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

REPLY TO
ATTENTION OF

DAEN

3 DEC 2014

THE SECRETARY OF THE ARMY

SUBJECT: Bogue Banks, Carteret County, North Carolina, Integrated Feasibility Report and Environmental Impact Statement for Coastal Storm Damage Reduction

1. I submit for transmission to Congress my report on hurricane and storm damage reduction at Bogue Banks, Carteret County, North Carolina. It is accompanied by the report of the district and division engineers. This report is an interim response to a resolution adopted on 23 July 1998 by the Committee on Transportation and Infrastructure of the United States House of Representatives. The resolution requested the Secretary of the Army to review the report of the Chief of Engineers dated 27 November 1984 on Bogue Banks and Bogue Inlet, North Carolina, and other pertinent reports to determine whether any modifications of the recommendations contained therein are advisable at the present time in the interest of shore protection and related purposes. Pre-construction engineering and design activities for the project will continue under the above cited authority.

2. The reporting officers recommend authorization of the National Economic Development (NED) Plan to reduce coastal storm damages by constructing a beach fill berm and limited dunes along the shoreline of Bogue Banks, a barrier island in Carteret County, North Carolina. The recommended plan for coastal storm damage reduction includes construction of approximately 22.7 miles of main beach fill berm, approximately 50-feet wide, with a consistent profile across the entire length, along with dune expansion of approximately 5.9 miles of the project shoreline. The main beach fill would be bordered at either end by tapered transition berms approximately 1,000-feet in length. The amount of dune expansion would vary from elevation fifteen to twenty feet North American Vertical Datum 1988 (NAVD 88) and dune width varying from ten to ninety-five feet.

3. Carteret County, North Carolina is the non-federal cost sharing sponsor for all features. Based on October 2014 (Fiscal Year 2015) price levels, the estimated total nourishment cost is $266,783,000, which includes the project first cost of initial construction of $37,327,000 and a total of 16 periodic nourishments at a total cost of $229,456,000. Periodic nourishments are planned at 3-year intervals. In accordance with the cost share provisions in Section 103 of the Water Resources Development Act

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(WRDA) of 1986, as amended (33 U.S.C. 2213), the federal and non-federal share are as follows:

a. The federal share of the project first cost is estimated to be $24,263,000 and the non-federal share is estimated to be $13,064,000, which equates to 65% federal and 35% non-federal. The non-federal share includes the value of lands, easements, rights-of-way, relocations, and dredged or excavated material disposal areas (LERRD) estimated to be $4,361,000.

b. The federal share of each periodic nourishment is estimated to be $7,170,500 and the non-federal share is estimated to be $7,170,500, which equates to 50% federal and 50% non-federal.

c. Operations and maintenance costs are a 100% non-federal responsibility. Carteret County, North Carolina would be responsible for the operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) of the project, a cost currently estimated at about $75,000 per year.

4. The cost share 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 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.

5. 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 $6,037,000, including monitoring and OMRR&R. Monitoring consists of semiannual beach profile surveys, aerial photography, and an annual beach fill monitoring report, as well as annual seabeach amaranth monitoring for five years following initial construction. All project costs are allocated to the authorized purpose of hurricane and storm damage reduction. The recommended plan has total annual benefits of $14,978,000, including average annual coastal storm damage benefits of $11,715,000 and average annual recreation benefits of approximately $3,263,000. Annual net benefits of the project would amount to approximately $8,941,000. The benefit to cost ratio is approximately 2.48 to 1. Additionally, by protecting about 138 acres of beach habitat, the project would have additional benefits to a variety of species, including threatened and endangered species, using the coastal beach as habitat for all or some of their life cycle. These threatened and endangered species include the piping plover shorebird and loggerhead, green, and leatherback turtles.

6. Risk and uncertainty has been explicitly factored into the economic analysis of this project. The certified statistical risk based model, Beach-*fx*, was used in this study to formulate and evaluate the project in a life-cycle approach. Beach-*fx* integrates the engineering and economic analyses and incorporates uncertainty in both physical parameters and environmental forcing, which enables quantification of risk with respect to project evolution and economic costs and benefits of project implementation. The project is intended to address erosion and prevent damages to structures and contents; it is not intended to, nor will it, reduce the risk to loss of life during major storm events. Loss of life can only be prevented by residents and visitors following the local evacuation plans that are already in place. These residual risks have been communicated to the residents of Bogue Banks.

7. In accordance with the Corps Engineering Circular (EC 1165-2-212) on sea level change, the study performed a sensitivity analysis to evaluate the effects that different rates of sea level change could have on the recommended plan. The plan was formulated using a historical or low rate of sea level change of 0.0084 feet/year. The sensitivity analyses also utilized additional accelerated rates, which includes what the EC defines as intermediate and high rates of 0.0145 feet/year and 0.0341 feet/year, respectively. The analysis found that the influence of current sea level change on the project is relatively low as compared to other factors causing erosion (waves, currents, winds and storms). Adaptive management will be used including monitoring and adding additional volume of sand during renourishments to compensate for any significant accelerated sea level rise beyond the current observed rate should it become necessary.

8. In accordance with 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.

9. 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. Also, the views of interested parties, including federal, state and local agencies have been considered.

10. I concur in the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that the plan to reduce hurricane and storm damages for Bogue Banks, North Carolina be authorized in accordance with the reporting officers' recommended plan at an estimated total nourishment cost of $266,783,000, which includes the project first cost of initial construction of $37,327,000 and a total of 16 periodic nourishments at a total cost of $229,456,000, 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 103 of WRDA of 1986, as amended (33 U.S.C. 2213). These requirements include, but are not limited to, the following items of local cooperation from the non-federal sponsor:

a. Provide 35 percent of initial project costs assigned to hurricane and storm damage reduction plus 100 percent of initial project costs assigned to protecting undeveloped private lands and other private shores which do not provide public benefits and 50 percent of periodic nourishment costs assigned to hurricane and storm damage reduction plus 100 percent of periodic nourishment costs assigned to protecting undeveloped private lands and other private shores which do not provide public benefits and as further specified below:

(1) Provide, during design, 35 percent of design costs assigned to hurricane and storm damage reduction plus 100 percent of design costs assigned to protecting undeveloped private lands and other private shores that do not provide public benefits;

(2) Provide all lands, easements, and rights-of-way, and perform or ensure the performance of any relocations determined by the federal government to be necessary for the initial construction, periodic nourishment, and OMRR&R of the project;

(3) Pay, during initial construction and periodic nourishment, any additional amounts as are necessary to meet its total contribution as set out in paragraph a; and

b. Operate, maintain, repair, rehabilitate, and replace 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;

c. Hold and save the United States free from all damages arising from the initial construction, periodic nourishment, and OMRR&R of the project, except for damages due to the fault or negligence of the United States or its contractors;

d. Perform, or cause to be performed, 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 the initial construction, periodic nourishment, and OMRR&R of the project;

e. Assume, as between the federal government and the non-federal sponsor, complete financial responsibility for all necessary cleanup and response costs of any CERCLA regulated materials located in, on, or under lands, easements, or rights-of-way necessary for the initial construction, periodic nourishment, and OMRR&R of the project;

f. Agree that, as between the federal government and the non-federal sponsor, 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;

g. Inform affected parties, at least yearly, of the extent of the protection provided by the project; participate in and comply with applicable federal floodplain management and flood insurance programs; comply with Section 402 of the WRDA 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 preventing unwise future development in the floodplain, and in adopting such regulations as may be necessary to prevent unwise future development and to ensure compatibility with protection levels provided by the project;

h. Prevent obstructions of or encroachment on the project (including prescribing and enforcing regulations to prevent such obstructions or encroachments) which might reduce the level of protection it affords, hinder OMRR&R or future periodic nourishment, or interfere with its proper function, such as any new developments on project lands or the addition of facilities which would degrade the benefits of the project; and

i. Ensure continued conditions of public ownership, access, and use of the shore upon which the amount of federal participation is based; and provide, keep, and

maintain the recreation features and access roads, parking areas, and other associated public use facilities open and available to all on equal terms.

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 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.

THOMAS P. BOSTICK
Lieutenant General, USA
Chief of Engineers

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

DAEN

03 NOV 2014

SUBJECT: Brazos Island Harbor Channel Improvement Project, Texas

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on navigation improvements for the Brazos Island Harbor (BIH) Channel Improvement Project, Texas. It is accompanied by the report of the district and division engineers. This report is an interim response to a resolution of the Committee on Public Works, U.S. House of Representatives, dated May 5, 1966. The committee authorized USACE to conduct a study of BIH, Texas, to determine whether the project should be modified in any way, particularly with a view to widening and deepening the existing channels. Additionally, the Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Tsunami Relief, 2005 (P.L. 109-13), Section 6009, "Offshore Oil and Gas Fabrication Ports", provided that in determining the economic justification for navigation projects involving offshore oil and gas fabrication ports, the Secretary is directed to measure and include in the National Economic Development (NED) calculation the value of future energy exploration and production fabrication contracts and transportation cost savings that would result from larger navigation channels. Preconstruction engineering and design activities for this proposed project, if funded, would be continued under the 1966 authority. The existing BIH 42-foot navigation project was authorized by the Water Resources Development Act (WRDA) of 1986 (P.L. 99-662) and construction was completed in 1996.

2. The reporting officers recommend authorizing a plan that will contribute significantly to the economic efficiency of commercial navigation in the region. The recommended plan includes channel deepening along a majority of the channel length with no widening. Since the recommended plan would not have significant adverse effects, no compensatory mitigation measures (beyond minimization and avoidance) would be required. The feasibility report did not identify a NED Plan; however, the analysis indicated that the net excess benefits were still increasing with deeper channel dimensions. The recommended channel deepening plan is the deepest plan that the non-federal sponsor would support due to financial constraints. Therefore, the recommended plan is a Categorical Exemption to the NED Plan. All project features are located in the State of Texas.

3. The Brownsville Navigation District, acting as the financial representative for the Port of Brownsville, is the non-federal cost sharing sponsor for all features. Based on October 2014 price levels, the estimated total project cost of the plan is $204,587,000 for deep-draft navigation.

In addition, there are non-federal associated costs of $47,257,000 for the dredging of berthing areas to include construction of Placement Area (PA) capacity associated with third party use and development of other local service facilities and federal associated costs of $108,000 for aids to navigation. Total project implementation costs including the associated costs are $251,952,000. The federal share of the total project implementation cost would be about $116,116,000 and the non-federal share would be about $135,836,000.

4. The reporting officers recommend a plan to modify the existing BIH Channel. No widening of the BIH Channel is proposed. The recommended plan consists of the following improvements:

a. The entrance and jetty channels from Station –17+000 to 0+000 would be deepened from 44 feet to a depth of 54 feet Mean Lower Low Water (MLLW). This provides an additional 2 feet of depth, beyond the interior channel depth, to allow for the effects of vessel pitch, roll, heave, and yaw occurring as a result of strong currents, waves, and wind.

b. From Station 0+000 to 84+200, the channel would be deepened from 42 feet to a depth of 52 feet MLLW.

c. From Station 84+200 to 86+000, the existing channel depth of 42 feet MLLW would be maintained since there is no forecast change in the design drafts of vessels using this portion of the channel in the future.

d. The channel would continue to be maintained at the existing depth of 36 feet MLLW from Station 86+000 to the end of the Turning Basin, as ships will have been light-loaded or unloaded before entering the basin.

5. Dredged material placement for this project would be provided in accordance with the Dredged Material Management Plan (DMMP) developed during the study that identified the least cost base plan for placement of dredged material. Deepening the BIH Channel would generate approximately 14.1 million cubic yards of new work material and 61.7 million cubic yards of maintenance material over the 50-year period of economic evaluation. New work material will be placed in the new work Ocean Dredged Material Disposal Sites (ODMDS) and the existing PAs. Maintenance material from the entrance and jetty channels and the first 11,000 feet of the main channel would be placed offshore in a nearshore feeder berm. If for some reason the feeder berm could not be used, this reach of maintenance material could be placed in the maintenance ODMDS. Material from the inland reaches would be placed in existing confined, upland PAs adjacent to each reach. No horizontal expansion of existing upland sites would be required.

6. The estimated total project first cost of constructing the project is $204,587,000 based on October 2014 price levels, which includes $204,582,000 for channel modification and dredged

material placement and $5,000 for the non-federal sponsor's provision of lands for the project. There are no costs for fish and wildlife mitigation expected for this project and no cultural resource mitigation costs are expected at this time. Additionally, there are no utility relocations expected with this project. This estimated first cost includes a federal cost of $116,008,000 and a non-federal cost of $88,579,000, as apportioned in accordance with the cost sharing provisions of Section 101 of WRDA 1986, as amended. This results in a blended cost sharing as follows:

a. The costs for the deepening of the channel from 42 to 45 feet will be shared at the rate of 75 percent by the government and 25 percent by the non-federal sponsor. Accordingly, the federal and non-federal shares of the estimated $54,872,000 cost in this zone will be approximately $41,150,000 and $13,722,000, respectively.

b. The costs for the deepening the channel from 45 to 52 feet will be shared at the rate of 50 percent by the government and 50 percent by the non-federal sponsor. Accordingly, the federal and non-federal shares of the estimated $149,715,000 cost in this zone will be approximately $74,858,000 and $74,858,000, respectively.

c. Additional 10 Percent Payment. In addition to payment by the non-federal sponsor for its share of the total first costs of construction of the general navigation features (GNF) as estimated and described in sub-paragraphs 6(a) and 6(b) above, the non-federal sponsor must pay an additional 10 percent of the cost of the GNF of the project in cash over a period not to exceed 30 years, with interest. The additional 10 percent payment without interest is estimated to be $20,459,000. There is no crediting of the value of lands, easements, rights-of-way, and relocations (LERRs) provided by the non-federal sponsor because this value has already been credited with previous project construction.

d. Operations and Maintenance (O&M) Costs. The additional annual cost of O&M for this recommended plan is estimated at $2,971,000. In accordance with Section 101(b) of WRDA 1986, as modified by Section 2102(b) of the Water Resources Reform and Development Act (WRRDA) of 2014 (P.L. 113-121), the non-federal sponsor will be responsible for an amount equal to 50 percent of the excess of the cost of the O&M of the project over the cost which would be incurred for O&M of the project if the project had a depth of 50 feet. Dike raising for the maintenance will be cost shared as O&M costs, with the costs for dike raising associated with deepening the channel from 42 to 50 feet being a 100 percent government expense and the costs associated with deepening from 50 to 52 feet being shared at the rate of 50 percent by the government and 50 percent by the non-federal sponsor. Costs for dike raising for dredging of berthing areas and development of other local service facilities is 100 percent a non-federal sponsor responsibility. The federal share for the annual cost attributable to O&M is $2,674,000 and the non-federal sponsor is responsible for $297,000.

e. Associated Costs. Estimated total project associated costs of $47,365,000 include non-federal costs of $47,257,000 associated with dredging of berthing areas to include construction

of PA capacity associated with third party use and development of other local service facilities and associated federal costs of $108,000 for navigation aids (a U.S. Coast Guard expense).

f. Section 902 Calculation. For the purpose of calculating the maximum cost of the project pursuant to Section 902 of WRDA 1986, as amended, the total estimated project first cost is $204,587,000 which consists of an estimated federal share of $116,008,000 and an estimated non-federal share of $88,579,000. As explained in paragraph 6, above, the total estimated first cost for this purpose includes the estimates for GNF construction costs, any value of LERRs provided under Section 101(a)(3) of WRDA 1986, as amended.

7. Based on October 2014 price levels, a discount rate of 3.375 percent, and a 50-year period of economic analysis, the project average annual benefits and costs for the BIH improvements are estimated at $20,599,000 and $13,896,000, respectively, with a resulting net benefit of $6,703,000 and a benefit-to-cost ratio (BCR) of 1.5 to 1. Using the allocable benefits described in the Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Tsunami Relief, 2005 (P.L. 109-13), Section 6009, "Offshore Oil and Gas Fabrication Ports", resulted in project annual benefits of $90,871,000, net benefits of 76,975,000 and a BCR of 6.5 to 1.

8. Risk and uncertainty were evaluated for economic benefits, costs, and sea level rise. Economic sensitivity analyses were conducted to determine the sensitivity of projected benefits to changes in key assumptions, such as commodity tonnage, fleet distribution, and other various growth rates. In accordance with the USACE Engineering Circular 1165-2-212, Sea-Level Change Consideration for Civil Works Programs, the study details the analysis performed to identify potential sea level rise rates. Low, intermediate, and high projections of relative sea level rise (RSLR) at the end of the 50-year period of analysis are estimated to be 0.63 feet, 1.06 feet, and 2.40 feet, respectively. The historic average rate for the project area is about 1.26 feet per 100 years. In general, RSLR (low, intermediate, and high) will not affect the function of the project alternatives. Upland PAs would be armored to withstand the effects of rising sea levels and the cost of this armoring is included in the total project cost estimate. Minor impacts in the project vicinity would likely occur due to RSLR, but not as a consequence of the proposed project.

9. In accordance with the USACE Engineering Circular on review of decision documents, all technical, engineering, and scientific work underwent an open, dynamic, and vigorous review process to ensure technical quality. This included an Agency Technical Review (ATR), an Independent External Peer Review (IEPR), and a USACE Headquarters policy and legal review. All concerns of the ATR have been addressed and incorporated into the final report. The IEPR was completed by Battelle Memorial Institute. A total of 13 comments were documented. The comments were related to plan formulation, vessel fleet analysis, benefits, dredging and sedimentation, risk and uncertainty, and the cumulative impacts of changes in air quality. In response, sections in the main report and EIS were expanded to include additional information.

10. 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, state, and local agencies were considered. There were no comments from public review of the draft integrated report. During state and agency review, a letter was received from the Texas Commission on Environmental Quality, which did not include concerns about the project.

11. I concur in the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that navigation improvements for the BIH be authorized in accordance with the reporting officers' recommended plan at an estimated cost of $204,587,000 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 101 of WRDA 1986, as amended. The non-federal sponsor would provide the non-federal cost share and all LERRs. Further the non-federal sponsor would be responsible for the non-federal cost share of the operation and maintenance, as described above. This recommendation is subject to the non-federal sponsor agreeing to comply with all applicable federal laws and policies, including but not limited to:

a. Provide 10 percent of the total cost of construction of the GNFs attributable to dredging to a depth not in excess of 20 feet; plus 25 percent of the total cost of construction of the GNFs attributable to dredging to a depth in excess of 20 feet but not in excess of 45 feet; plus 50 percent of the total cost of construction of the GNFs attributable to dredging to a depth in excess of 45 feet as further specified below:

(1) Provide 50 percent of design costs allocated by the government to commercial navigation in accordance with the terms of a design agreement entered into prior to commencement of design work for the project;

(2) Provide, during construction, any additional funds necessary to make its total contribution for commercial navigation equal to 10 percent of the total cost of construction of the GNFs attributable to dredging to a depth not in excess of 20 feet; plus 25 percent of the total cost of construction of the GNFs attributable to dredging to a depth in excess of 20 feet but not in excess of 45 feet; plus 50 percent of the total cost of construction of the GNFs attributable to dredging to a depth in excess of 45 feet;

b. Provide all LERRs, including those necessary for the borrowing of material and placement of dredged or excavated material, and perform or assure the performance of all relocations, including utility relocations, all as determined by the government to be necessary for the construction or operation and maintenance of the GNFs;

c. Pay with interest, over a period not to exceed 30 years following completion of the period of construction of the GNFs, an additional amount equal to 10 percent of the total cost of construction of GNFs less the amount of credit afforded by the government for the value of the LERRs, including utility relocations, provided by the non-federal sponsor for the GNFs. If the amount of credit afforded by the government for the value of LERRs, including utility relocations, provided by the sponsor equals or exceeds 10 percent of the total cost of construction of the GNF, the sponsor shall not be required to make any contribution under this paragraph, nor shall it be entitled to any refund for the value of LERRs, including utility relocations, in excess of 10 percent of the total costs of construction of the GNFs.

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 federal government;

e. Provide 50 percent of the excess cost of O&M of the project over that cost, which the federal government determines would be incurred for O&M if the project had a depth of 50 feet;

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 GNFs;

g. Hold and save the U.S. free from all damages arising from the construction or O&M of the project, any betterments, and the local service facilities, except for damages due to the fault or negligence of the U.S. or its contractors;

h. Keep and maintain books, records, documents, and other evidence pertaining to costs and expenses incurred pursuant to the project, for a minimum of 3 years after completion of the accounting for which such books, records, documents, and other evidence is required, to the extent and in such detail as will properly reflect total cost of construction of the project, and in accordance with the standards for financial management systems set forth in the Uniform Administrative Requirements for Grants and Cooperative Agreements to state and local governments at 32 CFR, Section 33.20;

i. Perform, or ensure performance of, any investigations for hazardous substances as 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 USC 9601–9675, that may exist in, on, or under LERRs that the government determines to be necessary for the construction or O&M of the GNFs. However, for LERRs that the government determines to be subject to the navigation servitude, only the government shall perform such investigation 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;

j. Assume complete financial responsibility, as between the federal government and the sponsor, for all necessary cleanup and response costs of any hazardous substances regulated under CERCLA that are located in, on, or under LERRs that the federal government determines to be necessary for the construction or operation and maintenance of the project;

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

l. Comply with Section 221 of the Flood Control Act of 1970, as amended (42 USC 1962d-5b), and Section 101(e) of the WRDA 1986, as amended (33 USC 2211(e)), which provides that the Secretary of the Army shall not commence the construction of any water resources project or separable element thereof, until the non-federal sponsor has entered into a written agreement to furnish its required cooperation for the project or separable element;

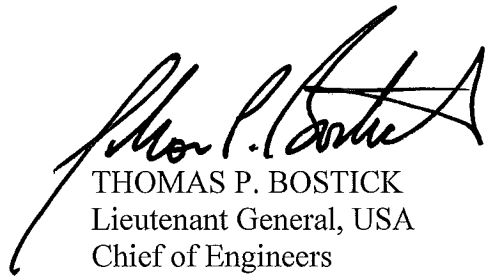
m. Comply with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (42 USC 4601-4655), and the Uniform Regulations contained in 49 CFR 24, in acquiring lands, easements, and rights-of-way, necessary for construction, O&M of the project including those necessary for relocations, the borrowing of material, or the placement of dredged or excavated material; and inform all affected persons of applicable benefits, policies, and procedures in connection with said act;

n. Comply with all applicable federal and state laws and regulations, including, but not limited to, Section 601 of the Civil Rights Act of 1964 (42 USC 2000d), and Department of Defense Directive 5500.11 issued pursuant thereto, as well as Army Regulation 600-7, entitled "Nondiscrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army"; and all applicable federal labor standards requirements including, but not limited to, 40 USC 3141-3148 and 40 USC 3701-3708 (revising, codifying and enacting without substantive changes the provision of the Davis-Bacon Act (formerly 40 USC 276a et seq.), the Contract Work Hours and Safety Standards Act (formerly 40 USC 327 et seq.), and the Copeland Anti-Kickback Act (formerly 40 USC 276c);

o. Provide the non-federal share of that portion of the costs of mitigation and data recovery activities associated with historic preservation that are in excess of 1 percent of the total amount authorized to be appropriated for the project; and

p. Not use funds from other federal programs throughout, including any non-federal contribution required as a matching share, therefore, to meet any of the sponsor's obligations for the project costs unless the federal agency providing the federal portion of such funds verifies in writing that such funds are authorized to be used to carry out the project.

12. 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 Congress as a proposal for authorization and implementation funding. However, prior to transmittal to Congress, the State of Texas, the Brownsville Navigation District, 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

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
441 G STREET, NW
WASHINGTON, DC 20314-1000

REPLY TO
ATTENTION OF

DEC 2 2014

Planning and Policy Division

Honorable Bill Shuster
Chairman, Committee on Transportation
and Infrastructure
House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

As required by Section 2033 of P.L. 110-114, I am enclosing a copy of the final report of the Chief of Engineers on the Calcasieu Lock, Louisiana, Modification for Navigation Improvement.

Sincerely,

William H. Graham
Colonel, U.S. Army
Chief of Staff

Enclosure

Printed on Recycled Paper

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

REPLY TO
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DEC 2 2014

DAEN

THE SECRETARY OF THE ARMY

SUBJECT: Calcasieu Lock, Louisiana, Modifications for Navigation Improvement

1. I submit for transmission to Congress my report on inland navigation along the Gulf Intracoastal Waterway (GIWW) in the vicinity of Lake Charles, Louisiana. It is accompanied by the report of the district and division engineers. These reports are an interim response to resolutions by the Committee on Public Works of the United States Senate, adopted 29 September 1972 and by the Committee on Public Works of the United States House of Representatives, adopted 12 October 1972. The resolutions requested a review of the reports on the Gulf Intracoastal Waterway (Louisiana-Texas Section, including the Morgan City-Port Allen Route) submitted in House Document 556, 87th Congress, Second Session, and subsequent reports, with a view to determining the advisability of modifying the existing project in any way at this time, particularly with regard to widening and deepening the existing and/or authorized channel. The Calcasieu Lock was authorized as part of the *Mermentau River, Louisiana Flood Control, Irrigation and Navigation Project* (Mermentau Project) in the River and Harbor Act of 24 July 1946. Preconstruction engineering and design activities, if funded, would be continued under the authority provided by the resolutions cited above.

2. The Calcasieu Lock is located on the GIWW near the intersection of Highway 384. The lock was constructed primarily to prevent salt water from entering the Mermentau Basin through Calcasieu Lake, but also serves ancillary purposes of flood risk management and navigation. The lock is also used to drain flows from the Mermentau Basin by opening the lock gates. While navigation may traverse the lock when the gates are open, east bound delays can occur depending on the head differential and flow of water through the lock. To reduce these delays, the reporting officers recommend a plan to divert drainage flows away from the existing lock chamber.

3. The reporting officers recommend constructing a sluice gate structure and bypass channel in the vicinity of the Calcasieu Lock. The recommended plan consists of a sluice gate structure and dredging a new bypass channel approximately 3,650 feet long with a top width of 200 feet, bottom width of 120 feet, and deepened to a depth of 12 feet North Atlantic Vertical Datum 88 (NAVD88). The channel will transition to a depth of 6 feet NAVD88 and a channel bottom width of 150 feet at the structure.

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Approximately 215,000 cubic yards of material dredged from the bypass channel will be placed within the project area in several areas of open water totaling about 50 acres. This dredged material will be beneficially placed to restore degraded brackish marsh and create brackish marsh from shallow open water. Unavoidable environmental impacts to approximately 11.5 acres of forested spoil bank habitat would be fully compensated by the implementation of tree stand improvements in about 15 acres of the remaining forested habitat plus the purchase of approximately 9 acres of credit from an approved bottomland hardwood mitigation bank serving the project area. Monitoring and adaptive management of the on-site mitigation area are included as part of the recommended plan, and will be conducted to ensure that forest benefits are realized. The recommended plan is the National Economic Development plan.

4. Section 102 of the Water Resources Development Act (WRDA) of 1986 as amended, provides that all costs associated with implementation of inland navigation projects shall be 100 percent federal, including construction as well as operation and maintenance. Based on October 2014 price levels, the estimated project first cost of the plan is $16,700,000. The cost of lands, easements, rights-of-way, relocations, and dredged or excavated material disposal areas is estimated at $131,000. The total estimated project cost includes $710,000 for environmental mitigation, $85,000 for environmental monitoring, and $108,000 for adaptive management. The Operation, Maintenance, Repair, Rehabilitation, and Replacement (OMRR&R) of the project after construction is estimated at about $234,000 per year.

5. Based on a 3.5 percent discount rate, October 2014 price levels and a 50-year period of analysis, the total equivalent average annual costs of the project are estimated to be $947,000, including OMRR&R. The equivalent average annual benefits are estimated to be $1,148,000 with net average annual benefits of $201,000. The benefit-cost ratio is approximately 1.2-to-1.

6. The recommended plan was developed in coordination and consultation with various federal, state and local agencies using a systematic and regional approach to formulating solutions and evaluating the benefits and impacts. Risk and uncertainty were evaluated for economic benefits, costs, sea level rise, and discount rate. High, medium, and most likely scenarios were considered for traffic projections and relative sea level rise. Economic sensitivities examined the effects of various traffic projections including no growth and no growth after 20 years. These sensitivities showed that under the low scenario with a low traffic projection and high sea level rise none of the alternatives were justified. Under the high scenario with high traffic forecast and no sea level rise the recommended plan still produced the highest net benefits. The recommended plan is justified using the most likely scenario and a 7% discount rate. In addition, a cost and schedule risk analysis was completed. In accordance with the Corps Engineering Circular on sea level change, the study analyzed three sea level rise

rates of low, medium, and high which were estimated to result in changes of 0.7 ft, 1.1 ft, and 2.4 ft, respectively, over the 50-year period of analysis. The study concluded that there could be a significant reduction in lock open pass and open pass drainage events due to sea level rise with a resultant impact on project benefits.

7. In accordance with the Corps Engineering Circular on review of decision documents, all technical, engineering and scientific work underwent an open, dynamic and vigorous review process to ensure technical quality. This included District Quality Control, Agency Technical Review, Policy and Legal Compliance Review, Cost Engineering Directory of Expertise Review and Certification, and Model Review and Approval. An exclusion from Independent External Peer Review was granted on 13 March, 2014. The plan recommended by the reporting officers is technically sound, environmentally and socially acceptable, and economically justified. The views of interested parties, including federal, state and local agencies have been considered.

8. I concur with the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that the plan to reduce navigation delays at Calcasieu Lock be authorized in accordance with the reporting officers' recommended plan at an estimated cost of $16,700,000 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 102 of WRDA 1986, as amended. The operations and maintenance of this project will be the responsibility of the federal government as part of the Calcasieu Lock.

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

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DAEN

23 DEC 2014

THE SECRETARY OF THE ARMY

SUBJECT: Central Everglades Planning Project, Comprehensive Everglades Restoration Plan, Central and Southern Florida Project.

1. I submit for transmission to Congress my report on ecosystem restoration improvements for the Central Everglades Planning Project (CEPP) located in Martin, Lee, Palm Beach, Broward, Miami Dade and Monroe Counties, Florida. It is accompanied by the report of the Jacksonville District Engineer and South Atlantic Division Engineer. These reports are in response to Section 601(b)(1) of the Water Resources Development Act (WRDA) of 2000, which approved the Comprehensive Everglades Restoration Plan (CERP) as a framework for modifications and operational changes to the Central and Southern Florida (C&SF) project that are needed to restore, preserve, and protect the South Florida ecosystem while providing for other water-related needs of the region, including water supply and flood protection. WRDA 2000 identified specific requirements for implementing components of the CERP, including the development of a decision document known as a Project Implementation Report (PIR). The requirements of a PIR are addressed in this report and are subject to review and approval by the Secretary of the Army. Preconstruction engineering and design activities for this project will be continued under the CERP Design Agreement.

2. The proposed CEPP is comprised of increments of six components of CERP, including the Everglades Agricultural Area (EAA) Storage Reservoir – Phase I, which was conditionally authorized by Section 601(b)(2)(C)(ii) of WRDA 2000. However, the reporting officers recommend new authorization consistent with Section 601(d) of WRDA 2000 due to changes in scope and the inclusion of additional CERP components. The reporting officers recommend increments of the following six components of CERP to be integrated with the existing facilities of the C&SF system: Everglades Agricultural Area Storage Reservoirs (Component G); Water Conservation Area (WCA)-3 Decompartmentalization and Sheetflow Enhancement (Components AA and QQ); S-356 Pump Station Modifications (Component FF); L-31 N Improvements for Seepage Management (Component V); System-wide Operational Changes – Everglades Rain-Driven Operations (Component H); and Flow to Northwest and Central WCA-3A (Component II).

3. The final PIR and integrated Environmental Impact Statement (EIS), developed pursuant to the National Environmental Policy Act (NEPA), recommends a project that contributes significantly to the ecological goals and objectives of CERP: (1) increasing the spatial extent of natural areas; (2) improving habitat function and quality; and (3)

improving native plant and animal abundance and diversity. In addition, it contributes to the economic values and social well being of the project area by providing recreational opportunities and 17 million gallons of water per day of water supply for residents of the Lower East Coast of Florida. The historical Everglades ecosystem was previously defined by a mosaic of uplands, freshwater marsh, deep water sloughs, and estuarine habitats that supported a diverse community of fish and wildlife. Today nearly all aspects of South Florida's flora and fauna have been affected by development, altered hydrology, nutrient input and spread of non-native species that have resulted directly or indirectly from a century of water management for human needs. The PIR/EIS confirms information in the CERP and provides a conceptual plan that evaluated the costs and benefits associated with construction and operation of the Central Everglades components of the CERP. CEPP will help restore the central portion of the Everglades ecosystem towards a state more similar to the historic conditions. The project will improve habitat function and quality and improve native plant and animal abundance and species composition and diversity by delivering approximately 210,000 average annual acre feet of additional water to the Everglades.

4. The reporting officers recommend a plan for ecosystem restoration and recreation. The recommended plan would improve the ecological functions of the South Florida environment, including the Caloosahatchee and St. Lucie Estuaries, WCA-2 and WCA-3, and Everglades National Park (ENP). The CEPP plan includes the following features, listed from north to south in project area:

a. The EAA includes a 14,000 acre A-2 flow equalization basin (FEB) and associated distribution, inlet, and outlet structures. Operation of the A-2 FEB would be integrated with the future operation of the State of Florida's Restoration Strategies features, including the A-1 FEB, and the state's existing Stormwater Treatment Area (STA)-2 and STA-3/4 facilities, to deliver new water south.

b. WCA-2A and Northern WCA-3A include a 500 cubic feet/second (cfs) gated culvert to deliver water from the L-6 Canal to the remnant L-5 Canal; a 500 cfs gated spillway to deliver water from the remnant L-5 Canal to the western L-5 Canal (during L-6 diversion operations); a 2,500 cfs gated spillway to deliver water from STA-3/4 to the S-7 Pump Station during peak discharge events (including L-6 diversion operations); approximately 13.6 miles of conveyance improvements to the L-5 Canal; degradation of approximately 2.9 miles of the southern L-4 Levee along the northwest boundary of WCA-3A; a 360 cfs pump station to move water within the L-4 Canal to maintain water supply deliveries to retain the existing functionality of STA-5 and STA-6 and maintain water supply to existing legal users, including the Seminole Tribe of Florida; gated culverts and an associated new canal to deliver water from the Miami Canal (south of the S-8 Pump Station, which pulls water from the L-5 Canal) to the L-4 Canal, along with potential design modifications to the existing S-8 and G-404 pump stations; and

backfill of approximately 13.5 miles of the Miami Canal with construction of tree islands between 1.5 miles south of the S-8 Pump Station and Interstate Highway I-75.

c. Southern WCA-3A, WCA-3B, and the Northern Edge of ENP include a 1,150 cfs gated spillway adjacent to S-333; a 500 cfs gated culvert in L-67A Levee and an associated 6,000 foot gap in L-67C Levee; a flow way through the western end of WCA-3B (two 500 cfs gated culverts in L-67A Levee, removal of approximately 8 miles of L-67C Levee, removal of approximately 4.3 miles of L-29 Levee, construction of approximately 8.5 miles of new levee in WCA-3B); a 1,230 cfs gated spillway in L-29 Canal; removal of approximately 5.5 miles of the L-67 Extension Levee and backfill of approximately 5.5 miles of the L-67 Extension Canal; removal of approximately 6 miles of Old Tamiami Trail; and removal of spoil mounds along the northwestern side of the L-67A Canal.

d. Eastern Edge of ENP includes a 1,000 cfs pump station and an approximately 4.2-mile long, 35 feet deep tapering seepage barrier cutoff wall along the L-31N Levee just south of Tamiami Trail.

e. Recreational features include gravel parking with boat ramps and trailheads, dry vault toilets, shelters, primitive camping sites, and fishing platforms.

5. The total project first cost of the recommended plan, based upon October 2014 price levels, is estimated to be $1,951,000,000 rounded to the nearest million. The project first cost for the ecosystem restoration features is estimated to be $1,944,000,000 and for recreation is estimated to be $6,600,000. In accordance with the cost-sharing requirements of Section 601(e) of WRDA 2000, construction costs for ecosystem restoration are shared 50-50 between the government and non-federal sponsor. Construction costs associated with recreation features are also cost-shared 50-50 in accordance with Section 103 of WRDA 1986, as amended. Additionally, the government is responsible for 100% of cultural resources data recovery costs, up to 1% of total project costs (see paragraph 18.s). Therefore, in consideration of estimated costs for cultural resources data recovery, the federal cost of the recommended plan would be $976,375,000 and the non-federal cost would be $974,625,000. The estimated lands, easements, right-of-way, and relocation (LERRs) costs for the recommended plan are $37,000,000, of which approximately $31,000,000 is creditable to the government and approximately $6,000,000 are creditable to the non-federal sponsor. Federal funds contributed by Department of Interior (DOI) pursuant to Section 390 of the Federal Agriculture Improvement and Reform Act of 1996 (Public Law 104-127, 110 Stat. 1022) are credited to the federal share of the project cost pursuant to Section 601(e)(3) of WRDA 2000. DOI contributed approximately $30,300,000 toward the purchase of the lands associated with the A-2 FEB and FEB Discharge Canal.

6. Although cost sharing of the ecosystem restoration features for this project is governed by Section 601 of WRDA 2000, as amended, cost sharing of the recreation

features is governed by Section 103 of the WRDA 1986, as amended. In particular, in accordance with Section 103(j) of WRDA 1986, 100 percent of the cost of Operation, Maintenance, Repair, Replacement and Rehabilitation (OMRR&R) of the recreation features is the non-federal sponsor's responsibility. In addition, section 601(e)(5)(B) of WRDA 2000, as amended, governs credit for non-federal sponsor design and construction work on the ecosystem restoration features of the project, whereas section 221(a)(4) of the Flood Control Act of 1970, as amended (42 U.S.C. 1962d-5b(a)(4)), governs credit for non-federal sponsor design and construction work on the recreation features of the project.

7. Based on October 2014 price levels, a 50-year period of economic evaluation and a 3.375 percent discount rate, the equivalent annual cost of the proposed project is estimated at $102,600,000, which includes OMRR&R, interest during construction and amortization. The estimated annual costs for restoration OMRR&R are $11,250,000, of which $4,150,000 is attributed to new CEPP infrastructure; $4,000,000 to flowing water through existing state and C&SF infrastructure; and $3,100,000 to invasive species management. Post construction monitoring will occur during 10-year cycles for invasive species and performance-based ecological monitoring ($2,700,000 annually for up to 10 years). Permit-related monitoring and monitoring that informs project operations will also be conducted ($2,800,000 annually) and this monitoring will be assessed periodically and revised as needed. The OMRR&R costs for recreation features are estimated at $65,000 and are a 100% non-federal responsibility.

8. As a component of the CERP program, an interagency/interdisciplinary scientific and technical team, formed to ensure that system-wide goals are met, will participate in the annual monitoring to assess system-wide changes. In accordance with Sections 601(e)(4) and 601(e)(5)(D) of WRDA 2000, OMRR&R costs and adaptive assessment and monitoring costs for ecosystem restoration will be shared equally between the federal government and the non-federal sponsor. The Project Monitoring Plan was developed assuming that major, ongoing monitoring programs that are not funded by the project would continue to supply data relevant to the Project. The Project Monitoring Plan shall not include items that are already required to be monitored by another federal agency or other entity as part of their regular responsibilities or required by law and shall not include items that are already required to be monitored by the USACE for other South Florida ecosystem restoration projects. In accordance with Section 103(j) of the WRDA 1986, as amended, OMRR&R costs related to recreation features will be funded 100 percent by the non-Federal sponsor.

