

LES READY!

GETTING LES READY:

Learning from Hurricane Sandy to Create a
Community-Based Disaster Plan for the Future



JANUARY 2015



The Lower East Side Long Term Recovery Group (the LES LTRG) is a coalition of community groups and institutions that will cooperatively coordinate our response, resources, preparedness planning and training in response to Hurricane Sandy and in the event of future disasters. Our work will focus on Manhattan's Community Board 3 area and the immediately adjacent neighborhoods that our groups may serve.

ABOUT THE AUTHORS



GOLES (Good Old Lower East Side) is a neighborhood housing and preservation organization that has served the Lower East Side of Manhattan since 1977. We are dedicated to tenants' rights, homelessness prevention, economic development, and community revitalization.



Hester Street Collaborative (HSC) empowers residents of underserved communities by providing them with the tools and resources necessary to have a direct impact on shaping their built environment. We do this through a hands-on approach that combines design, education, and advocacy. HSC seeks to create more equitable, sustainable, and vibrant neighborhoods where community voices lead the way in improving their environment and neglected public spaces.



The Community Development Project (CDP) at the Urban Justice Center strengthens the impact of grassroots organizations in New York City's low-income and other excluded communities. We partner with community organizations to win legal cases, publish community-driven research reports, assist with the formation of new organizations and cooperatives, and provide technical and transactional assistance in support of their work towards social justice.

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I. INTRODUCTION

Hurricane Sandy, which hit New York City on October 29th, devastated many neighborhoods throughout the City. The Lower East Side—which was located in New York City's Emergency Evacuation Zone A when Sandy Hit (now referred to as Zone 1) was one of those communities that was particularly hard hit. Tunnels, train stations, and homes were inaccessible and most grocery stores, pharmacies, and other businesses were closed for several days.

The Lower East Side is home to one of the highest concentrations of public housing in the country. These residents were hit particularly hard by Sandy, some going without heat, hot water, and use of elevators for weeks. Many residents, particularly the elderly and those with limited English proficiency, were unable to get information or access critical services in the immediate aftermath and long after the storm. The response by the New York City Housing Authority (NYCHA) was slow and continues to be inadequate. Two years after the storm, mold pervades and repairs continue to go undone.

Overall, government response in the immediate aftermath of the storm was slow and inadequate given the immense needs of the Lower East Side. To fill the gap where the government fell short, community organizations had to take matters into their own hands.

The Lower East Side has a long history of coming together as a community and building social bonds and networks. It is home to the first settlement house in the United States, University Settlement, and has long been a home for new immigrants.¹ Today the Lower East Side has numerous community-based organizations (CBOs) that serve the needs of residents. This robust community infrastructure played a critical role in the



LES Ready members learn about requirements for Disaster Response Centers, photo courtesy of LES Ready.

aftermath of Hurricane Sandy. Hours after the storm ended, and well before government agencies or large non-profits such as the Red Cross arrived, these community groups had already started assessing the needs of residents and distributing lifesaving supplies. One key example was the work of Good Old Lower East Side (GOLES). From the GOLES' office, staff began coordinating a volunteer program to bring relief and assistance to the community with a particular focus on the most vulnerable.

Although CBOs were the most effective in meeting the needs of Lower East Side residents quickly and efficiently in the wake of Sandy, they encountered several difficulties in providing relief. Without electricity - and in many cases - phone service, a lack of coordination and communication hampered the community-based relief effort, which led some areas to be served by multiple organizations while other areas were underserved.² In addition, CBOs did not have adequate resources or proper training to

be relief organizations. CBOs were also not included in the city's emergency management plan and had difficulty communicating with emergency managers and the city relief operations.³

Learning from these experiences, community organizations in the Lower East Side formed a Long Term Recovery Group (LTRG), now called LES Ready, that would "cooperatively coordinate our response, resources, preparedness planning, and training in response to Hurricane Sandy and in the event of future disasters."⁴ Today, LES Ready is a coalition of 37 community groups and institutions.

The primary goals of LES Ready are to:

- 1) address the unmet needs of impacted residents and small businesses by sharing resources and information,**
- 2) create a community disaster preparedness and recovery plan,**
- 3) explore community driven mitigation/ solutions that could potentially lessen the impact of future disasters.**

As part of LES Ready's mission to coordinate preparedness planning, the group is developing a community-based disaster response plan. To help support this plan Good Old Lower East Side (GOLES), Hester Street Collaborative (HSC), the Community Development Project at the Urban Justice Center (CDP), and LES Ready member organizations (see back cover of report for full list of contributing organizations) conducted community-based research focusing on what worked well in the recovery effort following Sandy, what could be improved, and documenting what resources Lower East Side CBOs had in place during Sandy as well as what they currently have in place to respond to future disasters.

Overall, using data from surveys, focus groups, and background research, we found:

- The majority of Lower East Side residents did not evacuate before Hurricane Sandy hit;
- Residents of the Lower East Side were severely impacted by Hurricane Sandy;
- Poor communication from the City and a lack of information hampered the recovery effort;
- Despite the hardships faced by residents, relief was slow and inadequate from the city and federal government. This created a gap that community groups partially filled;
- The inadequate government relief highlighted the importance of community bonds in the Lower East Side;
- The LES has a robust infrastructure of Community Based Organizations and facilities that should be coordinated for future disaster relief.

The work of LES Ready is an important example of the need and efficacy of community driven resiliency efforts. This is especially critical for vulnerable populations, such as low-income households, non-English speakers, and the elderly and disabled. This report provides data to show how the Lower East Side responded to the storm as well as information on how the neighborhood can best work together in the face of future natural disasters. This report will inform the LES Ready disaster plan and should be seen by City officials as an example of community resiliency and planning to be replicated across the City and beyond.

II. BACKGROUND

SANDY'S IMPACT ON NYC AND THE LES

When Sandy made landfall in New Jersey at 7:30pm on October 29, 2012, its wind speed was 80 mph and its wind field extended for 1,000 miles.⁵ While the rainfall and wind speeds from Sandy were not exceptional for a hurricane, additional factors including a full moon, high tide, and the storm's size led to Sandy's devastating impact.⁶

Sandy's storm surge exceeded 14 feet at the Battery, four feet higher than the previous record.⁷ This massive storm surge led to flooding beyond the 100-year floodplain boundaries - which roughly corresponds with Hurricane Evacuation Zone A - designated by the Federal Emergency Management Agency (FEMA). In total, 17% (51 square miles) of New York City flooded.⁸ This widespread flooding caused \$19 billion in damage and immense need among affected residents due to damage in key infrastructures throughout the city such as the electrical grid, transportation system, and communications network.⁹ An estimated two million people were without power (some for as long as two weeks), subways connecting Manhattan and Brooklyn were closed, roads were damaged, gas was difficult to find, and both landline and cell phone services were disrupted in the hardest hit areas.¹⁰

Given its placement close to the waterfront the Lower East Side was drastically affected by Hurricane Sandy. 60% of residential units in the Lower East Side are in a hurricane evacuation zone and 25% of residential units were in a Sandy surge area.¹⁶ Floodwaters topped barriers at the Con-Edison substation on 13th Street causing an explosion that left almost all of Manhattan south of 34th Street without power.¹⁷ The power outage,



Flooding of the Lower East Side during Hurricane Sandy.

which lasted at least four days for most residents, caused a number of issues in the Lower East Side where many buildings are high-rises. Beyond being without lights, residents in these buildings were trapped in their apartments, especially senior citizens and people with disabilities, because the elevators were not working and stairways were dark and difficult to walk down.¹⁸ Additionally, residents were without running water because the pumping systems in these buildings require electricity.¹⁹ This created great need in the Lower East Side in the days and weeks following Sandy.

LOWER EAST SIDE

The Lower East Side (LES) in Manhattan is a diverse collection of several neighborhoods in Lower Manhattan including Chinatown, the East Village, Two Bridges, and Alphabet City. In this report, the Lower East Side will be used to refer to Manhattan Community Board 3, which is bound on the North by 14th Street, the East by the East River, the South by the Brooklyn Bridge, and the West by Fourth Avenue and the Bowery, extending to Baxter and Pearl Streets.¹¹

The LES is a racially and linguistically diverse neighborhood with 42% of residents identifying as white, 34% as Asian, 23% as Hispanic or Latino/a, and 8% as Black or African American. 51% primarily speak a language other

than English and 26% of residents have at least some difficulty speaking and understanding English.¹²

The neighborhood is also home to a large immigrant population, a large portion of which is concentrated in Chinatown. 36% of LES residents were born outside of the United States with an additional 5% born in Puerto Rico. 50% of those born outside of the U.S. are not U.S. citizens.¹³

With a median income near \$40,000, the LES is one of the less affluent community districts in New York City.¹⁴ 25% of residents live below the poverty line and there are a large number of NYCHA developments in the neighborhood, mainly concentrated on the waterfront.¹⁵



LES Ready members review interim disaster plan, photo courtesy of LES Ready.



Volunteers outside GOLES, photo courtesy of GOLES.

