

**New York City
Mayor's Office of Recovery and Resiliency**



Natural Disaster Resilience Competition Application
Public Comment Period: March 2 – March 16, 2015

The Mayor's Office of Resiliency and Recovery (ORR) is seeking public comment on its application in accordance with citizen participation requirements of the HUD Notice of Funding Announcement (FR-5800-N-29). Below are the competition schedule and the substantial amendment criteria, as required by HUD.

Competition Schedule:

The National Disaster Resilience Competition is a year-long competition structured in two phases: (1) the framing phase and (2) the implementation phase.

- Phase 1 applications are due to HUD by March 27, 2015.
- HUD anticipates notifying applicants if they have been accepted to Phase 2 in June 2015.
- If invited by HUD to participate in Phase 2, ORR will have 120 days after the date of an invitation letter to design and develop projects.
- HUD anticipates taking up to 60 days after the Phase 2 submission before announcing awards.
- HUD must obligate the funds (sign a grant agreement) by September 30, 2017.
- Grantees will have 24 months to expend funds after obligation.

Substantial Amendment Criteria: The criteria for determining what changes in the Application constitute a substantial amendment requiring HUD prior approval include any change to the Application that would result in a change of more than five points in the score for capacity or soundness of approach or that would change the Most Impacted and Distressed target area(s). Also, the following modification will constitute a substantial amendment requiring HUD prior approval: a change in program benefit, beneficiaries, or eligibility criteria; the re-allocation or reallocation of more than \$1 million; or the deletion of an activity.

EXHIBIT A - EXECUTIVE SUMMARY

New York City faces significant risk from extreme weather events such as hurricanes, severe storms, and severe temperatures, each amplified by a changing climate and rising sea levels. The impacts of these events are magnified by the City's aging infrastructure and housing stock, with disproportionate impacts on the city's vulnerable populations. All of these factors pose unique challenges as the City endeavors to adapt to climate change.

The City of New York is submitting an application for HUD's National Disaster Resiliency Competition (NDRC) to meet Unmet Recovery Housing Needs from Hurricane Sandy in all five counties of New York City, which have been identified by HUD as Most Impacted and Distressed areas. The singular qualifying disaster event that impacted New York City was Hurricane Sandy in 2012, which caused \$19 billion in damages and economic loss for the City, and claimed 44 lives. In Sandy's wake, nearly 800 buildings had been structurally damaged or destroyed across the City, with 70,000 housing units reporting some sustained damaged. The City's critical infrastructure was severely damaged with mass transit functionally shut down for more than 11 million daily commuters, close to 2 million customers losing power and 84,000 consumers losing natural gas service. The City's comprehensive climate resiliency plan, *A Stronger, More Resilient New York*, outlines a variety of strategies and initiatives designed to make New York City stronger and more resilient to climate change. Given a world of limited resources, there is still much more that needs to be done to fully meet the economic, environmental, infrastructure and housing needs that remain.

For the purposes of this NDRC application, the City of New York is applying under the Unmet Recovery Need for Housing Threshold as outlined by HUD. Housing across New York City was substantially damaged by Hurricane Sandy. In keeping with the Mayor's Affordable

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Housing Initiatives, the City is committed to protecting its housing stock and making it more resilient while adapting neighborhoods to be physically, socially and economically resilient.

The City has a significant level of unmet recovery housing needs in the amount of **\$516.7 million** to repair and protect housing with vulnerable low- and moderate-income tenants in coastal communities and other vulnerable areas across all five boroughs that were severely impacted by Hurricane Sandy and are at-risk for future major storm events due to climate change. The City is qualifying its eligibility for NDRC with these Unmet Recovery Needs:

- The City's Build it Back Multi-Family Housing Program to benefit high-need buildings that were damaged during Hurricane Sandy and require resiliency upgrades to protect the majority of low- and moderate-income residents;
- Resiliency needs for multi-family housing at the New York City Housing Authority which was impacted by Sandy and requires the construction of improved storm-water management systems and back-up power generator systems on developments.

Should the City advance to Phase 2 of NDRC, it will be able to replicate and expand upon the innovative resiliency projects already underway such as those funded by HUD through Rebuild by Design. All proposed projects will be in line with the City's goals: to create more resilient and protective coastlines; to upgrade aging infrastructure to be more resilient to extreme weather events; to stabilize neighborhoods by protecting housing for low- and moderate-income residents; and to protect local businesses that were negatively impacted by Hurricane Sandy. The goal is to ensure a more inclusive, fair, and resilient City for the future. This application outlines: the City's capacity to execute projects of funded by this competition; an overview of unmet needs; the city's approach to resiliency and recovery; how the City will leverage previous and current investments; and the City's long-term commitments to these goals.

EXHIBIT B - THRESHOLD REQUIREMENTS

Eligible Applicant, Eligible Counties, and Eligible Activities

Under this National Disaster Resilience Competition (NDRC), the United States Department of Urban Development (HUD) designated the City of New York and the five counties that comprise it as Most Impacted and Distressed (MID) areas associated with Federal Disaster Declarations from 2011 to 2013. These counties are, with their given Borough names: Bronx County (the Bronx); Kings County (Brooklyn); New York County (Manhattan); Queens County (Queens); and Richmond County (Staten Island). The singular qualifying disaster event that impacted New York City was Hurricane Sandy in 2012, which caused \$19 billion in damages and economic loss for the City, and claimed 44 lives.

The City intends to meet all of the threshold requirements per the NDRC NOFA. Should the City advance to Phase 2, the City will ensure that all proposed activities meet a national objective, are eligible activities, incorporate resilience activities as outline in the NOFA, and have a clear tie back to the disaster which qualified the target area. The City understands that the overall, over 50% of CDBG-DR funds must meet the national objective of benefiting low or moderate income individuals. These threshold requirements will be further detailed in Phase 2 as the activities are refined and presented to HUD per the NOFA requirements.

Unmet Recovery Need: Housing

For the Purposes of the HUD NDRC Phase 1 application, the City of New York has identified Unmet Recovery Needs for Housing within all five counties of the City.

Unmet Recovery Need: Public Housing

For purposes of this Phase 1 application for NDRC, the New York City Housing Authority (NYCHA) is demonstrating **\$439.4 million** in Unmet Recovery Needs (URN), and is

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submitting proof of URN for the MID designated counties of New York City. These numbers are not intended to represent all of NYCHA’s unmet needs; and only those needs identified using HUD’s specified methodology for the NDRC MID-URN threshold requirement are included here. The URN identified herein represent only those costs associated with two resiliency strategies: (1) generators for 179 buildings in Bronx County at \$164,032,223; and (2) storm surge and stormwater protection for 34 developments in Kings (Brooklyn) at \$86,858,453, New York (Manhattan) at \$91,688,416, Queens at \$95,249,311 and Richmond (Staten Island) at \$1,588,869, with a cumulative total of \$275,385,049. These two resiliency strategies create a total URN of \$439,417,274 for the City’s public housing.

Projected Distribution of Unmet Recovery Need for Public Housing by County*				
County	Resiliency Strategy	Developments	Buildings	Unmet Recovery Need
Bronx	Back-up Generators	51	179	\$164,032,223
Kings	Surge & Stormwater	12	95	\$86,858,453
New York	Surge & Stormwater	16	111	\$91,688,416
Queens	Surge & Stormwater	7	83	\$95,249,311
Richmond	Surge & Stormwater	1	1	\$1,588,869
Total		87	469	\$439,417,274

Supporting documentation details the estimated costs to repair Sandy-related damages and addresses some identified mitigation opportunities. An estimated \$3,454,883,000 of existing costs has been detailed for repairs to buildings that were damaged by *surge* and *stormwater* during Sandy, and \$3,454,883,000 of funding has been identified through FEMA Public Assistance and 428 programs to meet those immediate repair needs. These cost estimates are still under review by FEMA and are therefore still subject to revision. As such, the funding amount identified to address these costs is also not final, and it is expected that these numbers will

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change. These estimates do not include the costs identified in repair related to *wind* and *flying debris* as well as resiliency needs for Sandy-damaged properties hereby referred to as NYCHA's URN. Through a combination of FEMA, CDBG-DR and insurance funding, NYCHA believes it will be able to complete the basic repairs and address some of its desired resiliency measures. However, over 400 buildings across all 5 counties, with over 35,000 residential units, housing nearly 80,000 residents were affected significantly by Hurricane Sandy. When these buildings lost power, they also lost critical elevator and trash compactor service, posing a significant threat to human health and safety. Although FEMA has committed to funding repairs and certain mitigation measures on buildings that sustained significant surge damage (34 developments), it is not funding a whole-site solution to storm surge and stormwater as estimated for affected NYCHA properties in the attachments. Additionally, although FEMA is funding generators for surge damaged buildings, it is not funding generators for developments that sustained wind damages and lost power but did not sustain damage from storm surge (Bronx developments). NYCHA does not anticipate any of the nearly \$440 million of planned mitigation and resiliency measures identified as the URN to be funded by FEMA, CDBG-DR or insurance. The URN for NYCHA represents the protection of entire public housing developments with buildings that were damaged by Hurricane Sandy from surge and stormwater, as well as the prevention of power disruption for these developments that are not in the floodplain but are at high risk for power disruption. A critical element in NYCHA's recovery and the overall effort to preserve public housing in NYC is to ensure that the infrastructure replaced, is replaced in a manner that reduces the risk of equipment damage in future storms and minimizes the impact on the City's most vulnerable population.

Unmet Recovery Need – Multi-Family Housing

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For purposes of this Phase 1 application for NDRC, New York City Department of Housing Preservation and Development (HPD) is demonstrating **\$77.3 million** in URN, and is submitting proof of URN for the MID designated counties of New York City. In the aftermath of Hurricane Sandy, the City developed the Multi-Family Build it Back (BiB) Repair Program to address multi-family buildings in the 100-year floodplain which were in need of storm-related repairs and were vulnerable to future storm events. The BiB Repair Program addresses limited resiliency retrofits such as raising electrical equipment where feasible, but it is not structured to pursue comprehensive resiliency assessments and scopes of work such as flood-proofing or installing redundant building systems, which require more complex analysis from engineers and technical experts. To address this gap in resources for multi-family resiliency and protection measures, the City's CDBG-DR Action Plan includes the Residential Building Mitigation Program (RBMP), which allocates \$60 million in funds for comprehensive resiliency retrofit measures necessary to protect vulnerable residents from loss of critical building services in the event of a storm. However, the RBMP, currently funded at \$60 million through CDBG-DR, does not provide adequate funds to benefit all vulnerable, majority low- and moderate-income (LMI) buildings in the 100-year floodplain. BiB has identified a total of 133 multi-family buildings housing primarily LMI residents (66%) as candidates for resiliency retrofits. Based on current data, the existing \$60 million in funds allocated to BiB resiliency retrofits from CDBG-DR is expected to serve approximately 38 of the 133 buildings. These 38 buildings are all classified as majority-LMI. Using current cost projections for resiliency retrofits based on building size, we estimate that an additional \$77.3 million is required to fund comprehensive retrofits for the remaining 95 buildings housing LMI residents. Because most of the 95 buildings targeted for the

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additional \$77.3 million are smaller in size than those to be served by the existing \$60 million, less funding is required per building for retrofit measures.

