



## 7.0 RECOMMENDATIONS

### 7.1 NED Recommended Plan

The RP (Nonstructural 0-25-Year Floodplain Plan – Modified Plan 8) proposes implementing measures across the 4,700 square mile study area to reduce coastal storm surge damages to 3,462 residential structures, 342 commercial structures and public buildings, and 157 warehouses. This will be achieved by elevating residential structures, dry flood proofing non-residential structures, and constructing localized storm surge risk reduction measures around warehouses. Residential structures will be elevated to the BFE predicted to occur in the year 2075. Non-residential structures will have flood proofing measures applied generally up to 3 ft above ground level. Localized storm surge risk reduction measures will be less than 6 ft in height. Any structure that requires raising more than 13 ft above ground level would be ineligible to participate due to engineering and risk related factors. The NED RP is 100% voluntary. The expected equivalent annual net benefits are approximated at \$167.4 million dollars, with \$906.1 million in project first costs, and a BCR of 5.65:1. The Federal share of the project first cost of the NED RP features would be \$588,959,000 (65 percent). The non-Federal share of the first costs of NED Plan would be \$317,132,000 (35 percent).

Among other things, the NFS is required to prepare and implement a Floodplain Management Plan in coordination with the USACE to maintain the integrity, purpose and functionality of the project, to participate in and comply with floodplain management programs, provide annual notifications regarding the extent of risk reduction afforded by the project, and prevent obstructions or encroachments on the project (including prescribing and enforcing regulations to prevent such obstructions or encroachments) which might reduce the level of risk reduction the project affords, hinder operation and maintenance of the project, or interfere with the project's proper function.

This Final Report recommends a strategy to implement the nonstructural project for eligible structures. Structures that have been identified as preliminarily eligible as part of the NED RP are located across the three-parish study area. Eligible structures are located in the 0-25-year floodplain and are individually economically justified (i.e. the costs to apply a particular nonstructural measure are less than the flood damages predicted to occur to that structure over the 50-year period of analysis). In order to effectively implement the NED RP, clusters of eligible structures that represent the highest risk for hurricane storm surge damages (i.e. those with a FFE below the 10-year stage) would be identified and prioritized for construction. Individual structures would be addressed based on a ranking of risk from highest to lowest within the cluster. The ranking of individual structures would be revisited as elevation work is completed, as additional funding is distributed, and as new clusters are identified. Addressing groups of structures within a small geographic area would be more cost-effective, efficient, and would also allow for a more strategic methodology for applying nonstructural measures to at-risk structures. Additional work on this process would occur during the design phase of the project and would result in owners being contacted to ascertain their interest in applying the appropriate nonstructural measure to their structure. More details on this process can be found in Appendix L.

No mitigation is required for the NED RP.

By and large, hurricane storm damage risk reduction projects positively contribute to public safety. This is particularly true for structural plans where for the most frequent surge events, the incidence of inundation is reduced for communities and other developed areas. However, for less frequent and more severe hurricane surge events in coastal areas that are characteristic of the study area, structural plans could have a negative effect on public safety. This may arise from some among the public who do not abide by mandatory evacuation orders in advance of an approaching storm, but who otherwise would, believing that the structural levee may provide greater protection from storm surge than may be warranted. Thus the total population exposed to storm surge in the event of overtopping or breach could be greater under with-project conditions. However, for nonstructural plans, no change is expected in evacuation behavior since the potential exaggerated expectations of performance afforded to structural measures is not present, and awareness of storm damage risk is not abated. Similarly, residual risk to critical infrastructure (i.e. hospitals, evacuation routes, public buildings) is not



expected to be different from without-project conditions since much of this infrastructure is already built and designed to operate in dire situations, especially those of greater frequency such as hurricanes and their associated flood potential.

