



**A STRONGER,
MORE RESILIENT
NEW YORK**

New York Building Congress

March 13, 2015



The City of New York

A Greener, Greater New York

PlaNYC –released in 2007, updated in 2011 – addressed four key challenges and launched the City’s sustainability and resiliency efforts...

1. Growth

- Prepare for population growth
- Accommodate growth with smart development

2. Infrastructure

- Update or replace aging infrastructure assets
- Reduce lifecycle costs with proper maintenance

3. A Global Economy

- Attract hard-working people from the globe
- Improve quality of life / health for all New Yorkers

4. Climate Change

- Reduce our contribution to the causes and adapt our city to the inevitable effects of climate change



PlaNYC included the launch of the *New York City Panel on Climate Change* and the *Climate Change Adaptation Task Force* – both of which help the City to **identify future risks** and **modernize its infrastructure** to meet those risks.

Recovery, Rebuilding, and Resiliency

In the aftermath of Sandy, the City set up a climate resiliency task force.



The goals were to identify ways to

1. Rebuild neighborhoods not just as they were, but better; and
2. Strengthen critical infrastructure systems

by answering three key questions.

Question 1

What happened during Sandy and why?

Question 2

What could happen in the future?

Question 3

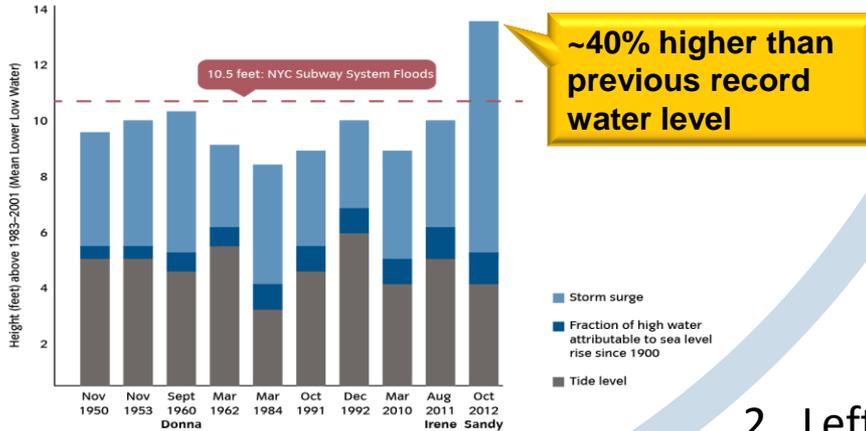
How do we rebuild post-Sandy and prepare for a future with climate change?

Agenda

- **Sandy and the Risks of Climate Change**
- PlaNYC: A Stronger, More Resilient New York
- Implementation
- Looking Ahead

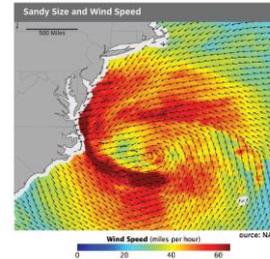
Sandy

An idiosyncratic surge event for NYC...



Why?

1. Wind Field



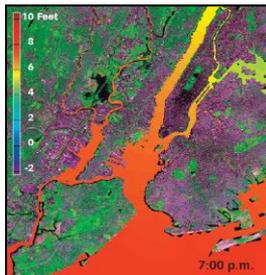
- 1,000 mile wind field pushed water into the NY Bight and caused record 32' waves off Rockaway coastline
- Wave action caused severe structural damage to buildings

2. Left Hook



- A rare “westward hook” put the city in the path of its onshore winds
- 3rd hurricane since 1878 to hit NJ

3. Tide



- Sandy’s storm surge largely coincided with a rising tide in the Upper Harbor
- Spring tide added to the peak water levels

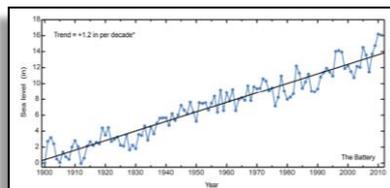
Result:

- 44 lives lost
- \$19 billion in damages
- Countless lives upended
- Major infrastructure disruptions

The Risks of Climate Change

NYC already faces a range of risks from extreme weather and climate change, and those risks grow into the 2020s, 2050s, and beyond.

The NYC Panel on Climate Change (NPCC) projects increased chronic climate hazards...



By the 2050s:

- 4.1°F to 5.7°F increase in average temperature
- 4% to 11% increase in average annual precipitation
- Sea levels likely to rise 1-2 ft.; maybe 2½ ft.

By 2100:

- High-end projections may reach 6 ft.

...and increased impact from extreme weather events.



By the 2050s:

- Number of days in NYC above 90° could triple

Even today:

