RESILIENCY AND COASTAL CITIES

Urban Reconstruction Lessons in Post-Sandy New York City and New York City Region

New York, USA

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Abstract: In this article, the author considers new forms of governance and policy making that facilitate collaborative design and innovative organizational models involved in making cities.

Key words: Sea Level Rise, Resiliency, Community Engagement, Neighborhoods

Introduction

Cities and regions around the world are experiencing dramatic risk related phenomena attributed to the effects of climate change and sea level rise. New York City and the east coast region of the U.S. experienced a major hurricane on October 29, 2012. New York was the first major high-rise dense urban area to experience so large a storm system. The American Institute of Architects New York Chapter, working with other collateral organizations and the City of New York responded to challenges presented by the storm. Many questions remain unanswered and people are still out of their homes and New York City has yet to fully define what recovery looks like and how long it will take. However, the (DfRR) Design for Risk and Reconstruction Committee of the AIA New York Chapter, is committed to work on the answers, be part of the solutions and help prepare the city and region for a collective resilient future. Efforts to date are numerous including: Helping train 90+ design professionals in post disaster damage assessment techniques; Conducting Hurriplan training for 140+ stake holders; Working with 300+ professional volunteers to write the Post Sandy Initiative Report; Working with the DCP, the Mayors office and City Council on new resilient measures to build back better; Continuing our partnership with Architecture for Humanity on recovery including a Recovery Help Desk; Participating in the workings of the Housing Recovery office and the Housing Recovery Playbook; Working with the Governors office on housing recovery and the 2100 reports feedback loop; Giving

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supportive testimony at City Council hearings on code and zoning issues; Assembling the AIA Regional Recovery Working Group across 4 states; Advocating for Good Samaritan legislation; Working with HUD and the current Build Back programs; Organizing numerous expert panels and programs on disaster and resilience issues.

A Discussion of Resilient and Sustainable Built Environments: The case of New York City and Environs.

1. A Platform for the Future
2. Post Sandy Initiative
3. Design Competitions

The following discussion is a melding of recent events that have had and will continue to have significant impacts on the City of New York and serve as templates for other cities that are addressing their futures with similar concern and intensity.

The first section I will discuss is our American Institute of Architects New York Chapter (AIANY) 2013 Platform for the Future of the City.

Part 1: A Platform for the Future

Developed with the specialized knowledge of AIANY's program committees, "A Platform for the Future of the City" addresses issues at four scales+1, our buildings, our neighborhoods, our city, our region, and our world. The plus one, the region, I added later in response to the obvious need to think broadly and cross boundaries because, and I quote myself, "Nature does not respect political boundaries". It was Hurricane Sandy that underscored this declaration. The platform identifies the 30 most pressing challenges facing New York's built environment ranging from streamlining city government approvals and creating affordable housing for an ever growing population to maintaining global competitiveness and promoting design internationally as we grow business at home. Some specific policy solutions proposed include creating a new Deputy Mayor post, building at least 100,000 units of housing, utilizing zoning and incentives to continue tech sector growth, promoting active design and making simple changes to support an aging population. Some of the key recommendations are:

KEY FINDINGS:

Our Buildings

- Create the position of Deputy Mayor of Design & Planning to coordinate municipal agencies toward a goal of greater efficiency.
- Make the NYC Development HUB - which has generated more than a billion dollars in economic activity - permanent.
- Set a goal for at least 100,000 units of housing in the next ten years.
- Reduce parking minimums in new buildings to produce more housing units.
- Build new schools using quality design standards, and fund and retrofit existing schools to make better use of space.
- Utilize zoning and incentives to encourage continued growth of the technology sector and related education.

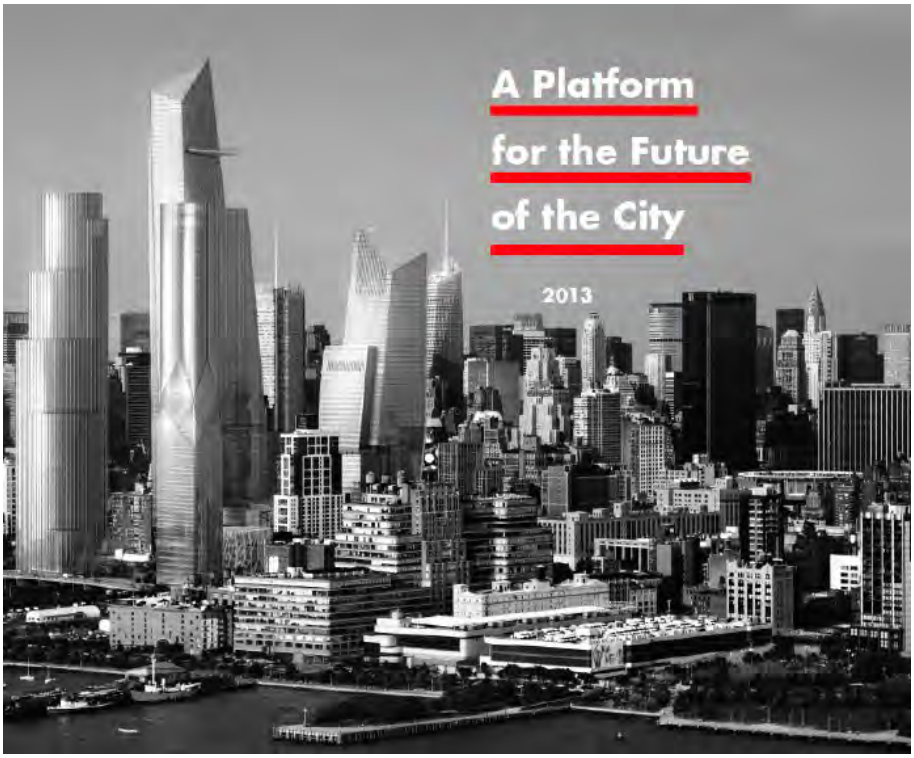


Fig.1. Cover, 2013 Platform for the Future of the City, AIANY, see AIANY website

Our Neighborhoods

- Identify undeveloped areas along rail lines for new development projects.
- Complete partially-funded infrastructure-expansion projects, and commit funds to upgrade new transit systems.
- Create more open space in the communities with the greatest need.
- Encourage well-designed commercial districts that promote mixed-use growth.
- Implement New York's "Vision 2020 Waterfront Plan"

Our City

- Make a series of simple improvements to the urban environment to support an aging population and help seniors to age in place.
- Extend the use of Active Design Guidelines to encourage physical activity to improve the health of New Yorkers.
- Elevate the Office of Long Term Planning & Sustainability Director to that of a Commissioner position to ensure that sustainability remains a top priority.
- Require all new buildings to be built with new risk averse zoning and construction standards.
- Prioritize passing the remaining Green Codes Task Force Recommendations.

Our Region

- Create critical mechanisms for addressing climate change as Nature knows no political boundaries.

Our World

- Encourage and foster innovation and design excellence in all buildings… plus, and in the urbanizing environment everywhere.

ALL FINDINGS:

Our Buildings

1.Governance & Regulatory Reform

a. Capital Program as illustrated by new zoning for project like New York City's now world famous Highline project
b. Streamlining via accelerated reviews by the NYC DOB via the new HUB initiative.
c. Concurrent Review as illustrated by having jurisdictional agencies look at project together rather than sequentially, as with the Via Verde project.

