



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

DAEN

SUBJECT: Okaloosa County, Florida, Coastal Storm Risk Management

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on the study of coastal storm risk management in Okaloosa County, Florida. It is accompanied by the report of the Mobile District Commander. This report is an interim response to a resolution of the House of Representatives Committee on Transportation adopted 28 June 2006, which requested review of, "...the feasibility of providing shoreline erosion control, beach nourishment, storm damage reduction, environmental restoration and protection, and related improvements in Okaloosa County, Florida, taking into consideration the unique characteristics of the existing beach sand and the need to develop a comprehensive body of knowledge, information, and data on coastal area changes and processes as well as impacts from Federally constructed projects in the vicinity of Okaloosa County, Florida." Pre-construction engineering and design (PED) activities for the project, if funded, will continue under the authority cited above.

2. The reporting officers recommend authorizing the National Economic Development (NED) Plan that will reduce the risk of potential damage caused by coastal storms. The recommended plan includes a beach nourishment project consisting of a berm and dune along the Gulf of Mexico shoreline of Okaloosa County in two areas which are considered separable elements. This includes approximately 17,000 feet along Okaloosa Island and approximately 16,000 feet in West Destin. Details of the plan are as follows:

a. In the Okaloosa Island reach, the plan consists of a dune with a crest elevation of 14 feet-North American Vertical Datum of 1988 (NAVD88), with a crest width of 10 feet with side-slopes of 5 horizontal (H):1 vertical (V), and a berm with a crest elevation of 5.5 feet NAVD88, with a berm crest width of 10 feet with a fore slope of 15H:1V. The initial nourishment in this area is expected to require about 100,000 cubic yards of fill material being placed primarily within the dune system.

b. In the West Destin reach, the plan consists of providing a dune with a crest elevation of 14 feet NAVD88, with a crest width of 10 feet with side-slopes of 5H:1V, and a berm with a crest elevation of 5.5 feet NAVD88, with a berm crest width of 30 feet with a fore slope of 15H:1V. The initial nourishment in this area will require about 460,000 cubic yards of fill material.

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.

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3. Okaloosa County is the non-federal cost sharing sponsor for all features. Based on October 2021 price levels, the estimated total nourishment cost of the recommended plan is \$100,234,000, which includes the project first cost of initial construction of \$30,426,000 (\$22,067,000 for the West Destin reach and \$8,359,000 for the Okaloosa Island Reach) and a total of 4 periodic renourishments at a total cost of \$69,808,000 (\$54,633,000 for the West Destin reach and \$15,175,000 for the Okaloosa Island reach). Periodic renourishments are planned at 10-year intervals. In accordance with the cost share provisions of Section 103 of the Water Resources Development Act (WRDA) of 1986, as amended (33 U.S.C. 2213), the federal and non-federal shares are as follows:

a. The federal share of the project first cost is estimated to be \$19,777,000 and the non-federal share is estimated to be \$10,649,000, which equates to 65% federal and 35% non-federal. This includes \$14,344,000 federal and \$7,723,000 non-federal for the West Destin separable element and \$5,433,000 federal and \$2,926,000 non-federal for the Okaloosa Island separable element. The non-federal costs include the value of lands, easements, rights-of-way, relocations, and dredged or excavated material disposal areas (LERRD) estimated to be \$16,061,000. The value of LERRD that exceeds the 35% non-federal statutory cost share would be reimbursable to the non-federal sponsor.

b. The federal share of future periodic renourishments is estimated to be \$34,904,000 and the non-federal share is estimated to be \$34,904,000 which equates to 50% federal and 50% non-federal. This includes \$27,316,500 federal and \$27,316,500 non-federal for the West Destin separable element and \$7,587,500 federal and \$7,587,500 non-federal for the Okaloosa Island separable element.

4. Based on a 2.50 percent discount rate and a 50-year period of analysis, average annual equivalent costs for the project are estimated to be \$3,625,000 (including average annual equivalent average costs for operations, maintenance, repair, rehabilitation, and replacement (OMRR&R) estimated to be \$88,000 per year). OMRR&R activities include tilling of the berm and annual surveys of the dune and berm with associated reports. All project costs are allocated to the authorized purpose of coastal storm risk management. The average annual equivalent benefits, inclusive of incidental recreation benefits, are estimated to be \$6,350,000, with net average annual benefits of \$2,725,000. The benefit-to-cost ratio is approximately 1.8 to 1.