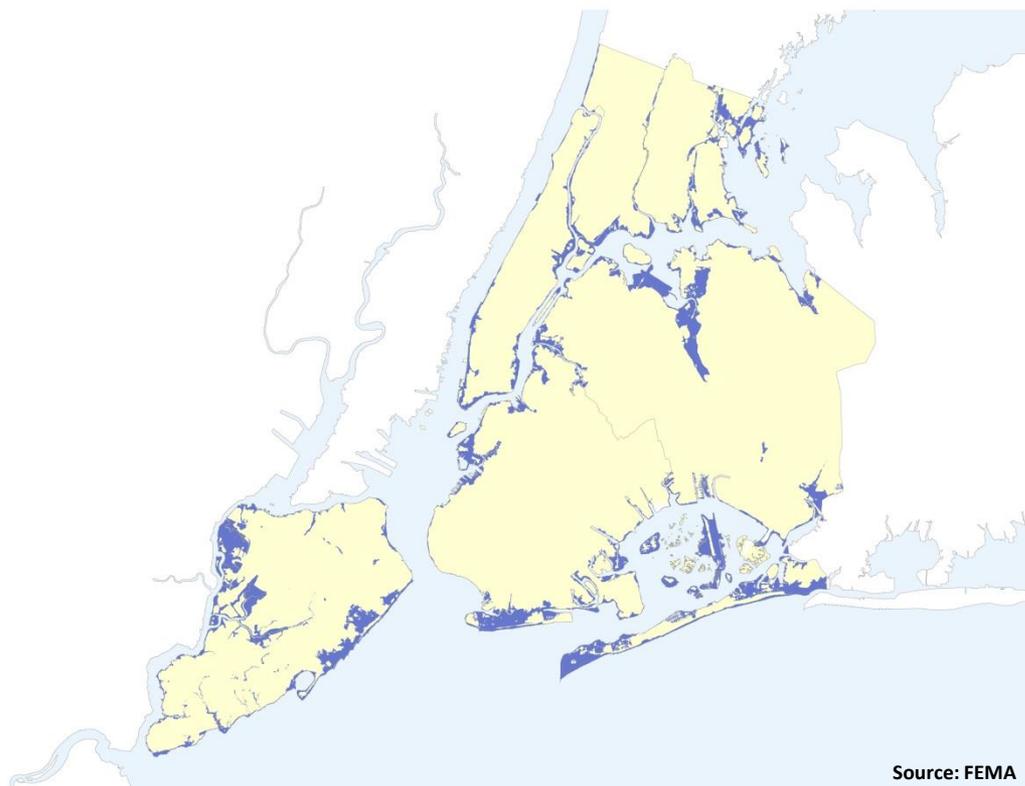
- 100-year floodplain expanded by 17 square miles (51%) citywide; 2.3 ft. average increase in 100-year flood elevations; will increase with further sea level rise; now encompasses 71,500 structures

Clearly, Sandy only represents one type of threat to New York City.

The Risks of Climate Change

Prior to Sandy, the best indicator of New York's vulnerability to extreme weather could be found in FEMA's 1983 flood maps.

FEMA 1983 Flood Maps (FIRMs)



100-Year Floodplain (FEMA 1983 Maps)

The 100-year floodplain as mapped in 1983 today covers about*:

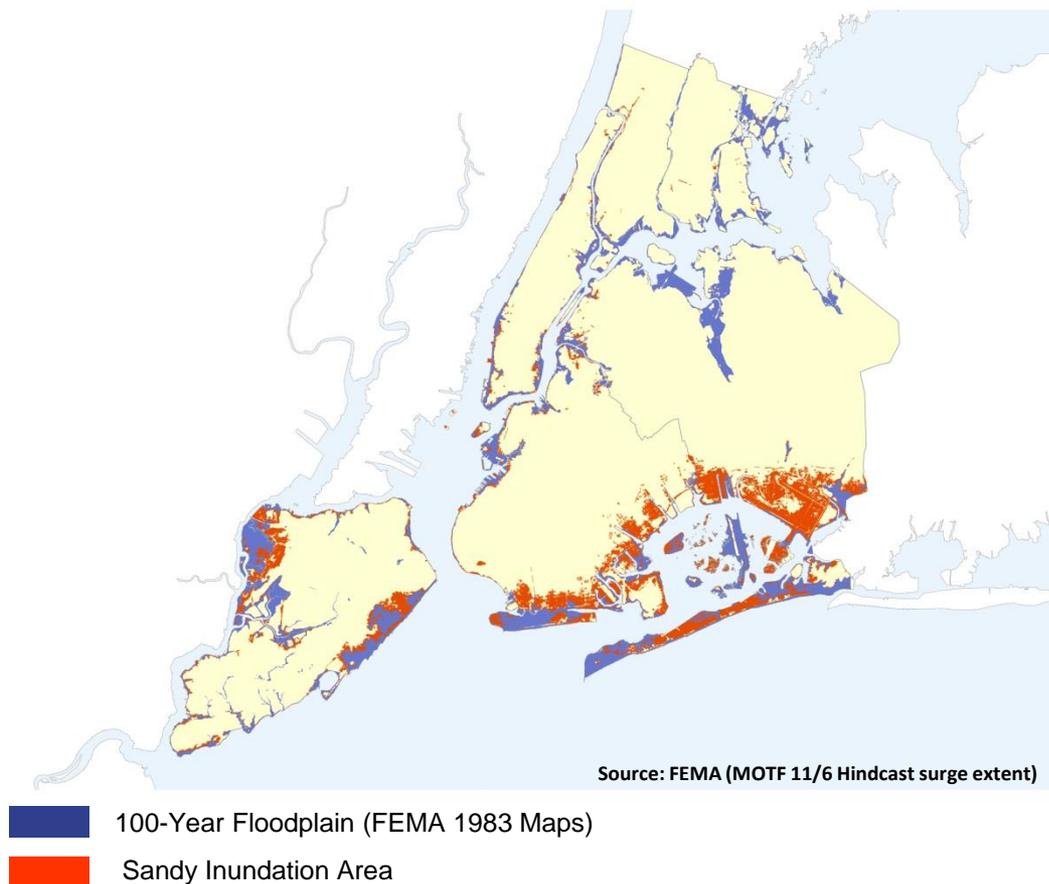
- **218,000 residents**
- **214,000 jobs**
- **36,000 buildings**
- **377MSF of floor area**

* Numbers are rounded for clarity

The Risks of Climate Change

However, Sandy demonstrated that New York is actually even more vulnerable than previously thought.

