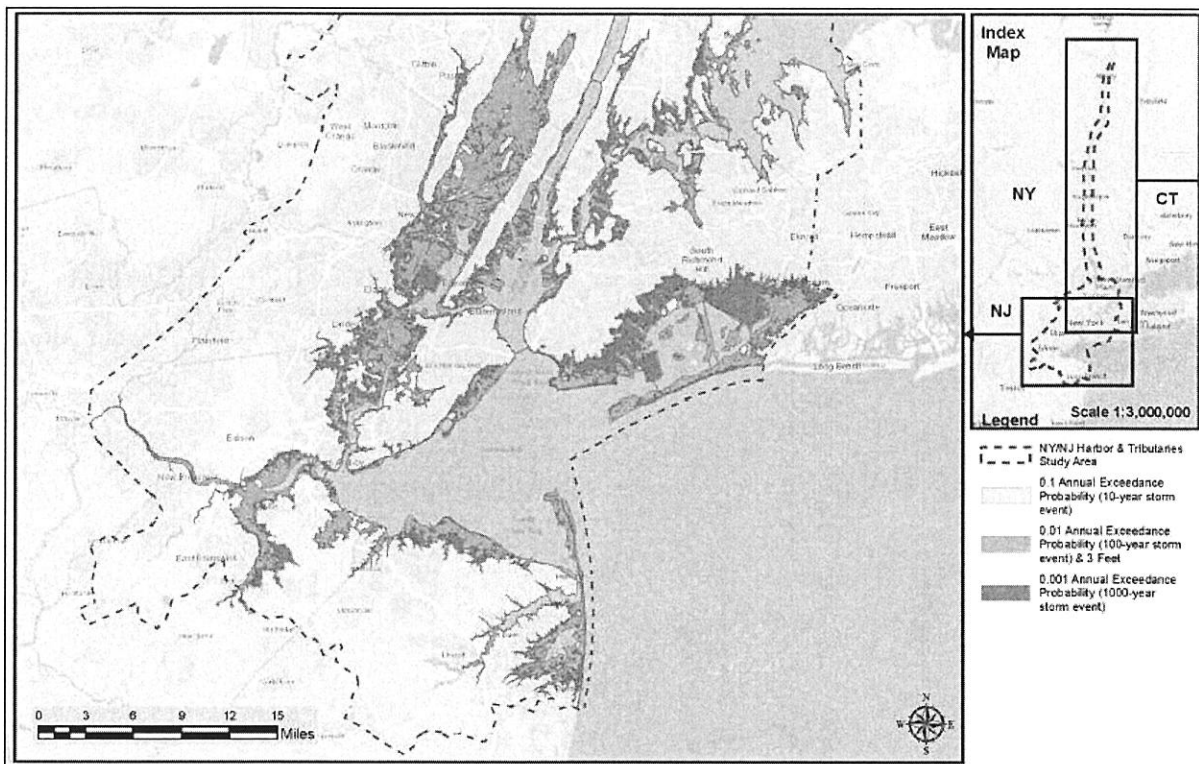


NEW YORK-NEW JERSEY HARBOR AND TRIBUTARIES COASTAL STORM RISK MANAGEMENT

INTERIM REPORT



FEBRUARY 2019



US Army Corps
of Engineers.



Department of
Environmental
Conservation



Mayor's Office of
Recovery & Resiliency

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1.5 Summary of Agency and Public Coordination

Public outreach and discussion have been priorities for this study and as such, USACE will seek to build off past engagement with deeper and more robust stakeholder engagement as the study progresses (see Public Engagement Appendix for description of outreach efforts to date). Given the scale and scope of this study, meetings cannot feasibly be held in every town or community with an interest in the study. The study team will therefore seek to reach as broad an audience as possible by locating meetings in transit-accessible locations, advertising meetings as early as possible, and opening up opportunities for stakeholders to join meetings remotely through webinar capabilities. Primary outreach efforts include agency workshop meetings held in 2017, and NEPA scoping meetings held in 2018.

1.5.1 Agency Workshops

Agency workshop meetings were held in January-February 2017. Over 100 local government and agency representatives participated (see Public Engagement Appendix). Common themes from the workshops include:

- There is a need for a systems-level, regional analysis and approach to determine appropriate CSRM measures and future initiatives. For this to occur successfully, coordination and collaboration across agencies and levels of government is required. Localized efforts are only pieces to the larger regional puzzle.
- Proper evaluation of a potential or a series of potential storm surge barriers is needed and must encompass flood risk management benefits and costs. They must consider all potential impacts to people, property, local economies, and the environment. Some agencies are opposed to the hard solutions such as barriers and floodwalls, whereas others are supportive. **Multi-benefit solutions with natural or nature-based features are preferred.**
- The public and many critical assets continue to be at risk as exemplified by the effects of Hurricane Sandy. Communication of these risks, continued public outreach, education, and engagement is essential for future efforts.
- Impacts to critical assets, for example transportation infrastructure and evacuation routes, power generation and supply, and wastewater infrastructure, were echoed throughout the various methods of feedback. Managing risk to the public and to critical infrastructure is vital to the CSRM Feasibility Study.
- Agencies identified **two technical topics in which uncertainty should be addressed.** While there is uncertainty in many technical topics, these two topics were identified as great importance to the agencies. **First, there is uncertainty related to appropriately defining the design condition and thus, the selection and incorporation of a sea level change scenario.** Clarity and a transparent decision-making process will allow for agencies and communities to maintain engagement in the design process. Secondly, there is

uncertainty associated with the occurrence and timing of fluvial (i.e., stormwater runoff) flooding with coastal flooding. There is a concern that regional storm surge barriers will exacerbate fluvial flooding.

- Structural measures that may cause negative impacts to the environment, especially to the Hudson River and its estuaries, are a major concern.
- Funding, time, legislation and bureaucracy hinder the progress of coastal resiliency in many communities within the study area. There is an urgency to identify CSRM measure(s) prior to another storm or with a changing sea level condition. If a cost-effective, publicly acceptable, and feasible project cannot be identified within a reasonable timeframe, the agencies are willing to consider supporting less-than-ideal solutions that can be implemented.

1.5.2 Scoping Process and Public Comments

USACE announced the preparation of an integrated Feasibility Report/Tiered EIS for the proposed NYNJHAT feasibility study in the February 13, 2018 Federal Register, pursuant to the requirements of section 102(2)(C) of NEPA. 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. This includes the identification of any local, county, state, and federal resource plans and future project proposals in the study area, implementation schedules, and 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 helps identify significant environmental issues;
- Solicit, from local, county, state and federal agencies and the public available information on the resources at issues, including existing information and study needs; and,
- Identify any information sources that might be available to characterize the existing environmental conditions and analyze and evaluate impacts.