5. The cost sharing for both the initial construction and periodic nourishment is based on the project meeting current policy requirements for parking and access. Currently, the entire project length does not have the required parking and access. The non-federal sponsor has committed to providing all required parking and access prior to entering into a project partnership agreement, or the cost share will be re-evaluated and adjusted as warranted.

6. The recommended plan as designed is expected to reduce the risk of damages to structures along the Gulf of Mexico coastline in Okaloosa County. The proposed project would greatly reduce, but not completely eliminate, future coastal storm damages. Residual risk is the risk that remains after the proposed coastal storm risk management project is implemented. Residual risk includes the consequence of capacity exceedance as well as consideration of project performance, robustness, and resiliency. These residual risks have been communicated to the non-federal sponsor, who understands and agrees with the assessment of the plan.

a. Approximately 46% percent of residual risk remains for Okaloosa County and approximately 68% remain for West Destin. Project implementation on Okaloosa Island mainly reduces damages from flooding and project implementation on West Destin reduces damages from flooding and wave attack. Under the low or intermediate sea-level change scenarios, within the 100-year adaptation horizon, no adaptation measures are anticipated for the recommended plan. The project area is closely tracking the high sea-level rise scenario and, therefore, the recommended plan was justified using this scenario. Under the high sea-level rise scenario, adaptation should begin to be considered by year 2075 as the project will begin to see a large decrease in level of protection by 2085. However, under all sea level rise scenarios, project performance will change as sea levels change, and therefore, periodically revisiting sea-level rise trends described in the report will be important for understanding changes in risk and the potential need for project modifications.

b. Measures to provide coastal storm risk protection to the back bay areas in Okaloosa County were screened out from the study after the analysis showed that the cost to implement measures in this area would be higher than the benefit received. The risk of coastal flooding in these reaches is not addressed by the proposed recommended plan.

c. Current risk to critical infrastructure remains, however, the non-federal sponsor indicated that these locations would be identified in detail in the state, county and local hazard mitigation plans. These plans will include characterization of flood exposure and processes for identifying vulnerabilities. This is the non-federal sponsors preferred method to addressing risk to critical infrastructure in the future.

7. In accordance with the U.S. Army Corps of Engineers guidance on 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, and a headquarters policy and legal compliance review. All concerns of the reviews have been addressed and incorporated into the final report. An exclusion for the feasibility study from Independent External Peer Review was granted on 5 March 2019. A safety assurance review may be conducted during PED.

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8. An environmental assessment was prepared in accordance with the National Environmental Policy Act. The recommended plan has been designed to avoid and minimize environmental impacts while maximizing future safety and economic benefits to the community and would not have significant adverse effects on the quality of the human environment. Section 7 Endangered Species Act consultations were conducted with the National Marine Fisheries Service (NMFS) and the US Fish & Wildlife Service (USFWS). NMFS provided a letter of concurrence agreeing that the proposed action is not likely to adversely affect listed species and critical habitat under their jurisdiction. USFWS determined that no long-term adverse effects would occur to listed species with implementation of the terms and conditions from the 2015 Statewide Programmatic Biological Opinion.

9. Washington level review indicates that the project recommended by the reporting officers is technically sound, environmentally acceptable, and economically justified. The plan complies with all essential elements of the U.S. Water Resources Council's 1983 Economic and Environmental Principles and Guidelines for Water and Related Land 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 and all comments from public reviews have been addressed and incorporated into the final report documents where appropriate.

