Draft Integrated Feasibility Report and Tier 1 Environmental Impact Statement

NEW YORK-NEW JERSEY HARBOR AND TRIBUTARIES COASTAL STORM RISK MANAGEMENT FEASIBILITY STUDY

APPENDIX G
TIER 1 AGENCY AND PUBLIC COORDINATION

September 2022

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LIST OF ACRONYMS

CFR Code of Regulations
CSRM Coastal Storm Risk Management
EIS Environmental Impact Statement
IFR/EIS Integrated Feasibility Report/Environmental Impact Statement
NACCS North Atlantic Coast Comprehensive Study
NEPA National Environmental Policy Act
NGO Non-Government Organization
NJDEP New Jersey Department of Environmental Protection
NYCORR New York City Mayor's Office of Recovery and Resiliency
NYNJHATS New York-New Jersey Harbor and Tributaries Study
NYSDEC New York State Department of Environmental Conservation
TSP Tentatively Selected Plan
USFWS United States Fish and Wildlife Service

1 STUDY BACKGROUND

In 2012 Hurricane Sandy caused considerable loss of life, extensive damage to development, and massive disruption to the North Atlantic Coast. The effects of this storm were particularly severe because of its tremendous size and the timing of its landfall during high tide. Twenty-six states were impacted by Hurricane Sandy, and disaster declarations were issued in 13 states. New York and New Jersey were the most severely impacted states, with the greatest damage and most fatalities in the New York Metropolitan Area. For example, a storm surge of 12.65 feet and 9.4 feet above normal high tide was reported at Kings Point on the western end of Long Island Sound and the Battery at the southern tip of Manhattan, respectively. Flood depths due to the storm tide were as much as nine feet in Manhattan, Staten Island, and other low-lying areas within the New York Metropolitan Area. The storm exposed vulnerabilities associated with inadequate coastal storm risk management measures and lack of defense to critical transportation and energy infrastructure. Devastation in the wake of Hurricane Sandy revealed a need to address the vulnerability of populations, infrastructure, and resources at risk throughout the entire North Atlantic coastal region. At this time, Hurricane Sandy was the second most costly hurricane in the nation's history and the largest storm of its kind to hit the U.S. east coast.

Under the direction of Public Law 113-2, the Corps completed the North Atlantic Coast Comprehensive Study (NACCS) in January 2015, which identified nine high-risk focus areas of the North Atlantic Coast that warranted additional analyses by Corps to address coastal flood risk. One of the focus areas identified was the New York-New Jersey Harbor and Tributaries study area. The study area covers more than 2,150 square miles and comprises parts of Bergen, Essex, Hudson, Middlesex, Monmouth, Morris, Passaic, Somerset, and Union counties in New Jersey; and Rensselaer, Albany, Bronx, Columbia, Dutchess, Greene, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Ulster, and Westchester counties in New York. The study area includes all tidally affected waters and extends upstream of the Hudson River to the federal Troy Lock and Dam in Troy, New York, the Passaic River upstream to the Dundee Dam, and the Hackensack River to the Oradell Reservoir.

The U.S. Army Corps of Engineers (USACE), New York District (District), has prepared a Draft Integrated Feasibility Report (FR) and Tier 1 Environmental Impact Statement (EIS), to document the tentatively selected plan (TSP), alternatives formulated for consideration, environmental effects and conceptual mitigation measures necessary to avoid, minimize and mitigate impacts from the TSP.

2 AGENCY COORDINATION AND COLLABORATION

2.1 BACKGROUND

Coordination with stakeholders has been a critical component of the New York-New Jersey Harbor and Tributaries Study (NYNJHATS). There are five Cooperating Agencies for this study and one Participating Agency, listed in Section 4.0 of this Appendix.

Since early 2017 the USACE has held many workshops and meetings with Cooperating Agencies and other stakeholders to share information on the study scope, purpose, and formulation of alternatives, as well as to exchange ideas and information on natural and marine resources within the Study Area.

USACE announced the preparation of an Integrated FR/Tier 1 EIS for the NYNJHATS Feasibility Study in the February 13, 2018 Federal Register pursuant to the requirements of Section 102(2)(C) of NEPA. Tiering, which is defined in 40 CFR 1508.28, is a means of making the environmental review process more efficient by allowing parties to "eliminate repetitive discussions of the same issues and to focus on the actual issues suitable for decision at each level of environmental review". The NEPA scoping period initially spanned 45 days from July 6 – August 20, 2018, but was extended to 120 days due to numerous requests from the public. USACE held a total of nine public scoping meetings during the public scoping period. Subsequent to the publication of the February 13, 2018 NOI, the Study was granted an exemption from the requirement to complete the feasibility study within 3 years, as required in Section 1001(a) of the Water Resources Reform and Development Act of 2014. This exemption was granted on October 31, 2018, and allowed for an additional 15 months to complete the Draft Integrated Feasibility Report and Tier 1 EIS. Therefore, in order to align the revised study schedule with the Council on Environmental Quality's National Environmental Policy Act Implementing Regulations (40 CFR Parts 1500-1508), a Notice to Withdraw the original NOI was published in the February 13, 2019 Federal Register.

To further provide the public with Study information prior to the Draft Report, an Interim Report was released on February 19, 2019 that identified the preliminary economic, environmental, engineering and other studies performed to date of the above referenced alternatives (USACE, 2019). Eight public meetings related to the Interim Report were also held. USACE published a second NOI in the January 13, 2020 Federal Register.

In 2019, four New York Bight Ecological Model (NYBEM) workshops were held on January 3rd, March 11th, June 6th, and November 14th. These meetings informed development of the NYBEM model, which was set up to be used as a tool for assessing direct and indirect effects of agency actions on regional ecosystems, including NYNJHATS.

In February 2020, NYNJHATS paused until October 2021 due to a lack of Federal funding. A second Notice to Withdraw was published in the Federal Register on June 1, 2020.

Following Study resumption, the New York District held several Cooperating Agency meetings in order to facilitate open communication, share Study progress, status updates, and data as it became available, including an Engineering presentation on the Study Alternatives, a presentation on the NYBEM development since the workshops were held in 2019, and a presentation on the TSP. These meetings took place on February 17th, June 9th, August 3rd, August 11th. Additionally, the New York District provided e-mail Study status updates on January 31st, May 6th, July 14th, August 8th, and August 26th between Agency coordination meetings. As

part of the continuing coordination for the Study, the New York District offered shapefiles of the NYNJHATS Alternative alignments to all Cooperating and Participating Agencies in preparation for future consultation and coordination. Cooperating/Participating Agencies were asked to provide data, input, and comments or recommendations on the Alternatives and analysis, in advance of the comments that would be provided as part of an official review of the Draft Integrated FR/Tier 1 EIS. The United States Fish and Wildlife Service and the National Park Service provided written comments during the scoping period, and the National Oceanic and Atmospheric Administration/National Marine Fisheries Service provided written comments on the Interim Report and Study schedule. Copies of these letters are provided in Attachment 3.

In March of 2022 the New York District initiated consultation with the New Jersey State Historic Preservation Office (NJSHPO), the New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP), Federal and State Recognized Tribes, Historical Groups, and Stakeholders in the Study Area under Section 106 of the National Historic Preservation Act and NEPA and notified the SHPOs, Tribes and the Advisory Councill on Historic Preservation (ACHP) of its intent to develop a Programmatic Agreement for the Project to address the potential for adverse effects from the Project. A webinar was held on May 23, 2022 with several stakeholders and interested parties, including the National Park Service, to introduce the study and solicit comments. Copies of the letters are provided in Attachment 3.

The 3rd Notice of Intent was published in the Federal Register on 22 August 2022. All notice of intent dates and withdrawals are presented on Table 1 and the Study Schedule is presented on Table 2.

Table 1 – Notice of Intent Dates

Notice of Intent	**Date**
1st	13 February 2018
Withdrawn	13 February 2019
2nd	13 January 2020
Withdrawn	1 June 2020
3rd	22 August 2022

Table 2 – Study Schedule

Action	**Date**
Tentatively Selected Plan Milestone	26 July 2022
Release Draft Integrated Feasibility Report and Tier 1 EIS	23 September 2022
Public Meetings for Draft Report	October – December 2022
Agency Decision Milestone	January 2023
Release Final Integrated Feasibility Report and Tier 1 EIS	January 2024
Chief of Engineer's Report Approval	June 2024

2.2 NYBEM MODELING WORKSHOPS

The U.S. Army Corps of Engineers (USACE) is conducting three large-scale coastal storm risk management feasibility studies in the New York Bight ecosystem, specifically: the New York-New Jersey Harbor & Tributaries Study, the New Jersey Back Bays, and the Nassau County Back Bays. In these study areas, the USACE is considering a diversity of measures for mitigating flood risks, including structural actions (e.g., levees, floodwalls, storm surge barriers), non-structural measures (e.g., buy-outs, elevation of structures, flood-proofing), and natural and nature-based features (e.g., wetland creation, reefs for breakwaters). Environmental outcomes and acceptability are important constraints on plan selection, and the studies are applying a "tiered" approach to compliance with the National Environmental Policy Act. The New York Bight Ecological Model (NYBEM) is being developed as a tool for partially assessing the direct and indirect effects of agency actions on regional ecosystems. The NYBEM assesses changes in habitat quantity and quality associated with changing hydrodynamic conditions in six major ecosystem types: freshwater tidal, estuarine intertidal, estuarine subtidal, marine intertidal, marine subtidal, and marine deepwater. The numerical code for NYBEM was programmed in the R Statistical Software Language, and the model code is contained within an R-package (nybem), which is available via github.

The NYBEM Appendix A11 includes a list of all the attendees and the scope and outcomes of each meeting. More information on the Modeling Workshops can be found within the larger NYBEM Report at the following link: https://mvr-gis.github.io/NYBEM-Report/.

2.3 AGENCY COMMENTS

2.3.1 USFWS Comment Letters Received

On November 5, 2018, the USFWS (herein "Service") provided a scoping comment letter highlighting a number of key considerations within the NYNJHATS Study Area pertaining to the watersheds, threatened and endangered species, marine mammals and sea turtles, migratory birds, fish and essential fish habitat, shellfish, and wetlands (see Attachment 5). A few of those comments are provided below:

- Any additional losses of wetlands associated with some of the Study alternatives would be of great concern and should be avoided to the maximum extent practicable. Should the proposed Project involve an adverse effect to the aquatic environment, the goals of NEPA would not be fulfilled (i.e., to protect and enhance the quality of the human environment). The filling of an undetermined amount of wetlands and waters of the U.S. is not supported by several Congressional initiatives aimed at the protection and restoration of wetlands and floodplains (EO 11988 for Floodplains and EO 11990 for Wetlands) and the NJ Wildlife Action Plan.

- To offset the continuing cumulative effects of declining wetland acreage in the Study Area, the Service recommends that the Corps (1) minimize impacts to the aquatic environment by seeking Study alternatives that avoid the filling of wetlands or open waters, and (2) for wetland impact areas that are deemed unavoidable, develop a viable mitigation plan to offset adverse impacts to the aquatic environment, such that there is no net loss of wetland habitat.

- The Service is concerned about the expansive nature and focus on the use of hard structure alternatives unless they are accompanied by significant ecological offsets for the Study Area. However, we do support the Corps working closely with the affected

stakeholders to pursue alternatives that improve fish and wildlife species and their habitats, such as nature-based strategies or hybrid structural and nature-based alternatives. The use of nature-based alternatives has considerable ecological and community benefits that appear just as practicable economically and environmentally as a seawall or other hard structure that offers minimum ecological benefit. In developing such as strategy the Corps should determine if contaminant free dredged material is available and can be utilized for sediment enrichment projects such as marsh and island creation and for coastal resilience in targeted areas.

On September 19, 2022, the Service provided a comment letter on the NOI published on August 22, 2022. The comment letter is in review and has been attached.

2.3.2 NOAA Comment Letters Received

On November 26, 2018, NOAA provided a scoping comment letter highlighting a number of key considerations within the NYNJHATS Study Area (see Attachment 5). A few of those comments are provided below:

- The placement of storm surge barriers across inlets in the project area will restrict ingress and egress of summer flounder and other species whose life cycles include both estuarine and marine habitats. Benthic migration through an inlet could be further impeded by the bottom structure of a storm surge barrier.

- The placement of a storm surge barrier across an inlet would result in the permanent loss of habitat for winter flounder and other species associated with the footprint of the structure, as well as a reduction in access to any spawning areas landward of the inlet.

- Some of the alternatives being considered in the feasibility study may impede the movements of diadromous species between important freshwater habitats and the Atlantic Ocean in a number of ways, including altering hydrologic conditions such as velocity and flow patterns, as well as changing water quality.

- Some of the alternatives being considered in the feasibility study may result in the direct loss of wetlands habitats through fill placement for the construction of levees, floodwalls, and barriers. Less direct impacts to these important habitats may result from alternations in the hydrologic regime, changes in tidal amplitude and flow, as well as alterations to water quality. These changes may result in impaired wetland functions.

- The placement of storm surge barriers across inlets in the project area could impede spawning migrations of adult horseshoe crabs.

On May 19, 2022, NOAA submitted a comment letter regarding the Study schedule and consultation process for the ESA and MSA. NOAA expressed concern that based on the information presented during the cooperating agency meetings, and the level of detail seen in other Tier 1 NEPA documents developed for similar studies, NOAA does not anticipate that adequate information will be available to make the determination that the consultation package is complete. NOAA provided a list of information needed in order to make that determination.

2.3.3 NPS Comments Received

On June 25, 2019, NPS provided a comment letter for the Interim Report highlighting a number of key considerations within the NYNJHATS Study Area (see Attachment 5). A few of those comments are provided below:

- The NYNJHAT Interim Report identifies that elements of the coastal storm risk management plan within the boundaries of or impacting the resources of GATE must be mutually acceptable to the Department of Interior and the Department of the Army. A mutually acceptable plan must meet USACE project objectives, minimize impacts to NPS cultural, natural and recreational resources, and mitigate for all unavoidable impacts to NPS resources. Several alternatives identified in the interim report would have significant, persistent and/or irreversible impacts to GATE cultural, natural and recreational resources. The NYNJHAT EIS will need to include sufficient information upon which the NPS can make a written determination that the actions authorized by the NPS will not lead to an impairment of park resources and values.

- A surge gate/barrier system at Jamaica Bay would directly and indirectly impact resources of the Jamaica Bay Unit. Some of these impacts could potentially harm the integrity of park resources and values. GATE has previously submitted extensive comments regarding potential impacts and alternative alignments for the Jamaica Bay surge gate/barrier.

- Though buried today, this Floyd Bennet Field contains the potential to have remaining features related to the prehistoric and historic occupations of the area. This area may still contain enough integrity to remain a contributing element to the Jamaica Bay's National Register Eligibility.

- Extensive construction in Manhattan’s Battery Park and Jersey City’s Liberty State Park, including any changes in upland elevations that impact gangway connections to the ferries or access to the service bridge, will likely affect visitor and emergency access to the Statue of Liberty and Ellis Island - impacting the basic functions of the park and potentially limiting visitation at great cost. Strategies to address visitor, service and emergency access may be required.

- The walls of Castle Clinton in Battery Park are thought to be unstable. Extensive ground disturbance in the vicinity of Castle Clinton may further destabilize the walls to the point of failure.

- Specific impacts to NPS Resources are difficult to assess at this point in time of the NYNJHATS due to many unknowns associated with storm surge barriers, including size of the structures, number of gates, operation and maintenance plan, construction material, construction timeframe, staging area locations, etc.

- Constructing a barrier across Raritan Bay or Jamaica Bay will most likely have impacts by disrupting the migration and local movements of aquatic species; altering the tidal and flushing regime in the estuary, which could change the aquatic community in the estuary and river; degrading the water quality in the river and estuary by blocking the draining of the river during a storm event; disrupting sediment transport from the river through the estuary to the ocean, which could have cascading effects the estuary/river flora and fauna; disrupting recreational boating moving from the river through the inlet to the ocean; and by forever altering the scenic viewshed of Raritan Bay and Jamaica Bay.

3 PUBLIC COORDINATION

3.1 SCOPING PROCESS

In order to help scope the study, the study team elicited public input during the NEPA Scoping Period. During this period, the District and its partners, the New York State Department of Environmental Conservation (NYSDEC), with its partner, the New York City Mayor's Office of Recovery and Resiliency (NYCORR), and the New Jersey Department of Environmental Protection (NJDEP) as the non-federal sponsors, initiated an investigation into the feasibility of coastal storm risk management (CSRM) in the study area with the intent of recommending a plan that will contribute to community and environmental resilience.

3.1.1 NEPA and the Scoping Process

Scoping is the process used to identify issues, concerns, and opportunities for enhancement or mitigation associated with the proposed action. The purpose of the scoping process is to:

- Invite the participation of local, county, state, and federal resource agencies, Indian Tribes, non-government organizations (NGOs), and the public to identify significant environmental and socioeconomic issues related to the study

- Determine the depth of analysis and significance of issues to be addressed in the Integrated Feasibility Report/EIS

- Identify how the proposed alternatives would or would not contribute to cumulative effects in the study area

- Identification of any local, county, state, and federal resource plans and future project proposals in the study area, implementation schedules, as well as any data that would help to describe past and present actions, and effects of the project and other development activities, on environmental and socioeconomic resources

- Gather information, quantitative data, or professional opinions that may help define the scope of the analysis related to both site-specific and cumulative effects, and that may help identify significant environmental issues

- Solicit, from local, county, state and federal agencies, as well as the public, available information on the resources within the study area

- Identify any information sources that might be available to characterize the existing environmental conditions, and analyze and evaluate impacts.

3.1.2 Description of the Scoping Period

The NEPA scoping period for the NYNJHATS originally spanned 45 days from July 6th - August 20, 2018, but, due to numerous requests from the public, was extended by 77 days for total of 122 days scoping period. The extended period was open until November 5, 2018. During the NEPA scoping public comment period, comments were submitted to a project email address, mailed by hard copy, or provided in person at one or more of the Scoping Meetings that were held during the scoping period. Scoping information received after this date continued to be compiled and considered as the study progressed, and are included in this draft report and as part of the administrative record.

Originally, there were five NEPA scoping meetings scheduled for this study. Pursuant to the request of congressional representatives, USACE held four additional meetings. Meeting locations were chosen to be easily accessible by transit, able to accommodate large groups, and dispersed throughout the large study area, such that interested stakeholders could reasonably travel to at least one meeting. The dates, locations, and numbers of participants for each meeting are listed in Table 3. There were a total of nine meetings in six locations that reached 705 participants, though some participants stayed for both meetings where there were two sessions in one day and some participants came to subsequent meetings throughout the region. Information was provided to the public through a combination of PowerPoint presentations, poster sessions, and a structured question and answer session at the meetings. A poster session, hosted by the study team, was held at the conclusion of the formal presentation.

3.1.3 List Of Scoping Meetings

Table 1 - Scoping Meetings

Date	Location	Number of Participants
July 9, 2018, 3 PM	Lower Manhattan, New York County	139
July 9, 2018, 6 PM	Lower Manhattan, New York County	115
July 10, 2018, 3 PM	Newark, Essex County	19
July 10, 2018, 6 PM	Newark, Essex County	8
July 11, 2018	Poughkeepsie, Dutchess County	158
September 20, 2018	Coney Island, King County	78
October 3, 2018, 3 PM	White Plains, Westchester County	74
October 3, 2018, 6 PM	White Plains, Westchester County	51
October 23, 2018	Nassau County	63
Nine meetings total	**Six locations**	**705 meeting participants total**

3.1.4 Total Number of Comments Received

During the comment period USACE received 4,250 submissions of comments. Fourteen different form letters were received, totaling 3,295 of the submittals. A total of 234 comment cards were submitted from attendees at the NEPA scoping meetings. Of the 234 comment submissions, 30 submissions came from municipalities (Table 5), 14 of which generated resolutions expressing positions on the study from a municipal or community board perspective (Table 6). Additionally, 21 submissions were received from 26 elected officials (Table 6). The remaining 668 submissions were received by email, mail, and fax from organizations and individual citizens. From the 4,250 submissions, 393 unique comments were identified by the USACE study team (see Attachment 1 for these unique comments and their responses).

Table 2 - Municipalities from which comments were received

Town of Ossining - Village of Ossining, NY	Tarrytown Environmental Council, NY
City of Beacon, NY	Town of Poughkeepsie, NY

County of Ulster Environmental Management Council, NY	Village of Piermont, NY
Town of Stony Point, NY	Hudson River Drinking Water Intermunicipal Council
City of Yonkers - Office of the Mayor, NY	Village of Roslyn, NY
Village of Rhinebeck, NY	Village of Sea Cliff, NY
Village of Hastings-on-Hudson, NY	Putnam County Legislature, NY
NYC Councilman Costa Constantinides - 22nd District, Queens	Town of Oyster Bay, NY
Village of Sands Point, NY	Village of Flower Hill, NY
Westchester County Executive, NY	Village of Dobbs Ferry, NY
Members of the Ulster County Legislature, NY	Town of Greenwich, CT
Town of North Hempstead, NY	Town of Cortland, NY
Village of Croton-on-Hudson, NY	Community Board #1 - Manhattan, NY
Village of Irvington, NY	Common Council of Kingston, NY
Village of Roslyn Harbor, NY	Community Board 13 - Brooklyn, NY

Table 3 - Municipalities Generating Resolutions

City of Beacon	Town of Ossining
Village of Croton on Hudson	Village of Ossining
Town of Cortlandt	Village of Piermont
Village of Hastings-on-Hudson	Town of Poughkeepsie
Village of Irvington	Putnam County Legislature
City of Kingston	Village of Rhinebeck
City of New York, Community Board 1	Town of Stony Point

Table 4 - Elected Officials Who Submitted Comments

Affiliation	Name	Representing
US House of Representatives	Joe Courtney	Connecticut
	Jim Himes	Connecticut
	Nita M. Lowey	17th District, New York
	Sean Patrick Maloney	18th District, New York
	Rosa DeLauro	Connecticut
US Senate	Richard Blumenthal	Connecticut
	Christopher S. Murphy	Connecticut
The Senate of the State of New York	David Carlucci	38th District
	Shelley B. Mayer	37th District
	Terrence P. Murphy	40th District
	Sue Serino	41st District
	Elaine Phillips	7th District
The Assembly of the State of New York	Didi Barnett	106th District
	William A. Colton	47th District
	Sandy Galef	95th District
	Deborah Glick	66th District
	Ellen C. Jaffe	97th District
	Yuh-Line Niou	65th District
	Steven Otis	91st District
	Kenneth P. Zebrowski	96th District

Dutchess County	Joel Tyner	Dutchess County Legislator, 11th District
Westchester County	George Latimer	Westchester County Executive
NYC Council	Costa Constantinides Mark Treyger	NYC Council Member, 22nd District NYC Council Member, 47th District
Community Board	Joann Weiss	Community Board 13
Yonkers	Mike Spano	Mayor of Yonkers

3.2 LIST OF OTHER MEETINGS ATTENDED BY USACE STAFF

Table 5 - Other Meetings Attended

Communication Engagement	**Location**	**Date**	**Corps Team Involved**
Coordination meeting with 4 Japanese Professors involved with Coastal Risk and Resilience Efforts	6th Floor, 26 Federal Plaza, New York, NY	8 April 2019	NAN (various) and NAD (Stern)
Hudson River Ops Committee Briefing	Staatsburg, NY	27 Nov 2018	B. Wisemiller
Queens Community Board # 11	Bayside, Queens, NY	4 March 2019	B. Wisemiller
Briefing for Regional Planning Association	Manhattan, NY	20 March 2019	B. Wisemiller
Presentation and Attendance of Scoping Session for NOAA Modeling Grant P. Orton and B. Brooks	Yonkers, NY	25 March 2019	B. Wisemiller & P. Weppler
Presentation and Coordination with New York City Agencies	Manhattan, NY	2 April 2019	NAN (various) & consultants
Briefing with NYC Councilmen Treyger, Deutsch, and Congressman Jeffries	250 Broadway, Manhattan, NY	6 May 2019	NAN Commander & staff
Briefing to Rockland County Environmental Commission	New City, NY	22 May 2019	B. Wisemiller & P. Weppler
Briefing to Congressman Jeffries and staff on Harbor Inspection in Jamaica Bay	Jamaica Bay, New York City, NY	23 August 2019	NAN Commander, J. Seebode, P. Tumminello, B. Wisemiller and other NAN staff
Briefing to Surge Gate Modeling Workshop at Hudson River Foundation	New York, NY	13 September 2019	B. Wisemiller, P. Weppler, and Dr. Kyle McKay
Public Meeting on Interim Report and Induced Flooding	Great Neck, NY	24 October 2019	Various NAN staff and non-federal partners
Briefing to Harbor Operations Steering Committee	Ft. Wadsworth, Staten Island, NY	6 November 2019	B. Wisemiller and other PDT members & consultants
Ecological Model Development Workshop	Manhattan, NY	14 November 2019	Dr. McKay and various NAP and NAN PDT members and non-federal partners
Briefing to Harbor Operations Full Committee	Ft. Wadsworth, Staten Island, NY	20 November 2019	B. Wisemiller and other PDT members & consultants
Public Meeting on HATS on Interim Report	Coney Island, NY	21 November 2019	Various NAN PDT members and non-federal partners

Briefing Navigation Working Group on Surge Gates	Ft. Wadsworth, Staten Island, NY	12 December 2019	B. Wisemiller, Dr. Nugent and consultants
HATS presentation to HH&C COP	Webinar	17 December 2019	B. Wisemiller and A. Heer of NAN
Attend Surge Gate Modeling Workshop	Center for the Urban Environment in Beczak, Yonkers, NY	28 January 2020	B. Wisemiller, P. Weppler, K. McKay
HATS Briefing to Maritime Association Board	Maher Terminal, Newark, NJ	29 January 2020	T. Hodson
HATS Briefing to Manhattan CB1	virtual	14 February 2022	B. Wisemiller and O. Cackler
HATS Briefing to Brooklyn CB13	Virtual	6 April 2022	B. Wisemiller and O. Cackler

4 CONSULTATION WITH NATIVE AMERICAN TRIBES

Consultation with Native American Tribes on the NYNJHAT Study was initiated in March of 2022 through email correspondence as an invitation to government-to-government consultation. An interagency and stakeholder's webinar was held on May 23, 2022 by the USACE to present the details of the project and to discuss its potential for impacts to cultural resources. The Delaware Nation has indicated that they wish to be a consulting party. The Stockbridge Munsee commented during the webinar that due to the potential for NA archaeological sites in the study area they request to be a signatory on the Programmatic Agreement.

5 STAKEHOLDER LIST

Coordination with stakeholders has been a critical component of the Study and the development of a regional vision for managing coastal storm risk. Table 3 and Table 4 document the meetings, workshops, and charrettes that have taken place since the commencement of the study in July 2016. Stakeholders, as presented below, include but are not limited to, citizens, elected municipal officials, federal agencies, state agencies, non-profit environmental organizations, local and regional planning commissions, and commercial and recreational interests.

Partner/Sponsor:
The non-federal sponsors are the New Jersey Department of Environmental Protection (NJDEP) and New York State Department of Environmental Conservation (NYSDEC), in partnership with the New York City Office of Recovery and Resiliency (NYCORR). A Feasibility Cost Sharing Agreement (FCSA) was executed on 15 July 2016.

Cooperating Agencies:
- The U.S. Environmental Protection Agency (EPA)
- US Fish and Wildlife Service (USFWS)
- U.S. Coast Guard (USCG)
- National Ocean and Atmospheric Administration (NOAA)/National Marine Fisheries Service (NMFS)
- National Park Service (NPS)

Participating Agencies:
- Federal Emergency Management Agency (FEMA)

Federal Agencies (in addition to Cooperating and Participating Agencies)
- FEMA Sandy Regional Infrastructure Resilience Coordination Group
- Natural Resources Conservation Service
- USDOT
- USHUD
- U.S. Geological Survey

State Agencies
- NJ Office of Emergency Management
- NJ State Historic Preservation Office
- NJ Department of Environmental Protection
- NY Division of Homeland Security and Emergency Services
- NY Governor's Office of Storm Recovery
- NY Office of Emergency Management
- NY Office of Parks, Recreation, and Historic Preservation
- NY State Historic Preservation Office
- NYSDEC
- Port Authority of New York and New Jersey

Local Agencies & Offices
- Bergen, Passaic, Morris, Essex, Hudson, Union, Somerset, Middlesex, and Monmouth Counties in New Jersey; and Rensselaer, Albany, Columbia, Greene, Dutchess, Ulster, Putnam, Orange, Westchester, Rockland, and Nassau Counties in New York
- City of New York

- NYC Department of Environmental Protection
- NYC Parks Department
- NYC Department of City Planning
- NYC Department of Transportation
- NYC Department of Housing Preservation and Development
- NYC Economic Development Corporation
- NYC Housing Authority

Elected Officials

- U.S. Congress
- State of New Jersey
- State of New York
- Counties, cities, towns, villages, and other municipalities
- New York City Council

Stakeholders

- Local citizens
- Nongovernmental organizations (environmental groups, recreation groups, non-profit organizations)
- Community groups/Community Boards
- Environmental justice groups
- Flood risk planning interests
- Navigation interests
- Academic institutions, including the City University of New York, Monmouth University, New Jersey Institute of Technology, Rutgers University, the State University of New York, Stevens Institute of Technology, and Stockton University

Review Teams

- Agency Technical Review (ATR) Team
- Coastal Storm Risk Management Planning Center of Expertise (PCX-CSRM)
- District Quality Control (DQC) Team
- HQUSACE
- USACE North Atlantic Division
- Independent External Peer Review (IEPR) Panel

6 FUTURE COORDINATION

6.1 PUBLIC COORDINATION

Following the release of the Draft Integrated FR/Tier 1 EIS there will be at least a 90-day comment review period. Comments received will then be used to inform the Final Integrated FR/Tier 1 EIS. Future coordination and outreach for the NYNJHAT Feasibility Study will include meetings with the general public and regional stakeholders associated with the release of the Draft Feasibility Report to discuss the findings and progress of the study to date. Additionally, there will be environmental agency coordination meetings and cooperating agency meetings to be held on a regular and recurring basis. There will also be regular updates the NYNJHATS web portal.

It is critical to the success of the study that there is clear communication between the PDT and the public regarding the study schedule, the study goals and objectives. Therefore, a series of public meetings will be held within the comment review period to share information and analyses associated with the release of the Draft Integrated FR/Tier 1 EIS. The public will be able to voice their concerns directly to the PDT during these meetings. Forms for comments are available on the NYNJHATS website below. See Strategic Communication Appendix for more information.

Comments received on the Draft Integrated FR/Tier 1 EIS from the public will be used to inform the Final Integrated FR/Tier EIS.

6.2 AGENCY COORDINATION

Following the release of the Draft Integrated FR/Tier 1 EIS, USACE will continue to host Cooperating and Participating Agency meetings throughout the comment review period and after, including a presentation on the NYNJHAT Study results of the NYBEM. Comments received on the Draft Integrated FR/Tier 1 EIS from state and federal agencies will be used to inform the Final Integrated FR/Tier EIS. Additional analyses will be completed and included in the Final Integrated FR/Tier 1 EIS, as the project becomes more defined. As the details for the TSP measures are more refined and analysis is performed, that analysis will be shared with the Cooperating and Participating Agencies.

7 REFERENCES

USACE 2019. *New York-New Jersey Harbor and Tributaries Coastal Storm Risk Management Interim Report*. New York District, New York, NY. February 2019.

ATTACHMENT 1: SCOPING COMMENTS AND RESPONSES

Attachment 1: Scoping Comments and Responses

1.0 GENERAL COMMENT TRENDS

1.1 Scoping Process

Throughout the scoping period, commenters requested additional time for the scoping period, additional meetings throughout the larger study area as well as additional comprehensive, detailed information about all of the alternatives being considered, to include the environmental impacts. 88% of all submissions expressed that there was not sufficient information available to the public for them to make an informed decision. Response: In response to these comments, four additional meetings were added by request and the public comment period extended to run through 120 days. The purpose of a scoping meeting is to get input at an early point in the study. Details on the impacts of particular alternatives were not available at this time because the goal of the scoping process is to initiate public engagement early on, before large amounts of resources have been invested into the study, so that the public can help to 'scope' the study. Starting public engagement early allows the rest of the study to be shaped by the input received from the public. The scoping process helps to define what questions the study team should be asking, based on local knowledge, and can identify valuable data and information that local stakeholders share through the scoping process. More detailed information and analysis, including environmental impacts, will be released to the public when it is available, based on the level of design detail. Due to the large scale and scope of this study and the largely conceptual nature of the alternatives early on, Tiered NEPA will be performed so that the analysis can be performed using the available concepts at first and later the design detail. There will be multiple opportunities for public input throughout the study and design phase, as the study and project progresses.

1.2 Storm Surge and Sea Level Rise

Many commenters stated that they did not think storm surge should be addressed without first addressing sea level rise. Concerns about sea level rise were voiced in 84% of all the submissions. This is important because, for many communities, sea level rise poses a much larger problem than storm surge from coastal storms. Many of these commenters expressed the opinion that the only alternative that is acceptable is Alternative 5, given that it is the only alternative that has shoreline based measures that will protect communities from both storm surge and sea level rise, without impacting the harbor, river and its tributaries with surge barriers.

Response: This study is a bi-state long-term planning study focused on regional resiliency in the face of growing coastal flood risk which is expected to be greatly exacerbated by sea level change in this region. The congressional authorization for the New York-New Jersey Harbor and Tributary study is to address the threat of storm surge from coastal storms in the study area. Where shoreline based measures are proposed, such as in Alternative 5, the threat of sea level rise is also addressed by those measures. Where storm surge barriers are proposed (Alternatives 2, 3A, 3B, and 4), complementary measures to manage the risk of frequent flooding are also proposed, which would provide an integrated comprehensive solution. Addressing the cause of the sea level rise problem in the New York-New Jersey metropolitan area is outside of the scope and authority of this study. The tentatively selected plan will be designed to withstand projected sea level rise for the project lifespan, with a mind toward potential adaptations should seas rise faster or more than projected.

1.3 Environmental Impacts

Concerns about environmental impacts were the most ubiquitous of all the comment themes, being present in 91% of all submissions. The alternatives that include surge barriers (2, 3A, 3B and 4) would have the most profound adverse environmental impacts. Impacts to tidal flow and circulation were mentioned in 68% of the submissions, contamination with PCBs and combined sewer overflows, or CSOs were in 67%, wildlife and ecology (from the inability or restriction to migrate up/down river or to Long Island Sound) were in 76%, sedimentation rates were in 66%, and water quality (salinity, temperature, circulation, dissolved oxygen, nutrient concentrations, algal blooms) were in 71%.

Response: The study team recognizes the potential for the proposed concept alternatives to result in some or all of the above cited serious environmental impacts. Both a Tier 1 and Tier 2 Environmental Impact Statement (EIS) will be completed on the tentatively selected plan (TSP) once it is selected to analyze the potential impacts. If the environmental impacts of the TSP are unacceptable, the plan will not move forward. Any plan that is ultimately recommended from this study must avoid, minimize and mitigate for environmental impacts. There will be opportunities for public input on each report (Interim Report, Tier 1 EIS, Tier 2 EIS). A Tier 2 EIS will be prepared because not all of the site-specific design information will be available during the Feasibility Study to fully address all of the specific impact analysis. Where detail is available, full analysis will be performed in the Tier 1 EIS, and where the alternative remains more conceptual, broad analysis will be performed. The Tier 2 EIS will have the full detailed analysis for every aspect of the proposed plan, once identified, and no plan can be implemented without the preparation and coordination of a Tier 2 EIS.

1.4 Navigation Impacts

The alternatives that include surge barriers will have adverse impacts to the movement of boats in New York Harbor. This was a concern brought up in 66% of the submissions. This includes activity related to commercial shipping as well as recreational boating. The surge barriers would restrict the movement of ships into and out of the harbor, disrupting the current traffic flow. Additionally, the surge barriers would increase sedimentation of channels, which in turn would necessitate more frequent dredging of existing navigation channels.

Response: If the TSP includes surge barriers, they will be carefully engineered to reduce their impact on boat traffic. Any surge barrier across a navigable waterway will include a gate large enough to allow boats to pass through. A complete traffic study will occur if a surge barrier is recommended.

1.5 Cost And Construction

Many commenters asked questions about the cost of the project and how the construction would take place. Some common questions that were in 77% of submission included, how much would this project cost, how long will it take to build, and who will pay for it. Along this theme, many commenters asked what would happen if a non-federal sponsor decides not to participate in the project. Or what would happen if the states of New York or New Jersey decided not to participate?

Response: The cost and construction duration are determined by what measures will be selected for the TSP. An explanation on how the preliminary cost estimates have been developed is available in the Cost Appendix to the Interim Report. Please note that the costs and benefits in the Interim Report are parametric and would require follow-up, site specific investigations for refinement before any recommendation could be made. They are presented in the Interim Report only for the purposes of comparing alternative concepts. The study is cost-shared with 50% being paid by the federal government and 50% being paid by the non-

federal sponsors, the States of New York and New Jersey who split their cost-share equally. If implemented, the project would also be cost shared between the federal government and non-federal sponsor(s) and a new Project Partnership Agreement would be executed. USACE cannot implement projects without the support and participation of non-federal sponsor(s), and authorization and funding provided by Congress. If the study sponsor(s) opt not to participate in project implementation, the project would not proceed until an eligible party steps forward to act as the cost-sharing partner for implementation.

1.6 Overall Study Process

Many of the commenters asked about how the six alternatives were selected, or how the plans were formulated, the existing conditions projects being used in the study, which sea level rise projection we are using and why, and how many years the study will take to complete. These types of questions were present in 74% of the submissions.

Response: The six alternative concepts presented at the NEPA scoping meetings represent scales of solutions: system-wide, or basin-wide, or site-specific coastal storm risk management solutions. A system-wide solution has the potential to reduce the number of localized studies and projects, resulting in considerable economies of scale. However, it may not leverage the benefits of existing and planned coastal storm risk management projects, resulting in what may be unnecessary expenditures. For this reason, agreement on the list of assumed projects is critical to the calculation of potential benefits. The existing projects that were used in the economic analysis were coastal flood risk management projects that are already built, or will have funding by July 2020. USACE reached out to the builders and project managers to verify information on these projects. The full list of projects included can be found in the Plan Formulation Appendix of the Interim ReportIn regards to sea level rise, the study team is using the intermediate curve for estimating potential benefits in the Interim Report. As probability values have not yet been determined for USACE relative sea level change curves, it cannot be stated with certainty which scenario is the most likely at this time. Accordingly, the study chose the intermediate curve for the Interim Report as a rough way to approximate the median value between the low and high scenarios. A more detailed consideration project performance in light of the low, intermediate, and high rates of sea level rise will be conducted for the draft report in 2020, when the more clearly defined locations and measures can be evaluated. Due to the vast scale and complexity of this project, the study team was granted permission to exceed the normal three year study limit imposed on Corps studies and is authorized to take up to six years to complete the study by July 2022. An Interim Report will be released in February 2019 for public comment. Subsequent public meetings will be held throughout the study area to solicit input on the Interim Report which will be incorporated into additional analyses that can be used to screen the alternatives. The Tentatively Selected Plan (TSP) Milestone is targeted for January 2020 when the study team, including the states of New York and New Jersey, will convene with USACE Headquarters to identify a tentatively selected plan (TSP) based on the analysis. The Draft Feasibility Report and Tier 1 EIS will be released within 60 days of the TSP Milestone for public and agency comment. Comments will be incorporated into the Final Feasibility Report and Tier 1 EIS.

1.7 Induced Flooding

Many commenters voiced their concerns about induced flooding from surge barriers. Induced flooding could potentially come from two directions when the gates are closed; from behind the gates as freshwater from local streams accumulated behind the barrier, and from outside the gates as the storm surge reflects off the barrier and is forced into the areas adjacent to the barrier. Induced flooding was brought up in 72% of all submissions.

Response: The proposed alternatives will be analyzed during the feasibility study, including modelling to assess possible induced flooding from changes in hydrology from storm surge barriers under evaluation. If any of the alternatives are shown to induce flooding, these damages would need to be mitigated as part of the project, and that additional cost would factor into the benefit to cost ratio. For example, if analysis showed that freshwater would accumulate behind the barriers and cause flooding, pumps could be added to the recommended plan to remove this water and reduce damages. If flooding is induced outside of the barrier, nonstructural solutions or floodwalls could be included to reduce these damages. If it is not technically possible to mitigate for the induced flood damages caused by a storm surge barrier, or if the cost to mitigate renders a plan economically unviable such that the costs exceed the benefits, then these measures would be screened out.

NYNJHAT Study Scoping Comments and Responses

	COMMENTS	RESPONSES
1	What year or condition is used for evaluating environmental mitigation goals?	Typically, mitigation requirements are defined during the study process based on project impacts anticipated to occur then refined and formalized as part of the regulatory approval prior to that impact occurring so that mitigation is done at or before the time of impact. Given the scope of this study and the long planning horizon, many project impacts may occur far later in the study as coastal flooding risks/conditions (e.g., sea level rise) warrant.
2	The relationship between the EIS & the alternative-or combination of choice. How will one determine the other? Will the Alternative choice come first & then the EIS for that choice or other way around or some variation?	The evaluation and refinement of an alternative is based on many considerations, a key one being potential environmental effects and their evaluations. So it is a constant, iterative process in the study.
3	How will each alternative impact wetlands, marshes, and other features that sequester greenhouse gasses?	This has yet to be evaluated and defined in detail on the study as the alternatives are currently conceptual in detail. Certainly, with climate change and relative sea level change and a planning horizon to the year 2100, impacts to existing wetlands, marshes and other tidal habitats may potentially occur regardless of this study.
4	What is the impact on the Upper Hudson (Troy, Kingston)?	Currently, none of the measures in any of the conceptual alternatives has direct impacts to this study region, but the alternatives and measures will be refined and modified as the study proceeds. Should some of the alternatives advance that include in-water measures such as surge gates, particularly those in the path of the Hudson River discharge to the ocean, the indirect effects of such structures would need to be carefully and thoroughly evaluated as compared to what changes may be anticipated in the future irrespective of any outcome from this study.
5	What is the role of land use planning and green infrastructure?	Land use planning and green infrastructure (which we assume to mean some type of natural or nature based feature to manage coastal storm risk) are both measures that may be included and added to any alternative that may be considered further in the study. Land use planning is typically a non-federal responsibility but is included as one non-structural measure that can address coastal storm risks, particularly in longer term planning. Green infrastructure (NNBF) have good capability to address coastal storm risks, particularly those from more frequent and less severe coastal flooding events.

6	Why did you start with hard infrastructure and only add in green infrastructure or other measured like land use planning as minor features?	The study area is so vast and vulnerable to severe coastal storms (as demonstrated by Hurricane Sandy), and the conceptual alternatives were so broad, that the 1% Expected annual exceedance probability (AEP) with intermediate RSLC projection was used as the selected event for comparison purposes. This limits the measures that might be employed to primarily structural and limited nonstructural means. The primary goal for the study is to determine which combination of measures (which may well include through the iterative study process both land use planning and green infrastructure) yield the greatest net benefits to the nation and are environmentally acceptable.
7	How will this impact pollutants in the Hudson River?	None of the measures currently under contemplation in the study generate pollution directly, but may affect the distribution of existing pollution within the estuary (particularly any in-water measures such as surge gates). Any measure that might potentially affect the distribution of pollution in the estuary would need to consider that change as part of the alternative impact assessment to be done later in the study.
8	Are the only plans under serious consideration are plans 2-5 while plan 1 is effectively off the table? Or is a plausible alternative to rely on local Action without the NEPA?	Alternative 1, the "No Action" alternative is the default existing alternative which we anticipate occurring into the future. It is only by affirmative action potentially as a result of this study that some other action may be done. This would only occur if/as any other action is justified, environmentally acceptable, supported by the non-federal sponsors, and authorized and appropriated funds by the elected federal officials. Unless federal law specifically waives this requirement, NEPA laws and regulations must be fully complied with to enact any federally planned action by the Corps.
9	Is it not dangerous to fish health and survival, cleaning out sediment, etc., to interfere with tidal flow	Tidal flow within the estuary has and likely will change in time due to other existing conditions or past actions (e.g., wetland filling, freshwater diversion, navigation channel dredging, etc.). Any action under evaluation in this study that might affect tidal flows would need to evaluate this change in comparison to the existing and planned future tidal regime in the study area.

10	Why don't you hiring in environmental economists. This science is well-developed.	Environmental economists with degrees in Economics/Environmental Economics and the required coursework /education are eligible to apply for positions at the Corps of Engineers through USA Jobs with the Economist job series. The USACE is often hiring Economists. Since 1983, the Water Resources Council's Principles and Guidelines (P&G) have provided the framework for developing federal water resource studies. The Corps must adhere to certified USACE models for calculating economic benefits - at present, none of the models include ecosystem services. However, the benefits to the economy from natural infrastructure can be described and included qualitatively to help decision makers by painting a fuller picture of the costs and benefits associated with alternatives.
11	You say you do both mitigation/prevention and adaptation but need to answer regarding mitigation	The formulation process will first seek to identify environmental impacts of proposed measures, and then identify ways to either avoid the impacts or mitigate for unavoidable impacts. Mitigation plans will be developed as appropriate based on the level of detail available. Currently rough estimates for mitigation are included in the cost of the alternatives for evaluation/comparison, as discussed in the Interim Report. The upper end of estimates was included for estimated mitigation costs in order to be conservative. As alternatives are screened and further developed, the mitigation will be refined and further fleshed out. Mitigation costs are factored in the benefit/cost analysis.
12	How is the environment "valued" in dollars in this process?	The alternatives currently include mitigation cost estimates which are in dollars. The Corps does not use dollar valuation for habitat in restoration but rather uses functional habitat units, which will be assessed as part of the impact analysis.
13	Please explain how the impacts on species has been considered in the development of these initial proposals?	The cost estimates for the alternatives include rough mitigation cost estimates which consider impacts to species. The initial rough placement for feature alignments also consider avoiding impacts to habitat, but these will be further refined as more data is gathered and more information about tidal flows, hydrology, sedimentation, salinity, etc. becomes available and the analysis can include multiple variables.
14	Is the Army Corps planning on developing a method of considering the environmental impact of future projects outside of mitigation costs?	Cumulative impacts from this project and other projects planned to be built (by the Corps and others) as part of the future without project condition will be assessed as part of the Environmental Impact Statement.
15	How would this affect the local (12603) creeks and tributaries?	Impacts to creeks and tributaries will be assesses as part of the Environmental Impact Statement. At this time, we know we will need to look at tidal exchange, species migration, sedimentation, hydrology, etc.

16	What streams are being considered in the Hudson River Corridor? Please give a more detailed set of information.	The study area includes portions of rivers and streams that are tidally influenced, within the portion of the Hudson River that is tidally influenced, from NY-NJ Harbor up the Hudson River as far as Troy Lock and Dam. Rivers and creeks on the Hudson River under consideration include, but are not limited to: Catskilll Creek, Kinderhook Creek, Schodack Creek, Wappinger Creek, Roundout Creek, Esopus Creek, Moodna Creek, and Fishkill Creek.
17	This requires a full EIS and much more comment time for the public.	A full Tier 1 and Tier 2 EIS analysis consistent with Corps guidance and policy will be performed for this study and will include a public comment period and public engagement for the respective Drafts to elicit and incorporate public input into the EISs.
18	What about silt build-up; then dredging needs later which stir up sediments with "POB's + other harmful chemicals?	Silt buildup will be a factor to address in the operations, maintenance, replacement and rehabilitation (OMRR) Manual for the built project. The potential impacts of Hazardous, Toxic, and Radioactive Waste (HTRW) will be analyzed in the Environmental Impact Statement. If there are hazardous impacts associated with the project, then those would need to be remediated by the responsible parties prior to project implementation.
19	Alternatives 2, 3A, 3B and 4 will pose significant environmental risks to the Hudson river watershed.	Comment noted. The EIS will analyze the potential impacts of the alternatives. As required by the National Environmental Policy Act, any impacts from the plan will be avoided, minimized and mitigated for.
20	Social and ecosystem benefits must be accounted for in any analysis- especially for a study with such a long timeframe and cost.	Because this study was authorized for coastal storm risk management, the study objective must contribute to national economic development (NED) consistent with protecting the nation's environment. Contributions to NED are increases in the net value of the national output of goods and services, expressed in monetary units. Contributions to NED include net value of goods and services that are marketed and also those that are not marketed. Environmental, regional, and social effects that may inform trade-offs and alternative plans are documented in accounts other than the NED account.
21	I have serious concerns about the impact that some of these alternatives, particularly those involving a barrier wall, on the NY harbor. The installation of this infrastructure may be harmful to marine wildlife due noise+vibration, the treaching will churn up toxins, such as PCBs+ arsenic, that lay below	Comment noted. The EIS will analyze the potential impacts of the alternatives. As required by the National Environmental Policy Act, any impacts from the plan will be avoided, minimized and mitigated for.

	the sea floor, and the construction may have an impact on marine recreational activities.	
22	Should be a second scoping prior to tier2. Too little information to provide good comment. Need to know what is being done for tier 1 report	Comment noted. The intent of the tiering concept is to encourage elimination of repetitive discussions and to focus on the actual issues ready for decisions at each level of environmental review. Tiering expedites the resolution of big-picture issues so that subsequent studies can focus on project-specific impacts and issues. Tiering also allows environmental analyses for each Tier 2 project to be conducted closer in time to the actual construction phase, or as funds become available for construction.
23	Tributary walls must be designed to minimize impacts on adjacent wetlands and sensitive shoreline areas.	Concur.
24	A rigorous environmental review is necessary- is that even possible given restricted time frame?	The project will include full environmental analysis as required by the National Environmental Policy Act through Environmental Impact Statement preparation. The time frame will allow the study team to include impact analysis in the formulation, design, and potential implementation of the project.
25	Special measures needed to ensure minimum impact on Hudson Valley National Historic Area and National Parks sites within the entire targeted area	As an agency of the federal government, the U.S. Army Corps of Engineers must comply with the National Environmental Protection Act (NEPA) and Section 106 of the National Historic Preservation Act (NHPA) which requires that we take into account the effects of any undertaking on historic properties. As part of the Environmental Impact Assessment the District is preparing a Cultural Resources Assessment that includes compiling a list of historic resources within the area of potential effect (APE) for each alternative and considering the potential adverse effects associated with each. The District will be carrying out coordination with the New York and New Jersey State Historic Preservation Offices, the Advisory Council on Historic Preservation, Native American Tribes, and other interested parties to assist in identifying historic resources within the study area. In accordance with NEPA and the NHPA, as project plans are refined the District will identify which resources will be impacted and carry out further coordination with the SHPOs and other interested parties to develop measures to avoid or minimize adverse effects to those properties. The National Parks and the Hudson Valley National Heritage Area

		are included in the list of resources within the study area to be considered as the project advances. Any consideration of project measures on lands owned by the National Park Service must have the National Park Service's agreement that the measures proposed are mutual acceptable to the park's mission, whether or not a historic property is present.
26	In water barriers will damage the Hudson River Estuary	Comment noted. The EIS will analyze the potential impacts of the alternatives. As required by the National Environmental Policy Act, any impacts from the plan will be avoided, minimized and mitigated for.
27	Have you conducted wide-ranging environmental impact tests for all the plans?	The study team has gathered and organized the existing information to establish the baseline environmental impacts and has begun analyzing the potential impacts based on the level of detail available at this early conceptual planning stages. The site-specific impact analysis will be performed once the design detail is available to answer the questions needed to perform the full analysis, such as the exact location of features, heights, widths, hydrodynamic analysis, etc.
28	The inwater barriers will limit tidal ebb and flow endangering fish species and impeding flushing of contaminants out of the harbor.	These are potential impacts that the study team is analyzing. There are a number of measures, mitigation tools, and design parameters which can influence / minimize impacts to tidal range, aquatic species migration, and water quality. These include the location and depth/height of the barriers, number of gates/openings, operational parameters, etc. As part of the impact analysis and formulation process, the study team will adjust design parameters in efforts to avoid, minimize, and lastly mitigate for impacts. The Corps will coordinate with the US Fish and Wildlife Service and the National Marine Fisheries Service on threatened or endangered species that could be negatively impacted by the project. If there is a likelihood that threatened or endangered species would be negatively impacted by the project, then formal consultation and Biological Assessment would be performed to identify Conservation Measures for these species.
29	What will happen to endangered fish species if they can no longer enter and leave the Hudson River?	The Corps would not (and is not able to by law) implement a project that would contribute to the extinction of endangered species. Impacts to endangered species will be carefully analyzed and mitigation and conservation measures would be coordinated with the National Marine Fisheries Service and the US Fish and Wildlife Service. The number of gates and width of gates can be designed, based on environmental impact analysis, to avoid and minimize negative impacts to fish migration.

30	How will this project - with the barrier across Eastchester Bay - at the lower end of the Hutchinson River affect the river which has the second largest wetland area and the Thomas Pell wildlife sanctuary	The study will analyze, avoid, minimize and recommend mitigation to impacted habitats within the study area based on environmental impact analyses undertaken.
31	Please inform the public about the various environmental impacts of each of the alternatives. Thank you.	The Draft Tier 1 Environmental Impact Statement (EIS) will be released to the public for comment and a series of public meetings will be held to share this analysis and elicit public and agency input to be incorporated into the Final Tier 1 EIS.
32	NYC H2O would like to see preliminary environmental impact assessments for each plan.	The Interim Report is the first preliminary document available to the public, to be followed by the Draft Tier 1 EIS.
33	Could you provide a written description of the economic analysis methodology and the proposed EIS scope of work?	Please see the Interim Report for these descriptions.
34	This study should include the effects of the barriers in areas along the Hudson north of the city and to its tributaries as well.	Concur, the analysis will include the tidally affected areas along the Hudson north of New York City and the tidally affected tributaries as well.
35	In-depth studies are needed on the impacts on endangered species, fish migration, water quality, tidal flow and other conditions before any plan is advanced.	Concur, in-depth environmental analysis is needed prior to the implementation of the project and impact avoidance, minimization, and mitigation must considered and included in the formulation and design of the project.
36	The barrier will block tidal flows and river output flow into the sea.	Analysis of how the various barriers would impact tidal flows and hydrology will be conducted to better inform the formulation, design, and impact analysis for the Feasibility Study.

37	The barrier would destroy the military historic sites on Sandy Hook and the Rockaway Point.	As an agency of the federal government, the U.S. Army Corps of Engineers must comply with the National Environmental Protection Act (NEPA) and Section 106 of the National Historic Preservation Act (NHPA) which requires them to take into account the effects of any undertaking on historic properties. The Fort Hancock and Sandy Hook Lighthouse Historic District National Historic Landmark, as well as other historic districts associated with Gateway National Recreation Area on the Rockaway Peninsula, would be affected by the construction of Alternative 2. These historic properties are included in the Corps' assessment of this Alternative. Should this Alternative be considered further, the Corps would be required to coordinate with the National Parks Service to ensure any measure associated with Alternative 2 is compatible with the park's mission and mutually acceptable to the National Park Service. Furthermore for effects to National Historic Landmarks, such as Fort Hancock and the Sandy Hook Lighthouse, the Corps is required to minimize harm to any National Historic Landmark and is required to coordinate with the Advisory Council on Historic Preservation and the Secretary of the Department of the Interior regarding potential adverse impacts to the property.
38	The barrier would negatively impact national security, specifically the function and activity of Naval Weapon Station Earle.	The potential impacts to operations at Naval Weapon Station Earle will be considered in the Environmental Impact Statement. The operating requirements for Naval Weapon Station Earle, in conjunction with port operations, will be a key consideration in the number of gates and their assumed frequency of operations for barriers under consideration.
39	The construction of Alternatives 2, 3A, 3B and 4 will dredge up industrial contaminants no buried in layers of sediment.	The potential impacts of Hazardous, Toxic, and Radioactive Waste (HTRW) will be analyzed in the Environmental Impact Statement. If there are hazardous impacts associated with the project, then those would need to be remediated by the responsible parties prior to project implementation.
40	The noise of the barriers and of construction will change the behavior of marine animals, possibly affecting migration.	Impacts due to noise during construction and operation will be analyzed as part of the Environmental Impact Statement.
41	As a tidal estuary, the Hudson River ebbs and flows with the ocean tide, with a complex mixing of water from the harbor and the freshwater from up north in the river that is the main characteristic of the ecosystem and	Noted. Impacts to tidal range, hydrology, and water quality (including salinity) will be analyzed as part of the NEPA process for this study. Impacts to threatened and endangered species will also be analyzed and will include an analysis of potential impacts to tidal range, salinity, hydrology, and more in the analysis.

	important to the threatened and endangered species and species of concern.	
42	The barriers will alter the entire ecology of the river, starving it of nutrients, cutting off the migration and movement of fish, and starving the ocean of sediments from the oceanward flow.	The storm surge barriers that are included in Alternatives 2, 3, 4A, and 4B include gates that would remain open the majority of the time. Analysis will be done to assess whether the impacts of the barriers would cause unacceptable significant impacts, or whether the proposed barriers could be designed to avoid, minimize, and mitigate for impacts such that they become acceptable. Sediment transfer through the watershed, migration and movement of fish, as well as other factors, will all be considered in the Environmental Impact Statement that assesses the potential impacts of the proposed alternative concepts under consideration.
43	Cutting off of tidal flow could also entirely alter the marshes and aquatic vegetation, which sequester carbon, along the river.	Impacts to tidal range will be analyzed as part of the Environmental Impact Statement, which will look at whether changes to tidal flow will negatively impact marshes and aquatic vegetation and whether those impacts can be avoided, minimized, and mitigated for. The alternative concepts also include complementary features, such as natural and nature-based features like wetland/marsh restoration, which may improve the aquatic vegetation and marshes in areas where these measures are applied.
44	Do state regulations for sound during project take into account sound results disturbing wildlife and wildlife migration by interrupting ecolocation used by mammals ie whales etc.	Yes, impacts from noise during construction and during operation of the project will be included in the impact analysis for this study.
45	How are you gathering data, particularly for the environmental aspect of the plans, environmental impacts and water quality?	Baseline data is being gathered from the existing information of federal, state, and local agencies, as well as peer-reviewed articles in academic journals. Environmental impacts, including water quality, are typically estimated through USACE-certified models and subject matter experts.