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, in either the Draft Tier 1 EIS or the Draft Tier 2 EIS. Due to the large scale and scope of this study and the largely conceptual nature of the alternatives early on, the Tiered NEPA process will be used so that the analysis can be performed using the available concepts for the initial evaluation (Tier 1), followed by design detail in the more advanced evaluation (Tier 2). There will be multiple opportunities for public input throughout the study and design phase, as the study and project progresses.

1.5.3.2 Storm Surge Vs Sea Level Rise

Many commenters stated that they did not think storm surge should be addressed without first addressing RSLC. Concerns about RSLC were voiced in 84% of all the submissions. This is important because, for many communities, sea level rise poses a risk of chronic, daily flooding in this century. 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 RSLC, 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 (SBM’s) are proposed, such as in Alternative 5, the threat of RSLC 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 solution. In most cases, solutions for these high-recurrence events do not differ greatly from solutions tailored specifically for sea level rise alone, though further analysis under a separate study would be needed to understand the daily impacts of high-tide inundation due to sea level rise to the region.

3.2 Risk Informed Planning

For risk informed planning, the project delivery team must continually ask critical questions about the appropriate level of detail necessary to make decisions. Throughout the study process, the team makes continuous choices about what data is necessary to make planning decisions and the appropriate level of detail for the phase of the study.

The study team progressively and deliberately determines the level of detail they need to make the next planning decision. The study team must balance its choice for additional detail with the funds and time available against the risk and uncertainty of decision outcome. Using these tools in conjunction with clear communication of decisions and understanding of the risks helps achieve the integration with all members of the study team, as well as project reviewers from USACE North Atlantic Division and USACE Headquarters.

The first step in any planning study is to identify the problem to be solved.

3.3 Problem Identification

The study area is vulnerable to damage from storm surge, wave attack, erosion, and intense rainfall events that can also cause riverine or inland flooding. These forces constitute a threat to human life and increase the risk of flood damages to public and private property and infrastructure. The study area encompasses the New York Metropolitan Area, including the most populous and densely populated city in the United States and the six largest cities in New Jersey. This region is the hub of financial centers and international trade, qualifying it as one of the most important economic regions in the world. The City of New York alone had a Gross Metropolitan Product (GMP) of \$1.6 trillion in 2016. The study area is highly urbanized, and with existing geography, topography, and proximity to tidally influenced areas, is highly vulnerable to coastal storm damage. Projections of climate change and sea level change effectively increase the risk/vulnerability of this area to future flooding events and coastal storm damage.

Coastal storms have played important roles in shaping the present-day shoreline through erosion and movement of sand. Development of housing and waterfront properties along the coastline has placed many property owners in areas of high vulnerability due to the lack of shoreline stabilization, erosion of supportive and protective landforms, and surge during coastal storms. Historic sea level change has exacerbated flooding over the past century, and potential sea level change in the future will only increase the magnitude, frequency, and extent of the problem. Since 1900, relative sea level has risen by more than a foot within the study area due to global climate change and local land subsidence (NPCC2, 2013). According to the NYS 2100 Commission Report (2013), experts project sea level to rise in New York City and Long Island by as many as six feet under certain scenarios within the next 90 years. As sea levels continue to

3.4.4 Relative Sea Level Change

Sea level change (SLC) is a change in the mean level of the ocean. Relative or “local” sea level change (RSLC) is the locally observed change in sea level relative to a fixed point. RSLC considers the effects of (1) the eustatic, or global, average of the annual increase in water surface elevation due to the global warming trend, and (2) the “regional” rate of vertical land movement (VLM) that can result from localized geological processes, including the shifting of tectonic plates, the rebounding or subsidence of the Earth’s crust in locations previously covered by glaciers, the compaction of sedimentary strata and the withdrawal of subsurface fluids. USACE projects must consider sea level change when planning and designing projects, per Engineering Regulation (ER) 1100-2-8162 (December 31, 2013).⁴

ER 1100-2-8162 requires that future RSLC projections must be incorporated into the planning, engineering design, construction and operation of all civil works projects. The study team should evaluate the proposed alternatives in consideration of the “low,” “intermediate,” and “high” potential rates of future RSLC for both “with” and “without project” conditions. This range of potential rates of RSLC is based on findings by the National Research Council (NRC, 1987) and the Intergovernmental Panel for Climate Change (IPCC, 2007). The historic rate of future RSLC is determined directly from gauge data gathered in the vicinity of the study area.

Because of the spatial extent of the study area, there are multiple relative sea level change (RSLC) curves for the area, and the sensitivity of plan formulation to RSLC varies greatly. USACE projections for the Battery, NY are shown in Figure 17, and range from an increase of +0.7 feet for the low scenario up to five feet for the high scenario through 2100. For purposes of considering the potential impacts of RSLC during initial plan formulation, the study team used the intermediate rate of relative sea level change (an increase of +1.8 feet through 2100) as a rough approximate for the median, to decrease the amount of adjustment needed later for future rounds of formulation, when the low and high rates will be evaluated as well. Based on a desktop inventory of structures compiled for the Hydrologic Engineering Center – Flood Damages Analysis (HEC-FDA) model, the expected average annual damages in the FWOPC are \$5.1 billion in 2030 and expected to increase to approximately \$13.7 billion by 2100, based on the intermediate rate of RSLC.

⁴ An overview of how USACE considers RSLC can be found at:
<https://planning.erc.dren.mil/toolbox/library/LessonsLearned/Quick%20Reference%20-%20Climate%20Considerations%20Oct2018.pdf>

