Appendix E

Real Estate Plan

September 21, 2018

for the

United States Army Corps of Engineers
Norfolk District
Integrated City of Norfolk Coastal Storm Risk Management Feasibility Study and Environmental Impact Statement
Norfolk, Virginia
# REAL ESTATE PLAN

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## EXHIBITS & ATTACHMENTS

- Exhibit A – Study Area
- Exhibit B – Alternative 2a Structural Only
- Exhibit C – Alternative 3 Nonstructural Only
- Exhibit D – Alternative 4d Structural and Nonstructural Combination
- Exhibit E – RP SMART Feasibility Planning Cost Estimate Summary
- Exhibit F – City Zoning
- Exhibit G – Assessment of NFS Real Estate Acquisition Capability
- Attachment 1 – Flood Wall Diagram
1. Authorization

This study was authorized by Resolution of the Senate Committee on Environment and Public Works dated July 25, 2012. The authorization states:

“Resolves by the Committee on Environment and Public Works of the United States Senate, That the Secretary of the Army is requested to review the report of the Chief of Engineers on beach erosion and hurricane protection for Norfolk, VA, dated April 17, 1984, and other pertinent reports, to include existing flood risk management studies and engineering reports to determine whether any modifications of the recommendations contained therein are advisable in the interest of flood damage reduction in the vicinity of Norfolk, VA.”

2. Purpose

This Real Estate Plan (“REP”) is prepared in accordance with applicable Engineering Regulations and presents preliminary and estimated real estate requirements based on the information and resources available at this time and multiple assumptions, for the Integrated City of Norfolk Coastal Storm Risk Management Feasibility Study and Environmental Impact Statement (“Study” or “Project” or “CSRM”) described below. The non-Federal Sponsor for this study is the City of Norfolk, Virginia (“NFS” or “City”).

The Study states that it is an interim response to the Project authority and will develop and evaluate coastal storm risk management measures for Norfolk residents, industries, and businesses, some of which are critical to the nation’s economy. The Study’s recommended plan (“RP”) is a layered solution that includes elements that would be executed by the NFS, other Federal agencies, Commonwealth of Virginia or one of its agencies, and/or non-governmental organizations in addition to recommendations for implementation by the United States Army Corps of Engineers (“USACE”).

According to the Study: The City is a highly urbanized, relatively topographically flat, community with nearly all areas below 15-foot elevation (North American Datum of 1988). The low elevations and tidal connections to the Elizabeth River and Chesapeake Bay place a significant percentage of the City at risk of flooding from high tides, nor’easters, hurricanes and other storms. Exacerbating the flooding is the phenomenon of relative sea level rise (“RSLR”), which is the combination of water level rise and land subsidence. Norfolk is documented as having one of the highest rates of RSLR among Atlantic coastal communities. Without a plan
to promote resiliency and reduce the risks of coastal storm damage, the area will continue to be at risk from coastal storms.

This REP is an appendix to the Study and describes the lands, easements, rights of way, relocations, and disposal areas (“LERRD”) anticipated, identified or estimated at this time, that appear to be required for construction, operation and maintenance of the proposed Project; including estimated number of parcels, acreage, estates, ownerships, and preliminarily and roughly estimated values and identified assumptions. The REP will also include other relevant information on NFS ownership of land, proposed standard and non-standard estates, existing federal projects and ownership relocations under the Uniform Relocation Assistance and Real Property Acquisition Policies Act (P.L. 91-626, as amended) (the Uniform Act), presence of contaminants, facility/utility relocations, a baseline cost estimate, a schedule for real estate activities, and other issues as required.

THIS REP IS WRITTEN IN SUPPORT OF A RECOMMENDED PLAN AT A 10% LEVEL OF ENGINEERING DESIGN. THE REP SHOULD BE CONSIDERED TENTATIVE AND IS TO BE USED FOR PLANNING PURPOSES ONLY. BOTH THE FINAL REAL ESTATE ACQUISITION LINES AND THE ESTIMATES OF VALUE ARE SUBJECT TO CHANGE EVEN AFTER APPROVAL OF THE REPORT, AND THIS REP MAY BE FURTHER AMENDED ACCORDING TO NEW AND REVISED INFORMATION.

3. Location

The Study area is defined as the City’s jurisdictional boundaries (Exhibit A). The City is located in the Chesapeake Bay watershed, approximately 200 miles southeast of Washington D.C. and approximately 90 miles southeast of Richmond, Virginia. The City is bordered mostly by water, with the Chesapeake Bay to the north, Hampton Roads Harbor to the west, and the Elizabeth River to the south. The cities of Chesapeake and Virginia Beach bound Norfolk to the south and east, respectively. (This information is taken from the Study.)

Pursuant to the information contained in the Study, Naval Station Norfolk (“NSN”), the largest naval station in the world, is located in the northwestern portion of the City, and is within the Study area. However, this is a civil works study, and we are informed that the authority for this study does not allow the Project Delivery Team (“PDT”) to make recommendations specific to NSN. According to the Study, the RP will not exacerbate flooding on NSN, and alternatives cannot include measures to reduce coastal storm risk on Federal property (such as the NSN) without justified benefits for the NFS.

4. Background

(The information is this section is derived from the Study.) The Study investigated potential structural and nonstructural solution sets in terms of coastal storm risk management. Coastal
storm risk management seeks to address coastal storm and flood risk to vulnerable populations, property, ecosystems, and infrastructure along the coast. The Study notes that the City has high levels of risk and vulnerability to coastal storms, which will be exacerbated by a combination of sea level rise and climate change. The Study shows that a variety of solutions have the potential to be economically justified, environmentally acceptable, addressable through engineering solutions, and consistent with USACE polices and the Infrastructure System Rebuilding Principles.

Structural and nonstructural measures, along with natural and nature-based features (“NNBF”), are the building blocks of alternative plans for the Study. The various measures and the associated real estate impacts and costs are further described in this REP. Most of the impacted areas will be on urban land within and at the border of the city, although some, for wetlands restoration, may be in currently natural habitat areas. Urban impacts will be on already disturbed lands with little chance of impacting any natural resources.

Significant data collection and analyses were completed by the USACE, the NFS, and other stakeholders. These studies and additional information are being used to characterize existing conditions and forecast future conditions against which alternatives have been evaluated and compared. A final array of alternatives (see below Table 1) was evaluated to compare the costs and benefits or multiple flood risk management options. The Alternatives 2a, 3, and 4d were analyzed at the water levels associated with a 3% (35-year) annual chance exceedance (“ACE”) of a coastal storm event.

Preliminary real estate costs expected or likely to be associated with the alternatives were compiled by the Realty Specialist Action Officer for the Project. These preliminary estimated costs, based on numerous assumptions and without all required information, were a factor used in the selection of a Tentatively Selected Plan (“TSP”). The process and data analyses, which includes the associated preliminary real estate estimated costs, used in choosing the TSP is included in the Study. The TSP chosen was Alternative 4d. The TSP was then analyzed at the 10% (10 year) and 1.4% (70 year) ACE water levels in order to maximize project annual net benefits. Annual net benefits were maximized at the 1.4% (70 year) ACE water levels and so the plan associated with this water level was determined to be the Recommended Plan (RP).