Multi-Family BiB Resiliency Retrofit Funding vs. Unmet Recovery Need			
	# Properties	# Units	Funding
Properties currently served by RBMP	38	8,884	\$60,000,000
Unmet Recovery Need (URN)	95	7,343	\$77,286,466
Total	133	16,227	\$137,286,466

Projected Distribution of Unmet Recovery Need for Multi-Family Housing by County*						
	Kings	Queens	New York	Bronx	Richmond	Total
Units	3,392	2,119	1,108	14	710	7,343
% of Units	46%	29%	15%	<1%	10%	100%
URN	\$35,700,800	\$22,302,475	\$11,661,700	\$147,350	\$7,472,750	\$77,286,466

**HPD estimates that the average cost per unit is: \$10,525. This estimate is based on HPD's most recent project data, which represents a range of project needs depending on the size, location, and other factors of each building.*

EXHIBIT C - CAPACITY

General Capacity Management

Staff of the City of New York wrote this application through a collaborative process across multiple partner agencies. The New York City Mayor's Office of Resiliency and Recovery (ORR) will lead the implementation of any projects award funding as a result of this

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competition. In March 2014, Mayor Bill de Blasio established ORR with a mandate of improving the City's activities in four key areas: first, enhancing recovery and resiliency policy, planning, coordination, and implementing strategies for long-term climate resiliency efforts among City agencies as laid out in *A Stronger, More Resilient New York*; second, expediting efforts to secure additional federal funding for resiliency upgrades; third, collaborating on State and Federal recovery and resiliency planning processes to maximize investment in New York City; and fourth, expanding economic opportunity for New Yorkers by incorporating workforce development and local hiring into every recovery and resiliency project. ORR is comprised of 17 program and project management staff with focuses on coastal protection, infrastructure, social and economic resiliency, workforce development, small business resiliency, neighborhood planning, buildings resiliency, climate adaptation, flood risk awareness, and national flood insurance program reform. The Office is led by Daniel A. Zarrilli who prior to this, served on the Mayor's Special Initiative for Rebuilding and Resiliency (SIRR), leading the City's efforts to develop a comprehensive coastal protection plan for the five boroughs and was named the City's first Director of Resiliency in June 2013. He reports directly to Bill Goldstein, the Senior Advisor to the Mayor for Recovery, Resiliency, and Infrastructure. Mr. Goldstein also oversees the Mayor's Office of Sustainability, and the Mayor's Housing Recovery Office (HRO). ORR and partner City agencies have extensive experience and capacity to manage NDRC-awarded projects, including a track record of close inter-agency coordination on disaster recovery and resiliency efforts. ORR has developed a program management system that will allow the monitoring of expenditure and schedule information across the City's entire recovery and resiliency portfolio which is comprised of Federal-, State-, and City-funded projects. Using this

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tracker, ORR will be able to oversee the work of City agencies to ensure projects are implemented effectively and efficiently.

The New York City Mayor's Office of Management and Budget (OMB) will also take an active role in managing and monitoring any awarded CDBG-NDR funds. OMB oversees an annual expense budget of \$78.5 billion (Fiscal Year 2015) and a capital budget of more than \$6.1 billion a year. With a staff of approximately 300 employees, OMB prepares and monitors the budgets and programs of over 80 City agencies and covered organizations. OMB staff has extensive experience in managing the CDBG Entitlement Program for 40 years. OMB has a dedicated Community Development unit charged with overseeing the City's CDBG entitlement program. The Community Development unit has twelve staff members with 236 years of collective experience managing and monitoring CDBG programs. The CDBG Disaster Recovery unit (CDBG-DR) oversees the City's Action Plan and subsequent amendments as well as monitoring and compliance for the approximately \$4.21 billion allocation from HUD for Hurricane Sandy recovery. The CDBG-DR unit, which includes sixteen full-time staff members, provides programmatic guidance, coordinates policy, administers CDBG-DR allocations, and provides oversight, monitoring, and audit support of recovery activities. These activities are concentrated on providing assistance to impacted homeowners, renters, and businesses, and on rehabilitating City infrastructure and ensuring sound investments of funds. The CDBG-DR unit implements its citizen engagement plan through the publication of Action Plan Amendments and holding public hearings. The CDBG-DR unit also publishes Quarterly Performance Reports and coordinates City, State, and Federal program-related timelines and benchmarks for projects. Given the depth of experience of the existing staff and the reporting and monitoring systems in

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place to track and measure CDBG-DR performance outcomes and compliance requirements, the City can adequately ensure that the CDBG-NDR program would be managed appropriately.

The sub-recipients and agency partners within the City that would work with ORR and OMB to administer projects funded by the NDRC are already coordinated, working closely with one another to implement the City's extensive disaster recovery and resiliency portfolio. Information about each of the agency partners is detailed below:

- New York City Housing Authority (NYCHA): NYCHA is the largest public housing authority in North America. NYCHA's mission is to increase opportunities for low- and moderate-income New Yorkers by providing safe, affordable housing and facilitating access to social and community services. More than 400,000 New Yorkers reside in NYCHA's 334 public housing developments around the five boroughs, and another 235,000 receive subsidized rental assistance in private homes through the NYCHA administered Section 8 Leased Housing Program. NYCHA has approximately 13,000 employees serving almost 200,000 families. NYCHA residents and Section 8 voucher holders who reside in NYCHA properties combined occupy 12.4% of the city's rental apartments, and the agency administers a robust portfolio of housing, asset management, direct service, resident engagement, and economic mobility programs for its residents.
- New York City Department of Housing Preservation and Development (HPD): Established in 1978, HPD is the largest municipal housing preservation and development agency in the nation. The agency's mission is to make strategic investments that will improve and strengthen neighborhoods while preserving the stability and affordability of our existing housing stock. HPD is responsible for carrying out Mayor Bill de Blasio's *Housing New York: A Five-Borough Ten-Year Plan*, an initiative to build or preserve

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200,000 affordable housing units and to help both tenants and landlords preserve the quality and affordability of their homes. HPD leads the City's Multi-Family Build it Back Recovery Program, including the Residential Building Mitigation Program, supported in part through CDBG-DR funds.

- New York City Economic Development Corporation (NYCEDC): NYCEDC is New York City's primary engine for economic development, charged with leveraging the City's assets to drive growth, creating jobs, and improving quality of life for all New Yorkers. NYCEDC performs this role by utilizing its many existing partnerships throughout the public and private sector to stimulate the economy through real estate developments that create jobs, financial incentives that retain and grow businesses and promote capital investments throughout the City, and everyday management of City properties and infrastructure. NYCEDC has experience working on projects in all areas of the City's recovery and resiliency portfolio including rebuilding the historic Rockaway Boardwalk, working with the Department of Small Business Services in designing and streamlining the Hurricane Sandy Business Loan and Grant Program, spearheading the RISE : NYC initiative to develop innovate and cost-effective technology solutions to make small businesses more resilient, procuring additional construction, technical, and management capacity on behalf of agencies across the City, and leading the construction of six of the City's coastal resiliency initiatives.
- New York City Department of Design and Construction (DDC): DDC acts as the City's primary capital construction project manager. DDC provides communities with new or renovated structures such as firehouses, libraries, police precincts, courthouses, and senior centers. To successfully manage this portfolio, DDC partners with other City

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agencies, as well as with architects and consultants whose experience and creativity bring efficient, innovative, and environmentally-conscious design and construction strategies to projects.

- New York City Department of Parks & Recreation (DPR): DPR is the steward of approximately 29,000 acres of land (14 percent of New York City), including nearly 1,000 playgrounds and 14 miles of beaches. DPR also oversees over one-fourth of the City's waterfront, including some of its most vulnerable shorelines. DPR is working closely with ORR, DDC, and other sister agencies to ensure that Parks' resiliency efforts support overall City goals. Planning for the long-term resiliency of 148 miles of natural and built shoreline in DPR's jurisdiction, creating a comprehensive set of guidelines to develop and manage open spaces in the flood zone, and integrating resilient features to both protect and enhance communities, are primary objectives.
- New York City Department of City Planning (DCP): DCP promotes housing production and affordability, fosters economic development and coordinated investments in infrastructure and services, and supports resilient, sustainable communities across the five boroughs for a more equitable New York City. DCP's contributions toward development of the 10-year Capital Strategy will ensure investments in New York City's neighborhoods align strategic planning priorities with community needs. Current recovery and resiliency initiatives led by DCP include Neighborhood Resiliency studies across ten communities impacted by Hurricane Sandy, planning studies related to retail and industrial resiliency City-wide, and zoning text amendments to provide for the repair and elevation of damaged homes in coastal communities.

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- New York City Office of Emergency Management (OEM) - Established in 1996, OEM is a coordinating agency for the City of New York. The agency plans and prepares for emergencies, educates the public about preparedness, coordinates emergency response and recovery, and collects and disseminates emergency information. To accomplish this mission, the agency maintains a disciplined unit of emergency management personnel, including responders, planners, watch commanders, and administrative and support staff, to identify and respond to various hazards.
- New York City Small Business Services (SBS): SBS provides a wide range of expertise to and on behalf of small businesses in New York City including workforce development and job placement assistance utilizing City and Federal Workforce Investment Act funding, procurement technical assistance training, entrepreneurship and business operations guidance, and neighborhood development programing. This menu of expertise ranges from direct provision assistance programs helping individual New Yorkers prepare for and find a career to assistance on a much larger scale for business improvement district development, Citywide economic policy, and general community development. SBS is leading the City's recovery loan and grant program to businesses affected by Hurricane Sandy, and is actively engaged in workforce development activities in conjunction with recovery work across the City.
- New York City Department of Environmental Protection (DEP): DEP protects public health and the environment by supplying clean drinking water, collecting and treating wastewater, and reducing air, noise, and hazardous materials pollution. DEP is a New York City agency of nearly 6,000 employees that manages and conserves the City's water supply; distributes more than one billion gallons of clean drinking water each day to nine

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million New Yorkers and collects wastewater through a vast underground network of pipes, regulators, and pumping stations; and treats the 1.3 billion gallons of wastewater that New Yorkers produce each day in a way that protects the quality of New York Harbor. DEP manages stormwater flooding and water quality impacts from heavy rainfall in both the Upstate watershed and in the City. DEP is responsible for the citywide Green Infrastructure Program to manage stormwater on streets and in open spaces and rooftops, sewer build-out and freshwater wetland creation in areas with chronic flooding, and tidal wetland restoration to mitigate the impacts of water pollution and new stormwater outfall projects. DEP is also implementing the Wastewater Resiliency Plan to protect treatment plants and pumping stations from coastal flooding, thereby reducing the risk of untreated sewage spills into the Harbor and sewer backups and flooding of homes and streets.