9. The recommended plan requires the use of several State of Florida facilities constructed and operated pursuant to state permits. The facilities are necessary for the state to meet Clean Water Act requirements as approved by the U.S. Environmental Protection Agency (USEPA), and as litigated by the U.S. Department of Justice. Some

of these requirements are currently subject to a Settlement Agreement filed with and overseen by the federal district court. These facilities, as named below and herein after referred to as the "state facilities", are to be used by CEPP until such time as CEPP is deauthorized or it is determined that use of the state facilities are no longer necessary for the purpose of achieving CEPP project purposes. The State of Florida is responsible for OMRR&R of their State Restoration Strategies and Everglades Construction Project facilities. The reporting officers recommend authorization of CEPP with specific statutory language allowing cost share of the OMRR&R for the following state facilities not previously cost shared by the government for construction under the C&SF project or other federal authority, and listed C&SF features that are currently cost shared pursuant to executed Resolutions: Stormwater Treatment Area 2; Stormwater Treatment Area 3/4; Flow Equalization Basin A-1; G-357 Gated Culvert; G-370 Pump Station; G-371 Gated Spillway; G-372 Pump Station; G-404 Pump Station; G-434 Pump Station; G-435 Pump Station; S-6 Pump Station; S-7 Pump Station; S-8 Pump Station; and S-150 Gated Culverts and their corresponding remote-control facilities. All features required for the State Restoration Strategies and the Everglades Construction Project are independent state facilities and are not CEPP components or features. The state facilities will not be incorporated as federal CEPP project features; however, the operation of state facilities is required to ensure that new water made available by CEPP meets water quality standards and achieves CEPP project benefits.

a. The state retains sole responsibility for performing operations activities at state facilities pursuant to State Operations Plan, with the exception of the FEB A-1 which will be integrated with FEB A-2 and operated pursuant to a mutually agreed upon water control plan. The joint water control plan for the FEBs will integrate the operation of CEPP and the operation of the state facilities used by CEPP. The state has agreed that the U.S. Army Corps of Engineers (USACE) shall have the opportunity to collaborate, review, and comment on the OMRR&R of the state facilities used by CEPP, including updates to optimize operations to achieve federal project purposes. This is intended to ensure continuous achievement of CEPP project purposes and support the federal interest in cost sharing OMRR&R. To the extent applicable, any operational modifications to the state facilities as defined in the PIR/EIS that would impair the usefulness of any USACE project, including all CEPP and other CERP and C&SF project features, may require a 33 U.S.C. Section 408 permit from the USACE.

b. The aforementioned state facilities and C&SF features will use excess capacity to process "new water" provided by CEPP, which has been estimated to comprise approximately 19% of the total water volume that could flow through these facilities. The reporting officers have assumed that OMRR&R costs are linear with flow volumes and thus the additional increase in OMRR&R costs due to the increased flow volumes will be 19% of the total OMRR&R costs. Consistent with the general CERP authorization for cost sharing OMRR&R (WRDA 2000 Section 601(e)(4)), the reporting officers recommend authorization of CEPP to contribute 19% of the OMRR&R costs of

the aforementioned state facilities and C&SF features to the extent that OMRR&R activities are directly related to their use for treating "new water". The federal pro-rated share for OMRR&R for the aforementioned facilities used by CEPP is therefore 50% of the 19%, or 9.5% of the total OMRR&R costs. The 19% CEPP cost share will apply to the state facilities and C&SF features listed previously to the extent that OMRR&R activities are directly related to their use for treating "new water".

c. The reporting officers recommend that project authorization include specific statutory language allowing the government to cost share 19% of the yearly OMRR&R costs of state facilities and listed C&SF features with appropriations made available for CERP OMRR&R activities. The term "OMRR&R costs" is defined the same as the term "project OMRR&R costs" in Article I.E. of the Master Agreement between the Department of the Army and the non-federal sponsor dated 13 August 2009. As a condition of the federal cost share, prior to commencing replacement and rehabilitation actions for the state facilities listed previously that CEPP is dependent on, approval by USACE Headquarters and the Assistant Secretary of the Army (Civil Works) is required as set forth in Section 6.6.2 of the PIR.

d. No cost share of the aforementioned state facilities and C&SF features shall commence before the date that the CEPP project produces "new water" and the associated federal project feature is declared construction complete and the state assumes its OMRR&R responsibilities as established in the appropriate project partnership agreements. Similarly, no cost share for state facilities is allowed until the state facilities are shown to be construction complete and the state begins regular operation of such facility. Additionally, the state facilities will be monitored for the number of years required by the Settlement Agreement and be shown to be in compliance with water quality requirements prior to the addition of CEPP flows.

e. Due to the simplified assumptions used for determining cost-share of the OMRR&R, an adaptive management construct will be developed that prescribes processes and procedures for determining a more accurate allocation of costs once more detailed information is available regarding the impact of CEPP on the OMRR&R of existing state facilities and C&SF features. The reporting officers recommend that after CEPP has operated for an appropriate period of time, an analysis based on monitoring data will be undertaken to evaluate project performance and verify that CEPP successfully delivers an annual average of approximately 210,000 acre-feet of new water for the natural system as described in the PIR/EIS.

(1) If the monitoring data and analysis show that CEPP actually produces less than the anticipated 210,000 acre feet per year on average, then the federal project is not fully realizing the projected benefits and the state facilities and C&SF features are not being burdened as projected. In such a case, the analysis will be used to inform changes in operations in order to achieve the quantity, timing or distribution of water as

described in this PIR/EIS, or recommend changes to the amount of water to be reserved or allocated to the natural system.

(2) If the monitoring data and analysis show CEPP actually processes significantly more or less than the anticipated 210,000 acre-feet per year of "new water" on average then the analysis may be used to adjust the calculation of OMRR&R cost share upward or downward to reflect the actual average annual use of excess capacity by the federal project. This will be accomplished through consultation with the state and USACE Headquarters and is necessary after operations have begun to capture the true federal interest and cost share responsibility.

f. It must be recognized that the state facilities are subject to legal requirements outside of the federal project and will not be operated in such a manner that the federal project will cause exceedances of the state's water quality requirements under state National Pollutant Discharge Elimination System (NPDES) and Everglades Forever Act (EFA) permits and associated Consent Orders. Such state requirements may limit the anticipated federal project benefits.

10. A number of non-CEPP projects must be in place before implementing any CEPP features and certain non-CEPP projects must be integrated into the sequencing of CEPP implementation to avoid unintended adverse consequences. All features of the State Restoration Strategies must be completed and meet state water quality standards prior to initiating construction of most CEPP project features. Implementation of CEPP will occur over many years and the reporting officers recommend that the project be constructed in three phases that are considered separable elements with inter-related project features grouped to provide incremental hydrologic and ecological benefits. The three implementation phases are based upon developing three Project Partnership Agreements (PPAs) and are identified as PPA North, PPA South, and PPA New Water. The features included in each are identified in the PIR/EIS. The phased implementation approach incorporates an adaptive implementation process and recommendations of the National Research Council, maximizing the opportunity to realize incremental restoration benefits by initially building features that utilize existing water in the system that meets state water quality standards. Individual PPAs, or amendments to existing PPAs, will be executed prior to construction of each implementation phase. The project dependencies include:

a. A-1 FEB and State Restoration Strategies: Required prior to implementation of northern WCA-3A distribution features (L-4 degrade, new pump station, S-8 Modifications, L-5 and L-6 improvements, Miami Canal Backfilling) to ensure adequate water quality treatment of inflows;

b. 8.5 Square Mile Area (SMA) and Existing S-356: Construction of the C-358 seepage collector canal and structure S-357N within the 8.5 SMA must be completed to

allow full utilization of the 8.5 SMA features to provide seepage mitigation for increasing flows into Northeast Shark River Slough (NESRS); operation of the existing S-356 pump station (500 cfs) is required prior to significantly increasing flows to NESRS, to provide seepage management;

c. C-111 South Dade: Extension of the detention area levees to connect with 8.5 SMA is required prior to significantly increasing flows to NESRS to enable operation of the S-357 pump station to provide seepage management to 8.5 SMA;

d. Modified Water Deliveries (MWD) to ENP 1-Mile Bridge and Road Raising: The MWD project will be complete and operational prior to implementation of WCA-3B inflow structures along the L-67A&C levees or increasing flows through existing S-333 to NESRS to ensure adequate road protection to allow for increased stages in L-29 canal;

e. Broward County Water Preserve Area (BCWPA) C-11 Impoundment: Required prior to increasing flow through S-333 or implementation of WCA-3B inflow structures along the L-67A&C levees to ensure adequate water quality of inflows to WCA-3B and NESRS;

f. Tamiami Trail Next Steps Bridging and Road Raising: Required prior to increasing capacities of S-333 and S-356 and implementation of WCA-3B inflow structures along the L-67A levee, gaps in L-67C levee and Blue Shanty flowway (L-67C removal, L-29 levee removal);

g. Indian River Lagoon (IRL) South C-44 Reservoir and Connection to C-23 Canal: Required prior to re-directing the maximum amount of water from Lake Okeechobee south to the FEB to meet environmental performance, to avoid reduction in low flows to the St. Lucie Estuary and low Lake Okeechobee water levels that affect the Lake Okeechobee Service Area (LOSA); and

h. Modification to the Lake Okeechobee Regulation Schedule (LORS) is anticipated prior to full utilization of the A-2 FEB in order to achieve the complete ecological benefits envisioned through redirecting the full 210,000 acre feet per year on average south and to avoid low lake levels that would affect the LOSA.

11. To ensure that an efficient ecosystem restoration plan was recommended, cost effectiveness/incremental cost analysis (CE/ICA) techniques were used to evaluate alternative restoration plans for system wide restoration. The engineering and planning models utilized to estimate the outputs that were used in the economic analysis were both reviewed and approved for use in the project. The plan recommended for implementation is the conceptual National Ecosystem Restoration (NER) plan, supports the incremental adaptive restoration principles established by the National Research Council, and was prepared in a collaborative environment. Further investigations are

required during pre-construction engineering and design phase for each project feature to determine specific site conditions, develop detailed designs and operations, and evaluate environmental impacts. Further coordination and consultation will be required to fully comply with the Endangered Species Act, the Clean Water Act, the Coastal Zone Management Act, the National Historic Preservation Act, and the National Environmental Policy Act prior to construction of individual project components.

a. The recommended plan benefits more than 1.5 million acres in the Caloosahatchee and St. Lucie Estuaries, WCA-3A, WCA-3B, ENP, and Florida Bay. The benefits to approximately 994,000 acres in WCA-3A, WCA-3B and ENP are derived by increasing the quantity of freshwater inflow to the natural system by 22% and improving sheetflow through the system. This will improve the depths, duration, and movement of water that will help to restore and sustain the ridge and slough landscape. Reducing high volume freshwater discharges from Lake Okeechobee to the Caloosahatchee and St. Lucie Estuaries by 14% and 34% (respectively), improves approximately 86,000 acres in these estuaries by reducing turbidity, sedimentation, and moderating unnatural fluctuations in salinity that are extremely detrimental to estuarine communities. A 28% increase in the quantity of freshwater sent to ENP will bring the benefits to the Everglades as described above, and then when the water reaches Florida Bay at the southern end of the system it will reduce the intensity, frequency, and duration of hypersaline events in the Bay across approximately 476,000 acres. An average salinity decrease of 1.5 parts per thousand will help to re-establish a persistent and resilient estuarine zone that extends further into the bay.

b. In accordance with WRDA 2000 Section 601(f)(2), individual CERP projects shall be justified by the environmental benefits derived by the South Florida ecosystem. The recommended plan improves fish and wildlife habitat in the Caloosahatchee and St. Lucie Estuaries, WCA-3, ENP, and Florida Bay. The Everglades has been designated an International Biosphere Reserve (1976) and a World Heritage Site (1979) by the United Nations Educational, Scientific, and Cultural Organization, and a Wetland of International Importance (1987) in accordance with the Ramsar Convention. The portion of the Everglades ecosystem directly affected by the project provides habitat for 68 federally-listed endangered or threatened species. Programmatic consultation pursuant to Section 7 of the Endangered Species Act (ESA) was conducted on four federally listed species and it was preliminarily determined that CEPP was not likely to jeopardize the continued existence of the Everglade snail kite, Cape Sable seaside sparrow, wood stork, and eastern indigo snake, nor adversely modify the critical habitat, where applicable, of the species listed above. Further consultation on project effects to federally listed species will occur during the planning, engineering, and design phase of CEPP.

12. Section 601(e)(5)(B) of WRDA 2000 authorizes the Secretary of the Army to provide credit to the non-federal sponsor for work completed by it during the period of

construction pursuant to a project partnership agreement and a determination by the Secretary that the work is integral to the CERP. Such credit would be applied toward the non-federal sponsor's share of the costs associated with the implementation of the CERP as authorized by Section 601(e)(5)(C) of WRDA 2000, shall not include cash reimbursements, and shall be subject to: (a) the authorization of CEPP by law; (b) a determination by the Secretary of the Army that the activities are integral to the CERP restoration project; (c) that the costs are reasonable, allowable, necessary, auditable, and allocable; and (d) that the activities have been implemented in accordance with USACE design and construction standards and applicable federal and state laws.

13. The project complies with the following requirements of WRDA 2000:

a. Project Implementation Report. The requirements of a PIR as defined by Section 601(h)(4)(A.).

b. Water Made Available for the Natural System, Water to be Reserved or Allocated for the Natural System and Water for Other Water-Related Needs. Sections 601(h)(4)(A)(iii)(IV) and (V) require identification of the appropriate quantity, timing, and distribution of water dedicated and managed for the natural system and the amount of water to be reserved or allocated for the natural system. In accordance with the regulations, an analysis was conducted to identify water dedicated and managed for the natural system. Accordingly, the non-federal sponsor will protect the water that was identified as necessary to achieve the benefits of the project, using water reservation or allocation authority under Florida law, subject to the provisions of Paragraph 9(e)(i) of this Report.

c. Effects on Existing Legal Sources of Water. Section 601(h)(5)(A) states that existing legal sources of water shall not be eliminated or transferred until a new source of water supply of comparable quantity and quality is available to replace the water to be lost as a result of the CERP. An analysis of project effects on existing legal sources of water was conducted and it was determined that sources of water to meet agricultural and urban demand in the LOSA and Lower East Coast Service Areas (LECSAs) will continue to be met by their current sources, primarily Lake Okeechobee, the Everglades (including the WCAs), surface water in the regional canal network, and the surficial aquifer system. Sources of water for the Seminole Tribe of Florida and Miccosukee Tribe of Indians of Florida are also influenced by the regional water management system (C&SF Project, including Lake Okeechobee); however these sources will not be affected by the CEPP project. In addition, water supplies to ENP with implementation of the recommended plan exceed future without project and existing condition baseline volumes. Water sources necessary for fish and wildlife located in the Caloosahatchee and St Lucie Estuaries, WCA-2, WCA-3, Biscayne Bay, and Florida Bay will not be diminished.

(1) There will be no elimination or transfer as a result of the recommended plan on existing legal sources of water supply for the following:

- Agricultural or urban water supply in the LECSA.
- Allocation or entitlement to the Seminole Tribe of Florida under Section 7 of the Seminole Indian Land Claims Settlement Act of 1987 (25 U.S.C. 1772e).
- The Miccosukee Tribe of Indians of Florida.
- Water supply for ENP.
- Water supply for fish and wildlife.

(2) Some of the water utilized by agricultural users in the LOSA from Lake Okeechobee will be transferred to WCA-3 and further south as a result of the implementation of the recommended plan. This transfer is anticipated to occur after the modification of the LORS that will allow full utilization of the A-2 FEB; the CEPP PIR anticipates that the need for modifications to the LORS will be initially triggered by non-CEPP actions and that these actions will occur earlier than implementation of CEPP. The recommended plan has identified an additional source of water of comparable quantity and quality that will be available to replace the water sent south. Instead of discharging all water stored in the CERP Indian River Lagoon-South C-44 Reservoir/STA to tide via the S-80 or to meet C-44 Basin agricultural water supply demands, as assumed in the future without project baseline condition operations, the recommended plan retains a portion of the water stored in the C-44 Reservoir/STA in the regional system for backflow to Lake Okeechobee via the C-44 Canal and raises the Lake Okeechobee stage criteria to allow increased C-44 Canal backflow. This added operation does not affect existing permitted allocations within the C-44 Basin. The additional C-44 Canal backflow operations to Lake Okeechobee included in the recommended plan improves the ability to meet existing permitted demands in the LOSA by retaining more water in the regional system and making it available to agricultural users. The recommended plan backflow operations capture a portion of releases from the C-44 Reservoir/STA that would otherwise be directed to the Saint Lucie Estuary as excess water.

d. Maintenance of Flood Protection. Section 601 (h)(5)(B) states that the Plan shall not reduce levels of service for flood protection that are in existence on the date of enactment of this Act and in accordance with applicable law. Comparison of canal stages and groundwater levels indicate that implementation of the project will not reduce the levels of service for flood protection within the areas affected by the project, including the EAA, LECSA 2 (Broward County), and LECSA 3 (Miami-Dade County). This includes the areas affected by the project including the Seminole Tribe of Florida's Big Cypress Reservation and the Miccosukee Tribe of Indians of Florida's reservation areas.

14. On 10 April 2014, the non-federal sponsor's, the South Florida Water Management District (SFWMD), Governing Board (Board) passed Resolution Number 2014-0410, authorizing a letter of support for the CEPP and affirming financial capability to act as the non-federal sponsor. The Board based its implementation, approval, or operation of CEPP features upon several conditions.

a. Recognizing that CEPP has only received a programmatic Biological Opinion from the U.S. Fish and Wildlife Service (USFWS), pursuant to Section 7 of the Endangered Species Act, and that further Section 7 consultations would be required, the Board conditioned its support of CEPP on the Board's approval of requirements in future Biological Opinions, prior to execution of PPAs for CEPP. Sharing this concern, paragraph 15.c documents the requirement that Jacksonville District will provide USACE Headquarters future draft biological opinions for review and approval.

b. Section 4 of the Resolution authorized the Director of Administrative Services Division to sign the CEPP Non-Federal Sponsor's Self-Certification of Financial Capability subject to the condition that "[a]pproval of future fiscal year state budgets by the State Legislature and Governor, and District budgets for CEPP by the State Legislature, Governor and District Governing Board." This condition was deemed unacceptable by USACE and on 9 December 2014, SFWMD submitted a revised sponsor self-certification of financial capability, removing the condition of future approval of state and SFWMD budgets as set forth in the resolution.

c. The sponsor letter of support, however, was not revised and is limited to the terms and conditions set forth in the Board's Resolution. The two conditions described in the Board's Resolution, changing a court-ordered compliance methodology and the development of joint measures for addressing a future exceedance of state water quality requirements, are worded differently than language previously agreed to by the Assistant Secretary of the Army (Civil Works) and SFWMD on the issue of water quality, and seem to require specific outcomes prior to state approval of CEPP. (See Section 8 of the PIR/EIS and paragraph 19 of this Report). The state is currently subject to a Consent Decree (US v. SFWMD, et al., Case No. 88-1886-CIV-Moreno (U.S.D.C., S.D. Fla.)) and state water quality permits requiring certain actions to maintain the state's compliance with the Clean Water Act. The Consent Decree is a judicially enforceable legal instrument overseen by a federal district court judge. Changes to that Decree or the Clean Water Act permits obtained by the SFWMD in association with it are not within the unilateral authority of the United States and/or the State of Florida. Any changes are subject to review and actions by the several parties involved in the litigation and ultimately are subject to the review, alteration, rejection, and/or order of the court. Such an action is beyond the control of both the USACE and the non-federal sponsor for the CEPP project. Furthermore, such action is not within the scope of the CEPP project and therefore would not be appropriate to attempt to accomplish it through CEPP.

d. The language included in Section 8 of the PIR was negotiated with the non-federal sponsor precisely to develop a process for addressing future water quality issues and was to have been the resolution of that concern. Immediately following the conditions described above, in its Resolution the Board actually cites to the PIR/EIS language as what should be used to govern water quality issues with regard to the implementation and operation of CEPP project features. The negotiated language does not require changes in the court-ordered compliance methodology prior to non-federal sponsor support, nor does it presuppose that joint measures be prescribed prior to an exceedance occurring. An exceedance would require a review of the event not only to determine causation, but to also determine what if any measures are necessary to address the exceedance, jointly or otherwise. As such, the negotiated language acknowledges a process by which these issues may be addressed and does not presuppose the outcome. This was the successful process that was implemented to address the Water Year 2012 monitoring issues. The negotiated language in Section 8 of the PIR/EIS, and presented below in paragraph 19, has been agreed upon and describes how such issues will be addressed.

15. Due to the high risks and uncertainties associated with CEPP, the long implementation time, and the significant dependencies on other CERP and non-CERP projects, a number of risk management measures have been developed to ensure future coordination with USACE Headquarters and, as needed, the Office of the Assistant Secretary of the Army (Civil Works). Limited Revaluation Reports (LRRs) are planned to support each of the three PPAs by providing more detailed information and documenting changed conditions. Significant changes from the PIR/EIS may warrant a General Reevaluation Report. The LRR for the final PPA (new water) will be processed through the Office of the Assistant Secretary of the Army (Civil Works).

a. Jacksonville District will provide an annual status report to South Atlantic Division and USACE Headquarters and will conduct a briefing that addresses overall project progress and key uncertainties and/or decisions required as implementation progresses. It will include an update on implementation of CEPP features and those non-CEPP projects on which CEPP is dependent.

b. Jacksonville District will coordinate with South Atlantic Division and USACE Headquarters to develop an adaptive management strategy regarding cost share of OMRR&R of state facilities and C&SF features (see paragraph 9.e); and will provide an analysis of operations at state facilities and C&SF features in providing needed capacity for CEPP flows after CEPP is implemented.

c. Jacksonville District will provide to the South Atlantic Division and USACE Headquarters: draft biological opinions pursuant to ESA for review and approval; notification of development of additional NEPA documents; and, Jacksonville District will

coordinate during planning, engineering and design phase the definition of activities at state facilities as either repair, replacement or rehabilitation actions;

d. If applicable, Jacksonville District will coordinate and obtain approval from USACE Headquarters: for the government to cost share OMRR&R of additional state facilities and C&SF features not identified in the PIR/EIS; for the government to cost share replacement and rehabilitation actions at state facilities; for any changes to the three CEPP implementation phases; to determine appropriate course of action should state water quality compliance not be met after construction and operation of CEPP; and, to use less than a fee estate, including any permits or other instruments obtained for real estate interests other than the provision of fee property for the project, except for the temporary construction easements and the borrow easements, which are approved.

e. USACE policies and procedures will generally be followed for coordination and approval of Project Partnership Agreements, Post-Authorization Change Reports, and Section 408 permits for modifications to federal projects. Early vertical coordination with USACE Headquarters will occur on any policy and legal issues.

16. In accordance with the USACE Engineering Circular on review of decision documents, all technical, engineering, and scientific work underwent an open and dynamic review process to ensure technical quality. This included District Quality Control, (DQC), Agency Technical Review (ATR), Independent External Peer Review (IEPR), and a USACE Headquarters policy and legal review.

a. All concerns of the DQC and ATR have been addressed and incorporated into the final report. The IEPR was managed by Battelle Memorial Institute, a non-profit science and technology organization with experience in establishing and administering peer review panels for the USACE. Eight comments were identified and documented. The comments of high significance were related to potential adverse impacts to cultural resources associated with two federally recognized Native American tribes. Additional information regarding compliance with applicable laws and regulations was provided and the final PIR/EIS included clarification of the plan of action to address cultural resources. All IEPR comments have been addressed in the final report.

b. The final PIR/EIS was published for State and Agency and public review on 8 August 2014. The comment period was extended upon request to 3 October 2014. Many of the comments received from federal and state agencies and the public were favorable and in support of the project. More extensive comments were received from the Seminole Tribe of Florida, the USEPA, and the State of Florida Department of Environmental Protection (FDEP) and Department of Agricultural and Consumer Services (FDACS).

(1) The Seminole Tribe of Florida's (Seminole Tribe) support of CEPP is based on the understanding that the USACE and SFWMD will continue to work with the Seminole Tribe towards restoring and re-hydrating the Western Everglades system. The Seminole Tribe disagreed with the USACE determination that the project is yet in compliance with Section 106 of the National Historic Preservation Act (NHPA); was concerned with the lack of meaningful discussion of measures to avoid, minimize or mitigate impacts to cultural resources; disagreed with applicability of the Everglades Restoration Transition Plan (ERTP) Programmatic Agreement and associated Human Remains Policy; and expressed concerns for cultural resources on state owned lands and management of those resources prior to CEPP authorization. The USACE has determined that compliance appropriate for this phase of the study has been achieved, but the PIR/EIS acknowledges that due to the conceptual nature of the recommended plan and lack of site specific information, consultation per the NHPA will continue during planning, engineering, and design phases through completion of construction. The PIR/EIS provides specific examples of avoidance measures and potential effects to cultural resources were determined through consultations with Native American Tribes, Everglades National Park, the Advisory Council on Historic Preservation, the State Archeologist and others. The USACE recognizes that the Programmatic Agreement and associated Human Remains Policy that applies to ERTP provide principles and treatment measures that are generally relevant to USACE activities, but the Agreement is only applicable to ERTP. As agreed upon during consultation, the Burial Resources Agreement will apply to the treatment of burial resources for CEPP implementation.

(2) The USEPA provided significant comments regarding assurances that flows to the Everglades meet applicable water quality standards and concerns with the later phase implementation of the A-2 FEB which provides a substantial portion of the hydrological benefits of CEPP. The PIR/EIS indicates that completion of the A-1 FEB through the State of Florida's Restoration Strategies project is required prior to implementation of the CEPP northern WCA-3A distribution features to ensure adequate water quality treatment of inflows. Additionally, the benefits of PPA New Water phase (which includes the A-2 FEB) are dependent on features in PPA North and PPA South phases. An agreement for the PPA New Water phase may be executed after agreements for both PPA North and PPA South phases are complete. Construction may be in parallel.

(3) The State of Florida provided comments from agencies that were conflicting in their support of the recommended plan. Significant comments were received from FDEP and FDACS. While FDEP expressed staunch support for expediting the CEPP project to achieve the system-wide ecological benefits, they were concerned with the discussion in paragraph 14 of the proposed report of the Chief of Engineers. This section is included in this Report to reiterate the process negotiated and agreed to by the non-federal sponsor and the Assistant Secretary of the Army (Civil Works) that will be used to address water quality issues during CEPP implementation.

Additionally, this Report makes clear that the court-ordered compliance methodology is beyond the control of both the USACE and the non-federal sponsor and cannot be addressed through CEPP as requested by the FDEP.

The FDACS recognized the value of the CEPP as a planning process, but does not believe it satisfies the planning requirements necessary for preparation of a PIR to implement CERP components. There are a suite of project dependencies that are necessary to meet the Savings Clause requirements of CERP and provide other project assurances. The FDACS believes the constraints should be reasonably resolved prior to authorization and such resolution should occur within the context of PIRs prepared for implementing the CERP components. Additionally, the FDACS is concerned that a number of project dependencies associated with the CEPP are substantial and affect compliance under Florida law. The PIR/EIS recognizes the risks and uncertainties of the CEPP and prior to implementation of each phase of the project, additional detailed information pertaining to that phase will be developed. The PIR will be updated as appropriate as revisions are made to Water Control Plans and Project Operating Manuals for each phase. The USACE will ensure that all legal requirements are met for each phase and compliance will be maintained throughout the entirety of CEPP implementation.

c. Washington level review indicates that the plan recommended by the reporting officers is environmentally justified, technically sound, cost effective, and socially acceptable. The plan conforms to essential elements of the 1983 U.S. Water Resources Council's Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies and complies with other administration and legislative policies and guidelines. The views of interested parties, including federal, state and local agencies have been considered.

17. I generally concur with the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that the plan described herein for ecosystem restoration and recreation be authorized in accordance with the reporting officers' recommended plan at an estimated project first cost of $1,951,000,000, 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 601 of WRDA 2000, as amended. In addition, I recommend that the non-federal sponsor be authorized to receive credit for work accomplished prior to execution of a PPA for this project, in accordance with the terms described in paragraph 18 of this Report. The non-federal sponsor would provide the non-federal cost share and all lands, easements, rights of way, relocations, and dredged or excavated material disposal areas. The non-federal sponsor would be responsible for all OMRR&R.

18. This recommendation is subject to the non-federal sponsor agreeing to comply with all applicable federal laws and the following items of local cooperation:

a. Provide 50 percent of total project costs consistent with the provisions of Section 601(e) of WRDA 2000, as amended, including authority to perform design and construction of project features consistent with federal law and regulation;

b. Provide all lands, easements, and rights-of-way, including suitable borrow and dredged or excavated material disposal areas, and perform or assure the performance of all relocations that the government and the non-federal sponsor jointly determine to be necessary for the construction and OMRR&R of the project and valuation will be in accordance with the Master Agreement;

c. Shall not use the ecosystem restoration features or lands, easements, and rights-of way required for such features as a wetlands bank or mitigation credit for any other non-CERP projects;

d. Give the government a right to enter, at reasonable times and in a reasonable manner, upon land that the non-federal sponsor owns or controls for access to the project for the purpose of inspection, and, if necessary, for the purpose of constructing, completing, operating, maintaining, repairing, replacing, or rehabilitating the project;

e. Assume responsibility for OMRR&R of the project or completed functional portions of the project, including mitigation features, in a manner compatible with the project's authorized purposes and in accordance with applicable federal and state laws and specific directions prescribed in the OMRR&R manuals and any subsequent amendments thereto. Cost sharing for OMRR&R will be in accordance with Section 601(e) of WRDA 2000, as amended. Notwithstanding Section 528(e)(3) of WRDA 1996 (110 Stat. 3770), the non-federal sponsor shall be responsible for 50 percent of the cost of OMRR&R activities authorized under this section;

f. The State of Florida shall provide the USACE an opportunity to collaborate, review and comment on the State Operations Plans for the state facilities used by CEPP, including updates to optimize operations for federal project purposes;

g. The non-federal sponsor shall OMRR&R the recreational features of the project and is responsible for 100 percent of the cost;

h. Keep the recreation features, and access roads, parking areas, and other associated public use facilities, open and available to all on equal terms;

i. Unless otherwise provided for in the statutory authorization for this project, comply with Section 221 of the Flood Control Act of 1970 (Public Law 91-611), as

amended, and Section 103 of WRDA 1986 (Public Law 99-662), as amended, which provides that the Secretary of the Army shall not commence the construction of any water resources project or separable element thereof, until the non-federal sponsor has entered into a written agreement to furnish its required cooperation for the project or separable element;

j. Hold and save the government free from all damages arising from construction and OMRR&R of the project and any project-related betterments, except for damages due to the fault or negligence of the government or the government's contractors;

k. Keep and maintain books, records, documents, and other evidence pertaining to costs and expenses incurred pursuant to the project to the extent and in such detail as will properly reflect total project costs in accordance with the Master Agreement between the Department of the Army and the non-federal sponsor dated 13 August 2009, including Article XI Maintenance of Records and Audit;

l. Perform, or cause to be performed, 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 USC 9601-9675, that may exist in, on, or under lands, easements or rights-of-way necessary for the construction, operation, and maintenance of the project; except that the non-federal sponsor shall not perform such investigations on lands, easements, or rights-of-way that the government determines to be subject to the navigation servitude without prior specific written direction by the government;

m. Assume complete financial responsibility for all necessary cleanup and response costs of any CERCLA regulated materials located in, on, or under lands, easements, or rights-of-ways that the government determines necessary for construction, operation, maintenance, repair, replacement and rehabilitation;

n. As between the government and the non-federal sponsor, the non-federal sponsor shall be considered the operator of the project for purposes of CERCLA liability. To the maximum extent practicable, the non-federal sponsor shall OMRR&R the project in a manner that will not cause liability to arise under CERCLA;

o. Prevent obstruction of 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 ecosystem restoration features, hinder operation and maintenance of the project, or interfere with the project's proper function;

p. Comply with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646), as amended by title IV of the Surface Transportation and Uniform Relocation Assistance Act of 1987 (Public Law 100-17), and the Uniform Regulations contained in 49 CFR part 24, in acquiring lands, easements, and rights-of-way, and performing relocations for construction, operation, and maintenance of the project, and inform all affected persons of applicable benefits, policies, and procedures in connection with said act;

q. Comply with all applicable federal and state laws and regulations, including, but not limited to, Section 601 of the Civil Rights Act of 1964 (Public Law 88-352 [42 U.S.C. 2000d]) and Department of Defense Directive 5500.11 issued pursuant thereto; Army Regulation 600-7, entitled "Nondiscrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army;" and all applicable federal labor standards requirements including, but not limited to, 40 U.S.C. 3141-3148 and 40 U.S.C. 3701-3708 (revising, codifying and enacting without substantive change the provisions of the Davis-Bacon Act [formerly 40 U.S.C. 276a et seq.], the Contract Work Hours and Safety Standards Act [formerly 40 U.S.C. 327 et seq.] and the Copeland Anti-Kickback Act [formerly 40 U.S.C. 276c]);

r. Comply with Section 106 of the National Historic Preservation Act in completion of all consultation with the Florida State Historic Preservation Officer, and other interested parties including federally recognized Tribes and as necessary, the Advisory Council on Historic Preservation, prior to construction as part of the Preconstruction Engineering and Design phase of the Project;

s. Provide 50 percent of that portion of total data recovery activities associated with historic preservation that exceed one percent of the amount authorized to be appropriated for CEPP; data recovery costs under one percent of the authorized CEPP cost will be funded in its entirety by the government. Any costs of data recovery that exceed one percent of the amount authorized to be appropriated for CEPP shall not be included in project construction costs or project OMRR&R costs (as defined by the Master Agreement); therefore, credit shall not be afforded to the non-federal sponsor for costs or work in kind associated with data recovery activities that exceed one percent of the amount authorized to be appropriated for CEPP;

t. Do not use federal funds to meet the non-federal sponsor's share of total project costs unless the federal granting agency verifies in writing that the expenditure of such funds is expressly authorized and in accordance with Section 601 (e)(3) of WRDA 2000, as amended, and in accordance with the Master Agreement;

u. The non-federal sponsor agrees to participate in and comply with applicable federal floodplain management and flood insurance programs consistent with its statutory authority:

(1) Not less than once each year the non-federal sponsor shall inform affected interests of the extent of protection afforded by the project;

(2) The non-federal sponsor shall publicize flood plain information in the area concerned and shall provide this information to zoning and other regulatory agencies for their use in preventing unwise future development in the flood plain and in adopting such regulations as may be necessary to prevent unwise future development and to ensure compatibility with protection levels provided by the project;

(3) The non-federal sponsor shall comply with Section 402 of WRDA 1986, as amended (33 U.S.C. 701b-12), which requires a non-federal interest to have prepared, within one year after the date of signing a project partnership agreement for the project, a floodplain management plan. The plan shall be designed to reduce the impacts of future flood events in the project area, including but not limited to, addressing those measures to be undertaken by non-federal interests to preserve the level of flood protection provided by the project. As required by Section 402, as amended, the non-federal interest shall implement such plan not later than one year after completion of construction of the project. The non-federal sponsor shall provide an information copy of the plan to the government upon its preparation;

(4) The non-federal sponsor shall prescribe and enforce regulations to prevent obstruction of or encroachment on the project or on the lands, easements, and rights-of-way determined by the government to be required for the construction and OMRR&R of the project, that could reduce the level of protection the project affords, hinder operation or maintenance of the project, or interfere with the project's proper function.

v. The non-federal sponsor shall execute, or certify that the Florida Department of Environmental Protection (FDEP) executed, under state law the reservation or allocation of water for the natural system as identified in the PIR as required by Section 601(h)(4)(B)(ii) of WRDA 2000 and the non-federal sponsor shall provide information to the government regarding such execution. In compliance with 33 CFR 385, the District Engineer will verify such reservation or allocation in writing. Any change to such reservation or allocation of water shall require an amendment to the project partnership agreement after the District Engineer verifies in writing in compliance with 33 CFR 385 that the revised reservation or allocation continues to provide for an appropriate quantity, timing, and distribution of water dedicated and managed for the natural system after considering any changed circumstances or new information since completion of the PIR for the authorized CERP project.

w. Consistent with the 14 September 2011 Memorandum from the Assistant Secretary of the Army (Civil Works) the non-federal sponsor shall be 100% responsible for the cost of all actions taken due to the presence of residual agricultural chemicals, at

no expense to the government and any future costs associated with the presence of residual agricultural chemicals at the federal project site are 100% a non-federal sponsor cost and responsibility. As stated in the 14 September 2011 Memorandum, normal project engineering and construction activities will remain part of the total project cost provided that these are the same activities required to implement the project features absent the presence of residual agricultural chemicals.

19. In addition to the aforementioned items of local cooperation, the USACE, the Assistant Secretary of the Army (Civil Works) and the non-federal sponsor agreed on the following concepts regarding water quality that is intended to govern the implementation and operation of CEPP project features:

a. Restoration of the Everglades requires projects that address hydrologic restoration as well as water quality improvement. This has been recognized by the National Academy of Sciences in its most recent biennial report where it noted that near-term progress to address both water quality and water quantity improvements in the central Everglades is needed to prevent further declines of the ecosystem. The significant amount of water resulting from CEPP is contemplated to significantly improve restoration of the Everglades. Both the federal and state parties recognize that water quantity and quality restoration should be pursued concurrently and have collaborated to develop and concur on a suite of restoration strategies being implemented by the state to improve water quality ("State Restoration Strategies"), as well as other state and federal restoration projects, both underway and planned, to best achieve Everglades hydrologic objectives. Specific examples of federally authorized projects include the Everglades Restoration Transition Plan, Modified Water Deliveries to Everglades National Park Project, and the Tamiami Trail Next Steps Project. One of the goals of these projects and their associated operating plans, as well as certain components of the CERP awaiting authorization or that are being planned as part of the CEPP is to improve water quantity and quality in the Everglades through more natural water flow within the remnant Everglades which includes the water conservation areas and ENP. Variations in flows of the C&SF system may result from a variety of reasons. These reasons include natural phenomena (e.g. weather) and updates to the operating manuals to achieve the purposes of the C&SF Project such as flood control and water supply.

b. One goal of the Consent Decree is to restore and maintain water quality within ENP. The Consent Decree established, among other things, long-term water quality limits for water entering ENP to achieve this goal. The existing limits for ENP are flow dependent and, generally, increased volume of water results in a lower allowable concentration of phosphorus to maintain the overall load of phosphorus entering the ENP. There will be redistribution of flows and increased water volume above existing flows associated with system restoration efforts beyond the current State Restoration Strategies projects. The USACE and its federal and state partners recognize that to

achieve long-term hydrologic improvement, water quality may be impacted, particularly as measured by the current Consent Decree Appendix A compliance methodology. The USACE and the state partners agree that the monitoring locations/stations for inflows to ENP will require revision. An evaluation of this and other aspects of the compliance methodology are currently being conducted by the Technical Oversight Committee (TOC).

c. In an effort to address these potential impacts and determine updates to Appendix A to reflect increased inflows and new discharges into ENP since the Consent Decree was entered, the parties to the Consent Decree have established a process and scope for evaluating and identifying necessary revisions to the Appendix A compliance methodology utilizing the scientific expertise of the TOC. The TOC may consider all relevant data, including the 20 years of data collected since Appendix A was implemented. Ultimately, such evaluations and changes to the Appendix A compliance methodology would be recommended by the Consent Decree's TOC for potential agreement by all parties. Failure to develop a mutually agreed upon and scientifically supportable revised compliance methodology will impact the State's ability to implement or approve these projects.

d. The aforementioned State Restoration Strategies will be implemented under a Clean Water Act discharge permit that incorporates and requires implementation of corrective actions required under a State law Consent Order, as well as a Framework Agreement between the U.S. Environmental Protection Agency and the state discharge permitting agency, the Florida Department of Environmental Protection, to ensure compliance with Clean Water Act and State water quality requirements for existing flows into the Everglades. The Clean Water Act permit for the state facilities, the associated Consent Order (including a detailed schedule for the planning, design, construction, and operation of the new project features), and technical support documents were reviewed by, and addressed all of, the U.S. Environmental Protection Agency's previous objections related to the draft NPDES permits, prior to issuance.

e. All parties are committed to implementing the State Restoration Strategies, joint restoration projects, and associated operational plans, in an adaptive manner that is consistent with the objectives of the underlying C&SF Project. The USACE and the state will use all available relevant data and supporting information to inform operational planning and decision making, document decisions made, and evaluate the resulting information from those decisions to avoid adverse impacts to water quality where practicable and consistent with the purposes of the C&SF Project. Based upon current and best available technical information, the federal parties believe at this time that the State Restoration Strategies, implemented in accordance with the State issued Consent Order and other joint restoration projects, are sufficient and anticipated to achieve water quality requirements for existing flows to the Everglades. If there is an exceedance of the Appendix A compliance limits, which results from a change in operation of a federal

project, and it has been determined that an exceedance cannot be remedied without additional water quality measures, the federal and state partners agree to meet to determine the most appropriate course of action, including what joint measures should be undertaken as a matter of shared responsibility. These discussions will include whether it is appropriate to exercise any applicable cost share authority. If additional measures are required and mutually agreed upon, then they shall be implemented in accordance with an approved process, such as a general reevaluation report or limited reevaluation report, and if necessary, supported through individual project partnership agreements. Failure to develop mutually agreed upon measures and cost share for these measures may impact the state's ability to operate the federal project features.

