

# NYC LEADERSHIP IN RESILIENCY



# HURRICANE SANDY CAUSED UNPRECEDENTED DAMAGE...

**51 square miles** flooded

**88,700 buildings** inundated

**44 lives** lost

**\$19 billion** in damages and lost  
economic activity

**2 million New Yorkers** left without  
power for several weeks

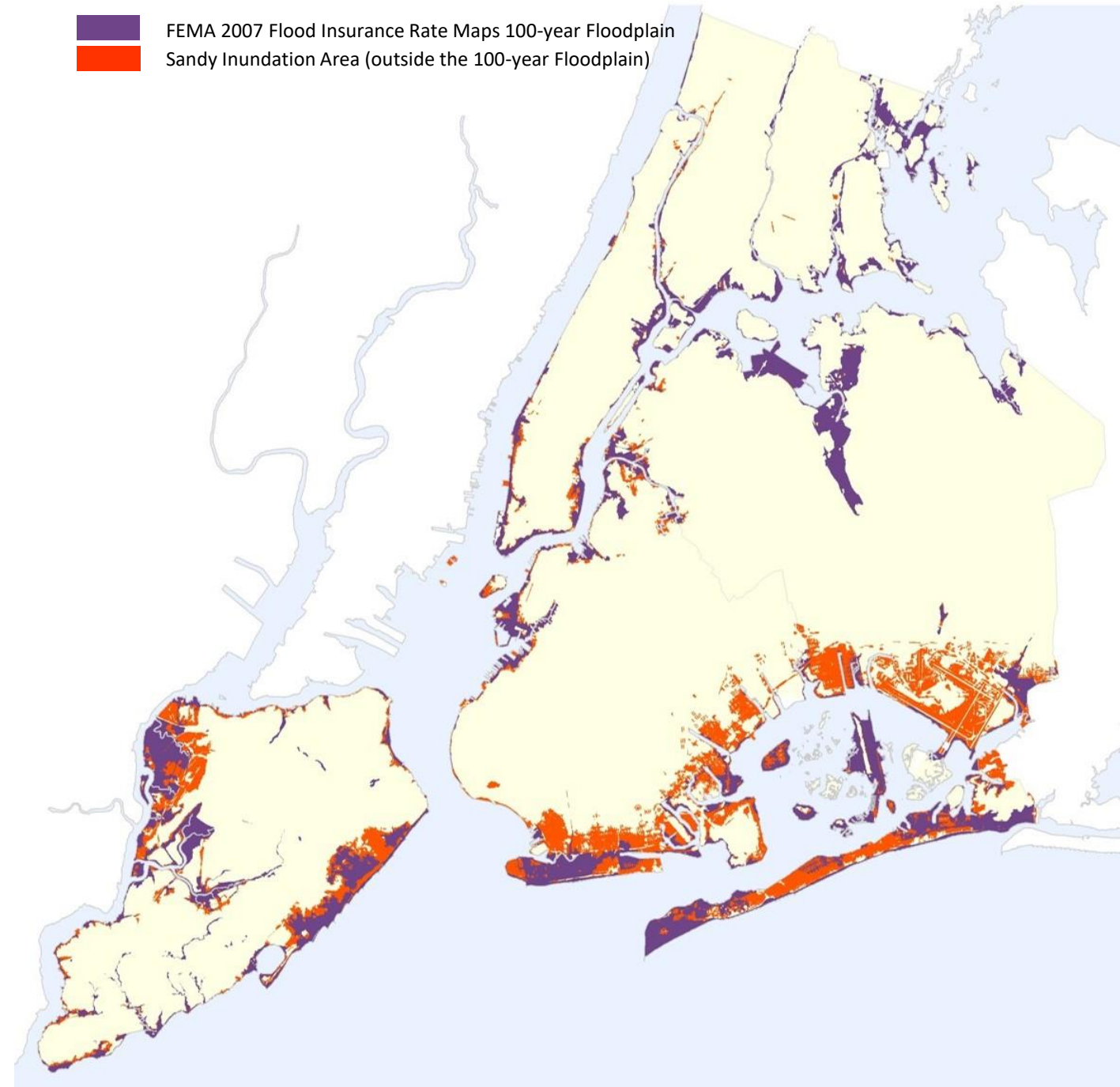
**Thousands** displaced from home



## ...AND EXPOSED A BROADER VULNERABILITY

Prior to Sandy, FEMA's Flood Insurance Rate Maps (FIRMs), which had not been meaningfully updated since 1983, were the best indicator of flood risk in the city.