FEMA 1983 Flood Maps vs. Sandy Inundation Area



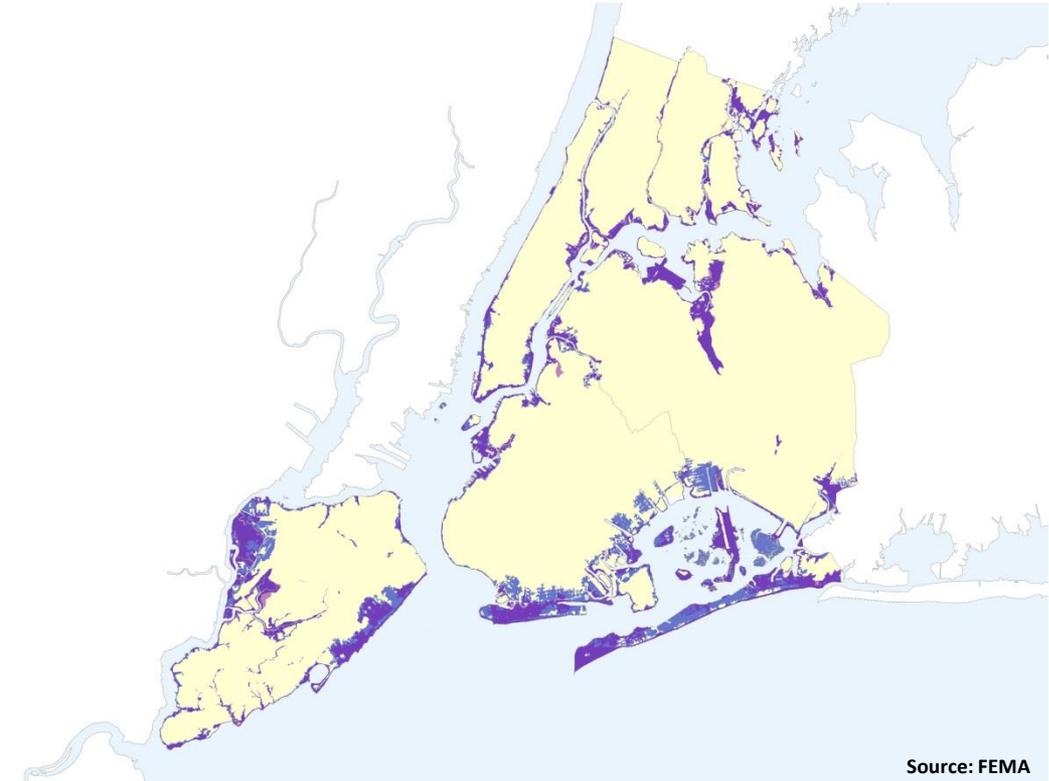
Share Outside 100-Year Floodplain

- > **1/3** of red- & yellow-tagged buildings
- ~ **1/2** of impacted residential units
- > **1/2** of impacted buildings

The Risks of Climate Change

Consistent with this analysis, FEMA has recently released new maps in a process that began before Sandy.

FEMA 1983 FIRMs vs. December 2013 Preliminary FIRMS



- 100-Year Floodplain: V and A Zone (FEMA 1983 Maps)
- 100-Year Floodplain: V and A Zone (FEMA 2013 Preliminary FIRMS)

100-YEAR FLOODPLAIN*			
	1983 Maps	2013 Pre-FIRMS	Change (%)
Residents	218,000	398,000	82%
Jobs	214,000	271,000	27%
Buildings	36,000	71,500	98%
Floor Area (SF)	377M	534M	42%

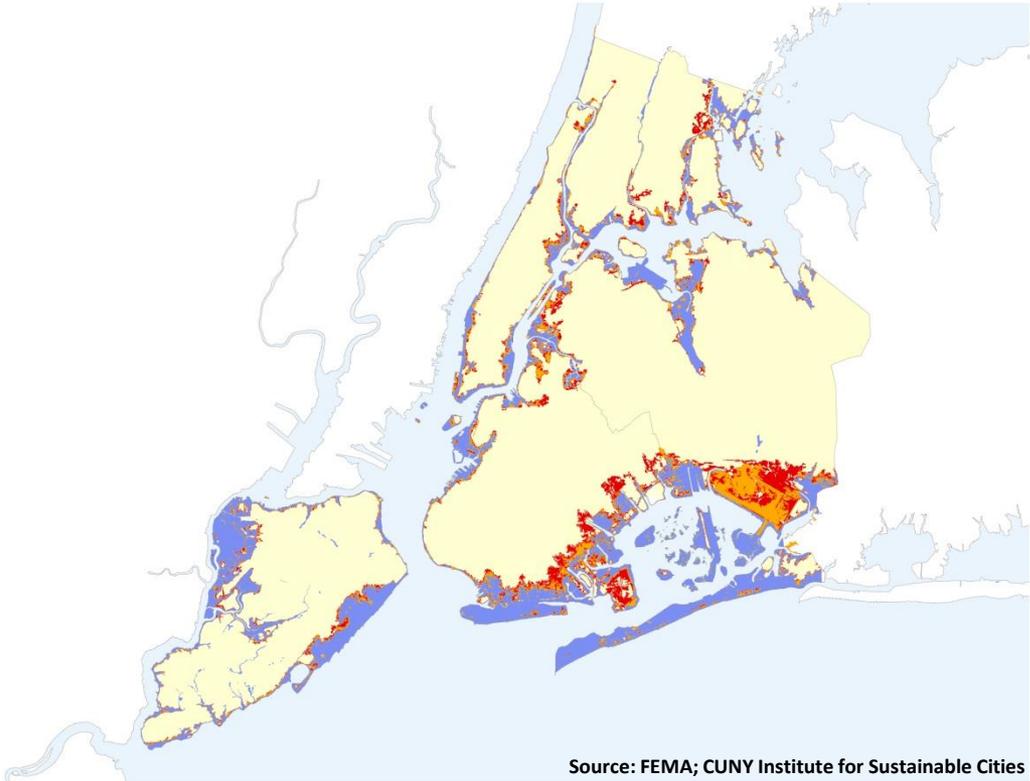
* Numbers are rounded for clarity

FEMA released the first draft of regulatory flood maps (Preliminary FIRMS) in December of 2013. Final FIRMS are expected to be ready as early as 2015.