20. 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 sponsor, the state, interested federal agencies, and other parties will be advised on any significant modifications and will be afforded an opportunity to comment further.

THOMAS P. BOSTICK
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DAEN

SEP 8 2015

SUBJECT: Charleston Harbor Post 45 Navigation Study, Charleston, South Carolina

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress the final integrated feasibility report and environmental impact statement on navigation improvements for Charleston Harbor, Charleston, South Carolina. It is accompanied by the report of the district and division engineers. This report was prepared under the authority of Section 216 of the Flood Control Act of 1970, Public Law 91-611, 91st Congress, H.R. 19877, December 31, 1970, which authorizes the review of completed projects to recommend modifications to their structures or operation, and for improving the quality of the environment in the overall public interest. Planning, engineering, and design activities for the Charleston Harbor Post 45 Navigation Project will continue under this same authority. Charleston Harbor has strategic national importance for military readiness. It supports Joint Base Charleston, which includes the U.S. Air Force 628th Air Base Wing, Air Mobility Command at Charleston Air Force Base and the U.S. Navy Naval Support Activity, Charleston containing the Naval Weapons Station Charleston and host to over 60 Department of Defense and federal agencies. Joint Base Charleston maintains base property and capital assets spanning three seaports, two civilian-military airfields, 38 miles of rail, and 22 miles of coastline; facilitates movement of critical munitions and military vehicles; and participates in the Global Threat Reduction Initiative. Charleston Harbor is also identified as a critical infrastructure project in the President's "We Can't Wait" Press Release, under Executive Order 13604, March 22, 2012.

2. The reporting officers recommend a project that will contribute to the economic efficiency of commercial navigation. The national economic development (NED) Plan includes a channel project depth of -50 feet Mean Lower Low Water (MLLW) with associated channel widening and turning basins. Based on Fiscal Year (FY) 2015 price levels, a 3.375-percent discount rate, and a 50-year period of analysis, the project first cost of the NED Plan is $448,700,000, with average annual benefits of $103,100,000; average annual costs of $25,700,000; and a benefit-to-cost ratio of 4.0. The non-federal sponsor, the South Carolina Ports Authority (SCPA), subsequently requested a locally preferred plan (LPP) with a project depth of -52 feet MLLW containing associated channel widening and turning basins. The LPP has positive net benefits and is economically justified. In accordance with U.S. Army Corps of Engineers (Corps) policy, the LPP was submitted for consideration to the Assistant Secretary of the Army for Civil Works (ASA(CW)) and approved for consideration as the recommended plan on October 1, 2014. The recommended plan is the LPP and consists of the following navigation improvements (depths do not include overdepth or advance maintenance depths):

a. Deepen the existing entrance channel from a project depth of -47 feet to -54 feet MLLW over the existing 800-foot bottom width, while reducing the existing stepped 1,000-foot top channel width to 944 feet. The entrance channel will be extended approximately three miles seaward from the existing location to a depth contour of -54-foot MLLW.

b. Deepen the inner harbor from an existing project depth of -45 feet to -52 feet MLLW from the Entrance Channel to the confluence of the Wando and Cooper Rivers, about two miles up the Wando River to the Wando Welch container facility and about three miles up to the Cooper River to the New Navy Base Terminal, and to a project depth of -48 feet MLLW over the five mile reach leading from the New Navy Base Terminal to the North Charleston container facility (over expanded bottom widths from 400 to 1,800 feet).

c. Enlarge the existing turning basins to a 1,800-foot diameter at the Wando Welch and New Navy Base terminals to accommodate Post Panamax Generation 2 and 3 container ships and widen selected reaches including Mt. Pleasant Reach (Cooper River Mile 18), Bennis Reach (Cooper River Mile 21), Horse Reach (Cooper River Mile 22), Hog Island Reach (Cooper River Mile 23), Wando River Lower Reach (1 mile upriver from the Cooper River), Wando River Upper Reach (2 miles upriver from the Cooper River), Drum Island Reach (Cooper River Mile 24), Myers Bend Reach (Cooper River Mile 25), Daniel Island Reach (Cooper River Mile 26), Clouter Creek Reach (Cooper River Mile 28), North Charleston Reach (Cooper River Mile 30), Filbin Creek Reach (Cooper River Mile 31), Port Terminal Reach (Cooper River Mile 32), and Ordnance Reach (Cooper River Mile 32.5).

d. Enlarge the North Charleston Terminal turning basin to a 1,650-foot diameter for Post Panamax Generation 2 container ships.

e. Under the least cost disposal option, about 29 million cubic yards of dredged material would be placed in the modified Ocean Dredged Material Disposal Site (ODMDS); about 2.9 million cubic yards would be placed in Daniel Island Disposal Area; about 900,000 cubic yards would be placed in Clouter Creek Disposal Area; about 2.3 million cubic yards would be placed in Yellow House Creek Disposal Area; about 360,000 cubic yards of rock would be used for artificial reef mitigation; approximately 6.3 million cubic yards of rock for ODMDS berm construction; about 1.9 million cubic yards of rock for reef construction at eight different sites (including two sites required for mitigation) along either side of the entrance channel; and about 240,000 cubic yards of rock would be placed at an existing South Carolina Department of Natural Resources artificial reef site. The total rock placement is anticipated to beneficially create approximately 664 acres of high relief hardbottom habitat in an area that currently contains relatively limited amounts of patchy low-relief habitat. The construction of the hardbottom reefs will create essential fish habitat and result in significant habitat benefits to a variety of offshore resources, and incidental benefits to both recreational and commercial fishing.

f. An environmental impact statement (EIS) 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 includes mitigation consisting of 1) purchase and preservation of up to approximately 665 acres of wetlands to compensate for indirect impacts (salinity increases) to up to approximately 324 acres of freshwater forested and herbaceous wetlands and 2) creation of approximately 33 acres of artificial reef habitat to compensate for direct impacts to approximately 29 acres of existing hardbottom habitat within the entrance channel. Creation of the artificial reef is part of the project's base disposal plan. The land acquired for wetland mitigation would be transferred to the United States Forest Service and managed as a part of the Francis Marion National Forest. The total cost of the LPP's mitigation plan is $3,030,000. In comparison, the NED Plan would impact about 232 acres of wetlands and require mitigation, consisting of the purchase and preservation of up to an estimated 476 acres at a total mitigation plan cost of $2,180,000.

g. 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 about 831,000 cubic yards per year. The existing project footprint would continue to be maintained according to current practice at project depth plus 2 feet of advanced maintenance and 2 feet of allowable overdepth in most channel areas.

h. Environmental monitoring of wetlands, water quality, and hardbottoms will include an estimated 9 years of monitoring, including pre-construction monitoring (1 year), construction-concurrent monitoring (3 years), and post-construction monitoring (5 years) at an estimated cost of $10,620,000. 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. However, in order to address concerns expressed by resource agencies about uncertainty in the ability to predict changes at specific locations and the potential for unanticipated erosion impacts, particularly at Fort Sumter, monitoring will also include a 9-year evaluation of wave, current, and shoreline changes at an estimated cost of $5,310,000. If post-construction monitoring indicates that additional monitoring or corrective action as part of the federal project is warranted, the Corps could share in the cost of the additional efforts. The project monitoring costs are the same for both the LPP and NED Plan.

i. A Biological Opinion (BiOp) was received from the National Marine Fisheries Service on 22 April 2015 and amended on 11 May 2015. The BiOp covers the following listed species: loggerhead, green, leatherback, hawksbill, and Kemp's ridley sea turtles; North Atlantic right and humpback whales; and Atlantic and shortnose sturgeon. The USACE will adhere to all reasonable and prudent measures and terms and conditions as laid out in the BiOp.

3. Project Cost Breakdown based on FY 2015 (October 2014) prices.

a. Project First Cost: The estimated project first cost is $493,300,000, which includes the cost of constructing the General Navigation Features (GNFs) and the value of any lands, easements, rights of way, and relocations (LERR) estimated as follows: $452,700,000 for channel modifications, $5,310,000 for monitoring of shoreline erosion, $10,620,000 for environmental monitoring of wetlands and hardbottom, $9,110,000 environmental mitigation hardbottoms, $3,030,000 for environmental mitigation of wetlands and associated real estate administrative costs, $5,600,000 Planning Engineering and Design (PED), and $6,930,000 Construction Management. The South Carolina Port Authority is the non-federal cost-sharing sponsor for all features.

b. Estimated Federal and Non-Federal Cost Shares: The estimated federal and non-federal shares of the project first cost are $224,300,000 and $269,000,000 respectively, as apportioned in accordance with the cost sharing provisions of Section 101 of WRDA 1986, as amended (33 U.S.C. 2211), as follows:

(1) The cost for the deepening of the GNFs from greater than -45 feet MLLW to -50 feet will be shared at a rate of 50 percent by the government and 50 percent by the non-federal sponsor. Accordingly, the federal and non-federal shares of the estimated costs in this zone are estimated to be $224,300,000 each; plus

(2) The cost for the deepening of the GNFs from -50 feet MLLW to -52 feet will require the non-federal sponsor to pay the difference between the NED Plan project depth of -50 feet and the sponsor's LPP project depth of -52 feet. Accordingly, the federal and non-federal shares of the estimated costs for the LPP are estimated to be $224,300,000 and $269,000,000 respectively.

c. Additional 10 Percent Payment. In addition to the non-federal sponsor's estimated share of the project first cost of constructing the project in the amount of $269,000,000, 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% of the costs for NED GNFs of the project, estimated at $44,870,000 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 LERR is credited toward this additional 10 percent payment. However, for this project, the only LERR required are those for fish and wildlife mitigation of the project, and LERR required for mitigation are not credited toward the additional 10 percent payment. Instead, LERR required for mitigation are cost shared as GNF and included in the total cost of construction of the GNF.

d. Operation and Maintenance Costs (O&M). It is estimated that there will be an average annual increase of approximately 831,000 cubic yards (CY) of shoal material to be dredged each year from the new project with an added annual O&M cost of $3,740,000. O&M costs for the NED depth increment of -50 feet is 100% federal. All O&M costs in excess of -50 feet depth as part of the LPP are a 100% non-federal responsibility. The annual cost attributable to O&M for

the depth in excess of -50 feet is estimated at $210,000 with the non-federal sponsor solely responsible for this cost.

e. Associated Costs. Estimated associated federal costs of $620,000 include navigation aids, a U.S. Coast Guard expense. The modifications to navigation aids also result in a $50,000 cost annually for increased O&M.

f. Local Service Facilities. The associated costs for local service facilities are approximately $22,000,000 for upgrading the bulkheads and $4,970,000 for berths at facilities, which benefit from the deeper channel. 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 2015 Price Level (October 2014), the estimated project first cost for these purposes is $493,300,000 with an estimated federal share of $224,300,000 and an estimated non-federal share of $269,000,000.

4. Based on October 2014 (FY 2015) price levels, 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 $28,000,000. The average annual equivalent benefits are estimated to be $108,900,000. The average annual net benefits are $80,900,000. The benefit-to-cost ratio for the recommended plan is 3.9.

5. Risk and uncertainty were evaluated for economic benefits, costs and sea level rise. Economic sensitivities examined the effects of commodity forecasts which had lower growth rates or capped the growth earlier in the period of analysis. In accordance with the Corps' Engineer Regulation on sea level change the study analyzed three sea level rise rates; historic low (baseline), intermediate, and high. The historic low sea level change rate was determined to be 2.94 mm/yr or .00096 feet/yr. The projected rise in sea levels at the end of the 50-year period of analysis for the historic, intermediate, and high rates are 0.57 feet, 1.08 feet, and 2.74 feet, respectively. In general, regional sea level rise (baseline, intermediate, and high) will not affect the function of the project alternatives or the overall safety of the design vessel. There is expected to be a minor impact to non-federal structures or berths that the non-federal sponsor would manage without effects to the project. The majority of salinity changes will occur due to sea level change; with only minor impacts attributable to the project.

6. In accordance with the U.S. Army Corps of Engineers 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 (DQC), Agency

Technical Review (ATR), Policy and Legal Compliance Review, Cost Engineering Directory of Expertise (DX) Review and Certification, Independent External Peer Review (IEPR), and Model Review and Approval. Overall the reviews resulted in improvements to the technical quality of the report. The IEPR was completed by Battelle Memorial Institute. A total of 18 comments were documented. The IEPR comments identified concerns in the areas of plan formulation, economics, engineering hydraulic analysis, and environmental analyses. The review comments resulted in expanded narratives throughout the report to support the decision-making process and justify the recommended plan. All comments from the above referenced reviews have been addressed and incorporated into the final documents.

7. 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 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.

8. I concur with the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that navigation improvements for Charleston Harbor be authorized in accordance with the reporting officers' recommended plan at an estimated first cost of $493,300,000 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. These requirements included, but are not limited to the following items of local cooperation from the non-federal sponsor:

a. Provide 50 percent of the cost of design and construction of the GNFs attributable to dredging to a depth in excess of -45 feet MLLW but not in excess of -50 feet MLLW, plus 100 percent of such costs attributable to dredging to a depth over -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 GNFs.

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

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. Provide 100 percent of the cost of O&M that the government determines exceeds the cost of O&M of the NED Plan.

f. Accomplish all removals determined necessary by the federal government other than those removals specifically assigned to the federal government.

g. 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 GNFs.

h. 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.

i. 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 GNFs. 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.

j. 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.

k. 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.

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

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 the Congress, the state of South Carolina, the South Carolina Port Authority (the non-federal sponsor), 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

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

AUG 1 0 2015

DAEN

SUBJECT: Navigation Improvements, Diomede, Alaska Final Interim Feasibility Report, Environmental Assessment and Finding of No Significant Impact

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on navigation improvements in the vicinity of Little Diomede, Alaska. It is accompanied by the reports of the district and division engineers. These reports were prepared in partial response to a resolution by the Committee on Public Works of the House of Representatives, adopted 2 December 1970. The study resolution requested a review of the report of the Chief of Engineers on Rivers and Harbors in Alaska, published as House Document 414, 83rd Congress, and other pertinent reports, with a view to determine whether any modifications of the recommendations contained therein are advisable. These reports are also in response to Section 2006 of the Water Resources Development Act (WRDA) of 2007, Remote and Subsistence Harbors, which provides that in conducting a study of harbor and navigation improvements the Secretary may recommend a project without demonstrating that the improvements are justified solely by national economic development (NED) benefits, if the Secretary determines that the improvements meet certain criteria. Preconstruction engineering and design activities, if funded, would be continued under the authority provided by the resolution cited above.

2. The reporting officers recommend authorizing a project to improve navigation access at Little Diomede, Alaska. Based on an economic evaluation of alternative plan costs and economic benefits, none of the alternatives was economically justified. In accordance with the implementation guidance for Section 2006, WRDA 2007, a cost effectiveness/incremental cost analysis was undertaken to consider justification based on the contributions of the alternative plans to the accounts for environmental quality (EQ) and other social effects. Based on that analysis the optimum plan was alternative S3. The project consists of an improved launch area for subsistence hunting and fishing craft protected by stone breakwaters to the north and south.

a) The northern breakwater ties into the existing helipad structure. The breakwater south of the launch area is an elongated structure parallel to the shoreline which protects both the launch area and local service facilities (LSF). The breakwaters are constructed of rock fill with armor stones that average about 16 tons. The breakwaters would have side slopes of 1V

on 1.5H and a crest width of 20 feet at elevations of 20 feet Mean Lower Low Water (MLLW) for the northern breakwater and 25 feet MLLW for the southern breakwater.

b) Construction of the recommended plan includes placement of 78,400 cubic yards of associated rock for the breakwaters with excavation of a small near-shore launch area dredged to -10 feet MLLW, requiring removal of about 3,000 cubic yards of material. The side slopes for the basin would be 1V on 3H transitioning to a 1V on 10H ramp. Excavated material from the launch area will be incorporated into the breakwater structures as fill material to the extent practicable.

c) Determination has been made that no compensatory mitigation is needed as there are no impacts to significant resources.

3. Project Costs Breakdown based on October 2014 Prices.

a) Project First Cost: The estimated project first cost is $28,960,000, which includes the cost of constructing the General Navigation Features (GNF) and the lands, easements, rights-of-way, and relocations (LERR) estimated as follows: $28,906,000 for the breakwater structures and excavation including Planning Engineering and Design and Construction Management, and $54,000 for the LERR. Non-federal sponsor support for implementation of the project includes the city of Diomede and the Native Village of Diomede, with financial assistance from Kawerak, Inc. as the current cost sharing sponsors for the study effort.

b) Estimated Federal and Non-Federal Shares: The estimated federal and non-federal shares of the project first cost are $26,015,000 and $2,945,000 respectively, as apportioned in accordance with cost sharing provisions of Section 101 of WRDA 1986, as amended (33 U.S.C. 2211), as follows:

(1) The cost of GNFs less than 20 feet MLLW will be shared at a rate of 90 percent by the government and 10 percent by the non-federal sponsors.

(2) $54,000, all of which is eligible for LERR credit.

c) Additional 10 Percent Payment. In addition to the non-federal sponsors' estimated share of the total first cost of construction the project in the amount of $2,945,000 pursuant to Section 101 of WRDA 1986, as amended, the non-federal sponsors must pay an additional 10 percent of the costs for GNFs of the project, $2,891,000, in cash over a period not to exceed 30 years, with interest. The value of LERR will be credited toward this payment.

d) Operations and Maintenance Costs. Operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) of the project after construction will be a federal cost currently estimated at about $1,888,000 at 10-year frequency, or an average annual cost of $162,000. There are not anticipated to be any federal costs for maintaining the launch area or non-federal O&M costs associated with the LSF.

e) Local Service Facilities. The associated cost for LSF is approximately $1,406,000, which consists of constructing an additional flat land area along the shoreline protected by the southern breakwater for increased subsistence purposes. These costs are 100 percent non-federal and are not included in the project first costs, although they are considered in the total construction costs of $30,366,000 for purposes of economic analysis.

f) 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, should include estimates for GNF construction costs, the value of lands, easements, right-of-way, and the value of relocations provided under Section 101(a)(3) of WRDA 1986, as amended. Accordingly, as set forth in paragraph 3.a) above, based on an October 2014 price level, the estimated project first cost for these purposes is $28,960,000 with a federal share of $26,015,000 and a non-federal share of $2,945,000.

4. Based on October 2014 price levels, 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 $1,424,000, including OMRR&R. Equivalent annual NED benefits are estimated at $324,000, for a benefit to cost ratio of 0.23 to 1 with average annual benefits amounting to -$1,100,000. Similarly, no alternatives were found that result in positive net NED benefits. As previously discussed, Section 2006 of WRDA 2007 allows for recommendation of a project not solely justified by NED. Results of the use of subsistence variables and cost effectiveness, incremental cost analysis in accordance with implementation guidance specific to Section 2006 justifies the outputs of increased subsistence vessel days (SVD). The project provides a total of an additional 247 SVD at an average annualized cost of $5,765 each.

5. Risk and uncertainty were evaluated for economic costs and sea level rise. In accordance with the Corps Engineering Circular on sea level change the study analyzed three sea level rise rates; low (baseline), intermediate, and high. The baseline, intermediate, and high sea level rise values at the end of the 50-year period of analysis were projected to be 0.54 ft, 1.2 ft, and 2.5 ft, respectively. In general, regional sea level rise (baseline, intermediate, and high) will not affect the number of future launch days or the function of the project which is designed for overtopping.

6. In accordance with the Corps Engineering Circular on review of decision documents, all technical, engineering and scientific work underwent an open, dynamic and vigorous review process to ensure technical quality. This included District Quality Control, Agency Technical Review, Policy and Legal Compliance Review, and Cost Engineering Directory of Expertise Review and Certification. Overall the reviews resulted in improvements to the technical quality of the report.

7. Washington level review indicates that the plan recommended by the reporting officers is technically sound, environmentally and socially acceptable, and complies with the requirements of Section 2006 of WRDA 2007. Results of the cost effectiveness, incremental cost analysis in accordance with implementation guidance specific to Section 2006 identifies the outputs of the project. The project is not economically justified in accordance with the 1983 U.S. Water Resources Council's Economic and Environmental Principles and Guidelines for Water and Land Related Resources Implementation Studies. The views of interested parties, including federal, state and local agencies have been considered. State and Agency comments received during review of the final report and EA included concerns raised by the National Oceanic and Atmospheric Administration (NOAA) and the Alaska Department of Transportation and Public Facilities (AKDOT&PF). NOAA concerns included the documentation of Endangered Species Act (ESA) coordination, as well as the need for an analysis of how the navigation improvements might change whaling practices, opportunities, harvest levels, and flensing and disposal practices within the village. The USACE response dated October 20, 2014 stated that the EA was revised to better document the ESA effect determinations specifically on bowhead, fin and humpback whales, and ringed and bearded seals and to further discuss marine mammal species under the jurisdiction of NMFS. The EA has been also been revised to better reflect the analysis and conclusion relative to subsistence harvesting. AKDOT&PF expressed concerns over the planning and engineering design of the proposed breakwater project and its potential to impact operations of the helipad at Little Diomede. These concerns were addressed through coordination with the AKDOT&PF and the U.S. Department of Transportation, Federal Aviation Administration. The USACE response to AKDOT&PF dated 23 June 2015 indicated that the elevation of the northern breakwater attached to the helipad would match its top elevation of 20 feet, while the southern breakwater would have a top elevation of 25 feet.

8. I concur in the findings, conclusions, and recommendations of the reporting officers, which identify the cost effective plan in response to the authority of Section 2006 of WRDA 2007. Accordingly, I recommend that the cost effective plan for improved navigation access to Diomede, Alaska in response to Section 2006 of WRDA 2007 be authorized in accordance with the reporting officers' recommended plan at an estimated cost of $28,960,000 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 by Section 201 of WRDA 1996, and WRDA 1986, as amended by Section 210 of WRDA 1996. The non-federal sponsors would provide the non-federal cost share and all LERR. This recommendation is subject to the non-federal sponsors agreeing to comply with all applicable federal laws and policies including that the non-federal sponsors must agree with the following requirements prior to project implementation.

a) Provide, during the periods of design and construction, funds necessary to make its total contribution for commercial navigation equal to 10 percent of the cost of design and construction of the GNFs attributable to dredging to a depth in less than -20 feet MLLW.

b) Provide all LER, 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 operation and maintenance of the GNFs.

c) Pay with interest, over a period not to exceed 30 years following completion of the period of construction of the GNFs, an additional amount equal to 10 percent of the total cost of construction of the GNFs less the amount of credit afforded by the government for the value of the LERR, including utility relocations, provided by the non-federal sponsors for the GNFs. If the amount of credit afforded by the government for the value of LERR, including utility relocations, provided by the non-federal sponsors equals or exceeds 10 percent of the total cost of construction of the GNFs, the non-federal sponsors shall not be required to make any contribution under this paragraph, nor shall it be entitled to any refund for the value of LERR, including utility relocations, in excess of 10 percent of the total costs of construction of the GNFs.

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) Accomplish all removals determined necessary by the federal government other than those removals specifically assigned to the federal government.

f) Hold and save the United States free from all damages arising from the construction or operation and maintenance of the project, any betterments, and the local service facilities, except for damages due to the fault or negligence of the United States or its contractors.

g) 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 LER that the government determines to be necessary for the construction or operation and maintenance of the GNFs. However, for LER 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 sponsors with prior specific written direction, in which case the non-federal sponsors shall perform such investigations in accordance with such written direction.

h) Assume complete financial responsibility, as between the government and the non-federal sponsors, for all necessary cleanup and response costs of any hazardous substances regulated under CERCLA that are located in, on, or under LER that the government determines to be necessary for the construction or operation and maintenance of the project.

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

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 sponsors, 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

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
441 G STREET, NW
WASHINGTON, DC 20314-1000

SEP 5 2014

REPLY TO
ATTENTION OF

Office of the Chief of Staff

Honorable Bill Shuster
Chairman, Committee on Transportation
and Infrastructure
House of Representatives
2165 Rayburn House Office Building
Washington, D.C. 20515

Dear Mr. Chairman:

As required by Section 2033 of P.L. 110-114, I am enclosing a copy of the final report of the Chief of Engineers on the Edisto Beach Final Integrated Feasibility Report and Environmental Assessment, Colleton County, South Carolina. Under separate letter, and in accordance with Executive Order 12322 dated September 17, 1981, the Assistant Secretary of the Army (Civil Works) will provide her report and the advice from the Office of Management and Budget on how the proposed project relates to the policy and programs of the President, the Economic, and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, and other applicable laws, regulations, and requirements relevant to the planning process.

I am sending an identical letter to the Honorable Barbara Boxer, Chairman of the Senate Committee on Environment and Public Works. Thank you for your interest in the Corps Civil Works Program.

Sincerely,

William H. Graham
Colonel, Corps of Engineers
Chief of Staff

Enclosure

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

DAEN (1105-2-10a)

05 SEP 2014

SUBJECT: Edisto Beach, Colleton County, South Carolina, Coastal Storm Damage Reduction General Investigations Study

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on hurricane and storm damage reduction at the Town of Edisto Beach, South Carolina. It is accompanied by the report of the district and division engineers. This report is a partial response to a resolution adopted on April 22, 1988 by the Committee on Environment and Public Works of the United States Senate. The resolution requested the Secretary of the Army to study the Coast of South Carolina in its entirety in the interests of beach erosion control, hurricane protection and related purposes. Pre-construction engineering and design activities for the project will continue under the authority cited above.

2. The reporting officers recommend authorization of the National Economic Development (NED) Plan to reduce hurricane and storm damages by constructing a beach fill and limited groin extensions along the shoreline of Edisto Beach, South Carolina. The recommended plan for hurricane and storm damage reduction includes construction of a dune to an elevation of 15-feet North American Vertical Datum 1988 (NAVD 88) and top width of 15-feet beginning at the northern end of the project and extending southward along the beach for 16,530 feet. This dune would be fronted by a berm at an elevation of 7-feet NAVD 88. The first 7,740 feet of berm length would have a width of 75 feet. The width would taper to 50-feet over the remaining length of the berm. The width of each end of the berm would taper to match the existing beach profile. Beginning at the southern end, the dune would transition to an elevation of 14-feet NAVD 88 and a top width of 15-feet that extends around the end of the island for 5,290 feet. No berm would be constructed in front of this dune because the existing beach profile provides an adequate berm. There would also be constructed approximately 1,130 ft of total groin lengthening across 23 of the existing groins, with an average lengthening of approximately 50-feet within a range of 20-feet to 100-feet per groin.

3. The Town of Edisto Beach, South Carolina is the non-federal cost sharing sponsor for all features. Based on 2014 price levels, the estimated total nourishment cost of the NED Plan is $53,871,000, which includes the project first cost of initial construction of $21,129,000 and a total of three periodic renourishments at a total cost of $32,742,000. Periodic renourishments are planned at 16-year intervals. Cost sharing is applied in accordance with the provisions of Section 103 of the Water Resources Development Act (WRDA) of 1986, as amended by Section 215 of WRDA 1999, as follows:

a. The federal share of the total first cost would be about $13,733,850 and the non-federal share would be about $7,395,150, which equates to 65 percent federal and 35 percent non-federal. 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 $989,000.

b. The federal share of future periodic renourishment is estimated to be $16,371,000 and the non-federal share is estimated to be $16,371,000 which equates to 50 percent federal and 50 percent non-federal.

c. The Town of Edisto Beach would be responsible for the operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) of the project after construction, a cost currently estimated at about $83,000 per year.

4. Based on a 3.5 percent discount rate and a 50-year period of analysis, the total equivalent average annual costs of the project are estimated to be $1,501,000, including monitoring and OMRR&R. All project costs are allocated to the authorized purpose of hurricane and storm damage reduction. The selected plan would reduce average annual coastal storm damages by about $2,894,000. The equivalent average annual benefits, which include recreation benefits, are estimated to be $3,467,200 with net average annual benefits of $1,966,200. The benefit to cost ratio is approximately 2.3 to 1. The project would also preserve approximately 13 acres of existing dry beach habitat and it would provide protection to approximately 22 acres of dune habitat and 14 acres of maritime forest. After construction, the project would result in a net increase of approximately 24 acres of beach habitat which could benefit various threatened species such as loggerhead sea turtles and piping plover and (proposed) rufa red knot shorebirds.

5. Risk and uncertainty has been explicitly factored into the economic analysis of this project. Chapter 6 of ER 1105-2-100, entitled "Risk-Based Analysis for Evaluation of Hydrology/Hydraulics and Economics in Shore Protection Studies" specifies the analysis requirements for shore protection projects, the fundamental requirement being that all shore protection analyses adopt a life cycle approach. A statistical risk based model, Beach-fx, was used in this study to formulate and evaluate the project in a life-cycle approach. Beach-fx integrates the engineering and economic analyses and incorporates uncertainty in both physical parameters and environmental forcing, which enables quantification of risk with respect to project evolution and economic costs and benefits of project implementation. The application of Beach-fx in this study is to estimate future without project damages and quantify the damages prevented by various storm damage reduction alternatives for Edisto Beach over the 50 year project life. The project is intended to address erosion and prevent damages to structures and contents; it is not intended to, nor will it, reduce the risk to loss of life during major storm events. Loss of life can only be prevented by residents and visitors following the local evacuation plans that are already in place. These residual risks have been communicated to the residents of Edisto Beach.

6. In accordance with the Corps Engineering Circular (EC 1165-2-212) on sea level change, the study performed a sensitivity analysis to evaluate the effects that different rates of sea level change could have on the recommended plan. The plan was formulated using a historical or low rate of sea level change since the decision is not expected to be sensitive to changes in sea level. The sensitivity analyses used additional accelerated rates, which includes what the EC defines as intermediate and high rates. The analysis found that the influence of current sea level change on the project is relatively low as compared to other factors causing erosion (waves, currents, winds and storms). The magnitude of the short-term storm induced erosion during hurricane events have a much greater affect along the beaches than those indicated by the natural long term shoreline trends. The recommended plan is based on Beach-fx simulations that incorporated the observed rate of sea level change. Adaptive management will be used including monitoring and adding additional volume of sand during renourishments to compensate for any significant accelerated sea level rise beyond the current observed rate should it become necessary.

7. 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 review, Agency Technical Review (ATR), Major Subordinate Command (MSC) review and a Corps Headquarters policy and legal review. All concerns of the ATR have been addressed and incorporated into the final report. The requirement to perform Independent External Peer Review (IEPR) was waived by HQUSACE since there was no Environmental Impact Statement (EIS) for the study; it had negligible adverse impacts to the environment and is not controversial. 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.

8. 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. Also the views of interested parties, including federal, state and local agencies have been considered.

9. I concur in the findings, conclusions and recommendations of the reporting officers. Accordingly, I recommend that the plan to reduce hurricane and storm damages for Edisto Beach, South Carolina is authorized in accordance with the reporting officers' recommended plan at an estimated total nourishment cost of $53,871,000, which includes the project first cost of $21,129,000 of initial construction and a total of three periodic nourishments at a total cost of $32,742,000, 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 by Section 215 of WRDA 1999. The non-federal sponsor would provide the non-federal cost share and all LERRD. Further, the non-federal sponsor would be responsible for all OMRR&R. This recommendation is subject to the non-federal sponsor agreeing to comply with all applicable federal laws and policies.

a. Provide 35 percent of initial project costs assigned to hurricane and storm damage reduction plus 100 percent of initial project costs assigned to protecting undeveloped private lands and other private shores which do not provide public benefits and 50 percent of periodic nourishment costs assigned to hurricane and storm damage reduction plus 100 percent of periodic nourishment costs assigned to protecting undeveloped private lands and other private shores which do not provide public benefits and as further specified below:

(1) Enter into an agreement which provides, prior to construction, 35 percent of design costs;

(2) Provide, during construction, any additional funds needed to cover the non-federal share of design costs;

(3) Provide all lands, easements, and rights-of-way, and perform or ensure the performance of any relocation determined by the federal government to be necessary for the initial construction, periodic nourishment, operation, and maintenance of the project;

(4) Provide, during construction, any additional amounts as are necessary to make its total contribution equal to 35 percent of initial project costs assigned to hurricane and storm damage reduction plus 100 percent of initial project costs assigned to protecting undeveloped private lands and other private shores which do not provide public benefits and 50 percent of periodic nourishment costs assigned to hurricane and storm damage reduction plus 100 percent of periodic nourishment costs assigned to protecting undeveloped private lands and other private shores which do not provide public benefits.

b. For so long as the project remains authorized, operate, maintain, repair, rehabilitate, and replace 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.

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

rehabilitating, or completing the project. No completion, operation, maintenance, repair, replacement, or rehabilitation by the federal government shall relieve the non-federal sponsor of responsibility to meet the non-federal sponsor's obligations, or to preclude the federal government from pursuing any other remedy at law or equity to ensure faithful performance.

d. 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 and any project-related betterments, except for damages due to the fault or negligence of the United States or its contractors.

e. Perform, or cause to be performed, 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 the initial construction, periodic nourishment, operation, and 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.

f. Assume, as between the federal government and the non-federal sponsor, complete financial responsibility for all necessary cleanup and response costs of any CERCLA regulated materials located in, on, or under lands, easements, or rights-of-way that the federal government determines to be necessary for the initial construction, periodic nourishment, operation, or maintenance of the project;

g. Agree that, as between the federal government and the non-federal sponsor, 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, and repair the project in a manner that will not cause liability to arise under CERCLA.

h. Comply with Section 402 of the WRDA 1986, as amended (33 U.S.C. 701b-12), which requires the non-federal interest to participate in and comply with applicable federal floodplain management and flood insurance programs, prepare a floodplain management plan within one year after the date of signing a Project Cooperation Agreement, and implement the plan not later than one year after completion of construction of the project.

i. Provide the non-federal share of that portion of the costs of mitigation and data recovery activities associated with historic preservation, that are in excess of one percent of the total

amount authorized to be appropriated for the project, in accordance with the cost sharing provisions of the agreement.

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

k. Prevent obstructions of or encroachment on the project (including prescribing and enforcing regulations to prevent such obstructions or encroachments) which might reduce the level of protection it affords, hinder operation and maintenance or future periodic nourishment, or interfere with its proper function, such as any new developments on project lands or the addition of facilities which would degrade the benefits of the project.

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

m. Publicize floodplain information in the area concerned and provide this information to zoning and other regulatory agencies for their use in preventing unwise future development in the floodplain, and in adopting such regulations as may be necessary to prevent unwise future development and to ensure compatibility with protection levels provided by the project.

n. For so long as the project remains authorized, the non-federal sponsor shall ensure continued conditions of public ownership, access, and use of the shore upon which the amount of federal participation is based.

o. Provide, keep and maintain the recreation features, and access roads, parking areas, and other associated public use facilities, open and available to all on equal terms.

p. At least twice annually and after storm events, perform surveillance of the beach to determine losses of nourishment material from the project design section and provide the results of such surveillance to the federal government.

10. 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 modified before they are transmitted to the Congress as proposals for authorization and implementation funding.

DAEN
SUBJECT: Edisto Beach, Colleton County, South Carolina, Coastal Storm Damage Reduction General Investigations Study

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.

THOMAS P. BOSTICK
Lieutenant General, USA
Chief of Engineers

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

REPLY TO
ATTENTION OF

DAEN

23 DEC 2014

THE SECRETARY OF THE ARMY

SUBJECT: Flagler County, Florida, Hurricane and Storm Damage Reduction Project

1. I submit for transmission to Congress my report on hurricane and storm damage reduction at Flagler County, Florida. It is accompanied by the report of the district and division engineers. This report is in partial response to Resolution 2676 adopted 22 May 2002 by the Committee on Transportation and Infrastructure of the United States House of Representatives. The resolution requested the Secretary of the Army to review the feasibility of providing shoreline erosion protection, hurricane and storm damage reduction, and related purposes to the shores of Flagler County, Florida. Pre-construction engineering and design activities for the project will continue under the authority cited above.

2. The reporting officers recommend a project for coastal storm damage reduction. Based on an evaluation of alternative plan costs and economic benefits, the national economic development (NED) plan consists of a 10-foot dune and beach profile extension along 2.6 miles of shoreline in Flagler Beach and mainly prevents damage to State Road A1A (SR A1A). SR A1A is considered critical infrastructure and serves as the only viable hurricane evacuation route for over 2,300 residents of Flagler Beach, as well as a necessary component of post storm emergency response and recovery. This segment of SR A1A in the project area is located on the highest elevation in the Flagler Beach barrier island and is a vital link within a 14 mile segment that connects two bridges that are the primary routes off and onto the island during evacuation and recovery efforts. The non-federal sponsor, Flagler County, supports the NED plan. The recommended plan is the NED plan and consists of the following improvements:

a. The project would extend the dune and beach profile 10 feet seaward from a construction baseline 20 feet east of, and parallel to, SR A1A along 2.6 miles of shoreline from survey monuments R80 to R94, with subsequent periodic nourishments;

b. The plan would include construction of the dune to an elevation 19 feet North American Vertical Datum 88 (NAVD88) to match the elevation of the existing dune. From the seaward end of the dune extension, a 1 vertical on 3 horizontal dune slope would extend to the design berm elevation of 11 feet NAVD88 to match the existing berm elevation. The constructed berm would extend 35 feet seaward from the toe of the dune with a 1 vertical on 100 horizontal berm slope. The foreshore fill would extend from the seaward edge of the berm to approximately -2 feet NAVD88 with a slope of 1 vertical on 5

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horizontal. This template, dimensioned for constructability, will then equilibrate into the project (10-foot dune and profile extension) template;

c. The berm taper, or transition from the constructed berm to the existing adjacent berm, would extend 200 feet at the north and south ends of the project;

d. Initial construction will require approximately 330,000 cubic yards of sand, and each periodic nourishment event will require approximately 320,000 cubic yards. The renourishment interval is expected to be approximately 11 years, equaling 4 renourishment events in addition to initial construction over the 50-year period of federal participation;

e. The borrow areas identified for the project, areas 2A and 2B, are located approximately 7 miles offshore from the placement area. There is approximately 3 million cubic yards (mcy) of beach quality sand in these two areas. The estimated volume to be dredged from areas 2A and 2B over the 50-year recommended plan is 2,028,600 mcy, assuming 26% dredging losses; and

f. Native vegetation will be planted on areas of the existing dune disturbed by construction, as well as the newly constructed dune and dune slope to stabilize the fill. It is assumed that dune planting will only be necessary for initial construction and that vegetation will spread and naturally grow and spread to any areas that are renourished in the future.

3. Flagler County is the non-federal cost sharing sponsor for all features. Based on Fiscal Year 2015 price levels, the estimated total project cost of the NED Plan is $44,962,000, which includes the project first cost of initial construction of $14,182,000 and a total of four periodic renourishments at a total cost of $30,780,000. Periodic renourishments are planned at 11-year intervals. Cost sharing is applied in accordance with the provisions of Section 103 of the Water Resources Development Act (WRDA) of 1986, as amended (33 U.S.C. 2213), as follows:

a. The federal share of the total first cost would be about $9,218,300 and the non-federal share would be about $4,963,700, which equates to 65 percent federal and 35 percent non-federal. 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 $3,336,000.

b. The federal share of future periodic renourishment is estimated to be $15,390,000 and the non-federal share is estimated to be $15,390,000 which equates to 50 percent federal and 50 percent non-federal.