2. Housing

a. Housing Demand being met by initiating new funding programs, zoning bonuses, and other mechanisms
b. Unit Size being revised by new programs such as the Adapt micro-unit model program
c. Parking requirements being revised based on proximity to transit, area parking and new requirements for bike parking.

3. Education

a. *Campus Planning & Higher Education* Encourage necessary expansion of the city's major academic institutions. The city's growth and vitality are partly a result of the ability to attract and retain talented students and faculty. Encourage necessary expansion of the city's major academic institutions;
b. *Applied Technology* Applied technology and higher education developments need additional support, planning and investment. Continue to encourage applied technology schools, collaborative entrepreneurship;
c. *Public School Education* Some of New York City's schools are overcrowded and designed to educational standards of a different time. Greater flexibility for innovative design should be supported toward the goal of better outcomes. Build new schools using quality design standards, and fund and retrofit existing schools to make better use of space. The Pre-K program of the deBlasio mayoralty will need new quality space.

Our Neighborhoods

4. Urban Design

a. Zoning & Blueprint: Current zoning is complicated, and efforts to reform and simplify it need support. Use City Planning's Blueprint taskforce of city

personnel, professional experts, neighborhood advocates, and community leaders to review the Zoning Resolution.

b. Transit & Zoning: Transportation and zoning issues are not being coordinated. Plan for new transportation in conjunction with land use. Identify areas that have yet to be developed along rail lines.

c. Sidewalks: Despite wonderful new bus shelters, the city's streetscape is lacking crucial amenities–such as public restrooms and coordinated signage. There are more than 12,750 miles of sidewalks in New York City, constituting a major network that deserves more concerted attention. Upgrade sidewalk infrastructure to include better, more energy-efficient street lighting, public restrooms, benches, and more visually attractive sidewalk sheds.

Our Neighborhoods

5. Transportation & Infrastructure

a. Capacity & Efficiency: The City may lose momentum to develop major projects such as the 2nd Avenue Subway and the Third Water Tunnel which are necessary to build greater capacity. New York City's transportation network is aging and needs improvement and renewal. Complete partially-funded infrastructure expansion projects, and commit funds to upgrade new transit systems and intermodal connectivity.

b. Commercial Development: The City must maintain major financial centers and commercial enterprise close to transportation while identifying locations for future growth. These new areas for growth must balance increased density, investment in infrastructure and the public realm, and preservation of important landmarks. Encourage well-designed commercial districts that promote mixed-use growth and are supported by the necessary infrastructure.

c. Streets: Many city streets remain unsafe and poorly designed. Streets are often missing critical components which prevent them from being comfortably used by everyone. When reconstructing and building new streets, integrate storm-water management, pedestrian resources, bicycle paths, and better signage.

Our Neighborhoods

6. Open Space & Waterfront

a. Open Space & Community Access. Some communities in our rapidly expanding city drastically lack access to open space. Open space plays an important role in city life. It also serves to increase quality of life and generally raises property values in the surrounding communities. Create more open space in New York City in the communities with the greatest need, thereby enhancing land values and private investment in adjacent development. Assure that schoolyard play spaces will remain open after hours.

b. Waterfront. Our waterfront needs to be designed for new recreational opportunities and to be better protected from rising sea levels and the possibility of flooding. The waterfront is a unique space in New York City. It not

only has implications in regard to residential and commercial development, but also relates to the city's environmental well-being. Implement and augment the proposals in the Vision 2020 Waterfront Plan. Encourage an expanded comprehensive plan for waterfront protection.

c. Signage & Wayfinding. Many parts of the city lack the planning and signage that would make pedestrian navigation easy. Pedestrians need clear and concise signage in a citywide uniform design providing directions to key points and moving foot traffic through planned corridors. Create clarity of signage, mapping, and desire paths to important destinations.

Our City

7. The Architecture of Well-Being

a. Age Friendly Design & Aging in Place. New York City's urban environment is not adequately friendly to seniors and the City could do more to help seniors age in place. As baby boomers begin to retire, New York's senior population is expected to grow. Helping seniors to age in place lowers the cost of healthcare services, allows seniors to remain in their neighborhoods, and secures access to their substantial spending capacity. Make improvements to the urban environment. For example, redesign local parks to allow ease of access and adequate seating. Increase the number of accessible subway stations and widen sidewalks.

b. Inclusive Design. Lack of accessible public and private facilities continues despite ADA and Local Law requirements, making our city difficult to navigate for many. Improvements to the urban environment create a more accessible city and better quality of life of all citizens. Implement and extend the use of the Inclusive Design Guidelines developed by the Mayor's Office for People with Disabilities.

c. Healthy Cities. Obesity and other chronic diseases, such as heart disease and diabetes, may be affected by the design of our built environment. Health costs attributable to chronic diseases are very high and increasing, not to mention quality of life issues. Today we confront global epidemics of chronic diseases. Implement and extend the use of the Active Design Guidelines developed by the NYC Department of Design and Construction and the NYC Department of Health and Mental Hygiene. The "Fit City" initiative should be extended to other facets of health promotion

Our City

8. Energy Efficiency & Sustainability

a. Long Term Planning & Sustainability Leadership. The Office of Long Term Planning & Sustainability's(OLTPS) role in government is not assured. Although in the City Charter, the Office's prominence is at the discretion of the Mayor. OLTPS has put our city at the forefront of innovations in sustainability, attracting talented and capable staff. Long-term planning and sustainability leadership has economic value for New York City now and in the future. Ensure that OLTPS remains a strong office by retaining it in the

Office of the Mayor and elevating its Director to a Commissioner. Commit to being an international leader in climate change by maintaining the city's role in C40 Cities Climate Leadership Group.

b. Green Code Changes. The Green Codes Task Force has made 111 recommendations to improve the Building Code, but only 29 have been enacted. Buildings generate the majority of greenhouse gas emissions in our city. Implementing Green Codes will improve energy-efficient, environmentally-sound building practices. Prioritize passing the remaining Green Codes Task Force recommendations.
   OC3: Don't exempt existing buildings from green codes EE14: Limit after-hours retail lighting
   EE23: Reduce CO2 Emissions due to concrete
   EE 24: Reduce CO2 Emissions from specialized concrete HT2: Limit harmful emissions from paints and glues
   SW7: Analyze strategies to reduce storm-water runoff from existing developments
c. Zoning & Energy. The Zoning Resolution's rules related to energy efficiency are no longer current. The Energy Code has now far surpassed the Zoning Resolution, leaving inconsistent guidelines that stifle innovative building techniques. Change the Zoning Resolution to allow energy efficiencies and innovation to occur.

Our City

9. Risk & Reconstruction
   a. Sea Level Change. The City lacks the ability to protect buildings, tunnels, and other infrastructure from flooding. With sea level rise and extreme weather contributing to storm surge, flooding has become a major risk for New York City. Review the options to protect buildings, tunnels and other infrastructure from inundation.
   b. Risk-Adverse Zoning & Planning. Current zoning and building codes do not take into account the threat from future natural disasters. Because New York's buildings stay in use for several decades, zoning and construction codes must consider future conditions to ensure that the built environment remains safe for the next 100 years. Require new buildings to be built with new risk-adverse zoning and construction standards.
   c. Infrastructure Vulnerability. There is not a complete picture of the City's infrastructure vulnerabilities. In order to best prioritize strategies for redundancy and resiliency the City needs to have a complete understanding of what infrastructure is most vulnerable and what strategic approaches: adaptive, passive, and defensive offer the most cost effective solutions. Complete a survey of vulnerability and determine priorities based on conditions such as health, safety, welfare, and the costs associated with levels of preparation.

