

Report to Congress for Future Water Resources Development (WRRDA 7001) Submission Package

Proposal Name: Norfolk City-wide Coastal Storm Risk Management Feasibility Study – Construction Authorization Proposal

Submission Date: 08/10/2017

Proposal ID Number: 07fee1da-9e28-42fe-8b6b-50956145b9d7

Purpose of Proposal: Norfolk was identified as one of the nine areas of high risk by the North Atlantic Coast Comprehensive Study (NACCS). This high risk is a result of the both a combination of rising sea levels and land subsidence. Norfolk experiences one of the highest rates of relative sea level rise on the east coast and increasing frequency of storms. Six out of the eleven highest water levels experienced by the City since 1933 have occurred in the last decade. The Army Corps is nearing completion of a city-wide feasibility study – Norfolk Coastal Storm Risk Management Study authorized by Resolution of the Senate Committee on Environmental and Public Works dated July 25, 2015. Since a draft feasibility study and an Environmental Impact Statement will be finalized by October 2017, the City of Norfolk is submitting this WRRDA 7001 authorization request to obtain an authorization for the construction of the city-wide coastal flood protection project to reduce risk to residents, industries, and businesses which are critical to the nation's economy and security. Norfolk is the second largest city in the Commonwealth of Virginia and the commercial, cultural, and educational urban core supporting the highest job density in the 1.7M population Hampton Roads region. Norfolk is a global nexus for security and trade. The city is home to the Naval Station Norfolk, the largest naval complex in the world supporting the operational readiness of the U.S. Atlantic fleet, the third largest port on the East Coast, and NATO's Allied Command. Located at the gateway to the Chesapeake Bay, Norfolk naval assets provide security to the entire East Coast, including Washington DC, Europe, Africa and the Middle East. The NED plan estimates the total costs of constructing all elements of the city-wide project at \$1,890,529,000. The calculated benefit of these projects (BCR) is 2.39. The federal cost (65%) is estimated at \$1,228,843,850, and non-federal costs (35%) projected to be \$661,685,150.

1. Administrative Details

Proposal Name: Norfolk City-wide Coastal Storm Risk Management Feasibility Study – Construction Authorization Proposal

by Agency: The City of Norfolk, Virginia

Locations: VA

Date Submitted: 08/10/2017

Confirmation Number: 07fee1da-9e28-42fe-8b6b-50956145b9d7

Supporting Documents

File Name	Date Uploaded
Norfolk CM Ltr of Support 8 9 2017.pdf	08/10/2017
Preferred Sequencing Map.pdf	08/10/2017
Norfolk CM Ltr of Support 8 9 2017.pdf	08/10/2017
WRRDA-7001-ProjectAreaMap.pdf	08/10/2017

2. Provide the name of the primary sponsor and all non-Federal interests that have contributed or are expected to contribute toward the non-Federal share of the proposed feasibility study or modification.

Sponsor	Letter of Support
<p>The City of Norfolk, Virginia is the non-Federal sponsor for this study. The City fully intends to also be the cost-sharing partner for the construction. (Primary)</p>	<p>The City of Norfolk, Virginia, supports the construction authorization of a city-wide Army Corps project to reduce the risk to the city, its residents, businesses, and military personnel from damage as a result of future coastal storms.</p>

3. State if this proposal is for a feasibility study, a modification to an authorized USACE feasibility study or a modification to an authorized USACE project. If it is a proposal for a modification, provide the authorized water resources development feasibility study or project name.

Feasibility Study

4. Clearly articulate the specific project purpose(s) of the proposed study or modification. Demonstrate that the proposal is related to USACE mission and authorities and specifically address why additional or new authorization is needed.