- New York City Department of Transportation (DOT): DOT's mission is to provide for the safe, efficient, and environmentally responsible movement of people and goods in the City of New York and to maintain and enhance the transportation infrastructure crucial to the economic vitality and quality of life of City residents. The over 4,500 employees of the New York City Department of Transportation oversee one of the most complex urban transportation networks in the world.

Cross-Disciplinary Technical Capacity

Office of Recovery and Resiliency - ORR's role is to provide oversight, guidance, and to facilitate coordination and collaboration among City agencies on all aspects of the City's resiliency plan and implementation. ORR is actively engaged in organizing work across disciplines at the City level, as well as State and Federal partners. One example of ORR's coordination role across disciplines is its role leading the City's Coastal Protection Working

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Group which is comprised of senior resiliency designees from DPR, DCP, DEP, DOT, NYCEDC, and the City Law Department. The Coastal Protection Working Group is a forum to discuss current and future projects, regulatory issues, and ongoing research related to protection and resiliency. The Working Group facilitates the leveraging of resources, sharing of best practices and coordination of timelines across the city.

Another crucial function of ORR is to facilitate and lead inter-agency and multi-disciplinary collaboration in the planning, design, and implementation of coastal protection and resiliency projects. For example, ORR leads the implementation of the two City-managed Rebuild by Design projects: East Side Coastal Resiliency (formerly the “BIG U”) and Hunts Point Resiliency, also known as Hunts Point Lifelines. For the East Side Coastal Resiliency project, ORR, in partnership with DDC and DPR, oversees the implementation of the coastal resiliency project. On this large-scale infrastructure project alone ORR engages many City agency partners including, but not limited to DCP, DOT, DEP, OMB, NYCHA, NYCEDC, and HPD, and meets on a weekly basis to set strategy and timelines, share project updates, and work through any issues that may arise. These are the same partners who will collaborate on initiatives developed during and supported through Phase 2 of the NDRC.

Two recent workshops focusing on the future of Coney Island Creek in Brooklyn (Kings County) provide another example of cross-disciplinary coordination on the City’s coastal protection projects. Fifteen City, State, and Federal agencies came together to share knowledge on how best to holistically advance engineered coastal protection alternatives that provide enhanced ecological functioning and promote sustainable economic revitalization. The structure of these highly participatory workshops achieved three goals: (1) provided a concise way to leverage expertise of diverse agencies; (2) laid a strong foundation for future long term agency

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collaboration that will be raise the profile of Coney Island Creek within agencies; and (3) established a more dynamic and participatory model for engagement that can be used across all coastal protection projects.

ORR is also currently undertaking successful projects with State agencies including the New York State Governor's Office of Storm Recovery (GOSR), the New York State Division of Homeland Security and Emergency Services, and the New York State Department of Environmental Conservation on numerous recovery and coastal resiliency projects. Two signature projects the City is implementing in partnership with the State include GOSR's Community Reconstruction Program (NY Rising) and the Staten Island Living Breakwaters Rebuild by Design project. ORR is the main point of contact for GOSR in working through project details and design, and facilitates coordination with the various City Agencies. Under the State's NY Rising program the City has been working collaboratively in 15 New York City neighborhoods to develop a set of projects to enhance those areas' resiliency to flood risk. ORR serves as the sub-recipient to New York State and manages the NY Rising portfolio in close partnership with each agency that is responsible for implementing specific projects. This collaborative work will support and enhance the City's own resiliency planning, and provide needed funding to important community-endorsed projects.

Office of Management and Budget - Within OMB, the Community Development Task Force (CD) coordinates policy and manages both the revenues and expenditures of the City's Community Development Block Grant Program. For the fiscal year 2015, the CD unit handled oversight and compliance for the approximately \$153 million in CDBG funding in addition to program income. The City uses CDBG funds at several agencies that work with civil rights and fair housing issues, including the Commission on Human Rights, DCP, and HPD's Division of

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Housing Policy Analysis and Statistical Research. The CD unit also works with these agencies to publish information about this data in the City's annual Consolidated Plan.

The CDBG-DR unit within OMB oversees the City's CDBG-DR Action Plan and subsequent amendments as well as monitoring and compliance for the approximately \$4.21 billion allocation from HUD. The unit provides programmatic guidance, coordinates policy, administers CDBG-DR revenues, and provides oversight and monitoring of CDBG-DR-funded activities. The City has allocated funds to housing, business, infrastructure, and coastal resiliency programs. Within CDBG-DR, there are seven full-time staff members dedicated to program and policy, including one staff member handling environmental reviews, and seven additional staff members in the fiscal unit. CDBG-DR also has a monitoring and compliance unit that oversees the grant programs.

New York City Housing Authority - As the largest housing authority in North America, NYCHA has the ability to affect change in the lives of over 400,000 New Yorkers living in NYCHA housing. The Authority possesses expertise in understanding of public housing authority design upgrade opportunities, green infrastructure impacts and energy efficiency standards coupled with knowledge on how to leverage multiple funding sources to achieve project success, and retains consultants as subject matter experts to supplement this capacity. NYCHA has full time staff devoted to maintaining, updating and implementing its Public Housing Authority Annual Plan across all developments. They also have a specialized team of contractors overseeing the planning and management of construction happening across the 34 Sandy-damaged developments. NYCHA has a team of experts that can run various climate change and sea level rise models that show risk impacts and works closely with organizations like NOAA and academic institutions to provide and translate the most up-to-date climate change data. NYCHA

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has a team designers, planners, architects and engineers currently working on how to fund and construct more resilient public housing.

Department of Housing Preservation and Development - HPD is responsible for carrying out Mayor Bill de Blasio's *Housing New York: A Five-Borough Ten-Year Plan*, an initiative to build or preserve 200,000 affordable housing units and to help both tenants and landlords preserve the quality and affordability of their homes. HPD is leading the Mayor's charge, in partnership with over 13 sister agencies, advocates, developers, tenants, community organizations, elected officials, and financial institutions. HPD administers the BiB Multi-Family and Single Family Programs, employing a total of 84 staff members who work exclusively on BiB. The Multi-Family Repair Program provides forgivable loans or grants for repairs, reimbursement, and resiliency improvements to buildings with five or more units. Eligible properties include rental buildings, condominiums, and co-operatives that sustained damage due to Hurricane Sandy, as well as individual condo and co-op units. There are currently 37 HPD staff members who work on program development, administration and planning for the BiB Multi-Family Repair Program. While managed by HPD, the Program execution team represents a collaborative effort among local non-profit housing and community development organizations, including the Community Preservation Corporation (CPC), Local Initiatives Support Coalition (LISC), and the New York City Housing Development Corporation (HDC), each of which have partnered with HPD to manage a portfolio of eligible properties.

To administer the existing \$60 million in CDBG-DR funds for resiliency retrofits in BiB projects, HPD draws on the capacity and expertise of departments and staff throughout the agency. Under the leadership of the Assistant Commissioner of Sandy Recovery, the Director of Multi-Family Storm Recovery, the Director of Resiliency Planning and a Multi-Family

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Resiliency Planner, collectively manage the allocation of resiliency funds and development of program policies. These core staff members work closely with HPD's division of Building & Land Development Services, which provides technical input on building systems and structures. CPC, LISC, and HDC also draw on their own teams of Program Directors and Project Managers to support HPD in its management of the resiliency retrofit projects that overlap with their portfolios. HPD also partners with other municipal agencies and outside organizations to implement the BiB Multi-Family Program and shape policy on resiliency and floodplain development. Within the City, HRO, ORR, DCP, and DOB are all active partners of the Multi-Family Program. External collaborators include Enterprise Community Partners, NYCHA, and GOSR, which have all provided input on program standards and practices. HPD is engaged in an ongoing dialogue with these organizations about best practices for retrofitting multi-family buildings.

New York City Economic Development Corporation - Since its inception in 1991, NYCEDC has brought billions of dollars in private investments to the City and has helped to create thousands of jobs through its various projects and initiatives. By encouraging commerce within the City, managing City-owned properties, administering loans and financing, and facilitating commercial and industrial development, NYCEDC successfully has completed hundreds of development projects and implemented many public policy initiatives. In order to achieve this wide array of initiatives, NYCEDC maintains a staff of industry experts in real estate and housing, financial assistance, asset management, resiliency and sustainability, waterfront policy, planning and public works, community engagement, capital design and engineering, industrial and manufacturing policy, international business, environmental compliance, and renewable energy development and advancement. This team has worked on hundreds of projects of considerable

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size and complexity that utilized all of these areas of expertise, including projects funded in-whole or in-part with CDBG-DR like:

- Resiliency Innovations for a Stronger Economy (RISE : NYC): This \$30 million competition aims to identify and fund innovative and cost-effective technologies that help prepare small businesses for future climate events by improving the resiliency of their (1) energy infrastructure, (2) telecom networks, and (3) building systems.
- Coastal resiliency infrastructure: NYCEDC is managing the construction of a multitude of coastal resiliency measures including dunes, floodwalls, bulkheads, revetments, and berms throughout the City. These projects range in size, complexity, and scope and are funded through a variety of City, State, and Federal sources.

New York City Department of City Planning - While DCP's primary mission is to manage zoning and land use decisions for the City of New York, DCP must employ wide-ranging expertise in housing policy, planning, economic development, and social service provision in order to make these decisions in an informed and responsible way. DCP plays a major role in many of the City's marquee initiatives, including being among the lead agencies implementing the Mayor's *Five-Borough, Ten Year Plan* and making numerous policy decisions about how best to develop resilient, sustainable communities using zoning, building design, and neighborhood investments. DCP also conducts a number of studies and issues reports to inform both public and private entities during ongoing recovery and resiliency efforts including:

- *Designing for Flood Risk*: This report identifies key design principles to guide flood-resistant construction in urban area. It provides an overview of regulatory requirements for construction in flood zones under the National Flood Insurance Program, and explores

the impacts of flood-resistant construction standards on built form and the creation of a vibrant streetscape and public realm.

- *Retrofitting Buildings for Flood Risk*: Released on October 8th, 2014, this report is the most comprehensive analysis of retrofit options available for buildings in the New York City floodplain to-date. This document provides guidance to building owners on how to make investments to reduce flood risk including a step-by-step methodology to retrofitting their buildings.
- *Resilient Neighborhoods*: These ongoing studies are place-based planning initiatives to identify locally specific strategies, including zoning and land use changes, to support the vitality and resiliency of communities in the flood zone in 26 Sandy-impacted neighborhoods.
- *Resilient Industrial Areas Study*: This is a FEMA-funded study for hazard mitigation planning within the city's flood-prone industrial areas that will include an assessment of environmental, public health and financial/economic risks; national and international best practices for physical and operational strategies to reduce risks associated with industrial uses in the flood zone; and an analysis of prototypical scenarios.