46	Storm surge barriers could have huge potential negative impacts on the NY-NJ harbor ecology and tidal flow of numerous rivers and wetlands in the area. The proposed fixed barriers could restrict or block the migratory runs of numerous native fish, some of which are federally endangered. The barriers could also increase turbidity, and increase distribution of contaminants (like PCBs and pesticides), or trap untreated sewage behind the barriers during storms. What are you doing to address these impacts?	Impacts to tidal range will be analyzed as part of the Environmental Impact Statement (EIS), which will look at whether changes to tidal flow will negatively impact marshes and aquatic vegetation and whether those impacts can be avoided, minimized, and mitigated for. Potential impacts to species migration and movement, water quality (including turbidity), and impacts from hazardous, toxic, and radioactive waste (HTRW) will similarly be analyzed in the EIS. Particular attention will be paid to social and health impacts for HTRW concerns and to threatened and endangered (T&E) species for ecological concerns, which will be coordinated with the environmental resources agencies responsible for enforcing the Endangered Species Act. If the Recommended Plan, once identified, has the likelihood to negatively impact T&E species, then the Corps will formally coordinate with US Fish and Wildlife Service to prepare a Biological Opinion. Impacts will be avoided, minimized, and mitigated as practicable and if the potential impacts are unacceptable, then the project would not be recommended for implementation. It is of note that the alternative concepts also include complementary features to address frequent flooding, such as natural and nature-based features (NNBFs) like wetland/marsh restoration, which may improve the aquatic vegetation and marshes in areas where these measures are applied. These NNBFs have the potential to improve water quality by filtering contaminants, stabilizing erosion, reducing turbidity, and provide habitat and social amenities for nearby communities, in addition to helping manage the risk of frequent flooding.
47	How long will the barrier increase residence time within the barrier (just the permanent structure not when the gated are closed) How will this affect fish/shellfish larva distribution patterns within the estuary	The answer to this is unknown at this time, but will be investigated as part of the preparation of the tiered Environmental Impact Statement.
48	The study should look at the environmental justice implications of the construction of such barriers -what neighborhoods are protected, and what is the criteria for protecting certain neighborhoods over other? What communities are being sacrificed for the well-being of others?	Environmental justice is considered and discussed for all Corps projects. The criteria for alternative concept screening will be discussed in the Interim Report for this project. The Corps and our partners work to ensure that any recommended plan does not induce impacts to adjacent neighborhoods. Any impacts must be mitigated for as part of the project and the cost for the mitigation is included in the screening analysis to ensure that no one community is "sacrificed" for the well-being of another but rather that the proposed solution is a holistic one which addresses the

		problems of all communities in the study area to the extent that is feasible and practicable, in accordance with the law, guidance, and regulations.
49	How will each alternative impact wetlands, marshers and other features that sequester green house gases?	Any impacts to wetlands, marshes, or other aquatic vegetation would need to be mitigated based on functional habitat, such that any recommended plan would result in either no impact as far as acres of wetlands impacted, or would likely result in a net increase in functional habitat units. Of note, the alternative concepts under consideration also include natural and nature-based features, such as wetlands and marshes, so that project is likely to result in a net increase of these ecosystems which sequester greenhouse gases, filter contaminants from water, stabilize erosion on shorelines, and provide valuable habitat.
50	How will this impact pollutants in the Hudson River?	None of the measures currently under contemplation in the study generate pollutants directly, but may affect the distribution of existing pollutants within the estuary (particularly any in-water measures such as surge gates). To understand the relationship between the potential measures and the distribution of existing pollutants, typically a hydrologic model is used.
51	What is the role of land use planning and green infrastructure?	Any Recommended Plan would be coordinated through local land use planning as part of the Coastal Zone Management coordination, and to avoid conflicts between our study objectives and local planned uses already in progress. Green infrastructure is one measure that can be considered to address high-frequency, low intensity flood events, or to decrease operations and maintenance requirements for hard structural measures (i.e., create a storage pond if space is available to decrease the number of times a deployable floodwall needs to be erected). Natural and nature-based features for coastal storm risk management, such as wetlands, oyster reefs, and marshes will be considered as complementary measures to address high frequency flooding.
52	Requesting a 120 day NEPA scoping period	In response to numerous requests to extend the NEPA scoping period, the scoping period was extended. The scoping period began on July 6, 2018 and extended 120 days, closing on November 5, 2018.

53	Requesting a full Environmental Impact Statement	A full Tier 1 and Tier 2 Environmental Impact Statement (EIS) will be prepared for this study and will analyze the potential broad and site-specific impacts using the available level of detail as the design progresses. No project can be built without the successful completion of the Tier 2 site-specific/detailed EIS.
54	What might be impacted on the upper estuary (Troy Dam to Kingston)?	No measures are proposed to be built in this region, and it is not expected to be impacted by this study. However, hydrologic modelling will continue to be done for confirmation.
55	This study must evaluate the potential effects on all affected water bodies, including the Hudson River and its tributaries, the New York Harbor, Great South Bay, the New York Bight, Jamaica Bay and the Long Island Sound.	As a part of this study we will be evaluating the potential effects on all affected waterbodies.
56	Why are you rushing this plan through without an environmental impact study?	The Corps is following its study process and has requested and been granted an exemption to the normal 3 year study requirement, extending the study to last 6 years due to the complexity and large scope of the study. There will be both a Tier 1 and Tier 2 Environmental Impact Statement prepared as part of this study. No decision has been made to date and the input received from the public engagement on the study will be used to help scope the analysis performed for the environmental impact statement.
57	This study should consider the effect of the alternatives on anadromous species.	Concur, the study will analyze the effect of the alternative concepts on anadromous species.
58	How does the Army Corps plan to account for increased flood risk in low-income communities of color? What is the plan to not exacerbate environmental injustice? Many communities of color and EJ Communities are located outside of the so-called "protected" areas within the scope of in-water barriers.	An environmental justice analysis has been conducted for every county in the study area. This analysis will be used to ensure that no low-income and/or minority communities are disproportionately affected by any possible negative aspects of the potential alternatives, nor disproportionately left out of the positive aspects. The Interim Report identifies the environmental justice communities in the study area.
59	Why is there no reference to the Federal Coastal Zone Management Program in the presentation? It should be part of the NEPA review.	CZM is and will be part of the NEPA review.

60	No Action Alternative - what does this mean and how is this used?	The No Action Alternative is included in every array of alternatives for every study as a baseline for comparing the cost and benefits of each proposed USACE action/alternative versus the cost and benefits of doing nothing. The No Action Alternative is a projection of what would likely occur in the future over 50 years (starting from when construction of the proposed project would be completed to begin generating benefits) if USACE takes no action as a result of this study. The future projection under the No Action Alternative is also called the Future Without Project Condition.
61	What is the expected environmental disturbance of surge gates while the gates are open?	This will be analyzed and discussed in the Tier 1 Environmental Impact Statement which has not yet been prepared. However, the environmental considerations/potential impacts that would need to be avoided, minimized, and mitigated for include impacts to tidal range, species migrations, hydrology, water quality, navigation, wetlands/marshes, aesthetic impacts, noise, etc. Ways to avoid impacts include the inclusion of more/wider gates in the barrier design to minimize flow restrictions, placement of the barrier, barrier types, wetland restoration, water quality mitigation, and more.
62	The barriers impeding tidal flow could further diminish the effectiveness of clean-up efforts on the Hudson. How does the Army Corps intend to manage this risk to the local ecology and public health?	Noted. Impacts to hydrology and how that might impact ongoing restoration efforts will be analyzed as part of the Tier 1 EIS. Opportunities to avoid, minimize, and mitigate any impacts will also be investigated.
63	This study must take into account that the Hudson River is a heavily silt laden river and all actions must consider the impacts of siltification and reduced navigability.	Concur, the study will consider the geomorphology, sediment transport, as well as navigation impacts.
64	What about the fish when the gates are closed?	Barrier closures would not be expected to have long durations. For example, the preliminary impact analysis of barrier closure in the Jamaica Bay region was performed as part of the Rockaway Reformulation in 2016. This impact analysis considered a range of potential impacts with 96 hour closure being a worst case scenario (in the case of a gate failure), and 48 hour closure being a more reasonable expected closure. Temporary impacts to fish during closure will be analyzed as part of the EIS. However, during large storm/hurricane conditions which would trigger a barrier closure, impacts to fish due to turbidity caused by the storm are already expected, which can limit fish vision and mobility for many species.

65	What consideration has been given or will be given to environmental impact once cost is determined?	To date, rough mitigation costs have been included in the total cost estimates prepared for the alternative concepts. These will be refined as the study progresses. There are also design considerations that can be included which reduce environmental impact but cost more (such as including more openings in the design). These will play into the cost as well.
66	If a solution is the least expensive but has a huge environmental impact - will it still be considered?	If a proposed solution has a huge environmental impact, there are three ways to to evaluate this impact. The first is to determine if it is possible to avoid this impact. If avoidance is not possible, the next step is look for ways to either minimize the impact or mitigate for the impact. Minimization and mitigation actions can be costed out, and that cost is factored into the cost portion of the benefit cost ratio, which adversely affects project justification.
67	What will the Corps do if an administration turns back present environmental requirements?	The National Environmental Policy Act (NEPA) of 1969 requires federal agencies, including the Corps, to consider the potential environmental impacts of their proposed actions and any reasonable alternatives before undertaking a major federal action, as defined by 40 CFR 1508.18. The Corps specific guidance in NEPA compliance can be found in ER 200-2-2.
68	What if you discover additional issues not presently covered under NEPA?	It is unclear what the commenter is referring to. The Corps will assess the potential impacts of the proposed alternative concepts as required by NEPA and Corps policy.
69	Have impacts from storm barriers in LI Sound on Connecticut been studied/analyzed?	Although the State of Connecticut is not within the bounds of our study area, any impacts outside of our study area will be analyzed.
70	Have impacts to endangered species been calculated in the creation of these proposed plans?	No, the study just finished the scoping stage and is beginning to analyze impacts on a conceptual level based on existing information. The Interim Report identifies data gaps and targeted further analysis. The input received on the Interim Report will help to shape the additional analysis performed for impact analysis.
71	When studies are complete who implements, pays for and oversees the projects?	The Corps will cost share the implementation of the project with our non-federal sponsors. Constructed projects are operated and maintained by the non-federal sponsors.
72	How will the proposed barriers effect the Hudson River estuary ecosystem?	Each barrier would likely affect the Hudson River estuary differently, however changes in tidal prism, flow, sedimentation, and other variables are possible. These variables would typically be analyzed using a USACE-certified model, and any negative effects would be avoided, minimized, and/or mitigated for.

73	How have you or will you research and evaluate the pros/cons of the structural measures from other countries, regions for effectiveness and environmental impacts?	The study team has reached out to barrier operators in Italy, Russia, New Orleans, Connecticut, and the Netherlands to gather information on environmental impacts, operations, maintenance, and effectiveness, as well as cost. This information is being included in the feasibility study.
74	Do you have environmental experts on your team? Do you partner with experts from Riverkeeper, Food and Water Watch, Sierra Club, etc.?	Yes, the study team includes environmental experts with degrees in biology, ecology, cultural resources, hazardous, toxic, and radioactive waste, environmental policy, sustainable development, archeology, and more. The Corps is partnered with the New York State Department of Environmental Conservation, New Jersey Department of Environmental Protection, and New York City on this study. All of these partnered agencies also have environmental experts who work on the project. The Corps may look to engage the expertise of contracting firms specializing in environmental analysis, academia, and/or USACE's Engineer, Research, and Development Center, or ERDC, which also has a number of world-renowned environmental experts. On this study, Riverkeeper, Food and Water Watch, Sierra Club, etc. are considered to be stakeholders and the study team engages with them and other stakeholders as part of the public engagement process. The study team may help to facilitate the formation of an Independent Technical Working Group which can facilitate more structured input from engaged stakeholders with specific expertise in the study process.
75	Which agency will assess fishery populations?	As with all studies, the Corps will coordinate with US Fish and Wildlife Service and the National Marine Fisheries Service to assess potential impacts to fisheries and aquatic species.
76	How will environmental services factor into your cost benefit analysis?	For USACE studies, benefits must be derived through a USACE certified or approved model. At present, the suite of certified and approved benefit models do not have a way to calculate monetary values for environmental services. The study will consider the contributions of environmental services in a qualitative sense to the Environmental Quality and Other Social Effects accounts required for USACE studies, and they will play a key role in the trade-off analysis among the different alternatives.

77	If New York State values environmental or ecosystem service but USACE does not, what will the NYSDEC do?	The Corps must adhere to certified USACE models for calculating economic benefits - at present, none of the models include ecosystem services. However, the benefits to the economy from natural infrastructure can be described and included qualitatively to help decision makers by painting a fuller picture of the costs and benefits associated with alternatives. In addition to addressing ecosystem services qualitatively in the study, ecosystem services are also factored into the trade-off analysis among the different alternatives. Once the study arrives at a tentatively selected plan, the non-federal study sponsors, which includes New York State acting through the Department of Environmental Conservation, have the ability to put forth a Locally Preferred Plan (LPP) as the alternate recommendation, which can provide latitude when balancing priorities between state and federal objectives. The cost-sharing for a LPP may differ, depending on what it entails and whether that matches the federal authorizations and policies, but it is nonetheless a mechanism for the State to change a recommendation as long as the LPP has a benefit to cost ratio greater than one. If no LPP is put forth and the partners do not support the federal recommendation, or if the partners have other reasons, they can suspend or terminate the study for any reason within 30 days of written notice to USACE.
78	What will happen to the benthic community due to the gates and the inherent silt?	If an alternative which includes a storm surge barrier is implemented, there are likely to be unavoidable impacts to benthic species in the footprint of the barrier and potentially beyond if there are siltation impacts that cannot be avoided. These impacts would need to be mitigated for.
79	Will the analyses include potential impacts that extend beyond the study area (i.e. further east into Long Island Sound) or will the analysis stop at the study area boundary?	Yes, all potential impacts of proposed measures will be analyzed, regardless of the study area boundary. The EIS will include a cumulative impact analysis that will: (1) identify resources to consider in the cumulative impact analysis; (2) define the timeframe for cumulative impact assessment; (3) define study area for each resource; (4) identify other reasonably foreseeable future actions that could also affect the resource; (5) assess and report potential cumulative impacts by first describing the current health and historical context for each resource and then identifying the direct and indirect impacts of the Proposed Action that might contribute to a cumulative impact; and (6) assess the need for mitigation.
80	When will ACE be studying the impact of reflection from gates on other communities storm surge, impact on existing marshes by extensive hardening of shoreline, impact on	This impact analysis has been on a conceptual level and using existing information and will be further developed throughout the study, and the pre-construction engineering and design phase, based on the available level of design detail.

	marine organisms, increase in velocity, change of water flow patterns, stagnation, and reduced oxygen	
81	How far east in the LI Sound will the study evaluate the potential for induced flooding? Will the study lookk at the LI Sound Study's Comprehensive Conservation and Management Plan and comply with its goals?	The analysis will consider effects on existing management plans that are in effect within study area.
82	Shoreline measures will make the waterfront look industrial and would kill the natural grasses and limit access to the waterfront.	Many of the shoreline measures considered include natural and nature-based features which will enhance the shoreline ecosystems. However, the structural shoreline measures for coastal storm risk management do have impacts that are unavoidable, though the study team expects to be able to minimize and mitigate for those impacts and if that is not possible, this could be grounds for screening the measures out if impacts are deemed unacceptable. Access to the waterfront could be included as part of project implementation either through the inclusion of walkovers or in the form of compensation for affected parties, as appropriate.
83	Publish the schedule or opportunities for public comment. At what points during Tier 1 and Tier 2 EIS would there be public meetings and comment periods? Will meetings in future include Nassau County at every point in planning?	The exact dates for public engagement are not known but will be shared with the public once they are. The Corps will endeavor, in future, to give ample advanced notice on public meetings as much as is practicable. Due to the large study area which is larger than the state of Delaware and covers two states, 25 counties, and 322 municipalities, it is not feasible to hold individual meetings everywhere where there are interested stakeholders. The meeting locations will be carefully chosen to maximize public participation by being located throughout the study area and close to transit so that interested parties can reasonably attend at least one meeting. The Corps will also continue to use virtual meetings to supplement in-person meetings, where practicable for those who cannot travel to in-person meetings. Additionally, the study team will accept and consider all comments sent on the study, whether by email, mail, or in-person.
84	Will the Corps look at the Long Island Sound Comprehensive Conservation Management Plan?	The analysis will consider effects on existing management plans that are in effect within study area.
85	What is the environmental impact of mining the materials to build the barriers? The	Impacts related to construction will be addressed as part of the NEPA analysis.

	material may well come from poor, rural areas?	
86	What will be the impact on riverside parks and trails from Scarborough Manor to Cold Spring?	There are currently no measures planned adjacent to any riverside parks and trails on the east side of the Hudson River between Scarborough Manor and Cold Spring. However, impacts will continue to be evaluated. The current rough proposed alignment is across the street and inland from Stony Point's Riverside Park and would thus be likely to have temporary impacts during construction to Stony Point's Riverside Park. These may include noise, air, traffic, and accessibility impacts during construction. Potential impacts are discussed in the Interim Report, however, the impact analysis is preliminary and will continue to be developed as the analysis continues.
87	Why haven't the EPA, FEMA, and NOAA taken a mre active role in this in order to provide an environmental component to the study of which proposals would be better for these communities?	The EPA and NOAA are Cooperating Agencies on this study and FEMA is a Participating Agency. As such they participate in periodic meetings to provide data and expert input into the study process, in addition to the formal public and agency comment periods. Representatives from each of these agencies participated in the NEPA scoping process and the agency workshops held for this study.
88	What kinds of federal or state funding or pressure can be exercised so that a thorough environmental study can be done to determine which method(s) are safer for the river and for riverfront communities, economies, industries and transportation?	This study uses both state and federal dollars to prepare a Tier 1 and Tier 2 Environmental Impact Statement which will analyze the potential impacts of the proposed concept alternatives and the detailed impacts of the Recommended Plan. The impact analysis will include socioeconomic and transportation.
89	Will each proposal have a coinciding environmental study as the environmental implications for each proposed alternative are unclear at this time?	Under the SMART Planning paradigm which is consistent with NEPA, the study progress will narrow the scope of alternatives from the reasonable array of alternatives to a tentatively selected plan (TSP). At this point in the Study, the alternative concepts are being analyzed conceptually based on existing information to see whether "fatal flaws" can be identified or whether some alternatives stand out significantly from others in terms of feasibility. This analysis will be presented in the Interim Report to be released in February 2019. The Interim Report will identify data gaps and recommend areas for additional analysis, but the comments received on the Interim Report will also help to form the scope of the additional analysis. It is possible that one or more alternatives will be able to be screened out as infeasible based on initial analysis, in which case it would not be carried forward for subsequent analysis at that time. The planning process is an iterative process and

		builds on itself, so the study team cannot predict now which alternatives will be carried forward, but should new information come to light later, the team is able to go back and reconsider measures or alternatives previously screened or even new measures.
90	The proposals presented are too large to short-change the NEPA process. All affected communities must be included in the discussion	Public engagement on Civil Works studies is a critical and valuable component to the study process, especially for mega studies such as this one. The NEPA process begins with Scoping, which was completed on November 5, 2018. The NEPA Scoping Process was extended due to public interest and lasted 120 days, whereas the National Environmental Policy Act only requires 45 days. The NEPA process also includes one public and agency comment period on a Draft Environmental Impact Statement (EIS) normally and an agency comment period on the Final Report. For this study, there will be at least two public comment periods, first on the Interim Report, to be released February 19, 2019, and again on the Draft Tier 1 EIS. There will additionally be public input as part of the preparation of the Tier 2 EIS. Thus, this study is expanding upon the normal NEPA process due to the great regional significance of the study and the scope of the alternatives under consideration.
91	What about putting a surge gate at the eastern tip of Long Island?	This possible alternative is beyond the New York District area of responsibility (AOR) but has been referred to our higher authority offices. Generally, the geographic/topographic along with hydrodynamic conditions of the Race pose serious challenge to design and construction of surge gate structures in this region.
92	On slide 25, the presentation mentions such laws as the National Historic Preservation Act, the Clean Water Act, the Clean Air Act but did not list the Coastal Zone Management program. These alternatives must comply with this program.	Concur, the study will coordinate with DOS and local agencies and prepare a Federal Consistency Determination in compliance with the Coastal Zone Management program.

93	For all flood gates, what are the effects on water quality when the flood gates are in the open position?	The flood gates will be designed to avoid/minimize any affects to water quality when the gates are open, as much as practicable. The effects of water quality have not been modeled yet, except for preliminary analysis done for Jamaica Bay as part of the Rockaway Reformulation before that storm surge barrier analysis was transferred to this NYNJHAT Study. Water quality analysis will be documented in future iterations of the study. Unavoidable impacts will either be mitigated, or if mitigation is not technically feasible, serve as a basis for screening alternatives.
94	For all flood gates, what are the effects on water quality when the flood gates are in the closed position?	It is possible that there will be temporary impacts to water quality, such as lowered dissolved oxygen due to less vertical mixing of the water column, when the gates are closed, but there may be ways to avoid/minimize these impacts, if not mitigate for them and these will be investigated as part of the study.
95	What are the effects of the levee and berm tie-ins on the usability of the beach by shore-nesting birds?	The effects on shore nesting birds will be investigated as part of the preparation of the Tier 1 EIS. However, the levees and berm tie-ins would be placed as far inland as practicable to minimize impacts and construction would be coordinated with resource agencies. Where warranted, work windows would be instituted to limit work during the nesting season of threatened and endangered species to avoid impacting their nesting season. Where natural and nature-based features are included in the design, there may be a positive effect of increased nesting habitat for shorebirds. Mitigation may also increase available nesting habitat.
96	The Corps should consult the NY NJ Harbor Estuary Program Comprehensive Conservation and Management Plan (CCMP), the Long Island Sound Sudy CCMP, and the Long Island Sound Blue Plan.	Thank you, the study team will review these products.
97	What would the impacts of each of the alternatives for the communities located along the Hudson River, particularly those with active waterfronts and riverfront housing?	Communities located along the Hudson River could expect to have decreased flood risk and decreased economic and safety impacts in the event of flooding. There is a potential for aesthetic impacts if features obscure the views, either partially or fully, in order to prevent flooding. There are potential impacts to recreation/access, both positive and negative depending on the opportunities and potential designs.
98	What are the impacts to the railroads that run along the Hudson River (Metro North, Amtrak)?	Potential impacts to railroads would be decreased flood risk, improved transportation resiliency, potential aesthetic impacts to riders if views are obscured, and temporary impacts during construction of track-crossing deployable gates.
99	What are the impacts to the marinas and shipping facilities along the Hudson River?	Potential measures along the Hudson River are projected to be landward of any marinas or shipping facilities and no impacts are currently projected. Once the

		design is sufficiently detailed, any impacts to real estate will be analyzed and presented.
100	Offshore storm surge barriers could change the sediment transport and distribution that would result in the distribution of harmful contaminants throughout the New York-New Jersey Harbor.	This possibility will be investigated, as the modeling to answer these questions still needs to be conducted. The barriers could also provide an opportunity to trap and remove polluted sediments as part of the ongoing cleanup effort.
101	Offshore storm surge barriers would trap sediments outside the barriers filling shipping channels and requiring more frequent dredging.	Sediment transport, hydrology, and impacts to transportation will be analyzed as part of this study. If more frequent dredging is anticipated to be required as a result of the proposed project, then the cost and impact of this increased dredging would be factored into the Feasibility Study screening process.
102	Offshore storm surge barriers could trap sewage	The impacts of proposed barriers on CSOs (compared to existing condition, open and closed conditions) will need to be assessed. If the barrier would exacerbate existing problems, there may be opportunities to mitigate for this. Potential mitigation opportunities might include drainage upgrades, nature-based features (wetlands that filter water and uptake nitrogen in sewage), green infrastructure upgrades to reduce impact on stormwater system, or even upgrades to wastewater treatment facilities.
103	There should be a full study of environmental impacts before reaching a short list of alternatives.	The Corps Planning Paradigm, or SMART Planning, which is prescribed by law (WRDA 2007 and WRRDA 2014), requires the Corps to use available information, wherever possible, and to screen an array of alternatives down earlier in the study process, as much as practicable. SMART Planning does not eliminate the detail necessary to do a proper environmental impact analysis or mitigation planning; it is about developing the appropriate data at the right time to make the next decision. Determining the level of detail will often require input from FWS, NMFS, and other agencies involved in a study. The identification, consideration, and analysis of alternatives are important to the NEPA process and goal of objective decision making. That said, the study team will fully comply with the National Environmental Policy Act, or NEPA, and will perform a tiered Environmental Impact Statement that takes environmental considerations into account at each stage of the planning process.
104	Conclusions reached for New York - New Jersey Harbor cannot be applied to the Long Island Sound. Long Island Sound and its coastal communities will likely experience	Impacts to communities and the environment for the Long Island Sound will be analyzed as part of this study.

	unique harmful impacts which must be identified and addressed.	
105	Sea barriers in western Long Island Sound will restrict tidal flushing and alter patterns of exchange between fresh and salt water and sedimentation.	The impact of barriers on tidal flushing, exchange, salinity and sedimentation will be analyzed as part of this study.
106	PCBs, algal blooms, fish species, birds/waterfowl, plants, horseshoe crabs, mussels/oysters, blue crabs, sea turtles, cetaceans, shark species, unique areas/ecosystems, recreations use of waterways, and aesthetic values to communities.	The EISs will consider these resources, among others, in the impact analysis.
107	The alternatives presented do not present a reasonable range of alternatives as required under NEPA.	These alternative concepts presented at the scoping meeting are very preliminary and represent scales of solutions (from overall system-wide to regional to localized) rather than the traditional suite of alternatives presented in USACE studies. Actual locations and site-specific measures (whether structural, nonstructural, NNBF) have yet to be developed and analyzed for the upcoming draft report in 2020. The alternative concepts represent a reasonable range of solution scales to be considered, with the actual alternative components to be identified later.
108	The Corps should analyze impacts of/to sedimentation, pH (Ocean Acidification), temperature change, combined sewer overflows, dissolved oxygen levels,	The Corps will analyze the potential impacts of the proposed project, including impacts to sedimentation, water quality, and combined sewer overflows.
109	The Corps has muddled the NEPA process with tiering	Tiering is part of the NEPA process in accordance with 40 CFR 1508.28. It is often used by other agencies, like Department of Transportation, on large projects where the level of site-specific detail is not available in the early stages of planning/study, such as with this mega study.
110	Please provide a list of all the organizations, especially environmental organizations who attended these events.	A list of scoping meeting participants is available in the Scoping Report Appendix to the Interim Report.

111	Although there is some attention to potential impacts on the Hudson riverbed, fish and the quality of water, air, etc. There is not enough time for an in depth analysis of the various projects. Please extend the public input period or distribute a more detailed deasibility study to a wider network of groups.	Public engagement on Civil Works studies is a critical and valuable component to the study process, especially for mega studies such as this one. The NEPA process begins with Scoping, which was completed on November 5, 2018. The NEPA Scoping Process was extended due to public interest and lasted 120 days, whereas the National Environmental Policy Act only requires 45 days. The NEPA process also includes one public and agency comment period on a Draft Environmental Impact Statement (EIS) normally and an agency comment period on the Final Report. For this study, there will be at least two public comment periods, first on the Interim Report, to be released February 19, 2019, and again on the Draft Tier 1 EIS and the study team will preemptively extend the comment periods beyond the required 45 days. There will additionally be public input as part of the preparation of the Tier 2 EIS. Thus, this study is expanding upon the normal NEPA process due to the great regional significance of the study and the scope of the alternatives under consideration. The Interim Report has more detail and will be released on February 19, 2019, to be followed by a Draft Feasibility Report and Tier 1 EIS. Both will be released for public and agency comment.
112	The limited time frame for this review includes a butchery of the NEPA project. Meetings after this should be held in every neighborhood/ community where the barriers are planned and the adjoining communities where the redirected water is bound to go.	Public engagement on Civil Works studies is a critical and valuable component to the study process, especially for mega studies such as this one. The NEPA process begins with Scoping, which was completed on November 5, 2018. The NEPA Scoping Process was extended due to public interest and lasted 120 days, whereas the National Environmental Policy Act only requires 45 days. The NEPA process also includes one public and agency comment period on a Draft Environmental Impact Statement (EIS) normally and an agency comment period on the Final Report. For this study, there will be at least two public comment periods, first on the Interim Report, to be released February 19, 2019, and again on the Draft Tier 1 EIS and the study team will preemptively extend the comment periods beyond the required 45 days. There will additionally be public input as part of the preparation of the Tier 2 EIS. Thus, this study is expanding upon the normal NEPA process due to the great regional significance of the study and the scope of the alternatives under consideration. Due to the large study area which is larger than the state of Delaware and covers two states, 25 counties, and 322 municipalities, it is not feasible (due to the monetary and temporal time constraints of the study by law) to hold individual meetings everywhere where there are interested stakeholders. The meeting locations will be carefully chosen to maximize public participation by being located

		throughout the study area and close to transit so that interested parties can reasonably attend at least one meeting. The Corps will also continue to use virtual meetings to supplement in-person meetings, where practicable for those who cannot travel to in-person meetings. Additionally, the study team will accept and consider all comments sent on the study, whether by email, mail, or in-person.
113	Additional public meetings should be held in communities all the way up to Troy.	Due to the large study area which is larger than the state of Delaware and covers two states, 25 counties, and 322 municipalities, it is not feasible (due to the monetary and temporal time constraints of the study by law) to hold individual meetings everywhere where there are interested stakeholders. The meeting locations will be carefully chosen to maximize public participation by being located throughout the study area and close to transit so that interested parties can reasonably attend at least one meeting. The Corps will also continue to use virtual meetings to supplement in-person meetings, where practicable for those who cannot travel to in-person meetings. Additionally, the study team will accept and consider all comments sent on the study, whether by email, mail, or in-person.
114	What different event and sea level rise scenarios have been developed to test plans?	Different probability event conditions will be evaluated during optimization of the selected alternative later in the study (planned now for approximately 2021). Different sea level rise projections will likely be evaluated leading to the Tentatively Selected Plan in spring 2020, and also at subsequent stages of the study.

115	what are opportunity costs of this investment?	No investment in terms of project construction has been made yet, as that is the focus of this feasibility study. For how USACE addresses opportunity costs, you can refer to Planning Guidance Notebook (Engineering Regulation 1105-2-100), paragraph 2-4.k: Here is an excerpt from this paragraph: "From an economic perspective, the real measure of cost is opportunity cost, i.e., the value of that which is foregone when a choice of a particular plan or measure is made. In order to capture the opportunity costs of proposed plans, NED costs include three types of costs: implementation costs, other direct costs and associated costs....Typically, opportunity costs are equal to the market prices of goods and services in competitive markets. However, market prices can be often distorted by monopoly power, price controls, taxes or subsidies. In cases where market prices do not reflect the opportunity cost of resource use, other means are used to develop NED costs. Surrogate values are often used which reflect the opportunity costs from a similar situation."
116	Are the only plans under serious consideration are plans 2-5 while plan 1 is effectively off the table? Or is a plausible alternative to rely on local Action without the NEPA?	The No Action Plan is compared against each Alternative. The Plan that reasonably maximizes net benefits, i.e. has the greatest benefit to the National Economic Development (NED) will be the NED plan, which is normally what the Corps recommends. The Recommended Plan, however, must be acceptable and must avoid, minimize and mitigate for impacts. The Corps cannot move forward to implement a recommended plan without approval and funding from Congress and without the partnership and cost-sharing of the non-federal partner(s).
117	I am concerned about the fast tracked process	It is incorrect that this study is fast tracked. In fact, this study has been extended beyond the normal three years due to the size, scope, and complexity of the study. Public engagement on Civil Works studies is a critical and valuable component to the study process, especially for mega studies such as this one. The NEPA process begins with Scoping, which was completed on November 5, 2018. The NEPA Scoping Process was extended due to public interest and lasted 120 days, whereas the National Environmental Policy Act only requires 45 days. The NEPA process also includes one public and agency comment period on a Draft Environmental Impact Statement (EIS) normally and an agency comment period on the Final Report. For this study, there will be at least two public comment periods, first on the Interim Report, to be released February 19, 2019, and again on the Draft Tier 1 EIS and the study team will preemptively extend the comment periods beyond the required 45 days. There will additionally be public input as part of the preparation of the Tier 2

		EIS. Thus, this study is expanding upon the normal NEPA process due to the great regional significance of the study and the scope of the alternatives under consideration. The study is expected to last seven years instead of the normal three years to complete a Feasibility Study.
118	Formal request to have the response period be extended by 60 days.	The NEPA Scoping processes was extended until November 5, 2018 (120 days total).
119	Because this impacts the whole hudson river estuary, please hold more of these meetings in town & cities along the hudson (e.g. Beacon, New beach, tarrytown, Albany, Kingston)& please hold comments open for 90 (ninety) days. Please all along estuary need **URT**	Public engagement on Civil Works studies is a critical and valuable component to the study process, especially for mega studies such as this one. Due to the large study area which is larger than the state of Delaware and covers two states, 25 counties, and 322 municipalities, it is not feasible (due to the monetary and temporal time constraints of the study by law) to hold individual meetings everywhere where there are interested stakeholders. The meeting locations will be carefully chosen to maximize public participation by being located throughout the study area and close to transit so that interested parties can reasonably attend at least one meeting. The Corps will also continue to use virtual meetings to supplement in-person meetings, where practicable for those who cannot travel to in-person meetings. Additionally, the study team will accept and consider all comments sent on the study, whether by email, mail, or in-person. The public comment period on the Interim Report was preemptively extended beyond the 45 day requirement and the comment period was set at 90 days.
120	Make sure the website shows all options on the front page so that it doesn't look like only one alternative has been selected.	Noted, thank you.

121	Scoping comment period needs to be longer still- 90 days at least- more publicity more public meetings in more different locations.	Noted, the public comment period on the Interim Report was set for 90 days. The public meetings are being publicized earlier, with three press releases instead of one, and the Corps will hold 8 (eight) public meetings instead of five in eight locations. Additionally, one or more virtual only meetings will be held for those who cannot feasibly attend a meeting in person.
122	If your study impacts on the NY/NJ Metro area, why are there no meetings in Rockland and Westchester?	Due to the large study area which is larger than the state of Delaware and covers two states, 25 counties, and 322 municipalities, it is not feasible (due to the monetary and temporal time constraints of the study by law) to hold individual meetings everywhere where there are interested stakeholders. The meeting locations will be carefully chosen to maximize public participation by being located throughout the study area and close to transit so that interested parties can reasonably attend at least one meeting. The Corps will also continue to use virtual meetings to supplement in-person meetings, where practicable for those who cannot travel to in-person meetings. Additionally, the study team will accept and consider all comments sent on the study, whether by email, mail, or in-person.
123	If one of the non-federal co.spousors does not approve any particular alternative-is it dead?	The Corps cannot move forward with project implementation without the continued support of our non-federal sponsor(s).
124	Does cost estimate include cost of complete removal if we get it wrong?	No, the preliminary cost estimates do not include cost of removal. Although estimates do include Operations, Maintenance, Repair and Rehabilitation costs. Please see the Cost Appendix for the Interim Report for more information on the preliminary cost estimates.
125	In order to collect more public and local input extending the public comment period would be critical. And extend the period for the first tier of EIS review, likewise extending would engage local studies and public.	Concur, the Scoping Period was extended twice, with a total duration of 120 days. The Interim Report will have a 90 day comment period, instead of 45 days, and the Tier 1 EIS will also have an extended comment period due to the significant public engagement and scale and scope of the study.
126	Please explain the "fast-track" process for disaster mitigation projects such as this and how these factors differed from a "typical" process. - timeline -public comments - winnowing of alternatives to selection	The NYNJHAT Study process has not been fast tracked. Under current default USACE civil works process, feasibility studies take three years to complete. USACE requested an exemption from this schedule for the NYNJHAT study and was approved on October 31, 2018 by the Assistant Secretary of the Army (Civil Works) for a 6 year study schedule to be completed in 2022. For this study, there will be at least two public comment periods, first on the Interim Report, to be released February 19, 2019, and again on the Draft Tier 1 EIS. The public comment period for the Interim Report has been extended to 90 days, which is beyond the required 45 days. There

		will additionally be public input as part of the preparation of the Tier 2 EIS. Thus, this study is expanding upon the normal NEPA process due to the great regional significance of the study and the scope of the alternatives under consideration.
127	Please explain how each partner-NYSDEC, NJDEP and NYC- would have to approve of - the two alternatives for further review; and, - the final selection?	The Corps partners with non-federal sponsors, in this case NYSDEC, NJDEP, and NYC, to cost-share and implement studies and projects. They review the assumptions, methods, and results for each step of the planning process Without the explicit support of the partners, the study cannot go forward past each checkpoint.
128	What is the path through which a community or individual's property is damaged as a result of your project by which they can seek compensation?	Once the study has arrived at a Tentatively Selected Plan (TSP), the design for the TSP is further refined. A Draft Real Estate Plan is prepared which identifies the real estate easements and/or properties in kind that would need to be acquired for project implementation. USACE works through the non-federal sponsors, after Congress appropriates the funds needed for the project, to reach out to land owners and work with communities where project implementation is occurring. An appraisal is prepared by an independent appraiser, and an offer is made by the non-federal sponsor to the property owners. Property owners are offered the fair market value, as determined by the appraisal, of the property rights needed for construction and maintenance of the project.
129	Since enviromental/ecosystem damage will effect the business & economies on and beside riverside towns-'marinas tourist destinations dependent on the health of river ecology. It is imperative that "eco-system services" not soley be addressed at the mitigation level but now.	Adverse impacts to the local economy (business losses) are factored into benefit cost analysis. Ecosystem services are addressed qualitatively in the study and factor into the trade-off analysis among the different alternatives.
130	How are the NYC studies being incorporated?	Coastal storm risk management projects by NYC are incorporated into the cumulative impacts discussion in the NEPA document. Of this set of NYC projects, the ones that are of magnitude large enough to affect plan selection have been identified by the City have been incorporated into the existing conditions of the economic modeling.

131	At the NYC meeting Bryce said that the six (6) alternatives would be narrowed down to just two (2) alternatives by Fall 2018. But they didn't say that (Poughkeepsie). Will you be narrowing down to 2 alternatives by Fall 2019.	The change in messaging reflects the evolution of our planning and adapting to feedback received from our partners and the public. The study team will be releasing an Interim Report in February 2019 to solicit agency and public feedback on the planning analysis to date. Based on the reviews and feedback on the Interim Report, the study team and its partners will start the dialogue in Spring 2019 on the path of study that makes the most sense - the number of alternatives to retain for consideration will be discussed at that point. USACE may, in coordination with our non-federal sponsors, screen the currently conceptual alternatives following the public review process associated with the Interim Report. Also, USACE is targeting identifying the tentatively selected plan in spring of 2020, subject to funding, and non-federal sponsor support, etc.
132	The basic structure and approach to the study is flawed , and based on assumptions of environmental systems as "add-ons" to "protection" scenarios. They are also centered on irene+ sandy like event and do not account for daily seasonal ecosystem benefits and risks. Critical and unquantifiable aspects such as the need for flexibility, human failure, deployment failure, catatrophic loss of systems cannot translate into the BCR/BCA as it is currently formulated. other scenario is sue it as managed retreat are not considered. the approach to the study should wider- the lensa is too narrow+ based on outmoded ideas of success.	Many of the concerns in this comment are addressed through the prescribed USACE planning process, which is described in the Planning Guidance Notebook (see https://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/er_1105-2-100.pdf). Regarding a few of the specific concerns, alternatives concepts are a preliminary stage and have yet to be refined with respect to siting and actual measures for implementation. In terms of evaluation against storm events, USACE policies require assessment of alternatives against a suite of projected storm events ranging including the 99%, 50%, 20%, 10%, 4%, 2%, 1%, and 0.5% annual chance of occurrence within the period of analysis - not just evaluation against the latest major storms.
133	A large scale nature-based integral solution should be considered + publically discussed even if it is not supported by the selection process or BCR process currently in place. NYC should be able to see + understand a broader range of alternative.	Natural and nature-based features are being considered on a large scale as integral measures to complement other features by helping to address frequent flooding. These were discussed publically during the scoping process and are discussed in more detail in the Interim Report, released on February 19, 2019.

134	It is very clear from the statement about natural + nature-based feature+ non-structure feature on the boards that these situations have not seen adequately studied and for that the parameters of this study do not support these techniques. These solutions should not be thought of as an "overlay" or "greenwashing". They are integral to a sustainable 21st century city.	The natural and nature-based features are considered to be important integral features for a complete solution. Particularly for the alternatives that contain storm surge barriers which would remain open for smaller storms, the natural and nature-based features (NNBFs) can be very effective complementary measures for managing frequent flood risk. NNBFs are not effective for managing the risk of large floods or storm surge, like that seen during Hurricane Sandy. That is why an integrated approach is being used which can leverage the power of nature for the frequent flooding, where feasible, and also consider larger man-made infrastructure for the large-scale flooding. At this stage in the study the alternative concepts have not been developed to any detail, but are concepts. This does not mean they are not being seriously considered.
135	Additional public meetings should be held.	Four additional public meetings were added to the scoping process in addition to the five that were initially scheduled. One meeting was held at the New York Aquarium on Coney Island on September 20, 2018. Two meetings were held in White Plains, NY at the Westchester County Center on October 3, 2018. The final meeting was held in Nassau County at the U.S. Merchant Marine Academy on October 23, 2018.
136	The public comment period should be extended.	The public comment period for NEPA Scoping was extended for a total duration of 120 days.
137	Good superficial introduction to alternatives but no real economic and environmental impact was given to help and hence assess them. Very short time for plans to be chosen.	The level of detail presented during the Scoping Meetings reflected the early scoping process of the study. More detail and analysis is being added and developed and will build as the study progresses. Please see the Interim Report, released on February 19, 2019 for more detail of the analysis done using existing information. This will be followed by a Draft Feasibility Report and Tier 1 EIS which will contain broad economic and environmental impact analysis, consistent with Tiered NEPA. Normal Corps Feasibility Studies last three years, whereas this study has been approved to six years due to the large scope and scale of the study.
138	Our organization, JBRA (Jamaica Bay Reformulation Advocates) strongly favors alternative 2 of the options presented, and we don't know why it should take till the year 2022 before a final plan is even presented to congress for approval.	The conceptual alternatives currently scoped for the NYNJHAT study are broad and complex. Determining which, if any, alternative is environmentally acceptable given the broad locations that may be directly and indirectly affected, has the greatest net benefits and may be supported by the non-federal sponsors will require more time than the Corps default civil works studies. Furthermore, this study includes multiple rounds of public engagement and feedback on the planning process and interim results. Some of the review or feedback comments may identify investigation needs that should be addressed before proceeding to the next study milestone. Currently,

		the study team anticipates a completion of 2022 to allow for enough time to accommodate the public engagement, investigations, and revisions that may be needed to support a recommendation to Congress.
139	Since other areas from Maine to Florida will also be looking at solution. Will we all be competing for the same limited pot of money	Regardless of location, USACE only recommends actions to Congress and the Administration if they are environmentally acceptable, economically justified and supported by the non-federal sponsor(s). The decision of what project to federally authorize or appropriate funds is solely within the federal elected official's purview.
140	Local jurisdiction should be given site-specific (very specific) information on plans affecting their towns, cities and counties. What will they look like ar each tributary in the HR estuary?	The alternative concepts currently under consideration do not have enough site-specific detail at this point for the study team to be able to engage on that level. Once the study progresses such that this level of detail is available, further public outreach in the communities where implementation would take place would of course be undertaken.
141	Assuming that success is problematic at best why not let nature take its course? Final massive prevention measures, timely evacuations and massive clean ups instead.	The risk to human life and vast amounts of significant infrastructure is currently great. A project would only be implemented if the cost of implementing it and mitigating for any and all negative impacts is less than the cost of doing nothing and paying for damage once it occurs.
142	Publicizing public meetings and number of public meetings	Noted. The study team will endeavor to give ample public notice of planned public meetings and to the extent practicable, will hold meetings throughout the study area as well as virtually to maximize participation. Due to the vastness of the study area, interested stakeholders may need to travel a short distance to participate in person in meetings, as it will not be possible to hold meetings in every county, municipality, etc. where there are interested stakeholders.
143	There is not enough information and time to make a decision.	No decisions have been made to date. The study is analyzing existing information, which will be presented in the Interim Report on February 19, 2019. Further analysis after that will be conducted and feed into the Draft Feasibility Report and Tier 1 EIS which will have a tentative decision which will be shared with the public in the Spring of 2019. Based on public and agency feedback on the Draft Feasibility Report and Tier 1 EIS, a decision will be made. This six year study process has been extended to be twice as long as the normal Corps study process of three years.

144	Need to understand the impact of the plans on the environment	Concur, this analysis is underway. The Interim Report lays out the environmental considerations based on existing information and the subsequent Tier 1 Environmental Impact Statement will analyze the broad impacts of the alternatives. As the study progresses and designs are refined, the Tier 2 site-specific analysis will also be performed.
145	There should be public meetings to share concerns	Originally five public meetings were scheduled during the Scoping Period, four additional ones were added due to Congressional requests. Due to the large public interest in the study and the large study area, eight meetings will be held in conjunction with the public comment period for the Interim Report.
146	The public needs more time to learn about this issue and make comments	Noted, the Corps has extended the public comment periods to allow for more public input. The Scoping Period was extended to a total of 120 days and the Interim Report will have a 90 day comment period.
147	Money should be spend on making the river healthy.	This study is authorized and funded to assess the feasibility of coastal storm risk management for the New York and New Jersey harbor and tributary region. While the natural and nature-based features being considered as part of this study may have the added benefit of improving ecosystems, this is not an objective that this study is authorized to formulate for. Environmental impacts of any implemented project will be avoided, minimized and mitigated for.
148	The Corps should move forward with a TSP examining large-scale proposals that the states of New York and New Jersey, the City of New York, and the people of the metro area may find useful in advancing thinking about the future.	Noted.
149	The Corps has indicated its intent to analyze the various federal proposals against a no-action alternative ("Alternative 1") that tracks ongoing and planned projects that affect the study region, presumably including a number of projects put forth in the SIRR report. The Corps must exercise care in determining which projects to include in this background. For one, it should only consider those initiatives that afford value in the context of storm surge	The projects to be included in the future without project/no action assumptions have been coordinated with the agencies responsible for their implementation, based on the following criteria: 1. project should be address coastal storm risk management; 2. project will have funding and permits in place by July 2020; and 3. if implementation of the project would affect plan selection.

	protection; while efforts to prevent seasonal flooding and sea-level rise are also vital, these problems are distinct from that of storm surges	
150	Could you provide the list of projects included in the "No Action" alternative, particularly the list of those with orange dots and another list of those with yellow triangles on the Alternative 1 map from the public meetings?	The list of projects included in the No Action assumptions can be found in the Plan Formulation Appendix to the Interim Report.
151	Due to the immensity and complexity, and lack of public meetings to explain the potential massive impacts of these project alternative, please extend the comment period 90 days and schedule more informational meetings up and down the Hudson Rivers impact area.	Noted, the Corps has extended the public comment periods to allow for more public input. The Scoping Period was extended to a total of 120 days, with nine public meetings held, and the Interim Report will have a 90 day comment period and eight public meetings throughout the study area such that interested stakeholders from throughout the study area should be able to attend at least one in-person meeting. If interested parties cannot attend in person, one or more virtual meetings will also be held.
152	Environmental impacts must be studied and taken into account before narrowing down to 1-2 alternatives- This narrowing of alternatives should not be on cost alone.	Environmental impacts of the alternatives are included in the cost and benefit narrowing through the inclusion of mitigation estimates. Environmental impacts will be studied and taken into account for screening. However, the alternatives that are screened out as infeasible will not be further analyzed, so anything found to be infeasible or shown to be grossly less cost effective or not economically justified will not be analyzed in more detail. This will help reduce the cost and duration of the study, saving taxpayer dollars, as required by the Corps planning paradigm.
153	The Corps should include "ecosystem services" in its evaluation of the current array of alternatives.	Ecosystem services is included in a qualitative assessment of the alternatives with respect to their contributions to the Environmental Quality and Other Social Effects, which are in turn weighed in the trade-off analysis among alternatives.

154	why has the public not been deluged with information about these plans that you are considering when their execution could so affect the river and the people living near to the river?	The Corps with our partners is following the NEPA process for public engagement. Now that the NEPA Scoping period is over, the Corps is getting ready to release an Interim Report with more public engagement opportunities for both commenting and in-person meetings. As part of this release the study team is preparing short videos on the alternative concepts and the study process, in addition to the Interim Report. Presentation slides for subsequent public meetings will also be shared with the public, as well as the Scoping Document detailing the public comments received during scoping with responses. Additional appendices to the Interim Report include Economics, Engineering, Cost, information on existing and planned projects that affect the study plan formulation, and a GIS Appendix. As more information is developed, more can be shared with the public. The public outreach process begins early in the study so that the public can have input in the scoping of the study.
155	The building of a sea wall between Sandy Hook NJ and Rockaway Point, NY will have a negative impact on the shipping/commerce of NY/NJ, the commerce of the nation and international economy. The barrier would shut down the main shipping channel for months.	Impacts to shipping, commerce, navigation, safety, and transportation will all be closely considered and analyzed as part of this study and the impact analysis. The Coast Guard is a Cooperating Agency on this study and will provide input and data to aid in the study and any eventual design of a Recommended Plan. Impacts to navigation which affect the economy would need to be included in the cost and benefit analysis affecting plan selection. Any recommended plan would need to support continued commerce and shipping in this economically vital harbor in order to be supportable. If a barrier is chosen and funded for implementation, construction would need to phased in a way that would minimize impacts to navigation.
156	Alternative 6 is the best option that fits with the NYS DEC's sustainable shorelines program	Comment acknowledged.
157	It is critically important that this study include completed economic, environmental and engineering considerations of the given alternatives.	Concur. USACE is required to do so, per our Planning Guidance Notebook (Engineering Regulation 1105-2-100).
158	Meeting should be held after hours and with translators to accommodate vulnerable populations.	Noted. Meetings were held after hours for the public scoping period, from 6 to 8 pm and one from 5 to 7 pm. To date, the study team has not received any specific requests for translators for particular communities. Should the need for translators in specific communities become apparent, the study team will look into providing interpreters and translating fact sheets into foreign languages to reach any affected communities.

159	The most vulnerable populations, including communities of color and those that are low-income, should be included in a region-wide initiative.	Concur. Environmental justice analysis is being performed to ensure that low income communities of color are included in the analysis for coastal storm risk management.
160	When will an explanation of the cost benefit analysis methodology be posted?	An explanation of the cost benefit analysis methodology is included in the Interim Report released on February 19, 2019.
161	When will a list of future without project condition projects be posted?	The list of future without project condition projects is available in the Interim Report Appendices, released on February 19, 2019.
162	How much federal funding can be reasonably expect for construction?	Federal funding is the sole discretion and purview of federal elected officials, as well as the non-federal sponsor(s).
163	Sheepshead Bay and other areas in the project area are home to a fleet of ships. Are these ships considered a resource in terms of flood impacts. Would such resource be deemed worthy of protection? Even though they are privately-owned?	The study would consider if the fleet could relocate in advance of a storm to minimize damages. There are associated port facilities that could not be moved, and damages to these associated facilities would be factored into the damages avoided (private ownership is not a reason for exclusion).
164	Is there a projected cost analysis of the proposed Alternatives?	Yes, the cost analysis is presented in the Cost Appendix of the Interim Report (released February 19, 2019).
165	How do you determine " economic justification"? What is the benefit to cost ratio of greater than one and what does the latter part mean?	An alternative is considered "economically justified" if the benefit to the national economy/nation is shown to be greater than the cost to implement the project, including the cost to mitigate for any impacts of the project. For coastal storm risk management projects the benefits are estimated by projecting the likely future damages that could be avoided by building the project. For more information on this, please see the Interim Report, as well as the Cost and Economic Appendices.
166	What happened to the ideas for the harbor such as those proposed for New York Rising?	Concepts from NY Rising can be incorporated into our alternatives refinement as appropriate. Those NY Rising actions that proceeded into construction would be accounted for in our assumed projects for the baseline condition.
167	What opportunity costs of this investment?	One of the functions of a feasibility study is to identify the opportunity cost of investing federal and non-federal funding into a proposed project. When the alternatives are refined with respect to action, location, and timing, a better characterization of the opportunity costs will be presented to decision makers for their consideration.

168	Hold meetings throughout the lower Hudson Valley	Due to the large study area which is larger than the state of Delaware and covers two states, 25 counties, and 322 municipalities, it is not feasible to hold individual meetings everywhere where there are interested stakeholders. The meeting locations will be carefully chosen to maximize public participation by being located throughout the study area and close to transit so that interested parties can reasonably attend at least one meeting. The Corps will also continue to use virtual meetings to supplement in-person meetings, where practicable for those who cannot travel to in-person meetings. Additionally, the study team will accept and consider all comments sent on the study, whether by email, mail, or in-person.
169	Studies must examine how the impacts would vary over the life of any structures - 100, 200 and 300 years out.	At present, USACE guidance requires a consideration of without project conditions and potential project performance over the planning horizon, which spans 100 years. Beyond 100 years, the certainty of planning projections decreases dramatically.
170	Will impacts be quantified and included in the cost-benefit analysis for those alternatives?	Yes, the cost to mitigate for impacts is included in the cost-benefit analysis.
171	Review of these plans require local context and input.	Concur.
172	Please explain the benefit to cost ratio	The benefit-cost ratio (BCR) is defined as average annual equivalent benefits divided by average annual equivalent costs. Economic feasibility requires that the BCR be equal to or greater than one. Alternatives with a BCR less than one are screened out and cannot be recommended. The BCR is used for identifying cost effective plans, but not the National Economic Development Plan (NED). The NED plan is the plan that maximizes net benefits. Net benefits is defined as average annual equivalent benefits minus average annual equivalent costs. The NED Plan is considered the "best buy" plan for the federal government with the greatest benefit to the nation and is often the Recommended Plan.
173	What do you mean when you say "in the future"?	USACE analysis is based on a projection of what will happen over the period of analysis (usually defined as 50 years starting from when a project starts to produce benefits), rather than existing conditions. Basing plan selection solely on existing conditions would leave out changes in demography, land use, relative sea level change, etc., leading to what could be an incomplete analysis by USACE standards.
174	Do the non-federal sponsors has the ability to remove a specific alternative from further study?	USACE determines which alternative, if any, best meets the applicable federal laws, regulations and policies. However, the non-federal sponsor(s) are not required to support this alternative, and can request a locally preferred option (as long as the

		locally preferred plan has a benefit to cost ratio above 1) to be evaluated for possible implementation.
175	Does the cost-benefit analysis include 'ecosystem services'?	USACE guidelines require a certified or approved USACE model to generate benefits. At present, these models do not yet include ecosystem services. Ecosystem services will be incorporated qualitatively in the trade-off analysis among alternatives.
176	Why is there no information on this project on the NYSDEC website?	NYSDEC is working to update their website to include information on the ongoing New York and New Jersey Harbor and Tributaries Study.
177	What are the new dates for 'winnowing down' from six alternatives to one or two?	We will be releasing an Interim Report in February 2019 to solicit agency and public feedback on the planning analysis to date. Based on the reviews and feedback on the Interim Report, the study team and its partners will start the dialogue in Spring 2019 on the path of study that makes the most sense - the number of alternatives to retain for consideration will be discussed at that point.
178	When does the 3-year time period end for completing the Feasibility Study?	It does not. The NYNJHAT study has been approved on October 31, 2018 to have a six year study period, rather than the prior three year default study duration. The Chief of Engineer's report on the NYNJHAT study is now scheduled for July 2022.
179	Who participated in the 2017 workshops and meetings in which alternatives were developed?	The alternatives were developed by the project delivery team.
180	The WRDA 2018 legislation in Congress includes expediting several projects and feasibility reports in New York and New Jersey Harbor. How does this impact the NYNJHAT feasibility study?	It does not. The NYNJHAT study has been approved on October 31, 2018 to have a six year study period, rather than the prior three year default study duration. The Chief of Engineer's report on the NYNJHAT study is now scheduled for July 2022.
181	Which steps have already occurred in the Plan Formulation Process slide?	In the Plan Formulation process slide, we are at the beginning of step 3 "Formulate alternatives to manage the risk of flooding from coastal storms" in the sense that a framework for different scales of alternatives have been identified, but the actual details of the alternatives have not been worked out yet. Because our planning process is iterative, at a minimum we anticipate revisiting step 2 "Inventory and forecast conditions" as better information is available throughout the course of the study, which will in turn affect the subsequent steps.
182	What is the timeframe for getting authorization for the waiver?	The Assistant Secretary of the Army (Civil Works) approved an exemption for this study to have increased funding and study duration on October 31, 2018.

