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

US Army Corps of Engineers
New York District

US Army Corps of Engineers®

THANK YOU FOR PARTICIPATING!

Public feedback is an important part of the study process.

The Study Team appreciates your time today.

MEETING PURPOSE

1. Provide information about the New York-New Jersey Harbor and Tributaries Study
2. Provide information about the Draft Integrated Feasibility Report and Tier 1 Environmental Impact Statement
3. Provide an overview of the Tentatively Selected Plan
4. Hear your questions and feedback about the information shared today

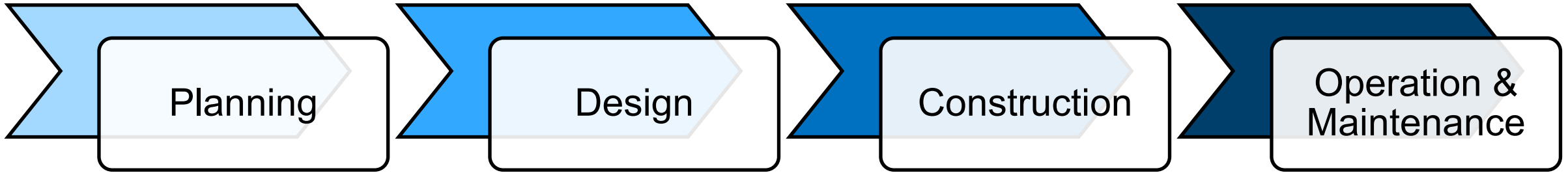
AGENDA

1. Study Background
2. Planning Process
   - Important Considerations
   - Evaluated Alternative Plans
   - Plan Selection
3. Overview of the Tentatively Selected Plan
4. Providing Feedback
5. Q&A Session

Residents of Little Ferry, NJ evacuated through Hurricane Sandy floodwaters (2012)

FOUR IMPORTANT THINGS TO NOTE

1. The plan you will hear about today is **preliminary** and **conceptual**
   - Details are subject to change based on new information and your feedback
   - A project has not yet been approved or funded by the U.S. Congress, States of New Jersey and New York, or local government
   - There is no impending construction or permitting for a project



2. The information in this presentation is a summary of what you can find in the Draft Integrated Feasibility Report and Tier 1 Environmental Impact Statement
   - National Environmental Policy Act document
   - Found at https://www.nan.usace.army.mil/NYNJHATS

DRAFT REPORT

Found at https://www.nan.usace.army.mil/NYNJHATS

Draft Report September 2022

The Draft Integrated Feasibility Report and Tier 1 Environmental Impact Statement is available for public review. The report summarizes the study planning process, technical analyses, and alternative plans - including the Tentatively Selected Plan.

The *NYNJHAT Study StoryMap* is an interactive platform with interactive web-based content, including interactive maps, animations, renderings, and summaries.

Readers Guide

Draft Integrated Feasibility Report and Tier 1 Environmental Impact Statement

Appendix A: Environmental

- *Sub-appendix A1: Endangered Species Act (USFWS)*
- *Sub-appendix A2: Endangered Species Act (NOAA)*
- *Sub-appendix A3: Essential Fish Habitat*
- *Sub-appendix A4: Coastal Zone Management Act*
- *Sub-appendix A5: Clean Water Act*
- *Sub-appendix A6: Clean Air Act and Greenhouse*

NY & NJ Harbor & Tributaries Focus Area Feasibility Study (HATS)

Coastal storms have severely impacted the North Atlantic Coast of the United States, including the New York-New Jersey Harbor region. In response to these storms, the US Army Corps of Engineers (Corps) is investigating measures to manage future flood risk in ways that support the long-term resilience and sustainability of the coastal ecosystem and surrounding communities, and reduce the economic costs and risks associated with flood and storm events. In support of this goal, the Corps completed the North Atlantic Coast Comprehensive Study, which identified nine high-risk, focus areas on the north Atlantic Coast for further in-depth analysis into potential coastal storm risk management measures. One of the nine areas identified was the New York-New Jersey Harbor and Tributaries study area.

Upcoming Public Meetings

DATE: Wednesday, January 11th, 2023.

TIME: 2-4 PM and 6-8 PM (duplicate sessions).

LOCATION: New Jersey Institute of Technology (NJIT), Campus Center, 150 Bleeker St., Newark, NJ 07103. Sessions are in the 1st-floor Atrium.

MORE INFO: Click here to view the flyer.

TRANSLATED FLYERS: Arabic | Chinese | Hindi | Portuguese | Spanish

DATE: Tuesday, January 17th, 2023.

TIME: 2-4 PM and 6-8 PM (duplicate sessions).

LOCATION: Community Board 18, 1097 Bergen Avenue, Brooklyn, NY, 11234. Sessions will be held in the community meeting room.

MORE INFO: On-site parking is available. Mass transit access: see https://new.mta.info/ Bus routes B47/B82/B6 have nearby stops. Closest bus stop is B47 route, Ralph Avenue/Avenue J stop. Click here to view the flyer.

READERS GUIDE

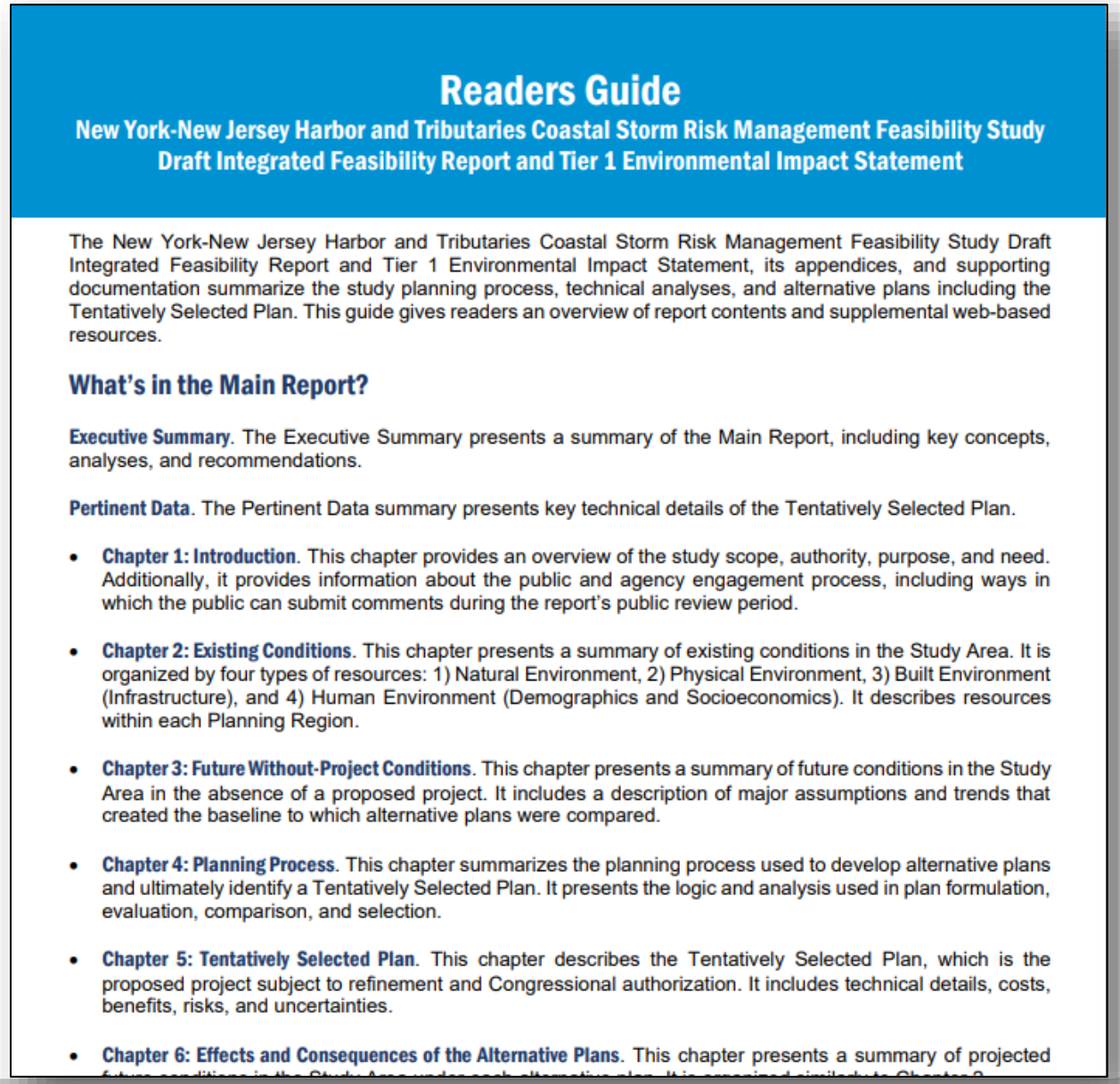
Provides an overview of:

- Main report chapter contents
- Appendices and sub-appendices
- Web-based tools

Main Report

Chapter 1: Introduction
Chapter 2: Existing Conditions
Chapter 3: Future Without Project Conditions
Chapter 4: Plan Formulation
Chapter 5: Tentatively Selected Plan
Chapter 6: Effects and Consequences of the Alternative Plans
Chapter 7: Environmental Compliance
Chapter 8: Public Coordination and Views
Chapter 9: Recommendations
Chapter 10: List of Preparers
Chapter 11: References

Appendix A: Environmental
Appendix B: Engineering
Appendix C: Cost Engineering
Appendix D: Economics
Appendix E: Map Series
Appendix F: Real Estate
Appendix G: Public/Agency Coordination
Appendix H: Stakeholder List



Readers Guide

New York-New Jersey Harbor and Tributaries Coastal Storm Risk Management Feasibility Study
Draft Integrated Feasibility Report and Tier 1 Environmental Impact Statement

The New York-New Jersey Harbor and Tributaries Coastal Storm Risk Management Feasibility Study Draft Integrated Feasibility Report and Tier 1 Environmental Impact Statement, its appendices, and supporting documentation summarize the study planning process, technical analyses, and alternative plans including the Tentatively Selected Plan. This guide gives readers an overview of report contents and supplemental web-based resources.

What's in the Main Report?

Executive Summary. The Executive Summary presents a summary of the Main Report, including key concepts, analyses, and recommendations.

Pertinent Data. The Pertinent Data summary presents key technical details of the Tentatively Selected Plan.

- **Chapter 1: Introduction**. This chapter provides an overview of the study scope, authority, purpose, and need. Additionally, it provides information about the public and agency engagement process, including ways in which the public can submit comments during the report's public review period.
- **Chapter 2: Existing Conditions**. This chapter presents a summary of existing conditions in the Study Area. It is organized by four types of resources: 1) Natural Environment, 2) Physical Environment, 3) Built Environment (Infrastructure), and 4) Human Environment (Demographics and Socioeconomics). It describes resources within each Planning Region.
- **Chapter 3: Future Without-Project Conditions**. This chapter presents a summary of future conditions in the Study Area in the absence of a proposed project. It includes a description of major assumptions and trends that created the baseline to which alternative plans were compared.
- **Chapter 4: Planning Process**. This chapter summarizes the planning process used to develop alternative plans and ultimately identify a Tentatively Selected Plan. It presents the logic and analysis used in plan formulation, evaluation, comparison, and selection.
- **Chapter 5: Tentatively Selected Plan**. This chapter describes the Tentatively Selected Plan, which is the proposed project subject to refinement and Congressional authorization. It includes technical details, costs, benefits, risks, and uncertainties.
- **Chapter 6: Effects and Consequences of the Alternative Plans**. This chapter presents a summary of projected

STORYMAP HUB

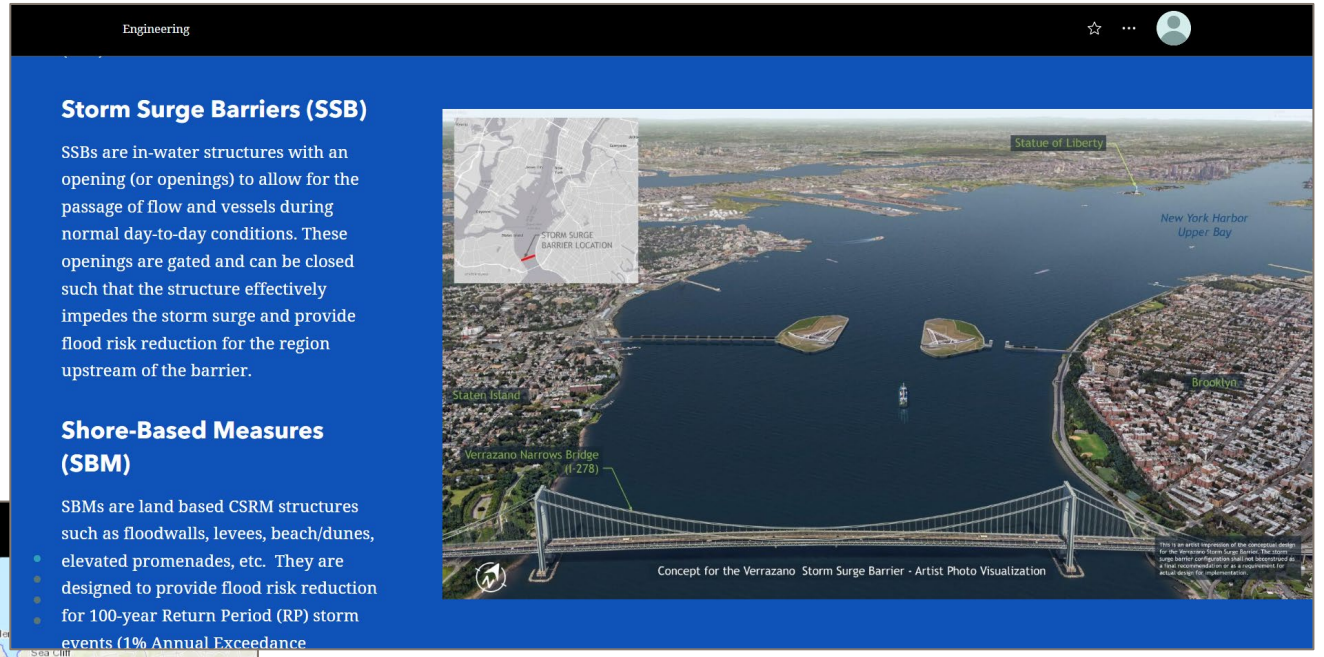
ArcGIS StoryMaps is a web-based interactive application that includes maps in the context of narrative text and other multimedia content

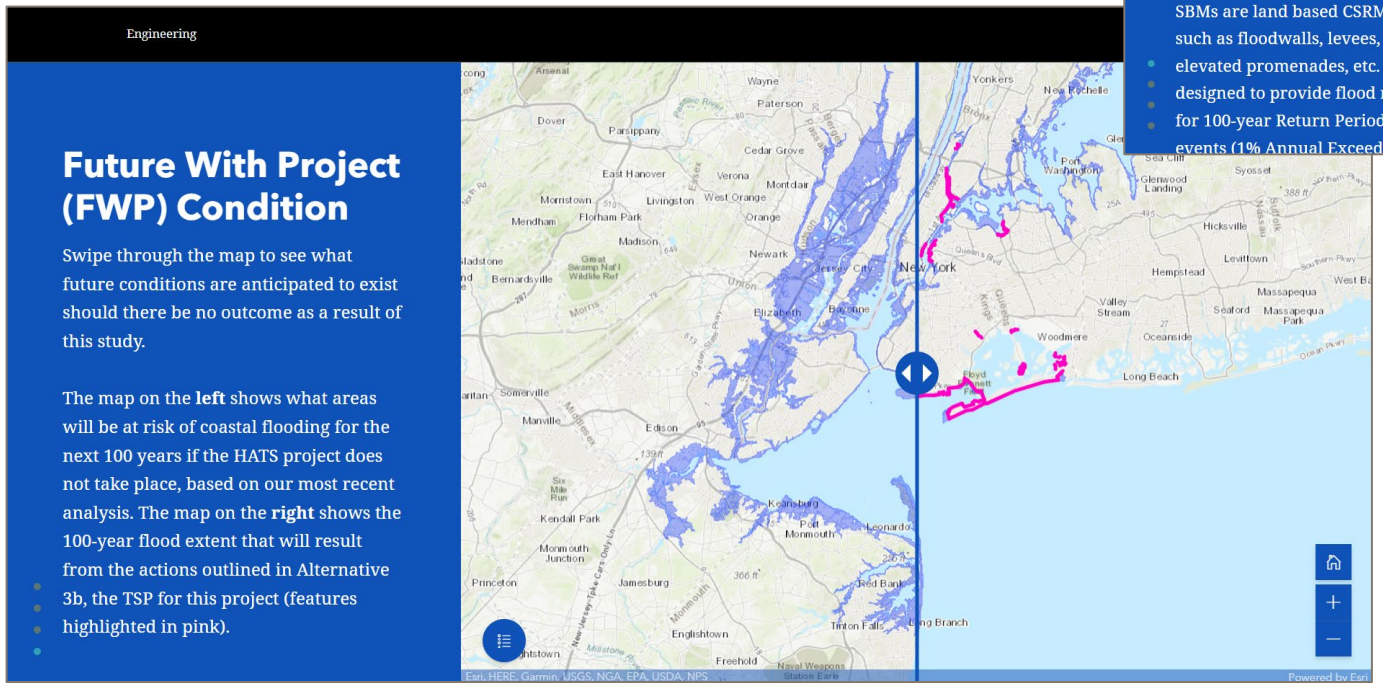
https://hats-cenan.hub.arcgis.com/

WHAT'S ON THE HUB?

Interactive Maps

- Alternative plans
- Future with and without project flooding
- Compare alternatives
- Real estate easements
- Environmental and cultural
- Environmental justice





- "Plain language" summaries
- Renderings
- ADCIRC animations

… and a lot more!

FOUR IMPORTANT THINGS TO NOTE

3. Your feedback is important
   - The Study Team is here today to answer your questions and hear your feedback
   - **Send all written comments for the record via email or mail**
   - The public comment period closes March 7, 2023

4. This is one of a series of public meetings
   - There will be upcoming in-person and additional virtual public meetings
   - Meeting information will be posted to the study website and shared via email

PUBLIC INVOLVEMENT OPPORTUNITIES

2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 ....

2017
NEPA Scoping
National Environmental Policy Act Scoping Period

2019
Interim Report Release
Interim Report

2024
State and Agency Review
Draft Report

2024-2030
Public Meetings
Tier 2 Environmental Impact Statement

2030
NEPA Process Complete
Final Tier 2 Environmental Impact Statement

2030-2044
Public Meetings
Throughout Construction Phase

Ongoing Public Comment Opportunities
Election opportunities every 2 years

Planning | **Pre-construction Engineering and Design** | **Construction** *Including Design Refinements* | **Operation & Maintenance**

Tier 1 Environmental Impact Statement 2016-2024

Tier 2 Environmental Impact Statement 2024-2030

2016
Study Start

2016
Study Begins
Feasibility Cost Sharing Agreement Executed between USACE, State of New Jersey, and State of New York

2024
Study Ends

2024
Study Complete
Chief of Engineers Report Signed

2030
Construction Begins

2030
Design Complete
Pre-construction Engineering and Design Phase Completed

2044
Project Operation and Maintenance
2044 and Beyond

2044
Construction Complete

2022
Draft Report Release
Draft Integrated Feasibility Report and Tier 1 Environmental Impact Statement

Congressional Approval
Project Authorization and Appropriation

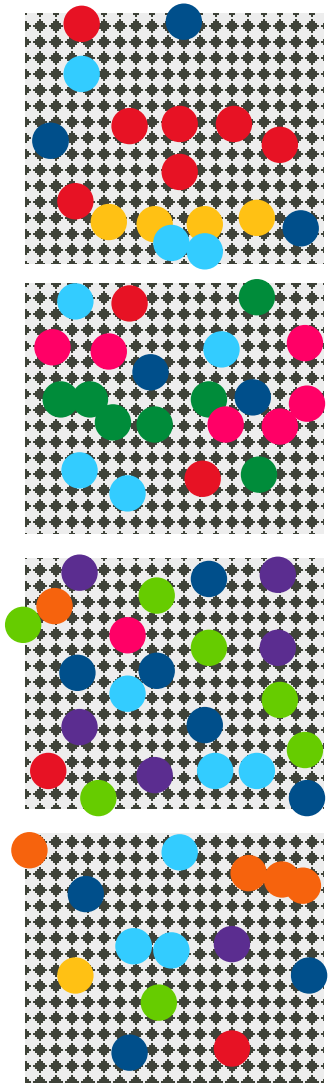
*** - Federal Elections**

Public Input Solicited (Overall Program)
Report public comment periods, public meetings, and other opportunities for public input

We Are Here
Current status as of December 2022

PROCESSING PUBLIC INVOLVEMENT

Results from Public Comment Periods



Step 1:
Look for common ideas/concerns.

