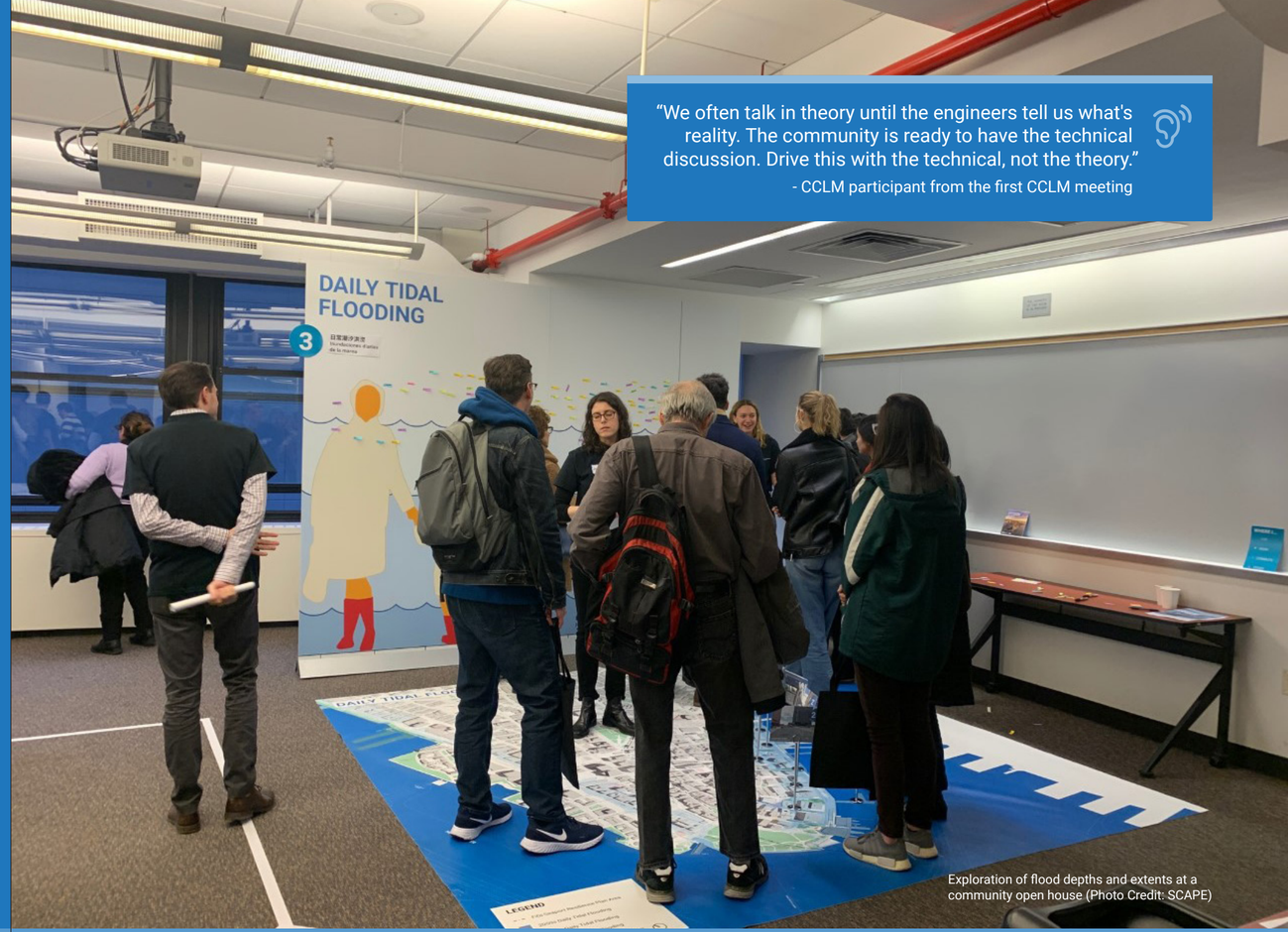
Chapter Two

Master Plan Process



"We often talk in theory until the engineers tell us what's reality. The community is ready to have the technical discussion. Drive this with the technical, not the theory."