183	Why are you not holding an open question and answer session? Everyone should be able to ask questions publicly and have everyone else hear the answers?	The meeting format was intended to facilitate direct face-to-face dialogue between members of the public and the study team by including the poster session where participants could ask questions and have dialogue with team members. Additionally, the presentation was provided to help give an overview of the study and the process to meeting participants. The scoping meetings have a different objective and purpose to public hearings and are thus structured differently. The Scoping Document provides the comments received during the entire scoping period, over all nine meetings, as well as responses.
184	In-water barrier projects could have significant impacts on tug and barge traffic. Has the tug/barge industry been engaged?	The Coast Guard is a Cooperating Agency on this study and will help provide expert input into navigational safety.
185	What were the comments of the Town Supervisor of Tarrytown (who read a statement at the public meeting)?	Please contact the Town of Tarrytown for their comments.
186	What happens if the selected plan is deemed unacceptable in the tier 2 EIS? Would you go back to the other alternatives and start the process again? If not, what is the benefit of the Tier 2 EIS if the choice has already been made?	If there is an action that is found to have an unacceptable impact to the human environment that cannot be appropriately mitigated, subject to need and availability of funding, a General Re-evaluation of the recommended action would occur (consisting of new alternatives and impact analyses).
187	When will the final decision on which plan to follow be made? By Spring 2020 or Spring 2021?	The final decision within USACE resides with the Chief of Engineers with the issuance of the Chief's Report. The NYNJHAT study has been approved on October 31, 2018 to have a six year study period, rather than the prior three year default study duration. The Chief of Engineer's report on the NYNJHAT study is now scheduled for July 2022.
188	Is the Corps prohibited from saying "climate change"?	No, the Corps is not prohibited from saying climate change.
189	Is the impact to tourism industry considered in economic impacts?	Yes, in that lost revenue for businesses is included in the damages assessment.
190	Will the draft interim report in 2019 still include all of the options with equal weight?	Yes, all of the alternatives are included in the Interim Report.
191	Will public comments be posted publicly?	Yes, public comments and responses are included in this Scoping Document.

192	Sea gates will harm Jamaica Bay and other ecosystems and waste the money New York City and the state of New York have invested. Is this factored into the cost of the cost/benefit analysis?	The cost to mitigate for impacts to the environment are included in the cost-benefit analysis. The study is evaluated to contribute to national economic development (NED) consistent with protecting the nation's environment. Contributions to NED are increases in the net value of the national output of goods and services, expressed in monetary units. Contributions to NED include net value of goods and services that are marketed and also those that are not marketed. (Environmental, regional, and social effects that may inform trade-offs and alternative plans are documented in accounts other than the NED account.)
193	Considering the anchorage efforts in the Hudson River did not go so well, how will this project be run differently?	Comparing one proposed project to another is difficult. The NYNJHAT study is engaging with the public early and plans to have extensive exchange of information as the study proceeds, subject to continued federal appropriations and non-federal sponsors support.
194	Are the five options presented the only ones that will be considered?	These alternative concepts presented at the scoping meeting are very preliminary and represent scales of solutions (from overall system-wide to regional to localized) rather than the traditional suite of alternatives presented in USACE studies. Actual locations and site-specific measures (whether structural, nonstructural, NNBF) have yet to be developed and analyzed for the upcoming draft report in 2020. The alternative concepts represent a reasonable range of solution scales to be considered, with the actual alternative components to be identified later.
195	Are these plans finally approved by Congress or another group? Who makes the final decision?	At the end of the feasibility study, USACE recommends actions to Congress and the Administration if they are environmentally acceptable, economically justified AND supported by the non-federal sponsor(s).
196	Aside from the email list, what is your communication plan to inform the wider public of the staged and plans and public comment period?	In order to effectively communicate with and engage the public and stakeholders in this study, the study team will update the study webpage with information and updates periodically, continue to hold public meetings throughout the study area in conjunction with public comment periods on the Interim Report and Draft Feasibility Report/Tier 1 Environmental Impact Statement, work to publicize milestones, updates, and public meetings through more frequent and advanced press releases. Furthermore, the study team will brief partners, elected officials, and agencies in advance of public releases and milestones to help facilitate effective communication by others on this study and ensure that elected community leaders have the information they need to answer constituents' questions or concerns. Additionally, the study team is working with the non-federal partners to help convene an independent technical working group made up of interested experts and non-

		governmental organizations to provide more structured input to the study and facilitate good communication between these groups and their members as well.
197	Please explain the study timeline more clearly?	The study schedule was in flux during the scoping period as the study team was requesting permission to extend the study beyond the standard three year Corps study. The NYNJHAT study was approved for a study schedule extension on October 31, 2018. The Interim Report is being released on February 19, 2019 followed by a 90 day public comment period. The Draft Feasibility Report and Tier 1 EIS is scheduled for public release in March 2020, which will also include a public comment period. Comments from agencies and the public will be addressed and the Final Feasibility Report and Tier 1 EIS is targeted for release in March 2021. The Chief of Engineers Report, which concludes the feasibility study, is targeted for July 2022.
198	At what point will the options be thinning down to the tentatively-selected options? What criteria will be used to narrow down the options? Will cost benefit be the only criteria used to select the tentatively selected option?	Screening and revising/refining the alternatives is iterative throughout the study process. The Tentatively Selected Plan will be identified and discussed in the draft feasibility report and EIS now scheduled for March 2020. The federal laws, regulations and policies will be used to screen the alternatives to determine, what, if any alternative is the tentatively selected plan. This determination is not made only on cost and benefit data but also on environmental factors/evaluations, etc.
199	What is the timescale for the cost/benefit ratio (100 years?)	USACE alternatives are evaluated within the period of analysis. The period of analysis begins when the project is implemented and begins to produce benefits. It is typically 50 years from that point. We also have to consider the planning horizon, which spans 100 years, for the effects of relative sea level change.
200	Has there been any coordination/outreach to communities and agencies in Connecticut?	No, Connecticut is considered to be outside of our study area and the area of potential impacts for the study.

201	When do you anticipate that the project will be completed?	The study is targeted for completion with a signed report from the Chief of Engineers in July 2022. If the recommendation is approved, authorized and funded for implementation, a schedule for the Preconstruction Engineering and Design Phase and the subsequent Construction Phase would be established based on the recommendation. Estimated construction durations are included in the Interim Report.
202	Have local county planning offices been consulted in the creation of these plans?	Local governments were all invited to the Agency Scoping Workshops conducted at the outset of the study. Input received is summarized in the Public Engagement Appendix.
203	These barriers could entirely contradict local community flood and resiliency planning.	In general, the study team has reached out to local governments for input and is working closely with New York City as a partnering agency on the study. The study team is reviewing available information, including local flood and resiliency plans. However, if you have specific concerns related to a specific community, please share them with the study team.
204	The estimated cost of Alternative 2 has previously been estimated at $20-$50 billion dollars. During the presentation (October 2018) the cost of $140 billion was cited. What is the basis for the cost escalation?	Based on rough preliminary estimates, the estimated initial construction cost of $43B does not include contingency, operations and maintenance, repair and rehabilitation, interest during construction, engineering and design, and environmental and cultural resource mitigation costs. The initial construction cost estimate is in the former range and the total cost comes in near the $140B number.
205	Will the analyses include potential impacts that extend beyond the study area (i.e. further east into Long Island Sound) or will the analysis stop at the study area boundary?	The impact analyses do not stop at the study boundary, but attempt to assess all potential impacts of the study even if they go beyond the study boundary.
206	Is there a posted project plan with deliverable dates and responsible parties	No, the study is still analyzing an array of alternatives and has yet to arrive at a tentatively selected plan, nor have any of the alternatives been screened out to date.
207	When might construction possibly begin? How long could construction take after it begins?	The Interim Report released February 2019 contains much of this information. Construction authorization and further design which might be necessary before construction can begin on any feature of any alternative can take years, and is subject to federal elected officials support.
208	If a barrier was constructed at the Throgs Neck and if flooding was being caused by this elsewhere who would pay for hardening of waterfront to eliminate this problem.	Any constructed project would need to pay for all measures that are needed to mitigate impacts of the project. This study is cost shared between the US Army Corps of Engineers, New York State and New York City.

209	Is the Army Corps considering FEMA-Funded Sandy recovery work in surrounding waterways such as Manhasset Bay? Federal monies are going to repair storm damage in areas that will be made more vulnerable under some of the alternatives proposed. Were there other alternatives considered? Could there be other alternatives considered? These 6 alternatives dont seem to cover all the possibilities of what could be done. Would these alternative have saved the 60 people who perished in the study area are during Sandy?	Yes, FEMA recovery work and recovery and resiliency work done by other agencies is being considered and accounted for in the study and included as part of the Without Project Future Condition. The alternative concepts presented at the NEPA scoping meetings represent scales of alternatives, with the actual measures (barriers or floodwalls, nonstructural, NNBFs) and their siting to be evaluated in the next round of plan formulation.
210	Does the USACE use only Corps experts to perform analyses? Will the technical information be made available to the public?	In addition to Corps experts with degrees and training in the environmental sciences, engineering, economics, policy, archeology, etc., USACE also utilizes the expertise of our non-federal partners, architecture and engineer contracting firms, which include environmental, archeological experts, the Engineer, Research, and Development Center (ERDC), and as warranted, academic experts, or other technical experts. Technical information used to screen and evaluate alternatives is made available to the public, with the exception of cost information that is used in the contract solicitation process, or any proprietary data or information that the Corps is not authorized to share. These instances would be limited and the intent of the study team and USACE is communicate transparently and effectively with the public exactly how alternatives are developed, evaluated, and screened.
211	What are the criteria that will be used to compare alternatives?	Per paragraph 1.7.1 (a) of the Federal Principles and Guidelines (1983): (a) "Four accounts are established to facilitate evaluation and display of the effects of alternative plans. These accounts are: national economic development (NED), environmental quality (EQ), regional economic development (RED), and other social effects (OSE). These four accounts encompass all significant effects of a plan on the human environment as required by the National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4321 et seq.). They also encompass social well-being as required by Section 122 of the Flood Control Act of 1970 (Pub. L. 91-611, 84 Stat. 1823). The EQ account shows effects on ecological, cultural, and aesthetic attributes of significant natural and cultural resources that cannot be measured in monetary terms. The OSE

		account shows urban and community impacts and effects on life, health and safety. The NED account shows effects on the national economy. The RED account shows the regional incidence of NED effects, income transfers, and employment effects."
212	What about the south shore of Long Island?	The south shore of Long Island is addressed by three existing USACE studies: the East Rockaway to Rockaway Inlet and Jamaica Bay General Reevaluation study (Brooklyn, Queens, and part of Nassau County), the Nassau County Back Bays Feasibility Study (Nassau County), and the Fire Island to Montauk Point General Reevaluations Study (Nassau County and Suffolk County).
213	You have shared in prior meetings that the Corps public outreach for this project was based on a mailing list of ~750 people. What are your plans to expand your outreach efforts going forward.	The stakeholder emailing list for this project is constantly being updated as people request to be added or taken off. It currently includes 4,038 email addresses (as of January 2019). Anyone who would like periodic email updates about the project can request to be added. In order to effectively communicate with and engage the public and stakeholders in this study, the study team will update the study webpage with information and updates periodically, continue to hold public meetings throughout the study area in conjunction with public comment periods on the Interim Report and Draft Feasibility Report/Tier 1 Environmental Impact Statement, work to publicize milestones, updates, and public meetings through more frequent and advanced press releases. Furthermore, the study team will brief partners, elected officials, and agencies in advance of public releases and milestones to help facilitate effective communication by others on this study and ensure that elected community leaders have the information they need to answer constituents' questions or concerns. Additionally, the study team is working with the non-federal partners to help convene an independent technical working group made up of interested experts and non-governmental organizations to provide more structured input to the study and facilitate good communication between these groups and their members as well.

214	Will this study include the restoration of the Stepping Stones Lighthouse?	As an agency of the federal government, the U.S. Army Corps of Engineers must comply with NEPA and Section 106 of the National Historic Preservation Act which requires that they take into account the effects of any undertaking on historic properties. As part of the Environmental Impact Assessment the District is considering the potential effects associated with each of the proposed alternatives and is carrying out coordination with the New York and New Jersey State Historic Preservation Offices, the Advisory Council on Historic Preservation, Native American Tribes, and other interested parties. The District is not authorized to study alternatives with the sole purpose of protecting historic properties.
215	At what point are non-structural alternatives considered such as the 4400 home that were promised to be elevated as part of FIMP?	The deployment of nonstructural measures will be considered in more detail in the round of plan formulation between the Interim Report and the draft Feasibility Report.
216	What is the estimated effectiveness of any of the alternative to reduce coastal flooding risk? If the 100 yr flood becomes a 10 yr flood by 2100, this doesn't seem like a longterm plan. Is it better to support effect to gradually retreat from the coast, let nature take its course? Use the funds to prevent more severe climate change?	The recommendation to Congress at the end of the feasibility study will include consideration of the design parameters that will maximize net benefits, so it is premature to speculate on the effectiveness of the alternatives at this time. Please note that the benefits to the four "accounts" will be discussed; these are: National Economic Development, or NED, Environmental Quality, or EQ, Other Social Effects, or OSE, and Regional Economic Development, or RED. Looking at all four accounts helps decision makers see the full effect and potential benefits of the proposed action(s). The effects of RSLC upon the study area vary greatly, and this variability, along with the three scenarios of RSLC, will be assessed in identification of a tentatively selected plan. For the tentatively selected plan, which will be documented in the draft feasibility report, areas that warrant further investigation of nonstructural measures such as acquisition or buyouts will be examined in greater detail. The funds appropriated by Congress for this study can only be used for the authorized purpose as laid out in the study authorization (see the Interim Report for more detail). Climate policy is outside of the authority and missions of the US Army Corps of Engineers.
217	In area that will suffer from induced flooding- Douglaston, Great Neck - will new FEMA flood maps be drawn? Will affected properties have access to insurance as a result of the new flood zons. Would there be financial	For areas of potential induced flooding, USACE must identify measures (walls, pumps, diversions, etc.) to mitigate the induced flooding. The costs for these measures are included in the costs for the alternative, and negatively affect economic justification. It is possible that if the mitigation measures are too costly, that measure might not be economically justified and USACE would consider other alignments or measures in the affected areas. As for FEMA flood maps, please

	compensation for higher insurance cost and decrease in property values?	contact FEMA directly for a Letter of Map Revision (LoMR) if the existing maps do not appear to match the property owner's experience.
218	It is Eastchester Bay not Pelham Bay which the "Pelham Bay" gate spans.	Concur that the Bay which the proposed Pelham Bay gate spans is the Eastchester Bay (NOAA Navigation Chart 12366). However, the proposed gate was named Pelham Bay to be more site specific since the rough conceptual location spans the "Pelham Bay Park" which is on both the proposed gate location and is also adjacent to the "Pelham Parkway". Whereas Eastchester Bay is large, Pelham Bay is a more site-specific name in this case and avoids misconceptions on location.
219	Will the Corps look at the Long Island Sound Comprehensive Conservation Management Plan?	Yes, USACE will consider the LIS CCMP recommendations in its planning.
220	When is the Corps going to study induced flooding?	USACE will consider induced flooding when there is more detail on the actual measures and siting. Study of induced flooding requires identification of measures to mitigate any induced flooding, which is factored into the cost of a proposed alternative.
221	If there was induced flooding identified in relation to the Throgs Neck gate causing additional measures to be needed, would those additional measures be built before or after the large gate?	These additional measures would have to be studied *while* the large gates are under study, and their costs would become part of the benefit to cost ratio.
222	Can you please include Long Island in your meetings and outreach?	Long Island is outside the study area. Public meetings are targeted within the study area to maximize public participation of interested stakeholders. Additionally, virtual meetings are also planned for those who cannot attend in person. Due to the large study area that spans two states and 25 counties, it is not feasible to hold in-person meetings everywhere there are interested stakeholders, but meetings are targeted to be as conveniently located as possible throughout the study area so that interested stakeholders can reasonably attend.
223	Have buyout programs been effective elsewhere?	Buyout programs tend to be most effective in areas that do not have dense populations where the cost to buyout each property owner is less than the cost of protecting the properties or replacing/repairing damage.

224	Based on concerns of sewage being trapped behind gates during storm events, the Corps should look at NYCDEP wastewater report	NYCDEP's 2018 State of the Sewer Report will be used as one source of existing information.
225	What is/was the budget for the project, and what is the cost share?	The NY NJ Harbor and Tributaries study is currently estimated to cost approximately $19.4M. These funds are cost-shared 50/50 with the non-federal study sponsors, New York State Department of Environmental Conservation and the New Jersey Department of Environmental Protection, except for $200,000 for independent external peer review which is entirely federally funded.
226	The public cannot effectively comment without detailed information and data on the social, economic and environmental impact of each alternative. The presentation provided is inadequate.	The presentation provided was in line with the level of detail expected during the Scoping Period of the study as the public meetings to date were NEPA Scoping meetings intended to garner public input on the scope of the study. Future opportunities to comment on more detailed analysis are forthcoming throughout the study.
227	What will the impacts on communities outside the barrier? On the ocean side, Down stream or upstream of the barrier/Project area?	Impacts to communities outside the barrier are discussed broadly in the Interim Report and will be further investigated as the study progresses.
228	Historic New Bridge Landing (including the 1752 Steuban House and Bergen County Historical Society property, which houses two 18th c. houses and a 19th c. barn) - despite its historic significance and importance - as well as its vulnerability to flooding - would not be protected by these alternatives	As an agency of the federal government, the U.S. Army Corps of Engineers must comply with NEPA and Section 106 of the National Historic Preservation Act which requires that they take into account the effects of any undertaking on historic properties. As part of the Environmental Impact Assessment the District is considering the potential effects associated with each of the proposed alternatives and is carrying out coordination with the New York and New Jersey State Historic Preservation Offices, the Advisory Council on Historic Preservation, Native American Tribes, and other interested parties. The authorization for this study does not allow the Corps to target protection of individual properties, however, some of the alternatives may help minimize the effects of coastal storm damage, but they would not affect impacts from other flooding.
229	The Corps should compare the models and land use and climate projections its using with those used in other regional programs, including the NY-NJ Harbor Estuary Program, the LI Sound Study, NY and NJ coastal zone management programs, NYS Hudson Estuary study, NYS Ocean Action Plan, Mid-Atlantic	The Department of the Army Engineer Regulation ER 1100-2-8162 (31 Dec 2013) requires that future sea level rise (SLR) projections must be incorporated into the planning, engineering design, construction and operation of all civil works projects. An overview of how USACE considers RSLC can be found at: https://planning.erdc.dren.mil/toolbox/library/LessonsLearned/Quick%20Reference%20-%20Climate%20Considerations%20Oct2018.pdf

	Regional Planning Body and Mid-Atlantic Regional Council on the Ocean.	
230	The Corps should consider the impacts of sea level rise on key sites and infrastructure such as the Indian Point Energy Center, the Chelsea Pump Station, and the Hudson River PCB clean up.	Concur, sea level rise and the potential impact it may have based on varying projections will be analyzed as part of this study, in particular for key infrastructure.
231	What guidance, policy regulations, etc., does the Corps follow when looking at climate change and sea level rise? Please provide the references.	The Department of the Army Engineer Regulation ER 1100-2-8162 (31 Dec 2013) requires that future sea level rise (SLR) projections must be incorporated into the planning, engineering design, construction and operation of all civil works projects. An overview of how USACE considers RSLC can be found at: https://planning.erdc.dren.mil/toolbox/library/LessonsLearned/Quick%20Reference%20-%20Climate%20Considerations%20Oct2018.pdf
232	Alternative 2 is the best alternative because flood walls and levees create hinderances to harbor/riverside amenities such as parks and offers the best option for rapid recovery including recovery from inland flooding.	Thank you for sharing. USACE study processes require an accounting of benefits and costs for the alternatives under consideration, whether barriers or local floodwalls.
233	I had heard that the Corps was forbidden from consulting with the National Flood Insurance Program on program impacts and therefore the Corps' project would have no effect on flood insurance rates. Is this true?	There is no prohibition against consulting with the NFIP. However, there is a prescribed process for calculating benefits, and most of flood insurance costs are not included in this process.
234	The Corps should move people and sensitive infrastructure out of floodplains and establish natural storm absorbers such as barrier islands, salt marshes and swamps.	Thank you for sharing. USACE will consider buyouts/acquisitions/relocations as appropriate in the next round of formulation, as well as natural and nature-based features, as feasible and appropriate for the existing ecosystems/bathymetry, etc.
235	Has New York state voiced its opinion on the proposals? Has New York state declared its support for one of the alternatives?	NYSDEC has committed to an open discussion of the benefits and costs of alternative concepts. We are early in the study process and the benefits and costs in the Interim Report are very preliminary.

236	What is New York state's involvement in this study? Can New York state legally end the study? What have they contributed to it?	New York State, through the Department of Environmental Conservation, serve as a co-non-federal sponsor on this study along with the NJDEP. Either non-federal sponsor (NYSDEC and NJDEP) can suspend or terminate the study within 30 days of written notice to USACE.
237	What powers impact the flood elevations on the Flood Insurance Rate Map?	This publication may be helpful, specifically chapter 2 for water surface elevations: National Research Council. 2015. Tying Flood Insurance to Flood Risk for Low-Lying Structures in the Floodplain. Washington, DC: The National Academies Press. https://doi.org/10.17226/21720.
238	Will each proposal be entirely funded by the federal government or will state governments and other entities have to help fund each proposal?	The study is cost-shared with New York State and the State of New Jersey and implementation would also be cost-shared with one or more non-federal partners.
239	Rather than wasting money, the Corps should admit the proposals are economically unfeasible.	The Corps analysis to date has not shown that the alternatives are economically infeasible. Please see the Interim Report for the economic analysis to date.
240	Every owner of land that will be protected by one of the proposed alternatives should contribute to the cost of the future studies.	The study is funded through taxpayer money, including that of landowners in the study area. The study must demonstrate federal interest in order to justify the benefit to the nation of spending federal tax dollars on a given study. In order for a project to be economically justified and recommended for implementation, analysis must determine that there is a net positive benefit to the national economy by constructing the recommended plan, i.e. it is a good investment of taxpayer dollars.
241	The Corps should consider RiverArch - Riparian Considerations proposals to provide flood protection for key areas - floodwalls, floodgate, rain-wells and an internal sewer system.	There is insufficient information here to provide a response. Please provide clarification.
242	The Corps should explore using living breakwaters such as oysters and seaweed to create a living wall that will slow down waves.	Concur, natural and nature-based features are being considered to address frequent flooding, including living breakwaters.
243	Breezy Point acts as a barrier island giving protectiong to the southern shoreline of Brooklyn, including Coney Island and Sea Gate. Shouldn't Breezy Point be given the same	Breezy Point shoreline measures will be considered in the next round of formulation for the draft report, when specific measures and siting will be investigated.

	stregthening work as the work recently conducted at Sea Gate?	
244	Nothing should be done until the political climate allows environmentally sound and responsible remediations to be developed.	Noted, thank you.
245	Many communities - Piermont and Stony Point, Rockland County; Kingston, Esopus, Saugerties, and Lloyd in Ulster County; and Catskill, Greene County - have already advanced plans for how to address sea-levell rise and the increased frequency and severity of storm events. The Corps should take into account these plans into its study.	Noted, thank you. The analysis will consider the information and effects on existing management plans that are in effect within the study area.
246	The Corps should consider the following in its study: Local Waterfront Revitalization Plans, Hudson River Comprehensive Restoration Plan, Hudson River Estuary Action Agenda, Hudson River Valley Greenway, Hudson River Watertrail Association, New York State Coastal Management Plan, The Hudson River Comprehensive Restoration Plan, Responding to Climate Change in New York State (ClimAID), New York state Sea Level Rise Task Force; Building the Knowledge Base for Climate Resilience: New York City Panel on Climate Change 2015; Protecting the Pathways: A Climate Change Adaptation Framework for Hudson River Estuary Tidal Wetlands; Scenic Hudson's Sea-level Rise Mapping Tool; Simulating Effects of Sea Level Rise on the Resilience and Migration of Tidal Wetlands along the Hudson River; storm Surge	Noted, thank you. The analysis will consider the information and effects on existing management plans that are in effect within the study area.

	Barriers: Ecological Special Concerns; and Dams and sediments on the Hudson study (See letter for web links)	
247	The Corps should consult the NY NJ Harbor Estuary Program Comprehensive Conservation and Management Plan (CCMP), the Long Island Sound Sudy CCMP, and the Long Island Sound Blue Plan.	Noted, thank you. The analysis will consider the information and effects on existing management plans that are in effect within the study area.
248	In-water barriers, levees, seawalls and other large-scale structural measures may provide a false sense of security and encourage further development and population density increases in low-lying areas.	Per Executive Order 11988, federal projects are evaluated for their potential to encourage development in floodplains, which is discouraged. Please also note per Section 308 of the Water Resources Development Act of 1990 that "(a) Benefit -Cost Analysis.--The Secretary shall not include in the benefit base for justifying federal flood damage reduction projects-- (1)(A) any new or substantially improved structure (other than a structure necessary for conducting a water-dependent activity) built in the 100-year flood plain with a first floor elevation less than the 100 -year flood elevation after July 1, 1991; or (B) in the case of a county substantially located within the 100-year flood plain, any new or substantially improved structure (other than a structure necessary for conducting a water -dependent activity) built in the 10-year flood plain after July 1, 1991; and (2) any structure which becomes located in the 100-year flood plain with a first floor elevation less than the 100-year flood elevation or in the 10 -year flood plain, as the case may be, by virtue of constrictions placed in the flood plain after July 1, 1991." Risk communication is an important part of the

		USACE feasibility study process and important for avoiding a "false sense of security".
249	The costs of operation and maintenance across the entire life cycle of the infrastructure should be included in the cost benefit analysis.	Concur, the cost of operation and maintenance across the life cycle of the project is included in the cost benefit analysis.
250	The alternatives, as described, do not provide equal flood management across the study area.	The alternative concepts currently under consideration do not have enough site-specific detail at this point for the study team to be able to engage on that level. Once the study progresses such that this level of detail is available, the levels of flood risk management will be calculated for each economic reach.
251	A small number of large in-water barriers as described in Alternatives 2 and 3A do not provide redundancy in the event of failure.	The alternative concepts currently under consideration do not have enough site-specific detail at this point for the study team to be able to engage on that level. Once the study progresses such that this level of detail is available, the levels of flood risk management and measures required for robustness and redundancy will be calculated.
252	Alternative 2 is the most environmentally just and socially conscious alternative and should be kept under consideration. Alternative 2 has the capacity to minimize the risk of massive destruction in the Metropolitan area and reduce disproportionate impacts to some of the most disadvantaged areas.	The benefits and costs for the alternative concepts are preliminary and are still being refined.
253	What factors, studies and funding concerns influence the federal government's decisions?	Different branches of the federal government and different federal agencies are governed by varying authorities and budgeting processes which influence how and why they are able to spend money and what they can work on. The Army Corps of

		Engineers has specific mission areas and is funded by Congress to execute our missions.
254	Will the Army Corps consent to making more of an effort to raise public awareness of this study?	The Corps has conducted a significant outreach effort throughout the early Feasibility Study process, in order to both raise awareness and promote involvement. Public interest in the Feasibility Study has been high, and continual communication has been essential because the impacts could be far reaching. The public outreach program began with scoping meetings and will continue throughout the study using a variety of public information and public involvement techniques.
255	What kinds of cost negotiations can be made with the federal government?	Incomplete comment, it is unclear what the question is asking.
256	Will the taxpayers be made aware of the costs and relative benefits of the alternatives so they can have a say in what they will be paying for?	Yes, the cost benefit analysis is shared publically. No plan can be recommended unless it is deemed a good investment of taxpayer dollars, with the benefits to the national economy exceeding the cost to implement the project.
257	Rather than construct a series of offshore barriers, the Corps should adopt an integrated system of discrete onshore project that would be less costly, more protective and less destructive to the environment and local communities.	Alternative 5 is an integrated system of discrete onshore projects. However, the analysis is preliminary, with actual measures and siting still to be determined.
258	Storm surge barriers could harm vulnerable communities with the exacerbation of flooding to areas adjacent to and outside of the barriers.	Any flooding induced by the project would need to be mitigated such that there is no induced flooding and the cost to mitigate it would be included in the cost-benefit analysis. Similarly the potential impacts would also be analyzed.

259	With sea level rise, in future years, overtopping the barriers, the vulnerable communities behind barriers will again be at risk.	Climate change is one of many global changes the Corps faces in carrying out its missions to help manage the nation's water resources infrastructure. This study is an effort to help the New York and New Jersey region plan for the long-term future on how to manage the growing risk of flooding, in the face of sea level change. For the alternatives that include storm surge barriers, the proposed storm surge barriers would remain open the majority of the time and could be closed in the event of a large storm or hurricane which threatens to flood the communities behind the barrier. To address frequent flooding which is expected to be exacerbated with sea level rise, complementary measures are also proposed, including natural and nature-based features like wetlands and living breakwaters. These nature-based features have an inherent natural adaptability that may allow them to naturally adapt to rising seas. Additionally, as long as sufficient upland habitat is included in the design, wetlands could migrate to higher elevations and protection for frequent flooding could still be provided, even if it is somewhat diminished. The design of any recommended plan will consider low, intermediate, and high sea level rise projections and be designed to function throughout the project life. Since future conditions are uncertain, potential adaptation strategies will also be developed and discussed, and in some cases may be built in. The Corps will conduct sensitivity analysis to assess the impacts and risks of the assumptions made for sea level rise in deciding what assumptions to include. Finally, even if sea levels rise faster than predicted, a barrier and complementary high frequency flooding features would still provide some protection and reduce the risk of flooding and the damage from flooding, so the investment would still have value to the region.
260	Offshore storm barriers could change the salinity of the Hudson River, Long Island Sound and the New York-New Jersey Harbor - altering the ecosystems associated with these waterbodies.	Concur, the potential impacts to water quality, salinity, and ecosystems will be carefully analyzed and impacts of any recommended plan will be avoided, minimized, and mitigated for.
261	Offshore storm surge barriers could change the sediment transport and distribution that would result in the distribution of harmful contaminants throughout the New York-New Jersey Harbor.	This issue will be carefully examined in the environmental impact analysis being performed as part of this study.

262	How far east of the Throgs Neck would the study consider impacts (such as induced flooding)?	The study will evaluate induced flooding to the extent that numerical modeling indicates that it may occur from a variety of possible annual exceedance probability, or AEP, conditions.
263	This study should include better alternatives such as a halt to the issuance of federal permits and other approvals for building and rebuilding in and over the public waterways, hurricane evacuation zone and floodplains that surround New York City.	USACE adheres to existing guidelines when making permit determinations. Changes to the permitting guidelines are beyond the scope of the current study effort.
264	Eliminate 'natural' or 'nature-based' alternatives or features that involve habitat-threatening fills and/or structures or other in water work that may alter or eliminate habitat features that are essential for maintaining the living marine resources.	Natural and nature-based features which would result in unacceptable habitat transfers would most likely be screened based on this criterion alone.
265	Sea barriers in western Long Island Sound will restrict tidal flushing and alter patterns of exchange between fresh and salt water and sedimentation.	The potential of storm surge barriers to impact tidal flushing/exchange and range, salinity and ecosystems, as well as sedimentation patterns is being analyzed as part of the environmental impact statement preparation for this study. Any projected impacts of an eventual recommended plan would need to be avoided, minimized, and mitigated for as part of this project.
266	How are you advancing natural surge barriers?	If by natural surge barriers, you mean barrier islands, we are not currently considering barrier islands. The locations where surge barriers are proposed to protect dense areas of population and infrastructure from storm surge are also areas with navigation channels and fish migration. Structural storm surge barriers have the added advantage of being able to remain open most of the time and closed when storm surge is imminent, which can theoretically still allow for navigation and fish migration. The study is, however, proposing other natural and nature-based features, such as living breakwaters and wetlands which are useful in helping to manage the risk of frequent flooding, attenuating wave action, and have inherent adaptability and resiliency in that they are able to accrete and migrate with sea level rise and recover after storms.

267	How will the study manage and address interior drainage resulting from storm water back up due to poor sewer and other water captures within the protected area.	Interior drainage is an important component to any coastal storm risk management project design. Without effective interior drainage, a proposed project may not be able to effectively capture the benefits of keeping water out of the system from adjacent water bodies if stormwater is caught inside the protective system with no way to drain. Therefore, this project will need to look at potential upgrades to the interior drainage to ensure that any project built can effectively drain during storm conditions. Interior drainage analysis and design is performed as part of the later stages of Feasibility Study design because it is sensitive to small changes in the general alignment of a project and time-consuming to adjust if other changes are still being made.
268	Barrier alernatives address short term storm surge risks, but would not address long-term risks resulting from sea level rise. There is a danger they would eventually be misused and closed permanently for sea level rise with great impacts to ecosystems and communities.	Non-concur. The proposed alternatives are proposed as a long-term planning initiative to investigate long term regional sustainability in the face of flood risk which will be greatly exacerbated due to sea level rise. The study team is looking closely at what other cities and regions have done in terms of storm surge barriers and gleaning lessons learned on design and operation to help avoid the scenario of overuse. High frequency flooding risk reduction measures are also proposed to complement proposed barriers and would be key to reducing the frequency of closure, even with sea level rise. Also, adaptability of all features will be analyzed and thought out such that there can be ways to adapt structures and measures if seas rise quicker than the design criteria assumed. There may be the need for minor increases in barrier closure as an adaptability measure, but permanently closing barriers would be an extreme and unacceptable management measure due to the impacts to navigation and the environment that this would incur. In order to redesign a constructed project or make significant changes to the operation of a constructed project, a Major Rehabilitation or Reformulation Study would need to be undertaken to study the potential impacts and analyze the feasibility of any major changes.
269	Any initative like this needs to be paired with appropriately scaled national action in response to climate change. Getting into an arms race with sea level rise without attempting to mitigate global warming will fail and would be an apocalyptic farce.	Climate policy and greenhouse gas regulation is outside the scope of this study and the mission areas/authority of the US Army Corps of Engineers. The Environmental Protection Agency regulates greenhouse gases and the US Congress, state and local legislatures, as well as some state and local agencies are responsible for climate and air emissions policy. However, adaptation is necessary regardless because even if all greenhouse gas emissions were to stop today, the effects of emissions to date would still continue to affect our climate for centuries to come

		(https://climate.nasa.gov/news/2533/short-lived-greenhouse-gases-cause-centuries-of-sea-level-rise/). Therefore, efforts to adapt to changing conditions, especially long term efforts which take years to study and build, cannot wait.
270	What about (1) stopping building in flood zones, (2) more people out of those areas and (3) interfere emission /CO2 + gases reduction recommendations.	Zoning rules and strategic retreat are purviews of local governments and may be proposed and discussed as part of this study. Climate policy and greenhouse gas regulations are the purview of Congress and the Environmental Protection Agency, respectively. While the Corps does look at buyouts and other non-structural measures to get people out of floodplains, these measures tend to be more effective in sparsely populated areas where it is less expensive to move people than protect them or pay for damages once they occur. This study area, however, includes more than one of the most densely populated areas in the United States, which makes moving people out infeasible in most of the study area. Nonetheless, non-structural measures are being considered for this study as a complement for some areas, where appropriate.
271	What info & who decides time to close & open gates?	Operational parameters for closing and opening the gates in a storm surge barrier would need to be established should any of the alternatives with barriers be recommended.
272	What category of storm 3, 4 or 5? What about beaches in a levee?	USACE coastal storm risk management projects are designed to statistically derived water elevations that do not directly correlate to any particular category of storm. The current storm condition being used for comparison purposes between the conceptual alternatives is the 1% annual exceedance probability condition with the intermediate relative sea level change projection. However, as the study progresses the team will work to "optimize" the federal investment by identifying the coastal storm condition that maximizes the net benefits of the tentatively selected plan. Coastal storm risk management structural measures have multiple safety considerations to address the potential for breeches or other conceptual failures. Generally, levees, surge gates or other similar coastal structure measures are designed to be overtopped without failure. Even if a storm surge barrier is overtopped with a storm that exceeds the design, it would still reduce the subsequent flooding from what would have occurred without the barrier in place.

273	For alternatives which do not protect the entire harbor, how will USACE make sure that the energy from storm surge water not increased and projected onto unprotected natural shorelines where the barriers are engaged?	Surge gates can alter flooding that otherwise would have occurred by behind and outside the gates locations when closed for any particular storm event. Both situations will be fully assessed during the study should any surge gate features be included in alternatives that evaluated further in the study.
274	Alternatives 2, 3A, 3B, and 4 will become inadequate in the face of rising sea levels.	This study is an effort to help the New York and New Jersey region plan for the long-term future on how to manage the growing risk of flooding, in the face of rising seas. For the alternatives that include storm surge barriers, the proposed storm surge barriers would remain open the majority of the time and could be closed in the event of a large storm or hurricane which threatens to flood the communities behind the barrier. To address frequent flooding which is expected to be exacerbated with sea level rise, complementary measures are also proposed, including nature and nature-based features like wetlands and living breakwaters. These nature-based features have an inherent natural adaptability that may allow them to naturally adapt to rising seas. Additionally, as long as sufficient upland habitat is included in the design, wetlands could migrate to higher elevations and protection for frequent flooding could still be provided, even if it is somewhat diminished. The design of any recommended plan will consider low, intermediate, and high sea level rise projections and be designed to function throughout the project life in the face of sea level rise. Since future conditions are uncertain, potential adaptation strategies will also be developed and discussed, and in some cases may be built in. The Corps will conduct sensitivity analysis to assess the impacts and risks of the assumptions made for sea level rise in deciding what assumptions to include. Finally, even if sea levels rise faster than predicted, a barrier and complementary high frequency flooding features would still provide some protection and reduce the risk of flooding and the damage from flooding, so the investment would still have value to the region.
275	What is the role of climate science policy at the state and federal level in evaluating and planning these systems?	Corps climate preparedness and resilience activities are undertaken to ensure reliable performance or mission and operations in changing conditions. Sensitivity analysis is performed to evaluate how alternatives may perform under various sea level rise conditions and what the implications would be under varying scenarios for project performance. This analysis is vital to risk-informed decision making in the face of uncertainty. Please refer to https://www.usace.army.mil/corpsclimate/ for more information.

276	Alternative 5 should be selected to protect against storm surge and sea level rise.	Comment acknowledged.
277	Alternatives proposed should be more concerned with higher frequency events and sea level rise issues, particularly a combination of perimeter local solutions, nature based solutions, and non-structural solutions.	The alternatives attempt to address both frequent and catastrophic flooding for comprehensive solutions that address grave risk to life safety and infrastructure from larger storms, as well as frequent flooding, which will be exacerbated by sea level rise. The alternatives do include a combination of perimeter solutions, nature-based solutions, and where appropriate, non-structural solutions, in addition to larger infrastructure solutions.
278	The set of alternatives is too narrow. The alternatives should include integral, nature-based solutions the approach the size+ scope of alternatives 2, 3A, 3B, and 4, such as large scale mudflat, shallow- water+wetland restoration of jamaica, and/or large scale reef restoration in Raritan bay. These are easier to incorporate with non-structural solutions like buyots and retreat, or local perimeter structural shoreline improvements. There should be a set of large-scale nature-based solutions on the same level as the alternatives proposed.	The alternative concepts presented at the scoping meetings are very preliminary and represent scales of solutions (from overall system-wide to regional to localized) rather than the traditional suite of alternatives presented in USACE studies. Actual locations and site-specific measures (whether structural, nonstructural, NNBF) have yet to be developed and analyzed for the upcoming draft report in 2020. The alternative concepts represent a reasonable range of solution scales to be considered, with the actual alternative components to be identified later.
279	Catastrophic failure of the structural alternatives should be part of the BCR equation and a higher priority should be placed on nature-based features which do not fail catastrophically and can adapt to uncertainty- SLR, storm frequency, intensity.	All coastal storm risk management measures have limitations and trade-offs. In general, structural measures footings, etc. are designed to withstand coastal storms greater than the storm condition they are designed to address such that if a more severe coastal event occurs, the structures are overtopped but do not fail catastrophically. Generally, natural and nature based features are best suited to more frequent, less severe events and as such do not well address the storm condition being used for initial evaluation in the study but will likely have greater application to any alternatives carried forward in the study. Adaptation is certainly an important consideration to all potential coastal storm risk management measures.

280	Proposals for natural and nature-based solutions should be of a similar scale to the other alternatives with perimeter structural solutions and a robust non-structural measure.	These alternative concepts presented at the scoping meeting are very preliminary and represent scales of solutions (from overall system-wide to regional to localized) rather than the traditional suite of alternatives presented in USACE studies. Actual locations and site-specific measures (whether structural, nonstructural, NNBF) have yet to be developed and analyzed for the upcoming draft report in 2020. The alternative concepts represent a reasonable range of solution scales to be considered, with the actual alternative components to be identified later.
281	Combining both sea level rise & storm surge heights-in feet or meters- will we-NYC- be protected? 5 ft high, 8ft high, what height?	The storm condition which maximizes the net benefits for the selected alternative will be determined in 2021, should the study proceed to that stage. Currently, the 1% AEP with intermediate SLR is being used for comparison purposes. The height of this selected condition varies over the study area from 12 ft. to over 20 ft. from current sea level.
282	Climate changing all the time. Recommend doing nothing except to enforce no more building bood plans.	Alternative 1 is the No Action plan and is compared against all other alternatives. If the analysis shows that no federal action is preferable, then that is what the study would recommend.
283	Considering there is no comprehensive plan in place to address climate change and rising sea level, doesn't it seem counter productive to spend billions on flood mitigation when the core problem remains in unaddressed? Wouldn't it be more productive in the long run to first address and implant a cohesive rational policy to stop and/or reverse climate change?	Non-concur. A comprehensive approach to climate change includes adapting to changing conditions, especially when considering large-scale solutions that require years of study, years to build, interagency cooperation, and significant public engagement. As seen with Hurricane Sandy, there is substantial risk to human life and infrastructure in this region due to coastal flooding, which stands to increase with sea level rise. The Corps has authority and funding to study possible solutions, with engaged partners, and has thus been tasked with this study.
284	The basic problem seems to be the flooding of low lying areas in the New York City and New Jersey areas. The most logical and economic solution would be sea walls and berms. There should be nothing done to inhibit the flow of the Hudson River. The majority of "solutions" would have a direct effect on the river including the stopping of tides, which you admitted not looking at yet.	Seawalls and berms are among the measures being considered and Alternative 5 does not include in-water barrier. This is being evaluated and compared against the other alternatives for screening. The storm surge barriers included in Alternatives 2, 3A, 3B, and 4 would have gates that remain open the majority of the time so as to allow for tidal exchange, navigation, species migration, etc. The potential impacts to tidal exchange, ecosystems etc. is also being evaluated as part of this study. Any recommended alternative would need to avoid, minimize, and mitigate for impacts.

285	Will there be a significant increase in water velocity with the installation of gates?	Typically, storm surge gates cause elevated velocities nearfield to the structures as a result of entraining of the flows around the tower structures, however this would have to be numerically modeled to determine the amount and what other effects that these increased flows may cause. The study team is working with the Coast Guard as a Cooperating Agency and will carefully incorporate navigational safety into the design parameters of any plan that moves forward in the study.
286	How will the gates be built to accommodate the shipping traffic in the harbor?	Navigation gates/openings would be included in the design. The study team is working with the Coast Guard as a Cooperating Agency and would consult carefully to ensure navigational safety.
287	Is it possible to close off all of the smaller inlets around the harbor and build the wall around as much of Manhattan as possible to provide protection?	Conceptual alternatives 3B, 4, and 5 include a number of shoreline-based features to address coastal storm risk exposure to Manhattan Island (among other features). How those features and alternatives fare compared to other coastal storm risk management approaches is one of the primary initial screening goals for the NYNJHAT study.
288	Your barrier leaves the historic museum of Ft. Schuyler, the naval operational support center and SUNY maritime unprotected. Flood berms should be provided for protection.	As an agency of the federal government, the U.S. Army Corps of Engineers must comply with NEPA and Section 106 of the National Historic Preservation Act which requires that they take into account the effects of any undertaking on historic properties. As part of the Environmental Impact Assessment the District is considering the potential effects associated with each of the proposed alternatives and is carrying out coordination with the New York and New Jersey State Historic Preservation Offices, the Advisory Council on Historic Preservation, Native American Tribes, and other interested parties. The authorization for this study does not allow the Corps to target protection of individual properties. As plans are further developed the protection of individual structures outside the area of protection from the barriers and floodwalls may be considered. In addition, the District will ensure, in accordance with Corps policy, that the measures will not cause flooding to these properties as the study progresses.
289	Rather than barriers, focus on community-specific plans to protect people and infrastructure.	Several alternatives include shoreline-based measures to address specific areas of high coastal storm risk along the shoreline, and may be carried further in the study. Further, non-structural measures such as greater coastal storm risk education, warming systems and evacuation planning are likely to be incorporated into any alternative that is carried further in the study. Coastal storm risk management is a shared responsibility between all levels of government and the people.

290	Will the barriers prevent the normal tidal movement of the river?	The goal would be to allow for and support continued tidal movement and minimize any impacts to such. The study team is analyzing potential impacts and any recommended plan would need to avoid, minimize, and mitigate for impacts.
291	Any plan needs to address sea level rise due to climate change at the same time as addressing risk of storm surge.	It is outside of the scope and authority of this study and the Corps to enact climate policy or regulate greenhouse gas emissions. However, the study can look at ways to manage the growing risk from rising sea level, which is one of the objectives of the study.
292	How can we help redirect water and protect construction sites in progress?	Redirection of water from any coastal storm risk management measure under contemplation in the study would need to be evaluated to ensure that the redirection (to the extent that it may occur) does not cause unaddressed induced flooding elsewhere. In general, construction sites and contracts generally have requirements to avoid impacts from any coastal storm events that may occur during construction but it is an inherent risk associated with construction in an area at risk from coastal storms.
293	Alternatives that address flooding from storm surge and sea level rise should be provided	The proposed alternatives do include measures to address flooding from both storm surge and frequent flooding which will be exacerbated by sea level rise.
294	There should be a holistic shore based approach to flooding from sea level rise.	Concur, the alternatives include complementary measures to address frequent flooding which will be exacerbated by sea level rise.
295	Building sea walls that affect the rivers is not the answer. We should work with nature.	Comment acknowledged.
296	Additional detail is needed about the alternative plans, including the size and number of all ship and tidal exchange gates in all barrier alternatives and the sea level threshold for closure of the gates.	This detail has not yet been developed, but once it is will be essential for impact evaluation. Performing Tiered NEPA analysis will allow the study team to first address broad impacts more conceptually and then address the site-specific detailed impacts once the design is refined enough to answer questions such as this.
297	In-water storm surge barriers would permanently damage the Hudson River estuary and its life and do nothing to stop damage from sea level rise.	The study team is currently analyzing the potential impacts of the proposed alternatives. Impacts from any recommended plan would be avoided, minimized, and mitigated for. If the impacts are deemed to be unacceptable, then that alternative would need to either be reworked or screened out. It is not accurate that the alternatives would not address damage from sea level rise. Complementary measures are proposed to address this type of frequent flooding which stands to be exacerbated due to sea level rise.

298	The possibility of flooding from these alternatives, particularly along the Hudson River is very possible.	There is always a risk of flooding in flood prone areas, even with structures in place that are designed to manage and reduce this risk, because a storm can come which exceeds the design of the coastal storm risk management structure. Additionally, there may be residual risk that is not feasibly addressed with a recommended plan. This study will look at and attempt to measure the residual risk among the various alternatives, and the continued risk with the No Action alternative. For the No Action alternative, the risk of coastal flooding is expected to increase with future sea level rise, including along the Hudson River. The possibility of induced flooding is also being evaluated as part of this study. Preliminary results are discussed in the Interim Report released on February 19, 2019. The study will continue to evaluate the potential for induced flooding and ways to avoid, minimize, and mitigate for any induced impacts.
299	Proposals should consider less gray infrastructure and more green alternatives such as living shorelines and restored wetlands as gray infrastructure is insufficiently adaptable to be responsive to sea level rise and the rising frequency of 100-year storms.	The alternatives have an integrated approach using both gray and green infrastructure and attempting to target solutions to where they have been shown to be most effective. Adaptiveness in the face of uncertain future conditions is a key component to the evaluation and analysis process that the study team is undertaking.
300	According to Professor Klaus Jacobs, Columbia University, Lamont-Doherty Earth Observatory - barriers are short-tem solutions that cause long-term issues because they don't address sea level rise. When sea level rise becomes comparable to storm surges, which may be as early as 2050, barriers will need to close permanently to keep out the rising ocean. Permanently closing the barrier would prevent the rivers from getting to the ocean. Flooding inside the barrier would be as high as the ocean on the opposite side of the barrier. NYC and inland river communities will have to address the full amount of sea level rise.	Water levels similar to those observed during Hurricane Sandy landfall are not projected to occur in the area from sea level rise alone for at least a century, under the USACE high projection. All surge gates are assumed to remain open during ambient conditions during the project life (of 50 years) as well as the planning horizon (of 100 years). To address this concern in the even longer term, the authorization for the surge gates could potentially include explicit language to forbid permanent closure. From a practical engineering standpoint, the surge gates are not designed to remain in the closed position permanently as this would preclude maintenance and repairs. Putting aside the severe environmental impact to the estuary that this would cause, if USACE was directed to implement permanent diking of the NYNJHAT estuary from the ocean, this would need to be done using other measures, such as seawalls, and would require new study/authorization and environmental impact analysis.

301	It was mentioned that sector gates are preferred to those in Rotterdam. Do they require dry docks when they are not deployed? And if so, would dry docks require construction on land? How would this be accomplished in dense urban NYC?	Current conceptualized alternatives involving surge gates have assumed design approaches as have been implemented in other locations most similar to the NYNJHAT study area. The cost of maintenance throughout the project life is included in the cost estimates of the alternatives and in the cost-benefit analysis used to screen alternatives. Floating sector gates are typically maintained by having a closed cofferdam area where the gate structure is housed (effectively a dry dock) so maintenance on the gate structure can be performed there. The real estate costs, including easements for construction and maintenance, will be included in the cost-benefit analysis and the impact analysis. There are other types of storm surge barriers that do not require on-land dry docking and may be more appropriate for denser parts of the study area. The tradeoffs and appropriateness of the various designs will be considered as part of this study and further refined in the Pre-Construction Engineering and Design Phase, if the study results in an approved and funded recommendation.
302	Natural and nature-based features have been listed on each alternative but not mapped. How much will these methods be weighted when modeling the impacts under each alternative?	Each measure included within any alternative under consideration must work in a complementary fashion to other measures in the alternative and to the extent that any measure or set of measures can be separated from the others hydrodynamically and economically, it or they need to be individually justified based on their costs and potential outputs.
303	How frequently would storm gates be deployed?	Gate closure is dependent upon many factors, many of which vary by location. The Interim Report describes the conditions assumed initially comparison purposes.
304	What is being done to address sunny day flooding and sea level rise? Why not use alternatives like dunes, wetlands and reefs?	Concur, natural and nature-based features such as dunes, wetlands, and reefs are being considered as complementary measures to address frequent flooding such as sunny day and high tide flooding, all of which will be exacerbated by sea level rise.
305	Will the gates in 3A, 3B and 4 at the Throgs Neck and Pelham create a bottleneck increasing the rise of flooding in the Bronx and Queens?	Only conceptual alternative 3A has a surge gate structure at the Throgs Neck and modeling does indicate the potential for isolated induced flooding outside the barrier, so that potential impact warrants further evaluation in the study should that alternative be carried forward. As for the Pelham Bay surge gate structure (in conceptual alternatives 2-4), it has not been modeled separately but it would need to be if this feature is carried further in the study. Generally, the relatively small area affected by the Pelham Bay surge gate feature is doubtful to cause induced flooding given its size relative to western Long Island Sound but modeling would be needed to confirm this.

306	How will Alternative 2, 3A, 3B and 4 be adapted for sea level rise and will it be expensive?	Measures in any "with project" alternative will either incorporate future sea level rise in the initial design/construction of the measure and/or will include future design considerations for making modifications to the measure over time if and as sea level rise warrants such modifications. Further refinement of this will be necessary for any measures that are carried forward in the study.
307	How will Alternative 2 address daily sea level rise flooding over the next 20 to 50 years? (i.e. no storm, gates open)	The regions within the NYNJHAT study area that are susceptible to coastal flooding due solely to sea level rise impacts (e.g., Broad Channel in Jamaica Bay) are fairly limited as compared to the entire study area, however more areas will become susceptible as sea level rise continues. For such areas as it relates to conceptual alternative 2, a broad range of additional shoreline-based measures (including structural, non-structural and natural and nature based features) to address the more frequent, less severe flooding for when the surge gate structures are open and as sea level rise continues.
308	How will Alternative 5 address daily sea level rise flooding over the next 20 to 50 years? (i.e. no storm)	The regions within the NYNJHAT study area that are susceptible to coastal flooding due solely to sea level rise impacts (e.g., Broad Channel in Jamaica Bay) are fairly limited as compared to the entire study area, however more areas will become more susceptible as sea level rise continues. For such areas as it relates to conceptual alternative 5, a broad range of additional shoreline-based measures (including structural, non-structural and natural and nature based features) may be implemented over time to address new areas that may be subject to more frequent flooding as sea level rise continues.
309	Will this feasibility study evaluate sea level rise flooding w/o storms?	Sea level rise does not occur in the absence of coastal storms as coastal storms are part of the existing condition and expected to continue. The primary purpose of the study is to evaluate all flooding risks posed by coastal processes over time. Coastal storms and sea level rise are integral to each other and to address one without the other in any alternative would be tenuous if not outright flawed. While flooding from sea level rise alone is far more frequent, its impacts are also far less severe than those of more severe coastal storm events, as Hurricane Sandy well demonstrated, which caused tens of billions of dollars in property damage and multiple storm-related fatalities.

310	How long will these gates be designed to be useful? How do these storm gates and measures address sea level rise? How high will they be designed to be? At what year would they be over topped, since "all walls will be over topped?"	The study presently uses the maximum 50 year "period of analysis" for economic evaluation/justification purposes but extends to 2100 for the "planning horizon". Since the project is likely to be utilized and last longer than the period of analysis, there is a need to analyze the affects and consider a longer planning horizon in the feasibility study. The period of analysis is the subset of the planning horizon over which we consider plan effects. The surge gates in conceptual alternatives 2, 3A, 3B, and 4 would be designed to address coastal storms into the future as they may be exacerbated by continued sea level rise. Their height would vary and depend on several factors including the location of the gate structure, the storm condition to which they're designed, as well as the projected sea level rise for that location. The storm condition which may overtop any of the proposed coastal storm risk management features is varied and would be subject to further study if/as those features advance in the study.
311	Is there a proposed timetable for how long each Alternative would take to build?	Yes. Construction duration estimates are included in the Interim Report (Cost Appendix) released on February 19, 2019.
312	Is there a project impact analysis that considers how effective each alternative would be?	The evaluation of each conceptual alternative also considers the residual risks (e.g., areas that are have unaddressed coastal storm risk) so the effectiveness of each conceptual alternative to broadly address coastal storm risks in the study area is considered.
313	If the gate project was approved tomorrow how long will it take to build?	The Interim Report will contain estimates (based on parametric analyses) of how long each feature in each conceptual alternative may require to construct, were that feature and alternative authorized, funded and supported by the non-federal sponsors after the feasibility study. Given the scale of the features, construction may require a few years to several, beyond a decade, which assumes funding for construction is unconstrained.
314	Combined sewer overflows or CSO's have a damaging impact on this region as a result of even slight flooding. Can more aggressive CSO measures be included within this study to reduce their future impacts further?	It is possible that mitigation would include CSO prevention measures if the recommended plan would worsen the existing CSO problems, yes. If a proposed USACE plan would worsen existing CSOs, USACE is required to provide what is known as minimum facility, or measures to bring the stormwater levels back to where they would be in the absence of a project.