SANDY DISASTER RESPONSE

While all sectors of the city - from government agencies and large non-profits to community-based organizations and neighbors, friends, and family members - participated in the immediate disaster response, some New Yorkers were missed entirely by these efforts or the relief provided was inadequate, especially for low-income individuals and families.²⁰

Despite the fact that the first 72 hours have been proven critical for disaster response,²¹ city agencies, the National Guard, and other official relief efforts were slow in their response. Food and water distribution by the city did not begin until Thursday November 1, a full two days after the peak of the storm.²² Even after government aid workers arrived, there was a disconnect between the needs of residents and services provided by these agencies. FEMA, in particular, had a difficult time working among the diverse populations and high-rise environment of the Lower East Side.²³ It was reported that FEMA turned away some immigrants because of their legal status and had outreach materials for the LES translated into Italian but not Spanish or Chinese, the most common languages in the neighborhood other than English.^{24, 25}

The New York City Housing Authority (NYCHA) was another agency that struggled to meet the needs of New Yorkers following Sandy.²⁶ NYCHA is the public housing authority for New York City and operates 178,000 housing units with a population of approximately 400,000 residents.²⁷ In the Lower East Side, 21 percent of rental units are public housing units.²⁸ Many of these buildings are high-rises and almost

all were without electricity, heat, and hot water in Sandy's aftermath.²⁹ Despite these needs, "both it [NYCHA] and the city government at large were woefully unprepared to help [NYCHA] residents deal with Hurricane Sandy's lingering aftermath." Residents were trapped in their apartments without essential services and relied on family members, friends, neighbors, and local community organizations to meet their essential needs.³¹

While City government as a whole was slow to respond, local elected officials and community based organizations served as ad-hoc first responders on the Lower East Side. City council members Rosie Mendez, Margaret Chin, State Senator Daniel Squadron, Assembly members Brian Kavanaugh and Sheldon Silver and former Manhattan Borough President Scott Stringer all coordinated relief efforts with community groups and tried to funnel information back to residents by serving as liaisons with the larger government effort.

The role of community-based organizations was particularly critical in the response to Sandy. A report by then-Public Advocate Bill de Blasio notes, "In many cases, CBOs had a long-standing relationship with residents in affected communities prior to the storm and were able to establish a presence and perform door-to-door outreach before Federal aid workers arrived. These organizations implicitly understood the needs of vulnerable populations they served – including the elderly, immigrant communities, disabled residents and those with special medical needs."³² CBOs like GOLES, Nazareth Housing, University Settlement, Henry Street, Grand Street Settlement, CAAAV, Two Bridges Neighborhood Council, tenant associations, and local religious institutions did just that immediately after the storm subsided.

EFFECT OF EXTREME WEATHER ON LOW-INCOME HOUSEHOLDS AND INDIVIDUALS

While natural disasters and extreme weather such as Hurricane Sandy affect all people in the areas that they hit, lower-income people are disproportionately affected by these events.³³ Low-income people are more likely to live in poor quality housing, experience poor environmental conditions, and be susceptible to economic instability.³⁴ These living conditions exacerbate the effect of extreme weather events and make it more difficult for lower-income people to recover from the effects of these events than their more affluent counterparts due to lack of insurance, access to healthcare, and financial savings.³⁵ And most disaster plans do not address the special needs that low-income populations, minorities, non-English speakers, and homeless people face following natural disasters.³⁶ Additionally, federal and state

governments have been decreasing funding for programs such as food stamps and energy tax credits that help to make low-income households more resilient and assist with recovery.³⁷

Sandy was no different from other storms in this respect. 30% of owners and 65% of renters who registered with FEMA had household incomes below \$30,000.³⁸ For households of this income level, less than 25% of rental units in New York City are affordable.³⁹ Following Sandy, people had trouble qualifying for the Disaster Supplemental Nutrition Assistance Program (D-SNAP or food stamps) because there were only two centers for applicants (one in Brooklyn and one in Staten Island) that residents had difficulty reaching. Records show that many eligible residents did not take advantage of the D-SNAP program, most likely due to these transportation and access issues.⁴⁰ All of these conditions pile up, creating a situation that makes the recovery process extremely difficult for low-income households and individuals.

COMMUNITY RESILIENCY

With severe weather events happening more often, the need to promote and build community resiliency has become critical.⁴¹ This can be seen in initiatives like the Sandy Rebuilding Task Force and the Federal Emergency Management Agency (FEMA) adopting a “Whole Community” approach to emergency management.⁴² The need for community resiliency is especially acute within vulnerable populations, such as low-income households, non-English speakers, and the elderly and disabled. Although severe weather impacts everyone in the path of the storm, these vulnerable populations have the most difficulty recovering from the devastating impacts.

An important aspect of community resiliency is increasing social networks and connections. Neighborhood connections and relationships play a significant role in allowing communities to mitigate the effects of disasters and respond more quickly.⁴³ This

is exemplified in the Lower East Side on a daily basis and was especially evident in the aftermath of Sandy.

The Lower East Side has a long history of coming together as a community and building social bonds. It is home to the first settlement house in the United States, University Settlement, and has long been a home for new immigrants.⁴⁴ Today the Lower East Side has numerous community-based organizations that serve the needs of residents.

This community infrastructure played a huge role in the aftermath of Hurricane Sandy. Hours after the storm ended, and well before government agencies or large non-profits such as the Red Cross arrived, these community groups had already started assessing the needs of residents and distributing lifesaving supplies and information. The community bonds that CBOs spend months and years building proved invaluable in this relief effort. CBOs implicitly understood the needs of residents and were able to provide support days before official efforts.

HURRICANE FLOOD ZONES

New York City's Office of Emergency Management (OEM) was in the process of reviewing and updating the City's hurricane evacuation zones when Superstorm Sandy hit New York. Prior to and during Sandy, the City's Coastal Storm Plan (CSP) delineated three evacuation zones: Zone A, Zone B, and Zone C. Zone A, which included 375,000 people and 26 public housing developments, covered the City's coastline and low-lying areas most

vulnerable to a coastal storm. Residents in Zone A were told to evacuate in advance of Hurricane Sandy. However, Sandy's impact significantly exceeded the boundaries of Zone A. Accordingly, the City revised its hurricane evacuation zones for the 2013 hurricane season. The new Zones 1 through 6—which replace Zones A, B, and C—include an additional 640,000 New Yorkers not included within the boundaries of the former zones.⁶⁰ In this report, all references to the Hurricane Zones prior to or during Sandy use Zones A, B, C and all references to Zones following Sandy or in the future use Zones 1 through 6.

LONG-TERM DISASTER RECOVERY AND PLANNING

There have been several long-term disaster recovery and planning initiatives in areas that were severely affected during and immediately after Hurricane Sandy. The two largest initiatives that included the Lower East Side were the **NY Rising** and the **Rebuild By Design** Programs. Several members of LES Ready have been involved in the planning, community outreach and project recommendations for both of these projects. As a result, many of the recommendations are consistent with or complementary to recommendations made by LES Ready. As these projects move from the design/planning phase into implementation, there will be a crucial role for LES Ready to play to ensure that community input and interests are addressed in the process.



Residents provide feedback at Rebuild By Design workshop, photo courtesy of LES Ready.

CLIMATE CHANGE AND ITS THREAT TO NYC

While New Yorkers often believe they are an exception to every rule, Hurricane Sandy proved that New York is susceptible to weather events like any coastal city. Part of this reality means that New York will face more and new threats as the effects of climate change continue to progress. These threats will come from everyday changes such as increasing temperatures, rising sea levels, and extreme weather in the forms of heat waves, cold events, downpours, and coastal storms and floods.⁵⁶

According to the New York City Panel on Climate Change, sea levels at the Battery are expected to rise between four and eight inches by the 2020s and between 11 and 24 inches by the 2050s.⁵⁷ This dramatic sea level rise will make flooding from coastal storms more likely and more frequent.⁵⁸ Increases in average temperatures and more frequent heat waves will put more strain on New York's energy grid and put vulnerable populations at risk. Already heat waves cause more deaths in the U.S. each year than all other natural disasters combined.⁵⁹ These are all changes that the city and each of its neighborhoods will need to plan for to be able to adequately serve the needs of residents.

REBUILD BY DESIGN AND THE BIG U PROPOSAL

Rebuild by Design (RBD) originally began as a design competition launched in June 2013 by President Obama's Hurricane Sandy Rebuilding Task Force and the US Department of Housing and Urban Development (HUD) as a way to bring innovative community and policy based solutions to protect US cities from increasingly intense weather events and future natural disasters. RBD was a multi-stage design competition to develop proposals that address needs for resilience in Sandy-affected regions in New York and New Jersey.⁴⁵ Of the selected final ten design teams, the BIG Team, led by BIG (Bjarke Ingels Group) worked on a design proposal "The Big U", which focused on Lower Manhattan.⁴⁶

The study area for the Big U originally encompassed neighborhoods adjacent

to the water from W. 57th Street down to the Battery and then up to E. 42nd Street. The BIG team worked with the RBD Partner Organization and community partners to gather data and community input to create a design proposal.⁴⁷ Much of the community outreach was done in partnership with LES Ready. This proposal was presented to RBD in April 2014 with the other nine finalist design team proposals. It was announced in June 2014 that six of the proposals received in total, \$920M of disaster recovery funding.