- CCLM participant from the first CCLM meeting

Exploration of flood depths and extents at a community open house (Photo Credit: SCAPE)

How was this Master Plan Created?

Creating a master plan for a resilient 21st-century waterfront requires bold interdisciplinary thinking to ensure feasibility, broad community support, and a pathway to implementation. Over two years, the New York City Economic Development Corporation (NYCEDC) and the Mayor's Office of Climate Resiliency (MOCR) led a multi-disciplinary planning process on behalf of the City of New York to develop this master plan. This included engagement with the community (both in-person and online), technical analysis on a variety of topics core to the creation of the master plan, and building an implementation plan. Combined, these three workstreams ensured that the master plan was shaped by a diversity of voices, perspectives, and expertise and has the necessary elements for long-term success.

The City approached the work by dividing the master plan process into four phases. It began with evaluating the broadest range of possible resilience solutions and ended with a proposed conceptual design, along with a roadmap for implementation. Throughout this process, each potential resilience solution was explored in depth before reaching any conclusions.

Community engagement, technical analyses, and implementation planning all began on day one. Additionally, the project team ensured that the workstreams all related to one another throughout the process. For example, community feedback shaped questions during the technical analyses and considerations around permitting and costs influenced design decisions.

The development of the master plan was also informed by previous community engagement and resilience planning in Lower Manhattan. Since Hurricane Sandy, much has been done to advance climate change adaptation in the area. One year after Sandy, the City released *A Stronger, More Resilient New York*, where an initial idea for a shoreline extension along the Financial District, South Street Seaport, and Two Bridges neighborhoods was first presented. Upon the release of the *Southern Manhattan Coastal Protection Study* in 2014, which analyzed a potential shoreline extension in more detail, Lower Manhattan leaders and community members called for a more comprehensive solution as well as the further exploration of on-land resilience options.

These efforts led to the creation of the *Lower Manhattan Climate Resiliency Study*, a comprehensive multi-hazard climate risk assessment, highlighting the vulnerabilities of the area. This study was the first comprehensive assessment of climate change impacts across Lower Manhattan, informed by the findings of the New York City Panel on Climate Change (NPCC). The NPCC is a group of climate scientists tasked with advising the City on climate impacts and resilience initiatives. The study led to on-land projects across 70 percent of Lower Manhattan's coastline with over $900 million in capital investments to date. The study also found that an entirely on-land resilience solution in the Financial District and Seaport would likely be incredibly challenging and that a shoreline extension should be explored further. The *Financial District and Seaport Climate Resilience Master Plan* is the missing link, building off previous analysis and developing a solution for one of the most unique and challenging shorelines to adapt in Lower Manhattan. For the purposes of analysis, the master plan's study area goes from the base of the Brooklyn Bridge through The Battery and inland up to Broadway, in line with the general area that will be protected by this plan.

Who Created the Master Plan?

NYCEDC and MOCR led the project team to develop the master plan. The project team also consisted of City agency partners, and an interdisciplinary consultant team of technical experts assembled by the City. This project team met and consulted with a broad range of additional state and federal agencies, outside technical experts, community members, and other public stakeholders to inform the plan.

City Agencies

NYC EDC
NYC Mayor's Office of Climate Resiliency
NEW YORK CITY DOT
NYC Parks
NYC PLANNING
NYC Environmental Protection

Consultant Team

ARCADIS
SCAPE
one architecture (new york city, amsterdam)

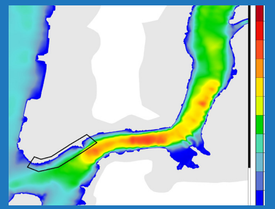
AKRF
BJH Advisors
Ernst & Young
Matrix New World
Sam Schwartz Engineering
Sive Paget Riesel

Advisory Role: HR&A Advisors, Karp Strategies, Public Works Partners

In developing this master plan, the process was just as important as the outcome to ensure that this is the right plan for this place.