Norfolk was identified as one of the nine areas of high risk by the North Atlantic Coast Comprehensive Study (NACCS). This high risk is a result of the both a combination of rising sea levels and land subsidence. Norfolk experiences one of the highest rates of relative sea level rise on the east coast and increasing frequency of storms. Six out of the eleven highest water levels experienced by the City since 1933 have occurred in the last decade. The Army Corps is nearing completion of a city-wide feasibility study – Norfolk Coastal Storm Risk Management Study authorized by Resolution of the Senate Committee on Environmental and Public Works dated July 25, 2015. Since a draft feasibility study and an Environmental Impact Statement will be finalized by October 2017, the City of Norfolk is submitting this WRRDA 7001 authorization request to obtain an authorization for the construction of the city-wide coastal flood protection project to reduce risk to residents, industries, and businesses which are critical to the nation’s economy and security. Norfolk is the second largest city in the Commonwealth of Virginia and the commercial, cultural, and educational urban core supporting the highest job density in the 1.7M population Hampton Roads region. Norfolk is a global nexus for security and trade. The city is home to the Naval Station Norfolk, the largest naval complex in the world supporting the operational readiness of the U.S. Atlantic fleet, the third largest port on the East Coast, and NATO’s Allied Command. Located at the gateway to the Chesapeake Bay, Norfolk naval assets provide security to the entire East Coast, including Washington DC, Europe, Africa and the Middle East. The NED plan estimates the total costs of constructing all elements of the city-wide project at \$1,890,529,000. The calculated benefit of these projects (BCR) is 2.39. The federal cost (65%) is estimated at \$1,228,843,850, and non-federal costs (35%) projected to be \$661,685,150.

5. To the extent practicable, provide an estimate of the total cost, and the Federal and non-Federal share of those costs, of the proposed study and, separately, an estimate of the cost of construction or modification.

	Federal	Non-Federal	Total
Study	\$1,500,000	\$1,500,000	\$3,000,000
Construction	\$1,228,843,850	\$661,685,150	\$1,890,529,000

Explanation (if necessary)

The plan includes a combination of structural and nonstructural measures. Following the NACCS model the citywide plan is broken into four areas that allow for separable project elements. The draft cost and benefits ratios of the major structural project measures is outlined below in rank order of BCR. This is the City of Norfolk's preferred sequencing of project implementation.

Ghent-Downtown-Harbor Park Barrier System: BCR 5.47: Estimated Total Cost \$242,747,000 Measure description: Includes a surge barrier, pump stations, tide gates, earthen berm and flood walls. In addition to the benefits captured in BCR, this measure improves access to the region's central commercial and business district including the region's only Tier 1 trauma hospital, the region's children's hospital, the region's only medical school, critical transportation corridors used for evacuation, city hall, city institutional network, and historic districts.

Pretty Lake Upper Surge Barrier: BCR 3.05: Estimated Total Cost \$70,612,000 Measure description: Includes a surge barrier, flood wall, pump station. In addition to the benefits captured in the BCR, this measure improves access to the Little Creek Amphibious Base and improves emergency evacuation routes for the northern section of Norfolk.

Lafayette Outer Surge Barrier: BCR 1.40: Estimated Total Cost \$758,134,000 Measure description: Includes a surge barrier, floodwall, earthen berm, pump station. In addition to the benefits captured in the BCR this measure improves access to Naval Station Norfolk, Norfolk International Terminal, the region's largest university, and a hospital.

For the remaining structural & non-structural citywide measures and the preferred implementation sequencing described above see the attached map.

6. To the extent practicable, describe the anticipated monetary and nonmonetary benefits of the proposal including benefits to the protection of human life and property; improvement to transportation; the national economy; the environment; or the national security interests of the United States.

The citywide project provides annual net benefits of \$90M. Additional benefits include:

- Citizens:** Risk reduction to 247K residents and an additional 100K daily commuters (including active military personnel) into Norfolk.
- Vulnerable Population:** Norfolk has the region's highest concentration of poverty. More than 53% of residents are low-moderate income and 19% live in poverty.
- National Security:** Norfolk hosts major Navy, Army, Marine Corps, and Coast Guard facilities, such as Naval Station Norfolk, the largest military base in the world, with a plant replacement value of over \$4B. Nearly a quarter of the nation's active-duty military personnel are stationed in the region, and 31% of US naval shipbuilding and repair capacity is in the region. Many base personnel commute to Norfolk from different cities; access is critical. Many of these assets and key roadways already experience storm-related flooding.
- Economic Assets:** Port of Virginia, the third largest commercial port on the East Coast, and related employment produce nearly 10% of Virginia's workforce (over 374K jobs, \$17B in wages). Nearly 7% of Virginia's Gross State Product is related to port activity(\$30B). Almost 73% of the goods passing through the port serve areas outside the region, including areas as far as the upper mid-west. The Port saw approximately 81M tons of cargo, valued at \$53B, moved through its facilities in 2013. The port has experienced a 29% increase in imports and 34% in exports since 2008, the strongest overall growth of all east coast ports of call.
- Job Center:** 191K jobs are located in Norfolk, and employees from across the region commute here. On average, jobs pay more than anywhere else in the region (\$50K/yr).
- Critical Infrastructure:** The project will protect key infrastructure assets critical to the region, including the regional medical trauma center, universities, biotechnical and information technology firms, and a multi-modal transportation network connecting the region.