The area that flooded during Sandy was 1.5 times larger than the 100-year floodplain defined on FEMA's 1983 FIRMs.

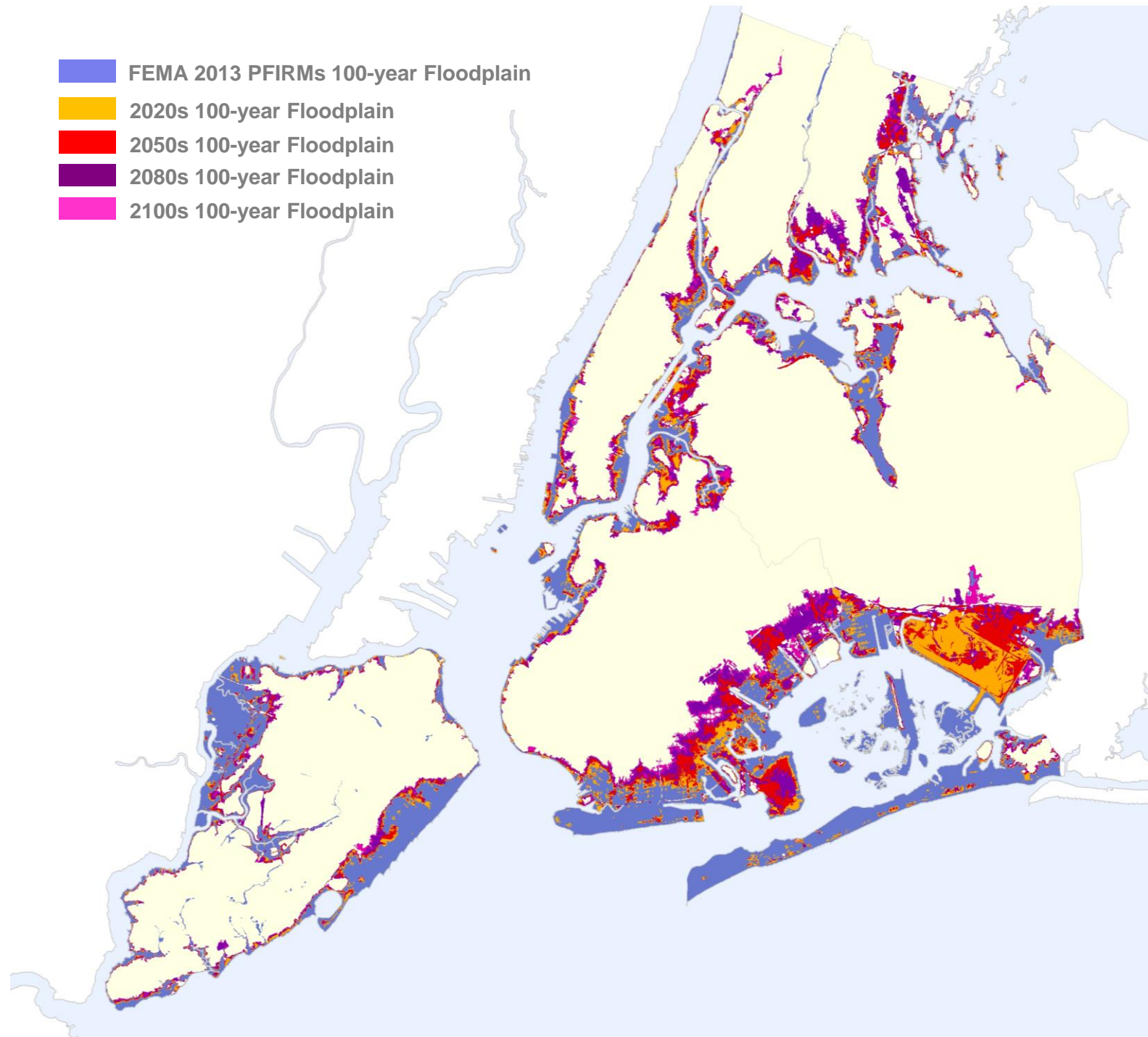


# VULNERABILITY INCREASES AS SEA LEVELS CONTINUE TO RISE

100-year Floodplain*			
	2013 PFIRMs	2050s Projected	Change (%)
Residents	400,000	808,900	102%
Jobs	290,800	555,700	91%
Buildings	71,500	118,000	65%
Area (Sq Ft)	534M	855M	42%

\* Numbers are rounded for clarity

**Over 171,000 buildings and 1.2 million New Yorkers projected to live in the floodplain by 2100.**





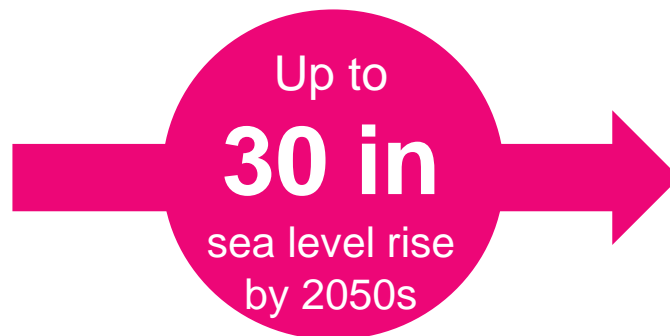
## **AS OUR CLIMATE CHANGES, THE INTENSITY AND IMPACTS OF MAJOR STORMS WILL LIKELY INCREASE**

By the 2050s, a Sandy-like storm could cause \$90 Billion in damage and economic loss – nearly five times Sandy’s impact.

This increase is due to projected sea level rise and increasing intensity of Atlantic storms.