The Risks of Climate Change

Using the NPCC projections, the City, with the CUNY Institute for Sustainable Cities, developed maps showing how these floodplains will expand by the 2050s.

FEMA Preliminary FIRMs, 2020s & 2050s Growth



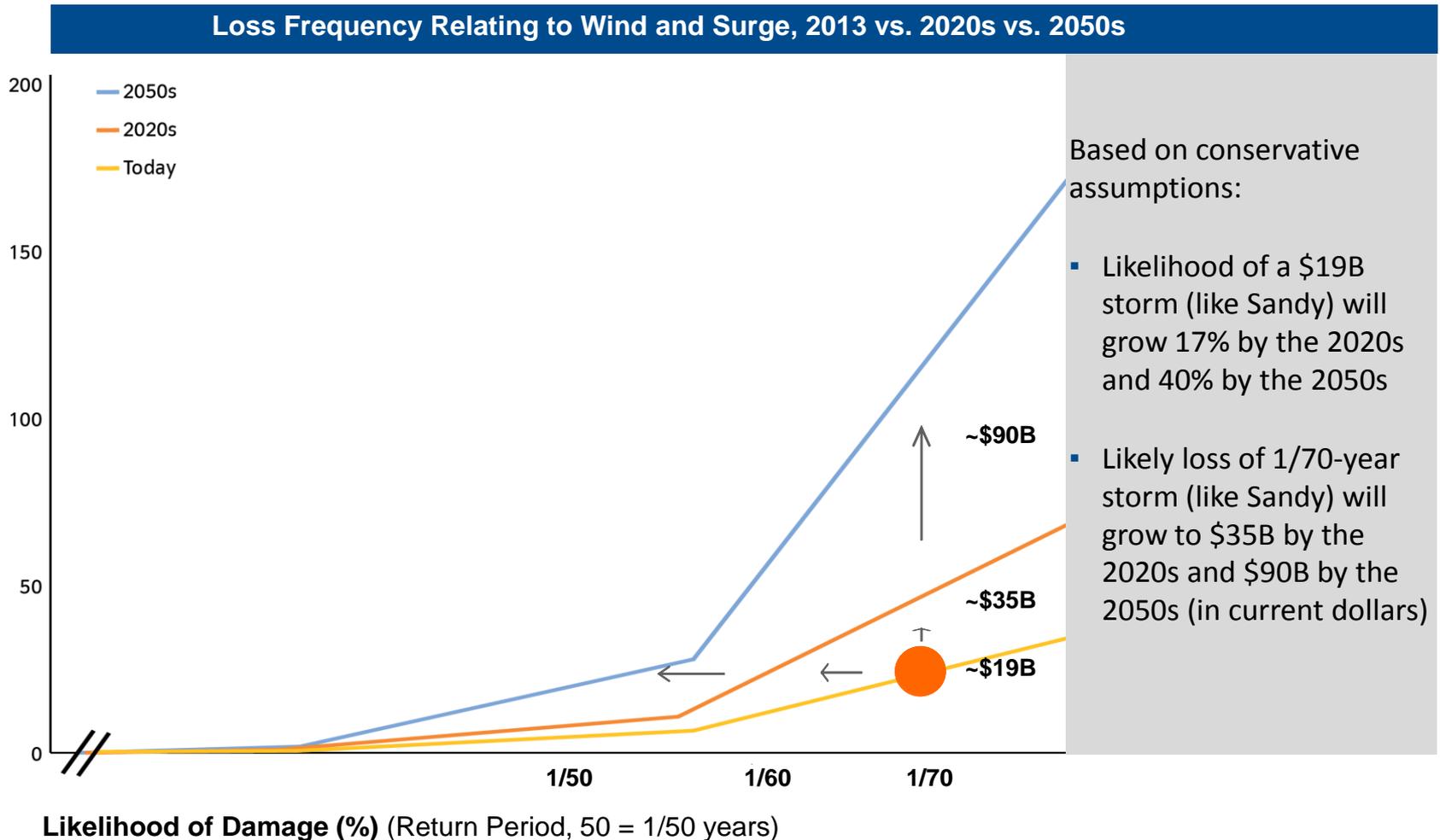
- 100-Year Floodplain (FEMA 2013 Preliminary FIRMs)
- 100-Year Floodplain (Projected 2020s)
- 100-Year Floodplain (Projected 2050s)

100-YEAR FLOODPLAIN*			
	2013 Pre-FIRMs	2050s Projected	Change (%)
Residents	398,000	801,000	101%
Jobs	271,000	430,000	59%
Buildings	71,500	114,000	59%
Floor Area (SF)	534M	855M	60%

* Numbers are rounded for clarity

Sandy and the Risks of Climate Change

Working with Swiss Re, the City quantified the potential monetary impacts resulting from an increased frequency in damaging storms as a result of climate change.

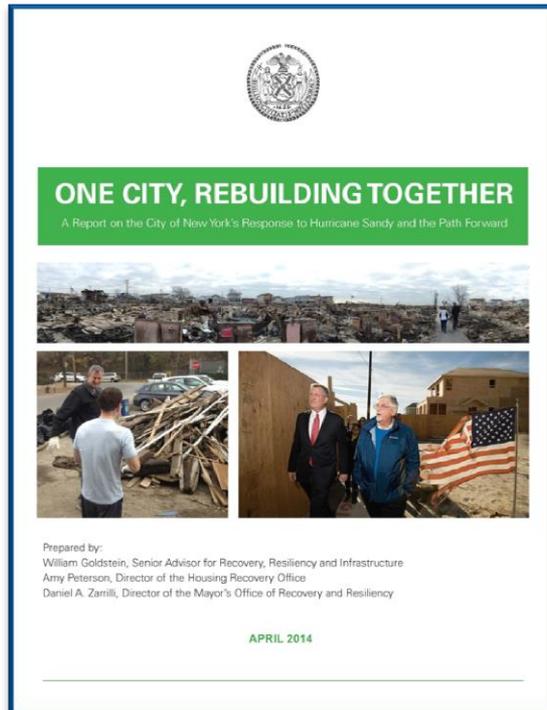


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One City, Rebuilding Together

In March 2014, Mayor de Blasio released *One City, Rebuilding Together* to accelerate the City's housing recovery program and expand the City's climate resiliency plan...