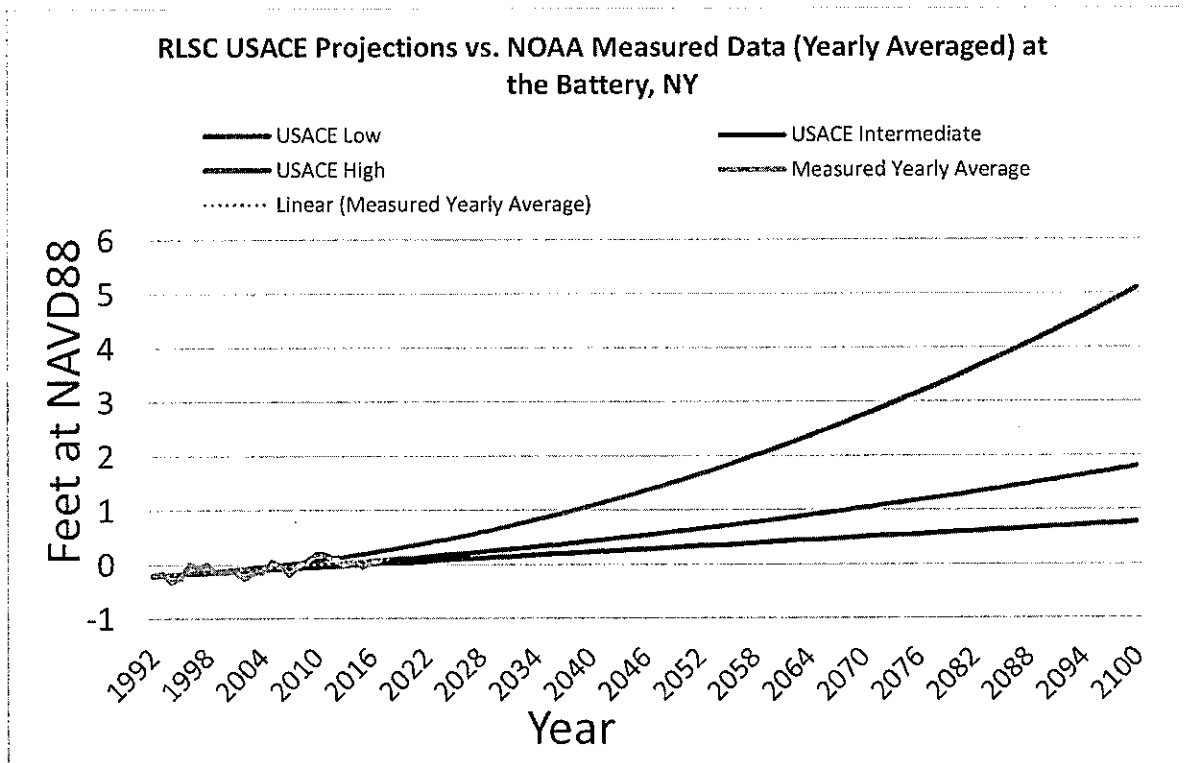


Figure 17. Sea Level Rise Projections

3.5 Planning Opportunities and Objectives

Project opportunities were developed to comply with the project authority and to respond to study area problems. The primary goal of the current study is to manage the coastal flood risk from repetitive flooding. The primary opportunity presented is the potential to reduce future damages to property and to decrease risks to life safety. Damages from such storm events present a significant risk to public health and life-safety. Opportunities to solve problems in the study area include:

- Manage coastal storm flood risk
- Better communicate coastal storm risk to communities
- Restore natural systems in ways that may provide CSRSM benefits
- Contribute to community rebuilding and resilience
- Improve port resilience and navigation maintenance requirements

Planning objectives were identified based on the needs and opportunities, as well as existing physical and environmental conditions in the project area:

- Reduce the risk of coastal storm damage to communities, public infrastructure, important societal resources, and the environment

4.4.1 Factors Affecting Plan Selection

The identification of the plan with the highest net benefits is contingent, however, upon investigation of the assumptions made throughout this study to date, and analyses needed to confirm or corroborate the assumptions. Any of the factors listed below has the potential to change the net benefits on a substantive scale.

1. **Hydrodynamic Modeling.** Early ADCIRC modeling suggests that Alternatives 2 and 3A may induce flooding outside of the study area, along the coastlines of New York and New Jersey. The induced flooding evident in the preliminary analysis may result in the alternative being deemed unacceptable. If the alternative warrants further consideration based on economic reasons, additional engineering analyses will be needed to identify means that may address or mitigate the induced flooding, which could negatively affect the economic justification for these alternatives. The initial ADH modeling indicates the potential for some navigation gate structure to accelerate ambient flows. Based on these results, it may be necessary to model the impacts to navigation in the vicinity of the conceptual surge gates, using ship simulation studies. Also, the initial ADH modeling indicates that the initial conceptual gate structures in alternative 3A, and to a lesser degree other alternatives, may have the potential to affect the tide range in other areas of the estuary. For this reason, further engineering analysis of the surge gate structures in alternatives that may be carried forward in the study are warranted.

Recommendation: additional hydrodynamic modeling along with engineering gate structure designs for both navigation as well as environmental effects.

2. **Relative Sea Level Change (RSLC).** Benefits were developed on the intermediate rate of RSLC. It has been observed that use of the low or historic rate of RSLC will favor perimeter measures in plan selection, while the use of the high rate of sea level change favors larger barriers. All of the alternatives include a placeholder for complementary high frequency measures (NNBF, nonstructural, & localized perimeter measures targeted at clusters of high frequency flooding or areas that may be underwater under any RSLC scenario). The placeholders will be refined with respect to actual location, action, footprint in the next round of formulation.

Recommendation: the next round of formulation will also include a detailed investigation how the alternatives perform under each of the RSLC scenarios.

3. **Period of Analysis.** Similar to the Relative Sea Level Change, a period of analysis that is closer in time to the study favors perimeter measures in plan selection. We are limited to a 50 year period of analysis that could begin either: 1) when the first separable element of any alternative is completed and begins to produce benefits, or when 2) construction of the longest lead time measure is complete. Under the first scenario, USACE will begin counting benefits from perimeter measures that could be built while barriers are still under



DECEMBER 2018 | ISSUE NO. 5

SURGE WATCH



A Note From the Chairman

The period of public input to the USACE New York and New Jersey Harbor and Tributaries Study (HATS) on the range of issues to be addressed in an Environmental Impact Statement has closed. Now it is up to the Corps to have the foresight and courage to seize the leadership to investigate how best to significantly reduce the risks

associated with future superstorms and rising sea levels to the Metropolitan region. They must determine the most cost effective and efficient methods for protecting the metro region and its infrastructure.

We stand at a pivotal point entering the Anthropocene – the first time in our planet’s evolution that humans have fundamentally changed the earth on which we dwell. Climate change is rapidly accelerating and becoming more alarming with every passing year. The world’s top climate scientists on the Intergovernmental Panel on Climate Change tell us that we have perhaps fourteen years to change our ways, or the climate is likely to spin out of control.