4. 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 $1,235,000. All project costs are allocated to the authorized purpose of hurricane and storm damage reduction.

The selected plan would reduce average annual coastal storm damages by about $2,172,000. The equivalent average annual benefits, which include recreation and traffic re-routing benefits, are estimated to be $2,372,000 with net average annual benefits of $1,137,000. The benefit to cost ratio is approximately 1.9 to 1. The project would reduce damages to a hurricane evacuation route. The project would also establish at least 3.15 acres of beach habitat that could provide suitable nesting habitat for threatened and endangered species such as loggerhead, green, and leatherback sea turtles and piping plover and rufa red knot shorebirds along 2.6 miles of shoreline.

5. Risk and uncertainty has been explicitly factored into the economic analysis of this project. Chapter 6 of Corps Engineering Regulation 1105-2-100, entitled "Risk-Based Analysis for Evaluation of Hydrology/Hydraulics and Economics in Shore Protection Studies" specifies the analysis requirements for shore protection projects, the fundamental requirement being that all shore protection analyses adopt a life cycle approach. A statistical risk based model, Beach-fx, was used in this study to formulate and evaluate the project in a life-cycle approach. Beach-fx integrates the engineering and economic analyses and incorporates uncertainty in both physical parameters and environmental forcing, which enables quantification of risk with respect to project evolution and economic costs and benefits of project implementation. The application of Beach-fx in this study is to estimate future without project damages and quantify the damages prevented by various storm damage reduction alternatives for Flagler County over the 50 year project life.

6. The project is intended to address erosion and prevent damages to structures and infrastructure; it is not intended to, nor will it, reduce the risk to loss of life during major storm events. Loss of life can only be prevented by residents and visitors following the local evacuation plans that are already in place. The proposed project would greatly reduce, but not completely eliminate future storm damages. Coastal storm damages are reduced by approximately 96% in the location of the recommended plan, and by approximately 65% across the entire study area. These residual risks have been communicated to the residents of Flagler County.

7. In accordance with the ER 1100-2-8162 on sea level change, the study performed a sensitivity analysis to evaluate the effects that different rates of sea level change could have on the recommended plan. The NED plan was formulated using the historical or low rate of sea level change. Beach-fx was used to model the performance of the NED plan for what the ER defines as intermediate and high rates of sea level rise. The benefits of the project increase significantly in the intermediate and high sea level rise scenarios, but the costs also increase. Thus, the project performance (in terms of the benefit-cost ratio) is relatively constant throughout the three scenarios. As both costs and benefits are increasing, the net benefits actually increase with increasing rates of sea-level rise. Overall, these results suggest that the NED plan is both effective and robust in all three simulated sea level rise scenarios. Adaptive management will be used including adjusting the timing of periodic renourishments and project volume requirements based on monitoring reports to

compensate for any significant accelerated sea level rise beyond the historical or low rate should it become necessary.

8. 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 review, Agency Technical Review (ATR), Major Subordinate Command (MSC) review and a Corps Headquarters (HQUSACE) policy and legal review. All concerns of the ATR have been addressed and incorporated into the final report. The requirement to perform Independent External Peer Review (IEPR) was waived by HQUSACE since there was no Environmental Impact Statement (EIS) for the study, it had negligible adverse impacts to the environment and is not controversial. 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.

9. 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. Also the views of interested parties, including federal, state and local agencies have been considered.

10. I concur in the findings, conclusions and recommendations of the reporting officers. Accordingly, I recommend that the plan to reduce hurricane and storm damages for Flagler County, Florida is authorized in accordance with the reporting officers' recommended plan at an estimated total project cost of $44,962,000, which includes the project first cost of initial construction of $14,182,000 and a total of four periodic renourishments at a total cost of $30,780,000, 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 the WRDA of 1986, as amended (33 U.S.C. 2213). The non-federal sponsor would provide the non-federal cost share and all LERRD. Further, the non-federal sponsor would be responsible for all operations, maintenance, repair, rehabilitation, and replacement (OMRR&R) costs. This recommendation is subject to the non-federal sponsor agreeing to comply with all applicable federal laws and policies including that the non-federal sponsor must agree with the following requirements prior to project implementation.

a. Provide 35 percent of initial project costs assigned to hurricane and storm damage reduction, plus 100 percent of initial project costs assigned to protecting undeveloped private lands and other private shores which do not provide public benefits; and 50 percent of periodic nourishment costs assigned to hurricane and storm damage reduction, plus 100 percent of periodic nourishment costs assigned to protecting undeveloped private lands and other private shores which do not provide public benefits and as further specified below:

(1) Enter into an agreement that provides, prior to construction, 35 percent of design costs;

(2) Provide all lands, easements, and rights-of-way, and perform or ensure the performance of any relocations determined by the federal government to be necessary for the initial construction, periodic nourishment, and operation and maintenance of the project; in particular, the federal government and the project sponsor shall coordinate with the Bureau of Ocean Energy Management for use of offshore borrow areas and provide a copy of the lease agreement to the federal government; and

(3) Provide, during construction, any additional amounts as are necessary to make their total contribution equal to 35 percent of initial project costs assigned to hurricane and storm damage reduction, plus 100 percent of initial project costs assigned to protecting undeveloped private lands and other private shores which do not provide public benefits; and 50 percent of periodic nourishment costs assigned to hurricane and storm damage reduction, plus 100 percent of periodic nourishment costs assigned to protecting undeveloped private lands and other private shores which do not provide public benefits.

b. For so long as the project remains authorized, operate, maintain, and repair the completed project, or functional portion 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;

c. Give the federal government a right to enter, at reasonable times and in a reasonable manner, upon property that the non-federal sponsor, now or hereafter, owns or controls for access to the project for the purpose of inspecting, operating, maintaining, repairing, replacing, rehabilitating, or completing the project. No completion, operation, maintenance, repair, replacement, or rehabilitation by the federal government shall relieve the non-federal sponsor of responsibility to meet the non-federal sponsor's obligations, or to preclude the federal government from pursuing any other remedy at law or equity to ensure faithful performance;

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

e. Keep and maintain books, records, documents, and other evidence pertaining to costs and expenses incurred pursuant to the project in accordance with the standards for financial management systems set forth in the Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments at 32 Code of Federal Regulations (CFR) Section 33.20;

f. Perform, or cause to be performed, 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), 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 the initial construction, periodic nourishment, operation, and 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 complete financial responsibility for all necessary cleanup and response costs of any CERCLA regulated materials located in, on, or under lands, easements, or rights-of-way that the federal government determines to be necessary for the initial construction, periodic nourishment, operation, or maintenance of the project;

h. Agree 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, and repair the project in a manner that will not cause liability to arise under CERCLA;

i. If applicable, comply with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, as amended by Title IV of the Surface Transportation and Uniform Relocation Assistance Act of 1987 (Public Law 100 17), and the Uniform Regulations contained in 49 CFR Part 24, in acquiring lands, easements, and rights-of-way, required for the initial construction, periodic nourishment, operation, and maintenance of the project, including those necessary for relocations, borrow materials, and dredged or excavated material disposal, and inform all affected persons of applicable benefits, policies, and procedures in connection with said Act;

j. Comply with all applicable federal and state laws and regulations, including, but not limited to: Section 601 of the Civil Rights Act of 1964 (42 U.S.C. 2000d) and Department of Defense Directive 5500.11 issued pursuant thereto; the Age Discrimination Act of 1975 (42 U.S.C. 6102); the Rehabilitation Act of 1973, as amended (29 U.S.C. 794) and Army Regulation 600 7 issued pursuant thereto; and 40 U.S.C. 3141-3148 and 40 U.S.C. 3701-3708 (labor standards originally enacted as the Davis-Bacon Act, the Contract Work Hours and Safety Standards Act, and the Copeland Anti-Kickback Act);

k. Provide the non-federal share of that portion of the costs of data recovery activities associated with historic preservation, that are in excess of 1% of the total amount authorized to be appropriated for the project, in accordance with the cost sharing provisions of the agreement;

l. Participate in and comply with applicable federal floodplain management and flood insurance programs;

m. Do not use federal funds to meet the non-federal sponsor's share of total project costs unless the federal granting agency verifies in writing that the expenditure of such funds is authorized;

n. Prescribe and enforce regulations to prevent obstruction of or encroachment on the project that would reduce the level of protection it affords or that would hinder future periodic nourishment and/or the operation and maintenance of the project;

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

p. Publicize floodplain information in the area concerned and provide this information to zoning and other regulatory agencies for their use in preventing unwise future development in the floodplain, and in adopting such regulations as may be necessary to prevent unwise future development and to ensure compatibility with protection levels provided by the project;

q. For so long as the project remains authorized, the non-federal sponsor shall ensure continued conditions of public ownership and use of the shore upon which the amount of federal participation is based;

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

s. Comply with Section 221 of the Flood Control Act of 1970, as amended (42 U.S.C. 1962d-5b), and Section 103(j) of the WRDA of 1986, as amended (33 U.S.C. 2213(j)), which provide that the Secretary of the Army shall not commence the construction of any water resources project or separable element thereof, until the non-federal sponsor has entered into a written agreement to furnish its required cooperation for the project or separable element;

t. At least twice annually and after storm events, perform surveillance of the beach to determine losses of nourishment material from the project design section and provide the results of such surveillance to the federal government; and

u. Comply with Section 402 of the WRDA of 1986, as amended (33 U.S.C. 701b-12), which requires the non-federal sponsor to participate in and comply with applicable federal floodplain management and flood insurance programs, prepare a floodplain management plan within one year after the date of signing the project partnership agreement (PPA), and implement the plan no later than one year after project construction is complete.

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 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.

THOMAS P. BOSTICK
Lieutenant General, USA
Chief of Engineers

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

APR 30 2015

DAEN

SUBJECT: Green River Locks and Dams 3, 4, 5 and 6 and Barren River Lock and Dam 1, Kentucky

THE SECRETARY OF THE ARMY

1. I submit for transmission to the Congress my report on the deauthorization of unused navigation facilities on the Green and Barren Rivers in Kentucky. It is accompanied by the reports of district and division engineers. These reports respond to Section 216 of the River and Harbor and Flood Control Act of 1970 (P.L. 91-611) which authorizes investigations for modification of completed projects or their operation when found advisable due to significantly changed physical or economic conditions and for improving the quality of the environment in the overall public interest.

2. The reporting officers recommend that the Green River Locks and Dams 3, 4, 5 and 6 and Barren River Lock and Dam 1 be deauthorized for the purpose of commercial navigation. Locks and Dams 1, 2, 3, and 4 on the Green River and Lock and Dam 1 on the Barren River were built by the Commonwealth of Kentucky prior to 1886 and purchased by the U. S. Government under authorization of the River and Harbor Act of 11 August 1888. The U.S. Army Corps of Engineers (USACE) made facilities at Green River Lock and Dam 5 and Green River Lock and Dam 6 operational in 1900 and 1906, respectively. USACE modified and improved the system to provide slack water navigation from the mouth to the city of Bowling Green at mile 30 on Barren River. Green River Lock and Dam 4 failed in 1965, and commercial navigation has not occurred upstream of it since that time. The operation of Green River Lock and Dam 3 ceased in 1981 due to a lack of traffic. Since their closures, the facilities have been maintained by USACE in a caretaker status. Green River Locks and Dams 1 and 2 are still operational.

3. The recommended plan is to deauthorize commercial navigation at Green River Locks and Dams 3, 4, 5 and 6 and Barren River Lock and Dam 1. Following deauthorization of commercial navigation at these facilities, USACE will dispose of these properties and facilities through existing Army regulations and General Services Administration procedures, unless Congress provides specific disposal authority. USACE will address public safety concerns, which primarily relate to the risk of injuries associated with unauthorized entry to the properties to be deauthorized, by installing barricades on miter gates, as well as updating signage at each site. This maintenance work will be funded through the established operation and maintenance budget process.

4. The recommended plan minimizes adverse social impacts, causes no further negative environmental impacts and facilitates future disposal of the properties in the most efficient manner. Coordination under Section 7 of the Endangered Species Act of 1973 is concluded.

Though not required as a part of the recommended plan, consultation under Section 106 of the National Historic Preservation Act of 1966, as amended, will be required in conjunction with any future disposal action. There may be minimal activities and costs associated with care and custody as well as real estate administrative costs until the real property disposal is complete.

5. I concur with the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that the Green River Locks and Dams 3, 4, 5, and 6 and Barren River Lock and Dam 1 be deauthorized in accordance with the reporting officers' recommended plan.

6. 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 higher review levels within the executive branch. Consequently, the recommendations may be modified before they are transmitted to the Congress. However, prior to transmittal to Congress, interested states, 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

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

REPLY TO
ATTENTION OF

7 JAN 2015

DAEN

SUBJECT: Armourdale and Central Industrial District Levee Units, Missouri River and Tributaries at Kansas Citys, Missouri and Kansas

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on proposed modifications to the Armourdale and Central Industrial District levee units of the Missouri River and Tributaries at Kansas Citys, Missouri and Kansas, project. It is accompanied by the report of the Kansas City District Engineer and the Northwestern Division Engineer, which address modifying the project authority to improve project capabilities and reliability. These reports were prepared under the authority of Section 216 of the 1970 Flood Control Act, which authorizes the Secretary of the Army to review the operation of projects constructed by the Corps of Engineers when found advisable due to significantly changed physical, economic or environmental conditions. The Missouri River and Tributaries at Kansas Citys project is authorized by the Flood Control Act of 1936, and modified by the Flood Control Acts 1944, 1946, 1954, and 1962, and the Water Resources Development Act of 2007. Preconstruction engineering and design activities, if funded, would be continued under the Section 216 authority.

2. The reporting officers recommend authorization of a plan for flood risk management to modify the existing project to reduce flood risks in the vicinity of Kansas City, Missouri, and Kansas City, Kansas. The plan includes measures to increase the performance of the existing Armourdale and Central Industrial District Levee Units, which are part of the existing Kansas Citys system. The increase in performance is achieved by addressing structural and geotechnical reliability of existing features, and increasing the height of the existing levees and floodwalls by as much as five additional feet. The recommended plan provides approximately 65% assurance to contain flows within the project parameters at or below 0.2% (1/500) Annual Exceedance Probability (AEP) water surface elevation, consistent with the existing flood risk management system. This is the equivalent of the recommended plan providing approximately 98% assurance to contain flows within the project parameters at or below the 1.0% (1/100) AEP water surface elevation.

3. The recommended plan would reduce flood risk to areas of the Citys of Kansas City, Missouri, and Kansas City, Kansas. The proposed plan would reduce Expected Annual Damages (EAD) by 88%, with a residual EAD of approximately $7.7M. Annual Exceedance Probabilities for flooding from the Kansas River would be reduced from 3.5% in the Armourdale Unit and 0.33% in the Central Industrial District Unit to 0.12% in both units. The proposed project was evaluated in the 2006 Programmatic Environmental Impact Statement. No significant changes were identified and the determination that no long-term effect on environmental resources was confirmed. No compensatory mitigation is required.

4. Based on October 2014 price levels, the total first cost of these measures is estimated at $318,517,000 for all flood risk management. Under cost sharing specified by Section 103 of the Water Resources Development Act (WRDA) of 1986, Public Law 99-662, as amended by Section 202 of WRDA 1996, each measure would be cost shared 65 percent federal and 35 percent non-federal, resulting in an estimated federal share of $207,036,000 and an estimated non-federal share of $111,481,000. The total expected annual costs, based on a discount rate of 3.375 percent and a 50-year period of analysis, are $16,876,900, including $347,900 for operation, maintenance, repair, rehabilitation, and replacement (OMRR&R). The expected annual benefits are estimated to be $57,565,300 with net annual benefits of $40,688,400. The benefit-cost ratio is approximately 3.4 to 1 for the new work. The measures recommended for implementation will be carried out with two non-federal cost sharing sponsors.

a. The recommended measures for increasing the degree of protection for the Armourdale Levee Unit on the Kansas River include increasing the height of approximately 33,000 linear feet of levee and floodwall between 1.2 and 5.2 feet (average increase 4 feet), adding underseepage control measures including 74 relief wells and 2,000 linear feet of underground slurry cutoff wall, adding three closure structures and modifying or replacing four closures, modifying seven pump stations and removing two stations, modifying drainage structures, and relocating utility crossings. The Kaw Valley Drainage District is the non-federal cost-sharing sponsor for all features. The estimated total first cost of the plan is $236,447,000. The estimated federal share is $153,690,500 and the estimated non-federal share is $82,756,500. The cost of lands, easements, rights-of-way, relocations, and dredged or excavated material disposal areas (LERRD) is estimated at $4,532,000. There is no cost associated with mitigation due to the low potential to impact the existing environment in and around the project site. The total expected annual costs are $12,183,900, including $198,200 for OMRR&R. The expected annual benefits are estimated to be $52,254,600 with net annual benefits of $40,070,700.

b. The recommended measures for increasing the degree of protection for the Central Industrial District Levee Unit on the Kansas River include increasing the height of approximately 11,750 linear feet of levee and floodwall between 0.2 and 3.8 feet (average increase 3.6 feet), adding 600 linear feet of new floodwall, adding underseepage control features including 57 relief wells and approximately 3,450 linear feet of area fill, adding four new closure structures and modifying or replacing two closures, modifying five pump stations and removing two stations, modifying drainage structures, and relocating utility crossings,. The Kaw Valley Drainage District is the non-federal cost-sharing sponsor for all features. The estimated total first cost of the plan is $81,485,000. The estimated federal share is $52,965,300 and the estimated non-federal share is $28,519,700. The cost of lands, easements, rights-of-way, relocations, and dredged or excavated material disposal areas (LERRD) is estimated at $2,631,000. There is no cost associated with mitigation due to the low potential to impact the existing environment in and around the project site. The total expected annual costs are $4,292,600, including $149,700 for OMRR&R. The expected annual benefits are estimated to be $5,246,900 with net annual benefits of $954,300.

c. The recommended measures for increasing the degree of protection for the Central Industrial District Levee Unit on the Missouri River includes modifying approximately 290 linear feet of floodwall to improve structural reliability. The City of Kansas City, Missouri, is the non-federal

cost-sharing sponsor for all features. The estimated total first cost of the plan is $585,000. The estimated federal share is $380,300 and the estimated non-federal share is $204,700. The cost of lands, easements, rights-of-way, relocations, and dredged or excavated material disposal areas (LERRD) is estimated at $0. There is no cost associated with mitigation due to the low potential to impact the existing environment in and around the project site. The total expected annual costs are $29,500, including $0 for OMRR&R. The expected annual benefits are estimated to be $63,600 with net annual benefits of $34,000.

5. The above plan for increasing the degree of protection and benefit for the Armourdale and Central Industrial District Units complete the total system evaluation and recommendation for improving the benefits provided by the existing Kansas Citys Flood Risk Management Project. The previously approved plan for modifications to this system is currently being implemented.

a. The plan to increase the degree of protection for the Argentine Levee Unit and to improve the reliability of the East Bottoms and Fairfax-Jersey Creek Levee Units were previously recommended by the Chief's Report of Dec. 19, 2006, and authorized in the Water Resources Development Act (WRDA) of 2007. Based on October 2014 price levels the authorized total first cost of these three measures is estimated at $81,514,000, all for flood risk management. Under cost sharing specified by Section 103 of the WRDA of 1986, Public Law 99-662, as amended by Section 202 of WRDA 1996, the estimated federal share is $52,984,100 and the estimated non-federal share is $28,529,900.

b. The plan to correct design and construction deficiencies in the Fairfax-Jersey Creek and North Kansas City levee units in order to restore the original degree of protection were approved by the Chief's Report of Dec 19, 2006. Based on October 2014 price levels, the authorized total first cost of the deficiency correction plan is estimated at $20,700,000. In accordance with Section 103 of WRDA 1986, as amended, the estimated federal share is $13,455,000 and the estimated non-federal cost share is $7,245,000.

6. The goals and objectives included in the Campaign Plan of the U.S. Army Corps of Engineers have been fully integrated into the feasibility study process. The recommended plan has been designed to avoid or minimize environmental impacts, to reduce risk of loss of life, and to reasonably maximize economic benefits to the community in coordination with the existing flood risk management system. The Feasibility Study team organized and participated in stakeholder and public meeting throughout the process and worked to achieve a balance of project goals and public concerns. The study report fully describes local flood risks associated with the Kansas River, including residual risks that remain even after implementation of the recommended plan. These residual risks have been communicated to the non-federal sponsors and they understand and agree with the analysis. The Feasibility Study team has reviewed current available information on the estimated future impact of climate change in the region. While a trend towards wetter conditions in the future has been identified, the impacts are expected to be within the range of uncertainty addressed by the current hydrologic model.

7. In accordance with the Corps 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 an Agency Technical Review (ATR), and an Independent External Peer Review (Type I IEPR), and a Corps Headquarters policy and legal review. All concerns of the ATR have been addressed and incorporated into the final report. An IEPR was completed by Battelle Memorial Institute in January 2014. Overall, the IEPR report contained twenty-one comments from two commenting periods. The first comment period was conducted at the Alternative Formulation Briefing (AFB) and the second round of comments was on the draft final feasibility report. Five comments of high significance were identified at the AFB and one comment of high significance was identified within the draft final feasibility report. The IEPR comments identified concerns in areas of the engineering assumptions and environmental analysis that needed improvements to support the decision-making process and plan selection. This resulted in expanded narratives throughout the report to support the decision-making process and to justify the recommended plan. All comments from the above referenced reviews have been addressed and incorporated into the final document. Overall the reviews resulted in improvements to technical quality of the report. A safety assurance review (Type II IEPR) will be conducted during the design phase of the project.

8. Washington level review indicated that the plan recommended by the reporting officers is technically sound, economically justified, and environmentally and socially acceptable. The plan complies with the 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, State, and local agencies have been considered during the State and Agency review period. During this review USEPA requested additional information regarding the potential impacts of future regional climate changes on the projects performance and the integration of non-structural measures. In response to these concerns USEPA was provided analysis that shows that there is little effect to project performance due to regional climate change. Non-structural measures were considered in this study, however; those measures were determined not to be cost effective.

9. I concur with the findings, conclusions and recommendation of the reporting officers. Accordingly, I recommend the plan to further reduce flood risks for the Missouri River and Tributaries at Kansas Citys project be authorized at an estimated total first cost of $318,517,000 with such modifications as in the discretion of the Chief of Engineers may be advisable. My recommendation and approval are 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 non-federal sponsors would provide the non-federal cost share and all LERRD. Further, the non-federal sponsors would be responsible for all OMRR&R. This recommendation and approval are subject to the non-federal sponsors agreeing to comply with all applicable federal laws and policies, including but not limited to:

a. Provide the non-federal share of total project costs, including a minimum of 35 percent but not to exceed 50 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, during construction, a contribution of funds equal to 5 percent of total project costs;

(3) 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, and maintenance of the project; and

(4) Provide, during construction, any additional funds necessary to make its total contribution equal to at least 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, operate, maintain, repair, rehabilitate, and replace 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.

h. Hold and save the United States free from all damages arising from the construction, OMRR&R of the project and any betterments, except for damages due to the fault or negligence of the United States or its contractors.

i. 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. 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.

j. 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.

k. 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.

10. 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 nor the perspective of higher review levels within the executive branch. Consequently, the recommendation may be modified before it is transmitted to Congress as a proposal for authorization and implementation funding. However, prior to transmittal to Congress, the sponsors, the States of Kansas and Missouri, interested federal agencies, and other parties will be advised of any modifications and will be afforded the opportunity to comment further.

THOMAS P. BOSTICK
Lieutenant General, USA
Chief of Engineers

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

DAEN

30 JUN 2014

SUBJECT: Leon Creek Watershed, San Antonio, Texas

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on flood risk management for the Leon Creek Watershed, San Antonio, Texas. It is accompanied by the report of the district and division engineers. This report is an interim response to a study authority contained in a House Committee on Transportation and Infrastructure Resolution dated 11 March 1998, which directed the Secretary of the Army to review the report of the Chief of Engineers on the Guadalupe and San Antonio Rivers, Texas, published as House Document 344, 83rd Congress, 2nd Session, with a view to determining whether any modifications to the recommendations contained therein are advisable at the present time, with particular reference to providing improvements in the interest of flood control, environmental restoration and protection, water quality, water supply, and allied purposes on the Guadalupe and San Antonio Rivers in Texas. The non-federal sponsor for the project is the San Antonio River Authority. Pre-construction engineering and design activities for the project will continue under the authority cited above.

2. The reporting officers recommend authorizing a plan to reduce flood risk along Leon Creek in San Antonio, Texas. The recommended plan is the National Economic Development plan and includes structural measures in Area of Interest 2 (AOI-2) and permanent evacuation of structures as nonstructural measures in AOI-4. AOIs are defined as reaches along Leon Creek with concentrations of damageable properties. For AOI-2, the recommended plan includes the construction of a levee with a 1 in 132 annual chance of overtopping (0.76 percent probability of overtopping in any given year) along with a channel modification for hydraulic conveyance at Port San Antonio. The proposed earthen levee would extend approximately 3,700 linear feet from high ground on the southeast side of Port San Antonio to S.W. Military Drive. Its maximum height is approximately 21 feet high near the existing low point. A twelve-foot top width will provide a maintenance/patrol access route along the top with 3.5:1 (H:V) side slopes. The channelization at Leon Creek will extend approximately 2,850 linear feet with a 60-foot bottom width with variable side slopes. The recommended plan includes utilizing natural channel design concepts to "self-mitigate" for aquatic impacts associated with the channelization work at Port San Antonio and the installation of 15.75 acres of riparian vegetation. For AOI-4, located in the Cedar Point subdivision just south of State Highway 1604 and west of Babcock Road, the recommended nonstructural plan is the permanent floodplain evacuation of four single-family residential structures and 32 townhouses being damaged by the four percent annual exceedance probability (AEP) flood event north of Port San Antonio.

3. The recommended plan would reduce flood risk within the Leon Creek watershed. The proposed project would reduce Equivalent Annual Damages (EAD) within the Leon Creek watershed by 15 percent, with a residual EAD of approximately $11.69 million. This residual EAD is primarily due to existing flooding throughout the study area where analyzed alternatives were not economically justified. The nature of flooding in the region is flashy, meaning that it can be extremely rapid and have a relatively short duration. The non-federal sponsor currently participates in a number of initiatives to manage the residual flood risk and the recommended plan would reduce flood risk, including risks to public and life safety along Leon Creek in San Antonio, Texas. Other nonstructural measures implemented by the non-federal sponsor in conjunction with the recommended plan include a regional flood warning system, updates to the floodplain management plan, and flood risk awareness communication.

4. All coordination and consultations with various federal and state agencies including the U.S. Fish and Wildlife Service (USFWS), the Texas Commission on Environmental Quality (TCEQ), the Federal Aviation Administration (FAA), the U.S. Air Force, and the State Historic Preservation Office (SHPO) necessary for construction of the project have been completed in order to mitigate for the detrimental effects of the flood risk management features of the recommended plan on fish and wildlife habitat. Environmental effects resulting from the construction of the recommended plan would cause some direct effects on riparian habitat and special status species habitats that cannot be avoided. The mitigation recommendations of the USFWS contained in the Final Fish and Wildlife Coordination Act Report are concurred with and are included in the recommended plan. The recommended plan includes a Monitoring and Adaptive Management plan to ensure the success of mitigation features. Endangered Species Act consultation with the USFWS has been completed concerning the operation and maintenance of the project after construction, which is the responsibility of the non-federal sponsor under federal law. Water quality certification under Section 401 of the Clean Water Act was coordinated with TCEQ and the water quality certification was obtained on February 20, 2014. Coordination with the FAA was done in response to the Memorandum of Agreement (MOA) with the FAA to address aircraft-wildlife strikes. The Air Force was also consulted due to the recommended plan's proximity to Lackland Air Force Base. Potential effects to cultural resources have been coordinated with the SHPO.

5. Based on October 2013 price levels, the estimated project first cost for the recommended plan is $28,175,000. In accordance with the cost sharing provision of Section 103 of the Water Resources Development Act (WRDA) of 1986, as amended (33 U.S.C. 2213), the federal share of the total first cost for the plan would be $18,314,000 (65 percent) and the non-federal share would be about $9,861,000 (35 percent) which includes a five percent cash contribution of $1,115,000. Total project cost includes $5,872,000 for the nonstructural component and $22,303,000 for the structural component. The non-federal sponsor is required to provide all lands, easements, relocations, rights-of-way, and dredged or excavated material disposal areas (LERRDs), the costs of which are estimated at $8,086,000. Furthermore, the non-federal sponsor would be responsible for operation, maintenance, repair, replacement, and rehabilitation

(OMRR&R) of the project after construction, estimated at about $50,000 annually for the structural component and $9,000 for the nonstructural component.

6. Based on a 3.5 percent discount rate, October 2013 price levels, and a 50-year period of analysis, the total annual costs of the project are estimated to be $1,284,000, including OMRR&R. The total equivalent average annual flood damage reduction is estimated to be $2,143,000. The proposed levee has a 32 percent chance of being exceeded over the next 50 years and reduces equivalent annual flood damages by $1,763,000, or approximately 90 percent for that reach. The nonstructural permanent evacuation component of the project reduces equivalent annual flood damages by $380,000, or approximately 9 percent for that reach. Annual net benefits for the proposed levee are $729,000 and $129,000 for the nonstructural component. The benefit-to-cost ratio is 1.7 to 1.0.

7. In accordance with the Engineering Circular on review of decision documents, all technical, engineering and scientific work underwent an open and thorough review process to ensure technical quality. This included an Agency Technical Review (ATR), an Independent External Peer Review (IEPR) (Type I), and USACE Headquarters policy and legal review. All concerns of the ATR have been addressed and incorporated into the final report. The IEPR was completed by Battelle Memorial Institute with all comments documented. The panel had 14 comments, one of which they considered significant, 11 were medium significance and 2 were low significance. The comments pertained to hydrology and hydraulic engineering, geotechnical engineering, civil engineering, economics and environmental concerns. In summary, the panel felt that the engineering, economics and environmental analysis were adequate and clarifications needed to be properly documented in the final report. The IEPR review comments resulted in no significant changes to the plan formulation, engineering assumptions, and environmental analyses that supported the decision-making process and plan selection. A safety assurance review (Type II IEPR) will be conducted during the design phase of the project.

8. 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, state and local agencies were considered. There were no comments from public review of the draft integrated report. During state and agency review, comments were received from the TCEQ, the Federal Emergency Management Agency (FEMA), and the USFWS. TCEQ expressed support for the project, and FEMA and the USFWS had no concerns about the project.

9. I concur in the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend project implementation, in accordance with the reporting officer's recommendations with such modifications as in the discretion of the Chief of Engineers may be

advisable. My recommendations are subject to cost sharing, financing, and other applicable requirements of federal and state laws and policies, including Section 103 of WRDA 1986, as amended (33 U.S.C. 2213). The non-federal sponsor would provide the non-federal cost share and all LERRDs. Further, the non-federal sponsor would be responsible for all OMRR&R. This recommendation is subject to the non-federal sponsor agreeing to comply with all applicable federal laws and policies, including but not limited to:

a. Provide a minimum of 35 percent, but not to exceed 50 percent, of total flood risk management costs attributable to the structural alternative and 35 percent of total flood risk management costs attributable to the nonstructural alternative, as further specified below:

(1) Pay, during design, 35 percent of design costs;

(2) Pay, during construction, 5 percent of total flood risk management costs attributable to the structural alternative;

(3) 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, and perform or ensure the performance of all relocations, as determined by the federal government to be required for the construction, operation, and maintenance of the project;

(4) Pay, during construction, any additional funds necessary to make its total contribution equal to at least 35 percent of total flood risk management costs.

b. Inform affected interests, at least yearly, of the extent of protection afforded by the flood risk management features; participate in and comply with applicable federal floodplain management and flood insurance programs; comply with Section 402 of P.L. 99-662, the WRDA 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 protection levels provided by the flood risk management features.

c. 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 flood risk management features afford, hinder operation and maintenance of the project, or interfere with the project's proper function.

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 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 construction, operation, maintenance, repair, rehabilitation, and replacement 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), P.L. 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.

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

10. 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 non-federal sponsor, 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

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REPLY TO
ATTENTION OF

DEC 18 2015

The Honorable Bill Shuster
Chairman, Committee on Transportation
and Infrastructure
House of Representatives
2165 Rayburn House Office Building
Washington, D.C. 20515

Dear Mr. Chairman:

As required by Section 2033 of P.L. 110-114, I am enclosing a copy of the final report of the Chief of Engineers, on the Los Angeles River Ecosystem Restoration Final Integrated Feasibility Report and Environmental Impact Statement, Los Angeles County, California. Under separate letter, and in accordance with Executive Order 12322 dated, September 17, 1981, the Assistant Secretary of the Army (Civil Works) will provide her report and the advice from the Office of Management and Budget on how the proposed project relates to the policy and programs of the President, the Economic, and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, and other applicable laws, regulations, and requirements relevant to the planning process.

I am sending an identical letter to the Honorable James M. Inhofe, Chairman of the Senate Committee on Environment and Public Works. Thank you for your interest in the Corps Civil Works Program.

Sincerely,

D. Peter Helmlinger
Colonel, U.S. Army
Chief of Staff

Enclosure

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

DAEN

DEC 18 2015

SUBJECT: Los Angeles River Ecosystem Restoration, Los Angeles, California

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on ecosystem restoration in and along the Los Angeles River in Los Angeles, California. It is accompanied by the report of the district and division engineers. This report is in partial response to a resolution by the Senate Committee on Public Works approved 25 June 1969, requesting review of "the report of the Chief of Engineers on the Los Angeles and San Gabriel Rivers and Ballona Creek, California, published as House Document numbered 838, Seventy-sixth Congress, and other pertinent reports, with a view to determining whether any modifications contained therein are advisable at the present time, in the interest of providing optimum development of all water and related land resources in the Los Angeles County Drainage Area." Further authority is provided by Section 4018(a) of the Water Resources Development Act (WRDA) of 2007, Public Law 110-114, 121 Stat. 1175-1176, which provides authorization for a study "for environmental ecosystem restoration, flood risk management, recreation, and other aspects of Los Angeles River revitalization that is consistent with the goals of the Los Angeles River Revitalization Master Plan published by the city of Los Angeles...." The city of Los Angeles is the non-federal cost sharing sponsor for the project. Pre-construction engineering and design activities will be continued under the authority provided by the resolutions cited above.

2. The Los Angeles River is the 51-mile-long backbone of an 870-square-mile watershed. It once anchored a system of riparian and freshwater marsh habitat that carried seasonal rains and subterranean flows across the coastal plain to the Pacific Ocean. Over time, a cycle of urban development, flooding, and channelization has diminished aquatic and riparian habitat, reduced plant and wildlife diversity, and disconnected the river from its historic floodplain and nearby significant ecological zones. An 11-mile stretch of the river from Griffith Park to Downtown Los Angeles was identified as having the greatest potential for restoration.

3. The western cottonwood-willow forest association, a riparian ecosystem habitat type once prominent in the Los Angeles River, has been identified as one of the rarest forest types in North America, and one of most endangered ecosystems in the United States. The Los Angeles River study area is within a globally scarce Mediterranean ecosystem which is characterized by hot, dry summers and mild, wet winters and supports evergreen or drought deciduous shrublands and associated habitats. Over 90 percent of the riparian habitat and over 95 percent of the region's wetlands including freshwater marsh have been lost. Due to this large-scale habitat conversion, natural riparian communities persist only as isolated remnants of what was once a vast, interconnected system of rivers, streams, marshes, and vegetated washes. Although they occupy a very small area, these riparian ecosystems in the southwest are very important systems as they

support the majority of biodiversity in the region through their ecological and hydrologic connectivity. Approximately 80 percent of all wildlife uses the riparian ecosystem at some life stage, with more than 50 percent of bird species nesting primarily in riparian habitats. Restoration in the study area has the potential to create and improve habitat for select native fish species including the federally threatened Santa Ana sucker. In addition, the Los Angeles River was selected to be one of seven nationwide first-phase pilots for the Environmental Protection Agency's (EPA) Urban Waters Federal Partnership.

4. The reporting officers recommend a plan authorizing ecosystem restoration and recreation for an approximately 11-mile stretch of the Los Angeles River, from Griffith Park to Downtown Los Angeles, Los Angeles County, California. The recommended plan for ecosystem restoration includes restoration of habitat within 719 acres within and adjoining the river through the following measures and features:

- Riparian habitat corridor restoration throughout the 11 miles;
- Restoration of the Arroyo Seco confluence;
- Restoration of the Verdugo Wash confluence;
- Restoration of riparian habitat, the historic wash and its braided channels in the Los Angeles Trailer and Container intermodal facility site;
- Removal of channel concrete and riverbed restoration for 0.75 miles;
- Restoration of freshwater marsh in the Los Angeles State Historic Park;
- Restoration of riparian habitat and reconnection to the historic floodplain in Taylor Yard;
- River widening;
- Restoration of 13 minor tributaries through stream daylighting;
- Establishment of side channels; and
- Removal of invasive vegetation throughout the project area.

The restoration measures will substantially increase valley foothill riparian strand and freshwater marsh habitat, reestablish connectivity between the river and its historic floodplain, and restore habitat connections to significant habitat areas of the Santa Monica, Verdugo and San Gabriel Mountains. Monitoring and adaptive management of the environmental resources is required to ensure success of the project. The monitoring and adaptive management period will begin upon completion of construction of each feature and continue until ecological success criteria are met, but for no more than ten years. The recommended plan is a deviation from the National Ecosystem Restoration (NER) Plan and is the Locally Preferred Plan (LPP) for ecosystem restoration with a corresponding recreation plan. The recreation features include trails and other features for passive recreation that are compatible with the restored environment.

5. The LPP is greater in cost and scope than the NER Plan. Based upon October 2015 price levels, the NER Plan has an estimated total first cost for ecosystem restoration of $694,114,000 and provides restoration outputs of 5,989 average annual habitat units (AAHUs) measured using the Combined Habitat Assessment Protocols (CHAP) approach. The LPP has an estimated total first cost for ecosystem restoration of $1,338,554,000 and provides restoration outputs of 6,782

AAHUs. In addition to ecosystem restoration, the recommended LPP includes approximately $18,054,000 for recreation, for an estimated total first cost of $1,356,608,000. The non-federal sponsor would be responsible for the operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) of the respective ecosystem restoration and recreation features after construction, a cost currently estimated $2,530,000 on an average annual basis.

6. The non-federal sponsor has voluntarily offered to forgo reimbursement for its costs that exceed the non-federal statutory share of project costs. Upon request by the non-federal sponsor, the U.S. Army Corps of Engineers (Corps) recommended and the Assistant Secretary of the Army for Civil Works (ASA(CW)) granted an exception to policy in 2013 to allow the non-federal sponsor to voluntarily forgo reimbursement for non-federal real estate costs in excess of its statutory 35 percent share of the costs of ecosystem restoration. In 2014, based on the request of the non-federal sponsor for an LPP, the Corps specifically requested an exception to policy to recommend the LPP and the ASA(CW) granted this exception to policy. Furthermore, the ASA(CW), citing the unique aspects of the project, permitted the Corps to also consider modified, increased cost sharing of the ecosystem restoration plan, with the continued policy of the non-federal sponsor forgoing reimbursement or credit of lands, easements, rights of way, relocations, and disposal sites (LERRD) which may exceed 35 percent of the LPP.

7. I am recommending federal cost sharing of the LPP, with a 50 percent cost share, modified by the credit limit of 35 percent of ecosystem restoration costs for the value of LERRD provided by the non-federal sponsor, and by the non-federal sponsor's forgoing of reimbursement for LERRD value that may exceed 35 percent of ecosystem restoration costs.