Based on the selected RP, and as required by USACE Policy, a qualified appraiser has compiled and developed a SMART Feasibility Planning Cost Estimate (“CE”) for a 1.4% (70-year) ACE coastal storm event. This REP only includes the real estate analysis of the RP associated with a 1.4% (70-year) ACE coastal storm event and its CE.
Table 1

<table>
<thead>
<tr>
<th>Final Array of Alternatives</th>
<th>Description</th>
<th>Alternative Map</th>
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</thead>
<tbody>
<tr>
<td>Alternative 1</td>
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<tr>
<td>Alternative 2a</td>
<td>Structural Measures Only in All Reaches with the Outer Lafayette Surge Barrier</td>
<td>Exhibit B</td>
</tr>
<tr>
<td>Alternative 3</td>
<td>Nonstructural Measures Only in All Reaches</td>
<td>Exhibit C</td>
</tr>
<tr>
<td>Alternative 4d</td>
<td>Structural and Nonstructural Measure Combination, Outer Lafayette Surge Barrier, Campostella/Berkley Nonstructural</td>
<td>Exhibit D</td>
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</tbody>
</table>

### 5.0 Project Lands

The general Project purpose as stated in the Study is to reduce the risk of coastal storm damage to the City. All property interests described in this REP are proposed to support that Project purpose. Table 2 shows a summary of all of the impacted properties by reach (locations as identified in the Study) and various LERRD for the RP. More detailed information about the CE for the RP, based on identified assumptions, are shown in Exhibit E, the RP SMART Feasibility Planning Cost Estimate summary. Lands owned by the NFS are included in Table 2 and have been valued appropriately for LERRD crediting. NFS-owned properties can be found in all areas of the Project to include structural and nonstructural measures, construction lay down areas, and some potential NNBF/Mitigation sites.

The measures included or referenced in the RP are comprised of construction options that are either in the water or on land.

**In-Water Measures:**

In-water measures, to potentially include tide gates, storm surge barriers, NNBF, and mitigation sites, may be required to be constructed in several areas of the RP. Dredging is not included in the current design of the RP. However, if dredging component/s are added in a later design phase, disposal sites may need to be identified and acquired by the NFS, and it is possible that such disposal sites may be identified as being located on river bottoms.

 Challenges for in-water measures. In-water measures pose a challenge because the river bottoms in the Commonwealth of Virginia (“COV”) are owned by the COV, and a standard fee estate or other real property estates or interests are not available. The District’s immediate plan to resolve these challenges is:

Work with COV to implement a legislative remedy that will enable the NFS to acquire the appropriate rights and interests on the river bottoms and submerged lands of the
COV to accomplish this (and other) civil works projects that include in-water structures and activities.

In addition to this primary approach, the District has identified and will also pursue several other alternative paths to ensure the local sponsor has the legal capacity to meet its obligations with regard to in-water measures. Some of the alternatives that have been identified are:

1. Request the COV to join as a co-sponsor of the Project, which would then resolve the issue of rights needed in submerged lands for Project purposes because the COV, as a sponsor, owns those rights.

2. Request the COV join, not as a traditional co-sponsor, but as a joint sponsor or third party that joins in a limited role solely for the purpose of providing rights to the river bottoms for the Project (and perhaps may not incur any other type of liability or responsibility for the Project).

3. The NFS may seek and obtain direct authority from the COV to grant a fee estate or comparable estate in perpetuity;

4. Have the NFS enter into an MOA with the COV whereby the COV grants the rights needed for the NFS to construct/place in-water measures and Project components on the river bottoms and submerged lands.

5. The NFS’s assessment of its authority to make submerged lands available for the Recommended Plan will be pursued during State and Agency Review. Because COV does not allow conveyance of any real property interest in river bottoms or submerged lands to other entities, NFS’s assessment of its authority is not strictly a real estate issue; therefore, it is recommended that the Plan/Study identify and describe with more specificity the measures included in the Recommended Plan that will be constructed or placed on submerged lands and how those measures can be protected by the NFS through means/measures other than real property standard or non-standard estates.

6. Potential Use of Navigation Servitude. If the facts, as further developed as this Plan progresses, then the USACE may be able to invoke navigation servitude as authority for in-water Project components. See paragraph 8 below.

7. Virginia Code authority for certain types of Projects. VA Code 28.2-1203 allows for “Construction and maintenance of congressionally approved navigation and flood-control projects undertaken by the United States Army Corps of Engineer.” In the Chief’s report, if the approved plan identifies that one of the purposes of CSRM is “to construct and maintain a congressionally approved navigation and flood-control project,” the USACE and NFS may be able to rely on VA Code 28.2-1203 for authority for in-water Project components.

8. Attorney General Opinion. If the Chief’s Report does not contain specific language that invokes VA Code 28.2, the NFS could seek a legal interpretation from the Attorney General regarding applicability of this VA Code provision as authority for the Project
in-water components. (It is understood, that the term “flood-control project” is no longer used, which could support an AG opinion that this Code provision is intended to apply to CSRM-type projects that serve an ultimate purpose related to sea-level rise and flooding.) For clarification, if the COV determined that VA Code 28.2-1203 applies, then the Commonwealth of Virginia is legally capable and willing to permit construction of the in-water measures, including the permanent ones, included in the RP to be constructed on state-owned submerged lands.

At this time, the primary plan to resolve the challenges of in-water structures is to meet with the COV and request a legislative “fix” that will allow the NFS the required rights on river bottoms and submerged lands when working with the Federal Government on all types of Civil Works projects, including this CSRM Plan. The other items listed are other, alternative potential solutions. All of these potential solutions to challenges have risks. As the design progresses and more facts become available, the team, including counsel, will further explore the challenges and will revise the REP as needed to reflect resolutions.

Up-Land Measures:

Various structural up-land measures may include levees, flood walls, and pump stations. The main structural measure that may have the greatest impact on property owners is the proposed flood wall (“wall”) through the downtown area of the City. The flood wall appears likely to result in the largest impact to parcels and may require property rights and interests which would be acquired through standard estates such as Temporary Work Area Easements (“TWAE”). Flood Protection Levee Easements, Rights of Entry (“ROE”), and up to and including full fee acquisitions, as well as non-standard estates that will require waiver and approval at HQ USACE.

Locations of TWAE and other required property rights and interests are determined during the design phase of the Project. Some required property rights may be temporary to provide needed access during the period of construction. It is not possible at this 10% design stage, and without actual property physical inspections and more complete information, to identify, determine, or value the exact impacts and property rights and interests that will be required.

The current design includes the flood wall being constructed next to privately owned railroad tracks. There are no structures currently shown as part of the current RP design that would require a relocation of the railroad. There are, however, two areas that require a deployable flood wall (e.g. temporary sand bag structure) to be temporarily placed across the railroad tracks only during an actual coastal storm event. The NFS will be required to work with the owner of the railroad tracks to obtain the necessary permission to place the sandbags on the tracks for a temporary and limited time period. At this time, no property rights are anticipated to be required. If the NFS cannot obtain permission to place sandbags across the tracks during an event, then the design will be altered to avoid the railroad. Estimated costs have been added to Table 4 for administrative effort associated with obtaining the permission from the railroad company to place the deployable sandbag-floodwall when needed.

The nonstructural measures include elevating properties, basement fills, flood proofing, and acquisition. If a property must be acquired for the Study, the NFS will need to acquire all needed property rights and interests up to and including fee acquisitions and/or condemnation.
Most of the nonstructural measures will not require the NFS to acquire a real property interest and may only require a right of entry ("ROE"). The administrative costs associated with obtaining such ROE are included in the Federal Review & Assistance Costs.

When acquiring required real property and interests for the Project, the NFS will use the USACE Standard Estates or HQ USCAE-approved non-standard estates. For any nonstandard estates or measures, the appropriate processes will need to be followed in order to acquire approval from HQ USACE.

Standard Estates that may be needed for this Project are identified and set out below. This is a preliminary list because the Project is only at the 10% design phase, and sufficient information is not available to provide more accurate identification of potential property rights, interests and estates that may be required or the value of such property rights, interests and estates.

