DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
CIVIL WORKS
108 ARMY PENTAGON
WASHINGTON DC 20310-0108

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MEMORANDUM FOR THE COMMANDING GENERAL OF THE U.S. ARMY CORPS OF ENGINEERS

SUBJECT: Implementation Guidance for Section 1184 of the Water Resources Development Act of 2016 (WRDA 2016), Consideration of Measures

1. Section 1184 of WRDA 2016 defines natural features and nature-based features and requires the Secretary, with the consent of the non-Federal sponsor, to consider natural features, nature-based features, nonstructural measures, and structural measures, as appropriate, when studying the feasibility of projects for flood risk management, hurricane and storm damage reduction, and ecosystem restoration. In addition, Section 1184 requires the Secretary to submit to the Committee on Environment and Public Works of the Senate and the Committee on Transportation and Infrastructure of the House of Representatives a report on the implementation of subsection (b) no later than February 1, 2020, and 5 and 10 years thereafter. The minimum report contents are outlined in Section 1184 (c)(2). Section 1184 is enclosed.

2. References.

a. ER 1105-2-100, Planning Guidance Notebook (2000).

3. Consistent with Section 1184(a):

a. Natural features are those that are created through the action of physical, geological, biological, and chemical processes over time.

b. Nature-based features are those created by human design, engineering, and construction that work in concert with natural processes or to mimic as closely as possible conditions which would occur in the area absent human changes to the landscape or hydrology in order to achieve study objectives.

4. The Planning Guidance Notebook (Reference 2.a.) provides detail on the formulation and evaluation of alternatives, but does not fully address the formulation and evaluation of natural and nature-based features outside of those already used to meet study objectives. Consistent with Section 1184(b) and existing policy, study teams must consider natural and nature-based features alone and in combination with other nonstructural and structural measures, as appropriate, when formulating and evaluating alternatives to meet study objectives for flood risk management, hurricane and storm

damage reduction, and ecosystem restoration projects. Consistent with established policy, if the non-Federal partner does not support the National Economic plan (NED), the National Ecosystem Restoration (NER) plan, or combined NED/NER plan, a Locally Preferred Plan (LPP) may be requested.

a. Study teams must formulate alternatives in a systems context that includes the interactions between the human, natural, and built environment and explicitly connects the effectiveness of the measures to the study objectives. The function of natural and nature-based features will depend on a variety of physical, chemical, and biological processes that in turn depend on the configuration of the system and interactions among the natural, nature-based, structural, and nonstructural components of the system. The study teams must also consider the geophysical setting, effectiveness, and compatibility of the features and measures, as well as other formulation criteria identified in reference 2.a.

b. Evaluation of natural and nature-based features will be at the same level of detail and consistent with existing policies regarding the evaluation of alternatives. In doing so, study teams will utilize all four accounts (NED, Regional Economic Development (RED), Environmental Quality (EQ), and Other Social Effects (OSE)), as appropriate. For example, in addition to coastal storm damage reduction benefits, salt marshes could provide nursery habitat for fish species, ecosystem diversification, recreation, and water quality regulation benefits. An ecosystem restoration project that restores a wetland may also provide natural floodwater storage.

5. Study teams will account for and present the benefits, costs including Operations, Maintenance, Repair, Rehabilitation, and Replacement (OMRR&R) costs, and impacts relevant to decision-making during the study, even though not all benefits, costs, and impacts align with USACE authorities and missions and the degree to which they can be quantified or monetized may vary. Specific considerations for the evaluation of natural and nature-based features include:

a. Natural and nature-based features must be evaluated for effectiveness, including reliability and performance of those features in meeting the study objectives over time and over an expected range of conditions. Engineering guidance on the reliability and performance of some natural and nature-based features is still emerging, so close coordination with the vertical team and subject matters experts is required in evaluating the effectiveness of features. Potential interactions between the measures comprising the system must be considered as a part of the design in order to avoid incompatibilities while utilizing combinations that reinforce functions and outputs.

b. Natural and nature-based features may be affected by conditions and processes differently than conventional structural measures (e.g., beaches and wetlands compared to levees and concrete seawalls). The long-term OMRR&R requirements of

Repair, Rehabilitation, and Replacement (OMRR&R) requirements of different natural and nature-based features vary. The evaluation of the implementation and OMRR&R costs must account for the natural processes needed to support and sustain natural and nature-based features, including the repair, rehabilitation, and replacement costs after damaging events, and the current understanding of those requirements. More experience exists in estimating OMRR&R costs for some natural and nature-based features than for others; therefore, USACE subject matter experts must be consulted in estimating costs for emerging natural and nature-based features. For natural and nature-based features that may become self-sustaining, the implementation and OMRR&R costs must account for all actions necessary to maintain the system until it is self-sustaining.

c. Uncertainty is inherent in the evaluation of alternatives. A range of environmental conditions within the system, including storm and flood events and drought, may affect natural and nature-based features. The dynamic nature of natural and nature-based features introduces uncertainties that must be considered in the evaluation, design, and operation of systems that include these features. Evaluation will identify areas of uncertainty, and subsequent risks, in the analysis of natural and nature-based features. The risks must be disclosed to decision-makers and the public, so that decisions are informed by the degree of reliability of the estimated benefits, costs, and effectiveness of alternatives. Addressing the uncertainties related to the design and long-term performance of natural and nature-based features could require additional monitoring and potential adaptive management measures to ensure continued functional performance in accordance with reference 2.a.