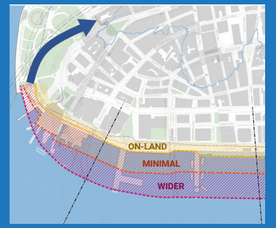
The Master Plan Process

Phase I
Assess existing conditions, and begin key systems analyses (flood defense, drainage, maritime, public and emergency access, ecology, and public programming)



Screenshot from a hydrodynamic model, used to understand how water currently moves in the East River

Phase II
Identify constraints and opportunities across systems and develop the broadest range of potential resilience solutions



Early development of project options, including on land and in-water flood defense approaches

Phase III
Narrow the resilience solutions based on technical feasibility and community and regulatory feedback

An early rendering of what a resilience solution could look like, standing atop the upper level

Phase IV
Develop the conceptual design and implementation roadmap

An Illustration of what a resilient waterfront could look like in the future

Building a Shared Vision

Approach to Engagement

It is critical that the future of the Financial District and Seaport waterfront reflects a shared vision between the City and the community. To accomplish this, the City worked closely with community members throughout the master planning process to share updates on the technical work, educate about climate change hazards and impacts, gather input and feedback, and incorporate diverse perspectives and voices. This feedback directly informed everything from the master plan process itself to the technical analysis as well as the eventual conceptual design proposal. To foster broad participation and reach a diversity of voices, the City employed a variety of digital and non-digital tools, conducted extensive marketing and outreach, and ensured the project team was available for one-on-one conversations.

The following principles helped to shape this engagement process:

- **Empowering community members by** advancing their understanding of the science of climate change and its potential impacts, as well as the technical constraints and tradeoffs of building flood protection in the study area
- **Ensuring opportunities for co-creation** to develop resilience infrastructure solutions that meet the needs and priorities of local and citywide groups
- **Delegating power** to planning partners to expand engagement and bring more people into the conversation
- **Actively consulting** with individuals and organizations and incorporating their feedback into the master plan
- **Keeping the community informed** of the planning process and crucial decision points, and highlighting how their input shaped the master plan
- **Closely coordinating** across local, state, and federal agencies to ensure that the proposed conceptual design is feasible and implementable

The City convened the Climate Coalition for Lower Manhattan (CCLM), a group of local and citywide organizations and resilience advocates who helped advise on the development of the master plan. Additionally, the City held public meetings, worked with local elementary, middle, and high schools to bring in youth perspectives, and met one-on-one with community members, advocates, and other waterfront users. The City also coordinated with local, state, and federal elected officials, convened an independent panel of technical advisors who reviewed the project team's work, and launched an interactive online engagement portal specifically for the master plan.

The City regularly met with the Aquatic Resources Advisory Committee (ARAC), a group of representatives from state and federal regulatory agencies, formed for the master plan, who advised the project team on considerations regarding issuing of permits for any proposed work in the East River to help pave a clear pathway to implementation. As with any engagement process, different groups had varying priorities that needed to be reconciled and integrated. This master plan reflects a balance across the diverse feedback received.

Most of this engagement happened in the context of the COVID-19 pandemic, which dramatically shifted the framework for engagement. In place of in-person meetings and gatherings, the City transitioned its engagement to an online format, holding meetings over Zoom, building out an interactive online engagement portal, and live-streaming public meetings. While the format of community conversations changed, the quality of input and participation was sustained. The City learned valuable lessons around inclusive online engagement and how to ensure broad representation, even during an unprecedented time.

Who Shaped this Master Plan?

The City led the master plan process, which was informed and supported by hundreds of interested members of the public. This input and feedback was integral to the development of the master plan.

Engagement Timeline

Over the past two years, the City conducted extensive community outreach to ensure this master plan reflects a shared vision. The work was divided into four phases, as described below. While engagement was ongoing throughout the process, the project team organized meetings around key decision points and milestones to ensure transparency and meaningful engagement around master plan priorities and decision-making.