8 The estimated total first cost for the recommended LPP, including recreation is $1,356,608,000. The recreation features have an estimated first cost of $18,054,000, with the federal and non-federal shares estimated at $9,027,000 and $9,027,000 respectively. The first cost for the ecosystem portion of the LPP is currently estimated to be $1,338,554,000, which includes $567,529,000 for design and construction of ecosystem restoration features, and $771,025,000 for LERRD. Equal cost sharing of the ecosystem restoration portion of the LPP between the federal government and the non-federal sponsor would total $669,277,000 each. The non-federal credit for LERRD is limited to 35% of the LPP ecosystem restoration cost, or $468,494,000. The sponsor is required to provide funding for the balance of the non-federal share above this amount, currently estimated to be $200,783,000. The result of this requirement is an estimated non-federal share of project costs of $971,808,000 and a federal share of project costs of $366,746,000 for the ecosystem portion of the LPP. The federal share of the total LPP cost of $1,356,608,000 is estimated at $375,773,000, or 28 percent of the total, and the overall non-federal share is estimated at $980,835,000, or 72 percent of the total.

9. Based on a 3.125 percent discount rate and a 50-year period of analysis, the total average annual costs of the project is estimated to be $58,647,000, with $57,703,000 for the ecosystem restoration purpose and $944,000 for the recreation purpose. Ecosystem restoration benefits for the selected plan include generating an estimated 6,782 AAHUs and restoring 719 acres.

Average annual recreation benefits are estimated to be $3,510,000, with net average annual benefits of $2,566,000 and a benefit/cost ratio of 3.72.

10. The recommended plan was formulated and developed in coordination and consultation with various federal, state and local agencies to restore the ecosystem in and along the 11-mile stretch of the river within project constraints. Study formulation looked at a wide range of structural and non-structural alternatives. The study was conducted using a watershed perspective to examine ecosystem changes and connections within the watershed. CHAP and our cost effectiveness and incremental cost analysis techniques were used to formulate and evaluate restoration solutions. Goals and objectives included in the Environmental Operating Principles and the Campaign Plan of the Corps have been integrated into the Los Angeles River ecosystem restoration study process. The recommended plan would have substantial beneficial impacts for biological, water, aesthetic, and recreation resources and for environmental justice. The recommended plan would result in unavoidable significant adverse impacts to existing land use designations by converting land currently used for industrial purposes to riparian habitat.

11. The project would modify features of an existing federal project, the Los Angeles County Drainage Area (LACDA) project, authorized by the Flood Control Acts of 1936, 1938, and 1941, as amended. The modifications to this project will not impair the purposes for which it was authorized or the benefits it currently provides. The recommended plan is not currently estimated to result in an incremental increase in Corps OMRR&R costs for the existing LACDA project maintenance activities. Sea level rise is not expected to directly affect this project.

12. In accordance with Corps Engineer Circular (EC) 1165-2-214 (12 December 2012) 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), Division Quality Assurance (DQA) reviews, Agency Technical Review (ATR), an Independent External Peer Review (IEPR) (Type I), Cost Engineering Review and Certification, policy and legal compliance review, and model review and approval. All concerns of the ATR have been addressed and incorporated in the final report. The IEPR was completed by Battelle Memorial Institute. Battelle selected and managed an IEPR panel of experts with technical expertise in arid region riverine system ecology, socioeconomics, hydrologic and hydraulic (H&H) modeling, and geotechnical engineering. A total of 18 comments were documented. In summary, the panel felt that the engineering, economics and environmental analysis were adequate. However, following public review of the draft feasibility report, the panel recommended additional connectivity analysis be conducted and documented in the final report. The IEPR review comments and the recommended connectivity analysis did not result in significant changes to the plan formulation, engineering assumptions, and environmental analyses that supported the decision-making process and plan selection. All comments from the above referenced reviews have been addressed and incorporated in the final documents. Overall, the reviews resulted in improvement to the technical quality of the report. Since the project would modify features of the LACDA, which has associated levees, a safety assurance review (Type II IEPR) will be conducted during the design and construction phase of the project.

13. 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 U.S. Water Resources Council's 1983 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, state, and local agencies have been considered. State and agency comments received during review of the final report and environmental impact report primarily expressed support for the project and appreciation for addressing previous comments.

14. I concur with the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that the plan for ecosystem restoration and recreation for the Los Angeles River, California, be authorized at an estimated project first cost of $1,356,608,000 with such modifications as in the discretion of the Chief of Engineers may be advisable. This recommendation is consistent with applicable requirements of federal laws and policies, except with regard to the cost sharing of the ecosystem restoration features. The cost sharing that I have recommended departs from that required by Section 103 of WRDA 1986, as amended (33 U.S.C. 2213). Therefore, implementation of my recommendation will require the enactment of express statutory language authorizing cost sharing that deviates from Section 103. In making this recommendation, I have carefully considered the unique aspects of the project. Federal implementation of the recommended project also would be subject to the non-federal sponsor agreeing to comply with all applicable federal laws and policies, including, but not limited to, the following:

a. Provide a minimum of 50 percent of total LPP 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 LERRD determined by the government to be necessary for construction, operation, and maintenance of the project, and provide relocation assistance, all in compliance with applicable provisions of the Uniform Relocation 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. Provide, during construction, a contribution of funds necessary to make its total contribution of ecosystem restoration costs equal to 50 percent, where credit for LERRD is limited to 35 percent of the total ecosystem restoration cost;

4. Provide, during construction, a contribution of funds necessary to make its contribution of recreation costs equal to 50 percent;

5. Provide, during construction, 100 percent of excess recreation costs in the event that the federal share of total recreation costs exceeds 10 percent of the federal share of total ecosystem restoration 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 ecosystem restoration features, hinder operation and maintenance of the project, or interfere with the project's proper function;

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

d. Keep the recreation features, and access roads, parking areas, and other associated public use facilities, open and available to all on equal terms;

e. For so long as the project remains authorized, operate, maintain, repair, rehabilitate, and replace the project, or functional portions of the project, including any mitigation features, at no cost to the 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 government;

f. 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;

g. 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), as amended (42 U.S.C. 9601-9675), that may exist in, on, or under lands, easements, or rights-of-way that the government determines to be required for construction, operation, and maintenance of the project. However, for lands that the government determines to be subject to the navigation servitude, only the government shall perform such investigations 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;

h. Assume, as between the government and the non-federal sponsor, complete financial responsibility for all necessary remediation 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 government determines to be required for construction, operation, and maintenance of the project; and

i. Agree, as between the 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.

15. 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 non-federal sponsor, 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

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
441 G STREET, NW
WASHINGTON, DC 20314-1000

REPLY TO
ATTENTION OF

DEC 14 2015

Office of the Chief of Staff

Honorable Bill Shuster
Chairman, Committee on Transportation
and Infrastructure
House of Representatives
2165 Rayburn House Office Building
Washington, D.C. 20515

Dear Mr. Chairman:

As required by Section 2033 of P.L. 110-114, I am enclosing a copy of the final report of the Chief of Engineers on the Lower Willamette River Environmental Dredging and Ecosystem Restoration Feasibility Study. Under separate letter, and in accordance with Executive Order 12322 dated September 17, 1981, the Assistant Secretary of the Army (Civil Works) will provide her report and the advice from the Office of Management and Budget on how the proposed project relates to the policy and programs of the President, the Economic, and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, and other applicable laws, regulations, and requirements relevant to the planning process.

I am sending an identical letter to the Honorable James M. Inhofe, Chairman of the Senate Committee on Environment and Public Works. Thank you for your interest in the Corps Civil Works Program.

Sincerely,

D. Peter Helmlinger
Colonel, U.S. Army
Chief of Staff

Enclosure

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

DEC 14 2015

DAEN

SUBJECT: Lower Willamette River Environmental Dredging and Ecosystem Restoration Project, Oregon

THE SECRETARY OF THE ARMY

1. I submit, for transmission to Congress, my report on the study of ecosystem restoration along the Willamette River, near Portland, Oregon. It is accompanied by the reports of the district and the division engineers. This report is an interim response to a resolution by the Committee on Transportation and Infrastructure of the United States Senate, adopted June 26, 2002. This resolution authorized the Chief of Engineers to determine "the feasibility of providing ecosystem restoration measures in the Lower Willamette River watershed from the Willamette Locks to the confluence of the Willamette River with the Columbia River through the development of a comprehensive ecosystem restoration strategy development in close coordination with the city of Portland, Port of Portland, the state of Oregon, local governments and organizations, Tribal Nations and other federal agencies." Preconstruction engineering and design (PED) will continue under the authority cited above.

2. The reporting officers recommend authorizing a plan to restore ecosystem functions by reconnecting floodplain habitats to the rivers and improving fish and wildlife habitats in the vicinity of Portland, Oregon. The recommended plan for ecosystem restoration includes restoration at five sites in the Lower Willamette Basin Watershed, including Kelley Point Park, Oaks Crossing, the Bureau of Environmental Services (BES) treatment plant, Kenton Cove, and Tryon Creek. Restoration measures include large woody debris, riparian re-vegetation, invasive species removal, floodplain reconnecting, off-channel habitat development, and fish barrier removal. The recommended plan provides restoration on a total of 74 acres of riparian, wetland, shallow water, and backwater habitat as well as 2.7 stream miles, substantial benefits to fish and wildlife and the ecosystem. Additional research and documentation of existing sampling data or the collection of new sampling data sufficient to confirm that there is a minimal risk of hazardous substances (HTRW) at Kelley Point Park will be completed during the PED phase of the project. Inclusion of Kelley Point Park in the project that will be constructed is conditioned on the analysis of this additional data confirming that the HTRW risk is minimal. The non-federal sponsor assumes complete financial responsibility for all necessary cleanup if HTRW are found at this site. Minor adverse environmental effects will be avoided and minimized during construction by the use of conservation measures and best management practices. The long-term effects are beneficial. The recommended plan also includes post-construction monitoring and adaptive management to be performed by the sponsor for a period of 10 years to ensure project performance. The proposed monitoring plan will measure the following key elements: vegetation, connector channel hydrology and hydraulics, river and floodplain morphology,

wildlife, physical habitat, and fish. Since the recommended plan would not have any significant adverse effects, no mitigation (beyond avoidance and use of best management practices) or compensation measures are required. The recommended plan also includes the construction of three pedestrian bridges at Kelley Point Park to facilitate access to existing trails in the vicinity of the restoration project and to enhance the experience of recreational visitors including bird watchers, trail walkers, and educational groups.

3. The recommended plan is the National Ecosystem Restoration plan. All features are located within the state of Oregon. The city of Portland is the non-federal cost-sharing sponsor for all features. Based on March 2015 price levels, the estimated total project first cost of the plan is $29,774,000. In accordance with the cost sharing provisions of the Water Resources Development Act (WRDA) of 1986, as amended, the total first costs for ecosystem restoration features is $28,375,000 with the federal share being $19,143,000 (64 percent) and the non-federal share of $10,631,000 (34 percent). The cost of lands, easements, rights-of-way, relocations, and disposal is $9,232,000. The costs for recreation facilities are $1,399,000. In accordance with the cost sharing provisions of the WRDA 1986 the federal share of recreation costs is $699,500 (50%), and the non-federal share is $699,500 (50%). The city of Portland would be responsible for the operation, maintenance, repair, replacement, and rehabilitation of the project after construction, a cost currently estimated at approximately $3,500 per year. Over a 10-year period of time monitoring cost is $85,000 and $90,000 for adaptive management.

4. Cost effectiveness and incremental cost analysis techniques were used to evaluate the alternative plans to ensure that a cost effective ecosystem restoration plan was recommended. The cost of the recommended restoration features is justified by restoring 59.96 average annual habitat units on 74 acres of floodplain and aquatic habitats as well as 2.7 stream miles in a nationally and regionally significant watershed and ecosystem. The restored aquatic habitat would increase habitat for Endangered Species Act listed fish species: Chinook salmon, coho salmon (Upper Columbia spring-run and Snake River spring/summer-run), steelhead, bull trout (Upper Columbia, Snake and Upper Willamette), North American green sturgeon, Pacific lamprey and coastal cutthroat trout. Important wildlife linkages provided in this tidally influenced area are unique to the project area, providing wintering and breeding habitat for waterfowl, shorebirds, and neotropical migrants along the Pacific Flyway. The recommended plan restores an average of 59.96 habitat units annually at an average annual cost of $1,062,925 and average annual cost per average annual habitat unit of $17,727. The recreational features are expected to provide average annual benefits of $83,600 with average annual costs of $58,300, resulting in a benefit to cost ratio of about 1.4.

5. The recommended plan was developed in coordination and consultation with various federal, state, and local agencies using a systematic and regional approach to formulating solutions and evaluating the benefits and impacts that would result. Risk and uncertainty were addressed during the study by completing a cost and schedule risk analysis, a sensitivity analysis that evaluated the potential impacts of a change on economic assumptions, as well as potential effects of sea level change. The effects of sea level change were evaluated through year 2070 for low, intermediate, and high conditions resulting in water surface elevations that ranged from a

negligible change of less than an inch, to about 5 inches and 1.92 feet, respectively. The recommended plan includes a range of native plant species so communities can adapt to changed hydrologic and climatic conditions and remain resilient to the effects of sea level change.

6. In accordance with the Corps' 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 an Agency Technical Review (ATR), and a Corps Headquarters policy and legal review. All concerns of the ATR have been addressed and incorporated into the final report. A waiver from Independent External Peer Review was received on April 2014.

7. Washington level review indicates that the plan recommended by the reporting officers is environmentally justified, technically sound, cost effective, and socially acceptable. The plan complies with all essential elements of the 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 were considered. Comments received during preparation of the integrated draft report and environmental assessment included comments by the U.S. Fish and Wildlife Service (USFWS), the Oregon State Historical Preservation Office (SHPO), and the National Marine Fisheries Service (NMFS). The National Environmental Policy Act process resulted in a finding of no significant impact as a result of the recommended plan. The USFWS and NMFS agreed with the use of best management practices and continued coordination during design and implementation. Further, the SHPO concurred with the Area of Potential Effect and proposed management plan for implementation of the recommended plan. No additional stakeholder comments were received during public coordination of the draft report.

8. I concur with the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that the plan to restore the ecosystem of the Lower Willamette River near Portland, Oregon, be authorized in accordance with the reporting officers' recommended plan at an estimated project first cost of $29,774,000. My recommendation is subject to cost sharing, financing, and other applicable requirements of federal and state laws and policies, including Public Law 99-662, WRDA 1986, as amended, and in accordance with the required items of local cooperation that the non-federal sponsor shall, prior to project implementation, agree to comply with applicable federal laws and policies, including but not limited to:

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

1. Provide the required non-federal share of design costs allocated by the government to ecosystem restoration in accordance with the terms of a design agreement entered into prior to commencement of design work for the ecosystem restoration features;

2. Provide, during the first year of construction, any additional funds necessary to pay the full non-federal share of design costs allocated by the government to ecosystem restoration;

3. 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, and maintenance of the ecosystem restoration features;

4. Provide, during construction, any additional funds necessary to make its total contribution for ecosystem restoration equal to 35 percent of total ecosystem restoration costs;

b. Provide 50 percent of total recreation costs as further specified below:

1. Provide the required non-federal share of design costs allocated by the government to recreation in accordance with the terms of a design agreement entered into prior to commencement of design work for the recreation features;

2. Provide, during the first year of construction, any additional funds necessary to pay the full non-federal share of design costs allocated by the government to recreation;

3. 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 all as determined by the government to be required or to be necessary for the construction, operation, and maintenance of the recreation features;

4. Provide, during construction, any additional funds necessary to make its total contribution for recreation equal to 50 percent of total recreation costs;

c. Provide, during construction, 100 percent of the total recreation costs that exceed an amount equal to 10 percent of the federal share of total ecosystem restoration costs;

d. 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 ecosystem restoration features, hinder operation and maintenance of the project, or interfere with the project's proper function;

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

f. Keep the recreation features, and access roads, parking areas, and other associated public use facilities, open and available to all on equal terms;

g. For so long as the project remains authorized, operate, maintain, repair, rehabilitate, and replace 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;

h. 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;

i. 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. 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;

j. 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;

k. 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; and

9. The recommendation contained herein reflects the information available at this time and current departmental policies governing formulation of individual projects. It neither reflects 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 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 non-federal sponsor, 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

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

REPLY TO
ATTENTION OF

DAEN

APR 3 0 2015

SUBJECT: City of Manhattan, Kansas Flood Risk Management Study

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on proposed modifications to the City of Manhattan, Kansas flood protection project authorized by the U.S. Congress in Section 203 of the Flood Control Act of 1954, Public Law 83-780. It is accompanied by the report of the district and the division engineers. These reports were prepared under the authority of Section 216 of the Flood Control Act of 1970, Public Law 91-611, which authorizes the Secretary of the Army to review the operation of projects constructed by the U.S. Army Corps of Engineers when found advisable due to significantly changed physical, economic or environmental conditions. Preconstruction engineering and design activities, if funded, would be continued under the Section 216 authority.

2. The reporting officers recommend authorization of a plan to modify the existing project to improve flood risk management in the vicinity of the City of Manhattan, Kansas. The existing project which consists of a single 5.5-mile earthen levee unit along the left bank of the Kansas River (3.1 miles) and the right bank of the Big Blue River (2.4 miles), two pumping stations, interior drainage gate wells, relief wells and under seepage control berms provides flood risk management for 1,600 acres of urban industrial, commercial, public, and residential development including 2,300 structures (including about 1,700 residential structures) with an estimated population of 7,600. Approximately $1.2 billion in private and local governmental investments are protected by the levee unit. The recommended modification plan would include raising approximately 14,600 feet of levee (includes 10,200 feet of levee plus adding a 500 feet levee tie-back extension on the northern end of the project on the Big Blue River and 3,900 feet on the Kansas River) generally on the landward side of the existing levee embankment an average of 1.5 feet, and as much as 3.3 feet, above its current height, primarily on the Big Blue River; adding under seepage control measures including 29 relief wells with over 4,900 linear feet of collector system and 2,500 linear feet of under seepage control berms to accommodate the levee raising; replacing five existing drainage structures; one sand bag closure structure at Hayes Drive; and relocating various utility crossings. The recommended project, the National Economic Development (NED) Plan will reduce flood risks and hazards in the community; minimize impacts to human safety, health, and welfare; and have minimal impact to the natural environment. The increased reliability is achieved by constructing a new top of levee elevation set at the flood profile to reduce flood damages from a 1 in 100 annual exceedance probability flood event (1% annual chance of occurring in any given year). In the 1% chance flood event, there is currently only a 52.6 % chance of the project preventing damage from overtopping or breach failure. This probability would be improved to 96.3% in

the with-project condition. The long-term risk of a damaging flood over 50-year period would be less than 1 in 6, compared to a current 50-year risk of approximately 1 in 2. The proposed project would have no significant long-term effects on environmental resources. No compensatory mitigation would be required.

3. The recommended plan is the NED Plan. The estimated project first cost of the recommended plan, based on October 2014 price levels, is $23,754,000. The federal share of the first costs of the flood risk management features is estimated to be 65 % or $15,440,100, and the non-federal share is estimated to be 35 % or $8,313,900, including the provision of lands, easements, rights-of-way, relocations, and dredged or excavated material disposal areas (LERRDs) The City of Manhattan is responsible for the operation, maintenance, repair, rehabilitation, and replacement (OMRR&R) of the project after construction, a cost currently estimated to be about $54,000 annually. Based on a discount rate of 3.375 %, October 2014 price levels and a 50-year period of analysis, the total equivalent average annual costs of the project is estimated to be $1,177,660, including the OMRR&R. The proposed plan would reduce expected annual damages by 59 %, with a residual expected annual damage of approximately $2.85 million. The expected annual benefits are estimated to be $4,074,440 with net annual benefits of $2,896,780. The benefit-cost ratio is approximately 3.5 to 1.

4. The goals and objectives included in the Campaign Plan of the U.S. Army Corps of Engineers have been fully integrated into the Feasibility Study process. The recommended plan has been designed to avoid or minimize environmental impacts, to reduce risk of loss of life, and to reasonably maximize economic benefits to the community in coordination with the existing flood risk management system. The feasibility study team organized and participated in stakeholder and public meeting throughout the process and worked to achieve a balance of project goals and public concerns. The study report fully describes local flood risks associated with the Kansas and Big Blue Rivers and risks that will not be reduced. The residual risks have been communicated to the non-federal sponsors and they understand and agree with the analysis. The feasibility study team has reviewed current available information on the estimated future impact of climate change in the region. While a trend towards wetter conditions in the future has been identified, the impacts are expected to be within the range of uncertainty addressed by the current hydrologic model.

5. In accordance with the Corps 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 an Agency Technical Review (ATR), and Type 1 Independent External Peer Review (IEPR), and a Corps Headquarters policy and legal review. All concerns of the ATR have been addressed and incorporated into the final report. An IEPR was completed by Battelle Memorial Institute in August 2014. A total of eight comments were documented. In summary, the IEPR comments related to report completeness in areas of project performance compared to the original project design, alternative plan evaluation, hydrologic and hydraulic uncertainty, climate change, and residual risks. This resulted in expanded narratives throughout the report to support the decision-making process and justify

the recommended plan. All comments from the above referenced reviews have been addressed and incorporated into the final document. A safety assurance review (Type II IEPR) will be conducted during the design phase of the project.

6. Washington level review indicated that the plan recommended by the reporting officers is technically sound, economically justified, and environmentally and socially acceptable. The plan complies with the essential elements of the 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 administrative and legislative policies and guidelines.

7. The views of interested parties, including federal, state and local agencies have been considered. The USEPA requested additional information on the interagency efforts of the Corps local Silver Jackets program in the Big Blue River and Wildcat River watersheds and adjacent areas of the Kansas River. In response to this request, the U.S. Environmental Protection Agency was provided additional information including a web link for additional program information.

8. I concur with the findings, conclusions and recommendation of the reporting officers. Accordingly, I recommend that improvements for flood risk management for the City of Manhattan Flood Risk Management Project be authorized generally in accordance with the reporting officer's recommended plan at an estimated project first cost of $23,754,000. My recommendation is subject to cost sharing, financing, and other applicable requirements of federal and state laws and policies, including Section 103 of the Water Resources Development Act (WRDA) of 1986, as amended (33 U.S.C. 2213). The non-federal sponsor would provide the non-federal share and all LERRDs. Further, the non-federal sponsor would be responsible for all OMRR&R. This recommendation is subject to the non-federal sponsor agreeing to comply with all applicable federal law and policies, including but not limited to:

a. Provide the non-federal share of total project costs, including a minimum of 35 % but not to exceed 50 % of total project costs as further specified below:

(1) Provide 35 % 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, during construction, a contribution of funds equal to 5 % of total project costs;

(3) 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, and maintenance of the project;

(4) Provide, during construction, any additional funds necessary to make its total contribution equal to at least 35 % of total project costs;

b. Shall not use funds from other federal programs, including any non-federal contribution required as a matching share therefore, to meet any of the non-federal obligations for the project unless the federal agency providing the federal portion of such funds verifies in writing that expenditure of such funds for such purpose is authorized;

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

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

e. Comply with Section 402 of the WRDA 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;

f. 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;

g. 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;

h. Comply with all applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (42 U.S.C. 4601-4655), and the Uniform Regulations contained in 49 Code of Federal Regulations (CFR) Part 24, in acquiring lands, easements, and rights-of-way required for construction, operation, and maintenance of the project, including those necessary for relocations, the borrowing of materials, or the disposal of dredged or excavated material; and inform all affected persons of applicable benefits, policies, and procedures in connection with said Act;

i. For so long as the project remains authorized, OMRR&R of 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;

j. 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, maintaining, repairing, rehabilitating, or replacing the project;

k. Hold and save the United States free from all damages arising from the construction, OMRR&R of the project and any betterments, except for damages due to the fault or negligence of the United States or its contractors;

l. Keep and maintain books, records, documents, or other evidence pertaining to costs and expenses incurred pursuant to the project, for a minimum of three years after completion of the accounting for which such books, records, documents, or other evidence are required, to the extent and in such detail as will properly reflect total project costs, and in accordance with the standards for financial management systems set forth in the Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments at 32 Code of Federal Regulations (CFR) Section 33.20;

m. Comply with all applicable federal and state laws and regulations, including, but not limited to: Section 601 of the Civil Rights Act of 1964 (42 U.S.C. 2000d) and Department of Defense Directive 5500.11 issued pursuant thereto; the Age Discrimination Act of 1975 (42 U.S.C. 6102); the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and Army Regulation 600-7 issued pursuant thereto; and 40 U.S.C. 3141-3148 and 40 U.S.C. 3701-3708 (labor standards originally enacted as the Davis-Bacon Act, the Contract Work Hours and Safety Standards Act, and the Copeland Anti-Kickback Act).

n. 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), 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. 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;

o. 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;

p. 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; and

q. Comply with Section 221 of the Flood Control Act of 1970, as amended (42 U.S.C. 1962d-5b), and Section 103(j) of the WRDA of 1986, as amended (33 U.S.C. 2213(j)), which provides that the Secretary of the Army shall not commence the construction of any water resources project or separable element thereof, until each non-federal interest has entered into a written agreement to furnish its required cooperation for the project or separable element.

9. The recommendation contained herein reflects the information available at this time and current departmental policies governing formulation of individual projects. It neither reflects 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 recommendation may be modified before they are transmitted to Congress as a proposal for authorization and implementation funding. However, prior to transmittal to Congress, the sponsors, the state, interested federal agencies, and other parties will be advised of any modifications and will be afforded the opportunity to comment further.

THOMAS P. BOSTICK
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DAEN

OCT 16 2015

SUBJECT: Mill Creek Flood Risk Management Study, Nashville, Tennessee

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on managing flood risk along Mill Creek, Nashville, Tennessee. It is accompanied by the report of the district and the division engineers. These reports partially respond to resolutions of the U.S. House of Representatives Committee on Transportation and Infrastructure, adopted September, 4, 1995 and December 7, 2005. These resolutions requested the Secretary of the Army to review pertinent reports on the Cumberland River and its tributaries to determine whether any modifications of the recommendations contained therein are advisable in the interest of environmental restoration and protection, flood damage reduction, enhancement and control of water quality, stream bank protection, regional water systems, recreation, greenways, and other watershed management improvements. Preconstruction engineering and design activities would continue under the authority of the September 4, 1995 and December 7, 2005 resolutions.

2. The reporting officers recommend authorizing a National Economic Development (NED) plan of structural and nonstructural features to manage flood risks along Mill Creek and its tributaries. The NED plan includes constructing a 377-acre-foot capacity storm water detention basin at mile 3.67 on Sevenmile Creek, modifying the Briley Parkway bridge and widening the Mill Creek channel at mile 7.1, raising nine residential structures in-place above the 1-percent chance flood elevation, and purchasing and removing 80 frequently damaged residential structures located in the regulated floodway of Mill Creek and its tributaries. The purchase and removal of frequently damaged structures will, to the extent practicable, be implemented on a willing seller basis; however, eminent domain will be utilized when determined to be warranted. Acquisition of structures for removal will comply with the provisions of the Uniform Relocations Assistance and Real Property Acquisition Policies Act (P.L. 91-646), as amended, and the uniform regulations contained in 49 Code of Federal Regulations, Part 24, including the provision of payment of relocation assistance benefits to eligible recipients. The recommended plan would not have significant adverse effects; consequently, no mitigation measures, beyond best management practices and avoidance, or compensation measures would be required. All features are located in Nashville, Tennessee.

3. The City of Nashville Metro Water Services, representing the Metropolitan Government of Nashville and Davidson County, is the non-federal cost-sharing sponsor for all flood risk management features. Based on October 2014 price levels, the estimated project first cost of the NED plan, which includes both structural and nonstructural flood risk management features is $28,504,000. This amount includes $9,342,000 allocated to structural flood risk management and $19,162,000 associated with a nonstructural flood risk management program. The total cost of lands, easements, rights-of-way, relocations, and disposal (LERRD) is estimated at $20,482,000. This amount includes $3,571,000 allocated to structural project features and $16,912,000 associated with nonstructural project features. In accordance with the cost sharing provisions of Section 103 of the Water Resources Development Act (WRDA) of 1986, as amended by Section 202 of WRDA 1996, the federal share of the project first cost of the structural and nonstructural flood risk management features would be about $5,304,000 (56.8 percent) and $12,455,000 (65 percent), respectively, and $17,759,000 (62 percent) overall. The non-federal share of the first costs of the structural and nonstructural flood risk management features would be about $4,038,000 (43.2 percent) and $6,707,000 (35 percent), respectively, and $10,745,000 (38 percent) overall. The City of Nashville Metro Water Services will be responsible for the operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) of the project after construction, a cost currently estimated at about $52,000 per year.

4. Based on a 3.375-percent discount rate and a 50-year period of economic evaluation, the total equivalent annual costs of the project are estimated to be $1,251,000 including OMRR&R. The equivalent annual benefits are estimated to be $2,390,000 with net average annual benefits of $1,139,000. The benefit-cost ratio is approximately 1.9 to 1. Implementing the NED plan will reduce expected average annual flood damages by about 44 percent. Equivalent annual residual damages are estimated at $3,070,000.

5. In accordance with the current Engineer Circular on review of decision documents, all technical, engineering and scientific work underwent an open, dynamic and vigorous review process to ensure technical quality. This included District Quality Control, Agency Technical Review, Policy and Legal Compliance Review, Cost Engineering Mandatory Center of Expertise Review and Certification, Independent External Peer Review (IEPR), and the review and approval of technical models. The IEPR was completed by Battelle Memorial Institute. The IEPR panel consisted of four members with expertise in economics and civil works planning, environmental review and environmental policy, hydrologic and hydraulic engineering, and geotechnical and structural engineering. The review panel identified and documented 14 final comments. Of these, one comment was designated as having high significance, three as having medium-to-high significance, seven as having medium significance, and three as having medium-to-low significance. All IEPR review comments have been resolved. There

have been no significant changes to the plan formulation, engineering assumptions, and environmental analyses that supported the decision-making process and plan selection. All comments from the above referenced reviews will be addressed and incorporated into the final documents as appropriate. A safety assurance review (Type II IEPR) of the structural flood risk management components of the project will be conducted during the design phase of the project.

6. 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 directives, economically justified. The plan complies with all essential elements of the 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.

7. I concur with the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that the plan to reduce flood damages along Mill Creek and its tributaries at Nashville, Tennessee be authorized in accordance with the reporting officers' recommended plan at an estimated project first cost of $28,504,000 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, 33 U.S.C. § 2213. The non-federal sponsors will provide the non-federal cost share and all LERRD. Further, the non-federal sponsors will be responsible for all OMRR&R. This recommendation is subject to the non-federal sponsors agreeing to comply with all applicable federal laws and policies, including but not limited to:

a. Provide 35 percent of design costs in accordance with the terms of a design agreement entered into prior to commencement of design work;

b. Provide a minimum of 35 percent, but not to exceed 50 percent of total structural flood risk management costs as further specified below:

(1) Provide, during the first year of construction, any additional funds necessary to pay the full non-federal share of design costs allocated by the government to the structural flood risk management features;

(2) Provide, during construction, a contribution of funds equal to 5 percent of total structural flood risk management costs;

(3) 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, and maintenance of the structural flood risk management features;

(4) Provide, during construction, any additional funds necessary to make its total contribution for structural flood risk management equal to at least 35 percent of total structural flood risk management costs;

c. Provide 35 percent total nonstructural flood risk management costs as further specified below:

(1) Provide, during the first year of construction, any additional funds necessary to pay the full non-federal share of design costs allocated by the government to the nonstructural flood risk management features;

(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, and maintenance of the nonstructural flood risk management features;

(3) Provide, during construction, any additional funds necessary to make its total contribution for nonstructural flood risk management equal to 35 percent of total nonstructural flood risk management costs;

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

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

f. Comply with Section 402 of the WRDA 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.

g. 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.

h. 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.

i. For so long as the project remains authorized, operate, maintain, repair, rehabilitate, and replace 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.

j. Hold and save the United States free from all damages arising from the construction,OMRR&R of the project and any betterments, except for damages due to the fault or negligence of the United States or its contractors.

k. 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. 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.

l. 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.

m. 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.

8. 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 non-federal sponsor, the state, interested federal agencies, and other parties will be advised of any significant modifications and will be afforded an opportunity to comment further.

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DAEN (1105-2-10a) JAN 2 3 2015

SUBJECT: New Jersey Shore Protection, Hereford Inlet to Cape May Inlet, New Jersey

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on the study of hurricane and storm damage reduction for coastal communities located between Hereford Inlet and Cape May Inlet, Cape May County, New Jersey. It is accompanied by the report of the district and division engineers. This report is an interim response to a resolution by the Committee on Transportation and Infrastructure of the United States House of Representatives, adopted December 1987 and by the Committee on Environment and Public Works of the United States Senate dated December 1987 and an interim response to PL 113-2, the Disaster Relief Appropriations Act. The resolutions requested the Secretary of the Army to review existing reports of the Chief of Engineers for the entire coast of New Jersey with a view to study, in cooperation with the State of New Jersey, its political subdivisions and agencies and instrumentalities thereof, the changing coastal processes along the coast of New Jersey. Preconstruction engineering and design activities for the Hereford Inlet to Cape May Inlet, New Jersey, project will continue under the study authority cited above. The Corps of Engineers intends to undertake initial construction of the project under the authority of, and using funds provided in, PL 113-2. I am recommending that the Congress authorize periodic nourishment and any initial construction of the project that will not be completed using PL 113-2 funds.

2. The reporting officers recommend authorization of the National Economic Development Plan that consists of a dune and berm construction using sand obtained from an onshore beach borrow source located at the southern end of Five Mile Island (the Wildwoods). The recommended plan extends approximately 4.5 miles from Hereford Inlet to Cape May Inlet and will encompass the towns of North Wildwood, Wildwood, Wildwood Crest and Lower Township. Dimensions of the project are a +16-foot North American Vertical Datum 1988 (NAVD88) dune, with a 25-foot wide dune crest on a 75- foot wide berm that is +6.5-foot NAVD88 in elevation within North Wildwood, Wildwood, Wildwood Crest and Lower Township. Side slopes for the dune will be 1V:5H and slopes for the berm will be 1V:30H. The plan includes approximately 64 acres of dune grass, 28,000 linear feet of sand fence, 44 extended crossovers, seven new pedestrian crossovers, seven extended handicap crossovers, six new handicap crossovers, eight existing vehicle crossover extensions and five new vehicular crossovers. The sand will be pumped from the southern borrow area using mobile back-passing technology to hydraulically pump sand from the Wildwood and Wildwood Crest borrow source to the placement area. Initial construction for the project will remove approximately 1,527,250 cubic yards (cy) of sand from the approved borrow zone, which includes a design quantity of 1,136,000 cy and advanced nourishment of 391,000 cy. Periodic nourishment is included in project design to maintain the integrity of the design beach template over the project period of analysis. Nourishment requirements were

determined by considering losses resulting from diffusion of the design beach fill planform and natural background erosion. Following the initial construction, approximately 391,000 cy of material will be back-passed every four years throughout the 50-year period of analysis for the periodic nourishment of the selected plan. Since the recommended plan would not have any significant adverse effects, no mitigation measures (beyond management practices and avoidance) or compensation measures would be required.

3. The New Jersey Department of Environmental Protection (NJDEP) is the non-federal cost sharing sponsor for all features. Based on a March 2014 price level, the estimated total nourishment cost is $104,030,000, which includes the project first cost of initial construction of $21,600,000 and a total of 12 periodic nourishments at a total cost of $82,430,000. Cost sharing is applied in accordance with the provisions of Section 103 of the Water Resources Development Act (WRDA) of 1986, as amended by Section 215 of WRDA 1999, as follows:

a. Shore protection features are cost-shared at a rate of 65 percent federal and 35 percent non-federal for the initial construction. Thus the federal share of the project first cost is $14,040,000 and the non-federal share is estimated at $7,560,000 which includes the costs of land, easements, rights-of-way, relocations, and dredged or excavated material disposal areas (LERRD). LERRD costs are estimated at about $1,270,000. The non-federal sponsor will receive credit for the costs of LERRD toward the non-federal share.

b. Periodic nourishment will be cost shared 50 percent federal and 50 percent non-federal. It is expected to have costs of $5,950,000 for year 4 and 8, and $6,190,000 every four years thereafter, except in year 24, which assumes major nourishment is required at a cost of $7,920,000. In addition, nourishment activities include monitoring costs estimated to average about $138,000 over the 50-year period for a total of $6,900,000.

c. The NJDEP would be responsible for the operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) of the project after construction, an average annual cost currently estimated at $150,000 over the 50-year period of analysis.

4. 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 $2,669,000, including monitoring and OMRR&R. All project costs are allocated to the authorized purpose of shoreline protection. The recommended plan has average annual benefits of $6,252,000. The net national economic development (NED) benefits of the project are $3,583,000 and the benefit to cost ratio (BCR) is 2.3. In addition to providing protection from coastal storms, the dunes and berm create habitat for bird nesting and coastal plant species. The 64 acres of Cape American Beach Grass has the potential to develop into a more diverse plant community in a stable dune system. This project should benefit the piping plover habitat in the North Wildwood by stabilizing the beaches through regular periodic nourishment and improve the overall quality of the beach habitat.

5. Risk and uncertainty has been explicitly factored into the economic analysis of this project. Chapter 6 of ER 1105-2-100, entitled "Risk Based Analysis for Evaluation of Hydrology/Hydraulics and Economics in Shore Protection Studies" specifies the analysis requirements for shore protection projects, the fundamental requirement being that all shore protection analyses adopt a life cycle approach. A risk and uncertainty analysis that incorporated key economic, hydraulic and sea level change parameters was preformed for the feasibility study. This risk and uncertainty plan was peer reviewed by the Jacksonville District of the Army Corps of Engineers and approved by North Atlantic Division. The project is not intended to, nor will it, reduce risk to loss of life during major storm events. Loss of life can only be prevented by residents and visitors following the local evacuation plans that are already in place. These residual risks have been communicated to the NJDEP.

6. In accordance with the Corps of Engineering Circular (EC 1165-2-212) on sea level change, the study performed a sensitivity analysis to look at the effects that different rates of accelerated sea level rise could have on the recommended plan. The plan was formulated using a historical or low rate of sea level rise of 0.013 feet/year. The sensitivity analysis used additional accelerated rates, which includes what the EC defines as intermediate and high rates of 0.023 feet/year and 0.056 feet/year, respectively. The analysis found that the influence of current sea level rise on the project is relatively low as compared to other factors causing erosion (waves, currents, winds and storms). The magnitude of the short-term storm induced erosion during hurricane events have a much greater effect along the New Jersey coastline than those indicated by the natural long term shoreline trends. Adaptive management will be used including monitoring and adding additional volume of sand during periodic nourishments to compensate for significant accelerated sea level rise beyond the current observed rate should it become necessary.

7. In accordance with the Corps of Engineers Circular (EC 1165-2-214) 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 includes a District Quality Control review, an Agency Technical Review (ATR), an Independent External Peer Review (IEPR) (Type 1), and a Corps Headquarters policy and legal review. The IEPR was completed by Battelle Memorial Institute. 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.

8. 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 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. During the State and Agency (S&A) review, comments were received from the U.S. Environmental Protection Agency (EPA) and the Department of the Interior (DOI). Other

agencies indicated they either had no comments or provided none. The EPA reiterated a comment on the draft report concerning the potential for erosion at dune cross over locations due to their alignment. The Corps responded that the final report had addressed the concern, and the seaward side of all of the vehicular and pedestrian crossovers would be constructed at an angle to the dune, not perpendicular, in order to enhance dune resiliency. The DOI commented on the consideration given to borrow from the inlet area and the potential listing of the Red Knot as a threatened species under the Endangered Species Act. The Corps responded that the recommended plan has no borrow from the Hereford Inlet. The Corps has been engaged in Endangered Species Act consultation with the U.S. Fish and Wildlife Service (FWS) regarding the red knot, which was listed as a threatened species following receipt of the DOI S&A comments. The district will coordinate any potential impacts related to this coastal project with the FWS and incorporate protection measures into the project plan as the design phase continues.