10. I concur with the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that coastal storm risk management improvements for Okaloosa County be authorized in accordance with the reporting officer's recommended plan at an estimated project first cost of \$100,234,000 with such modifications as in the discretion of the Chief of Engineers may be advisable. My recommendation is subject to cost sharing and other applicable requirements of federal laws and policies. Federal implementation of the project for coastal storm risk management is subject to the non-federal sponsor agreeing to perform, in accordance with applicable federal laws, regulations, and policies, the required items of local cooperation for the project, including but not limited to the following:

a. Provide 35 percent of construction costs for initial construction of the project and 50 percent of construction costs for periodic nourishment allocated by the Federal Government to coastal storm risk management; 100 percent of construction costs for initial construction and periodic nourishment allocated by the Federal Government to beach improvements with exclusively private benefits; 100 percent of construction costs for initial construction and periodic nourishment allocated by the Federal Government to improvements and other work located within the Coastal Barrier Resources System that the Federal Government has determined are ineligible for federal financial participation; and 100 percent of construction costs for initial construction and periodic nourishment allocated by the Federal Government to the prevention of losses of undeveloped private lands, as further specified below:

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i. 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;

ii. Provide all real property interests, including placement area improvements, and perform all relocations determined by the Federal Government to be required for the project;

iii. Provide, during construction, any additional contribution necessary to make its total contribution equal to at least 35 percent of construction costs for initial construction and 50 percent of construction costs for periodic nourishment;

b. Prevent obstructions or encroachments on the project (including prescribing and enforcing regulations to prevent such obstructions or encroachments) that might reduce the level of coastal storm risk reduction the project affords, hinder operation and maintenance of the project, or interfere with the project's proper function;

c. Inform affected interests, at least yearly, of the extent of risk reduction afforded by the project; participate in and comply with applicable federal floodplain management and flood insurance programs; prepare a floodplain management plan for the project to be implemented not later than one year after completion of construction of the project; 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 the project;

d. Operate, maintain, repair, rehabilitate, and replace the project or functional portion thereof at no cost to the Federal Government, in a manner compatible with the project's authorized purposes and in accordance with applicable federal laws and regulations and any specific directions prescribed by the Federal Government;

e. At least annually and after storm events, at no cost to the Federal Government, perform surveillance of the project to determine losses of material and provide results of such surveillance to the Federal Government;

f. For shores, other than federal shores, protected using federal funds, ensure the continued public use of such shores compatible with the authorized purpose of the project;

g. Provide and maintain necessary access roads, parking areas, and other associated public use facilities, open and available to all on equal terms;

h. 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

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access to the project to inspect the project, and, if necessary, to undertake work necessary to the proper functioning of the project for its authorized purpose;

i. Hold and save the Federal Government free from all damages arising from design, construction, operation, maintenance, repair, rehabilitation, and replacement of the project, except for damages due to the fault or negligence of the Federal Government or its contractors;

j. Perform, or ensure performance of, any investigations for hazardous, toxic, and radioactive wastes (HTRW) that are determined necessary to identify the existence and extent of any HTRW regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. 9601-9675, and any other applicable law, that may exist in, on, or under real property interests that the Federal Government determines to be necessary for construction, operation and maintenance of the project;

k. Agree, as between the Federal Government and the non-federal sponsor, to be solely responsible for the performance and costs of cleanup and response of any HTRW regulated under applicable law that are located in, on, or under real property interests required for construction, operation, and maintenance of the project, including the costs of any studies and investigations necessary to determine an appropriate response to the contamination, without reimbursement or credit by the Federal Government;

l. Agree, as between the Federal Government and the non-federal sponsor, that the non-federal sponsor shall be considered the owner and operator of the project for the purpose of CERCLA liability or other applicable law, and to the maximum extent practicable shall carry out its responsibilities in a manner that will not cause HTRW liability to arise under applicable law; and

m. Comply with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, as amended, (42 U.S.C. 4630 and 4655) and the Uniform Regulations contained in 49 C.F.R Part 24, in acquiring real property interests necessary for construction, operation, and maintenance of the project including those necessary for relocations, and placement area improvements; and inform all affected persons of applicable benefits, policies, and procedures in connection with said act.

11. The recommendations contained herein reflect the information available at this time and current departmental policies governing formulation of individual projects. These recommendations do not reflect program and budgeting priorities inherent in the formulation of national civil works construction program nor the perspective of higher review levels within the Executive Branch. Consequently, the recommendations may be

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modified before they are transmitted to the Congress as proposals for authorization and implementation funding. However, prior to transmittal to the Congress, the non-federal sponsor, the state, interested federal agencies and other parties will be advised of any modifications and will be afforded an opportunity to comment further.

SCOTT A. SPELLMON
Lieutenant General, USA
Chief of Engineers