**Standard Estates:**

**FEE:**

The fee simple title to (the and described in Schedule A) (Tracts Nos. , and ), Subject, however, to existing easements for public roads and highways, public utilities, railroads and pipelines. *(Where an outstanding interest in the subsurface mineral estate is part of a block ownership which is to be excluded from the taking in accordance with paragraph 5-289 (2), the following clause will be added: "excepting and excluding from the taking all interests in the (coal) (oil and gas) which are outstanding in parties other than the surface owners and all appurtenant rights for the exploration, development and removal of said (coal) (oil and gas) so excluded.")*

**TEMPORARY WORK AREA EASEMENT:**

A temporary easement and right of way in, on, over and across (the land described in Schedule A) (Tracts Nos. , , and ), for a period not to exceed , beginning with date possession of the land is granted to the United States, for use by the United States, its representatives, agents, and contractors as a (borrow area) (work area), including the right to (borrow and/or deposit fill, spoil and waste material thereon) (move, store and remove equipment and supplies, and erect and remove temporary structures on the land and to perform any other work necessary and incident to the construction of the Project, together with the right to trim, cut, fell and remove therefrom all trees, underbrush, obstructions, and any other vegetation, structures, or obstacles within the limits of the right of way; reserving, however, to the landowners, their heirs and assigns, all such rights and privileges as may be used without interfering with or abridging the rights and easement hereby acquired; subject,
however, to existing easements for public roads and highways, public utilities, railroads and pipelines.

PERPETUAL FLOOD PROTECTION LEVEE EASEMENT

A perpetual and assignable right and easement in (the land described in Schedule A) (Tracts Nos, ____ , ____ and ____ ) to construct, maintain, repair, operate, patrol and replace a flood protection (levee) (floodwall)(gate closure) (sandbag closure), including all appurtenances thereto; reserving, however, to the owners, their heirs and assigns, all such rights and privileges in the land as may be used without interfering with or abridging the rights and easement hereby acquired; subject, however, to existing easements for public roads and highways, public utilities, railroads and pipelines.

RIGHT OF ENTRY FOR SURVEY AND EXPLORATION:

An assignable easement, in, on, over and across the land described in Exhibit "A" for a period of (____) months beginning with the date possession of the land is granted to the United States, consisting of the right of the United States, its representative, agents, contractors and assigns to enter upon said land to survey, stake out, appraise, make borings; and conduct tests and other exploratory work necessary to the design of a public works project; together with the right to trim, cut, fell, and remove therefrom all trees, underbrush, obstructions, and any other vegetation, structures, or obstacles as required in connection with said work; subject to existing easements for public roads and highways, public utilities, railroads and pipelines; reserving, however, to the landowner(s), their heirs, executors, administrators, successors and assigns, all such right, title, interest and privilege as may be used and enjoyed without interfering with or abridging the rights and easement hereby acquired.

ROAD EASEMENT

A (perpetual [exclusive] [non-exclusive] and assignable) (temporary) easement and right of way in, on, over and across (the land described in Schedule A) (Tracts Nos. ______, ______ and ______) for the location, construction, operation, maintenance, alteration replacement of (a) road(s) and appurtenances thereto; together with the right to trim, cut, fell and remove therefrom all trees, underbrush, obstructions and other vegetation, structures, or obstacles within the limits of the right of way; (reserving, however, to the owners, their heirs and assigns, the right to cross over or under the right of way as access to their adjoining land at the locations indicated in Schedule B); subject, however, to existing easements for public roads and highways, public utilities, railroads and pipelines.
Non-Standard Estates:

If it is determined that a non-standard estate is needed, the District Real Estate Office will seek waiver of standard estates and approval of non-standard estates or measures through the USACE North Atlantic Division (“NAD”) to HQ USACE.

Table 2

<table>
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<tr>
<th>Project Reach</th>
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6.0 Mapping

Please see attached Study maps Exhibits A through D and F for a delineated area of the Study footprint and City zoning.

7. Federal Owned Land

NSN is located in the Study area. However, alternatives cannot include measures to reduce coastal storm risk on Federal property without justified benefits for the NFS. National Oceanic and Atmospheric Administration ("NOAA") is also located within the Study area. Coordination with NOAA will be needed in order to construct various structural measures that may impact NOAA property. Later in the design phase, when the impacted area is confirmed, the impacted property may require a non-standard use permit or Memorandum of Agreement ("MOA") with NOAA for the Project. Close coordination will be conducted during the acquisition phase of the Project to ensure there is no mission disturbance for NOAA.

There are two Federal Projects within the Study area:

1. The Willoughby Spit and Vicinity Norfolk, Virginia Hurricane Sandy Coastal Storm Damage Reduction Project – Construction began in January 2017, and
2. The Flood Protection System, Central Business District, Norfolk, Virginia – The floodwall and storm water pumping station were constructed 15 June 1964 to 30 April 1971.

8. Navigational Servitude

The Commerce Clause of the Constitution confers upon the Government a dominant right to use, control and regulate the navigable waters of the United States for various commerce-related purposes, including navigation and flood control.

It is reportedly (according to Office of Counsel) USACE’s policy to use navigational servitude whenever possible. However, it is generally only exercised for coastal storm damage reduction when measures are related to navigation. According to the Office of Counsel, any declaration of the use of navigational servitude is a “nationally significant issue” and requires vertical consultation and approval at the HQ level. At this stage in the design, it is not anticipated that Navigational Servitude will be exercised for this project, but a final determination will be made during PED.

Public Law 91-646 applies to NFS acquisitions, and the NFS has been advised of P.L. 91-646 requirements, understands the requirements, and will be required to fulfill those requirements. Pursuant to section 21 l (b) of the Act, "No payment or assistance under this title or title III of this Act shall be required to be made to any person or included as a program or Project cost under this section, if such person receives a payment required by Federal, State, or local law which is determined by the head of the Federal agency to have substantially the same purpose and effect as such payment under this section." It is anticipated that state and/or local law will require the NFS to make relocation payments and that such payments by the NFS will have substantially the same purpose and effect as payment under PL 91-646.

The nonstructural measures of elevation, flood-proofing and basement fills will be undertaken solely on a voluntary basis, and voluntary property owners are considered to receive benefits from such voluntary measures, and no relocation benefits are paid for voluntary measures. Thus, it appears that no payment under PL 91-646 will be required under this Act for property owners receiving voluntary benefits under the nonstructural measures of elevation, flood-proofing, or basement fill. However, an exception is if there is a tenant in the property, and the tenant (rather than the property owner) receives the voluntary benefit. In this case, such tenants may receive relocation benefits. For purposes of this study, which is only at a 10% design level, no data was provided that identified which properties have tenants. Therefore, no relocation benefits were assessed for potential renters of property. There is insufficient information provided to Real Estate at this time to determine whether or not individual properties have tenants.

Another exception is when the cost of flood-proofing, elevation or basement fills exceeds the value of the property itself. In this case, an assumption is made that the property owner would be "bought out" rather than incurring the cost of elevation, flood-proofing or basement fills. For these owners whose property has been selected for "buyout," relocation benefits may be required, and estimated costs for relocation are included in the Cost Estimate and the NFS administrative costs. The total estimated amount of NFS Real Estate acquisition administrative costs for the "Buy Out" measure was $13,000. This consists of $8,000 in NFS acquisition administrative costs and $5,000 for relocation costs. There were approximately 66 buy outs estimated in the data.

As stated here, the NFS is aware of the requirements of the Uniform Act (P.L. 91-646), and if relocations are required, the NFS will proceed in accordance with the P.L.91-646 and will receive LERRD crediting as appropriate.