So what to do? As we debate how best to strengthen the coastal defenses in the NY Region against the approaching twin threats—rising sea levels and more catastrophic storms—we are treating the symptoms and not the cause of the disease. Hooked on our powerful hydrocarbons, we have extracted fossil fuels from the earth and relentlessly propelled our civilization to an intense high. But if we are not careful our dependency will bring us all down. We have to preserve and protect our great coastal cities until we collectively manage our addiction to fossil fuels.

Bill Keller, former Executive Editor of the New York Times wrote following Superstorm Sandy¹:

“The problem is not just that smart people differ wildly about what to do; it’s that the problem crosses multiple jurisdictions that everything costs loads of money and that humans have short memories. The will to do anything ambitious tends to recede almost as fast as the tide surge... The number of local, state, regional and federal agencies that have a piece of the action in disasters is paralyzing. Everybody is in charge, so nobody is in charge. This problem needs a chairman of the board”.

Currently, the US Army Corps of Engineers is the Chairman of the Board. They will soon have the resources and time to lead with determination and with courage. Our survival depends on it.

Malcolm Bowman,
Chair, Metropolitan NY-NJ Storm Surge Working Group.

“It is hard to quantify the value of Fraunces Tavern, which includes not just the value of the buildings and the collections, but also the value of the experiences of thousands of school children and visitors who learn more of what our country is all about. It is very much in the public interest to preserve this legacy for centuries to come, and the proposed storm barriers may be essential to ensure that outcome.”

–Ambrose Madison Richardson, President, Sons of the Revolution in the State of New York Fraunces Tavern Museum

¹“A New Manhattan Project”, by Bill Keller, NY Times Nov 11, 2012

To Mark Superstorm Sandy’s 6th Anniversary, B.P. Gale Brewer and downtown leaders highlight need for storm preparation and resiliency investments

 **Gale A. Brewer, Manhattan Borough President** 
Borough President of New York



October 25, 2018, photo courtesy of the B.P. Brewer’s office

At the press conference, leaders called on the Mayor and city government leaders to support a regional storm surge barrier and to devote significant capital funding to the Lower Manhattan Coastal Resiliency Project.

“Storm surges and sea-level rise are clear and present dangers to the safety, security, and economic future of this city...we need to be working toward a regional storm surge barrier that can prevent the next Sandy...that can protect and preserve all our at-risk neighborhoods,” said Manhattan BP Gale A. Brewer



Climate Changed: Cities Threatened by Climate Risk Still Getting AAA Bond Ratings

Investors say ratings overlook risks of extreme weather as Moody's, S&P, or Fitch do not issue climate downgrades for cities. Last fall, after a trio of deadly hurricanes, ratings companies warned vulnerable coastal cities to get ready for climate change -- or face higher borrowing costs on the \$3.9 trillion municipal bond market. To learn more, [Continue Reading...](#)

Climate Change Will Get Worse. These Investors Are Betting on It

A top investment strategist for JPMorgan Asset Management sent a note to clients with a dire forecast: despite global efforts to stop climate change, sea levels are likely to rise dramatically, threatening the 40% of Americans who live along the coast. However, there will probably be investment opportunities in sea walls since governments may struggle to pay costs for resiliency infrastructure and turn to bonds or privatization. To learn more, [Continue Reading...](#)

As Storms Keep Coming, FEMA Spends Billions in 'Cycle' of Damage and Repair

FEMA has paid out billions for disaster recovery efforts. But many projects seem to be undertaken in defiance of climate change, leaving structures nearly as vulnerable as before. To learn more, [Continue Reading...](#)



Flooding in Sheepshead Bay during Hurricane Sandy

Image Credit: [FashionStock.com / Shutterstock.com](#)

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Senior Editor: Malcolm Bowman, Distinguished Professor of Oceanography, State University of NY Stony Brook

Co-Editors: Robert Yaro, Professor of Planning, University of Pennsylvania and William Golden, President National Institute for Coastal & Harbor Infrastructure

Investigative Reporters: Catherine McVay Hughes and Suzanne DiGeronimo FAIA, President DiGeronimo Architects

Graphics and Layout: Hazen and Sawyer

Coastal Property Was Once King. Fears of Climate Change Are Undermining Its Value

In a growing number of coastal communities, homes near the sea are appreciating more slowly than those inland. That's bad news for people on the beach, good news for those farther away. To learn more, [Continue Reading...](#)



Image Credit: [Shutterstock.com](#)

6 Years After Sandy, Brooklyn Still Vulnerable To Storms

For many residents of southern Brooklyn from Sheepshead Bay to Gowanus, the mild flooding observed in late October renewed serious worries about how vulnerable they may be to another storm. To learn more, [Continue Reading...](#)

U.S. Army Corps of Engineers' NY District announces the approval of waiver to increase schedule and funding for NY&NJHAT study.

This decision allows the Corps to increase the previously approved funding ceiling of \$6M to \$19.4M and to extend the study schedule from 3 years to 6 years. This extension does not change the 2022 completion date previously published in expectation of receiving the waiver. It does move decision points including the tentatively selected plan (TSP), back by 15 months to allow for more comprehensive studies. [Continue Reading...](#)

Other Flooding and Climate Change News

[\\$31 Billion Texas Coastal Barrier Proposed.](#) [Continue Reading...](#)

The WaterWays Weekly | November 2, 2018

[BPC: Did You Know? | BPC Resiliency Projects.](#) [Continue Reading...](#)

Battery Park City Authority | October 29, 2018

[US Army Corps of Engineers: New York/New Jersey Harbor and Tributaries Focus Area Feasibility Study](#)

For the latest which includes addressing sea level rise, natural and nature-based feature examples and next steps for public involvement, [Continue Reading...](#)



SEPTEMBER 2018 | ISSUE NO. 4

SURGE WATCH



A Note From the Chairman

The US Army Corps of Engineers has called for public comments on its Harbor and Tributaries Scoping Study (HATS). The Metro SSWG is preparing a deposition outlining a regional approach arguing that it is the only feasible way to protect the 1,000-mile coastlines of New

York Harbor, the Hudson River valley, northern New Jersey and southern Long Island for the next 100 years.

As the Dutch are fond of saying: we must shorten the coastline if we're going to have any hope at all of protecting our mighty Metropolis. But how do we do that?

We propose a porous system of sea gates that under normal weather conditions will allow the free flow of tides and river discharge to the sea with little impediment. Plus, we have some creative ideas that will greatly improve the water quality in New York Harbor and the lower Hudson River by harnessing the moon's energy to pump clean Long Island Sound water throughout the harbor complex. This will revolutionize pollution abatement in the City's affected waterways.