The Big U was one of the funding recipients and was awarded the largest single amount of \$335M to implement the first phase of its proposal along the Lower East Side, (detailed in the table on the opposite page.)⁴⁸ The funding will be provided by the US Department of Housing and Development's (HUD) Community Development Block Grant (CDBG-DR).⁴⁹ RBD has expanded beyond its role as a competition facilitator and will work with the City of New York to move forward in the planning process and help ensure the selected proposals become a reality.⁵⁰



Render for The BIG U, "The Harbor Berm," an elevated path through the park, image courtesy of rebuildbydesign.org

REBUILD BY DESIGN PROPOSAL⁵¹

PHASES

/ PROJECT DETAIL

COMPARTMENT 1: LES NORTH

East River Park (from E. 23rd Street to Montgomery Street)

FUNDED

Creates flood protection infrastructure through deployables at key locations, an integrated levee around the Con Ed Plant and an undulating berm through East River Park. While creating resilient infrastructure, this design will also create commercial opportunities on the land side and new recreational amenities on the water side.

COMPARTMENT 2: TWO BRIDGES

From Montgomery Street to the Brooklyn Bridge

UNFUNDED

A mixed-flood protection strategy that installs limited-height flood protection shields and strategic deployables along the waterfront coupled with systematic measures to retrofit existing residential buildings to be “flood proof” (utilities moved, basements strengthened and apartments on ground floor evacuated).

COMPARTMENT 3: BATTERY

Financial District (from Brooklyn Bridge to the Battery)

UNFUNDED

Berms in the Battery and floodwall that creates resilient infrastructure while improving and expanding public spaces in this area.

CURRENT STATUS: As mentioned above, the allocated \$335M for the Big U will be funded by the US Department of Housing and Development (HUD) Community Development Block Grant (CDBG-DR). HUD officially released the Federal Register for Rebuild by Design Projects on October 16, 2014. This notice formally allocates \$930M to this projects and provides requirements and guidance for the City to submit its Action Plan. The City will have 120 days to respond to the notice. Before submission, the City will need to present the plan to the public and provide 30 days for public comment. Once submitted, HUD will have 60 days to respond to the City. The City efforts are managed by the Mayor’s Office of Resiliency and Recovery in close partnership with the Department of Design and Construction (DDC) and the Department of Parks and Recreation (DPR). The City has already put out and received submissions for a closed RFP for preliminary design consultants and community outreach specialists. LES Ready has made a public statement at the October Community Board 3 Parks Committee Meeting that it is imperative that the community organizations in the neighborhood continue to be closely involved in the community outreach process.

NEW YORK RISING COMMUNITY RECONSTRUCTION PROGRAM

The NY Rising Community Reconstruction (NYRCR) Program was created by New York State Governor Cuomo's Office of Storm Recovery in April 2013 to provide resources for storm-affected communities to plan and implement processes that will provide rebuilding and resiliency assistance.⁵²

Lower Manhattan is one of 45 NYRCR communities: the planning area encompasses all neighborhoods south of 14th Street between the Hudson and East Rivers. To create the NY Rising Community Reconstruction Plan for Lower Manhattan, a planning committee was created to work

with the NYRCR Program team in March 2014. The planning committee included LES Members Damaris Reyes from Good Old Lower East Side, Kerri Culhane from Two Bridges Neighborhood Council and Gigi Li from Manhattan Community Board 3. The plan aims to improve the capacity and readiness of all community members to prepare for, respond to, and quickly recover from severe weather-related events; to address needs currently unmet by existing rebuilding and resiliency efforts; and to support the diverse character and history of Lower Manhattan.⁵³

The State has allocated up to \$25M to implement eligible projects identified in the NYRCR Plan for Lower Manhattan and the project funding will be provided by the US Department of Housing and Development's (HUD) Community Development Block Grant (CDBG-DR).⁵⁴ The final public meeting was held on April 2014 to present the final plan.



Governor Cuomo at the 2014 NY Rising Community Reconstruction Conference, image courtesy of: www.stormrecovery.ny.gov.

NEW YORK RISING LOWER MANHATTAN RECOMMENDATIONS⁵⁵

STRATEGIES

PROJECTS

Improve emergency preparedness through enhanced coordination and planning.

Community emergency preparedness program with local emergency preparedness coordinators programs and plans. (Proposed)

Ensure CBO capacity to deliver key services to local populations during emergency events.

Community resource/recovery center and CBO grant program. (Proposed)

Strengthen the resiliency of existing residential buildings.

Residential resiliency and education program that creates resiliency information assistance centers, individual counseling, technical assistance and financial assistance to improving resiliency of residential buildings. (Proposed)

Empower small business to become more resilient.

Small Business resiliency and education project that creates information and assistance centers, technical assistance and financial assistance for technical audits and recommended resiliency upgrades. (Proposed)

Improve storm water capture and retention.

Storm water capture and retention study that examines feasibility, costs and benefits, and potential sites and implements recommended scalable pilot projects. (Proposed)

Creation of a one-acre artificial wetland at East River Park. (Proposed)

Protect edge neighborhoods from coastal flooding.

Berming and deployable walls at Battery Park. (Featured)

Targeted flood protection strategy for Lower West Street through a feasibility study and conceptual design. (Featured)

Coastal protection study for west and east side through a feasibility study and conceptual design. (Proposed)

CURRENT STATUS: Since the release of the Lower Manhattan New York Rising Community Reconstruction (NYCRC) Plan in March 2014, the Lower Manhattan planning committee has been waiting for the Office of Storm Recovery to create a process for eligible projects to apply for the funding of up to \$25M that is has been allocated for Lower Manhattan. It is unclear at this point whether there will be separate applications and processes for each community and/or strategy or whether a broader, more general process will be used. Once the details are announced, there are several projects in the table above that would align with recommendations that are being made in the LES Ready Interim Recovery Plan.

GLOSSARY OF TERMS

ARTIFICIAL WETLAND: A man-made ecosystem, designed and constructed to absorb and treat storm water run-off using the processes typical of natural wetlands.

DEPLOYABLES: Structures that are activated in the event of extreme weather conditions to prevent floodwaters and storm surges from damaging critical infrastructures, such as subway tunnels or roadways.

BERM: A raised bank of earth or sand that typically provides a protective buffer to the landscape beside it.

RESILIENT INFRASTRUCTURE: A system of infrastructures designed to withstand and adapt to extreme weather events. For example: storm barriers and rainwater collection systems.

RECREATIONAL AMENITIES: Facilities that provide space for sporting and leisure activities, such as a soccer field, or playground.

FLOOD PROTECTION SHIELD: An adjustable flood barrier that is typically installed at the entryway to a building and prevents floodwaters from going inside.

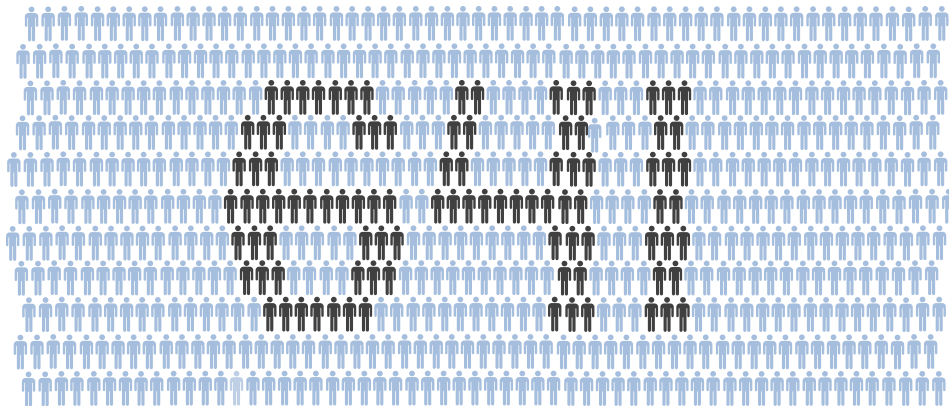
FLOODWALL: A large vertical flood barrier along the waterfront, designed to temporarily contain waters that may rise to unusually high levels during an extreme weather event.

STORMWATER CAPTURE: The act of preventing polluted rainwater from entering a body of water by diverting it into surfaces where it can be absorbed or temporarily stored.

ZONES A, B, C: The evacuation zones that were in place before and during Hurricane Sandy.

ZONES 1, 2, 3: These are the current evacuation Zones that the city updated based on the aftermath of Hurricane Sandy. Hurricane evacuation zones are areas of the city that may be inundated by storm surge or isolated by storm surge waters. There are six zones, ranked by the risk of storm surge impact, with zone 1 being the most likely to flood.

III. METHODOLOGY



RESIDENTS SURVEYED

After Hurricane Sandy, we surveyed 641 residents of the Lower East Side, Chinatown and Two Bridges neighborhoods to understand how people were affected, and how to better prepare for the future.