10. Induced Flooding

The intended effects of this Study are not expected to cause flooding in the Project area. Below is the H&H analysis that was completed to support this determination.

"The USACE H&H Analysis for the Norfolk CSRM Study was a review and analysis of the NACCS modeling and of the existing City of Norfolk provided study reports. The NACCS modeling was performed by the
USACE Engineering, Research and Development Center (ERDC) and the City of Norfolk furnished extensive Tidal Protection and Feasibility Reports that were done by the Consultant firm FUGRO. The NACCS produce stillwater elevations for different frequencies, which assisted in the determination of the project alignment. A detailed discussion can be read in the Engineering appendix and H&H sub-appendix on the NACCS modeling effort stillwater level. In reports provided by the City of Norfolk, which are referenced in the H&H sub-appendix, there is extensive Rainfall/Runoff modeling for both existing and "with project" conditions for the project areas. The “with project” conditions are similar to the Norfolk CSRM Study project alignment. In the H&H review of those reports, a simplified HEC-HMS model was created to verify the storm runoff volumes for the existing conditions. For the "with project" condition, pumps were inputted into the HEC-HMS model to evaluate their effectiveness in not flooding the interior. There were conclusions that as a result of the "with project" condition some natural sheet flow drainage would be affected and pump stations and collector systems are required to ensure that the project alignment does not aggravate the problem of interior flooding. In the PED phase, a more thorough interior Drainage Analysis would have to be done, which would include a more accurate size of pump needed to relieve the increased difference between with and without project.

11. Real Estate Baseline Cost Estimates

(The NAO Chief Appraiser who prepared the CE contributed information to this section.)

Table 3 below contains a list of all structural and nonstructural measures, a description of each, the required estate, and relevant information about how the CE was estimated. The baseline cost estimate for real estate (“BCERE”) presented below in Table 4 provides a breakdown of the estimated costs for Project LERRD, NFS administrative costs associated with LERRD acquisition activities, and Federal review and assistance costs. For lands acquired within five (5) years preceding the execution date of the Project Partnership Agreement (“PPA”), the NFS may claim credit for incidental acquisition costs such as title, survey, appraisal, negotiating costs, recording fees and legal fees. Federal review and assistance costs include those costs associated with providing the NFS with LERRD requirements, review of acquisition and crediting appraisals, coordination meetings, review of right-of-way documents, legal support, and crediting activities.

The CE is a feasibility planning evaluation document, and it is NOT an Appraisal Report. A CE is a USPAP Jurisdictional Exception and is exempt from the requirements of USPAP, UASFLA, and 49 C.F.R. Part 24 and is compliant with USACE Appraisal policy. Efforts for early Project formulation for any Project will not include detailed real estate information. The CE was as complete & descriptive as possible, but there is no requirement for owner contact, and the Appraiser may rely on tax records, as detailed inspections are not practical.
The “Larger Parcels/Whole Property” were identified and analyzed if adequate information was available and appropriate. The publicly-owned properties were valued as a stand-alone property, not part of a larger public ownership. No adjustments were made for the fee simple before-and-after conditions in the Nonstructural “Buyouts,” as they were considered as complete, voluntary takes. Based on the minimal level of design, at this time there were no apparent proposed carve-outs that may cause damages to, nor provide “Special Benefits” to the “Remainder” of affected properties.

The subject properties were physically viewed from the public roadside if viable; if not, the provided Project mapping & Google Earth aerial photos were utilized. Title information was not available/provided for this CE evaluation assignment. City Assessor Tax Parcels’ lands identified within the Project footprint were assumed to be the “Larger Parcel” in these proposed fee simple acquisitions, unless if otherwise identified.

A summary of the CE analysis for LERRD acquisition of the RP can be found in the attached Exhibit E. These estimated values were completed by the NAO Chief Appraiser and are based on numerous assumptions which are identified below.

THE VALUES REFLECT THE CE, AND PRE-ACQUISITION APPRAISAL SERVICES TO DETERMINE THE CURRENT ACTUAL MARKET VALUE OF LERRD WILL BE OBTAINED DURING A LATER PHASE OF THE STUDY. ALSO, THE FOLLOWING ASSUMPTIONS APPLY DUE TO THE PRELIMINARY/LOW LEVEL OF PROJECT DESIGN AND DETAILS THAT ARE CRITICAL TO DETERMINING MORE ACCURATE ESTIMATES FOR THE REAL ESTATE PROJECT COSTS.

General Project Assumptions:

- **EA-1 Extraordinary Assumption:** 10% Project Design Maps: Structural Measures dated 3/20/2018 & Staging Laydown Area & access road dated 5/11/18, Nonstructural Measures dated 3/15/2018, are correct & best data available; mapping locations, estates, acreages, ownerships, current 2017 Assessed Values, etc.

- **EA-2 Extraordinary Assumption:** The Project may create "legal non-conforming lots", if the land was buildable prior to the Federal Project, the land/lots will probably be "buildable" after the Structural Measures of the Project construction, but not buildable for the Nonstructural Measures' "Buyout" lands.

- **EA-3 Extraordinary Assumption:** Any estimated values that were less than $100 in the Structural Measures, the values were rounded up to $100 as an administrative minimal value for the action.

- **EA-4 Extraordinary Assumption:** That the proposed Project design will not cause additional and/or atypical flooding damages to the adjacent properties and will be adequately developed and maintained for Project construction use and perpetual year-round Project O&M.
HC-1 Hypothetical Condition: Based on an "As-Clean" condition with no significant hazardous materials/contamination being present due to previous and/or adjacent land uses.

Most Temporary Work Area Easements ("TWAE") are for a 3yr Term. The only 5yr term TWAEs are for the Project Staging (Laydown) Area and Access Road.

USACE Civil Works Cost Share Program Crediting consideration: The Virginia Commonwealth "State Rule" vs. the Federal Rule are similar with no net changes to the valuation of real property, including Damages and Special Benefits, in a Federal Project.

Structural Measures Assumptions:

- The percentage of the parcel impacted is the result of an overlap of the Project design on the parcel acreage multiplied by the Total Land Value. Administrative costs associated with acquiring the land needed for the project have been included in the NFS Administrative Costs in the BCERE.

- Submerged lands within the Project footprint are assumed to be owned by the Commonwealth of Virginia ("COV") and are not included in the CE at this time. Costs should be minimal and at this time are captured within the Incremental Real Estate costs (Contingency Percentages).

- Valuation of the TWAEs includes an annual income stream, and an acknowledgment of a return on the land investment in the Overall Capitalization Rate ($R_0$) theoretically includes a component that provides for the recovery of the wasting portion of the asset during its economic or useful life. Depending on the expectations of investors as to the potential for appreciation, the recapture may be given more or less emphasis. Properties, including lands similar to the subjects, with minimal to none and/or minimal contributory value of the on-site improvements and/or elevated flood risks, typically have Overall Capitalization Rates ($R_0$) that range from 3% to 7%. Considering the level of associated risk; the subject properties' locations; irregular, narrow shapes; potential non-buildable status; transportation infrastructure, including railroads, public and private roads; existing flood/storm water/drainage infrastructure; the available inventory supply and demand; and the length of the TWAE terms (most are 3yr with 2x 5yr terms allowing for Project phasing for the Project Staging Laydown Area and Access Road); the low-end of the range of 3.0%/yr $R_0$ was considered appropriate for the subject TWAE parcels.

- The design of the residential condominiums e.g. flats vs. townhomes, mixed use, included in the Project are unknown, therefore, impact to individual units will become evident in the final design process.

Nonstructural Measures Assumptions:

- In the COV "Special Benefits" can only be offset against Severance Damages to the Remainder, but not against the value of the land taken.
• Construction costs for nonstructural measures are not part of Project LERRD.