7. Does local support exist? If 'Yes', describe the local support for the proposal.

Yes

Local Support Description

The City of Norfolk supports the construction of the city-wide coastal flood protection project identified by the Norfolk Coastal Storm Risk Management Study. See the attached support letter.

8. Does the primary sponsor named in (2.) above have the financial ability to provide for the required cost share?

Yes

Primary Sponsor Letter of Support

(As uploaded)

Norfolk CM Ltr of Support 8 9 2017.pdf

August 9, 2017

COL Jason E. Kelly
District Commander
US Army Corps of Engineers, Norfolk District
803 Front Street
Norfolk, VA 23510

Dear Colonel Kelly:

The City of Norfolk is willing and able to participate as the non-federal partner with the U.S. Army Corps of Engineers (USACE) in the construction phase of the Recommended Plan identified in the City of Norfolk Coastal Storm Risk Management Study (CSRMS) to reduce the risk of damage from coastal storms to the people, property and assets within the City of Norfolk, Virginia. The City has aggressively pursued multiple partners to target and reduce its future flood risk, and is excited to target the coastal storm risks with USACE.

The City of Norfolk is the non-federal sponsor on the CSRMS study, authorized by Resolution of the Senate Committee on Environment and Public Works dated July 25, 2012. Our city staff has worked closely with the Norfolk District on this study and are anxious to move the project forward as quickly as possible to the construction phase.

Sincerely,



Douglas L. Smith
City Manager

Markowski, Kimberly K.

From: Morris, Christine
Sent: Tuesday, August 08, 2017 5:12 PM
To: Markowski, Kimberly K.
Cc: Benda, Wynter; Oskarsson, Katerina
Subject: 2018 WRDA Letter of Support
Attachments: City of Norfolk Ltr of Support 8 9 2017.docx

Hi Kim,

I made changes to the letter I sent earlier based on feedback from the Norfolk District.

Attached is a letter of support for the City Manager to sign. It is part of an application to the USACE to attempt to get the projects identified in the Coastal Risk Management Study included in the 2018 Water Resource Authorization Act.

We need to submit the application and the attached letter to the USACE by tomorrow. Can you ask the City Manager to sign and return it to me by tomorrow morning?

Thank you for your assistance!

Best,

Christine

Christine Morris
Chief Resilience Officer


City Manager's Office of Resilience
501 Boush Street
Norfolk, Virginia 23510
christine.morris@norfolk.gov
Direct: 757-441-2602 x 233