To better understand the conditions on the Lower East Side during and after Hurricane Sandy, GOLES in partnership with the Community Development Project (CDP) at the Urban Justice Center and Hester Street Collaborative (HSC) launched a community based research project. The research aimed to explore residents' experiences following Hurricane Sandy, to understand the resources and capacity of CBOs in the case of another disaster and to develop recommendations for a community-based disaster recovery plan being created by LES Ready. The research draws on the local experiences of residents and community-based organizations to learn what happened during Sandy and what should be incorporated into a community-based disaster preparedness and recovery plan for the Lower East Side.

The following methods were used to collect data:

RESIDENT SURVEYS:

Researchers collected 641 surveys from residents of the Lower East Side from September 2013 through December 2013. The surveys were administered interview-style to respondents and were collected in English, Spanish, and Chinese.

ORGANIZATIONAL SURVEYS:

Researchers collected 29 surveys from community-based organizations, tenant associations, and religious institutions based in the Lower East Side about their short and long-term recovery efforts around Hurricane Sandy and their interest in and capacity for providing relief in the event of a future disaster.

FOCUS GROUPS:

Researchers conducted eight focus groups with a total of 28 participants in the spring of 2014 to gather qualitative data around Lower East Side residents' experience during and after Hurricane Sandy. The focus groups were conducted in English, Spanish, and Chinese at community centers in public housing developments and lasted approximately 60 minutes each.

SECONDARY RESEARCH:

Researchers reviewed research and policy reports about the effects of Hurricane Sandy and recovery and rebuilding efforts by New York City government agencies and nongovernmental organizations.

DEMOGRAPHICS OF SURVEY RESPONDENTS, FOCUS GROUP PARTICIPANTS, AND COMMUNITY BOARD 3 RESIDENTS

		SURVEY RESPONDENTS	FOCUS GROUP PARTICIPANTS	COMMUNITY BOARD 3
GENDER				
(Surveys N=579)	Female	82%	79%	52%
(Focus Groups N=28)	Male	19%	21%	49%
	Other	0%	0%	N/A
RACE / ETHNICITY				
(Surveys N=569)	African American or Black	13%	14%	8%
(Focus Groups N=28)	Asian	36%	43%	32%
	Hispanic or Latino/a	41%	43%	24%
	White	10%	11%	33%
	Other	2%	4%	4%
AGE				
(Surveys N=586)	14 years or under	0%	0%	11%
(Focus Groups N=27)	15 to 19 years	1%	0%	6%
	20 to 24 years	4%	0%	10%
	25 to 34 years	17%	15%	23%
	35 to 44 years	18%	4%	13%
	45 to 54 years	11%	19%	14%
	55 to 64 years	11%	44%	10%
	65 years and over	39%	19%	13%
EDUCATION				
(Surveys N=531)	Some H.S. or less	39%	21%	27%
(Focus Groups N=28)	H.S. diploma or equivalent	24%	21%	17%
	Some college, no degree	14%	25%	9%
	Associate's degree	8%	11%	3%
	Bachelor's degree	9%	18%	28%
	Grad. or professional degree	6%	4%	15%
COUNTRY OF BIRTH				
(Surveys N=570)	United States	49%	36%	59%
(Focus Groups N=28)	Other	51%	64%	41%

		SURVEY RESPONDENTS	FOCUS GROUP PARTICIPANTS	COMMUNITY BOARD 3
PRIMARY LANGUAGE (Surveys N=526) (Focus Groups N=28)	English	46%	54%	49%
	Spanish	19%	18%	18%
	Other	35%	39%	33%
HOUSEHOLD INCOME (Surveys N=527) (Focus Groups N=28)	Less than \$10,000	32%	28%	15%
	\$10,000 - \$14,999	26%	12%	9%
	\$15,000 - \$24,999	17%	16%	13%
	\$25,000 - \$34,999	12%	16%	9%
	\$35,000 - \$49,999	6%	16%	9%
	\$50,000 - \$74,999	3%	8%	14%
	\$75,000 - \$99,999	1%	0%	10%
	\$100,000 - \$149,000	2%	4%	11%
	\$150,000 - \$199,999	1%	0%	4%
	\$200,000 or more	1%	0%	7%
ZIP CODES (Surveys N=531) (Focus Groups N=28)	10002	63%	79%	49%
	10003	3%	0%	16%
	10007	0%	0%	1%
	10009	30%	14%	28%
	10013	3%	4%	3%
	10038	2%	0%	4%
EVACUATION ZONE (Surveys N=531) (Focus Groups N=28)	Zone A	33%	63%	52%
	Zone B	20%	7%	49%
	Zone C	17%	4%	N/A
	Don't know	N/A	22%	
	Not in an evacuation zone	30%	4%	

IV. RESEARCH FINDINGS

FINDING 1. The majority of Lower East Side residents did not evacuate before Hurricane Sandy hit and many decided to “shelter in place.”

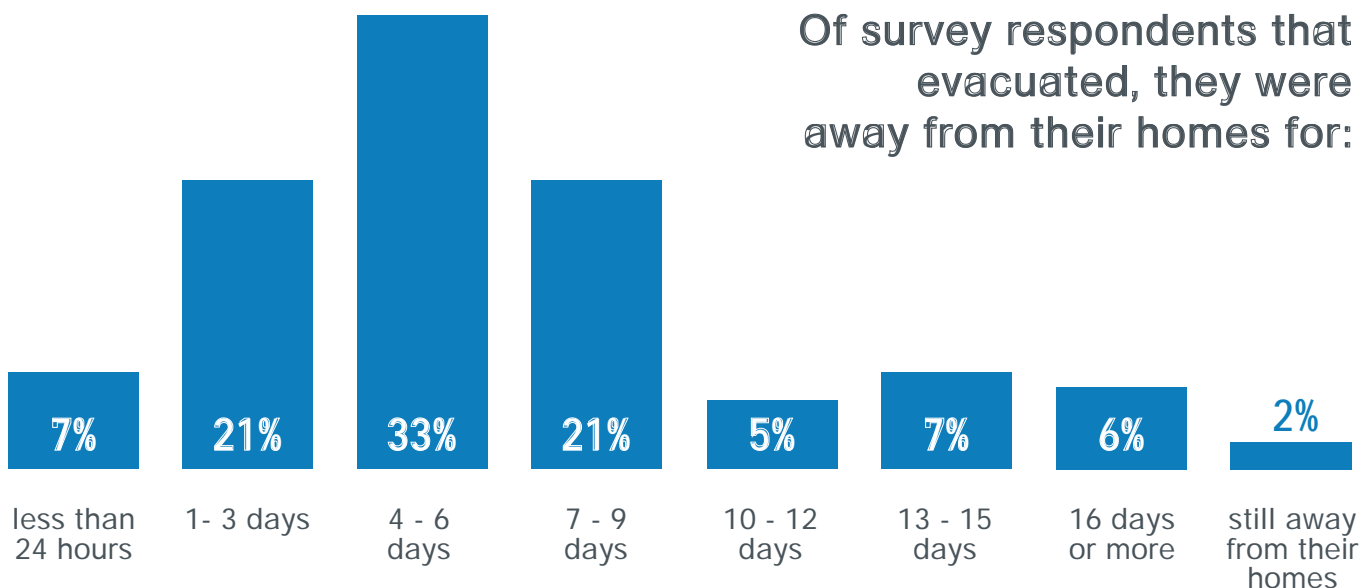
Data from our survey show that although nearly 90% of LES residents in Zone A were told to evacuate before Hurricane Sandy, only one-third (36%) of residents evacuated before the storm. An additional 13% evacuated after the storm, but half (50%) of LES residents in Zone A decided to “shelter in place” and did not evacuate. Many factors played in to residents’ decisions to shelter in place, including that the storm was not predicted to be as bad as it turned out to be, because of previous experience with Hurricane Irene and because residents had a short window within which to evacuate.

The lack of damage from Hurricane Irene, the previous year, lulled residents into a false sense of security.

*“I felt it wasn’t going to be as bad as it was.”
– Focus Group (FG) participant*

“We heard it [Hurricane Sandy] was coming and we were asked to evacuate but didn’t because the news made Sandy look just like Irene in terms of severity levels.” – FG participant

“I evacuated for Irene, nothing happened then so this time I didn’t think anything would happen. It caught me off guard.” – FG participant

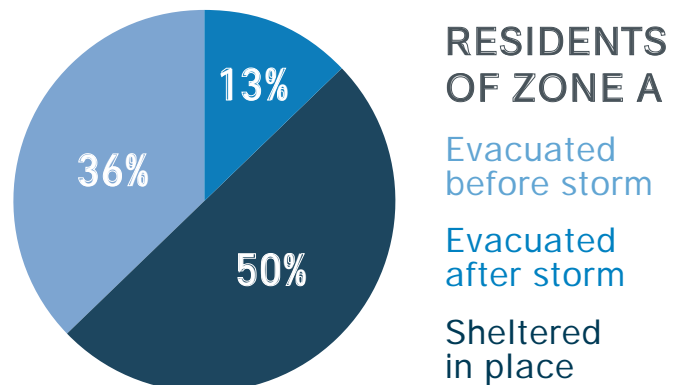


Residents had a short window to evacuate, particularly if they were dependent on public transport.