Phase I

Assess existing conditions, and begin key systems analyses

Fall 2019 - Winter 2020

What was shared: What the latest science says about the climate hazards these neighborhoods face now and in the future; how other cities and countries are adapting their waterfronts to climate change; possible flood defense strategies

What community gave feedback on: How to make this an open, equitable, and transparent planning process; the types of technical analyses to prioritize

Phase II

Identify constraints and opportunities across systems and develop the broadest range of potential resilience solutions

Spring 2020 - Winter 2021

What was shared: How existing conditions in the study area shape what is feasible; how the climate threats influence design; early thinking around flood defense infrastructure

What community gave feedback on: Guiding principles for the overall master planning process; what makes this area unique; what people want to see here in the future; overall master plan footprint

Local elementary school students learn about flood risk in Lower Manhattan at Public Open House #1 (Photo Credit: SCAPE)

Phase III

Narrow the resilience solutions based on technical feasibility and community and regulatory feedback

Winter 2021 - Spring 2021

What was shared: Flood defense proposal focusing on a narrow-to-moderate shoreline extension to achieve the master plan's goals and reflect community feedback

What community gave feedback on: How to make this an exciting and inviting public space in the future; the width of the shoreline extension

Phase IV

Develop the conceptual design and implementation roadmap

Spring 2021 - Fall 2021

What was shared: Conceptual design that incorporates community feedback; an implementation roadmap for funding and financing

What community gave feedback on: Feedback on the proposed design; priorities for implementation

Screenshot of the master plan website during a virtual public open house

Ongoing Community Engagement

- **Climate Coalition Meeting #1** — Dec 2019
- **Regulators Meeting #1** — Dec 2019
- **Technical Advisors Meeting** — Dec 2019
- **Regulators Meeting #2** — Jan 2020
- **Community Board & Elected Briefing** — Jan 2020
- **Public Open House #1** — Feb 2020
- **COVID-19 Pause** — Spring 2020 - Summer 2020
- **Technical Advisors Meeting** — Mar 2020
- **Community Board & Elected Briefing** — May 2020
- **Climate Coalition Meeting #2** — Oct 2020
- **Regulators Meeting #3** — Nov 2020
- **Community Board & Elected Briefing** — Nov 2020
- **Climate Coalition Meeting #3** — Dec 2020
- **Technical Advisors One-on-Ones** — Dec 2020
- **Ecology & Coastal Defense Workshop** — Jan 2021
- **Community Board & Elected Briefing** — Jan 2021
- **Public Open House #2** — Feb 2021
- **Regulators Meeting #4** — Feb 2021
- **Envisioning a 21st Century Waterfront Workshop** — March 2021
- **Funding & Financing Workshop** — April 2021
- **Climate Coalition Meetings #4&5** — May 2021
- **Technical Advisors Meeting** — May 2021
- **Public Open House #3** — June 2021
- **Regulators Meeting #5&6** — June 2021
- **Community Board & Elected Briefing** — June 2021
- **Technical Advisors Meeting** — Aug 2021
- **Technical Advisors Meeting** — Sep 2021
- **Public Open House #4** — Nov 2021
- **Climate Coalition Meeting #6** — Nov 2021
- **Regulators Meeting #7** — Nov 2021

Community Feedback

Over the course of this two-year engagement process, the City spoke to hundreds of organizations and individuals and got feedback on all parts of the master plan, including process, design, and implementation. This feedback shaped the master plan. Below are highlights from the feedback that the City received:

Process

- Identify new forms of online engagement
- Host dedicated conversations on funding and financing to better understand this topic
- Educate on climate hazards and the future impact they will have on neighborhoods and communities
- Engage with youth and local students
- Be transparent with sharing the technical findings
- Study the impacts of replacing the FDR Drive viaduct and explore taking down the elevated highway up to Montgomery Street

