



DEPARTMENT OF THE ARMY
CHIEF OF ENGINEERS
2600 ARMY PENTAGON
WASHINGTON, D.C. 20310-2600

DAEN

DATE

SUBJECT: Raritan Bay and Sandy Hook Bay, Highlands, New Jersey, Coastal Storm Risk Management Feasibility Study

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on the study of coastal storm risk management for the Borough of Highlands, Monmouth County, New Jersey. It is accompanied by the report of the New York District Engineer. This report was prepared in response to a resolution by the Committee on Transportation and Infrastructure of the U.S. House of Representatives, adopted August 1, 1990. This is also an interim response to Public Law 113-2 (29 Jan 13), the Disaster Relief Appropriations Act of 2013 (the Act), which provided “[f]or an additional amount for “Investigations” for necessary expenses related to the consequences of Hurricane Sandy, \$50,000,000, to remain available until expended to expedite at full Federal expense studies of flood and storm damage reduction: Provided, That using \$29,500,000 of the funds provided herein, the Secretary of the Army shall expedite and complete ongoing flood and storm damage reduction studies in areas that were impacted by Hurricane Sandy in the North Atlantic Division of the United States Army Corps of Engineers. This report addresses frequent and significant flooding in Highlands, New Jersey. I am recommending that the Congress authorize construction. Preconstruction Engineering and Design activities for the Highlands, New Jersey, Coastal Storm Risk Management project will continue under the project authority cited above.

2. The reporting officers recommended authorizing this National Economic Development Plan to reduce the risk of damages from flooding to the portions of northeastern New Jersey, within the New York City metropolitan area. The principle features of the National Economic Development plan include:

- a. I-Type and T-Type floodwalls to elevation +14 ft North American Vertical Datum of 1988 (NAVD88) with a total length of 10,737 linear feet along the bay shoreline
- b. For interior drainage purposes a detention pond, one pump station, and pressurized pipes

3. The New Jersey State Department of Environmental Protection (NJDEP) is the non-federal cost sharing sponsor for all features. In accordance with the cost share provisions of Section 103 of the Water Resources Development Act of 1986, as amended (33 U.S. Code 2213), the federal share of the project first cost is estimated to be \$105,713,000 and the non-federal share is

¹ This report contains the proposed recommendation of the Chief of Engineers. The recommendation is subject to change to reflect Washington-level review and comments from federal and state agencies.

DAEN

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estimated to be \$56,922,000 which equates to 65 percent federal and 35 percent non-federal (October 2019 price level). The non-federal costs include the value of lands, easements, rights-of-way, relocations, and dredged or excavated material disposal (LERRD) areas estimated to be \$11,109,000 (October 2019 P.L.). The non-federal study sponsor, NJDEP, has indicated its support for the Recommended Plan and is willing to enter into a Project Partnership Agreement with the federal government for the implementation of the plan.

4. Based on October 2019 price levels, the estimated total first cost of the recommended plan is \$162,635,000. The non-federal sponsor is responsible for the annual operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) of the project after construction, estimated at \$208,000 per year.

5. Based on a 2.75 percent discount rate and a 50 year period of analysis, the total equivalent average annual costs of the project are estimated to be \$6,520,000. The total equivalent average annual benefits are estimated to be \$25,559,000 with net average annual benefits of \$19,039,000. The benefit-cost ratio is 3.9.

6. In accordance with ER 1100-2-8126 *Incorporating Sea Level Change in Civil Works Programs*, the study performed a sensitivity analysis to consider the effects that different rates of sea level change would have on the recommended plan. The recommended plan costs and benefits are based upon the low rate of relative sea level change. The project is estimated to perform well under all rates of RLSC, and the benefits and net benefits increase with increasing rates of RSLC. The recommended plan floodwall elevation was optimized at +14 ft NAVD88 to tie into existing, adjacent private development bulkhead at +14 ft NAVD88. The project cost includes the costs to construct the T-wall with a larger foundation, so that the majority of the alignment could be increased in elevation up to an additional three feet or top elevation of +17 ft NAVD88, as needed in the future. It is recognized that under the intermediate and high rate of RSLC that a project reevaluation would be warranted to implement the appropriate adaptation strategy, in part due to modifications to project transitions that would be required. Using the best current information from the tide gauge record, and the intermediate and high projections used in the study, this reanalysis could occur between 2039 and 2055. A trigger elevation of 0.75 foot mean sea level increase above the 2026 condition, based on the five month moving average mean sea level for the Sandy Hook, NJ NOAA tide gauge has been established as a trigger that provides the lead time necessary for a reevaluation study to provide for adaptation of the authorized project.