315	What might be the impact of heavy rainfall events in the Estuary upstream?	Water surface elevations resulting from a rainy period of 1,000 hours (roughly 42 days) were estimated using the Adaptive Hydraulics Model with closed surge barriers in place at Throgs Neck, Verrazano Narrows, and Arthur Kill. Typical storms with significant rain typically last on the order of 1-3 days, not 42 days, so the resulting water surface elevations are conservative. At 150 hours (roughly 6 days) with closed surge barriers, water surface elevations behind the barriers rose approximately 2 meters, which is the equivalent to the maximum tidal range in the harbor).
316	Keep Alternative 6 - all onshore measures moving forward to the next round of public comment	There is no Alternative 6 at this time. If you mean Alternative 5, the shoreline based measures only, it has not been screened out of the array of alternatives as of the Interim Report to be released on February 19, 2019, which is available for public comment.
317	An in-water barrier that would open and close regularly for shipping would do nothing for rising sea levels	This study is an effort to help the New York and New Jersey region plan for the long-term future on how to manage the growing risk of flooding, with consideration of climate change. For the alternatives that include storm surge barriers, the proposed storm surge barriers would remain open the majority of the time and could be closed in the event of a large storm or hurricane which threatens to flood the communities behind the barrier. To address frequent flooding which is expected to be exacerbated with sea level rise, complementary measures are also proposed, including natural and nature-based features like wetlands and living breakwaters. These nature-based features have an inherent natural adaptability that may allow them to naturally adapt. Additionally, as long as sufficient upland habitat is included in the design, wetlands could migrate to higher elevations and protection for frequent flooding could still be provided, even if it is somewhat diminished. The design of any recommended plan will consider low, intermediate, and high sea level change projections and be designed to function throughout the project life. Since future conditions are uncertain, potential adaptation strategies will also be developed and discussed, and in some cases may be built in. The Corps will conduct sensitivity analysis to assess the impacts and risks of the assumptions made for sea level rise in deciding what assumptions to include. Finally, even if sea levels rise faster than predicted, a barrier and complementary high frequency flooding features would still provide some protection and reduce the risk of flooding and the damage from flooding, so the investment would still have value to the region.

318	Will the barrier have to close permanently if normal high tide will result in Sandy-like water levels?	Water levels similar to those observed during Hurricane Sandy landfall are not projected to occur in the area from sea level rise alone for at least a century, under the USACE high projection. All surge gates are assumed to remain open during ambient conditions during the project life (of 50 years) as well as the planning horizon (of 100 years). To address this concern in the even longer term, the authorization for the surge gates could potentially include explicit language to forbid permanent closure. From a practical engineering standpoint, the surge gates are not designed to remain in the closed position permanently as this would preclude maintenance and repairs. Putting aside the severe environmental impact to the estuary that this would cause, if USACE was directed to implement permanent diking of the NYNJHAT estuary from the ocean, this would need to be done using other measures, such as seawalls, and would require new study/authorization and environmental impact analysis.
319	will the barrier have to close permanently in order to maintain water levels? Will any tide be able to reach the river?	No, the Corps does not envision permanent closure of any proposed storm surge barriers, ever. All surge gates are assumed to remain open during ambient conditions during the project life (of 50 years) as well as the planning horizon (of 100 years). To address this concern in the even longer term, the authorization for the surge gates could potentially include explicit language to forbid permanent closure. Should sea level rise beyond that which is assumed in the study, then a new authority/study would need to be done to assess potential alternatives to addressing the changed conditions. This would require impact analysis as well. Currently, the NYNJHAT study area is defined by all shorelines that currently have tidal influences and therefore coastal storm risk exposure. Potential impacts to tidal range from any of the proposed alternatives that advance in the study will be assessed as part of the impact analysis for this study.
320	The smaller scale, localized and more natural projects should be put in place sooner. A more massive project does not seem to be a good use of resources, particularly the Sandy Hook and Verrazano Narrows alternatives (2 and 3A)	Comment noted.
321	The Corps should build a greater awareness to encourage sensible building and stewardship of areas prone to flooding.	Comment noted.

322	Financial incentives for people to storm-harden and lift waterfront properties and disincentives to future development in flood-prone areas should be explored.	Concur, however, financial incentives are beyond the scope of the USACE mission areas.
323	The plans for Alternative 2 looks to include a roadway that could connect New Jersey and the Rockaway Peninsula. If this were built it would harm the whole area due to the over abundance of automobile traffic it would bring to the area.	If a roadway were proposed as an element of this alternative, a full transportation study would need to be done to analyze potential impacts and inform the design.
324	How does the Army Corps intend to manage raw sewage effluent and debris that will inevitably get stuck behind the proposed barriers?	Raw sewage effluent is a result of CSOs and there may be an opportunity to mitigate the effect of CSOs as part of this project. Debris management will be a component of the operations and maintenance of any project and there may be opportunities to include trash racks, catchment basins, etc. to help make debris management more efficient.
325	What are the impacts to the communities outside the proposed Throgs Neck Barrier, specifically in terms of flooding deflection?	USACE is currently evaluating this impact. Preliminary model simulations indicate that there may be some induced flooding in some conceptual alternatives (notably conceptual alternatives 2 and 3A) that extend beyond the primary study area into western Long Island Sound and the New York Bight Apex. This will be evaluated more for any alternative that moves forward in the study and that has such potential impacts.
326	Looks like gated in NYC will constrict/restrict water flow from LIS. This would lead to storm water rise in eastern Long Island Sound, especially during a northeast storm.	Preliminary modeling indicates that any effects of surge gates (particularly in alternatives 2 and 3A) in Long Island Sounds are localized to areas of western Long Island Sound. These effects will be evaluated further should either of these alternatives advance in the study.
327	What will you do to ameliorate coastal flooding in Westchester?	Shoreline-based features are identified in Westchester along the Hudson River in conceptual alternatives 3B-5. Further features may be identified for Westchester shoreline both along the Hudson River and western Long Island Sound, should any of these conceptual alternatives be advanced in the study.
328	Is there an opportunity to add an alternative after options are narrowed down? Or are the only options the existing alternatives that survive?	These alternative concepts presented at the scoping meeting are very preliminary and represent scales of solutions (from overall system-wide to regional to localized) rather than the traditional suite of alternatives presented in USACE studies. Actual locations and site-specific measures (whether structural, nonstructural, NNBF) have yet to be developed and analyzed for the upcoming draft report in 2020. The

		alternative concepts represent a reasonable range of solution scales to be considered, with the actual alternative components to be identified later.
329	How long will the gates be closed? Will it be closed more frequently? How long will the gates be closed during a Nor'easter?	Currently, for evaluation purposes, the study team is assuming that the surge gates would be closed for any event that exceeds the 50% annual exceedance probability (AEP) condition, and to increase as sea level rise causes this water level to be exceeded more often over time. However, this would need to be evaluated considerably further in subsequent stages of the study should any conceptual alternative involving surge gates be advanced in the study.
330	How were the location in Westchester County identified for shoreline-based measures?	Preliminary shoreline-based features in Westchester County were identified using existing GIS and numerical modeling data of potential water level and flood events for the selected storm condition. Should any conceptual alternative that has such features (conceptual alternatives 3B-5) advance in the study, these features will be further refined and other features may be added to those alternatives.
331	Were any Long Island Sound communities considered for flooding/storm surge susceptibility? Why are no measures considered for Long Island Sound? Can coastal storm surve in Western, Central and Eastern portion of Long Island Sound?	A separate focus area study from USACE's NACCS is identified for the northern Long Island Sound shoreline (Connecticut) and the southern shoreline of Long Island Sound has previously been evaluated for coastal storm risk management the US Army Corps of Engineers. For these reasons, this area is not included in the NYNJHAT study.
332	Are you working closely with Lamont-Doherty Earth Observatory at Columbia University? They have knowledge of the Hudson River and of climate change.	The study team has not to date engaged to a large degree with the expertise of the Lamont-Doherty Earth Observatory at Columbia University on this study. The New York District has worked with them in the past, however, and may engage outside expertise, as necessary as the study progresses.
333	Why not combine Alternative 1 and Alternative 5?	All of the projects in Alternative 1 (the future without project condition without federal action as a result of this study) are already incorporated into the other alternative concepts (2 through 5). The incorporation of these projects will affect economic justification for each alternative on an individual basis. The alternative concepts have been shown without the assumed projects, and with the assumed projects. However, they are built into the benefits modeling.

334	Why study measures that don't protect against sea level rise?	This study is an effort to help the New York and New Jersey region plan for the long-term future on how to manage the growing risk of flooding, with consideration of climate change. For the alternatives that include storm surge barriers, the proposed storm surge barriers would remain open the majority of the time and could be closed in the event of a large storm or hurricane which threatens to flood the communities behind the barrier. To address frequent flooding which is expected to be exacerbated with sea level rise, complementary measures are also proposed, including natural and nature-based features like wetlands and living breakwaters. These nature-based features have an inherent natural adaptability that may allow them to naturally adapt. Additionally, as long as sufficient upland habitat is included in the design, wetlands could migrate to higher elevations and protection for frequent flooding could still be provided, even if it is somewhat diminished. The design of any recommended plan will consider low, intermediate, and high sea level change projections and be designed to function throughout the project life. Since future conditions are uncertain, potential adaptation strategies will also be developed and discussed, and in some cases may be built in. The Corps will conduct sensitivity analysis to assess the impacts and risks of the assumptions made for sea level rise in deciding what assumptions to include. Finally, even if sea levels rise faster than predicted, a barrier and complementary high frequency flooding features would still provide some protection and reduce the risk of flooding and the damage from flooding, so the investment would still have value to the region.
335	Did you review the proposed flood risk management plan for the Village of Mamaroneck? What is the impact of the coastal storm risk plan on the Village of Mamaroneck?	The Chief's Report and other documents produced for the Mamaroneck Flood Risk Management Study have been used as sources of existing information. Any impact that the New York-New Jersey Harbor and Tributaries Coastal Storm Risk Management Study would have on the flood risk management project in Mamaroneck would be considered.
336	Is the Army Corps incorporating individual community flood control infrastructures into its big plan?	To the extent that notable existing coastal storm risk management projects are known, or such projects are planned (with associated funding and permits in place), these are being incorporated into Alternative 1 (i.e., the "no action" alternative) to establish a baseline for comparison to what may be conceptualized in the "with project" alternatives.
337	Can the Corps evaluate flooding from rain or sea level rise in this study or only storm surge flooding?	The Corps can and will evaluate the feasibility of managing risk from both frequent flooding and larger events.

338	What determines the scope of threats addressed by this study?	The study authority defines the study scope and purpose, which is coastal flood risk management. Please see the Interim Report for more information on the study authority.
339	Does this study address sea level rise flooding on days without storms?	Sea level rise does not occur in the absence of coastal storms as coastal storms are part of the existing condition and expected to continue. The primary purpose of the study is to evaluate all flooding risks posed by coastal processes over time. Coastal storms and sea level rise are integral to each other and to address one without the other in any alternative would be tenuous if not outright flawed. While flooding from sea level rise alone is far more frequent, its impacts are also far less severe than those of more severe coastal storm events, as Hurricane Sandy well demonstrated, which caused tens of billions of dollars in property damage and multiple storm-related fatalities.
340	Does Alternative 2 or Alternative 5 address sea level rise flooding (no storms)?	Sea level rise does not occur in the absence of coastal storms as coastal storms are part of the existing condition and expected to continue. The primary purpose of the study is to evaluate all flooding risks posed by coastal processes over time. Coastal storms and sea level rise are integral to each other and to address one without the other in any alternative would be tenuous if not outright flawed. While flooding from sea level rise alone is far more frequent, its impacts are also far less severe than those of more severe coastal storm events, as Hurricane Sandy well demonstrated, which caused tens of billions of dollars in property damage and multiple storm-related fatalities.
341	What are the plans for the rest of the estuary?	Should any conceptual "with project" alternative advance in the study, additional features - notably non-structural and natural and nature-based features are likely to be added for areas of coastal storm risk that do not currently have features identified. All features in any alternative under evaluation in the NYNJHAT study are subject to refinement and modification through the iterative study process.
342	How will the inability during a storm of CSOs being prevented from flow out the area being addressed?	The project will need to mitigate for impacts caused by the project. Therefore, if the recommended plan would worsen the combined sewer overflow problem, there is an opportunity to help mitigate for it. Potential mitigation could include, upgrades to the interior drainage system, nature-based features, green infrastructure, or even upgrades to wastewater treatment plants, if warranted.
343	Would the sea wall increase the risk of flooding in adjacent areas without additional protective structures?	Perhaps, the possibility of inducing flooding is being investigated and measures to mitigate any induced flooding would be included in the overall design and the cost-benefit analysis for any recommended plan.

344	The Thames barrier, which is shown as an example, was expected to be closed 1-2 times per year but was closed 50 times in 2013-2014. Do you expect closures to have a similar frequency?	While the surge gate design example of the Thames barrier might be considered in select locations in the NYNJHAT study, the flooding dynamics and geographic/hydrodynamic conditions in the Thames area is considerably different from those in the NYNJHAT study area. Possible surge gate activation/closure in the NYNJHAT study area would need to be evaluated further should any conceptual alternative involving surge gates advance in the study.
345	Who will be responsible for operating and maintaining these structures?	The non-federal sponsor(s) would most likely be responsible, as that is the standard approach for Corps civil work projects once built. However, this will be worked out in subsequent phases to establish an operation, maintenance, repair, replacement and rehabilitation manual that clearly lays out responsibilities, etc., for any feature in any conceptual alternative that may be advanced in the study.
346	Will the study look at recurring emissions or must we do 'nothing' to prevent or reduce sea level rise and extreme weather?	Climate policy is outside of the scope of this study and is outside of the mission area of the US Army Corps of Engineers. Climate policy is the purview of Congress, the Environmental Protection Agency as a regulator of greenhouse gas emissions, as well as state and local legislatures and some agencies.
347	Shoreline measures protect against storm surge. How will they impact rainfall flooding that drains by sheet flow?	Shoreline measures can have the inadvertent effect of catching sheetflow inside of the protective alignment if not coupled with interior drainage work. Therefore the design of any recommended plan would need to analyze the existing interior drainage and provide for upgrades, as warranted, to ensure that the project can fully drain during storm conditions.
348	You project sea-level rise but what about future storms? Is sea-level rise just a substitute word for climate change?	Sea level rise is accelerating due to global climate change and directly impacts the future conditions for which we plan and a major factor in flood risk planning. Future storms are very difficult to predict. Please see the Corps Climate Preparedness and Resilience website for more information on how the Corps incorporates Climate Change into our planning process: https://www.usace.army.mil/corpsclimate/Climate_Preparedness_and_Resilience/.
349	Since this project will not be constructed until likely 2024 what about more extreme sea level rise projects instead of intermediate? The models are likely to change by then and will likely get worse.	The study is initially evaluating/comparing possible conceptual alternatives to address the 1% annual exceedance probability (AEP) condition (i.e. in any given year there is a 1% chance of a storm coming that would exceed this size event) with the intermediate sea level rise projection but as the study advances, addressing coastal flooding risks associated with more frequent lesser storm events and sea level rise alone will be evaluated in more detail if and as justified. As established sound science is advanced (e.g., updated models) and incorporated by USACE, it will be incorporated into the study alternatives and design.

350	Is the 100-year storm the standard tract is being studied?	The 1% annual exceedance probability (AEP) storm condition, sometimes referred to as the 100-year event, was selected for initial comparison of the conceptual alternatives but if and as the study advances, subsequent stages of the study would see what storm condition maximizes the net benefits of whatever alternatives advance in the study, such that the final selected storm condition might be more or less probable than the 1% AEP storm condition.
351	We know that storms are becoming more extreme. Will you be studying the impact of more severe storms?	The regional or local effects of climate change on making coastal storm risks more severe is evolving and not sufficiently well established to utilize, as of yet, in future coastal feature designs. As the science advances and is incorporated into USACE engineering regulations, it will be incorporated into the study alternative design and formulation.
352	One of the risks is back-flooding as the barriers must be closed more and more over time. How will this back-flooding from the rivers be prevented?	Any structural coastal storm risk management measure, whether surge gate or shoreline-based floodwall or levee, would need to consider and address the potential for flood water behind the measure (from inland sources), if applicable. As for river discharge during ambient conditions with any of the potential surge gate features under evaluation, the gate structures allow tidal exchange as well as river discharge without causing back-flooding.
353	What happens when the wall closes to the water upstream or behind the wall? Where does the water go?	Conceptually, any inland water sources whether from tributaries, point sources, or inland drainage needs to be factored into the design of structural coastal storm risk measures such as surge gates or floodwalls/levees. Typically, this is managed by either ensuring sufficient storage capacity behind these structures to accommodate the inland/backside inputs or by pumping methods to discharge these flows outside of the structural measures.
354	Have you referred to the MTA/MNRs studies with regard to the Hudson River post Sandy?	Yes, USACE coordinated with the MTA on its post Sandy recovery projects (NYC MTA, MNR) as part of the North Atlantic Coast Comprehensive Study (USACE 2015). As part of the current effort, we have contacted MTA for updates on projects to inform our baseline assumptions.
355	What sea level rise will the solution be projected to?	The study is currently using the USACE intermediate sea level rise projection but if and as the study advances, other sea level rise projections will be evaluated to ensure that the plan identified and ultimately recommended takes into account, explicitly, the uncertainties associated with sea level rise. Potential adaptation strategies will also be included in the study, with sensitivity analyses on what would happen if sea level rise were to rise more rapidly, or less so.

356	What is the extent of sedimentation change studies?	If and as the study advances, any of the proposed features that may affect sedimentation patterns and rates in the study area (and beyond) will be evaluated. These are largely focused upon in-water measures such as surge gates, but conceptually shoreline-based measures may also affect upland sediment sources into the estuary.
357	With sea level rise, at what point do you anticipate that these measures will no longer be effective?	For the planning horizon of year 2100, the conceptual features in the various "with project" alternatives would likely address all current sea level rise projections. Should these projections materially change, as science advances, this may be reevaluated but currently the features should be effective through this planning horizon.
358	Do you anticipate that shoreline measures will be headed by the end of this century?	Any measures that may be implemented as a result of this study may need to be reevaluated at the end of this century as the science and conditions then warrant. The study primary focus is for addressing coastal storm risks in this study area this century.
359	How many of the alternatives have already been implemented by USACE or others in other regions? How effective have they been? What impacts have they caused? How were impacts resolved?	Actions by USACE and other entities in this area are accounted for in the baseline assumptions, also known as the 'future without project condition'. The projects, along with the criteria for their inclusion in our assumptions, can be found in the Plan Formulation Appendix of the Interim Report.
360	I am concerned about the quality of modeling data you will receive on sea level rise from NOAA given the director, Barry Myers is a climate change denier. How will the scientific integrity of the data used in the study is maintained given the current political climate?	USACE follows a prescribed planning process, with rigorous review (including external reviewers for projects that exceed set cost, risk, or potential impact criteria, like this one). Any models used in the decision making process must be reviewed and certified by subject matter experts in order to be used. Regarding climate change, please see an overview at: https://planning.erdc.dren.mil/toolbox/library/LessonsLearned/Quick%20Reference%20-%20Climate%20Considerations%20Oct2018.pdf
361	How long will the barriers during a persistent nor'easter?	This comment is incomplete, however if the question is asking how long the barriers would be closed during a nor'easter, barrier closure durations will be established as the study moves forward.
362	Do any alternatives include seawalls or other measures for Rockland County (Piermont, Nyack, Haverstraw, etc.,)?	Yes. In conceptual alternatives 3B-5, some features have been identified along the Rockland County shoreline. Should any of these alternative advance for further study, these features would be refined and possibly modified as data and the study warrant. Additional features in this area may also be added as study data and analyses warrant.

363	Is the flood potential for the lower Hudson Valley (Kingston) similar to what was seen in North Carolina?	Much of the North Carolina coastal flooding in 2018 was exacerbated by excessive fluvial flooding/rainfall, which would be a consideration in the study should any of the conceptual "with project" alternatives advance.
364	How often do you expect the gates to be closed with increased sea level rise?	Gate closure is dependent upon many factors, many of which vary by location. The Interim Report describes the initially assumed conditions being used for comparison purposes.
365	Has the Dutch advised the US that we not follow their example of betting on sea level rise?	The study team has been in communication with some coastal storm risk management experts in the Netherlands and gleaned lessons learned from them, including the applicability of certain measures to fit local topography and hydrodynamic regimes.
366	According to NOAA, under the worst case scenario, sea level will rise 9.8 feet by 2100. But it looks like the Corps assumes a worst-case scenario sea level rise of just 7 feet. Why?	USACE guidance contained in ER 1105-2-100, "Planning Guidance Notebook" states, "Strategies that would be appropriate for the entire range of uncertainty should receive preference over those that would be optimal for a particular rate of rise but unsuccessful for other possible outcomes." 9.8 ft. of rise is not considered explicitly, but is not ruled out. And, " A sensitivity analysis should be conducted to determine what effect (if any) changes in sea level would have on plan evaluation and selection." And, "If the plan selection is sensitive to sea level rise, then design considerations could allow for future modification when the impacts of future sea level rise can be confirmed." A plan would not be selected that would be effective for 7 feet of sea level change but would fail for 9.8 ft. At the very least, the adaptability would be built in to later account for uncertainty in the change rate, including possibly a higher rate not to exclude 9 ft. As far as why 7 feet- USACE guidance contained in ER-1110-2-8162, "Incorporating Sea Level Change in Civil Works Programs" states, " The 1987 NRC report recommended that feasibility studies for coastal projects consider the high probability of accelerating GMSL rise and provided three different scenarios.", and specifies the low, intermediate, and high scenarios.
367	Have there been or will there be modeling studies for the potential impact of each recommendation? I understand that any plan would also address mitigation by induced flooding.	Yes, please see the Interim Report to the planned modeling that the study team is targeting so far. Input received during the agency and public comment period will be used to help refine the further planned analysis/modeling. Also correct, any recommended plan would need to mitigate for any induced flooding as part of the project.

368	What have been the range of storm surges from nor'easters over the last 10-20 years compared to the estimated surge from installation of a gate in the western Long Island Sound (Throgs Neck)?	Induced flooding is being evaluated in the NYNJHAT study for the potential to increase flooding for what would have occurred otherwise from any coastal storm event, including nor'easters, in the areas outside of the Throgs Neck (in western Long Island Sound) as a possible result of surge gates at the Throgs Neck. USACE has selected 20 storms from the 1,050 available storms from North American Coast Comprehensive Study. These storms were selected to match the hazard curves near the with-project areas and specifically trying to best match the 50, 100 and 500 year storms. These 20 storms were simulated in the region of interest in the existing conditions (without surge barriers), and in the with-project (with closed surge barriers). Storm surge and meteorological measurements corresponding to the 1938–2013 period were sampled to define significant extratropical events (Northeasters). Of the 20 storms simulated, 16 showed water elevation differences between with-project and without-project of less than 0.5 feet. Of the remaining 4 storms, the differences were between 0.5 and 1 foot ONLY in the termini of Hempstead Harbor and Manhasset Bay and less than 0.5 feet everywhere else.
369	What will happen to the water that gets blocked out of NYC in the surrounding lands? What will happen to the sewage outfall?	Stormwater and wastewater management is a local responsibility. Please contact the City.
370	How often would sea barriers be tested assuming that they can be tested? How long would the tests last?	It is likely that the gates would need to be tested about once a year. It is unknown how long the tests would last, however, the goal would be for them to be as short as possible to minimize any impacts caused by the closure. This will be further evaluated as the study progresses.
371	How will this effect neighboring communities in terms of coastal flooding? Time frames before and after storms back u?	The potential effects of any features in any of the conceptual alternatives that are advanced in the study will be evaluated for possible adverse effects on neighboring areas (whether inside the defined study area or outside) to ensure that potential impacts, such as induced flooding, are acceptably addressed.
372	Marine Traffic flow - where will vessels wait out storm while the gates are closed?	Generally, during more severe coastal storm events, there is little navigation just before, during or after due to the effects of the coastal storm alone. Nonetheless, effects to navigation and safety will be analyzed for any navigation gate structure included in the conceptual alternatives, if they are advanced in the study. The Corps is working with the US Coast Guard as a Cooperating Agency on this study and will seek and incorporate their expertise on navigational safety as well.

373	Why was the study conducted in NYC, north of NYC, and the Jersey Shore but Long Island was not part of the study. Did Irene or Sandy reach the 100-year even level? Exactly what areas are being targeted for protection in this study?	The study area is largely bound by the watershed and by other areas that have been studied for Coastal Storm Risk Management, or CSRM, previously or are identified for separate study. Any particular coastal storm event, such as Hurricane Sandy, does not equate to any particular statistical condition unless a specific geographic location is set, meaning a 100-year flood event with a 1% annual chance in Lower Manhattan, has a different probability of occurrence at other locations. The NJNJHAT study is seeking to develop the best coastal storm risk management methods for all locations in the study area with substantial risk from coastal storms. The fundamental challenge is identify what the best means and methods for accomplishing this given the vastness and complexity of this study area.
374	Do surge gates move? How do boats get through them?	Yes, the gates are movable and would remain open most of the time so that boats and aquatic species can pass through them. They can be closed to protect vulnerable communities from flooding otherwise caused by storm surge.
375	Will sewage in Little Neck Bay be trapped there if surge gates are used?	The study will analyze the flows and sedimentation patterns and potential impacts from the various alternatives, including water quality. Any recommended plan would need to avoid, minimize and mitigate for impacts from the recommended plan.
376	Is there an increase in surge height on the high side of storm gates	During a storm event, wave runup against a closed surge gate (or other coastal feature) can increase water levels immediately adjacent to the surge gate, but broader induced flooding is dependent upon geographic and bathymetric features in the broader area around the surge gates. Evaluation of the wave runup as well as the broader potential induced flooding will be evaluated for any surge gate features that may be advanced for further evaluation in the NYNJHAT study.
377	will sea walls and or other surge protective features be built around the perimeter of properties to the east of the Throgs Neck? All properties will be flooded at the expense of this plan	Evaluation of the broader potential induced flooding will be conducted for any surge gate features advanced for further evaluation in the NYNJHAT study. Should there be such induced flooding, it would need to be mitigated by addressing the increased coastal storm risks for areas impacted by the induced flooding, if it cannot be minimized or avoided.
378	I encourage you to work towards non-structural alternatives only. Sea level rise is increasing and the regional plan association and other entities support manage retreat from the shorelines	Nonstructural treatments will be considered, where appropriate, in the next round of formulation. Depending on the topography, flows, and concentration of development, there may be cases where a structural solution is more effective than a purely nonstructural solution.

379	What is the depth of the East River at the gate location and how would gates be built to that depth?	-For the Newtown Creek Barrier, the authorized channel depth is -23 ft. MLLW, and the elevation for the preliminary proposal of the sill of the gate is -22 ft. MLLW (which is equivalent to -25 ft. NAVD88). According to NOAA charts, the approximate water depth in the area currently sited for the Throgs Neck surge gate features is -40-45 ft. NAVD88. Surge gates of this depth of water have been constructed elsewhere and are considered potentially feasible for this area, subject to further evaluation should this feature advance in the study. Surge gates, if ultimately recommended, would be designed such that navigation would continue through the open barriers.
380	Historically has a buy out program below a given number of feet of high water been effected including turning said land into public property	Once a structure is bought out the land on which it sits is not eligible for development.
381	what is the cause of rising coastal sea rise and global warming	Sea-level change has been the focus of intense interest by the U.S. water resources science agencies (NOAA and USGS), along with other agencies contributing to the U.S. Global Change Research Program where it has been general but not unanimous consensus among the scientific community that global climate change and sea level change is caused by anthropogenic greenhouse gas emissions.
382	The NYSDEC informed the Village of Saddle Rock, NY it could not build a floodwall greater than 10 feet above mean low water. He stated that Saddle Rock has seen four 100-year storm events in the past 10 years. He stated that during one of these events the storm surge was at 18 feet above mean sea level, and he believes that, if the Throgs Neck gate is built, the storm surge will reach 26 feet above mean sea level. He urged the Corps to consider an alternative with barriers at the Verazzano-Narrows and at the Eastern end of Long Island (The Race) to “protect everyone.”	This possible alternative is beyond the New York District area of responsibility (AOR) but has been referred to our higher authority offices. Generally, the geographic/topographic along with hydrodynamic conditions of the Race pose serious challenges to design and construction of surge gate structures in this region. In conducting preliminary modeling to assess the potential for storm surge barriers to induce flooding, USACE has selected 20 storms from the 1,050 available storms from North American Coast Comprehensive Study. These storms were selected to match the hazard curves near the with-project areas and specifically trying to best match the 50, 100 and 500 year storms. These 20 storms were simulated in the region of interest in the existing conditions (without surge barriers), and in the with-project (with closed surge barriers). Storm surge and meteorological measurements corresponding to the 1938–2013 period were sampled to define significant extratropical events (Northeasters). Of the 20 storms simulated, 19 show a difference between the with-project (with a gate closed at Throgs Neck) and the without-project (existing condition) water surface elevation of less than 0.5 feet. Of

		the remaining (20th of 20) storms, the difference between the with and without-project conditions of less than 1 foot.
383	Which of the alternatives will include the Throgs Neck gate and/or affect the Long Island Sound?	All of the alternatives include the Throgs Neck and the western Long Island Sound, whether the flood risk would be addressed through barriers, floodwalls, or combinations thereof. The exact measures and their locations have not yet been determined.
384	It is Eastchester Bay not Pelham Bay which the "Pelham Bay" gate spans.	Although the proposed gate spans the "Pelham Bay Park" and is adjacent the "Pelham Parkway" the comment is correct and according to NOAA Navigation Chart 12366, the Hutchinson River appears to empty into the Eastchester Bay. The schedule did not allow for all documents associated with the Interim Report to be updated, however, all future references to this gate or study features in this location will be appropriately named "Eastchester Bay" and not "Pelham Bay" going forward.
385	When is the Corps going to study induced flooding?	USACE has performed some preliminary evaluations of potential induced flooding for the various "with project" conceptual alternatives involving larger surge gate features (i.e., alternatives 2-3B). Some induced flooding seems apparent in some locations related to these conceptual alternatives but further evaluation is necessary should any of these features be advanced in the study.
386	If there was induced flooding identified in relation to the Throgs Neck gate causing additional measures to be needed, would those additional measures be built before or after the large gate?	Should any construction result from this study, the implementation of any project features must be sequenced to avoid or eliminate the potential for increased flooding to any affected area, both those behind and those in front of those features.

387	NYC, NYSDEC, and NJDEP are all non-federal sponsors/cooperating agencies in this project. If any of these entities come out against an aspect of the project, will the Corps abandon the alternatives that include those options?	Once the study arrives at a tentatively selected plan, the non-federal study sponsors have the ability to put forth a Locally Preferred Plan (LPP) as the alternate recommendation, which can provide latitude when balancing priorities between state and federal objectives. The cost-sharing for a LPP may differ, depending on what it entails and whether that matches the federal authorizations and policies, but it is nonetheless a mechanism for the State to change a recommendation as long as the LPP has a benefit to cost ratio greater than one. If no LPP is put forth and the partners do not support the federal recommendation, or if the partners have other reasons, they can suspend or terminate the study for any reason within 30 days of written notice to USACE.
388	To mitigate the problem of storm damage a culvert should be installed in Coney Island Creek to restore the flow of stormwater	Stormwater management is a local responsibility. Please contact the City of New York regarding stormwater issues.
389	What will be the impact on riverside businesses if the water level rises?	It would depend on how much the water level rises, how quickly, and what measures, if any, are taken by others to manage this risk/damage. If water levels rise such that they threaten the safety and structural integrity of the buildings, the businesses would need to move, would be destroyed and need to be rebuilt, or the businesses would need to invest in floodproofing to get them out of the floodplain and reduce the risk of flooding.
390	What will be the impact on large industrial complexes such as the Indian Point nuclear power plan, Sing Sing Correctional Facility, the sewage treatment plants in Ossing and Peekskill and the MTA Hudson Line maintenance garage and freight yard near Croton Landing?	Many of these complexes are captured in the critical infrastructure layer of our inventory of resources at risk. The study team has attempted to capture if these facilities have embarked on disaster recovery plans that will address future flood risk and include that work in our baseline assumptions.
391	The best and most proven ways to protect populations are: evacuation of low areas in advance of storms; prepare for flooding so that infrastructure and energy systems are minimally damaged by high water; and release flood-prone lands from structures that can be built elsewhere.	Noted.

392	This study should take into account other existing and planned flood proposals.	Concur, the study team has conducted extensive outreach with local, state, and federal agencies and groups to identify all flood risk projects that are part of the future without project condition. These are presented in the Interim Report. Each alternative is compared against the No Action/Future Without Project Condition to help assess and screen the alternatives.

ATTACHMENT 2: COOPERATING AGENCY INVITATIONS

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT
JACOB K. JAVITS FEDERAL BUILDING
26 FEDERAL PLAZA
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September 22, 2017

Planning Division

Paul Phifer, PhD
Assistant Regional Director - Ecological Services Northeast Region
Department of the Interior
U.S. Fish and Wildlife Service
Northeast Regional Office
300 Westgate Center Drive
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Subject: Invitation to be a Cooperating Agency in the Environmental Review for the New York and New Jersey Harbor and Tributaries (NYNJHATS) Coastal Storm Risk Management (CSRM) Feasibility Study

Dear Mr. Phifer:

The U.S. Army Corps of Engineers, New York District (District), in cooperation with the New York State Department of Environmental Conservation (NYSDEC) and New Jersey Department of Environmental Protection (NJDEP), and in partnership with the City of New York, is undertaking a feasibility study to examine measures to reduce future flood risk and the economic costs and risks associated with flood and storm events that are affecting the NYNJHATS study area, while contributing to the resilience of communities, important infrastructure, and the environment (Enclosure 1). As part of the feasibility study, the District will prepare environmental compliance documents pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended. The NEPA documents will evaluate environmental impacts from reasonable project alternatives and determine the potential for significant impacts related to reducing coastal storm risks in ways that support the long-term resilience and sustainability of the coastal ecosystem and surrounding communities as it relates to sea level rise, local subsidence and storms, as well as to reduce the economic costs and risks associated with large scale flood and storm events in the area. The NYNJHATS CSRM Feasibility Study will build on and supplement the *North Atlantic Coast Comprehensive Study: Resilient Adaptation to Increasing Risk* (NACCS, published in January 2015) and ongoing local, state, and federal efforts by other agencies and groups to improve regional resiliency.

The District is undertaking this effort pursuant to its responsibilities under Section 7 of the Endangered Species Act and the Fish and Wildlife Coordination Act (16 U.S.C. 661-666c). The team is in the preliminary stages of the feasibility study and environmental impact analysis, and does not yet have a detailed timeline.

As part of the environmental review process for this project, the District is required by law[1] to identify, as early as practicable, any federal and non-federal agencies that

[1] Section 2045 of the Water Resources Development Act of 2007 (33 U.S.C. 2348), as amended.

may have an interest in the project, and invite such agencies to become participating agencies in the environmental review process[2]. This letter is a formal invitation to participate as a cooperating agency for the Study.

Should your agency choose to assume cooperating status, your agency's specific responsibilities as a cooperating agency will include:

- Attendance at and input during agency coordination meetings
- Comment and feedback on the schedule, overall scope of the NEPA document(s), significant issues to be evaluated, environmental impacts, study and assessment methodologies, range of alternatives and proposed compensatory mitigation, if applicable
- Guidance on relevant technical studies required as part of the NEPA analysis
- Identification of issues related to your agency's jurisdiction by law and special expertise
- Participation, as appropriate, at public meetings and hearings
- Timely review of the administrative and public drafts of the Draft Integrated Feasibility Report/NEPA document and Final IFR/NEPA document;
- Providing staff support at the lead agency's request to enhance the latter's interdisciplinary capability.

As a cooperating agency, you have the right to expect that the NEPA document will enable you to discharge your jurisdictional responsibilities. Likewise, you have the obligation to tell us if, at any point in the process, your agency's requirements are not being met. We expect that, at the end of the NEPA process, the NEPA document(s) will satisfy your NEPA requirements including those related to project alternatives, environmental consequences and mitigation.

If your agency does not wish to be a cooperating agency, your agency still has the opportunity to become a participating agency in the environmental review process. As a participating agency, you will be afforded the opportunity, together with the public, to be involved in defining the purpose of and need for the project, as well as in determining the range of alternatives to be considered for the project. These opportunities will build on the early participation opportunities that

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were provided during the Alternatives Analysis process. In addition, you will be asked to:

- Provide input on the impact assessment methodologies and level of detail in your agency's area of expertise;
- Participate in coordination meetings, conference calls, and joint field reviews, as appropriate;
- Review and comment on sections of the pre-draft or pre-final environmental documents to communicate any concerns of your agency on the adequacy of the document, the alternatives considered, and the anticipated impacts and mitigation.

Your agency does not have to accept this invitation to be a cooperating agency or a participating agency. If, however, you elect not to become a cooperating agency, you must decline this invitation in writing, indicating that your agency has no jurisdiction or authority with respect to the project, no expertise or information relevant to the project, or does not intend to submit comments on the project[3]. The declination may be transmitted electronically to Ms. Daria Mazey, Project Biologist at daria.s.mazey@usace.army.mil.

In order to give your agency adequate opportunity to weigh the relevance of your participation as either a cooperating agency or a participating agency or both in this environmental review process, written response to this invitation is not due until October 20, 2017.

We look forward to your response to this request and your role as a cooperating or participating agency on this study. If you have questions or would like to discuss in more detail the project or our agencies' respective roles and responsibilities during the study process, please contact Ms. Mazey at (917) 790-8726 or email above.

Sincerely,

Cliffo[illegible]. Jones
Chief, Plann[illegible]ng [illegible]on

Enclosure

[3] Per Section 1005 of WRRDA 2017, which amends Section 2045 of WRDA 2007

United States Department of the Interior

FISH AND WILDLIFE SERVICE
3817 Luker Road
Cortland, NY 13045

November 28, 2017

Clifford Jones
Chief, Planning Division
U.S. Army Corps of Engineers
New York District
Jacob K. Javits Federal Building
26 Federal Plaza
New York, NY 10278-0090

Dear Mr. Jones:

Thank you for your recent letter inviting the U.S. Fish and Wildlife Service (Service) to be a cooperating agency pursuant to National Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et seq.*) in the environmental review for the U.S. Army Corps of Engineers' (Corps) New York and New Jersey Harbor and Tributaries Coastal Storm Risk Management (NYNJHAT) Feasibility Study. We accept the invitation to participate as a cooperating agency in the environmental review process for the NYNJHAT study, consistent with our expertise and jurisdictional interests. At this point in time, we anticipate involvement of staff from two field offices: the Long Island Field Office and the New Jersey Field Office.

In accepting your invitation to become a cooperating agency, we hereby agree to the following responsibilities, as outlined in the invitation letter:

- Attendance at, and input during, agency coordination meetings that are focused on resource concerns or sensitive areas identified by the Service;
- Comment and feedback on the schedule, overall scope of the NEPA document(s), significant issues to be evaluated, environmental impacts, study and assessment methodologies, range of alternatives, and proposed compensatory mitigation, if applicable;
- Provide guidance on relevant technical fish and wildlife studies required as part of the NEPA analysis;
- Identification of issues related to our agency's jurisdiction by law and special expertise;
- Participation, as appropriate and as time permits, at public meetings and hearings;
- Timely review of the administrative and public drafts of the NEPA document;
- Development of a mutually acceptable schedule for document review; and

- Provide staff support at the lead agency's request to enhance the latter's interdisciplinary capability.

Early involvement of the Service, with other agencies, in project planning and NEPA scoping is necessary for achieving full consideration of fish and wildlife resource values and for resolving resource conflicts. We therefore look forward to working with the Corps and the other participating agencies in this important effort, including the development of a transfer of funding agreement as per the Fish and Wildlife Coordination Act, as amended (FWCA; 48 Stat. 401, as amended; 16 U.S.C. 661 *et seq.*).

If you have any questions please contact Steve Papa of the Long Island Field Office at (631) 286-0485 for projects in New York or Steve Mars of the New Jersey Field Office for projects in New Jersey at (609) 382-5267.

Sincerely,

David A. Stilwell
Field Supervisor

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT
JACOB K. JAVITS FEDERAL BUILDING
26 FEDERAL PLAZA
NEW YORK NEW YORK 10278-0090

September 22, 2017

Planning Division

John Bullard
Regional Administrator
Greater Atlantic Region Fisheries
Office of National Marine Fisheries Service
55 Great Repulic Drive
Gloucester, Massachusetts 01930

Subject: Invitation to be a Cooperating Agency in the Environmental Review for the New York and New Jersey Harbor and Tributaries (NYNJHATS) Coastal Storm Risk Management (CSRM) Feasibility Study

Dear Mr. Bullard:

The U.S. Army Corps of Engineers, New York District (District), in cooperation with the New York State Department of Environmental Conservation (NYSDEC) and New Jersey Department of Environmental Protection (NJDEP), and in partnership with the City of New York, is undertaking a feasibility study to examine measures to reduce future flood risk and the economic costs and risks associated with flood and storm events that are affecting the NYNJHATS study area, while contributing to the resilience of communities, important infrastructure, and the environment (Enclosure 1). As part of the feasibility study, the District will prepare environmental compliance documents pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended. The NEPA documents will evaluate environmental impacts from reasonable project alternatives and determine the potential for significant impacts related to reducing coastal storm risks in ways that support the long-term resilience and sustainability of the coastal ecosystem and surrounding communities as it relates to sea level rise, local subsidence and storms, as well as to reduce the economic costs and risks associated with large scale flood and storm events in the area. The NYNJHATS CSRM Feasibility Study will build on and supplement the *North Atlantic Coast Comprehensive Study: Resilient Adaptation to Increasing Risk* (NACCS, published in January 2015) and ongoing local, state, and federal efforts by other agencies and groups to improve regional resiliency.

The District is undertaking this effort pursuant to its responsibilities under the Magnuson-Stevens Fishery Conservation and Management Act, including Essential Fish Habitat. The team is in the preliminary stages of the feasibility study and environmental impact analysis, and does not yet have a detailed timeline.

As part of the environmental review process for this project, the District is required by law[1] to identify, as early as practicable, any federal and non-federal agencies that

[1] Section 2045 of the Water Resources Development Act of 2007 (33 U.S.C. 2348), as amended

may have an interest in the project, and invite such agencies to become participating agencies in the environmental review process[2]. This letter is a formal invitation to participate as a cooperating agency for the Study.

Should your agency choose to assume cooperating status, your agency's specific responsibilities as a cooperating agency will include:

- Attendance at and input during agency coordination meetings
- Comment and feedback on the schedule, overall scope of the NEPA document(s), significant issues to be evaluated, environmental impacts, study and assessment methodologies, range of alternatives and proposed compensatory mitigation, if applicable
- Guidance on relevant technical studies required as part of the NEPA analysis
- Identification of issues related to your agency's jurisdiction by law and special expertise
- Participation, as appropriate, at public meetings and hearings
- Timely review of the administrative and public drafts of the Draft Integrated Feasibility Report/NEPA document and Final IFR/NEPA document;
- Providing staff support at the lead agency's request to enhance the latter's interdisciplinary capability.

As a cooperating agency, you have the right to expect that the NEPA document will enable you to discharge your jurisdictional responsibilities. Likewise, you have the obligation to tell us if, at any point in the process, your agency's requirements are not being met. We expect that, at the end of the NEPA process, the NEPA document(s) will satisfy your NEPA requirements including those related to project alternatives, environmental consequences and mitigation.

If your agency does not wish to be a cooperating agency, your agency still has the opportunity to become a participating agency in the environmental review process. As a participating agency, you will be afforded the opportunity, together with the public, to be involved in defining the purpose of and need for the project, as well as in determining the range of alternatives to be considered for the project. These opportunities will build on the early participation opportunities that

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were provided during the Alternatives Analysis process. In addition, you will be asked to:

- Provide input on the impact assessment methodologies and level of detail in your agency's area of expertise;
- Participate in coordination meetings, conference calls, and joint field reviews, as appropriate;
- Review and comment on sections of the pre-draft or pre-final environmental documents to communicate any concerns of your agency on the adequacy of the document, the alternatives considered, and the anticipated impacts and mitigation.

Your agency does not have to accept this invitation to be a cooperating agency or a participating agency. If, however, you elect not to become a cooperating agency, you must decline this invitation in writing, indicating that your agency has no jurisdiction or authority with respect to the project, no expertise or information relevant to the project, or does not intend to submit comments on the project[3]. The declination may be transmitted electronically to Ms. Daria Mazey, Project Biologist at daria.s.mazey@usace.army.mil.

In order to give your agency adequate opportunity to weigh the relevance of your participation as either a cooperating agency or a participating agency or both in this environmental review process, written response to this invitation is not due until October 20, 2017.

We look forward to your response to this request and your role as a cooperating or participating agency on this study. If you have questions or would like to discuss in more detail the project or our agencies' respective roles and responsibilities during the study process, please contact Ms. Mazey at (917) 790-8726 or email above.

Sincerely,

Clifford S. Jones
Chief, Planning Division

Enclosure

[3] Per Section 1005 of WRRDA 2017, which amends Section 2045 of WRDA 2007

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
GREATER ATLANTIC REGIONAL FISHERIES OFFICE
55 Great Republic Drive
Gloucester, MA 01930-2276

Clifford S. Jones, Chief
Planning Division
New York District, U.S. Army Corps of Engineers
Jacob K. Javits Federal Building
26 Federal Plaza
New York, New York 10278-0090

OCT 26 2017

Re: New York and New Jersey Harbor and Tributaries (NYNJHATS) Coastal Storm Risk Management (CSRM) Feasibility Study; Cooperating Agency Request

Dear Mr. Jones:

Your letter dated September 22, 2017, requested that we participate as a cooperating agency in the environmental review for the New York and New Jersey Harbor and Tributaries (NYNJHATS) Coastal Storm Risk Management (CSRM) Feasibility Study. The U.S. Army Corps of Engineers, New York District (District), in cooperation with the New York State Department of Environmental Conservation and New Jersey Department of Environmental Protection, in partnership with the City of New York, is undertaking a feasibility study to examine measures to reduce future flood risk and the economic costs and risks associated with flood and storm events that are affecting the NYNJHATS study area, while contributing to the resilience of communities, important infrastructure, and the environment. As part of the feasibility study, the District will prepare environmental compliance documents pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended. These documents will evaluate environmental impacts from project alternatives and determine the potential for significant impacts related to reducing coastal storm risks in ways that support the long-term resilience and sustainability of the coastal ecosystem and surrounding communities. The study will include issues such as sea level rise, local subsidence and storms, as well as to reduce the economic costs and risks associated with large-scale flood and storm events in the area. The study will build on and supplement the North Atlantic Coast Comprehensive Study published in January 2015 and ongoing local, state, and federal efforts by other agencies and groups to improve regional resiliency. We agree to participate as a cooperating agency to help foster a collaborative process and interagency coordination on this project.

Because our role and degree of involvement as a cooperating agency is dependent on existing staff and fiscal resources, our contribution to the process will be limited to participating in project meetings and providing written comments in response to your documents prepared as part of the NEPA process. We will provide technical information identifying aquatic species and habitats of concern, identification of issues to be considered and evaluated during the NEPA process and guidance on evaluating, avoiding and minimizing project effects to our trust resources. At this time we are unable to undertake any data collection, conduct analyses or to prepare any sections of the NEPA documents as our staff and resources are fully committed to other obligatory programs of NOAA Fisheries.

Please note that our participation as a cooperating agency does not constitute an endorsement of this project, nor does it obviate the need for consultations required under the Magnuson-Stevens Fishery Conservation and Management Act, Fish and Wildlife Coordination Act, and the Endangered Species Act.

Thank you for the opportunity to participate as a cooperating agency on this project. We look forward to working with you and your staff as the study progresses. If you have any questions regarding this matter, please contact Karen Greene (732-872-3023, karen.greene@noaa.gov) or Ursula Howson (732 872-3116, ursula.howson@noaa.gov) in our New Jersey Field Office for information regarding essential fish habitat and other trust resources or Daniel Marrone (978-282-8465, daniel.marrone@noaa.gov) for information regarding threatened and endangered species.

Sincerely,

Louis A. Chiarella
Assistant Regional Administrator
For Habitat Conservation

cc: Mazey – ACOE NY
Greene, Howson- NMFS/HCD
Murray-Brown, Marrone - NMFS/PRD
Kim Damon –Randall NMFS/PRD

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT
JACOB K. JAVITS FEDERAL BUILDING
26 FEDERAL PLAZA
NEW YORK NEW YORK 10278-0090

September 22, 2017

Planning Division

Jennifer T. Nersesian, Superintendent
National Park Service
Gateway National Recreation Area
210 New York Avenue
Staten Island, NY 10305

Subject: Invitation to be a Cooperating Agency in the Environmental Review for the New York and New Jersey Harbor and Tributaries (NYNJHATS) Coastal Storm Risk Management (CSRM) Feasibility Study

Dear Ms. Nersesian:

The U.S. Army Corps of Engineers, New York District (District), in cooperation with the New York State Department of Environmental Conservation (NYSDEC) and New Jersey Department of Environmental Protection (NJDEP), and in partnership with the City of New York, is undertaking a feasibility study to examine measures to reduce future flood risk and the economic costs and risks associated with flood and storm events that are affecting the NYNJHATS study area, while contributing to the resilience of communities, important infrastructure, and the environment (Enclosure 1). As part of the feasibility study, the District will prepare environmental compliance documents pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended. The NEPA documents will evaluate environmental impacts from reasonable project alternatives and determine the potential for significant impacts related to reducing coastal storm risks in ways that support the long-term resilience and sustainability of the coastal ecosystem and surrounding communities as it relates to sea level rise, local subsidence and storms, as well as to reduce the economic costs and risks associated with large scale flood and storm events in the area. The NYNJHATS CSRM Feasibility Study will build on and supplement the *North Atlantic Coast Comprehensive Study: Resilient Adaptation to Increasing Risk* (NACCS, published in January 2015) and ongoing local, state, and federal efforts by other agencies and groups to improve regional resiliency.

The District is undertaking this effort pursuant to its responsibilities under the Marine Protection, Research, and Sanctuaries Act and the Clean Water Act. The team is in the preliminary stages of the feasibility study and environmental impact analysis, and does not yet have a detailed timeline.

As part of the environmental review process for this project, the District is required by law[1] to identify, as early as practicable, any federal and non-federal agencies that may have an interest in the project, and invite such agencies to become participating

[1] Section 2045 of the Water Resources Development Act of 2007 (33 U.S.C. 2348), as amended

agencies in the environmental review process[2]. This letter is a formal invitation to participate as a cooperating agency for the Study.

Should your agency choose to assume cooperating status, your agency's specific responsibilities as a cooperating agency will include:

- Attendance at and input during agency coordination meetings
- Comment and feedback on the schedule, overall scope of the NEPA document(s), significant issues to be evaluated, environmental impacts, study and assessment methodologies, range of alternatives and proposed compensatory mitigation, if applicable
- Guidance on relevant technical studies required as part of the NEPA analysis
- Identification of issues related to your agency's jurisdiction by law and special expertise
- Participation, as appropriate, at public meetings and hearings
- Timely review of the administrative and public drafts of the Draft Integrated Feasibility Report/NEPA document and Final IFR/NEPA document;
- Providing staff support at the lead agency's request to enhance the latter's interdisciplinary capability.

As a cooperating agency, you have the right to expect that the NEPA document will enable you to discharge your jurisdictional responsibilities. Likewise, you have the obligation to tell us if, at any point in the process, your agency's requirements are not being met. We expect that, at the end of the NEPA process, the NEPA document(s) will satisfy your NEPA requirements including those related to project alternatives, environmental consequences and mitigation.

If your agency does not wish to be a cooperating agency, your agency still has the opportunity to become a participating agency in the environmental review process. As a participating agency, you will be afforded the opportunity, together with the public, to be involved in defining the purpose of and need for the project, as well as in determining the range of alternatives to be considered for the project. These opportunities will build on the early participation opportunities that were provided during the Alternatives Analysis process. In addition, you will be

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asked to:

- Provide input on the impact assessment methodologies and level of detail in your agency's area of expertise;
- Participate in coordination meetings, conference calls, and joint field reviews, as appropriate;
- Review and comment on sections of the pre-draft or pre-final environmental documents to communicate any concerns of your agency on the adequacy of the document, the alternatives considered, and the anticipated impacts and mitigation.

Your agency does not have to accept this invitation to be a cooperating agency or a participating agency. If, however, you elect not to become a cooperating agency, you must decline this invitation in writing, indicating that your agency has no jurisdiction or authority with respect to the project, no expertise or information relevant to the project, or does not intend to submit comments on the project[3]. The declination may be transmitted electronically to Ms. Daria Mazey, Project Biologist at daria.s.mazey@usace.army.mil.

In order to give your agency adequate opportunity to weigh the relevance of your participation as either a cooperating agency or a participating agency or both in this environmental review process, written response to this invitation is not due until October 20, 2017.

We look forward to your response to this request and your role as a cooperating or participating agency on this study. If you have questions or would like to discuss in more detail the project or our agencies' respective roles and responsibilities during the study process, please contact Ms. Mazey at (917) 790-8726 or email above.

Sincerely,

Clifford S. Jones
Chief, Planning Division

Enclosure

[3] Per Section 1005 of WRRDA 2017, which amends Section 2045 of WRDA 2007

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT
JACOB K. JAVITS FEDERAL BUILDING
26 FEDERAL PLAZA
NEW YORK NEW YORK 10278-0090

September 22, 2017

Planning Division

Ms. Catherine McCabe
Acting Regional Administrator
U.S. Environmental Protection Agency - Region 2
290 Broadway
New York, New York10007-1866

Subject: Invitation to be a Cooperating Agency in the Environmental Review for the New York and New Jersey Harbor and Tributaries (NYNJHATS) Coastal Storm Risk Management (CSRM) Feasibility Study

Dear Ms. McCabe:

The U.S. Army Corps of Engineers, New York District (District), in cooperation with the New York State Department of Environmental Conservation (NYSDEC) and New Jersey Department of Environmental Protection (NJDEP), and in partnership with the City of New York, is undertaking a feasibility study to examine measures to reduce future flood risk and the economic costs and risks associated with flood and storm events that are affecting the NYNJHATS study area, while contributing to the resilience of communities, important infrastructure, and the environment (Enclosure 1). As part of the feasibility study, the District will prepare environmental compliance documents pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended. The NEPA documents will evaluate environmental impacts from reasonable project alternatives and determine the potential for significant impacts related to reducing coastal storm risks in ways that support the long-term resilience and sustainability of the coastal ecosystem and surrounding communities as it relates to sea level rise, local subsidence and storms, as well as to reduce the economic costs and risks associated with large scale flood and storm events in the area. The NYNJHATS CSRM Feasibility Study will build on and supplement the *North Atlantic Coast Comprehensive Study: Resilient Adaptation to Increasing Risk* (NACCS, published in January 2015) and ongoing local, state, and federal efforts by other agencies and groups to improve regional resiliency.

The District is undertaking this effort pursuant to its responsibilities under the Marine Protection, Research, and Sanctuaries Act and the Clean Water Act. The team is in the preliminary stages of the feasibility study and environmental impact analysis, and does not yet have a detailed timeline.

As part of the environmental review process for this project, the District is required by law[1] to identify, as early as practicable, any federal and non-federal agencies that

[1] Section 2045 of the Water Resources Development Act of 2007 (33 U.S.C. 2348), as amended

may have an interest in the project, and invite such agencies to become participating agencies in the environmental review process[2]. This letter is a formal invitation to participate as a cooperating agency for the Study.

Should your agency choose to assume cooperating status, your agency's specific responsibilities as a cooperating agency will include:

- Attendance at and input during agency coordination meetings
- Comment and feedback on the schedule, overall scope of the NEPA document(s), significant issues to be evaluated, environmental impacts, study and assessment methodologies, range of alternatives and proposed compensatory mitigation, if applicable
- Guidance on relevant technical studies required as part of the NEPA analysis
- Identification of issues related to your agency's jurisdiction by law and special expertise
- Participation, as appropriate, at public meetings and hearings
- Timely review of the administrative and public drafts of the Draft Integrated Feasibility Report/NEPA document and Final IFR/NEPA document;
- Providing staff support at the lead agency's request to enhance the latter's interdisciplinary capability.

