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**MAYOR DE BLASIO RELEASES NPCC 2015 REPORT, PROVIDING CLIMATE PROJECTIONS THROUGH 2100 FOR THE FIRST TIME**

*NPCC science drives City's climate policy—from a dramatic reduction in emissions to a comprehensive resiliency plan based on NPCC projections, including new progress announced today*

*Mayor to launch NPCC3, with a focus on examining inequality as it relates to climate risks*

**NEW YORK**—Today, Mayor Bill de Blasio announced the release of the New York City Panel on Climate Change's 2015 report, [Building the Knowledge Base for Climate Resiliency](#), focused on increasing the current and future resiliency of communities, citywide systems, and infrastructure around New York City and the broader metropolitan region.

Members of the NPCC and the de Blasio administration's climate policy leadership will host a briefing today at 1 PM at City Hall for credentialed members of the media.

The New York City Panel on Climate Change (NPCC) is an independent body that advises the City on climate risks and resiliency. As the best available data, NPCC science informs the City's comprehensive climate policies, including its multilayered, citywide resiliency plan and sweeping sustainability initiatives—in line with President Obama's recent Executive Order. The NPCC worked in partnership with the City, including with the Mayor's Office of Recovery and Resiliency, the Mayor's Office of Sustainability, the Mayor's Office of Operations, and the Department of Health and Mental Hygiene.

Today's NPCC report provides climate projections through 2100 for the first time, for temperature, precipitation, and sea level rise, representing advancement in the science. New topics covered in the report also include public health, with a focus on extreme heat events and coastal storms and enhanced dynamic coastal flood modeling, which incorporate the effects of sea level rise.

The full report—*Building the Knowledge Base for Climate Resiliency: New York City Panel on Climate Change 2015 Report*—can be read here:

<http://onlinelibrary.wiley.com/doi/10.1111/nyas.2015.1336.issue-1/issuetoc>

“NPCC’s findings underscore the urgency of not only mitigating our contributions to climate change, but adapting our city to its risks,” said **Mayor de Blasio**. “The task at hand is daunting—and that is why we’re making an unprecedented commitment, with a sweeping plan to reduce emissions 80 percent by 2050, and a comprehensive, multi-layered resiliency plan that is already making neighborhoods safer. I’m grateful to the NPCC for their tireless work on this critical report, and look forward to partnering with NPCC3 as we continue to drive the science forward and ensure an even stronger, more sustainable, and more resilient New York City.”

The City is announcing today new progress as it implements a comprehensive resiliency plan based on the NPCC’s science, including the kickoff of scoping and preliminary design work on the Lower East Side integrated flood protection system, the launch of the first-ever comprehensive regional analysis of New York City’s food supply chain resiliency, key steps forward to combat the urban heat island effect, and the start of an approximately \$100 million shoreline investment program to protect the most vulnerable waterfront communities.

Additionally, Mayor de Blasio will launch NPCC3, which will build on today’s report, and, in particular, look at climate risks through the lens of inequality at a neighborhood scale in a report due early next year. NPCC3 will also focus on ways to enhance coordination of mitigation and resiliency across the entire New York metropolitan region.

In addition to providing climate projections through 2100, NPCC2’s new content today includes:

- New coastal flood risk maps to the end of the century for the current 100-year (1 percent annual chance of occurrence) and 500-year (0.2 percent annual chance of occurrence) coastal flood events.
- Enhanced dynamic flood inundation modeling of future coastal flooding that includes the effects of sea level rise.
- A review of key issues related to climate change health risks relevant to the citizens of New York City.
- A process for enhancing a New York City Climate Resiliency Indicators and Monitoring System.

“The NPCC is a great example of how scientists and City decision-makers can work together to address increasing risks due to climate change,” said **NPCC Co-Chair Cynthia Rosenzweig, Senior Research Scientist, NASA Goddard Institute for Space Studies and Columbia University’s Earth Institute, Center for Climate Systems Research**. “Higher temperatures and increased coastal flooding are the greatest risks. The NPCC highlights how the climate of New York City is already changing, as well how it is projected to change in the future. The Panel recommends setting up a climate change monitoring system, so that resilience measures can be adapted as changes continue through the coming decades.”

“The work of the NPCC provides an opportunity for the City of New York to further define itself at the forefront of climate action among the world’s cities,” said **NPCC Co-Chair Bill Solecki, Professor of Geography, Hunter College, City University of New York**. “The NPCC report highlights the vulnerabilities and opportunities for climate resilience of the city’s infrastructure systems and neighborhoods. While the impacts of climate change will be uneven, the conditions for a flexible and robust adaptation strategy are present.”