Affirmatively Furthering Fair Housing

New York City has long been a leader in promoting principles of fairness and equal opportunity. In 1958 the City passed the nation's first housing legislation banning discrimination in private housing. It was one of the first cities in the country to provide protection for families with children (1986). Also, the City's fair housing law for persons with disabilities is broader than federal Fair Housing Act, encompassing a wider range of physical or mental impairments

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and placing the financial burden for reasonable accommodation on the housing provider when it is architecturally feasible and does not impose an undue financial hardship.

New York City has one of the most comprehensive local human rights laws in the country, governing housing as well as employment and public accommodations. The City's Human Rights Law, like the Federal Fair Housing Act, prohibits housing discrimination on the basis of a person's race, color, religion, sex, disability, national origin, and familial status. It also prohibits housing discrimination on the basis of a person's sexual orientation, age, alienage and citizenship status, marital status, partnership status, lawful occupation, gender (including gender identity and sexual harassment,) and lawful source of income. In addition, the City's law prohibits bias-related harassment. The law applies to private and public housing. Distinct among fair housing laws elsewhere in the country, the New York City law covers owner-occupied, two-family housing when the landlord makes public through advertising, postings, or statements the availability of the rental unit.

New York's fair housing strategy depends not only on strict enforcement of the local laws, but also on coordination of efforts among a number of government and community agencies to insure that education and advocacy reach those most likely to experience discrimination, and that housing opportunities, locational choices, and housing services are made available to all persons on a non-discriminatory basis. This work includes the racial and economic disparities for New Yorkers in terms of housing in the preparation of the City's Consolidated Plan (currently effective for 2012-2016). The City Commission on Human Rights (CCHR) is the agency that enforces the New York City Human Rights Law. The Commission is mandated to "foster mutual understanding and respect among all racial, religious and ethnic groups" and to "encourage equality of treatment for, and prevent discrimination against any

group or its members.” To fulfill these mandates the Commission administers programs that seek to bridge differences between people of diverse backgrounds. The agency offers fair housing counseling to individuals and community groups with a view to promoting stable neighborhoods. Opposing prejudice, and identifying and acting on the commonality and shared concerns of diverse groups, are the complementary functions that form the basis of the Commission’s work.

Cost-Benefit Analysis Experience

The City, including its network of public and private partnerships, has worked on and completed a multitude of diverse and complex projects that help inform the anticipated costs of future construction activities. Informed by these experiences, the City employs competition, price and cost analysis techniques, and cost-benefit analysis to determine and document whether a proposed project is cost reasonable. The City and its partners also have substantial expertise in cost-benefit analysis and cost estimating for large capital projects:

- OMB and OEM staff members are experienced with FEMA’s Hazard Mitigation Cost Effectiveness and has followed these requirements for various projects, including the recovery efforts for Hurricane Sandy. Through FEMA’s Benefit Cost Analysis (BCA) software, the City is able to project future damages and avoided losses as a result of mitigation projects and compares those projections to the cost of the mitigation project. The basis for projecting future damages and losses is prior experience with similar disasters, historical damage records, developing assumptions for the NYC environment, and modeling based on FEMA data input. This data is matched against probabilities of future disaster impact from various sources, such as FEMA’s Flood Insurance Study, NPCC climate change projections, historical experience and associated projected

resulting damages, and the useful life for the project. Staff members at OMB also have experience with FEMA's BCA software for mitigation grants.

- NYCEDC's Capital Program approaches cost estimating for complex, unique projects by leveraging 3rd party consultants such as construction managers, engineers and architects. The agency hires construction managers and other consultants to review and estimate conceptual designs, to provide potential construction schedules and to take a close look at constructability and coordination for projects that - inevitably in the urban environment - involve multiple stakeholders and existing infrastructure. For those projects that are moving forward beyond concept to actual design and construction, NYCEDC brings on a construction manager as early as possible during the design process to lead the focus on estimating, scheduling, constructability/coordination and possible procurement scenarios with the design team and owner representatives with the goal of on-time, on-budget delivery.
- NYCHA has been running BCAs as required by FEMA for its numerous Sandy PWs. The expertise of its contractors includes staff that calculates 100-200 BCAs per year for federally declared disasters. NYCHA is also cognizant that there are benefits that may not traditionally be calculated with FEMA BCA software. They are currently looking at models that capture upstream and downstream costs benefits as much of the work that NYCHA is proposing would positively impact property beyond NYCHA's boundary including the surrounding community as well as alleviating stress on City systems.

Community Engagement Capacity

The goal of our engagement process will be to build upon the important work that has already been done and advance it within the framework and goals of this competition. The City

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understands that the diversity and vibrancy of our neighborhoods is what makes this city great. We want to ensure that residents are informed and involved in making their neighborhoods stronger and more resilient. Our communities must be engaged and empowered to ensure the best possible outcomes from activities and initiatives supported by the NDRC. Given that many New York City neighborhoods impacted by Sandy have been engaged multiple times in various resiliency planning exercises, we want to avoid “planning fatigue” or a duplication of what has already been done.

The City of New York and its agencies have extensive experience in engaging communities in robust processes to address resiliency and recovery, with a particular emphasis on engaging vulnerable populations and a wide variety of stakeholders. In 2013, the City convened the Special Initiative for Rebuilding and Resiliency (SIRR) and charged it with analyzing the impacts of the storm on the city’s buildings, infrastructure, and people; assessing the risk the city faces from climate change over the medium term (2020s) and long term (2050s); and outlining ambitious, comprehensive, but achievable strategies for improving resiliency city-wide. The Mayor also asked SIRR to develop proposals for rebuilding some of the areas hardest hit by Hurricane Sandy: the Brooklyn-Queens Waterfront, the East and South Shores of Staten Island, South Queens, Southern Brooklyn, and Southern Manhattan – to help them to emerge safer, stronger, and better than before.

In the spring of 2013, thousands of New Yorkers were directly engaged through meetings, public workshops and other efforts regarding the City’s long-term planning efforts and many more have been consulted since. This included residents from areas impacted by Hurricane Sandy who participated in a series of 11 public workshops to give direct feedback in small group settings. Through SIRR, the City of New York engaged: over 30 City, State, and Federal

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Agencies; over 65 Elected Officials; 19 Community Boards; as well as over 320 business, civic, community-based, environmental, faith-based, and labor organizations. These briefings garnered valuable feedback from the leaders on the ground representing their communities. This robust community engagement process can be replicated to enable ORR and its partners to reach residents in multiple ways, including residents without web access, limited mobility, or limited-English proficiency.

An example of an engagement strategy focused on a large-scale coastal protection project is the East Side Coastal Resiliency Project, which is a result of HUD's Rebuild by Design competition. The goals of the Community Engagement for the East Side Coastal Resiliency Project are aligned with that of the overall project and will continue to be shaped by discussions with stakeholders and broader public workshops/feedback sessions. The overarching project outreach and engagement goals are to: (1) identify the needs and desires of stakeholders; (2) understand and manage issues, expectations, and challenges; (3) develop a body of community feedback data that supports project direction and decision making; (4) strengthen project design and implementation through public understanding and discussion; and (5) establish a clear structure for public feedback.

Stakeholder engagement is intended to expand upon outreach conducted during the Rebuild by Design proposal phase and focus on the planning and design activities that advance implementation. This includes providing a platform to incorporate feedback from the various community stakeholders as the project moves from feasibility into design and then into construction. The City has partnered with the community to establish a Community Task Force to help guide the project and compiled a comprehensive list of stakeholder organizations and individuals for broader community engagement. In addition, ORR will lead coordination of

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interagency press and communications and collaborate with partner agencies to coordinate engagement and messaging with interested City, State, and Federal agencies throughout each of the five phases.

Another example of ORR's community engagement capacity is our current outreach to ensure that the 400,000 New Yorkers living in the floodplain are aware of their flood risk, ORR has an extensive outreach campaign that includes reaching out to elected officials, community boards, civic groups and community-based organizations. The City anticipates that there will be approximately 100 meetings held about flood risk and flood insurance purchase requirements. The key messages for this campaign to New Yorkers living in or near the floodplain are: (1) understand your risk and flood insurance purchase requirements; and (2) purchase flood insurance. ORR has partnered with other City agencies and non-profit organizations doing recovery work to coordinate flood risk messaging and ensure we reach as many residents as possible. The City works closely with the Center for New York City Neighborhoods (CNYCN) on the development of their floodhelpny.org website, which communicates flood risk to New Yorkers in a clear, accessible way; and with FEMA to mail notification letters to residents living in the floodplain. ORR will also launch a Flood Insurance Consumer Education Campaign in the spring of 2015 to inform as many people as possible about their flood risk. This education campaign may include advertisements on public transportation, radio ads, banner ads, and community events.

In addition, the City has continuously emphasized the need to engage our most vulnerable populations and low and moderate income communities through many resiliency and recovery planning processes since so many of these communities were impacted by Hurricane Sandy. The

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NYC 2014 Hazard Mitigation Plan, which outlines the goals, objectives, and specific actions New York City can take to reduce risks with a focus on vulnerable populations, documents that:

- 27% of the households in the Sandy Inundation Area included seniors, and seniors living alone comprised 12.1% of the population in the inundation area;
- 15% of the population living in the 100-year floodplain is over 65 years old;
- 18% of the population living in the 100-year floodplain is living at or below the poverty level.

As an example of the City's efforts to reach these vulnerable populations, NYCHA has undertaken an intensive community engagement effort to capture resident concerns and priorities, obtain input on plans and designs, and provide timely updates on recovery activities. To ensure a successful recovery, NYCHA has broadened its engagement to also include non-resident community stakeholders, and intends to continue all engagement activities after the completion of its recovery efforts. NYCHA has a specialized team of multilingual outreach specialist that meets daily with residents. This high level of presence allows NYCHA to both give to and receive from the tenants the most up-to-date status of needs, issues and progress achieved. NYCHA has a diverse group of team members that have been working in these communities for months, has formed strong relationships with the residents and both speaks the languages of the multi-cultural community members as well as translates all of the written materials. Thus, a critical and innovative aspect of NYCHA's recovery will continue to be the active participation and input from residents and stakeholders. NYCHA has demonstrated experience that this approach yields valuable "consumer" input, and builds trust with community members.

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An additional example of deep community engagement the City and its partner agencies have led for more than a decade is in the Hunts Point section of the Bronx. The Hunts Point Peninsula is an area of approximately 690 acres in the South Bronx, nearly half of which is occupied by the 329-acre Food Distribution Center. It is a diverse, industrial neighborhood with a residential community of roughly 12,000 residents who predominantly identify as Hispanic (75%) or Black/African American (22%). The neighborhood suffers from long-term poverty rates, high unemployment rates, poor health, lack of public space, and lack of transportation options. In response to this multitude of stressors, the City, led by the NYCEDC, developed the Hunts Point Vision Plan Task Force in spring 2003 to provide a forum for addressing critical issues facing the Hunts Point Peninsula. The Task Force is made up of community leaders, business owners, local constituents, elected officials, and government agencies. The Task Force developed the Hunts Point Vision Plan in Spring 2005 which focused on four categories of short-term goals and outlines a series of concrete recommendations to optimize land use; explore the redevelopment of brownfields and a special district rezoning; implement workforce solutions; improved access to the waterfront, streetscape enhancements, and intersection improvements for pedestrian safety; and improve traffic safety and efficiency. NYCEDC is implementing portions of the Vision Plan and is coordinating its efforts with several agencies, including DCP, DPR, DOT, and SBS. The Task Force continues to meet on a semi-annual basis.