As a cooperating agency, you have the right to expect that the NEPA document will enable you to discharge your jurisdictional responsibilities. Likewise, you have the obligation to tell us if, at any point in the process, your agency's requirements are not being met. We expect that, at the end of the NEPA process, the NEPA document(s) will satisfy your NEPA requirements including those related to project alternatives, environmental consequences and mitigation.

If your agency does not wish to be a cooperating agency, your agency still has the opportunity to become a participating agency in the environmental review process. As a participating agency, you will be afforded the opportunity, together with the public, to be involved in defining the purpose of and need for the project, as well as in determining the range of alternatives to be considered for the project. These opportunities will build on the early participation opportunities that

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were provided during the Alternatives Analysis process. In addition, you will be asked to:

- Provide input on the impact assessment methodologies and level of detail in your agency's area of expertise;
- Participate in coordination meetings, conference calls, and joint field reviews, as appropriate;
- Review and comment on sections of the pre-draft or pre-final environmental documents to communicate any concerns of your agency on the adequacy of the document, the alternatives considered, and the anticipated impacts and mitigation.

Your agency does not have to accept this invitation to be a cooperating agency or a participating agency. If, however, you elect not to become a cooperating agency, you must decline this invitation in writing, indicating that your agency has no jurisdiction or authority with respect to the project, no expertise or information relevant to the project, or does not intend to submit comments on the project[3]. The declination may be transmitted electronically to Ms. Daria Mazey, Project Biologist at daria.s.mazey@usace.army.mil.

In order to give your agency adequate opportunity to weigh the relevance of your participation as either a cooperating agency or a participating agency or both in this environmental review process, written response to this invitation is not due until October 20, 2017.

We look forward to your response to this request and your role as a cooperating or participating agency on this study. If you have questions or would like to discuss in more detail the project or our agencies' respective roles and responsibilities during the study process, please contact Ms. Mazey at (917) 790-8726 or email above.

Sincerely,

Clifford S. Jones
Chief, Planning Division

Enclosure

[3] Per Section 1005 of WRRDA 2017, which amends Section 2045 of WRDA 2007

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

OCT 20 2017

Clifford S. Jones
Chief, Planning Division
U.S Army Corps of Engineers,
New York District
26 Federal Plaza
New York, NY 10278-0090

RE: Invitation to be a Cooperating Agency in the Environmental Review for the New York and New Jersey Harbor and Tributaries (NYNJHATS) Coastal Storm Risk Management (CSRM) Feasibility Study

Dear Mr. Jones:

This is in response to a September 22, 2017 letter requesting that the Environmental Protection Agency (EPA) serve as a cooperating agency for the NYNJHATS CSRM study. EPA is pleased to accept the Corps invitation. Please note that due to resource constraints, EPA may be limited in our ability to physically attend project meetings. If conference lines are made available, we would be happy to participate by telephone or webinar.

We would like to remind you that our participation does not preclude our review under the National Environmental Policy Act and comment authority under Section 309 of the Clean Air Act. We look forward to working with you on this project, and to reviewing any preliminary environmental documents.

If you have any questions, please contact me at (212) 637-3738 or musumeci.grace@epa.gov.

Sincerely yours,

Grace Musumeci, Chief
Environmental Review Section

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT
JACOB K. JAVITS FEDERAL BUILDING
26 FEDERAL PLAZA
NEW YORK NEW YORK 10278-0090

September 22, 2017

Planning Division

John Rabin
Acting Regional Administrator
Federal Emergency Management Agency – Region II
Mitigation Division/EHP
One World Trade Center
New York, New York 10007

Subject: Invitation to be a Cooperating Agency in the Environmental Review for the New York and New Jersey Harbor and Tributaries (NYNJHATS) Coastal Storm Risk Management (CSRM) Feasibility Study

Dear Mr. Rabin:

The U.S. Army Corps of Engineers, New York District (District), in cooperation with the New York State Department of Environmental Conservation (NYSDEC) and New Jersey Department of Environmental Protection (NJDEP), and in partnership with the City of New York, is undertaking a feasibility study to examine measures to reduce future flood risk and the economic costs and risks associated with flood and storm events that are affecting the NYNJHATS study area, while contributing to the resilience of communities, important infrastructure, and the environment (Enclosure 1). As part of the feasibility study, the District will prepare environmental compliance documents pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended. The NEPA documents will evaluate environmental impacts from reasonable project alternatives and determine the potential for significant impacts related to reducing coastal storm risks in ways that support the long-term resilience and sustainability of the coastal ecosystem and surrounding communities as it relates to sea level rise, local subsidence and storms, as well as to reduce the economic costs and risks associated with large scale flood and storm events in the area. The NYNJHATS CSRM Feasibility Study will build on and supplement the *North Atlantic Coast Comprehensive Study: Resilient Adaptation to Increasing Risk* (NACCS, published in January 2015) and ongoing local, state, and federal efforts by other agencies and groups to improve regional resiliency.

The District is undertaking this effort pursuant to its responsibilities under Public Law 84-71, which calls for a survey "to be made of the eastern and southern seaboard of the United States with respect to hurricanes,…where severe damages have occurred.." The team is in the preliminary stages of the feasibility study and environmental impact analysis, and does not yet have a detailed timeline.

As part of the environmental review process for this project, the District is required by law[1] to identify, as early as practicable, any federal and non-federal agencies that

[1] Section 2045 of the Water Resources Development Act of 2007 (33 U.S.C. 2348), as amended

may have an interest in the project, and invite such agencies to become participating agencies in the environmental review process[2]. This letter is a formal invitation to participate as a cooperating agency for the Study.

Should your agency choose to assume cooperating status, your agency's specific responsibilities as a cooperating agency will include:

- Attendance at and input during agency coordination meetings
- Comment and feedback on the schedule, overall scope of the NEPA document(s), significant issues to be evaluated, environmental impacts, study and assessment methodologies, range of alternatives and proposed compensatory mitigation, if applicable
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- Identification of issues related to your agency's jurisdiction by law and special expertise
- Participation, as appropriate, at public meetings and hearings
- Timely review of the administrative and public drafts of the Draft Integrated Feasibility Report/NEPA document and Final IFR/NEPA document;
- Providing staff support at the lead agency's request to enhance the latter's interdisciplinary capability.

As a cooperating agency, you have the right to expect that the NEPA document will enable you to discharge your jurisdictional responsibilities. Likewise, you have the obligation to tell us if, at any point in the process, your agency's requirements are not being met. We expect that, at the end of the NEPA process, the NEPA document(s) will satisfy your NEPA requirements including those related to project alternatives, environmental consequences and mitigation.

If your agency does not wish to be a cooperating agency, your agency still has the opportunity to become a participating agency in the environmental review process. As a participating agency, you will be afforded the opportunity, together with the public, to be involved in defining the purpose of and need for the project, as well as in determining the range of alternatives to be considered for the project. These opportunities will build on the early participation opportunities that

[2] Designation as a "participation agency" or "cooperating agency" does not imply that the participating agency supports the proposed project or has any jurisdiction over, or special expertise concerning the proposed project or its potential impacts. A "participating agency" differs from a "cooperating agency," which is defined in regulations implementing the National Environmental Policy Act as "any Federal agency other than a lead agency which has jurisdiction by law or special expertise with respect to any environmental impact involved in a proposal (or a reasonable alternative) for legislation or other major Federal action significantly affecting the quality of the human environment" 40 CFR 4 - 1508.5.

were provided during the Alternatives Analysis process. In addition, you will be asked to:

- Provide input on the impact assessment methodologies and level of detail in your agency's area of expertise;
- Participate in coordination meetings, conference calls, and joint field reviews, as appropriate;
- Review and comment on sections of the pre-draft or pre-final environmental documents to communicate any concerns of your agency on the adequacy of the document, the alternatives considered, and the anticipated impacts and mitigation.

Your agency does not have to accept this invitation to be a cooperating agency or a participating agency. If, however, you elect not to become a cooperating agency, you must decline this invitation in writing, indicating that your agency has no jurisdiction or authority with respect to the project, no expertise or information relevant to the project, or does not intend to submit comments on the project[3]. The declination may be transmitted electronically to Ms. Daria Mazey, Project Biologist at daria.s.mazey@usace.army.mil.

In order to give your agency adequate opportunity to weigh the relevance of your participation as either a cooperating agency or a participating agency or both in this environmental review process, written response to this invitation is not due until October 20, 2017.

We look forward to your response to this request and your role as a cooperating or participating agency on this study. If you have questions or would like to discuss in more detail the project or our agencies' respective roles and responsibilities during the study process, please contact Ms. Mazey at (917) 790-8726 or email above.

Sincerely,

Clifford S. Jones
Chief, Planning Division

Enclosure

[3] Per Section 1005 of WRRDA 2017, which amends Section 2045 of WRDA 2007

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT
JACOB K. JAVITS FEDERAL BUILDING
26 FEDERAL PLAZA
NEW YORK NEW YORK 10278-0090

September 22, 2017

Planning Division

Captain Michael Day
Commander
US Coast Guard
Section New York
212 Coast Guard Drive
Staten Island, New York 10305

Subject: Invitation to be a Cooperating Agency in the Environmental Review for the New York and New Jersey Harbor and Tributaries (NYNJHATS) Coastal Storm Risk Management (CSRM) Feasibility Study

Dear Captain Michael Day:

The U.S. Army Corps of Engineers, New York District (District), in cooperation with the New York State Department of Environmental Conservation (NYSDEC) and New Jersey Department of Environmental Protection (NJDEP), and in partnership with the City of New York, is undertaking a feasibility study to examine measures to reduce future flood risk and the economic costs and risks associated with flood and storm events that are affecting the NYNJHATS study area, while contributing to the resilience of communities, important infrastructure, and the environment (Enclosure 1). As part of the feasibility study, the District will prepare environmental compliance documents pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended. The NEPA documents will evaluate environmental impacts from reasonable project alternatives and determine the potential for significant impacts related to reducing coastal storm risks in ways that support the long-term resilience and sustainability of the coastal ecosystem and surrounding communities as it relates to sea level rise, local subsidence and storms, as well as to reduce the economic costs and risks associated with large scale flood and storm events in the area. The NYNJHATS CSRM Feasibility Study will build on and supplement the *North Atlantic Coast Comprehensive Study: Resilient Adaptation to Increasing Risk* (NACCS, published in January 2015) and ongoing local, state, and federal efforts by other agencies and groups to improve regional resiliency.

The District is undertaking this effort pursuant to its responsibilities under Public Law 84-71 which calls for a survey “to be made of the eastern and southern seaboard of the United States with respect to hurricanes, with particular reference to areas where severe damages have occurred..” as well Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403) and Section 404 (33 U.S.C. 1344) of the Clean Water Act. The team is in the preliminary stages of the feasibility study and environmental impact analysis, and does not yet have a detailed timeline.

As part of the environmental review process for this project, the District is required by law[1] to identify, as early as practicable, any federal and non-federal agencies that may have an interest in the project, and invite such agencies to become participating agencies in the environmental review process[2]. This letter is a formal invitation to participate as a cooperating agency for the Study.

Should your agency choose to assume cooperating status, your agency's specific responsibilities as a cooperating agency will include:

- Attendance at and input during agency coordination meetings
- Comment and feedback on the schedule, overall scope of the NEPA document(s), significant issues to be evaluated, environmental impacts, study and assessment methodologies, range of alternatives and proposed compensatory mitigation, if applicable
- Guidance on relevant technical studies required as part of the NEPA analysis
- Identification of issues related to your agency's jurisdiction by law and special expertise
- Participation, as appropriate, at public meetings and hearings
- Timely review of the administrative and public drafts of the Draft Integrated Feasibility Report/NEPA document and Final IFR/NEPA document;
- Providing staff support at the lead agency's request to enhance the latter's interdisciplinary capability.

As a cooperating agency, you have the right to expect that the NEPA document will enable you to discharge your jurisdictional responsibilities. Likewise, you have the obligation to tell us if, at any point in the process, your agency's requirements are not being met. We expect that, at the end of the NEPA process, the NEPA document(s) will satisfy your NEPA requirements including those related to project alternatives, environmental consequences and mitigation.

If your agency does not wish to be a cooperating agency, your agency still has the opportunity to become a participating agency in the environmental review process. As a participating agency, you will be afforded the opportunity, together

[1] Section 2045 of the Water Resources Development Act of 2007 (33 U.S.C. 2348), as amended

[2] Designation as a "participation agency" or "cooperating agency" does not imply that the participating agency supports the proposed project or has any jurisdiction over, or special expertise concerning the proposed project or its potential impacts. A "participating agency" differs from a "cooperating agency," which is defined in regulations implementing the National Environmental Policy Act as "any Federal agency other than a lead agency which has jurisdiction by law or special expertise with respect to any environmental impact involved in a proposal (or a reasonable alternative) for legislation or other major Federal action significantly affecting the quality of the human environment" 40 CFR 4 - 1508.5.

with the public, to be involved in defining the purpose of and need for the project, as well as in determining the range of alternatives to be considered for the project. These opportunities will build on the early participation opportunities that were provided during the Alternatives Analysis process. In addition, you will be asked to:

- Provide input on the impact assessment methodologies and level of detail in your agency's area of expertise;
- Participate in coordination meetings, conference calls, and joint field reviews, as appropriate;
- Review and comment on sections of the pre-draft or pre-final environmental documents to communicate any concerns of your agency on the adequacy of the document, the alternatives considered, and the anticipated impacts and mitigation.

Your agency does not have to accept this invitation to be a cooperating agency or a participating agency. If, however, you elect not to become a cooperating agency, you must decline this invitation in writing, indicating that your agency has no jurisdiction or authority with respect to the project, no expertise or information relevant to the project, or does not intend to submit comments on the project[3]. The declination may be transmitted electronically to Ms. Daria Mazey, Project Biologist at daria.s.mazey@usace.army.mil.

In order to give your agency adequate opportunity to weigh the relevance of your participation as either a cooperating agency or a participating agency or both in this environmental review process, written response to this invitation is not due until October 20, 2017.

We look forward to your response to this request and your role as a cooperating or participating agency on this study. If you have questions or would like to discuss in more detail the project or our agencies' respective roles and responsibilities during the study process, please contact Ms. Mazey at (917) 790-8726 or email above.

Sincerely,

Clifford S. Jones
Chief, Planning Division

Enclosure

[3] Per Section 1005 of WRRDA 2017, which amends Section 2045 of WRDA 2007

ATTACHMENT 3: AGENCY AND TRIBAL CORRESPONDENCE

EMailed 11/6/18

United States Department of the Interior

FISH AND WILDLIFE SERVICE
3817 Luker Road
Cortland, New York 13045

November 5, 2018

Nancy Brighton
Environmental Analysis Branch
US Army Corps of Engineers, New York District
Room 2151
26 Federal Plaza
New York, New York 10278

Dear Ms. Brighton:

The U.S. Fish and Wildlife Service (Service) has reviewed the U.S. Army Corps of Engineers' (Corps) Notice of Intent to Prepare an Environmental Impact Statement (EIS) and Notice of Scoping for the New York/New Jersey Harbor and Tributaries Coastal Storm Risk Management Feasibility Study (NYNJHAT Study or Study) (Federal Register Notice 2018-02874).

Our comments are submitted in accordance with provisions of the National Environmental Policy Act (NEPA; 83 Stat. 852; 42 U.S.C. 4321 *et seq.*), the Endangered Species Act (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.), the Bald and Golden Eagle Protection Act (BGEPA; 54 Stat. 250, as amended, 16 U.S.C. 668a-d), the 2014 Memorandum of Understanding between the Corps and the Service regarding implementation of Executive Order (EO) 13186, Responsibilities of Federal Agencies to Protect Migratory Birds, the Migratory Bird Treaty Act (MBTA; 40 Stat. 755, as amended; 16 U.S.C. 703 *et seq.*), the Fish and Wildlife Coordination Act (FWCA; 48 Stat. 401, as amended; 16 U.S.C. 661 *et seq.*), the Clean Water Act of 1977 (86 Stat. 816, 33 U.S.C. 1344 *et seq.*), EO 11988, Floodplain Management (May 24, 1977; 42 FR 26951), and EO 11990, Protection of Wetlands (May 24, 1977; 42 FR 26961).

The purpose of our comments is to provide a brief summary of fish and wildlife resources in the NYNJHAT Study Area (Study Area) and recommend areas of study to address potential resource impacts that should be addressed in the EIS. As per the FWCA Transfer of Funding Agreement, the Corps has contacted the Service regarding the preparation of a Planning Aid Report for this portion of the feasibility analysis. We await the finalization of the Scope of Work between our agencies before we begin work on that report, which will establish the presence of any significant fish and wildlife resources likely to be affected; define resource concerns and opportunities that should be addressed by the study; define the potential significant impacts that could result from meeting other study objectives or purposes; provide recommendations to mitigate impacts; and define the scope and level of FWCA coordination that would be necessary during the feasibility phase of the project.

BACKGROUND AND INTRODUCTION

The Corps is the lead federal agency developing an EIS for the Study, which is authorized under Public Law 84-71, June 15, 1955 (69 Stat. 132). Under this authorization, the Corps will conduct an investigation into potential coastal storm risk management solutions for a study area that encompasses approximately 2,150 square miles of counties in both the states of NY and NJ, including parts of Bergen, Passaic, Morris, Essex, Hudson, Union, Somerset, Middlesex, and Monmouth Counties (in NJ) and Rensselaer, Albany, Columbia, Greene, Dutchess, Ulster, Putnam, Orange, Westchester, Rockland, Bronx, NY, Queens, Kings, Richmond, and Nassau Counties (in NY). The study area extends upstream of the Hudson River to the federal lock and dam at Troy, NY, the Passaic River to the Dundee Dam, and the Hackensack River to the Oradell Reservoir (Figure 1).

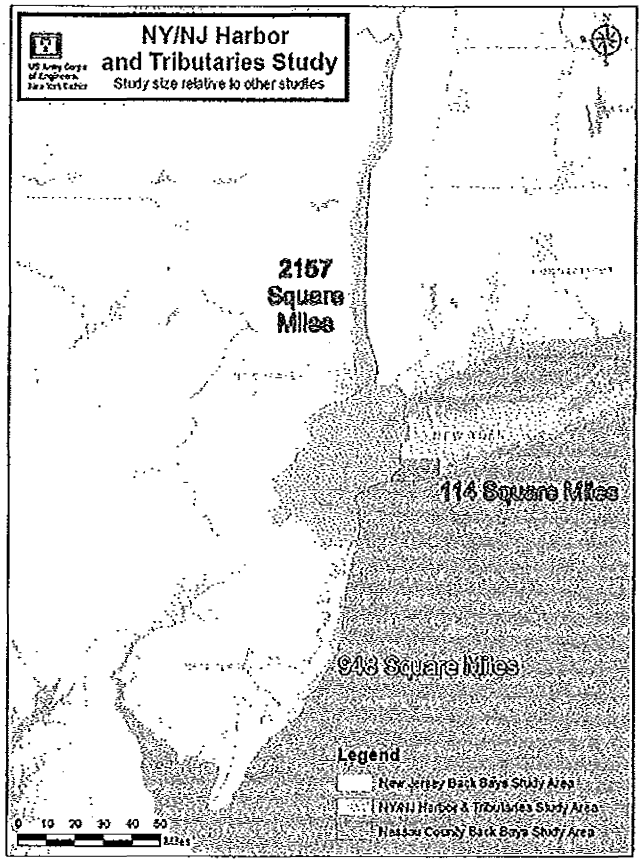

Figure 1. Map showing location of NYNJHAT Study Area and other Corps planning efforts.

The Service is providing the comments below as a cooperating agency during the NEPA process on this Study. To date, we have participated in preliminary coordination with the Corps and other agencies in the form of interagency scoping and information sessions conducted via teleconference and internet webinars.

According to the Corps, scoping of the EIS is being conducted in order to better screen alternatives, with input from public and resource agencies. Evaluation and comparison will be used to identify the Tentatively Selected Plan (TSP) later in the feasibility study. Environmental

considerations under study include changes to tidal range/regime, flow velocity, salinity concentrations, sedimentation rates, scour, and elevation, water quality, dissolved oxygen, nutrients, and phytoplankton biomass (*i.e.*, eutrophication), and pathogenic bacteria; anadromous/catadromous fish migration and aquatic species; marsh inundation; air quality; transportation (marine vessels, *etc.*); aesthetics and recreation; National Historic Landmarks and Historic Properties; listed species and critical habitat; noise and vibration; bay bottom impacts, as well as landside impacts; and location of Superfund, National Priority List, and other contaminated sites (see http://www.nan.usace.army.mil/Portals/37/docs/civilworks/projects/ny/coast/NYNJHAT/NYNJHAT%20NEPA%20Scoping%20Presentation%203%20Oct%2018.pdf?ver=2018-10-12-151150-907).

As noted in the September 20, 2018, public presentation available at https://www.nan.usace.army.mil/Portals/37/docs/civilworks/projects/ny/coast/NYNJHAT/Final%20NYNJHAT%20NEPA%20Scoping%20Pres%2020%20Sep%2018.pdf?ver=2018-10-12-152934-953, a two-Tier EIS will be prepared. The Tier 1 EIS will assess potential impacts more broadly, using all available information, and the Tier 2 EIS will include the site-specific detailed design information.

Specifically, the alternatives that the USACE is currently considering include:

Alternative 1: No Action
Alternative 2: New York Harbor Wide Gate and Beach Restoration
Alternative 3A/3B: Multiple Bay/Basin Gate and Floodwalls & Levee Systems
Alternative 4: Single Waterbody Gate and Floodwalls & Levees
Alternative 5: Perimeter Only

Figures with summary descriptions of Alternatives 2-5 are provided in the enclosure.

POTENTIALLY AFFECTED FISH AND WILDLIFE TRUST RESOURCES

The Service's trust resources are natural resources we have been entrusted to protect for the benefit of the American people. Within the Study Area, these resources include species listed as threatened or endangered under the ESA, migratory birds, certain marine mammals and sea turtles, inter-jurisdictional fish, and habitats upon which these species depend.

Watersheds

The Study Area includes the Hudson River, Upper and Lower NY Bays, East River, Raritan Bay, Western Long Island, and Jamaica Bay which contain upland, freshwater wetlands, saltmarshes, and bay and ocean bottoms of local and regional significance to fish and wildlife resources. Collectively, these support populations of migratory and breeding birds; threatened and endangered species; migratory fish and other commercially or recreationally important fish; shellfish; and marine mammals and sea turtles. The habitats within the Study Area also function as migratory pathways for various species. Being situated on the Atlantic flyway, numerous species of birds pass through the Study Area during migratory periods. Likewise, a number of migratory fish use the waters of the Study Area for all, or portions, of their life cycle.

The Study Area includes protected open spaces and significant habitat designations from federal and state agencies. These include, but are not limited to, lands administered by the National Park Service (NPS) within the Gateway National Recreation Area (NRA); the Hudson River National Estuarine Research Reserve; the NY Harbor and Long Island Sound National Estuaries; Significant Coastal Fish and Wildlife Habitats as designated by the New York State (NYS) Department of State; Significant Habitats and Habitat Complexes as identified by the Service; Important Bird Areas as designated by the National Audubon Society; NYS Bird Conservation Areas; and NY and NJ state parks and conservation lands.

Threatened and Endangered Species

The proposed project is within the range of a number of federally-listed species including:

Piping plover (*Charadrius melodus*; threatened);
Roseate tern (*Sterna dougallii dougallii*; endangered);
Red knot (*Calidris canutus rufa*; threatened);
Northern long-eared bat (*Myotis septentrionalis*; threatened);
Indiana bat (*Myotis sodalis;* endangered);
Bog turtle (*Clemmys muhlenbergii*; threatened);
Rusty patched bumble bee (*Bombus affinis*; endangered);
Dwarf wedgemussel (*Alasmidonta heterodon*; endangered);
Seabeach amaranth (*Amaranthus pumilus*; threatened);
Swamp pink (*Helonias bullata*; threatened);
Northeastern beach tiger beetle (*Cicindela dorsalis dorsalis*; threatened);
Knieskern's beaked-rush (*Rhynchospora knieskernii*; threatened);
Small-whorled pogonia (*Isotria medeoloides*; threatened); and
Sandplain gerardia (*Agalinis acuta*; endangered)

The Service is evaluating the eastern black rail (*Laterallus jamaicensis jamaicensis*), little brown bat (*Myotis lucifugus*), tri-colored bat (*Perimyotis subflavus*) (New York State Department of Environmental Conservation [NYSDEC] species of concern), the monarch butterfly (*Danaus plexippus*), and the yellow-banded bumble bee (*Bombus terricola*) to determine if listing under the ESA is warranted. These five species may also be present in the Study Area. Species being evaluated for listing do not receive any substantive or procedural protection under the ESA, and the Service has not yet determined if listing of any of these five species is warranted. Despite the current status of these species (*i.e.*, non-listed) each of these species is in decline range-wide.

Because the Study Area occurs within the range of ESA-listed species, the Corps maintains responsibility for initiating section 7 consultation on any proposed project that is ultimately included in the TSP.

We note that the Gateway NRA at Sandy Hook, NJ, currently provides habitat for approximately 60 percent of NJ's piping plover population. A shoreline hardening alternative for this site would likely have significant impacts to the species status at that site, the NJ piping plover population, and by extension the NY-NJ Piping Plover Recovery Unit.

In addition, we point you to section 7(a)(l) of the ESA which requires all federal agencies to utilize their authorities, in consultation with the Service, to develop and carry out programs to conserve all species listed under the ESA. Additionally, section 2(c)(1) of the ESA declares that all federal agencies shall utilize their authorities to further the purposes of ESA. The purpose of the ESA is to protect and recover threatened and endangered species and the ecosystems upon which they depend.

Marine Mammals and Sea Turtles

Marine mammals and sea turtles are under the jurisdiction of the National Oceanic and Atmospheric Administration-National Marine Fisheries Service (NOAA Fisheries), with the exception that nesting sea turtles are under the jurisdiction of the Service. Marine mammals that may occur in or within the vicinity of the Study Area include: harbor seal (*Phoca vitulina*), humpback whale (*Megaptera novaeangliae*), bottlenose dolphin (*Tursiops truncates*), and sperm whale (*Physeter microcephalus*; endangered) (U.S. Fish and Wildlife Service 1997). Other marine mammals that have been observed more widely in the NY Bight include: blue whale (*Balaenoptera musculus*), fin whale (*Balaenoptera physalus*), North Atlantic right whale (*Eubalaena glacialis*; endangered), common dolphin (*Delphinus delphis*), Cuvier's beaked whale (*Ziphius cavirostris*), minke whale (*Balaenoptera acutorostrata*), pilot whale (*Globicephala melas*), and Risso's dolphin (*Grampus griseus*) (Tetra Tech and Smultea Sciences 2018).

There are four threatened or endangered sea turtle species that may occur within the Study Area: loggerhead sea turtle (*Caretta caretta*; threatened), Kemp's ridley sea turtle (*Lepidochelys kempii*; endangered), green sea turtle (*Chelonia mydas*; threatened), and leatherback sea turtle (*Dermochelys coriacea*; endangered). They are typically found in the marine and estuarine waters, however, there is a recent record of a nesting Kemp's ridley turtle on NPS property at Fort Tilden, Rockaway Beach.

Migratory Birds

Migratory birds, including waterfowl, shorebirds, and landbirds, are abundant throughout the Study Area, with concentration areas such as Jamaica Bay supporting over 300 species (National Park Service 2014). There are 42 species of migratory birds in the Study Area that are considered Birds of Conservation Concern (BCC) by the Service due to their small population size, population decline, and/or sensitivity to disturbance (U.S. Fish and Wildlife Service 2018). There are 32 native species of waterfowl that regularly use the estuarine, riverine, lacustrine, and palustrine wetlands and adjacent uplands in the NY Bight watershed for breeding, migrating, or overwintering. This does not include pelagic birds and sea ducks that, within the watershed study area, are found exclusively in the marine waters of the NY Bight and within the Study Area. Other suites of bird species in the Study Area that are of regional significance or of conservation concern include, migratory shorebirds, neotropical migrant landbirds, marsh nesting birds, and breeding wading bird colonies.

Bald eagles (*Haliaeetus leucocephalus*) are known to breed and overwinter within the Study Area. The Hudson River provides important winter feeding and roosting areas for bald eagles (Penhollow *et al.* 2006). Bald eagles also forage and roost in the Hackensack Meadowlands (U.S. Fish and Wildlife Service 2007). The species was delisted in 2007, but is still protected by

the BGEPA and MBTA, and is state-listed as threatened and endangered in NY and NJ, respectively.

Fish and Essential Fish Habitat

The waters of the Study Area provide spawning, migratory, and overwintering habitat for various species of anadromous, nearshore marine, and freshwater fish species, some of which, such as striped bass (*Morone saxatilis*), winter flounder (*Pleuronectes amercianus*), largemouth bass (*Micropterus salmoides*), and numerous others are commercially or recreationally important. Essential Fish Habitat (EFH) is established for over a dozen fish species by the NOAA Fisheries within the Study Area. Portions of the tidally inundated areas of the Study Area are deemed EFH and, as such, are regulated pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (90 Stat. 331; 16 U.S.C. 1801-1882). The Hudson and East Rivers are used by most fish as migratory channels within the area, providing overwintering habitat and access to streams and lakes during the summer. Migratory fish in the Study Area include, but are not limited to: alewife (*Alosa pseudoharengus*), blueback herring (*Alosa aestivalis*), American shad (*Alosa sapidissima*), striped bass, American eel (*Anguilla rostrata*), Atlantic sturgeon (*Acipenser oxyrhynchus*; endangered), shortnose sturgeon (*A. Brevirostrum*; endangered), and, rarely, sea lamprey (*Petromyzon marinus*) (Yozzo *et al.* 2005). Atlantic and shortnose sturgeon are federally-listed species under the jurisdiction of NOAA Fisheries. Other species, including, but not limited to, American eel and river herring (alewife and blueback herring) are of conservation concern and have also been identified in regional restoration plans as target species (U.S. Army Corps of Engineers and PANYNJ 2016; Partners Restoring the Hudson 2018).

Wetlands

Numerous wetlands, both saltwater and freshwater, are found within the Study Area. Areas such as Jamaica Bay and the Hackensack Meadowlands, are comprised of extensive saltmarshes that act as nursery ground for fish and also support species of conservation concern including, but not limited to, saltmarsh-nesting birds, horseshoe crab (*Limulus polyphemus*), and diamondback terrapin (*Maclemys t. terrapin*). Freshwater wetlands are also prevalent in the Study Area, with concentrations in the Hudson River. The freshwater and saltwater wetlands within the Study Area serve as breeding, nursery, and migration corridors for fish and wildlife. Efforts are underway in some areas to restore wetlands as in Jamaica Bay and other areas throughout the Hudson River estuary.

Shellfish

Major shellfish species in the Study Area include hard clams (*Mercenaria mercenaria*), Eastern oysters (*Crassostrea virginica*), and bay scallops (*Argopecten irradians*). Threats to shellfish include poor water quality that is generally attributable to contamination from stormwater runoff and other nonpoint sources rather than single, point source discharges. Additional threats to shellfish include overharvesting, the general eutrophication of host waters, algae blooms, pathogens, and loss of seagrass beds.

NATIONAL ENVIRONMENTAL POLICY ACT

The goal of the NEPA is to reduce adverse impacts to the environment, including cumulative impacts and to take actions that protect, restore, and enhance the environment (40 CFR Parts 1500 to 1508). The Study Area is a mosaic of habitats ranging from tidal to non-tidal. Since Colonial times, a significant percentage of wetlands in NY and NJ have been destroyed by human activities. These historic losses have contributed to an increase of flooding and poor water quality and the general degradation of wetlands in the Study Area waters. Any additional losses of wetlands associated with some of the Study alternatives would be of great concern and should be avoided to the maximum extent practicable. Should the proposed Project involve an adverse effect to the aquatic environment, the goals of NEPA would not be fulfilled (*i.e.*, to protect and enhance the quality of the human environment). The filling of an undetermined amount of wetlands and waters of the U.S. is not supported by several Congressional initiatives aimed at the protection and restoration of wetlands and floodplains (EO 11988 for Floodplains and EO 11990 for Wetlands) and the NJ Wildlife Action Plan.

Purpose and Need

Pursuant to NEPA, it is vital that the purpose and need statement in the EIS be easily understood in order to develop a proper scope of analysis for identifying reasonable and practicable alternatives for consideration; analyze those alternatives in depth; and select the preferred alternative. Further discussion should be offered by the Corps in the purpose and need statement regarding other reasonably expected projects that can be expected with any alternative considered (dune fortification, dredging, and additional wetland and open water fills, etc.) and the interrelationship or interdependence of any existing authorized Corps project to the Study's alternatives under consideration.

Cumulative Effects and Mitigation

The EIS should describe Study Area impairments due to the cumulative actions of humans over the last two centuries and that any additional loss of wetlands or open waters will further exacerbate an already impacted Study Area. The EIS should reference that wetlands, as well as their corresponding ecological functions and values (including flood protection), continue to be lost in NY and NJ due to development, the on-going effects of sea-level rise, and the subsidence of marsh plains. To offset the continuing cumulative effects of declining wetland acreage in the Study Area, the Service recommends that the Corps (1) minimize impacts to the aquatic environment by seeking Study alternatives that avoid the filling of wetlands or open waters, and (2) for wetland impact areas that are deemed unavoidable, develop a viable mitigation plan to offset adverse impacts to the aquatic environment, such that there is no net loss of wetland habitat. The Corps' cumulative analysis of impacts and corresponding compensation, if any, should also be consistent with the EO 11988 (Floodplain Management), and EO 11990 (Protection of Wetlands). A restoration strategy whereby the selection of a preferred Study alternative would also result in no net loss of habitats in the aquatic environment should be major themes throughout the Study's EIS.

Indirect Effects

The EIS should incorporate a full hydrologic analysis that would assess any potential impacts resulting from implementation of Study alternatives on marine, freshwater, and estuarine ecosystems and fish and wildlife resources. Specific habitats and resources that may be incorporated into such an analysis may include barrier islands, estuarine marshes and bay bottoms, upland habitats, tributaries, and freshwater wetlands. The analysis should include scenarios when the surge barriers are open and closed under extreme tidal flooding and rain flooding events. Changes in current patterns, estuarine mixing, salinity, and flood elevations are some of the variables that should be modeled. Ecological modeling on species avoidance or attractance patterns, changes in food webs, energy cycling, etc., should also be considered.

Alternative Analysis

The Service is concerned about the expansive nature and focus on the use of hard structure alternatives unless they are accompanied by significant ecological offsets for the Study Area. However, we do support the Corps working closely with the affected stakeholders to pursue alternatives that improve fish and wildlife species and their habitats, such as nature-based strategies or hybrid structural and nature-based alternatives. The use of nature-based alternatives has considerable ecological and community benefits that appear just as practicable economically and environmentally as a seawall or other hard structure that offers minimum ecological benefit. In developing such as strategy the Corps should determine if contaminant free dredged material is available and can be utilized for sediment enrichment projects such as marsh and island creation and for coastal resilience in targeted areas.

CLEAN WATER ACT

The Congressional intent of the CWA "... is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." The U.S. Congress passed the CWA to enable federal agencies to restore, and maintain the chemical, physical, and biological integrity of the Nation's waters. Alternatives that are not water dependent (*i.e.*, in-water fills for the purpose of constructing levees, groins, or seawalls) should be avoided whenever possible. Hard structures or tide gates may likely generate sufficient interest from the public to warrant consideration; however, the losses of wetlands or waters of the U.S. and the costs of mitigation will need to be considered.

Non-water dependent alternatives that may be economically viable and meet the purpose of the Study could include a "retreat" program for businesses and residences that suffer repeatable flood losses. Properties eligible for a "retreat" program could be bought-out, relocated outside the flood plain or be raised above a certain storm height elevation. For properties that are vacated, the use of upland areas for the construction of berms or levees is a preferred alternative over any losses to the aquatic environment. The implementation of a "retreat" program should be carefully coordinated with representatives of the Housing and Urban Development Authority (HUD), the Federal Emergency Management Agency (FEMA), and respective state agencies – as each of these agencies manages programs to acquire or relocate flood prone properties and businesses.

RECOMMENDATIONS

Below are preliminary recommendations regarding the Study. Recommendations have also been offered in the body of this letter for specific sections or topics. As noted, these recommendations are preliminary due to limited project information that is available at this time.

- The EIS should analyze potential direct, indirect, and cumulative impacts of the Study alternative and all associated infrastructure on fish and wildlife including: endangered species or their designated critical habitat; marine mammals; anadromous and resident fish; migratory birds; bald and golden eagles; and fish, wildlife, and plant species.

- A workgroup should be convened to identify fish and wildlife resource concerns, problems, and opportunities in the affected watershed.

- Funding should be reserved for potential Service fish and wildlife field surveys and investigations identified through the FWCA process.

- Due to the scope of this project, informal consultation under the ESA should be initiated with the Service. As part of this effort, the Corps should begin the preparation of a Biological Assessment as per 50 Code of Federal Regulation Part 402 to aid in the development and selection of Study alternatives.

- To avoid future project delays, the Service recommends coordination with the Service to fulfill the Corps' section 7(a)(1) conservation mandate. Whenever possible, the Corps should adopt a strategy of incorporating the habitat needs of the aforementioned listed species in the design of any Study alternative considered.

- Field surveys and/or impact assessments should be considered for species being considered for listing under the ESA, including eastern black rail, monarch butterfly, little brown bat, tri-colored bat, and yellow-banded bumble bee.

- The Corps entered into a Memorandum of Understanding (MOU) with the Service on September 5, 2014, and committed to following the Service's recommendations to conserve migratory birds. Some of the applicable responsibilities of both parties of the MOU for the subject Study include: supporting EO 13186; emphasizing an interdisciplinary, collaborative approach to migratory bird conservation in cooperation with other governments, state and federal agencies, and non-federal partners; working to protect, restore, and enhance migratory bird habitats; and, in general, promoting collaborative approaches towards the development of reasonable and effective conservation measures for actions that promote bird conservation. It is recommended that the Corps work with the Service to seek opportunities to further bird conservation as specified in EO 13186 and embraced in the jointly signed MOU.

- The NOAA Fisheries has designated much of the Study Area essential to the life stages of numerous recreational and commercial finfish species. As a result, Study alternatives should be coordinated with the NOAA Fisheries to assess potential impacts to EFH.

- The Service strongly recommends that the Corps expend considerable effort on nature-based or hybrid structural/nature based alternatives that provide an ecological uplift and promote long-term sustainability of fish and wildlife populations and their habitats. As discussed previously, any additional losses of wetlands associated with some of the Study alternatives would be of considerable concern and should be avoided to the maximum extent practicable. The Corps should strive to ensure avoidance of adverse effects to the aquatic environment, in order to meet the NEPA's goal of protecting and enhancing the quality of the human environment and to avoid conflicts with existing EOs 11988 and 11990 relating to the protection of Floodplains and Wetlands.

Thank you for the opportunity to provide scoping comments on the Study. We intend to work closely with the Corps as the Study develops and alternatives are developed and refined to meet the objective of managing the risk of coastal storm damage in the Study Area, while contributing to the resilience of communities, critical infrastructure, and the environment. These are the Service's first formal comments on this study and, as noted above, we plan to be more rigorously engaged in the ensuing FWCA and ESA consultations. If you have any questions or require further assistance, please have your staff contact Kerri Dikun of the Long Island Field Office at 631-286-0485.

Sincerely,

David A. Stilwell

David A. Stilwell
Field Supervisor

Enclosure

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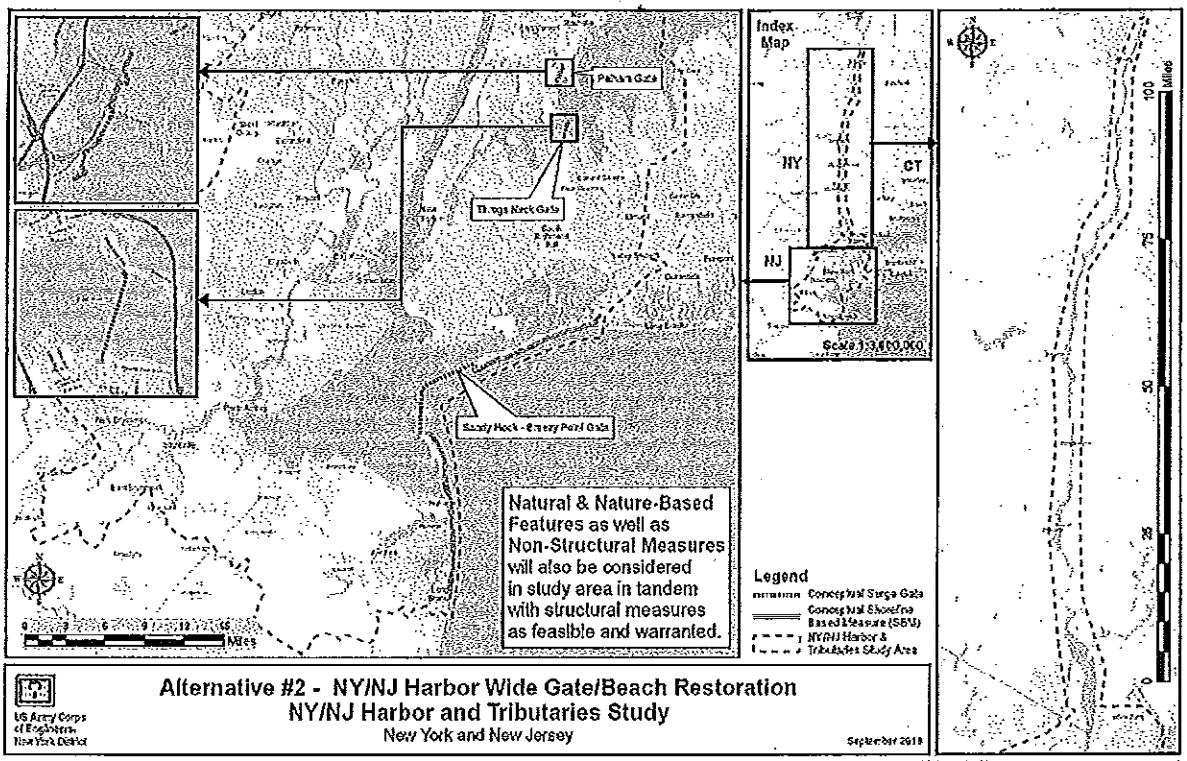
Enclosure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Natural & Nature-Based Features as well as Non-Structural Measures will also be considered in study area in tandem with structural measures as feasible and warranted.
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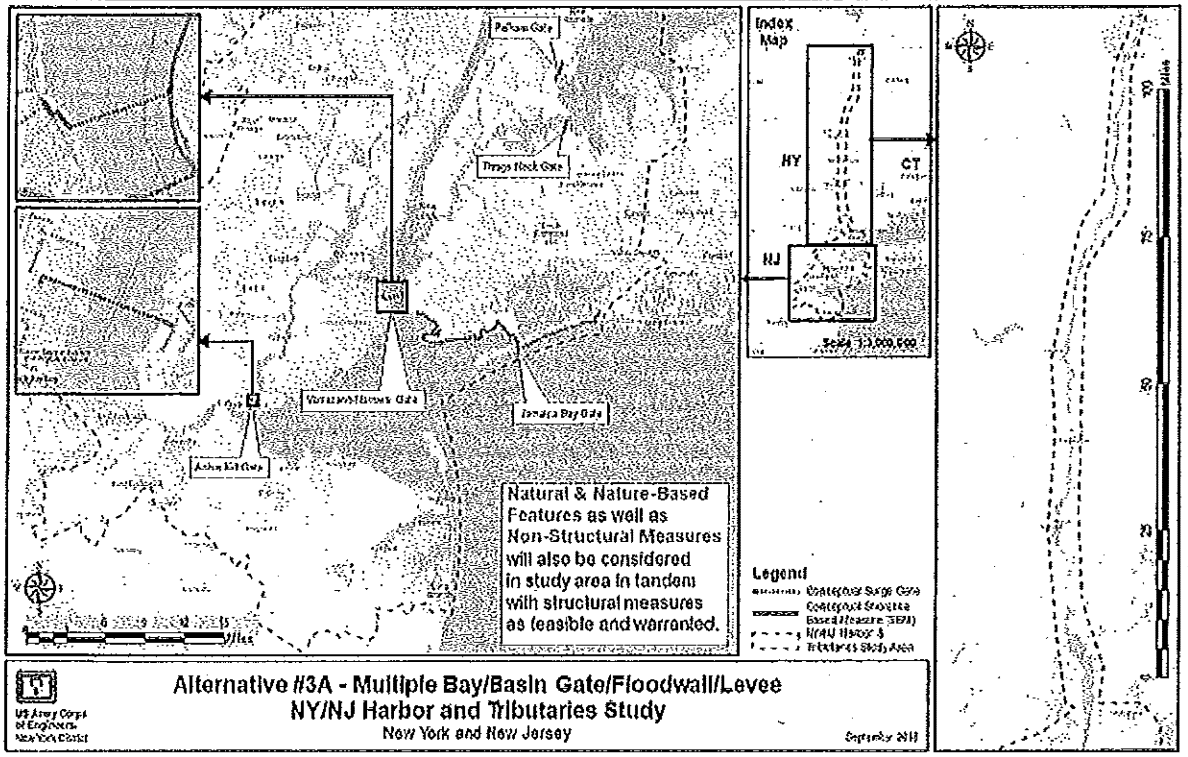
NY/NJ Harbor and Tributaries Study
New York and New Jersey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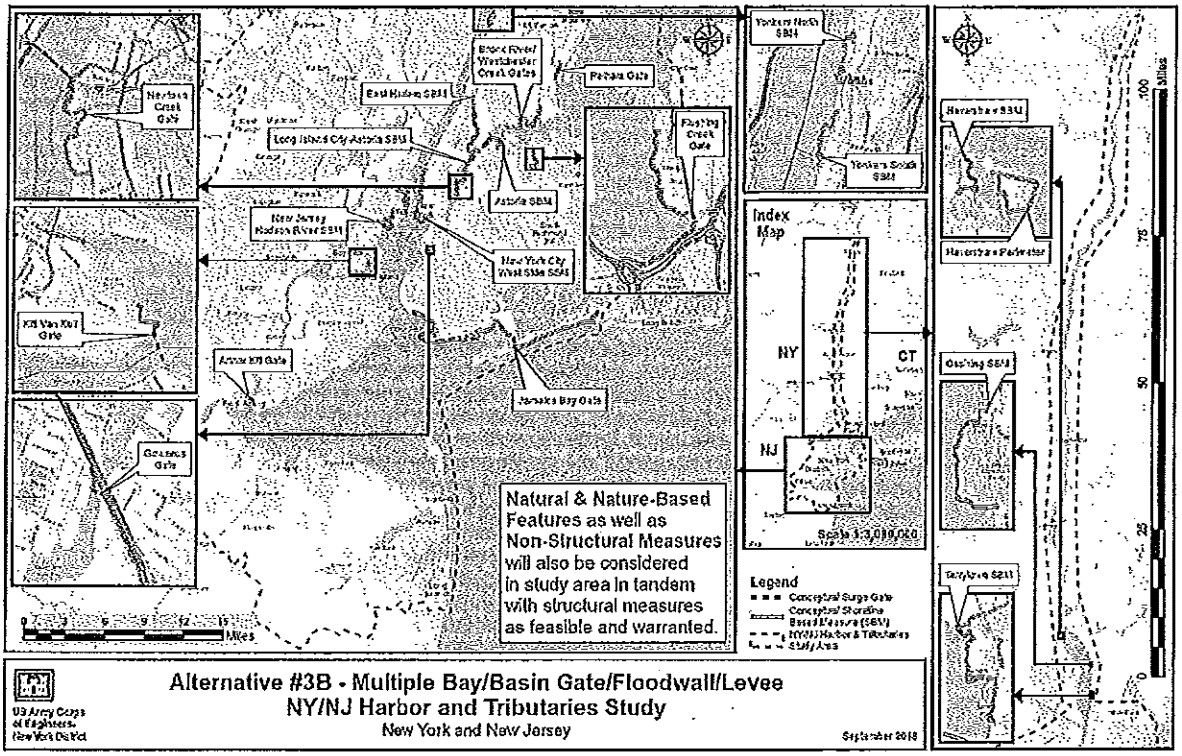
NY/NJ Harbor and Tributaries Study
New York and New Jersey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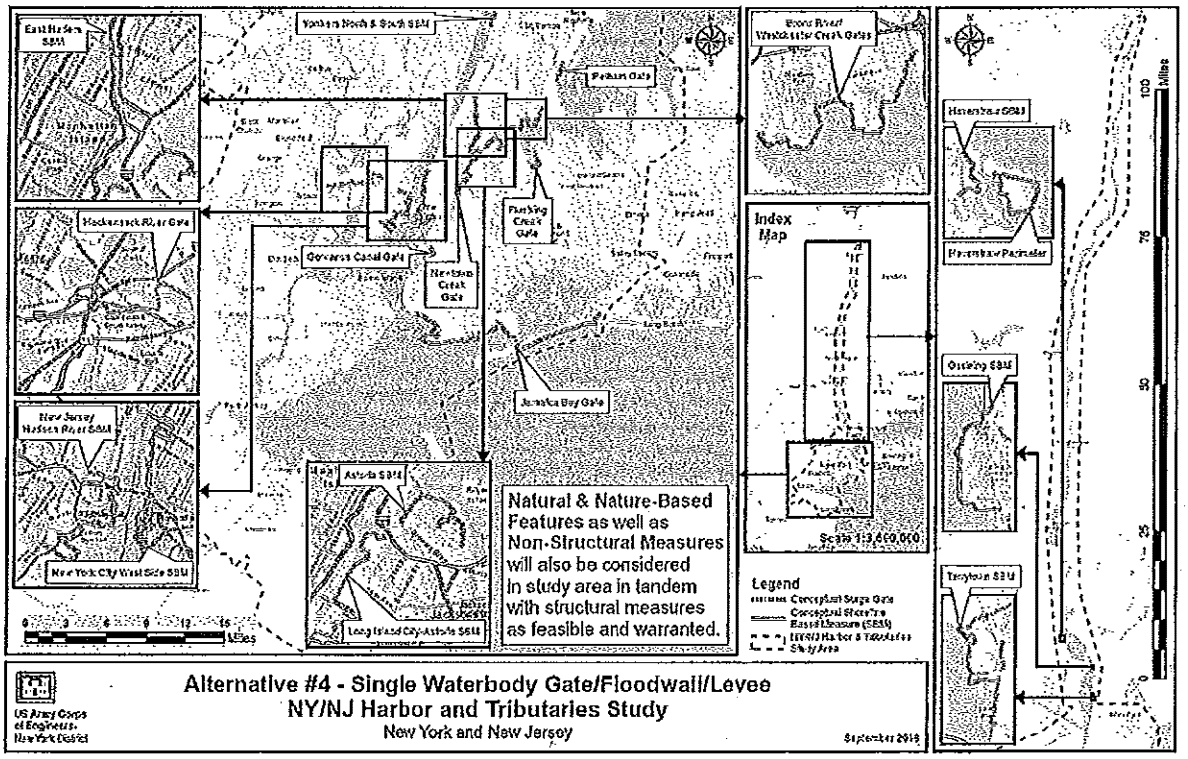
Alternative #3B - Multiple Bay/Basin Gate/Floodwall/Levee
NY/NJ Harbor and Tributaries Study
New York and New Jersey
US Army Corps of Engineers New York District
September 2018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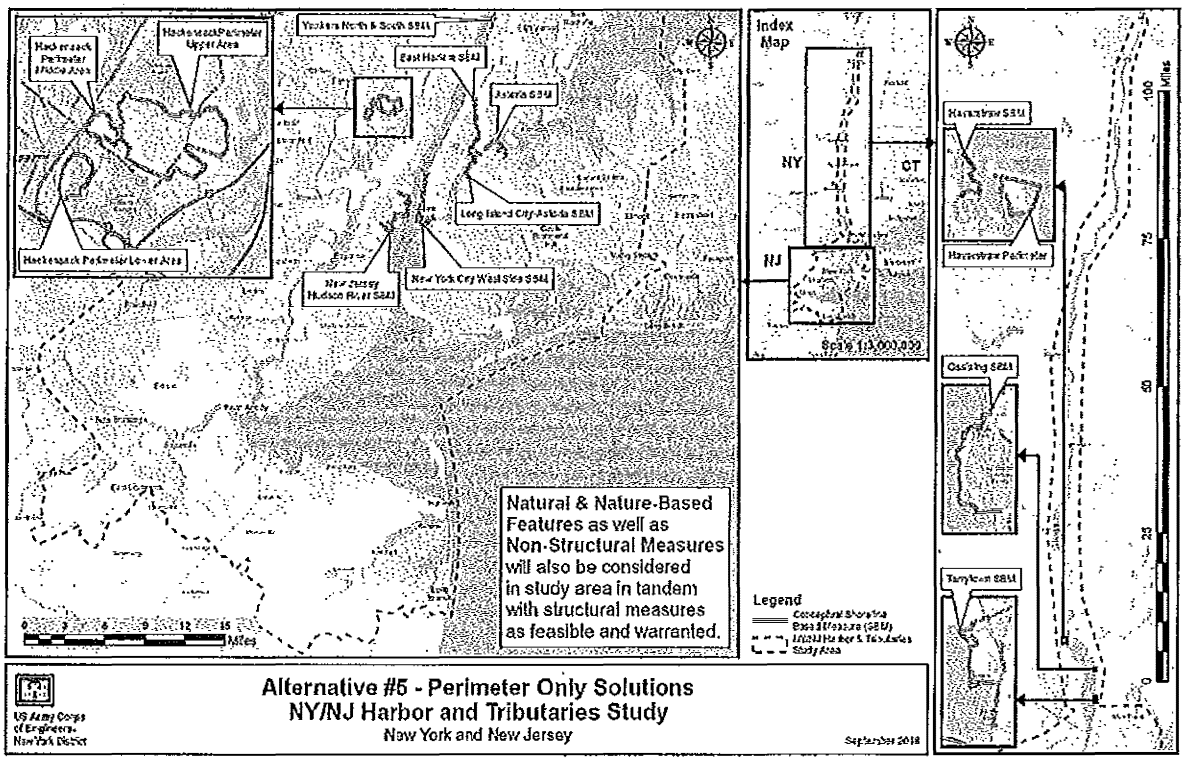
NY/NJ Harbor and Tributaries Study
New York and New Jersey
US Army Corps of Engineers New York District
September 2018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Natural & Nature-Based Features as well as Non-Structural Measures will also be considered in study area in tandem with structural measures as feasible and warranted.
Legend
Alternative #5 - Perimeter Only Solutions
NY/NJ Harbor and Tributaries Study
New York and New Jersey
US Army Corps of Engineers
New York District
September 2018

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
GREATER ATLANTIC REGIONAL FISHERIES OFFICE
55 Great Republic Drive
Gloucester, MA 01930-2276

NOV 26 2018

Peter Weppler, Chief
Environmental Analysis Branch
Planning Division
New York District
U.S. Army Corps of Engineers
26 Federal Plaza
New York, NY 10278-0900

RE: New York / New Jersey Harbor and Tributaries Coastal Storm Risk Management Feasibility Study

Dear Mr. Weppler:

We have reviewed the materials provided in your letter dated September 22, 2017, and in subsequent interagency conference calls and email correspondence, regarding the New York / New Jersey Harbor and Tributaries (HATS) Coastal Storm Risk Management (CSRM) feasibility study. The New York District US Army Corps of Engineers (Corps), with New York State Department of Environmental Conservation, City of New York's Office of Recovery and Resiliency, and New Jersey Department of Environmental Protection, has initiated a feasibility study to examine measures to reduce future flood risk and the economic costs and risks associated with flood and storm events in the study area, while contributing to the resilience of communities, critical infrastructure, and the environment. The study area includes New York Harbor and surrounding waterways and tributaries in 25 counties in New York and New Jersey, encompassing over 2,150 square miles and over 900 miles of affected shoreline. Project alternatives being considered include:

- Alternative 1: No action
- Alternative 2: NY/NJ Outer Harbor Barrier
    - A single large barrier across the mouth of the harbor from Sandy Hook to the Rockaway Peninsula and a barrier at Throgs Neck.
- Alternative 3A/3B: Multiple barriers, floodwalls and levee systems.
    - 3A: Barriers on the Arthur Kill, Verrazano-Narrows, Rockaway/Jamaica Bay, Throgs Neck, and Pelham Bay.
    - 3B: Barriers on the Arthur Kill, Kill van Kull, Rockaway/Jamaica Bay, Gowanus Canal, Newtown Creek and Pelham Bay; floodwalls and levees along the west side of Manhattan, East Harlem, and south of Hoboken.
- Alternative 4: Multiple barriers on solitary waterbodies, floodwalls and levee systems.
    - Barriers on Rockaway/Jamaica Bay, Gowanus Canal, Newtown Creek, Pelham Bay, and the Hackensack River; floodwalls and levees along the west side of Manhattan, East Harlem, and south of Hoboken.