Then-Mayor Bloomberg did not give the mandatory evacuation order until Sunday, October 28th.⁶¹ While this gave residents more than 24 hours to evacuate before Hurricane Sandy made landfall, the subway was shut down at 7pm and buses stopped running at 9pm on Sunday. Additionally, elevators in NYCHA developments in Zone A were taken out of service at 7pm to protect the elevators from potential floodwaters.⁶² This left New Yorkers dependent on public transportation with very little time to prepare to evacuate.

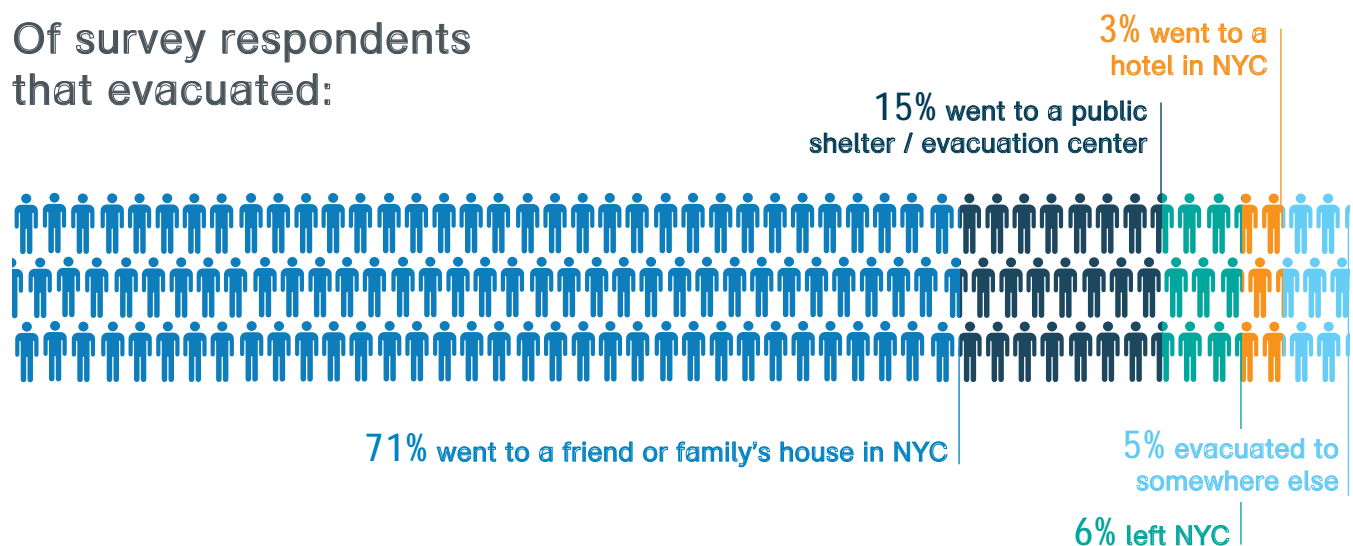
Of those that did evacuate, most did not utilize City shelters.

For survey respondents that did evacuate, over two-thirds (71%) went to a friend or family's house in the city and only 15% went to a public shelter or evacuation center. A report from Community Board 3 about lessons learned during Sandy stated that many of the people who did evacuate to a



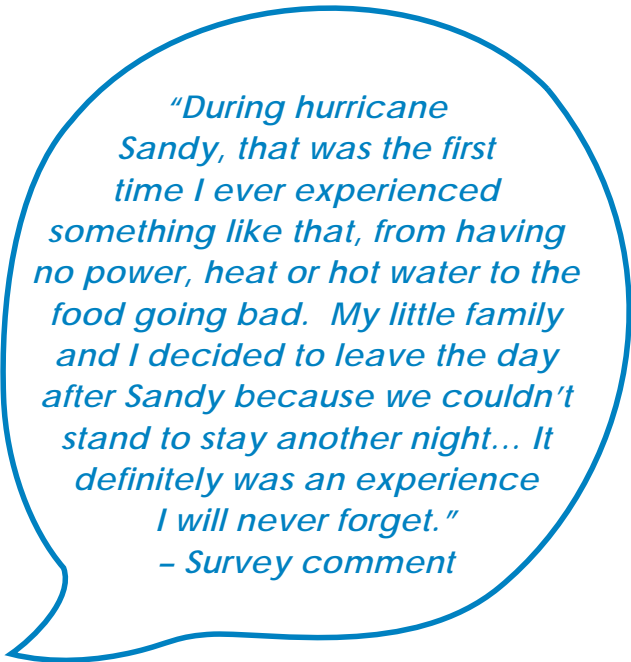
shelter had such a bad experience that they would not evacuate to a shelter again.⁶³ Seward Park High School, an evacuation center in the LES, lost power for several hours during the storm.⁶⁴ Contributing to the negative experience is that the public shelters were only prepared to accommodate residents for three days but most residents were not able to return to their homes within this timeframe and some people were unable to leave these temporary shelters for more than two weeks.⁶⁵ 73% of survey respondents that evacuated were away from their homes for more than three days, with 14% away from their homes for 10 days or more.

Of survey respondents that evacuated:



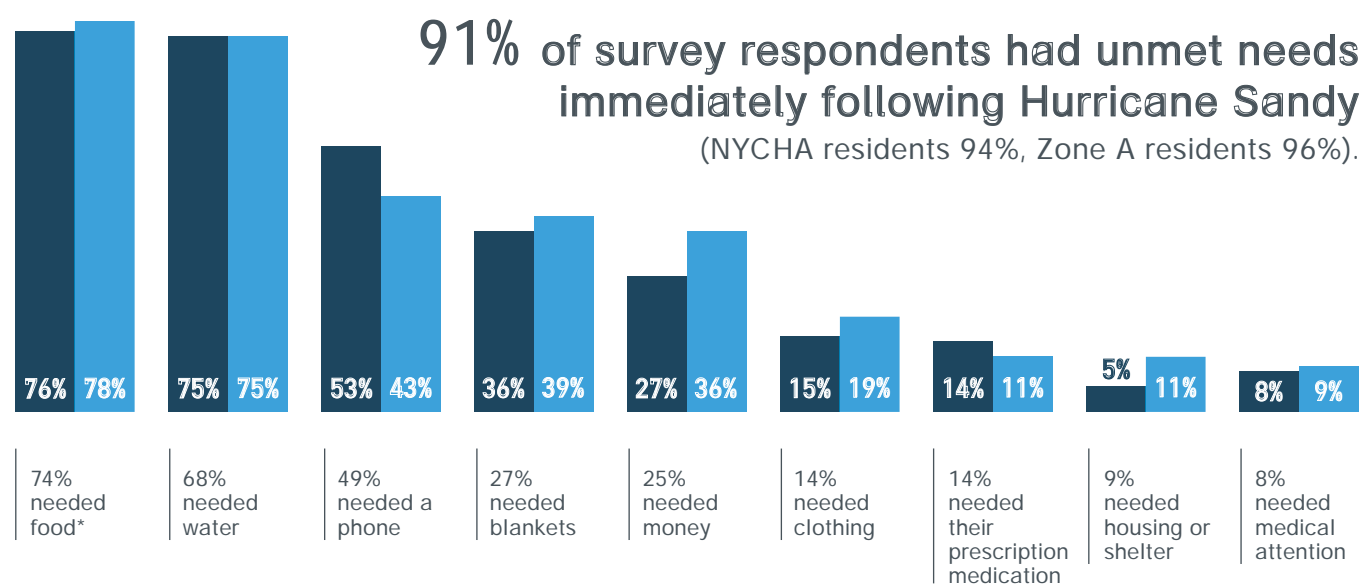
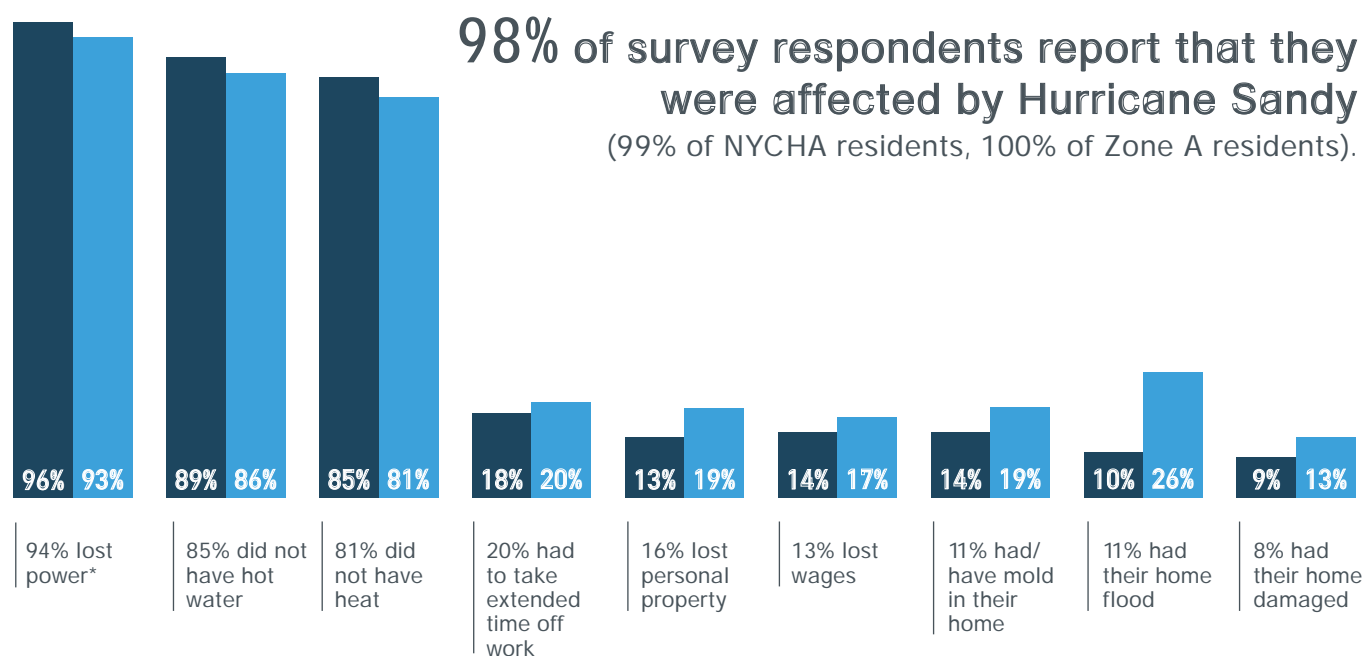
FINDING 2. Residents of the Lower East Side were severely impacted by Hurricane Sandy.