Design

Flood defense and infrastructure

- Protect this area for the next generation of New Yorkers
- Incorporate green infrastructure and other natural ways to manage stormwater

Connecting to the surrounding neighborhoods

- Do not wall off the city from the East River
- Preserve and protect the Historic South Street Seaport
- Complement the existing character of the waterfront and surrounding neighborhoods
- Highlight and celebrate the history of this area

Sustainability

- Design for a sustainable future with carbon-neutral and nature-based solutions
- Ensure compatibility with the use of electric ferries
- Look for ways to support local habitats and ecosystems
- Explore the use of shade structures to provide shelter from extreme heat

Parks and open space

- Excitement about the opportunity for a new elevated waterfront experience
- Incorporate a continuous bike path and waterfront esplanade to connect with the Manhattan Waterfront Greenway
- Incorporate opportunities to connect with and get closer to the water
- Set a new global standard for design excellence
- Include a combination of passive and active recreational spaces
- Support other community needs, like additional open space

Buildings

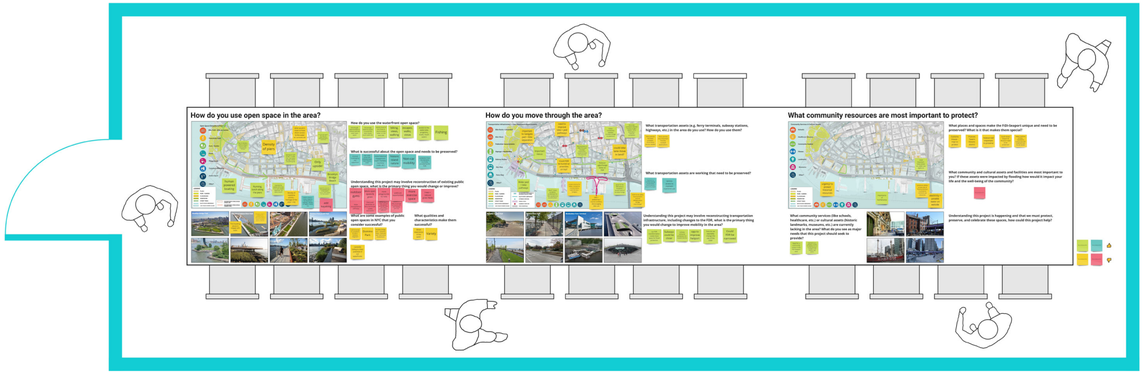
- Interest in integrating small-scale buildings for community-serving amenities, like kiosks, restaurants, ferry ticketing stations and waiting areas, coffee shops, etc.
- Preserve the historic character of the Seaport by not including any high-rise development in this area
- Limit large-scale development, if any is present at all

Transportation & waterborne structures

- Preserve or enhance the ferries, ships, and piers in the area, which add to the character of the waterfront
- Enable strong connections between waterborne transportation and subways and buses
- Protect the critical local and regional transportation connections present in the study area
- Openness to replacing the FDR Drive viaduct with an at-grade boulevard, but some concern about impacts to local traffic

Implementation

- As much as possible, minimize construction impacts on surrounding neighborhoods
- Use sustainable materials in construction
- Consider equitable financing mechanisms to ensure that those who benefit most from this investment are paying their fair share while simultaneously ensuring that this burden does not fall on the most vulnerable or those who are unable to pay
- Continue to coordinate with the community throughout design and implementation



Breakout Room from Public Open House #2, in which participants discussed and documented feedback on open space, circulation, and community amenities

Building a Technically Feasible Plan

Core to the master plan's success is ensuring it is technically feasible and can effectively respond to climate change while maintaining the critical functions that the waterfront provides today. To achieve this, the project team conducted numerous analyses focused on building a technically feasible plan.

Existing Conditions

To identify constraints and opportunities within the study area, the project team extensively studied the existing conditions of the Financial District and Seaport neighborhoods. This included a review of above and below-ground infrastructure, including subway tunnels, drainage infrastructure, utilities, and transportation networks, in addition to soil properties and the condition of structures along the waterfront. The project team also examined the current state of the waterfront esplanade, including how people use and access the space, as well as the amenities that exist along it today.

