



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

DAEN

NOV 18 2020

SUBJECT: Rio Grande de Manati Flood Risk Management, Ciales, Puerto Rico

THE SECRETARY OF THE ARMY

1. I submit, for transmission to Congress, my report regarding flood risk management along the Rio Grande de Manati, in Ciales, Puerto Rico. It is accompanied by the report of the Pittsburgh District Commander. The study was conducted as an interim response to the authority provided by Section 204 of the River and Harbor and Flood Control Acts of 1970 (Public Law (P.L.) 91-611), which directed the Secretary to develop plans that would provide protection from floods within drainage basins throughout the Commonwealth of Puerto Rico. Preconstruction engineering and design activities will be continued under the study authority cited above.

2. The reporting officers recommend authorizing the National Economic Development Plan to reduce flood risks to communities along the Rio Grande de Manati within the Municipality of Ciales. The plan includes acquisition and demolition of 59 structures located within the 0.04 annual exceedance probability floodplain. Residents will be relocated outside of the floodplain in compliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970. Displaced persons will be relocated to a comparable structure that meets their individual needs and that is decent, safe, sanitary, and functionally equivalent to the structure from which they were displaced. Participation is mandatory.

3. The Department of Natural & Environmental Resources of Puerto Rico is the non-federal cost-sharing sponsor for all features. Based on October 2020 price levels, the estimated total first cost of the recommended plan is \$14,290,000. In accordance with the cost sharing provisions of Section 103 of the Water Resources Development Act (WRDA) of 1986, as amended, the non-federal sponsor must contribute a minimum of 35 percent of construction costs. The estimated share of costs is adjusted based on Section 1156 of WRDA 1986, as amended (33 USC 2310), which provides a waiver for a portion of the non-federal cost sharing for Puerto Rico, Territories, and Indian Tribes. As a result, the non-federal share would be reduced by \$484,000 and the federal and non-federal share of the project first cost would be \$9,770,000 and \$4,520,000, respectively. The non-federal costs include the value of required project lands, easements, rights-of-way, and relocations.

4. Based on a 2.50 percent discount rate and a 50-year period of analysis, the total equivalent average annual cost of the project is estimated to be \$510,000. All project costs are allocated to the authorized purpose of flood risk management. The

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recommended plan completely eliminates flood risk for the most at-risk homes throughout the study area, reducing annual flood damages by \$890,000. Net average annual benefits are estimated at \$390,000, with a benefit to cost ratio of approximately 1.8 to 1.

5. Several communities within the Municipality of Ciales, Puerto Rico are located within the active floodplain of the Rio Grande de Manati. The Rio Grande de Manati has reached flood stage 35 times in the past 50 years, resulting in damages that range from frequent nuisance flooding to severe and widespread impacts. Flooding during Hurricane Maria represents the largest event within the past 50 years and was estimated to have an annual exceedance probability between 0.2 and 0.5 percent. Numerous homes within the communities of Dos Rios and Alturas de Ciales were almost completely inundated during Hurricane Maria. The study area also contains roads and bridges that represent critical access and egress routes for people living within and outside of the study area - several of which may become inundated and/or damaged during large flood events, elevating life safety risk to residents that become isolated and unable to access critical facilities or receive recovery aid. The study report fully describes flood risks associated with the Rio Grande de Manati and describes residual risk that will remain after implementation of the recommended plan. This residual risk has been communicated to the non-federal sponsor and they understand and agree with the analyses.

6. In accordance with the U.S. Army Corps of Engineers guidance 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, and a headquarters policy and legal compliance review. All comments from the above referenced reviews have been addressed and incorporated into the final documents.

7. Washington-level review indicates that the project recommended by the reporting officers is technically sound, 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. The views of interested parties, including federal, Commonwealth, and local agencies have been considered.

8. I concur with the findings, conclusions, and recommendations of the reporting officers. My recommendation is subject to cost sharing and other applicable requirements of federal laws and policies. Federal implementation of the recommended plan would be subject to the non-federal sponsor agreeing to comply with applicable federal laws and policies, including but not limited to agreeing to:

a. Provide 35 percent of total project costs, subject to a reduction per Section 1156 of WRDA 1986, as amended, as further specified below;

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(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 ensure performance of all relocations, including utility relocations, as determined by the Federal Government to be necessary for the construction, operation, and maintenance of the project(s), 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;

(3) Pay, during construction, any additional funds necessary to make its total contribution equal to 35 percent of total project costs, subject to a reduction per Section 1156 of WRDA 1986, as amended;

b. Hold and save the United States free from all damages arising from the construction, 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;

c. Inform affected interests, at least annually, of the extent of flood risk management afforded by the project; participate in and comply with applicable federal floodplain management and flood insurance programs; comply with Section 402 of WRDA 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 the flood risk management levels provided by the project;

d. Operate, maintain, repair, rehabilitate, and replace 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 laws and regulations and any specific directions prescribed by the Federal 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 that may reduce the level of flood risk management the project affords, hinder operation and maintenance of the project, or interfere with the project's proper function;

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), Public Law 96-510, as amended

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(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 required for construction, operation, or maintenance of the project. However, for lands that the Federal Government determines to be subject to the navigation servitude, only the Federal Government shall perform such investigations unless the Federal 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;

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 that the Federal Government determines to be required for construction, operation, or maintenance of the project; and,

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, rehabilitate, and replace the project in a manner that will not cause liability to arise under CERCLA.

9. 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 a national civil works construction program nor the perspective of higher review levels within the Executive Branch. Consequently, the recommendations may be 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 Commonwealth, interested federal agencies, and other parties will be advised of any significant modifications and will be afforded an opportunity to comment further.



SCOTT A. SPELLMON
Lieutenant General, USA
Chief of Engineers