In the Lower East Side, almost 60% of residential units are within a Hurricane Evacuation Zone and 25% were within the Sandy surge area.⁶⁶ Among our survey respondents, 33% lived in Zone A, 20% in Zone B, and 17% in Zone C when Hurricane Sandy hit. So when Sandy arrived, residents of the Lower East Side were severely impacted. NYCHA residents were particularly hard hit by Sandy due to the placement of public housing developments near the waterfront. Of the survey respondents in Zone A, 70% were NYCHA residents. One resident describes what the experience of Sandy was like for her and her family:



Over 50% of survey respondents were without electricity, heat, and hot water for six days or more.

	ELECTRICITY	HEAT	HOT WATER
Didn't lose service	1%	2%	2%
Less than 24 hours	3%	3%	3%
1 day - 5 days	42%	37%	39%
6 days or more	54%	59%	55%



*These percentages refer to the total number of residents surveyed.

■ NYCHA RESIDENTS
■ ZONE A RESIDENTS

FINDING 3. Poor communication from the City and a lack of information hampered the recovery effort.

Before Hurricane Sandy hit, the city did a fairly good job of warning residents about the storm and making sure that people knew to evacuate if they were in Zone A. 89% of survey respondents living in Zone A reported that they were told to evacuate before Hurricane Sandy. However, after the storm hit the city struggled to communicate information to residents in affected areas and community organizations trying to organize local relief efforts.

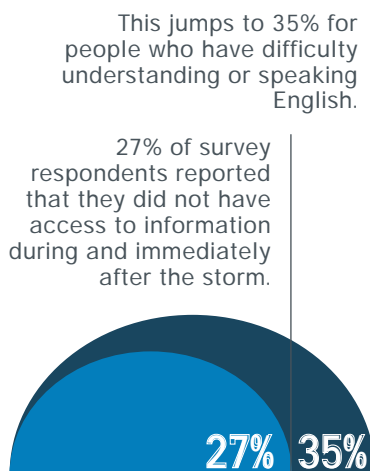
LES residents reported that getting information was extremely difficult, and the information that they were able to receive was inadequate.

"I wasn't able to leave the house because of no electricity. I didn't know what was going on because there was no radio or TV."
– Survey comment

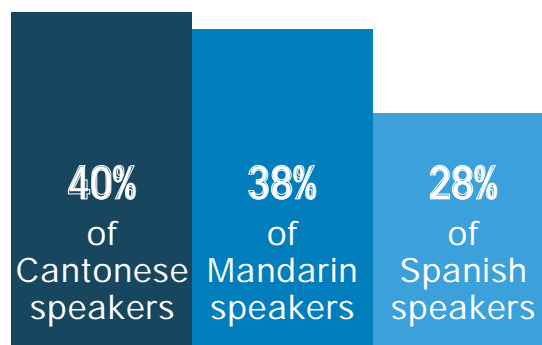
"Radio was still functioning but the information was not enough to have a clear understanding of what was really going on externally."
– FG participant

"It was difficult to know what was going on, but we got a radio a few days after the storm."
– FG participant

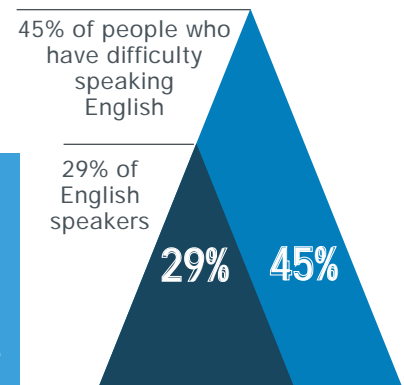
Those with limited English proficiency had a particularly hard time getting information and having their needs met.



Information access during and immediately after the storm



Did not have access to information in their primary language



Did not have their needs met

The most useful sources of information were radio and social networks.

- 45% of respondents got information from radio
- 40% from a friend, family or neighbor
- 28% from television
- 14% from a newspaper
- 14% from a community organization
- 12% from NYC government
- 10% from the internet/online
- 7% from social media
- 5% from 311
- 2% from a local elected official

Even for those who did report having some access to information, this access was very limited.

- Only 15 % of survey respondents had information about city services
- 16% had information about where to get help
- 54% had access to weather news
- 40% had access to Hurricane Sandy updates
- 21% had access to transportation information

FINDING 4. Despite the hardships faced by residents, relief was slow and inadequate from the city and federal government. This created a gap that community groups partially filled.

Although many Lower East Side residents were without electricity, heat, and hot water and but they had needs for basic survival items such as food, water, blankets, and prescription medication in the days after the storm. However, the government response still left residents to fend for themselves.

Residents explained the importance of community based relief:

"A church organization came and provided free food and stayed until it was no longer a necessity. NYCHA did not." – FG participant

Despite this effort, community sources were unable to provide relief services for every resident of the LES. 34% of survey respondents did not have their needs met and 13% still needed help recovering (at the time the survey was administered). Unmet needs include clothing, apartment repairs, financial support, and emotional support.

62% of survey respondents did not receive any relief from the government or other "official" sources.

- Only 15% received assistance from FEMA
- 12% from the Red Cross
- 11% from a NYC government agency
- 7% from CERT (Community Emergency Response Team)
- 6% from National Guard

And for those that did receive "official" assistance, 53% had to wait four days or more.

This contrasts sharply with the response from community-based sources such as community organizations, tenant/ resident/ block associations, religious institutions, and family members, friends, and neighbors.

57% of our survey respondents received assistance from at least one of these aforementioned community sources.

- 28% from a friend, family or neighbor
- 27% from community organizations
- 10% from a tenant/resident/block association
- 9% from religious organizations

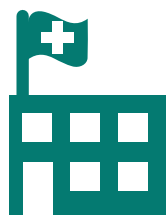
Of survey respondents who had their needs met:



23% had needs met by a community organization



20% had needs met by someone coming to their door



13% had needs met by going to a relief site



54% purchased supplies on their own



Waiting for food and supplies outside CAAAV's office, photo courtesy of Anelise Chen via www.opencitymag.com.

FINDING 5. The inadequate government relief highlighted the importance of strong community bonds and robust community-based organizational infrastructure in the Lower East Side.

People who are involved in their community are more likely to report that they know a neighbor they can call on immediately if they need help.

- 69% of people who are involved in their community received assistance from a community resource. This contrasts with 43% of people who are not involved in their community.
- People who were involved in their community were more likely to have their needs met by a community organization (32% compared to 14%) or by someone coming to their door (27% compared to 14%).
- People NOT involved in their community were more likely to purchase supplies on their own (63% compared to 43%).

"People checked in on my aunt a lot. A group of young men really took on the task of looking in on the elderly in my building." – FG participant

"Our pizzeria had gas, so we drove to Long Island every day to make the dough, then made pizza all day to supply the neighborhood and tried to give everyone a sense of normalcy." – FG participant

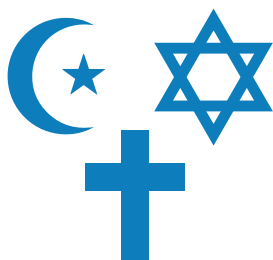
"Thank you GOLES for your assistance." – Survey comment

"I am close with my neighbors, so I could knock if I needed anything. I have lived in the same building for 27 years." – FG participant

57% of survey respondents are involved in their community.