“New York City continues to lead the way in climate policy and action,” said **Bill Goldstein, Senior Advisor to the Mayor for Recovery, Resiliency, and Infrastructure**. “The New York City Panel on Climate Change report supports the City’s actions and demonstrates the value of integrating science and policy into an effective set of initiatives to combat climate change. We thank the New York City Panel on Climate Change for their service to the City.”

“Adapting the city for the risks of climate change is one of the great challenges of our time,” said **Daniel Zarrilli, Director of the Mayor’s Office of Recovery and Resiliency**. “It is critically important that we continue to use the latest science to support policy as we make resiliency investments across the five boroughs. This report from the New York City Panel on Climate Change advances the science of climate resiliency and highlights the risks the City faces from multiple climate impacts, making it clear that we must continue to build a stronger, more resilient New York. That’s why we are moving forward on projects across the city in partnership with a wide array of community partners and other stakeholders.”

“The science is clear—our actions since the Industrial Revolution have changed our climate and changed our planet,” said **Nilda Mesa, Director of the Mayor’s Office of Sustainability**. “The challenge ahead may be daunting, but we know there’s no choice but to take bold action to reduce our contributions to climate change, as well as to protect our city from what lies ahead that we cannot prevent. This administration is doing just that. Together with the building community and all New Yorkers, our comprehensive policies will put us on the path to an 80 percent reduction in emissions by 2050.”

## **Climate Observations and Trends**

The climate of the New York metropolitan region is changing—annual temperatures are hotter, heavy downpours are increasingly frequent, and the sea is rising. These trends, which are also occurring in many parts of the world, are projected to continue and even worsen in the coming decades due to higher concentrations of greenhouse gases (GHGs) in the atmosphere caused by burning of fossil fuels and clearing of forests for agriculture.

Mean annual temperature has increased at a rate of 0.3°F per decade (for a total of 3.4°F) over the 1900 to 2013 period, measured in Central Park.

Mean annual precipitation has also increased at a rate of approximately 0.8 inches per decade (for a total of 8 inches) over 1900 to 2013 in Central Park. Year-to-year (and multi-year) variability of precipitation has also become more pronounced, especially since the 1970s.

Sea level rise in New York City has averaged 1.2 inches per decade (for total of 1.1 feet) since 1900, nearly twice the observed global rate of 0.5 to 0.7 inches per decade over a similar time period.

## **Climate Projections**

The mean annual temperatures are projected by General Circulation Models (GCMs) to increase by 4.1°F to 5.7°F by the 2050s, and by 5.3°F to 8.8°F by the 2080s, relative to the 1980s base period.

The mean annual precipitation increases projected by the GCMs increase from four percent to 11 percent by the 2050s and from 5 percent to 13 percent by the 2080s, relative to the 1980s base period.

The frequency of heat waves is projected to increase from two per year in the current climate to roughly six per year by the 2080s.

Projections for sea level rise in New York City show an increase between 11 inches and 21 inches by the 2050s, between 18 inches and 39 inches by the 2080s, and between 22 inches and 50 inches by 2100, with a worse case projection of up to six feet by 2100. Sea level rise projections are relative to the 2000 to 2004 base period.

Projected sea level changes alone would increase the frequency and intensity of coastal flooding (absent any change in storms themselves). Under the high sea level rise estimate for the 2080s, the current 100-year flood (a flood with a 1 percent annual chance of occurrence) is projected to become an approximately once-in-eight year event.

## **Coastal Flooding**

For the 100-year flood, sea level rise by 2100 roughly doubles the affected area compared to the December 2013 FEMA Preliminary Flood Insurance Rate Maps (FIRMs); for the 500-year flood, sea level rise by 2100 increases the affected area by 50 percent, compared to the December 2013 FEMA FIRMs 500-year flood area.

## **Key Recommendations and City Action**

The NPCC 2050 projections are already used as a planning horizon for all resiliency and sustainability work in New York City. However, the City is guided by the totality of the science at hand, including the longer-term projections in today's report, a benefit of the adaptive pathway process the administration is utilizing.

Today, the City is announcing new progress on a number of key projects, including:

- The launch of scoping and preliminary design work on the Lower East Side to implement a \$335 million integrated, neighborhood-sensitive flood protection system to mitigate risk and help connect the community with the waterfront. This project, which is funded by the U.S. Department of Housing and Urban Development's Rebuild by Design competition,

runs from East 23<sup>rd</sup> Street to Montgomery Street and is intended to be just the first phase of a larger project that will ultimately provide coastal resiliency for all of Lower Manhattan. To that end, the City has already allocated additional funds to advance planning and preliminary design south of Montgomery Street.