• Critical infrastructure has been identified by the NFS as requiring only flood proofing measures. Properties and locations can be found in the Study. Costs associated with acquiring the ROE needed for construction are included in the Federal Review & Assistance Costs.

• Since there are no real property interest acquisitions associated with basement fills, elevations, and flood proofing, only administrative costs were included for those measures. The administrative costs are to provide a ROE and to liaison between the construction contractor and the property owner during construction of the measure. These administrative costs are included in the Federal Review & Assistance Costs in the BCERE.

Table 3

<table>
<thead>
<tr>
<th>Measure Type</th>
<th>Description</th>
<th>Estate Required</th>
<th>REP Real Estate Cost Formulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flood Wall</td>
<td>Used as the main structure throughout the downtown area of the city. A design sketch of the wall can be found on Attachment 1. Average wall height considered for the CE impact is 6 feet.</td>
<td>Temporary Work Area Easement (TWAE) &amp; Perpetual Flood Protection Levee Easement (PFPLE).</td>
<td>PFPLE buffer is 16.5 feet on each side of the wall which includes the 3 foot wall. TWAE buffer applied is 10 feet on either side of the PFPLE. Total Buffer applied = 53 Feet</td>
</tr>
<tr>
<td>Surge Barrier</td>
<td>Sector Gates and Miter Gates were considered for surge barriers.</td>
<td>None</td>
<td>Administrative costs are added to acquire necessary real estate instrument for In-Water Measures per section 5.0 Project Lands of REP. In areas where the surge barrier goes up on land the Flood Wall buffer was applied.</td>
</tr>
<tr>
<td>Pump/Power Station</td>
<td>Structure used to pump interior stormwater and/or house power generation for surge barriers.</td>
<td>TWAE &amp; PFPLE</td>
<td>PFPLE buffer applied was 30 feet.</td>
</tr>
</tbody>
</table>
A standard levee geometry of a 10 foot wide rest covered with 6 inches of aggregate base and 2 feet of riprap on the waterside slope. TWAE & PFPLE. PFPLE buffer is 40 feet on each side of the levee. TWAE buffer applied is 15 feet on either side of the PFPLE. Total Buffer applied = 110 Feet

Sluice gate structure proposed for where drainage paths intersect with the project alignment. TWAE & PFPLE. PFPLE buffer is 16.5 feet on each side of the tide gate. TWAE buffer applied is 10 feet on either side of the PFPLE. Total Buffer applied = 53 Feet

Temporary structure only used during a coastal storm event. PFPLE. PFPLE buffer applied was 5 feet on each side of the deployable wall. Total Buffer applied = 10 feet

<table>
<thead>
<tr>
<th>Measure Type</th>
<th>Description</th>
<th>Estate Required</th>
<th>REP Real Estate Cost Formulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floodproofing</td>
<td>Dry floodproofing consists of waterproofing the structure up to 3 feet above ground level. Right of Entry (ROE)</td>
<td>No property rights associated with this measure. Administrative costs to liaison between the property owner and the construction company for the ROE have been included in the CE. There is no relocation compensation for voluntary measures.</td>
<td></td>
</tr>
<tr>
<td>Basement Fills</td>
<td>Requires the removal of the basement by drilling holes in the floor for floodwater entry and filling the area with a clean run material. Utilities must be relocated to a higher elevation. ROE</td>
<td>No property rights associated with this measure. Administrative costs to liaison between the property owner and the construction company for the ROE have been included in the CE. There is no relocation compensation for voluntary measures.</td>
<td></td>
</tr>
</tbody>
</table>
Elevations | Involves lifting an existing structure to an elevation that is at least equal to or greater than the design flood elevation. | ROE | No property rights associated with this measure. Administrative costs to liaison between the property owner and the construction company for the ROE have been included in the CE. There is no relocation compensation voluntary measures. |

Buyout | If the cost to floodproof, basement fill, or elevate a structure cost more than the value of the structure, then the measure applied was a buyout. | Fee Acquisition | NAO Chief Appraiser applied USACE Appraisal policy and procedures to estimate fair market value of the property. 2017 City Assessment data was used. |

### NNBF/Mitigation Measures:

<table>
<thead>
<tr>
<th>Measure Type</th>
<th>Description</th>
<th>Estate Required</th>
<th>REP Real Estate Cost Formulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reef NNBF and Reef NNBF OSE*</td>
<td>Construction that consists of reef structures. *OSE designates that this project measure was justified based on Other Social Effects.</td>
<td>Fee Acquisition, TWAE, or Road Easement if needed</td>
<td>Administrative costs added to acquire necessary real estate instrument for In-Water Measures per section 5.0 Project Lands of REP. Also, only Fee was estimated where applicable and the NAO Chief Appraiser applied</td>
</tr>
<tr>
<td>Living Shoreline NNBF OSE*</td>
<td>Construction that consists of tidal wetlands with a stone sill (or flanking reef or equivalent material) or stand-alone reef structures.</td>
<td>Fee Acquisition, TWAE, or Road Easement if needed</td>
<td>USACE Appraisal policy and procedures to estimate fair market value of the property. 2017 City Assessment data was used.</td>
</tr>
<tr>
<td>Living Shoreline Mitigation</td>
<td>Construction that consists of tidal wetlands with a stone sill (or flanking reef or equivalent material) or stand-alone reef structures.</td>
<td>Fee Acquisition, TWAE, or Road Easement if needed</td>
<td></td>
</tr>
<tr>
<td>Wetland Mitigation</td>
<td>Construction that consists of tidal wetlands.</td>
<td>Fee Acquisition, TWAE, or Road Easement if needed</td>
<td></td>
</tr>
</tbody>
</table>
### Table 4

Baseline Cost Estimate for Real Estate (BCERE)

<table>
<thead>
<tr>
<th>Estates</th>
<th>Acres</th>
<th>Lands &amp; Damages</th>
<th>NFS Real Estate Admin</th>
<th>Federal Real Estate Admin</th>
<th>Total LERRD Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>TWAE (3 &amp; 5 Year)</td>
<td>40.13</td>
<td>$1,401,370</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perpetual Levee Easement</td>
<td>91.30</td>
<td>$16,764,987</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fee Acquisition</td>
<td>9.62</td>
<td>$9,366,400</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fee Acquisition for Potential NNBF/Mitigation</td>
<td>13.34</td>
<td>$1,238,135</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Utility Relocation Costs (Water, Sewer and Storm Water)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$58,635,000</td>
</tr>
<tr>
<td>NFS LERRD Cost Subtotal</td>
<td>154.39</td>
<td>$28,770,892</td>
<td>$9,184,000</td>
<td></td>
<td>$96,589,892</td>
</tr>
<tr>
<td>30% Contingency</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$28,976,968</td>
</tr>
<tr>
<td><strong>NFS LERRD COST TOTAL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>$125,566,860</strong></td>
</tr>
<tr>
<td>Federal Review &amp; Assistance Cost for Structural &amp; NonStructural</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$10,691,000</td>
</tr>
<tr>
<td>Critical Infrastructure Admin Costs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$90,000</td>
</tr>
<tr>
<td>Federal Review &amp; Assistance Cost for Utility Relocations***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$1,200,000</td>
</tr>
<tr>
<td>Federal Real Estate Admin Subtotal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$11,981,000</td>
</tr>
<tr>
<td>30% Contingency</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$3,594,300</td>
</tr>
<tr>
<td><strong>Federal Review &amp; Assistance Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>$15,575,300</strong></td>
</tr>
<tr>
<td><strong>TOTAL PROJECT REAL ESTATE COSTS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>$141,142,160</strong></td>
</tr>
</tbody>
</table>

*** Refer to Paragraph 14. Public Facility Relocations for cost breakdown
12. Zoning Enactments

The City zoning was considered when estimating the cost values of properties impacted by the Study. The various zoning of residential and business locations of the properties located within the Study area are shown on Exhibit F.