Regional Capacity

New York City is the anchor of the New York metropolitan region. The City contains over 40% of the population of the State, and is comprised of five counties. The City is working closely with the State so that models for resiliency planning, infrastructure development and community engagement which are developed in New York City can be refined and implemented

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State-wide. Similarly, the State and other non-contiguous jurisdictions have shared meaningful recovery and resiliency strategies and frameworks with the City that help refine its approach to problem solving these complex issues. Understanding the necessity and value of regional collaboration for the NDRC, the City has consulted with both the State of New York and the State of New Jersey to develop this Phase 1 application. All three parties participated in several calls to discuss and refine respective application approaches to ensure they are regional in scope and synergistic in nature.

The City and State of New York maintain a productive working relationship in the administration of recovery programs. In particular, the City is a sub-recipient to the State and will work with local committees to implement several priority projects developed through the NY Rising Community Reconstruction Program. The City provides coordination with the State and other governmental stakeholders in recovery and resiliency efforts, such as ensuring the alignment of the City's Acquisition for Redevelopment program. The City's Phase 1 application approach to serve vulnerable coastal communities throughout the five boroughs is coordinated with the State's approach to ensure the development of resilient built and natural systems throughout the State. The State of New York, City of New York, and State of New Jersey will continue to work together to ensure the successful administration of ongoing recovery programs.

The City will continue to coordinate with the State of New York and State of New Jersey to advance synergistic Phase 2 approaches that may include the advancement of specific projects, partnerships, or funding schemes. The City and State are in active consultation with the Port Authority of New York and New Jersey (PANYNJ) and the Metropolitan Transportation Authority (MTA) to explore unique opportunities for cooperation on strategic resiliency initiatives.

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ORR also has extensive experience coordinating with Federal, State, City, and community-based partners. This experience is exemplified by work with the United State Army Corps of Engineers (“Corps”) to implement a series of coastal projects in the aftermath of Hurricane Sandy. These projects include: completed re-nourishment of Atlantic Ocean beaches in Coney Island and the Rockaways; construction of T-groins to mitigate wave impacts at Sea Gate in Coney Island; advancing implementation of the South Shore Staten Phase I levee; and development of Rockaway Reformulation project. The Rockaway Reformulation project in particular is an example of robust partnership and coordination with the Army Corps of Engineers in Jamaica Bay and the Rockaways. In addition to working closely with resident and civic organizations and Federal and State agencies, the City is partnering with academic and philanthropic sectors through CUNY’s Science and Resiliency Institute at Jamaica Bay and the Rockefeller Foundation to advance long term resiliency and protection initiatives.

EXHIBIT D - NEED

New York City has substantial URN to repair and protect housing with significant levels of vulnerable and LMI populations in coastal communities in all five boroughs (counties) that were severely impacted by Hurricane Sandy, and are at increasing risk from future major storm and weather events due to climate change. This URN related to the protection of coastal communities and their resiliency to climate change are in part demonstrated within this application based on HUD’s Housing Threshold criteria using data from the City’s Multi-Family Build-it-Back Repair Program for repair and resilience measures to multi-family buildings within the 100-year floodplain; and using data from NYCHA for repair and resiliency needs for public housing that was damaged by wind and debris that cannot be funded by other resources. In Phase

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2 of the NDRC, the City will develop project proposals, in consultation with various governmental, non-profit, and community stakeholders, that aid in the recovery of New York City's most vulnerable populations and make them more resilient to future storm events. New York City is submitting each of its five counties (New York, Kings, Queens, Richmond, and Bronx Counties) as MID target areas with demonstrated URN under the housing threshold (see Exhibit B for more details).

Risks

Although New York clearly is at risk today as evidenced by Hurricane Sandy, long-term changes in climate will make many extreme events and chronic conditions worse. These changes have, in fact, been underway for some time. Over the last century, sea levels around New York City have risen by more than a foot. Temperatures, too, are climbing. In fact, the National Weather Service and National Oceanic and Atmospheric Administration (NOAA) labeled 2012 the warmest year on record in New York City and in the contiguous United States, with average temperatures in the US 3.2 degrees Fahrenheit above normal and a full degree higher than the previous warmest year ever recorded. Globally, all signs indicate that these changes will accelerate. As sea levels rise, coastal storms are likely to cause flooding over a larger area and to areas already at-risk to flood more frequently than today. As temperatures get warmer, heat waves are expected to become more frequent, last longer, and intensify—posing a serious threat to the City's power grid and New Yorkers' health.

To ensure that the City would always have access to the latest information about future climate risks, the City established the New York City Panel on Climate Change (NPCC). The NPCC is an independent body that advises the City on climate risks and resiliency. Initially formed as a scientific panel in 2008, the first NPCC was comprised of academic and private-

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sector experts in climate science, infrastructure, social science, and risk management. It established a risk management framework for the city's critical infrastructure throughout the extended metropolitan region under climate change. In September 2012, the City formally codified the NPCC by authorizing Local Law 42 which became the first bill passed by any local government in the country to institutionalize a process for updating local climate projections and identifying and implementing strategies to address climate risks. The new law requires that the NPCC meet twice a year, advise the City on the latest scientific developments, and update climate projections at least every three years, beginning in March 2013. Following the wake of Hurricane Sandy, in January 2013 the City reconvened the NPCC on an emergency basis to update its projections to inform planning for rebuilding and resiliency post-Sandy. Drawing on the latest climate models, recent observations about climate trends, and new information about greenhouse gas emissions, the NPCC updated its 2009 projections for use in *A Stronger, More Resilient New York*.

In February 2015, the NPCC published *Building the Knowledge Base for Climate Change Resilience* which provides recent observations and climate change projections in 30-year intervals, 2050s, 2080s and, for the first time, through the end of the century. The NPCC 2015 report predicts that temperatures will continue to increase for the New York metropolitan region, by approximately 4.1 to 5.7°F by the 2050s and by 5.3 to 8.8°F by the 2080s, according the middle range of projections generated by Global Climate Models (GCM). By the 2050s, the city could have as many days at or above 90 degrees annually as Birmingham, Alabama has today—a threefold increase over what New York currently experiences. Heat waves could more than triple in frequency by the 2080s, lasting on average one and a half times longer than they do today.

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Similarly, it is also very likely (more than 90 percent probability) that the New York City area will see an increase in heavy downpours over this time period.

The NPCC 2015 report also updated projections for sea level rise and coastal flooding for the New York metropolitan region. These projections have been subjected to rigorous peer review, and represent the best-available climate science for New York City. New York has already experienced nearly twice the global rate of sea level rise, with nearly 1.1 feet since 1900 and that rate is very likely to accelerate over the next century. By the 2050s, sea level is projected to rise by 11 to 21 inches, 18 to 39 inches by the 2080s, and 22 to 50 inches by 2100 according to the middle range of projections. At the high end of projections, sea level could reach 6 feet by 2100. That magnitude of sea level rise would threaten low-lying communities in New York with regular and highly disruptive tidal flooding. Routine coastal storms would result in more frequent and intense coastal flooding. The City's goal is to protect people and property vulnerable to climate change through adaptive resiliency strategies based on the best available science through at least the year 2050, while considering the long-term (through 2100) consequences and measures that will be required.

By the 2050s, the current 100-year flood is projected to occur twice as often. Under the high sea level rise projections, the 100-year flood could turn into an approximately once per eight year event. The NPCC also predicts it is more likely than not (more than 50 percent probability) that there will be an increase in the most intense hurricanes in the North Atlantic Basin. To guide the city's rebuilding and resiliency efforts, the City also has worked with the NPCC to develop a series of "future flood maps" that incorporate sea level rise projections into FEMA modeling. These maps illustrate how the impact of sea level rise on the 100-year and 500-year floodplain as compared to the December 2013 FEMA Preliminary Flood Insurance

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Rate Maps (PWM). The maps also serve to highlight the areas that are most at risk to future coastal flooding due to sea level rise, with Queens with the most land area at risk followed by Brooklyn, Staten Island, the Bronx, and Manhattan.

The new maps show that the area that might be flooded in a 100-year storm in the 2020s could expand to 59 square miles (up 23 percent from the PWMs) and encompass approximately 88,800 buildings (up 31 percent). With more than 2.5 feet of sea level rise, New York City's 100-year floodplain in the 2050s could be 72 square miles—a staggering 24 percent or nearly a quarter of the city—an area that today contains approximately 114,000 buildings (almost twice as many as indicated by the PWMs). This area currently accounts for 97 percent of the city's power generation capacity, 20 percent of its hospital beds, and a large share of its public housing. Over 800,000 New Yorkers, or 10 percent of the city's current population, now live in the 100-year floodplain projected for the 2050s—a number of flood vulnerable residents that is greater than the total number of people living in the entire city of Boston.

In addition to flooding from sea level rise and extreme weather, New York City faces environmental risks related to climate change which will have a disproportionate impact on our most vulnerable populations. These risks include increasing temperatures and heat waves, as well as a range of secondary hazards related to air pollution, pollen, vector-borne diseases, and water/food-borne illnesses. Recent experience from Hurricane Sandy and other extreme events has clearly demonstrated that the health of New Yorkers can be compromised by these hazards. Health impacts related to extreme weather events include direct loss of life, increases in respiratory and cardiovascular diseases, and compromised mental health. The risk of these impacts is projected to increase in the future. Rising temperatures over the coming century are projected to increase the number of heat related deaths that occur City-wide. However, uncertain

future trends in the use of home air conditioning, improved population health, and better air quality during heat waves make it difficult to predict the magnitude of these increases. These changing climate hazards increase the risks for the people, economy, and infrastructure of New York City.

Insurance

Market forces and NFIP (National Flood Insurance Program) coverage limits make flood insurance only a partial solution for the City in protecting its buildings against future risks. The City will spend over \$3 billion restoring its buildings to pre-Hurricane Sandy condition, while the City's insurance consultant, Marsh, estimates the maximum amount of flood coverage available at \$500 million (17% of the damage). Therefore, the City is pursuing multiple risk reduction efforts, in addition to flood insurance, to protect City buildings from the next disaster.

The City is currently implementing a flood insurance plan in three phases. Phase I will procure National Flood Insurance Program (NFIP) policies for over 450 flood damaged buildings. Phases II and III will procure a citywide commercial flood policy, built on key elevation and building data from the NFIP process, which will provide two additional layers of protection for the City's most critical and vulnerable buildings: hospitals, fire stations, police stations, etc. The City expects Phase I to roll out over 12-18 months beginning in Spring 2015, with Phases II and III following directly after. Phase I will provide over \$100 million in coverage, and fully cover the damages incurred at over 250 buildings. Phases II will provide an additional layer of coverage for the approximately 200 more severely buildings, and Phase III will provide a tertiary layer for the approximately 50 most severely damaged buildings. Phases II and III will provide an estimated additional \$200-\$300 million in coverage.