- The Office of Recovery and Resiliency (ORR), partnering with the New York City Economic Development Corporation (NYCEDC), has also launched the first-ever, comprehensive regional resiliency analysis of New York City's food supply chain network. The study will examine key distribution assets both locally and in surrounding jurisdictions, examine regional transportation routes, and work with the city's food community to help ensure continuity of operations during a disaster.
- To combat the urban heat island effect, as of the end of 2014, NYC Cool Roofs has coated over six million square feet of building roofs with reflective paint to address the climate change risks associated with urban heat. The City's recent green buildings plan commits to coating at least one million square feet a year more to continue mitigating the urban heat island effect and provide energy savings in affordable housing, public buildings, and non-profit organizations. ORR has also convened urban heat island experts to advance research and understanding on this issue, and continues to focus its heat response protocols on vulnerable populations.
- ORR and NYCEDC have also launched an approximately \$100 million shoreline investment program to protect the most vulnerable waterfront communities, including Coney Island Creek and Staten Island's South Shore, and other low-lying parts of the city that will be evaluated as part of the first phase of work. This will include a nine-month first phase to identify and prioritize approximately 43 miles of at-risk shoreline, following by design and construction of site-specific resiliency measures that might include bulkhead upgrades, revetment installation, and living shoreline treatments.

The City has already implemented short-term measures to immediately reduce risk. For example:

- 4.15 million cubic yards of sand placed on city beaches.
- 26,000 linear feet of dunes on Staten Island alone, with additional dunes on the Rockaway peninsula.
- 10,500 linear feet of bulkhead repairs around the city.
- Updated building and zoning codes, including 16 new local laws to improve residential and commercial resiliency.
- \$1 billion in resiliency investments being made by ConEd to harden critical assets like substations and other critical distribution equipment.
- Reforms to FEMA's national flood insurance program, critical flood insurance affordability studies, and education efforts for homeowners across the city.

Additional longer-term measures are being advanced all across the entire city, including but not limited to:

- Over \$450 million to construct new armored levees and other infrastructure along Midland Beach and Staten Island’s East Shore, to substantially reduce risk in the future, in partnership with the U.S. Army Corps of Engineers and the State.
- Substantial investment in the next phase of coastal protection in the Rockaways and the communities surrounding Jamaica Bay, in partnership with the Army Corps and State.
- T-groins and beach nourishment in Sea Gate, on which ground was broken on Saturday, in partnership with the Army Corps and the State.
- Dunes and other coastal protection in Breezy Point.
- Integrated flood protection system measures in Red Hook.
- Over \$15 million in natural infrastructure resiliency projects funded by the Department of Interior in Jamaica Bay, the Bronx River, and elsewhere.
- Additional coastal protection projects funded by the federal Rebuild by Design program (in addition to the Lower East Side flood protection system), including:
  - Hunts Point Lifelines—food distribution center investments in coastal protection, waterfront access, and energy resiliency.
  - Living Breakwaters—natural infrastructure investments in wave attenuation off of Staten Island’s South Shore, being implemented by the State.
- Major investments in the Staten Island Bluebelt and other stormwater infrastructure across the city to better accommodate increasing precipitation.
- Key resiliency upgrades at critical facilities, such as hospitals like Staten Island University Hospital, Coney Island Hospital, Bellevue, and more.
- NYCHA recovery and resiliency funds to elevate boilers and install emergency generators and flood protection systems.
- Agency recovery and resiliency funds to restore and protect critical City agency services like schools, parks, and other facilities.
- Major flood and coastal protection studies, including at Coney Island Creek, Gowanus Canal, Southern Manhattan, and Newtown Creek, to evaluate the feasibility of additional tidal barrier and surge barrier investments.
- Department of City Planning Resilient Neighborhoods studies to advance land use measures to support the vitality and resiliency of individual communities in the flood zones.
- Small business resiliency support, including new resiliency technologies to be applied through the NYC: RISE competition and assistance through Business PREP, a new program to provide small businesses with education and technical support to enhance their resiliency.

The City is also taking dramatic steps to reduce its contributions to climate change, including becoming the largest city in the world to commit to an 80 percent reduction in greenhouse gas emissions by 2050. That commitment kicks off with Mayor de Blasio’s sweeping 10-year green buildings plan, [\*One City: Built to Last\*](#), to retrofit public and private buildings, while crating green jobs and generating operational savings.

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