6. As the districts' study teams prepare the decision document for each coastal and storm risk reduction study, the executive summary must include how (1) natural features, (2) nature-based features, (3) nonstructural measures, and (4) structural measures were formulated, evaluated, and compared with respect to costs, benefits, impacts, and trade-offs. When the Major Subordinate Command transmits the final report to Headquarters, the respective Regional Integration Team will forward an electronic copy of the Executive Summary to the Points of Contact listed in paragraph 9 for archiving and inclusion in the report described in paragraph 7.

7. In addition, Section 1184 (c)(2) specifies, not later than February 1, 2020, 5 and 10 years thereafter, the Secretary must submit to the Committee on Environment and Public Works of the Senate and the Committee on Transportation and Infrastructure of the House of Representatives a report on the implementation of subsection (b).

a. At a minimum, the report to Congress in 2020 will contain the following:

i. A description of guidance or instructions issued, and other measures taken, by the Secretary and the Chief of Engineers to implement Section 1184 subsection (b);

ii. An assessment of the costs, benefits, impacts, and trade-offs associated with measures recommended by the Secretary for coastal risk reduction, and the effectiveness of those measures; and

iii. A description of any statutory, fiscal, or regulatory barriers to the appropriate consideration and use of a full array of measures for coastal risk reduction.

b. In 2019, and 5 and 10 years thereafter, the MSCs will provide a status report on the effectiveness of implemented measures in achieving the study/project objective(s) to each RIT. Planning and Policy Division will consolidate the executive summaries and information on effectiveness into a comprehensive report. The Director of Civil Works will transmit the report to the Assistant Secretary of the Army for Civil Works (ASA(CW)).

8. The Planning Guidance Notebook (ER 1105-2-100) and additional Planning and Engineering guidance will incorporate this implementation guidance, as appropriate, during the next update of those documents or as new guidance is developed. The ASA(CW) may issue further guidance on the formulation and evaluation of natural and nature-based features as scientific research reveals sufficient knowledge regarding effectiveness and efficiency of those features.

9. The points of contact for this implementation guidance are Sean Smith, Principal Hydrologic and Hydraulic Engineer, Engineering and Construction Division, who can be reached at (202) 761-0301 or Sean.L.Smith@usace.army.mil and Maria Wegner, Senior Water Resources Policy Advisor, Planning and Policy Division, who can be reached at 409-766-3061 or Maria.M.Wegner@usace.army.mil.

Encl

Ryan A. Fisher
Acting Assistant Secretary of the Army
(Civil Works)

SUBJECT: Implementation Guidance for Section 1184 of the Water Resources Development Act of 2016 (WRDA 2016), Consideration of Measures

SEC. 1184. CONSIDERATION OF MEASURES.

(a) DEFINITIONS. In this section, the following definitions apply:

(1) NATURAL FEATURE. The term "natural feature" means a feature that is created through the action of physical, geological, biological, and chemical processes over time.

(2) NATURE-BASED FEATURE. The term "nature-based feature" means a feature that is created by human design, engineering, and construction to provide risk reduction in coastal areas by acting in concert with natural processes.

(b) REQUIREMENT. In studying the feasibility of projects for flood risk management, hurricane and storm damage reduction, and ecosystem restoration the Secretary shall, with the consent of the non-Federal sponsor of the feasibility study, consider, as appropriate

(1) natural features;
(2) nature-based features;
(3) nonstructural measures; and
(4) structural measures.

(c) REPORT TO CONGRESS.

(1) IN GENERAL. Not later than February 1, 2020, and 5 and 10 years thereafter, the Secretary shall submit to the Committee on Environment and Public Works of the Senate and the Committee on Transportation and Infrastructure of Representatives a report on the implementation of subsection (b).

(2) CONTENTS. The report under paragraph (1) shall include, at a minimum, the following:

(A) A description of guidance or instructions issued, and other measures taken, by the Secretary and the Chief of Engineers to implement subsection (b).

(B) An assessment of the costs, benefits, impacts, and trade-offs associated with measures recommended by the Secretary for coastal risk reduction and the effectiveness of those measures.

(C) A description of any statutory, fiscal, or regulatory barriers to the appropriate consideration and use of a full array of measures for coastal risk reduction.