13. Mineral Activity

Based on current design level, no future mineral activities or other subsurface minerals have been identified as involved in this Project.

14. Public Facility Relocations

Public Facility Relocations have two components—the cost to relocate the actual infrastructure itself (construction relocation costs) and the relocation administrative costs for preparing or reviewing real estate documents, including Relocation Agreements, with utilities—all of which are LERRD.

The first component, the construction relocation cost, is prepared by Engineering. These costs are then placed into the REP as a LERRD by Real Estate. At the time of the original REP, no maps showing proposed utility relocations were available, nor were any relocation construction costs developed. Subsequent to the original REP, Engineering did provide relocation construction cost estimates of $58.6 million for several of the utilities—City water, sewer, and stormwater. This estimate of $58.6 million has now been included in the NFS LERRD in Table 4. However, there are no commensurate cost estimates for other utilities including gas, power, telephone, communications, fiber optics, etc.

Estimated relocation administrative costs (not the construction or infrastructure costs of relocation) associated with the relocation of all potential utilities and facilities have been estimated and included in Table 4. These estimated administrative costs for Federal Review and Assistance (including preparation and review of documents and negotiation and development of Relocation Agreements) are very preliminary at this time, as maps are not available showing proposed relocation of utilities so the extent of actual relocation and level of effort is largely unknown at this time. The preliminary and rough estimate includes:

- Cost of developing Relocation Agreements for approximately ten utilities = $20,000 x 10 = $200,000
- Cost to support NFS in obtaining permission from railroads for deployable floodwalls = $25,000
- Cost to prepare and review easements and real estate documents that may be required for proposed relocation of utilities = $5,000 for each impacted parcel; estimated at 20% of the total of 976 parcels, which is approximately 195 parcel. This would be a total of $975,000. Please note that this estimate is not based on actual information such as
maps or locations of utilities, and this estimate could be high—or it could be low.

All costs associated with public facility relocations, during this 10% design phase are considered preliminary and tentative. These estimated administrative costs will be reassessed as the design is refined.

The cost estimate to relocate the remaining utilities and facilities in the RP footprint will be completed when the Study is at the 35% design phase in accordance with Real Estate Policy Guidance Letter (PGL) No. 31. In accordance with that guidance, at the 35% design phase, a real estate assessment will be conducted, and it will address whether identified utilities/facilities are generally of the type eligible for compensation under the substitute facilities doctrine and will also take into account data or evidence that demonstrates that an owner has been identified with a compensable interest in the affected property. The compensability of all utilities that are impacted by the various measures will need to be determined prior to construction. Currently, at this 10% design phase, additional relocation costs could also be covered under “contingency” if the current estimates are low, until further identified in the Preconstruction Engineering and Design (“PED”) phase. Estimated costs to relocate the compensable lines will be determined after the design has been refined to include utility impacts.

THE GOVERNMENT WILL MAKE A FINAL DETERMINATION OF THE RELOCATIONS AND ASSOCIATED COSTS NECESSARY FOR THE CONSTRUCTION, OPERATION, OR MAINTENANCE OF THE PROJECT AFTER FURTHER ANALYSIS, UPDATED DESIGN, AND COMPLETION AND APPROVAL OF FINAL ATTORNEYS’ OPINIONS OF COMPENSABILITY FOR EACH OF THE IMPACTED UTILITIES AND FACILITIES.

15. NEPA, NHPA & HTRW

National Environmental Policy Act (“NEPA”)

A conceptual plan for Natural and Nature Based Features (“NNBF”) and environmental mitigation is included in the Study. According to the Study, potential sites have been identified for various in-water environmental measures that include the use of river bottoms, and such measures will be accessed by water or by adjacent properties (for construction of potential wetland features). Site inspections and final designs, to include identification of upland access routes for NNBF’s and mitigation have not been completed. Since most of the area required will be for in-water features, please refer back to paragraph 5. Project Lands for information regarding property rights for river bottoms. Real Estate has also been informed that the current design does not include the disturbance of any oyster grounds.

There are some areas of the current design which, even though they are in the water, require the acquisition of minimal property interests. Mapping and data was provided for this preliminary design in order to do an appraisal cost estimate for these property interests. Administrative costs have also been estimated and will be included in the NFS LERRD.
Standard Estates used, if needed, will be Fee Acquisition, Road Easement, and Temporary Work Area Easement.

Up-land mitigation is planned on parcels where structural impacts occur. (Note: According to the Study, any mitigation required because of impacts from a structural feature will be accomplished or constructed on the affected parcel; thus, it is not expected that these mitigation features will require any additional property interests that are not already included in the structural feature itself.)

National Historic Preservation Act (“NHPA”)

A preliminary historical site-impact analysis was conducted by a USACE Archeologist. The analysis consists of costs associated with the survey and mitigation of the architecture and archaeology of the various properties. It was determined that the Project, as it is currently designed, does not include any structural measures that would have a physical impact on parcels which contain property that is eligible for or listed in the National Register of Historic Places (“NRHP”). However, some measures of the Study are located in NRHP listed historic districts, and there may be visual or viewscape effects.

Additionally, some buildings designated and protected as “historic” are included in the nonstructural measures category. If a property owner voluntarily chooses to alter his/her property through a Project nonstructural measure, then the property may lose its historic designation. Therefore, these properties were included within the CE.

Hazardous, Toxic and Radioactive Waste (“HTRW”)

There is one area currently identified as a landfill which could have potential hazardous waste impacts. However, at the current design level, the actual impact is unknown. Therefore, an “As-Clean” hypothetical condition was assumed (which means that an assumption is made that there are no significant hazardous materials or contamination present due to previous and or adjacent land uses).

16. Non-Federal Sponsors Capabilities

An assessment of the NFS’s legal and professional capability and experience to acquire and provide the LERRD is in the format prescribed in ER 405-1-12, Appendix 12-E, and attached as Exhibit G. Based on the information provided by the NFS, the USACE Norfolk District’s overall assessment at this preliminary stage, is that the NFS is anticipated to be “fully capable” of acquiring all potentially required property rights and interests (this does not include any potential in-water structures that have the challenges identified herein).

17. Project Schedule

The proposed Project is currently in the feasibility stage. It is anticipated that phases will be determined preliminarily and are expected to be revised as the design progresses. The
acquisition of all property rights and interests, including fee and acquisition through negotiation and condemnation, will be accomplished over several years, with the acquisition of all of the real estate interests required for each respective phase completed in advance of contracting for construction of that phase. The NFS will officially initiate real estate acquisition activities after final execution of the Project Partnership Agreement ("PPA"). The following estimated acquisition schedule indicates the length of time required for each step in the standard acquisition process.

### Real Estate Acquisition Schedule

<table>
<thead>
<tr>
<th>Project Partnership Agreement for Construction</th>
<th>Start Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maps to Sponsor</td>
<td>Within 2 weeks of start date</td>
</tr>
<tr>
<td>Plat and Owner Verification</td>
<td>Within 6 months of sponsor map receipt</td>
</tr>
<tr>
<td>Appraisal of Property</td>
<td>Within 6 months of plats</td>
</tr>
<tr>
<td>Review Value Estimates</td>
<td>Within 6 months of Estimate receipt</td>
</tr>
<tr>
<td>Negotiations</td>
<td>Within 4 months after Value Estimate</td>
</tr>
<tr>
<td>Closings</td>
<td>Within 2 months of Negotiations</td>
</tr>
<tr>
<td>Possession</td>
<td>Within 1 day of closing</td>
</tr>
<tr>
<td>Certification of Chief of Real Estate</td>
<td>Within 2 weeks of possession</td>
</tr>
<tr>
<td>Process</td>
<td>Total for 2 Years 1 Month</td>
</tr>
</tbody>
</table>

**Condemnation/Eminent Domain** | Within 1 year of failure of negotiations

18. **Public Support or Opposition**

There have been three public meetings since May of 2016. The last meeting was conducted on November 16, 2017, and was attended by approximately 56 people and generated approximately 11 comments. At this point in the feasibility study, there has been no significant opposition from the public.