Enhance policy and planning

- Place-based coordination of land use and infrastructure
- Disclosure of key information via the Sandy Tracker

Expedite efforts to secure Federal funds

- Work to secure additional USACE authorizations
- Accelerate FEMA and HUD investments

Continue collaboration with State efforts

- Secure hazard mitigation funds
- Collaborate with NY Rising community planning process

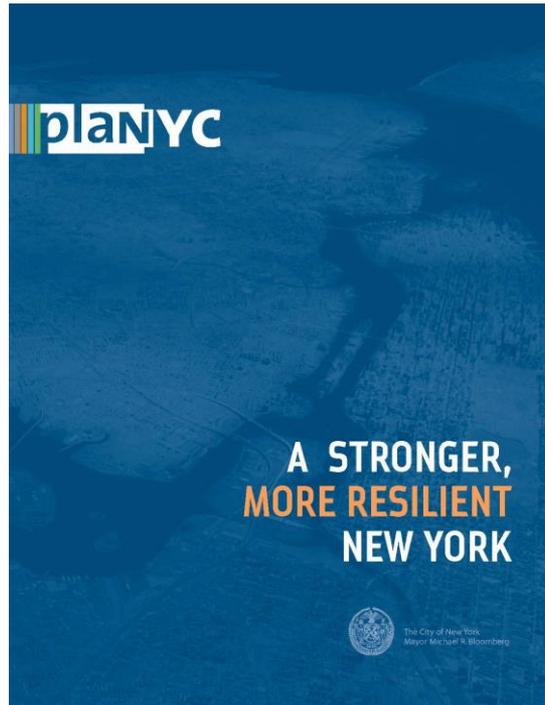
Expand economic opportunity for New Yorkers

- Expand workforce development opportunities
- Ensure local hiring opportunities in resiliency projects

These changes have accelerated the delivery of key resiliency projects, and have ensured that the Sandy recovery works better for all New Yorkers. These efforts are run through the Mayor's Office of Recovery and Resiliency.

A Stronger, More Resilient New York

...Including this roadmap, released in June 2013, to make all New Yorkers safer using a multi-layered approach and based on the best available science.



Strengthen coastal defenses

- Complete existing USACE coastal risk reduction projects
- Expand protections citywide

Upgrade buildings

- Amend the building code to strengthen new construction
- Incent investments in existing buildings

Protect infrastructure and services

- Harden critical assets and supply chains
- Expand natural infrastructure systems

Make neighborhoods safer and more vibrant

- Advocate for flood insurance affordability
- Address underlying social and economic challenges

The City's 257 initiatives comprise a **comprehensive plan** to reduce the risk of extreme weather and climate change. This innovative plan includes funding, an implementation schedule, and **can be achieved over the next ten years.**

Physical Resiliency

Taken together, the plans call for investing in new infrastructure that can reduce the risk to our neighborhoods, critical services, businesses, and vulnerable populations.

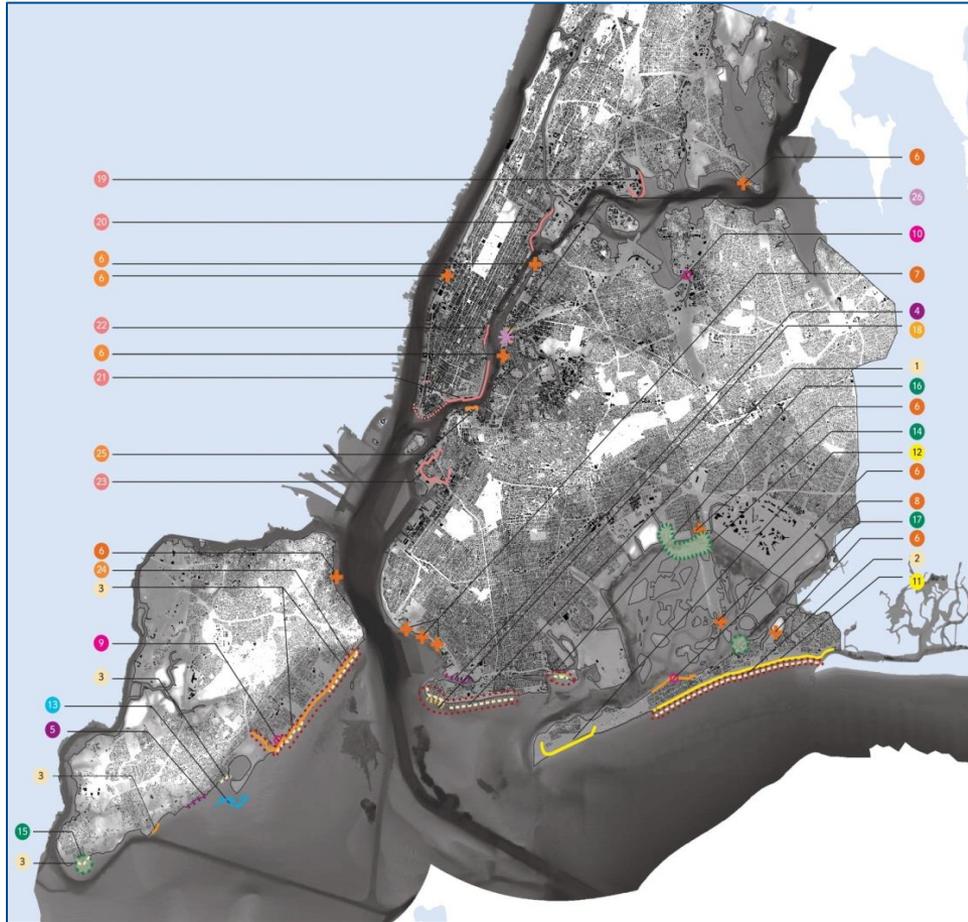


Critical Infrastructure

- Coastal Protection
- Buildings
- Insurance
- Utilities
- Liquid Fuels
- Healthcare
- Telecommunications
- Transportation
- Parks
- Water and Wastewater
- Food Supply
- Solid Waste

Physical Resiliency

The City's first-ever coastal protection plan was launched and included detailed recommendations for a first phase of investments on the coastline.