Our friends at Save the Sound list the following issues to be addressed by the Corps:

- How would the barriers affect migrating fish, oyster beds, boating, and shipping?*
- How much will reduced tidal flow worsen sewage, nitrogen, and PCB pollution in our waterways?*
- If storm surge is diverted from NYC, how will that affect the surrounding area? Will "outside" communities suffer increased flooding? How will the government decide which communities to protect and which to expose?*
- Are there solutions that can address sea level rise as well?*

We agree. We have a team of committed scientists, ecologists, engineers, social scientists and economists working on this. We understand. Stay tuned.

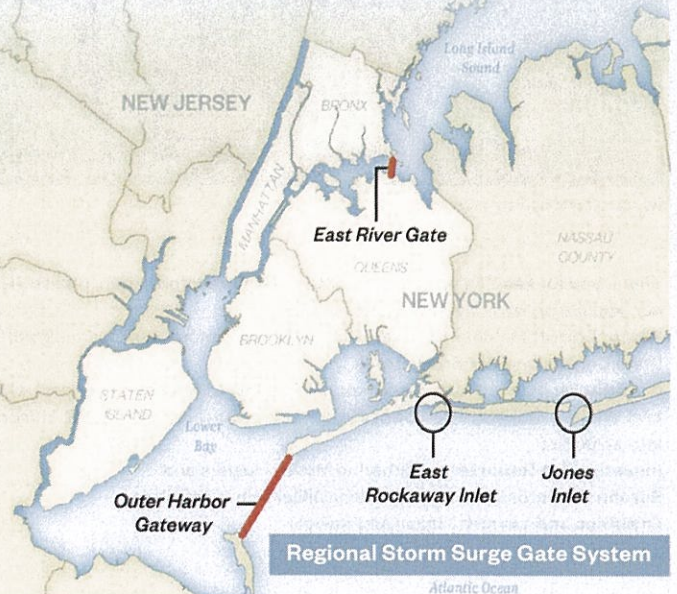
Malcolm Bowman,
Chair, Metropolitan NY-NJ Storm Surge Working Group.

"We need to determine whether harbor-wide protection – such as a storm surge barrier – is feasible. The Army Corps of Engineers should be encouraged to complete this complex study as quickly as possible."

– NYS Senator Brian Kavanagh
Chair of New York State Caucus of Environmental Legislators

USACE Comment Period Extended for the Harbor and Tributaries Scoping Study (HATS)

Due to the interest shown by the public and to allow for meaningful comment on the NEPA scoping phase, the Corps is extending the comment period to **November 5, 2018**. An additional scoping meeting will take place on Thursday, September 20, 2018 at 6 PM at the New York Aquarium, Surf Avenue and West 8th Street, Brooklyn, NY. [Continue Reading...](#)



Levee Wars: How Barriers May Exacerbate Flooding for Neighbors

A Vox+ProPublica collaboration dives into how a structure that's designed to protect us from floods may be making them worse. High levees come at a high cost, often pushing water into communities that can't afford the same protection. To learn more, [Continue Reading...](#)

Extreme-weather Events as Part of the BPCA's Ongoing Efforts

The Battery Park City Authority (BPCA) has hired a consultant team to design resiliency measures intended to protect the ball fields and the Asphalt Green community center against future extreme-weather events. For more on the June 19 meeting of the BPCA board, [Continue Reading...](#)

New Buildings Rising in Flood Zones

One in eight new residential units in New York is being built along the riskiest waterfront. The buildings may be resilient, but what about the neighborhoods? [Continue Reading...](#)

Buried Internet Infrastructure at Risk as Sea Levels Rise

According to a new study, thousands of miles of buried fiber optic cable may be inundated by rising seas. Internet infrastructure in densely populated coastal regions, such as the Meadowlands, may need to be replaced with salt resistant cables. [Continue Reading...](#)



Image Credit: Paul Bartford

Thank you for keeping up with the SSWG. For more information, please visit our [website](#) or www.nichiusa.org

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Graphics and Layout: Hazen and Sawyer



Image Credit: Shutterstock.com, Marc Bruxelle



Image Credit: Robert Simko, The Broadsheet©

Other Flooding and Climate Change News

Flood insurance premiums are going up again and that's just the beginning. [Continue Reading...](#)

Miami Herald | July 24, 2018

Sea level rise is eroding home value and owners might not even know it. [Continue Reading...](#)

Washington Post | August 20, 2018

Flood insurance saved hours before it was to expire, but future unclear. [Continue Reading...](#)

NorthJersey.com | July 31, 2018

Conference

Weathering the Storm: The Intersection of Finance and Resilience on October 18 at NYU

Registration is officially open! This year's conference explores how architectural and engineering solutions to environmental resilience translate to financial resilience. Experts will prompt attendees to think differently, and with a sharper pencil, about the costs and benefits of resiliency on a large scale.

[For more information...](#)



JULY 2018 | ISSUE NO. 3

SURGE WATCH



A Note From the Chairman

So what are the key issues surrounding human life & safety, infrastructure protection, oceanography, meteorology, climate change, environmental health, marine ecology and fisheries, social justice issues, engineering, permitting, design, construction, funding and economics of a regional storm surge barrier system? A

system designed to not just reduce the risk, but to actually protect the Metropolitan New York and New Jersey for at least the next 100 years?

That is the task the Metropolitan NY-NJ Storm Surge Working Group has set itself. We build on the experiences of the great European cities, the communities of Stamford CT, Providence RI, New Bedford MA and New Orleans LA. The SSWG brings together the expertise of estuarine and coastal marine scientists, engineers, marine ecologists, former and current elected officials and commissioners, government professionals, academics, media experts, research students, attorneys and community advocates.

We promote a responsible path forward investigating all possibilities, the pros and cons of effective and affordable regional solutions in order to save the region and nation from another catastrophic Sandy-scale flooding disaster.

We believe that only a thoroughly studied and designed regional approach will be effective. A patchwork quilt of attempting to increase resilience in those most vulnerable areas of the 1,000 miles coastline of the Lower and Upper Bays of New York Harbor, its tributaries, the East River and the lower Hudson River will never suffice to protect against the twin threats of extreme storm surges and rising sea levels in the decades and even centuries ahead.

Public information/scoping meetings for the [U.S. Army Corps of Engineers NY-NJ Harbor & Tributaries Focus Area Feasibility Study \(NYNJ HATS Study\)](#) are scheduled for Monday, July 9 through Wednesday, July 11.

We urge you all to attend the upcoming public meetings being held by the US Army Corps of Engineers to address these issues, to speak up and to listen to our various community hopes, aspirations and concerns.