Step 2:
Common ideas/concerns that are feasible to execute or mitigate.

An idea/concern that is FEASIBLE to execute and/or mitigate is one that meets ALL of the below considerations:

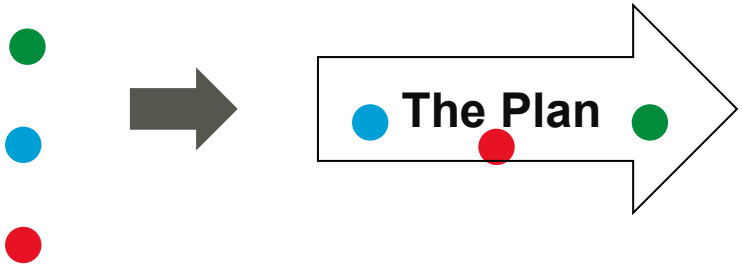
1. Does it conflict w/ local, state, or federal policy's or laws?
2. Is it with-in our authorization to solve?
3. Do we have the technology to make it happen or mitigate it?
4. Does it create a problem for someone else?
5. Is it cost prohibitive?
6. Is it equitable?
7. Can it happen in a timely manner?
8. Is it flexible over time for future uncertainties/unknowns?
9. Finally, Are there additional negative impacts on the Environment, Endangered species, Historical or Cultural sites, the Local Economy, Viewsheds, Traffic Patterns, Community Safety, Industry Support, Hazard waste remediation, Real Estate availability?….and much much more.

Step 3:
Incorporate the comment into the plan.

FOLLOW-UP TO PUBLIC TO INVOLVEMENT

Step 3:
Incorporate the comment into the plan.

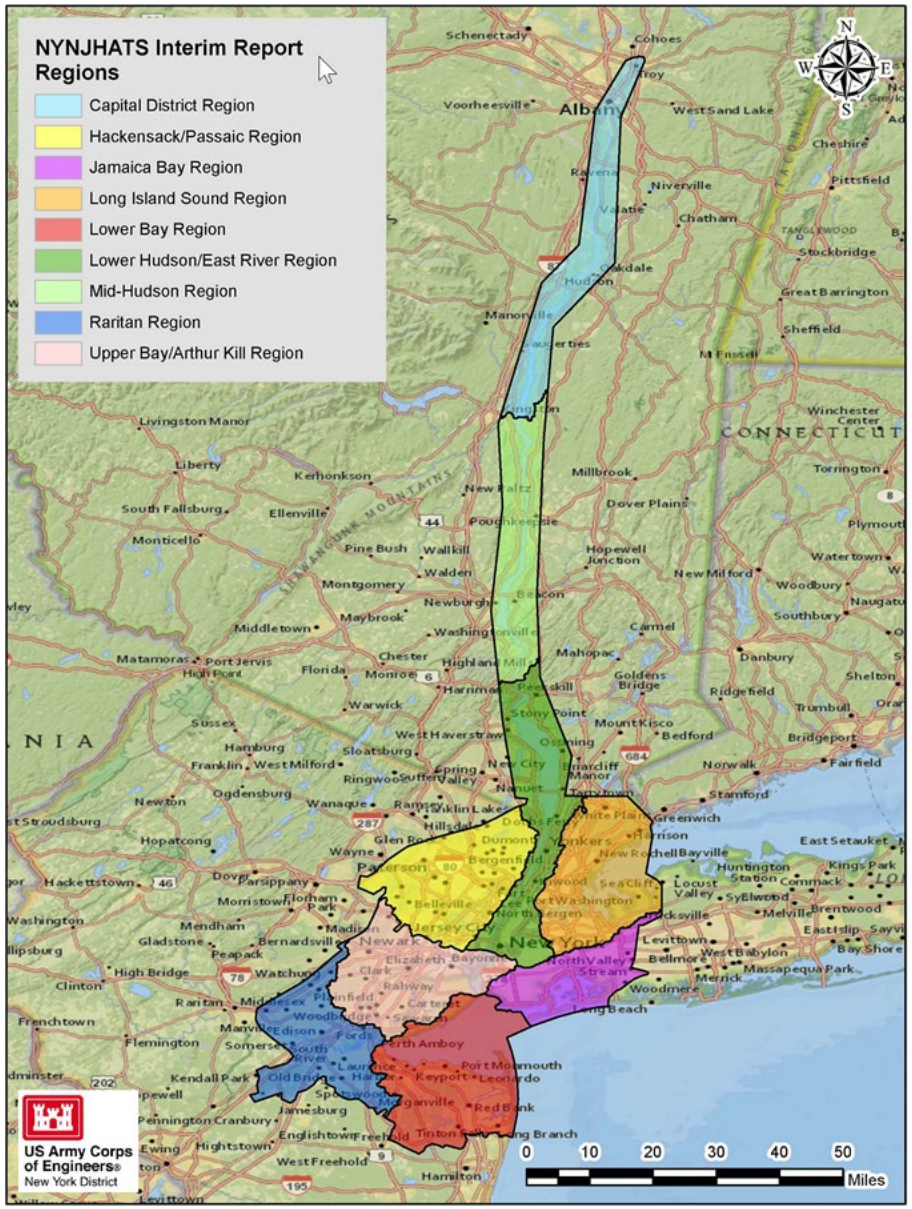
Step 4:
Inform the public where their ideas were incorporated



Recommendations are incorporated into the plan already:

1. Extended the public comment period to March 7th
2. Improved Web Design and digital communications
3. Routine engagement with interested/involved non-governmental organizations and local communities to ensure appropriate public comment locations, access, and languages
4. Routine engagement with interested/involved non-governmental organizations and local communities regarding delivery of timely information
5. Continued outreach to local leaders seeking common community concerns
6. Develop communications which further community understanding of the process.

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



STUDY AREA

- The largest and most densely populated of the 9 NACCS Focus Areas
- Area covers 2,150+ square miles and 900+ miles of affected shoreline
- 25 counties in New York & New Jersey
- Affected population of roughly 16 million people, including New York City and the six most populated cities in New Jersey

COASTAL STORM RISKS & DAMAGES

- Significant Life/Safety Risk and over 275,000 Structures in Potential Impact Area
- Incorporates Dozens of Other Ongoing and Planned CSRM Projects in Study Area
- Present Value Damages for 100-Year Storm Range from $100+B for Intermediate Sea Level Rise to over $350B for High Sea Level Rise Projection

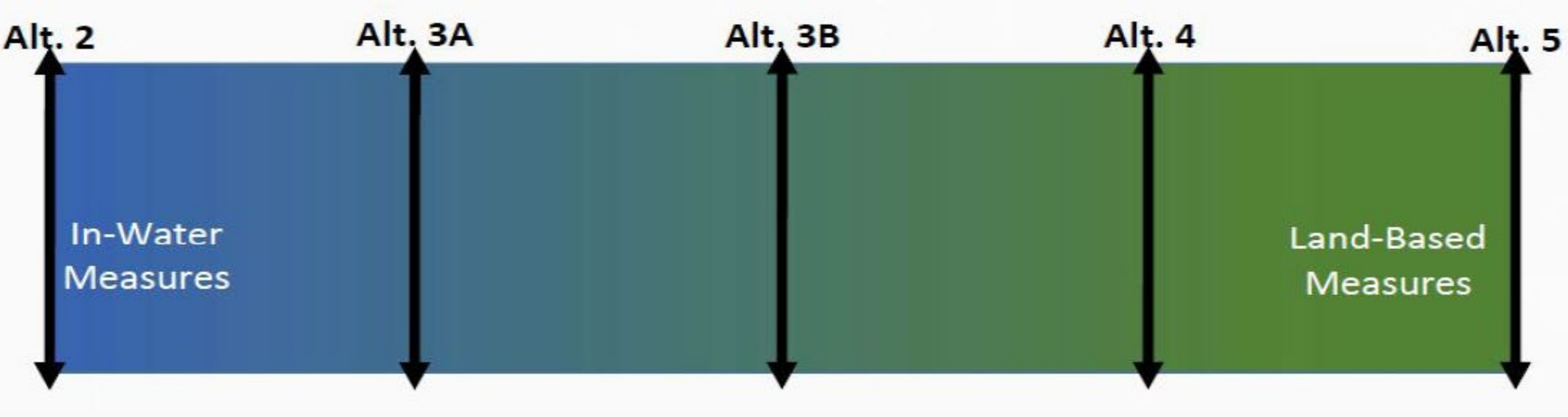
STUDY SCOPE

- **Study Cost:** $19.4M, cost-shared 50/50 with NYSDEC and NJDEP thru July 2022, and 100% federal thereafter.
- **Study Schedule:** Assistant Secretary of the Army for Civil Works Approved (7 Apr 21) Second Exemption for Study Extension to 2024 Completion
- **Funding:** Federal funding ($1.45M) resumed in October 2021 following lapses in fiscal years 2020 and 2021. Study also received $6,724,000 of Disaster Relief Suppl. Appros. Act funds.
- **Study Scope:** WRDA 2020 includes study specific language

STUDY SCHEDULE

- Draft Feasibility Report and integrated Tier 1 Environmental Impact Statement Released for extended public day review with meetings planned throughout area. Comment closing date is March 7, 2023.
- See WWW.NAN.USACE.ARMY.MIL/NYNJHATS for Draft Report and dates, times and locations of future public in-person and virtual meetings.
- Final Chief of Engineers Report Approved to be Completed in 2024

ALTERNATIVE PLANS – PROS & CONS WITH EACH

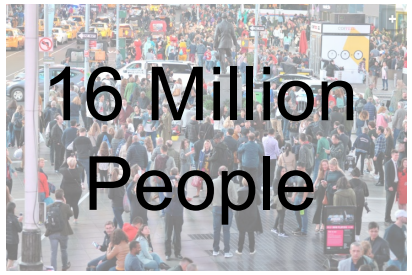


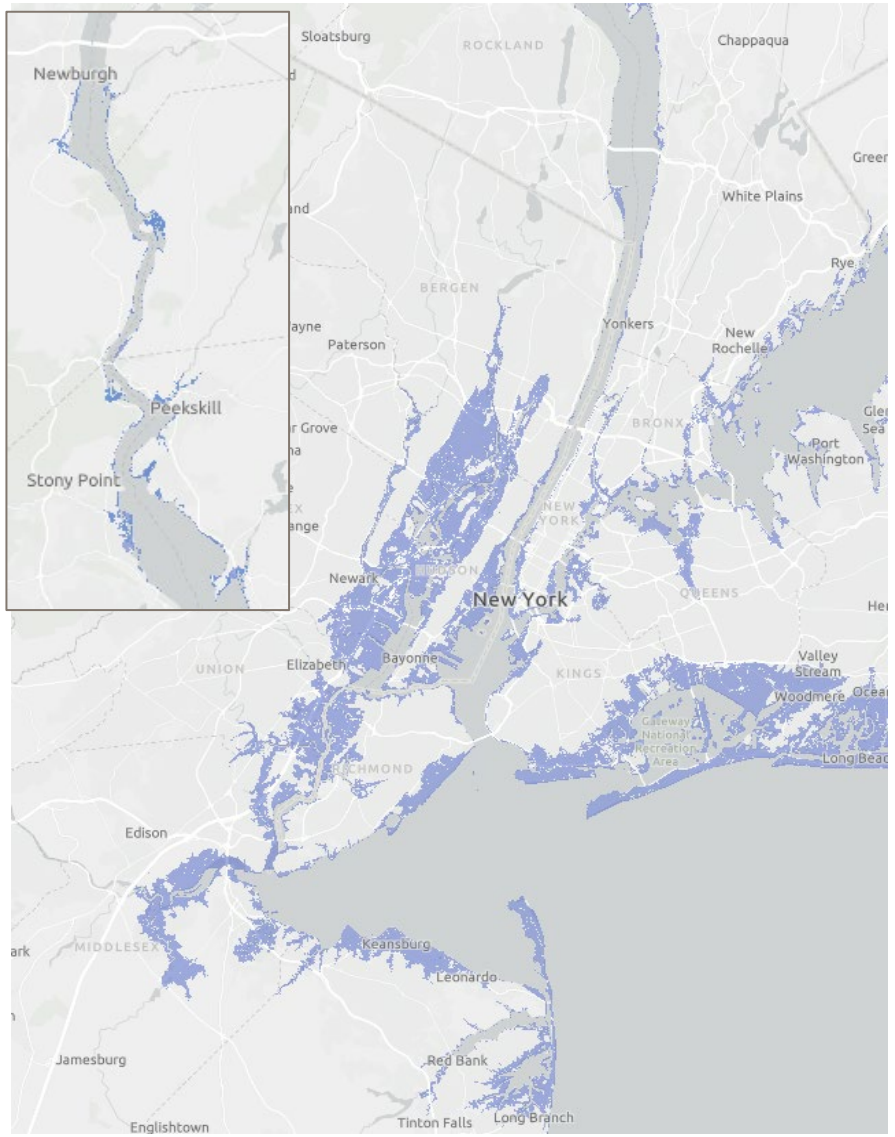
Alternative 1: No action
Alternative 2: Harbor-wide storm surge barrier + shore-based measures
Alternative 3A: Multi-basin storm surge barriers + shore-based measures
Alternative 3B: Multi-basin storm surge barriers + shore-based measures
Alternative 4: Single-basin storm surge barriers + shore-based measures
Alternative 5: Shore-based measures only

- Alternatives span spectrum from large in-water storm surge gates to numerous shoreline-based structures. Alternatives also have (or will have) complementary non-structural and natural and nature-based features (where feasible).
- Best Solution Appears to Involve Multiple, Layered Features
- Possible Phased Implementation:

1) Short-term: Construct Actionable Features,
2) Mid-Term: Further Evaluate, Design and possibly Construct Complex Features,
3) Long-Term: Adapt and expand features due to further sea level rise and climate change

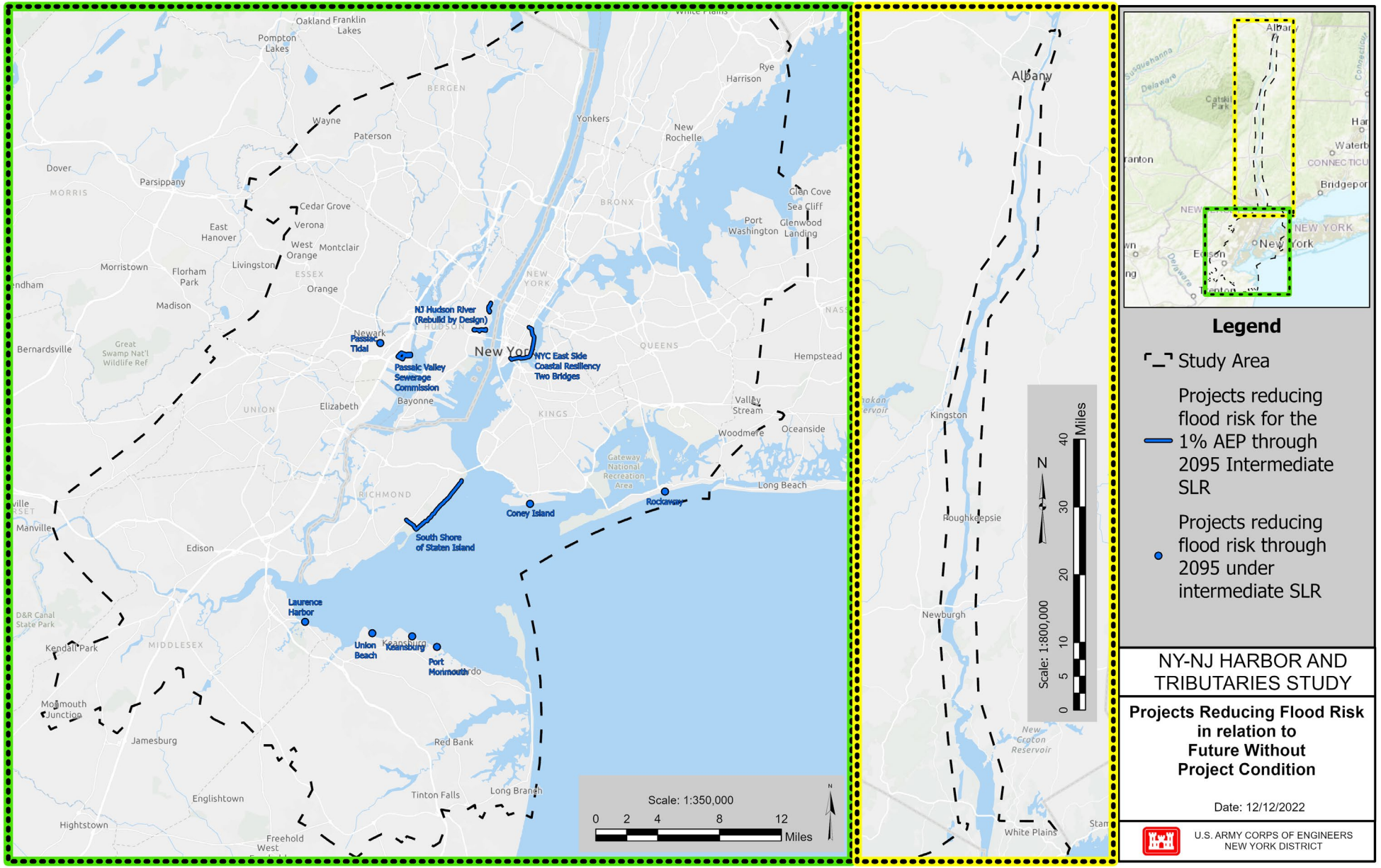
EXISTING & FUTURE CONDITIONS WITHOUT PROJECT



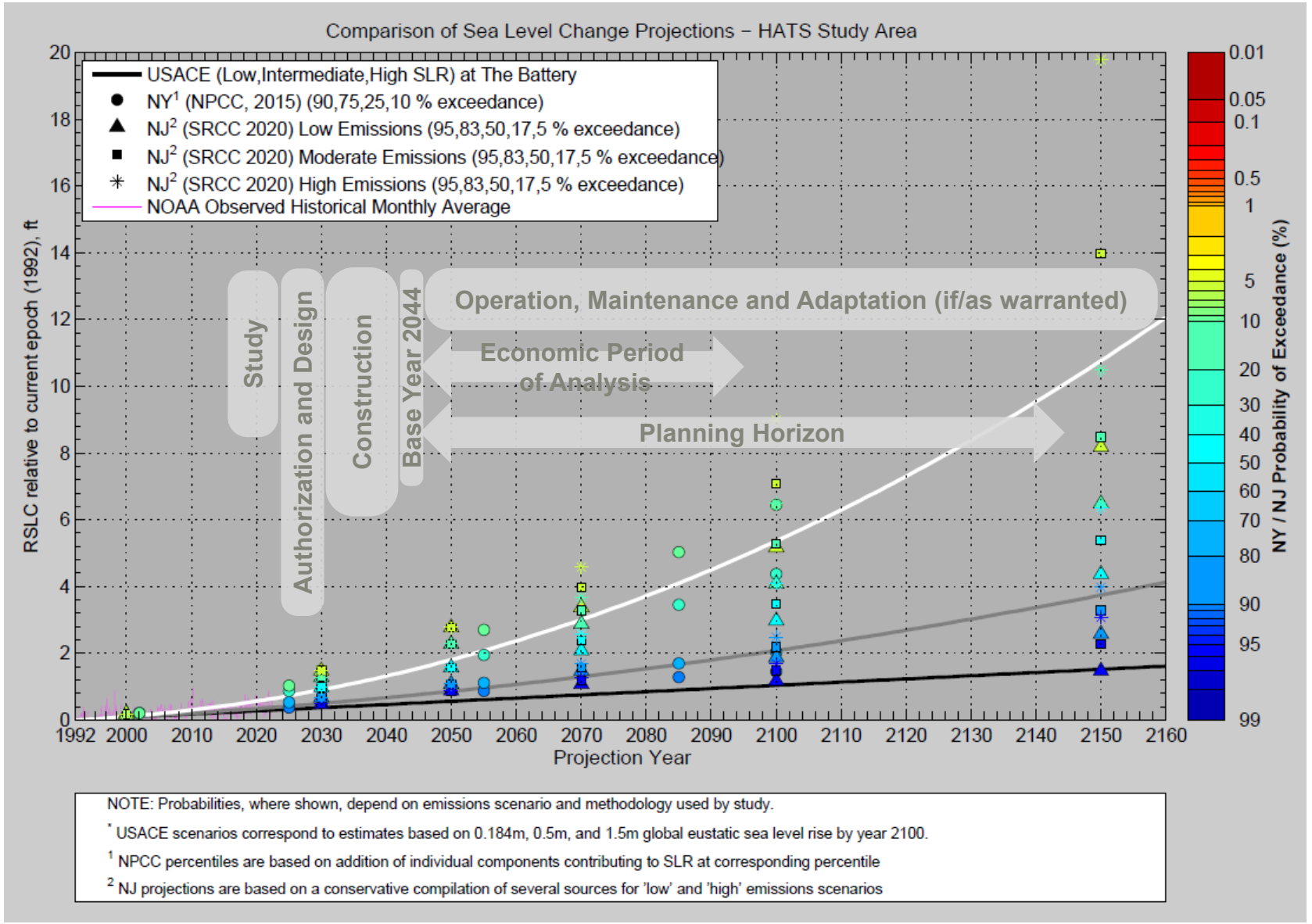


1% flood extent (with intermediate RSLC)