### 7.2 NER Recommended Plan

The NER RP is Plan CM-4 “Small Integrated Restoration”, which focuses on stabilizing perimeter geomorphology and consists of 49 ecosystem restoration features recommended for construction (9 marsh restoration features; 35 chenier reforestation features; and 5 shoreline protection features). The NER RP is the least-cost, cost-effective, comprehensive ecosystem restoration plan that addresses land loss and ecosystem degradation. The NER RP contains features to restore 15,448 acres of wetlands; restore and protect 335 acres of designated critical habitat (for threatened piping plover and red knot); enhance plant productivity; and reinforce and protect critical landscape features. The Calcasieu Ship Channel Salinity Control Structure and the Cameron-Creole Watershed Spillway are recommended as additional long-range studies. Each study would be subject to a Federal/non-Federal cost share of 50 percent.

Two marsh restoration measures, Features 124d and 3c1 are partially located on USFWS property (Sabine National Wildlife Refuge and Cameron Prairie National Wildlife Refuge, respectively) and are included in the NER RP. 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. All NED and NER RP features (including those recommended for appropriation and construction by USFWS) represent the “Federal Plan”. Because USFWS is ultimately responsible for managing its refuge lands, USACE is not seeking authorization and funding for Features 124d and 3c1 (the USFWS features). The NED RP and the subset of NER features that are recommended for authorization and appropriation by USACE (all features minus 124d and 3c1) represent the “Corps Plan”. Rather, USACE supports USFWS in seeking its own authorization and appropriation to construct the USFWS features and offers USFWS the information that USACE developed under this study effort as a starting point for USFWS efforts to obtain independent authorization and funding for the USFWS features of the Federal Plan. These two USFWS features are not included in the LERRDs necessary for the construction and OMRR&R of the Corps Plan.

USACE estimates total project costs of \$296,839,000 for the two NER RP features that would be submitted to USFWS for its consideration and implementation (after first securing independent Congressional authorization and appropriations). However, it is likely that USFWS, should it choose to seek authorization and funding, will reevaluate the total cost necessary for implementation by USFWS rather than by USACE. In so doing, it is probable that USFWS would determine a different total cost for these features.

The NER RP features comprise an integrated restoration plan that would have synergy with other ecosystem restoration projects and would facilitate hydrologic and geomorphic stability and resilience. The NER RP total project first cost estimate is \$2.485 billion. The Federal share of the Federal Plan is \$1.719 billion (which represents 65% of all cost-shared features plus the entire cost of the two USFWS features); The Federal share of the Corps Plan, for which authorization is being recommended is \$1.422 billion. The Non-Federal share of either NER plan is \$766 million. Additionally, the two long range studies recommended under the NER RP are estimated to cost \$6,000,000 with a 50/50 cost share.

### 7.3 Federal and Non-Federal Cost-Sharing

For each of the two long-range studies at Calcasieu Ship Channel Salinity Control Structure and the Cameron-Creole Watershed Spillway, it is anticipated that the CPRAB would be the NFS for each study effort, with a cost share for each study of 50 percent Federal and 50 percent non-Federal.

The State of Louisiana acting through the CPRAB will be the NFS for design, construction, operation, maintenance, repair, rehabilitation and replacement of that portion of the project that constitutes the Corps Plan (hereafter the Project). The cost share for the design and construction of the project will be 65 percent Federal and 35 percent non-Federal. Among other responsibilities, the CPRAB must provide all project



LERRDs required for the project and submit any work-in-kind (WIK) request for approval by the Federal government for the PED phase of the project. WIK associated with the construction of localized storm surge risk reduction system components of the project will be negotiated with the NFS, contingent upon approval at the Assistant Secretary of the Army for Civil Works (ASACW) (or appropriate designee) in accordance with applicable guidance and regulations. The OMRR&R cost of the project is estimated to cost on an average annual basis \$5,963,000 and is a 100% NFS responsibility. The estimated total project cost for the Federal Plan (the Federal NED and NER RPs, including projects that will be submitted to USFWS for its consideration to seek independent Congressional authorization and funding) is \$3,391,113,000 at FY 2016 price levels. The estimated total project cost for the Corps Plan, for which authority is being recommended, is \$3,094,276,000 at FY 2016 price levels.

#### **7.4 Federal Responsibilities for the Corps Plan Project (the Project)**

Since implementation by USFWS of features 3c1 and 124d of the NER RP is subject to independent authorization and funding by USFWS, this section and section 7.6 will not attempt to outline the Federal and non-Federal responsibilities for the construction and OMRR&R of those features. References to the “Project” refer only to those features of the Federal NED and NER RPs that will be implemented by USACE (the Corps Plan).

