DEPARTMENT OF THE ARMY

U.S. ARMY CORPS OF ENGINEERS

COMPLETE STATEMENT OF

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DEPUTY COMMANDING GENERAL FOR

CIVIL AND EMERGENCY OPERATIONS

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ON

SHORELINE AND RIVERBANK RESTORATION AND IMPROVEMENTS

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Chairman Carper, Ranking Member Capito, and distinguished members of the committee. I am honored to testify before you today, and I thank you for the opportunity to discuss the Army Civil Works program and, specifically, the U.S Army Corps of Engineers' (Corps) flood risk management program. Through this program, the Corps helps communities to reduce their flood risks from inland and coastal storms. The Corps approach to flood risk management incorporates natural and nature-based features, and involves sharing responsibility with local cities and communities through partnerships. I will also discuss our progress in combating climate change through research and development, and addressing environmental justice concerns. Most importantly, I look forward to continuing to work with this committee, the Congress, and the Administration to help address the Nation's water resources challenges.

As you are aware, the Corps is involved, where authorized by law, in the planning and constructing of flood risk management projects along our Nation's shorelines, bays, rivers, and tributaries. The existing Corps project at Cape Henlopen to Fenwick Island: Bethany Beach/South Bethany, Delaware, is a good example. This project provides risk management for approximately three miles of shoreline within the project area with sand fill beaches and dunes. The project incorporates natural and nature-based features and was in place during Hurricane Sandy in October 2012, and during the October 2015 and January 2016 Nor'easters. Although damage occurred to the actual project features because of those significant coastal storms, the public and private property located landward of the project received relatively little damage. The Corps and its partners have been able to reconstruct these project features after these events, demonstrating the ability to prepare, absorb, recover, and adapt to the continued threat of coastal storms.

The size and magnitude of Hurricane Sandy devastated major areas of the northeast coast, in part due to a lack of a coordinated systems approach to coastal storm risk management. On October 27-28, 2012, Hurricane Sandy moved alongshore on the southeast U.S. coast, and reached a secondary wind-speed peak of 90 mph with a diameter of over 1,000 nautical miles. Hurricane Sandy turned to the north-northwest and made landfall on the evening of October 29, 2012, as a "post-tropical cyclone" near Atlantic City, New Jersey, causing extensive flooding, beach erosion, and coastal damage along much of the Delaware, New Jersey, and New York coasts.

The North Atlantic Coast Comprehensive Study (North Atlantic Study), which the Corps prepared following Hurricane Sandy, highlighted the long-term challenges from coastal storms in this part of the Nation, within a framework that aims to promote sustainable communities, sustainable ecosystems, and equity. The North Atlantic Study emphasized a need to transition, where possible, from traditional coastal storm risk reduction measures to nonstructural, natural, and nature-based systems. Additionally, given the broad number of objectives of different stakeholders, the report recommended a systems approach that would lead to more comprehensive plans that exhibited a

shared responsibility for risk management. Lastly, with new and increasing problems due to projected sea level and climate change trends, the report concluded that further investment and development in science and engineering is critical to support sound coastal storm risk management (CSRM) solutions.

Following Hurricane Sandy, the Congress enacted the Disaster Relief Appropriations Act of 2013 (Public Law 113-2). The work that the Corps has completed and continues to study and construct using the appropriations provided under this law has contributed to improved coastal storm risk management in the areas of the northeast region of the United States affected by Hurricane Sandy. Currently, the Philadelphia District of the Corps is involved in CSRM projects along more than 100 miles of oceanfront and bay coastline in Delaware and New Jersey. Many of those projects, in combination with other projects in the New York District, combine to produce a 88-mile system that reduces the risk of storm damage for developed oceanfront in New Jersey. This risk management system significantly lowers the risk of property damage, the risk of erosion of wildlife habitat, and the potential loss of life. Only one authorized project, Hereford Inlet to Cape May Inlet (Wildwoods), remains to be constructed to complete this system.

The North Atlantic Study also recommended that the Corps study nine high-risk focus areas within the northeast region. For example, in one of these nine focus areas, the Corps evaluated risk management solutions for the City of Norfolk, which is predicted to be heavily influenced by rising sea levels, making significant damages more likely when combined with storm surge resulting from potential hurricanes or coastal storms. The recommended plan for the Norfolk Coastal Storm Risk Management (Norfolk Coastal) study, which the Water Resources Development Act of 2020 authorized, has now been partially funded for construction through the Infrastructure Investment and Jobs Act, and includes four storm surge barriers, as well as nonstructural features such as flood proofing, building elevations, and buyouts. Additionally, the plan includes construction of oyster reefs and an area of living shoreline, which is intended to reduce future operation and maintenance costs by incorporating these natural and nature-based features.

