DEPARTMENT OF THE ARMY
CHIEF OF ENGINEERS
2600 ARMY PENTAGON
WASHINGTON, DC 20310-2600

REPLY TO
ATTENTION OF

JUN 12 2015

DAEN

THE SECRETARY OF THE ARMY

SUBJECT: West Shore Lake Pontchartrain, Louisiana, Hurricane and Storm Damage Risk Reduction Study

1. I submit for transmission to Congress my report on hurricane and storm-damage risk reduction along the east bank of the Mississippi River in St. Charles, St. John the Baptist and St. James Parishes, Louisiana. It is accompanied by the report of the New Orleans District Engineer and the Mississippi Valley Division Engineer. These reports are an interim response to resolutions by the Committee on Public Works of the United States House of Representatives, adopted 29 July 1971 and by the Committee on Public Works of the United States Senate, adopted 20 September 1974. The first resolution requested that this study be undertaken, "with a view to determining whether modifications to the recommendations contained therein are advisable at this time, with particular reference to providing additional levees for hurricane protection and flood control in St. John the Baptist Parish and that part of St. Charles Parish west of the Bonnet Carre Spillway." The second resolution further requested that the study be undertaken, "with a view to determining whether modifications to the recommendations contained therein are advisable at this time, for hurricane protection and flood control in St. James Parish." Preconstruction engineering and design activities, if funded, would be continued under the authorities provided by the resolution cited above.

2. The reporting officers recommend authorization of a plan to provide hurricane and storm-damage risk reduction in St. Charles and St. John the Baptist Parishes through the construction of structural measures. The recommended plan includes the construction of an approximate 18 mile levee system around the communities of Montz, Laplace, Reserve and Garyville based on the 1% probability storm level of risk reduction. The initial construction of the levee will be to 15 feet (ft) North American Vertical Datum (NAVD) 88 at the west upper guide levee of the Bonnet Carre Spillway and will taper down to 8.5 ft NAVD 88 at the Mississippi River Levee (MRL). The 2070 design elevation will be a maximum of 19.5 ft NAVD 88 at the west upper guide levee and will taper down to 16 ft NAVD 88 at the MRL. The system would consist of approximately 18 miles of earthen levees and floodwalls, 4 floodgates, a drainage canal running parallel to the levee, a flood-side ditch to maintain hydraulic connectivity between wetlands north and south of the system, 2 drainage structures and 4 pump stations along the alignment. Structures through the levee would be built to the 2070 design elevation which incorporates the intermediate sea level rise condition. In

St. James Parish the recommended plan includes a berm set to 6.5 ft NAVD 88 around the communities of Gramercy and Lutcher extending approximately 10,000 linear feet (lf); a berm set to 6.5 ft NAVD 88 around the community of Grand Point North extending approximately 10,000 lf; installation of one-way flap gates to existing culverts under Highway 3125 (currently estimated to require 145 one-way flap gates); small ring berms around an estimated four non-residential structures and an estimated five light industry/warehouse structures; and nonstructural elevation of an estimated 14 residential structures.

Unavoidable direct and indirect environmental impacts to 9,757 acres of forested wetlands/swamp and bottom land hardwoods would be fully compensated by the implementation of the mitigation plan. Monitoring and adaptive management, if needed, of the on-site mitigation area are included as part of the recommended plan, and will be conducted to ensure that forested wetland/swamp and bottom land hardwoods benefits are realized. Monitoring will be conducted for 5 years to ensure success of mitigation features. The total cost for monitoring and adaptive management is estimated to be $9,700,000. The recommended plan is the National Economic Development plan.

3. The Coastal Protection and Restoration Authority Board of Louisiana (hereafter, CPRAB) is the non-federal cost-sharing sponsor for all features. Based on October 2014 price levels, the estimated project first cost of the recommended plan is $718,090,000. The federal share of the estimated project first cost would be about $466,760,000 (65 percent) and the non-federal share would be about $251,330,000 (35 percent). The estimated project first cost includes $613,000,000 for initial construction and $105,090,000 for future levee lifts. All work will be cost shared.

a. In accordance with the cost sharing provisions of Section 103 of the Water Resources Development Act (WRDA) of 1986, as amended, the federal share of the project first costs of the hurricane and storm damage risk reduction features is estimated to be $466,760,000 (65 percent) and the non-federal share is estimated to be $251,330,000 (35 percent). The cost of non-federal contribution of lands, easements, rights-of-way, relocations, and dredged or excavated material disposal areas is estimated to be $46,210,000. The estimated project first cost includes $91,400,000 for environmental mitigation, and monitoring and adaptive management.

b. The non-federal sponsor would be responsible for the operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) of the project, upon completion of initial construction of the project, or a functional portion of the project. The annual cost of OMRR&R of the project is currently estimated to be $5,070,000 per year. The OMRR&R estimate includes $300,000 per year for monitoring and reporting of the environmental mitigation component after the commencement of OMRR&R. Additionally, the non-Federal sponsor would be fully responsible for removing and relocating utilities and discharge pipelines on the project site that are non-compensable, at a cost estimated to be $19,650,000.

c. Based on a 3.375 percent discount rate and a 50-year period of analysis, the total equivalent average annual costs of the project are estimated to be $33,950,000 including OMRR&R. The equivalent average annual benefits are estimated to be $97,840,000 with net average annual benefits of $63,890,000. The benefit-cost ratio is approximately 2.9 to 1.

