

WHAT ARE THE RISKS?

To conduct Lower Manhattan's first comprehensive climate-risk assessment, we used conservative projections and the most up-to-date science from the New York City Panel on Climate Change, a group of leading climate scientists and experts. With 2.5 feet of sea level rise projected by the 2050s and over six feet by 2100, **Lower Manhattan is vulnerable to flooding not only during storms like Hurricane Sandy, but also on a regular basis, even on sunny days.**



STORM SURGE

Temporary extreme increase in the height of the sea due to a hurricane or nor'easter.

37% of buildings at risk of storm surge in the 2050s and nearly 50% of buildings at risk by 2100.



TIDAL INUNDATION

Regular, sunny day flooding of a coastal area from higher tides.

Over 10% of properties and 20% of streets at risk of daily flooding by 2100 due to sea level rise.



GROUNDWATER TABLE RISE

Increase in height of the level below which soil is permanently saturated with water.

7% of buildings at risk of destabilization and almost 40% of streets with underground utilities at risk of water infiltration by 2100.



EXTREME PRECIPITATION

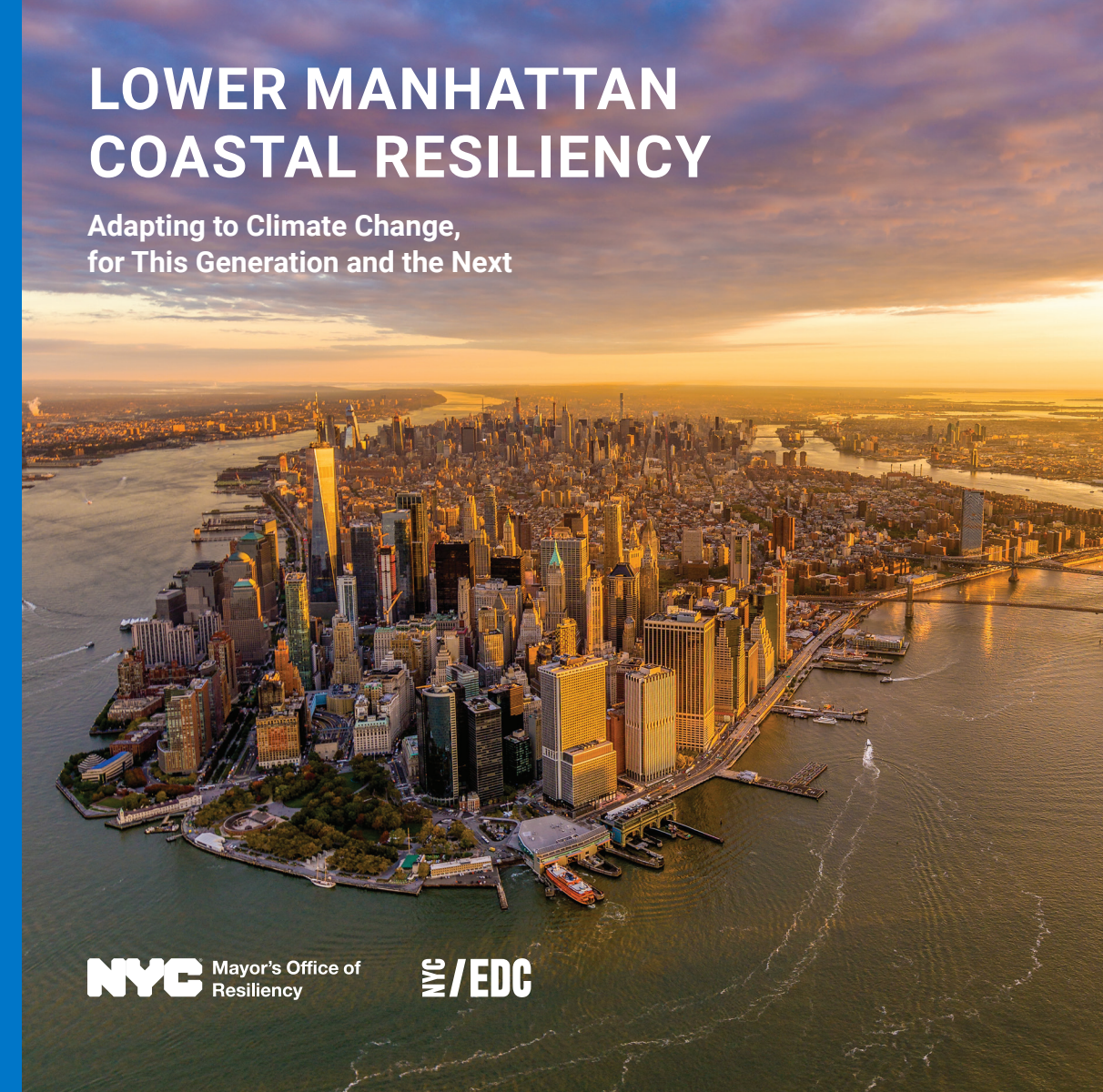
One inch of rainfall or more during a period of 24 hours.