28% are members of a community organization



19% are members of a religious institution



23% are members of a tenant, resident or block association



4% are members of the community board

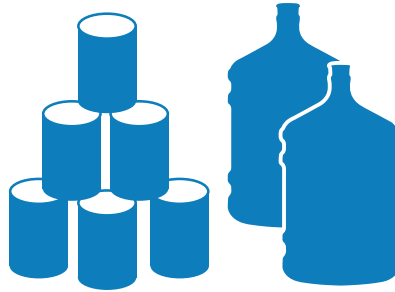


9% are involved in other ways

Survey respondents also provided assistance to others despite difficulties they were facing.



49% helped neighbors, friends or family



12% donated supplies like food and money



5% volunteered with cleanup and/or rebuilding efforts



Using a fire hydrant to wash clothes and clean produce. Photo courtesy of Ken Chen via www.opencitymag.com

V. LES COMMUNITY RESOURCES

The following maps have been populated using data gathered in a survey of organizations in the Lower East Side. Researchers collected 29 surveys from community-based organizations, tenant associations, and religious institutions based in the Lower East Side about their short- and long-term recovery efforts around Hurricane Sandy as well as their interest and capacity for providing relief in the event of a future disaster. The purpose of the survey was two-fold. First, it asked for details on types of services and resources that the organization provided during and in the immediate aftermath of Hurricane Sandy. Second, it asked about interest and capacity to provide the same or different services and resources in the event of another disaster in the community.

In addition to the static print maps, which show the local community organizations at the time of print that provide resources and services during a disaster emergency, there is an additional online resource. This online resource, available at www.lesready.org, will continue to be updated by LES Ready so that it will include the most up-to-date information on the locations and services provided by community based organizations in the Lower East Side during a disaster emergency. Residents, volunteers and others can refer to this online and mobile phone resource for the most accurate guide of local service and resource centers during an emergency event.

Map 1 shows a snapshot of community organizations that provided services and resources during and immediately after Hurricane Sandy and where they are located in the neighborhood. The set of icons detail the type of resources that were provided at each location.

Map 2 shows where community organizations are located that residents can go to during a disaster emergency. It uses the same set of icons as the first map to show which services and resources are available at each of the locations.

Community Groups, Tenant Associations and Religious Institutions that Completed the LES Ready Survey

- | | |
|--|---|
| 1. Alfred E. Smith Resident Association | 13. East Side Tabernacle |
| 2. Asian Americans for Equality (AAFE) | 14. Lands End One Tenant Association |
| 3. CAAAV: Organizing Asian Communities | 15. Lower East Side Ecology Center |
| 4. Campos Plaza Resident Association | 16. Lower East Side People's Mutual Housing Association Inc |
| 5. Catholic Charities | 17. Lower East Side Power Partnership (LESPP) |
| 6. Chinese Progressive Association | 18. Lower East Side Rehab |
| 7. Clemente Soto Velez Cultural and Educational Center, Inc. | 19. Manhattan Community Board 3 |
| 8. Cooper Square Committee | 20. Masaryk Towers |
| 9. Good Old Lower East Side (GOLES) | 21. Nazareth Housing |
| 10. Graffiti Church | 22. Occupy Sandy |
| 11. Henry Street Settlement | 23. Primitive Christian Church |
| 12. Hester Street Collaborative | 24. Ryan Nena Community Health Center |
| | 25. The Door (University Settlement) |
| | 26. Two Bridges Tenant Association |
| | 27. Two Bridges Neighborhood Council |
| | 28. University Settlement |
| | 29. Vladeck Tenant's Association |

MAP 1: Community Response in the Immediate Aftermath of Hurricane Sandy



OCTOBER 2012



VI. RECOMMENDATIONS

The following recommendations are organized based on the research findings earlier in the report and were derived using the data collected throughout the community-based research process. They are split into suggestions for the City to improve disaster response and planning and those for LES Ready to include in their community-based disaster preparedness plan.

Finding: Most residents did not evacuate before Hurricane Sandy.

Recommendations: New York City Government:

- Should make sure people are prepared to evacuate and that buildings have information with regard to where people can evacuate.
- Should assure the public that shelters are safe and protocols are put in place that provide people with safety and security.
- Must ensure that information at shelters and about the availability of shelters is available in at least Mandarin, Cantonese, Spanish, and Russian languages.
- Should have buses that are used to take people to places other than shelters; MTA buses could also be used for evacuation purposes if public transportation is shut down.

LES Ready:

- Conduct ongoing education and awareness campaigns, including showing people the flood maps and other relevant information in order to remind people about the impact of Sandy.
- Provide training for residents on how to shelter in place: what supplies to have and/or what actions to take if you don't have power, water, heat, etc.
- Make sure people are prepared to evacuate, that buildings have information with regard to where people can evacuate and that families have a plan.



GOLES volunteers walking up dark stairs, photo courtesy of GOLES.

Finding: Residents of the Lower East Side were severely impacted by Hurricane Sandy and were without power, heat, and hot water for several days.

Recommendations: New York City Government:

- Should have facilities that can provide resources for people in need, especially medical supplies and attention.
- Should utilize charging stations that are solar powered and can work when electricity is out. Cooper Union students and faculty are currently commissioned

by the Two Bridges Neighborhood Council to create a prototype for solar powered charging station under an agreement called the Cooper Lumen Design Challenge.

***The City and NYCHA should create more resilient infrastructure by installing Cogeneration (CHP) capacity in Zone 1 developments.** Cogeneration, which has been successfully implemented in various housing authorities, captures the waste produced in the power generation process and reuses it onsite to meet demands for hot water, steam, or cooling.⁶⁷ Cogeneration provides enormous benefits in terms of resiliency, cost efficiency, and climate change mitigation. It can also draw funding into NYCHA from New York State Public Service Commission-administrated funds and from the New York Power Authority. Most critically, it would generate savings that could, with HUD's cooperation, be redirected to repair of mold, leaks, and other issues that predated Sandy.⁶⁸

***The City and NYCHA should replace temporary boilers across New York City and move all boilers and critical wiring systems of Zone 1 developments on to higher ground.** While NYCHA has recognized the importance of this recommendation and proposed a similar measure,⁶⁹ due to funding constraints, 16 NYCHA developments still have 22 mobile boilers and none have been raised above flood levels. We encourage NYCHA to prioritize this work and to continue to advocate for funding so it can be done soon.

LES Ready

- Make sure people have go bags with critical supplies.
- Develop partnerships with medical professionals and provide training for how to work with the community.

- Prioritize homebound people with medical needs – work to develop a list of residents in the neighborhood while also working with NYCHA and utilizing their lists.
- Designate several people within LES Ready as volunteer coordinators to organize volunteer efforts.
- Provide training for volunteers that are doing outreach: have LES Ready certification course before disaster and then also provide abbreviated (30 minutes or less) training for volunteers during emergency.
 - This could have handouts and modules with best practices, questions to ask, etc.
 - Have checklist from certification – outreach, supplies, medical support, and translation.

Finding: Lower East Side residents had many needs in the days immediately after Sandy.

Recommendations: New York City Government (including NYCHA and the Office of Emergency Management):

- *Must improve communication with residents before, during and after a natural disaster and pay special attention to ensuring that seniors, people with disabilities and people with limited English proficiency get the information that they need.
- *Should identify and provide stipends to building and development “captains,” in collaboration with resident leaders and community groups, to undergo more extensive emergency training, identify and map out people with critical needs in their

buildings, and be on call to take on critical support tasks during emergency moments. This could build upon or be modeled after NYCHA tenant patrols and could use Tenant Participation Funds⁷⁰ to pay for stipends.¹

- *Should provide disaster preparedness training and necessary safety equipment for resident associations and NYCHA workers or provide funding to CBOs to do so.
- * Should ensure access to adequate transportation for all residents, particularly for seniors, people with disabilities and other vulnerable groups
- *Working within privacy and legal constraints, New York City government including NYCHA, OEM and CBOs should work together to develop a comprehensive list of seniors, people with disabilities, and people with critical

medical needs.

- New York City government has to make an attempt to create more shelters and also address access, language access, services, and safety concerns.

LES Ready:

- LES Ready needs to have clear communication plan with the city to access and get supplies for distribution (See LES Ready Disaster plan for detailed communications plan).
- Create clear donation plan on how people can donate supplies and money.
- Develop a clear plan for how people can fill prescriptions and explore potential partnerships with Duane Reade or Walgreens.
- LES Ready should identify facilities that are out of the flood zone.



LES Ready Community Event to Distribute Disaster Info and Go-Bags, photo courtesy of GOLES.

¹ The public housing operating fund formula provides each public housing agency (PHA) \$25 per occupied housing unit for tenant participation activities. Allowable uses of these funds include stipends for resident council officers who serve as volunteers in their public housing developments.

Finding: Poor communication from the City and a lack of information hampered the recovery effort.

Recommendations:

New York City Government (including NYCHA and the Office of Emergency Management):

- Need to improve communications with local organizations and work with us to ensure our relief efforts are coordinated and disaster preparedness plans are complimenting one another.
- Should make all notices, flyers and announcements available in, at minimum, Spanish, Chinese and Russian, the most common languages of Lower East Side residents² in addition to English as well as any other languages that are prevalent in a given community. These should be posted prominently in buildings and public spaces in the community.
- *Should make clear to residents and CBOs which staff person at each agency is the primary point person for various disaster planning and response duties. This should be clearly delineated in the NYCHA Emergency Procedure, posted in each NYCHA building and distributed to CBOs in Zone 1.
- Should post signage at street level to direct people to resources after a disaster.