9. I generally concur in the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that the periodic nourishment associated with the project to reduce hurricane and storm damages for Hereford Inlet to Cape May Inlet, New Jersey and any initial construction of the project that will not be completed with PL 113-2 funds be authorized in accordance with the reporting officers' recommended plan, with such modifications as in the discretion of the Chief of Engineers may be advisable. The estimated cost of the project is $104,030,000, which includes an estimated total cost for periodic nourishment of $82,430,000 for 12 cycles of periodic nourishment and an estimated total cost of $21,600,000 for initial construction that would be reduced by any initial construction undertaken using PL 113-2 funds. My recommendation is subject to cost sharing, financing, and other applicable requirements of federal laws and policies, including Section 103 of the Water Resources Development Act (WRDA) of 1986, as amended by Section 215 of WRDA 1999. This recommendation is subject to the non-federal sponsor agreeing to comply with all applicable federal laws and policies, including that it will:

a. Provide a minimum of 35 percent of initial project costs assigned to coastal storm damage reduction, plus 100 percent of initial project costs assigned to protecting undeveloped private lands and other private shores which do not provide public benefits, and 50 percent of periodic nourishment costs assigned to coastal storm damage reduction, plus 100 percent of periodic nourishment costs assigned to protecting undeveloped private lands and other private shores which do provide public benefits, and as further defined below:

1) Provide all lands, easements, and rights-of-way, including suitable borrow areas, and perform or ensure performance of all relocations determined by the federal government to be necessary for the initial construction, periodic nourishment, operation, and maintenance of the project;

2) Provide during construction any additional amounts necessary to make its total contribution equal to 35 percent of initial project costs assigned to hurricane and storm

damage reduction plus 100 percent of initial project costs assigned to protecting undeveloped private lands and other private shores which do not provide public benefits;

b. Operate, maintain, repair, replace, and rehabilitate the completed project, or functional portion 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;

c. Give the federal government a right to enter, at reasonable times and in a reasonable manner, upon property that the non-federal sponsor, now or hereafter, owns or controls for access to the project for the purpose of inspection, and, if necessary, after failure, to perform by the non-federal sponsor, for the purpose of completing, operating, maintaining, repairing, replacing, or rehabilitating the project. No completion, operation, maintenance, repair, replacement, or rehabilitation by the federal government shall relieve the non-federal sponsor of responsibility to meet the non-federal sponsor's obligations, or to preclude the federal government from pursuing any other remedy at law or equity to ensure faithful performance;

d. 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;

e. Perform, or cause to be performed, 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 the initial construction, periodic nourishment, operation, and 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;

f. Assume complete financial responsibility, as between the federal government and the non-federal sponsor for all necessary cleanup and response costs of any CERCLA regulated materials located in, on, or under lands, easements, or rights-of-way that the federal government determines to be necessary for the initial construction, periodic nourishment, operation, or maintenance of the project;

g. Agree 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

h. Participate in and comply with applicable federal floodplain management and flood insurance programs.

i. Not use federal funds to meet the non-federal sponsor's share of total project costs unless the federal granting agency verifies in writing that the use of such funds for the project is authorized;

j. Prevent obstructions of or encroachment on the project (including prescribing and enforcing regulations to prevent such obstructions or encroachments) which might reduce the level of protection it affords, hinder operation and maintenance or future periodic nourishment, or interfere with its proper function, such as any new developments on project lands or the addition of facilities which would degrade the benefits of the project;

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

l. Publicize floodplain information in the area concerned and provide this information to zoning and other regulatory agencies for their use in preventing unwise future development in the floodplain, and in adopting such regulations as may be necessary to prevent unwise future development and to ensure compatibility with protection levels provided by the project;

m. For so long as the project remains authorized, ensure continued conditions of public ownership and use of the shore upon which the amount of federal participation is based;

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

o. At least twice annually and after storm events, perform surveillance of the beach to determine losses of nourishment material from the project design section and provide the results of such surveillance to the federal government.

10. The recommendation contained herein reflects the information available at this time and current departmental policies governing the 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 Congress as a

proposal for authorization and implementation funding. However, prior to transmittal to Congress, the sponsor, 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
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Chief of Engineers

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DAEN

JUN 25 2015

SUBJECT: Port Everglades Navigation Improvements Project, Broward County, Florida

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress the final feasibility report and environmental impact statement on navigation improvements for Port Everglades, Broward County, Florida. It is accompanied by the reports of the district and division engineers. This report was prepared as an interim response to a resolution by the Committee on Transportation and Infrastructure of the United States House of Representatives, dated 9 May 1996. Preconstruction engineering and design activities for the Port Everglades, Broward County, Florida Navigation Project will continue under the authority provided by the resolution cited above.

2. The reporting officers recommend a project that will contribute to the economic efficiency of commercial navigation. The national economic development (NED) plan includes a channel depth of 47 feet with associated widening. Based on Fiscal Year (FY) 2015 price levels, a 3.375-percent discount rate, and a 50-year period of analysis, the project first cost of the NED plan is $305,300,000, with average annual benefits of $46,900,000; average annual costs of $15,900,000; and a benefit-to-cost ratio of 2.9. The non-federal sponsor, Broward County represented by its Board of County Commissioners, subsequently requested a locally preferred plan (LPP) of 48 feet with associated widening. The LPP has positive net benefits and is economically justified. In accordance with U.S. Army Corps of Engineers (USACE) policy, the LPP was submitted for consideration to the Assistant Secretary of the Army for Civil Works (ASA(CW)) and approved for consideration as the recommended plan on 16 October 2014. The recommended plan is the LPP and consists of the following improvements:

a. The project would deepen from the existing 42-foot mean lower low water (MLLW) channel to 48 feet MLLW from the outer entrance channel through the Southport Access Channel (SAC);

b. The following areas of widening are included as part of the new channel footprint for the recommended plan: Outer Entrance Channel: widen from the existing 500-foot channel width to 800 feet and extend 2,200 feet seaward; Main Turning Basin: widen by 300 feet, referred to as the widener, including reconfiguration of the U.S. Coast Guard (USCG) facility easterly on USCG property; SAC: widen by 250 feet and shift the existing 400-foot wide channel 65 feet to the east; Turning Notch (TN): widen by 100 feet parallel to the channel on the eastern edge of the SAC, and widen the western edge of the SAC to access the TN from the existing federal channel edge to a width of 130 feet at the north edge of the TN;

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c. The land required for the widener is federally owned and operated by the USCG. The USCG owns a total of 7.8 acres. Approximately one acre of uplands will be removed and turned into submerged lands to support the widening of the SAC. Use of the USCG property is necessary to allow deep draft vessels the ability to turn safely. The uplands being submerged will remain federally owned and be used for USCG vessels. The reconfiguration requires several USCG structures, facilities, and utilities to be shifted to the east onto adjacent federally owned property. The cost for this reconfiguration is included in the cost-shared project construction costs as a general navigation feature (GNF). A permit for use of real property by other federal agencies will be executed between the USCG and the Department of the Army for construction purposes;

d. Construction of the recommended plan involves dredging of approximately 5.5 million cubic yards of material. Material will be removed using a cutter head dredge or blasting with cutter head or clam shell removal and placed in ocean disposal. The proposed Ocean Dredged Material Disposal Site (ODMDS) is of sufficient capacity to include material from the 48-foot plan and future operations and maintenance (O&M), with no impact to long-term disposal capacity. All material dredged for construction is assumed to go to the ODMDS; and

e. To compensate for the unavoidable adverse effects of the action on various significant habitat types, USACE has proposed the following: mitigate for (a) the removal of approximately 7.41 acres of vegetated and unvegetated seagrass habitat (including that within the new channel footprint and resulting side slopes) and (b) the loss of approximately 1.16 acres of mangroves in the project footprint through use of ecosystem benefits from a previously permitted restoration project at West Lake Park (Broward County, FL), which is located in a county-operated, state-owned, natural area immediately to the south of the harbor. Mitigation for impacts will involve use of 2.4 seagrass functional units and one (1) mangrove functional unit, respectively, from that project. USACE has also proposed the following: mitigate for (c) the direct removal of approximately 14.62 acres of complex, high-profile, linear and spur/groove reef habitat through the creation of approximately 5 acres of artificial reef with the transplantation of 11,502 corals from the impact site to the artificial reef, as well as the enhancement of additional acreage through the outplanting of approximately 103,000 nursery raised corals to existing reefs. Additional mitigation will be provided for any direct and indirect impacts caused by dredging or increased turbidity/sedimentation. These mitigation components were determined to be economic "Best Buys" from among mitigation alternatives. The coral mitigation plan for reef impacts is included as a requirement in the Biological Opinion (BiOp) issued by the National Marine Fisheries Service (NMFS). Per a letter sent by NMFS to USACE on 1 May 2014, NMFS considers the scope of the coral mitigation plan as laid out in the BiOp, including associated monitoring and adaptive management actions, to be final with the exception of coordination of fine-scale construction level details and implementation of lessons learned from other similar efforts.

3. Project Cost Breakdown based on October 2014 Prices.

a. Project First Cost: The estimated project first cost is $322,700,000, which includes the cost of constructing the GNF and the lands, easements, rights-of-way (LER), and relocations. Broward County represented by its Board of County Commissioners is the non-federal cost-sharing sponsor for all features.

b. Estimated Federal and Non-Federal Cost Shares: The estimated federal and non-federal shares of the project first cost are $220,200,000 and $102,500,000 respectively, as apportioned in accordance with the cost sharing provisions of Section 101 of the Water Resources Development Act (WRDA) 1986, as amended (33 U.S.C. 2211), as follows:

(1) The cost for the GNF from greater than 20 feet to 45 feet will be shared at a rate of 75 percent by the government and 25 percent by the non-federal sponsor, plus

(2) The cost for the GNF from greater than 45 feet will be shared at a rate of 50 percent by the government and 50 percent by the non-federal sponsor, plus

(3) 100 percent of the costs attributable to dredging to a depth over the NED plan of 47 feet MLLW.

c. Additional 10 Percent Payment. In addition to the non-federal sponsor's estimated share of the total first cost of constructing the project in the amount of $322,700,000 pursuant to Section 101(a)(2) of WRDA 1986, as amended, the non-federal sponsor must pay an additional 10% of the NED first costs ($305,000,000) of GNF of the project, $30,500,000, in cash over a period not to exceed 30 years, with interest.

d. Operations and Maintenance Costs. It is estimated that there will be an average annual increase of 5,700 cubic yards (CY) of shoal material to be dredged each year from the new project with an added annual O&M cost of $55,500. The increase in annual O&M is primarily due to the increase in channel footprint (widening and channel extension).

e. Associated Costs. Estimated associated costs of $200,000 include navigation aids, (a USCG expense).

f. Local Service Facilities and Non-Federal Berthing Area Costs. The cost for local service facilities and non-federal berthing area costs is approximately $51 million dollars. These costs are 100% non-federal and are not included in the total first cost 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, the value of LER and the value of relocations provided under Section 101(a)(3) of WRDA 1986, as amended. Accordingly, as set forth in paragraph 3.a. above, based on FY 2015 price levels, the

estimated project first cost for these purposes is $322,700,000 with a federal share of $220,200,000 and a non-federal share of $102,500,000.

4. Based on FY 2015 price levels, 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 $16,860,000. The average annual equivalent benefits are estimated to be $48,240,000. The average annual net benefits are $31,380,000. The benefit-to-cost ratio for the recommended plan is 2.9.

5. The federal government would be responsible for O&M of the navigation improvements proposed in this report upon completion of the construction contract. The federal government currently maintains the existing project. The contractor would be responsible for all maintenance during the construction contract.

6. Risk and uncertainty were evaluated for economic benefits, costs and sea level rise. Economic sensitivities examined the effects of commodity forecasts which had lower growth rates or capped the growth earlier in the period of analysis. In accordance with the USACE Engineering Circular (EC) on sea level change, the study analyzed four sea level rise rates; historic, baseline, intermediate, and high. Based on a 50-year period of analysis of historical sea level measurements taken from National Ocean Service (NOS) gage 8723170 at Miami Beach, Florida, the historic sea level rise rate was determined to be 2.39 mm/year (0.0078 ft/year) (http://tidesandcurrents.noaa.gov/sltrends/index.shtml). Analysis shows that the sea level rise values for the baseline, intermediate, and high levels of future sea level rise at the end of the 50-year period of analysis are projected to be 0.39 feet, 0.84 feet, and 2.25 feet, respectively. In general, regional sea level rise (baseline, intermediate, and high) will not affect the functioning of the project alternatives or the overall safety of the vessels. While there is expected to be a small increase in tide range and storm surge penetration for all three scenarios, the structural aspects of the project will be either unaffected or can be easily adapted to accommodate the change.

7. In accordance with the USACE EC on review of decision documents, all technical, engineering and scientific work underwent an open, dynamic and vigorous review process to ensure technical quality. This included District Quality Control, Agency Technical Review, Policy and Legal Compliance Review, Cost Engineering Mandatory Center of Expertise Review and Certification, Independent External Peer Review (IEPR), and the review and approval of technical models. The IEPR was completed by Battelle Memorial Institute. An initial IEPR was conducted on the draft report in 2013 and a second IEPR was completed on the final report in 2014. The first review resulted in one comment of high significance and the second review resulted in five comments of medium high to high significance. The IEPR comments identified concerns in the areas of engineering assumptions, economic analysis, and environmental considerations. All comments from the above referenced reviews have been incorporated into the final document. Overall, the reviews resulted in improvements to the technical quality of the report.

8. 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 directives, economically justified. The plan complies with all essential elements of the 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.

9. I concur in the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that navigation improvements for Port Everglades be authorized in accordance with the reporting officer's recommended plan at an estimated first cost of $322,700,000 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 101 of WRDA 1986, as amended. This recommendation is subject to the non-federal sponsor agreeing to comply with all applicable federal laws and policies including that the non-federal sponsor must agree with the following requirements prior to project implementation.

a. Provide, during the periods of design and construction, funds necessary to make its total contribution for commercial navigation equal to:

(1) 25 percent of the cost of design and construction of the GNFs attributable to dredging to a depth in excess of -20 feet MLLW but not in excess of -45 feet MLLW, plus

(2) 50 percent of the cost of design and construction of the GNFs attributable to dredging to a depth in excess of -45 feet MLLW but not in excess of -47 feet MLLW, plus

(3) 100 percent of the costs attributable to dredging to a depth over -47 feet MLLW;

b. Provide all LER, 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 GNFs;

c. Pay with interest, over a period not to exceed 30 years following completion of the period of construction of the GNFs, an additional amount equal to 10 percent of the total cost of construction of the NED GNFs less the amount of credit afforded by the government for the value of the LER and relocations, including utility relocations, provided by the non-federal sponsor for the GNFs. If the amount of credit afforded by the government for the value of LER and relocations, including utility relocations, provided by the non-federal sponsor equals or exceeds 10 percent of the total cost of construction of the GNFs, the non-federal sponsor shall not be required to make any contribution under this paragraph, nor shall it be entitled to any refund for the value of LER and relocations, including utility relocations, in excess of 10 percent of the total costs of construction of the GNFs;

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. In the case of project features greater than -47 feet MLLW in depth, provide 100 percent of the excess cost of O&M of the project over that cost which the government determines would be incurred for O&M if the project had a depth of 47 feet;

f. Accomplish all removals determined necessary by the federal government other than those removals specifically assigned to the federal government;

g. Give the 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 GNFs;

h. Hold and save the United States free from all damages arising from the construction or O&M of the project, any betterments, and the local service facilities, except for damages due to the fault or negligence of the United States or its contractors;

i. 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 USC 9601–9675, that may exist in, on, or under LER that the government determines to be necessary for the construction or O&M of the GNFs. However, for LER 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;

j. 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 LER that the government determines to be necessary for the construction or O&M of the project; and

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

10. 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 the Congress, the state of Florida, Broward County represented by its Board of County

Commissioners (the non-federal sponsor), interested federal agencies, and other parties will be advised of any significant modifications and will be afforded an opportunity to comment further.

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0 8 FEB 2015

DAEN

SUBJECT: Portsmouth Harbor and Piscataqua River Navigation Improvement Project, New Hampshire and Maine

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on navigation improvements for Portsmouth Harbor and Piscataqua River, New Hampshire and Maine. It is accompanied by the reports of the New England District Engineer and the North Atlantic Division Engineer. These reports were prepared in response to a study authority contained in Section 436 of the Water Resources Development Act (WRDA) of 2000 (P.L. 106-541) which called on the Secretary to conduct a study to determine the feasibility of modifying the project for navigation, Portsmouth Harbor and Piscataqua River, Maine and New Hampshire, authorized by Section 101 of the Rivers and Harbors Act of 1962 (76 Stat. 1173) and modified by Section 202(a) of WRDA 1986 (100 Stat. 4095), to increase the authorized width of turning basins in the Piscataqua River to 1,000 feet. Further, Section 216 of the Flood Control Act of 1970 also provides the Corps general authority to review completed civil works projects when found advisable due to the significantly changed physical or economic conditions, and to report thereon to Congress with recommendations on the advisability of modifying the structures or their operation, and for improving the quality of the environment in the overall public interest.

2. The report recommends implementation of a project that will contribute significantly to the economic efficiency of commercial navigation in Portsmouth Harbor. Portsmouth Harbor is located on the North Atlantic U.S. coast about 45 miles north of Boston Harbor and is New Hampshire's largest port. The river and harbor form a portion of the boundary between the states of New Hampshire and Maine. The deep-draft harbor consists of a -35-foot channel at mean lower low water (MLLW) extending about six miles from deepwater in its entrance from the Gulf of Maine upriver to below the entrance to Great Bay. The channel has a minimum width of 400 feet, and has been widened through critical ledge areas, bends, bridge approaches and turning areas in the reaches below the upper-most highway bridge, most recently under modifications made by WRDA 1986 which were completed in 1992. This study focused on the upper project reaches not addressed by the 1986 improvements. The New Hampshire Pease Development Authority, Division of Ports and Harbors, is the non-Federal cost-sharing partner.

3. The reporting officers identified a plan for navigation improvement conisting of widening the upper turning basin at the head of the channel from its current width of 800 feet to a width of 1200 feet. This would be accomplished at the existing 35-foot project depth, and would enable bulk cargo carriers, including petroleum products tankers, of up to 800 feet in length to safely turn and transit the upper channel reaches. These are the largest ships now navigating the

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waterway, and the largest that can safely pass the bridge openings. This improvement will contribute significantly to the safety of the waterway and the economic efficiency of commercial navigation in the region. Local Service facilities are adequate for existing and prospective commerce. The recommendation is supported by the non-Federal sponsor.

4. The U.S. Environmental Protection Agency has concurred in the determination that the improvement project dredged materials are parent materials of largely glacial origin and suitable for unconfined ocean water disposal. The project would require the removal of about 728,100 cubic yards of dredged material and 25,300 cubic yards of rock. The Federal National Economic Development Plan identified for this project would involve the placement of all of the dredged material and rock at the Isles of Shoals North ocean placement site, located about ten miles seward of the mouth of the harbor. This is the Federal Base Plan for dredging and disposal of dredged materials and is the recommended plan of improvement.

5. However, it is the policy of the U.S. Army Corps of Engineers to use dredged material, where practicable, for beneficial use. Potential beneficial uses for the sandy material and rock have been proposed by shorefront communities in Maine and Massachusetts and are discussed by the reporting officers. The use of the sandy material for nearshore placement as feeder bars offshore of eroding beaches has been proposed by the Town of Wells, Maine, and the City of Newburyport and Towns of Salisbury and Newbury in Massachusetts. Use of the rock to create a submerged wave break at Pepperrell Cove has been proposed by the Town of Kittery, Maine. These communities will be responsible for securing all necessary Federal, state and local approvals for placement of these materials at these sites and for these purposes. These communities are also responsible to fund the costs of these placement alternative over and above the cost of the Federal Base Plan. Neither the Government or the non-Federal sponsor are parties to these alternative placement proposals. To the extent that these proponents fail to secure the necessary regulatory approvals or provide the required additional funding, the Federal Base Plan would be implemented for all or that portion of the material.

6. Project costs for the Federal Base Plan are allocated to the commercial navigation purpose and are based on October 2014 price levels.

a. Project First Cost. The estimated project first cost of construction is $20,770,000 which includes the cost of constructing General Navigation Features (GNFs) and the value of lands, easements, rights-of-way and relocations estimated as follows: $18,880,000 for turning basin modification and ocean placement of dredged material; $0 for lands, easements, and rights-of-way, and relocations provided by the non-Federal sponsor; $1,030,000 for planning, engineering and design efforts; and $860,000 for construction management.

b. Estimated Federal and Non-Federal Shares: The estimated Federal and non-Federal shares of the project first cost are $15,580,000 and $5,190,000, respectively, as apportioned in accordance with the cost sharing provisions of Section 101(a) of WRDA 1986, as amended (33 U.S.C. 2211(a)).

c. There are no lands, easements, rights-of-way or relocations required for the project. The dredging and dredged material placement sites are all subtidal. All construction will be accomplished with floating plant and equipment. Therefore, the estimated value of lands, easements, rights-of-way, and relocations that the non-Federal sponsor must provide pursuant to Section 101(a)(3) of WRDA 1986, as amended (33 U.S.C. 2211(a)(3)) is $0.

d. Additional 10 Percent Payment. In addition to payment by the non-Federal sponsor of its share of the project first costs determined in sub-paragraphs b(1), b(2) and b(3) above, 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 cost of the general navigation features of the project in cash over a period not to exceed 30 years, with interest. The additional 10 percent payment without interest is estimated to be $2,080,000. The value of lands, easements, rights-of-way, and relocations, estimated as $0, provided by the non-Federal sponsor under Section 101(a)(3) of WRDA 1986, as amended, will be credited toward payment of this amount.

e. Operations and Maintenance Costs. Due to lack of sediment sources and currents in the river the upper turning basin has not required maintenance since its initial completion in 1966. It is expected that widening the turning basin will not increase the existing maintenance frequency. An amount equal to one percent of the project first cost was caculated for increased annual maintenance to be borne by the Federal Government, or $203,700.

f. Associated Costs. Local service facilities are adequate for existing and prospective commerce. No project deepening is planned. The U.S. Coast Guard has determined that no new aids to navigation will be required.

g. Authorized Project Cost and Section 902 Calculation. The project first cost for the purpose of calculating the maximum cost of the project pursuant to Section 902 of WRDA 1986, as amended, includes the cost of constructing the GNFs and the value of lands, easements, and rights-of-way. Accordingly, as set forth in paragraph 6, above, based on October 2014 price levels, the total estimated project first cost for these purposes is $20,770,000 with an estimated Federal share of $15,580,000 and an estimated non-Federal share of $5,190,000. Based on a discount rate of 3.375 percent, and a 50-year period of economic analysis, the project average annual benefits and costs are estimated at $3,290,000 and $1,060,000, respectively, with resulting net excess benefits of $2,230,000 and a benefit-to-cost ratio of 3.1.

7. The goals and objectives included in the Campaign Plan of the Corps have been fully integrated into the Portsmouth Harbor and Piscataqua River study process. The recommended plan was developed in coordination and consultation with various Federal, state and local agencies using a systematic and regional approach to formulating solutions and evaluating the benefits and impacts that would result.

8. Risk and uncertainty were evaluated for economic benefits, costs, and sea level rise. In accordance with the Corps Engineer Circular EC 1165-2-212 on sea level change the study analyzed three sea level rise rates. Historic, mid-level and maximum expected sea level rise

were estimated at 0.3, 1.5 and 2.2 feet, respectively, over the 50-year project life. The study concluded that no impact would result from sea level rise with respect to dredging and channel use, and that terminal facilities would continue to operate with some likelihood that the maximum level of sea level rise may require modification of the terminal facilities by private operators at some point in the future, such as increasing pier deck elevations.

9. In accordance with the Corps Engineer Circular EC 1165-2-214 on review of decision documents, all technical, engineering, and scientific work underwent an open, dynamic, and vigorous review process to ensure technical quality. This included District Quality Control, Agency Technical Review (ATR), Policy and Legal Compliance Review, Cost Engineering Directory of Expertise Review and Certification, and Model Review and Approval. All concerns of the ATR have been addressed and incorporated into the final report. The comments were related to transportation cost savings documentation, vessel fleet analysis, blasting impacts, and beneficial use of sand and rock. The comments and responses were reviewed by the Deep Draft Navigation Planning Center of Expertise which certified 12 June 2014 that all comments had been satisfactorily addressed. In response, the final Feasibility Report and Final Environmental Assessment include additional information.

10. Washington level review indicates that the plan recommended by the reporting officers is technically sound, environmentally and socially acceptable, and economically justified. The plan complies with all essential elements of the U.S. Water Resources Council's Economic and Environmental Principles and Guidelines for Water and Land Related Resources Implementation Studies. Further 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. State and agency comments received during review of the final report and environmental assessment included concerns raised by the Maine Department of Environmental Protection related to its review and approval of potential alternate sites to the Federal base plan for disposal should a third party in the state of Maine wish to use the material. The National Marine Fisheries Service provided comments in relation to inclusion of the outcome of the required consultation under Section 7 of the Endangered Species Act in the Chief's Report, its preferred location of correspondence in the feasibility report and providing a blasting plan for the project 30 days prior to detonation.

11. I concur in the findings, conclusions, and recommendation of the reporting officers. Accordingly, I recommend that navigation improvements for Portsmouth Harbor and Piscataqua River, New Hampshire and Maine be authorized in accordance with the reporting officers' recommended plan at an estimated cost of $20,770,000, 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 101 of WRDA 1986, as amended (33 U.S.C. 2211). The non-Federal sponsor would provide the non-Federal cost share and all lands, easements, and rights-of-way, including those necessary for the borrowing of material and the disposal of dredged or excavated material, and would perform or assure the performance of all relocations, including utility relocations. This recommendation is subject to the non-Federal sponsor agreeing, in a Design Phase

Agreement prior to initiating project design, and in a Project Partnership Agreement prior to project implementation, to comply with all applicable Federal laws and policies, including but not limited to the following requirements:

a. Provide, during the periods of design and construction, funds necessary to make its total contribution for commercial navigation equal to:

(1) 10 percent of the cost of design and construction of the GNFs attributable to dredging to a depth not in excess of -20 feet MLLW; and,

(2) 25 percent of the cost of design and construction of the GNFs attributable to dredging to a depth in excess of -20 feet MLLW but not in excess of -45 feet MLLW.

b. Provide all lands, easement, 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 operation and maintenance of the GNFs.

c. Pay with interest, over a period not to exceed 30 years following completion of the period of construction of the GNFs, an additional amount equal to 10 percent of the total cost of construction of GNFs less the amount of credit afforded by the Government for the value of the lands, easements, and rights-of-way, and relocations, including utility relocations, provided by the non-Federal sponsor for the GNFs. If the amount of credit afforded by the Government for the value of lands, easements, and rights-of-way,, and relocations, including utility relocations, provided by the non-Federal sponsor equals or exceeds 10 percent of the total cost of construction of the GNFs, the non-Federal sponsor shall not be required to make any contribution under this paragraph, nor shall it be entitled to any refund for the value of lands, easements, and rights-of-way, and relocations, including utility relocations, in excess of 10 percent of the total costs of construction of the GNFs.

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, including but not limited to providing depths in the berths at the River Road and Avery Lane terminals at least equal to that of the adjacent Federal channel and turning basin.

e. Give the 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 GNFs.

f. Hold and save the United States free from all damages arising from the construction or operation and maintenance of the project, any betterments, and the local service facilities, except for damages due to the fault or negligence of the United States or its contractors.

g. Keep and maintain books, records, documents, and other evidence pertaining to costs and expenses incurred pursuant to the project, for a minimum of three years after completion of the accounting for which such books, records, documents, and other evidence is required, to the extent and in such detail as will properly reflect total cost of the project, and in accordance with the standards for financial management systems set forth in the Uniform Administrative Requirements for Grants and Cooperative Agreements to state and local governments at 32 CFR, Section 33.20.

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 Federal Government determines to be necessary for the construction or operation and maintenance of the GNFs. However, for lands, easements, or rights-of-way that the Federal Government determines to be subject to the navigation servitude, only the Federal Government shall perform such investigation 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.

j. Assume complete financial responsibility, as between the Federal 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 LER that the Federal Government determines to be necessary for the construction or operation and maintenance of the project.

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

l. Comply with Section 221 of P.L. 91-611, Flood Control Act of 1970, as amended, (42 U.S.C. 1962(d-5b) and Section 101(e) of WRDA 1986, Public Law 99-662, as amended, (33 U.S.C. 2211(e)) which provides that the Secretary of the Army shall not commence the construction of any water resources project or separable element thereof, until the non-Federal sponsor has entered into a written agreement to furnish its required cooperation for the project or separable element.

m. Provide the non-Federal share of that portion of the costs of mitigation and data recovery activities associated with historic preservation that are in excess of 1 percent of the total amount authorized to be appropriated for the project.

12. 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 states of New Hampshire and Maine, the New Hampshire Pease Development Authority, Division of Ports and Harbors (the non-Federal sponsor), 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

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
441 G STREET, NW
WASHINGTON, DC 20314-1000

REPLY TO
ATTENTION OF

Office of the Chief of Staff

DEC 14 2015

Honorable Bill Shuster
Chairman, Committee on Transportation
and Infrastructure
House of Representatives
2165 Rayburn House Office Building
Washington, D.C. 20515

Dear Mr. Chairman:

As required by Section 2033 of P.L. 110-114, I am enclosing a copy of the final report of the Chief of Engineers on the Skokomish River Basin Ecosystem Restoration Feasibility Study. Under separate letter, and in accordance with Executive Order 12322 dated September 17, 1981, the Assistant Secretary of the Army (Civil Works) will provide her report and the advice from the Office of Management and Budget on how the proposed project relates to the policy and programs of the President, the Economic, and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, and other applicable laws, regulations, and requirements relevant to the planning process.

I am sending an identical letter to the Honorable James M. Inhofe, Chairman of the Senate Committee on Environment and Public Works. Thank you for your interest in the Corps Civil Works Program.

Sincerely,

D. Peter Helmlinger
Colonel, U.S. Army
Chief of Staff

Enclosure

Printed on Recycled Paper

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

DEC 14 2015

DAEN

SUBJECT: Skokomish River Basin Ecosystem Restoration, Washington

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on ecosystem restoration along the Skokomish River in Mason County, Washington. It is accompanied by the reports of the district and division engineers. These reports were completed under the authority of Section 209 of the River and Harbor Act of 1962, Public Law 87-874, which directed the Secretary to "cause surveys for flood control and allied purposes" in a number of named localities, including "Puget Sound, Washington, and adjacent waters, including tributaries, in the interest of flood control, navigation, and other water uses and related land resources." Preconstruction engineering and design activities, if funded, for the Skokomish River Basin Ecosystem Restoration Project will continue under the authority provided by the resolution cited above.

2. The reporting officers recommend authorization of a plan to restore aquatic ecosystem structure and function to the lower eleven miles of the Skokomish River. The recommended plan for ecosystem restoration includes;

- removal of a levee at the confluence of the North and South Forks of the Skokomish River near river mile 9;
- installation of large woody debris and engineered logjams on the South Fork Skokomish River, between river miles 9 and 11;
- reconnection of an historical side channel between river miles 4.5 and 5.5 of the Skokomish River;
- wetland restoration on the south bank of the Skokomish River between river miles 8.3 and 9.2 (the River Mile 9 site); and
- wetland restoration on the south bank of the Skokomish River between river miles 7.5 and 8 (the Grange site).

The recommended plan provides restoration on a total of 277 acres in the study area and provides substantial benefits to nationally significant resources. In addition, the removal of the levee at the confluence of the North and South Forks of the Skokomish River provides significant benefits for upstream fish passage to an approximate additional 40 miles of habitat in the South Fork Skokomish River that is periodically inaccessible due to the lack of water in the river channel adjacent to the confluence. The recommended plan is the National Ecosystem Restoration (NER) Plan. The recommended plan also includes a monitoring and adaptive management plan to ensure success, as described in Appendix E of the final report.

3. Based on an October 2015 price level, the estimated project first cost of the recommended plan is $19,664,000, which includes monitoring costs of $383,000 and adaptive management costs of $129,000. In accordance with the cost sharing provisions of Section 103(c) of the Water Resources Development Act (WRDA) of 1986, as amended (33 U.S.C. 2213(c)), ecosystem restoration features are cost-shared at a rate of 65 percent federal and 35 percent non-federal. Thus, the federal share of the total project first cost is estimated to be $12,782,000 and the non-federal share is estimated at $6,882,000, which includes the costs of lands, easements, rights-of-way, relocations, and dredged or excavated material disposal areas estimated at $1,711,000. The Skokomish Indian Tribe and Mason County, Washington are the non-federal cost-sharing sponsors for the recommended plan. Operation, maintenance, repair, replacement, and rehabilitation expenses are estimated to be approximately $10,000 per year and are the responsibility of the non-federal sponsors.

4. The restoration actions would improve aquatic habitats for the fish and wildlife species found in the lower eleven miles of the Skokomish River, including four fish species listed under the Endangered Species Act (chinook salmon, chum salmon, steelhead trout and bull trout), and would also provide benefits to over 100 additional species known to utilize the habitats associated with the Skokomish River for some part of their life cycles. Cost effectiveness and incremental cost analysis techniques were used to evaluate the alternative plans to ensure that a cost effective ecosystem restoration plan was recommended. The cost of the recommended restoration features is justified by restoring 187 average annual habitat units on 277 acres of floodplain and aquatic habitat and by allowing access to the 40 miles of the South Fork upstream of the confluence. The average annual cost of the plan is $824,000. The average annual cost per average annual habitat unit is $4,400, and the average annual cost per acre is $3,000.

5. The recommended plan was developed in coordination and consultation with federal, state, and local agencies and the Skokomish Tribe. Risk and uncertainty were addressed during the study by completing a cost and schedule risk analysis and a sensitivity analysis that evaluated the potential impacts of a change in economic assumptions.

6. In accordance with Corps' 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 includes a District Quality Control review, an Agency Technical Review (ATR), an Independent External Peer Review (IEPR) (Type 1), and a Corps Headquarters policy and legal review. All comments from the above referenced reviews have been addressed and incorporated into the final documents.

7. Washington level review indicates the plan recommended by the reporting officers is environmentally justified, technically sound, cost effective, and socially acceptable. The plan complies with all essential elements of the U.S. Water Resources Council's Economic and Environmental Principal 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.

8. I concur in the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that the plan for ecosystem restoration in the Skokomish River Basin, Washington be authorized in accordance with the reporting officers' recommended plan at an October 2015 estimated project first cost of $19,664,000. My recommendation is subject to cost sharing, financing, and other applicable requirements of federal and state laws and policies, including Public Law 99-662, the WRDA of 1986, as amended, and in accordance with the required items of local cooperation that the non-federal sponsors shall, prior to project implementation, agree to perform:

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

1. Provide the required non-federal share 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, during the first year of construction, any additional funds necessary to pay the full non-federal share of design costs;

3. 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, and maintenance of the project, and provide relocation assistance, 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;

4. Provide, during construction, any funds necessary to make its total contributions 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 that might reduce the outputs produced by the project, hinder operation and maintenance of the project, or interfere with the project's proper function;

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

d. For so long as the project remains authorized, operate, maintain, repair, rehabilitate, and replace 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;

e. 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;

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 (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. 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 sponsors with prior specific written direction, in which case the non-federal sponsors shall perform such investigations in accordance with such written direction;

g. Assume, as between the federal government and the non-federal sponsors, 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; and

h. Agree, as between the federal government and the non-federal sponsors, that the non-federal sponsors shall be considered the operators 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 the formulation of individual projects. They do not reflect program and budgeting priorities inherent in the formulation of the national civil works construction program or the perspective of higher levels within the executive branch. Consequently, the recommendations may be modified before they are transmitted to Congress for authorization and/or implementation funding. However, prior to transmittal to Congress, the State of Washington, interested federal agencies, and other parties will be advised of any significant modifications in the recommendations and will be afforded an opportunity to comment further.

THOMAS P. BOSTICK
Lieutenant General, USA
Chief of Engineers

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

JUN 08 2015

DAEN

SUBJECT: Upper Des Plaines River and Tributaries, Illinois and Wisconsin

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on flood risk management, recreation, and ecosystem restoration along the Upper Des Plaines River and its tributaries in northeastern Illinois and southeastern Wisconsin. It is accompanied by the report of the district and division engineers. These reports respond to Section 419 of the Water Resources Development Act (WRDA) of 1999. Section 419 requested a study of the Upper Des Plaines River and Tributaries, Illinois and Wisconsin, upstream of the confluence with Salt Creek at Riverside, Illinois, to determine the feasibility of improvements in the interests of flood damage reduction, environmental restoration and protection, water quality, recreation, and related purposes. Preconstruction engineering and design activities will continue under this authority.

2. The reporting officers recommend authorizing a National Economic Development (NED) plan and a National Ecosystem Restoration (NER) plan to manage flood risks, enhance recreation opportunities, and to restore ecosystems in the Upper Des Plaines River watershed. Analyses of the reporting officers indicate that the proposed NED and NER plans are physically, functionally, hydraulically, and economically independent. The NED plan provides for reducing flood damages and risks by constructing an optimized system of three levee/floodwalls and two floodwater storage reservoirs near or adjacent to the main stem of the Des Plaines River in the city of Des Plaines, and communities of Franklin Park, Schiller Park, and River Grove, Illinois; and implementing non-structural flood risk management measures at up to 377 structures in nine communities in Lake County and Cook County, Illinois. Non-structural flood risk management measures will include elevating structures, dry flood-proofing, filling basements in combination with dry flood-proofing, wet flood proofing, constructing engineered low-level ring levees at large commercial or public building sites, and evacuating portions of floodplains. The floodplain evacuation (i.e., purchase and removal of frequently damaged structures) component of the non-structural plan will, to the extent practicable, be implemented on a willing seller basis; however, eminent domain will be utilized when determined to be warranted. Acquisition of structures for removal will comply with the provisions of the Uniform Relocations Assistance and Real Property Acquisition Policies Act (P.L. 91-646), as amended, and the uniform regulations contained in 49 Code of Federal Regulations, Part 24, including the provision of payment of relocation assistance benefits to eligible recipients. Additionally, the NED plan provides for separable, cost-shared, recreation features at three sites where flood risk management features are recommended for implementation. The NER plan will provide ecosystem restoration benefits by manipulating site conditions to return hydrology, hydraulics and geomorphology to a more natural state, restoring natural stream channels, and by reestablishing native plant

communities over an aggregate 6,859 acres (10.7 square miles) at seven sites across the watershed. For all ecosystem restoration projects, the recommended plan includes post-construction monitoring and adaptive management for a period of up to ten years to ensure project performance. The NER plan includes compatible incidental recreation features. The recommended plan will not have significant adverse effects; consequently, no mitigation measures, beyond best management practices and avoidance, or compensation measures will be required. All project sites are located in the states of Illinois or Wisconsin. Project costs are stated at the October 2014 price level. Equivalent annual costs and benefits are based on a 3.375 percent discount rate and a 50-year period of economic evaluation.