Our Region

It difficult to work across political boundaries but the changes in our climate is becoming more important than our political boundaries. If different political jurisdictions do not learn to work in harmony all will be at ever increasing risk of damage by nature or economy or both. Mechanisms need to be developed that allow for greater cooperation than currently exist.

Our World

10. Global Practice

a. Magnet for Growth & International Expertise. New York City must remain a magnet for growth in terms of population, jobs, and key industries. The future will belong to the cities that not only grow, but channel growth into the enterprises and endeavors that relate best to global needs. Create and enhance an environment in New York City that is friendly to growth and the sectors of the business world that are engendered by global interaction.
b. Immigration & Global Center. Architecture firms are unable to retain some of their best and brightest staff because of limitations on hiring. Current immigration rules make it difficult for the individuals to stay. To remain a world center of architecture, the city has to be able to attract and retain the top talent from around the globe. Lobby the federal government to create legislation that would allow international students and practitioners to come and stay in the United States and practice.
c. Global Design Focus.The city is home to some of the world's most innovative architects, yet the most innovative designs produced by these firms doesn't always happen in New York City. To keep attracting top architectural talent, not to mention globally competitive corporations, the city must be seen as a place that supports innovative design. The City should encourage the value of good design and a high quality environment, one that fosters innovation. Support the development of buildings with architecturally unique design to attract talented architects. At the same time, increase public awareness about architecture through continued support of major events such as Archtober and NYCxDesign.

Part 2: The Post-Sandy initiative: Building Better, Building Smarter

Background

There is history to the Post-sandy initiative. In the post 9/11 environment the architectural community realized it had been somewhat less prepared than it might have been to assist in all post disaster matters, including being prepared for them. At that time, in 2003, Lance Jay Brown, FAIA convened group of allied professionals and formed the Disaster Preparedness Task Force (DPTF), an ad hoc committee, which began the heavy lifting of getting ready for all and any changes that might fall into the disaster category. By 2011 the acceleration of natural disasters worldwide convinced the American institute of Architects New York Chapter that a task force was only a

first step and that no less than a standing was needed. The Board of the AIA New York chapter formally established the Design for Risk and Reconstruction Committee (the DfRR Committee) on May 17, 2011 and sanctioned the committee name on June 21, 2011. Lance Jay Brown, FAIA, and Illya Azaroff, AIA, were founding co-chairs.

MISSION AND GOALS

The mission of the committee is to foster awareness within the profession and the public of the necessity to anticipate risk from the scale of a building to comprehensive regional planning. The committee's goals are to formulate programs and develop professional-public partnerships that provide a forum for greater risk awareness. The sequence from designing for risk to mitigate natural and man- made disasters, disaster preparedness, disaster relief response and recovery, and reconstruction will be examined in order to improve the ability of the designed environment to aesthetically, functionally, technically, and economically serve and protect the health, safety and welfare of its inhabitants.

The DfRR took up the banner to have the State of New York and the AIA New York State, Chapter finalize a disaster preparedness manual, train architects in disaster response protocols, pass Good Samaritan Legislation so that professionals could go into the field to held without fear of undo liability, and other significant initiatives, including working regionally and cooperatively.

The inaugural program of the DfRR was a lecture by the renowned geophysicist Klaus Jacobs who was asked to intelligently speculate on our circumstances in 2080.

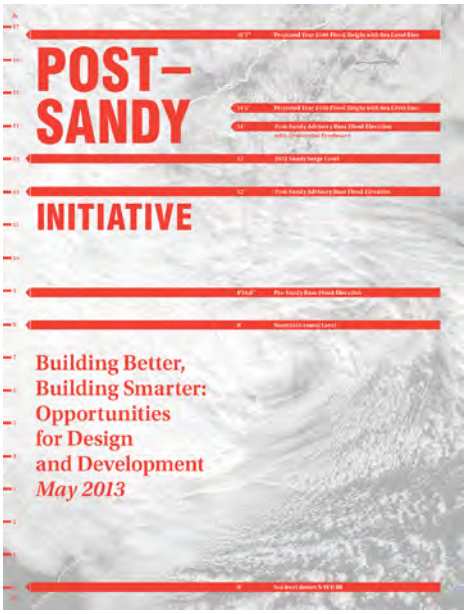
Post-Sandy initiative

When super storm Hurricane sandy arrived on the shores of the northeast New York City, having had a test during Hurricane Irene the previous season, faired fairly well, considering that it was not as well prepared as it might have been for the magnitude of damage it incurred.

The AIANY Chapter, led by the DfRR and its partnership with the New York city department of city Planning, sent out a call for volunteers that was answered by 300 professionals in 24 hours. The will was there. In addition to the readiness to serve the architecture community and its collateral organizations pulled together to prepare a response strategy of opportunities necessary to ready the city and its population for what lies ahead. The result of their efforts was the Post-Sandy Initiative Report, which is available at www.designforrisk.com.

This initiative recently received the national AIA 2014 Collaborative Achievement Award for the following:

"Spearheaded by AIA New York's Design for Risk and Reconstruction Committee (DfRR), the Post-Sandy Initiative is a collaborative effort of many disciplines working toward the advancement of resilient architecture and urban design in New York City's waterfront communities. The initiative brought together a variety of organizations to not only share and compile best practices but to further the conversation about resiliency, sustainability, and the role and responsibility of design and architecture. Before the storm, the DfRR and the city's Department of City Planning had collaborated to engage design professionals from a number of disciplines to find in-



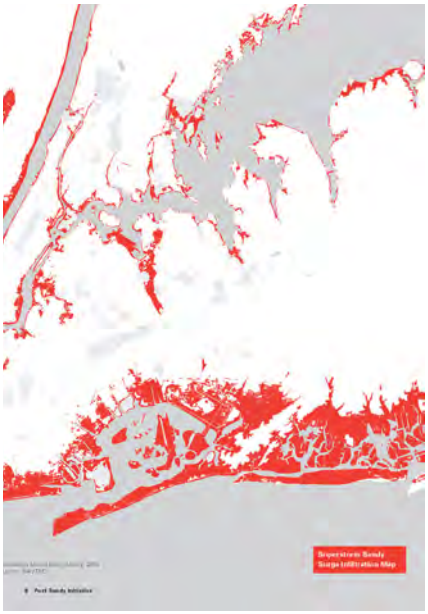


Fig. 2. Post Sandy Initiative Report, 2013 AIANY, see www.designforrisk.com
Fig. 3. New York city Flood Zones from Post Sandy Initiative, AIANY

novative approaches to flood-resistant design in a dense urban environment. Immediately following Sandy, AIANY sprang into action to provide support complementing the public-sector response to the storm, bringing professional expertise and resources to aid in disaster response and convening a broad dialog in the design community to grapple with the short- and long-term effects of recovery and rebuilding. Partner organizations included the New York chapters of the American Council of Engineering Companies, the American Society of Landscape Architects, the American Planning Association, and the Structural Engineers Association, as well as the Citizens Housing and Planning Council and the New York State Association for Affordable Housing.