Wave and Hydrodynamic Modeling

The project team conducted extensive wave and hydrodynamic computer modeling to understand both current and future tides and storm surge in the study area. Early in the master plan process, the project team ran a suite of wave models (ADCIRC and SWAN) to determine the design flood elevation (DFE). The DFE is the height of the flood defense measures necessary to defend the study area from future coastal storms, including waves. Once the project team determined the shoreline will need to be extended into the East River to make space for flood defense infrastructure, the project team ran additional hydrodynamic models (ADCIRC and Delft3D) to understand how creating new land could alter the way water moves in the East River. The project team also analyzed potential impacts to adjacent communities and across the East River in Brooklyn to ensure that the resilience solution for the Financial District and Seaport would not exacerbate flooding elsewhere.

Interior Drainage Modeling

To effectively protect the study area, flood defense infrastructure must be paired with a drainage strategy to manage stormwater behind the flood defense system. To understand drainage needs, the project team analyzed the existing drainage system and the volumes of stormwater that must be managed during coastal storms. Computer modeling software (InfoWorks ICM) simulated future conditions and estimated the magnitude and location of flooding in the future. The project team then developed strategies to address these impacts, working closely with NYC Department of Environmental Protection (DEP).

Sampling and Testing

Early in the master plan process, the project team embarked on one year of sampling and testing in the East River to understand current ecological conditions. Sampling and testing was important because there was limited existing information characterizing the species and habitats in the East River, and what information did exist, was out of date. The findings from the sampling and testing program directly informed the design of the master plan and will inform any future assessments of potential adverse environmental impacts of the master plan.

Maritime Analysis and Vulnerability Studies

This waterfront is home to a robust network of ferry terminals, vessel operations, and piers. To understand how the maritime functions and assets within the study area will be impacted by climate change, as well as how to plan for future operations, the project team took an in-depth look at each asset. This included the Whitehall Ferry Terminal, Battery Maritime Building, Piers 11, 15, and 16, and the Downtown Manhattan Heliport. Based on the findings from maritime analyses and sea level rise vulnerability studies, the project team developed strategies to ensure maritime assets in the area are resilient and designed for long-term adaptability to changing needs and conditions.

Engineering and Design Studies

Engineering and design studies were core to the development of the master plan. The engineering and design teams worked together to understand the types of flood defense tools that could be feasible in the study area. The project team conducted detailed engineering studies to test the feasibility of different solutions, including how to integrate flood defense into buildings, how to cross over subway tunnels, how to ensure long-term adaptability of the flood defense system, and how to tie the new infrastructure into higher ground, which is critical to ensuring no water moves around the new coastal flood barrier. While the master plan's primary goal is providing flood defense, the design team also put substantial thought into how this new infrastructure can fit into and improve the urban fabric. This began with better understanding the implications of this infrastructure and how it will impact the waterfront and the day-to-day experience for those who live in, work in, visit, and move through this area. In later phases, this stream of work evaluated how to best weave together the different technical components to create a universally accessible waterfront for all New Yorkers, with programming opportunities that reflect community and citywide needs.

A member of the project team retrieves a sample of sediment and organisms from the bottom of the East River next to the Manhattan Bridge (Photo Credit: Normandeau Associates)

Building a Plan that Can be Realized

From the outset of this process, the project team considered what will be necessary to make the master plan a reality. Implementation planning included four components:

1. Determining required permits and approvals
2. Evaluating sources of funding to pay for implementation of the master plan
3. Considering constructability and phasing
4. Investigating the future responsibilities of a governance entity

By planning for implementation every step of the way, the City is ensuring that the master plan has a clear pathway to success.