7. In accordance with the Corps of Engineers Circular (EC 1165-2-217) on the review of decision documents, all technical, engineering and scientific work underwent an open, dynamic and rigorous review process to ensure technical quality. This included District Quality Control Review, Agency Technical Review, an Independent External Peer Review (IEPR) (Type I), and policy and legal review. All comments from the above referenced reviews have been addressed and incorporated into the final documents. Overall, the reviews have resulted in improvements to the quality of the feasibility analyses supporting the Recommended Plan and expanded narratives.

DAEN

SUBJECT: Raritan Bay and Sandy Hook Bay, Highlands, New Jersey, Coastal Storm Risk Management Feasibility Study

8. Washington-level review indicated that the project recommended by the reporting officers is technically feasible, environmentally and socially acceptable, and 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 and complies with other administrative and legislative policies and guidelines. Also, the views of interested parties, including federal, state, and local agencies have been considered. The recommended plan is not expected to have significant adverse environmental impacts. Mitigation measures to avoid or minimize adverse environmental effects of the recommended plan were analyzed and will be implemented with the plan.

9. I concur in the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that the initial construction associated with the project to reduce coastal storm damages for Highlands, New Jersey be authorized in accordance with the reporting officers' recommend plan, with such modifications as in the discretion of the Chief of Engineers may be advisable. This recommendation is subject to cost sharing, financing, and other applicable requirements of Federal and State laws and policies. This recommendation is subject to the non-Federal sponsor's agreeing to comply with applicable federal laws and policies, including but not limited to:

a. Provide a minimum of 35 percent of initial project costs assigned to coastal and storm damage reduction:

(1) Provide, during design, 35 percent of design costs in accordance with the terms of a design agreement entered into prior to commencement of design work for the project;

(2) Provide all lands, easements, rights-of-way, and perform or assure performance of all relocations, including utility relocations, as determined by the Federal government to be required or to be necessary for the construction, operation, and maintenance of the project;

(3) Provide, during construction, any additional amounts necessary to make its total contribution equal to 35 percent of total project costs;

b. 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;

c. Inform affected interests, at least annually, of the extent of risk management afforded by the coastal storm risk management features; participate in and comply with applicable floodplain management and flood insurance programs, comply with Section 402 of the Water Resources Development Act of 1986, as amended (33 U.S.C. 701b-12); and publicize floodplain information in the area concerned and provide this information to zoning and other regulatory agencies for their use in adopting regulations, or taking other actions, to prevent unwise future development and to ensure compatibility with performance levels provided by the project;

DAEN

SUBJECT: Raritan Bay and Sandy Hook Bay, Highlands, New Jersey, Coastal Storm Risk Management Feasibility Study

d. Operate, maintain, repair, replace, and rehabilitate the project, or function portions of the project, at no cost to the federal government, 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 federal government;

e. Hold and save the United States free from all damages arising from the initial construction, periodic nourishment, operation, maintenance, repair, replacement, and rehabilitation of the project, except for damages due to the fault or negligence of the United States or its contractors;

f. 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, or rights-of-way that the federal government determines to be necessary for the construction, operation and maintenance of the project;

g. Assume, as between the Federal Government and the non-federal sponsor, complete financial responsibility for all necessary cleanup and response costs of any hazardous substances regulated under CERCLA that are located in, on, or under lands, easements, or rights-of-way required for the initial construction, periodic nourishment, or operation and maintenance of the project;

h. 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, and, to the maximum extent practicable, operate, maintain, repair, replace, and rehabilitate the project in a manner that will not cause liability to arise under CERCLA;

10. The recommendations contained herein reflect the information available at this time and current departmental policies governing formulation of individual projects. They do not reflect program and budgeting priorities inherent in the formulation of a national Civil Works construction program nor the perspective of highest review levels within the Executive Branch. Consequently, the recommendations may be modified before they are transmitted to the Congress as proposals for authorization and implementing funding. However, prior to transmittal to Congress, the partner, the state, interested federal agencies, and other parties will be advised of any modifications and will be afforded an opportunity to comment further.

TODD T. SEMONITE
Lieutenant General, USA
Chief of Engineers