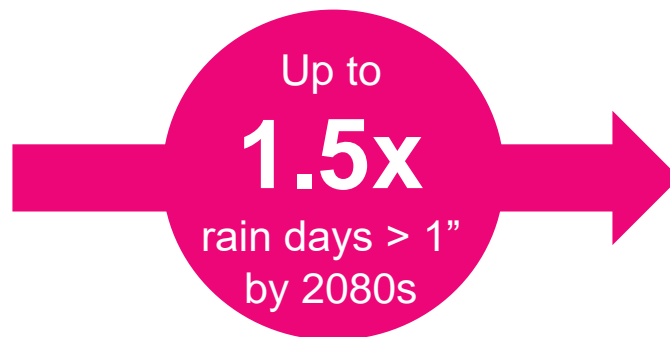
# COASTAL STORMS ARE NOT THE ONLY CLIMATE HAZARD WE MUST PREPARE FOR

**SEA LEVEL RISE**



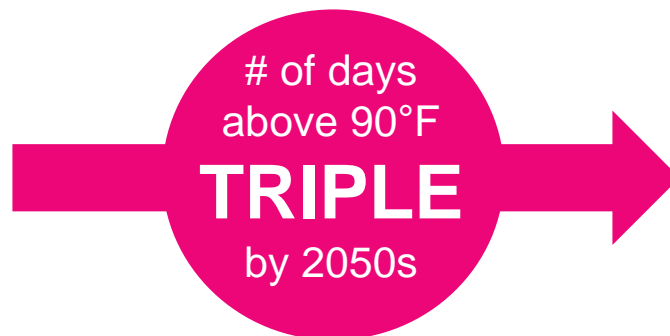
WIDESPREAD  
TIDAL FLOODING +  
GROUNDWATER  
TABLE RISE

**PRECIPITATION**



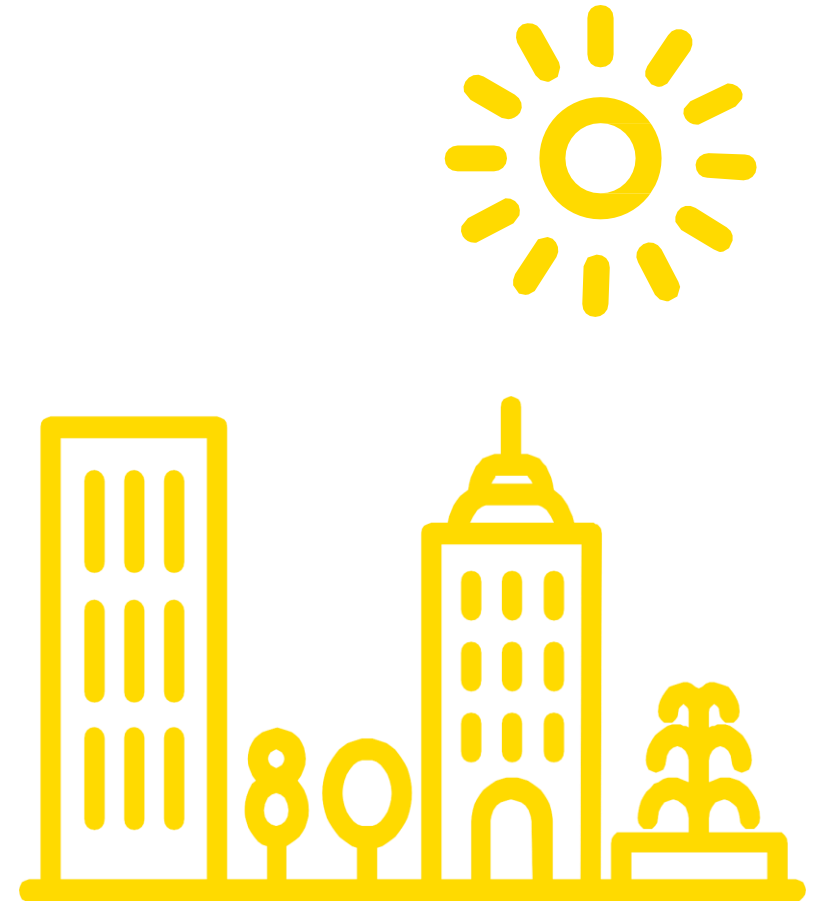
INLAND FLOODING

**TEMPERATURE**



NYC SUMMERS  
LIKE BIRMINGHAM,  
ALABAMA

# OUR RESPONSE TO THIS UNPRECEDENTED CHALLENGE



# BUILDING A MORE RESILIENT AND VIBRANT NYC

## OUR VISION

The Mayor's Office of Resiliency (MOR) strives to adapt New York City to the unprecedented challenge of climate change, creating a more resilient, equitable and vibrant city for the New Yorkers of today and generations to come.

## OUR MISSION

Through science-based analysis, policy and program development, and capacity building, MOR leads the City's efforts to ensure that New York City is ready to withstand and emerge stronger from the multiple impacts of climate change in the near- and long-term.





# MOR LEADS THE CITY'S MUTLI-LAYERED STRATEGY FOR BUILDING RESILIENCE

1. **Mitigating Risks:** *Upgrades to the physical environment to promote resiliency and mitigate climate impacts*
2. **Empowering Residents & Businesses:** *Capacity building to enable individuals, community groups, civic organizations and businesses to prepare for climate change*
3. **Building a Climate-Ready Government:** *Policy, regulatory, and governance reforms to streamline the planning, execution and management of resiliency actions*
4. **Advancing and Applying Climate Science:** *Interpret and apply latest climate models and develop adaptation strategies*