Required Permits and Approvals

The master plan will be subject to several local, state, and federal reviews and approvals based on existing historic resources and potential environmental impacts. To better understand the regulatory approvals needed, the project team studied the anticipated approval processes and coordinated closely with local, state, and federal agencies. Given the complexity associated with implementing a plan of this scale, the City took a proactive approach to permitting and protection of aquatic resources starting early in the master plan process. The US Army Corps of Engineers (USACE), as a key regulator overseeing in-water construction, recognized the importance of the master plan and agreed to convene a series of working sessions with relevant regulatory agencies to advise the project team on permitting considerations for any work proposed in the East River. Chaired by the USACE Regulatory Branch of the NY District, the ARAC—convened specifically for the master plan process—includes the New York State Department of Environmental Conservation, the New York Department of State, the National Marine Fisheries Service, and the United States Coast Guard. By working with the ARAC from the outset of the master planning process, the project team was able to incorporate feedback from these agencies into the master plan.

Funding and Financing

Funding the master plan will require significant public investment. As part of the master plan process, the project team developed estimates for both upfront capital investment and long-term costs associated with operating and maintaining the flood defense system. Based on these cost estimates, the project team looked at a variety of local, state, and federal funding sources that could help cover the potential costs of the master plan, as well as identify opportunities for the master plan's goals to align with currently available funding sources. The project team also looked at a range of new and creative funding sources, analyzing the potential contributions from each.

Constructability and Phasing

Fully building the proposed flood defense infrastructure will involve a complex design, permitting, and construction process. Balancing costs, executing timely construction, and ensuring continuity of critical maritime operations along the waterfront will be critical to implementing the master plan. To support the implementation of the master plan, the project team studied different ways in which the master plan could be phased, or constructed, including as a series of projects versus a single capital project.

Governance

The City must identify an entity that can oversee the master plan from design and approvals through to construction and long-term operations and maintenance. The project team explored three options for an entity to implement the master plan: existing agencies, a new governance entity, or a hybrid structure that combines the two approaches. The project team considered different types of potential governing bodies and researched precedents from comparable projects to determine several ways to carry this master plan forward.

The City, State, and U.S. Army Corps of Engineers recently began construction on the Rockaways – Atlantic Shorefront project (Photo Credit: NYC Mayor's Office)

Citywide Initiatives

The *Financial District and Seaport Climate Resilience Master Plan* exists within the larger context of ongoing New York City climate resilience initiatives and adheres to citywide policy goals.

Advancing a Multilayered Climate Adaptation Strategy

Across the five boroughs, the City is advancing a climate resilience strategy that addresses four main climate threats: (1) coastal storm surge; (2) extreme rainfall; (3) tidal flooding caused by sea level rise; and (4) extreme heat, the deadliest form of extreme weather in New York City. This work has been in progress for more than a decade and includes hundreds of completed projects and policy reforms.

Reducing Risk from Coastal Storms

To address coastal flooding, the City is:

- **Investing in coastal flood defense across the city** such as the Red Hook Coastal Resiliency and USACE's South Shore Staten Island Coastal Storm Risk Reduction projects. Other projects under construction include the Rockaways-Atlantic Shorefront and the East Side Coastal Resiliency projects
- **Elevating, hardening, and protecting** critical utilities across the city, including wastewater treatment facilities, energy systems, and transportation assets
- **Strengthening existing buildings** to withstand climate impacts, including New York City Housing Authority (NYCHA) campuses
- **Leveraging land use and regulatory policy** such as updating the Building Code and Zoning Resolution as well as publishing the New York City Climate Resiliency Design Guidelines
- **Supporting communities** with programs assisting small businesses and individual New Yorkers

Managing Stormwater

While Hurricane Sandy recovery primarily concentrated on protecting shorelines, the City is expanding its focus to adapt to extreme rainfall for both inland and waterfront neighborhoods. In September 2021, the City released *The New Normal: Combating Storm-Related Extreme Weather in New York City*. In addition to policy changes, the Mayor announced the following investments:

- $2.1 billion in new funding for DEP;
- $238 million in accelerated funding for crucial DEP projects;
- $400 million in new funding for other priority capital projects among City agencies including NYC Parks, Department of Transportation, New York City Housing Authority, and the School Construction Authority; and
- $42 million in expense funding for Fiscal Years 2022 and 2023.