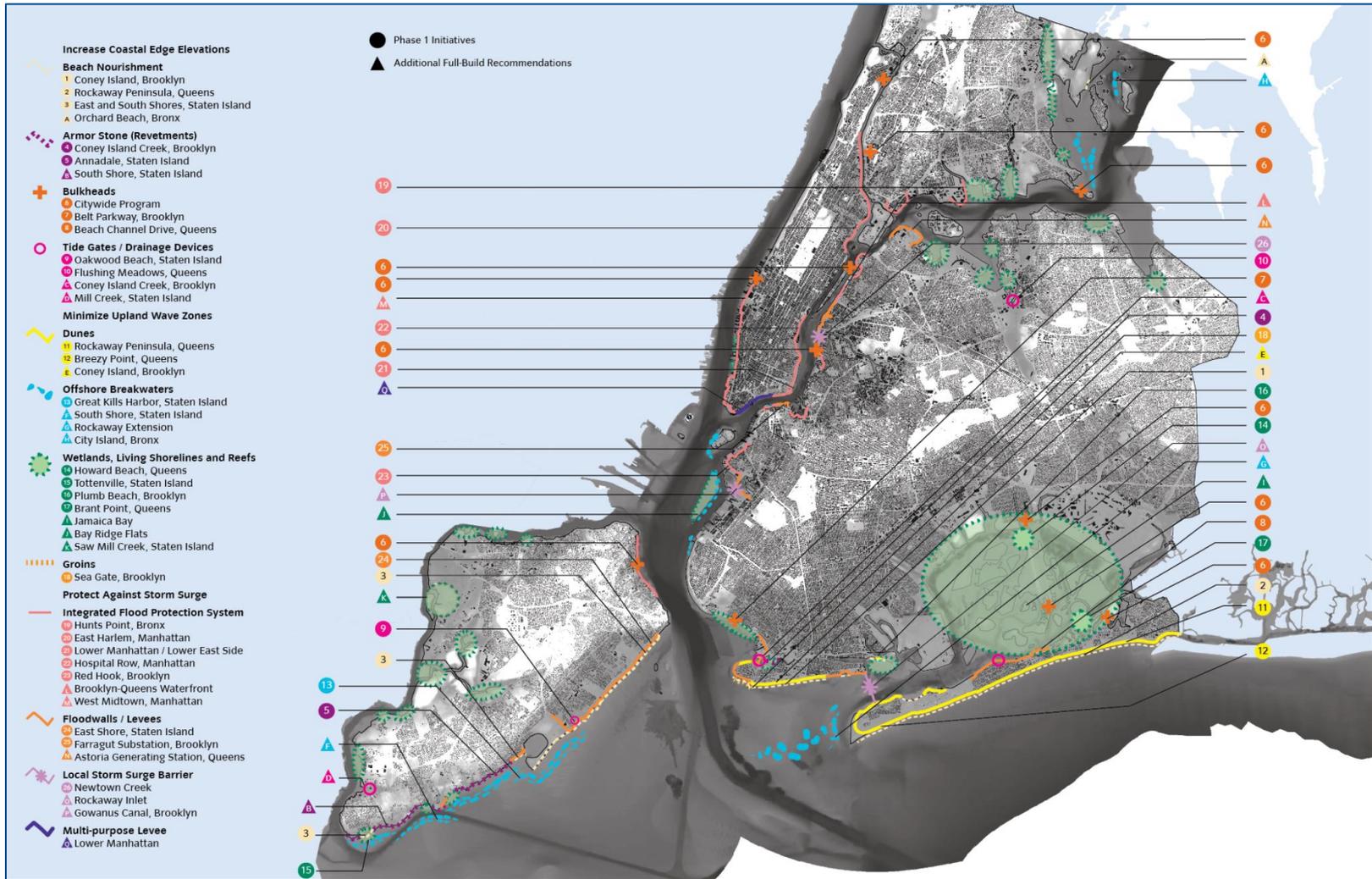


Highlights

- Investing \$3.7 billion into the City's first-ever coastal protection plan
- A mix of traditional engineering and nature-based infrastructure
- Strong partnership with USACE in Rockaways, Staten Island, Sea Gate
- \$415 million in Rebuild by Design project awards in the City
- Investments tailored to specific local risks – no silver bullet solution

Physical Resiliency

As additional resources are found, the City will continue to pursue a full-build set of coastal protections that expand on its first phase strategies over time.



Social and Economic Resiliency

Land use changes, economic development, community engagement, job creation, and capacity-building can also promote quicker and more sustained recovery...



- Prioritize rebuilding, but seek to address underlying challenges
- Conduct land use studies to promote resiliency
- Cooperate with NY Rising and HUD's Rebuild by Design
- Work with OEM to enhance community preparation

Rebuild by Design: BIG on the Lower East Side

A Resilient Transformation

... While bold thinking about resiliency can transform neighborhoods and provide for enhanced safety, economic opportunities, and stronger communities.