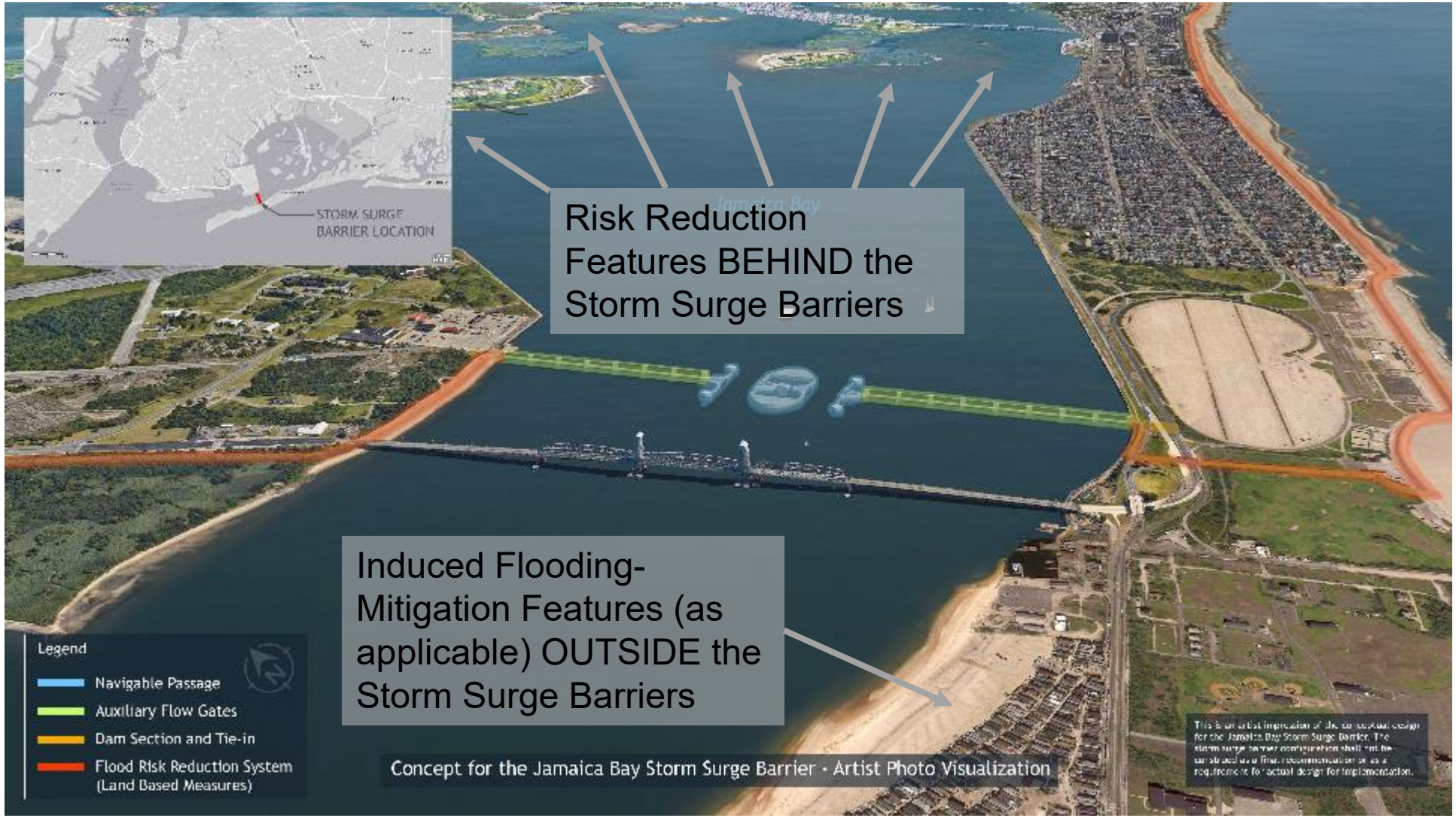
OTHER CONSTRUCTED AND ONGOING PROJECTS (BLUE) ASSUMED AS PART OF FUTURE BASELINE CONDITION



USACE RELATIVE SEA LEVEL CHANGE AT BATTERY COMPARED TO STATES AND CITY PROJECTIONS



ADDITIONAL CONSIDERATIONS WITH STORM-SURGE BARRIERS – RISK REDUCTION FEATURES AND INDUCED FLOODING-MITIGATION FEATURES

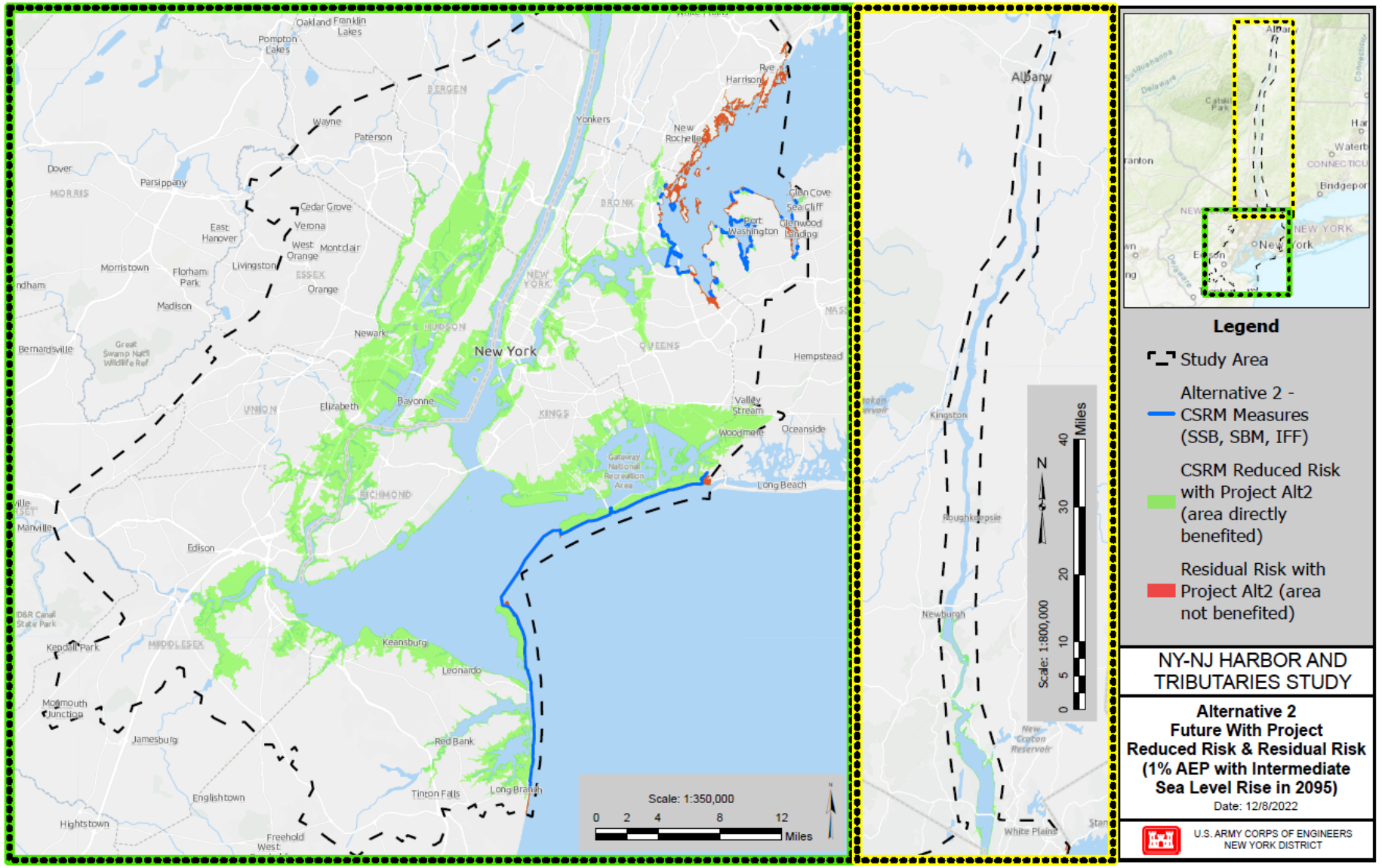


ALTERNATIVE 2

96.0% Study Area
at Direct Risk Benefited

Feature Type	Approx. Miles
Storm Surge Barriers	7.4
Shoreline Based Measures	24.2
Induced Flooding-Mitigation Features	22.5
Risk Reduction Features (not shown)	36.2

Alternative	
First Cost ($B):	$ 112.3
Total Present Value Cost ($B):	$ 150.2
Estimated Construction Duration (years):	32

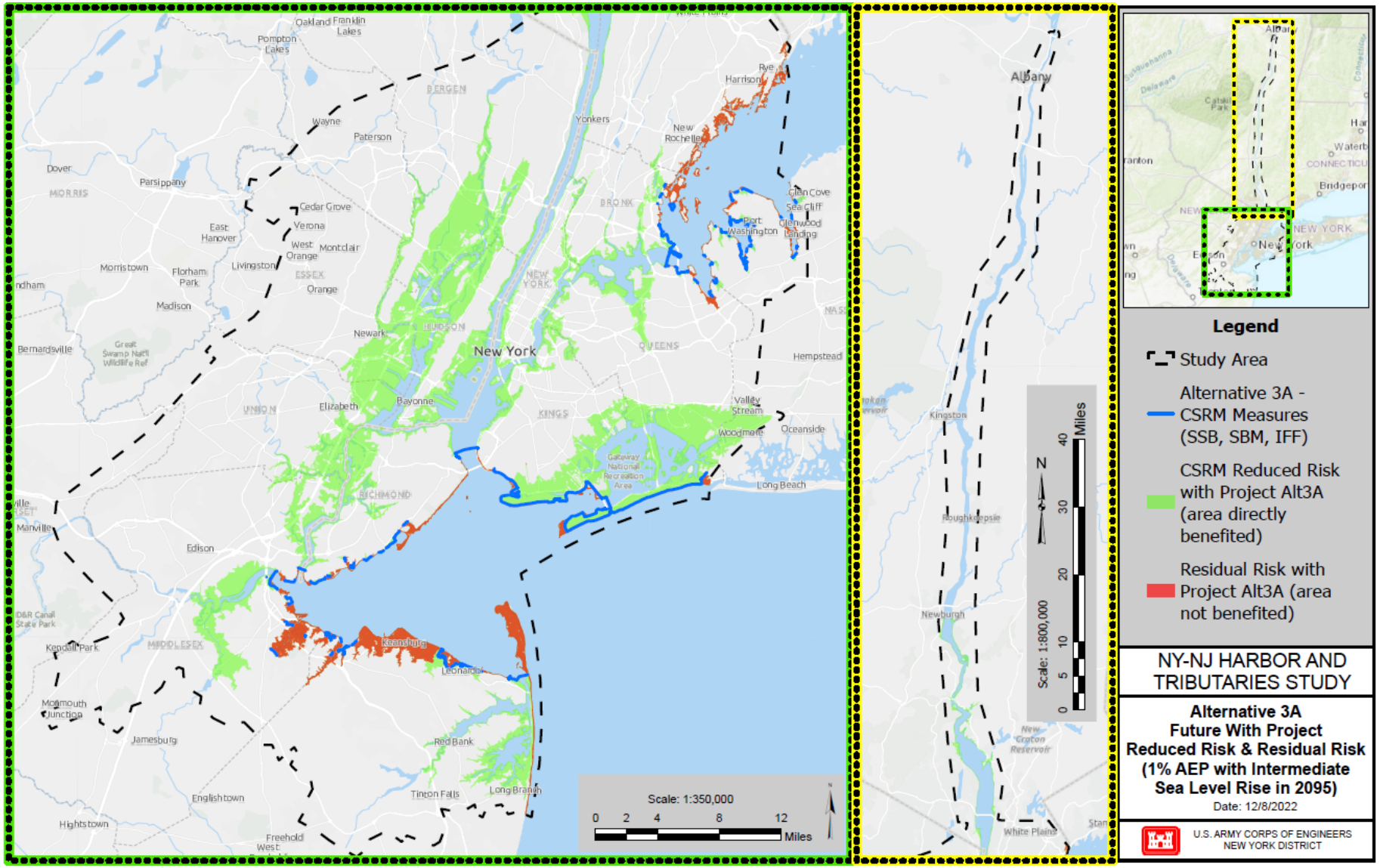


ALTERNATIVE 3A

87.1% Study Area at Direct Risk Benefited

Feature Type	Approx. Miles
Storm Surge Barriers	3.7
Shoreline Based Measures	22.7
Induced Flooding-Mitigation Features	51.5
Risk Reduction Features (not shown)	27.1

Alternative	
First Cost ($B):	$ 76.9
Total Present Value Cost ($B):	$ 95.7
Estimated Construction Duration (years):	24

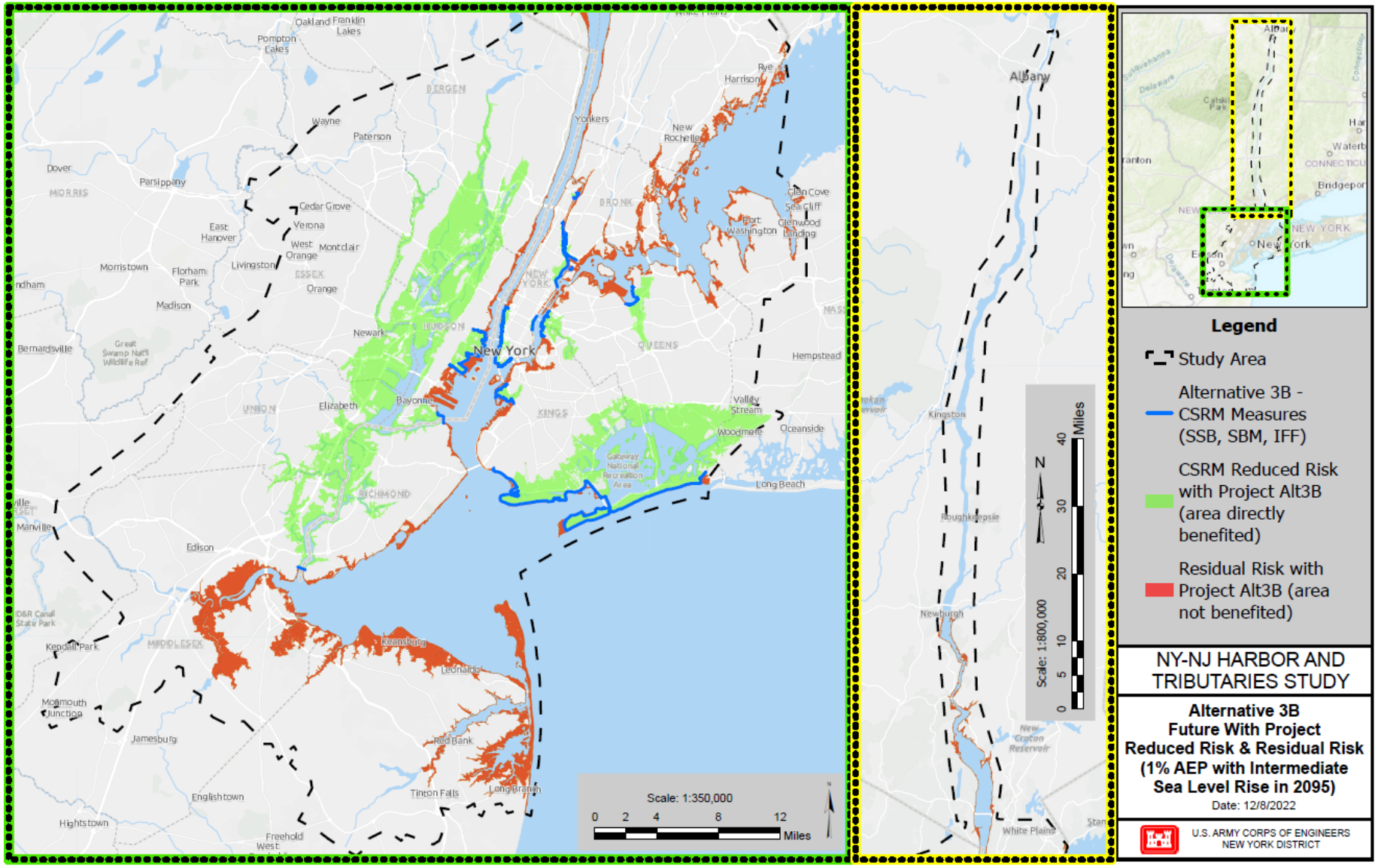


ALTERNATIVE 3B – THE TENTATIVELY SELECTED PLAN

63.0% Study Area at Direct Risk Benefited

Feature Type	Approx. Miles
Storm Surge Barriers	2.2
Shoreline Based Measures	50.6
Induced Flooding-Mitigation Features	11.8
Risk Reduction Features (not shown)	18.7

Alternative	
First Cost ($B):	$ 52.7
Total Present Value Cost ($B):	$ 76.2
Estimated Construction Duration (years):	14

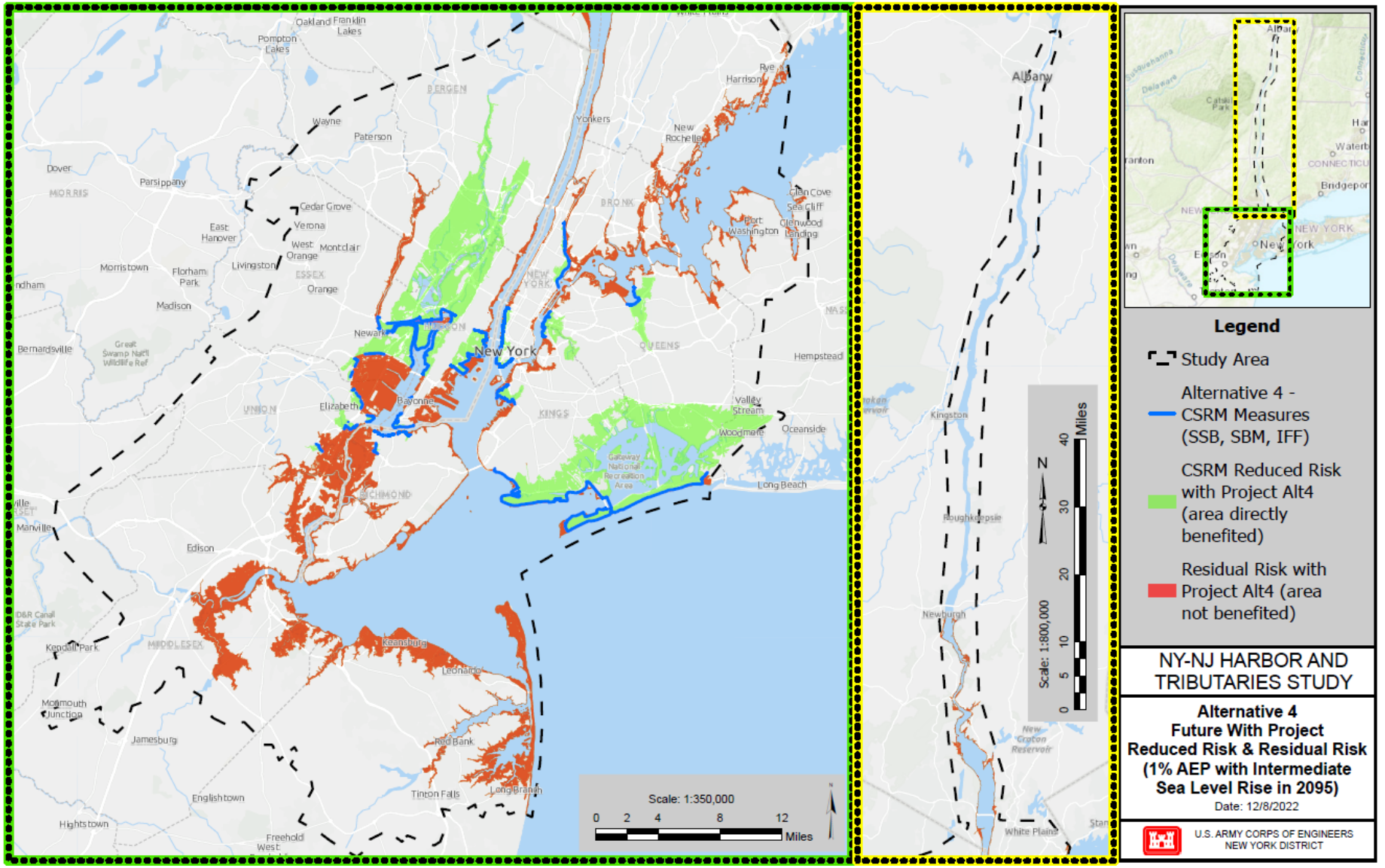


ALTERNATIVE 4

45.9% Study Area at Direct Risk Benefited

Feature Type	Approx. Miles
Storm Surge Barriers	1.4
Shoreline Based Measures	54.7
Induced Flooding-Mitigation Features	41.4
Risk Reduction Features (not shown)	8.5