The City also released its first Stormwater Maps in 2021. Equipped with new data, the City is advancing a program for four "cloudburst neighborhoods," bringing planning and investments to communities with the highest vulnerability to stormwater flooding. The City is also integrating more nature-based solutions to reduce the stress on the city's sewer system, including more than 11,000 rain gardens as well as bioswales. The City has also built out an expansive network of Bluebelts in Staten Island. Bluebelts are ecologically rich systems that naturally handle the runoff from rain on streets and sidewalks.

Addressing Sea Level Rise Impacts

With 520 miles of coastline, sea level rise is among the most challenging climate risks facing the city. The City is confronting this challenge directly, including:

- **Raising Shorelines** through the Raised Shoreline Citywide program, where the City is investing $125 million to reduce the impacts of tidal flooding and address sea level rise
- **Advancing new zoning designations**, including "Special Coastal Risk Districts" to ensure new development is consistent with open space and infrastructure plans in highly vulnerable areas that are already experiencing frequent flooding from high tides
- **Restoring coastal wetlands** as outlined in NYC Parks' *Wetlands Management Framework*, released in 2021, which identifies more than 300 acres of wetland restoration projects, helping to create a natural buffer against flooding

The city is also working to better document tidal flooding. Together with the Science and Resilience Institute at Jamaica Bay and New York Sea Grant, the City is working with residents through the Flood Watch program to document the scale, scope, and impacts of frequent flooding. In addition, the City is leading a consortium of research institutions to expand a flood sensor network, FloodNet NYC, to get real-time, hyper-local data.

Staying Safe from Rising Temperatures

As extreme heat is New York City's deadliest type of natural hazard, building long-term resilience to this threat is critical. In 2017, the City released its first heat adaptation plan, *Cool Neighborhoods NYC*, which includes both physical and programmatic initiatives to combat extreme heat. The plan includes a $100 million investment in tree plantings in the City's most heat vulnerable neighborhoods to help lower temperatures. Through CoolRoofs NYC the City has covered over 11 million square feet of rooftops with white, reflective coatings.

During heat waves, the City activates a network of several hundred cooling centers at libraries, senior centers, and other community facilities. Low-income New Yorkers can request cooling assistance through the Home Energy Assistance Program (HEAP), which provides up to $800 for the purchase and installation of an air conditioner. The City also manages a network of cooling features highlighted in the *Cool It! NYC* online map, including misting stations, spray showers, and water fountains. In 2020, during the COVID-19 pandemic, the City transformed select Open Streets in heat vulnerable areas into "Cool Streets" by equipping them with cooling features such as spray caps installed on fire hydrants and portable drinking fountains to allow for socially distanced cooling.

The City also operates a social resilience program in partnership with community-based organizations called "Be A Buddy," which trains volunteers in climate health education and community preparedness to reach at-risk New Yorkers during heat waves and other emergencies.

Coordinating With Key Partners

Building resilience is a massive undertaking that involves collaboration across multiple levels of government, public service providers, and the private sector. The City's work is complemented by other resilience efforts being undertaken by partners, including:

- Governor's Office of Storm Recovery
- NY State Department of Environmental Conservation
- Metropolitan Transit Authority
- Port Authority of New York and New Jersey
- Federal Emergency Management Agency
- US Army Corps of Engineers
- Investor-owned regional utilities, such as Con Edison
- Private sector building owners

Developing and implementing solutions to respond to the impacts of climate change on New York's communities cannot be achieved with a one-size-fits-all approach. Rather, every neighborhood has unique needs and constraints, as well as vulnerabilities, that must be taken into consideration when planning for a resilient future. Responding to the existential threat of climate change will require communities and decision-makers coming together in new ways to solve this unprecedented challenge.