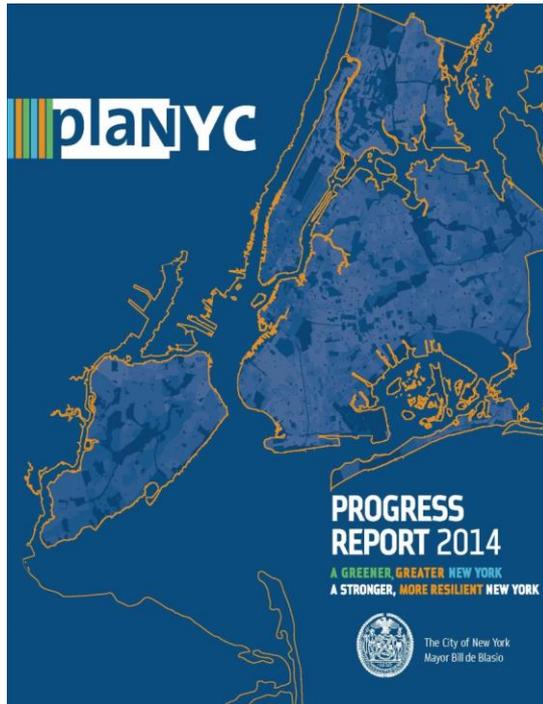
Lower Manhattan Multipurpose Levee

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- Looking Ahead

Status Report

And, while this is necessarily a long-term endeavor, the City has already taken steps, with many partners, to advance many of its key initiatives, including these highlights:



Strengthen coastal defenses

- Launched \$3.7 billion coastal protection plan
- Placed over 4.2 million cy of sand on city beaches

Upgrade buildings

- Passed 16 local laws to upgrade the building code
- Published building resiliency retrofit manual

Protect infrastructure and services

- Secured \$1 billion electric grid resiliency investments
- Launched \$1.6 billion public hospital investment program

Make neighborhoods safer and more vibrant

- Secured flood insurance affordability reforms
- Launched citywide planning effort for coastal communities

With this substantial early progress, the City is poised to continue its difficult work to achieve long-term success.

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Looking Ahead: Housing Recovery

After starting 2014 with no housing starts and no reimbursement checks, the City's housing recovery is moving and poised to ramp up production.

RECOVERY PROGRESS AS OF MARCH 9, 2015



- Awarding new contracts in 2015 for nearly \$1 billion in construction management and design services for Brooklyn, Queens, and Staten Island
- Expanding the City's capacity to rebuild in communities
- Increasing social and economic resiliency in Sandy-affected communities through substantial workforce investment

Looking Ahead: NDRC

The National Disaster Resilience Competition is a competitive \$1B HUD program to support local innovative resiliency projects...