The results of this effort were broad and far-reaching. The expertise provided by AIANY and others enabled city agencies to respond more quickly and precisely by swiftly enacting emergency changes to zoning and other construction regulations. AIANY's efforts also raised awareness of the critical issues that government, professionals, and citizens must address in making coastal neighborhoods more resilient to flooding and other climate risks. (1)"

The Post-sandy Task Force was formed quickly because the DfRR, already in place, had established connections to allied professionals and city officials. The organizational diagrams-Post-Sandy Task Force for a Resilient NYC (see diagram) and the Post-Sandy Task Force Linkages (see diagram)- illustrate the relationship between the working components. The Schedule (see diagram) illustrates the initial work and tight schedule that produced the first published set of instructions following the Super-Storm.

Report Summary

The Post-Sandy Report is a 45-page document with an 8page Executive Summary. What follows is a summarized brief of the report:

The Post-Sandy Initiative explains how the storm revealed major vulnerabilities in the city's transportation and infrastructure, housing, critical and commercial buildings, and waterfront. Some of the report's key proposals geared for design professionals, the real estate community, institutional leaders, and policymakers include:

Transportation and Infrastructure

• Assess the infrastructure and transportation systems at greatest risk, and identify strategies for their redundancy and resiliency.

• Improve interagency and interstate communications for holistic planning prior to approaching storms and regional coordination during extreme

events, including emergency wayfinding strategies to inform residents about backup plans for transportation, power, fuel, and locations for

assistance.

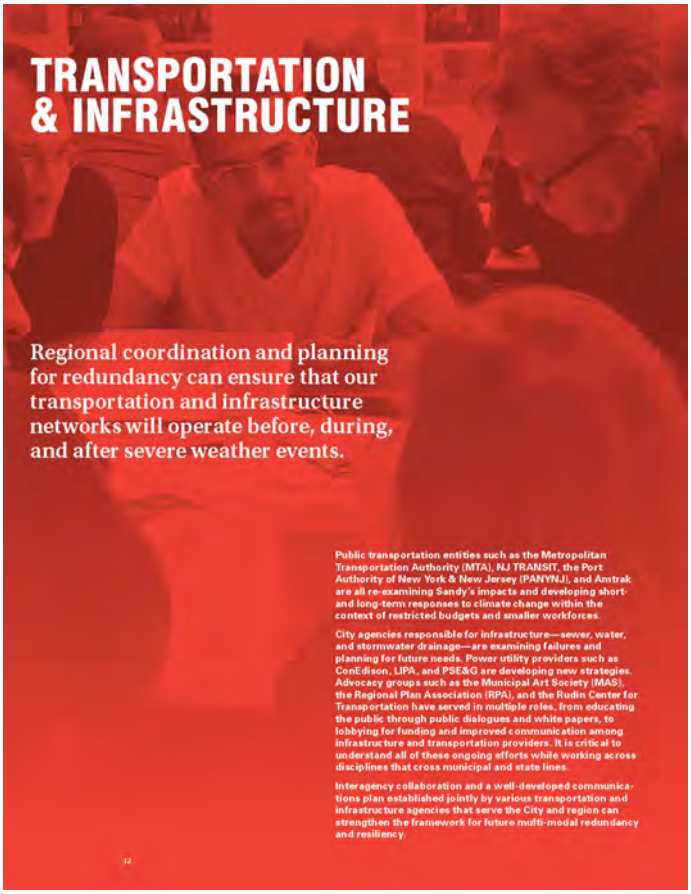


Fig. 4 Transportation and Infrastructure Introduction, Post Sandy Initiative, AIANY.

Housing
• Work with FEMA and National Flood Insurance Programs to create a multi-family design guide. Their current literature is largely focused on one- and two-family housing.
• Adjust zoning regulations to account for new flood maps. The new zoning should recognize the amount of space needed by required ramps, elevators, and lifts in multi-family buildings, and to provide for the relaxation of height restrictions in order to accommodate higher-elevation ground floors.
Critical and Commercial Buildings
• Replace existing critical buildings in harm's way that cannot be hardened, with exceptions for buildings of historic or cultural significance.
• Develop regional protective systems that enhance, or eliminate the need for, individual building responses.
Waterfront
• Develop a ground-up, incremental approach to waterfront resiliency, partnering with local communities to generate sensitively formulated solutions, and arming property owners with a menu of strategies.
• Create Waterfront Labs to investigate strategies that could mitigate storm surge, prevent erosion, and soften the impact of rising tides. Experiments would focus on both predictable and unpredictable events, and take into account the different natural typologies found in the New York City region. The Waterfront Lab will bring New York City to the forefront of innovative waterfront resiliency planning and design.
(The Post-Sandy Initiative report is available at www.PostSandyInitiative.org.)

The AIA New York Chapter was the first but certainly not the only organization to step up and put their full weight and resources to the "post Sandy new reality". Urban Green's Building Resiliency Task Force published their "*Report To Mayor"* Michael R. Bloomberg and Speaker Christine C. Quinn; The MAS NYC published *"The Road Forward"*; City University published *"Superstorm sandy: Are We Ready for the Next One"*; the NYC DCP published *"Risk and Resiliency After Sandy"* and the Mayor's office published among many others.

Part 3. The Competition Response

One way of galvanizing society to generate innovation and creative responses to critical situations is to encourage creativity through competitions. This process was used following the tragic 9/11 attack on the World Trade Center and subsequently for the memorial that would be built there. The contest garnered 5,201 entries from 63 nations and 49 US states out of 13,683 registrants from all 50 US states and 94 nations, making it the largest design competition in history.

At this point in time, March 15, the Ides of March, the outpouring of creative energy in response to climate changes in general and the New York regional response is in high gear. There is a down side, the lack of assistance and delivery of resources to homeowners the Build It Back or New York Rising Programs….. all taking too long. On the more positive side are the Rapid Repair and successful activities that have helped many to recover. In the midst are the competitions: The well know NYNY Via Verde project in the Bronx, completed in 2012, took into account energy conscious design, green building innovations, affordability. And replicability but in advance of

Options and Opportunities: Transporation & Infrastructure

KEY CONCEPTS AND FINDINGS

As noted in Governor Andrew Cuomo's NYS 2100 Commission report, "Recommendations to Improve the Strength and Resilience of the Empire State's Infrastructure" (November 2012), New York State's recent ClimAID projections show that higher temperatures and sea-level rise are extremely likely for New York State through the end of the century, and that by 2100, experts project sea levels to rise in New York City and Long Island by as much as six feet under certain scenarios. Given our aging transportation and infrastructure, those statistics make identifying the weaknesses in our systems of utmost urgency. The following strategies are our recommendations for responding to the new anticipated norm.