Alternative	
First Cost ($B):	$ 43.0
Total Present Value Cost ($B):	$ 62.5
Estimated Construction Duration (years):	14

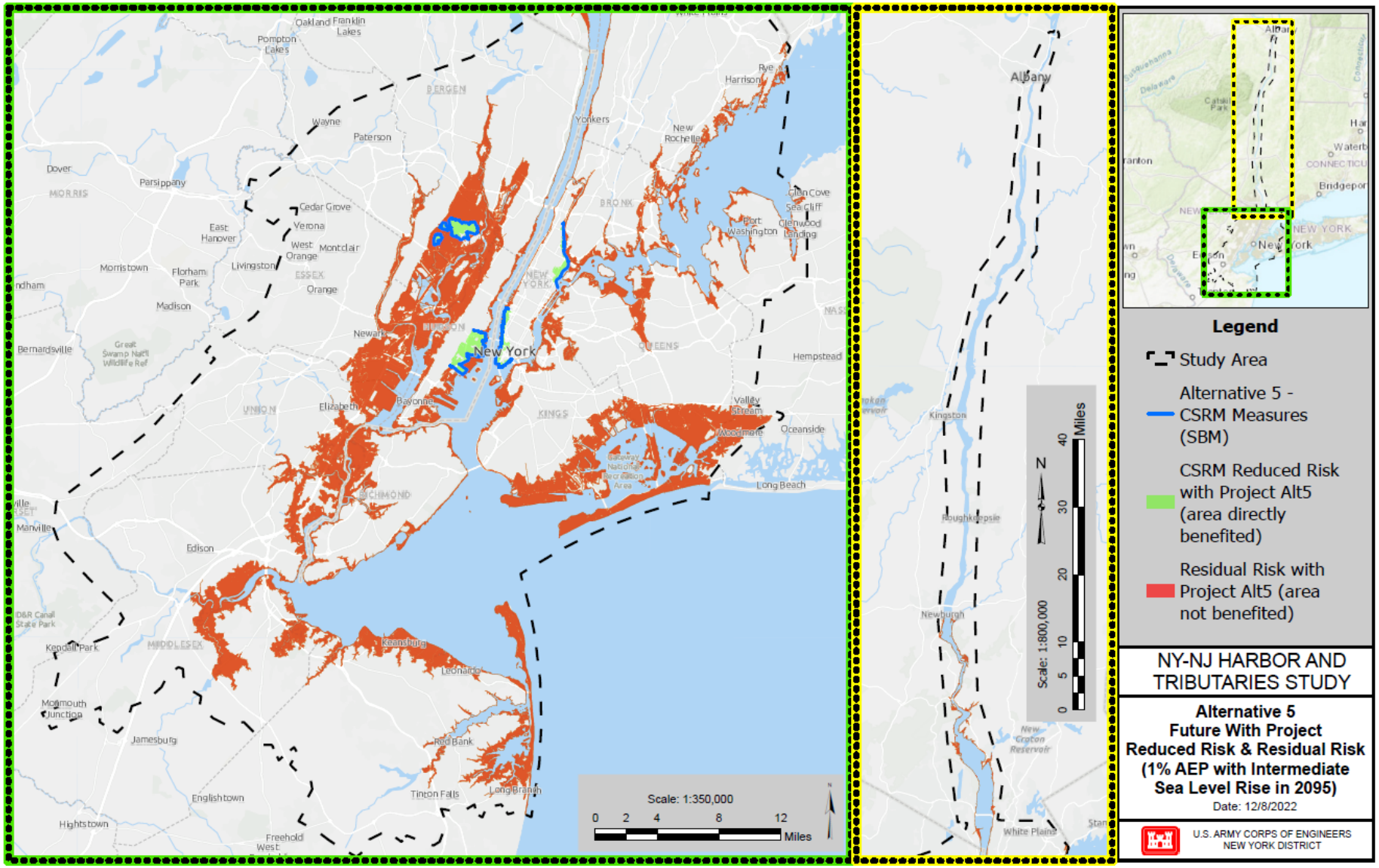


ALTERNATIVE 5

3.3% Study Area at Direct Risk Benefited

Feature Type	Approx. Miles
Storm Surge Barriers	0
Shoreline Based Measures	31.1
Induced Flooding-Mitigation Features	0
Risk Reduction Features (N/A)	0

Alternative	
First Cost ($B):	$ 16.0
Total Present Value Cost ($B):	$ 25.8
Estimated Construction Duration (years):	5



REMINDER – PLEASE FILL OUT YOUR COMMENT CARD IF YOU HAVE ANY QUESTIONS. WE WILL BE COLLECTING THEM SHORTLY.

ENVIRONMENTAL COMPLIANCE

Multiple laws, executive orders and regulations are considered under the NEPA process:

- National Environmental Policy Act
- National Historic Preservation Act, as amended
  - *Preserves historic and archaeological sites*
- Clean Water Act
  - *Prevents water pollution*
- Endangered Species Act
  - *Protects plants and animals from extinction*
- Clean Air Act
  - *Prevents air pollution*
- Environmental Justice
  - *Addressing equity in adverse and beneficial environmental effects*
- Other Federal and State laws

Piping Plover.

Atlantic Sturgeon.

TYPES OF NEPA ANALYSIS

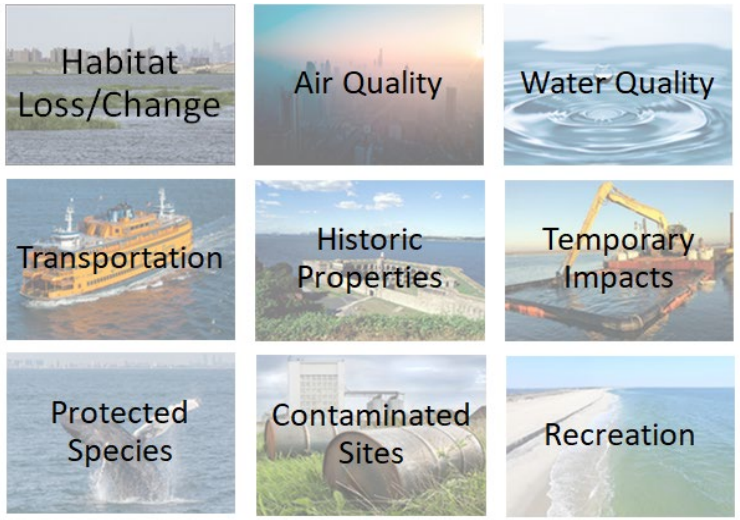
- Categorical Exclusion
- Environmental Assessment (EA)
- Environmental Impact Statement (EIS)
- Tiered Environmental Impact Statement (EIS)

TIER 1 – Consists of a broad-scale review of the Alternatives during the feasibility phase.

TIER 2 – Consists of subsequent more detailed reviews as the designs are further refined during the pre-construction engineering design phase.

DRAFT TIER 1 EIS: REPORT ORGANIZATION

EXISTING CONDITIONS
Chapter 2



- 50 environmental resources assessed
- Organized by Planning Region

ENVIRONMENTAL CONSEQUENCES
Potential for Adverse Impacts by Measure Type
Chapter 6

RESOURCE	STORM SURGE BARRIERS	TIDE GATES	FLOODWALL	FLOODWALLS WITH PARK	LEVEES	ELEVATED PROMENADES	BURIED SEAWALL/SAND DUNES	SEAWALLS	REVETMENTS	SEAWALLS WITH REVETMENTS	DEPLOYABLE FLOOD BARRIERS	BERMS	BULKHEADS	PEDESTRIAN/VEHICULAR GATES	NAVIGABLE GATES	ROAD RAISING
Wildlife	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Fish	Y+	Y+	Y+	Y+	N	Y+	Y+	Y+	Y+	Y+	Y+	N	Y+	N	Y+	N
Migratory Fish	Y	Y	Y	Y	N	Y	Y	Y	N	N	Y	Y	Y	N	Y	N
Terrestrial Vegetation	Y+	Y+	Y+	Y+	Y+	Y+	Y+	Y+	Y+	Y+	Y+	Y+	Y+	Y+	Y+	Y
Submerged Aquatic Vegetation	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Invasive and Aquatic Nuisance Species	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N
Threatened and Endangered Species Terrestrial	Y+	Y+	Y+	Y+	Y+	Y+	Y+	Y+	Y+	Y+	Y+	Y+	Y+	Y+	Y+	Y

ENVIRONMENTAL CONSEQUENCES
Applied Scoring Methodology
Chapter 6

Impact Rating Definitions	
Impact Rating and Numerical Score	**Description**
High (5)	Effects to the resource would have substantial consequences, locally and/or regionally. Impacts would exceed regulatory standards. Mitigation measures to offset the adverse effects would not be enough to reduce the significance of effect and therefore, effects to the resource would not be environmentally acceptable.
Moderate to High (4)	Effects to the resource would be locally and/or regionally significant. Impacts would be within regulatory standards; however, existing resource conditions are expected to be affected in the near-term, but not necessarily in the long term. Mitigation measures to reduce any potential adverse impacts would be necessary.
Moderate (3)	Effects to the resource are expected to be moderate in the near-term and localized. Impacts would be within or below regulatory standards, as applicable, and the use of mitigation measures would reduce potential adverse impacts, if applicable.
Low (2)	Effects to the resource would either be negligible or, if detectable, have minor temporary impacts locally to the resource. The impacts would be well below regulatory standards, as applicable, and mitigation measures may be implemented to sustain low to no impact to the resource.
No Impact (1)	There would be no impacts to the resource because the resource would not be affected.

- Draft Tier 1 assesses Structural Measures only
- Final Tier 1 will also assess ringwalls, nonstructural, and Natural and Nature-Based Features

- Defining Tier 1 Scope of Direct, Indirect, and Cumulative Impacts - BROADLY
- Estimating Beneficial Environmental Effects ("+")
- Incorporating Cooperating Agency and Stakeholder Input
- Estimating In-Kind Mitigated Impacts
- Identifying Out-Of-Kind Mitigated Impacts

Review Aid: StoryMap https://hats-cenan.hub.arcgis.com/

ENVIRONMENTAL IMPACTS AND BENEFITS

All alternatives, including the no action alternative, have potential adverse impacts.

NO ACTION ADVERSE IMPACTS

- Coastal storm risk would continue to impact wildlife, and threatened and endangered species, habitat; changes in water quality (salinity and DO) and flow patterns, the spread of invasive or aquatic nuisance species, low-lying areas would continue to experience coastal flood damages to special status land.

POTENTIAL ADVERSE IMPACTS

- In-water measures may impact fish species, migratory patterns, and habitat (low to moderate-high).
- Hazardous, Toxic, and Radioactive Waste sites are prevalent and may delay construction.
- National Park Service property
- Viewshed

POTENTIAL BENEFICIAL EFFECTS

- Reef effect of in-water measures attracting numerous species of shellfish, algae, and other invertebrates.
- Reduced risk of coastal flooding to special status species habitat and areas (e.g. threatened and endangered species, Coastal Barrier Resources Act areas, etc.)

*For additional details and information, refer to Chapter 6 of the Draft Integrated FR/Tier 1 EIS

ENVIRONMENTAL PLAN COMPARISON

FOOTPRINT/CONSTRUCTION SCORE CARD	ALTERNATIVE				
RESOURCE CATEGORY	2	3A	3B	4	5
NATURAL AND PHYSICAL ENVIRONMENT					
Wildlife and Vegetation[A]	1.75	1.77	1.51	1.53	1.20
Special Status Species (Terrestrial)[B]	2.11	2.0	1.66	1.66	1.33
Special Status Species (Aquatic)[C]	1.63	1.77	1.5	1.44	1.05
Special Status Areas[D]	1.66	1.62	1.41	1.43	1.16
Commercial and Recreational Fishing	2.0	2.22	1.77	1.66	1.11
Physical Resources[E]	1.94	2.08	1.69	1.66	1.33
Hydrological Resources[F]	1.53	1.73	1.46	1.46	1.06
Water Quality	2.11	2.22	1.77	1.66	1.33
Ecosystems (NYBEM)	*To be incorporated for the Final FR/Tier 1 EIS				
Air Quality and Clean Air Act[G]	1	1	1	1	1
Regional Climate and Climate Change	1	1	1	1	1
Cultural Resources[H]	2.77	2.66	2.66	2.66	2.22
Native American Lands	1	1	1	1	1
Hazardous, Toxic, and Radioactive Waste Sites	2.2	2.22	2.0	2.0	1.55
Navigation	1.22	1.44	1.22	1.11	1.0
Noise and Vibration	2.0	2.22	1.77	1.66	1.33
Environmental Justice	1.66	1.66	1.55	1.55	1.33
CALCULATION: Sum of the Footprint/Construction Impact Ratings (x) divided by the total number of resources included in each resource category (y). (x = alternative score; y = # of resources) x ÷ y = Rating (1-5) 1 - No Impact, 2 - Low Impact, 3 - Moderate Impacts, 4 - Moderate-High Impact, 5 - High Impact					
ALTERNATIVE TOTAL: (rounded to the nearest 10th)	**1.7**	**1.8**	**1.6**	**1.5**	**1.3**

Tentatively Selected Plan

OPERATIONS AND MAINTENANCE SCORE CARD	ALTERNATIVE				
RESOURCE CATEGORY	2	3A	3B	4	5
NATURAL AND PHYSICAL ENVIRONMENT					
Wildlife and Vegetation[A]	1.42	1.44	1.31	1.27	1.12
Special Status Species (Terrestrial)[B]	1.77	1.77	1.51	1.55	1.33
Special Status Species (Aquatic)[C]	1.27	1.30	1.22	1.13	1.02
Special Status Areas[D]	1.26	1.25	1.23	1.18	1.05
Commercial and Recreational Fishing	1.88	1.55	1.55	1.33	1.11
Physical Resources[E]	1.30	1.38	1.25	1.30	1.08
Hydrological Resources[F]	1.20	1.42	1.17	1.17	1.0
Water Quality	1.66	1.55	1.44	1.22	1.0
Ecosystems (NYBEM)	*To be incorporated for the Final FR/ Tier 1 EIS				
Air Quality and Clean Air Act[G]	1	1	1	1	1
Regional Climate and Climate Change	1	1	1	1	1
Cultural Resources[H]	2.0	1.55	1.22	1.55	1.22
Native American Lands	1	1	1	1	1
Hazardous, Toxic, and Radioactive Waste Sites	1.66	1.44	1.33	1.33	1.0
Navigation	1.22	1.44	1.22	1.11	1.0
Noise and Vibration	1.0	1.0	1.0	1.0	1.0
Environmental Justice	1.77	1.66	1.55	1.55	1.33
CALCULATION: Sum of the Operations and Maintenance Assumption Ratings (x) divided by the total number of resources in each resource category (y). (x = alternative score; y = # of resources) x ÷ y = Rating (1-5) 1 - No Impact, 2 - Low Impact, 3 - Moderate Impacts, 4 - Moderate-High Impact, 5 - High Impact					
ALTERNATIVE TOTAL: (rounded to the nearest 10th)	**1.4**	**1.4**	**1.3**	**1.2**	**1.1**

Tentatively Selected Plan

MITIGATED IMPACT SCORE CARD	ALTERNATIVE				
RESOURCE CATEGORY	2	3A	3B	4	5
NATURAL AND PHYSICAL ENVIRONMENT					
Wildlife and Vegetation[A]	1.51	1.53	1.37	1.35	1.12
Special Status Species (Terrestrial)[B]	1.16	1.05	1.05	1.05	1.0
Special Status Species (Aquatic)[C]	1.50	1.5	1.33	1.25	1.02
Special Status Areas[D]	1.12	1.11	1.07	1.08	1.06
Commercial and Recreational Fishing	2.11	2.11	1.77	1.66	1.11
Physical Resources[E]	1.41	1.52	1.33	1.41	1.11
Hydrological Resources[F]	1.24	1.33	1.13	1.13	1.06
Water Quality	1.11	1.0	1.0	1.0	1.0
Ecosystems (NYBEM)	*To be incorporated for the Final FR/ Tier 1 EIS				
Air Quality and Clean Air Act[G]	1	1	1	1	1
Regional Climate, Climate Change, and RSLC	1	1	1	1	1
Cultural Resources[H]	1.2	1.33	1.11	1.22	1.11
Native American Lands	1	1	1	1	1
Hazardous, Toxic, and Radioactive Waste Sites	1.88	1.88	1.55	1.77	1.44
Navigation	1.22	1.44	1.22	1.11	1.0
Noise and Vibration	1.22	1.44	1.22	1.11	1.0
Environmental Justice	1.0	1.0	1.0	1.0	1.0
CALCULATION: Sum of the Footprint/Construction impact ratings and Operations and Maintenance Assumption Ratings (x) divided by the total number of resources. (x = alternative score; y = # of resources) x ÷ y = Rating (1-5) 1 - No Impact, 2 - Low Impact, 3 - Moderate Impacts, 4 - Moderate-High Impact, 5 - High Impact					
ALTERNATIVE TOTAL: (Rounded to the nearest 10th)	**1.3**	**1.3**	**1.2**	**1.2**	**1.1**

Tentatively Selected Plan

Key Takeaways:

- All Alternatives incur impacts to varying magnitudes.
- Impacts are generally observed to be highest during construction but are temporary.
- Impact producing factors are dependent on in-water vs. on-land and structural measure type.
- All Alternatives incur beneficial effects.