OneNYC 2050  
BUILDING A STRONG AND FAIR CITY

## A LIVABLE CLIMATE

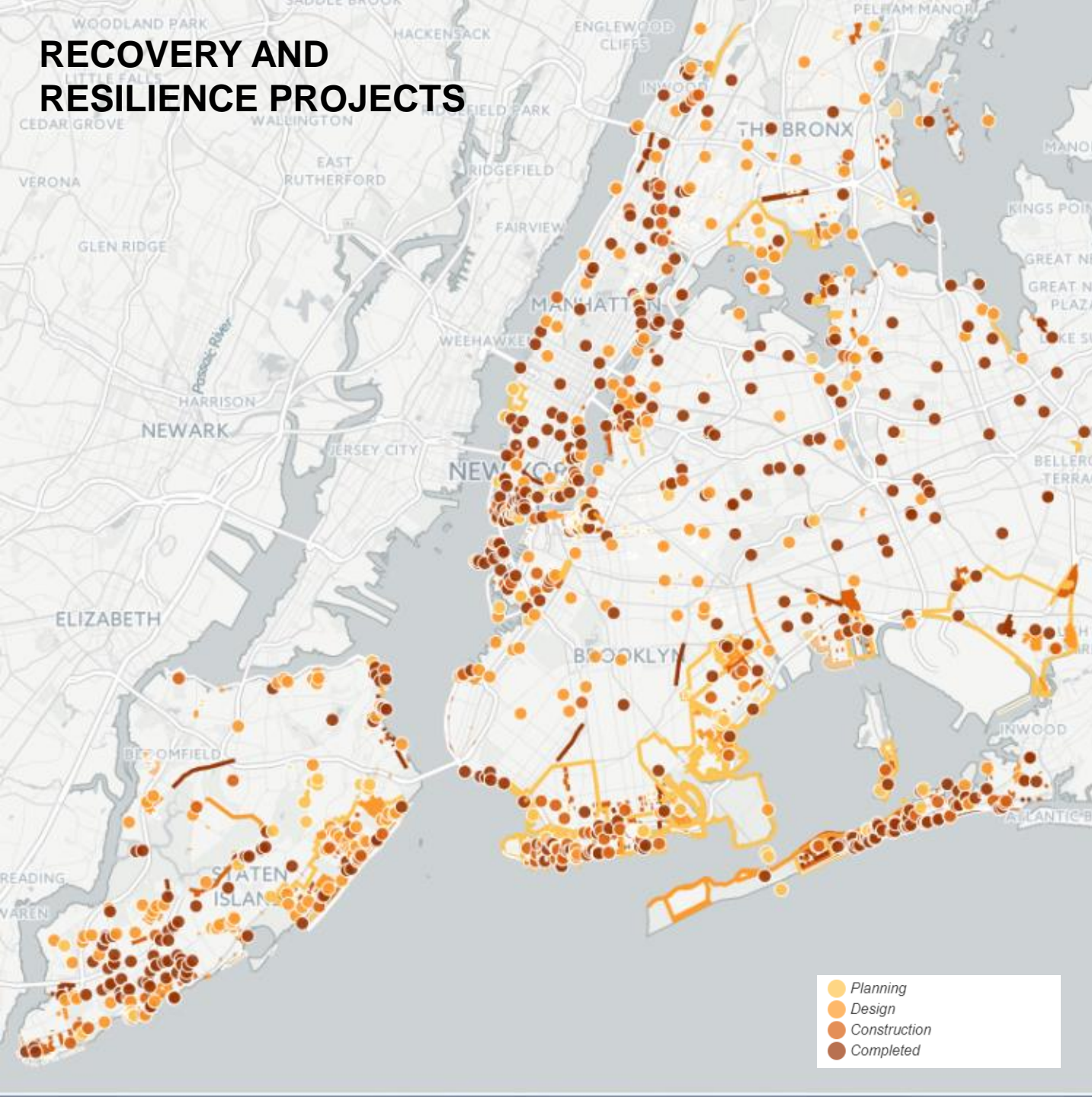
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New York City will lead a just transition to achieve carbon neutrality and adapt the city to withstand and emerge stronger from the impacts of climate change.