3. The estimated total first cost of the combined NED/NER plan, including recreation features, is $307,087,000. All of the proposed flood risk management features are located in Lake and Cook Counties, Illinois. The first cost of the proposed structural and non-structural flood risk management features, not including recreation, is estimated as $144,378,000. This amount includes $96,623,000 allocated to structural flood risk management and $47,755,000 associated with a non-structural flood risk management program. The currently estimated cost of proposed recreation associated with the flood risk management features is $1,425,000. The estimated total cost of the NED plan, including recreation, is $145,803,000. Proposed ecosystem restoration features are located in Kenosha County, Wisconsin, and Lake and Cook Counties, Illinois. The first cost of the recommended ecosystem restoration features is currently estimated as $161,284,000. The federal share of the total project cost for the NED and the NER plans, including cost-shared recreation features, would be about $199,393,000 (64.9 percent) and the non-federal share would be about $107,694,000 (35.1 percent).

a. In accordance with the cost sharing provisions of Section 103 of WRDA 1986, as amended by Section 202 of WRDA 1996, the federal share of the first costs of the flood risk management projects would be about $93,846,000 (65 percent) and the non-federal share would be about $50,532,000 (35 percent). The cost of lands, easements, rights-of-way, relocations, and dredged or excavated material disposal areas (LERRD) is estimated at $37,017,000. The project specific non-federal sponsors, the Illinois Department of Natural Resources, the Metropolitan Water Reclamation District of Greater Chicago, and the city of Des Plaines, Illinois, would be responsible for the operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) of the project after construction, a cost currently estimated at about $172,000 per year. The sponsors would also be fully responsible for removing and relocating utilities and discharge pipelines on project sites that are non-compensable, at an estimated cost of approximately $5,431,000.

b. In accordance with the cost sharing provisions of Section 103 of WRDA 1986, as amended by Section 210 of WRDA 1996, the federal share of the first costs of the ecosystem restoration projects would be about $104,835,000 (65 percent) and the non-federal share would be about $56,449,000 (35 percent). The cost of LERRD for the ecosystem restoration projects is estimated at $65,361,000. This amount exceeds the 35 percent non-federal share of the total cost of the restoration projects by an estimated $8,912,000. The non-federal sponsors for the

ecosystem restoration projects have provided letters indicating their desire to voluntarily forgo reimbursement for the value of LERRD that exceeds the required 35 percent cost share. The total project cost includes $1,490,000 for environmental monitoring and adaptive management. The project-specific non-federal sponsors including the Forest Preserve District of Cook County (FPDCC), Lake County Forest Preserve District (LCFPD), and Kenosha County, would be responsible for the OMRR&R of the project after construction, a cost currently estimated at about $328,000 per year, which includes monitoring and adaptive management beyond the construction phase.

c. The NED/NER plan includes both separable and incidental recreation features. The flood risk management projects include the following separable recreation features, which will be cost-shared 50 percent federal and 50 percent non-federal: recreation trails at Touhy-Miner Levee and Floodwall, recreation trails and picnic areas at Fullerton Woods Reservoir, and recreation trails in Des Plaines, Illinois on lands that will be evacuated as a result of buyout and removal of frequently flooded structures. The $1,425,000 total cost of recreation features will be shared equally, $712,500 federal and $712,500 non-federal, between the government and prospective non-federal project sponsors. The ecosystem restoration projects include incidental recreation features. These projects include the construction of woodchip trails for equipment access. Following construction, these features will be usable as recreation trails and annual OMRR&R will be a non-federal responsibility. Incidental recreation features will be cost-shared in accordance with ecosystem restoration cost sharing provisions.

4. Economic analyses indicate that the proposed flood risk management and recreation features are economically justified. Cost effectiveness and incremental cost analysis techniques were applied to evaluate the proposed ecosystem restoration alternatives to ensure that an efficient NER plan is recommended for authorization.

a. The total equivalent annual flood risk management costs are estimated to be $5,675,000, including OMRR&R. The equivalent average annual benefits are estimated to be $9,923,000 with net average annual benefits of $4,284,000. The benefit-to-cost ratio for the flood risk management portion of the NED plan is approximately 1.7 to 1. The recommended plan would reduce overall average annual flood damages across the watershed by about 19 percent and would leave total average annual residual damages estimated at $42,924,000. About 89 percent ($39,398,000) of the total residual flood damages represent economic opportunity costs that would consist of transportation delay and re-routing costs that result from roadway flooding. Physical flooding damages to automobiles, and public, commercial, industrial, and residential structures would be reduced by about 48 percent, leaving average annual residual damages to automobiles and structures estimated at $5,108,000. The analyses of the proposed levee/floodwall projects indicate that they will provide a greater than 95 percent probability of containing the 1-percent chance (100-year recurrence interval) flood. Full implementation of the proposed structural and non-structural flood risk management measures would remove approximately 1,400 structures from Federal Emergency Management Agency designated special flood hazard areas.

b. The total equivalent average annual aquatic ecosystem restoration costs are estimated to be $5,661,000, including OMRR&R, monitoring, and adaptive management. The cost of the recommended aquatic ecosystem restoration projects is justified by restoring 9,034 Average Annual Habitat Units (AAHU), at an average cost of $627/AAHU, on more than 6,859 acres of aquatic and riparian habitat. Implementing the NER plan will increase the net watershed habitat units by about 32 percent. The NER plan would restore the ecosystem in the most cost-effective manner by naturalizing the watershed hydrology, reestablishing natural fluvial and fire processes, increasing the richness and abundance of the native plant communities, and improving connectivity between natural areas. The restored aquatic habitat includes habitat and life requisites for three federally-listed and 89 state listed threatened and endangered species. The restored habitat will be located within the Great Lakes portion of the Mississippi Flyway, and would provide nationally and internationally significant habitat for migratory birds.

c. The equivalent annual cost of the proposed cost-shared recreation features is $63,000, including OMRR&R. The equivalent average annual benefits are estimated to be $456,000, with net average annual benefits of $393,000. The ratio of benefits-to-cost for the recreation plan is approximately 7.2 to 1.

5. The NED Plan details:

a. Structural Flood Risk Management. The system of structural flood risk management features includes the 11,200 linear foot long Touhy-Miner Levee and Floodwall and the 200 acre-foot capacity Harry Semrow Driving Range Reservoir, both located in Des Plaines, Illinois; the 8,400 linear foot long Belmont-Irving Park Levee and Floodwall located in Franklin Park and Schiller Park, Illinois; and the 6,200 linear foot long Fullerton-Grand Levee and Floodwall and the 150 acre-foot capacity Fullerton Woods Reservoir, both located in River Grove, Illinois. The Illinois Department of Natural Resources, the Metropolitan Water Reclamation District of Greater Chicago, and the city of Des Plaines, Illinois will sponsor and share the costs of implementing these proposed structural flood risk management features. The estimated total first cost of the structural flood risk management features is $96,623,000. The total equivalent annual costs are estimated to be $3,930,000, including OMRR&R. The equivalent average annual benefits are estimated to be $7,649,000, with net average annual benefits of $3,719,000. The benefit-to-cost ratio for structural flood risk management is approximately 1.9 to 1.

b. Non-structural Flood Risk Management. Non-structural flood risk management features will be implemented at about 164 structures located in Gurnee, Lincolnshire, Long Grove, Riverwoods, and Vernon Township, in Lake County Illinois, and about 213 structures located in Des Plaines, Rosemont, Wheeling, and Wheeling Township, in Cook County Illinois. The city of Des Plaines will sponsor non-structural flood risk management treatments within its boundaries. The Illinois Department of Natural Resources will sponsor all other non-structural flood risk management features located in Lake and Cook Counties. The estimated total first cost of the non-structural flood risk management component of the NED plan is $47,755,000.

The total equivalent annual costs are estimated to be $1,745,000. The equivalent average annual benefits are estimated to be $2,274,000, with net average annual benefits of $529,000. The benefit-to-cost ratio for non-structural flood risk management is approximately 1.3 to 1.

c. Separable Recreation. The city of Des Plaines will sponsor the 11,200- foot-long asphalt Touhy-Miner Levee and Floodwall Recreation Trail and the 4,000-foot-long asphalt Des Plaines Floodway/Big Bend Drive Area Recreation Trail. The Fullerton Woods Reservoir Recreation Area will consist of a landscaped recreation site, picnic shelter, benches, parking lot, restroom, and asphalt trail. The FPDCC will sponsor the Fullerton Woods Reservoir Recreation Area. The estimated total first cost of the city of Des Plaines sponsored separable recreation features is $461,000. The total equivalent annual costs are estimated to be $18,000, including OMRR&R. The equivalent average annual benefits are estimated to be $303,000, with net average annual benefits of $285,000. The benefit-to-cost ratio is approximately 16.8 to 1. The estimated total first cost of the FPDCC sponsored separable recreation features is $964,000. The total equivalent annual costs are estimated to be $45,000, including OMRR&R. The equivalent average annual benefits are estimated to be $153,000, with net average annual benefits of $108,000. The benefit-to-cost ratio is approximately 3.4 to 1.

6. The NER plan details:

a. Kenosha County will act as non-federal sponsor for aquatic ecosystem restoration at two (2) locations: 1,619 acres of riparian habitat at the Bristol Marsh site and 689 acres of riparian habitat at the Dutch Gap Forested Floodplain in Bristol, Wisconsin. The estimated first cost for the Bristol Marsh restoration is approximately $43,112,000. The equivalent average annual cost is $1,341,000. Expected benefits are an increase of 2,251 AAHU. The estimated first cost for the Dutch Gap Forested Floodplain restoration is approximately $18,880,000. Based on a 3.375 percent discount rate and a 50 year period of economic evaluation, the equivalent average annual cost is $612,000. Expected benefits are 1,286 AAHU. The total cost of the Kenosha County-sponsored restoration projects is currently estimated as $61,992,000. The value of LERRD for the Kenosha County-sponsored restoration projects is estimated at $29,372,000. This amount exceeds the 35 percent non-federal share of the total cost of the restoration projects by an estimated $7,674,000. Kenosha County has provided a letter indicating their desire to voluntarily forgo reimbursement for the value of LERRD that exceeds the required 35 percent cost share.

b. The LCFPD will act as non-federal sponsor for aquatic ecosystem restoration at three (3) locations: 1,601 acres of marsh and riparian habitat at Red Wing Slough and Deer Lake Wetland Complex, 429 acres of riparian habitat at Pollack Lake and Hastings Creek Riparian Wetlands, both in Antioch, Illinois, and 698 acres at the Gurnee Woods Riparian Wetlands, in Wadsworth, Illinois. The estimated first cost for the Red Wing Slough and Deer Lake Wetland Complex restoration is approximately $30,219,000. The equivalent average annual cost is $1,093,000. Expected benefits are 1,513 AAHU. The estimated first cost for the Pollack Lake and Hastings Creek Riparian Wetlands restoration is approximately $10,420,000. Based on a 3.375 percent

discount rate and a 50 year period of economic evaluation, the equivalent average annual cost is $432,000. Expected benefits are an increase of 626 AAHU. The estimated first cost for the Gurnee Woods Riparian Wetlands restoration is approximately $17,902,000. The equivalent average annual cost is $590,000. Expected benefits are increase of 939 AAHU. The total cost of the LCFPD sponsored restoration projects is currently estimated as $58,541,000. The value of LERRD for the LCFPD sponsored restoration projects is estimated at $20,519,000. This amount exceeds the 35 percent non-federal share of the total cost of the restoration projects by an estimated $30,000. The LCFPD has provided a letter indicating their desire to voluntarily forgo reimbursement for the value of LERRD that exceeds the required 35 percent cost share.

c. The FPDCC will act as non-federal sponsor for aquatic ecosystem restoration at two (2) locations: 811 acres of riparian habitat at the Northbrook Floodplain and Riparian Complex in Wheeling, Illinois, and 1,007 acres of riparian habitat at the Beck Lake Meadow and Floodplain Forest in Des Plaines and Glenview, Illinois. The estimated first cost for the Northbrook Floodplain and Riparian Complex restoration is approximately $20,060,000. The equivalent average annual cost is $827,000. Expected benefits are 925 AAHU. The estimated first cost for the Beck Lake Meadow and Floodplain Forest restoration is approximately $20,691,000. The equivalent average annual cost is $775,000. Expected benefits are 1,494 AAHU. The total cost of the FPDCC-sponsored restoration projects is currently estimated as $40,751,000. The value of LERRD for the FPDCC-sponsored restoration projects is estimated at $15,471,000. This amount exceeds the 35 percent non-federal share of the total cost of the restoration projects by an estimated $1,209,000. The FPDCC has provided a letter indicating their desire to voluntarily forgo reimbursement for the value of LERRD that exceeds the required 35 percent cost share.

7. In accordance with the current Engineer Circular (EC) on review of decision documents, all technical, engineering and scientific work underwent an open, dynamic and vigorous review process to ensure technical quality. This included an Agency Technical Review (ATR), a (Type I) Independent External Peer Review (IEPR), and USACE Headquarters policy and legal review. All concerns of the ATR have been addressed and incorporated into the final feasibility report. USACE conducted the IEPR in accordance with Section 2034 of the Water Resources Development Act of 2007, USACE EC 1165-2-214, and the Office of Management and Budget's Final Information Quality Bulletin for Peer Review (2004). A Section 501(c)(3) (Internal Revenue Code) non-profit science and technology organization, independent and free of conflicts of interest, established and administered the peer review panel. The IEPR panel consisted of five members with expertise in hydraulic engineering, geotechnical engineering, economics, ecology, and plan formulation. The review panel identified and documented sixteen final comments. Of these, two were designated as having high significance, seven as having medium significance, and seven as having low significance. All IEPR review comments have been resolved and resulted in no significant changes to the plan formulation, engineering assumptions, and environmental analyses that supported the decision-making process and plan selection. The final report and environmental assessment also underwent state and agency review. All comments from the above referenced reviews have been addressed and incorporated into the final documents as appropriate. Overall the reviews did result in improvements to the technical clarity

and overall quality of the report. A safety assurance review (Type II IEPR) of the structural flood risk management components of the project will be conducted during the design phase of the project.

8. Washington level review indicates that the project recommended by the reporting officers is technically sound, environmentally and socially acceptable, cost effective and economically justified. The plan complies with all essential elements of the U.S. Water Resources Council's *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.

9. I generally concur with the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that the plan to manage flood risks, restore ecosystems, and provide additional recreation opportunities for the Upper Des Plaines River and Tributaries, Illinois and Wisconsin be authorized in accordance with the reporting officers' recommended plan at an estimated cost of $307,087,000 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 , 33 U.S.C. § 2213. The non-federal sponsors would provide the non-federal cost share and all LERRD. Further, the non-federal sponsors would be responsible for all OMRR&R. This recommendation is subject to the non-federal sponsors agreeing to comply with all applicable federal laws and policies, including but not limited to:

a. Provide 35 percent of design costs in accordance with the terms of a design agreement entered into prior to commencement of design work;

b. Provide a minimum of 35 percent, but not to exceed 50 percent of total structural flood risk management costs as further specified below:

(1) Provide, during the first year of construction, any additional funds necessary to pay the full non-federal share of design costs allocated by the government to the structural flood risk management features;

(2) Provide, during construction, a contribution of funds equal to 5 percent of total structural flood risk management costs;

(3) 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, and maintenance of the structural flood risk management features;

(4) Provide, during construction, any additional funds necessary to make its total contribution for structural flood risk management equal to at least 35 percent of total structural flood risk management costs;

c. Provide 35 percent total non-structural flood risk management costs as further specified below:

(1) Provide, during the first year of construction, any additional funds necessary to pay the full non-federal share of design costs allocated by the government to the non-structural flood risk management features;

(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, and maintenance of the non-structural flood risk management features;

(3) Provide, during construction, any additional funds necessary to make its total contribution for non-structural flood risk management equal to 35 percent of total non-structural flood risk management costs;

d. Provide 35 percent of total ecosystem restoration costs as further specified below:

(1) Provide, during the first year of construction, any additional funds necessary to pay the full non-federal share of design costs allocated by the government to the ecosystem restoration features;

(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, and maintenance of the ecosystem restoration features;

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

e. Provide 50 percent of total recreation costs as further specified below:

(1) Provide, during the first year of construction, any additional funds necessary to pay the full non-federal share of design costs allocated by the government to the recreation features;

(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, and maintenance of the recreation features;

(3) Provide, during construction, any additional funds necessary to make its total contribution for recreation equal to 50 percent of total recreation costs;

f. Provide, during construction, 100 percent of the total recreation costs that exceed an amount equal to the sum of the following:

(1) 10 percent of the federal share of total structural flood risk management costs; plus

(2) 10 percent of the federal share of total ecosystem restoration costs; plus

(3) 10 percent of the federal share of total non-structural flood risk management costs;

g. Not less than once each year, inform affected interests of the extent of risk reduction afforded by the flood risk management features;

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

i. Comply with Section 402 of the WRDA 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 flood risk management features;

j. 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 flood risk management features;

k. 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 flood risk management features afford, reduce the outputs produced by the ecosystem restoration features, hinder operation and maintenance of the project, or interfere with the project's proper function;

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

m. Keep the recreation features, and access roads, parking areas, and other associated public use facilities, open and available to all on equal terms;

n. For so long as the project remains authorized, operate, maintain, repair, rehabilitate, and replace 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;

o. Give the federal government a right to enter, at reasonable times and in a reasonable manner, upon property that the non-federal sponsors own or control for access to the project for the purpose of completing, inspecting, operating, maintaining, repairing, rehabilitating, or replacing the project;

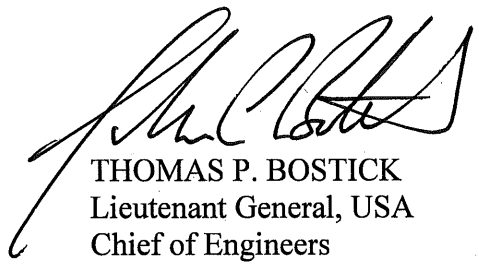
p. Hold and save the United States free from all damages arising from the construction, operation, maintenance, repair, rehabilitation, and replacement of the project and any betterments, except for damages due to the fault or negligence of the United States or its contractors;

q. 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. 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 sponsors with prior specific written direction, in which case the non-federal sponsors shall perform such investigations in accordance with such written direction;

r. Assume, as between the federal government and the non-federal sponsors, 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; and

s. Agree, as between the federal government and the non-federal sponsor, that the non-federal sponsors 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.

10. 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 Congress as a proposal for authorization and implementation funding. However, prior to transmittal to Congress, the sponsors, the states of Illinois and Wisconsin, 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

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

REPLY TO
ATTENTION OF

DAEN

SUBJECT: Upper Turkey Creek Basin Flood Risk Management Study, Merriam, Kansas

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on flood risk management improvements on Turkey Creek in the City of Merriam, Kansas. It is accompanied by the report of the district and division engineer. These reports were prepared pursuant to the Resolution of the Committee on Transportation and Infrastructure, U.S. House of Representatives, Docket 2616, adopted 16 February 2000, requesting that the Secretary of the Army review the report of the Chief of Engineers on the Turkey Creek Basin, Kansas and Missouri, dated 21 June 1999, and any other pertinent reports, to determine whether any modifications of the recommendations contained therein are advisable at the present time in the interest of flood damage reduction for areas of Turkey Creek Basin in Johnson and Wyandotte Counties, Kansas, upstream of the project for flood damage reduction authorized in section 101(a)(24) of Public Law 106-53, the Water Resources Development Act (WRDA) of 1999. Preconstruction engineering and design activities, if funded, would be continued under the authority of the committee resolution cited above.

2. The reporting officers recommend authorizing a plan to reduce flood damages by the construction of new features to significantly reduce risks from flash flooding in the City of Merriam, Kansas. The recommended plan, Alternative 2d, includes recommendations for a levee and floodwall system to protect lives and property located between Antioch Avenue and Shawnee Mission Parkway in Merriam, Kansas. The primary plan features are 3,380 feet of levee up to approximately six feet in height and 6,820 feet of floodwall up to approximately 6.5 feet in height. The floodwall system includes a supporting foundation in the form of an array of auger grout piles. Bridge modification includes headwalls for the purpose of tying in proposed levees and floodwalls at the Merriam Drive Bridge. A 2.1 acre-foot gravity drained stormwater detention pond is included for interior drainage adjacent to the Merriam Marketplace. The project also includes stormwater, water and sanitary utility relocations, and environmental compensatory mitigation of seven acres of mast producing trees. The recommended plan would pass the one percent annual chance flood event through the downtown Merriam project reach with an estimated assurance of 83 percent.

3. The recommended plan is the National Economic Development (NED) Plan. Project costs are allocated to the flood risk management purpose. Based on the October 2014 price levels, the estimated first cost to the plan is $37,579,000. In accordance with the cost sharing provisions of Section 103 of WRDA 1986, as amended by Section 202 of WRDA 1996, the federal share of the first costs of the flood risk management features is estimated to be 65

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percent or $24,426,000, and the non-federal share is estimated to be 35 percent or $13,153,000, including the provision of lands, easements, rights-of-way, relocations, and dredged or excavated material disposal areas (LERRDs). The LERRDs for the recommended plan are estimated to cost $9,652,000, less than the 35 percent minimum required non-federal contribution to the project. The remaining non-federal share will be a cash contribution of $3,501,000; because this exceeds the minimum cash contribution, no additional non-federal cash contribution is required. The non-federal sponsor, the City of Merriam, Kansas, is responsible for the operation, maintenance, repair, rehabilitation, and replacement (OMRR&R) of the project after construction, a cost currently estimated to be about $41,000 annually. Based on a 3.375 percent discount rate and a 50 year period of analysis, the total equivalent average annual costs of the project, including OMRR&R, are estimated to be $1,732,000. The recommended plan is estimated to reduce expected annual flood damages by 73 percent. Total expected average annual benefits are estimated to be $3,445,000 with net annual benefits of $1,713,000. The benefit-cost ratio is 2.0 to 1.

4. The goals and objectives included in the Campaign Plan of the U.S. Army Corps of Engineers (USACE) have been fully integrated into the feasibility study process. The recommended plan has been designed to avoid or minimize environmental impacts, to reduce risk of loss of life, and to reasonably maximize economic benefits to the community in coordination with the existing flood risk management system. There are no significant direct or cumulative environmental impacts associated with the recommended plan. The long-term environmental and cultural consequences of plan implementation are positive as the reduced flash flood risk will improve protection of the social and environmental fabric that has developed within the study area. The feasibility study team organized and participated in stakeholder and public meetings throughout the process and worked to achieve a balance of project goals with public concerns. The study report describes existing flood risks to the community, risks that will be reduced by the recommended plan, and residual risks that will remain. These residual risks have been communicated to the non-federal sponsor and community stakeholders, and they understand and agree with the analysis. The feasibility study team has reviewed current available information on the estimated future impact of climate change to the region. While a trend towards slightly wetter conditions in the future has been identified in eastern Kansas by the National Weather Service (NWS), the analysis identified no discernible trends that would indicate a significant increase in annual maximum precipitation.

5. In accordance with the USACE 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 an Agency Technical Review (ATR), Type I Independent External Peer Review (IEPR), and a USACE Headquarters policy and legal review. All concerns of the ATR have been addressed and incorporated into the final report. The IEPR was completed by Battelle Memorial Institute in October 2013. A total of 16 comments were made. In summary, the IEPR comments related to report completeness in the areas of hydrology and hydraulic analyses, plan formulation, design, communication of residual risk, mitigation requirements, cost and schedule risk, risk and uncertainty, and economic analysis. The most significant comment was that the study hydrology and hydraulics needed to be updated to take into account the 2013 publication of the NWS's National Oceanic and

Atmospheric Administration Atlas 14 report. This resulted in a revised without- and with-project hydrologic and hydraulic analysis with up to a 13 percent increase in discharges for the 1-percent annual chance flood event, and an increase of up to 2 feet in hydraulic profiles at certain locations. After an evaluation of the impacts of the updated hydrology and hydraulics and effects on plan formulation, a rigorous sensitivity analysis determined that these revised results did not alter the plan formulation or economic analyses used to identify the recommended plan as the NED Plan. The process resulted in updated engineering and economic analyses and expanded narratives throughout the report to support the decision-making process and further justify the recommended plan. All comments from the above referenced reviews have been addressed and incorporated into the final document. Overall the reviews resulted in improvements to the technical quality of the report. A Type II IEPR Safety Assurance Review will be conducted prior to initiation of physical construction and periodically thereafter until construction activities are completed.

6. Washington level review indicated that the plan recommended by the reporting officers is technically sound, environmentally and socially acceptable, and economically justified. The plan complies with all essential elements of the U.S. Water Resources Council's Economic and Environmental Principles and Guidelines for Water and Land Related Resources Implementation Studies and complies with other Administration and legislative policies and guidelines. The views of interested parties, including federal, state, and local agencies were considered.

7. I concur with the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that the plan to improve flood risk management for the City of Merriam, Kansas, be authorized in accordance with the reporting officers' recommended plan at a total investment cost of $37,359,000. 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 (33 U.S.C. 2213), as amended. The non-federal sponsor will provide the non-federal share of project costs including all LERRDs. Further, the non-federal sponsor would be responsible for all OMRR&R. This recommendation is subject to the non-federal sponsor agreeing to comply with all applicable federal laws and policies, including but not limited to:

a. Provide the non-federal share of total project costs, including a minimum of 35 percent but not to exceed 50 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, during construction, a contribution of funds equal to 5 percent of total project costs;

(3) 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, and maintenance of the project; and

(4) Provide, during construction, any additional funds necessary to make its total contribution equal to at least 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; 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) 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; 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 protection levels provided by the project;

c. 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;

d. 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;

e. 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, or OMRR&R of the project;

f. Hold and save the United States free from all damages arising from the construction, OMRR&R of the project and any betterments, except for damages due to the fault or negligence of the United States or its contractors;

g. 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), 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. 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;

h. 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;

i. 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

j. Comply with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public law 91-646, as amended by title IV of the Surface Transportation and Uniform Relocation Assistance Act of 1987 (Public Law 1 00-17), and the Uniform Regulations contained in 49 CFR part 24, in acquiring lands, easements, and rights-of-way, and performing relocations for construction, operation, and maintenance of the project, and inform all affected persons of applicable benefits, policies, and procedures in connection with said Act.

8. The recommendation contained herein reflects the information available at this time and current departmental policies governing formulation of individual projects. It neither reflects 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 recommendation may be modified before they are transmitted to Congress as a proposal for authorization and implementation funding. However, prior to transmittal to Congress, the sponsors, the state, interested federal agencies, and other parties will be advised of any modifications and will be afforded the opportunity to comment further.

THOMAS P. BOSTICK
Lieutenant General, USA
Chief of Engineers

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;

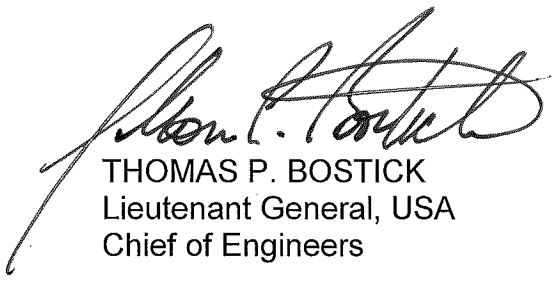
l. Agree, as between the federal government and the non-federal sponsor, that the non-federal sponsor shall be considered the operator of the project for the purpose of CERCLA liability, and to the maximum extent practicable, OMRR&R the project in a manner that will not cause liability to arise under 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

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
441 G STREET, NW
WASHINGTON, DC 20314-1000

REPLY TO
ATTENTION OF

MAR 16 2016

Honorable Bill Shuster
Chairman, Committee on Transportation
and Infrastructure
House of Representatives
2165 Rayburn House Office Building
Washington, D.C. 20515

Dear Mr. Chairman:

As required by Section 2033 of P.L. 110-114, I am enclosing a copy of the final report of the Chief of Engineers on Craig Navigation Improvement Feasibility Study, Craig, Alaska. Under separate letter, and in accordance with Executive Order 12322 dated September 17, 1981, the Assistant Secretary of the Army (Civil Works) will provide her report and the advice from the Office of Management and Budget on how the proposed project relates to the policy and programs of the President, the Economic, and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, and other applicable laws, regulations, and requirements relevant to the planning process.

I am sending an identical letter to the Honorable James M. Inhofe, Chairman of the Senate Committee on Environment and Public Works. Thank you for your interest in the Corps Civil Works Program.

Sincerely,

D. Peter Helmlinger
Colonel, U.S. Army
Chief of Staff

Enclosure

Printed on Recycled Paper

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

MAR 16 2016

DAEN

SUBJECT: Craig, Alaska, Navigation Improvements Project

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on navigation improvements in the vicinity of Craig, Alaska. It is accompanied by the report of the district and division engineer. This report was prepared in partial response to Section 204 of the Flood Control Act of 1948 and a resolution by the Committee on Public Works of the House of Representatives, adopted 2 December 1970. Section 204 of the Flood Control Act of 1948 authorized and directed the Chief of Engineers to determine the advisability of improvements in the interest of navigation in Alaska. The study resolution requested a review of the report of the Chief of Engineers on Rivers and Harbors in Alaska, published as House Document 414, 83rd Congress, and other pertinent reports, with a view to determine whether any modifications of the recommendations contained therein are advisable. Preconstruction engineering and design activities, if funded, would be continued under the authority provided by the resolution cited above.

2. The reporting officers recommend authorizing a project to improve navigation access at Craig, Alaska. Based on an economic evaluation of alternative plan costs and economic benefits, alternative 2b was identified as the plan that reasonably maximizes net national economic development benefits consistent with protecting the Nation's environment. The project consists of approximately 1,900 feet of breakwater protecting a 10.1-acre mooring basin.

a. The breakwater has two sections with a 300-foot breakwater extending from the northwest tip of Craig Island and a 1,600-foot long breakwater in an "L" shape. This configuration provides protection from southerly long-period swell and northerly short-period waves and provides 3 feet of water for fish passage during 95 percent of tides commensurate with National Marine Fisheries Service recommendations for essential fish habitat. The breakwaters are constructed of rock fill with armor stones that average about 1 ton. The breakwaters would have side slopes of 1V on 1.5H and a crest width of 7 feet at elevation 18 feet NAVD88.

b. Construction of the recommended plan includes placement of 208,000 cubic yards of associated rock for the breakwaters and installation of floats sufficient to provide moorage to 145 vessels ranging from 20 feet to 140 feet in length.

c. Determination has been made that no compensatory mitigation is needed as there are no impacts to significant resources.

3. Project Costs Breakdown based on October 2015 Prices.

a. Project First Cost. The estimated project first cost is $32,317,000, which includes the cost of constructing the General Navigation Features (GNF) and the lands, easements, rights-of-way, and relocations (LERR) estimated as follows: $32,291,000 for GNF; $26,000 for the value of LERR (except utility relocations) provided by the non-federal sponsor; and, as applicable if the project involves a deep draft harbor.

b. Estimated federal and non-federal shares. The estimated federal and non-federal shares of the project first cost are $29,062,000 and $3,255,000 respectively, as apportioned in accordance with cost sharing provisions of Section 101 of the Water Resources Development Act (WRDA) of 1986, as amended (33 U.S.C. 2211), as follows:

(1) The cost of GNFs less than 20 feet Mean Lower Low Water will be shared at a rate of 90 percent by the government and 10 percent by the non-federal sponsor.

(2) The entire $26,000 for LERR is eligible for credit.

c. Additional 10 Percent Payment. In addition to the non-federal sponsor's estimated share of the total first cost of construction of the project in the amount of $3,229,000, pursuant to Section 101 of WRDA 1986, as amended, the non-federal sponsor must pay an additional 10 percent of the costs for GNFs of the project, $3,229,000, in cash over a period not to exceed 30 years, with interest. The value of LERR will be credited toward this payment.

d. Operations and Maintenance Costs. Operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) of the project after construction will have average annual federal costs of $39,000. There are no anticipated federal costs associated with maintaining the launch area or non-federal OMRR&R costs associated with the local service facilities.

e. Local Service Facilities. The associated cost for local service facilities is approximately $4,128,000, which consists of demolishing an existing pier and piles and constructing gangways and floats. Aids to Navigation were calculated at $18,000 and are an associated federal cost. These costs are 100 percent non-federal and are not included in the project first costs, although they are considered in the total construction costs of $36,463,000 for purposes of economic analysis.

f. 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, the value of LERR provided under Section 101(a)(3) of WRDA 1986, as amended. Accordingly, as set forth in paragraph 3(a) above, based on an October 2015 Price Level, the estimated project first cost for these purposes is $32,317,000 with a federal share of $29,062,000 and a non-federal share of $3,255,000.

4. Based on October 2015 price levels, a 3.125-percent discount rate and a 50-year period of analysis, the total equivalent average annual costs of the project are estimated to be $1,536,000, including OMRR&R. Equivalent annual National Economic Development (NED) benefits are estimated at $1,897,000, for a benefit to cost ratio of 1.24 to 1 with average annual net benefits amounting to $361,000.

5. Risk and uncertainty were evaluated for economic costs and sea level rise. In accordance with the Corps Engineering Circular on sea level change the study analyzed three sea level rise rates; low (baseline), intermediate, and high. The baseline, intermediate, and high sea level rise values at the end of the 50-year period of analysis were projected to be -0.04 ft., 0.43 ft., and 1.93 ft., respectively. In general, regional sea level rise (baseline, intermediate, and high) will not affect channel availability or the function of the project which is designed for overtopping.

6. In accordance with the Corps Engineering Circular on review of decision documents, all technical, engineering and scientific work underwent an open, dynamic and vigorous review process to ensure technical quality. This included District Quality Control, Agency Technical Review, policy and legal compliance review, and Cost Engineering Directory of Expertise review and certification. Overall the reviews resulted in improvements to the technical quality of the report.

7. Washington level review indicates that the plan recommended by the reporting officers is technically sound, environmentally and socially acceptable, economically justified, and policy compliant. The views of interested parties, including federal, state and local agencies have been considered.

8. I concur in the findings, conclusions, and recommendations of the reporting officers, which identify the NED plan in accordance with applicable laws and policies. Accordingly, I recommend that the cost efficient plan for improved navigation access to Craig, Alaska be authorized in accordance with the reporting officers' recommended plan at an estimated cost of $32,317,000 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 101 of WRDA 1986, as amended. The non-federal sponsors would provide the non-federal cost share and all LERR. This recommendation is subject to the non-federal sponsors agreeing to comply with all applicable federal laws and policies including that the non-federal sponsors must agree with the following requirements prior to project implementation.

a. Provide, during the periods of design and construction, a cash contribution equal to the following percentages of the total cost of construction of the GNF (which include the construction of land-based and aquatic dredged material disposal facilities that are necessary for the placement of dredged material required for project construction or operation and maintenance and for which a contract for the federal facility's construction or improvement was not awarded on or before October 12, 1996):

(1) 10 percent of the costs attributable to dredging to a depth not in excess of 20 feet;

(2) 25 percent of the costs attributable to dredging to a depth in excess of 20 feet but not in excess of 45 feet;

b. Provide all lands, easements, and rights-of-way, including those necessary for the borrowing of material and the disposal of dredged or excavated material, and perform or ensure the performance of all relocations, including utility relocations, all as determined by the Federal Government to be necessary for the construction or operation and maintenance 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 GNF less the amount of credit afforded by the government for the value of LERR, including utility relocations, provided by the non-federal sponsor for the GNF. If the amount of credit afforded by the government for the value of LERR, including utility relocations, provided by the non-federal sponsor equals or exceeds 10 percent of the total cost of construction of the GNF, the non-federal sponsor shall not be required to make any contribution under this paragraph, nor shall it be entitled to any refund for the value of LERR, including utility relocations, in excess of 10 percent of the total cost of construction of the GNF;

d. 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;

e. Provide, operate, and maintain at no cost to the government, the local service facilities including docks, floats, local access channels, mooring areas, etc.; 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;

f. Hold and save the United States free from all damages arising from the construction or operation and maintenance of the project, any betterments, and the local service facilities, except for damages due to the fault or negligence of the United States or its contractors;

g. 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 Federal Government determines to be necessary for the construction or operation and maintenance of the GNF. However, for lands, easements, and rights-of-way that the government determines to be subject to the navigation servitude, only the government shall perform such investigation 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 complete financial responsibility, as between the Federal 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, or rights-of-way that the Federal Government determines to be necessary for the construction or operation and maintenance of the GNF; 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 local service facilities for the purpose of CERCLA liability, and to the maximum extent practicable, perform its obligations related to the project in a manner that will not cause liability to arise under CERCLA; and

i. Accomplish all removals determined necessary by the Federal Government other than those removals specifically assigned to the Federal Government.

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 sponsor, 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

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

APR 26 2016

DAEN (1105-2-10a)

SUBJECT: Encinitas – Solana Beach Shoreline Coastal Storm Damage Reduction, San Diego County, California

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on coastal storm damage reduction along the Pacific Ocean shoreline in Encinitas and Solana Beach, California. It is accompanied by the report of the district and division engineers. This report is in partial response to the authority in a May 13, 1993 Resolution of the House Public Works and Transportation Committee to conduct a study of the shoreline in and adjacent to the city of Encinitas and an April 22, 1999 Resolution of the House Committee on Transportation and Infrastructure to conduct a study of the shoreline along Solana Beach, California. The Energy and Water Development Appropriations Act of 2000, Public Law 106-60, appropriated the funds for a reconnaissance study to investigate shoreline protection alternatives for Encinitas and Solana Beach shorelines, California, which resulted in the referenced district and division reports. Preconstruction engineering and design activities for the Encinitas and Solana Beach project will continue under the authorities cited above.

2. The reporting officers recommend authorization for a plan to reduce coastal storm damages by constructing a beach fill/berm along the Encinitas and Solana Beach shorelines. The recommended plan for coastal storm damage reduction in Encinitas includes the construction of a 50-foot-wide beach nourishment project along a 7,800-foot-long stretch of shoreline using 340,000 cubic yards of compatible sediment, with renourishment on the average of every five years, with approximately 220,000 cubic yards of compatible sediment, over a 50-year period of federal participation, for a total of nine additional nourishments. The recommended plan for coastal storm damage reduction in Solana Beach includes construction of a 150-foot-wide beach nourishment project along a 7,200-foot-long stretch of shoreline using 700,000 cubic yards of compatible sediment, with renourishment on average every 10 years, with approximately 290,000 cubic yards of compatible sediment, over a 50-year period of federal participation, for a total of four additional nourishments. The design berm will be constructed to an elevation of +15 feet Mean Lower Low Water with foreshore slope of 10 horizontal: 1 vertical. Material for the beach fill will be dredged from a borrow site identified off the coast of San Diego County. Physical monitoring of the performance of the project will be required annually throughout the 50-year period of federal participation. This plan would provide coastal storm damage reduction throughout the project reach and would maintain the existing recreational beach. The project in Encinitas is expected to have minimal impacts to environmental resources. The project in Solana Beach may cause significant indirect impacts to environmental resources although it is not expected to have any direct impacts. Monitoring of the hard bottom reef communities will be

required for two years after the initial construction event to determine actual indirect impacts to habitat. Consequently, a comprehensive monitoring and mitigation plan has been incorporated in the project in the event that impacts to habitat result. If impacts are identified, functionally equivalent mitigation will be required. The recommended plan is the Locally Preferred Plan (LPP) for coastal storm damage reduction. The LPP berm width for each community is 50 feet less than the National Economic Development (NED) Plan.

3. The cities of Encinitas and Solana Beach are the non-federal cost-sharing sponsors for all features. Based on October 2015 price levels, the estimated total nourishment cost of the plan in Encinitas is $101,688,000, which includes the project first cost of initial construction of $11,133,000 and a total of nine periodic re-nourishments at a total cost of $90,555,000. Periodic renourishments are planned at 5-year intervals. The estimated total nourishment cost of the plan in Solana Beach is $65,766,000, which includes the project first cost of initial construction of $19,891,000 and a total of 4 periodic re-nourishments at a total cost of $45,875,000. Periodic re-nourishments are planned at 10-year intervals. Therefore, total nourishment cost for both plans is $167,454,000. The combined project first cost for initial construction is $31,024,000, and combined re-nourishment cost is $136,430,000. In accordance with the cost share provisions in 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 for initial construction of both plans would be $20,166,000 and the non-federal share would be $10,858,000, which equates to 65 percent federal and 35 percent non-federal. The first cost of lands, easements, rights-of-way, relocations, and dredged or excavated material disposal areas (LERRD) is estimated at $60,000, all of which is eligible for LERRD credit.

b. The federal share of the total renourishment cost would be $68,215,000 and the non-federal share would be $68,215,000, which equates to 50 percent federal and 50 percent non-federal. The cost of LERRD for renourishment is estimated at $346,000, all of which is eligible for LERRD credit.

c. The total nourishment cost includes $23,060,000 for mitigation and monitoring over the period of analysis for the project.

d. The cities of Encinitas and Solana Beach would be responsible for the operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) of the respective projects after construction. The project is not currently estimated to result in an incremental increase in OMRR&R over the sponsors' existing beach maintenance activities and costs.