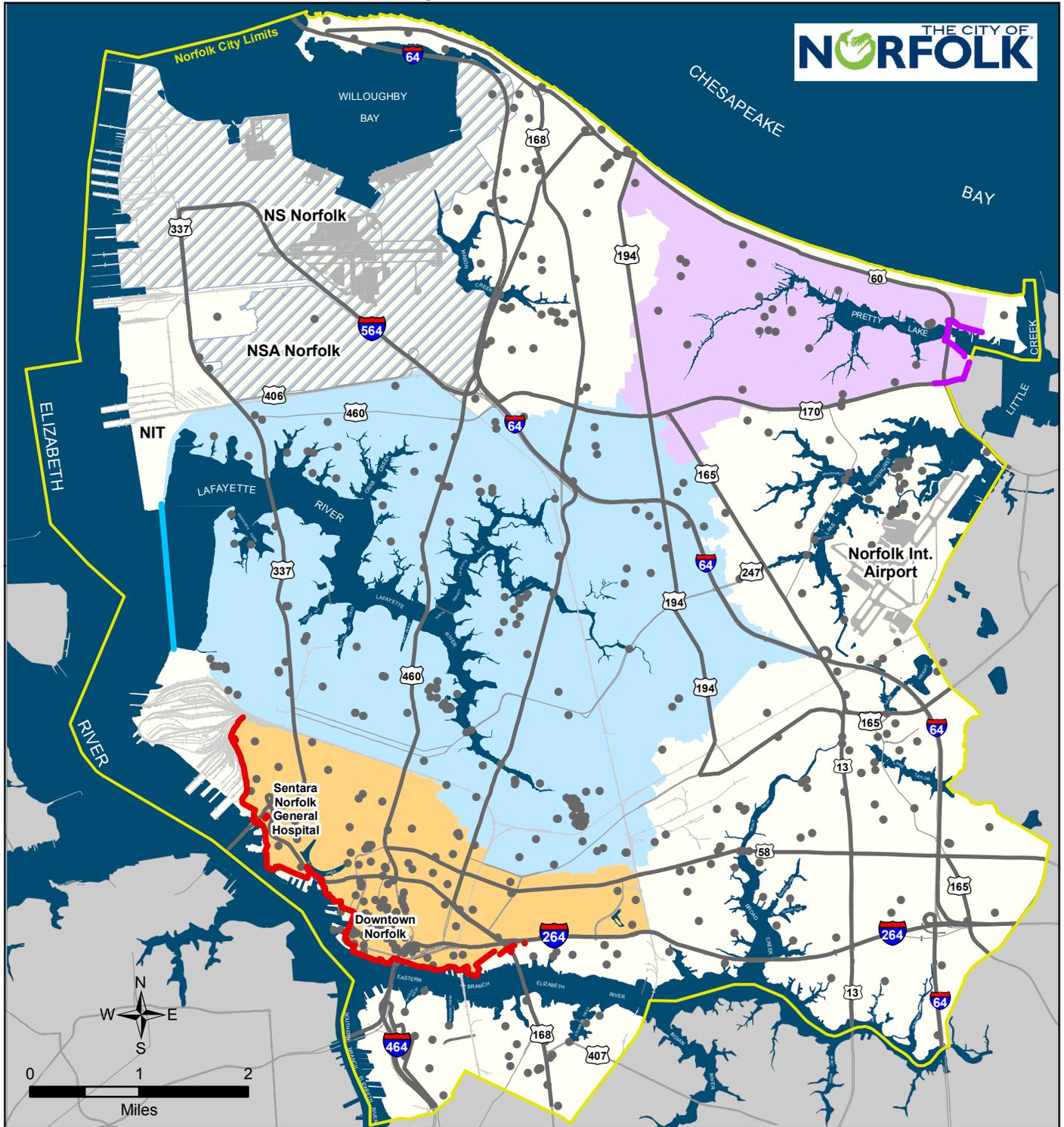


Additional Proposal Information

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Preferred Sequencing Map.pdf

City of Norfolk's Preferred Sequencing of Project Implementation



LEGEND

Structural Flood Protection Measures

- Ghent-Downtown-Harbor Park
- Pretty Lake Surge Barrier
- Lafayette Outer Surge Barrier

Structural Measures Protected Area

- Ghent-Downtown-Harbor Park
- Pretty Lake Surge Barrier
- Lafayette Outer Surge Barrier

Remaining Measures Including Structural & Non-Structural

- Critical Infrastructure
- Evacuation Route
- Navy Base
- Water
- Major Road
- Railroad

Structure Protected Area	Real Estate Value (\$, Billions)	Project Cost (\$, Millions)	BCR
Ghent-Downtown-Harbor Park	9	242.7	5.47
Pretty Lake Surge Barrier	2	70.6	3.05
Lafayette Outer Surge Barrier	10	758.1	1.40
Remaining Areas (including structural & non-structural measures)	10	819.0	1-3
City-wide Total	31	1,890.4	2.39