**NYC**

Full list of OneNYC initiatives: <https://onenyc.cityofnewyork.us/wp-content/uploads/2019/04/OneNYC-2050-Action-Plan-The-Path-Forward.pdf>

# RECOVERY AND RESILIENCE PROJECTS



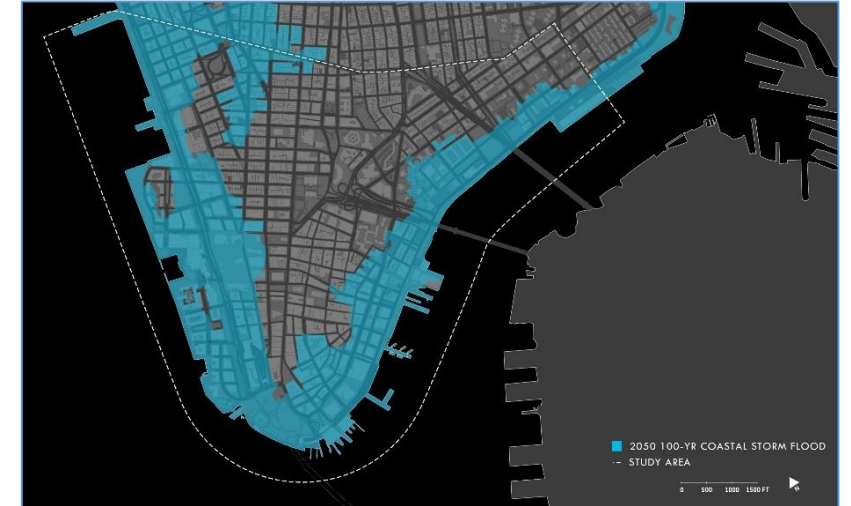
## INVESTING \$20 BILLION IN RESILIENCE CITYWIDE

The majority of resources for resiliency implementation comes from public sources, specifically Federal funding streams.

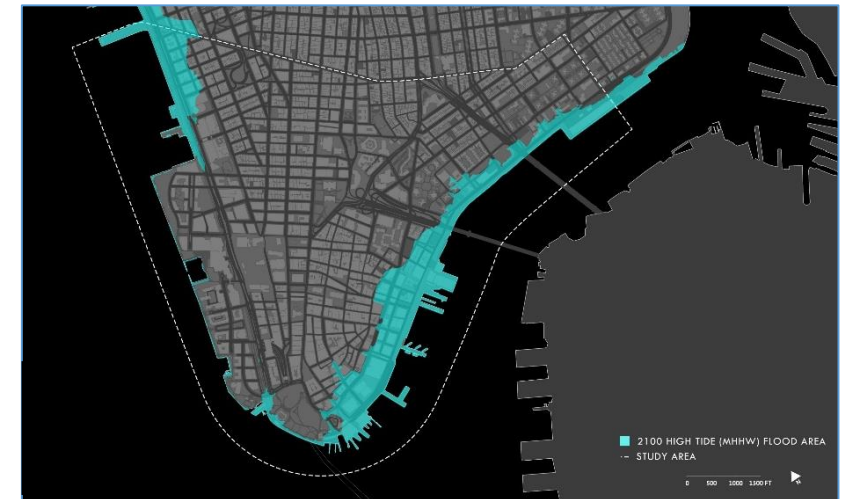
The City has invested over \$5 billion in capital projects to advance resiliency since Sandy.

# LOWER MANHATTAN FACES SIGNIFICANT CHRONIC CLIMATE RISKS

- By the 2050s:
  - 37% of properties at risk from 100-year storm surge
  - Increasingly frequent extreme rain events will cause combined sewer system to function less well and increase the risk of overflowing, causing street and basement flooding
  - 2.5 feet of sea level rise projected
- By 2100:
  - Almost 50% of properties at risk from 100-year storm surge, including over two thirds of historic or landmarked buildings
  - 20% of the district's streets and over 10% of buildings projected to be exposed to daily tidal inundation due to over 6 feet of projected sea level rise
  - Groundwater table rise projected to put 7% of buildings at risk of destabilization and expose 39% of streets with underground utilities to corrosion and water infiltration due to groundwater table rise