ENVIRONMENTAL JUSTICE

Defining Disadvantaged Communities (DAC):

- 23.59% or more of the population below the federal poverty level
- 51.1% or more of the population identify as minority

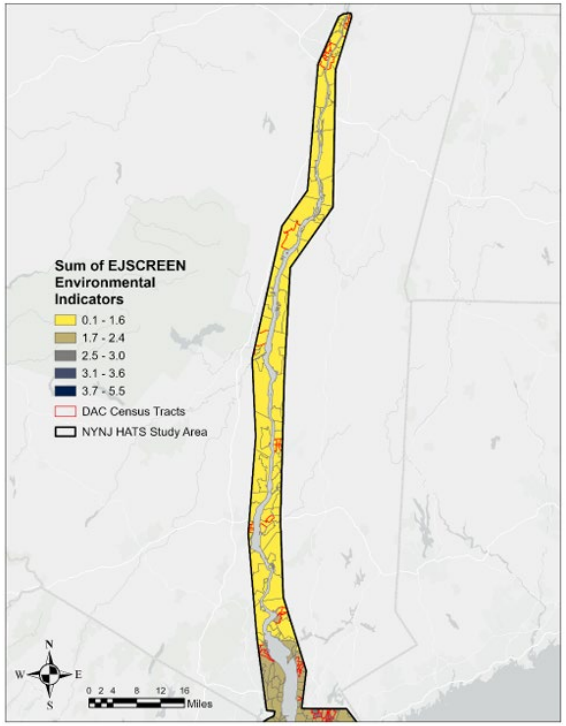
Environmental Burdens:

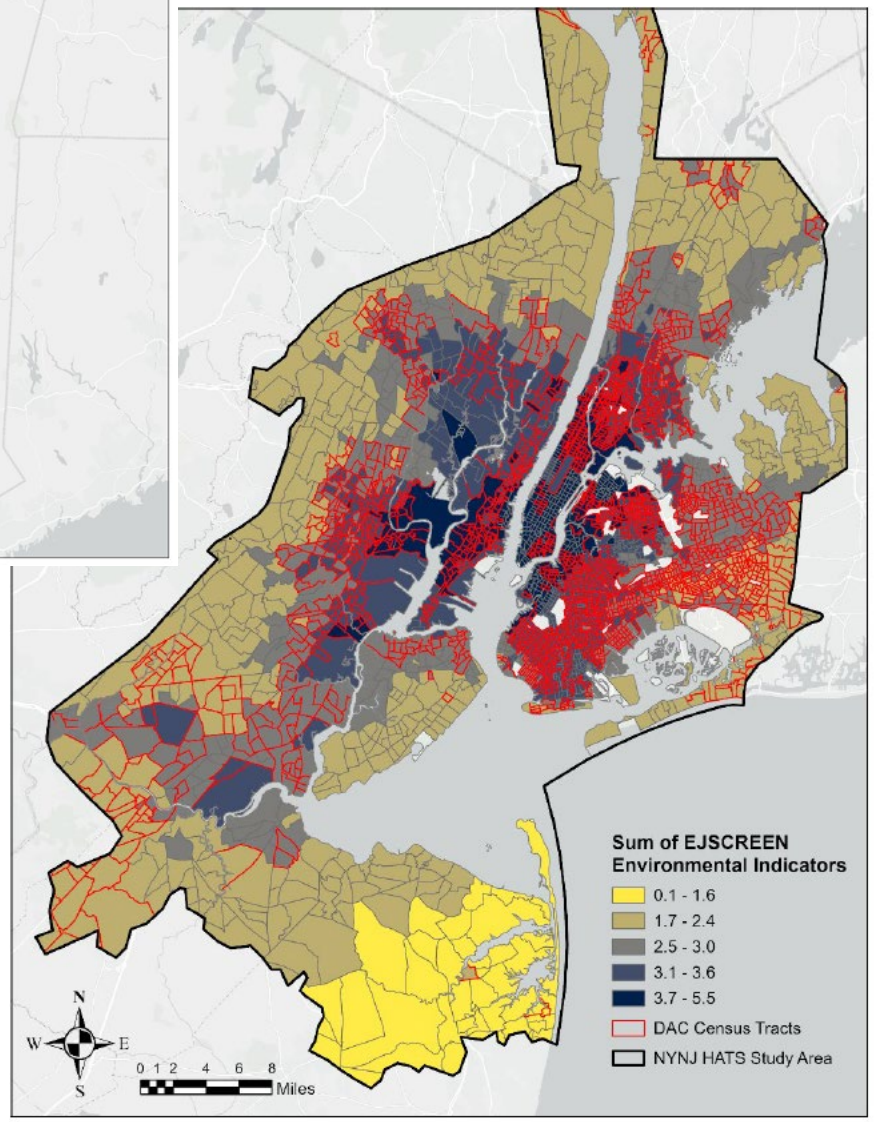
- EPA's EJ Screen

Additional Vulnerability Factors Considered:

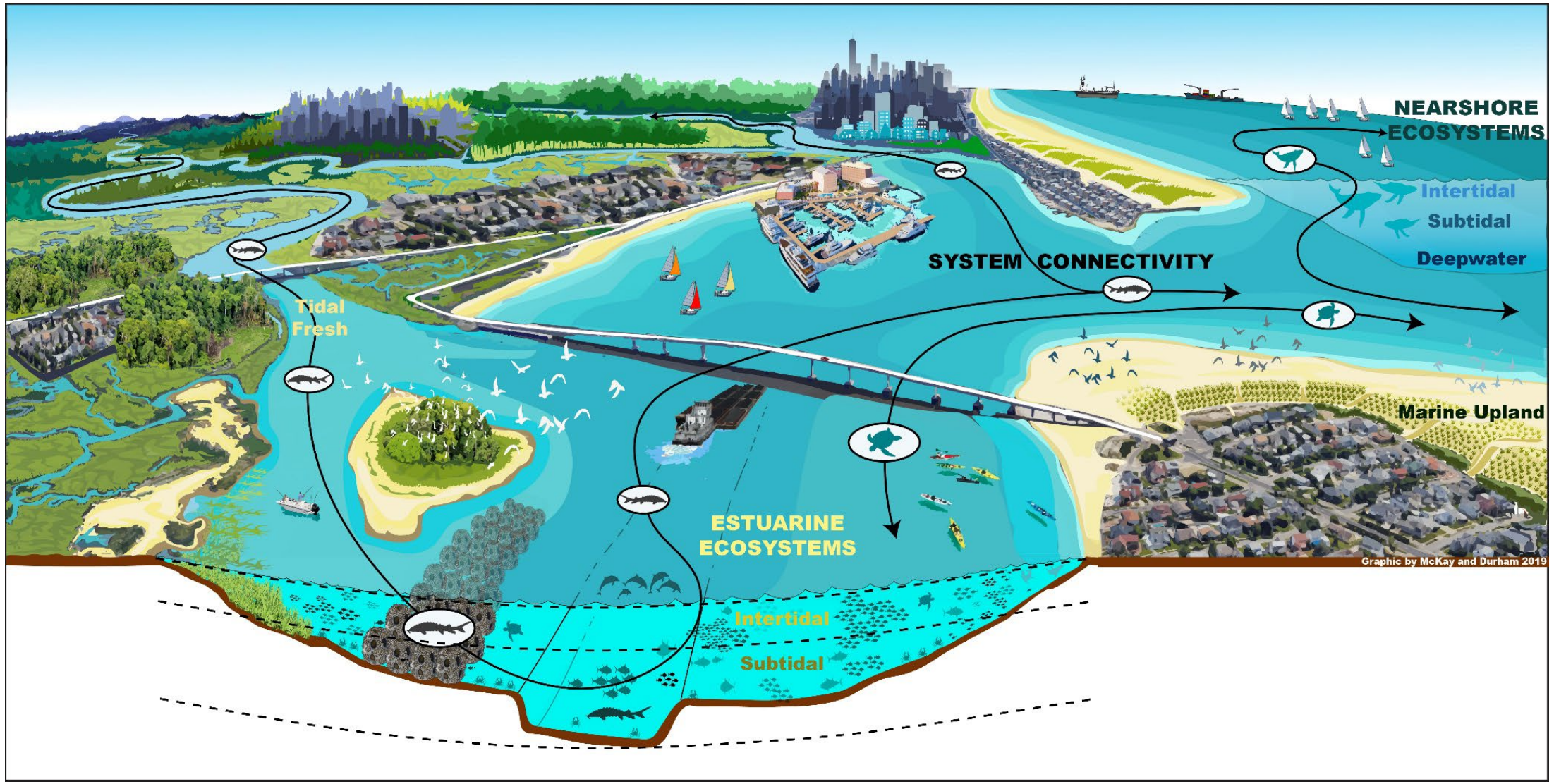
- Elderly/Very young
- Disabled
- Female-headed households
- English Proficiency

EJ and the TSP/Alternative 3B
63% of census tracts in the Reduced Risk Areas meet the criteria for DAC
63 census tracts in the construction footprint meet the criteria for DAC
Virtually every feature of the TSP touches a DAC





NEW YORK BIGHT ECOLOGICAL MODEL



REMINDER – PLEASE FILL OUT YOUR COMMENT CARD IF YOU HAVE ANY QUESTIONS. WE WILL BE COLLECTING THEM SHORTLY.

PROJECT BENEFITS & COSTS – ON AN AVERAGE ANNUAL BASIS (INTERMEDIATE RSLC)

Alternative	Average Annual Cost	Average Annual Benefits*	Net Benefits*	BCR
2	$5.0B	$4.6B	-$0.5B	0.91
3A	$3.2B	$6.4B	$3.2B	1.99
3B	**$2.6B**	**$6.3B**	**$3.7B**	**2.45**
4	$2.1B	$5.0B	$2.9B	2.39
5	$0.9B	$1.9B	$1.0B	2.21

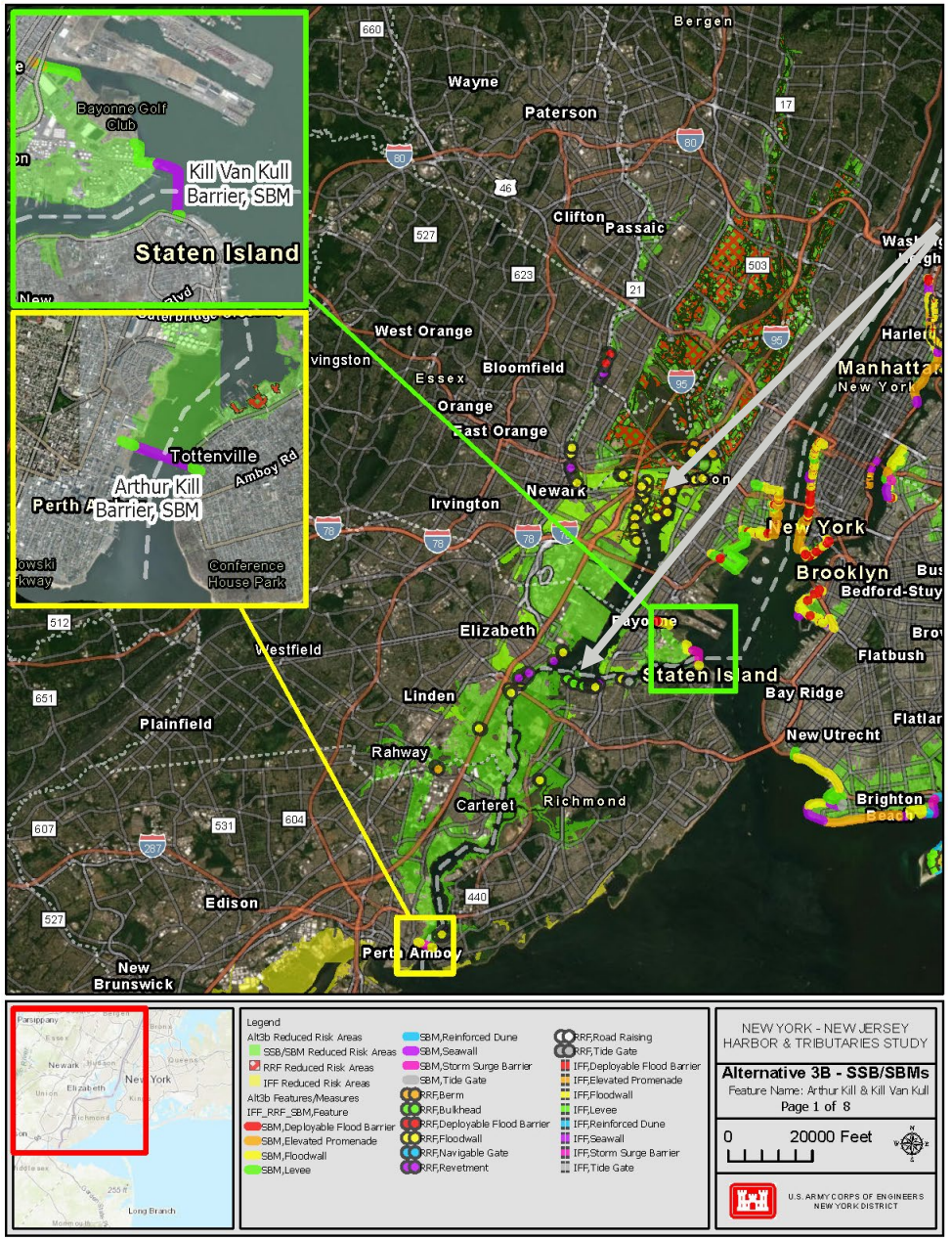
* Benefits currently based on estimated damages avoided to structures in study area. Critical infrastructure and other possible benefits under refinement and have not been included in the net benefit calculations at this time.

TENTATIVELY SELECTED PLAN FEATURES IN DETAIL

Kill Van Kull & Arthur Kill Storm Surge Barrier Feature

- Numerous Risk Reduction Features (structural and nonstructural) behind storm surge barriers in both Staten Island and New Jersey

- Other considerations:
  - Kill Van Kull and Arthur Kill are major channels in Port – navigational access & impacts



Note Risk Reduction Features behind Storm Surge Barriers

TENTATIVELY SELECTED PLAN FEATURES IN DETAIL

Kill Van Kull Storm Surge Barrier:

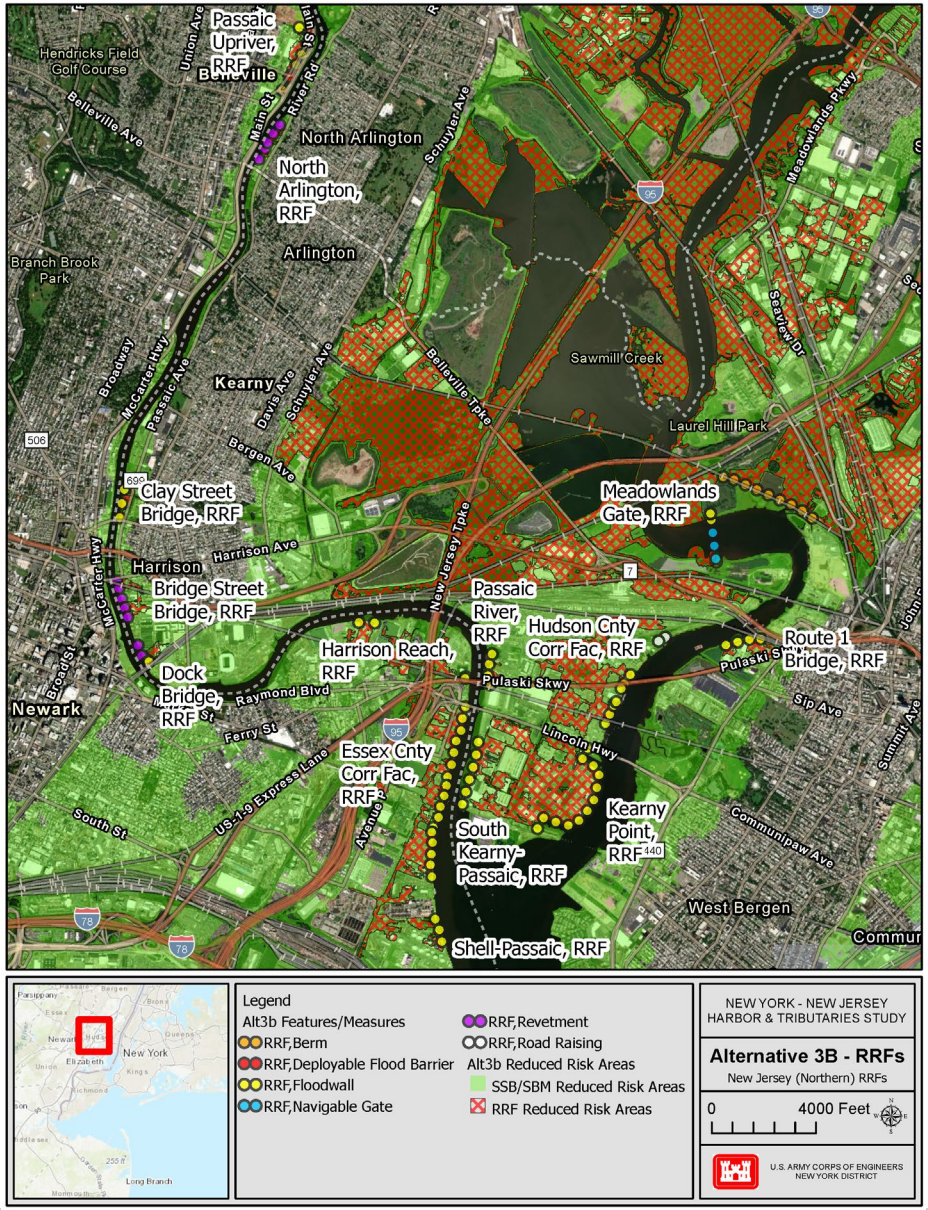
- Navigable Passage: Floating Sector Gate
- 800 foot opening
- 19 foot crest elevation (NAVD88) for currently selected design storm event
- 5 Auxiliary Lift Gates
- Total Length in Water: 3,300 feet (approximately)
- Shorebased Tie-Ins: 4,800+ feet comprised of floodwalls, railroad and vehicular gates

Arthur Kill Storm Surge Barrier:

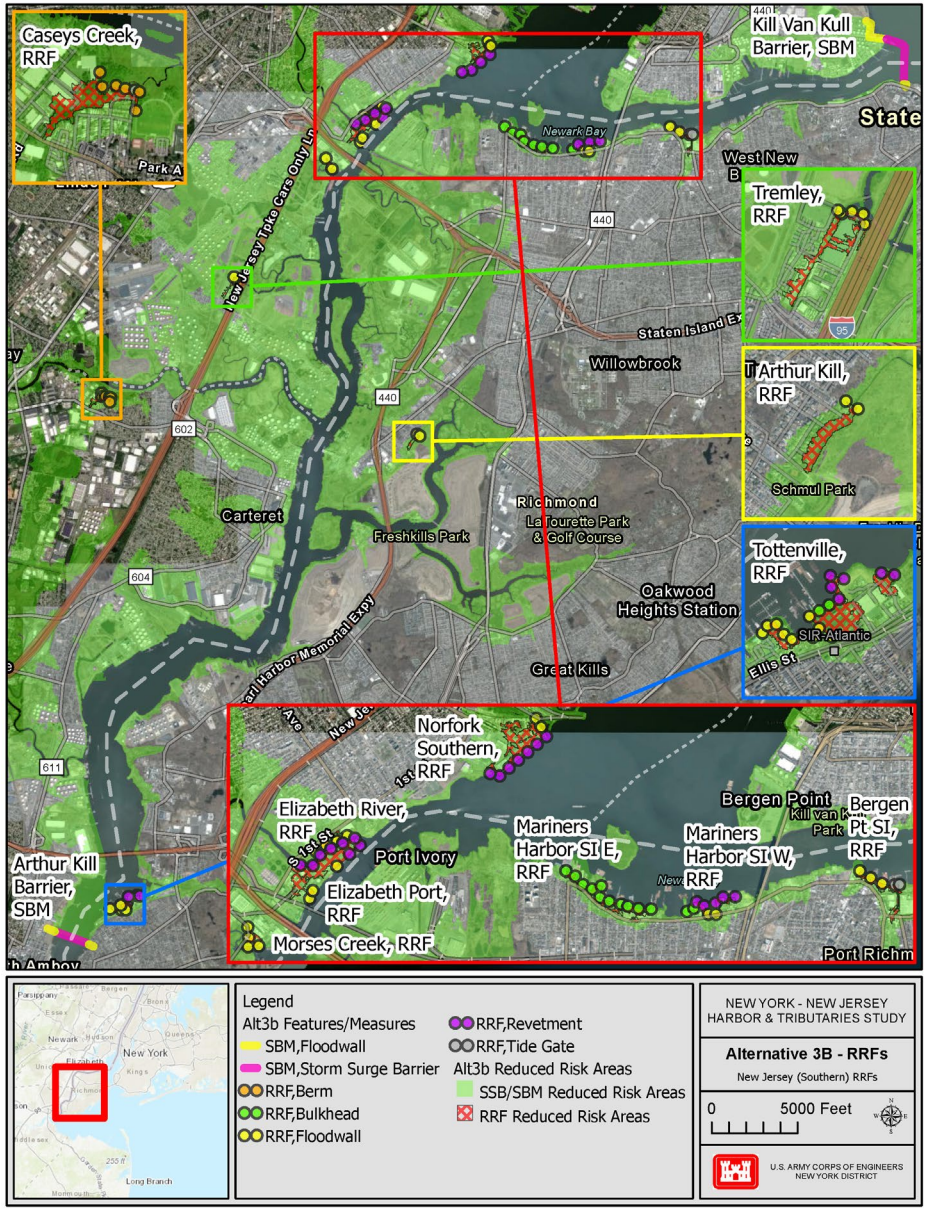
- Navigable Passage: Floating Sector Gate
- 600 foot opening
- 19 foot crest elevation (NAVD88) for currently selected design storm event
- 2 Auxiliary Lift Gates
- Total Length in Water: 2,300 feet (approximately)
- Shorebased Tie-Ins: 700+ feet comprised of floodwalls