19. **Recommendation**

It is recommended that this Real Estate Plan, that includes preliminary estimates of impacts, potential required property rights and interests, and a CE based on identified limitations, factors, and assumptions as identified to the extent practicable at this time, be accepted for the purposes herein.
This report was prepared in accordance with Corps of Engineers Regulation 405-1-12, Chapter 12.
Exhibit A

City of Norfolk Study Area
Alternative 2A Structural-Only

Structural Measures
- Berm
- Floodwall
- Pump Station
- Sand Bag
- Surge Barrier
- Tide Gate

Features
- City of Norfolk Boundary

Exhibit B

*Area not included in study
Alternative 3  Nonstructural Only

Management Measures

- Nonstructural

Features

- City of Norfolk Boundary

0 0.75 1.5 3 Miles

*Area not included in study
NOTE: The Mitigation and NNBF OSE Measures 10% Design level did not yet include identification of perpetual vehicle access Road Easements for construction and O&M and construction TWAEs were not included in this 10% Project Design Feasibility Planning CE of real property interests and estimated costs.

NSCPRM Project is for coastal storm damage risk management measures for Norfolk, Virginia residents, industries, and businesses subject to flood risk, beach erosion, and hurricane protection.


EA-2 Extraordinary Assumption: 10% Project Design Maps: The actual Project is for coastal storm damage risk management measures for Norfolk, Virginia residents, industries, and businesses subject to flood risk, beach erosion, and hurricane protection.

EA-3 Extraordinary Assumption: All Mitigation and NNBF OSE Measures are to be "water only", i.e. in water, submerged lands, assumed to be owned by the adjoining upland owners vs. COV/VMRC.  The Virginia Commonwealth “State Rule” vs. the Federal Rule are similar with no net changes to the valuation of real property, including Damages and Special Benefits, in a Federal Project.
Incremental Real Estate Costs (aka RE Contingencies) based on associated levels of known and unknown real estate related risks identified below:

1. Sufficiency/RE Planning Mapping: Minimal 10% level Project Design Feasibility Planning level, mapping, & property detail, elevating uncertainties & elevated risk of unknowns. Project info lacked descriptions of all Parcels’ ownership; acres; estates; Assessed values; improvements; mapping of utilities & facilities; road ROW; rail infrastructure.

2. RE Interests Supporting Project Construction: Fee, Perpetual Flood Protection Levee & Road Easements; 3 yr or 5yr TWAE Events. Possible: Perpetual Flooding (Permanent Flooding, Occasional, & Portions subject to Permanent Foundation and/or Occasional Flooding) Everts; Perpetual Restrictive Everts; &/or Non-Standard Easements.

3. Potential Compensable Damages/Uncompensable Remnants: There are potentially UncompensableRemnants & Damages to Remainers, but due to minimal 10% Project Design level, unable to identify specifics, in the USACE compliant Feasibility Planning Cost Estimate, i.e. not an Appraisal, USPAP Jurisdictional Exception.

4. Hidden/Unforeseen Property Aspects: Lacked: Project info; title; mineral; timber; water rights info; possible land use restrictions incl Historic Districts & Historic Properties; possible deferred or tax-exempt RE taxes; owner contact; environmental assessments. Unk previous property use contamination.

5. Negotiation Latitude Beyond the Estimated Market Value + Incremental RE Costs aka Contingencies/Potential Condemnation Awards: 115%

6. 3rd Party Rights, Unknown Ownerships, Other Agencies: Some unknown ownerships; Unknown mineral and/or water rights; Unknown issues; Utilities; Facilities, Railroad; Road ROW & Flood/Drainage infrastructure locations & owners unknown. Questions local Tribal interests & public recreation & oyster & fishing access.

7. Potential Relocation: UA, P.L., P.L.; Probable Utilities; Flood/Drainage infrastructure; Railroad; Facilities relocations; Probable Leases relocations; Probable Residential, Business, & Non-Profit relocations. Possible Farm (aquaculture) relocations in Project footprint.

8. Known & Unknown Utility Impacts: Utilities; Flood/Drainage infrastructure disruption & relocation apparent. Unknown associated compensable costs of relocation, beyond scope of assignment at this low level of Project Design.


10. "As stated" comparable properties and recently with similar flooding influences are the strongest weighted market sale indicators supporting market value.

11. Prospective Value Estimate as a Separate Request for Feasibility Planning Cost Estimate: No prospective values requested. Prospective value estimates are beyond the scope of this assignment.

Before - Real Property Interests Value: # Parcels 1,102 115,178.27 AC $6,111,489,800

Compensable (Severance) Damages Attributable to the Project:

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Damages to the Remainder able to be identified at this 10% level of Project Design</td>
<td>+ $0</td>
</tr>
</tbody>
</table>

Special Benefits:

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Special Benefits to the Remainder able to be identified at this 10% level of Project Design</td>
<td>+ $0</td>
</tr>
</tbody>
</table>

After - Value of the Remainder: $6,084,120,278

Difference of Before - After Values: $27,369,522

5 yr Temporary Work Area Construction Easements in Structural Measures Only: 3.57 AC + $613,623 Value of the Damages + Difference + TWAEs (not rounded) $28,770,892 Incremental RE Costs (aka Contingencies): 35% + $10,069,812 Estimated Total Real Estate Project Costs: $38,840,704 Rounded To: $40,000,000 as of 9/21/18
This is a USACE compliant "SMART Feasibility Planning Cost Estimate" (CE), a feasibility planning evaluation document, but it is NOT an Appraisal Report. A CE is a USPAP Juridical Exception and is exempt from the requirements of USPAP, UASFLA, and 49 C.F.R. Part 24, but is compliant with USACE Appraisal policy.

This CE was prepared to a level of detail that the situation warranted. The process, consideration, and analysis of all available data at a 10% Project Design level, was applied using the Appraiser's logical reasoning and judgement to develop the value conclusions and real estate risk assessment.

Efforts for early Project formulation for any Project will not include detailed real estate information. The CE was as complete & descriptive as possible, but there is no requirement for owner contact, and the Appraiser may rely on tax records, as detailed inspections are not practicable.

The extent of any contamination is not known at this stage / level of design. Per policy, it is prudent to estimate or conclude values without impacts, as long as clear disclosure is made. See Hypothetical Condition HC-1: CE is based on an "As-Clean" condition.

A CE can be utilized in initial cost projections for one or more alternatives presented in the Project Management Plan (PMP). A CE is allowed to be used when the value of Real Estate Cost (lands, improvements, & compensable damages) does not exceed 10% of total Project Costs.

This CE is for internal decision making purposes & documentation support of the Federal Project Feasibility Planning Phase & not viable for any other uses. The Client is USACE & this restricted report is not to be distributed to anyone other than the Client.

Because a CE is not an Appraisal, value conclusions from a CE are not intended to be utilized in appraisal decision, Project authorization, or funding documents.

If a CE is used in decision or funding documents, the Project Managers, Realty Specialists, or other decision makers doing so need to confirm in writing that they understand the increased risks associated with using a CE in this manner, per USACE Appraisal policy.