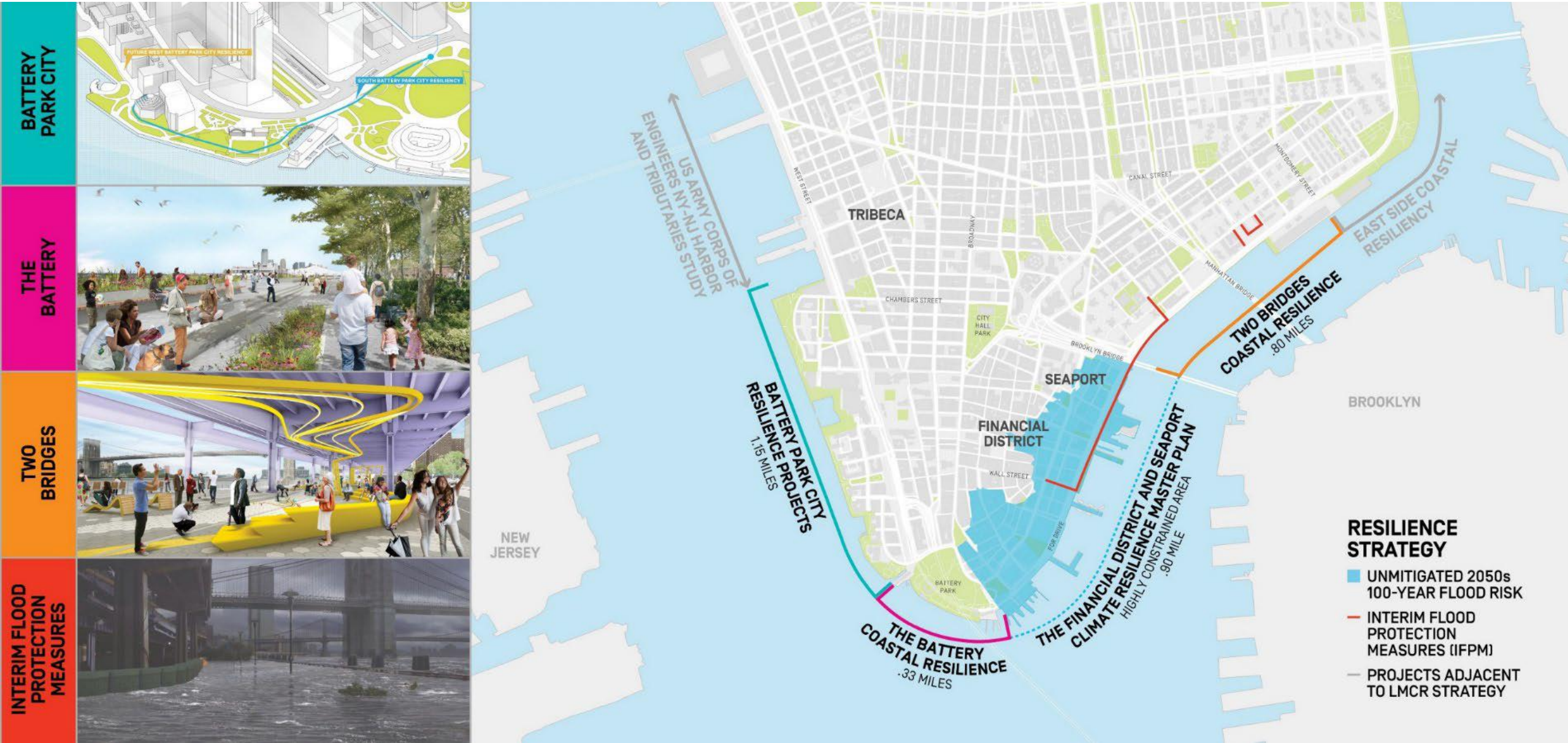


Map. 2050s 100-year coastal storm flood.



Map. Area exposed to daily tidal inundation in 2100.

# COMPREHENSIVE APPROACH TO PROTECTING LOWER MANHATTAN



# Climate Resiliency Design Guidelines

## LAUNCHING THE NEXT GENERATION OF RESILIENCE POLICY INITIATIVES

Climate Resiliency Design Guidelines are a first-of-its-kind policy to mainstream resilient design across all capital projects

THANK YOU