TENTATIVELY SELECTED PLAN FEATURES IN DETAIL

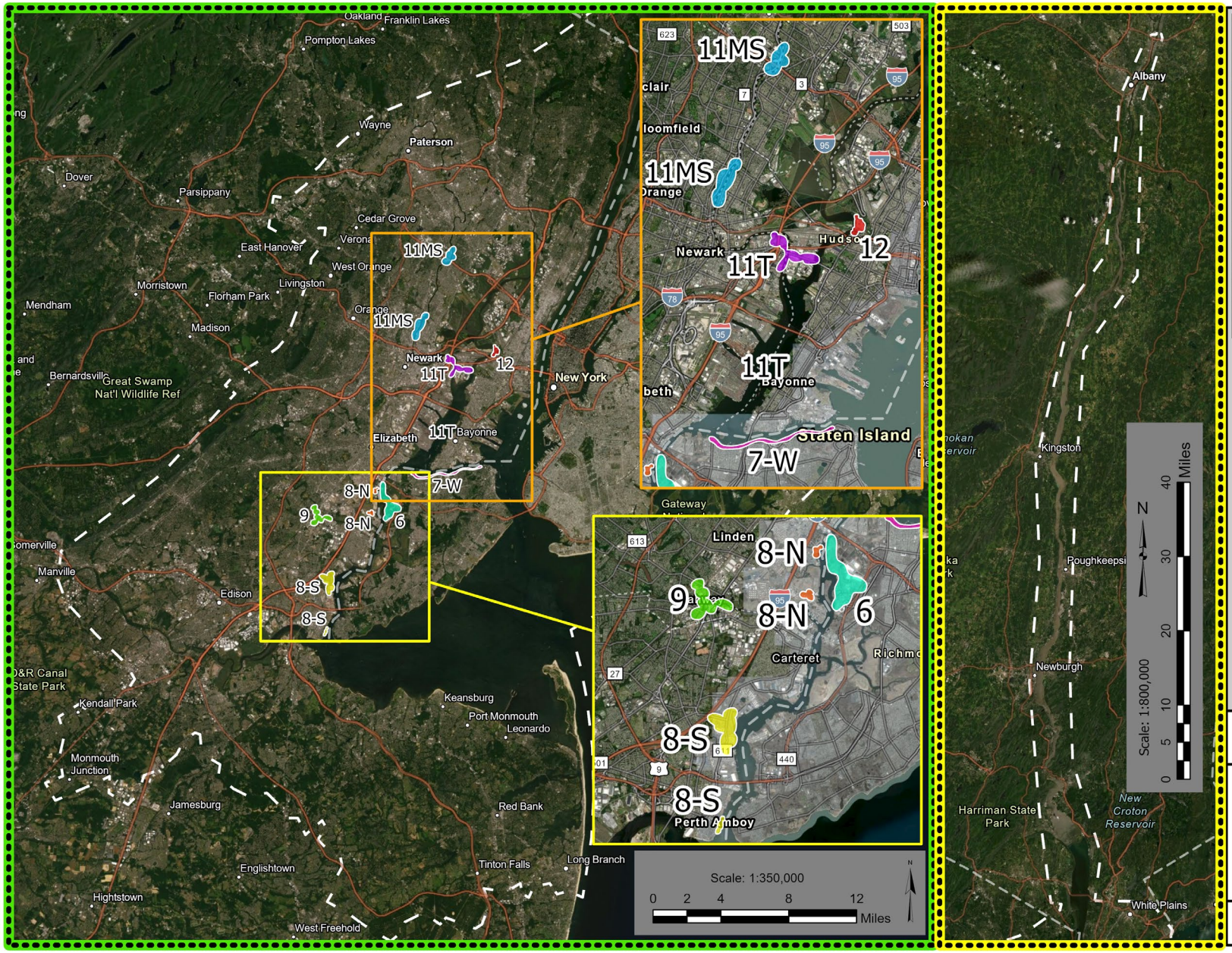
Residual Risk Features – Northern New Jersey

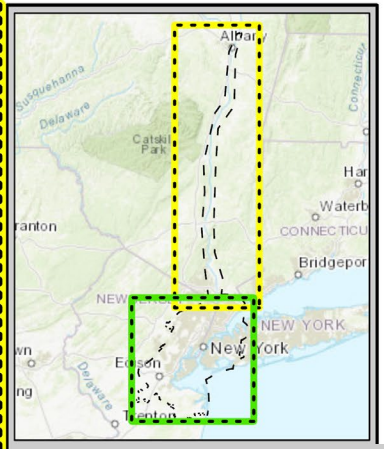


Residual Risk Features – NJ & SI



TENTATIVELY SELECTED PLAN FEATURES IN DETAIL





	Structures			
	Reach	NJ	NYC	Total
	6	0	7	7
	7W	0	12	12
	8N	18	0	18
	8S	39	0	39
	9	31	0	31
	11MS	16	0	16
	11T	16	0	16
	12	19	0	19
		139	**19**	**158**

NY-NJ HARBOR AND TRIBUTARIES STUDY

Alternative 3B Provisionally Identified Areas for Possible Ringwalls and/or Nonstructural Measures

Date: 10/23/2022

U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT

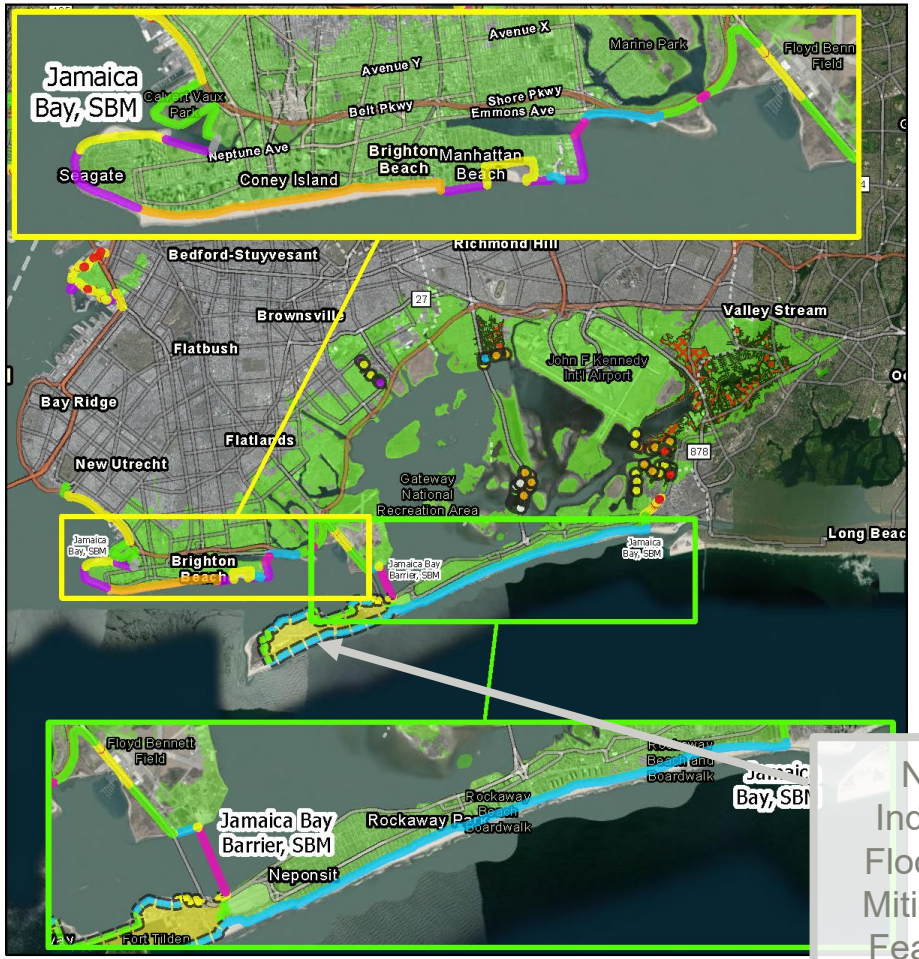
TENTATIVELY SELECTED PLAN FEATURES IN DETAIL

Coney Island Boardwalk

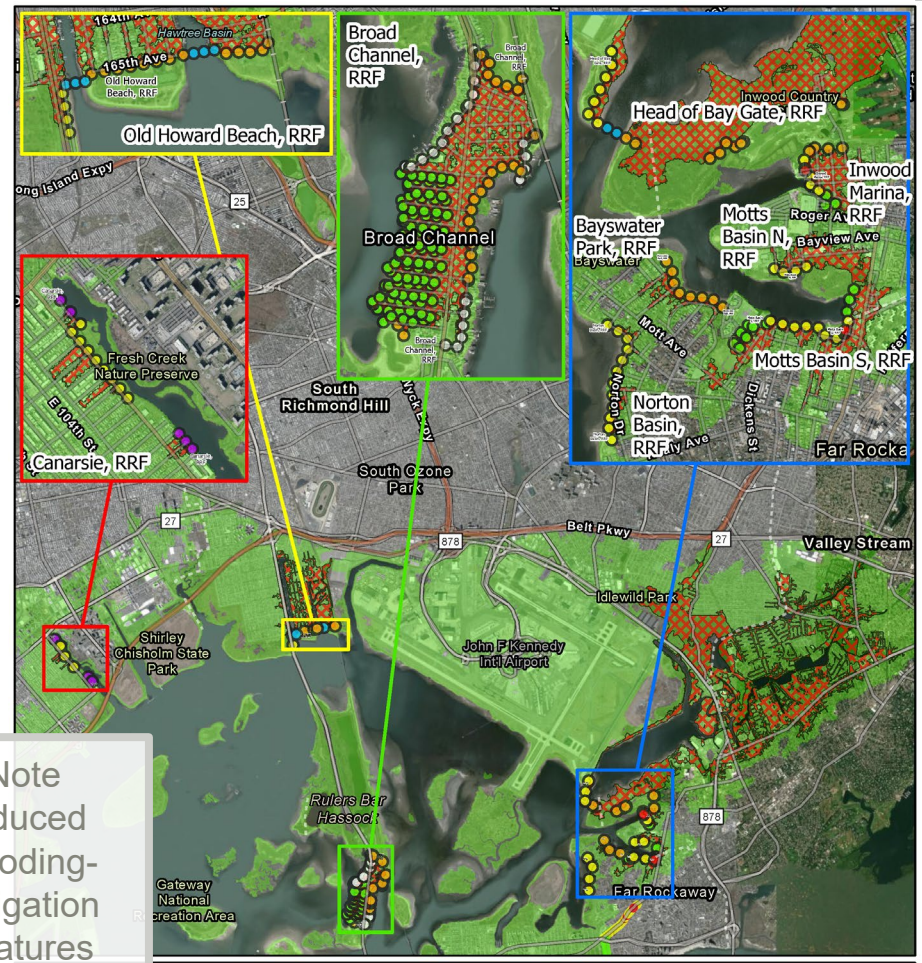
Existing Conditions

Rendering of Initial Proposal

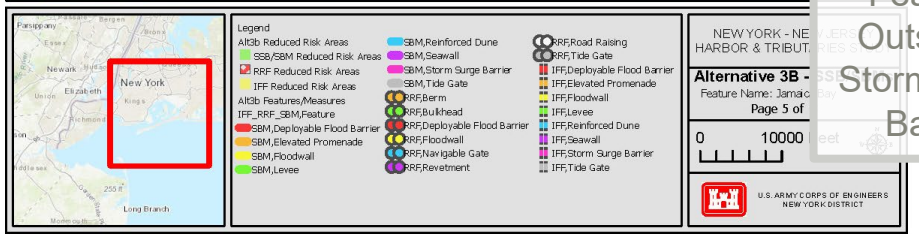
South Brooklyn and Jamaica Bay Area

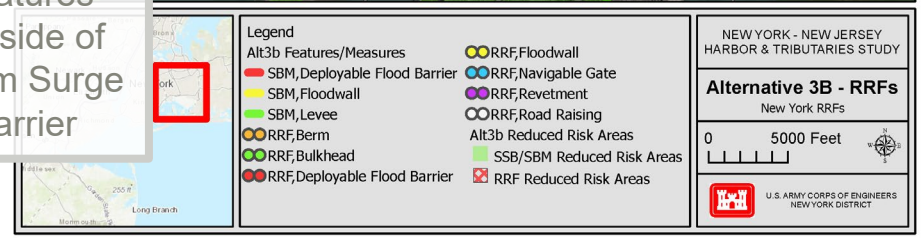


Risk Reduction Feature Details



Note Induced Flooding-Mitigation Features Outside of Storm Surge Barrier





SOUTH BROOKLYN SHORELINE-BASED MEASURES AND JAMAICA BAY STORM SURGE BARRIER

Jamaica Bay Storm Surge Barrier:
2 – 200 foot wide Sector Gates
15 Auxiliary Lift Gates
Total Length in Water: 3,800 feet
Crest elevation*: 18 feet (NAVD88)

Sheepshead Bay Storm Surge Barrier:
100 foot wide Sector Gate
2 Auxiliary Lift Gates
Total Length in Water: 800 feet
Crest elevation*: 17 feet (NAVD88)

Gerritsen Creek Storm Surge Barrier:
115 foot wide Vertical Lift Gate
2 Auxiliary Lift Gates
Total Length in Water: 400 feet
Crest elevation*: 17 feet (NAVD88)

Shoreline-Based Tie-In's:
Total Length: 116,000+ feet
Measures include: Floodwalls, levees, reinforced dunes, pedestrian and vehicle gates, elevated promenades, seawalls, and tide gates

* - For currently selected design storm event

TENTATIVELY SELECTED PLAN FEATURES IN DETAIL

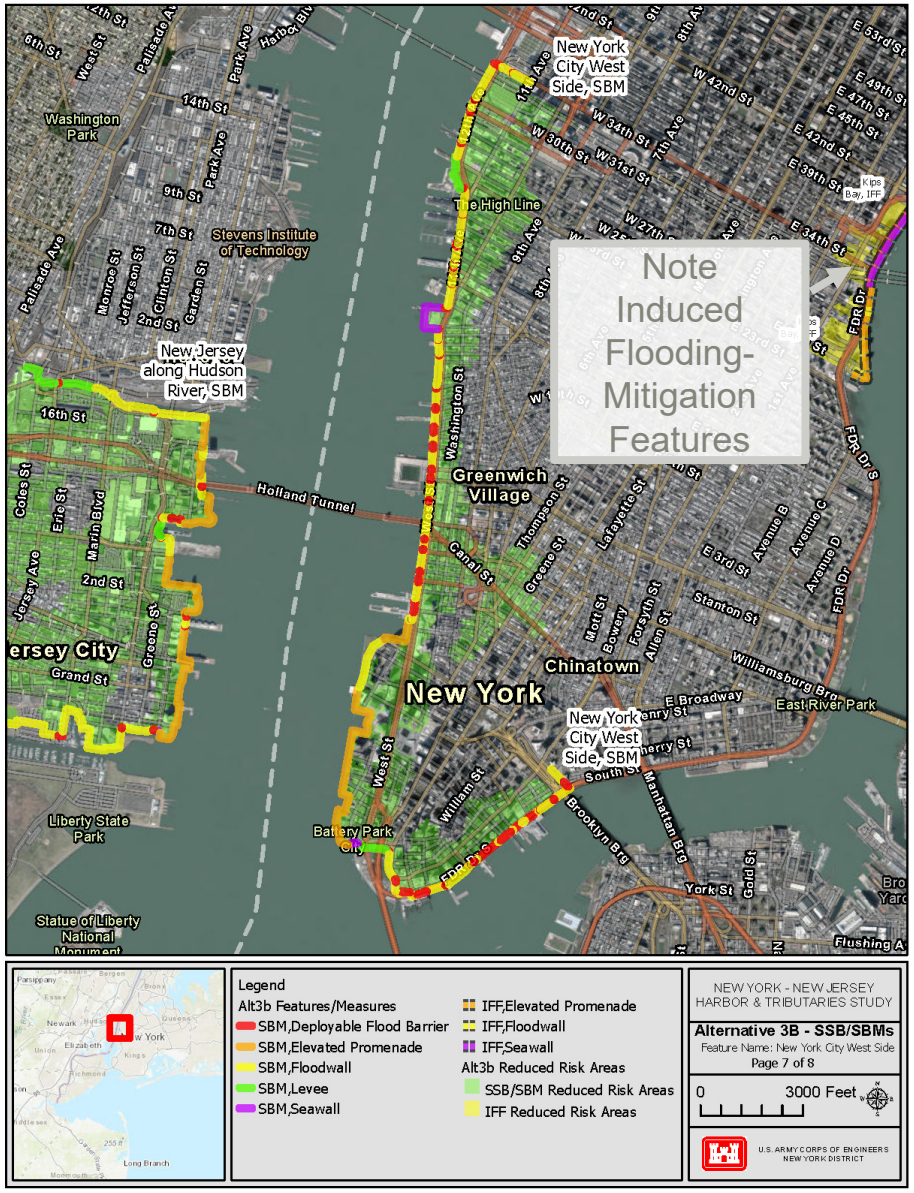
Lower Manhattan Area

Shoreline based features only

- Total length: 31,000+ feet
- Measures include: Floodwalls, levees, flip up barriers, pedestrian and vehicle gates, elevated promenades, floodwalls with park, and seawalls

- Other considerations:

- May need additional stormwater and wastewater pump station improvements
- Need to reconcile NYNJHAT study plan for area with other non-federal plans for portions of area



Christopher Street

Existing Conditions

Rendering of Initial Proposal

Proposed During Storm Conditions

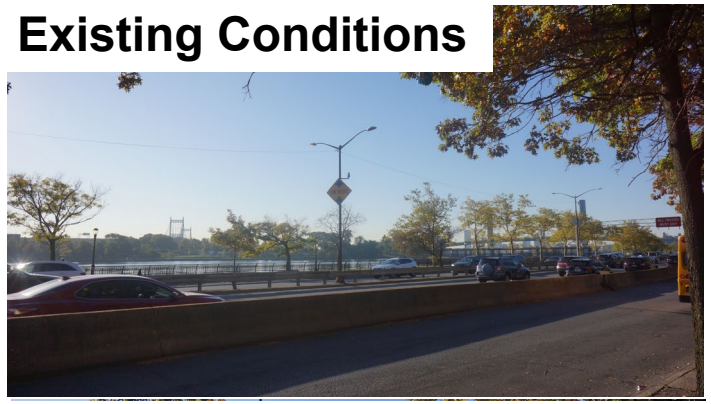
TENTATIVELY SELECTED PLAN FEATURES IN DETAIL

Shoreline based features only

- Total length: 25,000 feet
- Measures include: Floodwalls, vehicle gates, elevated promenades, and seawalls