Increased frequency of street flooding and sewer backups during extreme rain events by the 2050s.

FALL 2019

LOWER MANHATTAN COASTAL RESILIENCY

Adapting to Climate Change, for This Generation and the Next



GET IN TOUCH: email us at lmcr@cityhall.nyc.gov

TO LEARN MORE: visit nyc.gov/LMCR

NYC Mayor's Office of Resiliency

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WHAT IS LMCR?

Lower Manhattan Coastal Resiliency (LMCR) is the City's plan to adapt Lower Manhattan to climate change, for this generation and the next.

Climate change poses an urgent and existential threat to New York City. Sea level rise, based on current projections, will submerge parts of Lower Manhattan on a regular basis within this generation and put critical infrastructure and jobs—serving the entire city and region—at risk. This includes our subway and ferry network, our sewer system, 10 percent of the city's jobs, and many historic, cultural, and community assets.

Lower Manhattan is already a model of resiliency, bouncing back and thriving after financial collapses, 9/11, and Hurricane Sandy. From its early history as a shipping and trading port to today's capital of global finance, Lower Manhattan has long been a site of transformation—and one of New York's greatest assets.

That's why the City is taking **bold, significant action, investing \$500 million** in climate adaptation projects to protect Lower Manhattan now, while planning for long-term climate adaptation to meet the challenges of tomorrow.

WHY LOWER MANHATTAN?

Any impacts to Lower Manhattan would be felt across the city and region.

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| 1 City and regional jobs center: The area holds 1% of New York City's landmass, but 10% of its economic output and 300,000 jobs, of which almost a third earn less than the NYC median income. | 2 Hub of critical infrastructure: 19 out of the city's 25 subway lines pass through the area, as well as 26 ferry lines. |
| 3 Home to a growing residential community: Over 100,000 residents live below Chambers Street, a 129% increase since 2000. | 4 Historic heart of New York City: The story of New York City's past and of generations of immigrants is embedded here. |

LMCR is part of the City's investments in resilience across the five boroughs.

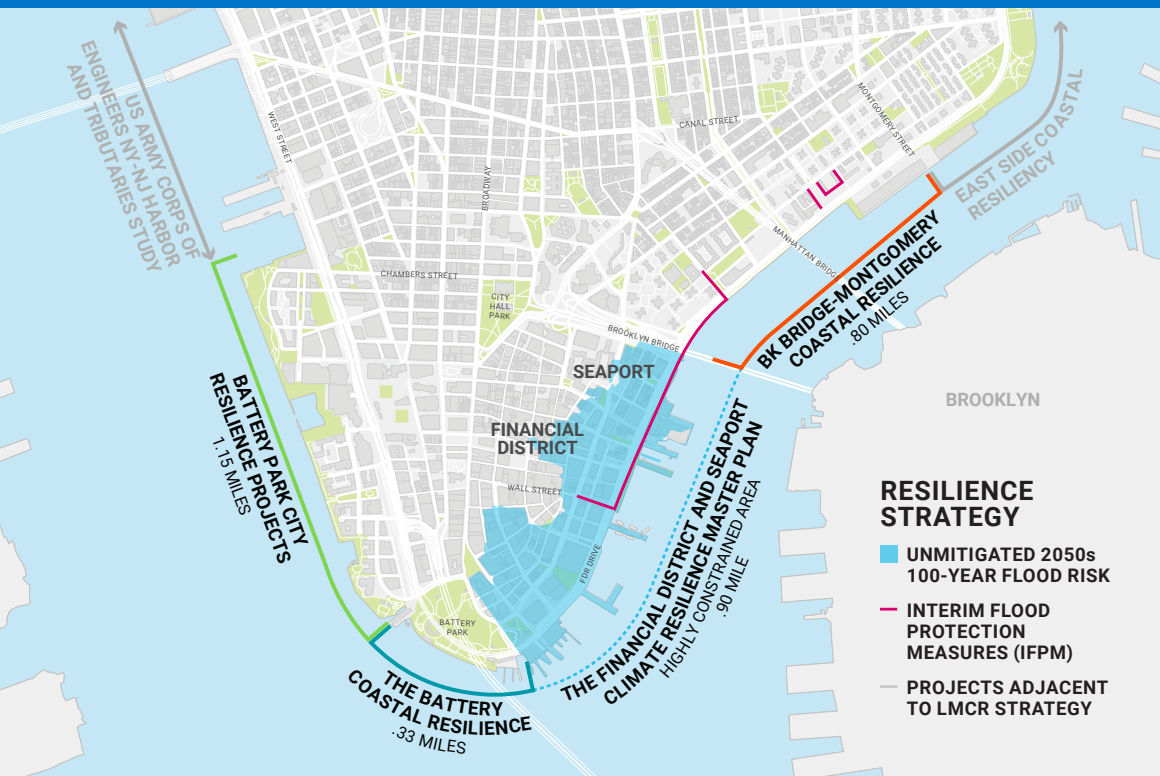
For more information, go to: www.nyc.gov/resiliency