Malcolm Bowman,
Chair, Metropolitan NY-NJ Storm Surge Working Group.

[CLICK HERE for Study Summary & Initial Alternatives \(Oct 2017\)](#)

[CLICK HERE for July 2018 Meeting Information.](#)

These meetings will also have webinar capability for remote participation at <https://usace.webex.com/join/ArmyCorpsNYDistrict>

Contrasting Voices!



Gale A. Brewer, Manhattan Borough President
Borough President of New York

Storm surge barriers are sorely needed along the city's coastline to protect against major storms but they should be done right. Input from experts and the public is key to making this necessary project a success. Attend an upcoming hearing:

Hudson Riverkeeper: URGENT: Please attend a meeting July 9, 10 or 11 on NY storm surge barriers – Riverkeeper. Fast-tracked Army Corps proposals threaten the future life of the Hudson.

[U.S. Army Corps NYNJ HATS Study - Public Information Meetings](#)

NYC Sessions. (duplicate sessions)

Mon, July 9, 3-5 pm and 6-8 pm

Boro of Manhattan Community College,
199 Chambers St, between Greenwich St
and West Side Hwy. Conference Room-
Richard Harris Terrace, Main Flr.

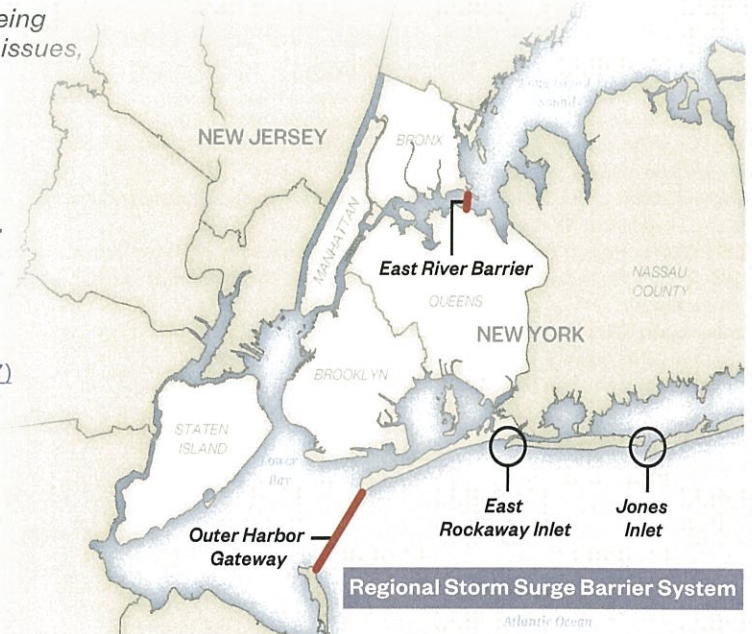
Newark Sessions. (duplicate sessions)

Tue, July 10, 3-5 pm and 6-8 pm

Rutgers-Newark Campus, Paul Robeson
Campus Center. 350 Martin Luther King Jr.
Blvd. Essex Room, 2nd Flr.

Poughkeepsie Session. Wed, July 11, 6-8 pm

Hudson Valley Community Center, 110 Grand
Ave, Poughkeepsie, NY. Auditorium.



NYNJ HATS Feasibility Study

An official scoping comment period is currently scheduled to run for 30 days following the public meetings scheduled for July 9, 10 and 11.

[CLICK HERE for Project Fact Sheet](#)

[CLICK HERE for July 2018 Meeting Posters](#)

Comments may be submitted to:

Nancy J. Brighton, Chief, Watershed Section, Environmental Analysis Branch, Planning Division, U.S. Army Corps of Engineers, New York District, 26 Federal Plaza, New York, Room 2151, NY 10279-0090, or via email to: NYNJHarbor.TribStudy@usace.army.mil.



Image Credit: *Manhattan Cityscape New York, USA*

WaterWire: NYC Takes First Step to Establish Office of the Waterfront

On June 7, 2018, New York City Council Member Rose (Staten Island) introduced a bill to establish a Mayor's Office of the Waterfront "which would be responsible for coordinating among the various city agencies that handle matters related to waterfront use, supporting the Waterfront Management Advisory Board [a forum of expert waterfront stakeholders to advise city agencies on harbor-related policies being reconstituted as per a bill passed by the Council and signed by Mayor de Blasio in 2016], and implementing the [New York City Comprehensive Waterfront Plan](#), issue permits, and disseminate information about the waterfront to the public. [Continue Reading...](#)

Thank you for keeping up with the SSWG. For more information, please visit our [website](#) or www.nichiusa.org

Senior Editor: Malcolm Bowman, Distinguished Professor of Oceanography, State University of NY Stony Brook

Co-Editors: Robert Yaro, Professor of Planning, University of Pennsylvania and William Golden, President National Institute for Coastal & Harbor Infrastructure

Investigative Reporters: Catherine McVay Hughes and Suzanne DiGeronimo FAIA, President DiGeronimo Architects

Graphics and Layout: Hazen and Sawyer

The Hurricanes Are Coming

June is the start of hurricane season in the Atlantic, and the only certainty for East Coast residents is the uncertainty 2018 will bring. In NYC alone, more than 726,000 homes are at risk of flooding damage from a storm surge, making it the second most at-risk city in the nation behind Miami, Florida. Forecasters are predicting 10 to 16 named storms this hurricane season, according to the National Oceanic and Atmospheric Administration (NOAA), of which five to nine could become hurricanes with winds of 74 miles per hour or higher. [Continue Reading...](#)



Image Credit: *Elements of this image furnished by NASA*

Sea Level Rise: Jersey Shore Town Flooding Predictions; \$10B at Risk

Some 25,000 New Jersey homes will be endangered within 20 years by regular tidal flooding powered by rising sea levels, according to a new analysis by the Union of Concerned Scientists. About 5,300 of those homes are in Ocean County, NJ as both the county's barrier islands are among the most imperiled locations in the US. The threat is global in scope: more than \$1 trillion in American real estate, including parts of Miami, Long Island, and the San Francisco Bay area will be in jeopardy by 2100. New Jersey is among the most vulnerable, data from the UCS "US Coastal Property at Risk from Rising Seas" report shows. [Continue Reading...](#)

Other Flooding and Climate Change News

FEMA National Flood Conference – Federally Supported, State Managed, Locally Executed. [Continue Reading...](#)
FEMA | June 2018

Zurich Insurance Group found that every \$1 spent on 'disaster resilience' saves \$5. [Continue Reading...](#)
Zurich Insurance Group | June 2018

Flood insurance program could lapse July 31, 2018 in midst of hurricane season. [Continue Reading...](#)
CNBC | June 11, 2018



APRIL 2018 | ISSUE NO. 2

SURGE WATCH



A Note from the Storm Surge Working Group (SSWG) Chair



We are advocates for a "layered defense" system encompassing both an offshore regional barrier system and a network of on-shore perimeter defenses that would be developed together by New York City and all the coastal communities surrounding the 1,000 miles of shoreline of New York Harbor, its tributaries, and the lower Hudson River.