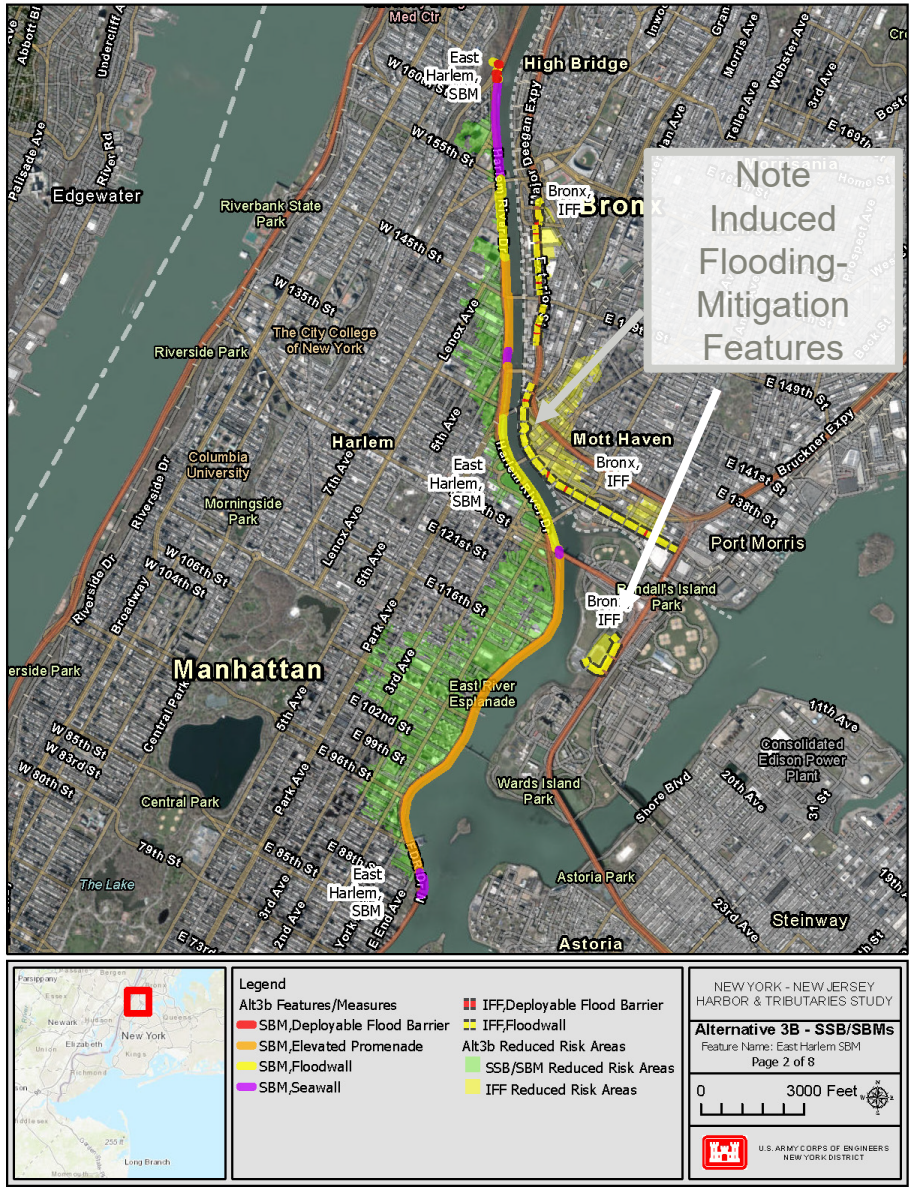
106th Street

Existing Conditions



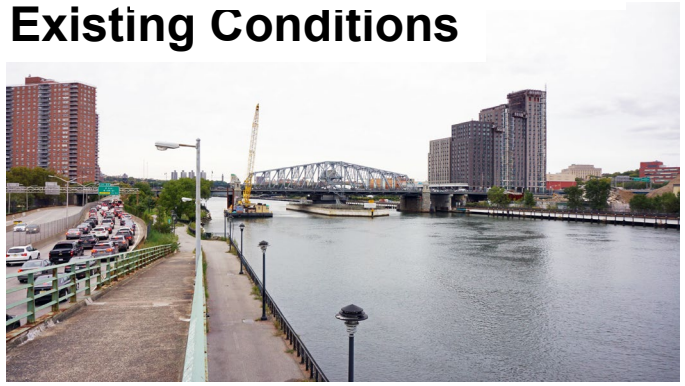
Rendering of Initial Proposal

East Harlem and Bronx Area



145th Street

Existing Conditions



Rendering of Initial Proposal

Proposed During Storm Conditions

TENTATIVELY SELECTED PLAN FEATURES IN DETAIL

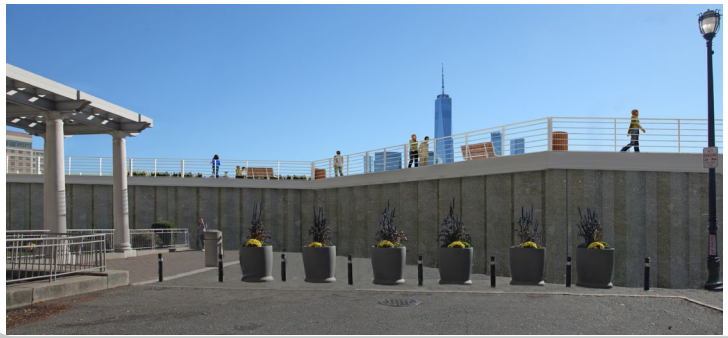
Shoreline based features only

- Total length: 43,000+ feet
- Measures include: Floodwalls, levees, pedestrian, railroad and vehicle gates, elevated promenades, and seawalls

York Street

Existing Conditions

Rendering of Initial Proposal



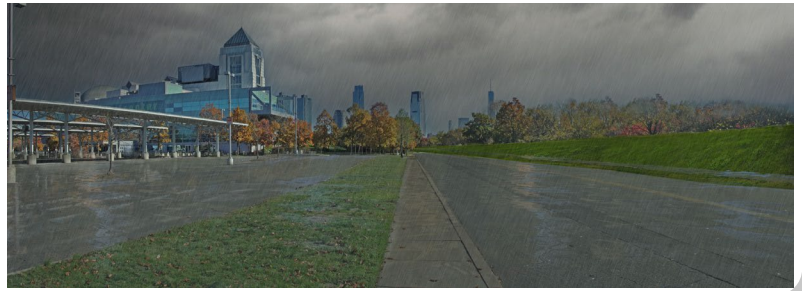
Jersey City Area

Liberty State Park

Existing Conditions

Rendering of Initial Proposal

Proposed During Storm Conditions



TENTATIVELY SELECTED PLAN FEATURES IN DETAIL

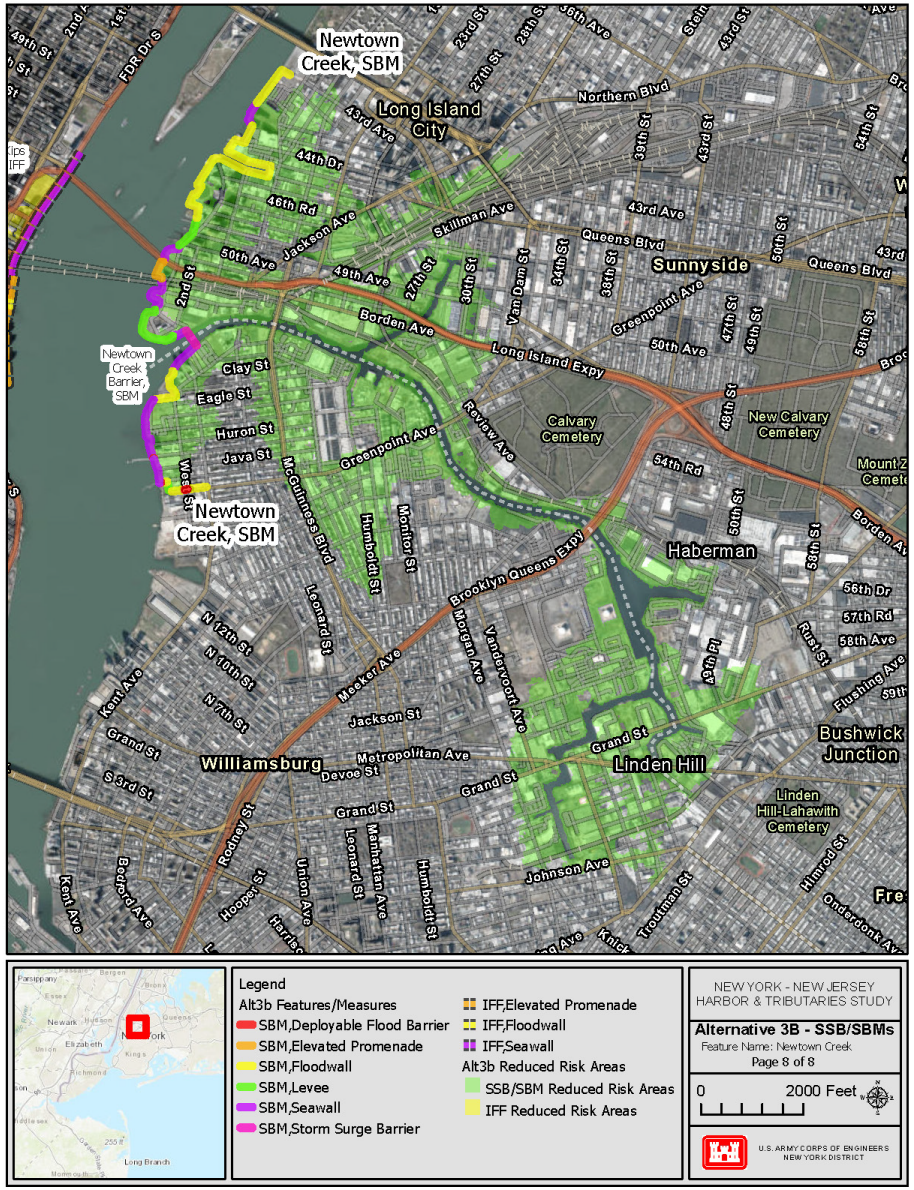
Newtown Creek Area

Storm surge barrier with shoreline based tie-ins

Newtown Creek Storm Surge Barrier
- 130 ft. wide Sector Gate
- 17 foot crest elevation (NAVD88) for currently selected design storm event

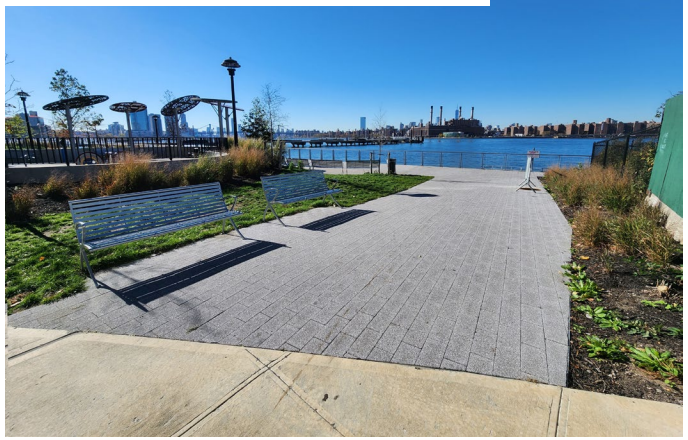
Shoreline-based Tie-ins
- 15,000+ ft. of measures including floodwalls, levees, pedestrian & vehicle gates, elevated promenades, and seawalls

Other considerations:
- May need extension of NYCDEP Wastewater Treatment Plant discharge to outside storm surge barrier
- Known contamination issues



Huron Street, Brooklyn

Existing Conditions



Rendering of Initial Proposal

TENTATIVELY SELECTED PLAN FEATURES IN DETAIL

Storm surge barrier with shoreline-based tie-ins

Gowanus Creek Storm Surge Barrier

- 100 foot wide Sector Gate
- 16 foot crest elevation (NAVD88) for currently selected design storm event
- Total Length in Water: 130 feet

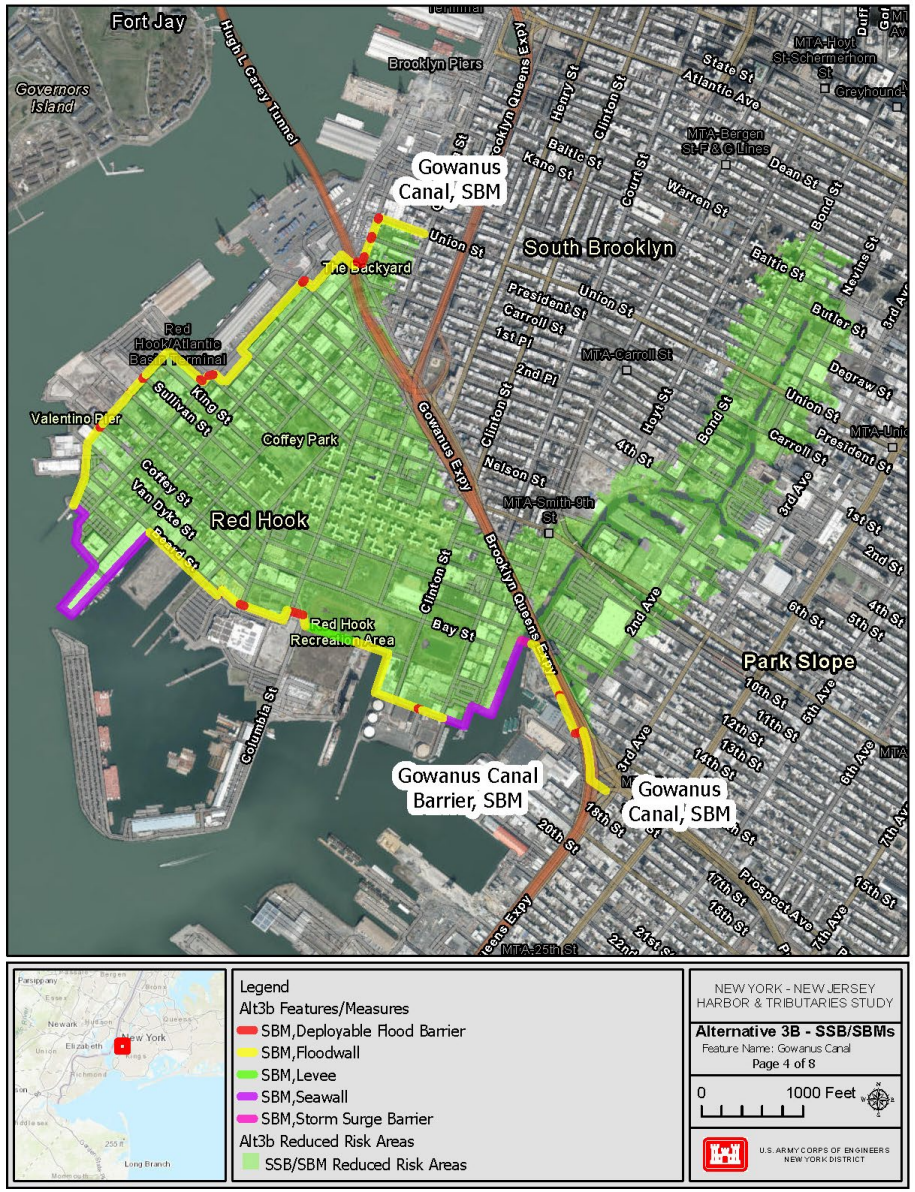
Shore-based Tie-ins

- Total Length: 18,000+ feet
- Measures include: Floodwalls, levees, vehicle gates, and seawalls

Other considerations:

- Known contamination issues

Red Hook and Gowanus Creek Area



Coffey Street, Red Hook, Brooklyn

Existing Conditions

Rendering of Initial Proposal

TENTATIVELY SELECTED PLAN FEATURES IN DETAIL

Storm surge barrier with shoreline-based tie-ins

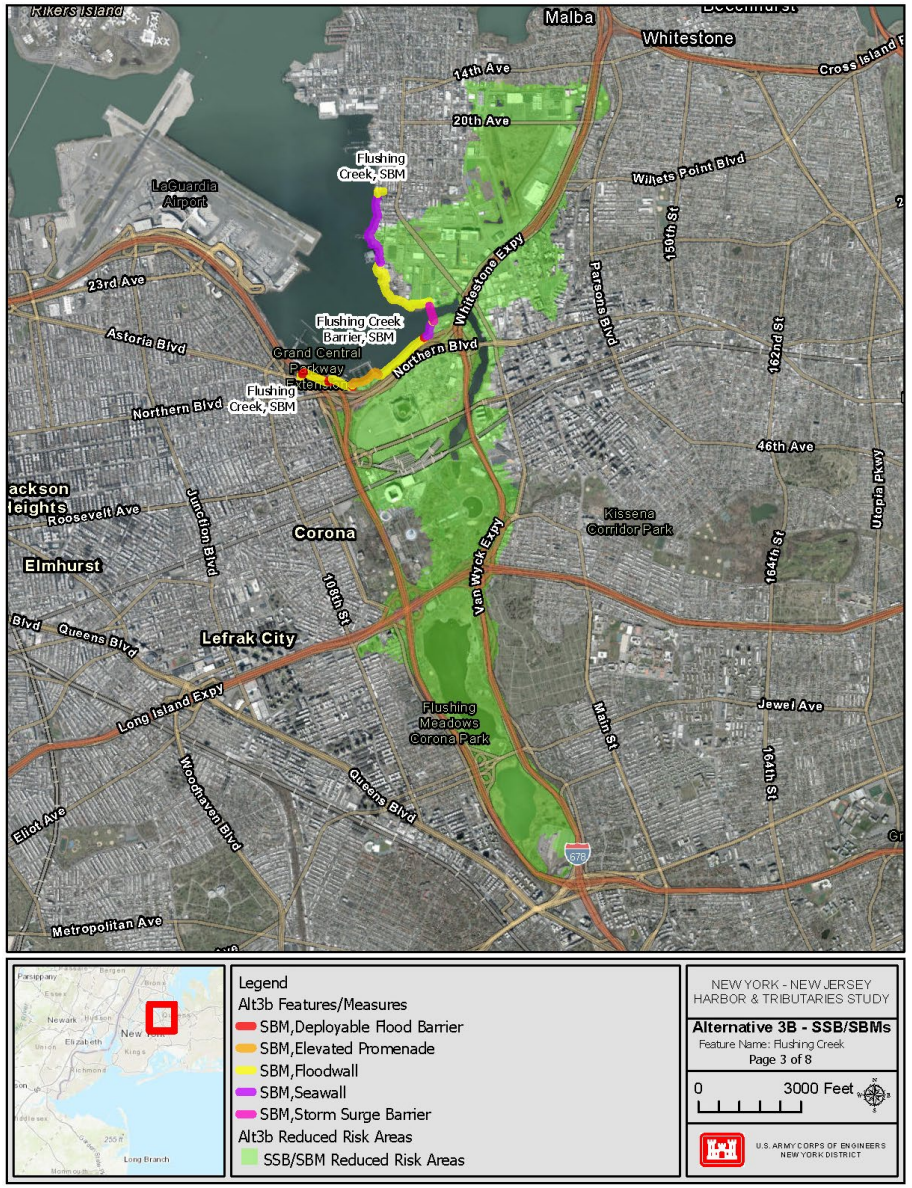
Flushing Creek Storm Surge Barrier

- 135 foot wide Vertical Lift Gate Storm Surge Barrier
- 18 foot crest elevation (NAVD88) for currently selected design storm event
- 2 Auxiliary Lift Gates
- Total Length in Water: 500 feet

Shoreline-based Tie-ins

- Total Length: 11,000+ feet
- Measures include: Floodwalls, vehicle gates, elevated promenades, floodwalls with park, and seawalls

Flushing Bay Area



Flushing Bay Promenade, Queens

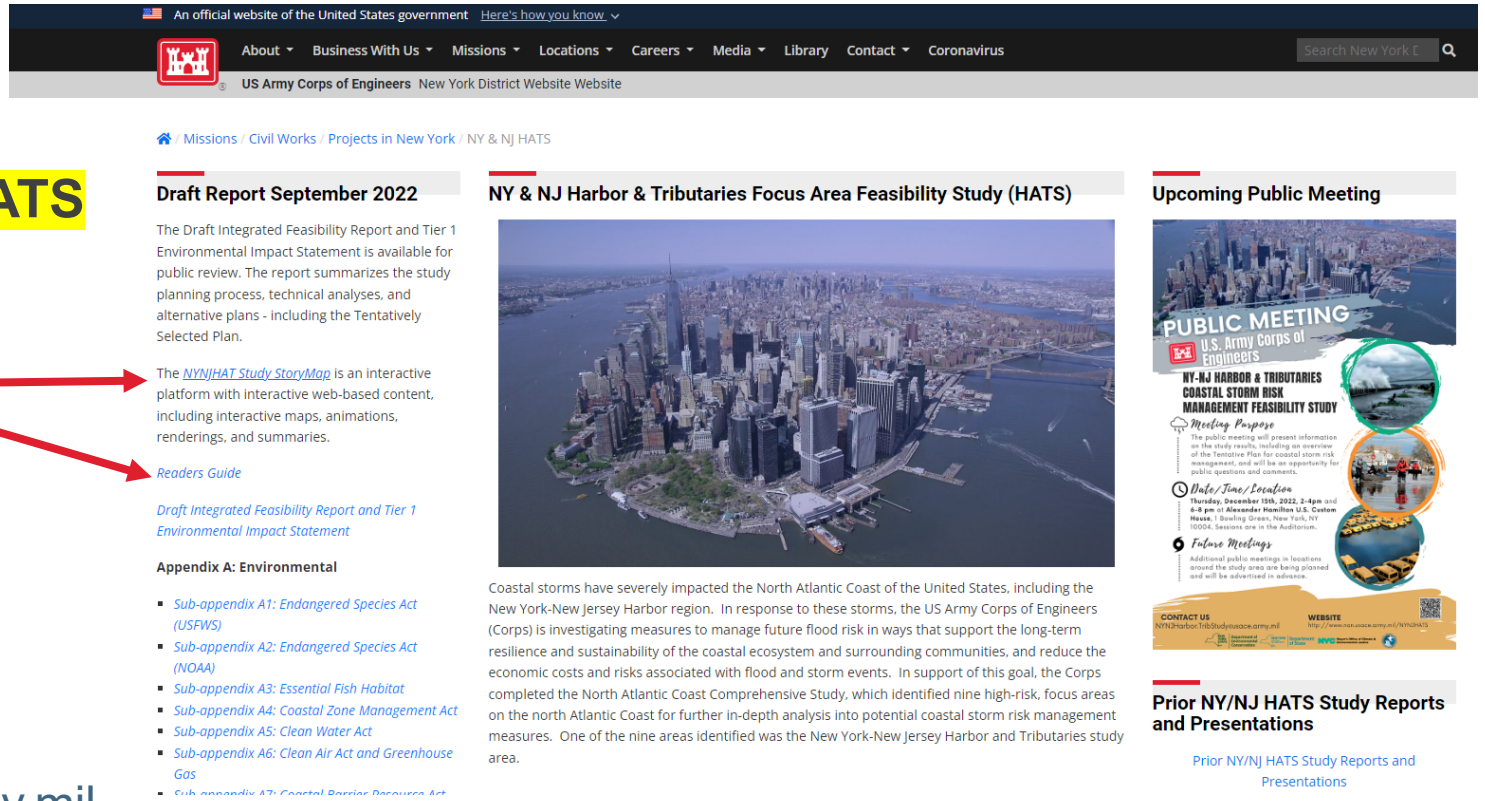
Existing Conditions

Rendering of Initial Proposal

REMINDER – PLEASE FILL OUT YOUR COMMENT CARD IF YOU HAVE ANY QUESTIONS. WE WILL BE COLLECTING THEM SHORTLY.