- Alternative 5: Perimeter Only
    - Shoreline measures at the Gowanus Canal and Newtown Creek; floodwalls and levees along the west side of Manhattan, East Harlem, south of Hoboken and along the Hackensack River.

As part of the feasibility study, you will be preparing environmental compliance documents pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended. These documents will evaluate environmental impacts from project alternatives and determine the potential for significant impacts related to reducing coastal storm risks in ways that support the long-term resilience and sustainability of the coastal ecosystem and surrounding communities. The study will include issues such as sea level rise, local subsidence and storms, as well as economic costs and risks associated with large-scale flood and storm events in the area. The study will build on and supplement the North Atlantic Coast Comprehensive Study published in January 2015 and ongoing local, state, and federal efforts by other agencies and groups to improve regional resiliency.

The coastal waters, inlets and estuaries of New York Harbor and its tributaries provide habitat for a wide variety of NOAA trust resources including federally managed species, shellfish and crustaceans, migratory species, and federally protected species of fish, sea turtles, and marine mammals. The many inlets in the project area provide critical links between spawning, nursery, and forage grounds in the Atlantic Ocean, the New York Harbor estuary and its tributaries. Further study should consider whether any solution to reduce the risk to communities and infrastructure from storms may impact species access and movements, and how such effects can be avoided or minimized. Access does not only include the ability to enter the estuary but also movements within the estuary and its tributaries.

To assist you in the development of the feasibility study and any accompanying NEPA documents, we offer you the following comments:

Aquatic Resources

Submerged Aquatic Vegetation

The New York Harbor estuary and tributaries support areas of SAV including eelgrass (*Zostera marina*) and water celery (*Vallisneria americana*). SAV habitats are among the most productive ecosystems in the world and perform a number of irreplaceable ecological functions which range from chemical cycling and physical modification of the water column and sediments to providing food and shelter for commercial, recreational and economically important organisms (Stephan and Bigford 1997). Larvae and juveniles of many important commercial and recreational fish such as bluefish (*Pomatomus saltatrix*), summer flounder (*Paralichthys dentatus*), spot (*Leiostomus xanthurus*), Atlantic croaker (*Micropogonias undulatus*), herrings (*Clupeidae*) and others appear in eelgrass beds in the spring and early summer (Fonseca et al 1992). Studies by Weinstein and Brooks (1983), Adams (1976) and Lascara (1981) in Packer et al. (1999) indicate that SAV is important habitat for juvenile summer flounder. Rodgers and Van Den Avyle (1983) suggest that SAV beds are important to summer flounder, and that any loss of these areas along the Atlantic Seaboard may affect summer flounder stocks.

Estuarine and Marine Fishes

Many species of estuary-dependent and coastal marine fishes inhabit the New York Harbor estuary, its tributaries and embayments, and the coastal mid-Atlantic Bight. The inlets in the region serve as conduits for the movements of these species, as well as for the exchange of nutrients and plankton, between these systems. Both temporary in-water work and permanent structures within the inlet can impede the movement of fish into and out of the estuary. For example, in a study of larval movements in a mid-Atlantic estuary, Targett and Rhodes (2008) found that ingress of summer flounder larvae peaked bimodally in December and mid-January with collections continuing through April. Movement into the estuary may involve intermittent settling to take advantage of tidal stream transport before permanent settlement once metamorphosis is complete (Able and Fahay 1998). Residual bottom inflow, a result of more dense oceanic water intruding beneath more buoyant outflow, provides some fishes with a mechanism of ingress (Weinstein *et al.,* 1980 in Rhodes 2008). Miller *et al.* (1984) proposed that to gain entry into North Carolina inlets, spot, Atlantic croaker, summer flounder, and southern flounder (*Paralichthys lethostigma*) remain near the bottom. The placement of storm surge barriers across inlets in the project area will restrict ingress and egress of summer flounder and other species whose life cycles include both estuarine and marine habitats. Benthic migration through an inlet could be further impeded by the bottom structure of a storm surge barrier.

Winter flounder (*Pseudopleuronectes americanus*) transit inlets to reach spawning areas within mid-Atlantic estuaries when water temperatures begin to decline in late fall and may also be affected by the placement of barriers within the estuary. Tagging studies show that most return repeatedly to the same spawning grounds (Lobell 1939, Saila 1961, Grove 1982 in Collette and Klein-MacPhee 2002). Winter flounder typically spawn in the winter and early spring, although the exact timing is temperature dependent and thus varies with latitude (Able and Fahay 1998); however movement into these spawning areas may occur earlier, generally from mid- to late November through December. Winter flounder have demersal eggs that sink and remain on the bottom until they hatch. After hatching, the larvae are initially planktonic, but following metamorphosis they assume an epibenthic existence. Winter flounder larvae are negatively buoyant (Pereira et al. 1999) and are typically more abundant near the bottom (Able and Fahay 1998). These life stages are less mobile and thus more likely to be adversely affected adversely by any impact to benthic habitat. The placement of a storm surge barrier across an inlet would result in the permanent loss of habitat for winter flounder and other species associated with the footprint of the structure, as well as a reduction in access to any spawning areas landward of the inlet.

Diadromous Fishes

Diadromous fishes such as river herring (alewife *Alosa pseudoharengus* and blueback herring *Alosa aestivalis*), American shad (*Alosa sapidissima*), striped bass (*Morone saxatilis*), and American eel (*Anguilla rostrata*) inhabit the New York Harbor estuary and its tributaries at certain stages in their life cycles.

River herring and shad spend most of their adult lives at sea, but return to freshwater areas in the Hudson River estuary to spawn in the spring (Waldman 2006). These species are believed to be repeat spawners, generally returning to their natal rivers (Collette and Klein-MacPhee 2002).

Because landing statistics and the number of fish observed on annual spawning runs indicate a drastic decline in river herring populations throughout the mid-Atlantic since the mid-1960s, they have been designated as Species of Concern by NOAA. Species of Concern are those about which we have concerns regarding their status and threats, but for which insufficient information is available to indicate a need to list the species under the Endangered Species Act (ESA). The goal of designating a species as a Species of Concern is to promote proactive conservation efforts for these species in order to preclude the need to list them in the future.

The New York Harbor estuary provides habitat for one of the largest populations of striped bass on the East Coast, with resident and/or migratory contingents found from the tidal freshwater Hudson River to the coastal Atlantic Ocean depending on the season (Gahagan et al. 2015). The spawning migration of resident and coastal contingents moving upriver to the freshwater reaches of the Hudson River occurs in the spring (Clark 1968). Late larvae and early juveniles favor shallow water with sluggish currents, and likely reside in nearshore shallows for increased feeding opportunities and reduced predation risk. Juveniles subsequently move downstream to overwinter in the lower Hudson River and upper New York Harbor (Dovel 1989).

Catadromous American eel (*Anguilla rostrata*) spawn in the Sargasso Sea and transit inlets as elvers to migrate through estuarine habitats to freshwater tributaries. They inhabit these freshwater areas until they return to the sea as adults. According to the 2012 benchmark stock assessment, the American eel population is depleted in U.S. waters. The stock is at or near historically low levels due to a combination of historical overfishing, habitat loss, food web alterations, predation, turbine mortality, environmental changes, exposure to toxins and contaminants, and disease (ASMFC 2012). Some of the alternatives being considered in the feasibility study may impede the movements of these diadromous species between important freshwater habitats in and the Atlantic Ocean in a number of ways including altering hydrologic conditions such as velocity and flow patterns, as well as changing water quality.

Wetlands

The New York Harbor estuary and tributaries support regionally significant wetlands that provide important habitat for shellfish and marine, estuarine, and anadromous fishes. Wetlands in the project area perform many important ecological functions including water storage, nutrient cycling and primary production, sediment retention, water filtration or purification, and groundwater recharge. Vegetated wetlands are also considered to be special aquatic sites under the Clean Water Act. Because of their ecological value, impacts on these special aquatic sites should be avoided and minimized; wetlands should be created, restored, or enhanced where feasible.

Tidal wetlands provide nursery habitat for many species of fish, including summer flounder and winter flounder. Summer flounder larvae migrate inshore into estuarine nursery areas, settling to the bottom of tidal marsh creeks to transform to their juvenile stage. These juveniles will then make extensive use of the creeks, preying on creek fauna such as silversides (*Menidia* spp.) and killifish (*Fundulus* spp.). Juvenile summer flounder may also be found in salt marsh cordgrass habitat during flood tides. Juveniles utilize the marsh edges for shelter, burying themselves in the muddy substrates. Keefe and Able (1992) in Packer et al. (1999) found that summer flounder juveniles that inhabit tidal marsh creeks exhibit the fastest growth. Larval and juvenile black sea

bass (*Centropristis striata*) also concentrate and feed extensively and shelter within these habitats. As a consequence, growth rates are high and predation rates are low, which make these habitats effective nursery areas. Juvenile black sea bass are also known to inhabit the mouths of tidal marsh creeks as well as shallow shoals and tidal marsh edge habitat. Within these habitats, young-of-year black sea bass display high site fidelity; they may be territorial and move very little (Musick and Mercer 1977; Werme 1981; Able and Hales 1997). Black sea bass have been observed defending small areas of nursery habitat rather than fleeing to other suitable areas (Able and Fahay 1998).

Some of the alternatives being considered in the feasibility study may result in the direct loss of wetlands habitats through fill placement for the construction of levees, floodwalls, and barriers. Less direct impacts to these important habitats may result from alternations in the hydrologic regime, changes in tidal amplitude and flow, as well as alterations to water quality. These changes may result in impaired wetland functions.

Shellfish

Shellfish occur in the project area, including hard clam (*Mercenaria mercenaria*), soft shell clam (*Mya arenaria*), blue mussel (*Mytilus edulis*), oyster (*Crassostrea virginica*), blue crab (*Callinectes sapidus*), and horseshoe crab (*Limulus polyphemus*). These species and others are important food resources for fish and birds. Coen and Grizzle (2007) discuss the ecological value of shellfish habitat to a variety of managed species (e.g. American lobster (*Homarus americanus*), American eel, and winter flounder). Clams are a prey species for a number of federally managed fish including skates, bluefish, summer flounder and windowpane (*Scophthalmus aquosus*); siphons of hard clams provide a food source for winter flounder and scup (*Stenotomus chrysops*) (Steimle et al. 2000). Infaunal species such as clams filter significant volumes of water, effectively retaining organic nutrients from the water column (Nakamura and Kerciku 2000; Forster and Zettler 2004).

Blue mussel and oyster are filter feeders and thus improve water quality (Bain et al. 2007, Waldman 2008). Reef forming bivalves such as blue mussels and oysters support an increased diversity of finfish and invertebrates, cycle material between the water column and substrate and have the potential to enhance water quality (Dewey 2000; Nakamura and Kerciku 2000; Coen and Grizzle 2007; McDermott et. al. 2008). Further, blue mussels are an important prey item for many animals in the Mid-Atlantic region (Newell 1989). Steimle et al (2000) reported that blue mussel spat were components of the diets of winter flounder, scup, black sea bass and tautog (*Tautoga onitis*). Although no known oyster reefs presently exist in the project area, scattered live oysters can be found in certain areas, indicating the presence of isolated populations.

Spawning, nursery, foraging, and overwintering habitats for blue crabs are found throughout the project area; blue crabs are commonly found on subtidal benthic habitat and are important food resources for predatory fish and birds (Bain et al. 2007, Waldman 2008). The blue crab winter dredge fishery in New York is concentrated in the lower portion of New York Harbor (Briggs 1998).

Horseshoe crabs spawn on low energy shorelines in the project area (Botton et al. 2006), with adults often migrating inshore from Mid-Atlantic Bight shelf waters to reach spawning habitat (Shuster et al. 2003). Horseshoe crab eggs are a key seasonal food resource for a number of fish species including summer flounder and winter flounder (Botton and Shuster 2003). The placement of storm surge barriers across inlets in the project area could impede spawning migrations of adult horseshoe crabs.

Magnuson-Stevens Fishery Conservation and Management Act (MSA)

Essential Fish Habitat

The New York Harbor estuary and its associated tributaries have been designated as essential fish habitat (EFH) for a number of federally managed species including Atlantic butterfish (*Peprilus triacanthus*), Atlantic mackerel (*Scomber scombrus*), Atlantic sea herring (*Clupea harengus*), black sea bass, bluefish, clearnose skate (*Raja eglanteria*), little skate (*Leucoraja erinacea*), longfin inshore squid (*Loligo pealei*), monkfish (*Lophius americanus*), red hake (*Urophycis chuss*), scup, Spanish mackerel (*Scomberomorus maculates*), summer flounder, silver hake (*Merluccius bilinearis*), windowpane flounder, winter flounder, winter skate (*Leucoraja ocellata*) and yellowtail flounder (*Pleuronectes ferruginea*).

The project area is also EFH for several highly migratory species including skipjack tuna (*Katsuwonus pelamis*), blue shark (*Prionace glauca*), common thresher shark (*Alopias vulpinus*), dusky shark (*Carcharhinus obscurus*), sand tiger shark (*Odontaspis taurus*) and sandbar shark (*Carcharhinus plumbeus*). Dusky and sand tiger sharks have also been listed as Species of Concern by NOAA.

Habitat Area of Particular Concern

Habitat areas of particular concern (HAPCs) are subsets of EFH that are identified based on one or more of the following considerations: 1) the importance of the ecological function, 2) extent to which the habitat is sensitive to human-induced degradation, 3) whether, and to what extent, development activities are stressing the habitat type, or 4) rarity of habitat type (50 CFR 600.815(a)(8)). The Mid-Atlantic Fishery Management Council (MAFMC) has designated all native species of macroalgae, seagrasses, and freshwater and tidal macrophytes in any size bed, as well as loose aggregations, within adult and juvenile summer flounder EFH as an HAPC. MAFMC has also determined that if native species of submerged aquatic vegetation (SAV) are eliminated then exotic species should be protected because of functional value, however, all efforts should be made to restore native species. As discussed above, SAV is present in a number of locations within the project area.

EFH Consultation

The MSA requires federal agencies such as the Corps to consult with us on any action or proposed action authorized, funded, or undertaken, by such agency that may adversely affect EFH identified under the MSA. This process is guided by the requirements of our EFH regulation at 50 CFR 600.905, which mandates the preparation of EFH assessments and generally outlines each agency's obligations in the consultation process.

The EFH final rule published in the Federal Register on January 17, 2002, defines an adverse effect as: "any impact which reduces the quality and/or quantity of EFH." The rule further states that:

> An adverse effect may include direct or indirect physical, chemical or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat and other ecosystems components, if such modifications reduce the quality and/or quantity of EFH. Adverse effects to EFH may result from action occurring within EFH or outside EFH and may include site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

The EFH final rule also states that the loss of prey may be an adverse effect on EFH and managed species. As a result, actions that reduce the availability of prey species, either through direct harm or capture, or through adverse impacts to the prey species' habitat, may also be considered adverse effects on EFH.

Our EFH regulations also allow federal agencies to incorporate an EFH assessment into documents prepared for other purposes including NEPA documents provided certain conditions are met. If an EFH assessment is contained in another document, it must be clearly identified as an EFH assessment and include all of the following mandatory elements including: (i) a description of the action, (ii) an analysis of the potential adverse effects of the action on EFH and the managed species, (iii) the federal agency's conclusions regarding the effects of the action on EFH, and (iv) proposed mitigation, if applicable.

For a listing of EFH and further information, please see our website at: http://www.greateratlantic.fisheries.noaa.gov/habitat. The website also contains information on descriptions of EFH for each species, guidance on the EFH consultation process including EFH assessments, and information relevant to our other mandates.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (FWCA), as amended in 1964, requires that all federal agencies consult with us when proposed actions might result in modifications to a natural stream or body of water. It also required that they consider effects that these projects would have on fish and wildlife and must also provide for improvement of these resources. Under this authority, we work to protect, conserve and enhance species and habitats for a wide range of aquatic resources such as shellfish, diadromous species, and other commercially and recreationally importance species that are not managed by the federal fishery management councils and do not have designated EFH. As discussed above, the New York Harbor estuary and its tributaries are highly productive habitat for a wide variety of NOAA trust resources covered by the FWCA including important forage species such as silversides, killifish, menhaden (*Brevoortia tyrannus*), anchovies (*Anchoa* spp.), and shellfish. The abundance of forage species makes these waterways important feeding and nursery areas for a number of estuarine-dependent commercially and recreationally important species, including summer flounder, winter flounder, bluefish, American eel, striped bass, tautog and weakfish (*Cynoscion regalis*).

Potential Impacts and Recommended Studies

Although specific project plans have not yet been finalized, the general description of

alternatives indicates that the project will include storm surge barriers, tidal gates, flood walls, levees, and beach restoration. Perimeter flood control measures will also be considered, including natural and nature-based features and non-structural components. Both short- and long-term impacts to our resources may result from the project alternatives being considered. Short-term adverse effects will result from construction activities, which may include dredging for construction of storm surge barriers and beach restoration. Long-term impacts will include habitat loss within the footprint of any storm surge barrier, other proposed hard structures and natural/nature-based features. Impacts will also include changes in flow velocities, tidal amplitude and flow, sediment transport, and deposition.

Any analyses of environmental impacts of the proposed project should include impacts of each project component, as well as cumulative impacts, to the hydrology and ecology of New York Harbor and its tributaries, estuaries and embayments. Detailed hydrologic modeling should be conducted to provide information on impacts in terms of changes in tidal regime, tidal flushing, flow velocity, scour, sedimentation rates, and current patterns, as well as the effects of the storm barriers and other proposed features on the ecology and water quality of each impacted system.

Because many fish species in the New York Harbor estuary and its tributaries use inlets as migratory pathways to nursery and forage habitat within the estuaries beyond the inlets, an analysis of current literature should be conducted to evaluate ingress and egress of all life stages of certain species over each season, supplemented by field studies to address any gaps in information. We can assist your office to determine the NOAA resources that would require detailed evaluation of migration patterns and habitat use.

Impacts of Climate Change

Any evaluation of impacts of the proposed project alternatives should include an analysis of the impacts of forecasted climate change and sea level rise to NOAA resources in the project area. Nearshore and intertidal areas are particularly at risk of sea level rise, and a warming ocean may lead to changes in the ranges of a number of our resources. We are developing guidance on climate change and sea level rise as it affects our resources, and will continue to work with you on this issue as project plans are developed.

Endangered and Threatened Species

Atlantic Sturgeon

Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) occur in estuarine and marine waters along the U.S. Atlantic coast and may be present within the area covered by the feasibility study. Five Atlantic sturgeon DPSs may be found within the study area. These are the ESA-listed endangered New York Bight, Chesapeake Bay, South Atlantic, and Carolina DPSs, and the ESA-listed threatened Gulf of Maine DPS. Sub-adult and adult individuals from any of these DPSs could occur within the study area. Early (eggs, larvae, young-of-year) and juvenile[1] life stages are found in large rivers and their estuaries and will not be present, as they are not able to tolerate the high salinity of marine and coastal waters.

[1] The terms juvenile and sub-adult are here used to differentiate between a young immature Atlantic sturgeon that has not yet migrated to sea (juvenile) and a young immature sturgeon that has migrated to sea (sub-adult).

Shortnose Sturgeon
Shortnose sturgeon (*Acipenser brevirostrum*) are endangered throughout their range. Their distribution extends from the Minas Basin in Nova Scotia, Canada to the St. Johns River, in Florida. In New York State, the shortnose sturgeon is found in the Hudson River from the Federal Dam at Troy downriver to the southern tip of Manhattan, over a large portion of the fresh and brackish reaches in deep channel habitats.

Sea Turtles
Four species of ESA-listed threatened or endangered sea turtles may be seasonally found in coastal waters of New York including, on rare occasions, the New York Harbor estuary. These species include the threatened Northwest Atlantic Ocean distinct population segment (DPS) of loggerhead turtle (*Caretta caretta*), the North Atlantic DPS of green turtle (*Chelonia mydas*), the endangered Kemp's ridley turtle (*Lepidochelys kempii*) and the leatherback turtle (*Dermochelys coriacea*).

Sea turtles are generally distributed in coastal Atlantic waters from Florida to New England. As water temperatures of in the mid-Atlantic rise in the spring, sea turtles begin to migrate north from their overwintering waters in the south. They may be found in the New York Harbor estuary during the late spring, summer, and fall months (May through November), with the highest concentrations present from June through October.

Additional information on the distribution, behavior, and times of year when ESA-listed species may be present can be found using our ESA Section 7 Mapper located at:
https://www.greateratlantic.fisheries.noaa.gov/protected/section7/listing/index.html

Thank you for the opportunity to provide input into the development of the NYNJ HATS CRSM feasibility study. As we have agreed to participate as a cooperating agency to help foster a collaborative process and interagency coordination on this project, we look forward to continued coordination with your office as the study moves forward. If you have any questions or need additional information, please contact Ursula Howson at ursula.howson@noaa.gov or (732) 872-3116. For additional information on threatened and endangered species, please contact Edith Carson-Supino at edith.carson-supino@noaa.gov or (978) 282-8490.

Sincerely,

Karen M. Greene
Mid Atlantic Field Offices Supervisor
Habitat Conservation Division

cc: ACOE – N. Brighton
GARFO – D. Marrone, E. Carson-Supino, J. Pelligrino, V. Vecchio
USFWS – S. Sinkevich, E. Schrading
EPA – D. Montella
MAFMC – C. Moore
NEFMC – T. Nies
ASMFC – L. Havel

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United States Department of the Interior

NATIONAL PARK SERVICE
Northeast Region
200 Chestnut Street
Philadelphia, PA 19106

IN REPLY REFER TO:
ER 18/0079

March 28, 2018

Nancy J. Brighton,
Chief, Watershed Section,
Environmental Analysis Branch, Planning Division,
U.S. Army Corps of Engineers, New York District,
26 Federal Plaza, Room 2151,
New York, NY 10279-0090

Subject: Notice of Intent - New York New Jersey Harbor and Tributaries Coastal Storm Risk Management Feasibility Study.

Dear Ms. Brighton:

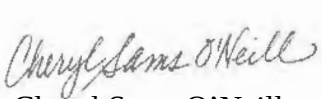
This is in response to a request for the National Park Service's (NPS) review and comment on the Notice of Intent to prepare the New York New Jersey Harbor and Tributaries Coastal Storm Risk Management Feasibility Study/Tiered Environmental Impact Statement (EIS).

As the study area encompasses approximately 2150 square miles across both New York and New Jersey, there are numerous NPS interests within this study area. In addition to NPS park units bordering the harbor, such as Gateway National Recreation Area and the other National Parks of New York Harbor, there is the potential to affect other parks along the tributaries, such as Paterson Great Falls National Historical Park on the Passaic River or Home of Franklin D Roosevelt and Vanderbilt Mansion National Historic Sites on the Hudson River. In addition to NPS units, there are potentially numerous National Historic Landmarks (NHL) and National Natural Landmarks (NNL) within the study area; for example, the Palisades of the Hudson, largely in NJ but extending into NY, is both NHL and NNL; and Hook Mountain and Nyack Beach State Park and Iona Island Marsh are NNLs along the Hudson River in NY.

The National Park Service intends to accept your invitation to be a cooperating agency on the EIS, as well as requesting consulting party status for Section 106 of the National Historic Preservation Act. Therefore, we will be able to work with the Corps to specifically identify all resources that could be impacted.

We appreciate the opportunity to provide these comments.

Sincerely,



Cheryl Sams O'Neill
Interagency Review Coordinator
Resource Planning and Compliance Program

United States Department of the Interior

NATIONAL PARK SERVICE
National Parks of New York Harbor
26 Wall Street
New York, NY 10005

IN REPLY REFER TO
1.A.2.(RSS-NER)

June 25, 2019

Colonel Thomas D. Asbery
Commander and District Engineer
United States Army Corps of Engineers, New York District
26 Federal Plaza Room 2145
New York, NY 10279-0090

Subject: Release of an Interim Report for the New York-New Jersey Harbor and Tributaries Coastal Storm Risk Management (CSRM) Study

Colonel Asbery:

The National Park Service (NPS) has completed a review of the U.S. Army Corps of Engineers New York-New Jersey Harbor and Tributaries Coastal Storm Risk Management Interim Report. NPS is a cooperating agency under the National Environmental Policy Act and a consulting party under Section 106 of the National Historic Preservation Act. We are providing information and comments in this letter and attachments to inform USACE planning and development of the Draft Programmatic Environmental Impact Statement (EIS).

The NPS supports the U.S. Army Corps of Engineers (USACE) goal of reducing storm risk along nearly 1,000 miles of densely populated shoreline in New York and New Jersey. However, we note that many of the conceptual alternatives presented in the Interim Report could have permanent and significant adverse impacts on NPS cultural, natural and recreation resources in Gateway National Recreation Area (GATE) and other NPS locations in the project area. In order to evaluate the nature and severity of these impacts, further data and analyses are required. In the comments that follow, we have sought to identify the NPS resources of concern so that they can be appropriately evaluated in the EIS.

The NPS is committed to working with you and your staff to develop a mutually acceptable plan that achieves the project objectives, minimizes adverse impacts on NPS resources, and mitigates appropriately for unavoidable adverse impacts.

If you have any questions regarding our review, please contact GATE Superintendent Jennifer Nersesian (jen_nersesian@nps.gov, 718-354-4665) or GATE Chief of Resource Stewardship Patti Rafferty (patricia_rafferty@nps.gov, 718-354-4625).

Sincerely,

Joshua Laird, Commissioner
National Parks of New York Harbor

The National Park Service offers the following comments:

General Comments

The NPS acknowledges and appreciates that the Corps states in the Planning Constraints and Considerations section of the Interim Report (the Report) that "CSRM plans that fall within the boundaries of or impact the resources of the Gateway National Recreation Area must be mutually acceptable to the Department of the Interior and the Department of the Army".

The NPS has been participating in the NYNJHAT Study process since 2017 and acknowledges that the Report captured some of the key concerns identified by the NPS and other federal agencies at the January-February 2017 Agency Workshop meetings; including: impacts to important species, habitat, and water quality, as well as potential impacts associated with one or more storm surge barriers.

In addition, we further acknowledge at this stage of the feasibility study and NEPA analysis that quantitative impact analyses are unavailable for the proposed alternatives due to the current preliminary low-level of design and limited modeling that has been completed at this point. We understand that further impact analysis on alternatives will be completed in a future draft Environmental Impact Statement after sufficient information or data are available to conduct the analysis and we look forward to providing additional comments at that time.

Technical Comments on Potential Impacts to NPS Resources

Comments from Gateway National Recreation Area

Mutually Acceptable Plan

The NYNJHAT Interim Report identifies that elements of the coastal storm risk management plan within the boundaries of or impacting the resources of GATE must be mutually acceptable to the Department of Interior and the Department of the Army. The GATE enabling legislation (P.L. 92-592, 1972) states: "The authority of the Secretary of the Army to undertake or contribute to water resource developments, including shore erosion control, beach protection, and navigation improvements (including the deepening of the shipping channel from the Atlantic Ocean to the New York harbor) on land and/or waters within the recreation area shall be exercised in accordance with plans which are mutually acceptable to the Secretary of the Interior and the Secretary of the Army and which are consistent with both the purpose of this subchapter and the purpose of existing statutes dealing with water and related land resource development." A mutually acceptable plan must meet USACE project objectives, minimize impacts to NPS cultural, natural and recreational resources, and mitigate for all unavoidable impacts to NPS resources. Several alternatives identified in the interim report would have significant, persistent and/or irreversible impacts to GATE cultural, natural and recreational resources.

The NPS's authority to conserve and manage park resources is derived from the Organic Act of 1916, which states that "the fundamental purpose of the said parks...is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." The NPS has discretion to allow impacts on park resources and values when

necessary and appropriate to fulfill the purposes of a park (NPS 2006 sec. 1.4.3). However, as mandated by the Organic Act, the NPS cannot allow an adverse impact that would constitute impairment of the affected resources and values (NPS 2006 sec 1.4.3). An action constitutes an impairment when its impacts "harm the integrity of Park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values" (NPS 2006 sec 1.4.5). To determine impairment, the NPS must evaluate "the particular resources and values that would be affected; the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question and other impacts" (NPS 2006 sec 1.4.5). The NPS cannot legally take or authorize an action that will result in impairment. The NYNJHAT EIS will need to include sufficient information upon which the NPS can make a written determination that the actions authorized by the NPS will not lead to an impairment of park resources and values (NPS 2006 sec 1.4.7).

GATE Resources

GATE protects an assemblage of cultural resources that represent tangible manifestations of humans interacting with their environment and with each other throughout time, up to the present day, and coastal ecosystems that have been formed and continue to be reformed by natural processes. Beaches, marshes, waters, scenic views of the New York Harbor and historic settings, and open space offer resource-based recreational opportunities to a diverse public, recognizing the importance to preserve these special places for future generations (NPS 2014). GATE's General Management Plan identifies fundamental park resources and values. Fundamental resources and values are the park's attributes — its features, systems, processes, experiences, stories, scenes, sounds, smells, opportunities for visitor enjoyment, or others — that are critical to achieving the park's purpose and to maintaining its significance. These fundamental resources and values identify what is truly most important about a park (NPS 2014). To inform the assessment of impacts to GATE resources, relevant GATE fundamental resources and values are discussed below. Much of this information could be incorporated into the affected environment section of the NYNJHAT EIS.

Cultural Resources:

- Sandy Hook

The Fort Hancock and Sandy Hook Proving Ground National Historic Landmark District comprises the entirety of the park's Sandy Hook Unit. Fort Hancock and Sandy Hook Proving Ground was designated a National Historic Landmark in November of 1996. The district includes the cantonment area of Fort Hancock, numerous batteries, and the Proving Ground. Sandy Hook is significant in American History as the site of the Federal Reservation that played dual roles in United States Military History. The Sandy Hook Defenses (Fort Hancock) were the key fortification guarding the approaches to New York Harbor through the Nike Era. While the entire District is a fundamental park resource, the Endicott/Taft-era batteries, Parade Ground (including Officers' Row, barracks, and cultural landscape) and Nike Missile Launch and Radar Sites are individually identified as fundamental park resources within the Historic District (NPS 2014). The majority of the coastal fortifications found in the district face the ocean and/or New York Harbor and this association is important.

The Sandy Hook Light was individually listed a National Historic Landmark in 1982. Constructed in 1764 it is the oldest active lighthouse in the United States that is maintained today as an aid to navigation.

The 1894 Spermaceti Cove Life Saving Station No. 2 is also located in the park's Sandy Hook Unit. The Life Saving Station was individually listed on the national register in 1981. The station, which includes a watchtower and boat room, was constructed as one of the earliest federally sponsored efforts to save life and property from shipwrecks.

- Fort Tilden

The Fort Tilden Historic District is a fundamental park resource located in the Jamaica Bay Unit on the Rockaway Peninsula. Fort Tilden was determined eligible for listing on the National Register of Historic Places by the Keeper in 2009. Battery Harris, Battery Kessler, Construction Battery 220 and the Nike Missile Launch Site are individually recognized fundamental park resource within the Historic District (GMP 2014).

- Fort Wadsworth

The Fort Wadsworth Historic District is a fundamental park resource located on the west side of the entrance to NY Harbor in the Staten Island Unit. The Fort Wadsworth Historic District was determined eligible for the national register in 1998. The former military reservation was established as part of the New York Harbor coastal defense system and contains 61 contributing resources, including 33 buildings, 17 structures, and 13 sites. Included are a variety of defensive fortifications, gun batteries, and support structures. Battery Weed, Fort Tompkins, the Endicott-era batteries and the Torpedo-storage Building are individually identified as fundamental resources in the park's General Management Plan (NPS 2014). The two most significant fortifications in the district are Battery Weed (formerly Fort Richmond, with a related sea wall) and Fort Tompkins, both associated with the development of the Third System of American coastal defenses between 1847 and 1876. Each are individually listed in the National Register.

- Archaeology

In addition to the built environment, NPS is responsible for the archaeological resources both on land and underwater on NPS property within the boundaries of GATE. The archeological resources associated with the above-identified historic sites and districts are park fundamental resources (NPS 2014).

Natural Resources:

- Beach and Dunes

The beach and dune systems at Breezy Point Tip, Plumb Beach, Fort Tilden, Jacob Riis Park and Sandy Hook are fundamental park resources (NPS 2014). The beach and dune systems of these barrier peninsulas are maintained by natural processes, including longshore sediment transport, cross-island transport and dune development and evolution. The Sandy Hook peninsula and Breezy Point/Fort Tilden/Riis Park on Rockaway barrier spit are the primary geomorphological

components of the GATE ocean shoreline (Psuty et al. 2016). Under natural conditions, ocean spits like Sandy Hook and Rockaway Peninsula are dynamic (Psuty et al. 2016). These systems also provide important habitat. Edinger and others (2008) identified the Northern Beachgrass Dune and Overwash Dune Grassland at Breezy Point as good quality and significant from a statewide perspective. Breezy Point Tip ocean and bayside beaches as well as the beaches at Fort Tilden and Sandy Hook provide critical habitat for the federally listed piping plover (*Charadrius melodus*), red knots (*Calidris canutus*) and seabeach amaranth (*Amaranthus pumilus*). Over the past 10 years, Sandy Hook consistently supports approximately 40-50% of the NJ nesting plover pairs. From 2009-2018, Sandy Hook has had 35-52 pair of plovers nesting each year while statewide total nests per year ranged from 92-121 (Heiser and Davis 2018). Of the 145 chicks fledge in New Jersey in 2018, 59 were from Sandy Hook nests. Sandy Hook also provides important habitat for the federally threatened seabeach amaranth. Since the plant re-established in New Jersey, an annual average of 2089 plants have been documented on Sandy Hook beaches from 2000-2017. Sandy Hook has consistently had the highest occurrence of this species within New Jersey. Within the last five years, seabeach amaranth has been most abundant on beaches at the north end of the peninsula (North Beach and Gunnison Beach) (W. Walsh, personal communication October 24, 2017). Sandy Hook is also a Geographic Recovery Area for the Northeast tiger beetle (*Cicindela dorsalis dorsalis*) (Hill and Tinsley 1994) and NPS is currently evaluating a larval translocation.

- Jamaica Bay

Although existing within a highly modified urban landscape, the Jamaica Bay ecosystem is an important natural system. The Jamaica Bay waters, including inlets, submerged lands, and Dead Horse Bay, are fundamental park resources (NPS 2014). The natural areas that surround the Bay at Breezy Point Tip, Floyd Bennett Field, Fort Tilden and the Jamaica Bay Wildlife Refuge are also fundamental park resources (NPS 2014). The Jamaica Bay estuary is one of the largest open spaces within New York City (NPS 2004) and one of the largest coastal wetland ecosystems in New York State (NYCDEP 2007). The North Atlantic Low Salt Marsh in Jamaica Bay is the largest documented in the state by NY Natural Heritage (Edinger et al. 2008). For more than a decade, USACE has been a partner with NPS and other agencies to restore salt marsh island habitat in the Bay. The Jamaica Bay ecosystem supports 91 species of fish. Over 325 bird species are known to use Jamaica Bay as stopover, foraging, and/or breeding habitat. Audubon (2019) has identified the Jamaica Bay Complex as an important birding area. It also provides important habitat for reptiles, amphibians, and mammals (NPS 2016, Waldman 2008, NYCDEP 2007). The bay beaches and tidal flats of Jamaica Bay provide spawning grounds for horseshoe crabs (*Limulus polyphemus*). Horseshoe crab eggs are an important food source for migratory shorebirds (including federally threatened red knots), gulls, and fish (Botton and others 2006; NPS 2009). Jamaica Bay also has the largest terrapin (*Malaclemys terrapin*) population in New York (Duncan and Burke 2016).

- Sandy Hook

The Sandy Hook maritime forest and other natural areas in the Sandy Hook Unit are fundamental park resources (NPS 2014). The maritime holly forest is a critically imperiled community at the highest risk of extinction (global conservation status rank of G1) (Edinger et al. 2008). There are only two known examples of this globally rare forest community. At 231 acres, the Sandy

Hook maritime holly forest is the larger of the two (Edinger et al. 2008). Sandy Hook is also the only known location in which there is significant expansion of this rare community through successional maritime holly forest (Edinger et al. 2008). Occurrence of this forest community is highly restricted to barrier islands/peninsulas and is linked to the dynamic natural processes (overwash, erosion and migration) that dominate these systems (New York Natural Heritage Program 2019). Forest structure and regeneration have been shown to be dependent upon growth releases due to major storm disturbances (Forrester, Leopold, and Underwood 2008). Any disruption of connectivity between the open ocean, beach, dune and maritime holly system is a threat to this community (New York Natural Heritage Program 2019).

Recreational Resources:

The beach experience, including access to ocean surf, public access to bay and ocean shorelines, and water-based activities such as surfing, boating, fishing, and swimming, are fundamental park resources (NPS2014). In 2018, GATE had more than nine million visitors (NPS 2019). Each year, more than two million visitors go to the Sandy Hook Unit. Most of these visitors come to the Unit to enjoy the beaches and water-based recreation. Riis Beach is a heavily visited recreational area in the park. Jamaica Bay and the beaches of Breezy Point, Fort Tilden and Plumb Beach, are also import areas for park visitors.

Assessment of Impacts to GATE Resources:

GATE provides a national park experience in the country's largest metropolitan area. The park preserves a mosaic of coastal ecosystems and natural areas interwoven with historic coastal defense and maritime sites around New York's Outer Harbor. Alternatives identified in the Report could have significant and permanent impacts on the park's historic districts, historic structures, barrier peninsulas, estuaries, maritime uplands and visitor experiences. More data are needed to understand the type and level of impacts on park resources.

Impact analysis should include impacts of the project over the lifecycle of the constructed structures/measures as well as impacts during construction. The Report identifies that the period of analysis has not yet been determined and that it will be either 50 or 100 years. The NPS mission is protection of park resources for future generations. To be consistent with that mission, assessment of impacts to NPS resources must be long-term. Impacts on GATE resources should include the design life of the structures/measure as well as impacts once the design life of a measure is complete. For example, shore based tie-ins may include buried seawalls. Initially such a structure may function similar to dune. Over the long-term, it can be expected to function like a seawall (Kim 2017). Similarly, the impact of project measures on sediment transport and induced flooding may change over the long-term due to changes in sea level.

Detailed analysis of the direct and indirect impacts of shoreline measures and storm surge barriers/gates on park historic districts, historic structures, fortifications and associated earthworks, and archeological resources is required to evaluate impacts on GATE cultural resources. The relationship of the fortifications and their guns to the ocean and the harbor is important and one that could be significantly impacted by both the shoreline based measures and storm surge barriers/gates. Impact analysis should include view shed and visual simulations. Analysis of archaeological impacts should include resources on land and underwater. As a

consulting party, GATE must participate in all 106 related consultations related to GATE resources and NPS must be a signature to any Programmatic Agreement that includes GATE resources.

Analysis of impacts to GATE natural resources must account for the dynamic nature of coastal systems. Gateway contains an assemblage of coastal ecosystems formed by physical and biological processes. Detailed analysis of the direct and indirect impacts of shoreline measures and storm surge barriers/gates on sediment transport, dune development and evolution and the successional processes that sustain GATE natural areas is required. Impact analysis must include direct and indirect impacts on water quality of park's ocean and estuarine waters as well as groundwater, and freshwater resources. Impacts on legacy hazardous, toxic and radioactive wastes within the project area should also be considered.

Detailed analysis of the direct and indirect impacts of shoreline measures and storm surge barriers/gates to GATE recreational resources is also required.

- Alternative 2: NY-NJ Harbor-Wide Surge Gates/Beach Restoration

The proposed surge gate/barrier system would have permanent and significant impacts to cultural, natural and recreational resources in the park's Sandy Hook, Jamaica Bay and Staten Island Units. Some of these impacts could potentially harm the integrity of park resources and values. Impact analysis should assess direct and indirect impacts of the built project as well as the 25-year construction phase on GATE resources. Extensive mitigation would likely be required given the extent of the impacts this alternative could have on GATE resources.

Specific resources that could be impacted by this alternative include:

- The Fort Hancock and Sandy Hook Proving Ground National Historic Landmark District
- The Sandy Hook Light National Historic Landmark
- The Spermaceti Cove Life Saving Station Number 2
- The Fort Tilden Historic District
- Jacob Riis Park Historic District
- Breezy Point Surf Club Historic District
- Silver Gull Beach Club Historic District
- Fort Wadsworth Historic District
- Archeological resources
- The beach and dune systems at Breezy Point Tip, Fort Tilden, Jacob Riis Park and Sandy Hook
- Natural areas at Breezy Point Tip, Fort Tilden, Hoffman and Swinburne Islands, and the Jamaica Bay Wildlife Refuge
- Jamaica Bay waters, including inlets, submerged lands, and Dead Horse Bay
- Sandy Hook maritime forest
- Beach experience, including access to ocean surf
- Public access to bay and ocean shorelines
- Water-based activities such as surfing, boating, fishing, and swimming

- Alternative 3A: Upper Bay –Newark Bay Surge Gate and Jamaica Bay Surge Gate Plan

This alternative would have permanent and significant impacts to cultural, natural and recreational resources. A surge gate/barrier system at Jamaica Bay would directly and indirectly impact resources of the Jamaica Bay Unit. A surge gate/barrier system at Verrazano Narrows Bridge could directly and indirectly impact resources of the Staten Island Unit. Some of these impacts could potentially harm the integrity of park resources and values. GATE has previously submitted comments regarding the Jamaica Bay surge gate/barrier system. USACE has previously indicated that the NYNJHAT (see attachment) would address those comments. Impact analysis should assess direct and indirect impacts on GATE resources of the constructed project as well the construction phase. Extensive mitigation may be required given the extent of the impacts this alternative could have on GATE resources.

Park resources that could be impacted by this alternative include:

- The Fort Tilden Historic District
- Jacob Riis Park Historic District
- Breezy Point Surf Club Historic District
- Silver Gull Beach Club Historic District
- USCG Station Far Rockaway Historic District
- Floyd Bennett Field Historic District
- Fort Wadsworth Historic District
- Archeological resources
- The beach and dune systems at Breezy Point Tip, Plumb Beach, Fort Tilden, and Jacob Riis Park
- Natural areas at Breezy Point Tip, Fort Tilden, and Jamaica Bay Wildlife Refuge
- Jamaica Bay waters, including inlets, submerged lands, and Dead Horse Bay
- Beach experience, including access to ocean surf
- Public access to bay and ocean shorelines
- Water-based activities such as surfing, boating, fishing, and swimming

- Alternative 3B: Newark Bay, Jamaica Bay, Newtown Creek, Gowanus Creek, Flushing Creek, Bronx River, Westchester Creek Surge Gates and Multiple SBM's; and,

- Alternative 4: Single Water Body Barriers/Floodwalls/Levees: Jamaica Bay, Hackensack River, Newtown Creek, Gowanus Creek, Flushing Creek, Bronx River, Westchester Creek Surge Gates and Multiple Shoreline Based Measures

These alternatives would have permanent and significant impacts to the park's cultural, natural and recreational resources. A surge gate/barrier system at Jamaica Bay would directly and indirectly impact resources of the Jamaica Bay Unit. Some of these impacts could potentially harm the integrity of park resources and values. GATE has previously submitted extensive comments regarding potential impacts and alternative alignments for the Jamaica Bay surge gate/barrier. USACE has previously indicated that those comments would be addressed by the NYNJHAT (see attachment). Impact analysis should assess direct and indirect impacts of the

built project as well the construction phase on GATE resources. Extensive mitigation may be required given the extent of the impacts this alternative could have on GATE resources.

Park resources that could be impacted by these alternatives include:

- The Fort Tilden Historic District
- Jacob Riis Park Historic District
- Breezy Point Surf Club Historic District
- Silver Gull Beach Club Historic District
- USCG Station Far Rockaway Historic District
- Floyd Bennett Field Historic District
- Archeological resources
- The beach and dune systems at Breezy Point Tip, Plumb Beach, Fort Tilden, and Jacob Riis Park
- Natural areas at Breezy Point Tip, Fort Tilden, and Jamaica Bay Wildlife Refuge
- Jamaica Bay waters, including inlets, submerged lands, and Dead Horse Bay
- Beach experience, including access to ocean surf
- Public access to bay and ocean shorelines
- Water-based activities such as surfing, boating, fishing, and swimming

- Alternative 5: Perimeter Only Solutions

As presented in the Report, at this time it does not appear that Alternative 5 would have direct or indirect impacts on GATE cultural, natural or recreational resources.

Mitigation

As identified above, most of the project alternatives would have permanent and significant impacts to GATE cultural, natural and recreational resources. Future project planning should quantify resource impacts using established regulatory and resource damage assessment methodologies. Direct and indirect impacts should be summed over time and space to identify the mitigation requirements sufficient to offset estimated resource losses. Mitigation should be included as a part of the impact analysis and factored appropriately into the project cost.

With more than 26,000 acres of property within the project area, GATE may also provide opportunities to off-set project impacts outside of GATE boundaries. For example, approximately 40 acres of wetland habitat was restored at Elders Point East in Jamaica Bay as mitigation for impacts of the New York and New Jersey Harbor Deepening Project.

Real Estate and Operations and Maintenance

Many of the Report alternatives would require extensive construction on NPS lands. As stated previously, we seek to minimize impacts to NPS resources; however, if the Tentatively Selected Plan requires construction on NPS lands, an easement and / or permit would be required for construction and long-term operation and maintenance. The terms and conditions of the easement will require the local sponsor to incur all financial and legal obligations and responsibilities for the operation, maintenance, repair, and liability in perpetuity. The United

States would retain fee ownership of the underlying land and will retain the right to access the areas for park purposes. Further discussions on this topic will be needed as more details on alternatives become available.

NPS Utilities and Infrastructure

Many of the Report alternatives could impact GATE underground utilities, roadways and infrastructure. Impacts to NPS utilities and infrastructure must be evaluated and the cost to relocate impacted park infrastructure must be factored into the project costs.

Natural and Nature-based Features

Although the Report identifies that the actual type of coastal storm risk management measures has not been determined, the conceptual alternatives presented in the Interim Report rely heavily on hard structures. Natural and nature-based features (NNBF) are mentioned throughout the report but are not well represented in the conceptual alternatives. NNBF are primarily discussed as high frequency measures. Recent research has indicated that nature-based measures, such as strategic shallowing, can yield storm risk reductions comparable to hard structures (Fishbach and others 2018, Orton and others 2015). Strategic shallowing is not identified as a potential natural and nature-based feature in the Report. GATE recommends the evaluation of one or more alternatives that rely primarily on nature-base features.

Comments from Northeast Regional Archeologist

Technical Comments: Cultural Resources

- Alternative 2 appears to have the potential to fundamentally alter the visual landscape and viewshed from the Sandy Hook and Breezy Point Units of Gateway National Recreation Area. This would likely constitute an adverse effect under Section 106 of the National Historic Preservation Act, thus requiring consultation and potentially mitigation with multiple stakeholders including Native Tribes and State Historic Preservation Offices (SHPOs). We recommend that Section 106 consultation be initiated as early as possible, if it has not already begun.

- Alternative 3a appears to involve shoreline based measures (SBM) that would impact a portion of the western side of Floyd Bennett Field. This area includes part of the location of the former Barren Island landform. Though buried today, this area contains the potential to have remaining features related to the prehistoric and historic occupations of the area (as documented in Baseline Documents from 2005 and 2011). According to the National Park Service's Archeological Overview and Assessment of the Jamaica Bay Unit of Gateway National Recreation Area, portions of Barren Island beneath Floyd Bennett Field may still contain enough integrity to remain a contributing element to the Jamaica Bay's National Register Eligibility. In both documents further scientific research of this resource was recommended (Mangi Environmental Group 2005; Baldwin et al. 2011).

- Additional SBM's appear to also affect portions of the Breezy Point Unit of Gateway National Recreation Area. The potential for archeological remains present in this unit is low, however some archeological investigation may be required to ensure that previously unknown archeological resources remaining in the unit are recorded.

- This alternative includes proposed SBM's in the vicinity of Jacob Riis Park of Gateway National Recreation Area. This portion of Gateway is thought to have the potential to contain historic archeological sites or other features. Disturbances in this portion of the park may require additional research, and possibly archeological mitigation and/or monitoring.

- Alternative 3b appears to include the same SBM's along the western edge of Floyd Bennett Field, part of the southern edge of Breezy Point and Jacob Riis Park at Gateway National Recreation Area. Thus the comments for Alternative 3a extend to this alternative as well.

  - This alternative also includes SBM's in Lower Manhattan located in the vicinity of Battery Park and in Jersey City, NJ within Liberty State Park. Roughly 80% of visitors to the Statue of Liberty and Ellis Island embark and return on ferries docked at gangways 3, 4 and 5 along the Battery promenade. Departing visitors must also pass through an airport-style security screening facility located along the promenade. The other 20% of visitors embark and return from Liberty State Park through a similar arrangement. Further, service deliveries, law enforcement, fire protection and medical emergency responses on Ellis Island rely on a service bridge connecting the site with Liberty State Park. Extensive SBM construction in these areas, including any changes in upland elevations that impact gangway connections to the ferries or access to the service bridge, will likely affect visitor and emergency access to the islands - impacting the basic functions of the park and potentially limiting visitation at great cost. Strategies to address visitor, service and emergency access may be required.

  - Likewise, the walls of Castle Clinton in Battery Park are thought to be unstable. Extensive ground disturbance in the vicinity of Castle Clinton may further destabilize the walls to the point of failure. Mitigation at Castle Clinton to prevent this ahead of and/or during construction may be required. Potential impacts to the interpretation of this historic resource, which is listed on the National Register of Historic Places, will also need to be considered.

- Alternative 4 appears to include the same SBM's along the western edge of Floyd Bennett Field, part of the southern edge of Breezy Point and Jacob Riis Park, and a portion of Lower Manhattan at or near Battery Park. Thus, the comments for Alternative 3b extend to this alternative as well.

- Alternative 5 appears to only involve SBM's that could affect park resources in Lower Manhattan in the area of Battery Park. Comments made above for Alternative 3b for

resources in the area of Battery Park (Castle Clinton, Statue of Liberty Battery Park facility) extend to this alternative as well.

- There are concerns about the impacts of these alternatives to archeological and cultural resources located on lands managed by the National Park Service. Direct and/or indirect impacts to these resources may constitute adverse effects to eligible sites. If this is the case, then consultation with SHPO, as well as mitigation may be required. Likewise, particularly for Alternative 2, but also for Alternatives 3a, 3b, 4, and 5, impacts to the visual landscape and viewsheds from and to NPS Fee Simple lands, including NHL sites, may constitute an adverse effect as well.

- We recommend coordination with NPS, including cultural resources and other appropriate staff at Gateway National Recreation Area, Manhattan Sites, and Statue of Liberty. In addition, we recommend continued coordination and consultation during the early stages of this project with other stakeholders, including associated Native Tribes.

Comments from Regional Coastal Landscape Adaptation Coordinator

Technical Comments: Coastal Modeling and Impact Analysis

- Exposure Index Weights for Environmental and Habitat categories have been set to 0% (Table 6, p. 51). The NPS disagrees with this assumption. Justification should be fully explained for all weights. Lacking understanding of the source of these weights, but building off NACCS, we suggest at a minimum 5% each for Environmental and Habitat, which could be done by reducing weights for Infrastructure by 5% to 25% and Building Value by 5% to 15%. Not including environmental and habitat exposure will underestimate risk, especially to NPS resources, but also ignores the ecosystem services the environment plays in protecting other systems.

    - Justification for the Environmental Value at 5% could be based on the EPA Enviroatlas (EPA 2019) and justification for the Habitat Value at 5% is supported by the document "Building Ecological Solutions to Coastal Community Hazards: A Guide for New Jersey Coastal Communities" (Small-Lorenz, Shadel, and Glick 2017). Considering the true value of ecosystem services in the project planning and decision-making process should assist in identifying important NPS and public resources in the study area. In addition, the proposed weights do not at all account for the ecosystem services or the natural capital in the area. The nature's ecosystem services values are a higher value then the built environments (Costanza et al 1997, 2014).
    - If lack of data layers for environment values is the concern, we suggest the 1km gridded dollar values (data can be provided for entire area by NPS if needed) or a dataset could be constructed based on a preferred landcover data source in which the published land cover values could be applied (Costanza 2014). In addition, for NPS lands, the NPS can provide vegetation maps and a geologic resources inventory.
    - It is good that the cultural category is included (5%).

- Need to define vulnerability and risk. Figure 15 indicates that Exposure x Vulnerability = Risk, but this is different than what is used in the vulnerability literature. NPS uses definitions of vulnerability that are the combination of exposure and sensitivity (NPS 2016) and Cultural Resources (Rockman et al. 2016); or exposure, sensitivity and adaptive capacity for Natural Resources (Glick et al. 2011). For a broader source for definitions, we suggest the US Global Change Research Program (US GCRP):
    - Vulnerability: The degree to which physical, biological, and socio-economic systems are susceptible to and unable to cope with adverse impacts of climate change (US GCRP 2019).
    - Risk: Threats to life, health and safety, the environment, economic well-being, and other things of value. Risks are often evaluated in terms of how likely they are to occur (probability) and the damages that would result if they did happen (consequences) (US GCRP 2019).
- In addition, the metric of vulnerability shown in Fig. 15 looks like a different component of exposure. Depending on above definitions used, justification for using these methods and/or metrics should be provided. If the crest elevation of the Outer Harbor Barrier (Alternative 2) is +46' NAVD88 (p.102), how high will the tie-ins at Sandy Hook to Breezy Pt have to be?
- Agree with the recommendation "Recommendation: additional hydrodynamic modeling along with engineering gate structure designs for both navigation as well as environmental effects" (p.111). One related project to consider as an example: Analysis of the feasibility of a similar scale storm surge barrier effort for Boston Harbor, especially for hydrodynamic and tidal factors: http://ebcne.org/wp-content/uploads/2018/06/06-22-18-MASTER-Climate-Change-Program-The-Boston-Harbor-Barrier-Study.pdf
- Potential impacts to the globally rare maritime holly forest at Sandy Hook should be noted as a potential impact of tie-ins at Sandy Hook (p. 117).
- In "no adverse impacts to geology and soils beyond the footprints of these measures" for multiple alternatives (e.g. p.117, p.118, p.120, p.122): adverse impacts of disrupting natural sediment transport and loss of ability of beach/dune systems to keep pace with sea level rise should be recognized. Option of "dunes/buried seawalls", such as those in the SBM surrounding the Jamaica Bay need to take into account that these will not function as dunes and sand will be needed to be regularly rebury them and there will be adverse impacts beyond the footprints.
- "Alternative 3a is likely to have aesthetic impacts associated with a changed viewscape and some coastal views may be impacted, diminished or lost due to the construction of this alternative" (p 119-120). Viewshed impacts are important to consider and include in the EIS.

Comments from Resource Planning and Compliance Division

Storm Surge Barrier (SSB) Impact Analysis

As alternatives with SSBs are carried further in the Planning process, we recommend that the draft EIS provide additional impact analysis related to the following issues which could have impacts on NPS resources:

- Closures: Closures related to proposed SSBs. The EIS should clearly examine the frequencies and extent of gate closures relative to a proposed SSBs. Active management of a SSB is very difficult and one should not overlook the consequences to the affected ecosystem (Elgershuizen 1981).
- Construction: The EIS should evaluate the long term impacts of SSB construction on NPS resources over a 10-25 year construction window. The EIS should consider questions such as: Where will staging areas be for construction? Are access roads needed, if so, where will they be located? What is the long term impact on NPS resources within the project area over the duration of SSB construction?
- Aquatic Habitat: The EIS should evaluate the impacts of SSB construction, gate closures, and long-term operations/maintenance on riverine and estuarine species in the Raritan and Jamaica Bay and associated tributaries over various seasons and storm events. The EIS should also consider whether fish migration and local foraging patterns would be disrupted by an SSB across an inlet.
- Air Quality: The EIS should evaluate the impacts of SSB construction and long-term operations/maintenance on air quality to NPS Units in the Greater New York Metropolitan area. The EIS should evaluate what the air quality impacts would be on a yearly basis associated with a 10 - 25 year construction window. A thorough air quality analysis should be completed to insure that the air quality emissions associated with construction and operation of SSBs would be in compliance with federal air quality standards as outlined in the NY State Implementation Plan. This will insure that NPS resources within the project area are not impacted by poor air quality.
- Water Quality: The EIS should evaluate the impacts of SSB construction, gate closures, and long-term operations/maintenance on water quality within the Raritan and Jamaica Bay and associated tributaries over various seasons and storm events. For example, what impacts would occur to the turbidity, salinity, and local storm water systems in the bay as a result of SSB operation?
- Tidal Exchange: The EIS should evaluate the impacts of SSB construction, gate closures, and long-term operations/maintenance on tidal range within the Raritan and Jamaica Bay and associated tributaries various seasons and storm events. For example, during closures, will there be a head of tide amplification for surrounding creeks and will this affect aquatic communities?
- Sediment Transport: The EIS should evaluate the impacts of SSB construction, gate closures, and long-term operations/maintenance on current velocities and sediment transport within the Raritan and Jamaica Bay and associated tributaries over various seasons and storm events. For example, will changes in currents/energy flux affect Bay stratification and residence time? If flushing dynamics change in the bay, will Harmful Algal Blooms (HABs) increase in frequency and duration, and if so, will this impact local fish populations?
- Benthic Communities: The EIS should evaluate possible changes to the bay substrate and sediment patterns as a result of SSB construction and operation. For example, if the SSB reduces wave action and water velocities within the bay, will this lead to a new character and distribution of benthic substrates, which in turn could alter the current distribution and biomass of benthic communities? Or will there be a redistribution of benthic communities, salt marshes, and changes to bay mixing and circulation patterns?

