the purpose of completing, inspecting, operating and maintaining the GNF.

DAEN

SUBJECT: San Juan Harbor Navigation Improvements Feasibility Study, San Juan, Puerto Rico

g. Hold and save the United States free from all damages arising from the construction or O&M of the project, except for damages due to the fault or negligence of the United States or its contractors.

h. Perform, or ensure performance of, any investigations for hazardous substances that are determined necessary to identify the existence and extent of any hazardous substances regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. 9601-9675, that may exist in, on, or under lands, easements, and rights-of-way that the government determines to be necessary for the construction or operation and maintenance of the GNF. However, for lands that the government determines to be subject to the navigation servitude, only the government shall perform such investigation unless the government provides the non-federal sponsor with prior specific written direction, in which case the non-federal sponsor shall perform such investigations in accordance with such written direction.

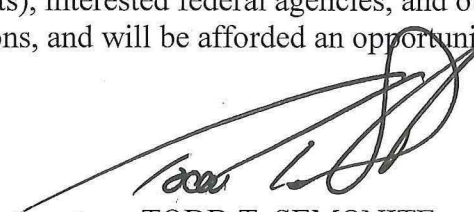
i. Assume complete financial responsibility, as between the government and the non-federal sponsor, for all necessary cleanup and response costs of any hazardous substances regulated under CERCLA that are located in, on, or under lands, easements, and rights-of-way that the government determines to be necessary for the construction or O&M of the project.

j. Agree, as between the federal government and the non-federal sponsor, that the non-federal sponsor shall be considered the operator of the project for the purpose of CERCLA liability.

k. To the maximum extent practicable, perform its obligations in a manner that will not cause liability to arise under CERCLA.

11. The recommendations contained herein reflect the information available at this time and current departmental policies governing formulation of individual projects. It does not reflect program and budgeting priorities inherent in the formulation of a national civil works construction program or the perspective of higher review levels within the Executive Branch. Consequently, the recommendations may be modified before they are transmitted to the Congress as a proposal for authorization and implementation funding. However, prior to transmittal to the Congress, the Puerto Rico Ports Authority (the non-federal sponsor for the Commercial Navigation Improvements), interested federal agencies, and other parties will be advised of any significant modifications, and will be afforded an opportunity to comment further.

Encls


TODD T. SEMONITE
Lieutenant General, USA
Chief of Engineers

*First 3x3x3 in
NAVIGATION PROTECT IN
THE NATION - STRONGER
ENDORSE - USACE IS WORKING
TO DELIVER THE PROGRAM
"Setting the
pace"*