Once in operation, New York City's CitiBike program will provide alternative transportation for some residents. Photo credit: CitiBike / NYC Bikeshare

Planning for Redundancy

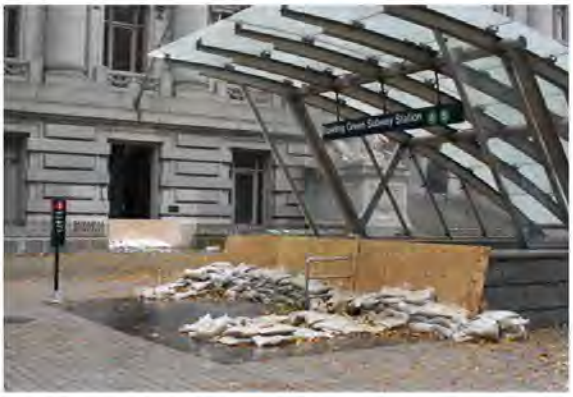
Planned redundancy provides a more flexible infrastructure. As many of our transportation and infrastructure networks are interdependent, losing one often causes the loss of others. Working towards providing appropriate backup power systems along with alternative power sources, such as solar, wind, or geothermal, will make grid dependency less critical. Policies that encourage redundancy would promote these actions.

Developing a robust communications network and plan will allow transportation agencies to alert the public about station closings and alternate transportation routes, prior to and immediately after severe storm events.

Planning for Resiliency

There are currently available physical solutions that can protect our transportation and infrastructure networks against flooding. Sensitively designed, these barriers can also serve as urban amenities. By reinforcing vulnerable structures, we can fortify them to withstand these "new normal" events. These actions should be supported by policies that address strengthening existing structures with ongoing repair programs, as detailed in Section 3 on critical and commercial buildings. Placing new electrical equipment above anticipated flood levels and replacing damaged equipment with new equipment designed to work in a harsh salt-water environment are examples of strategies that could be implemented as part of an overall plan.

As we move from short-term recovery to long-term planning for redundancy and resiliency, we need to plan smart so we can build smart.



Temporary flood barriers were constructed prior to the storm at vulnerable entrances. Photo credit: Flickr / MTA Photos Photostream

Planning Smart

Smart planning in the new ecosystem involves looking at transportation and infrastructure systems in new ways. It begins with an intermodal interagency process of regional cooperation, communication, and coordination for standard operations, regular outages, and extreme weather situations.

13 Post-Sandy Initiative

Fig. 5. Transportation and Infrastructure section discussion, Post Sandy Initiative

Sandy, and on Bronx high ground, made no specific decisions based on that aspect.

New York City Post Disaster Competitions include: 9/11/2001 Attack:

- Ground Zero Competition
- 9/11 Memorial Design Competition

Pre-Sandy:

- The 2008 OEM What If New York Competition

Post-Sandy:

- The ORLI Competition
- The FAR ROC Competition
- HUD's Rebuild By Design Competition (RBD)

While Ground Zero did take into account critical conditions the real response to sea level rise and climate change were the prime movers of those that followed.

The 2008 OEM What If New York Competition

Dwell Magazine (Jul 21, 2009) characterized the competition as follows. In 2007, New York City's Office of Emergency Management launched an international housing design competition, What if NYC?, calling for solutions that would address how to keep residents safe and sheltered after a natural disaster. The competition yielded ten inspired proposals, and now the OEM and Department of Design Construction have announced a Request for Expressions of Interest to make these designs a reality. What if New York City was hit by a Category 3 hurricane? The purpose of the competition was to answer this question by envisioning Interim Housing Units (IHU) to provide resettlement options in high-density areas. In the event of a catastrophe, New York sees these potential IHUs as "a critical bridge between emergency shelter and permanent housing," and a part of a larger Disaster Housing Plan that is under development. When compared to Hurricane Katrina's devastation in New Orleans, New

Fig. 6. "What If...." Competition, OEM, NYC 2008 Invitation, http://www.whatifnyc.net/

York has 3.1 million units of housing with 930,000 of those units within Hurricane Evacuation Zones, about three times as many units as were destroyed or damaged by Katrina. While FEMA has made strides to develop rapidly deployable modular housing systems in the Gulf Coast (accommodating approximately 10 households per acre, instead of say, 200) these systems are not appropriate for urban environments.

Therefore, as a result of the What if NYC? competition, the OEM and DDC are inviting Expressions of Interest for development, manufacture, and implementation of these post-disaster interim housing solutions. This is intended to determine whether there is significant market interest, and will hopefully later lead to competitive bidding opportunities through a series of RFPs (Request for Proposal).

Of the ten entries, which were revised in June 2008, two have been selected as benchmarks (but should not discourage submitters from proposing alternative approaches).With a nationwide gap in disaster preparedness, we are glad to see the rumblings of action taking place. It is noteworthy that the scope of implementation of these solutions is not intended for just New York, but with other high-density urban areas in the country in mind as well.

The ORLI Competition

"ORLI is a grassroots committee of young emerging architects from Long Island and New York City. The committee exists as a collaborative response to Super storm Sandy and all subsequent natural disasters and extreme weather events, founded to explore and develop methods to aid local communities by finding long- term resilient solutions. After Super-storm Sandy, thousands of homeowners in Long Island and the NYC metropolitan area face a critical point in determining their future. A competition, the 3C competition, sought to "crowd-source" creative and innovative designs for comprehensive coastal communities along Long Island, New Jersey, NYC and Southern New England. The charge to competitors was: The 3C (Comprehensive Coastal Communities) competition calls for ideas for local communities dealing with raising buildings and their impact on the character of the community. Submissions must define the character of their selected neighborhood, design a housing typology, and develop a vision plan for the neighborhood. Proposals should strongly consider context and how their proposals will preserve and enhance the character of the local neighborhood. Ideas from the competition will be translated into zoning proposals for specific municipalities after the competition."

"Existing homes must now comply with new FEMA regulations. Homes that are deemed 50% or more damaged must be either demolished and reconstructed, or raised above the Base Flood Elevation (BFE). These codes ensure life safety to citizens living in flood plains, however nobody has considered the implications that these new codes present to the overall aesthetics of the community. ORLI asks these questions: What will happen to an entire community once some homes are raised and some remain on the ground? Can a comparable community be envisioned or will the unique-aesthetic these communities have be lost forever?"

The competition spread to 20 countries and 300 entrants. (http://www.3ccompetition.org/3c-competition.html)

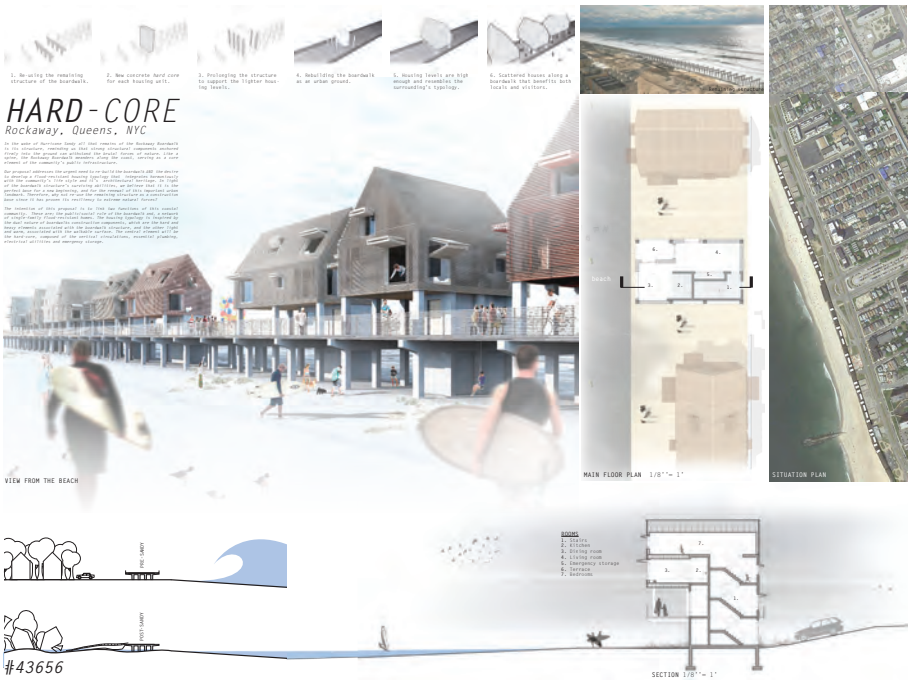


Fig. 7. An ORLI competition entry for Rockaway, NY. http://www.3ccompetition.org/