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Because flood insurance coverage is limited, and the City experienced concentrated losses to a number of public buildings, a robust mitigation program has been implemented to protect public buildings and critical facilities against flood risk. The City has over 450 buildings that will be subject to FEMA's requirement to obtain and maintain insurance equal to the cost of insurable damages plus any hazard mitigation measures. As a result, the City is pursuing an insurance agreement with FEMA that will satisfy the City's obligation to obtain and maintain requirement, providing a reasonable amount of flood insurance coverage for each of the 450+ buildings.

Although the City has been subject to repeated flooding, Hurricane Irene (August 2011) was the first time City buildings were subject to the "one bite rule." This did not impact Hurricane Sandy recovery, as there were no Federal grants to Irene-damaged buildings. The "one bite rule" had no impact on the Hurricane Sandy recovery effort. The requirement to obtain and maintain insurance will apply to all future Federally-declared disasters. The City has received a certification from the New York State Division of Financial Services that defines a reasonable level of insurance for the City to purchase, and the City has submitted an insurance proposal to FEMA for a level of insurance that exceeds this level. As the City waits for agreement on its insurance proposal, it has already begun the process of procuring NFIP policies that make up the foundation of the City's plan to protect Federal repair and resiliency investments.

For individuals, cost, risk awareness, and quality of insurance agent are the most important factors in determining whether they purchase and maintain flood insurance. Many homeowners in the floodplain are middle or low-income New Yorkers who struggle to make mortgage payments, let alone flood insurance premium payments. Therefore, the City has launched major affordability studies to understand the impact of rising insurance premiums on

households and neighborhoods, and to develop and recommend possible solutions, parallel to the National Affordability study mandated by the Biggert Waters Act as amended by HFIAA.

Regarding awareness of risk, the City's currently effective Flood Insurance Rate Map dates from 1983. During the intervening 30+ years, risk and modeling techniques have changed significantly. Further, now that FEMA has updated Preliminary Flood Insurance Rate Maps for New York City (December 2013) that greatly expands the Special Flood Hazard Area, informing affected New Yorkers is critical. The City works closely with FEMA on outreach to impacted communities, however a critical impediment to individuals purchasing and maintaining insurance is the inconsistent quality and lack of information provided by the "Write Your Own" insurance brokers that sell NFIP policies. FEMA's current agent training is not tailored to the dense urban environment characteristic of NYC and thus, if you call three different brokers concerning the same structure, you will often receive three very different quotes. This is confusing for homeowners and impedes them from actually buying insurance. Further, agents miss opportunities to educate buyers about their current and future flood insurance rates and purchase requirements. The City is working with FEMA to try and improve the training and therefore the effectiveness of the interaction at the point of sale.

Disproportionate Effects

New York City, as a coastal community, faces significant risk from extreme weather events such as hurricanes, severe storms, and severe temperatures, each amplified by a changing climate and rising sea levels. The impacts of these events are magnified by the City's aging infrastructure and housing stock, which is likely unable to withstand the increasing frequency of severe weather events, in an extremely dense urban environment with concentrations of poverty. Sandy-impacted areas have a disproportionate share of low- and moderate-income, limited-

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English proficient, elderly, and disabled populations. These populations must also contend with the added stressors of limited affordable housing, gentrification, and growing income inequality. All of these factors pose unique challenges as the City endeavors to adapt to climate change.

The hazards described in *A Stronger, More Resilient New York* can exacerbate burdens already present in low-income and other vulnerable communities. In the 100-year floodplain, 23% of owner-occupied households have an income of less than \$50,000 per year, and 18% of all households are considered extremely low-income (30% AMI). In addition, NYCHA operates 2,596 buildings in 334 developments in the 100-year floodplain. These developments are home to over 400,000 residents that include working families, low-income households, seniors and other vulnerable populations.

The climate hazards that NYC faces stress the healthcare system and place the health of the medically fragile at risk. More than 1 million New Yorkers are in poor health, including those with chronic conditions such as diabetes and high blood pressure, and depend on regular, ongoing care. The 800,000 New Yorkers under 5 or over 80 are more vulnerable to illness and injury and more likely to need life-saving medical care. 20% of the city's hospitals, 34% of adult care facilities, 19% of nursing homes, and 11% of other residential facilities are in the 100-year and 500-year floodplains.

Housing expenses consume a larger share of income in NYC than in most other cities and housing affordability is a major challenge. Upcoming changes to the NFIP will increase flood insurance premiums by \$5,000-\$10,000 per year and further stress residents in coastal neighborhoods, many of whom have not yet recovered from Sandy; this is as much as 10-20% of the income of households earning less than \$50,000a year. These increases may make it

infeasible for homeowners to stay in their homes, leading to foreclosures, property value impacts, community disruption and displacement.

Opportunity and Context

The City's comprehensive climate resiliency plan, *A Stronger, More Resilient New York*, outlines a variety of strategies and initiatives designed to make New York stronger and more resilient to climate change. Given a world of limited resources, the goal is to begin now to make ambitious but targeted and cost-effective investments that will make New Yorkers safer than they were before Sandy. This approach also reserves for future City leaders the ability to monitor changes in the climate over time and to make incremental investments based on observed experience as conditions warrant and further resources become available. The nearly \$20 billion plan includes over 250 initiatives. Together these initiatives will further protect the coastline—our first defense against storms and rising sea levels—as well as strengthen the buildings in which New Yorkers live and work, and all the vital systems that support the life of the city, including our energy grid, transportation systems, parks, telecommunications networks, healthcare system, and water and food supplies. Meanwhile, the City is undertaking local rebuilding initiatives city-wide that will help these communities emerge safer, stronger, and better than ever.

The potential to prevent future financial losses and physical damage to low income multi-family buildings is a key factor in both preserving their affordability and providing critical building services to residents during future flooding events. The Residential Building Mitigation Program has also created a unique opportunity for HPD to develop a body of knowledge and technical expertise that will inform future multi-family housing policy and investment in the floodplain. The resiliency assessments carried out by HPD thus far are unprecedented in New

York City, and serve as some of the only sources of technical and cost information relevant to residential multi-family buildings. Because current FEMA guidance does not specifically address multi-family residential structures, HPD has worked extensively with other City agencies and partner organizations to develop standards and a process for making scope determinations for resiliency measures such as retrofits. NDRC funding will further support this work, which has the potential to inform broader policy discussions, within New York City and at the national level. The expansion of this program therefore represents an important opportunity to build on this base of information, further develop knowledge and data on the resiliency needs of multi-family structures, and support other jurisdictions interested in updating multi-family housing stock to plan for the impacts of climate change.

EXHIBIT E – SOUNDNESS OF APPROACH

Consultation

The City has taken on many levels of consultation with the public and across government stakeholders to develop various resiliency initiatives, including *A Stronger, More Resilient New York* which serves as the City's overall plan for recovery and resiliency, New York State's NY Rising Community Reconstruction Program, the City's Department of City Planning Resilient Neighborhood studies, and HUD's Rebuild by Design competition. The outreach strategies employed by these various planning processes have reached engaged and impacted communities, not-for-profit organizations, businesses, elected officials, and government agencies in an innovative and dynamic way to facilitate community redevelopment planning and the resilience of communities.

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For Phase 1 of this competition, the City is reviewing the unmet needs of each of its five counties, and has engaged in a multi-county and regional approach to consultations. The City will continue to conduct outreach to local, state, and federal elected representatives, coordinate with New York State Governor's Office of Storm Recovery, the Port Authority of New York and New Jersey, the New York City Housing Authority, and multiple city partner agencies. Consultation for Phase 1 of this application as of March 1, 2015, is summarized in Appendix I. For Phase 2 of this competition, the City will identify specific communities for project locations and engage community stakeholders including: not-for-profit organizations, advocates, religious institutions, local leaders (official and unofficial), and businesses to inform our final project submission, in addition to continuing the consultation started in Phase 1.

To ensure that the City is actively engaging with and considering the needs of vulnerable populations as well as low- and moderate-income New Yorkers, the City is engaging municipal agencies that serve those populations such as NYCHA, HPD, the and the NYC Mayor's Office of Immigrant Affairs.

As required by this competition, the City will conduct a Public Hearing for both Phase 1 and Phase 2 of this competition. The Public Hearing for Phase 1 is scheduled for March 10, 2015 and Pace University in Lower Manhattan. As part of the 15-day comment period for Phase 1 of this application the City is making this application document available to the public, and is providing public notice regarding the comment period and public hearing in the City Record, on the City's CDBG-DR website, and in 4 daily newspaper publications, including one media outlet in Spanish, one media outlet in Russian, and one media outlet in Chinese. This complete document will be available on the City's CDBG-DR website as well as at the public hearing in English, Spanish, Russian and Chinese to accommodate limited-English proficient New Yorkers.

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The public hearing will be held in an ADA-accessible space, interpretation will be available for participants in Spanish, Russian, Cantonese, and Mandarin. The public hearing will provide an opportunity for New Yorkers to learn about both Phases of the NDRC, to understand how the City has documented its Unmet Recovery Needs, and to provide comment on the City's application. All comments provided during this public hearing will be received in written format and a summary of all comments received will be submitted to HUD with this Phase 1 application. Should the City proceed past Phase 1, it will go through a comparable process for public comment and organize at least one public hearing for Phase 2 of NDRC.

The Idea and Concepts

The threats of climate change are significant and growing. A resilient city is not one that is shielded from climate change all of the time – because, when it comes to nature's powerful forces, that is simply not possible. But a resilient city is one that is: first, protected by effective defenses and adapted to mitigate most climate impacts; and second, able to bounce back more quickly when those defenses are breached from time to time. To those ends, New York City will:

- Embrace the Coastline – A strong coastline – with vibrant waterfront neighborhoods, critical and accessible infrastructure, and cherished natural and cultural resources – is essential to New York's present and future.
- Plan Ambitiously – Even with limited resources, New York City must make investments in smart, effective protections for our city, modifying and expanding strategies as we learn more about the threats we face and piloting projects that can be scaled up over time.
- Create a Stronger, more Resilient City – The city must be able to withstand the forces of climate change and bounce back quickly when extreme weather strikes.

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The City's unique composition of aging infrastructure which is increasingly unable to withstand increasing severe weather events, high levels of renters in multi-family apartment buildings, and high poverty rates pose unique challenges as we try to adapt to climate change. However, these challenges present a unique opportunity to create more resilient and protective coastlines, improve aging infrastructure so that it's more resilient to extreme weather events, and stabilize neighborhoods by investing in affordable housing. The City will endeavor to protect some of our most vulnerable communities while also ensuring we can create a more inclusive, fair, resilient and stronger city for the future.