- Flooding: The EIS should evaluate the potential flooding and ponding risk to both natural and human communities when a proposed SSB is closed during storm events.
- Recreation: The EIS should evaluate the impacts to recreational boating / kayaking with a SSB in place across Raritan and Jamaica Bay.

In summary, specific impacts to NPS Resources are difficult to assess at this point in time of the NYNJHAT study due to many unknowns associated with SSBs, including size of the structures, number of gates, operation and maintenance plan, construction material, construction timeframe, staging area locations, etc. Constructing a barrier across Raritan Bay or Jamaica Bay will most likely have impacts by disrupting the migration and local movements of aquatic species; altering the tidal and flushing regime in the estuary, which could change the aquatic community in the estuary and river; degrading the water quality in the river and estuary by blocking the draining of the river during a storm event; disrupting sediment transport from the river through the estuary to the ocean, which could have cascading effects the estuary/river flora and fauna; disrupting recreational boating moving from the river through the inlet to the ocean; and by forever altering the scenic viewshed of Raritan Bay and Jamaica Bay. Whether a SSB is open all the time or is unpredictably closed, the ecosystem will experience significant changes to which it will have to adapt (Elgershuizen 1981).

Further Recommendations

The Report and the array of alternatives currently presented focuses heavily on structural alternatives and did not appear to spend an equal amount of analysis on non-structural alternatives. The main focus of the non-structural analysis was the statement "Natural and Nature-Based Features as well as Non-Structural Measures will also be considered in study area in tandem with structural measures as feasible and warranted". This issue is important to the NPS because focusing mainly on structural solutions has lead the Corps to consider alternatives that more are likely to impact NPS resources. The Corps' own Policy states the importance of non-structural alternatives:

"Section 73 of the Water Resources Development Act of 1974 requires consideration of nonstructural alternatives (measures) in all flood risk reduction studies. They can be considered independently or in combination with structural measures (Corps Planning Guidance Notebook PGN). Planning Bulletin (PB 2016-01) signed on 22 December 2015 further clarifies Corps policy on nonstructural measures for the plan formulation phase on investigations and implantation. The Planning Bulletin clarifies that it is the policy of USACE to formulate a full array of alternatives consisting of nonstructural measures and structural measures and that not all nonstructural measures need to meet USACE criteria for agency participation and cost share implementation."

We recommend that the Corps complete a thorough analysis of all non-structural alternatives to meet the project goals and objectives since the Interim report did not have a non-structural analysis. Non-structural alternatives like acquisition/relocation, building elevation, building flood proofing, etc., should be key components of any sustainable solution moving forward. A non-structural focused array of alternatives will likely have substantially less impacts on NPS resources than structural alternatives.

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Planning Division

July 20, 2018

Ms. Jennifer T. Nersesian
United States Department of the Interior
National Park Service, Gateway National Recreation Area
210 New York Ave
Staten Island, New York 10305

Subject: Responses to Comments on the Draft General Reevaluation Report / Environmental Impact Statement (GRR/EIS) for the East Rockaway Inlet to Rockaway Inlet Hurricane Sandy Reformulation Study

Dear Ms. Nersesian:

The U.S. Army Corps of Engineers (USACE), New York District (District) is in receipt of your letter, dated 19 January 2017, submitting comments on the East Rockaway Inlet to Rockaway Inlet and Jamaica Bay Draft Integrated Hurricane Sandy General Reevaluation Report and Environmental Impact Statement (HSGRR/EIS).

As a result of the significance (extent and content) of partner, agency and public comments received on the proposed project, as well as the feedback to the District resulting from the concurrent policy and technical review that was conducted by USACE Headquarters (HQUSACE), the District, in coordination with New York State Department of Environmental Conservation (NYSDEC) as our non-federal Sponsor, has determined that sufficient revision to the draft report is required in order to proceed to a final decision document.

The Agency Decision Milestone (ADM) resulted in the decision to move all further evaluation of the proposed storm surge barrier measure within Jamaica Bay, a significant component of the Tentatively Selected Plan (TSP), to the ongoing New York and New Jersey Harbor and Tributaries (NYNJHATs) Feasibility Study (NYSDEC and NJDEP are the non-federal sponsors, with the partnership of New York City). The NYNJHATs Study was initiated in the Summer of 2016 around the same time as the release of the Rockaway Reformulation Draft GRR/EIS. The NYNJHATs Study is evaluating large-scale regional coastal storm risk management (CSRM) strategies for the New York/New Jersey metropolitan area (which includes Jamaica Bay) extending upstream of the Hudson River to the federal lock and dam at Troy, New York, the Passaic River to the Dundee Dam, and the Hackensack River to the Oradell Dam. The NYNJHATs study is evaluating a suite of storm surge barriers, including one alignment from Breezy Point to Sandy Hook that would obviate the need for the proposed Jamaica Bay barrier. Therefore, from a plan formulation perspective, it makes sense to evaluate

the storm surge barrier, previously a component of the Rockaway Reformulation, in this newer regional study instead.

Moving the barrier component to the NYNJHATs Study has other strategic advantages as well. Namely, that more analysis is needed and that the required analysis should not delay construction of the more readily implementable Atlantic Shorefront and 'Residual Risk' measures in Jamaica Bay. Part of why more environmental analysis was deemed necessary for the barrier component is that the level of detail available to date was still largely conceptual.

The Project Delivery Team has been working with to further refine and develop the 'Residual Risk' measures in the Back-Bay, now termed *high frequency flooding risk reduction features* (HFFRRFs), in order to bring them up to full feasibility level of design and environmental analysis, and to include natural and nature-based features, as well as areas outside of New York City in Nassau County.

Thank you for the continued assistance and input to this process which helps to advance the execution of this regionally-significant project. Points of contact for the study are Planner and Biologist, Daria Mazey, at 917-790-8726 or the Project Manager, Dan Falt, at 917-790-8614.

Sincerely,

Clifford S. Jones III
Chief, Planning Division

Enclosure

cc: Raddant-DOI

Pertinent Text and Responses to Comment Letter

Mutually Acceptable Plan

NPS appreciates that the Draft HSGRR/EIS explicitly cites future coordination with the NPS to identify a plan that is mutually acceptable. A mutually acceptable plan must be one that meets USACE project objectives, minimize adverse impacts to NPS cultural, natural and recreational resources within Gateway National Recreational Area (GATE or "park"), and mitigates for all unavoidable adverse impacts to NPS resources. Under the fundamental principles that guide the National Park Service, a mutually acceptable plan cannot result in impairment of NPS resources. In addition, the plan must be consistent with the park's enabling legislation which states "That the Secretary shall administer and protect the islands and waters within the Jamaica Bay Unit with the primary aim of conserving the natural resources, fish, and wildlife located therein and shall permit no development or use of this area which is incompatible with this purpose." The alternatives analyzed in the Draft HSGRR/EIS may have significant, persistent and irreversible adverse impacts to GATE natural, cultural and recreational resources. Potential impacts from the Tentatively Selected Plan (TSP) include the loss of coastal natural resources, alteration of natural coastal functions, alteration of the setting, feeling and association of six Historic Districts within GATE, and alteration of park visitor experiences and opportunities.

> Response: Future analyses of adverse impacts to GATE are the subject of current and ongoing coordination between the USACE and NPS. It is important to note the Jamaica Bay storm surge barrier component of the original plan presented in the Draft HSGRR/EIS is now within the scope of the NY / NJ Harbor and Tributaries Study (NYNJHATS) for further evaluation and potential recommendation. Adverse impacts cited above by NPS will be assessed within the scope of the NYNJHATS.

None of the alternatives analyzed in the plan include mitigation measures that avoid and minimize adverse impacts to NPS resources. Given the magnitude and permanence of the preferred alternative or alternative tie-in locations and the absence of identified mitigation measures, and without a full analysis of the potential impacts, the NPS can only conclude that the project as currently described in the HSGRR/EIS would result in the impairment of park resources. We consider this a starting point that can and should be rectified within the draft HSGRR/EIS, and will work with you to achieve this goal.

> Response: Planning for the avoidance and mitigation of impacts to GATE will be the subject of future coordination between the USACE and NPS. As stated above, the Jamaica Bay storm surge component of the original plan presented in the Draft HSGRR/EIS is now within the scope of the NY / NJ Harbor and Tributaries Study (NYNJHATS) for further evaluation and potential recommendation.

The draft HSGRR/EIS identifies that potential alternate tie-in alignments may be developed as part of the optimization of storm surge barrier alignment C-1E to provide flexibility for the final design to minimize effects to NPS resources and to provide for a plan that is mutually acceptable to the Secretaries of the Army and Interior. We anticipate that analysis may show that some of these alternatives, such as running the line of protection

perpendicular to the eastern edge of Riis Beach, would greatly decrease the scope and degree of impacts to park resources by avoiding the Atlantic shoreline along Riis Beach, Fort Tilden and the tip of Breezy Point. We strongly encourage you to consider these alternative alignments and analyze their relative impacts. In doing so, we would also request that there is coordination between the HSGRR/EIS and the Breezy Point and Roxbury communities' plans for protection to make sure those populations are not left vulnerable.

While we anticipate that some of the alternatives contemplated could greatly reduce impacts to park resources, we cannot formally make that determination in the absence of data and analysis. We note that alternate alignments BZ, 149, FB, and 149 & FB (listed in Table 5-18 and shown in Figures 5-13 through 5-16) were not evaluated in the Draft HSGRR/EIS. NPS will require full analysis of impacts for a mutually acceptable plan.

> Response: Alternative alignments for potential tie-in alignments for the Jamaica Bay storm surge barrier will be reassessed as part of the NYNJHATS.

It is our agency's goal to work collaboratively with USACE to arrive at a mutually acceptable plan and to implement a project that will reduce storm damage risks for NYC residents and communities; however, NPS lacks sufficient capacity to participate in the multi-year planning, design and implementation phases to the level necessary for successful development of this project. Full participation by NPS to maintain the engagement and collaboration necessary for this project will require funding for staff and technical resources that are currently not available within the NPS budget.

Impacts to Park Resources

The NPS's authority to conserve and manage park resources is derived from the Organic Act of 1916, which states that "the fundamental purpose of the said parks ...is to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." The NPS has discretion to allow impacts on park resources and values when necessary and appropriate to fulfill the purposes of a park (NPS 2006 sec. 1.4.3). However, the NPS cannot allow an adverse impact that would constitute impairment of the affected resources and values (NPS 2006 sec 1.4.3). An action constitutes an impairment when its impacts “harm the integrity of Park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values” (NPS 2006 sec 1.4.5). To determine impairment, the NPS must evaluate “the particular resources and values that would be affected; the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question and other impacts” (NPS 2006 sec 1.4.5). The Draft HSGRR/EIS impact analysis is not currently sufficient to meet NPS policy requirements to determine if the project would impair NPS resources. In order to be mutually acceptable, the document will need to include this analysis to demonstrate that the proposed actions do not constitute impairment.

Specific areas in need of analysis are included in the sections below, and the NPS will work with the USACE to further define these needs as necessary. Overall, there is a concern that the Tentatively Selected Plan (TSP) could have significant, persistent and irreversible adverse impacts to GATE natural, cultural and recreational resources. Buried seawalls along the Atlantic coast within sections of GATE could constitute permanent, irreversible adverse ecological impacts to fundamental natural resources; an adverse effect on several aspects of integrity of

fundamental cultural resources, including association, feeling, setting, etc.; and irreversible change for the visitor experience. As an analysis of these impacts is developed and we get a better sense of the severity, duration and timing of these impacts, we can collectively work on strategies to eliminate, minimize and/or mitigate those impacts and have those changes reflected in the final analysis in the document.

Impacts to any Fundamental Resources outlined in the park's General Management Plan are of particular concern. *Fundamental resources and values are the park's attributes-its features, systems, processes, experiences, stories, scenes, sounds, smells, opportunities for visitor enjoyment, or others-that are critical to achieving the park's purpose and to maintaining its significance* (NPS 2014). The resource values of the estuary, beaches, wetlands and maritime uplands of Jamaica Bay within the proposed plan are fundamental to GATE. *These resources provide unique and surprising opportunities for experiencing the wildness of the natural world while within the city's limits, and a model for studying, managing, and restoring urban ecosystems* (NPS 2014). The habitats that compose the Jamaica Bay ecosystems are rare in such highly developed areas and support a rich biota that includes migratory birds, marine finfish and shellfish, plant communities, and rare, threatened, and endangered species. These features provide opportunities to restore, study, enhance, and experience coastal habitats and ecosystem processes. The Draft HSGRR/EIS does not provide sufficient information and analysis to fully assess the impacts of the project on these resources.

The cultural resources of the park represent tangible manifestations of humans interacting with their environment and with each other throughout time. The history of the park's defensive military fortifications and weaponry is manifested in some of the most notable cultural resources in the park. Within the project area, the history of Fort Tilden as part of the national defense network designed to protect the New York Harbor is a fundamental value. Battery Harris, Battery Kessler, Construction Battery 220 and the Nike Missile Launch Site are fundamental park resources. The civil and military aviation history resources at Floyd Bennett Field, historic landscape at Jacob Riis Park, including the beaches, boardwalk, and bathhouse; and pre-contact archeological sites, historic archeological sites related to domestic and Military occupations of park lands, and submerged resources have been identified as important park resources and values. In addition to the National Register-listed Fort Tilden, Floyd Bennett Field and Jacob Riis Park Historic Districts, the Silver Gull Beach Club, the Breezy Point Surf Club, and the Far Rockaway Coast Guard Station have been determined eligible for the National Register by the New York State Historic Preservation Office (NPS 2014). The impact analysis must describe both physical impacts and impacts on other aspects of resource integrity such as association, feeling, setting, etc. The Draft HSGRR/EIS does not adequately characterize the national and local significance of the NPS cultural resources within the project area nor evaluate the impacts of the projects on those resources.

Response: The breadth of the effects to NPS resources at GATE are acknowledged, and will be reassessed as part of the NYNJHATS. Effects to NPS resources associated with the Atlantic Shorefront portion of the project will be reexamined in coordination with the NPS and NYSHPO. However, the Corps does not agree that "*Buried seawalls along the Atlantic coast within sections of GATE could constitute permanent, irreversible adverse ecological impacts to fundamental natural resources; an adverse effect on several aspects of integrity of fundamental cultural resources, including association, feeling, setting, etc.; and irreversible change for the visitor experie*nce." The buried seawall will be a component of "Layers of protection+ - beach + dune + structure). There will be temporary construction related impacts related the seawall, but once buried it is to remain buried and the impacted area will function as before.

Agency Decision Milestone (ADM)

The Draft HSGRRIEIS identifies that a final decision for the TSP will be made at the Agency Decision Milestone (ADM) and that the TSP may be modified particularly with regard to the alignment of the Storm Surge Barrier and risk residual features. The ADM will select a plan for feasibility-level design and recommendation for implementation. NPS will require significant additional information regarding the impacts of project in general and the alternative alignments in particular to support agency agreement on a final plan. USACE has indicated that additional modeling and analysis will occur during the design and development phase of the project that could result in further refinement of the Jamaica Bay and Rockaway Inlet components of the TSP. NPS will require results of that modeling and analysis to fully evaluate the impacts of the project on NPS resources. As explained above, it is not reasonable to expect that a mutually acceptable plan can be identified without full evaluation of impacts on NPS resources. In these comments, NPS has identified some additional analysis and revisions that will be required for the Atlantic Shorefront Component of the plan. Substantial information needs and analysis is required to fully assess the impacts of the Jamaica Bay Component and residual risk measures on NPS resources. Therefore, NPS recommends that USACE develop a Supplemental EIS (SEIS) for the Jamaica Bay Component of the HGRRJEIS and that the SEIS will provide a mutually acceptable plan for the Jamaica Bay Component at the ADM milestone of the SEIS.

Response: The USACE concurs with the recommendation to separate the Jamaica Bay storm surge barrier component from the Atlantic Shoreline component of the TSP. In lieu of preparing an SEIS, as recommended by NPS, the Jamaica Bay storm surge component will be subsumed into the NYNJHATS.

Atlantic Ocean Shorefront

The Atlantic Ocean Shorefront component of the HSGRRJEIS would extend in length 5 existing groins and construct 13 new groins. The terminal groin at Beach 149th Street has and will continue to interrupt natural littoral transport mechanisms to the beach face at Jacob Riis. Expansion of the Rockaway groin field may further disrupt sediment transport processes. The sediment starved Riis beach provides protection for the Jacob Riis Park Historic District. The loss of the beach also threatens the integrity of the cultural landscape including character defining elements such as the large scale of the beach space. Loss of sand and narrowing of these beaches has also reduced the quantity and quality of habitat available for wildlife such as the

federally threatened piping plover (Charadrius melodus) and is likely to increase the risk of human-wildlife conflicts. Lastly, the loss of sand compromises the recreational experience of the hundreds of thousands of visitors that frequent the beach every summer. Interagency Agreement Number Pl4PG00287 between the NPS and USACE provided the placement of approximately 200,000 yd^3 in 2014 to restore fundamental and other important resources and values associated with recreation, cultural landscapes, and coastal habitats for wildlife at Jacob Riis Park as an interim measure until the HSGRRJEIS was completed. The Draft HSGRR/EIS does not provide for any beach nourishment at Riis Beach (reach 2) to mitigate for the impacts of the groin field on sediment transport process west of the terminal groin at Beach 149th Street. We request that this be included as a part of the plan.

> Response: Coastal Storm Risk Management (CSRM) features for Atlantic Shorefront reaches 1 and 2 (which include Riis Beach) did not pass initial screening due to the small number of structures (0 residential, 7 non-residential – Depreciated Replacement Value $19,342,000). Preliminary analyses showed that the benefits of providing CSRM features would not exceed the costs of providing CSRM features, and not be economically justified. However, concur that the Recommended Plan cannot adversely affect NPS property, so sand placement and groin rehabilitation are proposed as a taper tie-in at the western end of the project past the terminal groin at Beach 149th Street. USACE is performing sediment transport modeling and will refine the western taper design in coordination with NPS during the Pre-Construction Engineering and Design Phase.

Storm Surge Barrier

The Draft HSGRRJEIS lacks sufficient information to evaluate the impacts of the storm surge barrier across the Rockaway Inlet from near Jacob Riis Park to Floyd Bennett Field (TSP Cl -E alignment) on NPS resources. The 3,970-foot barrier will directly impact Jacob Riis Park and Floyd Bennett Field Historic Districts and will be within the viewshed of other Districts managed by NPS. The open barrier will substantially reduce the area for water exchange and will impact the hydrology and hydrodynamics of the bay. Hydrologic changes may alter the sediment budget, sediment distribution, mobilization of contaminated sediments, as well as the area, distribution and long-term resilience of bay intertidal and subtidal habitats and the organisms associated with those habitats. Closing the barrier may have additional impacts, particularly with regard to water quality and sediment budget. The Draft HSGRR/EIS indicates that preliminary modeling identifies minimal impacts and that additional modeling will be conducted during the design and engineering phase of the project. NPS cannot evaluate whether it will be possible to achieve a mutually acceptable plan until the impacts of the storm surge barrier are fully evaluated and measures to reduce adverse impacts have been included to the greatest extent possible, and mitigation has been identified for adverse impacts that cannot be avoided. In addition, NPS recommends that USACE develop an external peer advisory team to provide expert input into the development of models and other tools to evaluate the impacts of the storm surge barrier on Jamaica Bay physical and ecological resources. NPS requests that scientists from the Science and Resilience Institute at Jamaica Bay and the United States Geological Survey are represented on that team.

> Response: Additional water quality modeling has been conducted to analyze a range of potential impacts up to the worst case scenario for water quality impacts

of a barrier in Jamaica Bay. The NYNJHATS will describe the Jamaica Bay Eutrophication Model (JEM) that was used to analyze potential water quality impacts (JEM documentation has been revised in recent months). Independent External Peer Review is part of the Corps planning process, and will take place under the NYNJHATS for the Jamaica Bay storm surge barrier.

Storm Surge Barrier Tie-In - Rockaway Peninsula

The current TSP alignment would maximize adverse impacts on NPS cultural, natural and historic resources. The alignment will directly impact 4 historic districts and, depending upon the alignment, may directly impact contributing resources within those districts such as Shore Road and Batteries Kessler and Construction 220. The highly modified urban setting in which GATE is situated does not negate the NPS requirement to preserve the physical and biological resources. When "a truly natural system is no longer attainable," NPS policies require management to achieve the best approximation of natural conditions, to minimize impacts, to mitigate for impacts, and, when possible, to restore natural conditions.

Construction of a reinforced dune and concrete floodwall through NPS property would constitute a permanent management decision to eliminate naturally dynamic features that are formed and shaped by coastal processes and artificially fix the location of the dune and berm system. Construction and long-term maintenance of a reinforced dune would result in a permanent loss of natural conditions at Breezy Point and Fort Tilden and alteration of shoreline processes that will adversely impact the flora and fauna associated with these coastal habitats as well as recreational opportunities and experiences for park visitors. It would also result in a loss of the visitor's sense of connection with the sea and the natural environment. Breezy Point and Fort Tilden are among the only remaining natural beach and dune systems on the Rockaway Peninsula. The concrete floodwall on the north side of the Rockaway Peninsula will alter sediment transport processes and may impact the Breezy Point marsh and other bayside coastal habitats within NPS.

NPS has previously discussed with USACE alternate alignments that could reduce impacts on NPS resources. These alternate alignments were identified in the Draft HSGRR/EIS; however, no impact analysis was provided. Again, we request the consideration and analysis of these alternative alignments that would reduce or eliminate many of these impacts to park resources. In analyzing these alternative alignments, we also recommend consideration be given to the Breezy Point Marsh, particularly to understand whether this is a point of vulnerability for the adjacent road (the only means of egress for the community), and if so, what appropriate measures would be to address that situation (for instance, ecological restoration and/or sand placement).

Response: The Jamaica Bay storm surge barrier tie-ins on Rockaway Inlet presented in the Draft HSGRR/EIS is now within the scope of the NYNJHATS for further evaluation and potential recommendation. The NPS comments listed above will be addressed within the scope of NYNJHATS decision making.

Storm Surge Barrier Tie-In - Brooklyn

NPS resources will also be adversely impacted by the north-shore (Brooklyn) storm surge barrier tie-in identified in the TSP. The concrete floodwall running north along Flatbush Avenue toward the Belt Parkway will impact the Floyd Bennett Field National Historic District and may impact visitor opportunities and experiences. In addition, this alignment is expected to increase vulnerability of NPS property west of the floodwall during storm events due to reflection of

storm surge energy from the barrier and tie-in onto Dead Horse Bay, Gateway Marina and the mini-golf course. NPS property west of Flatbush Avenue was formerly a landfill and the nature and extent of sediment contamination is not known; however, significant contamination could be present. Increased erosion, due to reflection of storm surge energy from the barrier and tie-in, may result in the scouring of this material and an accompanying release of contaminants. It is essential that this is accounted for within the HSGRR/EIS.

Construction of a berm-faced elevated promenade along the waterside of the Belt Parkway, a concrete floodwall at Gerritsen Inlet, and sector gates at Gerritsen Inlet will adversely impact park resources. Reflection of storm surge energy form these barriers may increase vulnerability to NPS property, including critical habitats south of the barriers. This may result in the loss and/or degradation of horseshoe crab spawning habitat and salt marsh at Plumb Beach and changes in flora and fauna which will have adverse biological and recreational (nature watching) impacts. In addition, the elevated promenades will alter the recreational experiences and opportunities.

> Response: The Jamaica Bay storm surge barrier tie-ins on Rockaway Inlet presented in the Draft HSGRR/EIS is now within the scope of the NYNJHATS for further evaluation and potential recommendation. The NPS comments listed above will be addressed within the scope of NYNJHATS decision making.

Residual Risk Measures

The Draft HSGRR/EIS does not currently identify construction of residual risk features on NPS property or within NPS boundaries. Shoreline modifications, including the construction of 1-walls and bulkheads may alter sediment transport processes within the Bay and/or result in localized erosion that may adversely impact NPS resources. Changes in sediment transport processes that result in mobilization of sediments due to scouring adjacent to shoreline structures may also mobilize contaminated sediments. Impacts of residual risk measures on NPS resources, sediment transport processes and bio-availability of contaminants have not been analyzed in the TSP.

> Response: The environmental impact analysis of the High Frequency Flooding Risk Reduction Features (HFFRRFs – which are residual risk measures) is underway and will be included in the revised Draft Final GRR/EIS. Coordination with NPS on this issue has been undertaken and HFFRRFs are not sited within NPS property.

Nature Based Features

The restoration of over 150 acres of salt marsh island habitat within Jamaica Bay is an example of Natural and Nature Based Features (NNBF) that has been realized through the collaborative effort of USACE, NPS and other partners. Enhancement of NNBFs is one of the five planning objectives of the HSGRRJEIS. With plan components including composite seawalls, beach nourishment and groin construction, the TSP does not include any NNBFs. Softening hardened shorelines and marsh restoration in Jamaica Bay are good examples of NNBFs that can buffer storm surge and improve ecosystem resilience. The NPS encourages the evaluation and integration of more NNBFs to meet the project objectives. These may also offer alternatives that serve to avoid or minimize impacts to NPS resources as compared to the current plan components.

Jamaica Bay has experienced a long-term negative sediment budget due to the reduction of sediment input from the ocean due to westward extension of the Atlantic Ocean Shoreline, reduced sediment inputs from the watershed, and historical removal of large volumes of sediment from dredging of the bay (NPS, 2014). This has diminished the natural resilience of Jamaica Bay's marshes. The HSGRR/EIS does not evaluate how changes in tidal range, circulation, sediment budget and sediment transport under storm surge barrier open and closed conditions may impact extant and restored marsh habitat within the Bay.

Response: Where feasible, the Corps has and will continue to include green infrastructure interior drainage instead of pumps and natural and nature-based features instead of gray infrastructure. All separable elements must be incrementally justified using CSRM benefits alone and drainage infrastructure improvements are subject to Corps planning policy and guidance.

Additional water quality modeling has been conducted to analyze a range of potential impacts up to the worst case scenario for water quality impacts of a barrier in Jamaica Bay. The NYNJHATS will describe the Jamaica Bay Eutrophication Model (JEM) that was used to analyze potential water quality impacts (JEM documentation has been revised in recent months). Independent External Peer Review is part of the Corps planning process, and will take place under the NYNJHATS for the Jamaica Bay storm surge barrier.

Science and Technical Information

NPS has identified a number of information gaps that should be addressed in the Final HSGRR/EIS and/or supplemental EIS. These data and analysis are needed to assess project impacts on NPS resources, identify opportunities to minimize impacts, evaluate mitigation alternatives, and facilitate development of a mutually acceptable plan. Additional data and modeling are required to understand changes in availability and distribution of sediment within the Jamaica Bay component of the plan including: changes in flux through the Rockaway Inlet; sedimentation patterns within the bay; distribution of benthic communities, salt marsh and beaches; and, the depth and temporal development of scour along the storm surge barrier and submerged and emergent tie-in features under storm and non-storm conditions and the key parameters that determine the scour type. Additional data and modeling must also be developed to evaluate changes to hydrodynamics of the bay such as: perigean spring tides, tidal amplitude, current velocities (including peak currents), stratification and residence time within the Bay; and, tidal range outside the barrier when closed (including head of tide amplification for surrounding creeks and Dead Horse Bay). Data, model simulations and sensitivity analysis are also needed to understand how the system will perform under climate change (sea level rise, rising water tables, increased frequency/intensity of precipitation events, etc.). Hydrodynamic modeling must integrate storm surge and sea level rise. The plan also needs to provide further analysis of how surface water (precipitation) will be managed during storm barrier closed conditions. Assessment of ecological impacts will also require additional data and modeling to understand impacts of changes in hydrology and hydrodynamics on species composition, abundance and distribution in the Bay.

Response: The Jamaica Bay storm surge barrier tie-ins on Rockaway Inlet presented in the Draft HSGRR/EIS is now within the scope of the NYNJHATS for further evaluation and potential recommendation. The NPS comments listed

above will be addressed within the scope of NYNJHATS decision making.

Mitigation

The Draft HSGRR/EIS identifies that the TSP will result in permanent and temporary adverse habitat impacts of 104.5 acres and 115.7 acres, respectively. The plan does not indicate how much of that acreage is on NPS property or within NPS boundaries. On NPS property, mitigation requirements are generally greater than 2: 1. The Draft HSGRR/EIS does not discuss mitigation for adverse impacts to recreational experiences and opportunities. Mitigation for cultural resource impacts will be developed through a programmatic agreement among NY SHPO, USACE and NPS.

NPS will work with USACE to identify appropriate mitigation actions for unavoidable adverse impacts to NPS natural, cultural and recreational resources. HSGRR/EIS project costs should include support for analysis to estimate human use and ecological losses in monetary terms using established approaches applied in regulatory and natural resource damage assessment. External technical support will be needed to conduct a benefit transfer analysis to estimate the value of recreational experiences and the likely reduction associated with the plan. Habitat Equivalency Analysis or similar methodology should be used to quantify ecological losses. Impacts should be summed over time and space to identify the mitigation requirements sufficient to offset estimated losses. The mitigation should be included as a part of the impact analysis in the HSGRR/EIS, and factored appropriately into the project cost up-front.

Response: The Jamaica Bay storm surge barrier tie-ins on Rockaway Inlet presented in the Draft HSGRR/EIS is now within the scope of the NYNJHATS for further evaluation and potential recommendation. The NPS comments listed above regarding mitigation will be addressed within the scope of NYNJHATS decision making.

Impacts and Economic Benefits of Closing the Storm Surge Barrier

The Draft HSGRR/EIS does not identify a design elevation for protection for the Jamaica Bay planning reaches. Figure 3-5 illustrates the 1% annual chance (100-year return period) flood hazard; however the draft plan specifically states that no design elevation has been determined. The impacts of closing the storm surge barrier cannot be fully determined and evaluated if the frequency of closures cannot be projected based upon a design elevation for protection. It is also unclear how the economic benefits and cost-benefit ratios were calculated without a design elevation for protection. Furthermore, it is important to provide public transparency regarding the storm level for which the storm surge barrier would be closed and flood risks that will not be managed by closure of the storm surge barrier. The HSGRR/EIS must identify the level of protection and identify an approach for developing a decision matrix/closure criteria for the barrier.

Response: Economic benefits and cost-benefit ratios can be developed using risk management features designed to mitigate against a 100-year return period flood. Specific aspects of the design and operation (including timing of closings) of the Jamaica Bay storm surge component would be developed as part of the Planning, Engineering, and Design (PED) phase of the project. As stated above, the Jamaica Bay storm surge component of the original plan presented in the Draft HSGRR/EIS is now within the scope of the NY / NJ Harbor and Tributaries

Study (NYNJHATS) for further evaluation and potential recommendation.

NPS Consulting Party Status

In a July 2016 letter addressed to Mr. Clifford Jones, NPS Northeast Regional Director Michael A. Caldwell accepted the USACE New York District invitation to be a cooperating agency in the National Environmental Policy Act (NEPA) process for the HSGRR/EIS and requested consulting party status under Section 106 of the National Historic Preservation Act. The Draft HSGRR/DEIS identifies New York City as a Section 106 consulting party. The HSGRR/DEIS should also identify that NPS is a consulting party. In addition, throughout the document, references to NPS with regard to our role in the NEPA and Section 106 processes are inconsistent. One example of this is provided on page 93 where NPS is identified as an interested party for the Programmatic Agreement when NPS is actually a Section 106 consulting party and cultural resource manager. The HSGRR may have an adverse effect on NPS cultural resources and NPS must be an integral part of consultations with NYSHPO, Native American Tribes and other interested parties.

Response: The HSGRR/EIS will be corrected to state that the NPS is a Section 106 consulting party, and the Corps will include NPS in consultations with NYSHPO, Native American Tribes and other interested parties. It should be noted, however, that future consultations would occur within the scope of the NYNJHATS.

Draft HSGRR/EIS Planning Constraints - GATE 2014 General Management Plan and other GATE planning documents

The Draft HSGRR/EIS identifies that this plan will "*not negatively impact ongoing recovery, ecosystem restoration and risk management by others*". NPS has completed recovery plans for several areas in GATE that were damaged during Hurricane Sandy. The NPS is currently implementing projects at Riis Beach, Fort Tilden, West Pond and Floyd Bennett Field, all of which fall within the TSP project area. NPS recovery has emphasized increased resilience through restoration of natural processes, enhanced building resilience, and strategic retreat for cultural resources and infrastructure that cannot reasonably be made resilient.

In addition, the 2014 Gateway National Recreation Area General Management Plan (GMP) provides for the long term management of park resources that fall within the TSP project area. The GMP established most of Jamaica Bay as a natural zone with the objective of natural wetland and coastal habitat restoration in the greater Jamaica Bay area. "*Natural resource protection and restoration efforts in the Jamaica Bay Unit would focus on softening hardened coastal edges, restoring wetland and coastal habitats, and creating additional freshwater wetlands. Increased use would be balanced with additional monitoring and management of wildlife and habitats. Natural Zone Habitats would be managed to improve resilience and healthy environments as part of the larger Jamaica Bay system. The restoration of freshwater and saltwater wetland habitat would be explored in portions of the North Forty natural area and along the shoreline. The shoreline would return to natural (soft) conditions through the removal of bulkheads and other hardened structures and allow natural sediment transportation processes to occur. The Habitats would be managed to improve resilience and healthy environments as part of the larger Jamaica Bay system.*" The TSP should strive to support these goals to the extent possible and consider the specific impacts and related mitigation strategies with them in mind.

Response: The Jamaica Bay storm surge barrier tie-ins on Rockaway Inlet presented in the Draft HSGRR/EIS is now within the scope of the NYNJHATS for further evaluation and potential recommendation. The NPS comments listed above will be addressed within the scope of NYNJHATS decision making.

Draft HSGRR/EIS Planning Constraints - Endangered Species

A planning constraint identified in the Draft HSGRR/EIS is that this plan will "*not negatively affect plants, animals, or critical habitat of species that are listed under the Federal Endangered Species Act or a New York State Endangered Species Act*". GATE habitat that would be impacted by this project supports the federally listed piping plover (*Charadrius melodus* - threatened), red knot (*Calidris canutus rufa* -threatened), roseate tern (*Sterna dougallii* - endangered), and seabeach amaranth (*Amaranthuspumilus* -threatened). A quantitative analysis of the project impacts on these species within NPS boundaries is not provided. NPS requests access to the US Fish and Wildlife Service Draft Fish and Wildlife Coordination Act Report and participation in Section 7 consultation.

Response: The Corps will provide NPS with the US Fish and Wildlife Service Draft Fish and Wildlife Coordination Act Report and will engage the NPS for participation in Section 7 consultation.

Scientific Review and Documentation

NPS encourages USACE to complete a robust external technical review of the Draft HSGRR/EIS and to update and revise the science and citations supporting the plan. A key issue that has been raised during public meetings is residency time in the Bay. Citation in the Draft HSGRR/EIS for residence time is a 1997 USFWS publication. Over the past decade, significant hydrodynamic modeling has been conducted by NYC Department of Environmental Protection, researcher s affiliated with the Science and Resilience Institute at Jamaica Bay, and USGS to understand the hydrology, water quality and other physical parameters of the Bay. The Draft HSGRR/EIS must include the most recent and relevant science. In addition, citations in the document should reference the primary literature rather than summary reports or agency reports that referenced the primary literature.

Response: Additional water quality modeling has been conducted to analyze a range of potential impacts up to the worst case scenario for water quality impacts of a barrier in Jamaica Bay. The NYNJHATS will describe the Jamaica Bay Eutrophication Model (JEM) that was used to analyze potential water quality impacts (JEM documentation has been revised in recent months). Independent External Peer Review is part of the Corps planning process, and will take place under the NYNJHATS for the Jamaica Bay storm surge barrier.

Cultural Resources - Section 2.3.15

NPS defines cultural resources as historic structures, cultural landscapes, ethnographic resources, archaeological resources and museum collections. The discussion of cultural resources within the project area and impacts to those resources must be inclusive of the NPS defined cultural resources to ensure that the document is sufficient for NPS adoption. The description of the Historic Districts that occur within the project area lacks sufficient detail to fully analyze impacts to the historic context. At minimum this should include a description of the resources and the criteria under which the district was listed. Impact analysis must be broader than direct impact to

historic structures and include other aspects of integrity. The Draft HSGRRIEIS identifies that "*The on-land portion of this element overlaps the southern boundaries of the historic districts at Jacob Riis Park, Fort Tilden, Silver Gull Beach Club, and the Breezy Point Surf Club..... Construction of elements along the beach has the potential to adversely affect the historic districts.*" NPS considers the construction of an 18' buried seawall along the ocean in front of these 4 historic districts to be an adverse effect on several aspects of integrity including association, feeling, setting, etc. In addition, this section references "landmark" structures. Those resources should be identified by name as well as if the structures are NYC landmark structures or Nfil structures.

> Response: The Corps believes that the descriptions of potential impacts to cultural resources impacts documented in the HSGRR/EIS are sufficient. However, any changes to the analyses as a result of the NPS comments above will be coordinated with the NYSHPO as a part of the NYNJHATS.

Real Estate Considerations - Section 6.3.

The TSP requires extensive construction on NPS lands. As stated previously, we seek to reduce impacts to NPS resources; however, if the final alignment requires construction on NPS lands, we suggest the following process, similar to what is being considered on NPS lands for the South Shore of Staten Island Line of Protection.

6.3.3. The NPS will grant the City an easement that allows them to construct a municipal facility on lands owned by the United States. The United States will retain fee ownership of the underlying land and will retain the right to access the areas by means such as a boardwalk or other pedestrian and bicycling facilities along the top of the structure which may be needed for park purposes. The City would accept responsibility for the ownership, maintenance, and liability associated with the HSGRR; and

6.3.4. Assuming all parties agree that the type of legal instrument is sufficient to authorize the proposed use and to authorize the construction of the HSGRR, the City, the USACE, and the NPS will enter into an Agreement identifying the parties' roles and responsibilities. The Agreement will contain the terms and conditions which must be met before NPS can issue a construction permit to build the TSP. The permit will also contain conditions addressing the time, place, and manner of the construction, mitigation requirements for impacts to NPS resources, and may contain conditions for other components of the construction as necessary.

> Response: Comment noted. This information will be useful as the Jamaica Bay storm surge component is analyzed as part of the NYNJHATS implementation phase.

Operations and Maintenance - Section 6.4

The terms and conditions of the easement will specifically address the City's obligations and responsibilities for the operation, maintenance, and repair of the municipal facility, as well as liability obligations, in perpetuity. The City will be required to address corresponding funding considerations accordingly.

Jamaica Bay Sediment Budget - Section 6.7.1.7

Although a detailed sediment budget analysis has been conducted for the Atlantic Ocean Shorefront Planning Reach, a sediment budget for Jamaica Bay Planning Reach has not been

developed. Impacts to the sediment budget, sediment distribution, flux to and between emergent and submerged habitats, and mobilization of contaminated sediments have not been analyzed. Impact analysis must include open barrier condition as well as impacts of having the barrier closed during storm events.

> Response: The Jamaica Bay storm surge barrier tie-ins on Rockaway Inlet presented in the Draft HSGRR/EIS is now within the scope of the NYNJHATS for further evaluation and potential recommendation. The NPS comments listed above regarding sediment budget will be addressed within the scope of NYNJHATS decision making.

Topography - Section 7.1.1.2

Impacts of floodwalls and seawalls on Rockaway Peninsula topography associated with aeolian and flood-induced transport of sediments is not evaluated.

> Response: The Jamaica Bay storm surge barrier floodwalls and seawalls on Rockaway Inlet presented in the Draft HSGRR/EIS are now within the scope of the NYNJHATS for further evaluation and potential recommendation. The NPS comments listed above regarding aeolian and flood-induced transport of sediments will be addressed within the scope of NYNJHATS decision making.

Sediments - 7.2.1.2

The existing Rockaway groin field has not had a beneficial impact on sediment transport to Riis Beach. Expansion of the groin field, as proposed in the Draft HSGRR/EIS, is expected to further exacerbate sediment deficits at Riis Beach. In addition to the existing long-term average sediment budget, event scale erosion rates, impact of structures on sediment budget, and contribution of overwash to dune development should be analyzed.

> Response: Please see description of Seven-Cell Sediment Budget in the Engineering Appendix. The sediment budget shows that Reaches 2, 3, and 5 (Riis Beach is located within Reach 2) have been relatively stable and have about the same net longshore sediment transport entering and leaving the cells.

Cultural Resources - Section 7.22

The Draft HSGRR/EIS states that "*A Programmatic Agreement will be executed to provide a process for continuing to identify historic properties and address effects to these historic properties caused by project elements as they are developed*." A Programmatic Agreement (PA) will outline the path forward for Section 106; however the PA does not substitute for the analysis of impacts necessary to fulfill the requirements of NEPA. The Draft HSGRR/EIS considers direct physical impact to historic structures but does not evaluate impacts to other aspects of integrity such as association, feeling, setting, etc. All aspects of integrity should be evaluated for each Historic District within the project area. View sheds are noted; however, no detailed analysis of impacts on viewsheds is provided.

> Response: Agree that a rendering of the proposed barrier would need to be included to further assess the barrier's aesthetic impacts to a site-specific level to assess aspects such as association, feeling, setting, etc. The Jamaica Bay storm surge barrier is no longer part of the Recommended Plan for this study and will be further evaluated under the NYNJHATS study.

Impacts Common to Both Action Alternatives - Section 7.12.1

The Draft HSGRR/EIS concludes that "Beneficial short- and long-term direct impacts on special management areas...include: NPS Gateway National Recreation Area (Portions of Fort Tilden and Jacob Riis Park, Breezy Point, Plumb Beach). NPS finds that overall the impact analysis is insufficient to support that conclusion.

> Response: The statement regarding beneficial short- and long-term impacts to Jacob Riis Park and Breezy point will be re-evaluated as part of the current study. The determination of beneficial short- and long-term direct impacts to the GATE and Plumb Beach will be evaluated as part of the NYNJHATS.

Proposed Action Impacts - Section 7.12.2

The Draft HSGRR/DEIS concludes that "Beneficial short- and long-term direct impacts on special management areas are anticipated from implementation of the unique elements of the Proposed Action. Additional special management areas protected by the unique elements of the Proposed Action include: NPS Gateway National Recreation Area (Floyd Bennett Field)". NPS finds that overall the impact analysis is insufficient to support that conclusion.

> Response: The determination of beneficial short- and long-term direct impacts to the GATE and Floyd Bennett Field will be evaluated as part of the NYNJHATS.

Impacts Common to Both Action Alternatives - Section 7.15.1

The Draft HSGRR/EIS concludes that "Beneficial long-term direct impacts on recreation would be realized by implementation of the common project elements. Long term benefits to recreational resources described in Section 2.3.15 Cultural Resources generally result from: Protection of parks (NPS, NYC, NYSDEC) throughout the study area." NPS finds that overall the impact analysis is insufficient to support that conclusion.

> Response: The reference to cultural resources in HSGRR/EIS Section 7.15.1 is incorrect. The statement will be revised to read: Long-term benefits to recreational resources generally result from: Protection of parks (NPS, NYC, NYSDEC) throughout the study area.

Proposed Action Impacts - Section 7.15.2

The Draft HSGRR/EIS concludes that "Additional beneficial short- and long-term direct impacts on recreation would be realized from implementation of the additional shore protection actions unique to the Proposed Action. In particular, the portions of Gateway National Recreation Area on Floyd Bennett Field would be protected by the Storm Surge Barrier alternative, but not protected by implementation of the Action Alternative." NPS finds that overall the impact analysis is insufficient to support that conclusion.

> Response: The determination of beneficial short- and long-term direct impacts to recreation associated with the GATE and Floyd Bennett Field will be evaluated as part of the NYNJHATS.

Hazardous, Toxic, and Radioactive Waste - Section 7.20

Impacts on legacy hazardous, toxic and radioactive wastes within the project area have not been sufficiently evaluated. Construction of project elements may contribute to accelerated erosion of legacy landfills in areas such as Dead Horse Bay and/or bay bottom due to changes in

hydrodynamics and/or reflection of storm surge. A thorough analysis of potential impacts needs to be included in the plan.

Furthermore, NPS will need to be released from contamination liability incurred as a result of ground-disturbing activities associated with project construction, as well as long-term impacts of the project on the nature, exposure or effects of resident contaminants.

> Response: HTRW sites for the Atlantic Shoreline and Jamaica Bay components are identified and mapped in Section 4.15 of the Environmental Appendix. Impacts on legacy HTRW sites in the Jamaica Bay portion of the study area relative to the Jamaica Bay storm surge barrier will be evaluated as part of NYNJHATS. Any impacts relative to the high frequency flooding risk reduction features being developed as part of the TSP will be evaluated in the revised Draft HSGRR/EIS. Regarding HTRW sites located within the Atlantic Shorefront portion of the study area, project alignments will specifically avoid impinging on those sites as plans are drafted in the planning, engineering, and construction phase. As stated in Section 8.1 of the HSGRR/EIS, the non-federal sponsor shall be considered the operator of the project for the purpose of CERCLA liability, and to the maximum extent practicable, operate, maintain, repair, rehabilitate, and replace the project in a manner that will not cause liability to arise under CERCLA.

Landfills - Section 7.21

Impacts of the project on the Dead Horse Bay, a former New York City landfill, have not been evaluated. Location of the line of protection east of this landfill may increase erosion during storm events, resulting in the potential exposure of wastes or leaching of waste material into the environment.

> Response: The project alignment adjacent to Dead Horse Bay is part of the Jamaica Bay storm surge barrier, which has been removed from the recommended plan. Impacts to the former landfill will be evaluated as part of the NYNJHATS.

Aesthetics - Section 7.24

The Draft HSGRR/EIS concludes that "Beneficial long-term direct impacts on aesthetics would be realized by implementation of the common project elements." NPS does not find this conclusion consistent with the "Long-term direct impacts would include viewshed disruption for some key observation points, which would be impacted by the presence of lift gates, sector gates, floodwalls and berms" as well as impacts to Historic Districts and recreational opportunities that have not been evaluated in the plan.

> Response: A rendering of the proposed barrier would need to be included in the analysis to further assess the barrier's aesthetic impacts to a site-specific level. However, the storm surge barrier is no longer part of the Recommended Plan. The potential impacts to aesthetics will be analyzed and discussed for the features of the recommended plan in the revised draft final GRR/EIS.

Cumulative Impacts - Section 7.25

Cumulative impacts section does not include any of the on-going or planned NPS Jamaica Bay Unit Sandy Recovery projects or the Breezy Point Federal Emergency Management funded storm damage risk reduction project.

Response: Cumulative effects of the on-going or planned NPS Jamaica Bay Unit Sandy Recovery projects or the Breezy Point Federal Emergency Management funded storm damage risk reduction project are no longer part of the HSGRR/EIS, as the Jamaica Bay storm surge barrier has been moved to the NYNJHATS. Those cumulative effects listed in the NPS comment will be included in the cumulative effects discussion of the NYNJHATS.

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT
JACOB K. JAVITS FEDERAL BUILDING
26 FEDERAL PLAZA
NEW YORK NEW YORK 10278-0090

March 22, 2022

Reply to:
Environmental Analysis Branch
Planning Division

Erin Thompson
Director of Cultural Resources & Section 106
Delaware Nation
P.O. Box 825
Anadarko, OK 73005

Dear Ms. Thompson:

The US Army Corps of Engineers, New York District (District), in cooperation with the New York State Department of Environmental Conservation (NYSDEC) and New Jersey Department of Environmental Protection (NJDEP), and in partnership with the City of New York, is conducting a feasibility study to examine measures to manage coastal storm risk for the New York New Jersey Harbor and Tributaries Coastal Storm Risk Management Project (Project). In accordance with the National Environmental Policy Act of 1969 (NEPA), Section 106 (54 U.S.C. Section 306108) of the National Historic Preservation Act of 1966 (NHPA), as amended, and its implementing regulation 36 Code of Federal Regulations (CFR) Part 800 (Protection of Historic Properties), the District is preparing a tiered Environmental Impact Statement (EIS) and assessment of effects on cultural resources associated with construction and operation of the proposed measures. The feasibility study area associated with those measures encompasses approximately 2,150 square miles and includes parts of Bergen, Passaic, Morris, Essex, Hudson, Union, Somerset, Middlesex, and Monmouth Counties in New Jersey and Rensselaer, Albany, Columbia, Greene, Duchess, Ulster, Putnam, Orange, Westchester, Rockland, Bronx, New York, Queens, Kings, Richmond, and Nassau Counties in New York. The study area extends upstream of the Hudson River to the federal lock and dam at Troy, New York, the Passaic River to the Dundee Dam, and the Hackensack River to the Oradell Reservoir (Enclosure 1).

The feasibility study and EIS will evaluate five alternatives along with a no action alternative. Each action alternative is comprised of a combination of water- and land-based measures that address coastal storm risk for specific geographic regions within the study area. Measures include shoreline structures such as beach nourishment, levees, floodwalls and seawalls, as well as storm-surge barriers, nonstructural measures such as building elevation and flood proofing, and natural and nature-based features (Enclosure 2). The initial array of alternatives was developed in part from the analysis provided in the North Atlantic Coast Comprehensive Study, as well as coordination with the States of New York and New Jersey and the City of New York. The alternatives take into account other ongoing and planned actions being undertaken within the study area by the Corps, other federal agencies, both states and New York City, and other municipalities. The Study is intended to develop

information to distinguish between alternatives so that ultimately a recommended plan can be identified.

The Project was initiated in 2017 and in 2019, after a period of initial scoping and data collection, the District released the *New York and New Jersey Harbor and Tributaries Coastal Storm Risk Management Interim Report* to document existing conditions in the study area and assumptions about the future that may affect plan selection and to identify areas requiring further investigation. The interim report included a preliminary assessment of the cultural and natural resources located within the vicinity of proposed coastal storm risk management measures. This report is available at the District's webpage at https://www.nan.usace.army.mil/Missions/Civil-Works/Projects-in-New-York/New-York-New-Jersey-Harbor-Tributaries-Focus-Area-Feasibility-Study/.

Tiering, is defined in 40 CFR 1508.28 as a means of making the environmental review process more efficient by allowing parties to "eliminate repetitive discussions of the same issues and to focus on the actual issues suitable for decision at each level of environmental review." The first tier EIS would focus on broad issues such as general locations of the measures, impacts associated with those measures and to develop broad mitigation strategies. The second tier would address site-specific details on project impacts, costs, and mitigation measures.

In accordance with Section 106 of the NHPA, as amended, its implementing regulation 36 CFR Part 800, and the National Environmental Policy Act (NEPA), the District is conducting a phased assessment of potential effects on cultural resources and, based on the initial review of the conceptual alternatives has determined that implementation of Project actions has the potential to effect cultural resources and properties listed on or eligible for listing on the National Register of Historic Places (NRHP). The area of potential effects (APE) for the current array of alternatives, consists of the physical footprint of the individual measures and the viewsheds of the properties listed in Enclosure 3. As part of the Tier I EIS, the District is conducting an initial assessment of the Visual APE, as well as modeling the cultural resources identified through a desktop analysis of local, state and federal digital datasets in order to inform subsequent analysis as the District refines project features and associated effects. The District is also carrying out a more detailed evaluation of each alternative and is developing a Programmatic Agreement (PA) that will guide Section 106 compliance activities throughout the next design and construction phases of the project. The District is working to identifying interested parties to participate in the Section 106 consultation process and study planning. The District also intends to provide the Advisory Council on Historic Preservation (ACHP) the opportunity to comment and participate in accordance with 36 CFR Part 800.

As the District is evaluating alternatives for this undertaking as well as developing a PA, we are seeking your input on this project and invite you to participate as a Consulting Party. As one of our Tribal partners with culturally significant history in the region, we would also like to invite you to join us for an informational meeting to learn more about the project and to discuss the District's ongoing efforts to evaluate the project's potential to affect cultural resources, an invitation outlining the time and date will be forthcoming. Please provide any written response within 30 calendar days to the Project Archaeologist, Mr. Ryan Clark by mail (US Army Corps of Engineers, CENAN-PL-EA, 26 Federal Plaza, Room 17-421 c/o PSC Mail Center, New York,

NY 10278) or by email to ryan.n.clark@usace.army.mil. If you have questions or would like to receive further information please contact Mr. Clark at (917) 790-8629 or by email.

Sincerely,

Peter Weppler

Peter Weppler
Chief, Environmental Analysis Branch

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DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT
JACOB K. JAVITS FEDERAL BUILDING
26 FEDERAL PLAZA
NEW YORK NEW YORK 10278-0090

March 22, 2022

Reply to:
Environmental Analysis Branch
Planning Division

Susan Bachor
Preservation Representative (East Coast)
Delaware Tribe of Indians
P.O. Box 64
Pocono Lake, PA 18347

Dear Ms. Bachor:

The US Army Corps of Engineers, New York District (District), in cooperation with the New York State Department of Environmental Conservation (NYSDEC) and New Jersey Department of Environmental Protection (NJDEP), and in partnership with the City of New York, is conducting a feasibility study to examine measures to manage coastal storm risk for the New York New Jersey Harbor and Tributaries Coastal Storm Risk Management Project (Project). In accordance with the National Environmental Policy Act of 1969 (NEPA), Section 106 (54 U.S.C. Section 306108) of the National Historic Preservation Act of 1966 (NHPA), as amended, and its implementing regulation 36 Code of Federal Regulations (CFR) Part 800 (Protection of Historic Properties), the District is preparing a tiered Environmental Impact Statement (EIS) and assessment of effects on cultural resources associated with construction and operation of the proposed measures. The feasibility study area associated with those measures encompasses approximately 2,150 square miles and includes parts of Bergen, Passaic, Morris, Essex, Hudson, Union, Somerset, Middlesex, and Monmouth Counties in New Jersey and Rensselaer, Albany, Columbia, Greene, Duchess, Ulster, Putnam, Orange, Westchester, Rockland, Bronx, New York, Queens, Kings, Richmond, and Nassau Counties in New York. The study area extends upstream of the Hudson River to the federal lock and dam at Troy, New York, the Passaic River to the Dundee Dam, and the Hackensack River to the Oradell Reservoir (Enclosure 1).

The feasibility study and EIS will evaluate five alternatives along with a no action alternative. Each action alternative is comprised of a combination of water- and land-based measures that address coastal storm risk for specific geographic regions within the study area. Measures include shoreline structures such as beach nourishment, levees, floodwalls and seawalls, as well as storm-surge barriers, nonstructural measures such as building elevation and flood proofing, and natural and nature-based features (Enclosure 2). The initial array of alternatives was developed in part from the analysis provided in the North Atlantic Coast Comprehensive Study, as well as coordination with the States of New York and New Jersey and the City of New York. The alternatives take into account other ongoing and planned actions being undertaken within the study area by the Corps, other federal agencies, both states and New York City, and other municipalities. The Study is intended to develop

information to distinguish between alternatives so that ultimately a recommended plan can be identified.

The Project was initiated in 2017 and in 2019, after a period of initial scoping and data collection, the District released the *New York and New Jersey Harbor and Tributaries Coastal Storm Risk Management Interim Report* to document existing conditions in the study area and assumptions about the future that may affect plan selection and to identify areas requiring further investigation. The interim report included a preliminary assessment of the cultural and natural resources located within the vicinity of proposed coastal storm risk management measures. This report is available at the District's webpage at https://www.nan.usace.army.mil/Missions/Civil-Works/Projects-in-New-York/New-York-New-Jersey-Harbor-Tributaries-Focus-Area-Feasibility-Study/.

Tiering, is defined in 40 CFR 1508.28 as a means of making the environmental review process more efficient by allowing parties to "eliminate repetitive discussions of the same issues and to focus on the actual issues suitable for decision at each level of environmental review." The first tier EIS would focus on broad issues such as general locations of the measures, impacts associated with those measures and to develop broad mitigation strategies. The second tier would address site-specific details on project impacts, costs, and mitigation measures.