The FAR ROC Competition

FAR ROC [For a Resilient Rockaway] is a two-phase design competition that will explore innovative strategies for the planning, design and construction of a resilient and sustainable development at Arverne East, an 80+ acre site on the Rockaway Peninsula. In recent years, the relationship between the built and the natural environment has been dramatically affected by climate change, severe storm events, and rising sea levels. The extensive damage to low-lying waterfront zones caused by Hurricane Sandy in October 2012 reinforced the need for resilient infrastructure and redevelopment strategies for existing coastal communities throughout the greater New York area. Costly damage to buildings, roads, and utility systems by the storm raises the controversial question of whether areas of particular geographic vulnerability should be rebuilt, maintained and defended, or simply abandoned.

With these and other questions in mind, and given the scarcity of land and the significant need for housing and economic development in outlying areas of New York City, the FAR ROC design competition was organized to solicit creative ideas for resilient development strategies that can be implemented not only in the Rockaways but also throughout New York City and in vulnerable communities everywhere. Following a first-phase open call for design proposals, four finalists were selected by an independent jury and provided a stipend of $30,000 to further refine their design strategies. On October 23rd, 2013, and in advance of the one-year anniversary of Hurricane Sandy, Stockholm-based firm White Arkitekter's proposal Small Means and Great Ends

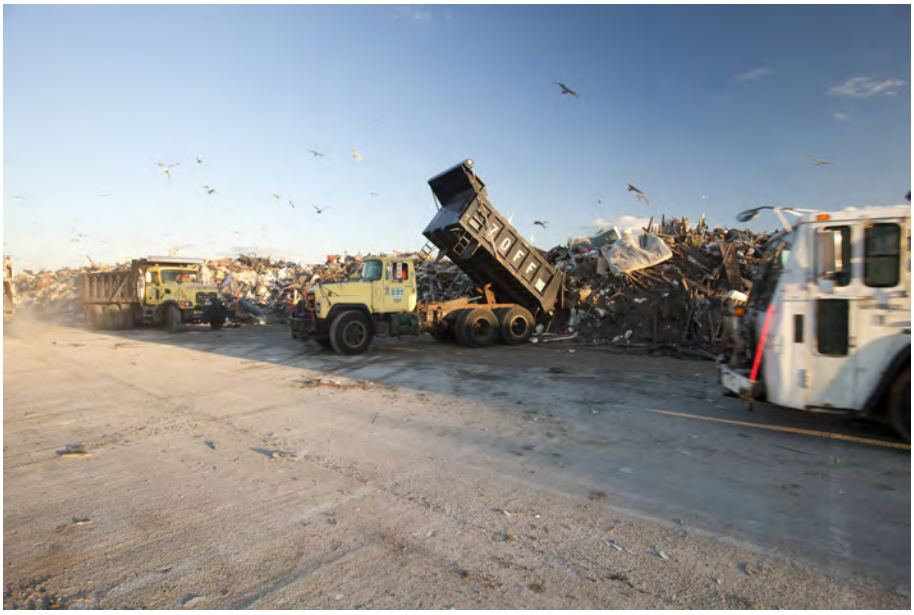


Fig. 7A. Photograph of debris in the Rockaways. By Stephen Mallon, NYC DOT

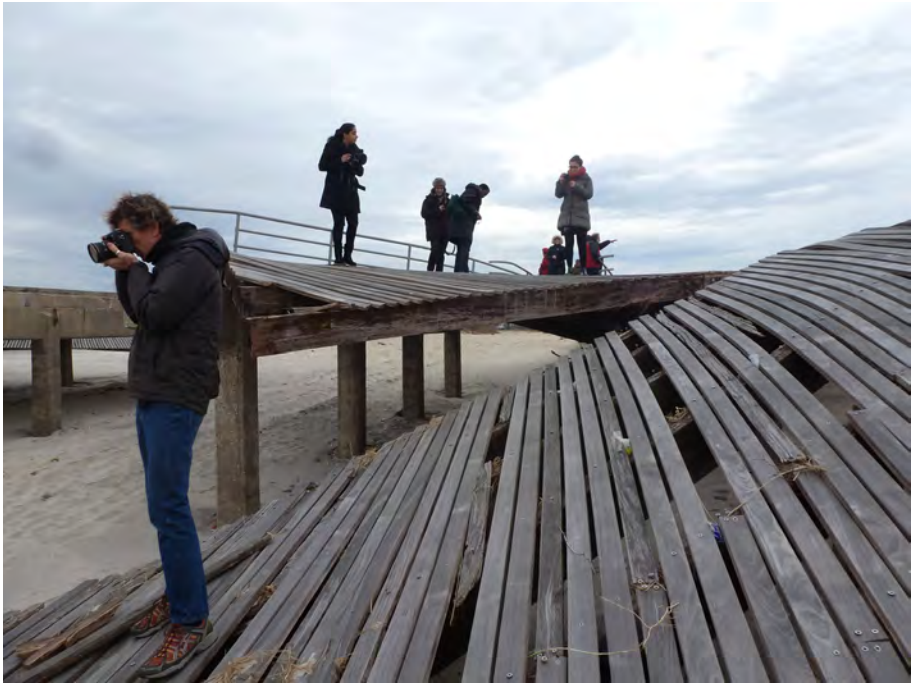


Fig. 8. Photograph of damage in the Rockaways. By Lance Jay Brown

was selected as the winning design solution and received an additional cash prize of $30,000. New York-based firm Ennead Architects' imaginative proposal F.R.E.D. was additionally recognized for Leading Innovation in Resilient Waterfront Design. Much of the success of the FAR ROC Competition can be credited to the robust Advisory Committee that consisted of: The FAR ROC Steering Committee; The Bluestone Organization; Steven Bluestone Eric Bluestone; Ira Lichtiger; Sara Herbstman; L+M Development Partners; Ron Moelis; Lisa Gomez; Elaine Braithwaite; Housing Preservation & Development: Bea De La Torre; Mike Polo; Eric Bederman; Gabriella Amabile; Liz Greenstein; AIA NEW YOK CHAPTER: Rick Bell; Pat Sapinsley; Ilana Judah; Al Wei; Gera Feigon; Enterprise Community Partners, Inc.; Bomee Jung; Jason Wheeler; FAR ROC Advisory Committee.

Special thanks to the FAR ROC Advisory Committee, comprising members of the following organizations, for their valuable input: Queens Community Board 14; Rockaway Waterfront Alliance; Metropolitan Waterfront Alliance; Ocean Village Resident's Association Arverne by the Sea Owner's Association; Margert Community Corporation; Office of Council Member Donovan Richards; New York City Housing Recovery Office; New York City Department of City Planning and, Residents of Arverne and Edgemere.