4. Based on a 3.125-percent discount rate and a 50-year period of analysis, the total equivalent average annual costs of the project is estimated to be $2,168,000 in Encinitas and $1,614,000 in Solana Beach or $3,782,000 overall, including monitoring. All project costs are allocated to the authorized purpose of coastal storm damage reduction. The selected plan would reduce average annual coastal storm damages by about 41 percent and would leave average annual residual

damages estimated at $3,688,000. The equivalent average annual benefits, which include recreational benefits, are estimated to be $2,394,000 in Encinitas and $3,017,000 in Solana Beach or $5,411,000 overall, with net average annual benefits of $226,000 in Encinitas and $1,403,000 in Solana Beach or $1,629,000 overall. The benefit-cost ratio is 1.1 to 1 in Encinitas and 1.9 to 1 in Solana Beach or 1.4 to 1 overall.

5. Goals and objectives included in the Campaign Plan of the U.S. Army Corps of Engineers have been integrated into the Encinitas and Solana Beach Shoreline study process. The project includes an annual project monitoring program to reevaluate and adjust the periodic renourishment actions. The study was conducted using a watershed perspective to examine sediment supply changes within the watershed. A statistical, risk-based model was used to formulate and evaluate the project. The Encinitas - Solana Beach shoreline is characterized by developed coastal bluffs fronted by narrow sand and cobblestone beach materials which are subject to crashing waves, particularly in the winter season. These waves result in erosion and formation of carved notches at the base of the bluff that can lead to episodic collapses of the bluff. Collapses result in damages and land losses to the public and residential property on the upper bluff as well as life safety risks to the residents of the bluff and recreationists on the beach. The pending threat of bluff failure has forced many homeowners to build private seawalls at the base of the bluff to protect their properties. The project is intended to improve public safety, reduce coastal storm damages to property and infrastructure, and reduce coastal erosion and shoreline narrowing. The study report fully describes risks associated with residual coastal storm damages and risks that will not be reduced. These residual risks have been communicated to the cities of Encinitas and Solana Beach.

6. In accordance with the Corps Engineering Circular (EC) 1165-2-212 on sea level change, the study performed a sensitivity analysis to investigate the coastal and economic effects that different rates of accelerated sea level rise could have on project alternatives. The Recommended Plan was formulated using a historical or low rate of sea level rise which results in an increase of 0.34 feet over the 50-year period of analysis. The sensitivity analysis considered additional accelerated changes, which included what the EC defines as intermediate and high values of 0.77 feet and 2.12 feet, respectively. Since the intermediate rise was not significantly different from the low value, the sensitivity focused on the high value of change. The sensitivity analysis indicated that at higher levels of sea level rise, the project width and re-nourishment intervals would increase for Solana Beach while the project would be unaltered in Encinitas. Higher sea-level rise is expected to result in decreased storm damage reduction benefits for the recommended plan, but it is still justified. Adaptive management during periodic nourishments will include monitoring and adding additional volume of sand to compensate for significant accelerated sea level rise beyond the current observed rate should it become necessary.

7. In accordance with the Corps EC 1165-2-214 on review of decision documents, all technical, engineering and scientific work underwent an open, dynamic and vigorous review process to ensure technical quality. This included an Agency Technical Review (ATR), an Independent External Peer Review (IEPR) (Type I), and a Corps Headquarters policy and legal review. All concerns of the ATR have been addressed and incorporated in the final report. The IEPR was

completed by Battelle Memorial Institute. A total of 17 comments were documented. The IEPR comments addressed the presentation and methodology used to evaluate recreation, design assumptions regarding beach fill quantities and performance, estimates for several equipment and preconstruction costs, and plan formulation for several project alternatives. These comments resulted in additional discussions in the main report and appendices that address how recreation was evaluated, clarified findings on historic shoreline monitoring and changes to sand volumes in the project area, and additional explanation of how several alternatives were eliminated from further consideration. A safety assurance review (Type II IEPR) will be conducted during the design phase of the project. All comments from the above referenced reviews have been addressed and incorporated in the final documents. Overall, the reviews resulted in improvement to the technical quality of the report.

8. 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 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. State and Agency comments received during review of the final report and EIS included concerns raised by the California Department of Fish and Wildlife (CDFW), the California Department of Parks and Recreation (CDPR), and the National Marine Fisheries Service. The CDFW clarified in a June 24, 2015 email that there were concerns remaining in regard to five of their prior comments on the draft report and DEIS, including the mitigation impacts and monitoring plan, avoiding and minimizing habitat impacts in the Swami's State Marine Conservation Area (SMCA), conducting baseline biological surveys for Swami's SMCA and reference sites, impacts and mitigation in the Swami's SMCA, and impacts and monitoring plans for adjacent lagoons. The Corps responded that the draft report was revised to describe mitigation based on a functional assessment of actual project impacts. Although some borrow and beach fill activities are located within the SMCA, these are allowed, are consistent with past operations, and are expected to produce no significant impacts. Baseline biological surveys are planned as a basis for impact assessments and the mitigation, monitoring and adaptive management plans will be refined during further design. The report identifies potential for increased sedimentation at the mouths of three adjacent lagoons and discusses post construction monitoring of the three lagoon entrances, as well as Los Peñasquitos Lagoon. Any additional entrance sedimentation identified by the monitoring will be dredged. The CDPR expressed general support for the plan and raised questions in their June 19, 2015 letter regarding the potential for unintended impacts to Los Peñasquitos Lagoon and the adequacy of funding for any required dredging to maintain its tidal circulation and health. The Corps responded that the project includes provisions for monitoring and dredging of any additional sediment at the lagoon entrance, although the analysis did not identify potential for impacts within the Los Peñasquitos Lagoon. The National Marine Fisheries Service commented in a June 24, 2015 letter regarding the project effects on Essential Fish Habitat (EFH) and the consideration given to species within their jurisdiction under the Endangered Species Act. The Corps responded that the four federally-listed marine turtles are not expected to be found on any of the beach placement sites

and any transiting sea turtles are not expected to be impacted, so a no effect determination for these species is appropriate. The response also notes that project area reefs are not the type utilized by black abalone and the white abalone generally occurs in deeper water. Pre-construction surveys will include measures to monitor for sea turtles and abalone, although no impacts are expected. The response also summarizes the EFH coordination undertaken prior to and following coordination of the draft report. The Corps' final responses to the conservation recommendations were included in Appendix L of the Final EIS/EIR. EFH consultation would be reinitiated if the Corps substantially revises its plans or if new information becomes available.

9. I concur in the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that the plan to reduce coastal storm damages for the Encinitas-Solana Beach, California shoreline be authorized in accordance with the reporting officers' recommended plan at an estimated total nourishment cost of $167,454,000, which includes the project first cost of initial construction of $31,024,000 and a total of 9 periodic nourishments at the city of Encinitas and 4 periodic nourishments at the city of Solana Beach at a total cost of $136,430,000, 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 (33 U.S.C. 2213). The non-federal sponsors would provide the non-federal cost share and all LERRD. Further the non-federal sponsors would be responsible for all OMRR&R. This recommendation is subject to the non-federal sponsors agreeing to comply with all applicable federal laws and policies, including, but not limited to, the following:

a. Provide 35 percent of initial project costs assigned to hurricane and storm damage reduction, plus 100 percent of initial project costs assigned to protecting undeveloped private lands and other private shores which do not provide public benefits; and 50 percent of periodic nourishment costs assigned to hurricane and storm damage reduction, plus 100 percent of periodic nourishment costs assigned to protecting undeveloped private lands and other private shores which do not provide public benefits and as further specified below:

(1) Enter into an agreement that provides, prior to construction, 35 percent of design costs;

(2) Provide all lands, easements, and rights-of-way, and perform or ensure the performance of any relocation determined by the federal government to be necessary for the initial construction, periodic nourishment, and operation and maintenance of the project, 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 CFR Part 24;

(3) Provide, during construction, any additional amounts as are necessary to make their total contribution equal to 35 percent of initial project costs assigned to hurricane and storm damage reduction, plus 100 percent of initial project costs assigned to protecting undeveloped private lands and other private shores which do not provide public benefits; and 50 percent of

periodic nourishment costs assigned to hurricane and storm damage reduction, plus 100 percent of periodic nourishment costs assigned to protecting undeveloped private lands and other private shores which do not provide public benefits;

b. For so long as the project remains authorized, operate, maintain, repair, rehabilitate, and replace the project, or functional portion 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;

c. 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 and any project related betterments, except for damages due to the fault or negligence of the United States or its contractors;

d. Perform, or cause to be performed, 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 the initial construction, periodic nourishment, operation, and 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;

e. Assume, as between the federal government and the non-federal sponsors, complete financial responsibility for all necessary cleanup and response costs of any CERCLA regulated materials located in, on, or under lands, easements, or rights-of-way that the federal government determines to be necessary for the initial construction, periodic nourishment, operation, or maintenance of the project;

f. Agree, as between the federal government and the non-federal sponsors, that the non-federal sponsors shall be considered the operator of the project for the purpose of CERCLA liability, and to the maximum extent practicable, operate, maintain, and repair the project in a manner that will not cause liability to arise under CERCLA;

g. Inform affected interest, a least annually, of the extent of protection afforded by the project; participate in and comply with applicable federal floodplain management and flood insurance programs; comply with Section 402 of the WRDA 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 protection levels provided by the project;

h. Prescribe and enforce regulations to prevent obstruction of or encroachment on the project that would reduce the level of protection it affords or that would hinder future periodic nourishment and/or the operation and maintenance of the project;

i. For so long as the project remains authorized, ensure continued conditions of public ownership and use of the shore upon which the amount of federal participation is based;

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

k. At least twice annually and after storm events, perform surveillance of the beach to determine losses of nourishment material from the project design section and provide the results of such surveillance to the federal government.

10. 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 Congress as a proposal for authorization and implementation funding. However, prior to transmittal to Congress, the non-federal sponsors, 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

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DAEN

APR 26 2016

SUBJECT: American River Common Features General Reevaluation Report, California

THE SECRETARY OF THE ARMY

1. I submit, for transmission to Congress, my report on the study of flood risk management along the American and Sacramento Rivers within the metropolitan area of Sacramento, California. It is accompanied by the report of the Sacramento District Engineer and the South Pacific Division Engineer. These reports supplement the 29 June 1992, 27 June 1996, and 30 December 2010 reports of the Chief of Engineers, and were prepared as an interim general reevaluation study of the American River Common Features Project. The present study was conducted specifically to determine if there is a federal interest in modifying the authorized project features for flood risk management in the project area. The American River Common Features Project was authorized by Section 101(a) (1) of the Water Resources Development Act (WRDA) of 1996 (Public Law 104-303), as modified by Section 366 of WRDA 1999 (Public Law 106-53), Section 129 of the Energy and Water Development Appropriations Act, 2004 (Public Law 108-137), and Section 130 of the Energy and Water Development and Related Agencies Appropriations Act, 2008 (Division C of Public Law 110-161); and by Section 7002(2) of the Water Resources Reform and Development Act of 2014 (Public Law 113-121). Preconstruction engineering and design activities for this project will be continued under these authorities.

2. The reporting officers recommend authorizing a plan to reduce flood risk along the American and Sacramento Rivers and Eastside Tributaries in the Sacramento area. The recommendation is supported by the non-federal sponsors, the state of California and the Sacramento Area Flood Control Agency (SAFCA). The principal features of the recommended plan by reach are:

- Sacramento River East Levee
  - 9 miles of slurry cutoff walls to address levee seepage and stability problems
  - 10 miles rock bank protection to address erosion problems
  - 2.5 miles of geotextile stabilized slope and 2 miles of slope flattening to address levee stability
  - 1 mile of levee raise
- American River
  - 4 miles of rock bank protection and launchable rock trenches on the right bank to address erosion
  - 7 miles of rock bank protection and launchable rock trenches on the left bank to address erosion

- Eastside Tributaries
  - 4 miles of slurry cutoff wall to address levee seepage and stability problems along the Natomas East Main Drain (NEMDC) and Arcade Creeks
  - 4 miles of levee raises to address potential floodwater overtopping along Arcade Creek.
  - About 1 mile of levee raise and extension along Magpie Creek along with 80 acres of floodplain preservation
- Sacramento Bypass
  - Widen the Sacramento Weir and Bypass by 1,500 feet to reduce the water surface elevation in the Sacramento River and allow more water to flow into the Bypass system. This would include the construction of a new 2 miles long setback levee.

3. The recommended Locally Preferred Plan (LPP) would reduce flood risk to the city of Sacramento and surrounding areas. The proposed project would reduce average annual damages within Sacramento by 73 percent, with residual average annual damages of approximately $130 million. Annual exceedance probabilities for flooding within Sacramento would be reduced from approximately 3 percent (1 in 32 chance of flooding in any given year) to approximately 0.7 percent (1 in 147 chance of flooding in any given year). The proposed project would have significant long-term effects on environmental resources, however in all cases, the potential adverse environmental effects would be reduced to a less than significant level or mitigated through project design, construction practices, preconstruction surveys and analysis, regulatory requirements, habitat restoration, and best management practices. Approximately 0.4-acre of jurisdictional wetlands were identified in the project footprint which could be impacted by the project, however this impact would be mitigated through the purchase of credits at a mitigation bank. Potential impacts to vegetation communities and special status species have been greatly reduced through feasibility level design. Direct impacts to nesting birds, such as the Swainson's hawk and the Western yellow-billed cuckoo, and other sensitive species, such as the giant garter snake and the valley elderberry longhorn beetle, would be avoided by implementing preconstruction surveys and scheduling of construction activities. The U.S. Fish & Wildlife Service and National Marine Fisheries Service have provided Biological Opinions in which the agencies provided recommendations for design refinement or mitigation.

4. Based on October 2015 price-levels, the estimated total first cost of the plan is $1,565,750,000. In accordance with the cost sharing provision of Section 103 of WRDA 1986, as amended (33 U.S.C. 2213), the state of California as the non-federal cost-sharing sponsor is responsible for the additional cost of the LPP. The federal share of the estimated first cost of initial construction would remain the same for the National Economic Development (NED) Plan and the LPP, currently estimated at $876,478,000. The non-federal estimated cost share increases from $467,514,000 with the NED Plan to $689,272,000 with the LPP. The cost of lands, easements, rights-of-way, relocations, and dredged or excavated material disposal areas is estimated at $254,299,000. The state of California, along with the city of Sacramento and the American River Flood Control District would be responsible for the operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) of the project after construction. OMRR&R is currently estimated at $494,000 per year.

5. Based on a 3.125-percent discount rate and a 50-year period of analysis, the total average annual costs of the project are estimated to be $74,777,000, including OMRR&R. The selected plan is estimated to be 89 percent reliable in safely passing a flood which has a one percent chance of occurrence in any year (1 percent annual chance of exceedance) significantly reducing flood risk for the City of Sacramento, California. The selected plan would also reduce average annual flood damages by about 73 percent and would leave average annual residual damages estimated at $130 million. Average annual economic benefits are estimated to be $344,695,000; net average annual benefits are $269,918,000. The benefit-to-cost ratio (BRC) is 4.6 to 1. The NED Plan, although not being recommended, provides average annual benefits of $344,298,000 with average annual costs of $63,576,000; yielding net benefits of $280,722,000 and a BCR of 5.4 to 1.

6. The goals and objectives included in the Campaign Plan of the U.S. Army Corps of Engineers have been fully integrated into the American River Common Features general reevaluation study process. The recommended plan has been designed to avoid or minimize environmental impacts while maximizing future safety and economic benefits to the community. The recommended plan allows for continued floodplain flooding in the widened Sacramento Bypass while focusing the flood risk reduction on the established urban area. The general reevaluation study team organized and participated in stakeholder meetings and public workshops throughout the process and worked with local groups to achieve a balance of project goals and public concerns. The study report fully describes flood risks associated with the American and Sacramento Rivers and describes the residual risk. The residual risks have been communicated to the state of California and the SAFCA and they understand and agree with the analysis.

7. In accordance with the Corps 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 (DQC), Agency Technical Review (ATR), an Independent External Peer Review (IEPR) (Type I), and a Corps Headquarters policy and legal review. All concerns of the DQC and ATR have been addressed and incorporated into the final report. An IEPR was completed by Battelle Memorial Institute in July 2015. A total of 17 comments were documented. The IEPR comments identified one significant concern in the area of hydraulic analysis which was addressed with clarifying language. Additional comments of medium to low significance focused on areas of the plan formulation, engineering assumptions, and environmental analyses that needed improvements to support the decision-making process and plan selection. This resulted in expanded narratives throughout the report to support the decision-making process and justify the recommended plan. 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. A safety assurance review (Type II IEPR) will be conducted during the design phase of the project.

8. Washington level review indicated 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. The recommended plan complies with other administrative and legislative policies and guidelines. The views of interested parties, including federal, state and local agencies have been considered.

9. I concur in the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend modifying the authorized American River Common Features project to include the following: the construction of levee improvement measures to address seepage, stability, erosion and overtopping concerns identified for the Sacramento River, Natomas East Main Drainage Canal (NEMDC), Arcade Creek, and Magpie Creek as well as erosion measures for specific locations along the American River. The Sacramento Weir and Bypass would be widened to divert more flood flows into the Yolo Bypass. Further, I advise that these be authorized in accordance with the reporting officers' recommended plan at an estimated cost of $1,565,750,000 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. The NED Plan cost component of the LPP recommended in this report will be cost shared in accordance with Section 103 of WRDA 1986, as amended (33 U.S.C. 2213), with a minimum non-federal share of 35 percent, not to exceed 50 percent, of total NED Plan costs. The non-federal share will also include 100 percent of the LPP increment above the NED Plan costs. Applying these requirements, the federal portion of the estimated total first cost is $876,478,000 and the non-federal portion is $689,272,000, or a federal share of 56 percent and a non-federal share of 44 percent. Federal implementation of the LPP would be subject to the non-federal sponsor agreeing to comply with applicable federal laws and policies, including but not limited to:

a. Provide the non-federal share of total project costs, including a minimum of 35 percent, but not to exceed 50 percent, of the total costs of the NED Plan, and 100 percent of the costs of the LPP increment, 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, during construction, a contribution of funds equal to 5 percent of total project costs;

3. Provide all lands, easements, and rights-of-way, perform or ensure the performance of any relocation determined by the Federal Government to be necessary for the construction, operation, and maintenance of the project, and provide relocation assistance, all in compliance with applicable provisions of the Uniform Relocation 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;

4. Provide, during construction, any additional funds necessary to make its total contribution equal to at least 35 percent of the total costs of the NED Plan;

5. Provide 100 percent of the costs of the LPP increment above the total costs of the NED Plan;

b. Inform affected interests, at least annually, of the extent of protection afforded by the project; participate in and comply with applicable federal floodplain management and flood insurance programs; comply with Section 402 of WRDA 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 regulation, or taking other actions, to prevent unwise future development and to ensure compatibility with protection levels provided by the project;

c. 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;

d. For so long as the project remains authorized, operate, maintain, repair, rehabilitate, and replace 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;

e. 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;

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

10. The recommendation contained herein reflects 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 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 sponsor, the states, interested federal agencies, and other parties will be advised of any modifications and will be afforded an opportunity to comment further.

THOMAS P. BOSTICK
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DAEN

APR 26 2016

SUBJECT: West Sacramento General Reevaluation Report, California

THE SECRETARY OF THE ARMY

1. I submit, for transmission to Congress, my report on the study of flood risk management along the Sacramento River within the metropolitan area of West Sacramento, California. It is accompanied by the report of the Sacramento District Engineer and the South Pacific Division Engineer. These reports supplement the 29 June 1992 report of the Chief of Engineers, and were prepared as an interim general reevaluation study of the West Sacramento Project. The study was conducted specifically to determine if there is a federal interest in modifying the authorized project features for flood risk management in the project area. The study authority for the West Sacramento area was provided through Section 209 of the Flood Control Act of 1962 (Public Law 87-874). Specific project authority was provided in Section 101(4) of the Water Resources Development Act (WRDA) of 1992 (Public Law 102-580), the Energy and Water Development Appropriations Act, 1999 (Public Law 105-245), and Section 118 of the Energy and Water Development Appropriations Act, 2010 (Public Law 111-85). Preconstruction engineering and design activities for this project will be continued under these authorities.

2. The reporting officers recommend authorizing a plan to reduce flood risk by reducing the problems associated with seepage, stability and erosion for the levees along the Sacramento River, Yolo Bypass, and Sacramento River Deep Water Ship Channel. The recommendation is supported by the non-federal sponsors, the state of California and the West Sacramento Area Flood Control Agency (WSAFCA). The principal features of the recommended plan by reach are:

- 18,500 feet of cutoff walls to address seepage remediation and stability problems and 15,000 feet of rock bank protection to address erosion problems along the Sacramento River North levee.
- 8,400 feet of cutoff walls and slope flattening to address seepage and stability concerns on the Yolo Bypass levee.
- 3,000 feet of bank protection to address erosion concerns on the Sacramento Bypass training levee.
- Construct 550 feet of sheet pile wall with embankment fill to plug gap in the Sacramento River levee east of Stone Lock.
- Construct 30,000 feet of setback levee with slurry cutoff walls and/or seepage berms to address seepage remediation, and rock bank protection to address erosion problems along the Sacramento River South levee.

- Construct relief wells and 1,100 feet of stability berm to address seepage remediation and stability problems along the South Cross levee.
- 14,600 feet of cutoff walls to address seepage remediation along the Deep Water Ship Channel East levee.
- 1,000 feet of cutoff walls to address seepage remediation along the Port South levee. 25,000 feet of cutoff walls to address seepage remediation and 100,000 feet of rock bank protection to address erosion problems along the Deep Water Ship Channel West levee.

3. The recommended plan would reduce flood risk to the city of West Sacramento. The proposed project would reduce average annual damages within West Sacramento by 85 percent, with residual average annual damages of approximately $36,316,000. The proposed project would have significant long-term effects on environmental resources, however in all cases, the potential adverse environmental effects would be reduced to a less than significant level or mitigated through project design, construction practices, preconstruction surveys and analysis, regulatory requirements, and best management practices. No jurisdictional wetlands were identified in the project footprint. Potential impacts to vegetation communities and special status species have been greatly reduced through feasibility level design. Direct impacts to nesting birds, such as the Swainson's hawk and the Western yellow-billed cuckoo, and other sensitive species, such as the giant garter snake and the valley elderberry longhorn beetle, would be avoided by implementing preconstruction surveys and scheduling of construction activities. The U.S. Fish and Wildlife Service and the National Marine Fisheries have provided a Biological Opinion in which the agency provided recommendations for design refinement or mitigation.

4. Based on October 2015 price-levels, the estimated total first cost of the National Economic Development (NED) plan is $1,190,528,000. The federal share of the estimated first cost of initial construction is currently estimated at $776,517,000. The non-federal cost share for the NED plan is $414,011,000. The cost of lands, easements, rights-of-way, relocations, and dredged or excavated material disposal areas is estimated at $230,723,000. The state of California, along with the WSFCA would be responsible for the operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) of the project after construction. OMRR&R is currently estimated at about $106,000 per year.

5. Based on a 3.125-percent discount rate and a 50-year period of analysis, the total average annual costs of the project are estimated to be $64,795,000 including OMRR&R. The selected plan is estimated to be 93 percent reliable in safely passing a flood which has a one percent chance of occurrence in any year (1 percent annual chance exceedance), significantly reducing flood risk for the city of West Sacramento, California. The selected plan would also reduce average annual flood damages by about 85 percent and would leave average annual residual damages estimated at $36,316,000. Average annual economic benefits are estimated to be $210,570,000; net average annual benefits are $145,775,000. The benefit-to-cost ratio is 3.2 to 1.

6. The goals and objectives included in the Campaign Plan of the U.S. Army Corps of Engineers have been fully integrated into the West Sacramento general reevaluation study process. The recommended plan has been designed to avoid or minimize environmental impacts while maximizing future safety and economic benefits to the community. The general reevaluation

study team organized and participated in stakeholder meetings and public workshops throughout the process and worked with local groups to achieve a balance of project goals and public concerns. The study report fully describes flood risks associated with the American and Sacramento Rivers and describes the residual risk. The residual risks have been communicated to the state of California and the WSAFCA and they understand and agree with the analysis.

7. In accordance with the Corps 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 (DQC), Agency Technical Review (ATR), an Independent External Peer Review (IEPR) (Type I), and a Corps Headquarters policy and legal review. All concerns of the DQC and ATR have been addressed and incorporated into the final report. An IEPR was completed by Battelle Memorial Institute in February 2015. A total of 18 comments were documented. The IEPR comments identified one significant concern regarding project benefits being overestimated because the probability of geotechnical failure used in the HEC-FDA analyses is unreasonably high. This comment was addressed by acknowledging that the geotechnical analysis was completed using the Corps current state of practice. Additional comments of medium to low significance focused on areas of the plan formulation, emergency costs, seismic hazards, and environmental analyses that needed improvements to support the decision-making process and plan selection. This resulted in expanded narratives throughout the report to support the decision-making process and justify the recommended plan. 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. A safety assurance review (Type II IEPR) will be conducted during the design phase of the project.

8. Washington level review indicated 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. The recommended plan complies with other administrative and legislative policies and guidelines. The views of interested parties, including federal, state and local agencies have been considered.

9. I concur in the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend modifying the authorized West Sacramento Project to include the following: the construction of levee improvement measures to address seepage, stability, and erosion concerns identified for the Sacramento River North and South, Yolo Bypass, Deep Water Ship channel east and west, Port South, and South Cross levees. Further, I advise that these be authorized in accordance with the reporting officers' recommended plan at an estimated cost of $1,190,528,000 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. The cost of the plan recommended in this Report will be cost shared in accordance with Section 103 of WRDA 1986, as amended (33 U.S.C. 2213), with a minimum non-federal share of 35 percent, not to exceed 50 percent, of total NED plan costs. Applying these requirements, the federal portion of the estimated total first cost

is $776,517,000 and the non-federal portion is $414,011,000 or a federal share of 65 percent and a non-federal share of 35 percent. Federal implementation of the selected plan would be subject to the non-federal Sponsor agreeing to comply with applicable federal laws and policies, including but not limited to:

a. Provide the non-federal share of total project costs, including a minimum of 35 percent, but not to exceed 50 percent, of the total costs of the NED plan, and 100 percent of the costs of the LPP increment, 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, during construction, a contribution of funds equal to 5 percent of total project costs;

3. Provide all lands, easements, and rights-of-way, and perform or ensure the performance of any relocation, determined by the Federal Government to be necessary for the construction, operation, and maintenance of the project, and provide relocation assistance, all in compliance with applicable provisions of the Uniform Relocation 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;

4. Provide, during construction, any additional funds necessary to make its total contribution equal to at least 35 percent of the total costs of the NED plan;

5. Provide 100 percent of the costs of the LPP increment above the total costs of the NED plan;

b. Inform affected interests, at least annually, of the extent of protection 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 regulation, or taking other actions, to prevent unwise future development and to ensure compatibility with protection levels provided by the project;

c. 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;

d. For so long as the project remains authorized, operate, maintain, repair, rehabilitate, and replace 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;

e. 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;

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 (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. 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, and 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.

10. The recommendation contained herein reflects 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 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 sponsor, the states, interested federal agencies, and other parties will be advised of any modifications and will be afforded an opportunity to comment further.

THOMAS P. BOSTICK
Lieutenant General, U.S. Army
Chief of Engineers

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

DAEN

JUL 29 2016

SUBJECT: Southwest Coastal Louisiana

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on hurricane storm surge damage risk reduction and ecosystem restoration in three parishes in southwestern Louisiana. It is accompanied by the report of the New Orleans District Engineer and the Mississippi Valley Division Engineer. These reports are in partial response to a resolution of the U.S. House of Representatives Committee on Transportation and Infrastructure, adopted 7 December 2005, and to Section 7003 of the Water Resources Development Act (WRDA) of 2007. The resolution requested the Secretary of the Army to survey the coast of Louisiana in Cameron, Calcasieu, and Vermilion Parishes, with particular reference to the advisability of providing hurricane protection and storm damage risk reduction and related purposes, including the feasibility of constructing an armored 12-foot levee along the Gulf Intracoastal Waterway. Section 7003 of WRDA 2007 authorized a program for ecosystem restoration for the Louisiana Coastal Area to be carried out substantially in accordance with the report of the Chief of Engineers dated 31 January 2005, which recommended further study of various large scale restoration concepts. If funded, preconstruction engineering and design activities for the National Economic Development (NED) recommended plan would continue under the authority of the 7 December 2005 resolution, and would continue for the National Ecosystem Restoration (NER) recommended plan under the authority of Section 7003 of WRDA 2007.

2. The reporting officers recommend authorizing a NED plan of localized storm surge risk reduction features to reduce hurricane storm surge damage risks in Cameron, Calcasieu, and Vermilion Parishes. The NED plan reduces the risk of coastal storm damages through independent features that elevate or flood-proof structures in the 25-year floodplain predicted to occur in 2025. The NED plan includes raising approximately 3,500 residential structures in-place above the predicted 2075 1-percent chance base flood elevation; flood-proofing approximately 350 non-residential structures; and constructing earthen berms around approximately 160 warehouses. The risk evaluation and forecast, plan selection, and risk reduction design elevations are based on the projection of an intermediate rate of relative sea level rise. The raising of residential structures, the flood-proofing of non-residential structures, and the construction of localized storm surge risk reduction measures will be implemented on a voluntary participation basis. It is recommended that the NED plan be authorized for implementation over a 20-year construction period. The recommended plan has no significant adverse effects, consequently there are no compensatory mitigation requirements.

3. The reporting officers recommend authorizing a NER plan comprised of 49 features to restore coastal habitats in Cameron, Calcasieu, and Vermilion Parishes. The NER plan will provide

benefits in two estuaries by rebuilding tidal wetlands, preventing shoreline erosion, and replanting rare native vegetation addressing land loss and ecosystem degradation. The recommended NER plan includes nine marsh restoration measures restoring a net total of 7,900 acres of brackish and saline marsh with 2,700 Average Annual Habitat Units (AAHUs); five shoreline protection measures protecting a net total of 6,135 acres of marsh with 1,738 AAHUs; and 35 chenier reforestation measures that would plant cheniers with live oak and hackberry for a net total of 1,413 acres with 538 AAHUs. Overall, the recommended NER plan would reforest, protect, and restore a net total of 15,448 acres with a total of 4,976 AAHUs. The NER plan restores and protects 260,000 acres of habitat designated as federal or state refuge in the study area. This includes protecting 84 miles of designated shoreline, 335 acres of designated critical wintering habitat for the threatened piping plover, and 72,000 acres of Wetland Conservation Area designated for an experimental population of the threatened whooping crane. This critical wintering habitat is also utilized by the rufa subspecies of the threatened red knot. The benefitted acres are located at a critical intersection of the North American flyway and support both wintering migratory water fowl and neo tropical migrant species in transit from South and Central America. The NER plan would restore very scarce marine forest habitat (oak and hackberry trees) on the coastal chenier features unique to this area of the gulf and critical to many species utilizing the flyway. The NER plan enhances overall plant productivity, which reinforces and protects critical landscape features and enhances the resilience of a geomorphic framework that support both the ecology and management of risk throughout the area. Monitoring and adaptive management of this ecosystem restoration project will be conducted for a period up to 10-years post-construction. If ecological success has not been achieved within the 10-year period, the costs for monitoring and adaptive management will be a 100% non-federal responsibility.

In addition to a construction recommendation, the reporting officers also recommend continued study of a hydrologic and salinity control structure (Cameron-Creole Spillway) and a long-range study of a Calcasieu Ship Channel salinity control structure that were identified in this study as potentially viable features but require additional analysis for construction.

Two of the nine identified marsh restoration features are partially located on United States Fish and Wildlife Service (USFWS) property (Sabine National Wildlife Refuge and Cameron Prairie National Wildlife Refuge) and are included in the recommended NER plan. These features are vitally important to help preserve the Calcasieu Lake rim and prevent vast new expanses of open water from forming should the lake rim be breached by erosional forces. The total project first costs for the measures on USFWS property are estimated at $296,839,000 and would provide 1,492 acres and 611 AAHUs. The acquisition of some privately held lands adjacent to USFWS property would be required for implementation of each feature to be complete. A cost of approximately $800,000 for this real estate acquisition is included in the estimates. Because USFWS is ultimately responsible for managing its refuge lands, USACE is not seeking authorization nor funding for the features located on USFWS lands. The reporting officers recommend development of an implementation plan by the State of Louisiana and USFWS for these two features. This subset of the NER plan, all features of the NER minus the two USFWS features, represents the "Corps Plan." The full NER plan, with all features including the two USFWS features, represents the "Federal Plan."

The two USFWS features are not included in the Land, Easements, Rights-of-Way, Relocations, and Disposal Areas (LERRDs) necessary for the construction and operation, maintenance, repair, rehabilitation and replacement (OMRR&R) of the Corps Plan.

4. The Coastal Protection and Restoration Authority Board of Louisiana (CPRAB) is the non-federal cost-sharing sponsor for all hurricane storm surge damage risk reduction and ecosystem restoration features. Based on October 2015 price levels, the total estimated project first cost of the recommended Corps Plan is $3,094,276,000. The total cost of lands, easements, rights-of-way, relocations, and dredged or excavated material disposal areas is estimated at $72,100,000.

a. Based on October 2015 price levels, 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, for the NED plan is $906,091,000. The total cost of lands, easements, rights-of-way, relocations, and dredged or excavated material disposal areas is estimated at $61,970,000. 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 cost of the NED plan features would be $588,959,000 (65 percent). The non-federal share of the first costs of the NED plan would be $317,132,000 (35 percent). CPRAB will be responsible for the OMRR&R of the project after construction, a cost currently estimated at about $5,000 per year.

b. Based on October 2015 price levels, 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, for the NER plan is $2,188,185,000. In accordance with the cost sharing provisions of Section 103 of the WRDA 1986, as amended, the federal share of the project first cost of the ecosystem restoration features would be $1,422,321,000 (65 percent). The non-federal share of the first costs of the ecosystem restoration features would be $765,865,000 (35 percent). CPRAB will be responsible for the OMRR&R of the project after construction, a cost currently estimated at about $5,958,000 per year. Post-construction monitoring and adaptive management of the ecosystem restoration project may be conducted for no more than 10-years at an estimated cost of $62,807,000.

c. The NER plan includes a three tiered implementation sequence. (1) Tier I features may be constructed simultaneously because they would not affect the construction of any nearby Tier I NER recommended plan feature. Shoreline protection features would be constructed prior to marsh restoration features in an effort to better protect the more storm-vulnerable marsh restoration features. This approach contributes to the sustainability of the marsh restoration features. The project first cost for Tier 1 is $850,998,000 producing 1,930 AAHU. (2) Tier II NER recommended plan features were so categorized because they utilize the same borrow or staging area, and/or construction of these features would potentially interfere with construction of a Tier I NER recommended plan feature. The project first cost for Tier II is $561,186,000 producing 1,117 AAHU. (3) Tier III NER recommended plan features were so categorized because they would utilize the same borrow or staging area, and/or interfered with construction

of a Tier II feature, and/or interfered with an existing mitigation project. The project first cost for Tier III is $776,002,000 producing 1,318 AAHU.

d. Additionally, the two long range studies recommended under the NER plan are to study a hydrologic and salinity control structure (Cameron-Creole Spillway) and a long-range study of a Calcasieu Ship Channel salinity control structure estimated to cost $6,000,000, cost shared with CPRAB at a 50/50 rate, or $3,000,000 each.

5. Analyses are based on a 3.125-percent discount rate and a 50-year period of analysis.

a. Implementing the NED plan will reduce expected average annual flood damages by about 93 percent for structures in the projected 2025 25-year floodplain. Equivalent without-project damages are estimated at $219,683,000 and equivalent with-project damages are estimated at $16,129,000, resulting in equivalent annual benefits of $203,554,000. The total average annual costs of the NED plan are estimated to be $36,056,000 and the equivalent annual net benefits are estimated to be $167,498,000. The NED plan benefit-cost ratio is approximately 5.6 to 1. For the entire study area with an equivalent without-project damages of $474,998,000, the NED plan will reduce expected average annual flood damages by about 46 percent.

b. The total equivalent annual costs of the NER plan are estimated to be $66,642,000 including OMRR&R. Implementing the NER plan will produce 4,365 average annual habitat units.

6. In accordance with USACE Sea Level Change Guidance, ER 1100-2-8162, the study evaluated potential impacts of sea level change in formulating and engineering the recommended plans. The risk reduction system and ecosystem restoration features being proposed are based on the intermediate Relative Sea Level Rise (RSLR) projection. However, the USACE will continue to monitor local conditions and determine if the intermediate scenario of RSLR is occurring. If observed conditions deviate from intermediate to high sea level forecasts during design or construction, reevaluation of the NED and NER will be required.

7. The NED plan is intended to prevent damages to structures and infrastructure; it is not intended to, nor will it, reduce the risk to loss of life during major storm events. Loss of life can only be prevented by residents and visitors following the local evacuation plans that are already in place. The proposed project would greatly reduce, but not completely eliminate future storm damages. Coastal storm damages are reduced by approximately 93 percent in the location of the recommended plan, and by approximately 46 percent across the entire study area. These residual risks have been communicated to the residents of Cameron, Calcasieu, and Vermilion Parishes.

8. In accordance with the Engineer Circular (EC 1165-2-214) on review of decision documents, all technical, engineering, and scientific work underwent an open, dynamic, and vigorous review process to ensure technical quality. This included Agency Technical Review (ATR), a Type I Independent External Peer Review (IEPR), and USACE Headquarters policy and legal review. All concerns of the ATR have been addressed and incorporated into the final feasibility report. USACE conducted the IEPR in accordance with Section 2034 of the WRDA 2007, EC 1165-2-

214, and the Office of Management and Budget's Final Information Quality Bulletin for Peer Review (2004). A Section 501(c)(3) (Internal Revenue Code) non-profit science and technology organization, independent and free of conflicts of interest, established and administered the peer review panel. The IEPR panel consisted of four members with expertise in economics, civil works planning, environmental review and environmental policy, and hydrologic and hydraulic engineering. The review panel identified and documented eighteen final comments. Of these, two were identified as having medium-high significance, 10 as having medium significance, and six as having low significance. The medium-high significance comments addressed the uncertainty of Hydraulic and Hydrologic modeling in combining effects from surge and inland flooding; and potential effects of excluding or limiting impacts to the Henry Hub natural gas distribution facility, future development, Biggert-Waters flood insurance reforms, and alternative design options, on the cost/benefit analysis. All IEPR review comments have been resolved. There have been no significant changes to the plan formulation, engineering assumptions, or environmental analyses that supported the decision-making process and plan selection resulting from the resolution of comments. The final integrated report and environmental impact statement were provided for state and agency review. All comments from the above referenced reviews were addressed and incorporated into the final documents as appropriate.

9. Washington level review indicates that the project recommended by the reporting officers is technically sound, environmentally and socially acceptable, cost effective, and economically justified. The plan complies with all essential elements of the U.S. Water Resources Council's *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.

10. Federal implementation of the recommended project would be subject to the non-federal sponsor agreeing to comply with federal laws and policies, including agreeing with the following requirements prior to implementation:

a. Provide 35 percent of total hurricane storm surge risk reduction costs and 35 percent of total ecosystem restoration costs, as further specified below:

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, 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 as determined by the federal government to be required or to be necessary for the construction, operation, and maintenance of the project, and provide relocation assistance, 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 at least 35 percent of hurricane storm surge risk reduction costs and 35 percent of total ecosystem restoration costs;

b. 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 and state laws and regulations and any specific directions prescribed by the federal government;

c. 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;

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

e. Hold and save the United States free from all damages arising from the construction, OMRR&R of the project and any betterments, 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 USC 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 or 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 that the Federal government determines to be necessary for the construction, OMRR&R 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, rehabilitate, and replace the project in a manner that will not cause liability to arise under CERCLA; and

i. Not use the project or lands, easements, and rights-of-way required for the project as a wetlands bank or mitigation credit for any other project.

11. The recommendations herein reflect the information available at the time and current Department of the Army policies governing the formulation of individual projects. They do not reflect programming 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 modified before they are transmitted to Congress as proposals for implementing funding. However, prior to the transmission to Congress, the state, federal agencies, and other parties will be advised of any modifications and afforded the opportunity to comment.

TODD T. SEMONITE
Lieutenant General, USA
Chief of Engineers