In accordance with Section 106 of the NHPA, as amended, its implementing regulation 36 CFR Part 800, and the National Environmental Policy Act (NEPA), the District is conducting a phased assessment of potential effects on cultural resources and, based on the initial review of the conceptual alternatives has determined that implementation of Project actions has the potential to effect cultural resources and properties listed on or eligible for listing on the National Register of Historic Places (NRHP). The area of potential effects (APE) for the current array of alternatives, consists of the physical footprint of the individual measures and the viewsheds of the properties listed in Enclosure 3. As part of the Tier I EIS, the District is conducting an initial assessment of the Visual APE, as well as modeling the cultural resources identified through a desktop analysis of local, state and federal digital datasets in order to inform subsequent analysis as the District refines project features and associated effects. The District is also carrying out a more detailed evaluation of each alternative and is developing a Programmatic Agreement (PA) that will guide Section 106 compliance activities throughout the next design and construction phases of the project. The District is working to identifying interested parties to participate in the Section 106 consultation process and study planning. The District also intends to provide the Advisory Council on Historic Preservation (ACHP) the opportunity to comment and participate in accordance with 36 CFR Part 800.

As the District is evaluating alternatives for this undertaking as well as developing a PA, we are seeking your input on this project and invite you to participate as a Consulting Party. As one of our Tribal partners with culturally significant history in the region, we would also like to invite you to join us for an informational meeting to learn more about the project and to discuss the District's ongoing efforts to evaluate the project's potential to affect cultural resources, an invitation outlining the time and date will be forthcoming. Please provide any written response within 30 calendar days to the Project Archaeologist, Mr. Ryan Clark by mail (US Army Corps of Engineers, CENAN-PL-EA, 26 Federal Plaza, Room 17-421 c/o PSC Mail Center, New York,

NY 10278) or by email to ryan.n.clark@usace.army.mil. If you have questions or would like to receive further information please contact Mr. Clark at (917) 790-8629 or by email.

Sincerely,

Peter Weppler

Peter Weppler
Chief, Environmental Analysis Branch

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DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT
JACOB K. JAVITS FEDERAL BUILDING
26 FEDERAL PLAZA
NEW YORK NEW YORK 10278-0090

March 22, 2022

Reply to:
Environmental Analysis Branch
Planning Division

Tonya Tipton
Historic Preservation Office
Shawnee Tribe
P.O. Box 189
Miami, OK 74355

Dear Ms. Tipton:

The US Army Corps of Engineers, New York District (District), in cooperation with the New York State Department of Environmental Conservation (NYSDEC) and New Jersey Department of Environmental Protection (NJDEP), and in partnership with the City of New York, is conducting a feasibility study to examine measures to manage coastal storm risk for the New York New Jersey Harbor and Tributaries Coastal Storm Risk Management Project (Project). In accordance with the National Environmental Policy Act of 1969 (NEPA), Section 106 (54 U.S.C. Section 306108) of the National Historic Preservation Act of 1966 (NHPA), as amended, and its implementing regulation 36 Code of Federal Regulations (CFR) Part 800 (Protection of Historic Properties), the District is preparing a tiered Environmental Impact Statement (EIS) and assessment of effects on cultural resources associated with construction and operation of the proposed measures. The feasibility study area associated with those measures encompasses approximately 2,150 square miles and includes parts of Bergen, Passaic, Morris, Essex, Hudson, Union, Somerset, Middlesex, and Monmouth Counties in New Jersey and Rensselaer, Albany, Columbia, Greene, Duchess, Ulster, Putnam, Orange, Westchester, Rockland, Bronx, New York, Queens, Kings, Richmond, and Nassau Counties in New York. The study area extends upstream of the Hudson River to the federal lock and dam at Troy, New York, the Passaic River to the Dundee Dam, and the Hackensack River to the Oradell Reservoir (Enclosure 1).

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information to distinguish between alternatives so that ultimately a recommended plan can be identified.

The Project was initiated in 2017 and in 2019, after a period of initial scoping and data collection, the District released the *New York and New Jersey Harbor and Tributaries Coastal Storm Risk Management Interim Report* to document existing conditions in the study area and assumptions about the future that may affect plan selection and to identify areas requiring further investigation. The interim report included a preliminary assessment of the cultural and natural resources located within the vicinity of proposed coastal storm risk management measures. This report is available at the District's webpage at https://www.nan.usace.army.mil/Missions/Civil-Works/Projects-in-New-York/New-York-New-Jersey-Harbor-Tributaries-Focus-Area-Feasibility-Study/.

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As the District is evaluating alternatives for this undertaking as well as developing a PA, we are seeking your input on this project and invite you to participate as a Consulting Party. As one of our Tribal partners with culturally significant history in the region, we would also like to invite you to join us for an informational meeting to learn more about the project and to discuss the District's ongoing efforts to evaluate the project's potential to affect cultural resources, an invitation outlining the time and date will be forthcoming. Please provide any written response within 30 calendar days to the Project Archaeologist, Mr. Ryan Clark by mail (US Army Corps of Engineers, CENAN-PL-EA, 26 Federal Plaza, Room 17-421 c/o PSC Mail Center, New York,

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Sincerely,

Peter Weppler

Peter Weppler
Chief, Environmental Analysis Branch

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DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT
JACOB K. JAVITS FEDERAL BUILDING
26 FEDERAL PLAZA
NEW YORK NEW YORK 10278-0090

March 22, 2022

Reply to:
Environmental Analysis Branch
Planning Division

David Martine
THPO
Shinnecock Indian Nation
P.O. Box 5006
Southampton, NY 11968

Dear Mr. Martine:

The US Army Corps of Engineers, New York District (District), in cooperation with the New York State Department of Environmental Conservation (NYSDEC) and New Jersey Department of Environmental Protection (NJDEP), and in partnership with the City of New York, is conducting a feasibility study to examine measures to manage coastal storm risk for the New York New Jersey Harbor and Tributaries Coastal Storm Risk Management Project (Project). In accordance with the National Environmental Policy Act of 1969 (NEPA), Section 106 (54 U.S.C. Section 306108) of the National Historic Preservation Act of 1966 (NHPA), as amended, and its implementing regulation 36 Code of Federal Regulations (CFR) Part 800 (Protection of Historic Properties), the District is preparing a tiered Environmental Impact Statement (EIS) and assessment of effects on cultural resources associated with construction and operation of the proposed measures. The feasibility study area associated with those measures encompasses approximately 2,150 square miles and includes parts of Bergen, Passaic, Morris, Essex, Hudson, Union, Somerset, Middlesex, and Monmouth Counties in New Jersey and Rensselaer, Albany, Columbia, Greene, Duchess, Ulster, Putnam, Orange, Westchester, Rockland, Bronx, New York, Queens, Kings, Richmond, and Nassau Counties in New York. The study area extends upstream of the Hudson River to the federal lock and dam at Troy, New York, the Passaic River to the Dundee Dam, and the Hackensack River to the Oradell Reservoir (Enclosure 1).

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As the District is evaluating alternatives for this undertaking as well as developing a PA, we are seeking your input on this project and invite you to participate as a Consulting Party. As one of our Tribal partners with culturally significant history in the region, we would also like to invite you to join us for an informational meeting to learn more about the project and to discuss the District's ongoing efforts to evaluate the project's potential to affect cultural resources, an invitation outlining the time and date will be forthcoming. Please provide any written response within 30 calendar days to the Project Archaeologist, Mr. Ryan Clark by mail (US Army Corps of Engineers, CENAN-PL-EA, 26 Federal Plaza, Room 17-421 c/o PSC Mail Center, New York,

NY 10278) or by email to ryan.n.clark@usace.army.mil. If you have questions or would like to receive further information please contact Mr. Clark at (917) 790-8629 or by email.

Sincerely,

Peter Weppler

Peter Weppler
Chief, Environmental Analysis Branch

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DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT
JACOB K. JAVITS FEDERAL BUILDING
26 FEDERAL PLAZA
NEW YORK NEW YORK 10278-0090

March 2, 2022

Reply to:
Environmental Analysis Branch
Planning Division

Bonney Hartley
THPO
Stockbridge Munsee Community
65 1st Street
Troy, NY 12180

Dear Ms. Hartley:

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Sincerely,

Peter Weppler

Peter Weppler
Chief, Environmental Analysis Branch

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DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT
JACOB K. JAVITS FEDERAL BUILDING
26 FEDERAL PLAZA
NEW YORK NEW YORK 10278-0090

March 2, 2022

Reply to:
Environmental Analysis Branch
Planning Division

Chief Harry B. Wallace
Unkechaug Nation
207 Poospansk Lane
Mastic, New York 11950

Dear Chief Wallace:

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2DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT
JACOB K. JAVITS FEDERAL BUILDING
26 FEDERAL PLAZA
NEW YORK NEW YORK 10278-0090

April 19, 2022

Environmental Analysis Branch
Planning Division

Mr. Reid Nelson
Office of Federal Agency Programs Advisory
Council on Historic Preservation 401 F Street
NW, Suite 308
Washington, D.C. 20001-2637

Dear Mr. Nelson:

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Peter Weppler

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2DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT
JACOB K. JAVITS FEDERAL BUILDING
26 FEDERAL PLAZA
NEW YORK NEW YORK 10278-0090

March 22, 2022

Reply to:
Environmental Analysis Branch
Planning Division

Ms. Gina Santucci
New York City Landmarks Preservation Commission
David N. Dinkins Municipal Building
1 Center Street, 9th Floor
New York, NY 10007

Dear Ms. Santucci:

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DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT
JACOB K. JAVITS FEDERAL BUILDING
26 FEDERAL PLAZA
NEW YORK NEW YORK 10278-0090

March 22, 2022

Reply to:
Environmental Analysis Branch
Planning Division

Dr. Katherine J. Marcopul
Deputy State Historic Preservation Officer
State of New Jersey
Mail Code 501-074B
Department of Environmental Protection
Historic Preservation Office
PO Box 420
Trenton, NJ 08625-0420

Dear Dr. Marcopul:

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U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT
JACOB K. JAVITS FEDERAL BUILDING
26 FEDERAL PLAZA
NEW YORK NEW YORK 10278-0090

March 22, 2022

Reply to:
Environmental Analysis Branch
Planning Division

Jennifer Nersesian
Superintendent
Gateway National Recreation Area
210 New York Avenue
Staten Island, NY 10305

Dear Ms.Nersesian:

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Tiering, is defined in 40 CFR 1508.28 as a means of making the environmental review process more efficient by allowing parties to "eliminate repetitive discussions of the same issues and to focus on the actual issues suitable for decision at each level of environmental review." The first tier EIS would focus on broad issues such as general locations of the measures, impacts associated with those measures and to develop broad mitigation strategies. The second tier would address site-specific details on project impacts, costs, and mitigation measures.

In accordance with Section 106 of the NHPA, as amended, its implementing regulation 36 CFR Part 800, and the National Environmental Policy Act (NEPA), the District is conducting a phased assessment of potential effects on cultural resources and, based on the initial review of the conceptual alternatives has determined that implementation of Project actions has the potential to effect cultural resources and properties listed on or eligible for listing on the National Register of Historic Places (NRHP). The area of potential effects (APE) for the current array of alternatives, consists of the physical footprint of the individual measures and the viewsheds of the properties listed in Enclosure 3. As part of the Tier I EIS, the District is conducting an initial assessment of the Visual APE, as well as modeling the cultural resources identified through a desktop analysis of local, state and federal digital datasets in order to inform subsequent analysis as the District refines project features and associated effects. The District is also carrying out a more detailed evaluation of each alternative and is developing a Programmatic Agreement (PA) that will guide Section 106 compliance activities throughout the next design and construction phases of the project. The District is working to identifying interested parties to participate in the Section 106 consultation process and study planning. The District also intends to provide the Advisory Council on Historic Preservation (ACHP) the opportunity to comment and participate in accordance with 36 CFR Part 800.

As the District is evaluating alternatives for this undertaking as well as developing a PA, we are seeking your input on this project and invite you to participate as a Consulting Party. We would also like to invite you to join us for an informational meeting to learn more about the project and to discuss the District's ongoing efforts to evaluate the project's potential to affect cultural resources, an invitation outlining the time and date will be forthcoming. Please provide any written response within 30 calendar days to the Project Archaeologist, Mr. Ryan Clark by mail (US Army Corps of Engineers, CENAN-PL-EA, 26 Federal Plaza, Room 17-421 c/o PSC

Mail Center, New York, NY 10278) or by email to ryan.n.clark@usace.army.mil. If you have questions or would like to receive further information, please contact Mr. Clark at (917) 790-8629 or by email.

Sincerely,

Peter Weppler

Peter Weppler
Chief, Environmental Analysis Branch

Enclosures:
Enclosure 1: Study Area
Enclosure 2: Array of Alternatives
Enclosure 3: Table 1-Table 5

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT
JACOB K. JAVITS FEDERAL BUILDING
26 FEDERAL PLAZA
NEW YORK NEW YORK 10278-0090

March 22, 2022

Reply to:
Environmental Analysis Branch
Planning Division

Mr. Daniel Mackay,
Deputy Commissioner
New York State Division for Historic Preservation
Peebles Island State Park
P.O. Box 189
Waterford, NY 12188-0189

Dear Mr. Mackay:

The US Army Corps of Engineers, New York District (District), in cooperation with the New York State Department of Environmental Conservation (NYSDEC) and New Jersey Department of Environmental Protection (NJDEP), and in partnership with the City of New York, is conducting a feasibility study to examine measures to manage coastal storm risk for the New York New Jersey Harbor and Tributaries Coastal Storm Risk Management Project (Project). In accordance with the National Environmental Policy Act of 1969 (NEPA), Section 106 (54 U.S.C. Section 306108) of the National Historic Preservation Act of 1966 (NHPA), as amended, and its implementing regulation 36 Code of Federal Regulations (CFR) Part 800 (Protection of Historic Properties), the District is preparing a tiered Environmental Impact Statement (EIS) and assessment of effects on cultural resources associated with construction and operation of the proposed measures. The feasibility study area associated with those measures encompasses approximately 2,150 square miles and includes parts of Bergen, Passaic, Morris, Essex, Hudson, Union, Somerset, Middlesex, and Monmouth Counties in New Jersey and Rensselaer, Albany, Columbia, Greene, Duchess, Ulster, Putnam, Orange, Westchester, Rockland, Bronx, New York, Queens, Kings, Richmond, and Nassau Counties in New York. The study area extends upstream of the Hudson River to the federal lock and dam at Troy, New York, the Passaic River to the Dundee Dam, and the Hackensack River to the Oradell Reservoir (Enclosure 1).

The feasibility study and EIS will evaluate five alternatives along with a no action alternative. Each action alternative is comprised of a combination of water- and land-based measures that address coastal storm risk for specific geographic regions within the study area. Measures include shoreline structures such as beach nourishment, levees, floodwalls and seawalls, as well as storm-surge barriers, nonstructural measures such as building elevation and flood proofing, and natural and nature-based features (Enclosure 2). The initial array of alternatives was developed in part from the analysis provided in the North Atlantic Coast Comprehensive Study, as well as coordination with the States of New York and New Jersey and the City of New York. The alternatives take into account other ongoing and planned actions being undertaken within the study area by the Corps, other federal agencies, both

states and New York City, and other municipalities. The Study is intended to develop information to distinguish between alternatives so that ultimately a recommended plan can be identified.

The Project was initiated in 2017 and in 2019, after a period of initial scoping and data collection, the District released the *New York and New Jersey Harbor and Tributaries Coastal Storm Risk Management Interim Report* to document existing conditions in the study area and assumptions about the future that may affect plan selection and to identify areas requiring further investigation. The interim report included a preliminary assessment of the cultural and natural resources located within the vicinity of proposed coastal storm risk management measures. This report is available at the District's webpage at https://www.nan.usace.army.mil/Missions/Civil-Works/Projects-in-New-York/New-York-New-Jersey-Harbor-Tributaries-Focus-Area-Feasibility-Study/.

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Peter Weppler

Peter Weppler
Chief, Environmental Analysis Branch

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DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT
JACOB K. JAVITS FEDERAL BUILDING
26 FEDERAL PLAZA
NEW YORK NEW YORK 10278-0090

March 22, 2022

Reply to:
Environmental Analysis Branch
Planning Division

Dear Stakeholder:

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If you have questions or would like to receive further information, please contact Mr. Clark at (917) 790-8629 or by email.

Sincerely,

Peter Weppler

Peter Weppler
Chief, Environmental Analysis Branch

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Enclosure 1: Study Area
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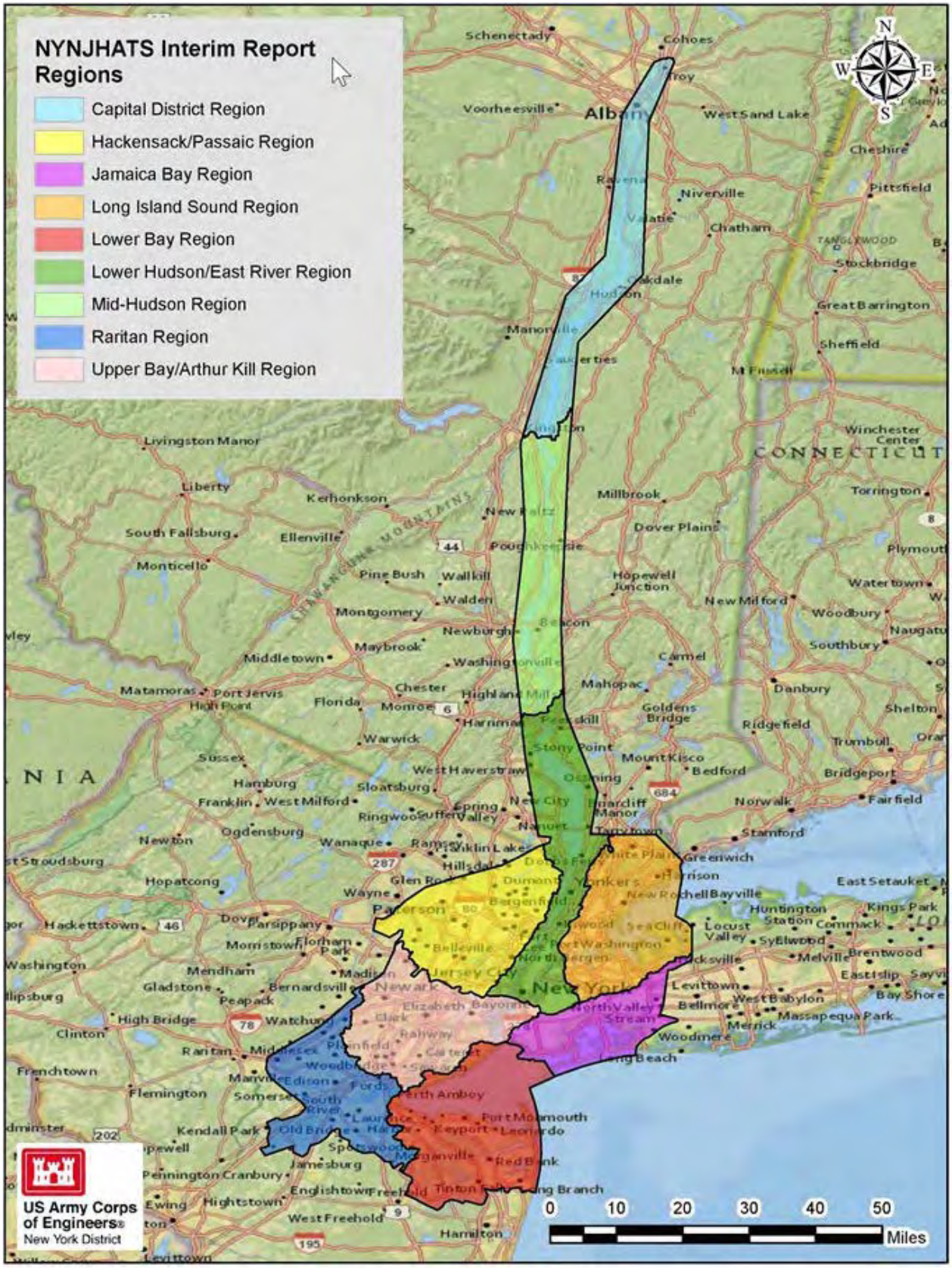
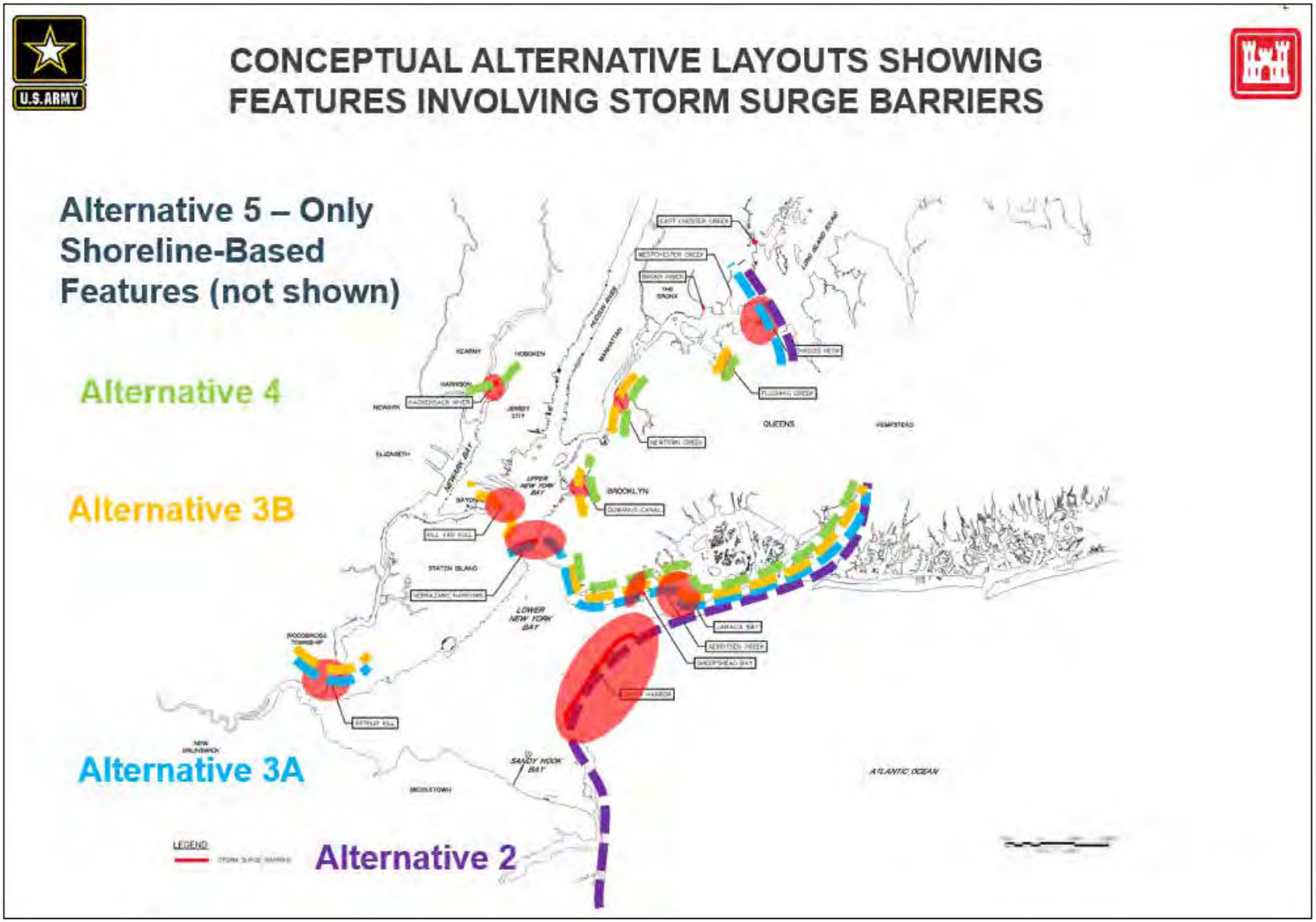
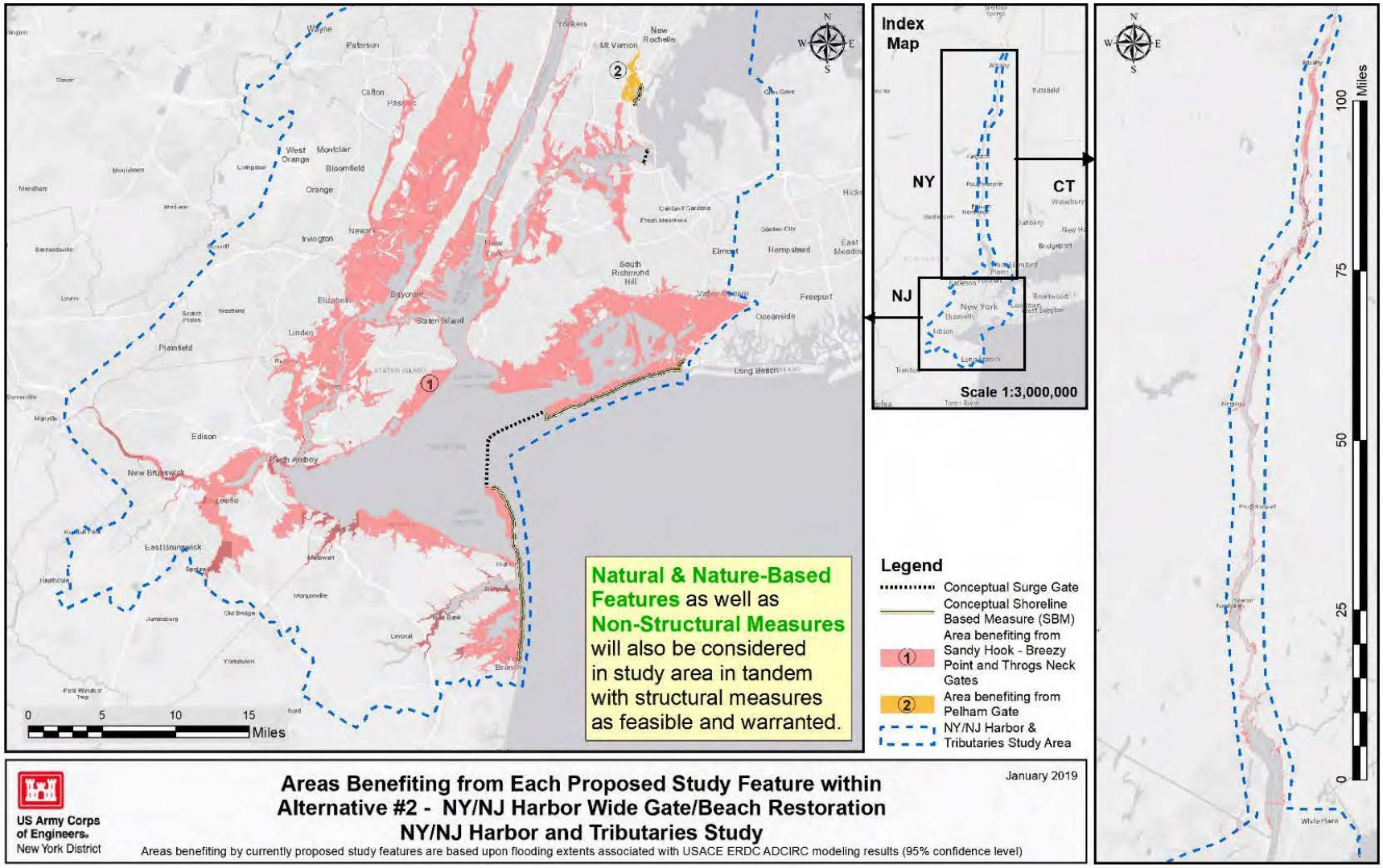
Enclosure 1: Study Area



Enclosure 2: Array of Alternatives



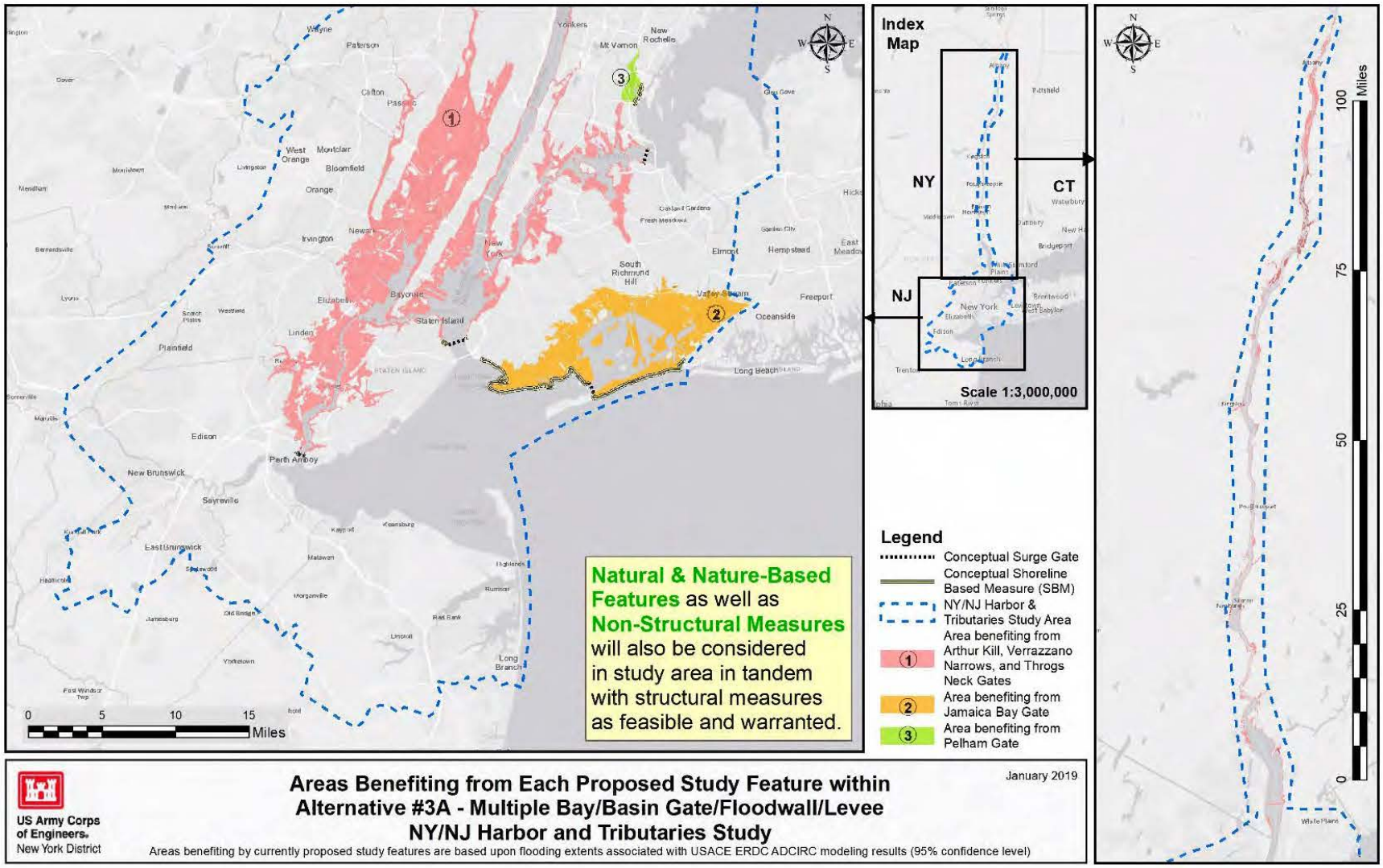


US Army Corps of Engineers
New York District

Areas Benefiting from Each Proposed Study Feature within Alternative #2 - NY/NJ Harbor Wide Gate/Beach Restoration
NY/NJ Harbor and Tributaries Study

January 2019

Areas benefiting by currently proposed study features are based upon flooding extents associated with USACE ERDC ADCIRC modeling results (95% confidence level)

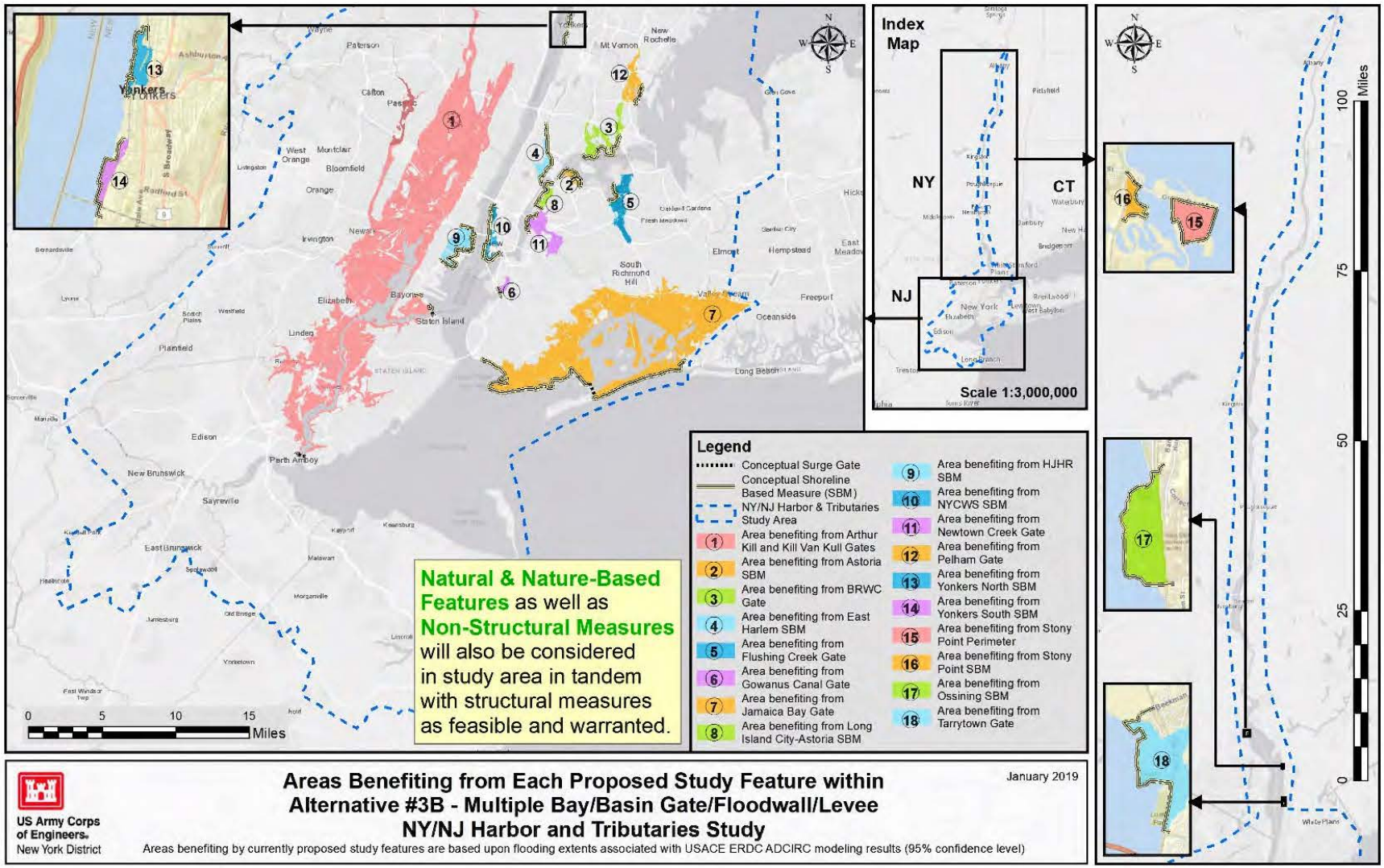


US Army Corps of Engineers
New York District

Areas Benefiting from Each Proposed Study Feature within Alternative #3A - Multiple Bay/Basin Gate/Floodwall/Levee
NY/NJ Harbor and Tributaries Study

January 2019

Areas benefiting by currently proposed study features are based upon flooding extents associated with USACE ERDC ADCIRC modeling results (95% confidence level)

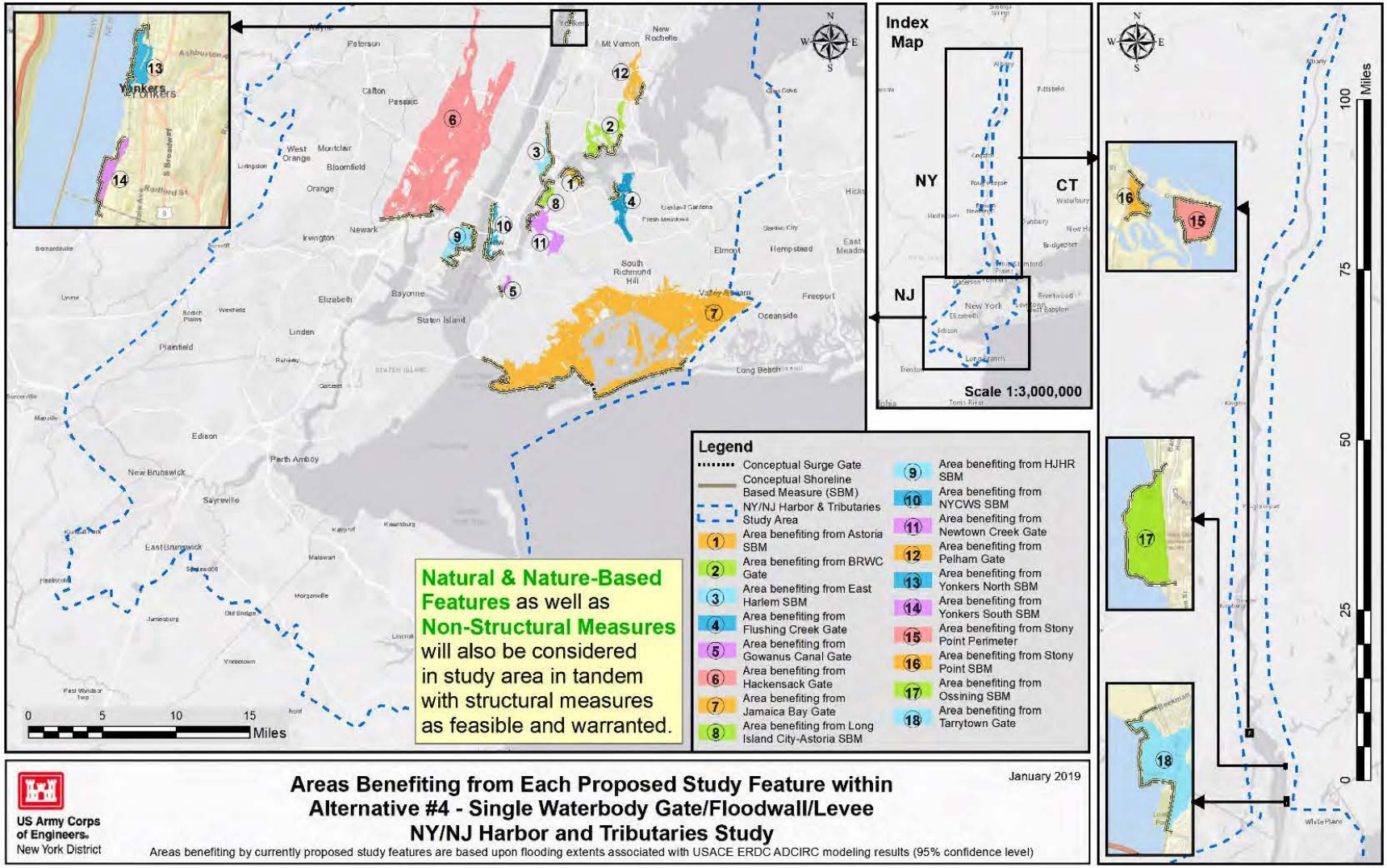


US Army Corps of Engineers
New York District

Areas Benefiting from Each Proposed Study Feature within Alternative #3B - Multiple Bay/Basin Gate/Floodwall/Levee NY/NJ Harbor and Tributaries Study

January 2019

Areas benefiting by currently proposed study features are based upon flooding extents associated with USACE ERDC ADCIRC modeling results (95% confidence level)

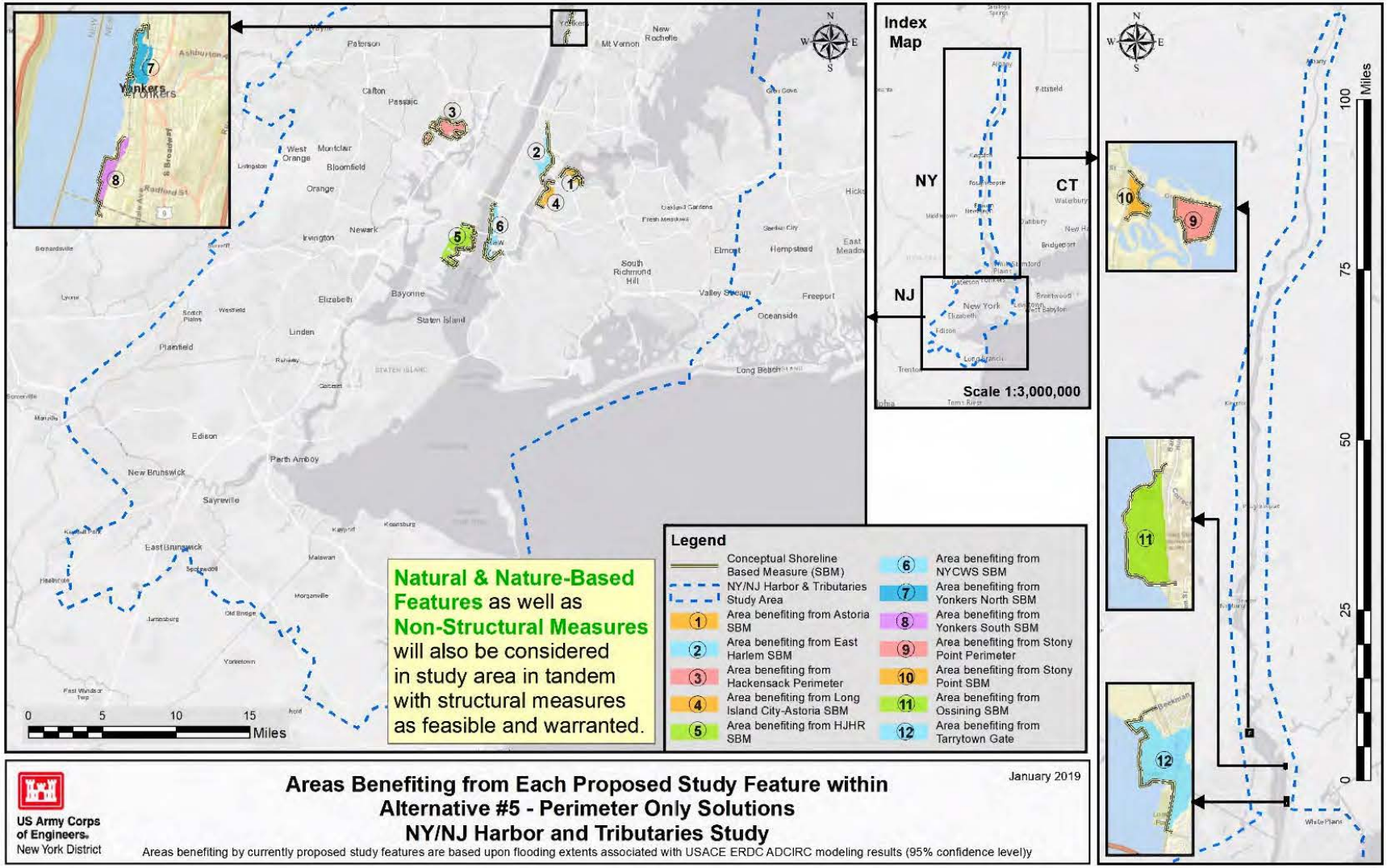


US Army Corps of Engineers
New York District

Areas Benefiting from Each Proposed Study Feature within Alternative #4 - Single Waterbody Gate/Floodwall/Levee
NY/NJ Harbor and Tributaries Study

January 2019

Areas benefiting by currently proposed study features are based upon flooding extents associated with USACE ERDC ADCIRC modeling results (95% confidence level)



US Army Corps of Engineers
New York District

January 2019

Areas Benefiting from Each Proposed Study Feature within Alternative #5 - Perimeter Only Solutions
NY/NJ Harbor and Tributaries Study

Areas benefiting by currently proposed study features are based upon flooding extents associated with USACE ERDC ADCIRC modeling results (95% confidence level)y

Enclosure 3: Known Historic Properties within the APE

Table 1. Known Historic Properties within Alternative 2 Area of Potential Effects

Measure	Potentially Affected Resources
Sandy Hook to Breezy Point Gate	Gateway National Recreation Area including Fort Hancock and Sandy Hook Proving Ground Historic District National Historic Landmark, Breezy Point, Silver Gull Beach Club, Fort Tilden, and Jacob Riis Park Historic Districts; Far Rockaway Beach Bungalow Historic District; moderate to high archaeological sensitivity
Throgs Neck Gate	Fort Schuyler, US Merchant Marine Academy Historic District, Fort Totten and the Throgs Neck Bridge; moderate to high archaeological sensitivity
Pelham Gate	Pelham Bay Park Historic District, Hutchinson River Parkway; moderate to high archaeological sensitivity

Measure	Potentially Affected Resources
Verrazano Narrows Gate	Alice Austen House National Historic Landmark, McFarlane-Bredt House, St. Mary's Roman Catholic Church, Rectory and School, US Coast Guard Rosebank Station and Family Housing, Fort Wadsworth, Fort Hamilton, and Bay Ridge Historic District; moderate archaeological sensitivity
Jamaica Bay Gate	Gateway National Recreation Area including Breezy Point, Silver Gull Beach Club, Fort Tilden, Jacob Riis Park and Floyd Bennett Field; Far Rockaway Beach Bungalow Historic District; Coney Island Historic District; moderate archaeological sensitivity
Throgs Neck Gate	Fort Schuyler, US Merchant Marine Academy Historic District, Fort Totten and the Throgs Neck Bridge; moderate to high archaeological sensitivity
Pelham Gate	Pelham Bay Park Historic District, Hutchinson River Parkway; moderate to high archaeological sensitivity
Arthur Kill Gate	Vessel hulks (canal boats, barges, car floats, etc.) along Perth Amboy and Tottenville shorelines; Moderate archaeological sensitivity

Table 3. Known Historic Properties within Alternative 3B Area of Potential Effects

Measure	Potentially Affected Resources
Jamaica Bay Gate	Gateway National Recreation Area including Breezy Point, Silver Gull Beach Club, Fort Tilden, Jacob Riis Park and Floyd Bennett Field; Far Rockaway Beach Bungalow Historic District; Coney Island Historic District; moderate archaeological sensitivity
Pelham Gate	Pelham Bay Park Historic District, Hutchinson River Parkway; moderate to high archaeological sensitivity
Arthur Kill Gate	Vessel hulks (canal boats, barges, car floats, etc.) along Perth Amboy and Tottenville shorelines; Moderate archaeological sensitivity
Flushing Creek Gate	No known historic properties; moderate archaeological sensitivity
Bronx River/Westchester Creek Gates	No known historic properties; moderate archaeological sensitivity
Newtown Creek Gate	Greenpoint Historic District, individual structures north of Newtown Creek
Gowanus Canal Gate	Gowanus Canal Historic District; moderate to high archaeological sensitivity
New Jersey-Hudson Shoreline Based Measures	Morris Canal Basin, Central Railroad of NJ Terminal, bulkheads/piers, Holland Tunnel National Historic Landmark, Lackawanna Train Station; moderate to high archaeological sensitivity
Kill Van Kull Gate	No known historic properties; moderate archaeological sensitivity
Long Island City Shoreline based Measures	Sohmer Piano Factory, Queensboro Bridge, Queensboro Bridge Houses North and South; moderate archaeological sensitivity
East Harlem Shoreline Based Measures	369th Regiment Armory, Harlem River Houses, Metro-North Harlem River Lift Bridge, the Madison Avenue Bridge; low archaeological sensitivity
Astoria Shoreline Based Measures	Astoria Play Center, Hell Gate Bridge, the Bowery Waste Water Treatment Plant
Yonkers South and North Shoreline Based Measures	South: low archaeological sensitivity; North: moderate archaeological sensitivity
Tarrytown Shoreline Based Measures	No known historic properties; low to moderate archaeological sensitivity
Ossining Shoreline Based Measures	Sing Sing Correctional Facility and contributing structures; moderate archaeological sensitivity
Stony Point Shoreline Based Measures	No known historic properties; low to moderate archaeological sensitivity

Table 4. Known Historic Properties within Alternative 4 Area of Potential Effects

Measure	Potentially Affected Resources
Jamaica Bay Gate	Gateway National Recreation Area including Breezy Point, Silver Gull Beach Club, Fort Tilden, Jacob Riis Park and Floyd Bennett Field; Far Rockaway Beach Bungalow Historic District; Coney Island Historic District; moderate archaeological sensitivity
Pelham Gate	Pelham Bay Park Historic District, Hutchinson River Parkway; moderate to high archaeological sensitivity
Flushing Creek Gate	No known historic properties; moderate archaeological sensitivity
Bronx River/Westchester Creek Gates	No known historic properties; moderate to high archaeological sensitivity
Newtown Creek Gate	Greenpoint Historic District, individual structures north of Newtown Creek;
Gowanus Canal Gate	Gowanus Canal Historic District; moderate to high archaeological sensitivity
Hackensack River Gate	No known historic properties; low archaeological sensitivity
New Jersey-Hudson Shoreline Based Measures	Morris Canal Basin, Central Railroad of NJ Terminal, bulkheads/piers, Holland Tunnel National Historic Landmark, Lackawanna Train Station; moderate to high archaeological sensitivity
Kill Van Kull Gate	No known historic properties; moderate archaeological sensitivity
Long Island City Shoreline based Measures	Sohmer Piano Factory, Queensboro Bridge, Queensboro Bridge Houses North and South; moderate archaeological sensitivity
East Harlem Shoreline Based Measures	369th Regiment Armory, Harlem River Houses, Metro-North Harlem River Lift Bridge, the Madison Avenue Bridge; low archaeological sensitivity
Astoria Shoreline Based Measures	Astoria Play Center, Hell Gate Bridge, the Bowery Waste Water Treatment Plant
Yonkers South and North Shoreline Based Measures	South: No known historic properties; low archaeological sensitivity; North: No known historic properties; moderate archaeological sensitivity
Tarrytown Shoreline Based Measures	No known historic properties; low to moderate archaeological sensitivity
New York City West Side Shoreline Based Measures	South Street Seaport, Municipal Ferry Pier, Pier A, Castle Clinton National Monument, Tribeca North Historic District, Holland Tunnel National Historic Landmark, US Lilac – lighthouse tender, Hudson River Bulkhead, Gansevoort Historic District, Pier 57, Piers 59-62, West Chelsea Historic District, Frying Pan Shoals Lightship, John J. Harvey fireboat, Highline Freight Railroad, Lincoln Tunnel, moderate to high a. haeological sensitivity – extant and buried piers and bulkheads, historic fill
Ossining Shoreline Based Measures	Sing Sing Correctional Facility and contributing structure; moderate archaeological sensitivity
Stony Point Shoreline Based Measures	No known historic properties; low to moderate archaeological sensitivity

Table 5. Known Historic Properties within Alternative 5 Area of Potential Effects

Measures	Potentially Affected Resources
New Jersey Hudson River Shoreline Based Measures	Holland Tunnel National Historic Landmark, Morris Canal Basin, Central Railroad of NJ Terminal, bulkheads/piers; moderate to high archaeological sensitivity
New York City West Side Shoreline Based Measures	South Street Seaport, Municipal Ferry Pier, Pier A, Castle Clinton National Monument, Tribeca North Historic District, Holland Tunnel National Historic Landmark, US *Lilac* – lighthouse tender, Hudson River Bulkhead, Gansevoort Historic District, Pier 57, Piers 59-62, West Chelsea Historic District, Frying Pan Shoals Lightship, *John J. Harvey* fireboat, Highline Freight Railroad, Lincoln Tunnel, moderate to high archaeological sensitivity – extant and buried piers and bulkheads, historic fill
Long Island City – Astoria Shoreline Based Measures	Sohmer Piano Factory, Queensboro Bridge, Queensboro Bridge Houses North and South; moderate archaeological sensitivity
Astoria Shoreline Based Measures	Astoria Play Center, Hell Gate Bridge, the Bowery Waste Water Treatment Plant
East Harlem Shoreline Based Measures	369th Regiment Armory, Harlem River Houses, Metro-North Harlem River Lift Bridge, the Madison Avenue Bridge; low archaeological sensitivity
Hackensack Perimeter Lower Area	No known historic properties; moderate archaeological sensitivity
Hackensack Perimeter Middle Area	No known historic properties; moderate archaeological sensitivity
Hackensack Perimeter Upper Area	No known historic properties; moderate archaeological sensitivity
Tarrytown Shoreline Based Measures	No known historic properties; low to moderate archaeological sensitivity
Ossining Shoreline Based Measures	Sing Sing Correctional Facility and contributing structure; moderate archaeological sensitivity
Stony Point Shoreline Based Measures	No known historic properties; low to moderate archaeological sensitivity

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U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT
JACOB K. JAVITS FEDERAL BUILDING
26 FEDERAL PLAZA
NEW YORK NEW YORK 10278-0090

CENAN-PL-EA

May 23 2022

Memorandum for the Record

Subject: HATS CR STAKEHOLDER CALL
Webex
Date(s): May 23, 2022

Attendees:

Jesse Walker – AECOM Cultural Resources

Gina Santucci – NYCLPC

Jeffrey Bendremer – Stockbridge Munsee

Holly Staggs, Patti Rafferty – NPS

Dag, Cheryl, Ryan, Danielle, Carissa, Bryce - USACE

Jessica Vodoor - President, Snug Harbor Cultural Center and Botanical Garden

Meghan Powell -

Minutes:

Introductions

Study Resumption Overview, Alternatives, and Study Schedule

Tier 1 EIS Scope

Cultural Considerations and Impacts Assessment

Environmental and Cultural Consultation and Compliance

Questions:

Jeffrey Bendremer asked why THPO's were not listed as signatories on slide. Jeff said that the Stockbridge Munsee would be interested in becoming a signatory due to the potential for Native American remains to be encountered. Carissa Scarpa agreed that Native American remains would likely be encountered and so the Corps will include the Stockbridge Munsee as a signatory to the PA.

Jessica Baker Vodoor asked where she could view the project impacts at this time. The team said that the maps of the alternatives are in development now. The final version

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will come out in the draft report but maps can be provided to her as soon as they are completed by the team.

Ryan Clark
Archaeologist
Watershed Section
Environmental Analysis Branch
Planning Division
New York District, USACE

The Delaware Nation
Historic Preservation Department
31064 State Highway 281
Anadarko, OK 73005
Phone (405)247-2448

March 22, 2022

To Whom It May Concern:

The Delaware Nation Historic Preservation Department received correspondence regarding the following referenced project(s).

Project(s): **NY & NJ Harbor & Tributaries Coastal Storm Risk Management Project**

Our office is committed to protecting tribal heritage, culture and religion with particular concern for archaeological sites potentially containing burials and associated funerary objects. The Lenape people occupied the area indicated in your letter during and prior to European contact until their eventual removal to our present locations. There is always the potential for the discovery of cultural resources in this area. **We would like to accept your invitation for consultation. We do not have any comments at this time, but please keep us updated as this project moves forward. Should a programmatic agreement eventually be discussed, we would like to be involved in this as well.**

Please note that Delaware Nation, the Delaware Tribe of Indians, and the Stockbridge Munsee Community are the only Federally Recognized Delaware/Lenape entities in the United States and consultation for Lenape homelands must be made with only the designated staff of these three Nations (and/or other federally recognized tribal nations who may have overlapping areas of interest). We appreciate your cooperation in contacting the Delaware Nation Historic Preservation Office to conduct proper Section 106 consultation. Should you have any questions, feel free to contact our offices at 405-247-2448 ext. 1403.

Erin N. Paden

Erin Paden
Director of Historic Preservation
Delaware Nation
31064 State Highway 281
Anadarko, OK 73005
Ph. 405-247-2448 ext. 1403
epaden@delawarenation-nsn.gov

From: Gina Santucci (LPC)
To: Clark, Ryan N CIV USARMY CENAN (USA)
Subject: [URL Verdict: Unknown][Non-DoD Source] New York New Jersey Harbor and Tributaries Coastal Storm Risk Management Project: Cultural Resource Coordination
Date: Monday, March 21, 2022 4:42:12 PM
Attachments: image001.png
image002.png
image003.png
image004.png

Hello,

NYC LPC is interested in being a consulting party for this undertaking as per your letter of 3/22/22.

Thank you,

Gina Santucci

Gina Santucci (She/Her/Hers)
Director of Environmental Review
1 Centre St., 9th Fl. | New York, NY 10007
p: 212.669.7822
gsantucci@lpc.nyc.gov www.nyc.gov/landmarks