The FAR ROC Competition was sponsored by: The Bluestone Organization; L+M Development Partners; Triangle Equities; NYC Housing Preservation & Development; AIA NEW YORK CHAPTER, and Enterprise Community Partners, Inc.

Commentary on the Far Roc Competition:

After Sandy, Local Residents are Now Drivers of City and Statewide ChangeBy:Chiara Norbitz, Arthur L. Carter Journalism Institute New York University Posted on October 30th, 2013.

It has been a year since Superstorm Sandy devastated coastal and low-lying communities around the eastern seaboard, and while it was the worst storm to hit the tri-state area to date, it was not the region's first harmful storm and will certainly not be its last. So the very serious – and imminent – question remains: how do we rebuild for a sustainable future?

This question served as the crux of two recent design competitions held in New York City, which challenged architects, engineers and urban planners to come up with innovative ways to address the vulnerability of our coastlines. But this is by no means a new question. Preparing homes and landscapes to weather unforeseen catastrophes are at the heart of every design plan. What has changed, post-Sandy, is a surge in public awareness and interest in building more sustainably.

After experiencing a natural disaster firsthand, many New Yorkers and New Jersey residents are beginning to see how the impending threat of climate change and the rising of sea tides will continue to affect them personally. Now, they want to act strategically and as quickly as possible.

Jeanne Dupont, founder of the nonprofit, Rockaway Waterfront Alliance, currently lives in the Rockaways and has worked closely with community members on local issues over the past decade. "Prior to the storm, nobody really cared, no one was talking about sustainability or resilience," Dupont explains. "As a result of Storm Sandy,

it brought more focus to the issues of climate change and it made the people who lived in the Rockaways more engaged in that conversation…and now, overwhelmingly, people have gotten much more involved."

Capitalizing on this momentum, three developers created the FAR ROC competition to solicit designs for Arverne East, an 80-acre area in the Rockaway

Peninsula that has been deemed a FEMA Special Flood Hazard area and has been uninhabited since the 1940's.

"Going back to the drawing board, redoing the designs, having a topnotch competition, that pays people to do this work, was a very smart idea," says Dupont. "It brings about and includes some of the concepts we've learned from Storm Sandy, and it brings about new and renewed interest in the environment and in building coastal communities off the water."

The developers —L+M Development Partners, The Bluestone Organization and Triangle Equities—received 117 proposals from across the world, and each design outlined unique strategies to strengthen the endurance of the site through innovative planning and development. The second phase of the competition awarded four finalists a $30,000 stipend to further develop their designs, and last Wednesday, October 23rd, the winner was announced. A jury of thirteen, comprising local community representatives, urban ecologists, city planners and fellow architects and developers, was deadlocked on two designs. One design, "Small Means & Great Ends," came from the Swedish firm, White Arkitekter. They state in their proposal the three strategies that underpinned their design: "reduce and control damage, provide access in the event of a storm, and ensure quick recovery," to create a community that can better withstand the inevitable stress of natural disasters. Yet the jury also felt beholden to a proposal by NY-based firm, Ennead Architecture/Ennead Lab that combined the existing natural dune fields of the Rockaways, which protect against wave action, with the durability of new, elevated urban housing structures and piers.

HUD's Rebuild By Design Competition (RBD)

The following discussion is an extract from a press release from the Rockefeller Foundation. One Year After Sandy, HUD'S 'Rebuild By Design' Unveils New And Innovative Proposals To Make Region More Resilient (The Rockefeller Foundation / October 28, 2013 / Press Release).

One year after Hurricane Sandy hit, 10 teams of international design and resiliency experts released their ideas for ways to make the region more resilient to future storms and other climate events. The Design Teams are participating in Rebuild by Design, an initiative of the President's Hurricane Sandy Rebuilding.

Task Force and sponsored by the U.S. Department of Housing and Urban Development (HUD) to rebuild the region impacted by Hurricane Sandy. The ideas – 41 in total – target communities across the region impacted by Hurricane Sandy: from the Jersey Shore to Lower Manhattan, Newtown Creek to Jamaica Bay and Rockaway, and Nassau County to Bridgeport, Connecticut.

The Design Teams – selected from more than 140 applicants from around the world – have conducted extensive research and public outreach to develop the resiliency concepts, and each team will submit between three and five ideas to HUD for consid-

eration. HUD Secretary Shaun Donovan will select one idea from each Design Team to move forward in the next phase, where they will be further developed into formal designs and may be eligible for federal Sandy funding.

"A year ago, when Hurricane Sandy devastated communities in the region, we were reminded of the importance that climate change will play in all development and planning for our communities to become more resilient and sustainable" said HUD Secretary Shaun Donovan. "The world-class teams participating in the Rebuild by Design competition today are presenting comprehensive research of the whole Sandy affected region that will provide us with opportunities to implement innovative resilient building ideas and help us avoid the same level of damage brought by Hurricane Sandy. Together with our State and local partners these teams are creating safer and stronger communities."

"Resilience' is more than a buzz-word – it's a call to action to prevent the level of devastation that followed Hurricane Sandy and better prepare our region for the future," said Dr. Judith Rodin, President of The Rockefeller Foundation. "The 10 Design Teams have presented real opportunities to both protect our neighborhoods and revolutionize how we plan our communities going forward. We're eager to see which ideas move into the design phase, and hope that they all inspire new ways of thinking around planning and development."

The concepts touch literally every part of our region, particularly in areas that have been historically under considered. The waterfront in Red Hook caught the imagination of several teams with the goal to not only make it more resilient, but also recreate that unique community and make it increasingly attractive to tourism. The challenges inherent in our barrier islands – open to water on both sides – brought a flurry of ideas from perimeter protection to rethinking the local transportation and commercial districts. New Jersey also received a tremendous amount of consideration. One team suggests taking on the entire shore length and thinking of it as one single, contiguous challenge. There is the justifiable view that these New Jersey Shore communities are year-round and need to be addressed accordingly. This translates into thinking about their commercial districts and making sure that attractions built near the water – vital for the tourism that economically benefits these towns – can withstand severe weather. Certain things can be built to be "flood able." Our more urban areas in the region need to address the collection and disposal of water that is currently a problem due to inadequate sewer systems and possible storm water surges. Teams look to change how water is absorbed, guided and blocked in some of our more densely populated areas.

Infrastructure overall is a recurring theme in the Design Teams' proposals. This includes the literal infrastructure of roads, tracks, bridges and tunnels, but also the technological infrastructure that is a requirement in modern America. Our communications infrastructure including hard wires, mobile technology and the ability to access the Internet are considered an opportunity to dramatically improve our resiliency. One of the overarching lessons of Sandy is that the best fixes and biggest problems drilled down to swift and ready access to communications.

The administration of the Rebuild by Design competition is made possible through support from The Rockefeller Foundation and other philanthropic contributions. The proposals follow three months of in-depth analysis and public outreach, including

both one-on-one conversations with people living in affected areas and robust guided conversations between the Design Teams and public. The Design Teams toured impacted neighborhoods throughout the region, including Lower Manhattan, Red Hook, Staten Island, Rockaway, Monmouth County in New Jersey, Nassau and Suffolk Counties, and Fairfield and Bridgeport, Connecticut. The regional visits included town halls to hear directly from the local community about their experiences and ideas for protecting their neighborhoods. The 41 proposals unveiled today will be reviewed and provide with feedback from a range of individuals, experts, and stakeholders, including the general public. Informed by this feedback, HUD will determine which of the proposed ideas each team will pursue. Secretary Donovan's selections will be announced in early November.