LES Ready:

- Establish People's Emergency Network, Beyond the Grid, an integrated approach to creating a resilient energy and communication network that will have

back up power and communications for local organizations and businesses.

- o Alternative power systems: Independent and networked installations of green and other back-up power.
- o Telecommunications network: Solar/ alternatively powered community WiFi network.
- o Community hubs: Communications and emergency response/disaster relief network.
 - Create emergency response network of small retailers.
 - Develop community-owned, low-cost self-sufficient broadband network.
 - Develop alternative energy neighborhood infrastructure (microgrid) that is a net energy producer.
 - Establish communication network of kiosks, point-of-sales and mobile devices delivering emergency, community and commercial content.
- Distribute link to online resource map at www.lesready.org to as many people as possible & have print out version at LES Ready locations (and translated into major languages).
- Print newspaper with maps and other information for people who do not have access to internet.
- Set up language bank with volunteers to provide translation and interpretation services.

² NYCHA's 2011 Language Access Plan (the most recent publically available), identified Spanish, Chinese and Russian as the most common languages based on their evaluation of language service requests. http://www.nyc.gov/html/nycha/downloads/pdf/language_access_plan_nycha.pdf

- Conduct regular check-ins and refreshers around LES Ready plan. This could include drills with facilities, communications and volunteer coordination.
- Provide training specifically for young people (also LES Ready certified) to effectively use digital technology so they can be stewards in the community and make sure other people have information. This training could be integrated into after school and summer programs to reach as many youth as possible.

Finding: Despite the hardship faced by residents, relief was slow and inadequate from the city and federal government. This created a gap that community groups partially filled.

Finding: The inadequate government relief highlighted the importance of community bonds in the Lower East Side.

Recommendations about community response and community building: New York City Government (including NYCHA and the Office of Emergency Management):

- *Should invest in creating vibrant community centers so that these can serve as community resources during natural disasters and beyond. Community centers have the potential to fill a void by providing an easily accessible space where residents can access emergency resources, social services and build networks with their neighbors, all of which would help build the necessary human and social infrastructure for more resilient public housing communities.

- Should provide resources and training for community representatives to function as emergency first responders, going door to door to make sure the most at risk are attended to. The City should coordinate teams for door-knocking in the most common languages of neighborhood residents.
- Should provide ongoing funding for community organizations that work with residents so that they can continue to provide critical services to residents and facilitate communication between the City government and residents.

LES Ready:

- LES Ready committees (disaster case management, referrals, legal) need to be ready to deal with needs that emerge after food, water, etc. needs have been met.
- Establish social cohesion and connections, host community events to get know your neighbors – explore the possibility of grants and other resources to do this.
 - o More closely knit communities are better at responding to disasters and have benefits for day-to-day living as well.
 - o People who are connected are also more likely to volunteer and have more information about what is happening, and potentially can serve as ambassadors.
 - o Provide special training so these ambassadors can pass information more effectively.
- Utilize mitigation strategies related to NY Rising, Rebuild by Design, etc.

*Denotes that recommendation was derived from Weathering the Storm: Rebuilding a More Resilient New York City Housing Authority Post-Sandy.⁷¹

ENDNOTES

- ^[1] "Community Board 3 (Manhattan) – Sandy: Lessons Learned." City of New York Manhattan Community Board 3, 1. <http://www.nyc.gov/html/mancb3/downloads/sandy/After%20Sandy.pdf>
- ² Ibid
- ³ "Supporting Community-Based Disaster Response: Lessons Learned from Hurricane Sandy." Office of Bill de Blasio Public Advocate for the City of New York, June 2013, 6. <http://advocate.nyc.gov/sites/advocate.nyc.gov/files/DeBlasio-CommunityBasedDisasterResponse.pdf>
- ⁴ Ibid
- ⁵ "A Stronger, More Resilient New York." NYC Special Initiative for Resiliency and Rebuilding, June 2013, 12. http://s-media.nyc.gov/agencies/sirr/SIRR_singles_Lo_res.pdf
- ⁶ "A Stronger, More Resilient New York." NYC Special Initiative for Resiliency and Rebuilding, June 2013, 11. http://s-media.nyc.gov/agencies/sirr/SIRR_singles_Lo_res.pdf
- ⁷ "A Stronger, More Resilient New York." NYC Special Initiative for Resiliency and Rebuilding, June 2013, 11. http://s-media.nyc.gov/agencies/sirr/SIRR_singles_Lo_res.pdf
- ⁸ "A Stronger, More Resilient New York." NYC Special Initiative for Resiliency and Rebuilding, June 2013, 13. http://s-media.nyc.gov/agencies/sirr/SIRR_singles_Lo_res.pdf
- ⁹ "A Stronger, More Resilient New York." NYC Special Initiative for Resiliency and Rebuilding, June 2013, 5. http://s-media.nyc.gov/agencies/sirr/SIRR_singles_Lo_res.pdf
- ¹⁰ "A Stronger, More Resilient New York." NYC Special Initiative for Resiliency and Rebuilding, June 2013. http://s-media.nyc.gov/agencies/sirr/SIRR_singles_Lo_res.pdf
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- ¹² "American Community Survey 2012 1-Year Estimates." American Factfinder. <http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>
- ¹³ "American Community Survey 2012 1-Year Estimates." American Factfinder. <http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>
- ¹⁴ Vicki Been et al., "State of New York City's Housing and Neighborhoods." Furman Center for Real Estate and Urban Policy New York University, 2012, 98. <http://furmancenter.org/files/sotc/SOC2012.pdf>
- ¹⁵ "American Community Survey 2012 1-Year Estimates." American Factfinder. <http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>
- ¹⁶ Vicki Been et al., "State of New York City's Housing and Neighborhoods." Furman Center for Real Estate and Urban Policy New York University, 2012, 98. <http://furmancenter.org/files/sotc/SOC2012.pdf>
- ¹⁷ "A Stronger, More Resilient New York." NYC Special Initiative for Resiliency and Rebuilding, June 2013, 114. http://s-media.nyc.gov/agencies/sirr/SIRR_singles_Lo_res.pdf
- ¹⁸ "Community Board 3 (Manhattan) – Sandy: Lessons Learned." City of New York Manhattan Community Board 3, 4. <http://www.nyc.gov/html/mancb3/downloads/sandy/After%20Sandy.pdf>
- ¹⁹ "Community Board 3 (Manhattan) – Sandy: Lessons Learned." City of New York Manhattan Community Board 3, 4. <http://www.nyc.gov/html/mancb3/downloads/sandy/After%20Sandy.pdf>
- ²⁰ Tracey Ross. "A Disaster in the Making: Addressing the Vulnerability of Low-Income Communities to Extreme Weather." Center for American Progress, August 2013, 1. <http://cdn.americanprogress.org/wp-content/uploads/2013/08/LowIncomeResilience-3.pdf>
- ²¹ "Disaster Planning Is Up To You." Federal Emergency Management Agency. <http://www.fema.gov/news-release/2007/03/30/disaster-planning-you>
- ²² Linda Gibbs and Caswell Holloway. "Hurricane Sandy After Action: Report and Recommendations to Mayor Michael R. Bloomberg." May 2013, 26. http://www.nyc.gov/html/recovery/downloads/pdf/sandy_aar_5.2.13.pdf
- ²³ "Community Board 3 (Manhattan) – Sandy: Lessons Learned." City of New York Manhattan Community Board 3, 1. <http://www.nyc.gov/html/mancb3/downloads/sandy/After%20Sandy.pdf>
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LES READY MEMBER ORGANIZATIONS

9BC Tompkins Square Block Association
All the Way East 4th Street Block Association
American Red Cross
Asian Americans for Equality
Association of Latino Business Owners and Residents (ALBOR)
Catholic Charities
Charles B. Wang Community Health Center
Chinese-American Planning Council
Chinese Progressive Association
Commission on the Public Health System
Community Board 3
Cooper Square Committee
Disaster Distress Helpline
East Side Tabernacle
Eighth Street Block Association
FEGS Health and Human Services
Good Old Lower East Side (GOLES)
Grand Street Settlement
Green Map System
Hamilton-Madison House
Henry Street Settlement
Loisada United Neighborhood Gardens (LUNGS)
Lower East Side Coalition Housing Development
Lower East Side People's Mutual Housing Association (LESPMHA)
Lower East Side Power Partnership
Nazareth Housing
New York Disaster Interfaith Services (NYDIS)
Occupy Sandy
Operation Hope
Primitive Christian Church
Ryan-NENA Community Health Center
Sara D. Roosevelt Park Community Coalition
Sixth Street Community Center
The Salvation Army
Two Bridges Neighborhood Council (TBNC)
University Settlement
Urban Justice Center – Community Development Project
Village East Towers
WiFi-NY/Peoples Emergency Network
World Cares Center