WANT TO LEARN MORE?

WWW.NAN.USACE.ARMY.MIL/NYNJHATS



Start Here

CONNECT WITH THE STUDY TEAM

Email: NYNJHarbor.TribStudy@usace.army.mil

Mail:

Mr. Bryce W. Wisemiller, Project Manager
U.S. Army Corps of Engineers New York District
Jacob K. Javits Federal Building, Room 17-401
c/o PSC Mail Center
26 Federal Plaza
New York, New York 10278

Ms. Cheryl R. Alkemeyer, NEPA Lead
U.S. Army Corps of Engineers New York District
Jacob K. Javits Federal Building, Room 17-420
c/o PSC Mail Center
26 Federal Plaza
New York, New York 10278

SCHEDULE

Action/Milestone	Date
Execute Feasibility Cost-Sharing Agreement (study start)	✓ 15 July 2016
Release Interim Report	✓ 19 February 2019
Public Meetings for Interim Report	✓ March - October 2019
Delay due to lack of Federal funding	✓ February 2020 – September 2021
Federal funding resumption	✓ October 2021
FCSA Amendment Execution	✓ 28 June 2022
Tentatively Selected Plan Milestone	✓ 26 July 2022
Release Draft Integrated Feasibility Report and Tier 1 EIS	✓ Late September 2022 (156+ day review period)
Public Meetings for Draft Report	October 2022 – February 2023 (Additional in-person and virtual public meetings – see website for updates.)
Public Comment Closing Date	March 7, 2023
Agency Decision Milestone	June 2023
Submit Final Integrated Feasibility Report and Tier 1 EIS	January 2024*
Chief of Engineer's Report Approval (study end)	June 2024*

* Schedule may be revised.

IN SUMMARY

- The Tentatively Selected Plan (Alternative 3B) is **preliminary** and **conceptual**
  - Considerable work remains to be done
  - Future work will be informed by and focus on issues raised by the public and agencies

- There are many resources on the study website **https://www.nan.usace.army.mil/NYNJHATS**
  - Draft Integrated Feasibility Report and integrated Tier 1 Environmental Impact Statement
  - Readers Guide
  - StoryMap Hub

- This is one of a series of public meetings
  - There will be in-person and additional virtual public meetings
  - Meeting information will be posted to the study website and shared via email

- ***Your feedback is an important part of the study process!***

YOUR FEEDBACK IS IMPORTANT

The Study Team is here today to answer your questions and hear your feedback (please fill out your comment cards)

Written Comments

- Send all written comments for the record via email or mail
- The public comment period closes March 7, 2023.

Mr. Bryce W. Wisemiller, Project Manager
U.S. Army Corps of Engineers New York District
Jacob K. Javits Federal Building, Room 17-401
c/o PSC Mail Center
26 Federal Plaza
New York, New York 10278
917-790-8307
nynjharbor.tribstudy@usace.army.mil

Ms. Cheryl R. Alkemeyer, NEPA Lead
U.S. Army Corps of Engineers New York District
Jacob K. Javits Federal Building, Room 17-420
c/o PSC Mail Center
26 Federal Plaza
New York, New York 10278
917-790-8723
nynjharbor.tribstudy@usace.army.mil

More Opportunities to Provide Feedback

- There will be in-person and additional virtual public meetings
- Meeting information will be posted to the study website and shared via email

Q&A SESSION

The Study Team will answer all comment card questions first, then, if time allows, open the floor to participants to verbally ask questions and provide feedback.

Ground Rules

- Be respectful of participants and the Study Team
- Please raise your hand so we can collect and collate the comment cards
- If there is time for verbal questions & answers, please ask one question to allow time for others to ask their questions

QUESTIONS?

STUDY WEBSITE

HTTPS://WWW.NAN.USACE.ARMY.MIL/NYNJHATS

STORYMAP PORTAL

HTTPS://HATS-CENAN.HUB.ARCGIS.COM/

NON-FEDERAL PARTNERS

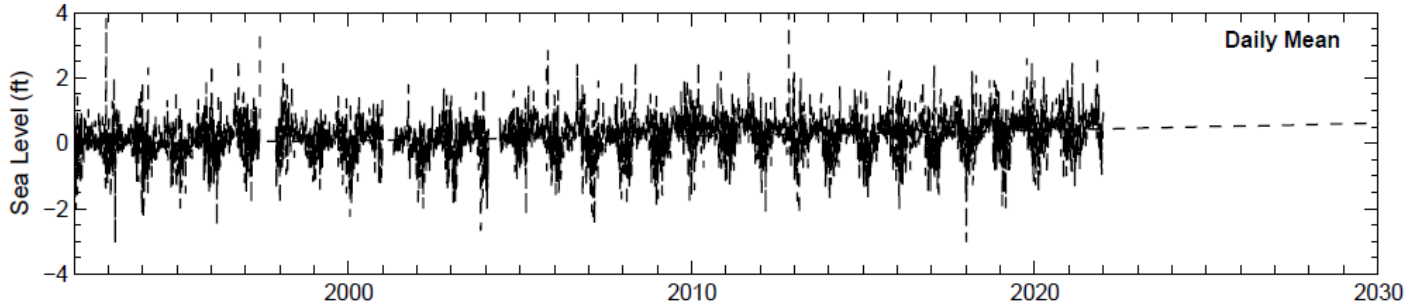
NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

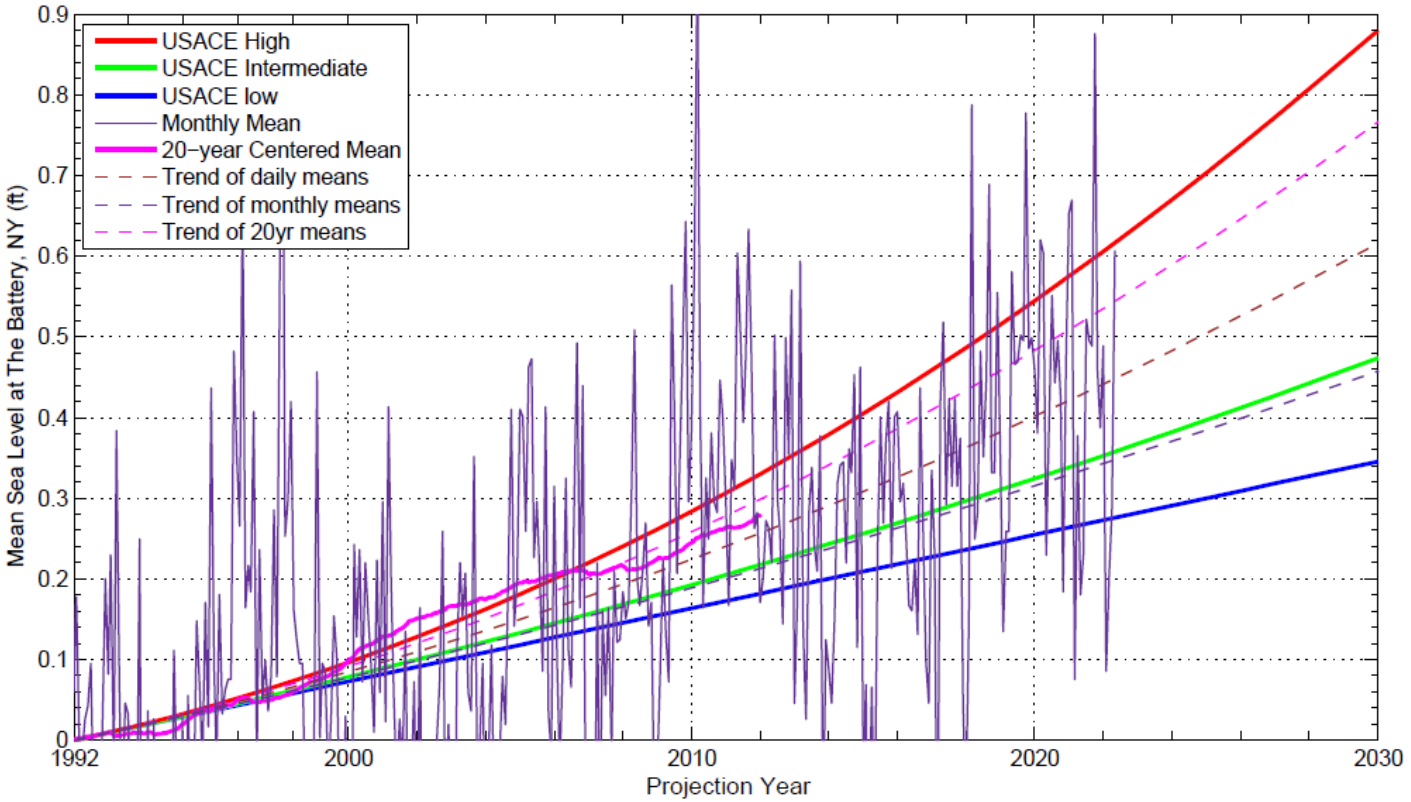
NEW JERSEY · DEPARTMENT OF ENVIRONMENTAL PROTECTION ·

NEW YORK STATE OF OPPORTUNITY. | Department of State

NYC Mayor's Office of Climate & Environmental Justice

USACE RELATIVE SEA LEVEL CHANGE PROJECTION FOR THE BATTERY COMPARED TO NOAA SEA LEVEL MEASUREMENTS

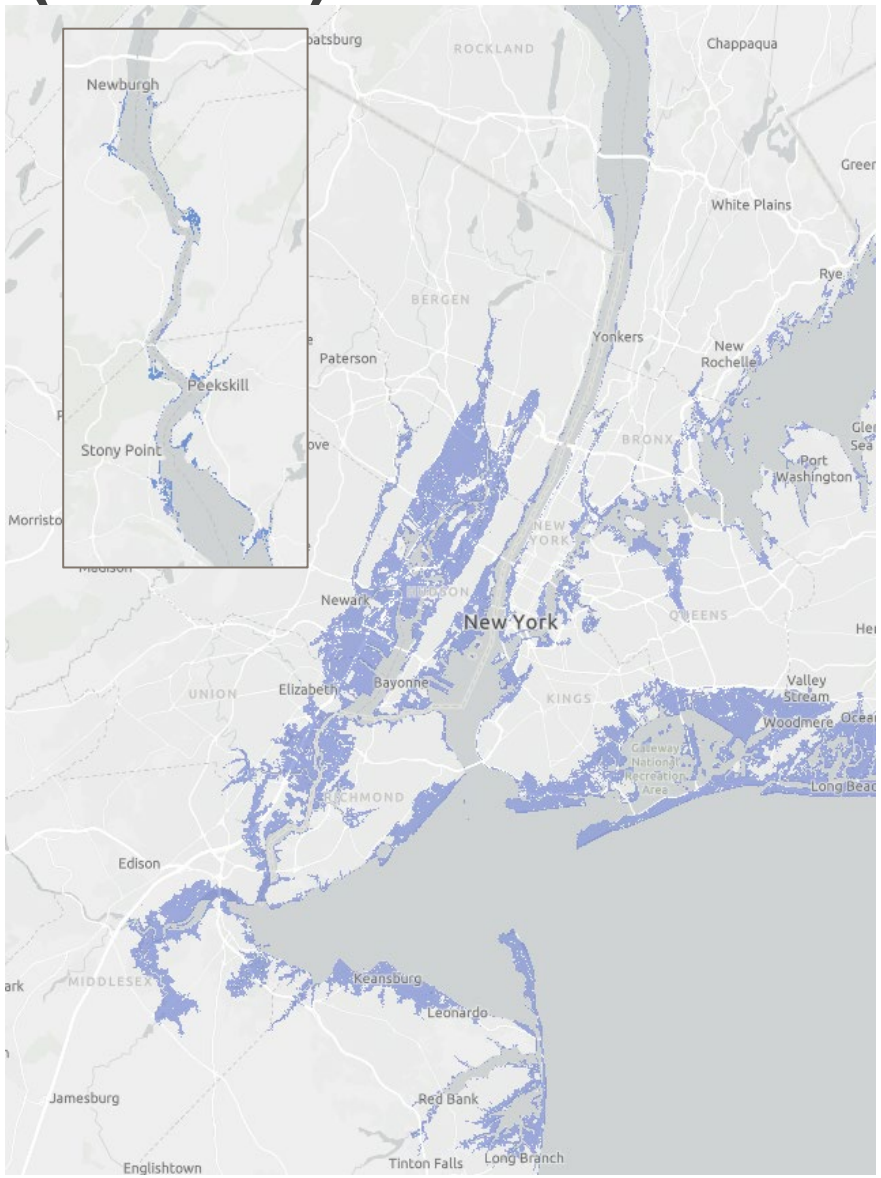




FUTURE WITHOUT-PROJECT (FWOP) CONDITION

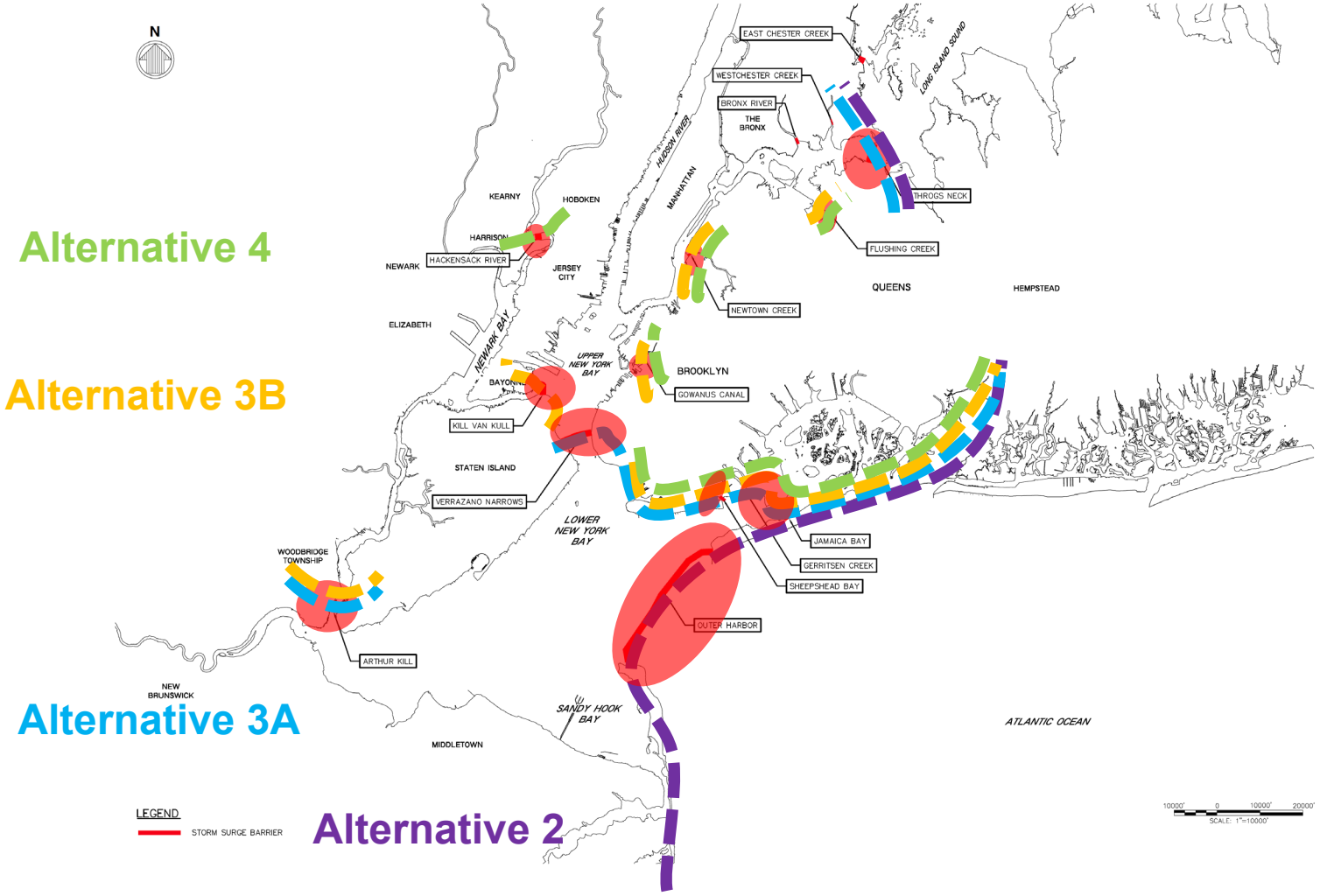
Assumptions

- Investments in coastal storm risk management / resiliency projects will continue
  - Federal, state, local government investment
  - Private investment
- Relative sea level rise over time
  - Used USACE intermediate projection for comparing plans in Draft Report
  - Considering ALL USACE sea level rise projections in future study plan formulation



1% flood extent (with intermediate RSLC)

COMPOSITE: ALTERNATIVE PLANS SHOWING STORM SURGE BARRIER LOCATIONS CONSIDERED



- All alternative plans will include nonstructural measures, as feasible, for areas with unaddressed coastal storm risk
- All alternative plans will include natural and nature-based features where applicable and feasible

Alternative 5 (*shore-based measures only*) not shown in figure

PLAN FORMULATION ITERATIONS

First round of alternatives screening:

- Reflected in Interim Report – released February 2019)
- Focus on identifying scale
- Main decision factor: NED benefits
- Outcome: Alternatives 3A, 3B, 4 were (and are still) best performing

Second round of alternatives screening:

- Reflected in Draft Report now released
- Differentiate among Alternatives 3A, 3B, and 4
- Main decision factors: RSLC, SSB gate operational assumptions, environmental and navigational considerations, refining benefits
- Considered all benefit registers but primarily used national economic development for selection
- Results are presented in the draft integrated feasibility report/EIS

Developing and Optimizing Recommended Plan (done after public review of the Draft Report)

- Main decision factors:
  - Sizing of measures in TSP to maximize net benefits
  - Refine balance between each SSG operation/closing criteria with RRFs, as applicable
  - Adjust alignments for NED, OSE, and EQ considerations
- Results will be presented in the final integrated feasibility report/EIS (2024)

PROJECT COSTS (INTERMEDIATE RSLC)

Alternative	Construction Duration (years)	Years of Full Benefits*	First Costs (not including contingency)	Contingency	OMRR&R and IDC (PV)	Total (Present Value)**
2	32	32	$70.6B	$41.7B	$37.3B	$150.2B
3A	24	40	$48.9B	$28.0B	$18.7B	$95.7B
3B	14	50	$35.6B	$17.1B	$23.5B	$76.2B
4	14	50	$28.8B	$14.2B	$19.4B	$62.51B
5	5	50	$10.1B	$5.9B	$9.8B	$25.8B

* - USACE policy only allows a maximum of 50 years of benefits in the economic evaluation, but the alternatives and measures are planned for permanent implementation with an at least one-hundred-year planning horizon

** - Adaptation costs for higher sea level rise projections are under refinement and have not been included in the total cost estimates at this time