The City's housing recovery gives rise to creating a better form of safe, affordable housing through improving accessibility, comfort, and security for residents. Creating great places within NYCHA developments for interaction and recreation can foster a sense of community, enhance safety, and improve work-life balance for residents. When designed properly, these spaces can also aid in resiliency, and add value to NYCHA and surrounding property owners. Safety and security are foremost in determining the success of NYCHA developments, and the work being done, makes those developments safer. The value of NYCHA developments can be enriched for residents and neighbors by enhancing the living, working, and play features, as well as connecting them to surrounding communities. Providing new amenities and improved connectivity also improves surrounding property values, increases sense of community and provides more essential services within walking distance, making developments more self-sustaining and resilient. Strengthening the physical connections between NYCHA developments and surrounding communities can have provide more options for ingress/egress during emergencies, give residents improved access to nearby amenities and services, allowing for more social interaction between residents, activating NYCHA developments at street level,

increasing safety and economic opportunity within those developments, and mitigate the sense of isolation within developments. Through its recovery, NYCHA is implementing new innovations in green infrastructure and resilient construction. As part of its asset management plan, NYCHA can harness the need to provide job training to residents to perform some maintenance and construction of its green improvements. In so doing, NYCHA will help meet its obligations to provide job training, as well as help train workforce for the sustainable economy. With more than 400,000 residents living in 334 housing developments, NYCHA will become an economic engine for NYC while preparing residents for tomorrow's workforce.

EXHIBIT F – LEVERAGE

Outcomes

In 2012, Hurricane Sandy highlighted the City's vulnerabilities to coastal storms and demonstrated that we must think differently about how we engage with the waterfront going forward. The storm itself propelled the City into action to rebuild, not just what was, but better and smarter, so that our neighborhoods and infrastructure are ready for a future with climate change. The City's efforts are embodied in *A Stronger, More Resilient New York*, a comprehensive climate resiliency plan, which lays out a strategy for (1) rebuilding and making stronger those neighborhoods hardest hit by Hurricane Sandy and (2) improving the City's infrastructure to ensure greater resiliency in the face of future climate change impacts. In March 2014, Mayor de Blasio released *One City, Rebuilding Together* and created ORR to accelerate this work and to also expand the economic opportunities that will result from these investments and initiatives. While these efforts may be expensive, the City acknowledges that there is an enormous cost of inaction, and initiatives mapped out in *A Stronger, More Resilient New York*

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represent a path forward to buy-down future climate change risk by strengthening the City's coastlines, improving both public and private buildings, protecting the continuity of infrastructure, and making sure that our neighborhoods, where we live, work, and play, are safer and more vibrant for all New Yorkers.

With the uncertainty of climate change projections, the City needs to plan for the current protection of communities while staying adaptive to future risks. Sea level rise is largely not a crisis for today, however the City has seen 1 foot of sea level rise already since 1900 and the hints of things to come are visible. The analysis provided in this Phase 1 application that will be developed into discrete initiatives in Phase 2 begins a conversation that will shift the way the City will make its shorelines more resilient, and this conversation will play out over time and evolve with future generations as these projections become realities over the next century.

The resiliency projects that the City looks to develop through Phase 2, in consultation with local stakeholders, will reflect the core vision that has been developed to-date. Solutions will be at various scales and be adaptable to neighborhood-level conditions and constraints, as well be integrated into county- or city-wide initiatives infrastructure projects. The projects developed in Phase 2 of this application will consist of short- and medium-term multi-family housing recovery and resiliency efforts, including building retrofits as well as area-wide resilience measures such as stormwater management. These projects will be large in scope up-front and will require minimal maintenance in the long-term for the City and private property owners.

The City also recognizes the need for large-scale coastal protection and other infrastructure projects to protect vulnerable coastal communities from sea level rise and storm-related flooding. Projects to be explored and refined in consultation with local communities and

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agency partners for Phase 2 could include large infrastructure investments that will be multi-phase in implementation and will require operating and maintenance capacity to ensure the long-term protection of vulnerable communities. The City is planning for projected sea level rise and risks related to extreme weather that are projected through 2050, based on the best available science. Projects funded by NDRC will operate on this timescale. As part of a broader City-wide effort to develop a comprehensive coastal protection system, the City is exploring infrastructure solutions that are adaptable to local conditions and constraints—from multi-use levees and sea walls to tidal wetlands and the creation of more open space in order to manage inland and coastal flooding. The City is working to ensure that coastal protection infrastructure is recognized as a new class of assets that will require maintenance and operation.

In factoring the performance and operating life of such large capital projects, the City will consider opportunities to integrate other co-benefits with this infrastructure. The urban fabric of New York City is mixed-use and multi-modal by design, and projects developed through Phase 2 of this application will explore the integration of access to open and recreational space with nature-based flood protection or the mitigation of urban heat and localized flooding through neighborhood-scale green infrastructure and wetland projects. For example, one mode of coastal protection in development through the City's various current planning studies is a multi-purpose levee which can be constructed in many areas of coastline to provide flood protection during extreme weather, but function as part of the neighborhood every other day of the year. Some programming and uses that can be planned in conjunction with such levees include multi-family housing, light industry or commercial space, community facilities, low-intensity transportation such as a bicycle trail, or open space that provides access to the water. Other co-benefits that will be analyzed in the development of projects in Phase 2 of NDRC will be how

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these initiatives can provide long-term benefits in terms of quality of life, economic security and mobility for the majority-LMI communities who live in the City's coastal neighborhoods. The protection or development of industrial and commercial uses resulting from NDRC will secure or provide new job opportunities for residents.

Any construction projects and program spending related to NDRC will provide for Section 3 requirements to hire local and/or LMI residents that will provide for economic mobility. The City's experience with Hurricane Sandy demonstrated that protecting businesses large and small with the jobs they provide in vulnerable areas through resiliency is the better alternative to fixing and replacing those businesses, reimbursing for losses which will never fully be covered, and finding jobs for workers who were displaced as a result of disruptive events. Through rigorous cost-benefit analysis and environmental analysis, the City will follow its standard practice for capital planning to ensure that projects developed through NDRC can be done in an economically and environmentally sustainable manner. In the feasibility and preliminary design phases of any project, alternatives will be developed and tests in consultation with agency partners and the community.

One primary outcome of the City's resiliency efforts is the preservation of life, and mitigating economic losses and property damage resulting from any shock event. Looking ahead, the number of residents in the floodplain is expected to double to almost 800,000 by 2050. The number of buildings in the floodplain, now at 71,500, will grow to 118,100. An important role the City can play is integrating policy in this arena across levels of government and translating the implications of these policies to homeowners and residents at risk. In 2013, the City updated its zoning to reflect these risks, and clarified building and mechanical equipment elevation, freeboard requirements, alternative uses of ground floor space, and parking

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issues in the floodplain, and was critical in providing property owners with early options to protect their buildings. Protecting private property and LMI residents' assets are a measurable outcome through this initiative and other protective measures.

The City has identified four outcomes to advance its resiliency goals: (1) strengthened coastal defenses; (2) upgraded buildings that are more resilient; (3) protection of core infrastructure and the continuity of services; and (4) neighborhoods that are safer and more connected relative to increased risk to shock events. These outcomes are measurable along certain indicators: miles of coastal protection; volume units of coastal protection (e.g. sand, rocks); acres of restored wetlands; gallons of stormwater diverted through green infrastructure; reduction of events from combined sewer overflows; number of housing units preserved or hardened; number of commercial buildings preserved or hardened; total dollars invested to retrofit buildings for resiliency; linear miles of utility conduit restored or hardened against shock events; reduction of outages or service disruptions for core services such as power, gas, water, and telecommunications; population served by infrastructure protection; dollars invested in retrofits for hardening infrastructure such as waste water treatment and water pumping facilities; dollars invested in retrofitting critical assets and emergency response systems (e.g. hospitals, 911 call center, fire houses); response time of emergency responders; number of cases of heat-related illnesses and deaths from chronic heat. As the City moves forward in the National Disaster Resilience Competition, initiatives developed will be aligned with these core outcomes and their impacts will be measurable after full implementation.

Leverage

According to FEMA, every \$1 spent on mitigation and resiliency can save \$4 in avoided future damages and recovery costs. The five counties (boroughs) that comprise New York City

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include 520 miles of shoreline which have served the City as an asset for recreation, industry, and environmental quality. However areas in the 100-year floodplain are also at risk to flooding and extreme weather events, and are home to more than 400,000 New Yorkers many of whom are LMI and are otherwise vulnerable. The City has a unique opportunity to maximize the return on City capital investments and leverage available federal resources along with private investments by utility providers, mass transit, etc. for recovery and resiliency to ‘buy down’ this future risk and ensure safer and more livable neighborhoods in all five boroughs well into the future. The City’s objective in applying for NRDC is to implement resiliency initiatives across the City’s most vulnerable areas to protect the tens-of-billions of dollars in federal investment leveraged for recovery efforts following Hurricane Sandy.

Protecting the housing for vulnerable communities is a strategic priority of this Phase 1 Application. Providing for housing in response to the City’s unique housing crisis is an overarching goal of the administration, however ensuring that this housing is resilient to shock events and adaptable to volatile economic conditions for everyday New Yorkers are central to the City’s efforts to further equity by providing housing to its most vulnerable residents.

The steps to make this priority a reality include under the Mayor’s Housing Plan to create or preserve 200,000 units of affordable housing over the next ten years will require an estimated \$41.4 billion from public and private sources. Towards this goal, the Mayor’s 2015 budget proposed to more than double the Department of Housing Preservation and Development’s annual capital budget in the 5-year plan, and also proposed additional funding for infrastructure investments needed to make land available for significant new housing opportunities. Total investments from a portfolio of funds controlled by or provided by the City \$8.244 billion coupled with \$2.866 billion in a combination of Federal HOME funds and New York State

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funding. These public dollars will be used to leverage an additional \$30.0 billion in private funding for real estate development inducing Low Income Housing Tax Credits (4% and 9% credits), State Low Income Housing Tax Credit Equity, Bonds, and the leveraging of City pension funds.

In areas affected by Hurricane Sandy and coastal flood risks, as detailed in *One City, Rebuilding Together*, the City will make investments necessary to improve the resiliency of critical infrastructure systems and operations so that all New Yorkers live safely in stronger communities. The Mayor's newly formed Office of Recovery and Resiliency has initiated projects within the first phase of a \$3.7 billion program of investments in coastal protection measures for critical areas, and will expedite efforts to secure additional Federal funding and expand resiliency upgrades. Housing recovery and capital investments in coastal protections and other infrastructure will be coordinated together with neighborhood planning efforts to support the physical, economic, and social resiliency of communities.