The Federal government (USACE) will be responsible for PED and construction of the project in accordance with the applicable provisions of Public Law 99-662 (WRDA of 1986), as amended. The Government (USACE), subject to Congressional authorization, the availability of funds, and the execution of a binding agreement with the NFS in accordance with Section 221 of the Flood Control Act of 1970, as amended, and using those funds provided by the NFS, shall expeditiously construct the Project, applying those procedures usually applied to Federal projects, pursuant to Federal laws, regulations, and policies.

#### **7.5 Non-Federal Responsibilities for the NED Recommended Plan**

Federal implementation of the Project would be subject to the NFS 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 hurricane storm surge risk reduction project costs as further specified below:
  1. Provide the non-Federal share of design costs allocated by the Government to hurricane storm surge damage risk reduction in accordance with the terms of a design agreement entered into prior to commencement of design work for the hurricane storm surge damage risk reduction features of the project;
  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 hurricane storm surge risk reduction features of the project;
  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, maintenance, repair, rehabilitation and replacement of the hurricane storm surge damage risk reduction features of the project;
  4. Provide, during construction, any additional funds necessary to make its total contribution equal to 35 percent of total hurricane storm surge risk reduction costs;



- b. Do not use funds provided by a Federal agency under any other Federal program, to satisfy, in whole or in part, the non-Federal share of the cost of the project unless the Federal agency that provides the funds determines that the funds are authorized to be used to carry out the project;
- c. Comply with all applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, as amended (42 U.S.C. 4601-4655), and the Uniform Regulations contained in 49 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;
- 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; provided however, that the NFS shall have no obligation to address loss or risk reduction due to relative sea level rise through the repair, rehabilitation or replacement of components associated with the construction of localized storm surge risk reduction measures around non-residential warehouse structures, nor shall the NFS be obligated to OMRR&R those nonstructural flood proofing measures that constitute elevation of individual residential structures or dry flood proofing of non-residential commercial or public structures;
- 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, operating, maintaining, repairing, rehabilitating, or replacing the project;
- 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. Keep and maintain books, records, documents, or 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, 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;
- h. Comply with Section 221 of Public Law 91-611, Flood Control Act of 1970, as amended (42 U.S.C. 1962d-5), and Section 103 of the Water Resources Development Act of 1986, Public Law 99-662, as amended (33 U.S.C. 2213), 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;
- i. 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 substantial 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 et seq.);



- 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. 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 non-structural 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, operate, maintain, repair, rehabilitate, and replace the project in a manner that will not cause liability to arise under CERCLA;
- m. 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;
- n. Not less than once each year, inform affected interests of the extent of protection afforded by the project;
- o. Agree to participate in and comply with applicable Federal floodplain management and flood insurance programs;
- p. 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 sponsor 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;
- q. 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;
- r. 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;
- s. 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 betterment 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.



## 7.6 Non-Federal Responsibilities for the NER Recommended Plan

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

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

b. Do not use funds provided by a Federal agency under any other Federal program, to satisfy, in whole or in part, the non-Federal share of the cost of the project unless the Federal agency that provides the funds determines that the funds are authorized to be used to carry out the project;

c. Comply with all applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, as amended (42 U.S.C. 4601-4655), and the Uniform Regulations contained in 49 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;

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. 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;

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. Keep and maintain books, records, documents, or 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, 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;



- h. Comply with Section 221 of Public Law 91-611, Flood Control Act of 1970, as amended (42 U.S.C. 1962d-5), and Section 103 of the Water Resources Development Act of 1986, Public Law 99-662, as amended (33 U.S.C. 2213), 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;
- i. 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 substantial 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 et seq.);
- 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. 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;
- 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, operate, maintain, repair, rehabilitate, and replace the project in a manner that will not cause liability to arise under CERCLA;
- m. 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; and,
- n. Not use project or lands, easements, and rights-of-way required for the project as a wetlands bank or mitigation credit for any other project.



### 7.7 Recommendation

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.

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