Market data basis was compiled from the NFP/3/City of Norfolk, Virginia's Office of the Real Estate Assessor's most current tax records for 2017 & various Project site inspections before and after 5/15/18 - by Karen R. Peterson - CENAO-RE-APC-EVPC Appraiser.

To perform my mass appraisal methodology due diligence for this CE, I did an independent Sales Ratio analysis of sales within the Project's footprint of 73 sales in the Structural Measures' subject properties.

The last one published May 2017, reported 2016 Norfolk had a Median Ratio Sales Price to Assessed Value of 98.05% with a Coefficient of Dispersion of less than 10% at 7.43%. This study uses standard statistical measures, such as the Coefficient of Dispersion and a regression index, to examine the level of uniformity in the assessment of real property and within jurisdictions in Virginia. This supports meeting the codified law of assessing real property at 100% of fair market value. 98.05% is very close to the 100% goal, and with a Coefficient of Dispersion of less than 10%, statistically is a very tight grouping and indicates a high level of accuracy on the assessed values to fair market value.

For that same code, the Virginia Department of Taxation conducts an annual real property Assessment/Sales Ratio Study covering every City and County in the Commonwealth.

The last one published May 2017, reported 2016 Norfolk had a Median Ratio Sales Price to Assessed Value of 98.05% with a Coefficient of Dispersion of less than 10% at 7.43%. This study uses standard statistical measures, such as the Coefficient of Dispersion and a regression index, to examine the level of uniformity in the assessment of real property and within jurisdictions in Virginia. This supports meeting the codified law of assessing real property at 100% of fair market value. 98.05% is very close to the 100% goal, and with a Coefficient of Dispersion of less than 10%, statistically is a very tight grouping and indicates a high level of accuracy on the assessed values to fair market value.

Depending on the expectations of investors as to the potential for appreciation, the recapture may be given more or less emphasis. Properties, including lands similar to the subjects, with minimal to none and/or minimal contributory value of the on-site improvements and/or elevated flood risks, typically have Overall Capitalization Rates (R) that range from 3% to 7%. Considering the level of flood risk, the subject properties' locations; irregular; narrow shapes; potential non-buildable status; transportation infrastructure, including railroads, public and private roads, existing flood/ water/drainage infrastructure; the available inventory supply and demand; and the level of the TWA/CE terms (most are 3yr with 2x 5yr terms allowing for Project phasing for the Project Staging Land Use and Access Roadway); the low-end of the range of 3.0%/yr R was considered appropriate for the subject TWA/CE parcels.

NOTE: An "uneconomic remnant" is a parcel of real property in which the owner is left with an interest after the partial acquisition of the owner's property that has little or no value or utility for the owner. For example, the Remnant that has negligible economic utility or value due to its size, shape or other characteristics. If the acquisition of only a portion of a property would leave the owner with an unremnant remnant, the head of the Federal Agency shall offer to acquire that remnant. 42 USC § 4651(9).

NOTE: The 9/19/2018 Mitigation and NNBF OSE Measures 10% Design level did not yet include identification of perpetual vehicle access Road Easements for construction and O&M and construction TWA/CEs were not included in this 10% Project Design Feasibility Planning CE of real property interests and estimated costs.

Minimal 10% level Project Design Feasibility Planning mapping & property detail, elevates uncertainties & elevated risk of unknowns. Project info lacked descriptions of all Parcel's ownership; acreages; estates; Assessed values; improvements; mapping of utilities & facilities, road ROW, rail infrastructure.

Due to the resulting associated business risk elevation due to low levels of Project Design and lacking size and locations of Project required real property interests, utilities, and facilities, the Incremental Real Estate Costs was estimated to be 35%.

Based on the low level of Project Design at 10%, there did not appear to be any damages caused via Unconscionable Remnants to the Remainder.

The Project does not appear to provide Special Benefits to the Remainder.

The Project's purpose impact on: ownership/Larger Parcel, estates, locations, and to sites on the covers' footprints with consideration to the real property uses and minimizing the damages, was the basis of this Feasibility Phase SMART Feasibility Planning Cost Estimate.
Exhibit G

ASSESSMENT OF NON-FEDERAL SPONSOR'S
REAL ESTATE ACQUISITION CAPABILITY

Project: Norfolk Coastal Storm Risk Management Feasibility Study, Norfolk, Virginia
Non-Federal Sponsor: City of Norfolk, Virginia

I. Legal Authority:

a. Does the sponsor have legal authority to acquire and hold title to real property for project purposes?

Answer: For upland portions (above mean low water mark), the City may acquire title by either purchase or condemnation. For submerged lands (below mean low water mark), City may acquire fee simple title or other sufficient interest (i.e. leasehold or easement interest) from the Commonwealth.

b. Does the sponsor have the power of eminent domain for this project?

Answer: Yes, for upland portions not owned by the Commonwealth or the United States (above mean low water). No, for submerged lands (below mean low water).

c. Does the sponsor have "quick-take" authority for this project?

Answer: No.

d. Are any of the lands/interests in land required for the project located outside the sponsor's political boundary?

Answer: No.

e. Are any of the lands/interests in land required for the project owned by an entity whose property the sponsor cannot condemn?

Answer: Yes. As explained in answer to "b.", above, Norfolk cannot condemn any land of the Commonwealth (including any of the Commonwealth's submerged land) nor any land of the United States. Any interests or rights in submerged lands that belong to the Commonwealth or the United States the City would acquire by purchase or by some other means, such as a grant or special legislation.
II. Human Resource Requirements:

a. Will the sponsor's in-house staff require training to become familiar with the real estate requirements of Federal projects including P.L. 91-646, as amended?

Answer: Yes.

b. If the answer to II.a is "yes", has a reasonable plan been developed to provide such training?

Answer: Yes, Norfolk will hire personnel appropriately trained or with sufficient expertise.

c. Does the sponsor's in-house staff have sufficient real estate acquisition experience to meet its responsibilities for the project?

Answer: Yes. Norfolk has legal, surveying, and other staff who have handled other project, albeit on a smaller scale, but can increase capacity over time or else secure outside assistance from competent professionals to address any land acquisition issues.

d. Is the sponsor's projected in-house staffing level sufficient considering its other work load, if any, and the project schedule?

Answer: The exact amount of in-house work that is needed is uncertain at this time but, as it becomes more certain, the City could provide additional in-house staffing.

e. Can the sponsor obtain contractor support, if required, in a timely fashion?

Answer: The exact amount of in-house work that is needed is uncertain at this time but, in the event that in-house staff is not sufficient or cannot be increased to be sufficient, the City can secure external support from contractors on a schedule that would minimize delays.

f. Will the sponsor likely request USACE assistance in acquiring real estate?

Answer: No.
III. Other Project Variables:

a. Will the sponsor's staff be located within reasonable proximity to the project site?
   Answer: Yes.

b. Has the sponsor approved the project/real estate schedule/milestones?
   Answer: Yes.

IV. Overall Assessment:

a. Has the sponsor performed satisfactorily on other USACE projects?
   Answer: Yes.

b. With regard to this project, the sponsor is anticipated to be fully capable.
   Answer: Yes.

V. Coordination:

a. Has this assessment been coordinated with the sponsor?
   Answer: Yes.

b. Does the sponsor concur with this assessment?
   Answer: Yes.

Prepared by:

Beth Babineau
Chief, Acquisition, Management & Disposal

Approved by:

Donna Carrier-Tal
Chief, Real Estate Division

Exhibit D - Assessment of NFS Capability
Norfolk Coastal Risk Management Feasibility Study

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May 2018