The Norfolk Coastal Study also included substantial local, state, and federal coordination to ensure that flood risk management was included for the minority community in the Chesterfield Heights area of Norfolk. The City of Norfolk conducted over 40 meetings with the local community, public schools, Norfolk State University, and numerous other stakeholders. The result of this effort was the city's Ohio Creek Project, which will provide risk management for the Chesterfield Heights area. This project includes a berm, flood wall, and oyster reef and living shoreline as well as upgrades to the local stormwater management system along with road raisings and pump station construction. The Ohio Creek Project will be implemented by the City of Norfolk using funding received from a National Disaster Resilience Competition grant provided through the U.S. Department of Housing and Urban Development.

The recently completed Coastal Texas Protection and Restoration Study (Coastal Texas) also utilized a comprehensive approach that builds upon the recommendations of the North Atlantic Study. The proposed $29 billion Coastal Texas plan includes the "Ike Dike", along with a combination of aquatic ecosystem restoration and other CSRM features that function as a system to reduce the risk of coastal storm damages to natural areas and man-made infrastructure. This plan also includes the capability of adapting as urban growth continues and climate change increases (particularly sea level rise).

The Coastal Texas plan will provide risk management for a growing population of approximately 6 million people. The plan includes built-in redundancies and robust lines of both gulf and bay defenses to lower the risk of impacts from a storm surge, and the effects of tides and wave action, in a coastal storm. In addition, the plan is anticipated to improve approximately 6,610 acres of coastal habitat, including significant resources that provide unique services, functions, and values. These ecosystem restoration measures will enhance the resiliency to climate change of the natural and man-made systems and increase the effectiveness of coastal storm risk management features system-wide.

The Corps also is on target to complete the National Shoreline Management Study (National Study) by September 2022. The National Study builds on a series of eight Regional Assessments that explore regional shoreline erosion and accretion characteristics, economic and environmental effects of shoreline change, and shoreline management approaches. The development of the Regional Assessments included extensive public engagement, and through consultation with Tribal Nations, to develop regional recommendations for action to address shoreline erosion, accretion, and their consequences. The National Study report will also provide an overview of the Nation's shorelines, highlights of the Regional Assessments, and recommendations to further national shoreline management approaches to increase coastal resilience to climate change.

Critical to informing a comprehensive, shared-responsibility approach to risk management across the Nation, the report will provide a description of resources committed by Federal, state, and local governments in CSRM. The National Study will also include a description of the extent of, and economic and environmental effects caused by, erosion and accretion along the shores of the U.S., and the causes of such erosion and accretion. Lastly, the report will detail a description of the systematic movement of sand and sediments along the shores of the U.S. with information on the use of a systems approach to sand and sediment management, which could help to provide more efficient approaches.

Under leadership of the current Administration, and in alignment with the authorities provided by this committee, the Corps is moving forward with other Federal agencies to help address the vast water resource challenges posed by global climate change, including water scarcity, sea level rise, and observed increases in severe weather events. The Corps continues to ensure that the latest actionable information and science and engineering principles are incorporated into its new and updated technical guidance. In October 2021, the Corps released its Climate Action Plan, which focuses on the continued modernization of Corps programs and policies that support climate-resilient investments as well as planning for climate change-related risks to missions and operations. The Corps is a co-author of an upcoming interagency report on sea level scenarios. It is being developed to coincide with the fifth National Climate Assessment and will include an update to current sea level change guidance.

To support these efforts, we will also continue to invest in our Research and Development (R&D) program. We are working to further inform our R&D initiatives and strengthen our partnerships with academic institutions to benefit from the enormous capacity of our Nation's scientists. Our investments in R&D have helped us to find solutions for present and future water resources challenges. We also look to R&D solutions to further inform the development of our sustainability strategies including Engineering with Nature (EWN). The Corps' EWN initiative supports sustainable infrastructure systems and embraces the intentional and substantial use of natural systems in providing water resources solutions. The Corps will continue to work to develop actionable research and design parameters on natural and nature-based features to ensure consistent application in future projects.

Under leadership from the Administration, the Corps is working both internally and with other agencies to develop, evaluate, and implement changes to programs and projects to incorporate and enhance resilience to climate change and particularly to help disadvantaged communities reduce their risks, and to adapt, to a changing climate. These efforts are occurring at both a programmatic level and on a project-by-project basis. The Corps will continue to provide meaningful communication and engagement opportunities for these disadvantaged communities, including those located in rural areas, and through consultation with Tribes, to encourage and enable them to participate in relevant studies and to also examine ways to mitigate the impact of climate change in their communities.

We are committed to ensuring that the Corps continues to identify the best ways to manage flood and coastal storm risk, restore aquatic ecosystems, and ensure equity on water resources issues in collaboration with our sponsors and partners. Our goal is to achieve a high economic, environmental, and public safety return for the Nation, which will benefit all Americans.

Mr. Chairman, this concludes my statement. I appreciate the opportunity to testify today and look forward to answering any questions you may have. Thank you.