PHASE ONE DUE

• **March 27th, 2015**

PHASE ONE WINNERS ANNOUNCED

• **June 2015**

PHASE TWO DUE

• **October 2015**

PHASE TWO WINNERS ANNOUNCED

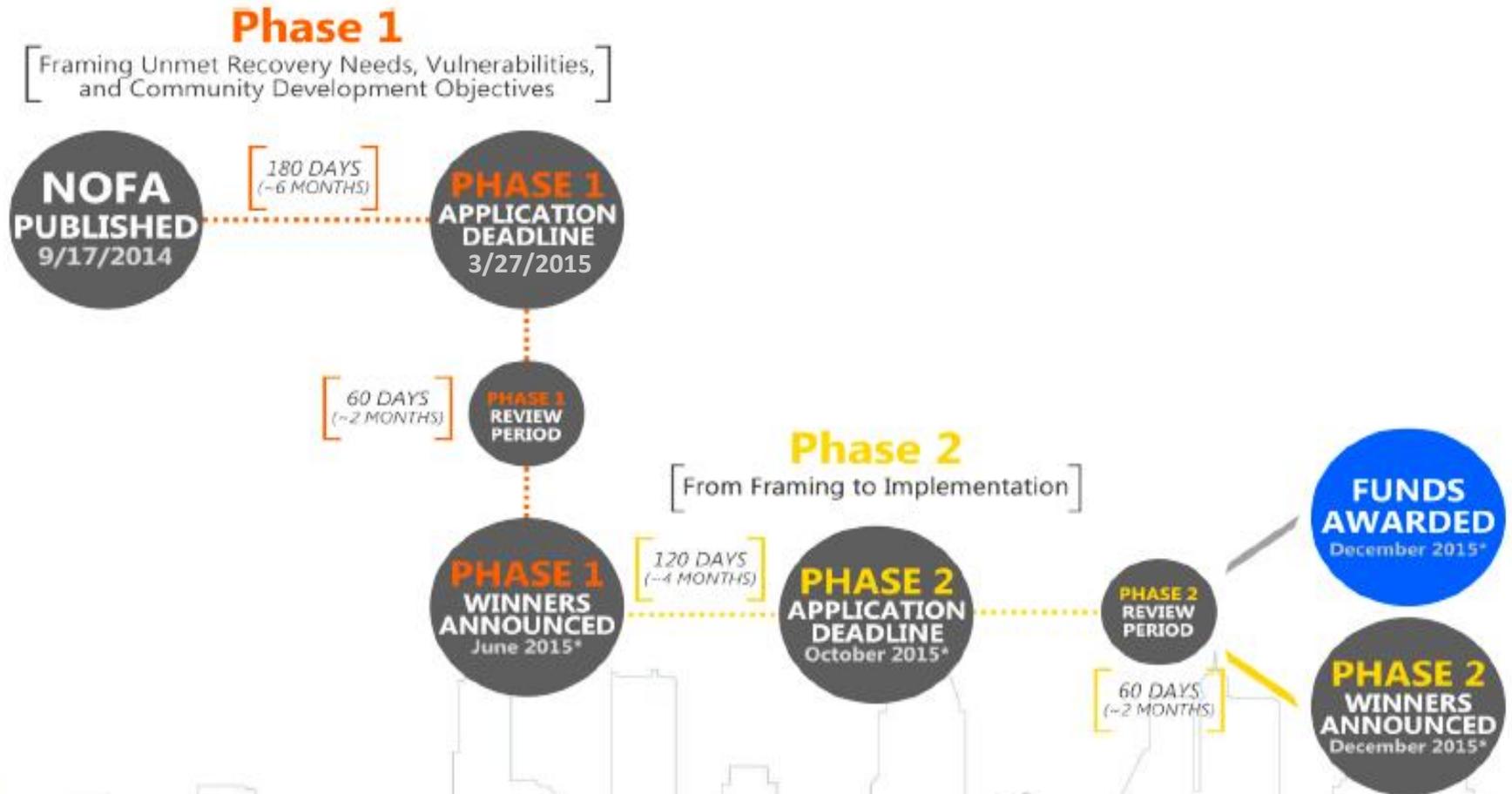
• **December 2015**

1. Create disaster recovery models that apply science-based and forward-looking risk analysis.
2. Institutionalize thoughtful, sound, and resilient approaches to address future risks.
3. Help communities be more resilient and improve quality of life.
4. Inform communities about the impacts of climate change.
5. Leverage investments from the philanthropic community.

These funds are distinct from the \$4.21 billion CDBG-DR funds allocated to NYC.

Looking Ahead: NDRC

...And will play out over the rest of the year, with the award of \$1 billion to winning jurisdictions, including at least \$181 M to the Sandy-impacted region.



*Note: These dates are tentative and subject to change at HUD's discretion

Looking Ahead: One City, Built to Last

In September, Mayor de Blasio committed to reduce GHG emissions 80% by 2050, acting now on building energy efficiency.

Make public buildings a model of sustainability

- Retrofit all City buildings with significant energy usage
- Expand solar power on City rooftops (100 MW)

Create a thriving market for energy efficiency

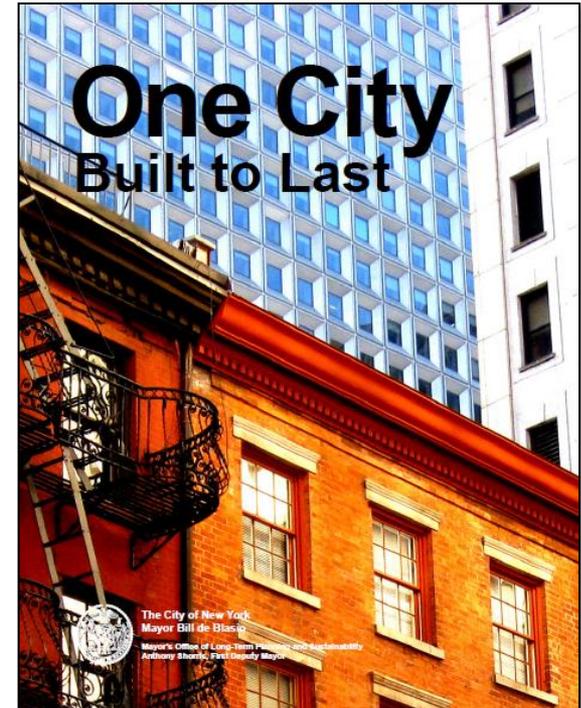
- Launch a retrofit accelerator to assist private building owners
- Expand solar power on private rooftops (250 MW)

Develop world-class building and energy codes

- Raise code standards for new construction
- Enhance enforcement of existing codes

Become a hub for cleantech and innovation

- Support research in clean energy trends
- Expand incubator programs for energy entrepreneurs



In the spring, the City will continue this effort with the release of PlaNYC, upgrading its entire sustainability and resiliency agenda to support equity and growth in all five boroughs.

Looking Ahead: PlaNYC Update

Compounding the risks the City faces in terms of climate change and sea level rise, we face challenges in housing security, infrastructure, and economic inequality...

- Over half of all renters spend more than 30% of their income on rent
- Over 1.4 million New Yorkers face commute times of over 45 minutes
- Of the 270,000 jobs we created from 2009-2013, 60% were in the lowest wage sectors
- 46% of New Yorkers live at or near the poverty rate



Looking Ahead: PlaNYC Update

...and our City needs to ensure that all New Yorkers can access opportunity.

- 58,000 more students are expected to enroll in NYC schools by the 2021-2022 school year
- Crime has dropped by 4% over the past year
- Over 1.4 million New Yorkers live in households that lack sufficient food
- Registered voter turnout has declined by 43% over the past 32 years



Looking Ahead: PlaNYC Update

Our efforts include a continual reassessment of our resiliency planning, and a revised plan will be incorporated into the 2015 PlaNYC update.

- How can we make it easier to participate in NYC's civic, economic, and cultural life?
- How can NYC accommodate a half million more people over the next 30 years?
- How can we grow an equitable & diverse economy that creates good paying jobs?
- How do we create healthy, sustainable, and resilient communities?

*Leave your mark,
take the survey at:*

www.nyc.gov/ideas

Looking Ahead: Work Opportunities

...And we will continue to seek professional services across a wide variety of topics.

Project	Scope	By	Release
Coastal Protection	▪ East Harlem Planning	DPR	Fall 2015
	▪ North Shore of Staten Island Planning	EDC	Fall 2015
	▪ Breezy Point Design	EDC	Spring 2015
	▪ Additional HMGP Awards	Various	Ongoing
	▪ Lower Manhattan Planning	EDC	Summer 2015
	▪ Battery Park Design	EDC	Summer 2015
Rebuild by Design	▪ Hunts Point Planning	EDC	Summer 2015
	▪ East Side Coastal Resiliency	DDC	Late 2015
	▪ Staten Island Living Breakwaters	NYS	TBD
Capital Programs	▪ Health and Hospitals Corporation	EDC	Spring 2015
	▪ New York City Housing Authority	NYCHA	Spring 2015
Recovery	▪ Business PREP	SBS	Spring 2015
	▪ Agency Recovery / Public Assistance	Various	Ongoing



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