4. In accordance with USACE Sea Level Change Guidance, ER 1100-2-8162, the study incorporated potential impacts in sea level change in its plan formulation and engineering of the recommended plan in accordance with EC 1100-2-8162. Three levels of RSLR were considered for both the without-project and with-project conditions. The risk reduction system being proposed is based on the intermediate RSLR condition and up to three levee lifts are proposed for the West Shore project to maintain a 1% probability storm level of risk reduction throughout the 50-year period of analysis. However, the Corps will continue to monitor local RSLR conditions and determine if the expected intermediate scenario of RSLR is occurring as forecasted in the feasibility study. If not, actions would need to be taken to either reduce the number of future levee lifts, under the low RSLR rate, or seek additional Congressional authorization via a Post Authorization Change report in the case of a high RSLR rate.

5. In accordance with the Corps Engineering Circular (EC 1165-2-214) 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 (DQC) review, Agency Technical Review (ATR), Major Subordinate Command (MSC) review, Independent External Peer Review (IEPR), Public Review, and a Corps Headquarters policy and legal review. All concerns of the ATR have been addressed and incorporated into the final report. All comments from the above referenced reviews have been addressed and incorporated into the final documents. Overall, the reviews resulted in improvements to the technical quality of the report.

6. Washington level review indicates that the project recommended by the reporting officers is technically sound, environmentally and socially acceptable, and economically justified. The recommended 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.

7. Federal implementation of the project would be subject to the non-federal sponsor agreeing in a binding written agreement to comply with applicable federal laws and policies, and to perform the following non-federal obligations, including, but not limited, to the following:

a. Provide 35 percent of total project costs as further specified below:

(1) Provide 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, and rights-of-way, including those required for relocations, the borrowing of material, and the disposal of dredged or excavated material; perform or ensure the performance of all relocations; and construct all improvements required on lands, easements, and rights-of-way to enable the disposal of dredged or excavated material, all as determined by the government to be required or to be necessary for the construction, operation, maintenance, repair, rehabilitation and replacement of the project;

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

b. Not less than once each year, inform affected interests of the extent of protection afforded by the project;

c. Agree to participate in and comply with applicable federal floodplain management and flood insurance programs;

d. Comply with Section 402 of the Water Resources Development Act of 1986, as amended (33 U.S.C. 701b-12) which requires a non-federal interest to prepare a floodplain management plan within one year after the date of signing a project partnership agreement, and to implement such plan not later than one year after completion of construction of the project;

e. 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 protection levels provided by the project;

f. 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 level of protection the project affords, hinder operation and maintenance of the project, or interfere with the project's proper function;

g. For so long as the project remains authorized, OMRR&R the project or functional portions of the project, including any mitigation features, 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; provided, however, that the non-federal sponsor shall have no obligation to address loss of risk reduction due to relative sea level rise through the repair, rehabilitation or replacement of nonstructural

components associated with the construction of large ring berms around groups of residential structures, nor shall the non-federal sponsor be obligated to OMRR&R those nonstructural flood proofing measures that constitute elevation of individual residential structures or construction of small ring berms around individual non-residential or light industry/warehouse structures;

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 access to the project for the purpose of completing, inspecting, OMRR&R the project;

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

j. 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 (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, and maintenance of the project, including those lands, structures and interests necessary for the implementation of all of the nonstructural components of the project as described in this report. 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;

k. 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, and maintenance of the project, including those lands, structures and interests necessary for the implementation of all of the nonstructural components of the project as described in this report;

l. 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, OMRR&R the project in a manner that will not cause liability to arise under CERCLA; and

m. Shall not use any project features or lands, easements, and rights-of-way required for such features as a wetlands bank or mitigation credit for any other project;

n. Pay all costs due to any project betterments or any additional work requested by the sponsor, subject to the sponsor's identification and request that the government accomplish such betterments or additional work, and acknowledge that if the government in its sole discretion elects to accomplish the requested betterments or additional work, or any portion thereof, the government shall so notify the non-federal sponsor in writing that sets forth any applicable terms and conditions.

8. I concur in the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that the plan to reduce hurricane and storm-damage in St. Charles, St. John the Baptist, and St. James Parishes be authorized in accordance with the reporting officers' recommended plan at an estimated project first cost of $718,090,000, 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 and state laws and policies, including Section 103 of WRDA 1986, as amended. The OMRR&R of this project will be the responsibility of the non-federal sponsor.

9. The recommendation contained herein reflects 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 recommendation may be modified before it is transmitted to the Congress as a proposal for authorization and implementation funding. However, prior to transmittal to Congress, the state, interested federal agencies, and other parties will be advised of any significant modifications and will be afforded an opportunity to comment further.

THOMAS P. BOSTICK
Lieutenant General, USA
Chief of Engineers