This specifically separates the function of the regional barriers, designed to hold back dangerous storm surges from future megastorms, but not the slow but insidious rise in sea level. Regional storm surge barriers must be held open 99.99% of the time for the purposes of navigation, fish migration, fisheries, tidal currents, river discharges and harbor flushing. There is no way they can hold back sea level rise.

This then shifts the responsibility of protecting the City and other perimeter Harbor and Tributary (HAT) communities in NY and NJ from sea level rise through the construction of modest seawalls, abutments, and barrier beach re-nourishment projects in a grand partnership. We don't oppose the City's proposal to build more than 100 perimeter barriers. We want to partner with them to protect the City and region from both damaging storm surges and sea level rise. We believe this system of layered defense can protect the whole metropolitan region for more than a century into the future.

Only in this way can the essential tasks of protection against both storm surges and sea level rise be accommodated in an advantageous cost/benefit scenario, plus gain the support of Metropolitan residents who will not accept 20' high walls built around their iconic shoreline views of the New York City, Hoboken, Port Elizabeth, Jersey City, and other coastal communities and infrastructure.

Malcolm Bowman,
Senior Editor

In This Issue

- Can NYC Survive the Sea?
- Forum Series Session 1: Storm Surge Barrier: Traditional and Innovative Finance Options
- See What NYC's Famous Landmarks Look Like Submerged Under Water
- The Social Justice Case for a Metropolitan New York-New Jersey Regional Storm Surge Barrier
- Other Flooding and Climate Change News



Image Credit: Left—Flickr User Robwelds via Inhabitat, Right—NY Harbor Nature

Can NYC Survive the Sea?

NYCH2O hosted a lecture focusing on New York City's response to rising sea levels and coastal flooding. Speakers included Catherine McVay Hughes, who presented the concept of a layered regional protection system (minute 9 of video), and Ted Steinberg, who presented on the City's history of development in the floodplain and the City's approach to management of coastal flood risk (minute 32 of video). [Continue Reading...](#)

Forum Series Session 1 - Storm Surge Barrier: Traditional and Innovative Finance Options

On February 28, 2018, National Institute for Coastal and Harbor Infrastructure (NICHI) and the NY-NJ SSWG held the first in its series of four Forum Sessions that are designed as “think tanks” to address important issues related to the proposed NY NJ Storm Surge Barrier System which is currently Alternative 2 in the USACE Harbor and Tributaries Study (HATS).

The First Forum, entitled “Traditional and Innovative Finance Options,” was held on February 28th at 200 West Street in Lower Manhattan. Forum speakers included Moderator Bill Golden, President of NICHI; Professor Malcolm Bowman, Chair NY-NJ SSWG, Marvin Markus, Goldman Sachs Managing Director; Gwen Dawson, Battery Park City Authority (BPCA) VP Real Estate; Paul Josephson, Duane Morris, Senior Partner; Jack Kingston, Squire Patton Boggs Principal; and Martin Nicholson, CH2M Senior Partner. Professor Robert Yaro, Co-Chair of the NY-NJ SSWG and President Emeritus of the Regional Plan Association, led the “think tank” discussion and analysis that followed the panel presentation.

Marvin Marcus (Goldman Sachs) presented the innovative option of an insurance surcharge on property and casualty and auto insurance premiums. Gwen Dawson (BPCA) focused on how the BPCA authority intended to finance its sea level rise and interim storm surge system by reallocating real estate derived revenues. Jack Kingston (Squire Patton Boggs) discussed and analyzed the availability of federal funding through the President’s infrastructure initiative. Paul Josephson Duane Morris) cited his involvement in a Pennsylvania public private partnership to rebuild and maintain 600 bridges. Martin Nicholson (CH2M) discussed a new USACE program that utilizes a federal, state and local finance option.

The NICHI NY-NJ SSWG Forum Series is sponsored by: Battery Park City Authority, Cameron Engineering and Associates, Chelsea Piers, CH2M, Downtown Alliance, Hazen and Sawyer, Howard Hughes Corporation, JP Morgan Chase, Langan, NY General Contractors Association, Squire Patton Boggs, S&P Global Ratings, Skanska and Tetrattech.



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www.nichiusa.org

See What NYC’s Famous Landmarks Look Like Submerged Under Water

Climate Central, a nonprofit organization that focuses on climate science, has developed a powerful visualization of the impacts of sea level rise on famous landmarks throughout the US. This tool can be used with Google Earth’s 3D maps to zoom in on waterfront communities to show conditions if global seas levels were to rise eight feet. [Continue reading...](#)



Image Credit: Climate Central

The Social Justice Case for a Metropolitan New York-New Jersey Regional Storm Surge Barrier

NICHI and the NY-NY SSWG issued a statement for Water Day setting forth the case as to why a New York-New Jersey Metropolitan Storm Surge Barrier System is the only “Social Justice” solution to protect poor and low-income communities from the devastation of storm surge. The press conference coincided with the release of the April issue of the LexisNexis Environmental Law in New York Review, which includes an article on this Social Justice topic co-authored by members of NICHI and SSWG. [Continue Reading...](#)

Other Flooding and Climate Change News

Hunts Point Lifelines on WNET’s Peril and Promise.

[Continue Reading...](#)

WNET | February 7, 2018

Rockaway flood protection draft report to be released this summer; coastal Protections could include a sea wall, jetties, and groins. [Continue Reading...](#)

AM New York | March 20, 2018

Community Board 3 Parks Committee meets to discuss East Side Coastal Resiliency Project. [Continue Reading...](#)

ESCR Project | March 15, 2018



FEBRUARY 2018 | ISSUE NO.1

SURGE WATCH



A Note from the SSWG Chair



I am delighted that we have started a new publishing endeavor aimed at bringing to the public, their elected officials and staff the important issues surrounding protection measures for not only New York City itself and its magnificent Harbor, but also northern New Jersey with its dense industrial, seaport and airport facilities, the Hudson River Valley, the vulnerable southern coasts of the outer boroughs of Brooklyn and Queens and the exposed, flat southern coast of western Long Island. We seek

regional, robust and affordable solutions that transcend geographic and political boundaries, because storm surges and rising sea levels are surely regional issues that demand a regional solution.