Economic opportunity and economic resiliency also depend on the community-supporting infrastructure that provides access to schools, employment, shopping and other services. Consequently, the City's approach to planning for resilient neighborhoods and expanded housing opportunity is based upon transit-oriented development. The City will promote a range of options to improve mobility, connectivity, and safety. First and foremost, the City will make streets safer and more hospitable to pedestrians as part of its inter-agency Vision Zero campaign to eliminate pedestrian fatalities and serious injuries. The City will also continue to expand its bike lane network to new neighborhoods and, in collaboration with Metropolitan Transportation Authority (MTA) New York City Transit, add 13 new Select Bus Service routes to enhance transit access, improve the speed of slow transit trips, and

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accommodate future growth. Although still relatively in its infancy, the City's growing ferry service has the potential to improve access to housing and employment destinations along the waterfront. The City will also continue to support MTA efforts to extend and expand the capacity of the subway and commuter rail systems, including signal improvements that would increase subway service frequency as well as major capital projects like the construction of the Second Avenue Subway and the Penn Station Access project, which will provide new Metro-North access to neighborhoods in the Bronx. These transportation initiatives provide more access and options for New Yorkers every day, but also provide connectivity and safety in the wake of natural disasters and shock events.

In the development of *A Stronger, More Resilient New York* plan, the City dedicated \$150 million in capital funds to implement future capital projects that would protect the City's residents, core infrastructure and economic vitality from future shock events. This is one source that can be explored to supplement funding for initiatives secured through the National Disaster Resiliency Competition. Investments made through the NDRC to protect vulnerable New York City neighborhoods from future shock events will protect financial commitments made by the City in its operationalization of a multi-billion dollar annual capital plan. The City's FY 2015 Capital Commitment Plan, which is submitted to the Financial Control Board, totals \$13.9 billion of which \$9.9 billion is City funded. In order to achieve this plan the Office of Management and Budget (OMB) will authorize agencies to commit \$17.8 billion which includes several billion dollars repair and resiliency projects planned in the aftermath of Hurricane Sandy including City capital dollars for entire projects or as local match for projects benefiting from FEMA public assistance or 428 programs.

EXHIBIT G – LONG-TERM COMMITMENT

In the process of developing a \$4.21 billion disaster recovery plan through HUD’s CDBG-DR program, and participation in FEMA Public Assistance, 428 and hazard mitigation programs, as well as local resiliency planning initiatives, New York City has made a more than \$20 billion long-term commitment to address the most urgent housing, business, resiliency, and infrastructure needs in the neighborhoods hardest hit by Hurricane Sandy and at-risk to future extreme weather events. It is the City’s intention to design and implement programs that will address the greatest needs of vulnerable New Yorkers, for those living in an near the 100-year floodplain to low-income, senior, and immigrant households who experience disparate impacts from shock events. These programs are multi-county in their impact within the boundaries of New York City, and specific baseline and outcome measures are detail The unmet needs assessment demonstrated by the City does not cover all of the overall recovery and resiliency needs to rebuild areas of the city devastated by Sandy and make these communities stronger than before. A comprehensive plan, addressing all impacts from Sandy and risks for future extreme weather, is needed for the City and its residents to recover and rebuild after Hurricane Sandy, with housing recovery as a top priority of the City. The City’s housing recovery and resiliency initiatives to-date have included:

- Build it Back – A permanent housing recovery program that will address nearly all of the \$2.4 billion identified as the unmet need for single-family and multi-family homeowners and landlords. Within this program, the City provides different types of assistance to address the distinct needs of homes and multi-family buildings including the rehabilitation and reconstruction of one to four unit homes that are either occupied by the

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homeowner or year-round tenants; and the rehabilitation of multi-family buildings (five or more units);

- Temporary Disaster Assistance Program (TDAP) - A rental subsidy program to serve low-income households displaced by Hurricane Sandy, and \$3 million for a workforce development program as part of Build it Back;
- Public Housing – An area of programs that enables NYCHA to make necessary repairs and fund targeted efforts to strengthen resiliency to future floods at the City’s public housing facilities. NYCHA will take on projects that are not FEMA-eligible, including the installation of flood-resilient standby power generators at housing facilities directly impacted by Hurricane Sandy;
- Residential Building Mitigation Program: A \$60 million program which offers financing to owners of residential flood-impacted and vulnerable multi-family properties in the Build it Back program for the incremental cost of full scope resiliency measures.

It is a priority of the City to build the economic security and economic mobility of vulnerable coastal communities in the long-term commitment to recovery and resiliency. The City’s economic recovery and resiliency initiatives to-date have included:

- Hurricane Sandy Business Loan and Grant Program: A \$48 million loan and grant program serving at least 150 businesses impacted by Hurricane Sandy. This program has provided expedited grants of up to \$100,000; provide up to \$1 million in 1:1 matching loans and grants for unmet needs above the \$100,000. Businesses that can demonstrate extreme hardship may be eligible to receive, at the City’s discretion, higher loan and grant amounts;

- Business PREP (Preparedness & Resiliency for Emergencies Program): A program to assist businesses implement operational and physical resiliency measures, through one or more of the following activities: (1) provide one-on-one site visits and assessment, (2) develop a business resiliency assessment tool, (3) hold targeted workshops featuring technical experts, (4) if unable to secure private funding, potentially offer micro-grant to help businesses implement low-cost resiliency improvements;
- Resiliency Innovations for a Stronger Economy (RISE : NYC): A \$30 million competition to identify and allocate, funding for the most innovative and cost-effective technologies that help prepare small businesses for future climate events by improving the resiliency of their (1) energy infrastructure, (2) telecom networks, and (3) building systems;
- Restoration of Saw Mill Creek Marsh: A \$12 million restoration of Saw Mill Creek marsh, a component of the Mitigation and Restoration Strategies for Habitat and Ecological Sustainability (MARSHEs) Initiative, to restore approximately 68 acres of severely degraded City-owned wetlands and uplands in northwestern Staten Island in an area heavily inundated during Hurricane Sandy. Reestablishing the previously degraded wetland ecosystem is protecting against the harmful impacts of storm related flooding for hundreds of businesses adjacent to the marsh and starts NYC's first mitigation bank to catalyze further wetland restoration;
- Coney Island Green Infrastructure Improvements: An investment of \$15 million to enhance ongoing green infrastructure work with the installation of right-of-way bioswales along business corridors throughout the Coney Island peninsula. The new infrastructure

will improve stormwater retention, filter and maintain water quality in local waterways and enhance business/retail areas through beautification;

- Rockaways Commercial Corridor Resiliency: An investment of \$15 million for streetscape and stormwater management upgrades and redevelopment of underutilized properties in key commercial corridors throughout the Rockaways, such as Beach 108th street, Mott Avenue, and surrounding business districts.

The City is undertaking long-term community planning and rebuilding efforts, such as the planning and implementation of neighborhood recovery strategies; citywide zoning changes; urban design; geographic, demographic and legal support; environmental review of zoning and land use changes; integration of coastal protections into local land use and waterfront planning; and increasing resiliency of enclosed industrial facilities. The City's infrastructure resiliency and planning initiatives to-date have included:

- Repair and Hazard Mitigation for Critical Facilities: The City is prioritizing its funds to address its public hospitals, public safety, and for the restoration of its beaches, with a focus on benefits to low- and moderate-income persons. The City employs a range of mitigation measures as it restores and rehabilitates structures. These measures include raising boilers and electrical above the appropriate preliminary Flood Insurance Rate Map base flood elevations, creating protective structures such as dunes and retaining walls as part of certain coastal infrastructure projects, and incorporating green infrastructure features into rebuilding. Additional mitigation needs will be determined on a site-specific basis. One strategic resiliency project at Staten Island University Hospital includes \$28 million to protect and elevate mechanical systems and the north and south campuses of Staten Island University Hospital.

- Coastal Protection and Resiliency - *A Stronger, More Resilient New York* report outlines the City's blueprint to make New York City more resilient to the impacts of climate change. This report included recommendations and identified a variety of specific unmet resiliency needs related to Hurricane Sandy that are eligible for and dependent upon Federal, State and City funding sources for planning, design and capital construction. The program includes installing armor stone revetments; repairing, installing, and raising bulkheads, and installing integrated flood protection systems to protect vulnerable areas of coastlines in Red Hook (Kings County), Hunts Point (Bronx County), and Lower Manhattan (New York County). The City's Coastal Protection and Resiliency initiatives also includes projects funded by HUD's Rebuild by Design competition: East Side Coastal Resiliency to protect the deepest floodplains in Manhattan covering the area between Montgomery St. and East 23rd Street, which comprises the largest concentration of affordable, subsidized, and public housing in the county; and Hunts Point Resiliency for the continued study, analysis, planning, and stakeholder engagement related to the Hunts Point Lifelines proposal and the design and construction of a resulting pilot project.

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 APPENDIX I
 CITIZENSHIP PARTICIPATION AND CONSULTATION SUMMARY CHART

Agency Name or Stakeholder Group (if Applicable)	Agency Type (Target Population if applicable)	Type of Outreach	Method of Notification (if applicable) - Materials Provided
New York State Governor's Office of Storm Recovery	Public Agency (State of New York)	Ongoing Collaboration via phone and email.	Application language and data.
New Jersey Department of Environmental Protection	Public Agency (State of New Jersey)	Communication via phone and email.	Application data.
New York City Department of Housing Preservation and Development	Public Agency*(Low and Moderate Income Residents)	Ongoing Collaboration via phone and email.	Application language and data.
New York City Housing Authority	Public Authority (Low and Moderate Income Residents)	Ongoing Collaboration via phone and email.	Application language and data.
New York City Office of Management and Budget	Public Agency	Ongoing Collaboration via phone and email.	Application language and data.
New York City Economic Development Corporation	Citywide Economic Development Corporation	Ongoing Collaboration via phone and email.	Application language and data.
New York City Department of City Planning	Public Agency	Ongoing Collaboration via phone and email.	Application language and data.
New York City Department of Small Business Services	Public Agency (Small Business Owners and Workers)	Ongoing Collaboration via phone and email.	Application language and data.
New York City Department of Environmental Protection	Public Agency	Ongoing Collaboration via phone and email.	Application language and data.
New York City Parks Department	Public Agency	Ongoing Collaboration via phone and email.	Application language and data.
New York City Department of Transportation	Public Agency	Ongoing Collaboration via phone and email.	Application language and data.
New York City Office of Emergency Management	Public Agency	Ongoing Collaboration via phone and email.	Application language and data.
New York City Mayor's Office of Immigrant Affairs	Public Agency*(Immigrants)	Ongoing Collaboration via phone and email.	Language access and flood insurance
Queens Borough President's Office	Public Agency (Queens County Residents)	Phone Call and email	Overview of NDRC application
Bronx Borough President's Office	Public Agency (Bronx County Residents)	Phone Call and email	Overview of NDRC application
Brooklyn Borough President's Office	Public Agency (Kings County Residents)	Phone Call and email	Overview of NDRC application
Manhattan Borough President's Office	Public Agency (New York County Residents)	Phone Call and email	
Staten Island Borough President's Office	Public Agency (Richmond County Residents)	Phone Call	Overview of NDRC application
New York City Panel on Climate Change	Educational Institution	Ongoing Collaboration via phone and email.	Application language and data.
The Nature Conservancy	Nonprofit	In-person discussion.	Consultation on green infrastructure and public land.
The Trust for Public Land	Nonprofit	In-person discussion.	Consultation on green infrastructure and public land.