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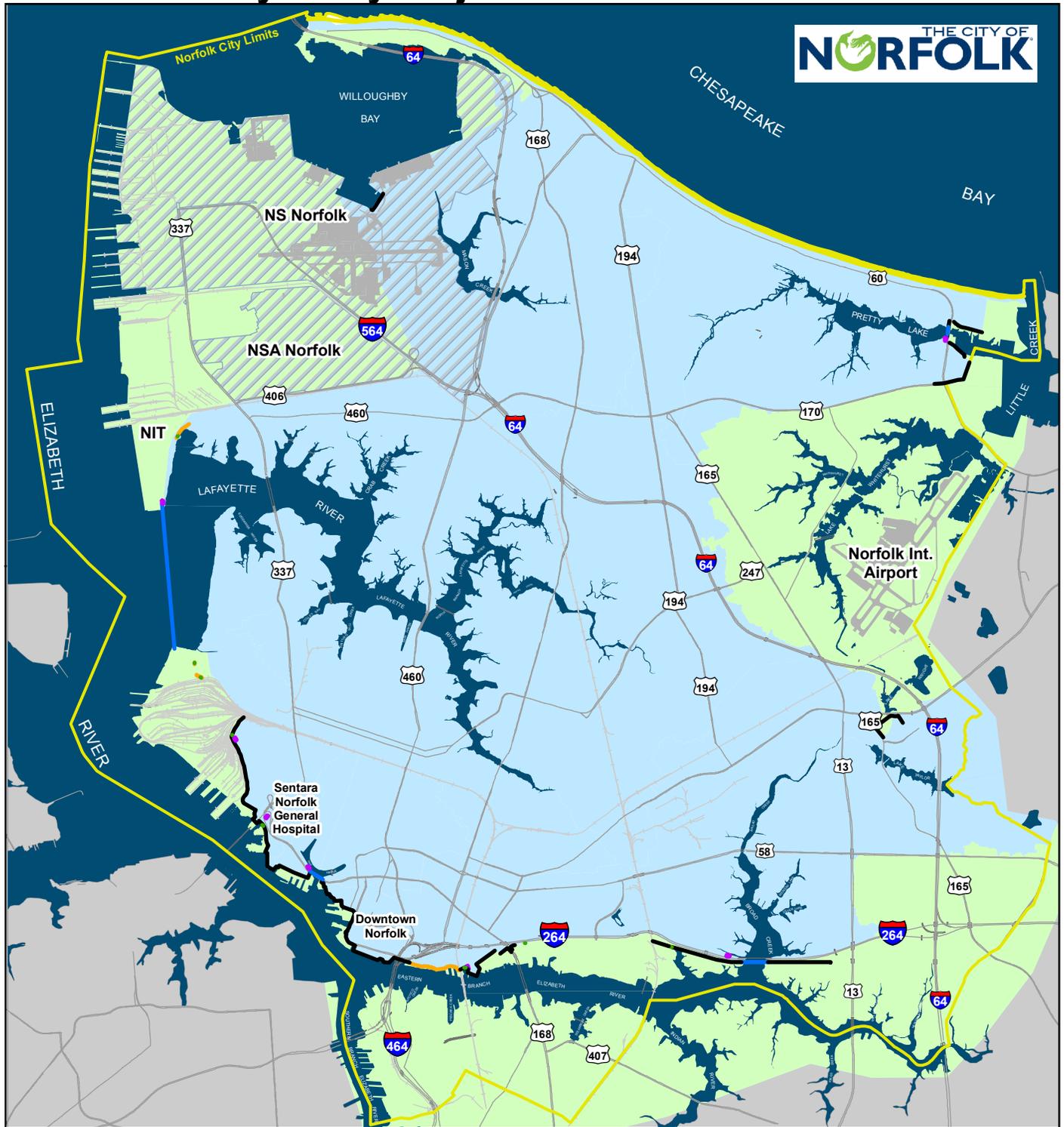


Map Document

(This is as uploaded, a blank page will show if nothing was submitted)

WRRDA_7001_ProjectAreaMap.pdf

Norfolk City-wide Coastal Storm Risk Management Feasibility Study Project Area - NED/TSP Alternative



LEGEND

Structural Flood Protection Measures

- Surge Barrier
- Tide Gate
- Berm
- Floodwall
- Dune Raising
- Generator Building

Measure Types

- Structural
- Non-Structural

- Navy Base
- Water
- Major Road
- Railroad