The Design Teams will continue to engage with the public as they continue to develop the selected design idea. The teams will then have until March to develop each design opportunity into a design solution. The design solutions will then be evaluated by a competition jury and HUD will identify the winning solutions, which may be able to be implemented with disaster recovery grants from HUD as well as other sources of public and private-sector funding. The team names and titles of their ideas are listed below.

Descriptions of the submitted projects are attached and also available at www.rebuildbydesign.org/projects/.

BIG TEAM
1. The Big "U"
2. Long-Term Perspective - Harbor District: Red Hook
3. Long Term Perspective - South Bronx

HR&A Advisors, Inc. with Cooper, Robertson & Partners
1. Barrier Island: Beach 116th Street, Rockaways
2. Mainland Coastal: Asbury Park, New Jersey Shore
3. Dense Urban Edge: Red Hook, Brooklyn

Interboro Partners
1. Living with the Marsh: Options for Staten Island's Eastern Shore
2. Living with the Creek: Options for Monmouth County Watersheds
3. Living with the Coast: A Better Day at the Beach
4. Living with the Bay: Options for Southern Nassau County

MIT+ZUS+URBANISTEN
1. Making Resilient Districts
2. The Meadowlands Area: the 6th Borough
3. Newtown Creek: Superuse District
4. Jersey City East - Hoboken
5. Lower East Side

OMA
1. Planning Principles
2. Information Systems
3. Infrastructure Catalyst
4. Comprehensive Strategy

PennDesign/OLIN
1. Staten Island East Shore: Folding the Coastal Plain

2. Toms River: Reorienting Living on a Shifting Estuary
3. Jersey City/Hoboken: Flood-Adaptive Design on the Hudson Peninsula
4. Hunts Point | Securing the Point with Lifelines

Sasaki/Rutgers/Arup

1. Barrier Island
2. Headlands
3. Inland Bay

SCAPE/LANDSCAPE ARCHITECTURE

1. Gardening the Bay
2. Living, Growing Breakwaters

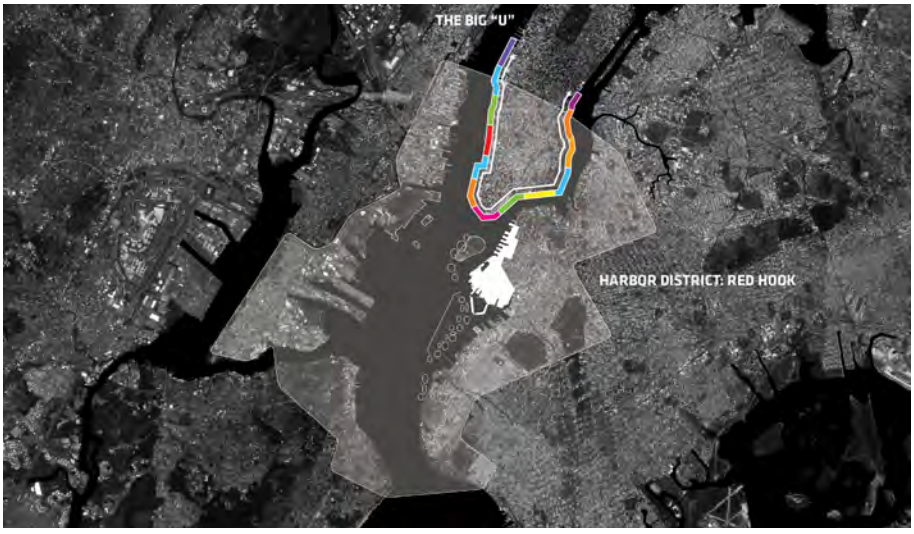


Fig. 9. "Big U" overview, HUD RBD Competition winner [1 of 10 winners].
Fig. 10. Battery, BIG Architects.

3. Barnegat Bay Remade
4. More Wet Meadow, Less Lands
5. Hudson Habitat

Unabridged Coastal Collective

1. Bridgeport Resilience Network
2. Rockville Resilience Network
3. Far Rockaway Resilience Network
4. Long Branch Resilience Network
5. Toms River Resilience Network

WXY/West 8

1. Jamaica Bay: Rockaway Restoration
2. Atlantic Ocean: NJ Coastal Governance
3. Long Island Sound: Extended Neighbors
4. Hudson River: Tidal Relationships
5. East River: New Industrial Waterfront

The above teams will present their work and their findings on April 3, 2014 and it will then be referenced in the Durban presentation

Conclusion

As we move deeper into the 21st century, as our global population urbanizes, concentrates, densifies, and becomes smarter we need full spectrum mechanisms for planning and design or cities. Preparing full spectrum platforms, looking at how each specific context needs to prepare itself, and creatively searching for solutions has never been more important. Hopefully this paper and its suggested reference can help us do that.

Credits:

A Platform for the Future of the City Credits

This report is the culmination of a year-long series of meetings and interviews convened by the American Institute of Architects New York Chapter (AIANY). The Chapter has worked with its leadership, program committee chairs, and members to draft a platform statement of issues that are most important to the profession and to the built environment. These efforts have led us to identify a set of interconnected issues of importance to our members that will inform discussions with and between candidates for office for years to come. The meetings were held at the Center for Architecture. While AIANY has greatly benefited from the discussions and insight of the members of the work group, the report's recommendations and any errors or omissions are our own.

Many thanks to the members who gave their time:
Joseph J. Aliotta, AIA LEED AP 2012 AIANY President
Illya Azaroff, AIA Co-Chair, Design for Risk and Reconstruction Committee
Rick Bell, FAIA AIANY Executive Director
Lance Jay Brown, FAIA 2013 AIANY First Vice President/ President-Elect Co-Chair, Design for Risk and Reconstruction Committee
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Margaret O. Castillo, AIA LEED AP 2011 AIANY President
Umberto Dindo, FAIA 2012 AIANY Secretary Co-Chair, Architecture for Education Committee
Jeffrey S. Dugan, AIA Co-Chair, Transportation and Infrastructure Committee

Robert Eisenstat, AIA Co-Chair, Transportation and Infrastructure Committee
Bruce E. Fisher, AIA Co-Chair, Global Dialogues Committee
Mark Ginsberg, FAIA LEED AP 2004 AIANY President
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Jeffrey A. Kenoff, AIA Co-Chair, Global Dialogues Committee
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Juliana Barton, Exhibitions Coordinator Jay B. Bond, Policy Director
Daniel Fox, Communications Director Berit Hoff, Acting Director of Exhibitions
Cynthia Phifer Kracauer, AIA LEED, Managing Director
Suzanne Mecs, Hon. AIANYS, Director of Member Services

(1) For immediate release:
Washington, D.C. – February 21, 2014 – The American Institute of Architects (AIA) has selected the recipients of the 2014 Institute Honors for Collaborative Achievement. The award, to be presented at the 2014 AIA National Convention and Design Exposition in Chicago, recognizes and encourages distinguished achievements of allied professionals, clients, organizations, architect teams, knowledge communities, and others who have had a beneficial influence on or advanced the architectural profession.

Fig. 11. Ramp, BIG Architects