WHAT IS THE CITY DOING?

The City will have \$500 million in permanent resilience infrastructure investments under construction by 2021.

While the challenges are severe, we have the tools to adapt to climate change and make this community and the city more resilient. Each neighborhood has different conditions and risks and requires a unique, tailored approach.

These projects will protect workers, residents, and critical infrastructure across 70 percent of Lower Manhattan's coastline. For the remaining 30 percent of the coastline, the City is advancing a master plan for the Financial District and Seaport neighborhoods, which require an in-water solution to climate change.



BATTERY PARK CITY RESILIENCE PROJECTS

The Battery Park City Authority (BPCA) will develop coastal protection projects to adapt Battery Park City to new climate conditions. This resilience plan will be implemented in four phases, from Pier A and The Battery in the south to Stuyvesant High School in the north. These projects will mitigate against storm surge, incorporating elevated park spaces, deployable flood barriers, and fixed garden or park walls along the waterfront.

PRELIMINARY INVESTMENT: Includes \$134 million in bonds
AGENCIES: BPCA
TIMELINE: Design began in 2018



THE BATTERY COASTAL RESILIENCE

This project will rebuild and elevate the wharf and promenade, staying true to the character and uses of the park, while protecting it from sea level rise in 2100. BPCA will also integrate a protective barrier in the back of the park to protect against a storm surge.

INVESTMENT: Approximately \$165 million
AGENCIES: New York City Economic Development Corporation (NYCEDC), in partnership with NYC Parks and BPCA
TIMELINE: Design will begin in fall 2019

BK BRIDGE-MONTGOMERY COASTAL RESILIENCE

This integrated flood protection system consists of permanent barriers and deployable barriers that lie flush with the esplanade in sunny day conditions and flip up to protect the Two Bridges neighborhood before a storm. The barriers will allow the community to continue accessing the waterfront, while protecting them from a storm surge.

INVESTMENT: Approximately \$200 million
AGENCIES: NYCEDC for design, Department of Design and Construction (DDC) for construction
TIMELINE: Design began in summer 2019



INTERIM FLOOD PROTECTION MEASURES

Temporary flood protection barriers are being implemented, where feasible, for the 2019 coastal storm season in the Financial District, Two Bridges, and Seaport to protect these areas from more frequent, less severe storms.

INVESTMENT: Approximately \$3.5 million
AGENCIES: NYC Emergency Management (EM)
TIMELINE: Completed in summer 2019

THE FINANCIAL DISTRICT AND SEAPORT CLIMATE RESILIENCE MASTER PLAN

More work needs to be done to adapt the Financial District and the Seaport. Unlike other neighborhoods in Lower Manhattan, the waterfront here is too low-lying, constrained, and complex to accommodate the land-based resilience tools being implemented in other parts of the city. To ensure these two neighborhoods can continue to thrive, the City is planning for an extension of the shoreline with an in-water barrier, so that we have the space to integrate the protection we need.

We need your collaboration and input to ensure that this shoreline extension secures the future of Lower Manhattan and New York City, while integrating with the existing neighborhoods and making them better places to live and work. Over the next two years, the City, in partnership with the communities of Lower Manhattan and other key stakeholders, will develop the Financial District and Seaport Climate Resilience Master Plan. This plan will set a roadmap for the long-term adaptation of these areas for current and future New Yorkers.