Our mission is to advance the only long term solution by building a regional system of offshore storm surge barriers, plus modest local coastline protection to resist the slow but relentless rise in sea level over the decades ahead. Both interlocking systems are needed.

In our deliberations, we are not content to just limiting future damage through building a modest degree of resiliency, but to recommend defense technologies to completely stop all the storm surges from destroying our cities again for up to 100 years.

We hope to bring you breaking news of wide interest, not only of our ongoing efforts, but also those of courageous individuals and organizations, who all over the tri-state region are fighting with all their might to ensure that their children, their grandchildren and their communities will prosper, and will never have to undergo in their lifetimes the vast trauma and enduring loss of all those superstorm Sandy communities and victims.

We hope you enjoy reading this inaugural issue. We encourage you to send us your comments and look forward to hearing from you.

Malcolm Bowman,
Senior Editor

A Regional Approach to Protecting the NY-NJ Metropolitan Area

The Metro NY-NJ SSWG promotes the development of a system of robust surge barriers to protect the core of the combined New York - New Jersey Metro Region from future devastating storm surges. Two movable barriers located across the outer harbor (Sandy Hook, NJ to Far Rockaway, NY), and upper East River will provide a ring of protection to most of the bi-state Metro Region, including the seaports of New York City and Port Elizabeth, NJ, ground level and underground transportation terminals, the three major international airports, subway and roadway tunnels, hospitals, communication centers, the industrial complex of northern NJ and the millions of residents at risk in the outer boroughs of NYC and coastal New Jersey north of Sandy Hook. These movable storm surge barriers will be coupled with modest sea level rise coastline seawalls for a layered approach to resiliency.

www.nichiusa.org

In This Issue

- Resiliency FAQs: Common Questions Answered
- Draft Proposal to Update the Flood Zoning Text
- Amendment of Reference Standard for Flood Insurance Rate Maps – Public Hearing
- Other Flooding and Climate Change News

National Institute for Coastal & Harbor Infrastructure (NICHI) and Storm Surge Working Group (SSWG) hold forum on February 28, 2018 on traditional and innovative finance options for the storm surge barrier system



Resiliency FAQs: Common Questions Answered

In the aftermath of Superstorm Sandy, New York City Planning is working with communities throughout the floodplain to identify zoning and land use strategies to reduce flood risks and support the city's vitality and resiliency through long-term adaptive planning. The City is currently seeking input on a future update to the special zoning regulations that apply in the floodplain citywide and wants to hear from those affected on how to remove regulatory barriers to resiliency investments and make neighborhoods more resilient. [Continue reading...](#)



Image Credit: Shutterstock.com

Draft Proposal to Update the Flood Zoning Text

As part of the City's ongoing climate resiliency initiatives, New York City Planning is working with coastal communities to update the special zoning regulations that apply in the flood plain. These regulations promote flood resistant building design so as to ensure that neighborhoods are more resilient to flooding and climate change. However, they were adopted on a temporary emergency basis following Sandy and need to be made permanent to ensure buildings do not lose the zoning flexibility that enables resilient design. [Continue reading...](#)



Image Credit: Shutterstock.com

Amendment of Reference Standard for Flood Insurance Rate Maps – Public Hearing

The Department of Buildings held a public hearing on February 5, 2018 to review amendments to its flood insurance rate maps as the Federal Emergency Management Agency (FEMA) works to substantially redraw the City's flood lines.

This rule amends the Reference Standard FEMA FIRM 360497, as identified in Section BC G402 of the building code. The FEMA FIRMs are the Flood Insurance Rate Maps published by FEMA and are referenced in the building code for the purpose of enforcement of the construction standards of the National Flood Insurance Program. This rule updates the FEMA FIRMs to incorporate a Letter of Map Amendment approved by FEMA for La Guardia Airport in Queens. This amendment ensures New York City's continued compliance with and eligibility to participate in the National Flood Insurance Program. [Continue reading...](#)

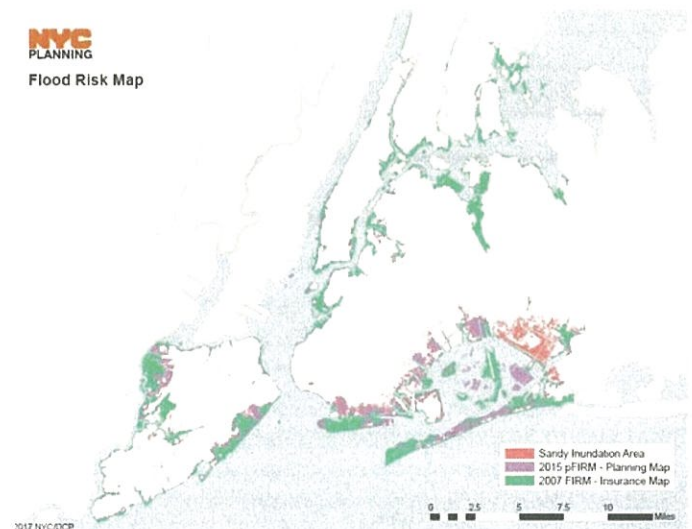


Image Credit: NYC Department of City Planning

Other Flooding and Climate Change News

New US Flood Aid Rules Requiring Federally Funded Projects to Account for Increased Flood Risk. [Continue reading...](#)
Bloomberg | Feb 7, 2018

Climate Change Could Swamp Your Muni-Bond Portfolio
[Continue reading...](#)
Wall Street Journal | February 2, 2017

Moody's Climate Change Adaptation and Mitigation Could Affect Cities' Bond Ratings [Continue reading...](#)
Urban Land Magazine | January 17, 2018

World's Biggest Weather Threat Isn't Hurricanes [Continue reading...](#)
Bloomberg | January 12, 2018

Thank you for keeping up with the SSWG. For more information, please visit our [website](#)

Contributing Editor: Suzanne DiGeronimo, FAIA | DiGeronimo Architects

Managing Editor: Catherine McVay Hughes

Graphics and Layout: Hazen and Sawyer
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**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 0409 Res. No. Sea Level Rise

in favor in opposition

Date: 02/25/19

(PLEASE PRINT)

Name: Catherine McKay Hughes

Address: _____

I represent: _____

Address: _____

◆ Please complete this card and return to the Sergeant-at-Arms ◆